Department of Transportation

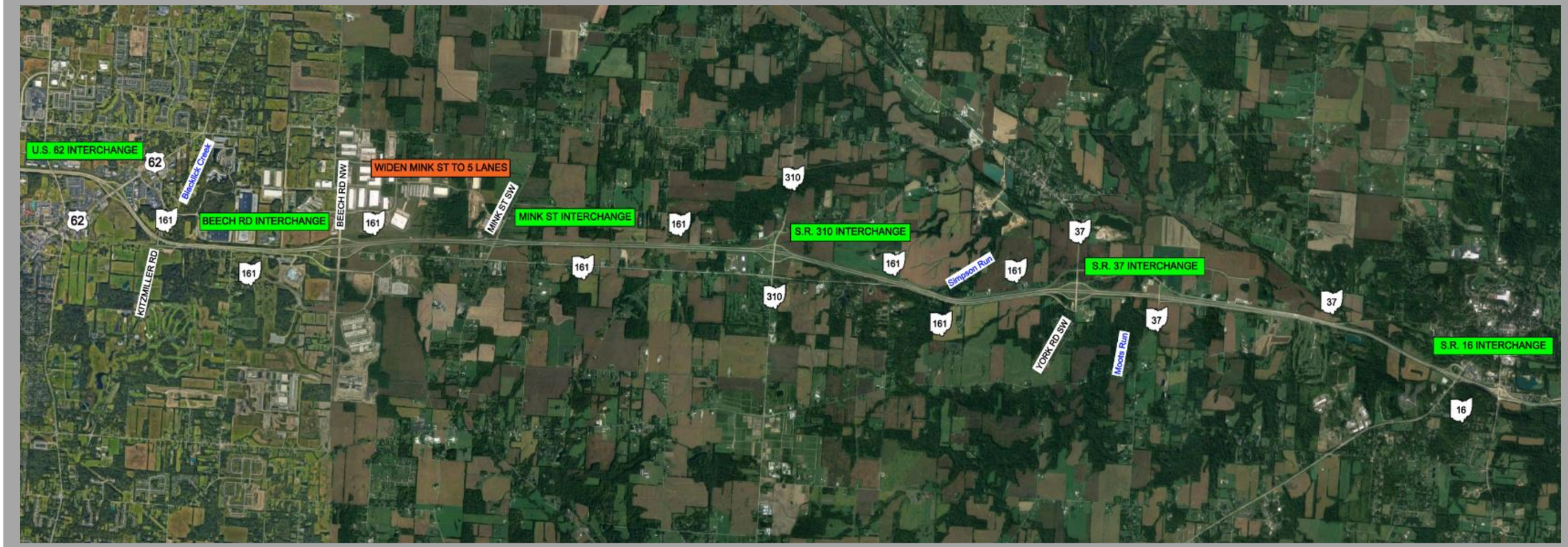
FRA/LIC-161-22.10/0.00 (PID 117878)

Feasibility Study Appendix

Prepared by:

WOOLPERT

February 28, 2025



ODOT District 5

9600 Jacksontown Road, Jacksontown, OH 43030

Prepared by Woolpert, Inc.
One Easton Oval, Suite 400
Columbus, Ohio 43219

Woolpert.com

Appendices:

Appendix A: Study Area Map
Appendix B: Certified Traffic Plates
Appendix C: HCS Freeway Analysis
Appendix D: HCS Intersection Analysis
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Appendix I2: Mink Street Diverging Diamond Interchange Proposed Alternative Plans
Appendix I3: Mink Street PARCLO Interchange Proposed Alternative Plans
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Appendix I5: Mink Street Full Build Option Plans
Appendix J1: SR-310 Interchange Traffic Signal Proposed Alternative Plans
Appendix J2: SR-310 Interchange Roundabouts Proposed Alternatives
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Appendix M: Cost Estimates
Appendix N: Environmental Analysis
Appendix O: Geotechnical Design Memorandum

(See Bookmarks)

Appendix A: Study Area Map


US-62
Beech Road
Mink Street
SR-310
SR-37
SR-161
SR-161
SR-37
SR-16
SR-16
1
2
3
4
5
6
7
8
1 New Albany International Business Park
2 Personal Care and Beauty Campus
3 Denison University
4 Owens Corning Science and Technology Campus
5 Owens Corning Research Facility
6 Thornwood Drive Industrial Corridor
7 Facebook (Meta) and Google
8 Intel

Appendix B: Certified Traffic Plates

INTER-OFFICE COMMUNICATION

TO: **Ty Thompson, P.E., Capital Programs Administrator, District 5**

FROM: Joshua Kieselbach, P.E., Transportation Engineer, Office of Statewide Planning & Research, Modeling & Forecasting Section

SUBJECT: **LIC-161-0.00, PID 117878**

DATE: October 29, 2024

In reply to a request dated July 18, 2024, the review of the subject project has been completed. During the review there some errors found. These errors were given to the consultant who addressed the issues and re-submitted the final report on October 18th. A final review was done, and the submitted traffic volumes are approved for use on this project. Attached is a copy of the most recent count memo and technical report.

If you have any questions, please contact me at Joshua.Kieselbach@dot.ohio.gov or (614) 752-5747.

c: G. Giaimo, OSPR – File

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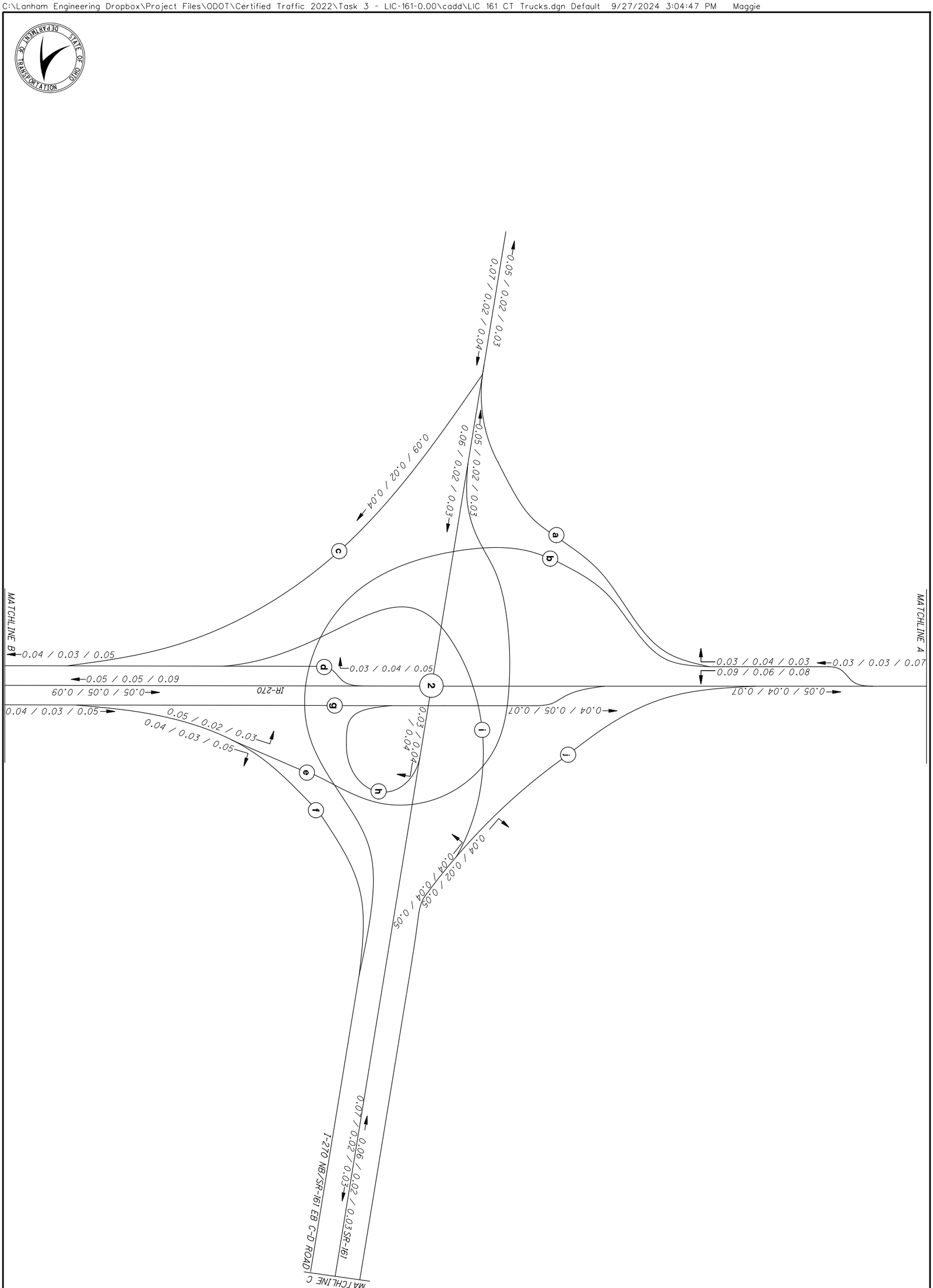

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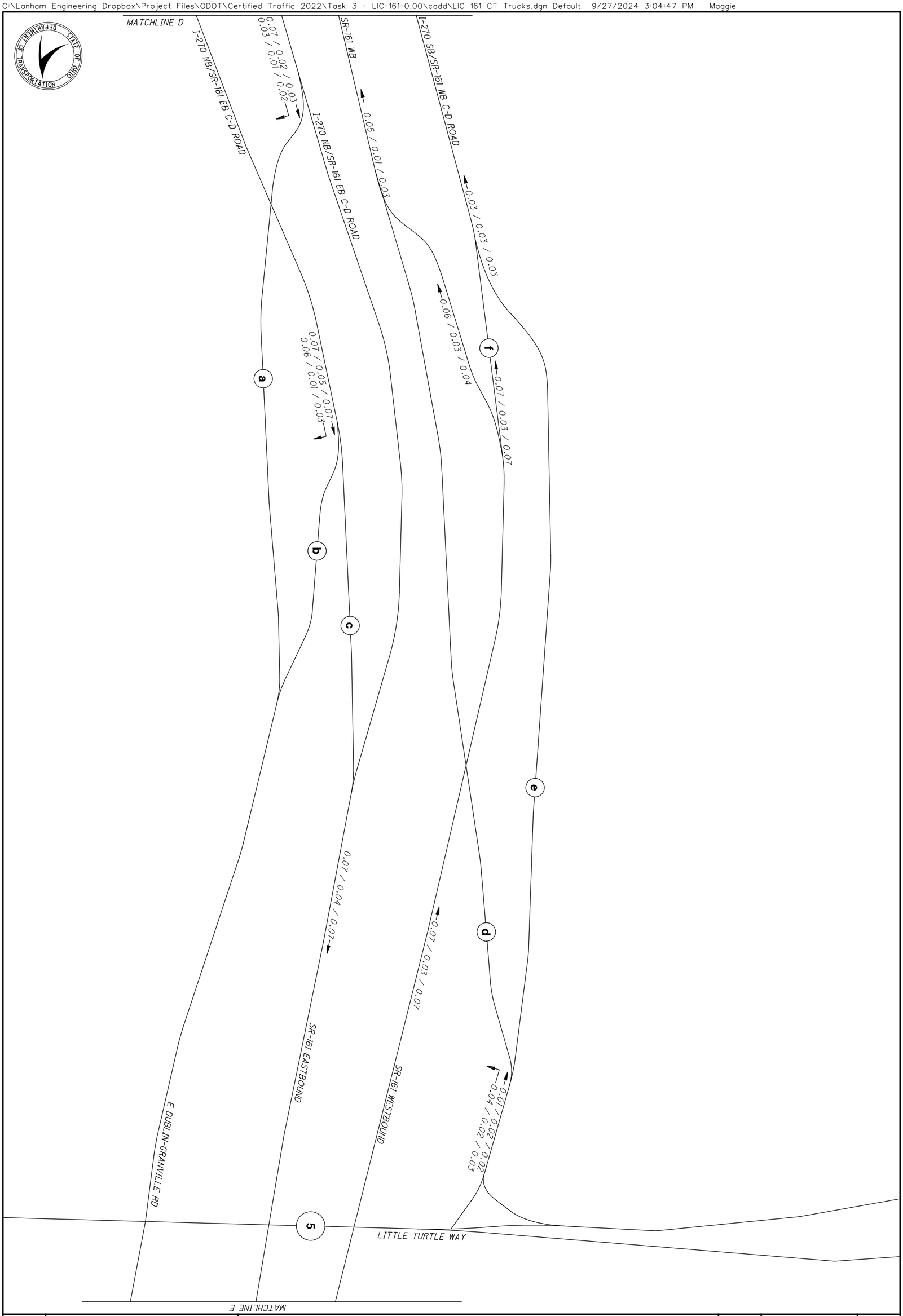

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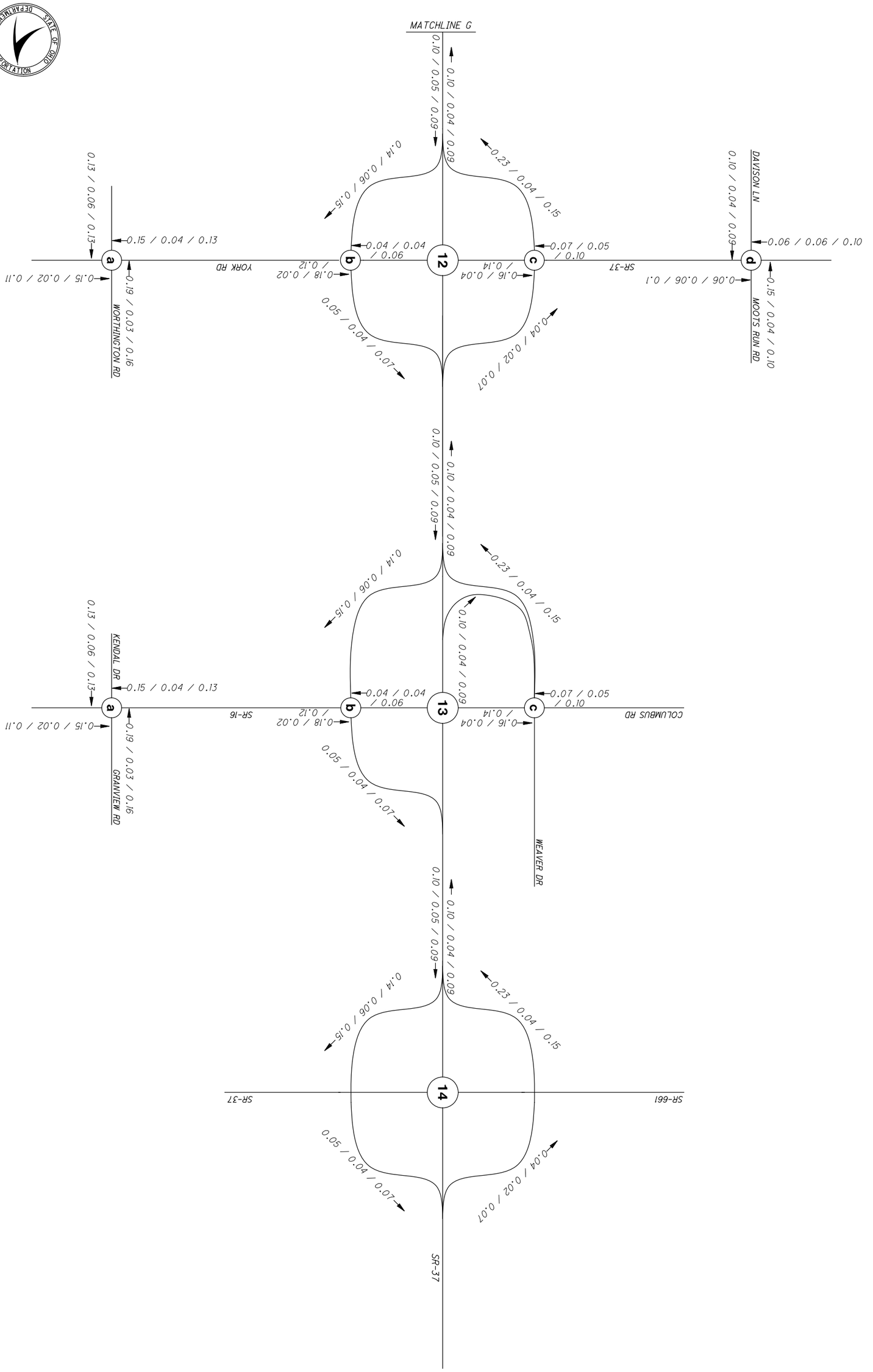

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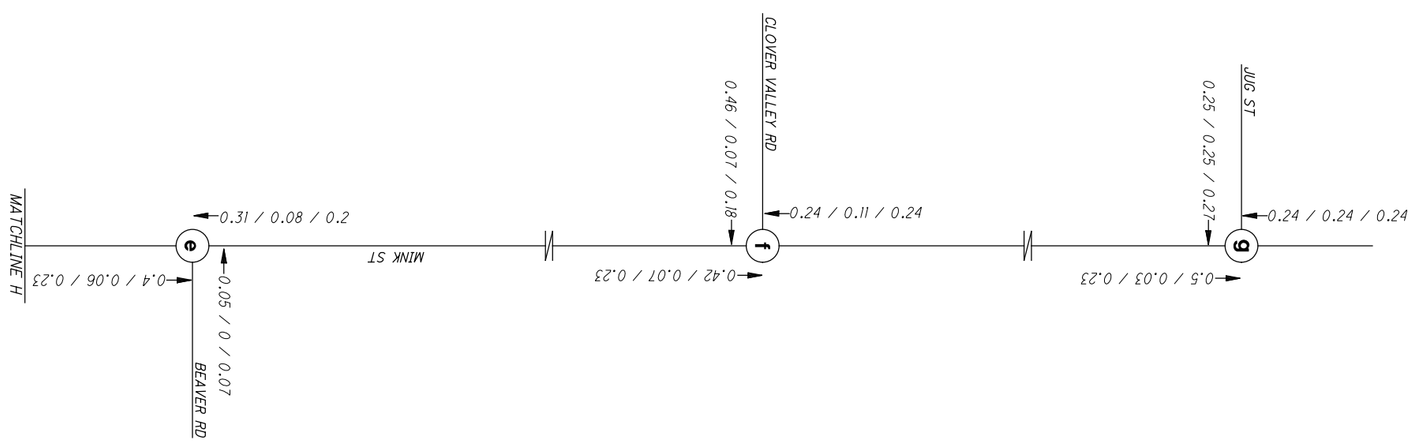

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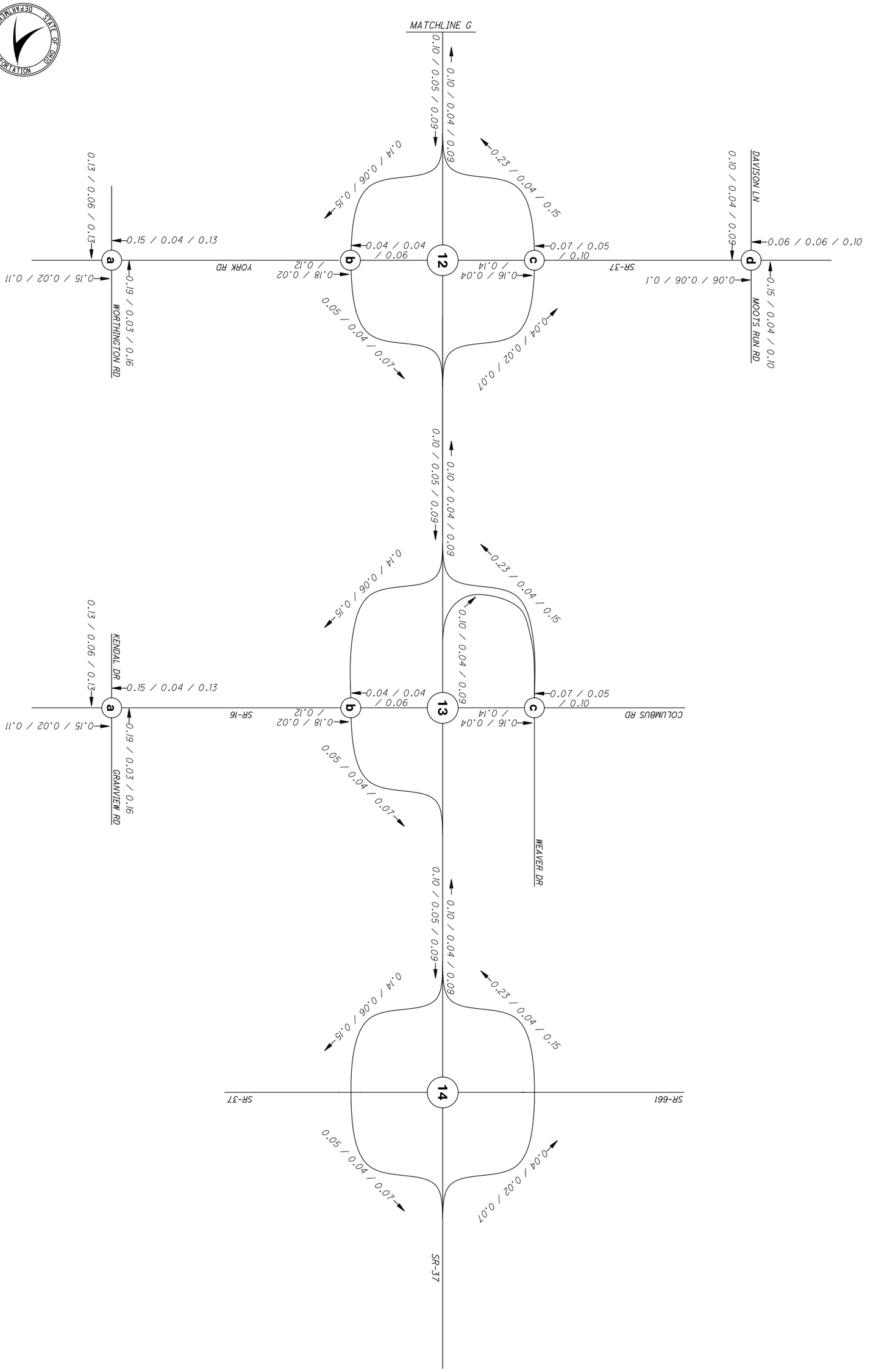

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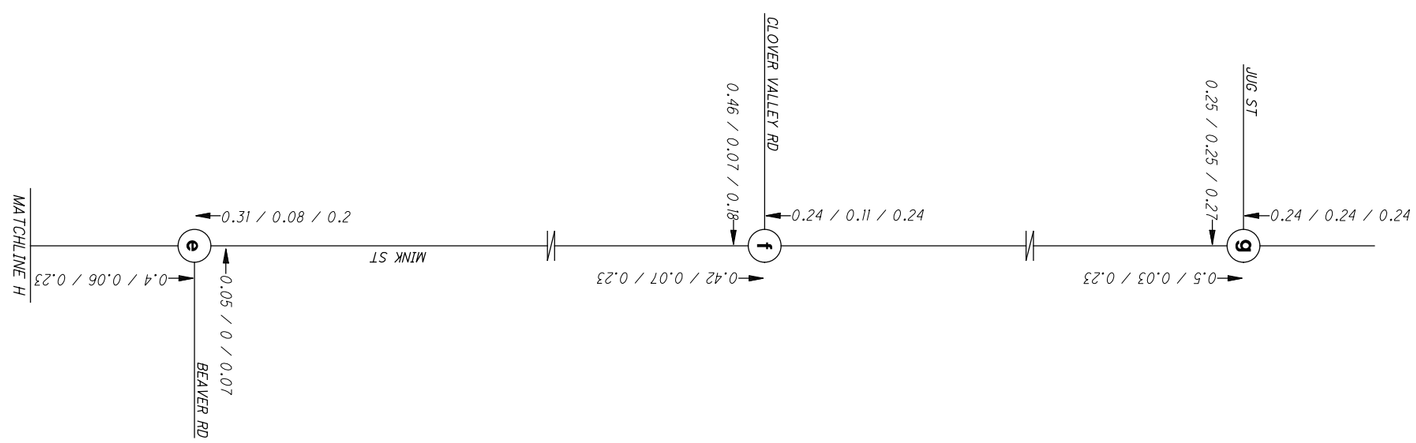

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ODOT Design Traffic
LIC-161-0.00

Balanced No Build and Build Plates

CONDITION	YEAR	ROADWAY GEOMETRY	TRAFFIC VOLUMES
NO BUILD	OPENING (2028)	EXISTING	BACKGROUND + INTEL EMPLOYEES
	DESIGN (2048)	EXISTING	BACKGROUND + INTEL EMPLOYEES
BUILD (PHASE 1)	OPENING (2028)	PROPOSED	BACKGROUND + INTEL EMPLOYEES + INTEL CONSTRUCTION EMPLOYEES
	DESIGN (2048)	PROPOSED	BACKGROUND + INTEL EMPLOYEES

ALL SCENARIOS INCLUDE THE CONSTRUCTION OF THE INTEL SITE AND THE PROPOSED LOCAL ROADWAY IMPROVEMENTS AROUND THE SITE

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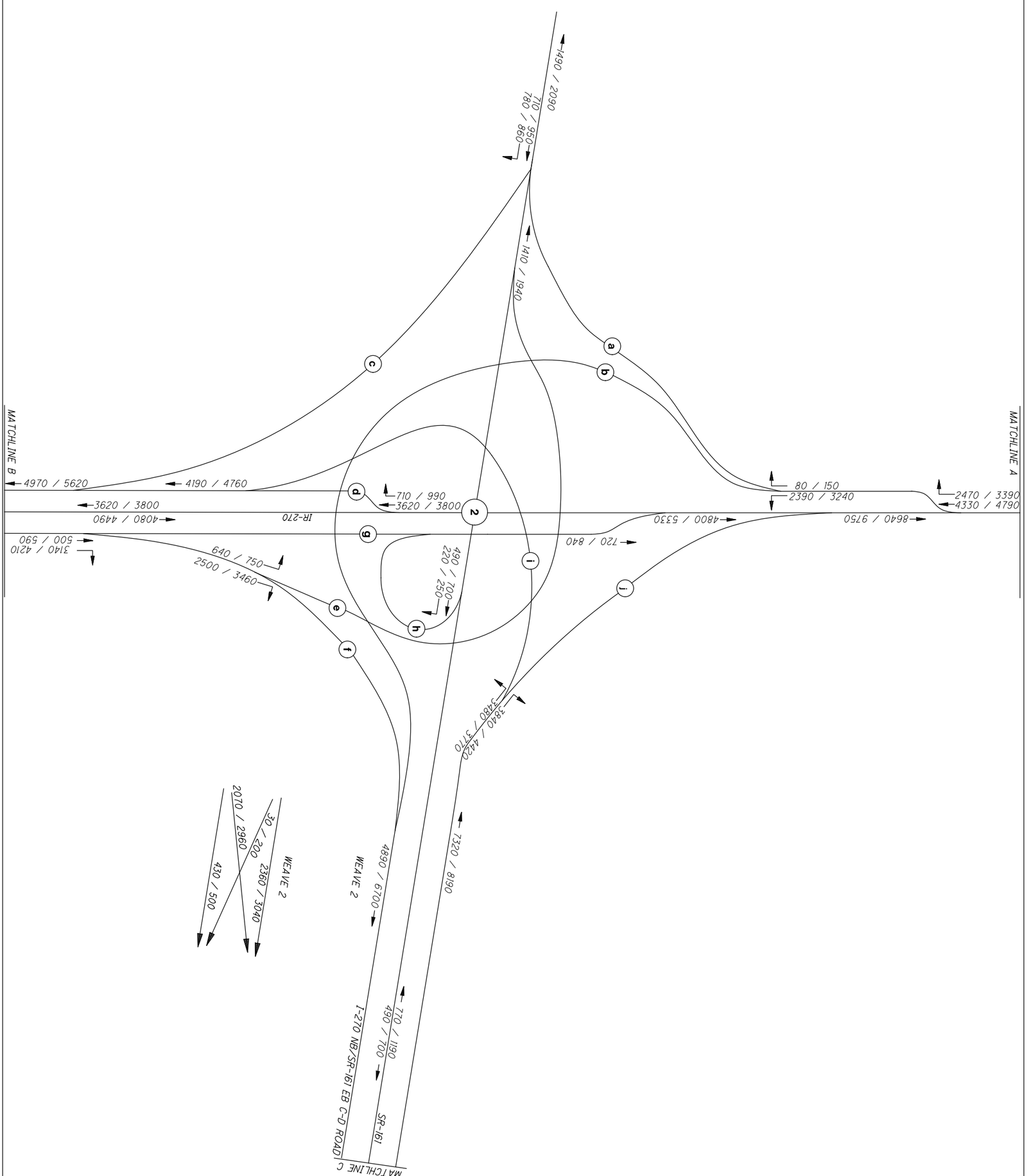

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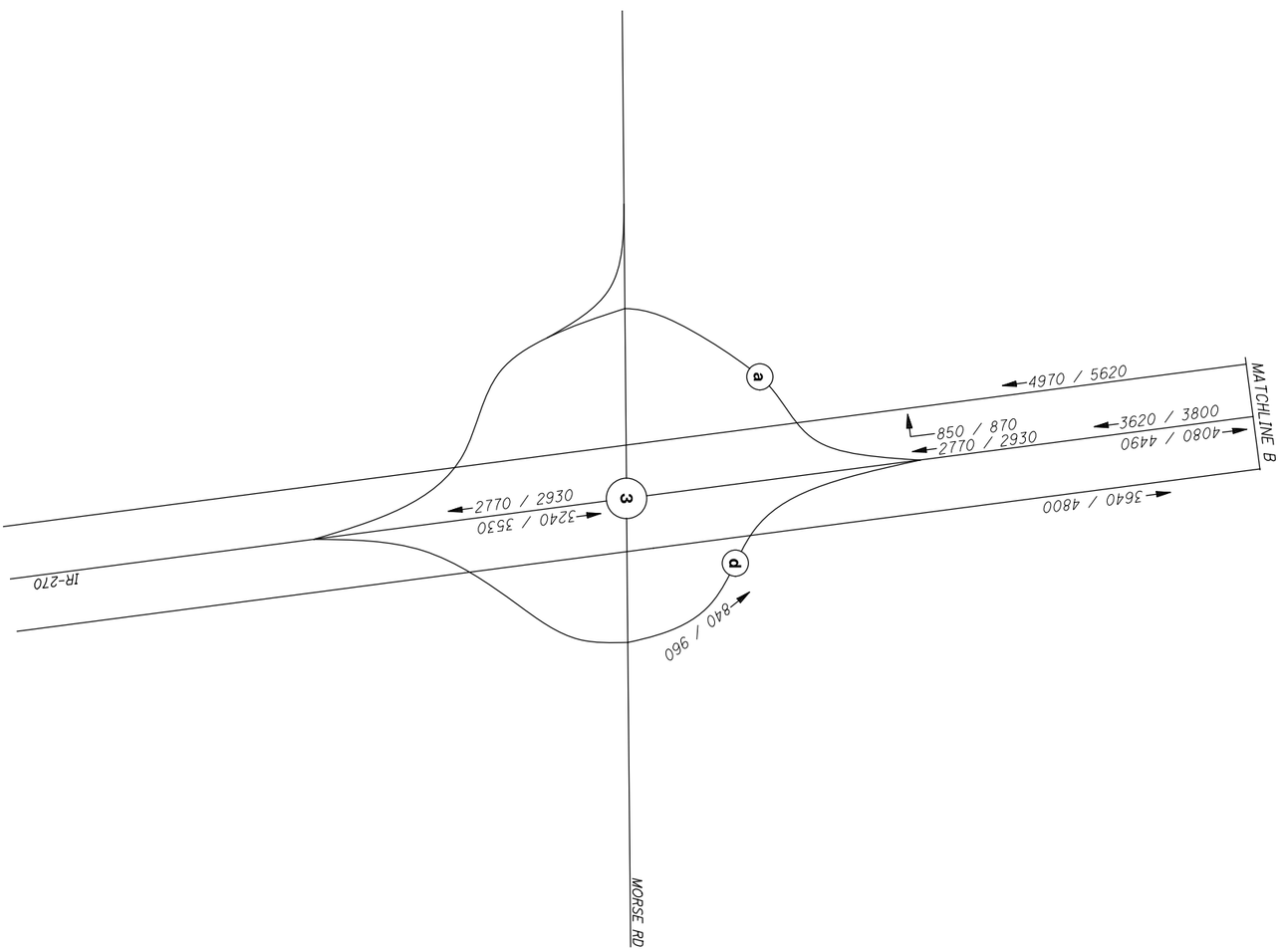

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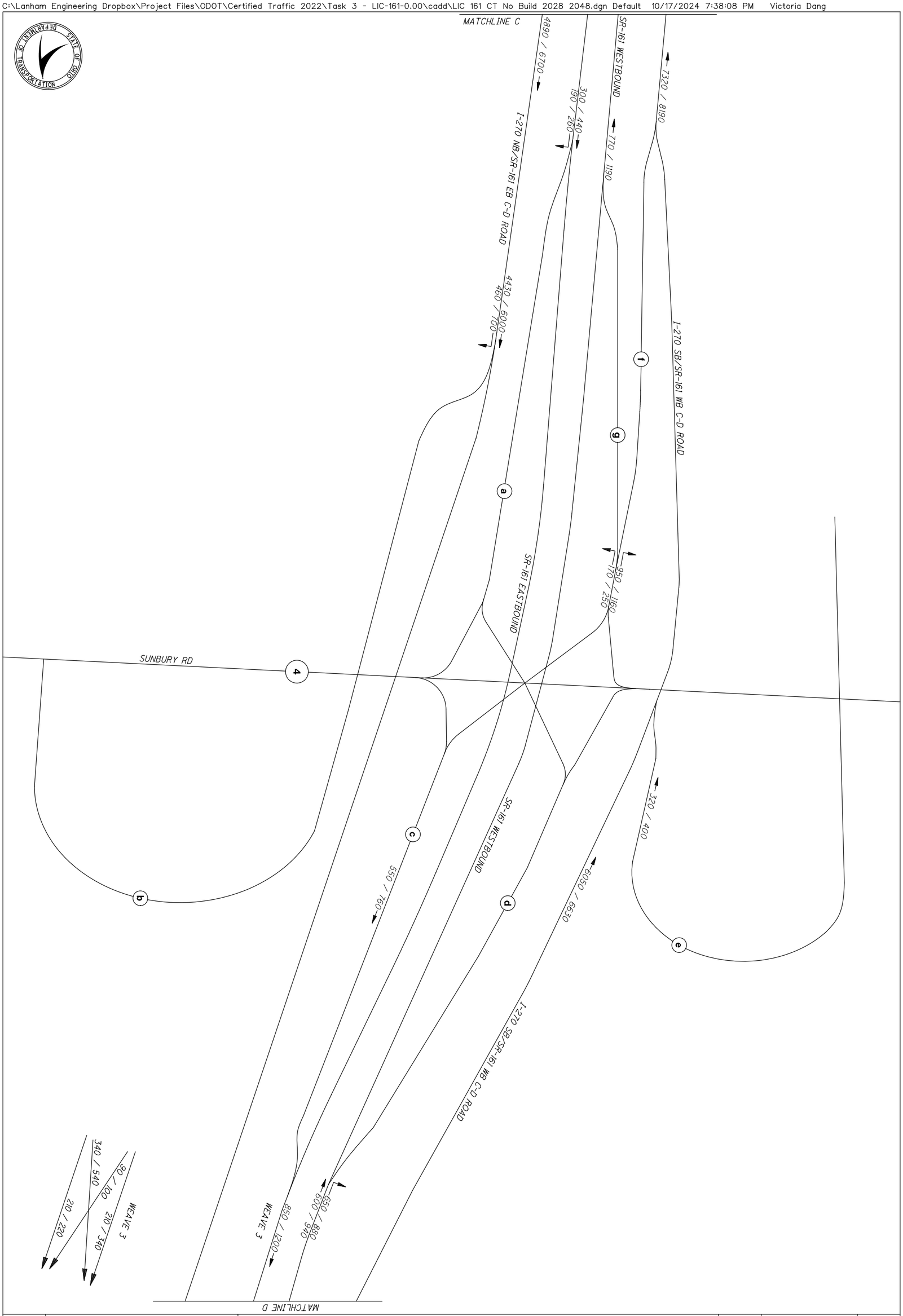

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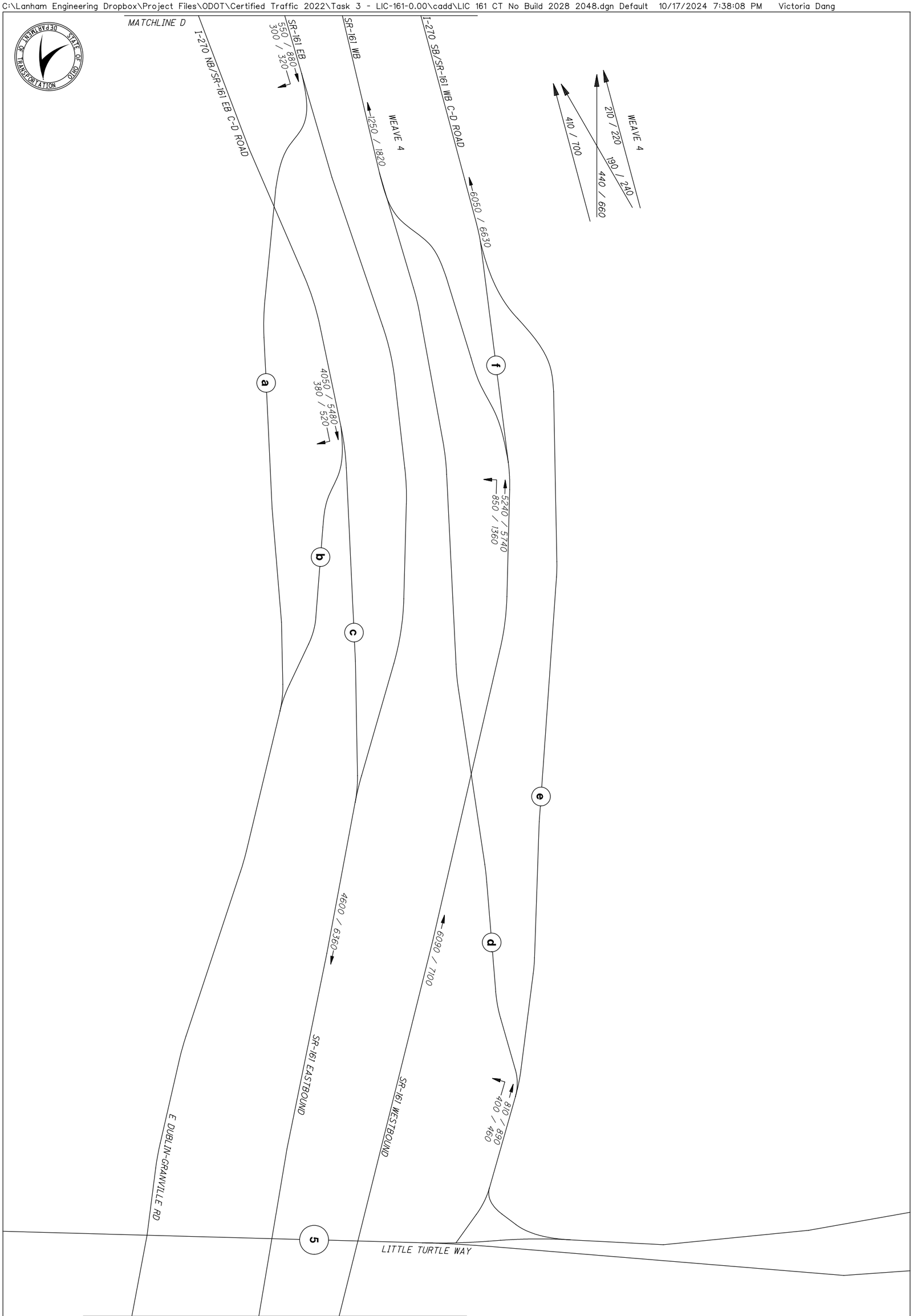

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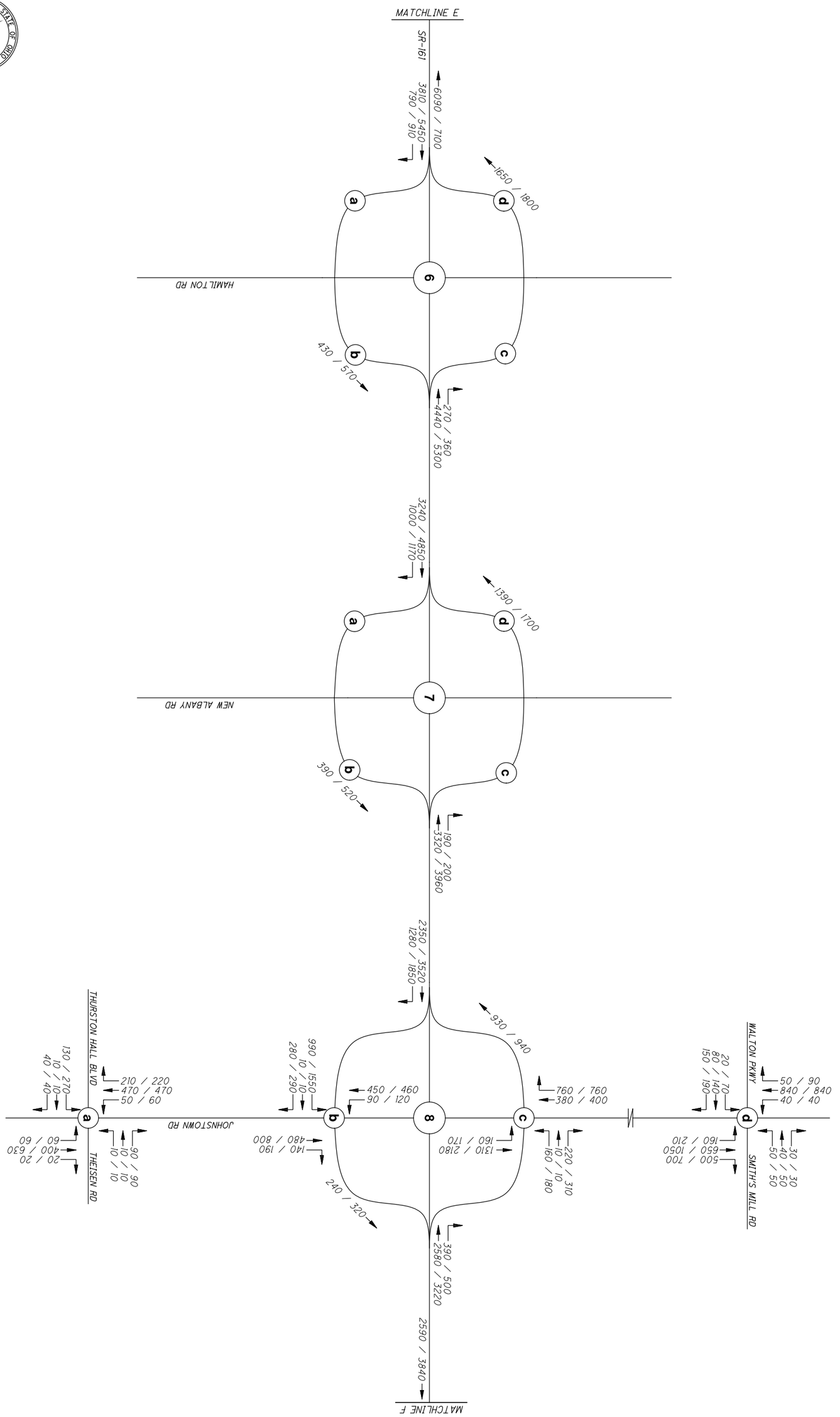

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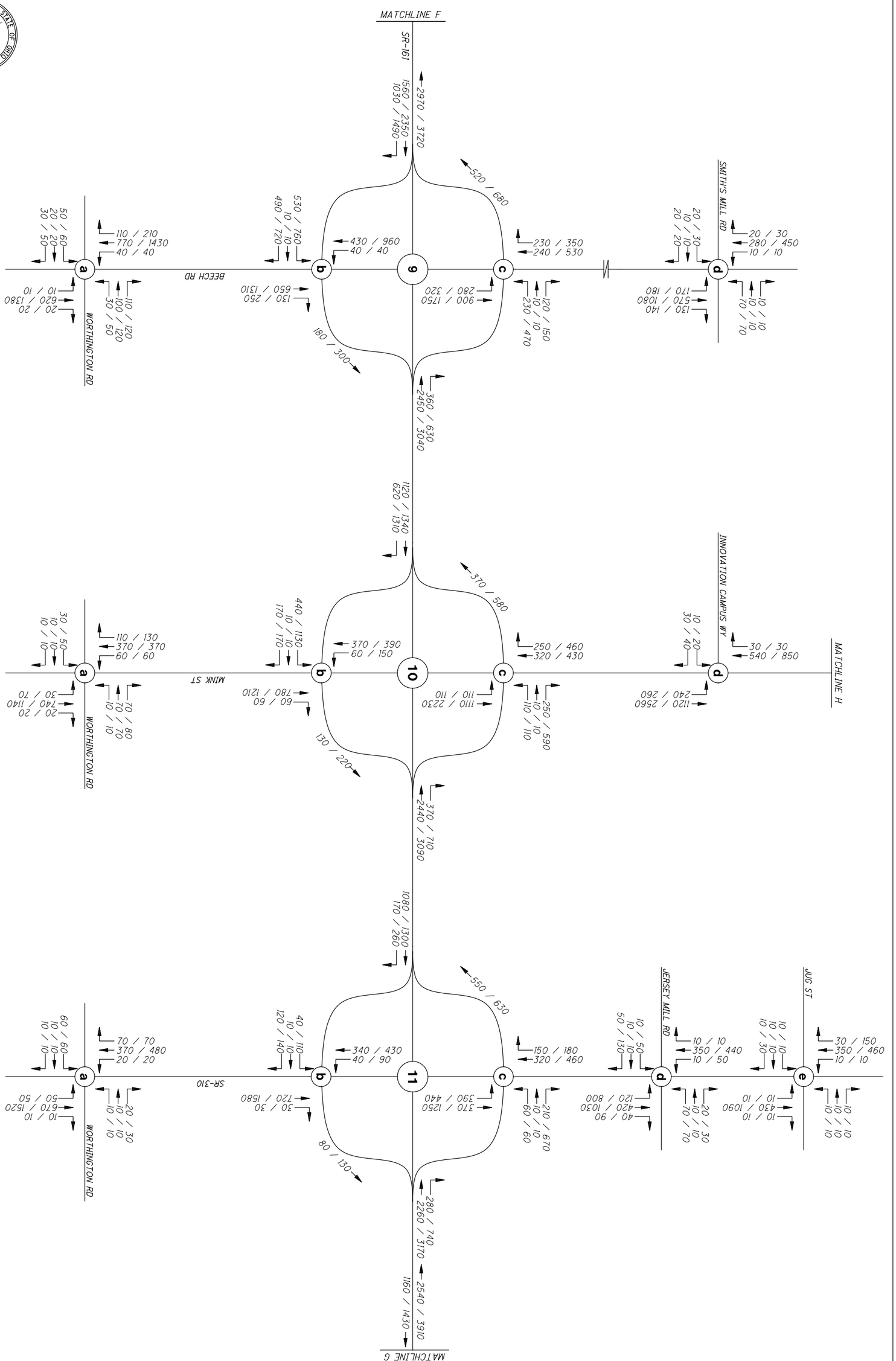

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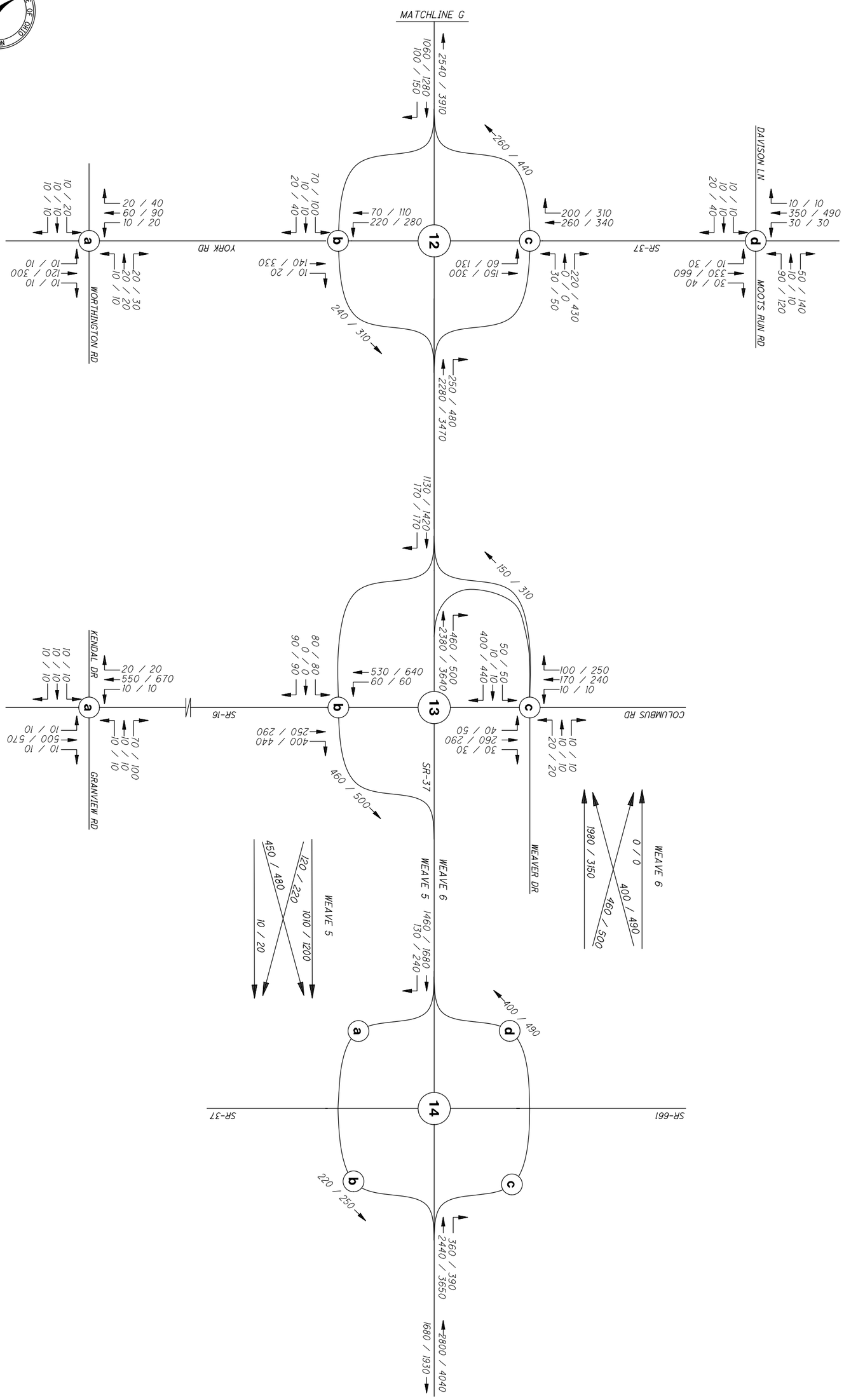

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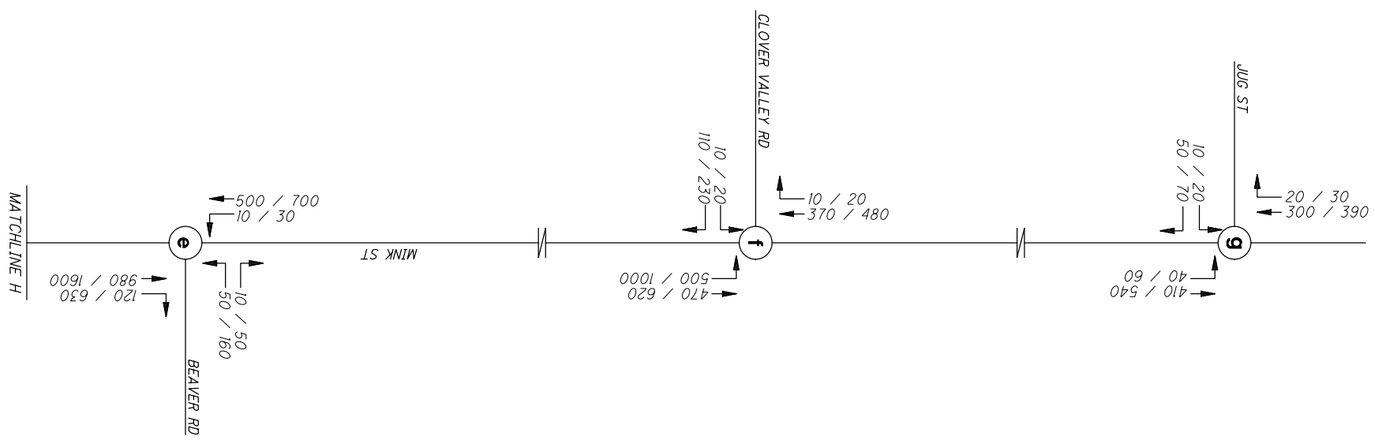
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500 / 700
10 / 30
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980 / 1600
50 / 160
10 / 50
BEAVER RD
MINK ST
110 / 230
10 / 20
CLOVER VALLEY RD
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470 / 620
500 / 1000
50 / 70
10 / 20
JUG ST
20 / 30
300 / 390
410 / 540
40 / 60

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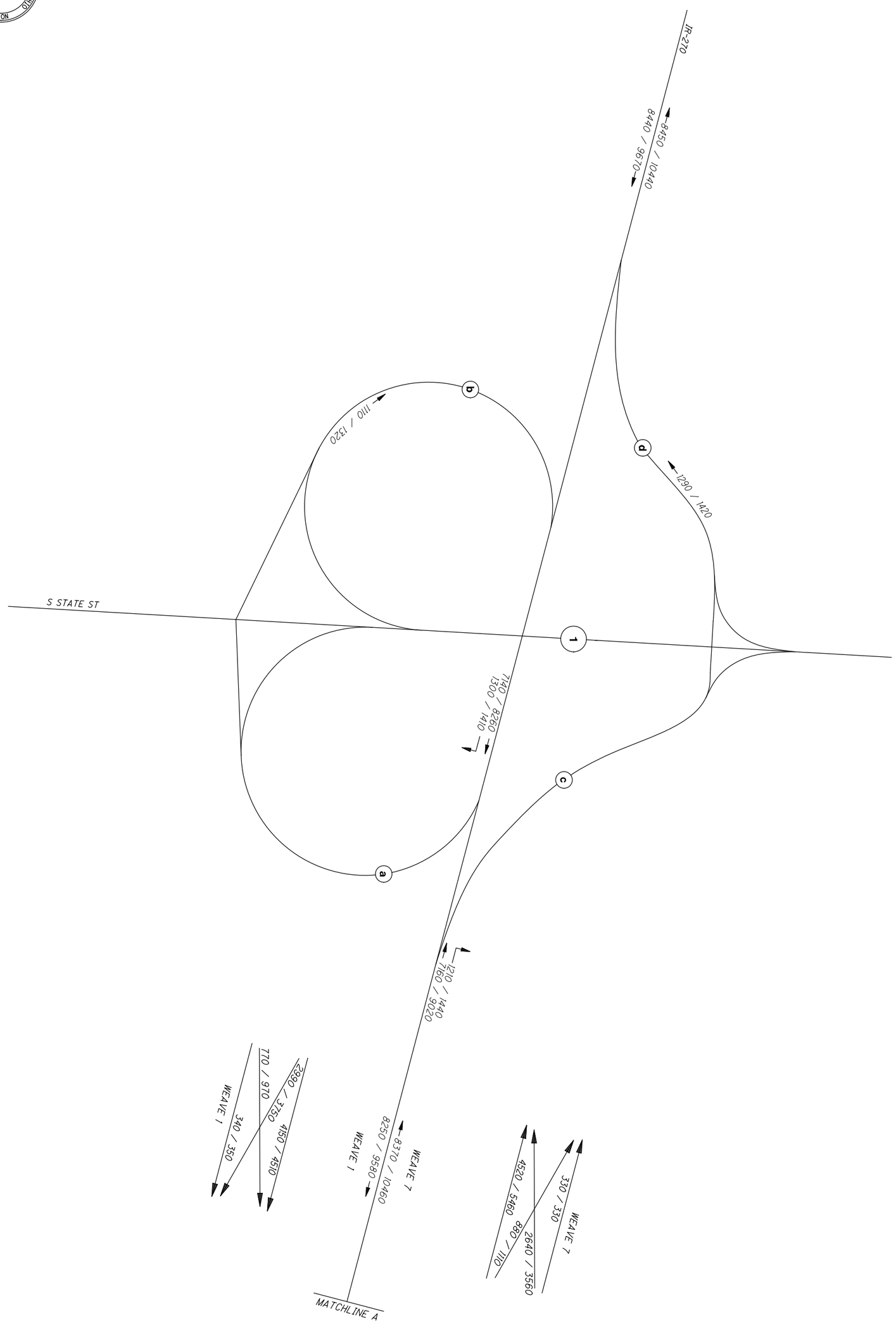

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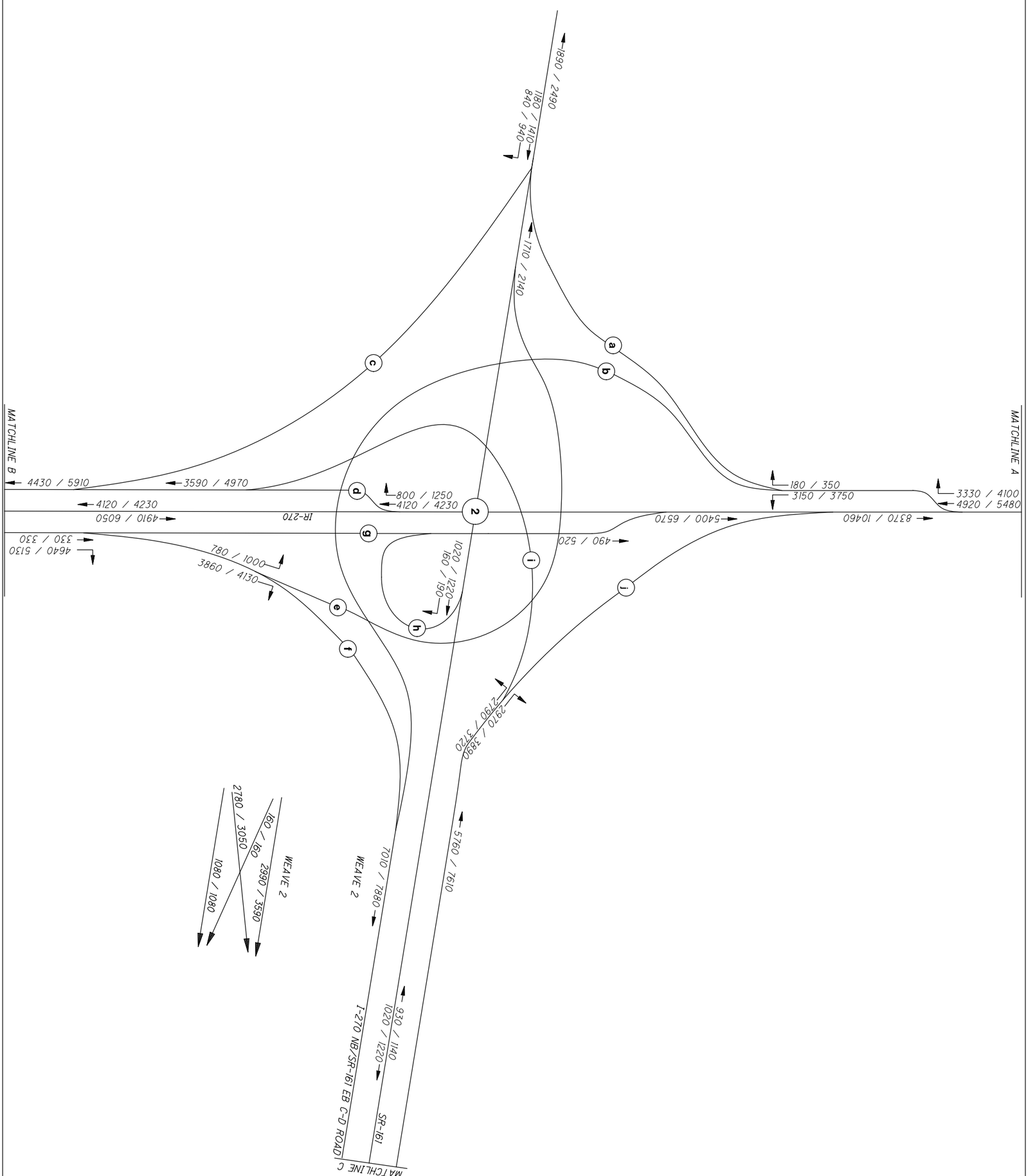

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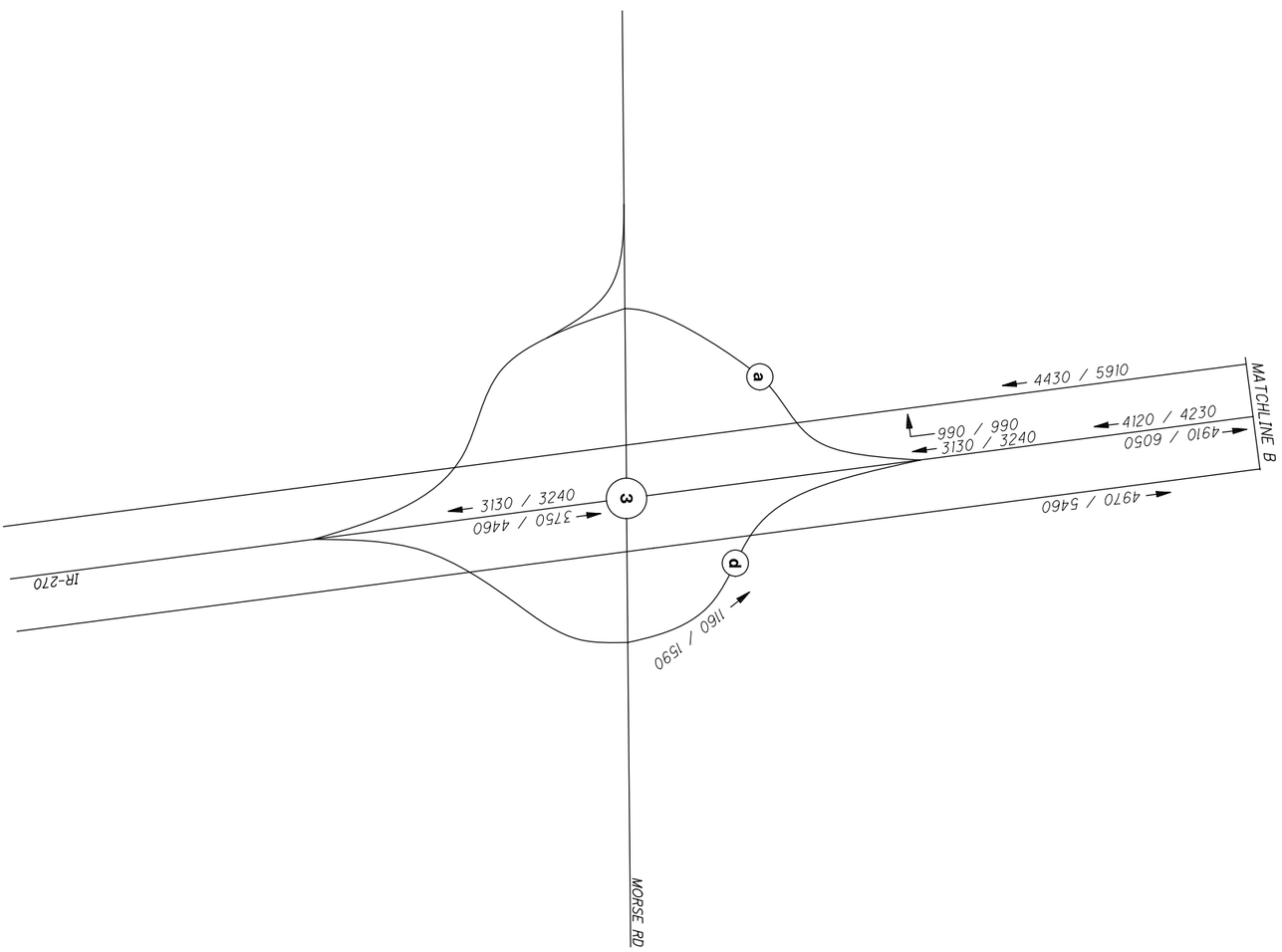

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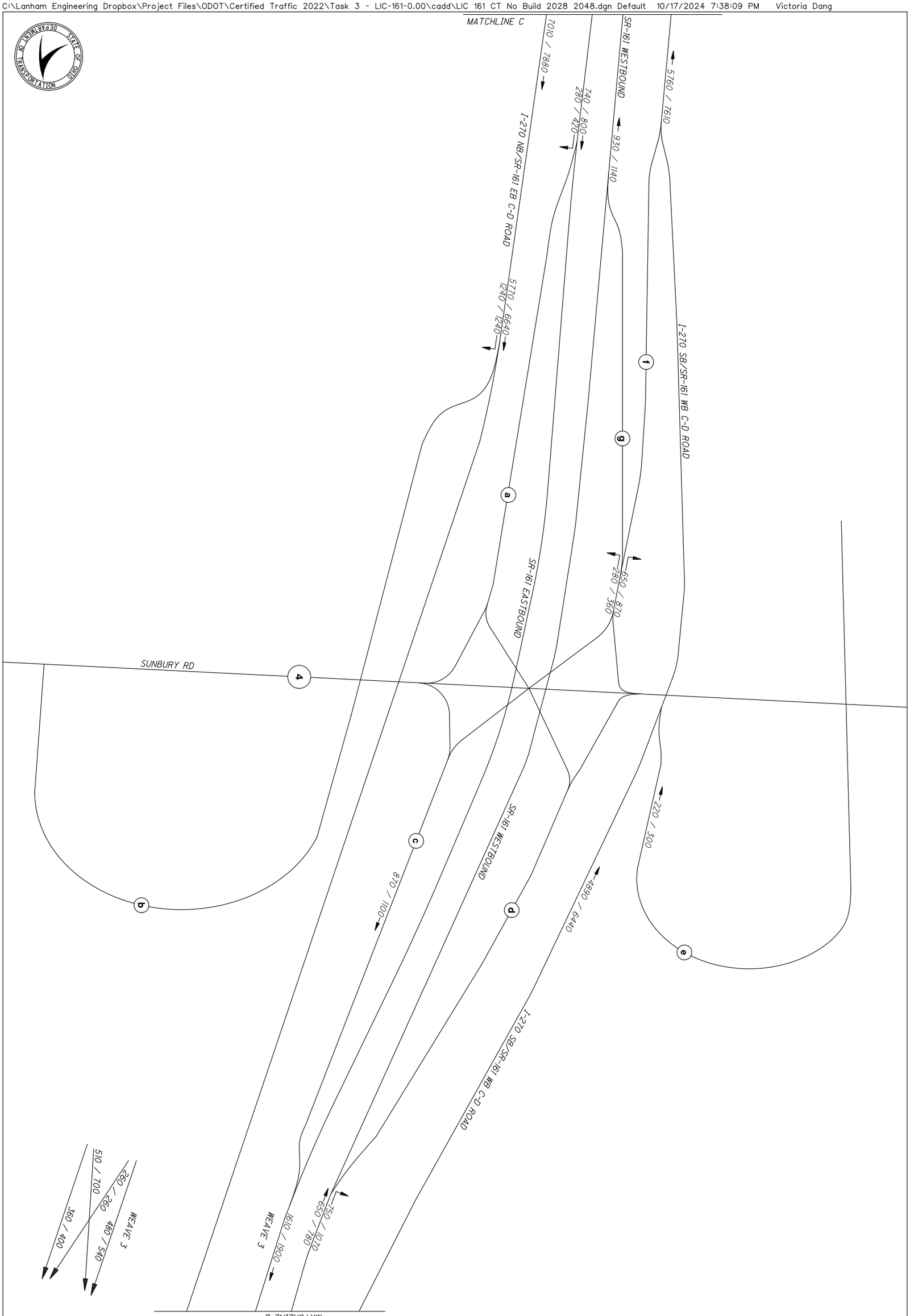

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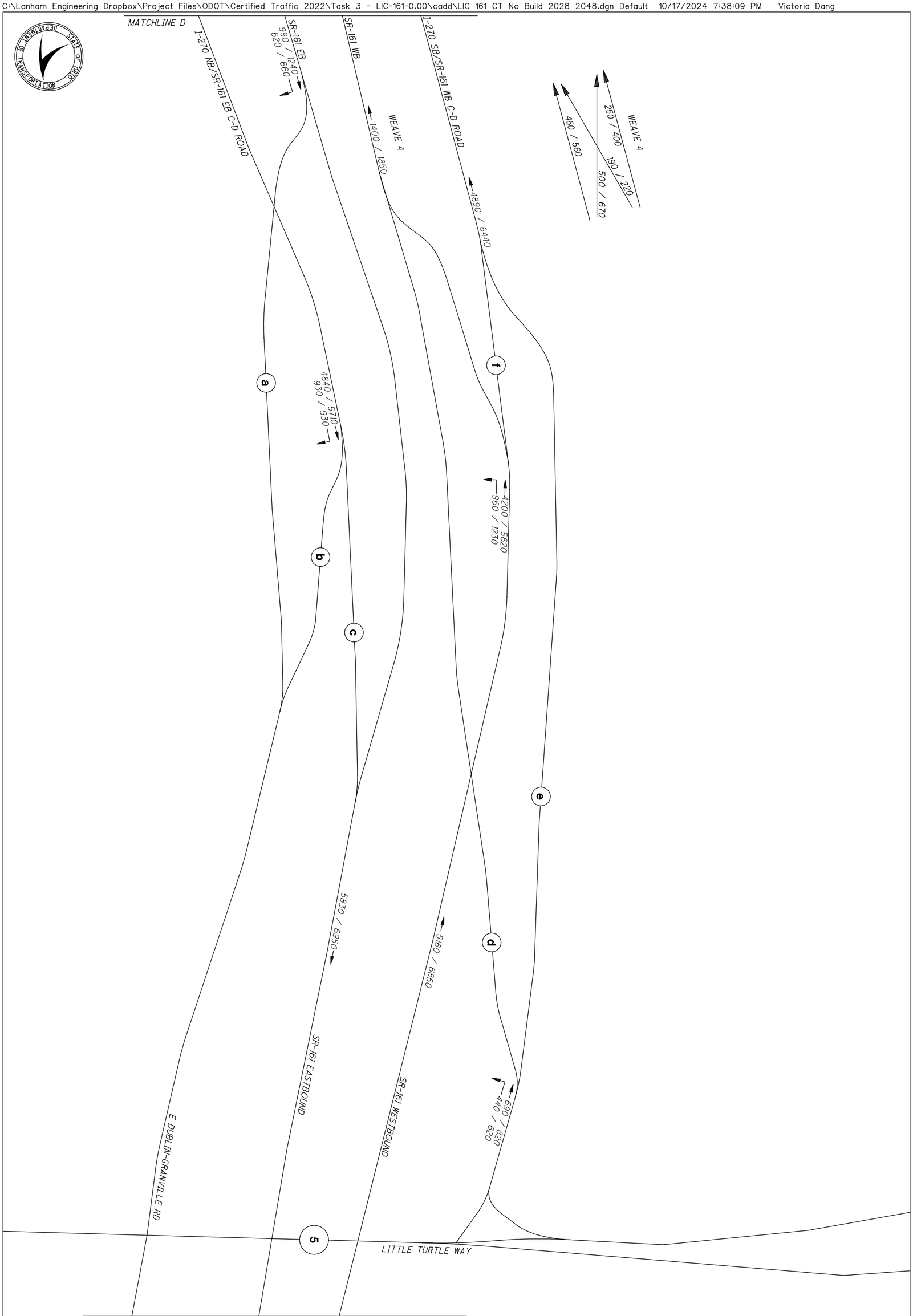

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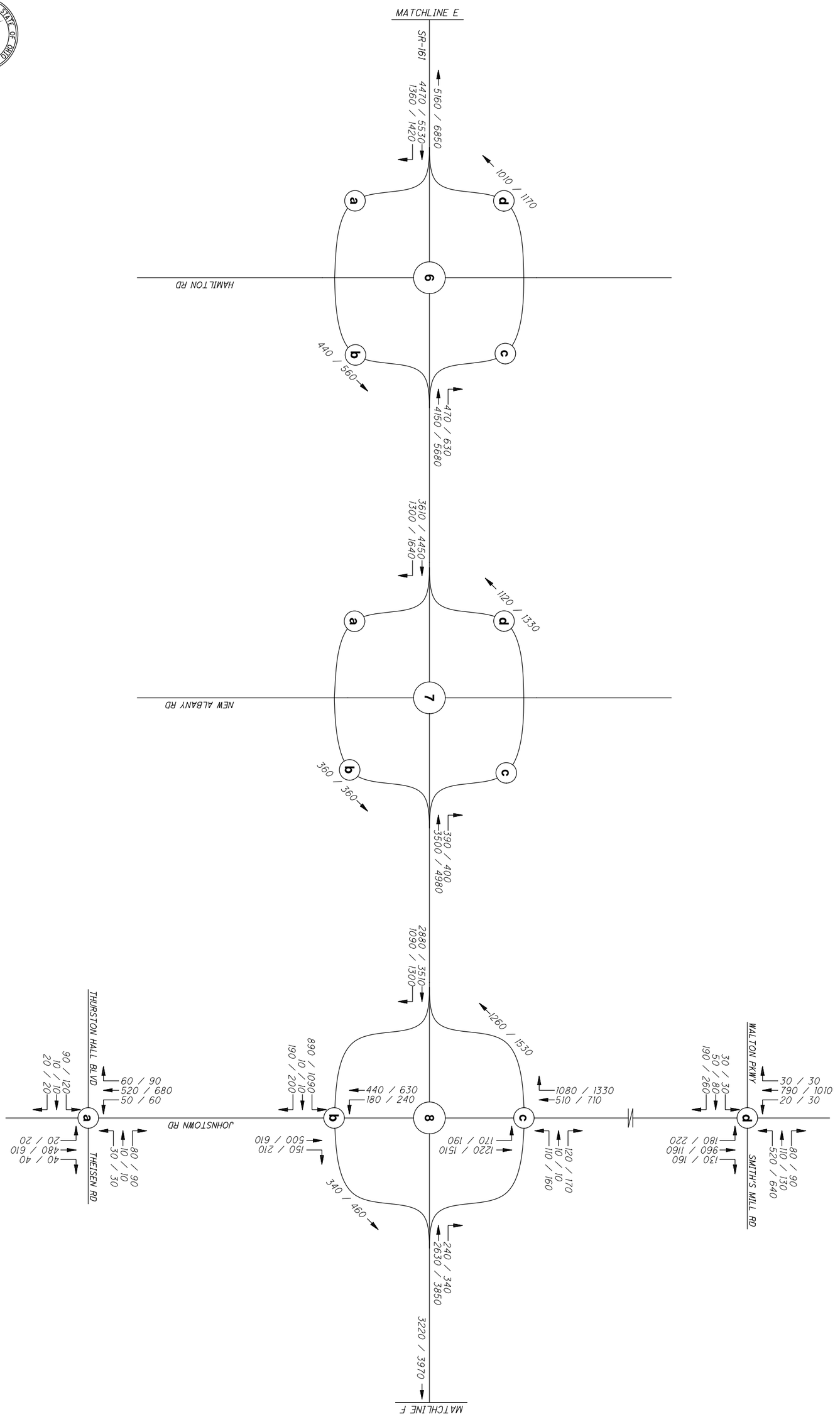

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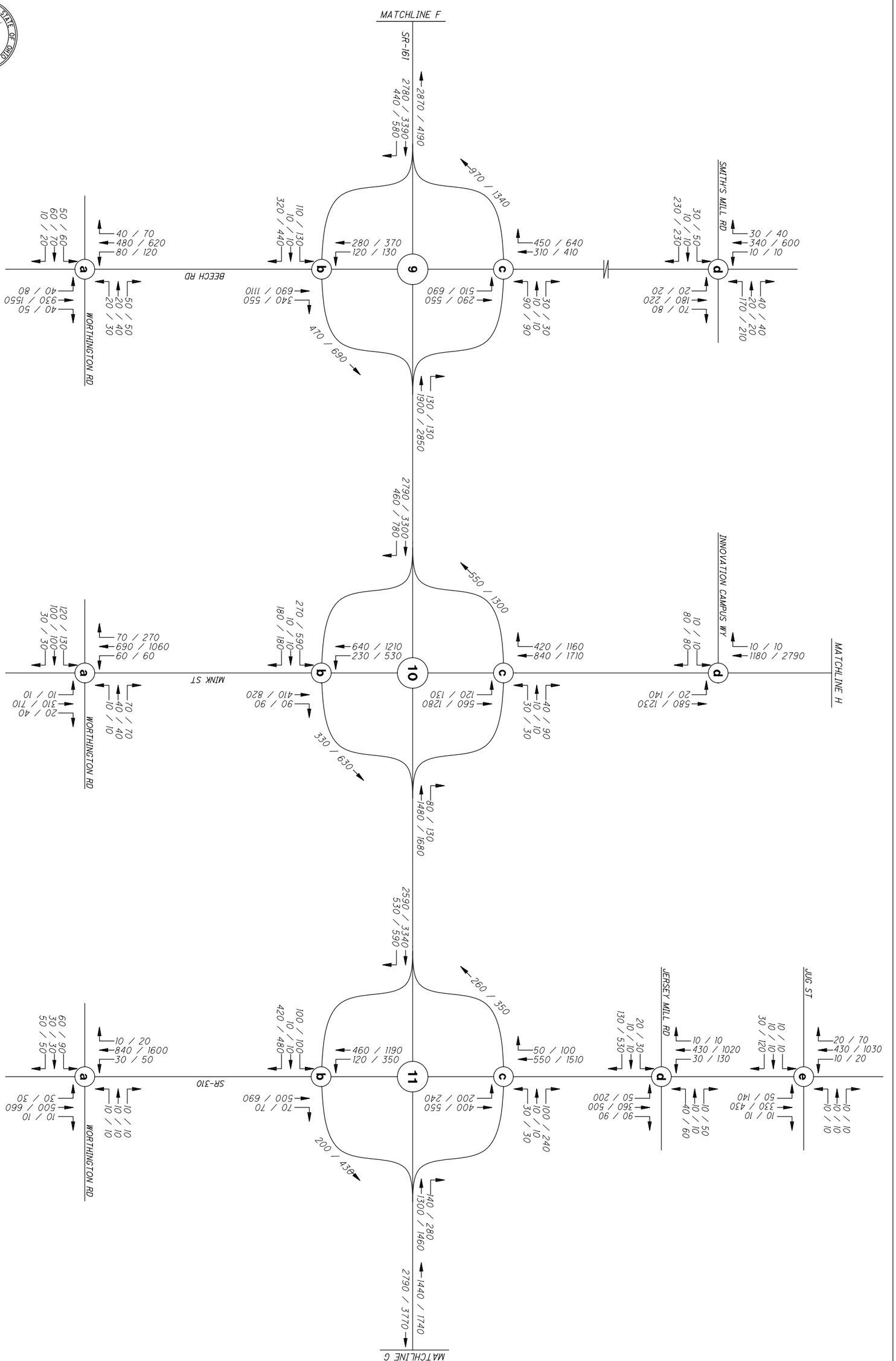

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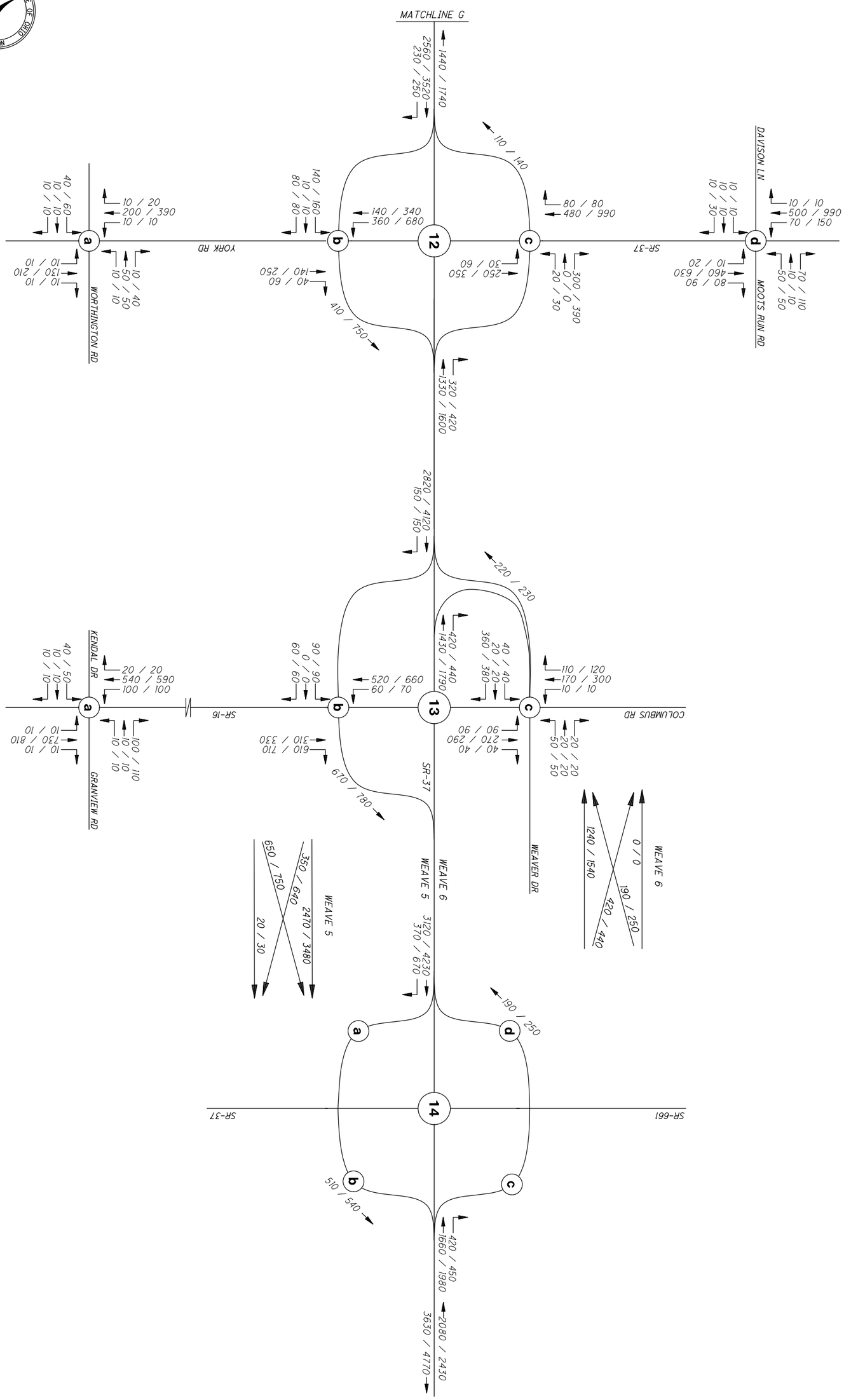

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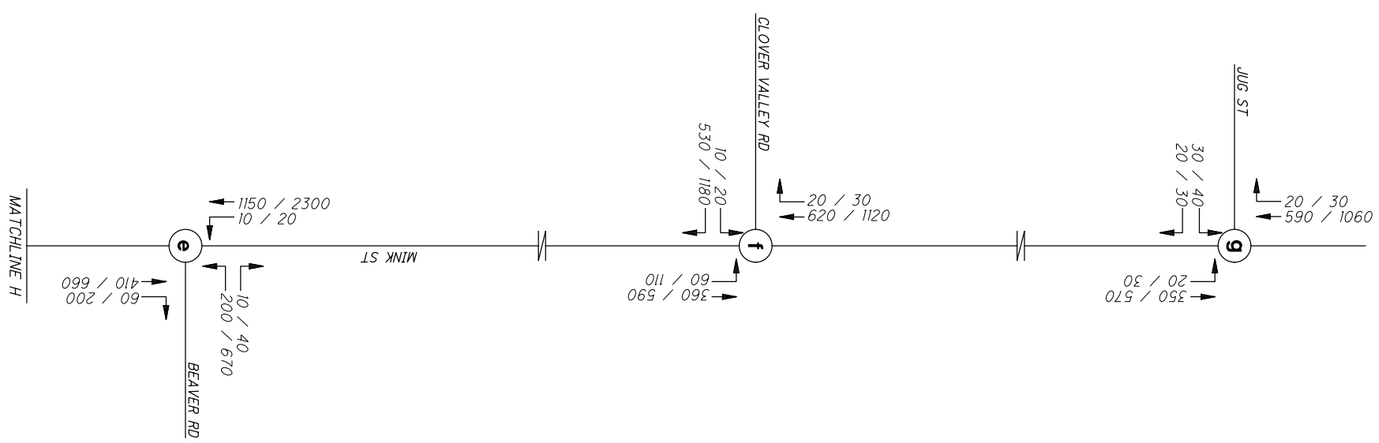

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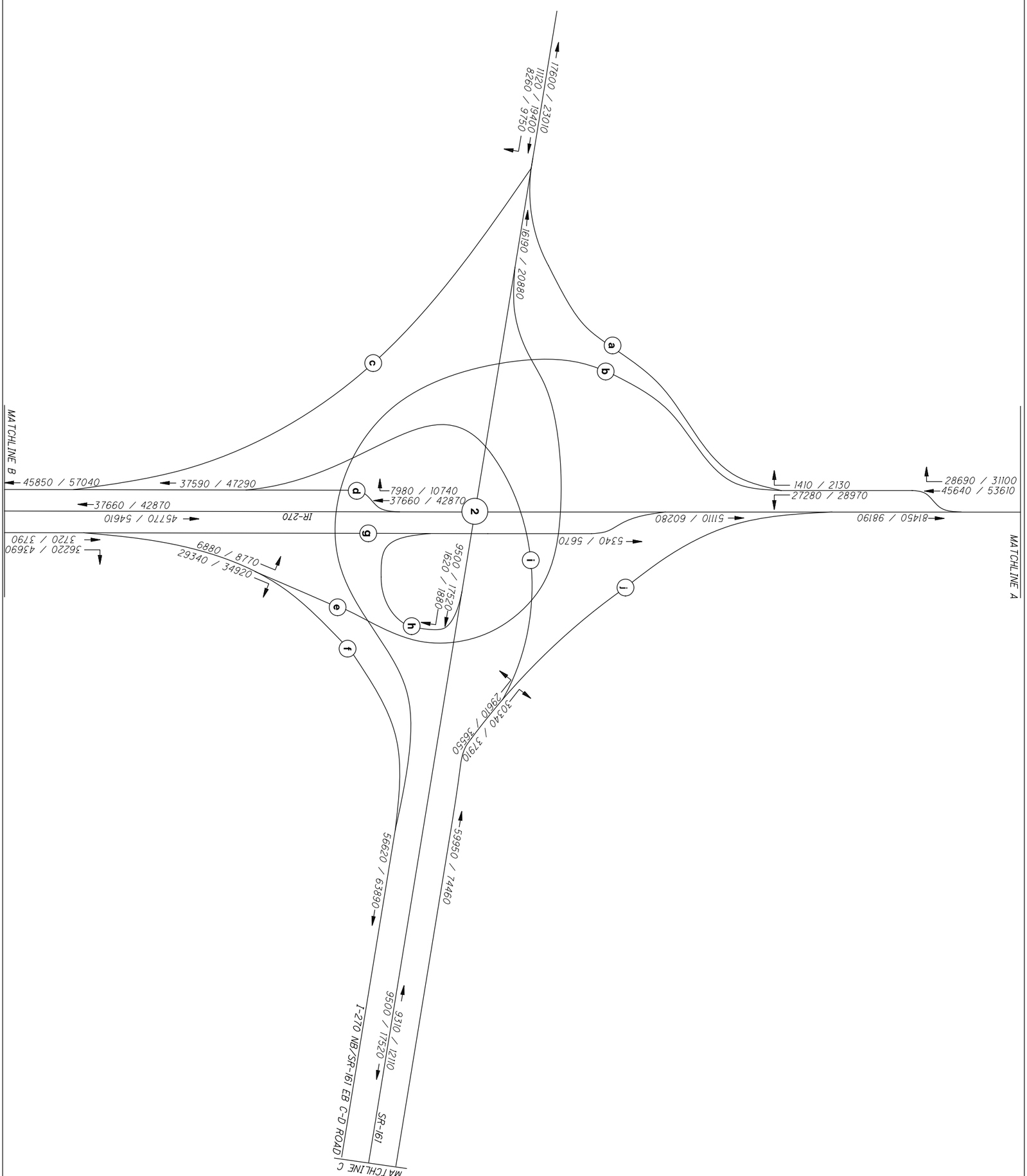

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ODOT STATEWIDE PLANNING AND RESEARCH

PID 117878

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STATE OF OHIO DEPARTMENT OF TRANSPORTATION

NOT TO SCALE

ANALYST MJB
DATE 09/27/24

LIC-161-0.00 2028-2048 ADT NO BUILD BALANCED
ODOT STATEWIDE PLANNING AND RESEARCH

PID 117878

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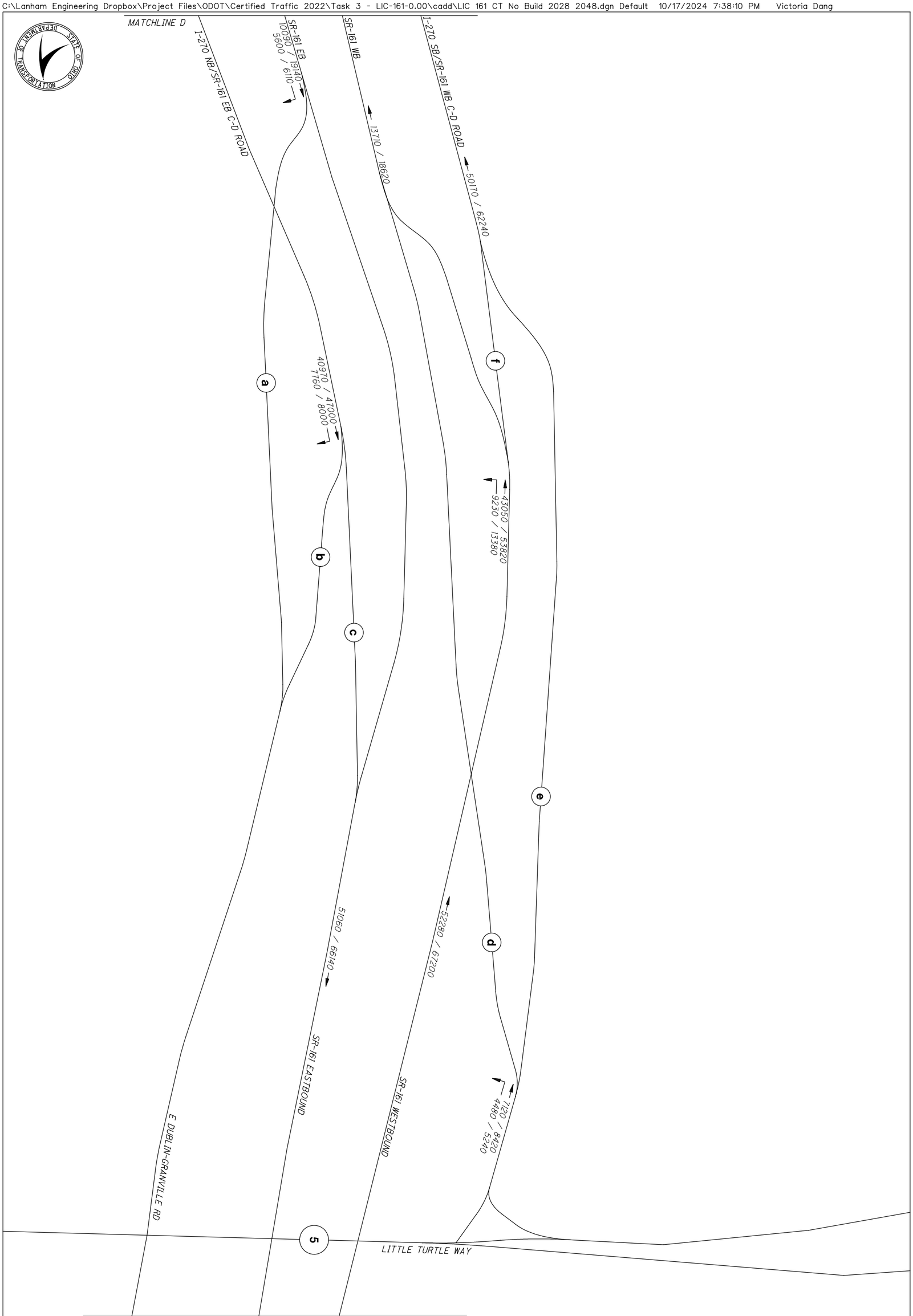

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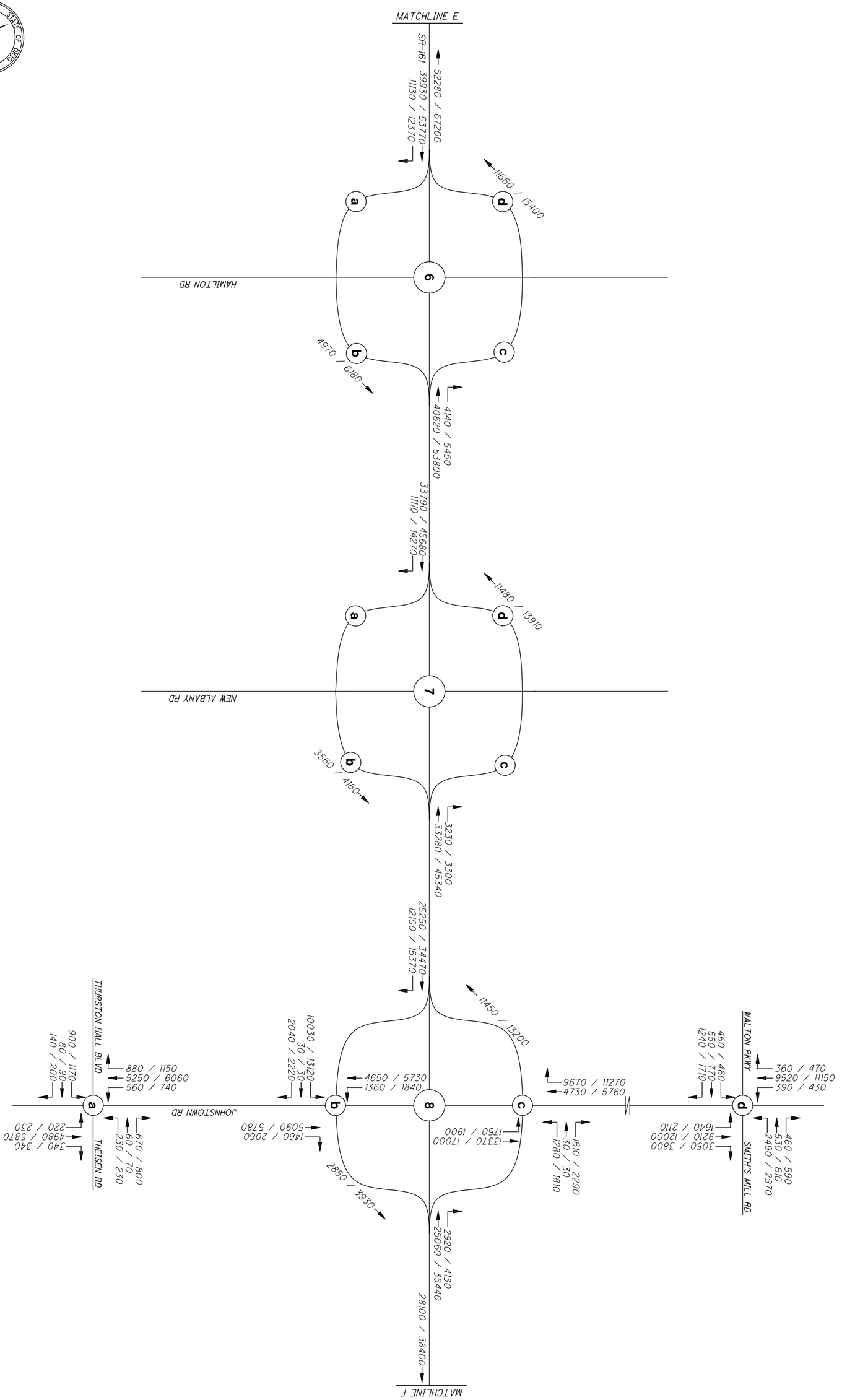
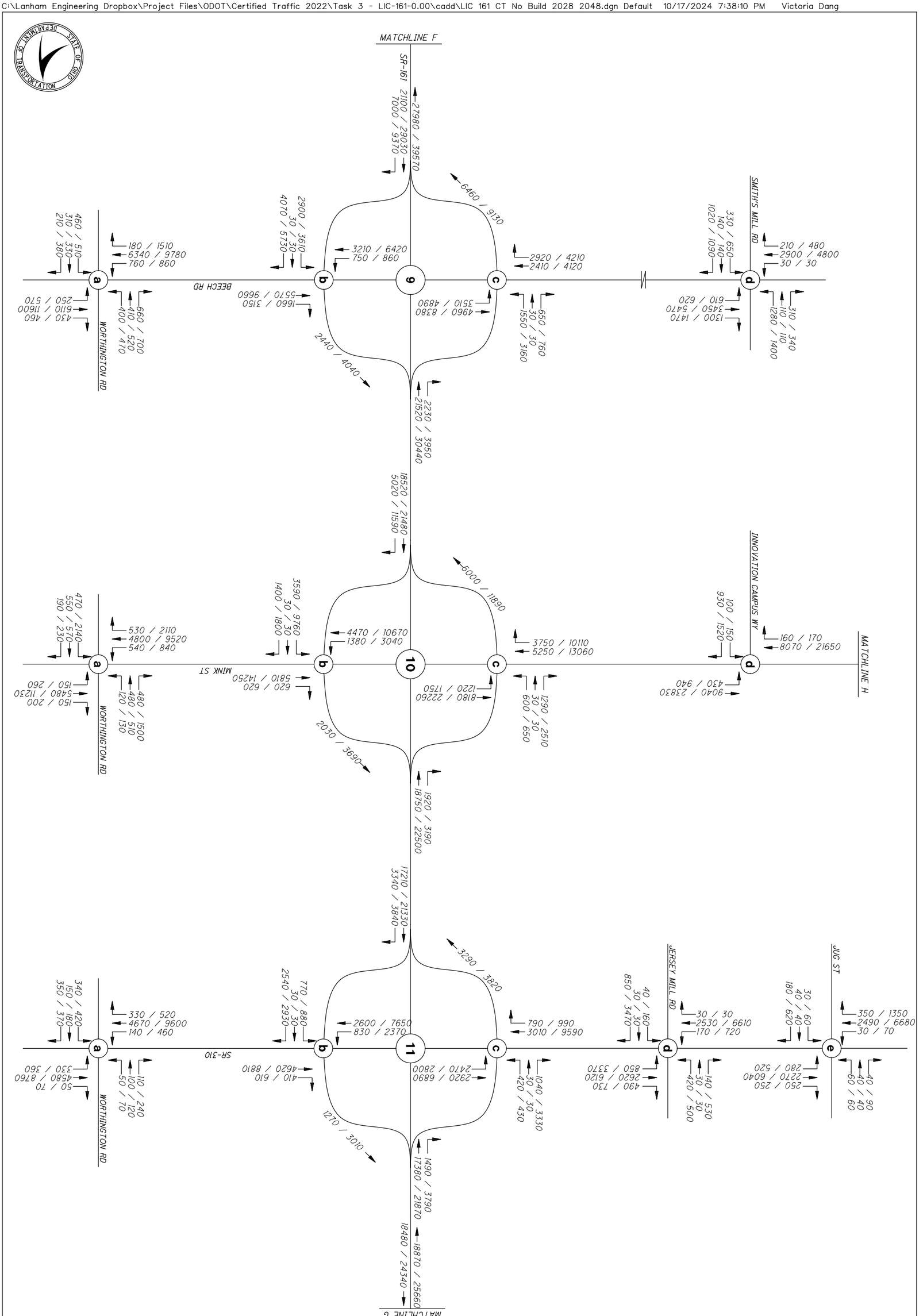


24 / 27	PID 117878	LIC-161-0.00 2028-2048 ADT NO BUILD BALANCED ODOT STATEWIDE PLANNING AND RESEARCH	ANALYST MJB DATE 09/27/24	NOT TO SCALE



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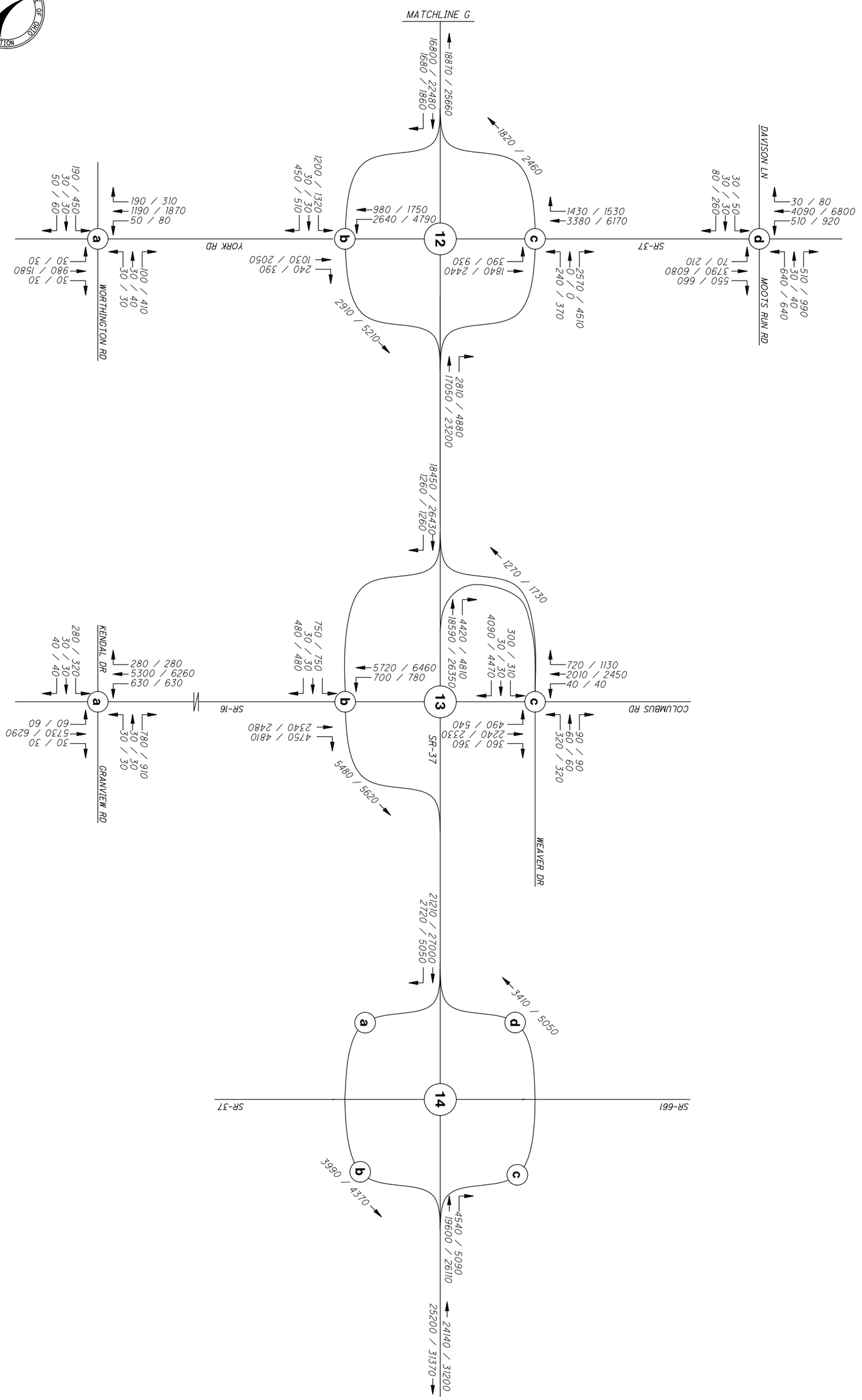
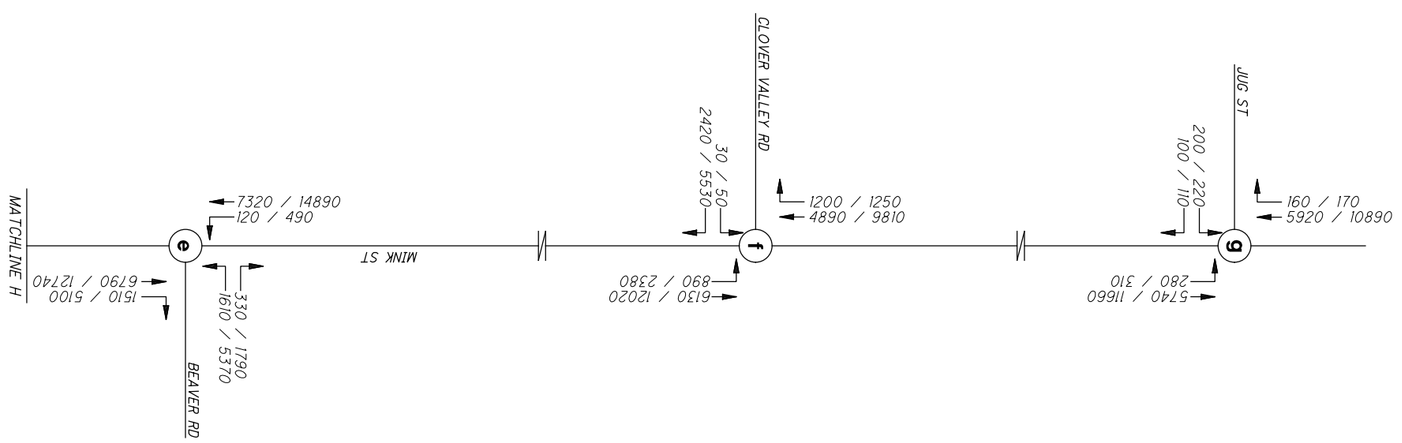


26 / 27	PID 117878	LIC-161-0.00 2028-2048 ADT NO BUILD BALANCED ODOT STATEWIDE PLANNING AND RESEARCH	ANALYST MJB DATE 09/27/24	NOT TO SCALE	N


MATCHLINE H
7320 / 14890
120 / 490
MINK ST
CLOVER VALLEY RD
2420 / 5530
30 / 50
1200 / 1250
4890 / 9810
JUG ST
200 / 220
100 / 110
160 / 170
5920 / 10890
e
f
g
6790 / 12740
1510 / 5100
1610 / 5370
330 / 1790
BEAVER RD
6130 / 12020
890 / 2380
5740 / 11660
280 / 310

*DESIGN TRAFFIC IN HIGH GROWTH AREA, INCLUDES GROWTH EXCEEDING 3% PER YEAR ON INDICATED LINKS

NOT TO SCALE

ANALYST MJB
DATE 09/27/24

LIC-161-0.00 2028/2048 AM PEAK BUILD BALANCED
ODOT STATEWIDE PLANNING AND RESEARCH

PID 117878

1/9

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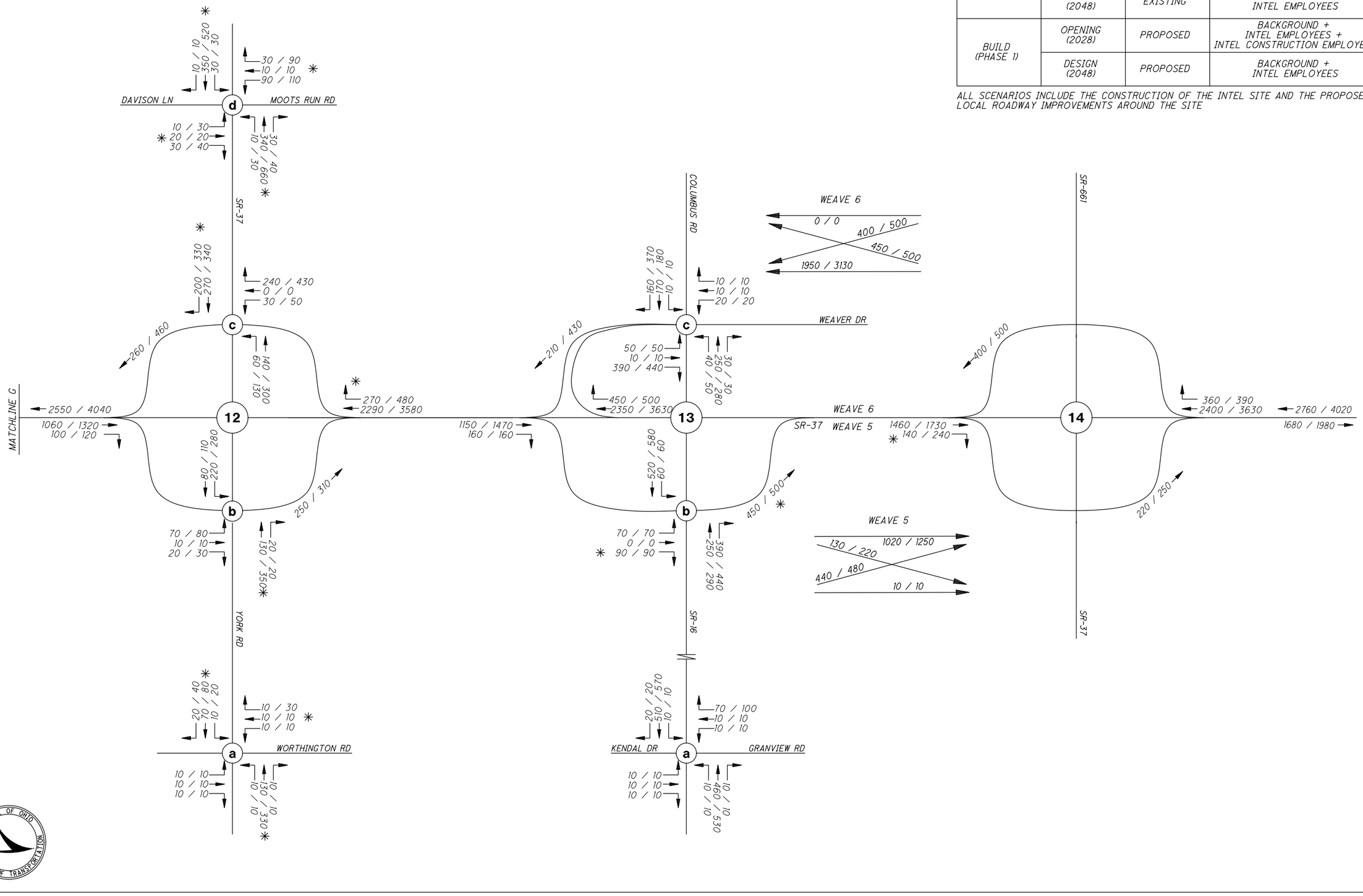
CONDITION	YEAR	ROADWAY GEOMETRY	TRAFFIC VOLUMES
NO BUILD	OPENING (2028)	EXISTING	BACKGROUND + INTEL EMPLOYEES
	DESIGN (2048)	EXISTING	BACKGROUND + INTEL EMPLOYEES
BUILD (PHASE 1)	OPENING (2028)	PROPOSED	BACKGROUND + INTEL EMPLOYEES + INTEL CONSTRUCTION EMPLOYEES
	DESIGN (2048)	PROPOSED	BACKGROUND + INTEL EMPLOYEES

ALL SCENARIOS INCLUDE THE CONSTRUCTION OF THE INTEL SITE AND THE PROPOSED LOCAL ROADWAY IMPROVEMENTS AROUND THE SITE



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ANALYST MJB | DATE 09/27/24

LIC-161-0.00 2028/2048 AM PEAK BUILD BALANCED
ODOT STATEWIDE PLANNING AND RESEARCH

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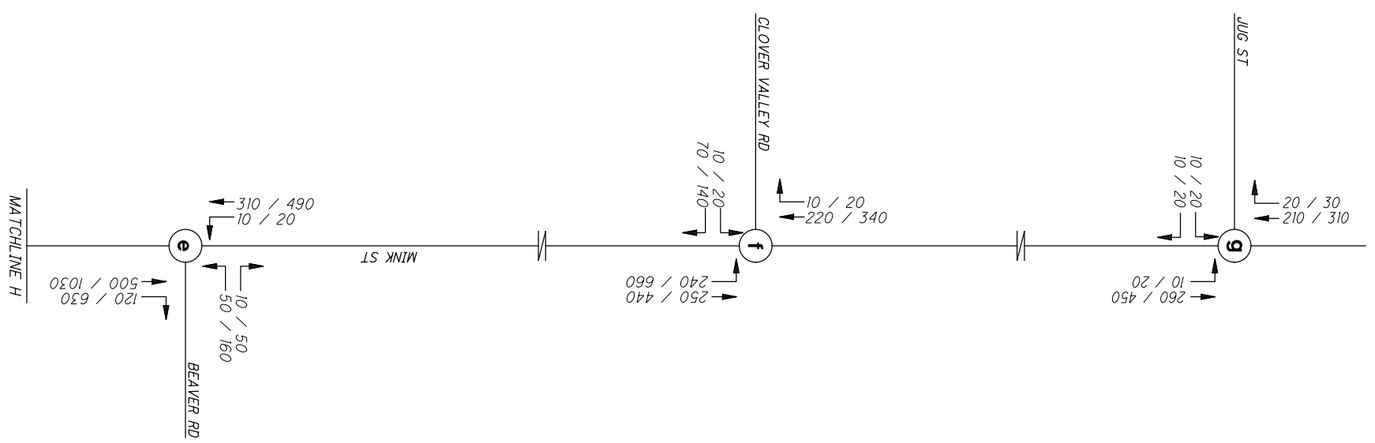

3 of 9	PID 117878	LIC-161-0.00 2028/2048 AM PEAK BUILD BALANCED ODOT STATEWIDE PLANNING AND RESEARCH	ANALYST MJB DATE 09/27/24	NOT TO SCALE

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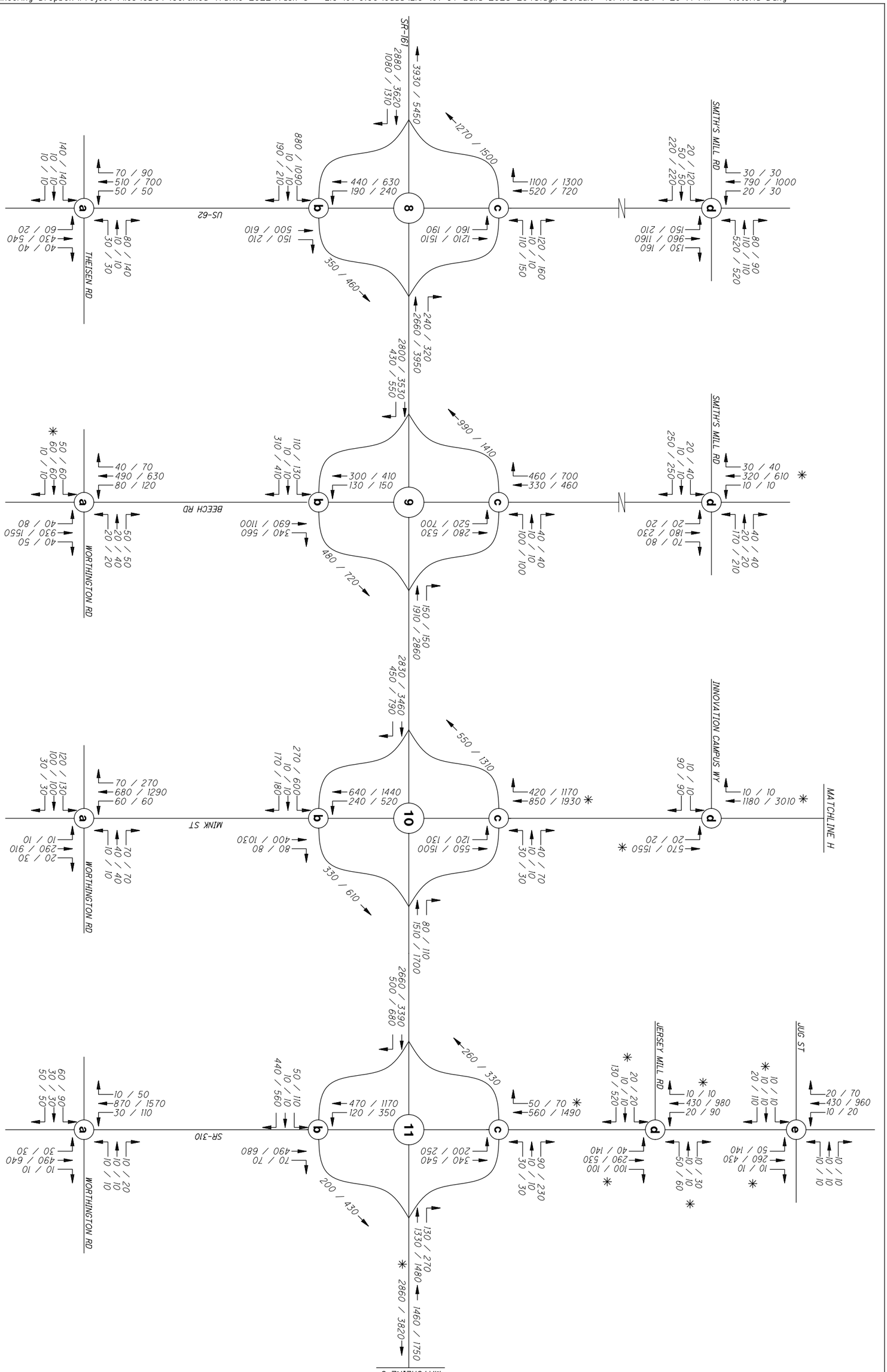

4 / 9	PID 117878	LIC-161-0.00 2028/2048 PM PEAK BUILD BALANCED ODOT STATEWIDE PLANNING AND RESEARCH	ANALYST MJB DATE 09/27/24	NOT TO SCALE

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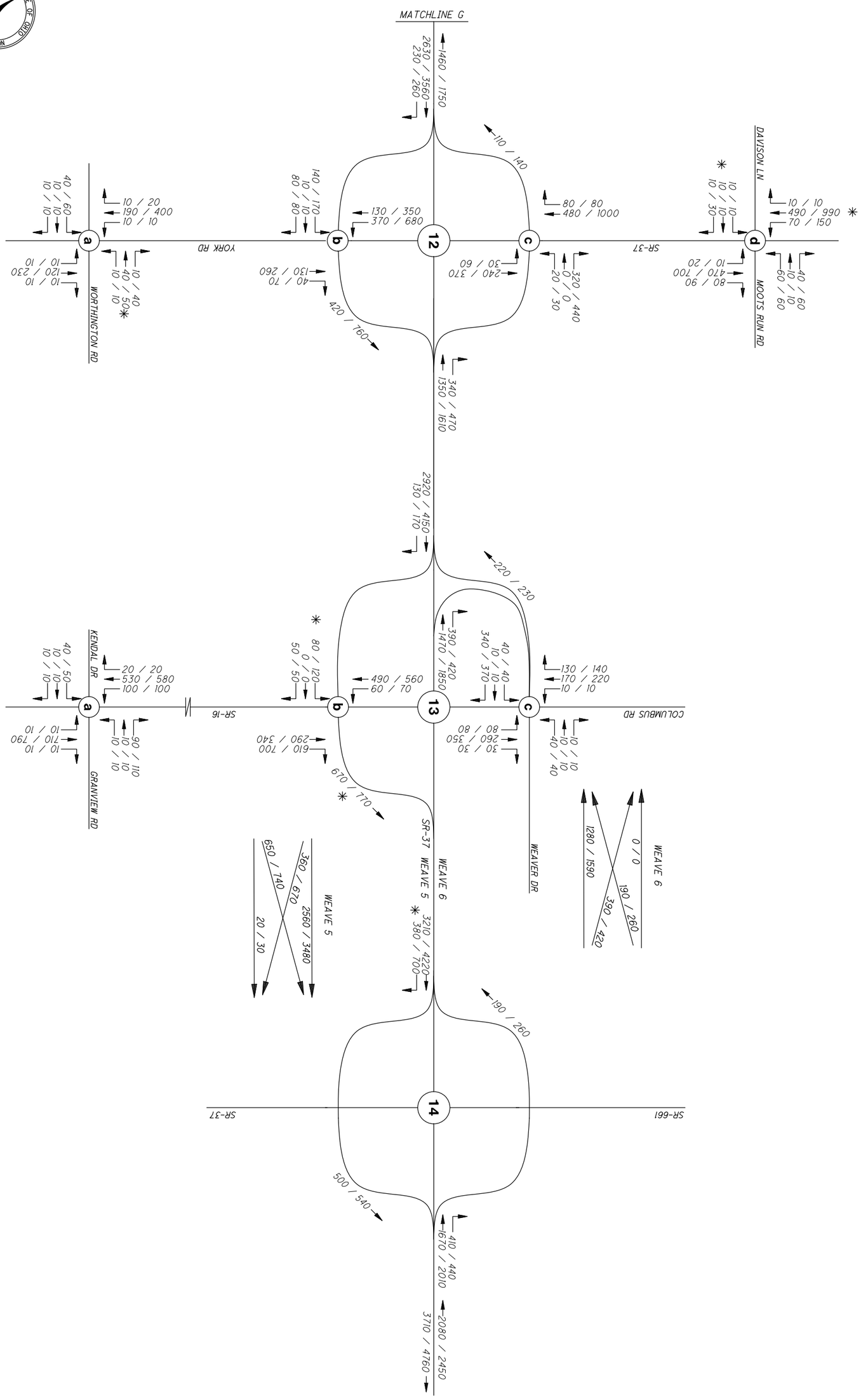
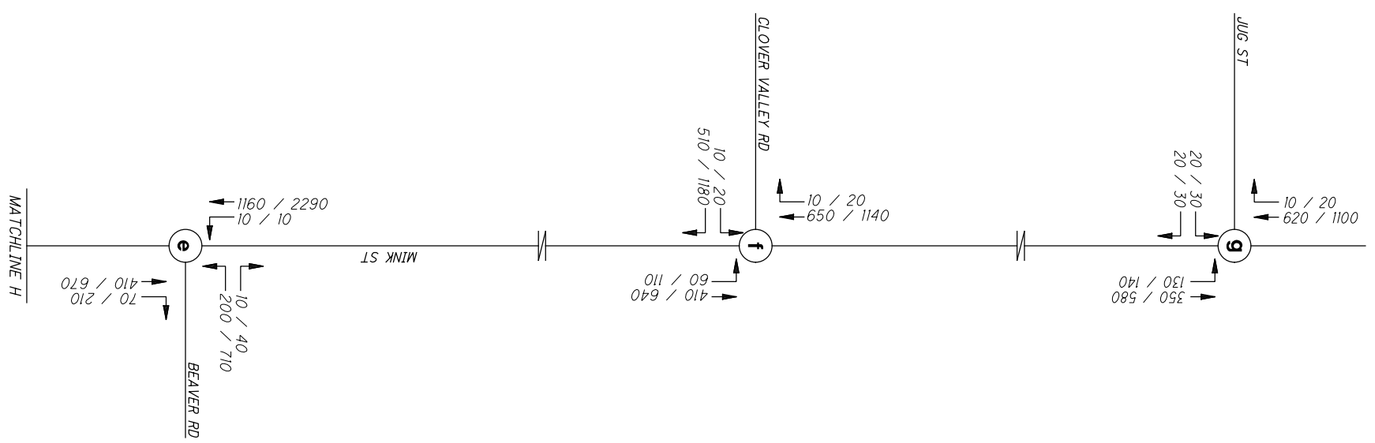


5 of 9	PID 117878	LIC-161-0.00 2028/2048 PM PEAK BUILD BALANCED ODOT STATEWIDE PLANNING AND RESEARCH	ANALYST MJB DATE 09/27/24	NOT TO SCALE



6 of 9	PID 117878	LIC-161-0.00 2028/2048 PM PEAK BUILD BALANCED ODOT STATEWIDE PLANNING AND RESEARCH	ANALYST MJB DATE 09/27/24	NOT TO SCALE	N

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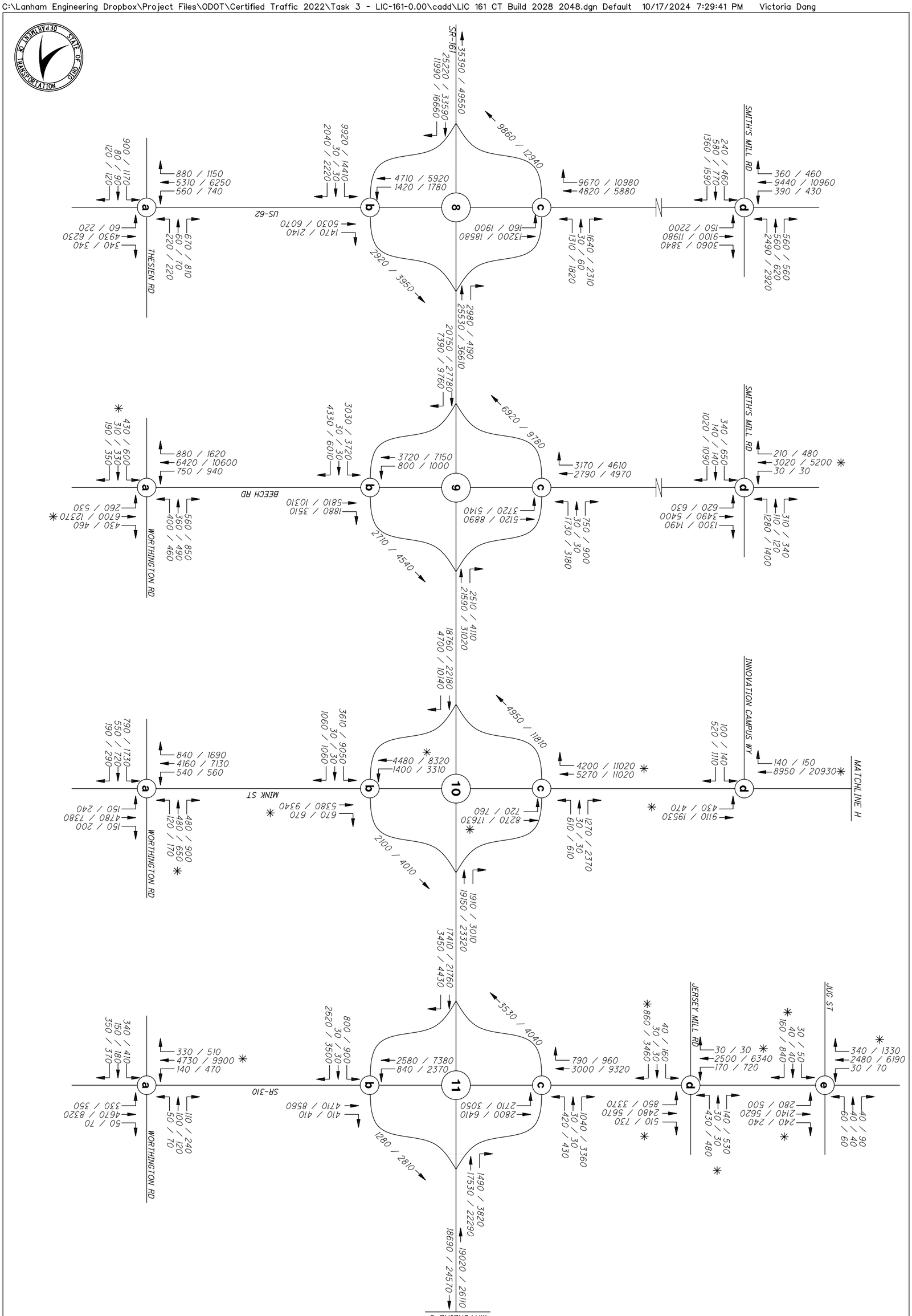

7 of 9	PID 117878	LIC-161-0.00 2028/2048 ADT BUILD BALANCED ODOT STATEWIDE PLANNING AND RESEARCH	ANALYST MJB DATE 09/27/24	NOT TO SCALE

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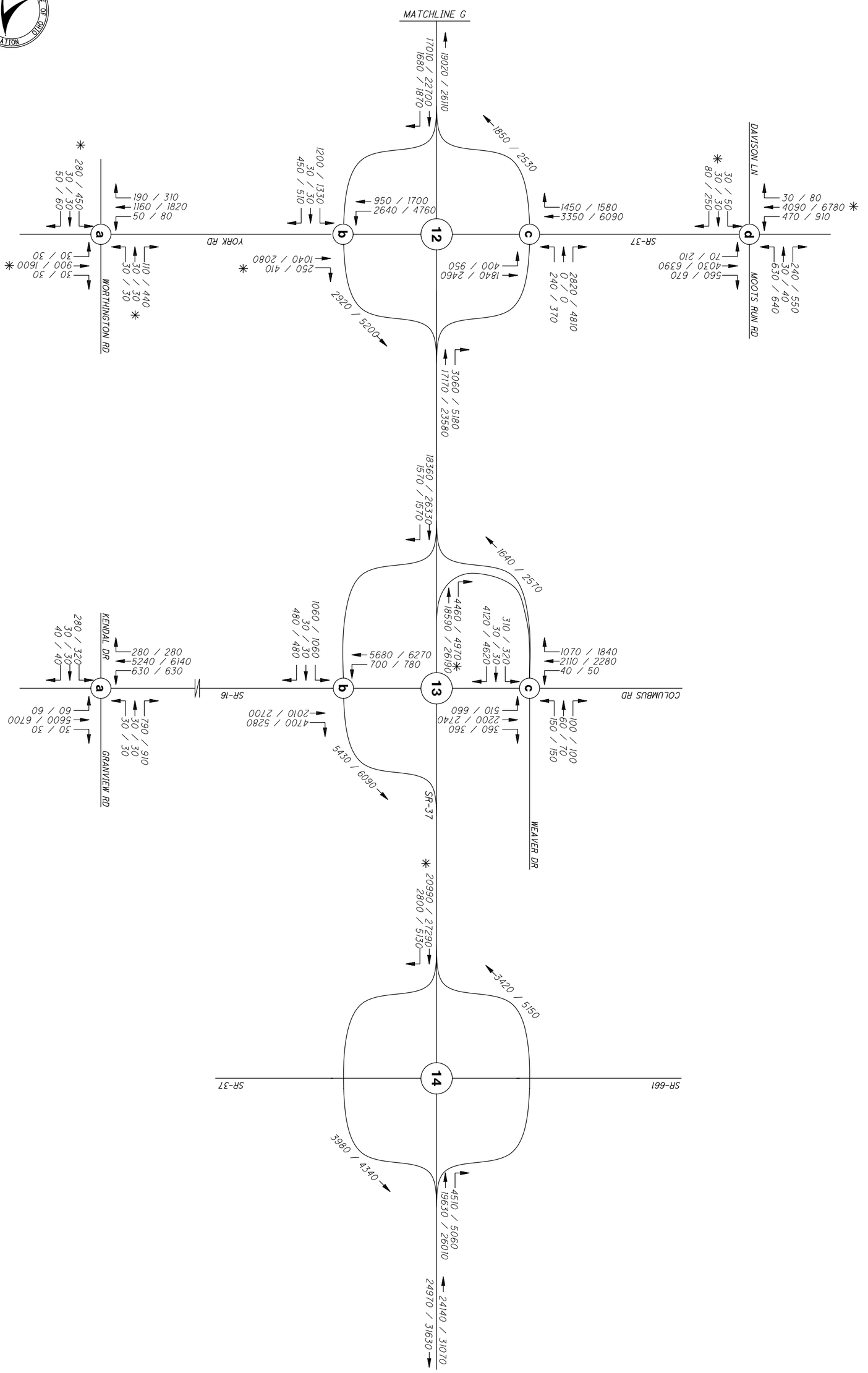

8/9	PID 117878	LIC-161-0.00 2028/2048 ADT BUILD BALANCED ODOT STATEWIDE PLANNING AND RESEARCH	ANALYST MJB DATE 09/27/24	NOT TO SCALE

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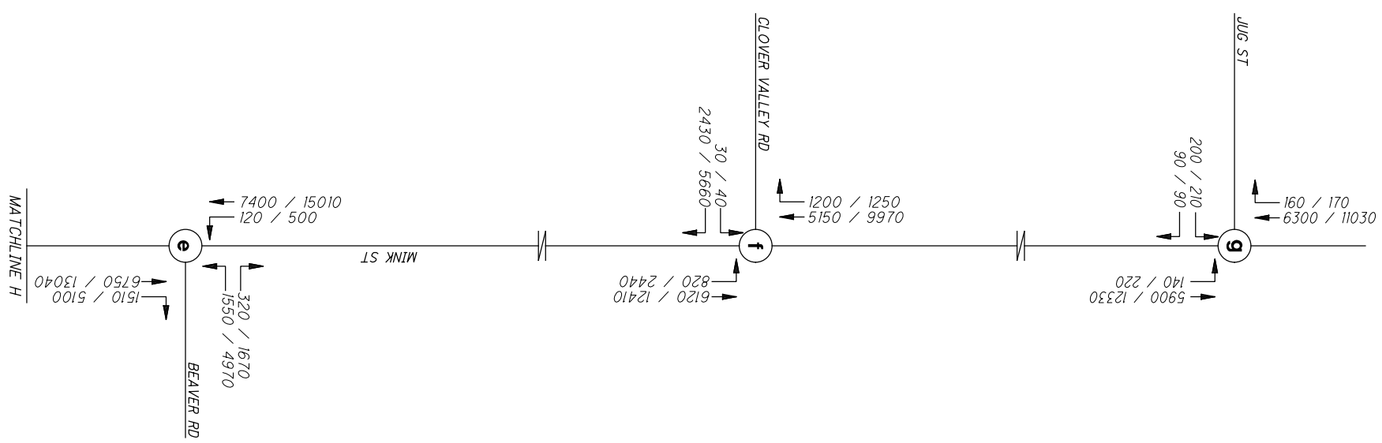

9 / 9	PID 117878	LIC-161-0.00 2028/2048 ADT PEAK BUILD BALANCED ODOT STATEWIDE PLANNING AND RESEARCH	ANALYST MJB DATE 09/27/24	NOT TO SCALE	N

Appendix C: HCS Freeway Analysis

Eastbound 2 Lane (Existing) - AM Build

HCS Freeway Facilities Report

Project Information

Analyst	EJG	Date	11/6/2024
Agency	Woolpert	Analysis Year	2024
Jurisdiction	Franklin and Licking Counties	Time Analyzed	AM 2048 Build
Facility Name	EB SR-161	Units	U.S. Customary
Project Description	2 Lanes (Exisiting)		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45
Queue Discharge Capacity Drop, %	7	Total Segments	28
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	18.03		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		1700	3
2	Diverge	Diverge	US 62	1500	3
3	Basic	Basic		2600	3
4	Merge	Merge	US 62	1500	3
5	Basic	Basic	Per ODOT	1290	3
6	Basic	Basic		6540	2
7	Diverge	Diverge	Beech+Worthington	1500	2
8	Basic	Basic		4000	2
9	Merge	Merge	Beech+Worthington	1500	2
10	Basic	Basic		2240	2
11	Diverge	Diverge	Mink+Worthington	1500	2
12	Basic	Basic		2530	2
13	Merge	Merge	Mink+Worthington	1500	2
14	Basic	Basic		9690	2
15	Diverge	Diverge	SR 310+Worthington	1500	2
16	Basic	Basic		3110	2
17	Merge	Merge	SR 310+Worthington	1500	2
18	Basic	Basic		11330	2
19	Diverge	Diverge	York	1500	2
20	Basic	Basic		3040	2
21	Merge	Merge	York	1500	2
22	Basic	Basic		16200	2
23	Diverge	Diverge	Columbus	1500	2
24	Basic	Basic		1460	2
25	Weaving	Weaving	Columbus/Lancaster	1670	3
26	Basic	Basic		1820	2
27	Merge	Merge	Lancaster	1500	2

28	Basic	Basic		8000	2

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.917	6381	7200	0.89	60.1	35.4	E

Segment 2: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.93	0.917	0.952	6381	2078	7200	2200	0.89	0.94	63.7	60.1	33.4	36.2	E

Segment 3: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.917	4246	7200	0.59	69.5	20.4	C

Segment 4: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.88	0.909	0.952	4677	394	7200	2200	0.65	0.18	63.0	61.6	24.7	23.0	C

Segment 5: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	4670	7200	0.65	68.5	22.7	C

Segment 6: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	4670	4800	0.97	55.1	42.4	E

Segment 7: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.85	0.909	0.877	4670	2012	4800	2200	0.97	0.91	60.2	60.2	38.8	39.6	E

Segment 8: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	2914	4800	0.61	69.2	21.1	C

Segment 9: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.82	0.935	0.952	3217	384	4800	2200	0.67	0.17	60.3	60.3	26.7	26.3	C

Segment 10: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

1	0.94		0.935		3174		4800		0.66		71.2		22.3	C
Segment 11: Diverge														
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**	**LOS**
	F	**R**	**F**	**R**	**Freeway**	**Ramp**	**Freeway**	**Ramp**	**F**	**R**	**F**	**R Infl.**	**F**	**R Infl.**	
1	0.94	0.80	0.935	0.935	3174	1818	4800	2200	0.66	0.83	64.0	64.0	24.8	27.2	C
Segment 12: Basic														
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**	**LOS**
1	0.94		0.935		1627		4800		0.34		74.6		10.9	A
Segment 13: Merge														
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**	**LOS**
	F	**R**	**F**	**R**	**Freeway**	**Ramp**	**Freeway**	**Ramp**	**F**	**R**	**F**	**R Infl.**	**F**	**R Infl.**	
1	0.94	0.89	0.935	0.855	1877	250	4800	2200	0.39	0.11	67.4	67.4	13.9	13.5	B
Segment 14: Basic														
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**	**LOS**
1	0.94		0.935		1843		4800		0.38		75.0		12.3	B
Segment 15: Diverge														
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**	**LOS**
	F	**R**	**F**	**R**	**Freeway**	**Ramp**	**Freeway**	**Ramp**	**F**	**R**	**F**	**R Infl.**	**F**	**R Infl.**	
1	0.94	0.80	0.935	0.935	1843	428	4800	2200	0.38	0.19	68.2	68.2	13.5	15.9	B
Segment 16: Basic														
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**	**LOS**
1	0.94		0.935		1479		4800		0.31		74.8		9.9	A
Segment 17: Merge														
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**	**LOS**
	F	**R**	**F**	**R**	**Freeway**	**Ramp**	**Freeway**	**Ramp**	**F**	**R**	**F**	**R Infl.**	**F**	**R Infl.**	
1	0.94	0.80	0.909	0.943	1707	186	4800	2200	0.36	0.08	67.1	67.1	12.7	12.9	B
Segment 18: Basic														
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**	**LOS**
1	0.94		0.909		1685		4800		0.35		75.0		11.2	B
Segment 19: Diverge														
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**	**LOS**
	F	**R**	**F**	**R**	**Freeway**	**Ramp**	**Freeway**	**Ramp**	**F**	**R**	**F**	**R Infl.**	**F**	**R Infl.**	
1	0.94	0.82	0.909	0.877	1685	167	4800	2200	0.35	0.08	69.0	69.0	12.2	14.4	B
Segment 20: Basic														
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**	**LOS**

1	0.94		0.909		1545		4800		0.32		74.8		10.3		A

Segment 21: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.85	0.909	0.952	1928	383	4800	2200	0.40	0.17	66.9	66.9	14.4	14.5	B

Segment 22: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	1908	4800	0.40	75.0	12.7	B

Segment 23: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.80	0.909	0.877	1908	228	4800	2200	0.40	0.10	68.8	68.8	13.9	17.1	B

Segment 24: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	1720	4800	0.36	74.4	11.5	B

Segment 25: Weaving

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	2404	5856	0.41	62.6	12.8	B

Segment 26: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	2025	4800	0.42	74.3	13.5	B

Segment 27: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.87	0.909	0.952	2327	302	4800	2200	0.48	0.14	65.9	65.9	17.7	18.8	B

Segment 28: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	2317	4800	0.48	74.7	15.5	B

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	10417	9775	11.20	280.00	67.6	17.7	16.2	16.00	C

Facility Overall Results

Space Mean Speed, mi/h	67.6	Average Density, veh/mi/ln	16.2
Average Travel Time, min	16.00	Average Density, pc/mi/ln	17.7
Total VMT, veh-mi/AP	10417	Total VHD, veh-h	11.20
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	280.00

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HCS Basic Freeway Report

Project Information			
Analyst	EJG	Date	11/6/2024
Agency	Woolpert	Analysis Year	2024
Jurisdiction	Franklin and Licking Counties	Time Analyzed	AM 2048 Build
Project Description	2 Lanes (Exisiting)	Units	U.S. Customary
Segment Number	1	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	1700	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.50
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	5500	Heavy Vehicle Adjustment Factor (f_{HV})	0.917
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2127
Total Trucks, %	9.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.89
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	60.1
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	35.4
Total Ramp Density Adjustment	-	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	2	Segment Name	US 62
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	70.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	515
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	5500	1840
Peak Hour Factor (PHF)	0.94	0.93
Total Trucks, %	9.00	5.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.917	0.952
Flow Rate (v_i), pc/h	6381	2078
Capacity (c_{md}), pc/h	7200	2200
Initial Adjusted Capacity (c_{mda}), pc/h	7200	-
Final Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.89	0.94

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	2130
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	60.1
Flow in Lanes 1 and 2 (v_{12}), pc/h	4251	Outer Lanes Freeway Speed (S_O), mi/h	72.4
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	63.7
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	33.4
Level of Service (LOS)	E	Density in Ramp Influence Area (D_R), pc/mi/ln	36.2

HCS Basic Freeway Report

Project Information			
Segment Number	3	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	2600	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.50
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3660	Heavy Vehicle Adjustment Factor (f_{HV})	0.917
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1415
Total Trucks, %	9.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.59
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	69.5
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	20.4
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Freeway Merge Report

Project Information			
Segment Number	4	Segment Name	US 62
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	70.0	55.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	890
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3660	330
Peak Hour Factor (PHF)	0.94	0.88
Total Trucks, %	10.00	5.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.952
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	4283 | 4677	394
Capacity (c_{md}), pc/h	7200	2200
Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.65	0.18

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	1870.6	Flow Outer Lanes (v_{OA}), pc/h/ln	1705
Downstream Equilibrium Distance (L_{EQ}), ft	9822.8	On-Ramp Influence Area Speed (S_R), mi/h	61.6
Flow in Lanes 1 and 2 (v_{12}), pc/h	2578	Outer Lanes Freeway Speed (S_O), mi/h	65.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2972	Ramp Junction Speed (S), mi/h	63.0
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	24.7
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	23.0

HCS Basic Freeway Report

Project Information			
Segment Number	5	Segment Name	Per ODOT
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	1290	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3990	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1557
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.65
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	68.5
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	22.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Basic Freeway Report

Project Information			
Segment Number	6	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	6540	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3990	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2335
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.97
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	55.1
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	42.4
Total Ramp Density Adjustment	-	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	7	Segment Name	Beech+Worthington
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	70.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	530
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3990	1500
Peak Hour Factor (PHF)	0.94	0.85
Total Trucks, %	10.00	14.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.877
Flow Rate (v_i), pc/h	4670	2012
Capacity (c_{md}), pc/h	4800	2200
Initial Adjusted Capacity (c_{mda}), pc/h	4800	-
Final Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.97	0.91

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	60.2
Flow in Lanes 1 and 2 (v_{12}), pc/h	4670	Outer Lanes Freeway Speed (S_O), mi/h	76.8
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	60.2
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	38.8
Level of Service (LOS)	E	Density in Ramp Influence Area (D_R), pc/mi/ln	39.6

HCS Basic Freeway Report

Project Information			
Segment Number	8	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	4000	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	2490	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1457
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.61
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	69.2
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	21.1
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Freeway Merge Report

Project Information			
Segment Number	9	Segment Name	Beech+Worthington
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	70.0	55.0
Segment Length (L) / Acceleration Length (LA), ft	1500	670
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2490	300
Peak Hour Factor (PHF)	0.94	0.82
Total Trucks, %	7.00	5.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.935	0.952
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	2833 | 3217	384
Capacity (c_{md}), pc/h	4800	2200
Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.67	0.17

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	60.3
Flow in Lanes 1 and 2 (v_{12}), pc/h	2833	Outer Lanes Freeway Speed (S_O), mi/h	70.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3217	Ramp Junction Speed (S), mi/h	60.3
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	26.7
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	26.3

HCS Basic Freeway Report

Project Information			
Segment Number	10	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	2240	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	2790	Heavy Vehicle Adjustment Factor (f_{HV})	0.935
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1587
Total Trucks, %	7.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.66
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	71.2
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	22.3
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	11	Segment Name	Mink+Worthington
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	485
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2790	1360
Peak Hour Factor (PHF)	0.94	0.80
Total Trucks, %	7.00	7.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.935	0.935
Flow Rate (v_i), pc/h	3174	1818
Capacity (c_{md}), pc/h	4800	2200
Initial Adjusted Capacity (c_{mda}), pc/h	4800	-
Final Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.66	0.83

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	64.0
Flow in Lanes 1 and 2 (v_{12}), pc/h	3174	Outer Lanes Freeway Speed (S_O), mi/h	82.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	64.0
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	24.8
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	27.2

HCS Basic Freeway Report

Project Information			
Segment Number	12	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	2530	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	1430	Heavy Vehicle Adjustment Factor (f_{HV})	0.935
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	814
Total Trucks, %	7.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.34
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.6
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	10.9
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Merge Report

Project Information			
Segment Number	13	Segment Name	Mink+Worthington
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Acceleration Length (LA), ft	1500	1055
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1430	190
Peak Hour Factor (PHF)	0.94	0.89
Total Trucks, %	7.00	17.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.935	0.855
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	1627 | 1877	250
Capacity (c_{md}), pc/h	4800	2200
Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.39	0.11

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	67.4
Flow in Lanes 1 and 2 (v_{12}), pc/h	1627	Outer Lanes Freeway Speed (S_O), mi/h	75.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1877	Ramp Junction Speed (S), mi/h	67.4
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	13.9
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	13.5

HCS Basic Freeway Report

Project Information			
Segment Number	14	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	9690	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	1620	Heavy Vehicle Adjustment Factor (f_{HV})	0.935
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	922
Total Trucks, %	7.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.38
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	12.3
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	15	Segment Name	SR 310+Worthington
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	465
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1620	320
Peak Hour Factor (PHF)	0.94	0.80
Total Trucks, %	7.00	7.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.935	0.935
Flow Rate (v_i), pc/h	1843	428
Capacity (c_{md}), pc/h	4800	2200
Initial Adjusted Capacity (c_{mda}), pc/h	4800	-
Final Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.38	0.19

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	68.2
Flow in Lanes 1 and 2 (v_{12}), pc/h	1843	Outer Lanes Freeway Speed (S_O), mi/h	82.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	68.2
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	13.5
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	15.9

HCS Basic Freeway Report

Project Information			
Segment Number	16	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	3110	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	1300	Heavy Vehicle Adjustment Factor (f_{HV})	0.935
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	740
Total Trucks, %	7.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.31
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.8
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	9.9
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Merge Report

Project Information			
Segment Number	17	Segment Name	SR 310+Worthington
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Acceleration Length (LA), ft	1500	940
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1300	140
Peak Hour Factor (PHF)	0.94	0.80
Total Trucks, %	10.00	6.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.943
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	1521 | 1707	186
Capacity (c_{md}), pc/h	4800	2200
Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.36	0.08

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	67.1
Flow in Lanes 1 and 2 (v_{12}), pc/h	1521	Outer Lanes Freeway Speed (S_O), mi/h	75.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1707	Ramp Junction Speed (S), mi/h	67.1
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	12.7
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	12.9

HCS Basic Freeway Report

Project Information			
Segment Number	18	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	11330	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	1440	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	842
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.35
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	11.2
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	19	Segment Name	York
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	485
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1440	120
Peak Hour Factor (PHF)	0.94	0.82
Total Trucks, %	10.00	14.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.877
Flow Rate (v_i), pc/h	1685	167
Capacity (c_{md}), pc/h	4800	2200
Initial Adjusted Capacity (c_{mda}), pc/h	4800	-
Final Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.35	0.08

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	69.0
Flow in Lanes 1 and 2 (v_{12}), pc/h	1685	Outer Lanes Freeway Speed (S_O), mi/h	82.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	69.0
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	12.2
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	14.4

HCS Basic Freeway Report

Project Information			
Segment Number	20	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	3040	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.50
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	1320	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	772
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.32
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.8
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	10.3
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Merge Report

Project Information			
Segment Number	21	Segment Name	York
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	940
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1320	310
Peak Hour Factor (PHF)	0.94	0.85
Total Trucks, %	10.00	5.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.952
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	1545 | 1928	383
Capacity (c_{md}), pc/h	4800	2200
Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.40	0.17

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	66.9
Flow in Lanes 1 and 2 (v_{12}), pc/h	1545	Outer Lanes Freeway Speed (S_O), mi/h	75.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1928	Ramp Junction Speed (S), mi/h	66.9
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	14.4
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	14.5

HCS Basic Freeway Report

Project Information			
Segment Number	22	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	16200	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	1630	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	954
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.40
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	12.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	23	Segment Name	Columbus
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1630	160
Peak Hour Factor (PHF)	0.94	0.80
Total Trucks, %	10.00	14.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.877
Flow Rate (v_i), pc/h	1908	228
Capacity (c_{md}), pc/h	4800	2200
Initial Adjusted Capacity (c_{mda}), pc/h	4800	-
Final Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.40	0.10

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	68.8
Flow in Lanes 1 and 2 (v_{12}), pc/h	1908	Outer Lanes Freeway Speed (S_O), mi/h	82.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	68.8
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	13.9
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	17.1

HCS Basic Freeway Report

Project Information			
Segment Number	24	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	1460	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	1470	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	860
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.36
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.4
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	11.5
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Weaving Report

Project Information			
Segment Number	25	Segment Name	Columbus/Lancaster
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data			
Number of Lanes (N), ln	3	Segment Type	Freeway
Segment Length (L_S), ft	665	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	0.67	Cross Weaving Managed Lane	No

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Proportion of CAVs in Traffic Stream	0	Final Capacity Adjustment Factor (CAF)	1.000

Demand and Capacity				
	FF	RF	RR	FR
Demand Volume (V_i), veh/h	1250	480	10	220
Peak Hour Factor (PHF)	0.94	0.80	0.80	0.84
Total Trucks, %	10.00	5.00	0.00	14.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.952	1.000	0.877
Flow Rate (v_i), pc/h	1463	630	12	299
Weaving Flow Rate (v_W), pc/h	929	Ideal Conditions Capacity (c_{IFL}), pc/h/ln		2400
Non-Weaving Flow Rate (v_{NW}), pc/h	1475	Density-Based Capacity ($c_{IWL} \times N \times f_{HV}$), veh/h		5363
Total Flow Rate (v), pc/h	2404	Demand Flow-Based Capacity ($c_{IW} \times f_{HV}$), veh/h		5694
Volume Ratio (VR)	0.386	Weaving Area Capacity (c_W), veh/h		5363
Minimum Lane Change Rate (LC_{MIN}), lc/h	929	Adjusted Weaving Area Capacity (c_{WA}), veh/h		5363
Maximum Weaving Length (L_{MAX}), ft	6525	Volume-to-Capacity Ratio (v/c)		0.41

Speed and Density			
Non-Weaving Vehicle Index (I_{NW})	65	Average Weaving Speed (S_W), mi/h	59.8
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	86	Average Non-Weaving Speed (S_{NW}), mi/h	64.5
Weaving Lane Change Rate (LC_W), lc/h	1030	Average Speed (S), mi/h	62.6
Total Lane Change Rate (LC_{All}), lc/h	1116	Density (D), pc/mi/ln	12.8
Weaving Intensity Factor (W)	0.340	Level of Service (LOS)	B

HCS Basic Freeway Report

Project Information			
Segment Number	26	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	1820	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	1730	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1012
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.42
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.3
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	13.5
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Merge Report

Project Information			
Segment Number	27	Segment Name	Lancaster
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	765
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1730	250
Peak Hour Factor (PHF)	0.94	0.87
Total Trucks, %	10.00	5.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.952
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	2025 | 2327	302
Capacity (c_{md}), pc/h	4800	2200
Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.48	0.14

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	65.9
Flow in Lanes 1 and 2 (v_{12}), pc/h	2025	Outer Lanes Freeway Speed (S_O), mi/h	75.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2327	Ramp Junction Speed (S), mi/h	65.9
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	17.7
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	18.8

HCS Basic Freeway Report

Project Information			
Segment Number	28	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	8000	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	1980	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1158
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.48
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.7
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	15.5
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

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LOS

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	E	E	C	C	C	E	E	C	C	C	C	A
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	B	B	B	A	B	B	B	A	B	B	B	B
	Seg 25	Seg 26	Seg 27	Seg 28								
AP 1	B	B	B	B								

Speed (mi/h)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	60.1	63.7	69.5	63.0	68.5	55.1	60.2	69.2	60.3	71.2	64.0	74.6
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	67.4	75.0	68.2	74.8	67.1	75.0	69.0	74.8	66.9	75.0	68.8	74.4
	Seg 25	Seg 26	Seg 27	Seg 28								
AP 1	62.6	74.3	65.9	74.7								

Density (pc/mi/ln)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	35.4	33.4	20.4	24.7	22.7	42.4	38.8	21.1	26.7	22.3	24.8	10.9
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	13.9	12.3	13.5	9.9	12.7	11.2	12.2	10.3	14.4	12.7	13.9	11.5
	Seg 25	Seg 26	Seg 27	Seg 28								
AP 1	12.8	13.5	17.7	15.5								

Demand - Capacity Ratio (D/C)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	0.89	0.89	0.59	0.65	0.65	0.97	0.97	0.61	0.67	0.66	0.66	0.34
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	0.39	0.38	0.38	0.31	0.36	0.35	0.35	0.32	0.40	0.40	0.40	0.36
	Seg 25	Seg 26	Seg 27	Seg 28								
AP 1	0.41	0.42	0.48	0.48								

Volume - Capacity Ratio (V/C)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	0.89	0.89	0.59	0.65	0.65	0.97	0.97	0.61	0.67	0.66	0.66	0.34
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	0.39	0.38	0.38	0.31	0.36	0.35	0.35	0.32	0.40	0.40	0.40	0.36
	Seg 25	Seg 26	Seg 27	Seg 28								
AP 1	0.41	0.42	0.48	0.48								

Density (veh/mi/ln)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	32.5	30.6	18.7	22.5	20.6	38.5	35.3	19.2	25.0	20.9	23.2	10.2
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	13.0	11.5	12.6	9.3	11.5	10.2	11.1	9.4	13.1	11.5	12.6	10.5
	Seg 25	Seg 26	Seg 27	Seg 28								

AP 1	10.9	12.3	16.1	14.1

Density in Ramp Influence Area (pc/mi/ln)												
	Seg 1	**Seg 2**	**Seg 3**	**Seg 4**	**Seg 5**	**Seg 6**	**Seg 7**	**Seg 8**	**Seg 9**	**Seg 10**	**Seg 11**	**Seg 12**
AP 1	-	36.2	-	23.0	-	-	39.6	-	26.3	-	27.2	-
	Seg 13	**Seg 14**	**Seg 15**	**Seg 16**	**Seg 17**	**Seg 18**	**Seg 19**	**Seg 20**	**Seg 21**	**Seg 22**	**Seg 23**	**Seg 24**
AP 1	13.5	-	15.9	-	12.9	-	14.4	-	14.5	-	17.1	-
	Seg 25	**Seg 26**	**Seg 27**	**Seg 28**								
AP 1	-	-	18.8	-								

Density-Based LOS												
	Seg 1	**Seg 2**	**Seg 3**	**Seg 4**	**Seg 5**	**Seg 6**	**Seg 7**	**Seg 8**	**Seg 9**	**Seg 10**	**Seg 11**	**Seg 12**
AP 1	E	E	C	C	C	E	E	C	C	C	C	A
	Seg 13	**Seg 14**	**Seg 15**	**Seg 16**	**Seg 17**	**Seg 18**	**Seg 19**	**Seg 20**	**Seg 21**	**Seg 22**	**Seg 23**	**Seg 24**
AP 1	B	B	B	A	B	B	B	A	B	B	B	B
	Seg 25	**Seg 26**	**Seg 27**	**Seg 28**								
AP 1	B	B	B	B								

Demand-Based LOS												
	Seg 1	**Seg 2**	**Seg 3**	**Seg 4**	**Seg 5**	**Seg 6**	**Seg 7**	**Seg 8**	**Seg 9**	**Seg 10**	**Seg 11**	**Seg 12**
AP 1	-	-	-	-	-	-	-	-	-	-	-	-
	Seg 13	**Seg 14**	**Seg 15**	**Seg 16**	**Seg 17**	**Seg 18**	**Seg 19**	**Seg 20**	**Seg 21**	**Seg 22**	**Seg 23**	**Seg 24**
AP 1	-	-	-	-	-	-	-	-	-	-	-	-
	Seg 25	**Seg 26**	**Seg 27**	**Seg 28**								
AP 1	-	-	-	-								

Eastbound 2 Lane (Existing) - AM No-Build

HCS Freeway Facilities Report

Project Information

Analyst	EJG	Date	11/6/2024
Agency	Woolpert	Analysis Year	2024
Jurisdiction	Franklin and Licking Counties	Time Analyzed	AM 2048 No-Build
Facility Name	EB SR-161	Units	U.S. Customary
Project Description	2 Lanes (Exisiting)		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45
Queue Discharge Capacity Drop, %	7	Total Segments	28
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	18.03		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		1700	3
2	Diverge	Diverge	US 62	1500	3
3	Basic	Basic		2600	3
4	Merge	Merge	US 62	1500	3
5	Basic	Basic	Per ODOT	1290	3
6	Basic	Basic		6540	2
7	Diverge	Diverge	Beech+Worthington	1500	2
8	Basic	Basic		4000	2
9	Merge	Merge	Beech+Worthington	1500	2
10	Basic	Basic		2240	2
11	Diverge	Diverge	Mink+Worthington	1500	2
12	Basic	Basic		2530	2
13	Merge	Merge	Mink+Worthington	1500	2
14	Basic	Basic		9690	2
15	Diverge	Diverge	SR 310+Worthington	1500	2
16	Basic	Basic		3110	2
17	Merge	Merge	SR 310+Worthington	1500	2
18	Basic	Basic		11330	2
19	Diverge	Diverge	York	1500	2
20	Basic	Basic		3040	2
21	Merge	Merge	York	1500	2
22	Basic	Basic		16200	2
23	Diverge	Diverge	Columbus	1500	2
24	Basic	Basic		1460	2
25	Weaving	Weaving	Columbus/Lancaster	1670	3
26	Basic	Basic		1820	2
27	Merge	Merge	Lancaster	1500	2

28	Basic	Basic		8000	2

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.917	6230	7200	0.87	61.1	34.0	D

Segment 2: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.93	0.917	0.952	6230	2090	7200	2200	0.87	0.95	63.6	60.0	32.7	35.7	E

Segment 3: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.917	4084	7200	0.57	69.7	19.5	C

Segment 4: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.88	0.909	0.952	4502	382	7200	2200	0.63	0.17	63.3	61.9	23.7	22.1	C

Segment 5: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	4494	7200	0.62	69.0	21.7	C

Segment 6: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	4494	4800	0.94	57.3	39.2	E

Segment 7: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.85	0.951	0.877	4296	1999	4800	2200	0.89	0.91	60.3	60.3	35.6	36.4	E

Segment 8: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	2750	4800	0.57	69.6	19.8	C

Segment 9: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.82	0.935	0.952	3058	384	4800	2200	0.64	0.17	60.8	60.8	25.1	25.0	C

Segment 10: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

1	0.94		0.935		3015		4800		0.63		72.1		20.9	C
Segment 11: Diverge														
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**	**LOS**
	F	**R**	**F**	**R**	**Freeway**	**Ramp**	**Freeway**	**Ramp**	**F**	**R**	**F**	**R Infl.**	**F**	**R Infl.**	
1	0.94	0.80	0.935	0.935	3015	1751	4800	2200	0.63	0.80	64.2	64.2	23.5	25.8	C
Segment 12: Basic														
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**	**LOS**
1	0.94		0.935		1525		4800		0.32		74.6		10.2	A
Segment 13: Merge														
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**	**LOS**
	F	**R**	**F**	**R**	**Freeway**	**Ramp**	**Freeway**	**Ramp**	**F**	**R**	**F**	**R Infl.**	**F**	**R Infl.**	
1	0.94	0.89	0.935	0.855	1814	289	4800	2200	0.38	0.13	67.4	67.4	13.5	12.9	B
Segment 14: Basic														
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**	**LOS**
1	0.94		0.935		1775		4800		0.37		75.0		11.8	B
Segment 15: Diverge														
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**	**LOS**
	F	**R**	**F**	**R**	**Freeway**	**Ramp**	**Freeway**	**Ramp**	**F**	**R**	**F**	**R Infl.**	**F**	**R Infl.**	
1	0.94	0.80	0.935	0.935	1775	348	4800	2200	0.37	0.16	68.4	68.4	13.0	15.3	B
Segment 16: Basic														
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**	**LOS**
1	0.94		0.935		1479		4800		0.31		74.8		9.9	A
Segment 17: Merge														
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**	**LOS**
	F	**R**	**F**	**R**	**Freeway**	**Ramp**	**Freeway**	**Ramp**	**F**	**R**	**F**	**R Infl.**	**F**	**R Infl.**	
1	0.94	0.80	0.909	0.943	1693	172	4800	2200	0.35	0.08	67.1	67.1	12.6	12.8	B
Segment 18: Basic														
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**	**LOS**
1	0.94		0.909		1674		4800		0.35		75.0		11.2	B
Segment 19: Diverge														
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**	**LOS**
	F	**R**	**F**	**R**	**Freeway**	**Ramp**	**Freeway**	**Ramp**	**F**	**R**	**F**	**R Infl.**	**F**	**R Infl.**	
1	0.94	0.82	0.909	0.877	1674	209	4800	2200	0.35	0.09	68.8	68.8	12.2	14.3	B
Segment 20: Basic														
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**	**LOS**

1	0.94		0.909		1498		4800		0.31		74.8		10.0		A

Segment 21: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.85	0.909	0.952	1881	383	4800	2200	0.39	0.17	67.0	67.0	14.0	14.1	B

Segment 22: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	1861	4800	0.39	75.0	12.4	B

Segment 23: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.80	0.909	0.877	1861	242	4800	2200	0.39	0.11	68.7	68.7	13.5	16.7	B

Segment 24: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	1662	4800	0.35	74.4	11.1	B

Segment 25: Weaving

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	2358	5835	0.40	62.6	12.6	B

Segment 26: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	1966	4800	0.41	74.3	13.1	B

Segment 27: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.87	0.909	0.952	2268	302	4800	2200	0.47	0.14	65.9	65.9	17.2	18.3	B

Segment 28: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	2259	4800	0.47	74.8	15.1	B

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	10095	9471	9.60	239.94	68.2	17.0	15.6	15.90	C

Facility Overall Results

Space Mean Speed, mi/h	68.2	Average Density, veh/mi/ln	15.6
Average Travel Time, min	15.90	Average Density, pc/mi/ln	17.0
Total VMT, veh-mi/AP	10095	Total VHD, veh-h	9.60
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	239.94

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HCS Basic Freeway Report

Project Information			
Analyst	EJG	Date	11/6/2024
Agency	Woolpert	Analysis Year	2024
Jurisdiction	Franklin and Licking Counties	Time Analyzed	AM 2048 No-Build
Project Description	2 Lanes (Exisiting)	Units	U.S. Customary
Segment Number	1	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	1700	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.50
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	5370	Heavy Vehicle Adjustment Factor (f_{HV})	0.917
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2077
Total Trucks, %	9.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.87
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	61.1
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	34.0
Total Ramp Density Adjustment	-	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	2	Segment Name	US 62
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	70.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	515
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	5370	1850
Peak Hour Factor (PHF)	0.94	0.93
Total Trucks, %	9.00	5.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.917	0.952
Flow Rate (v_i), pc/h	6230	2090
Capacity (c_{md}), pc/h	7200	2200
Initial Adjusted Capacity (c_{mda}), pc/h	7200	-
Final Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.87	0.95

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	2037
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	60.0
Flow in Lanes 1 and 2 (v_{12}), pc/h	4193	Outer Lanes Freeway Speed (S_O), mi/h	72.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	63.6
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	32.7
Level of Service (LOS)	E	Density in Ramp Influence Area (D_R), pc/mi/ln	35.7

HCS Basic Freeway Report

Project Information			
Segment Number	3	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	2600	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.50
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3520	Heavy Vehicle Adjustment Factor (f_{HV})	0.917
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1361
Total Trucks, %	9.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.57
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	69.7
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	19.5
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Freeway Merge Report

Project Information			
Segment Number	4	Segment Name	US 62
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	70.0	55.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	890
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3520	320
Peak Hour Factor (PHF)	0.94	0.88
Total Trucks, %	10.00	5.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.952
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	4120 | 4502	382
Capacity (c_{md}), pc/h	7200	2200
Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.63	0.17

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	1833.2	Flow Outer Lanes (v_{OA}), pc/h/ln	1640
Downstream Equilibrium Distance (L_{EQ}), ft	9754.4	On-Ramp Influence Area Speed (S_R), mi/h	61.9
Flow in Lanes 1 and 2 (v_{12}), pc/h	2480	Outer Lanes Freeway Speed (S_O), mi/h	65.9
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2862	Ramp Junction Speed (S), mi/h	63.3
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	23.7
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	22.1

HCS Basic Freeway Report

Project Information			
Segment Number	5	Segment Name	Per ODOT
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	1290	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3840	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1498
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.62
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	69.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	21.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Basic Freeway Report

Project Information			
Segment Number	6	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	6540	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3840	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2247
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.94
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	57.3
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	39.2
Total Ramp Density Adjustment	-	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	7	Segment Name	Beech+Worthington
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	70.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	530
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3840	1490
Peak Hour Factor (PHF)	0.94	0.85
Total Trucks, %	5.10	14.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.951	0.877
Flow Rate (v_i), pc/h	4296	1999
Capacity (c_{md}), pc/h	4800	2200
Initial Adjusted Capacity (c_{mda}), pc/h	4800	-
Final Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.90	0.91

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	60.3
Flow in Lanes 1 and 2 (v_{12}), pc/h	4296	Outer Lanes Freeway Speed (S_O), mi/h	76.8
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	60.3
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	35.6
Level of Service (LOS)	E	Density in Ramp Influence Area (D_R), pc/mi/ln	36.4

HCS Basic Freeway Report

Project Information			
Segment Number	8	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	4000	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	2350	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1375
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.57
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	69.6
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	19.8
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Freeway Merge Report

Project Information			
Segment Number	9	Segment Name	Beech+Worthington
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	70.0	55.0
Segment Length (L) / Acceleration Length (LA), ft	1500	670
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2350	300
Peak Hour Factor (PHF)	0.94	0.82
Total Trucks, %	7.00	5.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.935	0.952
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	2674 | 3058	384
Capacity (c_{md}), pc/h	4800	2200
Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.64	0.17

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	60.8
Flow in Lanes 1 and 2 (v_{12}), pc/h	2674	Outer Lanes Freeway Speed (S_O), mi/h	70.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3058	Ramp Junction Speed (S), mi/h	60.8
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	25.1
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	25.0

HCS Basic Freeway Report

Project Information			
Segment Number	10	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	2240	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	2650	Heavy Vehicle Adjustment Factor (f_{HV})	0.935
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1508
Total Trucks, %	7.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.63
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	72.1
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	20.9
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	11	Segment Name	Mink+Worthington
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	485
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2650	1310
Peak Hour Factor (PHF)	0.94	0.80
Total Trucks, %	7.00	7.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.935	0.935
Flow Rate (v_i), pc/h	3015	1751
Capacity (c_{md}), pc/h	4800	2200
Initial Adjusted Capacity (c_{mda}), pc/h	4800	-
Final Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.63	0.80

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	64.2
Flow in Lanes 1 and 2 (v_{12}), pc/h	3015	Outer Lanes Freeway Speed (S_O), mi/h	82.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	64.2
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	23.5
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	25.8

HCS Basic Freeway Report

Project Information			
Segment Number	12	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	2530	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	1340	Heavy Vehicle Adjustment Factor (f_{HV})	0.935
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	762
Total Trucks, %	7.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.32
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.6
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	10.2
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Merge Report

Project Information			
Segment Number	13	Segment Name	Mink+Worthington
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Acceleration Length (LA), ft	1500	1055
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1340	220
Peak Hour Factor (PHF)	0.94	0.89
Total Trucks, %	7.00	17.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.935	0.855
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	1525 | 1814	289
Capacity (c_{md}), pc/h	4800	2200
Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.38	0.13

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	67.4
Flow in Lanes 1 and 2 (v_{12}), pc/h	1525	Outer Lanes Freeway Speed (S_O), mi/h	75.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1814	Ramp Junction Speed (S), mi/h	67.4
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	13.5
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	12.9

HCS Basic Freeway Report

Project Information			
Segment Number	14	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	9690	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	1560	Heavy Vehicle Adjustment Factor (f_{HV})	0.935
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	888
Total Trucks, %	7.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.37
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	11.8
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	15	Segment Name	SR 310+Worthington
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	465
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1560	260
Peak Hour Factor (PHF)	0.94	0.80
Total Trucks, %	7.00	7.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.935	0.935
Flow Rate (v_i), pc/h	1775	348
Capacity (c_{md}), pc/h	4800	2200
Initial Adjusted Capacity (c_{mda}), pc/h	4800	-
Final Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.37	0.16

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	68.4
Flow in Lanes 1 and 2 (v_{12}), pc/h	1775	Outer Lanes Freeway Speed (S_O), mi/h	82.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	68.4
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	13.0
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	15.3

HCS Basic Freeway Report

Project Information			
Segment Number	16	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	3110	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	1300	Heavy Vehicle Adjustment Factor (f_{HV})	0.935
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	740
Total Trucks, %	7.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.31
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.8
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	9.9
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Merge Report

Project Information			
Segment Number	17	Segment Name	SR 310+Worthington
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Acceleration Length (LA), ft	1500	940
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1300	130
Peak Hour Factor (PHF)	0.94	0.80
Total Trucks, %	10.00	6.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.943
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	1521 | 1693	172
Capacity (c_{md}), pc/h	4800	2200
Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.35	0.08

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	67.1
Flow in Lanes 1 and 2 (v_{12}), pc/h	1521	Outer Lanes Freeway Speed (S_O), mi/h	75.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1693	Ramp Junction Speed (S), mi/h	67.1
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	12.6
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	12.8

HCS Basic Freeway Report

Project Information			
Segment Number	18	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	11330	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	1430	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	837
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.35
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	11.2
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Diverge Report

Project Information

Segment Number	19	Segment Name	York
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	485
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	1430	150
Peak Hour Factor (PHF)	0.94	0.82
Total Trucks, %	10.00	14.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.877
Flow Rate (v_i), pc/h	1674	209
Capacity (c_{md}), pc/h	4800	2200
Initial Adjusted Capacity (c_{mda}), pc/h	4800	-
Final Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.35	0.10

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	68.8
Flow in Lanes 1 and 2 (v_{12}), pc/h	1674	Outer Lanes Freeway Speed (S_O), mi/h	82.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	68.8
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	12.2
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	14.3

HCS Basic Freeway Report

Project Information			
Segment Number	20	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	3040	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.50
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	1280	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	749
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.31
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.8
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	10.0
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Merge Report

Project Information			
Segment Number	21	Segment Name	York
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Acceleration Length (LA), ft	1500	940
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1280	310
Peak Hour Factor (PHF)	0.94	0.85
Total Trucks, %	10.00	5.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.952
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	1498 | 1881	383
Capacity (c_{md}), pc/h	4800	2200
Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.39	0.17

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	67.0
Flow in Lanes 1 and 2 (v_{12}), pc/h	1498	Outer Lanes Freeway Speed (S_O), mi/h	75.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1881	Ramp Junction Speed (S), mi/h	67.0
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	14.0
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	14.1

HCS Basic Freeway Report

Project Information			
Segment Number	22	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	16200	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	1590	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	930
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.39
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	12.4
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	23	Segment Name	Columbus
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1590	170
Peak Hour Factor (PHF)	0.94	0.80
Total Trucks, %	10.00	14.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.877
Flow Rate (v_i), pc/h	1861	242
Capacity (c_{md}), pc/h	4800	2200
Initial Adjusted Capacity (c_{mda}), pc/h	4800	-
Final Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.39	0.11

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	68.7
Flow in Lanes 1 and 2 (v_{12}), pc/h	1861	Outer Lanes Freeway Speed (S_O), mi/h	82.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	68.7
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	13.5
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	16.7

HCS Basic Freeway Report

Project Information			
Segment Number	24	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	1460	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	1420	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	831
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.35
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.4
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	11.1
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Weaving Report

Project Information			
Segment Number	25	Segment Name	Columbus/Lancaster
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data			
Number of Lanes (N), ln	3	Segment Type	Freeway
Segment Length (L_S), ft	665	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	0.67	Cross Weaving Managed Lane	No

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Proportion of CAVs in Traffic Stream	0	Final Capacity Adjustment Factor (CAF)	1.000

Demand and Capacity				
	FF	RF	RR	FR
Demand Volume (V_i), veh/h	1200	480	20	220
Peak Hour Factor (PHF)	0.94	0.80	0.80	0.84
Total Trucks, %	10.00	5.00	0.00	14.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.952	1.000	0.877
Flow Rate (v_i), pc/h	1404	630	25	299
Weaving Flow Rate (v_w), pc/h	929	Ideal Conditions Capacity (c_{IFL}), pc/h/ln		2400
Non-Weaving Flow Rate (v_{NW}), pc/h	1429	Density-Based Capacity ($c_{IWL} \times N \times f_{HV}$), veh/h		5347
Total Flow Rate (v), pc/h	2358	Demand Flow-Based Capacity ($c_{IW} \times f_{HV}$), veh/h		5582
Volume Ratio (VR)	0.394	Weaving Area Capacity (c_W), veh/h		5347
Minimum Lane Change Rate (LC_{MIN}), lc/h	929	Adjusted Weaving Area Capacity (c_{WA}), veh/h		5347
Maximum Weaving Length (L_{MAX}), ft	6614	Volume-to-Capacity Ratio (v/c)		0.40

Speed and Density			
Non-Weaving Vehicle Index (I_{NW})	63	Average Weaving Speed (S_W), mi/h	59.8
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	77	Average Non-Weaving Speed (S_{NW}), mi/h	64.5
Weaving Lane Change Rate (LC_W), lc/h	1030	Average Speed (S), mi/h	62.6
Total Lane Change Rate (LC_{All}), lc/h	1107	Density (D), pc/mi/ln	12.6
Weaving Intensity Factor (W)	0.338	Level of Service (LOS)	B

HCS Basic Freeway Report

Project Information			
Segment Number	26	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	1820	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	1680	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	983
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.41
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.3
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	13.1
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Merge Report

Project Information			
Segment Number	27	Segment Name	Lancaster
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	765
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1680	250
Peak Hour Factor (PHF)	0.94	0.87
Total Trucks, %	10.00	5.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.952
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	1966 | 2268	302
Capacity (c_{md}), pc/h	4800	2200
Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.47	0.14

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	65.9
Flow in Lanes 1 and 2 (v_{12}), pc/h	1966	Outer Lanes Freeway Speed (S_O), mi/h	75.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2268	Ramp Junction Speed (S), mi/h	65.9
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	17.2
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	18.3

HCS Basic Freeway Report

Project Information			
Segment Number	28	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	8000	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	1930	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1130
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.47
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.8
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	15.1
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

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LOS

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	D	E	C	C	C	E	E	C	C	C	C	A
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	B	B	B	A	B	B	B	A	B	B	B	B
	Seg 25	Seg 26	Seg 27	Seg 28								
AP 1	B	B	B	B								

Speed (mi/h)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	61.1	63.6	69.7	63.3	69.0	57.3	60.3	69.6	60.8	72.1	64.2	74.6
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	67.4	75.0	68.4	74.8	67.1	75.0	68.8	74.8	67.0	75.0	68.7	74.4
	Seg 25	Seg 26	Seg 27	Seg 28								
AP 1	62.6	74.3	65.9	74.8								

Density (pc/mi/ln)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	34.0	32.7	19.5	23.7	21.7	39.2	35.6	19.8	25.1	20.9	23.5	10.2
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	13.5	11.8	13.0	9.9	12.6	11.2	12.2	10.0	14.0	12.4	13.5	11.1
	Seg 25	Seg 26	Seg 27	Seg 28								
AP 1	12.6	13.1	17.2	15.1								

Demand - Capacity Ratio (D/C)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	0.87	0.87	0.57	0.63	0.62	0.94	0.89	0.57	0.64	0.63	0.63	0.32
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	0.38	0.37	0.37	0.31	0.35	0.35	0.35	0.31	0.39	0.39	0.39	0.35
	Seg 25	Seg 26	Seg 27	Seg 28								
AP 1	0.40	0.41	0.47	0.47								

Volume - Capacity Ratio (V/C)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	0.87	0.87	0.57	0.63	0.62	0.94	0.90	0.57	0.64	0.63	0.63	0.32
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	0.38	0.37	0.37	0.31	0.35	0.35	0.35	0.31	0.39	0.39	0.39	0.35
	Seg 25	Seg 26	Seg 27	Seg 28								
AP 1	0.40	0.41	0.47	0.47								

Density (veh/mi/ln)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	31.2	30.0	17.9	21.5	19.7	35.6	33.9	18.0	23.5	19.5	22.0	9.5
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	12.6	11.0	12.2	9.3	11.5	10.2	11.1	9.1	12.7	11.3	12.3	10.1
	Seg 25	Seg 26	Seg 27	Seg 28								

AP 1	10.8	11.9	15.6	13.7

Density in Ramp Influence Area (pc/mi/ln)												
	Seg 1	**Seg 2**	**Seg 3**	**Seg 4**	**Seg 5**	**Seg 6**	**Seg 7**	**Seg 8**	**Seg 9**	**Seg 10**	**Seg 11**	**Seg 12**
AP 1	-	35.7	-	22.1	-	-	36.4	-	25.0	-	25.8	-
	Seg 13	**Seg 14**	**Seg 15**	**Seg 16**	**Seg 17**	**Seg 18**	**Seg 19**	**Seg 20**	**Seg 21**	**Seg 22**	**Seg 23**	**Seg 24**
AP 1	12.9	-	15.3	-	12.8	-	14.3	-	14.1	-	16.7	-
	Seg 25	**Seg 26**	**Seg 27**	**Seg 28**								
AP 1	-	-	18.3	-								

Density-Based LOS												
	Seg 1	**Seg 2**	**Seg 3**	**Seg 4**	**Seg 5**	**Seg 6**	**Seg 7**	**Seg 8**	**Seg 9**	**Seg 10**	**Seg 11**	**Seg 12**
AP 1	D	E	C	C	C	E	E	C	C	C	C	A
	Seg 13	**Seg 14**	**Seg 15**	**Seg 16**	**Seg 17**	**Seg 18**	**Seg 19**	**Seg 20**	**Seg 21**	**Seg 22**	**Seg 23**	**Seg 24**
AP 1	B	B	B	A	B	B	B	A	B	B	B	B
	Seg 25	**Seg 26**	**Seg 27**	**Seg 28**								
AP 1	B	B	B	B								

Demand-Based LOS												
	Seg 1	**Seg 2**	**Seg 3**	**Seg 4**	**Seg 5**	**Seg 6**	**Seg 7**	**Seg 8**	**Seg 9**	**Seg 10**	**Seg 11**	**Seg 12**
AP 1	-	-	-	-	-	-	-	-	-	-	-	-
	Seg 13	**Seg 14**	**Seg 15**	**Seg 16**	**Seg 17**	**Seg 18**	**Seg 19**	**Seg 20**	**Seg 21**	**Seg 22**	**Seg 23**	**Seg 24**
AP 1	-	-	-	-	-	-	-	-	-	-	-	-
	Seg 25	**Seg 26**	**Seg 27**	**Seg 28**								
AP 1	-	-	-	-								

Eastbound 2 Lane (Existing) - PM Build

HCS Freeway Facilities Report

Project Information

Analyst	EJG	Date	11/6/2024
Agency	Woolpert	Analysis Year	2024
Jurisdiction	Franklin and Licking Counties	Time Analyzed	PM 2048 Build
Facility Name	EB SR-161	Units	U.S. Customary
Project Description	2 Lanes (Exisiting)		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45
Queue Discharge Capacity Drop, %	7	Total Segments	28
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	18.03		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		1700	3
2	Diverge	Diverge	US 62	1500	3
3	Basic	Basic		2600	3
4	Merge	Merge	US 62	1500	3
5	Basic	Basic	Per ODOT	1290	3
6	Basic	Basic		6540	2
7	Diverge	Diverge	Beech+Worthington	1500	2
8	Basic	Basic		4000	2
9	Merge	Merge	Beech+Worthington	1500	2
10	Basic	Basic		2240	2
11	Diverge	Diverge	Mink+Worthington	1500	2
12	Basic	Basic		2530	2
13	Merge	Merge	Mink+Worthington	1500	2
14	Basic	Basic		9690	2
15	Diverge	Diverge	SR 310+Worthington	1500	2
16	Basic	Basic		3110	2
17	Merge	Merge	SR 310+Worthington	1500	2
18	Basic	Basic		11330	2
19	Diverge	Diverge	York	1500	2
20	Basic	Basic		3040	2
21	Merge	Merge	York	1500	2
22	Basic	Basic		16200	2
23	Diverge	Diverge	Columbus	1500	2
24	Basic	Basic		1460	2
25	Weaving	Weaving	Columbus/Lancaster	1670	3
26	Basic	Basic		1820	2
27	Merge	Merge	Lancaster	1500	2

28	Basic	Basic		8000	2

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.952	5509	7200	0.77	65.3	28.1	D

Segment 2: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.93	0.952	0.952	5509	1480	7200	2200	0.77	0.67	65.1	61.6	28.2	31.5	D

Segment 3: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.952	4029	7200	0.56	69.8	19.2	C

Segment 4: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.84	0.952	0.971	4593	564	7200	2200	0.64	0.26	63.1	61.6	24.3	23.0	C

Segment 5: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.952	4593	7200	0.63	68.7	22.3	C

Segment 6: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.952	4548	4800	0.95	56.6	40.2	F

Segment 7: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.92	0.952	0.943	4484	634	4800	2200	0.95	0.29	63.7	63.7	35.2	38.0	F

Segment 8: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.952	3534	4800	0.82	27.6	64.1	F

Segment 9: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.80	0.952	0.962	4470	936	4800	2200	1.02	0.43	53.5	53.5	41.8	35.8	F

Segment 10: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

1	0.94		0.952		4470		4800		0.99		58.1		38.5		E
Segment 11: Diverge															
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**		**LOS**
	F	**R**	**F**	**R**	**Freeway**	**Ramp**	**Freeway**	**Ramp**	**F**	**R**	**F**	**R Infl.**	**F**	**R Infl.**	
1	0.94	0.87	0.952	0.980	4470	927	4800	2200	0.99	0.42	66.7	66.7	33.5	38.3	E
Segment 12: Basic															
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**		**LOS**
1	0.94		0.952		3543		4800		0.81		68.4		25.9		C
Segment 13: Merge															
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**		**LOS**
	F	**R**	**F**	**R**	**Freeway**	**Ramp**	**Freeway**	**Ramp**	**F**	**R**	**F**	**R Infl.**	**F**	**R Infl.**	
1	0.94	0.82	0.952	0.971	4309	766	4800	2200	0.97	0.35	58.7	58.7	36.7	32.2	D
Segment 14: Basic															
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**		**LOS**
1	0.94		0.952		4309		4800		0.95		60.3		35.7		E
Segment 15: Diverge															
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**		**LOS**
	F	**R**	**F**	**R**	**Freeway**	**Ramp**	**Freeway**	**Ramp**	**F**	**R**	**F**	**R Infl.**	**F**	**R Infl.**	
1	0.94	0.95	0.952	0.980	4309	730	4800	2200	0.95	0.33	67.3	67.3	32.0	37.1	E
Segment 16: Basic															
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**		**LOS**
1	0.94		0.952		3579		4800		0.79		68.1		26.3		D
Segment 17: Merge															
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**		**LOS**
	F	**R**	**F**	**R**	**Freeway**	**Ramp**	**Freeway**	**Ramp**	**F**	**R**	**F**	**R Infl.**	**F**	**R Infl.**	
1	0.94	0.80	0.952	0.952	4144	565	4800	2200	0.91	0.26	59.7	59.7	34.7	31.7	D
Segment 18: Basic															
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**		**LOS**
1	0.94		0.952		4144		4800		0.89		62.3		33.3		D
Segment 19: Diverge															
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**		**LOS**
	F	**R**	**F**	**R**	**Freeway**	**Ramp**	**Freeway**	**Ramp**	**F**	**R**	**F**	**R Infl.**	**F**	**R Infl.**	
1	0.94	0.89	0.952	0.943	4081	310	4800	2200	0.89	0.14	68.5	68.5	29.8	35.0	F
Segment 20: Basic															
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**		**LOS**

1	0.94		0.952		3529		4800		0.83		27.9		63.1		F

Segment 21: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.84	0.952	0.962	4470	941	4800	2200	1.02	0.43	56.6	56.6	39.5	34.1	F

Segment 22: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.952	4470	4800	1.01	58.1	38.5	F

Segment 23: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.80	0.952	0.943	4407	225	4800	2200	1.01	0.10	68.8	68.8	32.0	38.6	F

Segment 24: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.952	4113	4800	0.97	41.0	50.1	F

Segment 25: Weaving

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.952	4729	6084	0.91	25.6	61.7	F

Segment 26: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.952	3817	4800	0.98	26.4	72.3	F

Segment 27: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.86	0.952	0.962	4470	653	4800	2200	1.12	0.30	55.9	55.9	40.0	35.3	F

Segment 28: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.952	4470	4800	1.11	58.1	38.5	F

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	18428	18579	92.54	2313.53	53.8	37.9	36.0	20.10	F

Facility Overall Results

Space Mean Speed, mi/h	53.8	Average Density, veh/mi/ln	36.0
Average Travel Time, min	20.10	Average Density, pc/mi/ln	37.9
Total VMT, veh-mi/AP	18428	Total VHD, veh-h	92.54
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	2313.53

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HCS Basic Freeway Report

Project Information			
Analyst	EJG	Date	11/6/2024
Agency	Woolpert	Analysis Year	2024
Jurisdiction	Franklin and Licking Counties	Time Analyzed	PM 2048 Build
Project Description	2 Lanes (Exisiting)	Units	U.S. Customary
Segment Number	1	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	1700	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.50
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	4930	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1836
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.77
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	65.3
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	28.1
Total Ramp Density Adjustment	-	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	2	Segment Name	US 62
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	70.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	515
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	4930	1310
Peak Hour Factor (PHF)	0.94	0.93
Total Trucks, %	5.00	5.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.952	0.952
Flow Rate (v_i), pc/h	5509	1480
Capacity (c_{md}), pc/h	7200	2200
Initial Adjusted Capacity (c_{mda}), pc/h	7200	-
Final Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.77	0.67

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1797
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	61.6
Flow in Lanes 1 and 2 (v_{12}), pc/h	3712	Outer Lanes Freeway Speed (S_O), mi/h	73.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	65.1
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	28.2
Level of Service (LOS)	D	Density in Ramp Influence Area (D_R), pc/mi/ln	31.5

HCS Basic Freeway Report

Project Information			
Segment Number	3	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	2600	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.50
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3620	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1343
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.56
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	69.8
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	19.2
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Freeway Merge Report

Project Information			
Segment Number	4	Segment Name	US 62
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	70.0	55.0
Segment Length (L) / Acceleration Length (LA), ft	1500	890
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3620	460
Peak Hour Factor (PHF)	0.94	0.84
Total Trucks, %	5.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.952	0.971
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	4045 | 4593	564
Capacity (c_{md}), pc/h	7200	2200
Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.64	0.26

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	1852.7	Flow Outer Lanes (v_{OA}), pc/h/ln	1604
Downstream Equilibrium Distance (L_{EQ}), ft	3095.3	On-Ramp Influence Area Speed (S_R), mi/h	61.6
Flow in Lanes 1 and 2 (v_{12}), pc/h	2425	Outer Lanes Freeway Speed (S_O), mi/h	66.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2989	Ramp Junction Speed (S), mi/h	63.1
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	24.3
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	23.0

HCS Basic Freeway Report

Project Information			
Segment Number	5	Segment Name	Per ODOT
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	1290	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	4080	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1531
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.64
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	68.7
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	22.3
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Basic Freeway Report

Project Information			
Segment Number	6	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	6540	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	4080	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2274
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.95
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	56.6
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	40.2
Total Ramp Density Adjustment	-	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	7	Segment Name	Beech+Worthington
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	70.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	530
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	4080	550
Peak Hour Factor (PHF)	0.94	0.92
Total Trucks, %	5.00	6.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.952	0.943
Flow Rate (v_i), pc/h	4484	634
Capacity (c_{md}), pc/h	4800	2200
Initial Adjusted Capacity (c_{mda}), pc/h	4800	-
Final Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.93	0.29

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	63.7
Flow in Lanes 1 and 2 (v_{12}), pc/h	4484	Outer Lanes Freeway Speed (S_O), mi/h	76.8
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	63.7
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	35.2
Level of Service (LOS)	F	Density in Ramp Influence Area (D_R), pc/mi/ln	38.0

HCS Basic Freeway Report

Project Information			
Segment Number	8	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	4000	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3530	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1972
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.74
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	27.6
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	64.1
Total Ramp Density Adjustment	-	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Freeway Merge Report

Project Information			
Segment Number	9	Segment Name	Beech+Worthington
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	70.0	55.0
Segment Length (L) / Acceleration Length (LA), ft	1500	670
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3530	720
Peak Hour Factor (PHF)	0.94	0.80
Total Trucks, %	5.00	4.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.952	0.962
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	3945 | 4470	936
Capacity (c_{md}), pc/h	4800	2200
Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.93	0.43

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	53.5
Flow in Lanes 1 and 2 (v_{12}), pc/h	3534	Outer Lanes Freeway Speed (S_O), mi/h	70.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	4470	Ramp Junction Speed (S), mi/h	53.5
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	41.8
Level of Service (LOS)	F	Density in Ramp Influence Area (D_R), pc/mi/ln	35.8

HCS Basic Freeway Report

Project Information			
Segment Number	10	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	2240	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	4250	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2235
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.93
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	58.1
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	38.5
Total Ramp Density Adjustment	-	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	11	Segment Name	Mink+Worthington
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	485
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	4250	790
Peak Hour Factor (PHF)	0.94	0.87
Total Trucks, %	5.00	2.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.952	0.980
Flow Rate (v_i), pc/h	4470	927
Capacity (c_{md}), pc/h	4800	2200
Initial Adjusted Capacity (c_{mda}), pc/h	4800	-
Final Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.93	0.42

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	66.7
Flow in Lanes 1 and 2 (v_{12}), pc/h	4470	Outer Lanes Freeway Speed (S_O), mi/h	82.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	66.7
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	33.5
Level of Service (LOS)	E	Density in Ramp Influence Area (D_R), pc/mi/ln	38.3

HCS Basic Freeway Report

Project Information			
Segment Number	12	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	2530	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3460	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1772
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.74
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	68.4
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	25.9
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Merge Report

Project Information			
Segment Number	13	Segment Name	Mink+Worthington
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	1055
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3460	610
Peak Hour Factor (PHF)	0.94	0.82
Total Trucks, %	5.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.952	0.971
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	3866 | 4309	766
Capacity (c_{md}), pc/h	4800	2200
Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.90	0.35

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	58.7
Flow in Lanes 1 and 2 (v_{12}), pc/h	3543	Outer Lanes Freeway Speed (S_O), mi/h	75.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	4309	Ramp Junction Speed (S), mi/h	58.7
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	36.7
Level of Service (LOS)	D	Density in Ramp Influence Area (D_R), pc/mi/ln	32.2

HCS Basic Freeway Report

Project Information			
Segment Number	14	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	9690	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	4070	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2155
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.90
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	60.3
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	35.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	15	Segment Name	SR 310+Worthington
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	465
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	4070	680
Peak Hour Factor (PHF)	0.94	0.95
Total Trucks, %	5.00	2.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.952	0.980
Flow Rate (v_i), pc/h	4309	730
Capacity (c_{md}), pc/h	4800	2200
Initial Adjusted Capacity (c_{mda}), pc/h	4800	-
Final Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.90	0.33

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	67.3
Flow in Lanes 1 and 2 (v_{12}), pc/h	4309	Outer Lanes Freeway Speed (S_O), mi/h	82.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	67.3
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	32.0
Level of Service (LOS)	E	Density in Ramp Influence Area (D_R), pc/mi/ln	37.1

HCS Basic Freeway Report

Project Information			
Segment Number	16	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	3110	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3390	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1790
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.75
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	68.1
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	26.3
Total Ramp Density Adjustment	-	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Merge Report

Project Information			
Segment Number	17	Segment Name	SR 310+Worthington
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Acceleration Length (LA), ft	1500	940
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3390	430
Peak Hour Factor (PHF)	0.94	0.80
Total Trucks, %	5.00	5.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.952	0.952
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	3788 | 4144	565
Capacity (c_{md}), pc/h	4800	2200
Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.86	0.26

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	59.7
Flow in Lanes 1 and 2 (v_{12}), pc/h	3579	Outer Lanes Freeway Speed (S_O), mi/h	75.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	4144	Ramp Junction Speed (S), mi/h	59.7
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	34.7
Level of Service (LOS)	D	Density in Ramp Influence Area (D_R), pc/mi/ln	31.7

HCS Basic Freeway Report

Project Information			
Segment Number	18	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	11330	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3820	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2072
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.86
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	62.3
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	33.3
Total Ramp Density Adjustment	-	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	19	Segment Name	York
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	485
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3820	260
Peak Hour Factor (PHF)	0.94	0.89
Total Trucks, %	5.00	6.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.952	0.943
Flow Rate (v_i), pc/h	4081	310
Capacity (c_{md}), pc/h	4800	2200
Initial Adjusted Capacity (c_{mda}), pc/h	4800	-
Final Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.85	0.14

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	68.5
Flow in Lanes 1 and 2 (v_{12}), pc/h	4081	Outer Lanes Freeway Speed (S_O), mi/h	82.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	68.5
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	29.8
Level of Service (LOS)	F	Density in Ramp Influence Area (D_R), pc/mi/ln	35.0

HCS Basic Freeway Report

Project Information			
Segment Number	20	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	3040	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.50
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3560	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1989
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.74
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	27.9
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	63.1
Total Ramp Density Adjustment	-	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Merge Report

Project Information			
Segment Number	21	Segment Name	York
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	940
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3560	760
Peak Hour Factor (PHF)	0.94	0.84
Total Trucks, %	5.00	4.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.952	0.962
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	3978 | 4470	941
Capacity (c_{md}), pc/h	4800	2200
Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.93	0.43

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	56.6
Flow in Lanes 1 and 2 (v_{12}), pc/h	3529	Outer Lanes Freeway Speed (S_O), mi/h	75.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	4470	Ramp Junction Speed (S), mi/h	56.6
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	39.5
Level of Service (LOS)	F	Density in Ramp Influence Area (D_R), pc/mi/ln	34.1

HCS Basic Freeway Report

Project Information			
Segment Number	22	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	16200	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	4320	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2235
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.93
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	58.1
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	38.5
Total Ramp Density Adjustment	-	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Diverge Report

Project Information

Segment Number	23	Segment Name	Columbus
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	4320	170
Peak Hour Factor (PHF)	0.94	0.80
Total Trucks, %	5.00	6.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.952	0.943
Flow Rate (v_i), pc/h	4407	225
Capacity (c_{md}), pc/h	4800	2200
Initial Adjusted Capacity (c_{mda}), pc/h	4800	-
Final Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.92	0.10

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	68.8
Flow in Lanes 1 and 2 (v_{12}), pc/h	4407	Outer Lanes Freeway Speed (S_O), mi/h	82.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	68.8
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	32.0
Level of Service (LOS)	F	Density in Ramp Influence Area (D_R), pc/mi/ln	38.6

HCS Basic Freeway Report

Project Information			
Segment Number	24	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	1460	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	4150	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2318
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.86
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	41.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	50.1
Total Ramp Density Adjustment	-	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Weaving Report

Project Information

Segment Number	25	Segment Name	Columbus/Lancaster
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data

Number of Lanes (N), ln	3	Segment Type	Freeway
Segment Length (L_S), ft	665	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	0.67	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Proportion of CAVs in Traffic Stream	0	Final Capacity Adjustment Factor (CAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	3480	740	30	670
Peak Hour Factor (PHF)	0.94	0.90	0.90	0.90
Total Trucks, %	5.00	4.00	0.00	6.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.952	0.962	1.000	0.943
Flow Rate (v_i), pc/h	3889	855	33	789
Weaving Flow Rate (v_W), pc/h	1644	Ideal Conditions Capacity (c_{IFL}), pc/h/ln		2400
Non-Weaving Flow Rate (v_{NW}), pc/h	3922	Density-Based Capacity ($c_{IWL} \times N \times f_{HV}$), veh/h		5795
Total Flow Rate (v), pc/h	5566	Demand Flow-Based Capacity ($c_{IW} \times f_{HV}$), veh/h		7749
Volume Ratio (VR)	0.295	Weaving Area Capacity (c_W), veh/h		5795
Minimum Lane Change Rate (LC_{MIN}), lc/h	1644	Adjusted Weaving Area Capacity (c_{WA}), veh/h		5795
Maximum Weaving Length (L_{MAX}), ft	5530	Volume-to-Capacity Ratio (v/c)		0.78

*Under oversaturated conditions, Volume Served is computed as Flow Rate

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	174	Average Weaving Speed (S_W), mi/h	52.3
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	591	Average Non-Weaving Speed (S_{NW}), mi/h	54.3
Weaving Lane Change Rate (LC_W), lc/h	1745	Average Speed (S), mi/h	25.6
Total Lane Change Rate (LC_{All}), lc/h	2336	Density (D), pc/mi/ln	61.7
Weaving Intensity Factor (W)	0.609	Level of Service (LOS)	F

HCS Basic Freeway Report

Project Information			
Segment Number	26	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	1820	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	4220	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2358
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.80
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	26.4
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	72.3
Total Ramp Density Adjustment	-	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Merge Report

Project Information			
Segment Number	27	Segment Name	Lancaster
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Acceleration Length (LA), ft	1500	765
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	4220	540
Peak Hour Factor (PHF)	0.94	0.86
Total Trucks, %	5.00	4.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.952	0.962
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	4716 | 4470	653
Capacity (c_{md}), pc/h	4800	2200
Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.93	0.30

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	55.9
Flow in Lanes 1 and 2 (v_{12}), pc/h	3817	Outer Lanes Freeway Speed (S_O), mi/h	75.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	4470	Ramp Junction Speed (S), mi/h	55.9
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	40.0
Level of Service (LOS)	F	Density in Ramp Influence Area (D_R), pc/mi/ln	35.3

HCS Basic Freeway Report

Project Information			
Segment Number	28	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	8000	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	4760	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2235
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.93
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	58.1
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	38.5
Total Ramp Density Adjustment	-	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

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LOS

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	D	D	C	C	C	F	F	F	F	E	E	C
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	D	E	E	D	D	D	F	F	F	F	F	F
	Seg 25	Seg 26	Seg 27	Seg 28								
AP 1	F	F	F	F								

Speed (mi/h)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	65.3	65.1	69.8	63.1	68.7	56.6	63.7	27.6	53.5	58.1	66.7	68.4
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	58.7	60.3	67.3	68.1	59.7	62.3	68.5	27.9	56.6	58.1	68.8	41.0
	Seg 25	Seg 26	Seg 27	Seg 28								
AP 1	25.6	26.4	55.9	58.1								

Density (pc/mi/ln)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	28.1	28.2	19.2	24.3	22.3	40.2	35.2	64.1	41.8	38.5	33.5	25.9
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	36.7	35.7	32.0	26.3	34.7	33.3	29.8	63.1	39.5	38.5	32.0	50.1
	Seg 25	Seg 26	Seg 27	Seg 28								
AP 1	61.7	72.3	40.0	38.5								

Demand - Capacity Ratio (D/C)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	0.77	0.77	0.56	0.64	0.63	0.95	0.95	0.82	1.02	0.99	0.99	0.81
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	0.97	0.95	0.95	0.79	0.91	0.89	0.89	0.83	1.02	1.01	1.01	0.97
	Seg 25	Seg 26	Seg 27	Seg 28								
AP 1	0.91	0.98	1.12	1.11								

Volume - Capacity Ratio (V/C)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	0.77	0.77	0.56	0.64	0.64	0.95	0.93	0.74	0.93	0.93	0.93	0.74
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	0.90	0.90	0.90	0.75	0.86	0.86	0.85	0.74	0.93	0.93	0.92	0.86
	Seg 25	Seg 26	Seg 27	Seg 28								
AP 1	0.78	0.80	0.93	0.93								

Density (veh/mi/ln)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	26.8	26.8	18.3	23.1	21.2	38.3	33.5	61.0	39.8	36.6	31.9	24.7
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	34.9	34.0	30.5	25.0	33.0	31.7	28.4	60.1	37.6	36.6	30.5	47.7
	Seg 25	Seg 26	Seg 27	Seg 28								

AP 1	58.7	68.9	38.1	36.6

Density in Ramp Influence Area (pc/mi/ln)												
	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	-	31.5	-	23.0	-	-	38.0	-	35.8	-	38.3	-
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	32.2	-	37.1	-	31.7	-	35.0	-	34.1	-	38.6	-
	Seg 25	Seg 26	Seg 27	Seg 28								
AP 1	-	-	35.3	-								

Density-Based LOS												
	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	D	D	C	C	C	E	E	F	E	E	E	C
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	D	E	E	D	D	D	D	F	D	E	E	F
	Seg 25	Seg 26	Seg 27	Seg 28								
AP 1	F	F	E	E								

Demand-Based LOS												
	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	-	-	-	-	-	-	-	-	F	-	-	-
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	-	-	-	-	-	-	-	-	F	F	F	-
	Seg 25	Seg 26	Seg 27	Seg 28								
AP 1	-	-	F	F								

Eastbound 2 Lane (Existing) - PM No-Build

HCS Freeway Facilities Report

Project Information

Analyst	EJG	Date	11/6/2024
Agency	Woolpert	Analysis Year	2024
Jurisdiction	Franklin and Licking Counties	Time Analyzed	PM 2048 No-Build
Facility Name	EB SR-161	Units	U.S. Customary
Project Description	2 Lanes (Exisiting)		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45
Queue Discharge Capacity Drop, %	7	Total Segments	28
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	18.03		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		1700	3
2	Diverge	Diverge	US 62	1500	3
3	Basic	Basic		2600	3
4	Merge	Merge	US 62	1500	3
5	Basic	Basic	Per ODOT	1290	3
6	Basic	Basic		6540	2
7	Diverge	Diverge	Beech+Worthington	1500	2
8	Basic	Basic		4000	2
9	Merge	Merge	Beech+Worthington	1500	2
10	Basic	Basic		2240	2
11	Diverge	Diverge	Mink+Worthington	1500	2
12	Basic	Basic		2530	2
13	Merge	Merge	Mink+Worthington	1500	2
14	Basic	Basic		9690	2
15	Diverge	Diverge	SR 310+Worthington	1500	2
16	Basic	Basic		3110	2
17	Merge	Merge	SR 310+Worthington	1500	2
18	Basic	Basic		11330	2
19	Diverge	Diverge	York	1500	2
20	Basic	Basic		3040	2
21	Merge	Merge	York	1500	2
22	Basic	Basic		16200	2
23	Diverge	Diverge	Columbus	1500	2
24	Basic	Basic		1460	2
25	Weaving	Weaving	Columbus/Lancaster	1670	3
26	Basic	Basic		1820	2
27	Merge	Merge	Lancaster	1500	2

28	Basic	Basic		8000	2

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.952	5375	7200	0.75	65.9	27.2	D

Segment 2: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.93	0.952	0.952	5375	1468	7200	2200	0.75	0.67	65.1	61.6	27.5	31.0	D

Segment 3: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.952	3907	7200	0.54	69.8	18.6	C

Segment 4: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.84	0.952	0.971	4471	564	7200	2200	0.62	0.26	63.2	61.7	23.6	22.5	C

Segment 5: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.952	4471	7200	0.62	69.0	21.6	C

Segment 6: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.952	4471	4800	0.92	57.6	38.8	E

Segment 7: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.92	0.952	0.943	4471	669	4800	2200	0.92	0.30	63.6	63.6	35.1	37.9	E

Segment 8: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.952	3802	4800	0.79	64.3	29.6	D

Segment 9: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.80	0.952	0.962	4699	897	4800	2200	0.98	0.41	52.2	52.2	45.0	37.6	E

Segment 10: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

1	0.94		0.952		4699		4800		0.95		54.9		42.8	E
Segment 11: Diverge														
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**	**LOS**
	F	**R**	**F**	**R**	**Freeway**	**Ramp**	**Freeway**	**Ramp**	**F**	**R**	**F**	**R Infl.**	**F**	**R Infl.**	
1	0.94	0.87	0.952	0.980	4699	915	4800	2200	0.95	0.42	66.8	66.8	35.2	40.3	E
Segment 12: Basic														
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**	**LOS**
1	0.94		0.952		3784		4800		0.77		66.2		28.6	D
Segment 13: Merge														
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**	**LOS**
	F	**R**	**F**	**R**	**Freeway**	**Ramp**	**Freeway**	**Ramp**	**F**	**R**	**F**	**R Infl.**	**F**	**R Infl.**	
1	0.94	0.82	0.952	0.971	4575	791	4800	2200	0.93	0.36	55.8	55.8	41.0	34.3	D
Segment 14: Basic														
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**	**LOS**
1	0.94		0.952		4575		4800		0.92		56.7		40.3	E
Segment 15: Diverge														
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**	**LOS**
	F	**R**	**F**	**R**	**Freeway**	**Ramp**	**Freeway**	**Ramp**	**F**	**R**	**F**	**R Infl.**	**F**	**R Infl.**	
1	0.94	0.95	0.952	0.980	4575	634	4800	2200	0.91	0.29	67.6	67.6	33.8	39.4	E
Segment 16: Basic														
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**	**LOS**
1	0.94		0.952		3941		4800		0.78		64.6		30.5	D
Segment 17: Merge														
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**	**LOS**
	F	**R**	**F**	**R**	**Freeway**	**Ramp**	**Freeway**	**Ramp**	**F**	**R**	**F**	**R Infl.**	**F**	**R Infl.**	
1	0.94	0.80	0.952	0.952	4506	565	4800	2200	0.90	0.26	56.2	56.2	40.1	34.5	D
Segment 18: Basic														
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**	**LOS**
1	0.94		0.952		4182		4800		0.88		61.8		33.8	F
Segment 19: Diverge														
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**	**LOS**
	F	**R**	**F**	**R**	**Freeway**	**Ramp**	**Freeway**	**Ramp**	**F**	**R**	**F**	**R Infl.**	**F**	**R Infl.**	
1	0.94	0.89	0.952	0.943	4083	298	4800	2200	0.88	0.14	36.9	68.6	55.3	36.1	F
Segment 20: Basic														
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**	**LOS**

1	0.94		0.952		3542		4800		0.82		24.1		73.6	F

Segment 21: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.84	0.952	0.962	4470	928	4800	2200	1.01	0.42	56.6	56.6	39.5	34.1	F

Segment 22: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.952	4430	4800	0.99	58.7	37.7	F

Segment 23: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.80	0.952	0.943	4354	199	4800	2200	0.99	0.09	68.9	68.9	31.6	38.1	F

Segment 24: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.952	4082	4800	0.96	38.5	53.0	F

Segment 25: Weaving

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.952	4693	6090	0.91	24.2	64.6	F

Segment 26: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.952	3817	4800	0.98	26.2	72.7	F

Segment 27: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.86	0.952	0.962	4470	653	4800	2200	1.12	0.30	55.9	55.9	40.0	35.3	F

Segment 28: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.952	4470	4800	1.11	58.1	38.5	F

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	18696	18228	90.70	2267.49	54.3	38.0	36.2	19.90	F

Facility Overall Results

Space Mean Speed, mi/h	54.3	Average Density, veh/mi/ln	36.2
Average Travel Time, min	19.90	Average Density, pc/mi/ln	38.0
Total VMT, veh-mi/AP	18696	Total VHD, veh-h	90.70
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	2267.49

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HCS Basic Freeway Report

Project Information			
Analyst	EJG	Date	11/6/2024
Agency	Woolpert	Analysis Year	2024
Jurisdiction	Franklin and Licking Counties	Time Analyzed	PM 2048 No-Build
Project Description	2 Lanes (Exisiting)	Units	U.S. Customary
Segment Number	1	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	1700	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.50
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	4810	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1792
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.75
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	65.9
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	27.2
Total Ramp Density Adjustment	-	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	2	Segment Name	US 62
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	70.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	515
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	4810	1300
Peak Hour Factor (PHF)	0.94	0.93
Total Trucks, %	5.00	5.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.952	0.952
Flow Rate (v_i), pc/h	5375	1468
Capacity (c_{md}), pc/h	7200	2200
Initial Adjusted Capacity (c_{mda}), pc/h	7200	-
Final Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.75	0.67

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1727
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	61.6
Flow in Lanes 1 and 2 (v_{12}), pc/h	3648	Outer Lanes Freeway Speed (S_O), mi/h	74.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	65.1
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	27.5
Level of Service (LOS)	D	Density in Ramp Influence Area (D_R), pc/mi/ln	31.0

HCS Basic Freeway Report

Project Information			
Segment Number	3	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	2600	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.50
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3510	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1302
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.54
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	69.8
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	18.6
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Freeway Merge Report

Project Information			
Segment Number	4	Segment Name	US 62
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	70.0	55.0
Segment Length (L) / Acceleration Length (LA), ft	1500	890
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3510	460
Peak Hour Factor (PHF)	0.94	0.84
Total Trucks, %	5.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.952	0.971
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	3922 | 4471	564
Capacity (c_{md}), pc/h	7200	2200
Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.62	0.26

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	1826.6	Flow Outer Lanes (v_{OA}), pc/h/ln	1555
Downstream Equilibrium Distance (L_{EQ}), ft	3261.2	On-Ramp Influence Area Speed (S_R), mi/h	61.7
Flow in Lanes 1 and 2 (v_{12}), pc/h	2352	Outer Lanes Freeway Speed (S_O), mi/h	66.2
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2916	Ramp Junction Speed (S), mi/h	63.2
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	23.6
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	22.5

HCS Basic Freeway Report

Project Information			
Segment Number	5	Segment Name	Per ODOT
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	1290	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3970	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1490
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.62
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	69.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	21.6
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Basic Freeway Report

Project Information			
Segment Number	6	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	6540	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3970	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2236
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.93
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	57.6
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	38.8
Total Ramp Density Adjustment	-	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	7	Segment Name	Beech+Worthington
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	70.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	530
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3970	580
Peak Hour Factor (PHF)	0.94	0.92
Total Trucks, %	5.00	6.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.952	0.943
Flow Rate (v_i), pc/h	4471	669
Capacity (c_{md}), pc/h	4800	2200
Initial Adjusted Capacity (c_{mda}), pc/h	4800	-
Final Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.93	0.30

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	63.6
Flow in Lanes 1 and 2 (v_{12}), pc/h	4471	Outer Lanes Freeway Speed (S_O), mi/h	76.8
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	63.6
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	35.1
Level of Service (LOS)	E	Density in Ramp Influence Area (D_R), pc/mi/ln	37.9

HCS Basic Freeway Report

Project Information			
Segment Number	8	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	4000	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3390	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1901
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.79
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	64.3
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	29.6
Total Ramp Density Adjustment	-	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Freeway Merge Report

Project Information			
Segment Number	9	Segment Name	Beech+Worthington
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	70.0	55.0
Segment Length (L) / Acceleration Length (LA), ft	1500	670
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3390	690
Peak Hour Factor (PHF)	0.94	0.80
Total Trucks, %	5.00	4.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.952	0.962
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	3788 | 4699	897
Capacity (c_{md}), pc/h	4800	2200
Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.98	0.41

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	52.2
Flow in Lanes 1 and 2 (v_{12}), pc/h	3802	Outer Lanes Freeway Speed (S_O), mi/h	70.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	4699	Ramp Junction Speed (S), mi/h	52.2
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	45.0
Level of Service (LOS)	E	Density in Ramp Influence Area (D_R), pc/mi/ln	37.6

HCS Basic Freeway Report

Project Information			
Segment Number	10	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	2240	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	4080	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2350
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.98
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	54.9
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	42.8
Total Ramp Density Adjustment	-	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	11	Segment Name	Mink+Worthington
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	485
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	4080	780
Peak Hour Factor (PHF)	0.94	0.87
Total Trucks, %	5.00	2.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.952	0.980
Flow Rate (v_i), pc/h	4699	915
Capacity (c_{md}), pc/h	4800	2200
Initial Adjusted Capacity (c_{mda}), pc/h	4800	-
Final Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.98	0.42

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	66.8
Flow in Lanes 1 and 2 (v_{12}), pc/h	4699	Outer Lanes Freeway Speed (S_O), mi/h	82.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	66.8
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	35.2
Level of Service (LOS)	E	Density in Ramp Influence Area (D_R), pc/mi/ln	40.3

HCS Basic Freeway Report

Project Information			
Segment Number	12	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	2530	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3300	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1892
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.79
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	66.2
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	28.6
Total Ramp Density Adjustment	-	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Merge Report

Project Information			
Segment Number	13	Segment Name	Mink+Worthington
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	1055
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3300	630
Peak Hour Factor (PHF)	0.94	0.82
Total Trucks, %	5.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.952	0.971
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	3688 | 4575	791
Capacity (c_{md}), pc/h	4800	2200
Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.95	0.36

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	55.8
Flow in Lanes 1 and 2 (v_{12}), pc/h	3784	Outer Lanes Freeway Speed (S_O), mi/h	75.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	4575	Ramp Junction Speed (S), mi/h	55.8
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	41.0
Level of Service (LOS)	D	Density in Ramp Influence Area (D_R), pc/mi/ln	34.3

HCS Basic Freeway Report

Project Information			
Segment Number	14	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	9690	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3930	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2288
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.95
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	56.7
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	40.3
Total Ramp Density Adjustment	-	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	15	Segment Name	SR 310+Worthington
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	465
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3930	590
Peak Hour Factor (PHF)	0.94	0.95
Total Trucks, %	5.00	2.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.952	0.980
Flow Rate (v_i), pc/h	4575	634
Capacity (c_{md}), pc/h	4800	2200
Initial Adjusted Capacity (c_{mda}), pc/h	4800	-
Final Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.95	0.29

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	67.6
Flow in Lanes 1 and 2 (v_{12}), pc/h	4575	Outer Lanes Freeway Speed (S_O), mi/h	82.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	67.6
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	33.8
Level of Service (LOS)	E	Density in Ramp Influence Area (D_R), pc/mi/ln	39.4

HCS Basic Freeway Report

Project Information			
Segment Number	16	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	3110	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3340	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1971
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.82
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	64.6
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	30.5
Total Ramp Density Adjustment	-	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Merge Report

Project Information			
Segment Number	17	Segment Name	SR 310+Worthington
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Acceleration Length (LA), ft	1500	940
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3340	430
Peak Hour Factor (PHF)	0.94	0.80
Total Trucks, %	5.00	5.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.952	0.952
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	3732 | 4506	565
Capacity (c_{md}), pc/h	4800	2200
Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.94	0.26

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	56.2
Flow in Lanes 1 and 2 (v_{12}), pc/h	3941	Outer Lanes Freeway Speed (S_O), mi/h	75.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	4506	Ramp Junction Speed (S), mi/h	56.2
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	40.1
Level of Service (LOS)	D	Density in Ramp Influence Area (D_R), pc/mi/ln	34.5

HCS Basic Freeway Report

Project Information			
Segment Number	18	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	11330	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3770	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2091
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.87
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	61.8
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	33.8
Total Ramp Density Adjustment	-	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	19	Segment Name	York
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	485
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3770	250
Peak Hour Factor (PHF)	0.94	0.89
Total Trucks, %	5.00	6.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.952	0.943
Flow Rate (v_i), pc/h	4083	298
Capacity (c_{md}), pc/h	4800	2200
Initial Adjusted Capacity (c_{mda}), pc/h	4800	-
Final Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.85	0.14

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	68.6
Flow in Lanes 1 and 2 (v_{12}), pc/h	4213	Outer Lanes Freeway Speed (S_O), mi/h	82.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	36.9
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	55.3
Level of Service (LOS)	F	Density in Ramp Influence Area (D_R), pc/mi/ln	36.1

HCS Basic Freeway Report

Project Information			
Segment Number	20	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	3040	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.50
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3520	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1966
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.74
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	24.1
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	73.6
Total Ramp Density Adjustment	-	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Merge Report

Project Information			
Segment Number	21	Segment Name	York
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	940
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3520	750
Peak Hour Factor (PHF)	0.94	0.84
Total Trucks, %	5.00	4.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.952	0.962
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	3933 | 4470	928
Capacity (c_{md}), pc/h	4800	2200
Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.93	0.42

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	56.6
Flow in Lanes 1 and 2 (v_{12}), pc/h	3542	Outer Lanes Freeway Speed (S_O), mi/h	75.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	4470	Ramp Junction Speed (S), mi/h	56.6
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	39.5
Level of Service (LOS)	F	Density in Ramp Influence Area (D_R), pc/mi/ln	34.1

HCS Basic Freeway Report

Project Information			
Segment Number	22	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	16200	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	4270	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2215
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.92
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	58.7
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	37.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Diverge Report

Project Information

Segment Number	23	Segment Name	Columbus
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	4270	150
Peak Hour Factor (PHF)	0.94	0.80
Total Trucks, %	5.00	6.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.952	0.943
Flow Rate (v_i), pc/h	4354	199
Capacity (c_{md}), pc/h	4800	2200
Initial Adjusted Capacity (c_{mda}), pc/h	4800	-
Final Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.91	0.09

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	68.9
Flow in Lanes 1 and 2 (v_{12}), pc/h	4354	Outer Lanes Freeway Speed (S_O), mi/h	82.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	68.9
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	31.6
Level of Service (LOS)	F	Density in Ramp Influence Area (D_R), pc/mi/ln	38.1

HCS Basic Freeway Report

Project Information			
Segment Number	24	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	1460	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	4120	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2302
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.85
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	38.5
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	53.0
Total Ramp Density Adjustment	-	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Weaving Report

Project Information

Segment Number	25	Segment Name	Columbus/Lancaster
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data

Number of Lanes (N), ln	3	Segment Type	Freeway
Segment Length (L_S), ft	665	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	0.67	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Proportion of CAVs in Traffic Stream	0	Final Capacity Adjustment Factor (CAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	3480	750	30	640
Peak Hour Factor (PHF)	0.94	0.90	0.90	0.90
Total Trucks, %	5.00	4.00	0.00	6.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.952	0.962	1.000	0.943
Flow Rate (v_i), pc/h	3889	866	33	754
Weaving Flow Rate (v_w), pc/h	1620	Ideal Conditions Capacity (c_{IFL}), pc/h/ln		2400
Non-Weaving Flow Rate (v_{NW}), pc/h	3922	Density-Based Capacity ($c_{IWL} \times N \times f_{HV}$), veh/h		5801
Total Flow Rate (v), pc/h	5542	Demand Flow-Based Capacity ($c_{IW} \times f_{HV}$), veh/h		7830
Volume Ratio (VR)	0.292	Weaving Area Capacity (c_W), veh/h		5801
Minimum Lane Change Rate (LC_{MIN}), lc/h	1620	Adjusted Weaving Area Capacity (c_{WA}), veh/h		5801
Maximum Weaving Length (L_{MAX}), ft	5498	Volume-to-Capacity Ratio (v/c)		0.77

*Under oversaturated conditions, Volume Served is computed as Flow Rate

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	174	Average Weaving Speed (S_W), mi/h	52.4
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	591	Average Non-Weaving Speed (S_{NW}), mi/h	54.5
Weaving Lane Change Rate (LC_W), lc/h	1721	Average Speed (S), mi/h	24.2
Total Lane Change Rate (LC_{All}), lc/h	2312	Density (D), pc/mi/ln	64.6
Weaving Intensity Factor (W)	0.604	Level of Service (LOS)	F

HCS Basic Freeway Report

Project Information			
Segment Number	26	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	1820	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	4230	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2364
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.80
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	26.2
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	72.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Merge Report

Project Information			
Segment Number	27	Segment Name	Lancaster
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Acceleration Length (LA), ft	1500	765
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	4230	540
Peak Hour Factor (PHF)	0.94	0.86
Total Trucks, %	5.00	4.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.952	0.962
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	4727 | 4470	653
Capacity (c_{md}), pc/h	4800	2200
Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.93	0.30

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	55.9
Flow in Lanes 1 and 2 (v_{12}), pc/h	3817	Outer Lanes Freeway Speed (S_O), mi/h	75.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	4470	Ramp Junction Speed (S), mi/h	55.9
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	40.0
Level of Service (LOS)	F	Density in Ramp Influence Area (D_R), pc/mi/ln	35.3

HCS Basic Freeway Report

Project Information			
Segment Number	28	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	8000	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	4770	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2235
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.93
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	58.1
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	38.5
Total Ramp Density Adjustment	-	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

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LOS

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	D	D	C	C	C	E	E	D	E	E	E	D
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	D	E	E	D	D	F	F	F	F	F	F	F
	Seg 25	Seg 26	Seg 27	Seg 28								
AP 1	F	F	F	F								

Speed (mi/h)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	65.9	65.1	69.8	63.2	69.0	57.6	63.6	64.3	52.2	54.9	66.8	66.2
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	55.8	56.7	67.6	64.6	56.2	61.8	36.9	24.1	56.6	58.7	68.9	38.5
	Seg 25	Seg 26	Seg 27	Seg 28								
AP 1	24.2	26.2	55.9	58.1								

Density (pc/mi/ln)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	27.2	27.5	18.6	23.6	21.6	38.8	35.1	29.6	45.0	42.8	35.2	28.6
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	41.0	40.3	33.8	30.5	40.1	33.8	55.3	73.6	39.5	37.7	31.6	53.0
	Seg 25	Seg 26	Seg 27	Seg 28								
AP 1	64.6	72.7	40.0	38.5								

Demand - Capacity Ratio (D/C)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	0.75	0.75	0.54	0.62	0.62	0.92	0.92	0.79	0.98	0.95	0.95	0.77
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	0.93	0.92	0.91	0.78	0.90	0.88	0.88	0.82	1.01	0.99	0.99	0.96
	Seg 25	Seg 26	Seg 27	Seg 28								
AP 1	0.91	0.98	1.12	1.11								

Volume - Capacity Ratio (V/C)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	0.75	0.75	0.54	0.62	0.62	0.93	0.93	0.79	0.98	0.98	0.98	0.79
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	0.95	0.95	0.95	0.82	0.94	0.87	0.85	0.74	0.93	0.92	0.91	0.85
	Seg 25	Seg 26	Seg 27	Seg 28								
AP 1	0.77	0.80	0.93	0.93								

Density (veh/mi/ln)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	25.9	26.2	17.7	22.5	20.6	37.0	33.4	28.1	42.8	40.7	33.5	27.2
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	39.0	38.4	32.2	29.0	38.2	32.2	52.6	70.1	37.6	35.9	30.1	50.5
	Seg 25	Seg 26	Seg 27	Seg 28								

AP 1	61.5	69.2	38.1	36.6

Density in Ramp Influence Area (pc/mi/ln)												
	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	-	31.0	-	22.5	-	-	37.9	-	37.6	-	40.3	-
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	34.3	-	39.4	-	34.5	-	36.1	-	34.1	-	38.1	-
	Seg 25	Seg 26	Seg 27	Seg 28								
AP 1	-	-	35.3	-								

Density-Based LOS												
	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	D	D	C	C	C	E	E	D	E	E	E	D
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	D	E	E	D	D	D	F	F	D	E	E	F
	Seg 25	Seg 26	Seg 27	Seg 28								
AP 1	F	F	E	E								

Demand-Based LOS												
	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	-	-	-	-	-	-	-	-	-	-	-	-
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	-	-	-	-	-	-	-	-	F	-	-	-
	Seg 25	Seg 26	Seg 27	Seg 28								
AP 1	-	-	F	F								

Eastbound 3 Lane (Proposed) - AM Build

HCS Freeway Facilities Report

Project Information

Analyst	EJG	Date	11/7/2024
Agency	Woolpert	Analysis Year	2024
Jurisdiction	Franklin and Licking Counties	Time Analyzed	AM 2048 Build
Facility Name	EB SR-161	Units	U.S. Customary
Project Description	3 Lanes (Proposed)		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45
Queue Discharge Capacity Drop, %	7	Total Segments	28
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	18.03		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		1700	3
2	Diverge	Diverge	US 62	1500	3
3	Basic	Basic		2600	3
4	Merge	Merge	US 62	1500	3
5	Basic	Basic	Per ODOT	1290	3
6	Basic	Basic		6540	3
7	Diverge	Diverge	Beech+Worthington	1500	3
8	Basic	Basic		4000	3
9	Merge	Merge	Beech+Worthington	1500	3
10	Basic	Basic		2240	3
11	Diverge	Diverge	Mink+Worthington	1500	3
12	Basic	Basic		2530	3
13	Merge	Merge	Mink+Worthington	1500	3
14	Basic	Basic		9690	3
15	Diverge	Diverge	SR 310+Worthington	1500	3
16	Basic	Basic		3110	3
17	Merge	Merge	SR 310+Worthington	1500	3
18	Basic	Basic		11330	3
19	Diverge	Diverge	York	1500	3
20	Basic	Basic		3040	3
21	Merge	Merge	York	1500	3
22	Basic	Basic		16200	3
23	Diverge	Diverge	Columbus	1500	3
24	Basic	Basic		1460	3
25	Weaving	Weaving	Columbus/Lancaster	1670	4
26	Basic	Basic		1820	3
27	Merge	Merge	Lancaster	1500	3

28	Basic	Basic		8000	3

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.917	6381	7200	0.89	60.1	35.4	E

Segment 2: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.93	0.917	0.952	6381	2078	7200	2200	0.89	0.94	63.7	60.1	33.4	36.2	E

Segment 3: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.917	4246	7200	0.59	69.5	20.4	C

Segment 4: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.88	0.909	0.952	4677	394	7200	2200	0.65	0.18	63.0	61.6	24.7	23.0	C

Segment 5: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	4670	7200	0.65	71.6	21.7	C

Segment 6: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	4670	7200	0.65	68.5	22.7	C

Segment 7: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.85	0.909	0.877	4670	2012	7200	2200	0.65	0.91	63.5	60.2	24.5	29.5	D

Segment 8: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	2914	7200	0.40	69.9	13.9	B

Segment 9: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.82	0.935	0.952	3217	384	7200	2200	0.45	0.17	63.9	62.1	16.8	18.3	B

Segment 10: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

1	0.94		0.935		3174		7200		0.44		74.5		14.1		B
Segment 11: Diverge															
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**		**LOS**
	F	**R**	**F**	**R**	**Freeway**	**Ramp**	**Freeway**	**Ramp**	**F**	**R**	**F**	**R Infl.**	**F**	**R Infl.**	
1	0.94	0.80	0.935	0.935	3174	1818	7200	2200	0.44	0.83	66.3	64.0	16.0	23.0	C
Segment 12: Basic															
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**		**LOS**
1	0.94		0.935		1627		7200		0.23		74.7		7.2		A
Segment 13: Merge															
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**		**LOS**
	F	**R**	**F**	**R**	**Freeway**	**Ramp**	**Freeway**	**Ramp**	**F**	**R**	**F**	**R Infl.**	**F**	**R Infl.**	
1	0.94	0.89	0.935	0.855	1877	250	7200	2200	0.26	0.11	69.9	67.8	9.0	8.5	A
Segment 14: Basic															
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**		**LOS**
1	0.94		0.935		1843		7200		0.26		75.0		8.2		A
Segment 15: Diverge															
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**		**LOS**
	F	**R**	**F**	**R**	**Freeway**	**Ramp**	**Freeway**	**Ramp**	**F**	**R**	**F**	**R Infl.**	**F**	**R Infl.**	
1	0.94	0.80	0.935	0.935	1843	428	7200	2200	0.26	0.19	71.1	68.2	8.6	12.2	B
Segment 16: Basic															
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**		**LOS**
1	0.94		0.935		1479		7200		0.21		74.9		6.6		A
Segment 17: Merge															
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**		**LOS**
	F	**R**	**F**	**R**	**Freeway**	**Ramp**	**Freeway**	**Ramp**	**F**	**R**	**F**	**R Infl.**	**F**	**R Infl.**	
1	0.94	0.80	0.909	0.943	1707	186	7200	2200	0.24	0.08	69.8	67.4	8.2	8.2	A
Segment 18: Basic															
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**		**LOS**
1	0.94		0.909		1685		7200		0.23		75.0		7.5		A
Segment 19: Diverge															
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**		**LOS**
	F	**R**	**F**	**R**	**Freeway**	**Ramp**	**Freeway**	**Ramp**	**F**	**R**	**F**	**R Infl.**	**F**	**R Infl.**	
1	0.94	0.82	0.909	0.877	1685	167	7200	2200	0.23	0.08	72.0	69.0	7.8	10.6	B
Segment 20: Basic															
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**		**LOS**

1	0.94		0.909		1545		7200		0.21		74.9		6.9		A

Segment 21: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.85	0.909	0.952	1928	383	7200	2200	0.27	0.17	69.5	67.3	9.2	9.7	A

Segment 22: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	1908	7200	0.27	75.0	8.5	A

Segment 23: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.80	0.909	0.877	1908	228	7200	2200	0.26	0.10	71.9	68.8	8.8	12.8	B

Segment 24: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	1720	7200	0.24	74.7	7.6	A

Segment 25: Weaving

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	2404	6217	0.39	63.1	9.5	A

Segment 26: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	2025	7200	0.28	74.3	9.0	A

Segment 27: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.87	0.909	0.952	2327	302	7200	2200	0.32	0.14	69.0	66.6	11.2	12.4	B

Segment 28: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	2317	7200	0.32	75.0	10.3	A

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	10417	9775	5.18	129.41	70.4	11.9	10.9	15.40	B

Facility Overall Results

Space Mean Speed, mi/h	70.4	Average Density, veh/mi/ln	10.9
Average Travel Time, min	15.40	Average Density, pc/mi/ln	11.9
Total VMT, veh-mi/AP	10417	Total VHD, veh-h	5.18
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	129.41

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HCS Basic Freeway Report

Project Information			
Analyst	EJG	Date	11/7/2024
Agency	Woolpert	Analysis Year	2024
Jurisdiction	Franklin and Licking Counties	Time Analyzed	AM 2048 Build
Project Description	3 Lanes (Proposed)	Units	U.S. Customary
Segment Number	1	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	1700	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.50
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	5500	Heavy Vehicle Adjustment Factor (f_{HV})	0.917
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2127
Total Trucks, %	9.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.89
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	60.1
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	35.4
Total Ramp Density Adjustment	-	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	2	Segment Name	US 62
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	70.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	515
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	5500	1840
Peak Hour Factor (PHF)	0.94	0.93
Total Trucks, %	9.00	5.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.917	0.952
Flow Rate (v_i), pc/h	6381	2078
Capacity (c_{md}), pc/h	7200	2200
Initial Adjusted Capacity (c_{mda}), pc/h	7200	-
Final Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.89	0.94

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	2130
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	60.1
Flow in Lanes 1 and 2 (v_{12}), pc/h	4251	Outer Lanes Freeway Speed (S_O), mi/h	72.4
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	63.7
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	33.4
Level of Service (LOS)	E	Density in Ramp Influence Area (D_R), pc/mi/ln	36.2

HCS Basic Freeway Report

Project Information			
Segment Number	3	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	2600	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.50
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3660	Heavy Vehicle Adjustment Factor (f_{HV})	0.917
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1415
Total Trucks, %	9.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.59
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	69.5
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	20.4
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Freeway Merge Report

Project Information			
Segment Number	4	Segment Name	US 62
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	70.0	55.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	890
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3660	330
Peak Hour Factor (PHF)	0.94	0.88
Total Trucks, %	10.00	5.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.952
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	4283 | 4677	394
Capacity (c_{md}), pc/h	7200	2200
Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.65	0.18

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	1870.6	Flow Outer Lanes (v_{OA}), pc/h/ln	1705
Downstream Equilibrium Distance (L_{EQ}), ft	9822.8	On-Ramp Influence Area Speed (S_R), mi/h	61.6
Flow in Lanes 1 and 2 (v_{12}), pc/h	2578	Outer Lanes Freeway Speed (S_O), mi/h	65.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2972	Ramp Junction Speed (S), mi/h	63.0
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	24.7
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	23.0

HCS Basic Freeway Report

Project Information			
Segment Number	5	Segment Name	Per ODOT
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	1290	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3990	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1557
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.65
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	71.6
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	21.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Basic Freeway Report

Project Information			
Segment Number	6	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	6540	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3990	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1557
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.65
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	68.5
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	22.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	7	Segment Name	Beech+Worthington
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	70.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	530
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3990	1500
Peak Hour Factor (PHF)	0.94	0.85
Total Trucks, %	10.00	14.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.877
Flow Rate (v_i), pc/h	4670	2012
Capacity (c_{md}), pc/h	7200	2200
Initial Adjusted Capacity (c_{mda}), pc/h	7200	-
Final Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.65	0.91

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	15452.2	Flow Outer Lanes (v_{OA}), pc/h/ln	1177
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	60.2
Flow in Lanes 1 and 2 (v_{12}), pc/h	3493	Outer Lanes Freeway Speed (S_O), mi/h	76.1
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	63.5
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	24.5
Level of Service (LOS)	D	Density in Ramp Influence Area (D_R), pc/mi/ln	29.5

HCS Basic Freeway Report

Project Information			
Segment Number	8	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	4000	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	2490	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	971
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.40
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	69.9
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	13.9
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Freeway Merge Report

Project Information			
Segment Number	9	Segment Name	Beech+Worthington
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	70.0	55.0
Segment Length (L) / Acceleration Length (LA), ft	1500	670
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2490	300
Peak Hour Factor (PHF)	0.94	0.82
Total Trucks, %	7.00	5.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.935	0.952
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	2833 | 3217	384
Capacity (c_{md}), pc/h	7200	2200
Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.45	0.17

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	1460.5	Flow Outer Lanes (v_{OA}), pc/h/ln	1020
Downstream Equilibrium Distance (L_{EQ}), ft	10033.7	On-Ramp Influence Area Speed (S_R), mi/h	62.1
Flow in Lanes 1 and 2 (v_{12}), pc/h	1813	Outer Lanes Freeway Speed (S_O), mi/h	68.1
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2197	Ramp Junction Speed (S), mi/h	63.9
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	16.8
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	18.3

HCS Basic Freeway Report

Project Information			
Segment Number	10	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	2240	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	2790	Heavy Vehicle Adjustment Factor (f_{HV})	0.935
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1058
Total Trucks, %	7.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.44
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.5
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	14.1
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	11	Segment Name	Mink+Worthington
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	485
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2790	1360
Peak Hour Factor (PHF)	0.94	0.80
Total Trucks, %	7.00	7.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.935	0.935
Flow Rate (v_i), pc/h	3174	1818
Capacity (c_{md}), pc/h	7200	2200
Initial Adjusted Capacity (c_{mda}), pc/h	7200	-
Final Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.44	0.83

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	65821.1	Flow Outer Lanes (v_{OA}), pc/h/ln	492
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	64.0
Flow in Lanes 1 and 2 (v_{12}), pc/h	2682	Outer Lanes Freeway Speed (S_O), mi/h	82.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	66.3
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	16.0
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	23.0

HCS Basic Freeway Report

Project Information			
Segment Number	12	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	2530	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	1430	Heavy Vehicle Adjustment Factor (f_{HV})	0.935
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	542
Total Trucks, %	7.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.23
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.7
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	7.2
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Merge Report

Project Information			
Segment Number	13	Segment Name	Mink+Worthington
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Acceleration Length (LA), ft	1500	1055
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1430	190
Peak Hour Factor (PHF)	0.94	0.89
Total Trucks, %	7.00	17.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.935	0.855
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	1627 | 1877	250
Capacity (c_{md}), pc/h	7200	2200
Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.26	0.11

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	1344.7	Flow Outer Lanes (v_{OA}), pc/h/ln	639
Downstream Equilibrium Distance (L_{EQ}), ft	1923.7	On-Ramp Influence Area Speed (S_R), mi/h	67.8
Flow in Lanes 1 and 2 (v_{12}), pc/h	988	Outer Lanes Freeway Speed (S_O), mi/h	74.5
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1238	Ramp Junction Speed (S), mi/h	69.9
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	9.0
Level of Service (LOS)	A	Density in Ramp Influence Area (D_R), pc/mi/ln	8.5

HCS Basic Freeway Report

Project Information			
Segment Number	14	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	9690	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	1620	Heavy Vehicle Adjustment Factor (f_{HV})	0.935
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	614
Total Trucks, %	7.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.26
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	8.2
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	15	Segment Name	SR 310+Worthington
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	465
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1620	320
Peak Hour Factor (PHF)	0.94	0.80
Total Trucks, %	7.00	7.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.935	0.935
Flow Rate (v_i), pc/h	1843	428
Capacity (c_{md}), pc/h	7200	2200
Initial Adjusted Capacity (c_{mda}), pc/h	7200	-
Final Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.26	0.19

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	3091.7	Flow Outer Lanes (v_{OA}), pc/h/ln	433
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	68.2
Flow in Lanes 1 and 2 (v_{12}), pc/h	1410	Outer Lanes Freeway Speed (S_O), mi/h	82.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	71.1
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	8.6
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	12.2

HCS Basic Freeway Report

Project Information			
Segment Number	16	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	3110	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	1300	Heavy Vehicle Adjustment Factor (f_{HV})	0.935
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	493
Total Trucks, %	7.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.21
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.9
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	6.6
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Merge Report

Project Information			
Segment Number	17	Segment Name	SR 310+Worthington
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Acceleration Length (LA), ft	1500	940
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1300	140
Peak Hour Factor (PHF)	0.94	0.80
Total Trucks, %	10.00	6.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.943
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	1521 | 1707	186
Capacity (c_{md}), pc/h	7200	2200
Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.24	0.08

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	1257.3	Flow Outer Lanes (v_{OA}), pc/h/ln	602
Downstream Equilibrium Distance (L_{EQ}), ft	794.6	On-Ramp Influence Area Speed (S_R), mi/h	67.4
Flow in Lanes 1 and 2 (v_{12}), pc/h	919	Outer Lanes Freeway Speed (S_O), mi/h	74.6
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1105	Ramp Junction Speed (S), mi/h	69.8
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	8.2
Level of Service (LOS)	A	Density in Ramp Influence Area (D_R), pc/mi/ln	8.2

HCS Basic Freeway Report

Project Information			
Segment Number	18	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	11330	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	1440	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	562
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.23
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	7.5
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	19	Segment Name	York
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	485
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1440	120
Peak Hour Factor (PHF)	0.94	0.82
Total Trucks, %	10.00	14.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.877
Flow Rate (v_i), pc/h	1685	167
Capacity (c_{md}), pc/h	7200	2200
Initial Adjusted Capacity (c_{mda}), pc/h	7200	-
Final Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.23	0.08

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	1916.3	Flow Outer Lanes (v_{OA}), pc/h/ln	440
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	69.0
Flow in Lanes 1 and 2 (v_{12}), pc/h	1245	Outer Lanes Freeway Speed (S_O), mi/h	82.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	72.0
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	7.8
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	10.6

HCS Basic Freeway Report

Project Information			
Segment Number	20	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	3040	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.50
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	1320	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	515
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.21
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.9
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	6.9
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Merge Report

Project Information

Segment Number	21	Segment Name	York
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Acceleration Length (LA), ft	1500	940
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	1320	310
Peak Hour Factor (PHF)	0.94	0.85
Total Trucks, %	10.00	5.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.952
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	1545 | 1928	383
Capacity (c_{md}), pc/h	7200	2200
Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.27	0.17

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	1304.6	Flow Outer Lanes (v_{OA}), pc/h/ln	612
Downstream Equilibrium Distance (L_{EQ}), ft	1084.8	On-Ramp Influence Area Speed (S_R), mi/h	67.3
Flow in Lanes 1 and 2 (v_{12}), pc/h	933	Outer Lanes Freeway Speed (S_O), mi/h	74.6
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1316	Ramp Junction Speed (S), mi/h	69.5
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	9.2
Level of Service (LOS)	A	Density in Ramp Influence Area (D_R), pc/mi/ln	9.7

HCS Basic Freeway Report

Project Information			
Segment Number	22	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	16200	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	1630	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	636
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.27
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	8.5
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	23	Segment Name	Columbus
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1630	160
Peak Hour Factor (PHF)	0.94	0.80
Total Trucks, %	10.00	14.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.877
Flow Rate (v_i), pc/h	1908	228
Capacity (c_{md}), pc/h	7200	2200
Initial Adjusted Capacity (c_{mda}), pc/h	7200	-
Final Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.27	0.10

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	3926.0	Flow Outer Lanes (v_{OA}), pc/h/ln	501
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	68.8
Flow in Lanes 1 and 2 (v_{12}), pc/h	1407	Outer Lanes Freeway Speed (S_O), mi/h	82.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	71.9
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	8.8
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	12.8

HCS Basic Freeway Report

Project Information			
Segment Number	24	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	1460	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	1470	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	573
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.24
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.7
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	7.6
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Weaving Report

Project Information

Segment Number	25	Segment Name	Columbus/Lancaster
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data

Number of Lanes (N), ln	4	Segment Type	Freeway
Segment Length (L_S), ft	665	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	0.67	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Proportion of CAVs in Traffic Stream	0	Final Capacity Adjustment Factor (CAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	1250	480	10	220
Peak Hour Factor (PHF)	0.94	0.80	0.80	0.84
Total Trucks, %	10.00	5.00	0.00	14.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.952	1.000	0.877
Flow Rate (v_i), pc/h	1463	630	12	299
Weaving Flow Rate (v_W), pc/h	929	Ideal Conditions Capacity (c_{IFL}), pc/h/ln		2400
Non-Weaving Flow Rate (v_{NW}), pc/h	1475	Density-Based Capacity ($c_{IWL} \times N \times f_{HV}$), veh/h		7151
Total Flow Rate (v), pc/h	2404	Demand Flow-Based Capacity ($c_{IW} \times f_{HV}$), veh/h		5694
Volume Ratio (VR)	0.386	Weaving Area Capacity (c_W), veh/h		5694
Minimum Lane Change Rate (LC_{MIN}), lc/h	929	Adjusted Weaving Area Capacity (c_{WA}), veh/h		5694
Maximum Weaving Length (L_{MAX}), ft	6525	Volume-to-Capacity Ratio (v/c)		0.39

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	65	Average Weaving Speed (S_W), mi/h	59.8
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	0	Average Non-Weaving Speed (S_{NW}), mi/h	65.4
Weaving Lane Change Rate (LC_W), lc/h	1108	Average Speed (S), mi/h	63.1
Total Lane Change Rate (LC_{All}), lc/h	1108	Density (D), pc/mi/ln	9.5
Weaving Intensity Factor (W)	0.338	Level of Service (LOS)	A

HCS Basic Freeway Report

Project Information			
Segment Number	26	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	1820	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	1730	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	675
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.28
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.3
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	9.0
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Merge Report

Project Information			
Segment Number	27	Segment Name	Lancaster
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	765
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1730	250
Peak Hour Factor (PHF)	0.94	0.87
Total Trucks, %	10.00	5.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.952
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	2025 | 2327	302
Capacity (c_{md}), pc/h	7200	2200
Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.32	0.14

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	1312.2	Flow Outer Lanes (v_{OA}), pc/h/ln	812
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	66.6
Flow in Lanes 1 and 2 (v_{12}), pc/h	1213	Outer Lanes Freeway Speed (S_O), mi/h	73.9
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1515	Ramp Junction Speed (S), mi/h	69.0
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	11.2
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	12.4

HCS Basic Freeway Report

Project Information			
Segment Number	28	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	8000	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	1980	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	772
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.32
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	10.3
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

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LOS

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	E	E	C	C	C	C	D	B	B	B	C	A
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	A	A	B	A	A	A	B	A	A	A	B	A
	Seg 25	Seg 26	Seg 27	Seg 28								
AP 1	A	A	B	A								

Speed (mi/h)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	60.1	63.7	69.5	63.0	71.6	68.5	63.5	69.9	63.9	74.5	66.3	74.7
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	69.9	75.0	71.1	74.9	69.8	75.0	72.0	74.9	69.5	75.0	71.9	74.7
	Seg 25	Seg 26	Seg 27	Seg 28								
AP 1	63.1	74.3	69.0	75.0								

Density (pc/mi/ln)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	35.4	33.4	20.4	24.7	21.7	22.7	24.5	13.9	16.8	14.1	16.0	7.2
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	9.0	8.2	8.6	6.6	8.2	7.5	7.8	6.9	9.2	8.5	8.8	7.6
	Seg 25	Seg 26	Seg 27	Seg 28								
AP 1	9.5	9.0	11.2	10.3								

Demand - Capacity Ratio (D/C)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	0.89	0.89	0.59	0.65	0.65	0.65	0.65	0.40	0.45	0.44	0.44	0.23
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	0.26	0.26	0.26	0.21	0.24	0.23	0.23	0.21	0.27	0.27	0.26	0.24
	Seg 25	Seg 26	Seg 27	Seg 28								
AP 1	0.39	0.28	0.32	0.32								

Volume - Capacity Ratio (V/C)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	0.89	0.89	0.59	0.65	0.65	0.65	0.65	0.40	0.45	0.44	0.44	0.23
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	0.26	0.26	0.26	0.21	0.24	0.23	0.23	0.21	0.27	0.27	0.27	0.24
	Seg 25	Seg 26	Seg 27	Seg 28								
AP 1	0.39	0.28	0.32	0.32								

Density (veh/mi/ln)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	32.5	30.6	18.7	22.5	19.7	20.6	22.3	12.6	15.7	13.2	15.0	6.7
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	8.4	7.7	8.0	6.2	7.5	6.8	7.1	6.3	8.4	7.7	8.0	6.9
	Seg 25	Seg 26	Seg 27	Seg 28								

AP 1	8.1	8.2	10.2	9.4

Density in Ramp Influence Area (pc/mi/ln)												
	Seg 1	**Seg 2**	**Seg 3**	**Seg 4**	**Seg 5**	**Seg 6**	**Seg 7**	**Seg 8**	**Seg 9**	**Seg 10**	**Seg 11**	**Seg 12**
AP 1	-	36.2	-	23.0	-	-	29.5	-	18.3	-	23.0	-
	Seg 13	**Seg 14**	**Seg 15**	**Seg 16**	**Seg 17**	**Seg 18**	**Seg 19**	**Seg 20**	**Seg 21**	**Seg 22**	**Seg 23**	**Seg 24**
AP 1	8.5	-	12.2	-	8.2	-	10.6	-	9.7	-	12.8	-
	Seg 25	**Seg 26**	**Seg 27**	**Seg 28**								
AP 1	-	-	12.4	-								

Density-Based LOS												
	Seg 1	**Seg 2**	**Seg 3**	**Seg 4**	**Seg 5**	**Seg 6**	**Seg 7**	**Seg 8**	**Seg 9**	**Seg 10**	**Seg 11**	**Seg 12**
AP 1	E	E	C	C	C	C	D	B	B	B	C	A
	Seg 13	**Seg 14**	**Seg 15**	**Seg 16**	**Seg 17**	**Seg 18**	**Seg 19**	**Seg 20**	**Seg 21**	**Seg 22**	**Seg 23**	**Seg 24**
AP 1	A	A	B	A	A	A	B	A	A	A	B	A
	Seg 25	**Seg 26**	**Seg 27**	**Seg 28**								
AP 1	A	A	B	A								

Demand-Based LOS												
	Seg 1	**Seg 2**	**Seg 3**	**Seg 4**	**Seg 5**	**Seg 6**	**Seg 7**	**Seg 8**	**Seg 9**	**Seg 10**	**Seg 11**	**Seg 12**
AP 1	-	-	-	-	-	-	-	-	-	-	-	-
	Seg 13	**Seg 14**	**Seg 15**	**Seg 16**	**Seg 17**	**Seg 18**	**Seg 19**	**Seg 20**	**Seg 21**	**Seg 22**	**Seg 23**	**Seg 24**
AP 1	-	-	-	-	-	-	-	-	-	-	-	-
	Seg 25	**Seg 26**	**Seg 27**	**Seg 28**								
AP 1	-	-	-	-								

Eastbound 3 Lane (Proposed) - AM No-Build

HCS Freeway Facilities Report

Project Information

Analyst	EJG	Date	11/7/2024
Agency	Woolpert	Analysis Year	2024
Jurisdiction	Franklin and Licking Counties	Time Analyzed	AM 2048 No-Build
Facility Name	EB SR-161	Units	U.S. Customary
Project Description	3 Lanes (Proposed)		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45
Queue Discharge Capacity Drop, %	7	Total Segments	28
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	18.03		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		1700	3
2	Diverge	Diverge	US 62	1500	3
3	Basic	Basic		2600	3
4	Merge	Merge	US 62	1500	3
5	Basic	Basic	Per ODOT	1290	3
6	Basic	Basic		6540	3
7	Diverge	Diverge	Beech+Worthington	1500	3
8	Basic	Basic		4000	3
9	Merge	Merge	Beech+Worthington	1500	3
10	Basic	Basic		2240	3
11	Diverge	Diverge	Mink+Worthington	1500	3
12	Basic	Basic		2530	3
13	Merge	Merge	Mink+Worthington	1500	3
14	Basic	Basic		9690	3
15	Diverge	Diverge	SR 310+Worthington	1500	3
16	Basic	Basic		3110	3
17	Merge	Merge	SR 310+Worthington	1500	3
18	Basic	Basic		11330	3
19	Diverge	Diverge	York	1500	3
20	Basic	Basic		3040	3
21	Merge	Merge	York	1500	3
22	Basic	Basic		16200	3
23	Diverge	Diverge	Columbus	1500	3
24	Basic	Basic		1460	3
25	Weaving	Weaving	Columbus/Lancaster	1670	4
26	Basic	Basic		1820	3
27	Merge	Merge	Lancaster	1500	3

28	Basic	Basic		8000	3

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.917	6230	7200	0.87	61.1	34.0	D

Segment 2: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.93	0.917	0.952	6230	2090	7200	2200	0.87	0.95	63.6	60.0	32.7	35.7	E

Segment 3: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.917	4084	7200	0.57	69.7	19.5	C

Segment 4: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.88	0.909	0.952	4502	382	7200	2200	0.63	0.17	63.3	61.9	23.7	22.1	C

Segment 5: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	4494	7200	0.62	72.3	20.7	C

Segment 6: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	4494	7200	0.62	69.0	21.7	C

Segment 7: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.85	0.909	0.877	4494	1999	7200	2200	0.62	0.91	63.5	60.3	23.6	28.8	D

Segment 8: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	2750	7200	0.38	69.9	13.1	B

Segment 9: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.82	0.935	0.952	3058	384	7200	2200	0.42	0.17	64.0	62.2	15.9	17.4	B

Segment 10: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

1	0.94		0.935		3015		7200		0.42		74.5		13.4	B
Segment 11: Diverge														
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**	**LOS**
	F	**R**	**F**	**R**	**Freeway**	**Ramp**	**Freeway**	**Ramp**	**F**	**R**	**F**	**R Infl.**	**F**	**R Infl.**	
1	0.94	0.80	0.935	0.935	3015	1751	7200	2200	0.42	0.80	66.4	64.2	15.1	21.9	C
Segment 12: Basic														
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**	**LOS**
1	0.94		0.935		1525		7200		0.21		74.7		6.8	A
Segment 13: Merge														
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**	**LOS**
	F	**R**	**F**	**R**	**Freeway**	**Ramp**	**Freeway**	**Ramp**	**F**	**R**	**F**	**R Infl.**	**F**	**R Infl.**	
1	0.94	0.89	0.935	0.855	1814	289	7200	2200	0.25	0.13	69.9	67.8	8.7	8.3	A
Segment 14: Basic														
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**	**LOS**
1	0.94		0.935		1775		7200		0.25		75.0		7.9	A
Segment 15: Diverge														
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**	**LOS**
	F	**R**	**F**	**R**	**Freeway**	**Ramp**	**Freeway**	**Ramp**	**F**	**R**	**F**	**R Infl.**	**F**	**R Infl.**	
1	0.94	0.80	0.935	0.935	1775	348	7200	2200	0.25	0.16	71.3	68.4	8.3	11.7	B
Segment 16: Basic														
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**	**LOS**
1	0.94		0.935		1479		7200		0.21		74.9		6.6	A
Segment 17: Merge														
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**	**LOS**
	F	**R**	**F**	**R**	**Freeway**	**Ramp**	**Freeway**	**Ramp**	**F**	**R**	**F**	**R Infl.**	**F**	**R Infl.**	
1	0.94	0.80	0.909	0.943	1693	172	7200	2200	0.24	0.08	69.8	67.4	8.1	8.1	A
Segment 18: Basic														
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**	**LOS**
1	0.94		0.909		1674		7200		0.23		75.0		7.4	A
Segment 19: Diverge														
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**	**LOS**
	F	**R**	**F**	**R**	**Freeway**	**Ramp**	**Freeway**	**Ramp**	**F**	**R**	**F**	**R Infl.**	**F**	**R Infl.**	
1	0.94	0.82	0.909	0.877	1674	209	7200	2200	0.23	0.09	71.8	68.8	7.8	10.6	B
Segment 20: Basic														
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**	**LOS**

1	0.94		0.909		1498		7200		0.21		74.9		6.7		A

Segment 21: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.85	0.909	0.952	1881	383	7200	2200	0.26	0.17	69.5	67.3	9.0	9.5	A

Segment 22: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	1861	7200	0.26	75.0	8.3	A

Segment 23: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.80	0.909	0.877	1861	242	7200	2200	0.26	0.11	71.8	68.7	8.6	12.5	B

Segment 24: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	1662	7200	0.23	74.7	7.4	A

Segment 25: Weaving

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	2358	6091	0.39	63.1	9.3	A

Segment 26: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	1966	7200	0.27	74.3	8.7	A

Segment 27: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.87	0.909	0.952	2268	302	7200	2200	0.32	0.14	69.0	66.6	11.0	12.2	B

Segment 28: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	2259	7200	0.31	75.0	10.0	A

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	10095	9471	4.68	117.11	70.6	11.5	10.5	15.30	B

Facility Overall Results

Space Mean Speed, mi/h	70.6	Average Density, veh/mi/ln	10.5
Average Travel Time, min	15.30	Average Density, pc/mi/ln	11.5
Total VMT, veh-mi/AP	10095	Total VHD, veh-h	4.68
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	117.11

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HCS Basic Freeway Report

Project Information			
Analyst	EJG	Date	11/7/2024
Agency	Woolpert	Analysis Year	2024
Jurisdiction	Franklin and Licking Counties	Time Analyzed	AM 2048 No-Build
Project Description	3 Lanes (Proposed)	Units	U.S. Customary
Segment Number	1	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	1700	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.50
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	5370	Heavy Vehicle Adjustment Factor (f_{HV})	0.917
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2077
Total Trucks, %	9.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.87
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	61.1
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	34.0
Total Ramp Density Adjustment	-	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	2	Segment Name	US 62
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	70.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	515
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	5370	1850
Peak Hour Factor (PHF)	0.94	0.93
Total Trucks, %	9.00	5.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.917	0.952
Flow Rate (v_i), pc/h	6230	2090
Capacity (c_{md}), pc/h	7200	2200
Initial Adjusted Capacity (c_{mda}), pc/h	7200	-
Final Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.87	0.95

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	2037
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	60.0
Flow in Lanes 1 and 2 (v_{12}), pc/h	4193	Outer Lanes Freeway Speed (S_O), mi/h	72.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	63.6
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	32.7
Level of Service (LOS)	E	Density in Ramp Influence Area (D_R), pc/mi/ln	35.7

HCS Basic Freeway Report

Project Information			
Segment Number	3	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	2600	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.50
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3520	Heavy Vehicle Adjustment Factor (f_{HV})	0.917
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1361
Total Trucks, %	9.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.57
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	69.7
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	19.5
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Freeway Merge Report

Project Information			
Segment Number	4	Segment Name	US 62
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	70.0	55.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	890
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3520	320
Peak Hour Factor (PHF)	0.94	0.88
Total Trucks, %	10.00	5.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.952
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	4120 | 4502	382
Capacity (c_{md}), pc/h	7200	2200
Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.63	0.17

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	1833.2	Flow Outer Lanes (v_{OA}), pc/h/ln	1640
Downstream Equilibrium Distance (L_{EQ}), ft	9754.4	On-Ramp Influence Area Speed (S_R), mi/h	61.9
Flow in Lanes 1 and 2 (v_{12}), pc/h	2480	Outer Lanes Freeway Speed (S_O), mi/h	65.9
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2862	Ramp Junction Speed (S), mi/h	63.3
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	23.7
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	22.1

HCS Basic Freeway Report

Project Information			
Segment Number	5	Segment Name	Per ODOT
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	1290	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3840	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1498
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.62
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	72.3
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	20.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Basic Freeway Report

Project Information			
Segment Number	6	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	6540	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3840	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1498
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.62
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	69.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	21.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	7	Segment Name	Beech+Worthington
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	70.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	530
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3840	1490
Peak Hour Factor (PHF)	0.94	0.85
Total Trucks, %	10.00	14.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.877
Flow Rate (v_i), pc/h	4494	1999
Capacity (c_{md}), pc/h	7200	2200
Initial Adjusted Capacity (c_{mda}), pc/h	7200	-
Final Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.62	0.91

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	17024.7	Flow Outer Lanes (v_{OA}), pc/h/ln	1090
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	60.3
Flow in Lanes 1 and 2 (v_{12}), pc/h	3404	Outer Lanes Freeway Speed (S_O), mi/h	76.4
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	63.5
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	23.6
Level of Service (LOS)	D	Density in Ramp Influence Area (D_R), pc/mi/ln	28.8

HCS Basic Freeway Report

Project Information			
Segment Number	8	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	4000	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	2350	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	917
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.38
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	69.9
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	13.1
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Freeway Merge Report

Project Information			
Segment Number	9	Segment Name	Beech+Worthington
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	70.0	55.0
Segment Length (L) / Acceleration Length (LA), ft	1500	670
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2350	300
Peak Hour Factor (PHF)	0.94	0.82
Total Trucks, %	7.00	5.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.935	0.952
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	2674 | 3058	384
Capacity (c_{md}), pc/h	7200	2200
Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.42	0.17

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	1426.5	Flow Outer Lanes (v_{OA}), pc/h/ln	971
Downstream Equilibrium Distance (L_{EQ}), ft	9664.1	On-Ramp Influence Area Speed (S_R), mi/h	62.2
Flow in Lanes 1 and 2 (v_{12}), pc/h	1703	Outer Lanes Freeway Speed (S_O), mi/h	68.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2087	Ramp Junction Speed (S), mi/h	64.0
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	15.9
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	17.4

HCS Basic Freeway Report

Project Information			
Segment Number	10	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	2240	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	2650	Heavy Vehicle Adjustment Factor (f_{HV})	0.935
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1005
Total Trucks, %	7.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.42
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.5
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	13.4
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	11	Segment Name	Mink+Worthington
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	485
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2650	1310
Peak Hour Factor (PHF)	0.94	0.80
Total Trucks, %	7.00	7.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.935	0.935
Flow Rate (v_i), pc/h	3015	1751
Capacity (c_{md}), pc/h	7200	2200
Initial Adjusted Capacity (c_{mda}), pc/h	7200	-
Final Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.42	0.80

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	52827.1	Flow Outer Lanes (v_{OA}), pc/h/ln	450
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	64.2
Flow in Lanes 1 and 2 (v_{12}), pc/h	2565	Outer Lanes Freeway Speed (S_O), mi/h	82.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	66.4
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	15.1
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	21.9

HCS Basic Freeway Report

Project Information			
Segment Number	12	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	2530	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	1340	Heavy Vehicle Adjustment Factor (f_{HV})	0.935
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	508
Total Trucks, %	7.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.21
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.7
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	6.8
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Merge Report

Project Information			
Segment Number	13	Segment Name	Mink+Worthington
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	1055
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1340	220
Peak Hour Factor (PHF)	0.94	0.89
Total Trucks, %	7.00	17.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.935	0.855
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	1525 | 1814	289
Capacity (c_{md}), pc/h	7200	2200
Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.25	0.13

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	1331.2	Flow Outer Lanes (v_{OA}), pc/h/ln	599
Downstream Equilibrium Distance (L_{EQ}), ft	1564.2	On-Ramp Influence Area Speed (S_R), mi/h	67.8
Flow in Lanes 1 and 2 (v_{12}), pc/h	926	Outer Lanes Freeway Speed (S_O), mi/h	74.6
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1215	Ramp Junction Speed (S), mi/h	69.9
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	8.7
Level of Service (LOS)	A	Density in Ramp Influence Area (D_R), pc/mi/ln	8.3

HCS Basic Freeway Report

Project Information			
Segment Number	14	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	9690	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	1560	Heavy Vehicle Adjustment Factor (f_{HV})	0.935
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	592
Total Trucks, %	7.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.25
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	7.9
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	15	Segment Name	SR 310+Worthington
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	465
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1560	260
Peak Hour Factor (PHF)	0.94	0.80
Total Trucks, %	7.00	7.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.935	0.935
Flow Rate (v_i), pc/h	1775	348
Capacity (c_{md}), pc/h	7200	2200
Initial Adjusted Capacity (c_{mda}), pc/h	7200	-
Final Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.25	0.16

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	3385.0	Flow Outer Lanes (v_{OA}), pc/h/ln	428
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	68.4
Flow in Lanes 1 and 2 (v_{12}), pc/h	1347	Outer Lanes Freeway Speed (S_O), mi/h	82.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	71.3
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	8.3
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	11.7

HCS Basic Freeway Report

Project Information			
Segment Number	16	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	3110	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	1300	Heavy Vehicle Adjustment Factor (f_{HV})	0.935
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	493
Total Trucks, %	7.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.21
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.9
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	6.6
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Merge Report

Project Information			
Segment Number	17	Segment Name	SR 310+Worthington
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Acceleration Length (LA), ft	1500	940
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1300	130
Peak Hour Factor (PHF)	0.94	0.80
Total Trucks, %	10.00	6.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.943
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	1521 | 1693	172
Capacity (c_{md}), pc/h	7200	2200
Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.24	0.08

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	1254.3	Flow Outer Lanes (v_{OA}), pc/h/ln	602
Downstream Equilibrium Distance (L_{EQ}), ft	994.4	On-Ramp Influence Area Speed (S_R), mi/h	67.4
Flow in Lanes 1 and 2 (v_{12}), pc/h	919	Outer Lanes Freeway Speed (S_O), mi/h	74.6
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1091	Ramp Junction Speed (S), mi/h	69.8
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	8.1
Level of Service (LOS)	A	Density in Ramp Influence Area (D_R), pc/mi/ln	8.1

HCS Basic Freeway Report

Project Information			
Segment Number	18	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	11330	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	1430	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	558
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.23
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	7.4
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	19	Segment Name	York
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	485
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1430	150
Peak Hour Factor (PHF)	0.94	0.82
Total Trucks, %	10.00	14.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.877
Flow Rate (v_i), pc/h	1674	209
Capacity (c_{md}), pc/h	7200	2200
Initial Adjusted Capacity (c_{mda}), pc/h	7200	-
Final Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.23	0.10

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	1837.3	Flow Outer Lanes (v_{OA}), pc/h/ln	426
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	68.8
Flow in Lanes 1 and 2 (v_{12}), pc/h	1248	Outer Lanes Freeway Speed (S_O), mi/h	82.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	71.8
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	7.8
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	10.6

HCS Basic Freeway Report

Project Information			
Segment Number	20	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	3040	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.50
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	1280	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	499
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.21
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.9
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	6.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Merge Report

Project Information

Segment Number	21	Segment Name	York
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	940
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	1280	310
Peak Hour Factor (PHF)	0.94	0.85
Total Trucks, %	10.00	5.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.952
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	1498 | 1881	383
Capacity (c_{md}), pc/h	7200	2200
Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.26	0.17

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	1294.5	Flow Outer Lanes (v_{OA}), pc/h/ln	593
Downstream Equilibrium Distance (L_{EQ}), ft	1151.4	On-Ramp Influence Area Speed (S_R), mi/h	67.3
Flow in Lanes 1 and 2 (v_{12}), pc/h	905	Outer Lanes Freeway Speed (S_O), mi/h	74.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1288	Ramp Junction Speed (S), mi/h	69.5
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	9.0
Level of Service (LOS)	A	Density in Ramp Influence Area (D_R), pc/mi/ln	9.5

HCS Basic Freeway Report

Project Information			
Segment Number	22	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	16200	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	1590	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	620
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.26
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	8.3
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	23	Segment Name	Columbus
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1590	170
Peak Hour Factor (PHF)	0.94	0.80
Total Trucks, %	10.00	14.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.877
Flow Rate (v_i), pc/h	1861	242
Capacity (c_{md}), pc/h	7200	2200
Initial Adjusted Capacity (c_{mda}), pc/h	7200	-
Final Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.26	0.11

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	4014.2	Flow Outer Lanes (v_{OA}), pc/h/ln	482
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	68.7
Flow in Lanes 1 and 2 (v_{12}), pc/h	1379	Outer Lanes Freeway Speed (S_O), mi/h	82.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	71.8
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	8.6
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	12.5

HCS Basic Freeway Report

Project Information			
Segment Number	24	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	1460	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	1420	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	554
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.23
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.7
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	7.4
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Weaving Report

Project Information			
Segment Number	25	Segment Name	Columbus/Lancaster
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data			
Number of Lanes (N), ln	4	Segment Type	Freeway
Segment Length (L_S), ft	665	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	0.67	Cross Weaving Managed Lane	No

Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Proportion of CAVs in Traffic Stream	0	Final Capacity Adjustment Factor (CAF)	1.000

Demand and Capacity				
	FF	RF	RR	FR
Demand Volume (V_i), veh/h	1200	480	20	220
Peak Hour Factor (PHF)	0.94	0.80	0.80	0.84
Total Trucks, %	10.00	5.00	0.00	14.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.952	1.000	0.877
Flow Rate (v_i), pc/h	1404	630	25	299
Weaving Flow Rate (v_w), pc/h	929	Ideal Conditions Capacity (c_{IFL}), pc/h/ln		2400
Non-Weaving Flow Rate (v_{NW}), pc/h	1429	Density-Based Capacity ($c_{IWL} \times N \times f_{HV}$), veh/h		7129
Total Flow Rate (v), pc/h	2358	Demand Flow-Based Capacity ($c_{IW} \times f_{HV}$), veh/h		5582
Volume Ratio (VR)	0.394	Weaving Area Capacity (c_W), veh/h		5582
Minimum Lane Change Rate (LC_{MIN}), lc/h	929	Adjusted Weaving Area Capacity (c_{WA}), veh/h		5582
Maximum Weaving Length (L_{MAX}), ft	6614	Volume-to-Capacity Ratio (v/c)		0.39

Speed and Density			
Non-Weaving Vehicle Index (I_{NW})	63	Average Weaving Speed (S_W), mi/h	59.8
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	0	Average Non-Weaving Speed (S_{NW}), mi/h	65.5
Weaving Lane Change Rate (LC_W), lc/h	1108	Average Speed (S), mi/h	63.1
Total Lane Change Rate (LC_{All}), lc/h	1108	Density (D), pc/mi/ln	9.3
Weaving Intensity Factor (W)	0.338	Level of Service (LOS)	A

HCS Basic Freeway Report

Project Information			
Segment Number	26	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	1820	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	1680	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	655
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.27
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.3
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	8.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Merge Report

Project Information			
Segment Number	27	Segment Name	Lancaster
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Acceleration Length (LA), ft	1500	765
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1680	250
Peak Hour Factor (PHF)	0.94	0.87
Total Trucks, %	10.00	5.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.952
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	1966 | 2268	302
Capacity (c_{md}), pc/h	7200	2200
Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.32	0.14

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	1299.6	Flow Outer Lanes (v_{OA}), pc/h/ln	788
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	66.6
Flow in Lanes 1 and 2 (v_{12}), pc/h	1178	Outer Lanes Freeway Speed (S_O), mi/h	74.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1480	Ramp Junction Speed (S), mi/h	69.0
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	11.0
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	12.2

HCS Basic Freeway Report

Project Information			
Segment Number	28	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	8000	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	1930	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	753
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.31
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	10.0
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

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LOS

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	D	E	C	C	C	C	D	B	B	B	C	A
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	A	A	B	A	A	A	B	A	A	A	B	A
	Seg 25	Seg 26	Seg 27	Seg 28								
AP 1	A	A	B	A								

Speed (mi/h)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	61.1	63.6	69.7	63.3	72.3	69.0	63.5	69.9	64.0	74.5	66.4	74.7
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	69.9	75.0	71.3	74.9	69.8	75.0	71.8	74.9	69.5	75.0	71.8	74.7
	Seg 25	Seg 26	Seg 27	Seg 28								
AP 1	63.1	74.3	69.0	75.0								

Density (pc/mi/ln)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	34.0	32.7	19.5	23.7	20.7	21.7	23.6	13.1	15.9	13.4	15.1	6.8
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	8.7	7.9	8.3	6.6	8.1	7.4	7.8	6.7	9.0	8.3	8.6	7.4
	Seg 25	Seg 26	Seg 27	Seg 28								
AP 1	9.3	8.7	11.0	10.0								

Demand - Capacity Ratio (D/C)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	0.87	0.87	0.57	0.63	0.62	0.62	0.62	0.38	0.42	0.42	0.42	0.21
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	0.25	0.25	0.25	0.21	0.24	0.23	0.23	0.21	0.26	0.26	0.26	0.23
	Seg 25	Seg 26	Seg 27	Seg 28								
AP 1	0.39	0.27	0.32	0.31								

Volume - Capacity Ratio (V/C)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	0.87	0.87	0.57	0.63	0.62	0.62	0.62	0.38	0.42	0.42	0.42	0.21
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	0.25	0.25	0.25	0.21	0.24	0.23	0.23	0.21	0.26	0.26	0.26	0.23
	Seg 25	Seg 26	Seg 27	Seg 28								
AP 1	0.39	0.27	0.32	0.31								

Density (veh/mi/ln)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	31.2	30.0	17.9	21.5	18.8	19.7	21.5	11.9	14.9	12.5	14.1	6.4
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	8.1	7.4	7.8	6.2	7.4	6.7	7.1	6.1	8.2	7.5	7.8	6.7
	Seg 25	Seg 26	Seg 27	Seg 28								

AP 1	7.9	7.9	10.0	9.1

Density in Ramp Influence Area (pc/mi/ln)											
	Seg 1	**Seg 2**	**Seg 3**	**Seg 4**	**Seg 5**	**Seg 6**	**Seg 7**	**Seg 8**	**Seg 9**	**Seg 10**	**Seg 11**	**Seg 12**
AP 1	-	35.7	-	22.1	-	-	28.8	-	17.4	-	21.9	-
	Seg 13	**Seg 14**	**Seg 15**	**Seg 16**	**Seg 17**	**Seg 18**	**Seg 19**	**Seg 20**	**Seg 21**	**Seg 22**	**Seg 23**	**Seg 24**
AP 1	8.3	-	11.7	-	8.1	-	10.6	-	9.5	-	12.5	-
	Seg 25	**Seg 26**	**Seg 27**	**Seg 28**								
AP 1	-	-	12.2	-								

Density-Based LOS											
	Seg 1	**Seg 2**	**Seg 3**	**Seg 4**	**Seg 5**	**Seg 6**	**Seg 7**	**Seg 8**	**Seg 9**	**Seg 10**	**Seg 11**	**Seg 12**
AP 1	D	E	C	C	C	C	D	B	B	B	C	A
	Seg 13	**Seg 14**	**Seg 15**	**Seg 16**	**Seg 17**	**Seg 18**	**Seg 19**	**Seg 20**	**Seg 21**	**Seg 22**	**Seg 23**	**Seg 24**
AP 1	A	A	B	A	A	A	B	A	A	A	B	A
	Seg 25	**Seg 26**	**Seg 27**	**Seg 28**								
AP 1	A	A	B	A								

Demand-Based LOS											
	Seg 1	**Seg 2**	**Seg 3**	**Seg 4**	**Seg 5**	**Seg 6**	**Seg 7**	**Seg 8**	**Seg 9**	**Seg 10**	**Seg 11**	**Seg 12**
AP 1	-	-	-	-	-	-	-	-	-	-	-	-
	Seg 13	**Seg 14**	**Seg 15**	**Seg 16**	**Seg 17**	**Seg 18**	**Seg 19**	**Seg 20**	**Seg 21**	**Seg 22**	**Seg 23**	**Seg 24**
AP 1	-	-	-	-	-	-	-	-	-	-	-	-
	Seg 25	**Seg 26**	**Seg 27**	**Seg 28**								
AP 1	-	-	-	-								

Eastbound 3 Lane (Proposed) - PM Build

HCS Freeway Facilities Report

Project Information

Analyst	EJG	Date	11/7/2024
Agency	Woolpert	Analysis Year	2024
Jurisdiction	Franklin and Licking Counties	Time Analyzed	PM 2048 Build
Facility Name	EB SR-161	Units	U.S. Customary
Project Description	3 Lanes (Proposed)		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45
Queue Discharge Capacity Drop, %	7	Total Segments	28
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	18.03		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		1700	3
2	Diverge	Diverge	US 62	1500	3
3	Basic	Basic		2600	3
4	Merge	Merge	US 62	1500	3
5	Basic	Basic	Per ODOT	1290	3
6	Basic	Basic		6540	3
7	Diverge	Diverge	Beech+Worthington	1500	3
8	Basic	Basic		4000	3
9	Merge	Merge	Beech+Worthington	1500	3
10	Basic	Basic		2240	3
11	Diverge	Diverge	Mink+Worthington	1500	3
12	Basic	Basic		2530	3
13	Merge	Merge	Mink+Worthington	1500	3
14	Basic	Basic		9690	3
15	Diverge	Diverge	SR 310+Worthington	1500	3
16	Basic	Basic		3110	3
17	Merge	Merge	SR 310+Worthington	1500	3
18	Basic	Basic		11330	3
19	Diverge	Diverge	York	1500	3
20	Basic	Basic		3040	3
21	Merge	Merge	York	1500	3
22	Basic	Basic		16200	3
23	Diverge	Diverge	Columbus	1500	3
24	Basic	Basic		1460	3
25	Weaving	Weaving	Columbus/Lancaster	1670	4
26	Basic	Basic		1820	3
27	Merge	Merge	Lancaster	1500	3

28	Basic	Basic		8000	3

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.952	5509	7200	0.77	65.3	28.1	D

Segment 2: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.93	0.952	0.952	5509	1480	7200	2200	0.77	0.67	65.1	61.6	28.2	31.5	D

Segment 3: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.952	4045	7200	0.56	69.7	19.3	C

Segment 4: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.84	0.952	0.971	4609	564	7200	2200	0.64	0.26	63.1	61.6	24.3	23.1	C

Segment 5: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.952	4559	7200	0.63	72.0	21.1	C

Segment 6: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.952	4559	7200	0.63	68.8	22.1	C

Segment 7: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.92	0.952	0.943	4559	634	7200	2200	0.63	0.29	67.0	63.7	22.7	25.8	C

Segment 8: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.952	3945	7200	0.55	69.8	18.8	C

Segment 9: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.80	0.952	0.962	4881	936	7200	2200	0.68	0.43	61.9	60.1	26.3	26.6	C

Segment 10: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

1	0.94		0.952		4749		7200		0.66		71.2		22.2	C
Segment 11: Diverge														
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**	**LOS**
	F	**R**	**F**	**R**	**Freeway**	**Ramp**	**Freeway**	**Ramp**	**F**	**R**	**F**	**R Infl.**	**F**	**R Infl.**	
1	0.94	0.87	0.952	0.980	4749	927	7200	2200	0.66	0.42	70.3	66.7	22.5	28.9	D
Segment 12: Basic														
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**	**LOS**
1	0.94		0.952		3866		7200		0.54		74.1		17.4	B
Segment 13: Merge														
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**	**LOS**
	F	**R**	**F**	**R**	**Freeway**	**Ramp**	**Freeway**	**Ramp**	**F**	**R**	**F**	**R Infl.**	**F**	**R Infl.**	
1	0.94	0.82	0.952	0.971	4632	766	7200	2200	0.64	0.35	67.2	65.3	23.0	22.9	C
Segment 14: Basic														
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**	**LOS**
1	0.94		0.952		4548		7200		0.63		72.1		21.0	C
Segment 15: Diverge														
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**	**LOS**
	F	**R**	**F**	**R**	**Freeway**	**Ramp**	**Freeway**	**Ramp**	**F**	**R**	**F**	**R Infl.**	**F**	**R Infl.**	
1	0.94	0.95	0.952	0.980	4548	730	7200	2200	0.63	0.33	71.1	67.3	21.3	26.5	C
Segment 16: Basic														
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**	**LOS**
1	0.94		0.952		3788		7200		0.53		74.2		17.0	B
Segment 17: Merge														
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**	**LOS**
	F	**R**	**F**	**R**	**Freeway**	**Ramp**	**Freeway**	**Ramp**	**F**	**R**	**F**	**R Infl.**	**F**	**R Infl.**	
1	0.94	0.80	0.952	0.952	4353	565	7200	2200	0.60	0.26	67.5	65.6	21.5	21.6	C
Segment 18: Basic														
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**	**LOS**
1	0.94		0.952		4269		7200		0.59		73.0		19.5	C
Segment 19: Diverge														
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**	**LOS**
	F	**R**	**F**	**R**	**Freeway**	**Ramp**	**Freeway**	**Ramp**	**F**	**R**	**F**	**R Infl.**	**F**	**R Infl.**	
1	0.94	0.89	0.952	0.943	4269	310	7200	2200	0.59	0.14	72.1	68.5	19.7	24.5	C
Segment 20: Basic														
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**	**LOS**

1	0.94		0.952		3978		7200		0.55		73.8		18.0	B

Segment 21: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.84	0.952	0.962	4919	941	7200	2200	0.68	0.43	66.3	64.2	24.7	25.3	C

Segment 22: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.952	4827	7200	0.67	70.9	22.7	C

Segment 23: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.80	0.952	0.943	4827	225	7200	2200	0.67	0.10	72.2	68.8	22.3	27.5	C

Segment 24: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.952	4637	7200	0.64	71.7	21.6	C

Segment 25: Weaving

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.90	0.952	5706	8152	0.70	55.5	25.7	C

Segment 26: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.952	4716	7200	0.66	71.4	22.0	C

Segment 27: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.86	0.952	0.962	5369	653	7200	2200	0.75	0.30	65.3	63.0	27.4	27.6	C

Segment 28: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.952	5319	7200	0.74	68.4	25.9	C

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	19814	18579	15.85	396.18	69.7	21.9	20.8	15.50	C

Facility Overall Results

Space Mean Speed, mi/h	69.7	Average Density, veh/mi/ln	20.8
Average Travel Time, min	15.50	Average Density, pc/mi/ln	21.9
Total VMT, veh-mi/AP	19814	Total VHD, veh-h	15.85
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	396.18

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HCS Basic Freeway Report

Project Information			
Analyst	EJG	Date	11/7/2024
Agency	Woolpert	Analysis Year	2024
Jurisdiction	Franklin and Licking Counties	Time Analyzed	PM 2048 Build
Project Description	3 Lanes (Proposed)	Units	U.S. Customary
Segment Number	1	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	1700	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.50
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	4930	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1836
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.77
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	65.3
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	28.1
Total Ramp Density Adjustment	-	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	2	Segment Name	US 62
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	70.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	515
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	4930	1310
Peak Hour Factor (PHF)	0.94	0.93
Total Trucks, %	5.00	5.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.952	0.952
Flow Rate (v_i), pc/h	5509	1480
Capacity (c_{md}), pc/h	7200	2200
Initial Adjusted Capacity (c_{mda}), pc/h	7200	-
Final Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.77	0.67

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1797
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	61.6
Flow in Lanes 1 and 2 (v_{12}), pc/h	3712	Outer Lanes Freeway Speed (S_O), mi/h	73.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	65.1
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	28.2
Level of Service (LOS)	D	Density in Ramp Influence Area (D_R), pc/mi/ln	31.5

HCS Basic Freeway Report

Project Information			
Segment Number	3	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	2600	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.50
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3620	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1348
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.56
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	69.7
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	19.3
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Freeway Merge Report

Project Information			
Segment Number	4	Segment Name	US 62
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	70.0	55.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	890
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3620	460
Peak Hour Factor (PHF)	0.94	0.84
Total Trucks, %	5.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.952	0.971
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	4045 | 4609	564
Capacity (c_{md}), pc/h	7200	2200
Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.64	0.26

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	1856.1	Flow Outer Lanes (v_{OA}), pc/h/ln	1610
Downstream Equilibrium Distance (L_{EQ}), ft	3095.3	On-Ramp Influence Area Speed (S_R), mi/h	61.6
Flow in Lanes 1 and 2 (v_{12}), pc/h	2435	Outer Lanes Freeway Speed (S_O), mi/h	66.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2999	Ramp Junction Speed (S), mi/h	63.1
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	24.3
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	23.1

HCS Basic Freeway Report

Project Information			
Segment Number	5	Segment Name	Per ODOT
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	1290	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	4080	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1520
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.63
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	72.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	21.1
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Basic Freeway Report

Project Information			
Segment Number	6	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	6540	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	4080	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1520
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.63
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	68.8
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	22.1
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	7	Segment Name	Beech+Worthington
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	70.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	530
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	4080	550
Peak Hour Factor (PHF)	0.94	0.92
Total Trucks, %	5.00	6.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.952	0.943
Flow Rate (v_i), pc/h	4559	634
Capacity (c_{md}), pc/h	7200	2200
Initial Adjusted Capacity (c_{mda}), pc/h	7200	-
Final Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.63	0.29

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	4417.5	Flow Outer Lanes (v_{OA}), pc/h/ln	1503
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	63.7
Flow in Lanes 1 and 2 (v_{12}), pc/h	3056	Outer Lanes Freeway Speed (S_O), mi/h	74.8
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	67.0
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	22.7
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	25.8

HCS Basic Freeway Report

Project Information			
Segment Number	8	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	4000	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3530	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1315
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.55
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	69.8
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	18.8
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Freeway Merge Report

Project Information			
Segment Number	9	Segment Name	Beech+Worthington
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	70.0	55.0
Segment Length (L) / Acceleration Length (LA), ft	1500	670
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3530	720
Peak Hour Factor (PHF)	0.94	0.80
Total Trucks, %	5.00	4.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.952	0.962
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	3945 | 4881	936
Capacity (c_{md}), pc/h	7200	2200
Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.68	0.43

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	1816.6	Flow Outer Lanes (v_{OA}), pc/h/ln	1594
Downstream Equilibrium Distance (L_{EQ}), ft	5107.8	On-Ramp Influence Area Speed (S_R), mi/h	60.1
Flow in Lanes 1 and 2 (v_{12}), pc/h	2351	Outer Lanes Freeway Speed (S_O), mi/h	66.1
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3287	Ramp Junction Speed (S), mi/h	61.9
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	26.3
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	26.6

HCS Basic Freeway Report

Project Information			
Segment Number	10	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	2240	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	4250	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1583
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.66
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	71.2
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	22.2
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	11	Segment Name	Mink+Worthington
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	485
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	4250	790
Peak Hour Factor (PHF)	0.94	0.87
Total Trucks, %	5.00	2.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.952	0.980
Flow Rate (v_i), pc/h	4749	927
Capacity (c_{md}), pc/h	7200	2200
Initial Adjusted Capacity (c_{mda}), pc/h	7200	-
Final Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.66	0.42

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	8526.5	Flow Outer Lanes (v_{OA}), pc/h/ln	1376
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	66.7
Flow in Lanes 1 and 2 (v_{12}), pc/h	3373	Outer Lanes Freeway Speed (S_O), mi/h	80.8
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	70.3
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	22.5
Level of Service (LOS)	D	Density in Ramp Influence Area (D_R), pc/mi/ln	28.9

HCS Basic Freeway Report

Project Information			
Segment Number	12	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	2530	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3460	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1289
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.54
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.1
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	17.4
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Merge Report

Project Information			
Segment Number	13	Segment Name	Mink+Worthington
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Acceleration Length (LA), ft	1500	1055
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3460	610
Peak Hour Factor (PHF)	0.94	0.82
Total Trucks, %	5.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.952	0.971
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	3866 | 4632	766
Capacity (c_{md}), pc/h	7200	2200
Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.64	0.35

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	1934.3	Flow Outer Lanes (v_{OA}), pc/h/ln	1519
Downstream Equilibrium Distance (L_{EQ}), ft	3281.1	On-Ramp Influence Area Speed (S_R), mi/h	65.3
Flow in Lanes 1 and 2 (v_{12}), pc/h	2347	Outer Lanes Freeway Speed (S_O), mi/h	71.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3113	Ramp Junction Speed (S), mi/h	67.2
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	23.0
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	22.9

HCS Basic Freeway Report

Project Information			
Segment Number	14	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	9690	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	4070	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1516
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.63
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	72.1
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	21.0
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	15	Segment Name	SR 310+Worthington
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	465
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	4070	680
Peak Hour Factor (PHF)	0.94	0.95
Total Trucks, %	5.00	2.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.952	0.980
Flow Rate (v_i), pc/h	4548	730
Capacity (c_{md}), pc/h	7200	2200
Initial Adjusted Capacity (c_{mda}), pc/h	7200	-
Final Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.63	0.33

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	6376.7	Flow Outer Lanes (v_{OA}), pc/h/ln	1478
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	67.3
Flow in Lanes 1 and 2 (v_{12}), pc/h	3070	Outer Lanes Freeway Speed (S_O), mi/h	80.4
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	71.1
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	21.3
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	26.5

HCS Basic Freeway Report

Project Information			
Segment Number	16	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	3110	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3390	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1263
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.53
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.2
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	17.0
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Merge Report

Project Information			
Segment Number	17	Segment Name	SR 310+Worthington
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Acceleration Length (LA), ft	1500	940
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3390	430
Peak Hour Factor (PHF)	0.94	0.80
Total Trucks, %	5.00	5.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.952	0.952
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	3788 | 4353	565
Capacity (c_{md}), pc/h	7200	2200
Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.60	0.26

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	1823.5	Flow Outer Lanes (v_{OA}), pc/h/ln	1500
Downstream Equilibrium Distance (L_{EQ}), ft	1474.9	On-Ramp Influence Area Speed (S_R), mi/h	65.6
Flow in Lanes 1 and 2 (v_{12}), pc/h	2288	Outer Lanes Freeway Speed (S_O), mi/h	71.4
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2853	Ramp Junction Speed (S), mi/h	67.5
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	21.5
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	21.6

HCS Basic Freeway Report

Project Information			
Segment Number	18	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	11330	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3820	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1423
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.59
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	73.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	19.5
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	19	Segment Name	York
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	465
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3820	260
Peak Hour Factor (PHF)	0.94	0.89
Total Trucks, %	5.00	6.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.952	0.943
Flow Rate (v_i), pc/h	4269	310
Capacity (c_{md}), pc/h	7200	2200
Initial Adjusted Capacity (c_{mda}), pc/h	7200	-
Final Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.59	0.14

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	3872.9	Flow Outer Lanes (v_{OA}), pc/h/ln	1429
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	68.5
Flow in Lanes 1 and 2 (v_{12}), pc/h	2840	Outer Lanes Freeway Speed (S_O), mi/h	80.6
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	72.1
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	19.7
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	24.5

HCS Basic Freeway Report

Project Information			
Segment Number	20	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	3040	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.50
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3560	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1326
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.55
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	73.8
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	18.0
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Merge Report

Project Information			
Segment Number	21	Segment Name	York
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	940
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3560	760
Peak Hour Factor (PHF)	0.94	0.84
Total Trucks, %	5.00	4.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.952	0.962
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	3978 | 4919	941
Capacity (c_{md}), pc/h	7200	2200
Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.68	0.43

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	1944.6	Flow Outer Lanes (v_{OA}), pc/h/ln	1575
Downstream Equilibrium Distance (L_{EQ}), ft	1070.5	On-Ramp Influence Area Speed (S_R), mi/h	64.2
Flow in Lanes 1 and 2 (v_{12}), pc/h	2403	Outer Lanes Freeway Speed (S_O), mi/h	71.1
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3344	Ramp Junction Speed (S), mi/h	66.3
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	24.7
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	25.3

HCS Basic Freeway Report

Project Information			
Segment Number	22	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	16200	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	4320	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1609
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.67
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	70.9
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	22.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	23	Segment Name	Columbus
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	4320	170
Peak Hour Factor (PHF)	0.94	0.80
Total Trucks, %	5.00	6.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.952	0.943
Flow Rate (v_i), pc/h	4827	225
Capacity (c_{md}), pc/h	7200	2200
Initial Adjusted Capacity (c_{mda}), pc/h	7200	-
Final Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.67	0.10

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	5705.8	Flow Outer Lanes (v_{OA}), pc/h/ln	1707
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	68.8
Flow in Lanes 1 and 2 (v_{12}), pc/h	3120	Outer Lanes Freeway Speed (S_O), mi/h	79.5
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	72.2
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	22.3
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	27.5

HCS Basic Freeway Report

Project Information			
Segment Number	24	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	1460	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	4150	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1546
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.64
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	71.7
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	21.6
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Weaving Report

Project Information

Segment Number	25	Segment Name	Columbus/Lancaster
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data

Number of Lanes (N), ln	4	Segment Type	Freeway
Segment Length (L_S), ft	665	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	0.67	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Proportion of CAVs in Traffic Stream	0	Final Capacity Adjustment Factor (CAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	3480	740	30	670
Peak Hour Factor (PHF)	0.90	0.90	0.90	0.94
Total Trucks, %	5.00	4.00	0.00	6.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.952	0.962	1.000	0.943
Flow Rate (v_i), pc/h	4062	855	33	756
Weaving Flow Rate (v_w), pc/h	1611	Ideal Conditions Capacity (c_{IFL}), pc/h/ln		2400
Non-Weaving Flow Rate (v_{NW}), pc/h	4095	Density-Based Capacity ($c_{IWL} \times N \times f_{HV}$), veh/h		7765
Total Flow Rate (v), pc/h	5706	Demand Flow-Based Capacity ($c_{IW} \times f_{HV}$), veh/h		8107
Volume Ratio (VR)	0.282	Weaving Area Capacity (c_W), veh/h		7765
Minimum Lane Change Rate (LC_{MIN}), lc/h	1611	Adjusted Weaving Area Capacity (c_{WA}), veh/h		7765
Maximum Weaving Length (L_{MAX}), ft	5392	Volume-to-Capacity Ratio (v/c)		0.70

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	182	Average Weaving Speed (S_W), mi/h	52.8
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	434	Average Non-Weaving Speed (S_{NW}), mi/h	56.6
Weaving Lane Change Rate (LC_W), lc/h	1790	Average Speed (S), mi/h	55.5
Total Lane Change Rate (LC_{All}), lc/h	2224	Density (D), pc/mi/ln	25.7
Weaving Intensity Factor (W)	0.586	Level of Service (LOS)	C

HCS Basic Freeway Report

Project Information			
Segment Number	26	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	1820	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	4220	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1572
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.66
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	71.4
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	22.0
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Merge Report

Project Information			
Segment Number	27	Segment Name	Lancaster
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Acceleration Length (LA), ft	1500	765
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	4220	540
Peak Hour Factor (PHF)	0.94	0.86
Total Trucks, %	5.00	4.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.952	0.962
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	4716 | 5369	653
Capacity (c_{md}), pc/h	7200	2200
Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.75	0.30

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	1963.2	Flow Outer Lanes (v_{OA}), pc/h/ln	1891
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	63.0
Flow in Lanes 1 and 2 (v_{12}), pc/h	2825	Outer Lanes Freeway Speed (S_O), mi/h	70.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3478	Ramp Junction Speed (S), mi/h	65.3
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	27.4
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	27.6

HCS Basic Freeway Report

Project Information			
Segment Number	28	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	8000	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	4760	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1773
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.74
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	68.4
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	25.9
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

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LOS

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	D	D	C	C	C	C	C	C	C	C	D	B
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	C	C	C	B	C	C	C	B	C	C	C	C
	Seg 25	Seg 26	Seg 27	Seg 28								
AP 1	C	C	C	C								

Speed (mi/h)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	65.3	65.1	69.7	63.1	72.0	68.8	67.0	69.8	61.9	71.2	70.3	74.1
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	67.2	72.1	71.1	74.2	67.5	73.0	72.1	73.8	66.3	70.9	72.2	71.7
	Seg 25	Seg 26	Seg 27	Seg 28								
AP 1	55.5	71.4	65.3	68.4								

Density (pc/mi/ln)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	28.1	28.2	19.3	24.3	21.1	22.1	22.7	18.8	26.3	22.2	22.5	17.4
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	23.0	21.0	21.3	17.0	21.5	19.5	19.7	18.0	24.7	22.7	22.3	21.6
	Seg 25	Seg 26	Seg 27	Seg 28								
AP 1	25.7	22.0	27.4	25.9								

Demand - Capacity Ratio (D/C)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	0.77	0.77	0.56	0.64	0.63	0.63	0.63	0.55	0.68	0.66	0.66	0.54
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	0.64	0.63	0.63	0.53	0.60	0.59	0.59	0.55	0.68	0.67	0.67	0.64
	Seg 25	Seg 26	Seg 27	Seg 28								
AP 1	0.70	0.66	0.75	0.74								

Volume - Capacity Ratio (V/C)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	0.77	0.77	0.56	0.64	0.63	0.63	0.63	0.55	0.68	0.66	0.66	0.54
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	0.64	0.63	0.63	0.53	0.60	0.59	0.59	0.55	0.68	0.67	0.67	0.64
	Seg 25	Seg 26	Seg 27	Seg 28								
AP 1	0.70	0.66	0.75	0.74								

Density (veh/mi/ln)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	26.8	26.8	18.4	23.1	20.1	21.0	21.6	17.9	25.0	21.1	21.4	16.6
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	21.9	20.0	20.3	16.2	20.5	18.6	18.8	17.1	23.5	21.6	21.2	20.6
	Seg 25	Seg 26	Seg 27	Seg 28								

AP 1	22.0	20.9	26.1	24.7

Density in Ramp Influence Area (pc/mi/ln)												
	Seg 1	**Seg 2**	**Seg 3**	**Seg 4**	**Seg 5**	**Seg 6**	**Seg 7**	**Seg 8**	**Seg 9**	**Seg 10**	**Seg 11**	**Seg 12**
AP 1	-	31.5	-	23.1	-	-	25.8	-	26.6	-	28.9	-
	Seg 13	**Seg 14**	**Seg 15**	**Seg 16**	**Seg 17**	**Seg 18**	**Seg 19**	**Seg 20**	**Seg 21**	**Seg 22**	**Seg 23**	**Seg 24**
AP 1	22.9	-	26.5	-	21.6	-	24.5	-	25.3	-	27.5	-
	Seg 25	**Seg 26**	**Seg 27**	**Seg 28**								
AP 1	-	-	27.6	-								

Density-Based LOS												
	Seg 1	**Seg 2**	**Seg 3**	**Seg 4**	**Seg 5**	**Seg 6**	**Seg 7**	**Seg 8**	**Seg 9**	**Seg 10**	**Seg 11**	**Seg 12**
AP 1	D	D	C	C	C	C	C	C	C	C	D	B
	Seg 13	**Seg 14**	**Seg 15**	**Seg 16**	**Seg 17**	**Seg 18**	**Seg 19**	**Seg 20**	**Seg 21**	**Seg 22**	**Seg 23**	**Seg 24**
AP 1	C	C	C	B	C	C	C	B	C	C	C	C
	Seg 25	**Seg 26**	**Seg 27**	**Seg 28**								
AP 1	C	C	C	C								

Demand-Based LOS												
	Seg 1	**Seg 2**	**Seg 3**	**Seg 4**	**Seg 5**	**Seg 6**	**Seg 7**	**Seg 8**	**Seg 9**	**Seg 10**	**Seg 11**	**Seg 12**
AP 1	-	-	-	-	-	-	-	-	-	-	-	-
	Seg 13	**Seg 14**	**Seg 15**	**Seg 16**	**Seg 17**	**Seg 18**	**Seg 19**	**Seg 20**	**Seg 21**	**Seg 22**	**Seg 23**	**Seg 24**
AP 1	-	-	-	-	-	-	-	-	-	-	-	-
	Seg 25	**Seg 26**	**Seg 27**	**Seg 28**								
AP 1	-	-	-	-								

Eastbound 3 Lane (Proposed) - PM No-Build

HCS Freeway Facilities Report

Project Information

Analyst	EJG	Date	11/7/2024
Agency	Woolpert	Analysis Year	2024
Jurisdiction	Franklin and Licking Counties	Time Analyzed	PM 2048 No-Build
Facility Name	EB SR-161	Units	U.S. Customary
Project Description	3 Lanes (Proposed)		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45
Queue Discharge Capacity Drop, %	7	Total Segments	28
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	18.03		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		1700	3
2	Diverge	Diverge	US 62	1500	3
3	Basic	Basic		2600	3
4	Merge	Merge	US 62	1500	3
5	Basic	Basic	Per ODOT	1290	3
6	Basic	Basic		6540	3
7	Diverge	Diverge	Beech+Worthington	1500	3
8	Basic	Basic		4000	3
9	Merge	Merge	Beech+Worthington	1500	3
10	Basic	Basic		2240	3
11	Diverge	Diverge	Mink+Worthington	1500	3
12	Basic	Basic		2530	3
13	Merge	Merge	Mink+Worthington	1500	3
14	Basic	Basic		9690	3
15	Diverge	Diverge	SR 310+Worthington	1500	3
16	Basic	Basic		3110	3
17	Merge	Merge	SR 310+Worthington	1500	3
18	Basic	Basic		11330	3
19	Diverge	Diverge	York	1500	3
20	Basic	Basic		3040	3
21	Merge	Merge	York	1500	3
22	Basic	Basic		16200	3
23	Diverge	Diverge	Columbus	1500	3
24	Basic	Basic		1460	3
25	Weaving	Weaving	Columbus/Lancaster	1670	4
26	Basic	Basic		1820	3
27	Merge	Merge	Lancaster	1500	3

28	Basic	Basic		8000	3

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.952	5375	7200	0.75	65.9	27.2	D

Segment 2: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.93	0.952	0.952	5375	1468	7200	2200	0.75	0.67	65.1	61.6	27.5	31.0	D

Segment 3: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.952	3922	7200	0.54	69.8	18.7	C

Segment 4: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.84	0.952	0.971	4486	564	7200	2200	0.62	0.26	63.2	61.7	23.7	22.5	C

Segment 5: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.952	4436	7200	0.62	72.5	20.4	C

Segment 6: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.952	4436	7200	0.62	69.1	21.4	C

Segment 7: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.92	0.952	0.943	4436	669	7200	2200	0.62	0.30	66.9	63.6	22.1	25.3	C

Segment 8: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.952	3788	7200	0.53	70.0	18.0	B

Segment 9: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.80	0.952	0.962	4685	897	7200	2200	0.65	0.41	62.3	60.5	25.1	25.5	C

Segment 10: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS

1	0.94		0.952		4559		7200		0.63		72.0		21.1	C
Segment 11: Diverge														
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**	**LOS**
	F	**R**	**F**	**R**	**Freeway**	**Ramp**	**Freeway**	**Ramp**	**F**	**R**	**F**	**R Infl.**	**F**	**R Infl.**	
1	0.94	0.87	0.952	0.980	4559	915	7200	2200	0.63	0.42	70.3	66.8	21.6	27.9	C
Segment 12: Basic														
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**	**LOS**
1	0.94		0.952		3688		7200		0.51		74.4		16.5	B
Segment 13: Merge														
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**	**LOS**
	F	**R**	**F**	**R**	**Freeway**	**Ramp**	**Freeway**	**Ramp**	**F**	**R**	**F**	**R Infl.**	**F**	**R Infl.**	
1	0.94	0.82	0.952	0.971	4479	791	7200	2200	0.62	0.36	67.4	65.6	22.2	22.2	C
Segment 14: Basic														
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**	**LOS**
1	0.94		0.952		4392		7200		0.61		72.6		20.2	C
Segment 15: Diverge														
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**	**LOS**
	F	**R**	**F**	**R**	**Freeway**	**Ramp**	**Freeway**	**Ramp**	**F**	**R**	**F**	**R Infl.**	**F**	**R Infl.**	
1	0.94	0.95	0.952	0.980	4392	634	7200	2200	0.61	0.29	71.3	67.6	20.5	25.6	C
Segment 16: Basic														
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**	**LOS**
1	0.94		0.952		3732		7200		0.52		74.3		16.7	B
Segment 17: Merge														
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**	**LOS**
	F	**R**	**F**	**R**	**Freeway**	**Ramp**	**Freeway**	**Ramp**	**F**	**R**	**F**	**R Infl.**	**F**	**R Infl.**	
1	0.94	0.80	0.952	0.952	4297	565	7200	2200	0.60	0.26	67.6	65.7	21.2	21.4	C
Segment 18: Basic														
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**	**LOS**
1	0.94		0.952		4213		7200		0.59		73.2		19.2	C
Segment 19: Diverge														
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**	**LOS**
	F	**R**	**F**	**R**	**Freeway**	**Ramp**	**Freeway**	**Ramp**	**F**	**R**	**F**	**R Infl.**	**F**	**R Infl.**	
1	0.94	0.89	0.952	0.943	4213	298	7200	2200	0.59	0.14	72.2	68.6	19.5	24.0	C
Segment 20: Basic														
AP	**PHF**		**fHV**		**Volume Served (pc/h)**		**Capacity (pc/h)**		**d/c Ratio**		**Speed (mi/h)**		**Density (pc/mi/ln)**	**LOS**

1	0.94		0.952		3933		7200		0.55		73.9		17.7		B

Segment 21: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.84	0.952	0.962	4861	928	7200	2200	0.68	0.42	66.4	64.3	24.4	25.0	C

Segment 22: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.952	4772	7200	0.66	71.1	22.4	C

Segment 23: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.80	0.952	0.943	4772	199	7200	2200	0.66	0.09	72.3	68.9	22.0	27.2	C

Segment 24: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.952	4604	7200	0.64	71.8	21.4	C

Segment 25: Weaving

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.952	5541	8136	0.68	55.8	24.8	C

Segment 26: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.952	4749	7200	0.66	71.2	22.2	C

Segment 27: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.86	0.952	0.962	5402	653	7200	2200	0.75	0.30	65.2	62.9	27.6	27.7	C

Segment 28: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.952	5353	7200	0.74	68.2	26.2	D

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	19442	18239	14.84	371.09	69.9	21.5	20.4	15.50	C

Facility Overall Results

Space Mean Speed, mi/h	69.9	Average Density, veh/mi/ln	20.4
Average Travel Time, min	15.50	Average Density, pc/mi/ln	21.5
Total VMT, veh-mi/AP	19442	Total VHD, veh-h	14.84
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	371.09

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HCS Basic Freeway Report

Project Information			
Analyst	EJG	Date	11/7/2024
Agency	Woolpert	Analysis Year	2024
Jurisdiction	Franklin and Licking Counties	Time Analyzed	PM 2048 No-Build
Project Description	3 Lanes (Proposed)	Units	U.S. Customary
Segment Number	1	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	1700	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.50
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	4810	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1792
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.75
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	65.9
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	27.2
Total Ramp Density Adjustment	-	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	2	Segment Name	US 62
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	70.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	515
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	4810	1300
Peak Hour Factor (PHF)	0.94	0.93
Total Trucks, %	5.00	5.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.952	0.952
Flow Rate (v_i), pc/h	5375	1468
Capacity (c_{md}), pc/h	7200	2200
Initial Adjusted Capacity (c_{mda}), pc/h	7200	-
Final Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.75	0.67

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1727
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	61.6
Flow in Lanes 1 and 2 (v_{12}), pc/h	3648	Outer Lanes Freeway Speed (S_O), mi/h	74.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	65.1
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	27.5
Level of Service (LOS)	D	Density in Ramp Influence Area (D_R), pc/mi/ln	31.0

HCS Basic Freeway Report

Project Information			
Segment Number	3	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	2600	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.50
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3510	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1307
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.54
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	69.8
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	18.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Freeway Merge Report

Project Information			
Segment Number	4	Segment Name	US 62
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	70.0	55.0
Segment Length (L) / Acceleration Length (LA), ft	1500	890
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3510	460
Peak Hour Factor (PHF)	0.94	0.84
Total Trucks, %	5.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.952	0.971
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	3922 | 4486	564
Capacity (c_{md}), pc/h	7200	2200
Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.62	0.26

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	1829.8	Flow Outer Lanes (v_{OA}), pc/h/ln	1561
Downstream Equilibrium Distance (L_{EQ}), ft	3261.2	On-Ramp Influence Area Speed (S_R), mi/h	61.7
Flow in Lanes 1 and 2 (v_{12}), pc/h	2361	Outer Lanes Freeway Speed (S_O), mi/h	66.2
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2925	Ramp Junction Speed (S), mi/h	63.2
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	23.7
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	22.5

HCS Basic Freeway Report

Project Information			
Segment Number	5	Segment Name	Per ODOT
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	1290	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3970	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1479
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.62
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	72.5
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	20.4
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Basic Freeway Report

Project Information			
Segment Number	6	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	6540	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3970	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1479
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.62
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	69.1
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	21.4
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	7	Segment Name	Beech+Worthington
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	70.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	530
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3970	580
Peak Hour Factor (PHF)	0.94	0.92
Total Trucks, %	5.00	6.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.952	0.943
Flow Rate (v_i), pc/h	4436	669
Capacity (c_{md}), pc/h	7200	2200
Initial Adjusted Capacity (c_{mda}), pc/h	7200	-
Final Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.62	0.30

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	4616.0	Flow Outer Lanes (v_{OA}), pc/h/ln	1439
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	63.6
Flow in Lanes 1 and 2 (v_{12}), pc/h	2997	Outer Lanes Freeway Speed (S_O), mi/h	75.1
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	66.9
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	22.1
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	25.3

HCS Basic Freeway Report

Project Information			
Segment Number	8	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	4000	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3390	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1263
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.53
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	70.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	18.0
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Freeway Merge Report

Project Information			
Segment Number	9	Segment Name	Beech+Worthington
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	70.0	55.0
Segment Length (L) / Acceleration Length (LA), ft	1500	670
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3390	690
Peak Hour Factor (PHF)	0.94	0.80
Total Trucks, %	5.00	4.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.952	0.962
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	3788 | 4685	897
Capacity (c_{md}), pc/h	7200	2200
Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.65	0.41

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	1774.7	Flow Outer Lanes (v_{OA}), pc/h/ln	1530
Downstream Equilibrium Distance (L_{EQ}), ft	5041.7	On-Ramp Influence Area Speed (S_R), mi/h	60.5
Flow in Lanes 1 and 2 (v_{12}), pc/h	2258	Outer Lanes Freeway Speed (S_O), mi/h	66.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3155	Ramp Junction Speed (S), mi/h	62.3
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	25.1
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	25.5

HCS Basic Freeway Report

Project Information			
Segment Number	10	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	2240	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	4080	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1520
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.63
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	72.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	21.1
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	11	Segment Name	Mink+Worthington
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	485
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	4080	780
Peak Hour Factor (PHF)	0.94	0.87
Total Trucks, %	5.00	2.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.952	0.980
Flow Rate (v_i), pc/h	4559	915
Capacity (c_{md}), pc/h	7200	2200
Initial Adjusted Capacity (c_{mda}), pc/h	7200	-
Final Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.63	0.42

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	8437.0	Flow Outer Lanes (v_{OA}), pc/h/ln	1301
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	66.8
Flow in Lanes 1 and 2 (v_{12}), pc/h	3258	Outer Lanes Freeway Speed (S_O), mi/h	81.1
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	70.3
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	21.6
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	27.9

HCS Basic Freeway Report

Project Information			
Segment Number	12	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	2530	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3300	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1229
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.51
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.4
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	16.5
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Merge Report

Project Information			
Segment Number	13	Segment Name	Mink+Worthington
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Acceleration Length (LA), ft	1500	1055
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3300	630
Peak Hour Factor (PHF)	0.94	0.82
Total Trucks, %	5.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.952	0.971
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	3688 | 4479	791
Capacity (c_{md}), pc/h	7200	2200
Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.62	0.36

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	1901.5	Flow Outer Lanes (v_{OA}), pc/h/ln	1449
Downstream Equilibrium Distance (L_{EQ}), ft	2845.1	On-Ramp Influence Area Speed (S_R), mi/h	65.6
Flow in Lanes 1 and 2 (v_{12}), pc/h	2239	Outer Lanes Freeway Speed (S_O), mi/h	71.6
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3030	Ramp Junction Speed (S), mi/h	67.4
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	22.2
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	22.2

HCS Basic Freeway Report

Project Information			
Segment Number	14	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	9690	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3930	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1464
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.61
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	72.6
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	20.2
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	15	Segment Name	SR 310+Worthington
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	465
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3930	590
Peak Hour Factor (PHF)	0.94	0.95
Total Trucks, %	5.00	2.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.952	0.980
Flow Rate (v_i), pc/h	4392	634
Capacity (c_{md}), pc/h	7200	2200
Initial Adjusted Capacity (c_{mda}), pc/h	7200	-
Final Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.61	0.29

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	6387.7	Flow Outer Lanes (v_{OA}), pc/h/ln	1424
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	67.6
Flow in Lanes 1 and 2 (v_{12}), pc/h	2968	Outer Lanes Freeway Speed (S_O), mi/h	80.6
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	71.3
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	20.5
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	25.6

HCS Basic Freeway Report

Project Information			
Segment Number	16	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	3110	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3340	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1244
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.52
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.3
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	16.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Merge Report

Project Information			
Segment Number	17	Segment Name	SR 310+Worthington
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Acceleration Length (LA), ft	1500	940
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3340	430
Peak Hour Factor (PHF)	0.94	0.80
Total Trucks, %	5.00	5.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.952	0.952
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	3732 | 4297	565
Capacity (c_{md}), pc/h	7200	2200
Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.60	0.26

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	1811.5	Flow Outer Lanes (v_{OA}), pc/h/ln	1478
Downstream Equilibrium Distance (L_{EQ}), ft	1417.8	On-Ramp Influence Area Speed (S_R), mi/h	65.7
Flow in Lanes 1 and 2 (v_{12}), pc/h	2254	Outer Lanes Freeway Speed (S_O), mi/h	71.5
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2819	Ramp Junction Speed (S), mi/h	67.6
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	21.2
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	21.4

HCS Basic Freeway Report

Project Information			
Segment Number	18	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	11330	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3770	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1404
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.59
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	73.2
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	19.2
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	19	Segment Name	York
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	485
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3770	250
Peak Hour Factor (PHF)	0.94	0.89
Total Trucks, %	5.00	6.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.952	0.943
Flow Rate (v_i), pc/h	4213	298
Capacity (c_{md}), pc/h	7200	2200
Initial Adjusted Capacity (c_{mda}), pc/h	7200	-
Final Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.59	0.14

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	3882.9	Flow Outer Lanes (v_{OA}), pc/h/ln	1405
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	68.6
Flow in Lanes 1 and 2 (v_{12}), pc/h	2808	Outer Lanes Freeway Speed (S_O), mi/h	80.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	72.2
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	19.5
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	24.0

HCS Basic Freeway Report

Project Information			
Segment Number	20	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	3040	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.50
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3520	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1311
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.55
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	73.9
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	17.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Merge Report

Project Information			
Segment Number	21	Segment Name	York
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Acceleration Length (LA), ft	1500	940
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3520	750
Peak Hour Factor (PHF)	0.94	0.84
Total Trucks, %	5.00	4.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.952	0.962
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	3933 | 4861	928
Capacity (c_{md}), pc/h	7200	2200
Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.68	0.42

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	1932.2	Flow Outer Lanes (v_{OA}), pc/h/ln	1557
Downstream Equilibrium Distance (L_{EQ}), ft	946.8	On-Ramp Influence Area Speed (S_R), mi/h	64.3
Flow in Lanes 1 and 2 (v_{12}), pc/h	2376	Outer Lanes Freeway Speed (S_O), mi/h	71.2
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3304	Ramp Junction Speed (S), mi/h	66.4
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	24.4
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	25.0

HCS Basic Freeway Report

Project Information			
Segment Number	22	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	16200	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	4270	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1591
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.66
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	71.1
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	22.4
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	23	Segment Name	Columbus
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	400
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	4270	150
Peak Hour Factor (PHF)	0.94	0.80
Total Trucks, %	5.00	6.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.952	0.943
Flow Rate (v_i), pc/h	4772	199
Capacity (c_{md}), pc/h	7200	2200
Initial Adjusted Capacity (c_{mda}), pc/h	7200	-
Final Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.66	0.09

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	5608.8	Flow Outer Lanes (v_{OA}), pc/h/ln	1683
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	68.9
Flow in Lanes 1 and 2 (v_{12}), pc/h	3089	Outer Lanes Freeway Speed (S_O), mi/h	79.6
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	72.3
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	22.0
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	27.2

HCS Basic Freeway Report

Project Information			
Segment Number	24	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	1460	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	4120	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1535
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.64
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	71.8
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	21.4
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Weaving Report

Project Information

Segment Number	25	Segment Name	Columbus/Lancaster
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data

Number of Lanes (N), ln	4	Segment Type	Freeway
Segment Length (L_S), ft	665	Number of Maneuver Lanes (N_{WL}), ln	2
Weaving Configuration	One-Sided	Ramp-to-Freeway Lane Changes (LC_{RF}), lc	1
Terrain Type	Level	Freeway-to-Ramp Lane Changes (LC_{FR}), lc	1
Percent Grade, %	-	Ramp-to-Ramp Lane Changes (LC_{RR}), lc	0
Interchange Density (ID), int/mi	0.67	Cross Weaving Managed Lane	No

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Proportion of CAVs in Traffic Stream	0	Final Capacity Adjustment Factor (CAF)	1.000

Demand and Capacity

	FF	RF	RR	FR
Demand Volume (V_i), veh/h	3500	750	30	620
Peak Hour Factor (PHF)	0.94	0.90	0.90	0.90
Total Trucks, %	5.00	4.00	0.00	6.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.952	0.962	1.000	0.943
Flow Rate (v_i), pc/h	3911	866	33	731
Weaving Flow Rate (v_w), pc/h	1597	Ideal Conditions Capacity (c_{IFL}), pc/h/ln		2400
Non-Weaving Flow Rate (v_{NW}), pc/h	3944	Density-Based Capacity ($c_{IWL} \times N \times f_{HV}$), veh/h		7751
Total Flow Rate (v), pc/h	5541	Demand Flow-Based Capacity ($c_{IW} \times f_{HV}$), veh/h		7939
Volume Ratio (VR)	0.288	Weaving Area Capacity (c_W), veh/h		7751
Minimum Lane Change Rate (LC_{MIN}), lc/h	1597	Adjusted Weaving Area Capacity (c_{WA}), veh/h		7751
Maximum Weaving Length (L_{MAX}), ft	5456	Volume-to-Capacity Ratio (v/c)		0.68

Speed and Density

Non-Weaving Vehicle Index (I_{NW})	175	Average Weaving Speed (S_W), mi/h	53.1
Non-Weaving Lane Change Rate (LC_{NW}), lc/h	402	Average Non-Weaving Speed (S_{NW}), mi/h	56.9
Weaving Lane Change Rate (LC_W), lc/h	1776	Average Speed (S), mi/h	55.8
Total Lane Change Rate (LC_{All}), lc/h	2178	Density (D), pc/mi/ln	24.8
Weaving Intensity Factor (W)	0.576	Level of Service (LOS)	C

HCS Basic Freeway Report

Project Information			
Segment Number	26	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	1820	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	4250	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1583
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.66
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	71.2
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	22.2
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Merge Report

Project Information			
Segment Number	27	Segment Name	Lancaster
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Acceleration Length (LA), ft	1500	765
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	4250	540
Peak Hour Factor (PHF)	0.94	0.86
Total Trucks, %	5.00	4.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.952	0.962
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	4749 | 5402	653
Capacity (c_{md}), pc/h	7200	2200
Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.75	0.30

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	1970.3	Flow Outer Lanes (v_{OA}), pc/h/ln	1904
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	62.9
Flow in Lanes 1 and 2 (v_{12}), pc/h	2845	Outer Lanes Freeway Speed (S_O), mi/h	69.9
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3498	Ramp Junction Speed (S), mi/h	65.2
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	27.6
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	27.7

HCS Basic Freeway Report

Project Information			
Segment Number	28	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	8000	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	4790	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1784
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.74
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	68.2
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	26.2
Total Ramp Density Adjustment	-	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

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LOS

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	D	D	C	C	C	C	C	B	C	C	C	B
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	C	C	C	B	C	C	C	B	C	C	C	C
	Seg 25	Seg 26	Seg 27	Seg 28								
AP 1	C	C	C	D								

Speed (mi/h)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	65.9	65.1	69.8	63.2	72.5	69.1	66.9	70.0	62.3	72.0	70.3	74.4
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	67.4	72.6	71.3	74.3	67.6	73.2	72.2	73.9	66.4	71.1	72.3	71.8
	Seg 25	Seg 26	Seg 27	Seg 28								
AP 1	55.8	71.2	65.2	68.2								

Density (pc/mi/ln)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	27.2	27.5	18.7	23.7	20.4	21.4	22.1	18.0	25.1	21.1	21.6	16.5
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	22.2	20.2	20.5	16.7	21.2	19.2	19.5	17.7	24.4	22.4	22.0	21.4
	Seg 25	Seg 26	Seg 27	Seg 28								
AP 1	24.8	22.2	27.6	26.2								

Demand - Capacity Ratio (D/C)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	0.75	0.75	0.54	0.62	0.62	0.62	0.62	0.53	0.65	0.63	0.63	0.51
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	0.62	0.61	0.61	0.52	0.60	0.59	0.59	0.55	0.68	0.66	0.66	0.64
	Seg 25	Seg 26	Seg 27	Seg 28								
AP 1	0.68	0.66	0.75	0.74								

Volume - Capacity Ratio (V/C)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	0.75	0.75	0.54	0.62	0.62	0.62	0.62	0.53	0.65	0.63	0.63	0.51
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	0.62	0.61	0.61	0.52	0.60	0.59	0.59	0.55	0.68	0.66	0.66	0.64
	Seg 25	Seg 26	Seg 27	Seg 28								
AP 1	0.68	0.66	0.75	0.74								

Density (veh/mi/ln)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	25.9	26.2	17.8	22.6	19.4	20.4	21.0	17.1	23.9	20.1	20.6	15.7
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	21.1	19.2	19.5	15.9	20.2	18.3	18.6	16.9	23.2	21.3	20.9	20.4
	Seg 25	Seg 26	Seg 27	Seg 28								

AP 1	22.2	21.1	26.3	24.9

Density in Ramp Influence Area (pc/mi/ln)												
	Seg 1	**Seg 2**	**Seg 3**	**Seg 4**	**Seg 5**	**Seg 6**	**Seg 7**	**Seg 8**	**Seg 9**	**Seg 10**	**Seg 11**	**Seg 12**
AP 1	-	31.0	-	22.5	-	-	25.3	-	25.5	-	27.9	-
	Seg 13	**Seg 14**	**Seg 15**	**Seg 16**	**Seg 17**	**Seg 18**	**Seg 19**	**Seg 20**	**Seg 21**	**Seg 22**	**Seg 23**	**Seg 24**
AP 1	22.2	-	25.6	-	21.4	-	24.0	-	25.0	-	27.2	-
	Seg 25	**Seg 26**	**Seg 27**	**Seg 28**								
AP 1	-	-	27.7	-								

Density-Based LOS												
	Seg 1	**Seg 2**	**Seg 3**	**Seg 4**	**Seg 5**	**Seg 6**	**Seg 7**	**Seg 8**	**Seg 9**	**Seg 10**	**Seg 11**	**Seg 12**
AP 1	D	D	C	C	C	C	C	B	C	C	C	B
	Seg 13	**Seg 14**	**Seg 15**	**Seg 16**	**Seg 17**	**Seg 18**	**Seg 19**	**Seg 20**	**Seg 21**	**Seg 22**	**Seg 23**	**Seg 24**
AP 1	C	C	C	B	C	C	C	B	C	C	C	C
	Seg 25	**Seg 26**	**Seg 27**	**Seg 28**								
AP 1	C	C	C	D								

Demand-Based LOS												
	Seg 1	**Seg 2**	**Seg 3**	**Seg 4**	**Seg 5**	**Seg 6**	**Seg 7**	**Seg 8**	**Seg 9**	**Seg 10**	**Seg 11**	**Seg 12**
AP 1	-	-	-	-	-	-	-	-	-	-	-	-
	Seg 13	**Seg 14**	**Seg 15**	**Seg 16**	**Seg 17**	**Seg 18**	**Seg 19**	**Seg 20**	**Seg 21**	**Seg 22**	**Seg 23**	**Seg 24**
AP 1	-	-	-	-	-	-	-	-	-	-	-	-
	Seg 25	**Seg 26**	**Seg 27**	**Seg 28**								
AP 1	-	-	-	-								

Westbound 2 Lane (Existing) - AM Build

HCS Freeway Facilities Report

Project Information

Analyst	EJG	Date	11/7/2024
Agency	Woolpert	Analysis Year	2024
Jurisdiction	Franklin and Licking Counties	Time Analyzed	AM 2048 Build
Facility Name	WB SR-161	Units	U.S. Customary
Project Description	2 Lanes (Existing)		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45
Queue Discharge Capacity Drop, %	7	Total Segments	31
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	17.97		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		8000	2
2	Diverge	Diverge	Lancaster+WeaverRiver	1500	2
3	Basic	Basic		1570	2
4	Merge	Merge	Lancaster+WeaverRiver	330	2
5	Overlap	Overlap	Per ODOT	1170	2
6	Diverge	Diverge	Columbus	330	2
7	Basic	Basic		1070	2
8	Merge	Merge	Columbus	1500	2
9	Basic	Basic		16450	2
10	Diverge	Diverge	York	1500	2
11	Basic	Basic		3000	2
12	Merge	Merge	York	1500	2
13	Basic	Basic		11380	2
14	Diverge	Diverge	SR 310	1500	2
15	Basic	Basic		2800	2
16	Merge	Merge	SR 310	1500	2
17	Basic	Basic		9800	2
18	Diverge	Diverge	Mink	1500	2
19	Basic	Basic		1590	2
20	Merge	Merge	Mink	1500	2
21	Basic	Basic	Per ODOT	330	2
22	Basic	Basic		2750	2
23	Diverge	Diverge	Beech+Smiths	1500	2
24	Basic	Basic		4315	2
25	Merge	Merge	Beech+Smiths	1500	2
26	Basic	Basic		5775	2
27	Basic	Basic		2000	3

28	Diverge	Diverge	US 62	1500	3
29	Basic	Basic		2540	3
30	Merge	Merge	US 62	1500	3
31	Basic	Basic		1700	3

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	4329	4800	0.98	40.3	53.7	F

Segment 2: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.909	0.962	4261	431	4800	2200	0.98	0.20	37.3	68.2	57.1	40.7	F

Segment 3: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	3729	4800	0.89	25.4	73.5	F

Segment 4: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.83	0.909	0.813	4470	741	4800	2200	1.04	0.34	54.4	54.4	41.1	38.0	F

Segment 5: Overlap

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	4470	4800	1.01	54.4	41.1	F

Segment 6: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.87	0.909	0.909	4470	632	4800	2200	1.01	0.29	67.6	67.6	33.1	39.7	F

Segment 7: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	3833	4800	0.89	65.7	29.2	F

Segment 8: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.83	0.909	0.813	4470	637	4800	2200	1.02	0.29	55.5	55.5	40.3	36.1	F

Segment 9: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	4470	4800	0.99	58.1	38.5	E

Segment 10: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.81	0.909	0.962	4470	616	4800	2200	0.99	0.28	67.6	67.6	33.1	38.0	E

Segment 11: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	3854	4800	0.87	65.5	29.4	D

Segment 12: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.90	0.909	0.998	4366	512	4800	2200	0.98	0.23	58.1	58.1	37.6	32.7	D

Segment 13: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	4366	4800	0.99	59.5	36.7	E

Segment 14: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.84	0.909	0.926	4366	964	4800	2200	0.99	0.44	66.6	66.6	32.8	37.5	E

Segment 15: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	3402	4800	0.80	69.6	24.4	C

Segment 16: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.88	0.926	0.943	4270	868	4800	2200	0.97	0.39	58.4	58.4	36.6	33.0	D

Segment 17: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.926	4270	4800	0.96	60.8	35.1	E

Segment 18: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.80	0.926	0.909	4270	935	4800	2200	0.96	0.43	66.7	66.7	32.0	33.9	D

Segment 19: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.926	3335	4800	0.80	70.1	23.8	C

Segment 20: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.80	0.935	0.943	4130	795	4800	2200	0.95	0.36	60.1	60.1	34.4	31.0	D

Segment 21: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.935	4130	4800	0.93	61.3	33.7	D

Segment 22: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.935	4130	4800	0.93	61.3	33.7	D

Segment 23: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.80	0.935	0.962	4130	845	4800	2200	0.93	0.38	63.2	63.2	32.7	35.0	D

Segment 24: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.935	3285	4800	0.78	67.7	24.3	C

Segment 25: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.80	0.909	0.813	4684	1399	4800	2200	1.09	0.64	53.1	53.1	44.1	35.3	F

Segment 26: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	4684	4800	1.02	54.9	42.7	F

Segment 27: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	4684	7200	0.68	68.5	22.8	C

Segment 28: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.83	0.909	0.971	4684	1129	7200	2200	0.68	0.51	65.7	62.4	23.8	27.2	C

Segment 29: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	3555	7200	0.53	69.8	16.9	B

Segment 30: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.89	0.909	0.926	4696	1141	7200	2200	0.69	0.52	62.1	60.3	25.2	26.0	C

Segment 31: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	4696	7200	0.69	68.5	22.9	C

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	17473	17708	70.97	1774.16	56.7	35.8	32.7	19.00	F

Facility Overall Results

Space Mean Speed, mi/h	56.7	Average Density, veh/mi/ln	32.7
Average Travel Time, min	19.00	Average Density, pc/mi/ln	35.8
Total VMT, veh-mi/AP	17473	Total VHD, veh-h	70.97
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	1774.16

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HCS Basic Freeway Report

Project Information			
Analyst	EJG	Date	11/7/2024
Agency	Woolpert	Analysis Year	2024
Jurisdiction	Franklin and Licking Counties	Time Analyzed	AM 2048 Build
Project Description	2 Lanes (Existing)	Units	U.S. Customary
Segment Number	1	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	8000	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	4020	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2352
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.90
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	40.3
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	53.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	2	Segment Name	Lancaster+WeaverRiver
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	450
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	4020	390
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	4.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.962
Flow Rate (v_i), pc/h	4261	431
Capacity (c_{md}), pc/h	4800	2200
Initial Adjusted Capacity (c_{mda}), pc/h	4800	-
Final Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.89	0.20

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	68.2
Flow in Lanes 1 and 2 (v_{12}), pc/h	4705	Outer Lanes Freeway Speed (S_O), mi/h	82.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	37.3
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	57.1
Level of Service (LOS)	F	Density in Ramp Influence Area (D_R), pc/mi/ln	40.7

HCS Basic Freeway Report

Project Information			
Segment Number	3	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	1570	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3630	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2124
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.78
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	25.4
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	73.5
Total Ramp Density Adjustment	-	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Merge Report

Project Information			
Segment Number	4	Segment Name	Lancaster+WeaverRiver
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Acceleration Length (LA), ft	330	330
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3630	500
Peak Hour Factor (PHF)	0.94	0.83
Total Trucks, %	10.00	23.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.813
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	4248 | 4470	741
Capacity (c_{md}), pc/h	4800	2200
Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.93	0.34

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	54.4
Flow in Lanes 1 and 2 (v_{12}), pc/h	3729	Outer Lanes Freeway Speed (S_O), mi/h	75.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	4470	Ramp Junction Speed (S), mi/h	54.4
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	41.1
Level of Service (LOS)	F	Density in Ramp Influence Area (D_R), pc/mi/ln	38.0

HCS Overlap Freeway Report

Project Information			
Segment Number	5	Segment Name	Per ODOT
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	1170	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	4130	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2235
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.93
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	54.4
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	41.1
Total Ramp Density Adjustment	-	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	6	Segment Name	Columbus
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	330	330
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	4130	500
Peak Hour Factor (PHF)	0.94	0.87
Total Trucks, %	10.00	10.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.909
Flow Rate (v_i), pc/h	4470	632
Capacity (c_{md}), pc/h	4800	2200
Initial Adjusted Capacity (c_{mda}), pc/h	4800	-
Final Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.93	0.29

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	67.6
Flow in Lanes 1 and 2 (v_{12}), pc/h	4470	Outer Lanes Freeway Speed (S_O), mi/h	82.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	67.6
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	33.1
Level of Service (LOS)	F	Density in Ramp Influence Area (D_R), pc/mi/ln	39.7

HCS Basic Freeway Report

Project Information			
Segment Number	7	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	1070	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3630	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1917
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.80
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	65.7
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	29.2
Total Ramp Density Adjustment	-	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Merge Report

Project Information			
Segment Number	8	Segment Name	Columbus
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Acceleration Length (LA), ft	1500	640
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3630	430
Peak Hour Factor (PHF)	0.94	0.83
Total Trucks, %	10.00	23.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.813
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	4248 | 4470	637
Capacity (c_{md}), pc/h	4800	2200
Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.93	0.29

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	55.5
Flow in Lanes 1 and 2 (v_{12}), pc/h	3833	Outer Lanes Freeway Speed (S_O), mi/h	75.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	4470	Ramp Junction Speed (S), mi/h	55.5
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	40.3
Level of Service (LOS)	F	Density in Ramp Influence Area (D_R), pc/mi/ln	36.1

HCS Basic Freeway Report

Project Information			
Segment Number	9	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	16450	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	4060	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2235
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.93
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	58.1
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	38.5
Total Ramp Density Adjustment	-	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	10	Segment Name	York
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	520
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	4060	480
Peak Hour Factor (PHF)	0.94	0.81
Total Trucks, %	10.00	4.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.962
Flow Rate (v_i), pc/h	4470	616
Capacity (c_{md}), pc/h	4800	2200
Initial Adjusted Capacity (c_{mda}), pc/h	4800	-
Final Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.93	0.28

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	67.6
Flow in Lanes 1 and 2 (v_{12}), pc/h	4470	Outer Lanes Freeway Speed (S_O), mi/h	82.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	67.6
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	33.1
Level of Service (LOS)	E	Density in Ramp Influence Area (D_R), pc/mi/ln	38.0

HCS Basic Freeway Report

Project Information			
Segment Number	11	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	3000	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.50
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3580	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1927
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.80
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	65.5
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	29.4
Total Ramp Density Adjustment	-	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Merge Report

Project Information			
Segment Number	12	Segment Name	York
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Acceleration Length (LA), ft	1500	1060
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3580	460
Peak Hour Factor (PHF)	0.94	0.90
Total Trucks, %	10.00	0.23
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.998
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	4190 | 4366	512
Capacity (c_{md}), pc/h	4800	2200
Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.91	0.23

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	58.1
Flow in Lanes 1 and 2 (v_{12}), pc/h	3854	Outer Lanes Freeway Speed (S_O), mi/h	75.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	4366	Ramp Junction Speed (S), mi/h	58.1
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	37.6
Level of Service (LOS)	D	Density in Ramp Influence Area (D_R), pc/mi/ln	32.7

HCS Basic Freeway Report

Project Information			
Segment Number	13	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	11380	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	4040	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2183
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.91
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	59.5
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	36.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Diverge Report

Project Information

Segment Number	14	Segment Name	SR 310
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	480
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	4040	750
Peak Hour Factor (PHF)	0.94	0.84
Total Trucks, %	10.00	8.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.926
Flow Rate (v_i), pc/h	4366	964
Capacity (c_{md}), pc/h	4800	2200
Initial Adjusted Capacity (c_{mda}), pc/h	4800	-
Final Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.91	0.44

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	66.6
Flow in Lanes 1 and 2 (v_{12}), pc/h	4366	Outer Lanes Freeway Speed (S_O), mi/h	82.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	66.6
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	32.8
Level of Service (LOS)	E	Density in Ramp Influence Area (D_R), pc/mi/ln	37.5

HCS Basic Freeway Report

Project Information			
Segment Number	15	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	2800	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3290	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1701
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.71
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	69.6
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	24.4
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Merge Report

Project Information			
Segment Number	16	Segment Name	SR 310
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	870
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3290	720
Peak Hour Factor (PHF)	0.94	0.88
Total Trucks, %	8.00	6.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.943
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	3780 | 4270	868
Capacity (c_{md}), pc/h	4800	2200
Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.89	0.39

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	58.4
Flow in Lanes 1 and 2 (v_{12}), pc/h	3402	Outer Lanes Freeway Speed (S_O), mi/h	75.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	4270	Ramp Junction Speed (S), mi/h	58.4
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	36.6
Level of Service (LOS)	D	Density in Ramp Influence Area (D_R), pc/mi/ln	33.0

HCS Basic Freeway Report

Project Information			
Segment Number	17	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	9800	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	4010	Heavy Vehicle Adjustment Factor (f_{HV})	0.926
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2135
Total Trucks, %	8.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.89
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	60.8
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	35.1
Total Ramp Density Adjustment	-	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	18	Segment Name	Mink
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	785
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	4010	680
Peak Hour Factor (PHF)	0.94	0.80
Total Trucks, %	8.00	10.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.909
Flow Rate (v_i), pc/h	4270	935
Capacity (c_{md}), pc/h	4800	2200
Initial Adjusted Capacity (c_{mda}), pc/h	4800	-
Final Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.89	0.43

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	66.7
Flow in Lanes 1 and 2 (v_{12}), pc/h	4270	Outer Lanes Freeway Speed (S_O), mi/h	82.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	66.7
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	32.0
Level of Service (LOS)	D	Density in Ramp Influence Area (D_R), pc/mi/ln	33.9

HCS Basic Freeway Report

Project Information			
Segment Number	19	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	1590	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3330	Heavy Vehicle Adjustment Factor (f_{HV})	0.926
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1668
Total Trucks, %	8.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.69
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	70.1
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	23.8
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Merge Report

Project Information			
Segment Number	20	Segment Name	Mink
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Acceleration Length (LA), ft	1500	1020
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3330	600
Peak Hour Factor (PHF)	0.94	0.80
Total Trucks, %	7.00	6.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.935	0.943
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	3789 | 4130	795
Capacity (c_{md}), pc/h	4800	2200
Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.86	0.36

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	60.1
Flow in Lanes 1 and 2 (v_{12}), pc/h	3335	Outer Lanes Freeway Speed (S_O), mi/h	75.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	4130	Ramp Junction Speed (S), mi/h	60.1
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	34.4
Level of Service (LOS)	D	Density in Ramp Influence Area (D_R), pc/mi/ln	31.0

HCS Basic Freeway Report

Project Information			
Segment Number	21	Segment Name	Per ODOT
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	330	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3930	Heavy Vehicle Adjustment Factor (f_{HV})	0.935
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2065
Total Trucks, %	7.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.86
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	61.3
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	33.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Basic Freeway Report

Project Information			
Segment Number	22	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	2750	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3930	Heavy Vehicle Adjustment Factor (f_{HV})	0.935
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2065
Total Trucks, %	7.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.86
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	61.3
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	33.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	23	Segment Name	Beech+Smiths
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	70.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	535
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3930	650
Peak Hour Factor (PHF)	0.94	0.80
Total Trucks, %	7.00	4.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.935	0.962
Flow Rate (v_i), pc/h	4130	845
Capacity (c_{md}), pc/h	4800	2200
Initial Adjusted Capacity (c_{mda}), pc/h	4800	-
Final Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.86	0.38

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	63.2
Flow in Lanes 1 and 2 (v_{12}), pc/h	4130	Outer Lanes Freeway Speed (S_O), mi/h	76.8
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	63.2
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	32.7
Level of Service (LOS)	D	Density in Ramp Influence Area (D_R), pc/mi/ln	35.0

HCS Basic Freeway Report

Project Information			
Segment Number	24	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	4315	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3280	Heavy Vehicle Adjustment Factor (f_{HV})	0.935
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1643
Total Trucks, %	7.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.68
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	67.7
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	24.3
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Freeway Merge Report

Project Information			
Segment Number	25	Segment Name	Beech+Smiths
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	70.0	55.0
Segment Length (L) / Acceleration Length (LA), ft	1500	975
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3280	910
Peak Hour Factor (PHF)	0.94	0.80
Total Trucks, %	10.00	23.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.813
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	3839 | 4684	1399
Capacity (c_{md}), pc/h	4800	2200
Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.98	0.64

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	53.1
Flow in Lanes 1 and 2 (v_{12}), pc/h	3285	Outer Lanes Freeway Speed (S_O), mi/h	70.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	4684	Ramp Junction Speed (S), mi/h	53.1
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	44.1
Level of Service (LOS)	F	Density in Ramp Influence Area (D_R), pc/mi/ln	35.3

HCS Basic Freeway Report

Project Information			
Segment Number	26	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	5775	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	4190	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2342
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.98
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	54.9
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	42.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Basic Freeway Report

Project Information			
Segment Number	27	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	2000	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	4190	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1561
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.65
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	68.5
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	22.8
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	28	Segment Name	US 62
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	70.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	615
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	4190	910
Peak Hour Factor (PHF)	0.94	0.83
Total Trucks, %	10.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.971
Flow Rate (v_i), pc/h	4684	1129
Capacity (c_{md}), pc/h	7200	2200
Initial Adjusted Capacity (c_{mda}), pc/h	7200	-
Final Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.65	0.51

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	15054.7	Flow Outer Lanes (v_{OA}), pc/h/ln	1376
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	62.4
Flow in Lanes 1 and 2 (v_{12}), pc/h	3308	Outer Lanes Freeway Speed (S_O), mi/h	75.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	65.7
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	23.8
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	27.2

HCS Basic Freeway Report

Project Information			
Segment Number	29	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	2540	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.50
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3280	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1185
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.49
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	69.8
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	16.9
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Freeway Merge Report

Project Information			
Segment Number	30	Segment Name	US 62
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	70.0	55.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	715
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3280	940
Peak Hour Factor (PHF)	0.94	0.89
Total Trucks, %	10.00	8.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.926
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	3839 | 4696	1141
Capacity (c_{md}), pc/h	7200	2200
Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.65	0.52

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	1797.0	Flow Outer Lanes (v_{OA}), pc/h/ln	1429
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	60.3
Flow in Lanes 1 and 2 (v_{12}), pc/h	2126	Outer Lanes Freeway Speed (S_O), mi/h	66.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3267	Ramp Junction Speed (S), mi/h	62.1
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	25.2
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	26.0

HCS Basic Freeway Report

Project Information			
Segment Number	31	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	1700	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.50
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	4220	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1565
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.65
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	68.5
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	22.9
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

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LOS

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	F	F	F	F	F	F	F	F	E	E	D	D
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	E	E	C	D	E	D	C	D	D	D	D	C
	Seg 25	Seg 26	Seg 27	Seg 28	Seg 29	Seg 30	Seg 31					
AP 1	F	F	C	C	B	C	C					

Speed (mi/h)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	40.3	37.3	25.4	54.4	54.4	67.6	65.7	55.5	58.1	67.6	65.5	58.1
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	59.5	66.6	69.6	58.4	60.8	66.7	70.1	60.1	61.3	61.3	63.2	67.7
	Seg 25	Seg 26	Seg 27	Seg 28	Seg 29	Seg 30	Seg 31					
AP 1	53.1	54.9	68.5	65.7	69.8	62.1	68.5					

Density (pc/mi/ln)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	53.7	57.1	73.5	41.1	41.1	33.1	29.2	40.3	38.5	33.1	29.4	37.6
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	36.7	32.8	24.4	36.6	35.1	32.0	23.8	34.4	33.7	33.7	32.7	24.3
	Seg 25	Seg 26	Seg 27	Seg 28	Seg 29	Seg 30	Seg 31					
AP 1	44.1	42.7	22.8	23.8	16.9	25.2	22.9					

Demand - Capacity Ratio (D/C)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	0.98	0.98	0.89	1.04	1.01	1.01	0.89	1.02	0.99	0.99	0.87	0.98
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	0.99	0.99	0.80	0.97	0.96	0.96	0.80	0.95	0.93	0.93	0.93	0.78
	Seg 25	Seg 26	Seg 27	Seg 28	Seg 29	Seg 30	Seg 31					
AP 1	1.09	1.02	0.68	0.68	0.53	0.69	0.69					

Volume - Capacity Ratio (V/C)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	0.90	0.89	0.78	0.93	0.93	0.93	0.80	0.93	0.93	0.93	0.80	0.91
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	0.91	0.91	0.71	0.89	0.89	0.89	0.69	0.86	0.86	0.86	0.86	0.68
	Seg 25	Seg 26	Seg 27	Seg 28	Seg 29	Seg 30	Seg 31					
AP 1	0.98	0.98	0.65	0.65	0.49	0.65	0.65					

Density (veh/mi/ln)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	48.8	51.9	66.8	37.4	37.4	30.1	26.5	36.6	35.0	30.1	26.7	34.2
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	33.3	29.8	22.2	33.9	32.5	29.6	22.0	32.2	31.5	31.5	30.6	22.7
	Seg 25	Seg 26	Seg 27	Seg 28	Seg 29	Seg 30	Seg 31					

AP 1	40.1	38.8	20.7	21.6	15.4	22.9	20.8

Density in Ramp Influence Area (pc/mi/ln)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	-	40.7	-	38.0	-	39.7	-	36.1	-	38.0	-	32.7
	Seg 13	**Seg 14**	**Seg 15**	**Seg 16**	**Seg 17**	**Seg 18**	**Seg 19**	**Seg 20**	**Seg 21**	**Seg 22**	**Seg 23**	**Seg 24**
AP 1	-	37.5	-	33.0	-	33.9	-	31.0	-	-	35.0	-
	Seg 25	**Seg 26**	**Seg 27**	**Seg 28**	**Seg 29**	**Seg 30**	**Seg 31**					
AP 1	35.3	-	-	27.2	-	26.0	-					

Density-Based LOS

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	F	F	F	E	E	E	D	E	E	E	D	D
	Seg 13	**Seg 14**	**Seg 15**	**Seg 16**	**Seg 17**	**Seg 18**	**Seg 19**	**Seg 20**	**Seg 21**	**Seg 22**	**Seg 23**	**Seg 24**
AP 1	E	E	C	D	E	D	C	D	D	D	D	C
	Seg 25	**Seg 26**	**Seg 27**	**Seg 28**	**Seg 29**	**Seg 30**	**Seg 31**					
AP 1	E	E	C	C	B	C	C					

Demand-Based LOS

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	-	-	-	F	F	F	-	F	-	-	-	-
	Seg 13	**Seg 14**	**Seg 15**	**Seg 16**	**Seg 17**	**Seg 18**	**Seg 19**	**Seg 20**	**Seg 21**	**Seg 22**	**Seg 23**	**Seg 24**
AP 1	-	-	-	-	-	-	-	-	-	-	-	-
	Seg 25	**Seg 26**	**Seg 27**	**Seg 28**	**Seg 29**	**Seg 30**	**Seg 31**					
AP 1	F	F	-	-	-	-	-					

Westbound 2 Lane (Existing) - AM No-Build

HCS Freeway Facilities Report

Project Information

Analyst	EJG	Date	11/7/2024
Agency	Woolpert	Analysis Year	2024
Jurisdiction	Franklin and Licking Counties	Time Analyzed	AM 2048 No-Build
Facility Name	WB SR-161	Units	U.S. Customary
Project Description	2 Lanes (Existing)		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45
Queue Discharge Capacity Drop, %	7	Total Segments	31
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	17.97		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		8000	2
2	Diverge	Diverge	Lancaster+WeaverRiver	1500	2
3	Basic	Basic		1570	2
4	Merge	Merge	Lancaster+WeaverRiver	330	2
5	Overlap	Overlap	Per ODOT	1170	2
6	Diverge	Diverge	Columbus	330	2
7	Basic	Basic		1070	2
8	Merge	Merge	Columbus	1500	2
9	Basic	Basic		16450	2
10	Diverge	Diverge	York	1500	2
11	Basic	Basic		3000	2
12	Merge	Merge	York	1500	2
13	Basic	Basic		11380	2
14	Diverge	Diverge	SR 310	1500	2
15	Basic	Basic		2800	2
16	Merge	Merge	SR 310	1500	2
17	Basic	Basic		9800	2
18	Diverge	Diverge	Mink	1500	2
19	Basic	Basic		1590	2
20	Merge	Merge	Mink	1500	2
21	Basic	Basic	Per ODOT	330	2
22	Basic	Basic		2750	2
23	Diverge	Diverge	Beech+Smiths	1500	2
24	Basic	Basic		4315	2
25	Merge	Merge	Beech+Smiths	1500	2
26	Basic	Basic		5775	2
27	Basic	Basic		2000	3

28	Diverge	Diverge	US 62	1500	3
29	Basic	Basic		2540	3
30	Merge	Merge	US 62	1500	3
31	Basic	Basic		1700	3

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	4341	4800	0.99	39.6	54.8	F

Segment 2: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.909	0.962	4274	431	4800	2200	0.99	0.20	37.5	68.2	57.0	40.9	F

Segment 3: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	3744	4800	0.89	25.5	73.3	F

Segment 4: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.83	0.909	0.813	4470	726	4800	2200	1.04	0.33	54.4	54.4	41.1	38.0	F

Segment 5: Overlap

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	4470	4800	1.01	54.4	41.1	F

Segment 6: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.87	0.909	0.909	4470	632	4800	2200	1.01	0.29	67.6	67.6	33.1	39.7	F

Segment 7: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	3838	4800	0.89	65.7	29.2	D

Segment 8: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.83	0.909	0.813	4297	459	4800	2200	0.98	0.21	57.3	57.3	37.5	34.8	D

Segment 9: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	4297	4800	0.96	60.4	35.6	E

Segment 10: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.81	0.909	0.962	4297	616	4800	2200	0.96	0.28	67.6	67.6	31.8	36.5	E

Segment 11: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	3681	4800	0.85	67.2	27.4	D

Segment 12: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.90	0.909	0.813	4282	601	4800	2200	0.97	0.27	58.9	58.9	36.3	32.0	D

Segment 13: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	4282	4800	0.95	60.6	35.3	E

Segment 14: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.84	0.909	0.926	4282	951	4800	2200	0.95	0.43	66.6	66.6	32.1	36.8	E

Segment 15: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	3331	4800	0.77	70.1	23.8	C

Segment 16: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.88	0.926	0.943	4090	759	4800	2200	0.92	0.35	59.9	59.9	34.1	31.6	D

Segment 17: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.926	4090	4800	0.91	62.9	32.5	D

Segment 18: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.80	0.926	0.909	4090	976	4800	2200	0.91	0.44	66.6	66.6	30.7	32.4	D

Segment 19: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.926	3114	4800	0.74	71.6	21.7	C

Segment 20: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.80	0.935	0.943	3883	769	4800	2200	0.89	0.35	61.9	61.9	31.4	29.1	D

Segment 21: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.935	3883	4800	0.87	63.6	30.5	D

Segment 22: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.935	3883	4800	0.87	63.6	30.5	D

Segment 23: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.80	0.935	0.962	3883	819	4800	2200	0.87	0.37	63.2	63.2	30.7	32.8	D

Segment 24: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.935	3064	4800	0.72	68.7	22.3	C

Segment 25: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.80	0.909	0.813	4110	1046	4800	2200	0.96	0.48	57.4	57.4	35.8	31.0	D

Segment 26: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	4110	4800	0.91	61.5	33.4	D

Segment 27: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	4110	7200	0.60	69.7	19.7	C

Segment 28: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.83	0.909	0.971	4110	620	7200	2200	0.60	0.28	67.0	63.7	20.4	22.9	C

Segment 29: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	3490	7200	0.52	69.9	16.6	B

Segment 30: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.89	0.909	0.926	4631	1141	7200	2200	0.68	0.52	62.3	60.5	24.8	25.7	C

Segment 31: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	4631	7200	0.68	68.6	22.5	C

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	16744	16973	62.22	1555.48	57.8	33.6	30.7	18.70	F

Facility Overall Results

Space Mean Speed, mi/h	57.8	Average Density, veh/mi/ln	30.7
Average Travel Time, min	18.70	Average Density, pc/mi/ln	33.6
Total VMT, veh-mi/AP	16744	Total VHD, veh-h	62.22
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	1555.48

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HCS Basic Freeway Report

Project Information			
Analyst	EJG	Date	11/7/2024
Agency	Woolpert	Analysis Year	2024
Jurisdiction	Franklin and Licking Counties	Time Analyzed	AM 2048 No-Build
Project Description	2 Lanes (Existing)	Units	U.S. Customary
Segment Number	1	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	8000	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	4040	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2364
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.90
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	39.6
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	54.8
Total Ramp Density Adjustment	-	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	2	Segment Name	Lancaster+WeaverRiver
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	450
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	4040	390
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	4.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.962
Flow Rate (v_i), pc/h	4274	431
Capacity (c_{md}), pc/h	4800	2200
Initial Adjusted Capacity (c_{mda}), pc/h	4800	-
Final Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.89	0.20

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	68.2
Flow in Lanes 1 and 2 (v_{12}), pc/h	4728	Outer Lanes Freeway Speed (S_O), mi/h	82.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	37.5
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	57.0
Level of Service (LOS)	F	Density in Ramp Influence Area (D_R), pc/mi/ln	40.9

HCS Basic Freeway Report

Project Information			
Segment Number	3	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	1570	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3650	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2136
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.78
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	25.5
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	73.3
Total Ramp Density Adjustment	-	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Merge Report

Project Information			
Segment Number	4	Segment Name	Lancaster+WeaverRiver
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Acceleration Length (LA), ft	330	330
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3650	490
Peak Hour Factor (PHF)	0.94	0.83
Total Trucks, %	10.00	23.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.813
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	4272 | 4470	726
Capacity (c_{md}), pc/h	4800	2200
Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.93	0.33

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	54.4
Flow in Lanes 1 and 2 (v_{12}), pc/h	3744	Outer Lanes Freeway Speed (S_O), mi/h	75.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	4470	Ramp Junction Speed (S), mi/h	54.4
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	41.1
Level of Service (LOS)	F	Density in Ramp Influence Area (D_R), pc/mi/ln	38.0

HCS Overlap Freeway Report

Project Information			
Segment Number	5	Segment Name	Per ODOT
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	1170	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	4140	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2235
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.93
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	54.4
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	41.1
Total Ramp Density Adjustment	-	Level of Service (LOS)	F
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	6	Segment Name	Columbus
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	330	330
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	4140	500
Peak Hour Factor (PHF)	0.94	0.87
Total Trucks, %	10.00	10.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.909
Flow Rate (v_i), pc/h	4470	632
Capacity (c_{md}), pc/h	4800	2200
Initial Adjusted Capacity (c_{mda}), pc/h	4800	-
Final Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.93	0.29

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	67.6
Flow in Lanes 1 and 2 (v_{12}), pc/h	4470	Outer Lanes Freeway Speed (S_O), mi/h	82.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	67.6
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	33.1
Level of Service (LOS)	F	Density in Ramp Influence Area (D_R), pc/mi/ln	39.7

HCS Basic Freeway Report

Project Information			
Segment Number	7	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	1070	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3640	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1919
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.80
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	65.7
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	29.2
Total Ramp Density Adjustment	-	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Merge Report

Project Information

Segment Number	8	Segment Name	Columbus
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	640
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	3640	310
Peak Hour Factor (PHF)	0.94	0.83
Total Trucks, %	10.00	23.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.813
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	4260 | 4297	459
Capacity (c_{md}), pc/h	4800	2200
Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.90	0.21

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	57.3
Flow in Lanes 1 and 2 (v_{12}), pc/h	3838	Outer Lanes Freeway Speed (S_O), mi/h	75.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	4297	Ramp Junction Speed (S), mi/h	57.3
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	37.5
Level of Service (LOS)	D	Density in Ramp Influence Area (D_R), pc/mi/ln	34.8

HCS Basic Freeway Report

Project Information			
Segment Number	9	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	16450	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3950	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2149
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.90
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	60.4
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	35.6
Total Ramp Density Adjustment	-	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	10	Segment Name	York
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	520
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3950	480
Peak Hour Factor (PHF)	0.94	0.81
Total Trucks, %	10.00	4.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.962
Flow Rate (v_i), pc/h	4297	616
Capacity (c_{md}), pc/h	4800	2200
Initial Adjusted Capacity (c_{mda}), pc/h	4800	-
Final Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.90	0.28

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	67.6
Flow in Lanes 1 and 2 (v_{12}), pc/h	4297	Outer Lanes Freeway Speed (S_O), mi/h	82.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	67.6
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	31.8
Level of Service (LOS)	E	Density in Ramp Influence Area (D_R), pc/mi/ln	36.5

HCS Basic Freeway Report

Project Information			
Segment Number	11	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	3000	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.50
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3470	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1841
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.77
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	67.2
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	27.4
Total Ramp Density Adjustment	-	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Merge Report

Project Information			
Segment Number	12	Segment Name	York
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Acceleration Length (LA), ft	1500	1060
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3470	440
Peak Hour Factor (PHF)	0.94	0.90
Total Trucks, %	10.00	23.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.813
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	4061 | 4282	601
Capacity (c_{md}), pc/h	4800	2200
Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.89	0.27

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	58.9
Flow in Lanes 1 and 2 (v_{12}), pc/h	3681	Outer Lanes Freeway Speed (S_O), mi/h	75.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	4282	Ramp Junction Speed (S), mi/h	58.9
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	36.3
Level of Service (LOS)	D	Density in Ramp Influence Area (D_R), pc/mi/ln	32.0

HCS Basic Freeway Report

Project Information			
Segment Number	13	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	11380	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3910	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2141
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.89
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	60.6
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	35.3
Total Ramp Density Adjustment	-	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	14	Segment Name	SR 310
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	480
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3910	740
Peak Hour Factor (PHF)	0.94	0.84
Total Trucks, %	10.00	8.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.926
Flow Rate (v_i), pc/h	4282	951
Capacity (c_{md}), pc/h	4800	2200
Initial Adjusted Capacity (c_{mda}), pc/h	4800	-
Final Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.89	0.43

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	66.6
Flow in Lanes 1 and 2 (v_{12}), pc/h	4282	Outer Lanes Freeway Speed (S_O), mi/h	82.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	66.6
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	32.1
Level of Service (LOS)	E	Density in Ramp Influence Area (D_R), pc/mi/ln	36.8

HCS Basic Freeway Report

Project Information			
Segment Number	15	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	2800	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3170	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1666
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.69
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	70.1
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	23.8
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Merge Report

Project Information			
Segment Number	16	Segment Name	SR 310
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	870
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3170	630
Peak Hour Factor (PHF)	0.94	0.88
Total Trucks, %	8.00	6.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.943
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	3642 | 4090	759
Capacity (c_{md}), pc/h	4800	2200
Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.85	0.35

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	59.9
Flow in Lanes 1 and 2 (v_{12}), pc/h	3331	Outer Lanes Freeway Speed (S_O), mi/h	75.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	4090	Ramp Junction Speed (S), mi/h	59.9
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	34.1
Level of Service (LOS)	D	Density in Ramp Influence Area (D_R), pc/mi/ln	31.6

HCS Basic Freeway Report

Project Information			
Segment Number	17	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	9800	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3800	Heavy Vehicle Adjustment Factor (f_{HV})	0.926
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2045
Total Trucks, %	8.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.85
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	62.9
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	32.5
Total Ramp Density Adjustment	-	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	18	Segment Name	Mink
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	785
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3800	710
Peak Hour Factor (PHF)	0.94	0.80
Total Trucks, %	8.00	10.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.909
Flow Rate (v_i), pc/h	4090	976
Capacity (c_{md}), pc/h	4800	2200
Initial Adjusted Capacity (c_{mda}), pc/h	4800	-
Final Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.85	0.44

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	66.6
Flow in Lanes 1 and 2 (v_{12}), pc/h	4090	Outer Lanes Freeway Speed (S_O), mi/h	82.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	66.6
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	30.7
Level of Service (LOS)	D	Density in Ramp Influence Area (D_R), pc/mi/ln	32.4

HCS Basic Freeway Report

Project Information			
Segment Number	19	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	1590	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3090	Heavy Vehicle Adjustment Factor (f_{HV})	0.926
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1557
Total Trucks, %	8.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.65
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	71.6
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	21.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Merge Report

Project Information			
Segment Number	20	Segment Name	Mink
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Acceleration Length (LA), ft	1500	1020
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3090	580
Peak Hour Factor (PHF)	0.94	0.80
Total Trucks, %	7.00	6.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.935	0.943
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	3516 | 3883	769
Capacity (c_{md}), pc/h	4800	2200
Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.81	0.35

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	61.9
Flow in Lanes 1 and 2 (v_{12}), pc/h	3114	Outer Lanes Freeway Speed (S_O), mi/h	75.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3883	Ramp Junction Speed (S), mi/h	61.9
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	31.4
Level of Service (LOS)	D	Density in Ramp Influence Area (D_R), pc/mi/ln	29.1

HCS Basic Freeway Report

Project Information			
Segment Number	21	Segment Name	Per ODOT
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	330	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3670	Heavy Vehicle Adjustment Factor (f_{HV})	0.935
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1942
Total Trucks, %	7.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.81
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	63.6
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	30.5
Total Ramp Density Adjustment	-	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Basic Freeway Report

Project Information			
Segment Number	22	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	2750	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3670	Heavy Vehicle Adjustment Factor (f_{HV})	0.935
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1942
Total Trucks, %	7.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.81
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	63.6
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	30.5
Total Ramp Density Adjustment	-	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	23	Segment Name	Beech+Smiths
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	70.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	535
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3670	630
Peak Hour Factor (PHF)	0.94	0.80
Total Trucks, %	7.00	4.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.935	0.962
Flow Rate (v_i), pc/h	3883	819
Capacity (c_{md}), pc/h	4800	2200
Initial Adjusted Capacity (c_{mda}), pc/h	4800	-
Final Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.81	0.37

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	63.2
Flow in Lanes 1 and 2 (v_{12}), pc/h	3883	Outer Lanes Freeway Speed (S_O), mi/h	76.8
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	63.2
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	30.7
Level of Service (LOS)	D	Density in Ramp Influence Area (D_R), pc/mi/ln	32.8

HCS Basic Freeway Report

Project Information			
Segment Number	24	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	4315	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3040	Heavy Vehicle Adjustment Factor (f_{HV})	0.935
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1532
Total Trucks, %	7.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.64
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	68.7
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	22.3
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Freeway Merge Report

Project Information			
Segment Number	25	Segment Name	Beech+Smiths
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	70.0	55.0
Segment Length (L) / Acceleration Length (LA), ft	1500	975
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3040	680
Peak Hour Factor (PHF)	0.94	0.80
Total Trucks, %	10.00	23.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.813
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	3558 | 4110	1046
Capacity (c_{md}), pc/h	4800	2200
Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.86	0.48

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	57.4
Flow in Lanes 1 and 2 (v_{12}), pc/h	3064	Outer Lanes Freeway Speed (S_O), mi/h	70.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	4110	Ramp Junction Speed (S), mi/h	57.4
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	35.8
Level of Service (LOS)	D	Density in Ramp Influence Area (D_R), pc/mi/ln	31.0

HCS Basic Freeway Report

Project Information			
Segment Number	26	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	5775	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3720	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2055
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.86
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	61.5
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	33.4
Total Ramp Density Adjustment	-	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Basic Freeway Report

Project Information			
Segment Number	27	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	2000	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3720	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1370
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.57
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	69.7
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	19.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	28	Segment Name	US 62
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	70.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	615
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3720	500
Peak Hour Factor (PHF)	0.94	0.83
Total Trucks, %	10.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.971
Flow Rate (v_i), pc/h	4110	620
Capacity (c_{md}), pc/h	7200	2200
Initial Adjusted Capacity (c_{mda}), pc/h	7200	-
Final Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.57	0.28

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	8833.7	Flow Outer Lanes (v_{OA}), pc/h/ln	1295
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	63.7
Flow in Lanes 1 and 2 (v_{12}), pc/h	2815	Outer Lanes Freeway Speed (S_O), mi/h	75.6
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	67.0
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	20.4
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	22.9

HCS Basic Freeway Report

Project Information			
Segment Number	29	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	2540	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.50
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3220	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1163
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.48
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	69.9
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	16.6
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Freeway Merge Report

Project Information			
Segment Number	30	Segment Name	US 62
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	70.0	55.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	715
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3220	940
Peak Hour Factor (PHF)	0.94	0.89
Total Trucks, %	10.00	8.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.926
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	3768 | 4631	1141
Capacity (c_{md}), pc/h	7200	2200
Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.64	0.52

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	1783.1	Flow Outer Lanes (v_{OA}), pc/h/ln	1403
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	60.5
Flow in Lanes 1 and 2 (v_{12}), pc/h	2087	Outer Lanes Freeway Speed (S_O), mi/h	66.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3228	Ramp Junction Speed (S), mi/h	62.3
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	24.8
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	25.7

HCS Basic Freeway Report

Project Information			
Segment Number	31	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	1700	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.50
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	4160	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1544
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.64
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	68.6
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	22.5
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

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LOS

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	F	F	F	F	F	F	D	D	E	E	D	D
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	E	E	C	D	D	D	C	D	D	D	D	C
	Seg 25	Seg 26	Seg 27	Seg 28	Seg 29	Seg 30	Seg 31					
AP 1	D	D	C	C	B	C	C					

Speed (mi/h)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	39.6	37.5	25.5	54.4	54.4	67.6	65.7	57.3	60.4	67.6	67.2	58.9
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	60.6	66.6	70.1	59.9	62.9	66.6	71.6	61.9	63.6	63.6	63.2	68.7
	Seg 25	Seg 26	Seg 27	Seg 28	Seg 29	Seg 30	Seg 31					
AP 1	57.4	61.5	69.7	67.0	69.9	62.3	68.6					

Density (pc/mi/ln)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	54.8	57.0	73.3	41.1	41.1	33.1	29.2	37.5	35.6	31.8	27.4	36.3
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	35.3	32.1	23.8	34.1	32.5	30.7	21.7	31.4	30.5	30.5	30.7	22.3
	Seg 25	Seg 26	Seg 27	Seg 28	Seg 29	Seg 30	Seg 31					
AP 1	35.8	33.4	19.7	20.4	16.6	24.8	22.5					

Demand - Capacity Ratio (D/C)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	0.99	0.99	0.89	1.04	1.01	1.01	0.89	0.98	0.96	0.96	0.85	0.97
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	0.95	0.95	0.77	0.92	0.91	0.91	0.74	0.89	0.87	0.87	0.87	0.72
	Seg 25	Seg 26	Seg 27	Seg 28	Seg 29	Seg 30	Seg 31					
AP 1	0.96	0.91	0.60	0.60	0.52	0.68	0.68					

Volume - Capacity Ratio (V/C)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	0.90	0.89	0.78	0.93	0.93	0.93	0.80	0.90	0.90	0.90	0.77	0.89
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	0.89	0.89	0.69	0.85	0.85	0.85	0.65	0.81	0.81	0.81	0.81	0.64
	Seg 25	Seg 26	Seg 27	Seg 28	Seg 29	Seg 30	Seg 31					
AP 1	0.86	0.86	0.57	0.57	0.48	0.64	0.64					

Density (veh/mi/ln)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	49.8	51.8	66.6	37.4	37.4	30.1	26.5	34.1	32.3	28.9	24.9	33.0
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	32.1	29.2	21.6	31.6	30.1	28.4	20.1	29.4	28.5	28.5	28.7	20.9
	Seg 25	Seg 26	Seg 27	Seg 28	Seg 29	Seg 30	Seg 31					

AP 1	32.5	30.4	17.9	18.5	15.1	22.5	20.5

Density in Ramp Influence Area (pc/mi/ln)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	-	40.9	-	38.0	-	39.7	-	34.8	-	36.5	-	32.0
	Seg 13	**Seg 14**	**Seg 15**	**Seg 16**	**Seg 17**	**Seg 18**	**Seg 19**	**Seg 20**	**Seg 21**	**Seg 22**	**Seg 23**	**Seg 24**
AP 1	-	36.8	-	31.6	-	32.4	-	29.1	-	-	32.8	-
	Seg 25	**Seg 26**	**Seg 27**	**Seg 28**	**Seg 29**	**Seg 30**	**Seg 31**					
AP 1	31.0	-	-	22.9	-	25.7	-					

Density-Based LOS

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	F	F	F	E	E	E	D	D	E	E	D	D
	Seg 13	**Seg 14**	**Seg 15**	**Seg 16**	**Seg 17**	**Seg 18**	**Seg 19**	**Seg 20**	**Seg 21**	**Seg 22**	**Seg 23**	**Seg 24**
AP 1	E	E	C	D	D	D	C	D	D	D	D	C
	Seg 25	**Seg 26**	**Seg 27**	**Seg 28**	**Seg 29**	**Seg 30**	**Seg 31**					
AP 1	D	D	C	C	B	C	C					

Demand-Based LOS

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	-	-	-	F	F	F	-	-	-	-	-	-
	Seg 13	**Seg 14**	**Seg 15**	**Seg 16**	**Seg 17**	**Seg 18**	**Seg 19**	**Seg 20**	**Seg 21**	**Seg 22**	**Seg 23**	**Seg 24**
AP 1	-	-	-	-	-	-	-	-	-	-	-	-
	Seg 25	**Seg 26**	**Seg 27**	**Seg 28**	**Seg 29**	**Seg 30**	**Seg 31**					
AP 1	-	-	-	-	-	-	-					

Westbound 2 Lane (Existing) - PM Build

HCS Freeway Facilities Report

Project Information

Analyst	EJG	Date	11/7/2024
Agency	Woolpert	Analysis Year	2024
Jurisdiction	Franklin and Licking COunties	Time Analyzed	PM 2048 Build
Facility Name	WB SR-161	Units	U.S. Customary
Project Description	2 Lanes (Existing)		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45
Queue Discharge Capacity Drop, %	7	Total Segments	31
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	18.16		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		8000	2
2	Diverge	Diverge	Lancaster+WeaverRiver	1500	2
3	Basic	Basic		2570	2
4	Merge	Merge	Lancaster+WeaverRiver	330	2
5	Overlap	Overlap	Per ODOT	1170	2
6	Diverge	Diverge	Columbus	330	2
7	Basic	Basic		1070	2
8	Merge	Merge	Columbus	1500	2
9	Basic	Basic		16450	2
10	Diverge	Diverge	York	1500	2
11	Basic	Basic		3000	2
12	Merge	Merge	York	1500	2
13	Basic	Basic		11380	2
14	Diverge	Diverge	SR 310	1500	2
15	Basic	Basic		2800	2
16	Merge	Merge	SR 310	1500	2
17	Basic	Basic		9800	2
18	Diverge	Diverge	Mink	1500	2
19	Basic	Basic		1590	2
20	Merge	Merge	Mink	1500	2
21	Basic	Basic	Per ODOT	330	2
22	Basic	Basic		2750	2
23	Diverge	Diverge	Beech+Smiths	1500	2
24	Basic	Basic		4315	2
25	Merge	Merge	Beech+Smiths	1500	2
26	Basic	Basic		5775	2
27	Basic	Basic		2000	3

28	Diverge	Diverge	US 62	1500	3
29	Basic	Basic		2540	3
30	Merge	Merge	US 62	1500	3
31	Basic	Basic		1700	3

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.962	2709	4800	0.56	73.6	18.4	C

Segment 2: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.86	0.962	0.980	2709	522	4800	2200	0.56	0.24	67.9	67.9	19.9	23.5	C

Segment 3: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.962	2187	4800	0.46	74.7	14.6	B

Segment 4: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.80	0.962	0.962	2525	338	4800	2200	0.53	0.15	64.0	64.0	19.7	23.0	C

Segment 5: Overlap

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.962	2525	4800	0.52	64.0	19.7	C

Segment 6: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.83	0.962	0.962	2525	526	4800	2200	0.52	0.24	67.9	67.9	18.6	23.0	C

Segment 7: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.962	1999	4800	0.43	72.7	13.3	B

Segment 8: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.91	0.962	0.962	2262	263	4800	2200	0.48	0.12	65.5	65.5	17.3	19.1	B

Segment 9: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.962	2262	4800	0.48	74.8	15.1	B

Segment 10: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.81	0.962	0.980	2262	592	4800	2200	0.48	0.27	67.7	67.7	16.7	19.0	B

Segment 11: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.962	1670	4800	0.37	74.8	11.1	B

Segment 12: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.90	0.962	0.962	1832	162	4800	2200	0.40	0.07	67.4	67.4	13.6	13.1	B

Segment 13: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.962	1832	4800	0.40	75.0	12.2	B

Segment 14: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.80	0.962	0.952	1832	355	4800	2200	0.40	0.16	68.4	68.4	13.4	15.7	B

Segment 15: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.962	1477	4800	0.34	74.8	9.8	A

Segment 16: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.84	0.962	0.926	1901	424	4800	2200	0.43	0.19	66.7	66.7	14.3	14.7	B

Segment 17: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.962	1901	4800	0.42	75.0	12.7	B

Segment 18: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.83	0.962	0.917	1901	145	4800	2200	0.42	0.07	69.0	69.0	13.8	13.5	B

Segment 19: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.962	1756	4800	0.39	74.5	11.7	B

Segment 20: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.83	0.962	0.971	3381	1625	4800	2200	0.73	0.74	64.3	64.3	26.3	24.8	C

Segment 21: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.962	3381	4800	0.69	67.2	25.2	C

Segment 22: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.962	3381	4800	0.69	67.2	25.2	C

Segment 23: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.95	0.962	0.980	3381	161	4800	2200	0.69	0.07	64.9	64.9	26.0	28.5	D

Segment 24: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.962	3220	4800	0.66	68.1	23.6	C

Segment 25: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.85	0.962	0.962	4789	1724	4800	2200	1.02	0.78	53.1	53.1	46.6	37.2	F

Segment 26: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.962	4789	4800	0.98	53.5	44.8	E

Segment 27: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.962	4789	7200	0.66	68.2	23.4	C

Segment 28: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.962	0.971	4789	351	7200	2200	0.66	0.16	67.5	64.4	23.6	25.7	C

Segment 29: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.962	4438	7200	0.61	69.1	21.4	C

Segment 30: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.90	0.971	0.980	6139	1701	7200	2200	0.84	0.77	57.4	54.7	35.7	34.3	D

Segment 31: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.971	6139	7200	0.83	61.7	33.2	D

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	11929	11324	13.36	334.00	67.3	19.4	18.6	16.20	F

Facility Overall Results

Space Mean Speed, mi/h	67.3	Average Density, veh/mi/ln	18.6
Average Travel Time, min	16.20	Average Density, pc/mi/ln	19.4
Total VMT, veh-mi/AP	11929	Total VHD, veh-h	13.36
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	334.00

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HCS Basic Freeway Report

Project Information			
Analyst	EJG	Date	11/7/2024
Agency	Woolpert	Analysis Year	2024
Jurisdiction	Franklin and Licking COunties	Time Analyzed	PM 2048 Build
Project Description	2 Lanes (Existing)	Units	U.S. Customary
Segment Number	1	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	8000	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	2450	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1355
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.56
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	73.6
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	18.4
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	2	Segment Name	Lancaster+WeaverRiver
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	450
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2450	440
Peak Hour Factor (PHF)	0.94	0.86
Total Trucks, %	4.00	2.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.980
Flow Rate (v_i), pc/h	2709	522
Capacity (c_{md}), pc/h	4800	2200
Initial Adjusted Capacity (c_{mda}), pc/h	4800	-
Final Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.56	0.24

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	67.9
Flow in Lanes 1 and 2 (v_{12}), pc/h	2709	Outer Lanes Freeway Speed (S_O), mi/h	82.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	67.9
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	19.9
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	23.5

HCS Basic Freeway Report

Project Information			
Segment Number	3	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	2570	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	2010	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1094
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.46
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.7
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	14.6
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Merge Report

Project Information			
Segment Number	4	Segment Name	Lancaster+WeaverRiver
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Acceleration Length (LA), ft	330	330
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2010	260
Peak Hour Factor (PHF)	0.94	0.80
Total Trucks, %	4.00	4.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.962
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	2223 | 2525	338
Capacity (c_{md}), pc/h	4800	2200
Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.53	0.15

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	64.0
Flow in Lanes 1 and 2 (v_{12}), pc/h	2187	Outer Lanes Freeway Speed (S_O), mi/h	75.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2525	Ramp Junction Speed (S), mi/h	64.0
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	19.7
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	23.0

HCS Overlap Freeway Report

Project Information			
Segment Number	5	Segment Name	Per ODOT
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	1170	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	2270	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1263
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.53
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	64.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	19.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	6	Segment Name	Columbus
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	330	330
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2270	420
Peak Hour Factor (PHF)	0.94	0.83
Total Trucks, %	4.00	4.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.962
Flow Rate (v_i), pc/h	2525	526
Capacity (c_{md}), pc/h	4800	2200
Initial Adjusted Capacity (c_{mda}), pc/h	4800	-
Final Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.53	0.24

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	67.9
Flow in Lanes 1 and 2 (v_{12}), pc/h	2525	Outer Lanes Freeway Speed (S_O), mi/h	82.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	67.9
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	18.6
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	23.0

HCS Basic Freeway Report

Project Information			
Segment Number	7	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	1070	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	1850	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1000
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.42
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	72.7
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	13.3
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Merge Report

Project Information			
Segment Number	8	Segment Name	Columbus
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Acceleration Length (LA), ft	1500	640
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1850	230
Peak Hour Factor (PHF)	0.94	0.91
Total Trucks, %	4.00	4.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.962
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	2046 | 2262	263
Capacity (c_{md}), pc/h	4800	2200
Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.47	0.12

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	65.5
Flow in Lanes 1 and 2 (v_{12}), pc/h	1999	Outer Lanes Freeway Speed (S_O), mi/h	75.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2262	Ramp Junction Speed (S), mi/h	65.5
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	17.3
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	19.1

HCS Basic Freeway Report

Project Information			
Segment Number	9	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	16450	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	2080	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1131
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.47
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.8
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	15.1
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	10	Segment Name	York
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	520
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2080	470
Peak Hour Factor (PHF)	0.94	0.81
Total Trucks, %	4.00	2.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.980
Flow Rate (v_i), pc/h	2262	592
Capacity (c_{md}), pc/h	4800	2200
Initial Adjusted Capacity (c_{mda}), pc/h	4800	-
Final Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.47	0.27

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	67.7
Flow in Lanes 1 and 2 (v_{12}), pc/h	2262	Outer Lanes Freeway Speed (S_O), mi/h	82.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	67.7
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	16.7
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	19.0

HCS Basic Freeway Report

Project Information			
Segment Number	11	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	3000	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.50
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	1610	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	835
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.35
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.8
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	11.1
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Merge Report

Project Information			
Segment Number	12	Segment Name	York
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Acceleration Length (LA), ft	1500	1060
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1610	140
Peak Hour Factor (PHF)	0.94	0.90
Total Trucks, %	4.00	4.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.962
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	1780 | 1832	162
Capacity (c_{md}), pc/h	4800	2200
Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.38	0.07

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	67.4
Flow in Lanes 1 and 2 (v_{12}), pc/h	1670	Outer Lanes Freeway Speed (S_O), mi/h	75.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1832	Ramp Junction Speed (S), mi/h	67.4
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	13.6
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	13.1

HCS Basic Freeway Report

Project Information			
Segment Number	13	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	11380	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	1750	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	916
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.38
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	12.2
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	14	Segment Name	SR 310
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	480
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1750	270
Peak Hour Factor (PHF)	0.94	0.80
Total Trucks, %	4.00	5.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.952
Flow Rate (v_i), pc/h	1832	355
Capacity (c_{md}), pc/h	4800	2200
Initial Adjusted Capacity (c_{mda}), pc/h	4800	-
Final Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.38	0.16

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	68.4
Flow in Lanes 1 and 2 (v_{12}), pc/h	1832	Outer Lanes Freeway Speed (S_O), mi/h	82.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	68.4
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	13.4
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	15.7

HCS Basic Freeway Report

Project Information			
Segment Number	15	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	2800	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	1480	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	739
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.31
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.8
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	9.8
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Merge Report

Project Information			
Segment Number	16	Segment Name	SR 310
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	870
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1480	330
Peak Hour Factor (PHF)	0.94	0.84
Total Trucks, %	4.00	8.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.926
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	1637 | 1901	424
Capacity (c_{md}), pc/h	4800	2200
Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.40	0.19

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	66.7
Flow in Lanes 1 and 2 (v_{12}), pc/h	1477	Outer Lanes Freeway Speed (S_O), mi/h	75.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1901	Ramp Junction Speed (S), mi/h	66.7
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	14.3
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	14.7

HCS Basic Freeway Report

Project Information			
Segment Number	17	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	9800	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	1810	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	951
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.40
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	12.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	18	Segment Name	Mink
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	785
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1810	110
Peak Hour Factor (PHF)	0.94	0.83
Total Trucks, %	4.00	9.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.917
Flow Rate (v_i), pc/h	1901	145
Capacity (c_{md}), pc/h	4800	2200
Initial Adjusted Capacity (c_{mda}), pc/h	4800	-
Final Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.40	0.07

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	69.0
Flow in Lanes 1 and 2 (v_{12}), pc/h	1901	Outer Lanes Freeway Speed (S_O), mi/h	82.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	69.0
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	13.8
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	13.5

HCS Basic Freeway Report

Project Information			
Segment Number	19	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	1590	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	1700	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	878
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.37
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.5
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	11.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Merge Report

Project Information			
Segment Number	20	Segment Name	Mink
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Acceleration Length (LA), ft	1500	1020
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1700	1310
Peak Hour Factor (PHF)	0.94	0.83
Total Trucks, %	4.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.971
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	1880 | 3381	1625
Capacity (c_{md}), pc/h	4800	2200
Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.70	0.74

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	64.3
Flow in Lanes 1 and 2 (v_{12}), pc/h	1756	Outer Lanes Freeway Speed (S_O), mi/h	75.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3381	Ramp Junction Speed (S), mi/h	64.3
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	26.3
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	24.8

HCS Basic Freeway Report

Project Information			
Segment Number	21	Segment Name	Per ODOT
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	330	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3010	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1691
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.70
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	67.2
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	25.2
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Basic Freeway Report

Project Information			
Segment Number	22	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	2750	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3010	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1691
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.70
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	67.2
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	25.2
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	23	Segment Name	Beech+Smiths
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	70.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	535
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3010	150
Peak Hour Factor (PHF)	0.94	0.95
Total Trucks, %	4.00	2.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.980
Flow Rate (v_i), pc/h	3381	161
Capacity (c_{md}), pc/h	4800	2200
Initial Adjusted Capacity (c_{mda}), pc/h	4800	-
Final Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.70	0.07

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	64.9
Flow in Lanes 1 and 2 (v_{12}), pc/h	3381	Outer Lanes Freeway Speed (S_O), mi/h	76.8
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	64.9
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	26.0
Level of Service (LOS)	D	Density in Ramp Influence Area (D_R), pc/mi/ln	28.5

HCS Basic Freeway Report

Project Information			
Segment Number	24	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	4315	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	2860	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1610
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.67
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	68.1
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	23.6
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Freeway Merge Report

Project Information			
Segment Number	25	Segment Name	Beech+Smiths
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	70.0	55.0
Segment Length (L) / Acceleration Length (LA), ft	1500	975
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2860	1410
Peak Hour Factor (PHF)	0.94	0.85
Total Trucks, %	4.00	4.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.962
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	3163 | 4789	1724
Capacity (c_{md}), pc/h	4800	2200
Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	1.00	0.78

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	53.1
Flow in Lanes 1 and 2 (v_{12}), pc/h	3220	Outer Lanes Freeway Speed (S_O), mi/h	70.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	4944	Ramp Junction Speed (S), mi/h	53.1
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	46.6
Level of Service (LOS)	F	Density in Ramp Influence Area (D_R), pc/mi/ln	37.2

HCS Basic Freeway Report

Project Information			
Segment Number	26	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	5775	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	4270	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2395
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	1.00
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	53.5
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	44.8
Total Ramp Density Adjustment	-	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Basic Freeway Report

Project Information			
Segment Number	27	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	2000	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	4270	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1596
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.67
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	68.2
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	23.4
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	28	Segment Name	US 62
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	70.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	615
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	4270	320
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	4.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.971
Flow Rate (v_i), pc/h	4789	351
Capacity (c_{md}), pc/h	7200	2200
Initial Adjusted Capacity (c_{mda}), pc/h	7200	-
Final Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.67	0.16

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	11167.1	Flow Outer Lanes (v_{OA}), pc/h/ln	1655
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	64.4
Flow in Lanes 1 and 2 (v_{12}), pc/h	3134	Outer Lanes Freeway Speed (S_O), mi/h	74.2
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	67.5
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	23.6
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	25.7

HCS Basic Freeway Report

Project Information			
Segment Number	29	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	2540	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.50
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3950	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1479
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.62
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	69.1
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	21.4
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Freeway Merge Report

Project Information			
Segment Number	30	Segment Name	US 62
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	70.0	55.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	715
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3950	1500
Peak Hour Factor (PHF)	0.94	0.90
Total Trucks, %	3.00	2.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.971	0.980
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	4328 | 6139	1701
Capacity (c_{md}), pc/h	7200	2200
Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.85	0.77

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	2105.8	Flow Outer Lanes (v_{OA}), pc/h/ln	1784
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	54.7
Flow in Lanes 1 and 2 (v_{12}), pc/h	2654	Outer Lanes Freeway Speed (S_O), mi/h	65.4
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	4355	Ramp Junction Speed (S), mi/h	57.4
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	35.7
Level of Service (LOS)	D	Density in Ramp Influence Area (D_R), pc/mi/ln	34.3

HCS Basic Freeway Report

Project Information			
Segment Number	31	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	1700	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.50
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	5450	Heavy Vehicle Adjustment Factor (f_{HV})	0.971
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2046
Total Trucks, %	3.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.85
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	61.7
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	33.2
Total Ramp Density Adjustment	-	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

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LOS

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	C	C	B	C	C	C	B	B	B	B	B	B
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	B	B	A	B	B	B	B	C	C	C	D	C
	Seg 25	Seg 26	Seg 27	Seg 28	Seg 29	Seg 30	Seg 31					
AP 1	F	E	C	C	C	D	D					

Speed (mi/h)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	73.6	67.9	74.7	64.0	64.0	67.9	72.7	65.5	74.8	67.7	74.8	67.4
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	75.0	68.4	74.8	66.7	75.0	69.0	74.5	64.3	67.2	67.2	64.9	68.1
	Seg 25	Seg 26	Seg 27	Seg 28	Seg 29	Seg 30	Seg 31					
AP 1	53.1	53.5	68.2	67.5	69.1	57.4	61.7					

Density (pc/mi/ln)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	18.4	19.9	14.6	19.7	19.7	18.6	13.3	17.3	15.1	16.7	11.1	13.6
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	12.2	13.4	9.8	14.3	12.7	13.8	11.7	26.3	25.2	25.2	26.0	23.6
	Seg 25	Seg 26	Seg 27	Seg 28	Seg 29	Seg 30	Seg 31					
AP 1	46.6	44.8	23.4	23.6	21.4	35.7	33.2					

Demand - Capacity Ratio (D/C)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	0.56	0.56	0.46	0.53	0.52	0.52	0.43	0.48	0.48	0.48	0.37	0.40
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	0.40	0.40	0.34	0.43	0.42	0.42	0.39	0.73	0.69	0.69	0.69	0.66
	Seg 25	Seg 26	Seg 27	Seg 28	Seg 29	Seg 30	Seg 31					
AP 1	1.02	0.98	0.66	0.66	0.61	0.84	0.83					

Volume - Capacity Ratio (V/C)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	0.56	0.56	0.46	0.53	0.53	0.53	0.42	0.47	0.47	0.47	0.35	0.38
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	0.38	0.38	0.31	0.40	0.40	0.40	0.37	0.70	0.70	0.70	0.70	0.67
	Seg 25	Seg 26	Seg 27	Seg 28	Seg 29	Seg 30	Seg 31					
AP 1	1.00	1.00	0.67	0.67	0.62	0.85	0.85					

Density (veh/mi/ln)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	17.7	19.1	14.0	19.0	19.0	17.9	12.8	16.6	14.5	16.1	10.7	13.1
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	11.8	12.9	9.5	13.8	12.2	13.3	11.3	25.3	24.2	24.2	25.0	22.7
	Seg 25	Seg 26	Seg 27	Seg 28	Seg 29	Seg 30	Seg 31					

AP 1	44.8	43.1	22.5	22.7	20.6	34.7	32.2

Density in Ramp Influence Area (pc/mi/ln)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	-	23.5	-	23.0	-	23.0	-	19.1	-	19.0	-	13.1
	Seg 13	**Seg 14**	**Seg 15**	**Seg 16**	**Seg 17**	**Seg 18**	**Seg 19**	**Seg 20**	**Seg 21**	**Seg 22**	**Seg 23**	**Seg 24**
AP 1	-	15.7	-	14.7	-	13.5	-	24.8	-	-	28.5	-
	Seg 25	**Seg 26**	**Seg 27**	**Seg 28**	**Seg 29**	**Seg 30**	**Seg 31**					
AP 1	37.2	-	-	25.7	-	34.3	-					

Density-Based LOS

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	C	C	B	C	C	C	B	B	B	B	B	B
	Seg 13	**Seg 14**	**Seg 15**	**Seg 16**	**Seg 17**	**Seg 18**	**Seg 19**	**Seg 20**	**Seg 21**	**Seg 22**	**Seg 23**	**Seg 24**
AP 1	B	B	A	B	B	B	B	C	C	C	D	C
	Seg 25	**Seg 26**	**Seg 27**	**Seg 28**	**Seg 29**	**Seg 30**	**Seg 31**					
AP 1	F	E	C	C	C	D	D					

Demand-Based LOS

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	-	-	-	-	-	-	-	-	-	-	-	-
	Seg 13	**Seg 14**	**Seg 15**	**Seg 16**	**Seg 17**	**Seg 18**	**Seg 19**	**Seg 20**	**Seg 21**	**Seg 22**	**Seg 23**	**Seg 24**
AP 1	-	-	-	-	-	-	-	-	-	-	-	-
	Seg 25	**Seg 26**	**Seg 27**	**Seg 28**	**Seg 29**	**Seg 30**	**Seg 31**					
AP 1	F	-	-	-	-	-	-					

Westbound 2 Lane (Existing) - PM No-Build

HCS Freeway Facilities Report

Project Information

Analyst	EJG	Date	11/7/2024
Agency	Woolpert	Analysis Year	2024
Jurisdiction	Franklin and Licking Counties	Time Analyzed	PM 2048 No-Build
Facility Name	WB SR-161	Units	U.S. Customary
Project Description	2 Lanes (Exisiting)		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45
Queue Discharge Capacity Drop, %	7	Total Segments	31
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	17.97		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		8000	2
2	Diverge	Diverge	Lancaster+WeaverRiver	1500	2
3	Basic	Basic		1570	2
4	Merge	Merge	Lancaster+WeaverRiver	330	2
5	Overlap	Overlap	Per ODOT	1170	2
6	Diverge	Diverge	Columbus	330	2
7	Basic	Basic		1070	2
8	Merge	Merge	Columbus	1500	2
9	Basic	Basic		16450	2
10	Diverge	Diverge	York	1500	2
11	Basic	Basic		3000	2
12	Merge	Merge	York	1500	2
13	Basic	Basic		11380	2
14	Diverge	Diverge	SR 310	1500	2
15	Basic	Basic		2800	2
16	Merge	Merge	SR 310	1500	2
17	Basic	Basic		9800	2
18	Diverge	Diverge	Mink	1500	2
19	Basic	Basic		1590	2
20	Merge	Merge	Mink	1500	2
21	Basic	Basic	Per ODOT	330	2
22	Basic	Basic		2750	2
23	Diverge	Diverge	Beech+Smiths	1500	2
24	Basic	Basic		4315	2
25	Merge	Merge	Beech+Smiths	1500	2
26	Basic	Basic		5775	2
27	Basic	Basic		2000	3

28	Diverge	Diverge	US 62	1500	3
29	Basic	Basic		2540	3
30	Merge	Merge	US 62	1500	3
31	Basic	Basic		1700	3

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.962	2687	4800	0.56	73.7	18.2	C

Segment 2: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.86	0.962	0.980	2687	534	4800	2200	0.56	0.24	67.9	67.9	19.8	23.3	C

Segment 3: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.962	2190	4800	0.46	74.4	14.6	B

Segment 4: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.80	0.962	0.962	2515	325	4800	2200	0.52	0.15	64.0	64.0	19.6	22.9	C

Segment 5: Overlap

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.962	2466	4800	0.51	64.0	19.6	C

Segment 6: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.83	0.962	0.962	2466	551	4800	2200	0.51	0.25	67.8	67.8	18.2	22.5	C

Segment 7: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.962	1979	4800	0.41	72.7	13.2	B

Segment 8: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.91	0.962	0.962	2242	263	4800	2200	0.47	0.12	65.5	65.5	17.1	18.9	B

Segment 9: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.962	2234	4800	0.47	74.8	14.9	B

Segment 10: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.81	0.962	0.980	2234	529	4800	2200	0.47	0.24	67.9	67.9	16.5	18.8	B

Segment 11: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.962	1769	4800	0.37	74.8	11.8	B

Segment 12: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.90	0.962	0.962	1931	162	4800	2200	0.40	0.07	67.4	67.4	14.3	13.9	B

Segment 13: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.962	1924	4800	0.40	75.0	12.8	B

Segment 14: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.80	0.962	0.952	1924	368	4800	2200	0.40	0.17	68.4	68.4	14.1	16.5	B

Segment 15: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.962	1615	4800	0.34	74.8	10.8	A

Segment 16: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.84	0.962	0.926	2065	450	4800	2200	0.43	0.20	66.6	66.6	15.5	16.0	B

Segment 17: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.962	2002	4800	0.42	75.0	13.3	B

Segment 18: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.83	0.962	0.917	2002	171	4800	2200	0.42	0.08	69.0	69.0	14.5	14.4	B

Segment 19: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.962	1858	4800	0.39	74.5	12.4	B

Segment 20: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.83	0.962	0.971	3471	1613	4800	2200	0.72	0.73	64.0	64.0	27.1	25.5	C

Segment 21: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.962	3295	4800	0.69	67.7	24.3	C

Segment 22: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.962	3295	4800	0.69	67.7	24.3	C

Segment 23: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.95	0.962	0.980	3295	140	4800	2200	0.69	0.06	64.9	64.9	25.4	27.8	C

Segment 24: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.962	3152	4800	0.66	68.4	23.0	C

Segment 25: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.85	0.962	0.962	4791	1639	4800	2200	1.00	0.74	53.1	53.1	45.1	36.1	E

Segment 26: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.962	4634	4800	0.97	55.6	41.7	E

Segment 27: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.962	4634	7200	0.64	68.6	22.5	C

Segment 28: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.962	0.971	4634	373	7200	2200	0.64	0.17	67.5	64.3	22.9	24.9	C

Segment 29: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.962	4258	7200	0.59	69.4	20.4	C

Segment 30: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.90	0.971	0.980	5953	1735	7200	2200	0.83	0.79	58.1	55.5	34.2	33.5	D

Segment 31: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.971	5894	7200	0.82	63.2	31.1	D

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	11809	11069	11.83	295.76	67.9	19.2	18.4	15.90	C

Facility Overall Results

Space Mean Speed, mi/h	67.9	Average Density, veh/mi/ln	18.4
Average Travel Time, min	15.90	Average Density, pc/mi/ln	19.2
Total VMT, veh-mi/AP	11809	Total VHD, veh-h	11.83
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	295.76

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HCS Basic Freeway Report

Project Information			
Analyst	EJG	Date	11/7/2024
Agency	Woolpert	Analysis Year	2024
Jurisdiction	Franklin and Licking Counties	Time Analyzed	PM 2048 No-Build
Project Description	2 Lanes (Exisiting)	Units	U.S. Customary
Segment Number	1	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	8000	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	2430	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1344
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.56
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	73.7
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	18.2
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	2	Segment Name	Lancaster+WeaverRiver
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	450
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2430	450
Peak Hour Factor (PHF)	0.94	0.86
Total Trucks, %	4.00	2.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.980
Flow Rate (v_i), pc/h	2687	534
Capacity (c_{md}), pc/h	4800	2200
Initial Adjusted Capacity (c_{mda}), pc/h	4800	-
Final Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.56	0.24

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	67.9
Flow in Lanes 1 and 2 (v_{12}), pc/h	2687	Outer Lanes Freeway Speed (S_O), mi/h	82.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	67.9
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	19.8
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	23.3

HCS Basic Freeway Report

Project Information			
Segment Number	3	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	1570	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	1980	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1095
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.46
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.4
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	14.6
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Merge Report

Project Information			
Segment Number	4	Segment Name	Lancaster+WeaverRiver
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Acceleration Length (LA), ft	330	330
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1980	250
Peak Hour Factor (PHF)	0.94	0.80
Total Trucks, %	4.00	4.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.962
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	2190 | 2515	325
Capacity (c_{md}), pc/h	4800	2200
Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.52	0.15

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	64.0
Flow in Lanes 1 and 2 (v_{12}), pc/h	2190	Outer Lanes Freeway Speed (S_O), mi/h	75.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2515	Ramp Junction Speed (S), mi/h	64.0
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	19.6
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	22.9

HCS Overlap Freeway Report

Project Information			
Segment Number	5	Segment Name	Per ODOT
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	1170	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	2230	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1233
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.51
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	64.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	19.6
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Diverge Report

Project Information

Segment Number	6	Segment Name	Columbus
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	330	330
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	2230	440
Peak Hour Factor (PHF)	0.94	0.83
Total Trucks, %	4.00	4.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.962
Flow Rate (v_i), pc/h	2466	551
Capacity (c_{md}), pc/h	4800	2200
Initial Adjusted Capacity (c_{mda}), pc/h	4800	-
Final Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.51	0.25

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	67.8
Flow in Lanes 1 and 2 (v_{12}), pc/h	2466	Outer Lanes Freeway Speed (S_O), mi/h	82.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	67.8
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	18.2
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	22.5

HCS Basic Freeway Report

Project Information			
Segment Number	7	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	1070	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	1790	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	990
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.41
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	72.7
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	13.2
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Merge Report

Project Information			
Segment Number	8	Segment Name	Columbus
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Acceleration Length (LA), ft	1500	640
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1790	230
Peak Hour Factor (PHF)	0.94	0.91
Total Trucks, %	4.00	4.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.962
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	1979 | 2242	263
Capacity (c_{md}), pc/h	4800	2200
Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.47	0.12

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	65.5
Flow in Lanes 1 and 2 (v_{12}), pc/h	1979	Outer Lanes Freeway Speed (S_O), mi/h	75.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2242	Ramp Junction Speed (S), mi/h	65.5
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	17.1
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	18.9

HCS Basic Freeway Report

Project Information			
Segment Number	9	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	16450	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	2020	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1117
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.47
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.8
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	14.9
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	10	Segment Name	York
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	520
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2020	420
Peak Hour Factor (PHF)	0.94	0.81
Total Trucks, %	4.00	2.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.980
Flow Rate (v_i), pc/h	2234	529
Capacity (c_{md}), pc/h	4800	2200
Initial Adjusted Capacity (c_{mda}), pc/h	4800	-
Final Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.47	0.24

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	67.9
Flow in Lanes 1 and 2 (v_{12}), pc/h	2234	Outer Lanes Freeway Speed (S_O), mi/h	82.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	67.9
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	16.5
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	18.8

HCS Basic Freeway Report

Project Information			
Segment Number	11	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	3000	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.50
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	1600	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	884
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.37
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.8
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	11.8
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Merge Report

Project Information			
Segment Number	12	Segment Name	York
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Acceleration Length (LA), ft	1500	1060
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1600	140
Peak Hour Factor (PHF)	0.94	0.90
Total Trucks, %	4.00	4.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.962
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	1769 | 1931	162
Capacity (c_{md}), pc/h	4800	2200
Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.40	0.07

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	67.4
Flow in Lanes 1 and 2 (v_{12}), pc/h	1769	Outer Lanes Freeway Speed (S_O), mi/h	75.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1931	Ramp Junction Speed (S), mi/h	67.4
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	14.3
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	13.9

HCS Basic Freeway Report

Project Information			
Segment Number	13	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	11380	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	1740	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	962
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.40
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	12.8
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	14	Segment Name	SR 310
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	480
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1740	280
Peak Hour Factor (PHF)	0.94	0.80
Total Trucks, %	4.00	5.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.952
Flow Rate (v_i), pc/h	1924	368
Capacity (c_{md}), pc/h	4800	2200
Initial Adjusted Capacity (c_{mda}), pc/h	4800	-
Final Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.40	0.17

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	68.4
Flow in Lanes 1 and 2 (v_{12}), pc/h	1924	Outer Lanes Freeway Speed (S_O), mi/h	82.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	68.4
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	14.1
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	16.5

HCS Basic Freeway Report

Project Information			
Segment Number	15	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	2800	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	1460	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	808
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.34
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.8
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	10.8
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Merge Report

Project Information			
Segment Number	16	Segment Name	SR 310
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	870
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1460	350
Peak Hour Factor (PHF)	0.94	0.84
Total Trucks, %	4.00	8.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.926
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	1615 | 2065	450
Capacity (c_{md}), pc/h	4800	2200
Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.43	0.20

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	66.6
Flow in Lanes 1 and 2 (v_{12}), pc/h	1615	Outer Lanes Freeway Speed (S_O), mi/h	75.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2065	Ramp Junction Speed (S), mi/h	66.6
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	15.5
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	16.0

HCS Basic Freeway Report

Project Information			
Segment Number	17	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	9800	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	1810	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1001
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.42
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	13.3
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	18	Segment Name	Mink
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	785
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1810	130
Peak Hour Factor (PHF)	0.94	0.83
Total Trucks, %	4.00	9.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.917
Flow Rate (v_i), pc/h	2002	171
Capacity (c_{md}), pc/h	4800	2200
Initial Adjusted Capacity (c_{mda}), pc/h	4800	-
Final Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.42	0.08

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	69.0
Flow in Lanes 1 and 2 (v_{12}), pc/h	2002	Outer Lanes Freeway Speed (S_O), mi/h	82.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	69.0
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	14.5
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	14.4

HCS Basic Freeway Report

Project Information			
Segment Number	19	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	1590	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	1680	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	929
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.39
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.5
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	12.4
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Merge Report

Project Information			
Segment Number	20	Segment Name	Mink
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Acceleration Length (LA), ft	1500	1020
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1680	1300
Peak Hour Factor (PHF)	0.94	0.83
Total Trucks, %	4.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.971
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	1858 | 3471	1613
Capacity (c_{md}), pc/h	4800	2200
Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.72	0.73

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	64.0
Flow in Lanes 1 and 2 (v_{12}), pc/h	1858	Outer Lanes Freeway Speed (S_O), mi/h	75.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3471	Ramp Junction Speed (S), mi/h	64.0
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	27.1
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	25.5

HCS Basic Freeway Report

Project Information			
Segment Number	21	Segment Name	Per ODOT
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	330	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	2980	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1648
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.69
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	67.7
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	24.3
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Basic Freeway Report

Project Information			
Segment Number	22	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	2750	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	2980	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1648
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.69
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	67.7
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	24.3
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	23	Segment Name	Beech+Smiths
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	70.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	535
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2980	130
Peak Hour Factor (PHF)	0.94	0.95
Total Trucks, %	4.00	2.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.980
Flow Rate (v_i), pc/h	3295	140
Capacity (c_{md}), pc/h	4800	2200
Initial Adjusted Capacity (c_{mda}), pc/h	4800	-
Final Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	0.69	0.06

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	64.9
Flow in Lanes 1 and 2 (v_{12}), pc/h	3295	Outer Lanes Freeway Speed (S_O), mi/h	76.8
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	64.9
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	25.4
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	27.8

HCS Basic Freeway Report

Project Information			
Segment Number	24	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	4315	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	2850	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1576
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.66
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	68.4
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	23.0
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Freeway Merge Report

Project Information			
Segment Number	25	Segment Name	Beech+Smiths
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	2	1
Free-Flow Speed (FFS), mi/h	70.0	55.0
Segment Length (L) / Acceleration Length (LA), ft	1500	975
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2850	1340
Peak Hour Factor (PHF)	0.94	0.85
Total Trucks, %	4.00	4.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.962
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	3152 | 4791	1639
Capacity (c_{md}), pc/h	4800	2200
Adjusted Capacity (c_{mda}), pc/h	4800	2200
Volume-to-Capacity Ratio (v/c)	1.00	0.75

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	-
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	53.1
Flow in Lanes 1 and 2 (v_{12}), pc/h	3152	Outer Lanes Freeway Speed (S_O), mi/h	70.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	4791	Ramp Junction Speed (S), mi/h	53.1
Number of Outer Lanes on Freeway (N_O), ln	0	Average Density (D), pc/mi/ln	45.1
Level of Service (LOS)	E	Density in Ramp Influence Area (D_R), pc/mi/ln	36.1

HCS Basic Freeway Report

Project Information			
Segment Number	26	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	5775	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	4190	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	2317
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.97
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	55.6
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	41.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Basic Freeway Report

Project Information			
Segment Number	27	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	2000	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	4190	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1545
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.64
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	68.6
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	22.5
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	28	Segment Name	US 62
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	70.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	615
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	4190	340
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	4.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.971
Flow Rate (v_i), pc/h	4634	373
Capacity (c_{md}), pc/h	7200	2200
Initial Adjusted Capacity (c_{mda}), pc/h	7200	-
Final Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.64	0.17

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	10989.5	Flow Outer Lanes (v_{OA}), pc/h/ln	1585
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	64.3
Flow in Lanes 1 and 2 (v_{12}), pc/h	3049	Outer Lanes Freeway Speed (S_O), mi/h	74.5
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	67.5
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	22.9
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	24.9

HCS Basic Freeway Report

Project Information			
Segment Number	29	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	2540	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.50
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3850	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1419
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.59
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	69.4
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	20.4
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Freeway Merge Report

Project Information			
Segment Number	30	Segment Name	US 62
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	70.0	55.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	715
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3850	1530
Peak Hour Factor (PHF)	0.94	0.90
Total Trucks, %	3.00	2.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.971	0.980
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	4218 | 5953	1735
Capacity (c_{md}), pc/h	7200	2200
Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.83	0.79

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	2066.0	Flow Outer Lanes (v_{OA}), pc/h/ln	1696
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	55.5
Flow in Lanes 1 and 2 (v_{12}), pc/h	2522	Outer Lanes Freeway Speed (S_O), mi/h	65.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	4257	Ramp Junction Speed (S), mi/h	58.1
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	34.2
Level of Service (LOS)	D	Density in Ramp Influence Area (D_R), pc/mi/ln	33.5

HCS Basic Freeway Report

Project Information			
Segment Number	31	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	1700	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.50
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	5380	Heavy Vehicle Adjustment Factor (f_{HV})	0.971
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1965
Total Trucks, %	3.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.82
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	63.2
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	31.1
Total Ramp Density Adjustment	-	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

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LOS

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	C	C	B	C	C	C	B	B	B	B	B	B
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	B	B	A	B	B	B	B	C	C	C	C	C
	Seg 25	Seg 26	Seg 27	Seg 28	Seg 29	Seg 30	Seg 31					
AP 1	E	E	C	C	C	D	D					

Speed (mi/h)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	73.7	67.9	74.4	64.0	64.0	67.8	72.7	65.5	74.8	67.9	74.8	67.4
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	75.0	68.4	74.8	66.6	75.0	69.0	74.5	64.0	67.7	67.7	64.9	68.4
	Seg 25	Seg 26	Seg 27	Seg 28	Seg 29	Seg 30	Seg 31					
AP 1	53.1	55.6	68.6	67.5	69.4	58.1	63.2					

Density (pc/mi/ln)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	18.2	19.8	14.6	19.6	19.6	18.2	13.2	17.1	14.9	16.5	11.8	14.3
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	12.8	14.1	10.8	15.5	13.3	14.5	12.4	27.1	24.3	24.3	25.4	23.0
	Seg 25	Seg 26	Seg 27	Seg 28	Seg 29	Seg 30	Seg 31					
AP 1	45.1	41.7	22.5	22.9	20.4	34.2	31.1					

Demand - Capacity Ratio (D/C)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	0.56	0.56	0.46	0.52	0.51	0.51	0.41	0.47	0.47	0.47	0.37	0.40
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	0.40	0.40	0.34	0.43	0.42	0.42	0.39	0.72	0.69	0.69	0.69	0.66
	Seg 25	Seg 26	Seg 27	Seg 28	Seg 29	Seg 30	Seg 31					
AP 1	1.00	0.97	0.64	0.64	0.59	0.83	0.82					

Volume - Capacity Ratio (V/C)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	0.56	0.56	0.46	0.52	0.51	0.51	0.41	0.47	0.47	0.47	0.37	0.40
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	0.40	0.40	0.34	0.43	0.42	0.42	0.39	0.72	0.69	0.69	0.69	0.66
	Seg 25	Seg 26	Seg 27	Seg 28	Seg 29	Seg 30	Seg 31					
AP 1	1.00	0.97	0.64	0.64	0.59	0.83	0.82					

Density (veh/mi/ln)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	17.5	19.0	14.0	18.9	18.9	17.5	12.7	16.5	14.3	15.9	11.4	13.8
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	12.3	13.6	10.4	14.9	12.8	13.9	11.9	26.1	23.4	23.4	24.4	22.1
	Seg 25	Seg 26	Seg 27	Seg 28	Seg 29	Seg 30	Seg 31					

AP 1	43.4	40.1	21.6	22.0	19.6	33.2	30.2

Density in Ramp Influence Area (pc/mi/ln)												
	Seg 1	**Seg 2**	**Seg 3**	**Seg 4**	**Seg 5**	**Seg 6**	**Seg 7**	**Seg 8**	**Seg 9**	**Seg 10**	**Seg 11**	**Seg 12**
AP 1	-	23.3	-	22.9	-	22.5	-	18.9	-	18.8	-	13.9
	Seg 13	**Seg 14**	**Seg 15**	**Seg 16**	**Seg 17**	**Seg 18**	**Seg 19**	**Seg 20**	**Seg 21**	**Seg 22**	**Seg 23**	**Seg 24**
AP 1	-	16.5	-	16.0	-	14.4	-	25.5	-	-	27.8	-
	Seg 25	**Seg 26**	**Seg 27**	**Seg 28**	**Seg 29**	**Seg 30**	**Seg 31**					
AP 1	36.1	-	-	24.9	-	33.5	-					

Density-Based LOS												
	Seg 1	**Seg 2**	**Seg 3**	**Seg 4**	**Seg 5**	**Seg 6**	**Seg 7**	**Seg 8**	**Seg 9**	**Seg 10**	**Seg 11**	**Seg 12**
AP 1	C	C	B	C	C	C	B	B	B	B	B	B
	Seg 13	**Seg 14**	**Seg 15**	**Seg 16**	**Seg 17**	**Seg 18**	**Seg 19**	**Seg 20**	**Seg 21**	**Seg 22**	**Seg 23**	**Seg 24**
AP 1	B	B	A	B	B	B	B	C	C	C	C	C
	Seg 25	**Seg 26**	**Seg 27**	**Seg 28**	**Seg 29**	**Seg 30**	**Seg 31**					
AP 1	E	E	C	C	C	D	D					

Demand-Based LOS												
	Seg 1	**Seg 2**	**Seg 3**	**Seg 4**	**Seg 5**	**Seg 6**	**Seg 7**	**Seg 8**	**Seg 9**	**Seg 10**	**Seg 11**	**Seg 12**
AP 1	-	-	-	-	-	-	-	-	-	-	-	-
	Seg 13	**Seg 14**	**Seg 15**	**Seg 16**	**Seg 17**	**Seg 18**	**Seg 19**	**Seg 20**	**Seg 21**	**Seg 22**	**Seg 23**	**Seg 24**
AP 1	-	-	-	-	-	-	-	-	-	-	-	-
	Seg 25	**Seg 26**	**Seg 27**	**Seg 28**	**Seg 29**	**Seg 30**	**Seg 31**					
AP 1	-	-	-	-	-	-	-					

Westbound 3 Lane (Proposed) - AM Build

HCS Freeway Facilities Report

Project Information

Analyst	EJG	Date	11/8/2024
Agency	Woolpert	Analysis Year	2024
Jurisdiction	Franklin and Licking Counties	Time Analyzed	AM 2048 Build
Facility Name	WB SR-161	Units	U.S. Customary
Project Description	3 Lanes (Proposed)		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45
Queue Discharge Capacity Drop, %	7	Total Segments	31
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	17.97		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		8000	3
2	Diverge	Diverge	Lancaster+WeaverRiver	1500	3
3	Basic	Basic		1570	3
4	Merge	Merge	Lancaster+WeaverRiver	330	3
5	Overlap	Overlap	Per ODOT	1170	3
6	Diverge	Diverge	Columbus	330	3
7	Basic	Basic		1070	3
8	Merge	Merge	Columbus	1500	3
9	Basic	Basic		16450	3
10	Diverge	Diverge	York	1500	3
11	Basic	Basic		3000	3
12	Merge	Merge	York	1500	3
13	Basic	Basic		11380	3
14	Diverge	Diverge	SR 310	1500	3
15	Basic	Basic		2800	3
16	Merge	Merge	SR 310	1500	3
17	Basic	Basic		9800	3
18	Diverge	Diverge	Mink	1500	3
19	Basic	Basic		1590	3
20	Merge	Merge	Mink	1500	3
21	Basic	Basic	Per ODOT	330	3
22	Basic	Basic		2750	3
23	Diverge	Diverge	Beech+Smiths	1500	3
24	Basic	Basic		4315	3
25	Merge	Merge	Beech+Smiths	1500	3
26	Basic	Basic		5775	3
27	Basic	Basic		2000	3

28	Diverge	Diverge	US 62	1500	3
29	Basic	Basic		2540	3
30	Merge	Merge	US 62	1500	3
31	Basic	Basic		1700	3

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	4705	7200	0.65	71.4	22.0	C

Segment 2: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.909	0.962	4705	431	7200	2200	0.65	0.20	71.8	68.2	21.8	26.8	C

Segment 3: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	4248	7200	0.59	73.1	19.4	C

Segment 4: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.83	0.909	0.813	4989	741	7200	2200	0.69	0.34	64.2	61.5	25.9	30.1	D

Segment 5: Overlap

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	4833	7200	0.67	64.2	25.9	C

Segment 6: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.87	0.909	0.909	4833	632	7200	2200	0.67	0.29	71.3	67.6	22.6	28.8	D

Segment 7: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	4248	7200	0.59	73.1	19.4	C

Segment 8: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.83	0.909	0.813	4885	637	7200	2200	0.68	0.29	66.0	63.7	24.7	25.9	C

Segment 9: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	4752	7200	0.66	71.2	22.2	C

Segment 10: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.81	0.909	0.962	4752	616	7200	2200	0.66	0.28	71.3	67.6	22.2	26.7	C

Segment 11: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	4190	7200	0.58	73.3	19.1	C

Segment 12: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.90	0.909	0.813	4819	629	7200	2200	0.67	0.29	67.0	65.2	24.0	23.4	C

Segment 13: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	4728	7200	0.66	71.3	22.1	C

Segment 14: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.84	0.909	0.926	4728	964	7200	2200	0.66	0.44	70.5	66.6	22.4	27.5	C

Segment 15: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	3850	7200	0.53	74.1	17.3	B

Segment 16: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.88	0.926	0.943	4648	868	7200	2200	0.65	0.39	66.7	64.6	23.2	24.2	C

Segment 17: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.926	4607	7200	0.64	71.8	21.4	C

Segment 18: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.80	0.926	0.909	4607	935	7200	2200	0.64	0.43	70.5	66.7	21.8	24.4	C

Segment 19: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.926	3826	7200	0.53	74.2	17.2	B

Segment 20: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.80	0.935	0.943	4584	795	7200	2200	0.64	0.36	67.2	65.3	22.7	22.9	C

Segment 21: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.935	4471	7200	0.62	69.0	21.6	C

Segment 22: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.935	4471	7200	0.62	69.0	21.6	C

Segment 23: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.80	0.935	0.962	4471	845	7200	2200	0.62	0.38	66.5	63.2	22.4	26.1	C

Segment 24: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.935	3732	7200	0.52	70.0	17.8	B

Segment 25: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.80	0.909	0.813	4900	1061	7200	2200	0.68	0.48	62.4	60.8	26.2	25.3	C

Segment 26: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	4646	7200	0.65	68.6	22.6	C

Segment 27: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	4646	7200	0.65	68.6	22.6	C

Segment 28: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.83	0.909	0.971	4646	1129	7200	2200	0.65	0.51	65.8	62.4	23.5	26.4	C

Segment 29: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	3581	7200	0.50	69.8	17.1	B

Segment 30: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.89	0.909	0.926	4722	1141	7200	2200	0.66	0.52	62.1	60.3	25.3	26.1	C

Segment 31: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	4681	7200	0.65	68.5	22.8	C

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	18702	17536	12.72	318.12	70.1	21.7	19.8	15.40	C

Facility Overall Results

Space Mean Speed, mi/h	70.1	Average Density, veh/mi/ln	19.8
Average Travel Time, min	15.40	Average Density, pc/mi/ln	21.7
Total VMT, veh-mi/AP	18702	Total VHD, veh-h	12.72
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	318.12

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HCS Basic Freeway Report

Project Information			
Analyst	EJG	Date	11/8/2024
Agency	Woolpert	Analysis Year	2024
Jurisdiction	Franklin and Licking Counties	Time Analyzed	AM 2048 Build
Project Description	3 Lanes (Proposed)	Units	U.S. Customary
Segment Number	1	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	8000	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	4020	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1568
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.65
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	71.4
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	22.0
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	2	Segment Name	Lancaster+WeaverRiver
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	450
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	4020	390
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	4.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.962
Flow Rate (v_i), pc/h	4705	431
Capacity (c_{md}), pc/h	7200	2200
Initial Adjusted Capacity (c_{mda}), pc/h	7200	-
Final Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.65	0.20

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1611
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	68.2
Flow in Lanes 1 and 2 (v_{12}), pc/h	3094	Outer Lanes Freeway Speed (S_O), mi/h	79.9
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	71.8
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	21.8
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	26.8

HCS Basic Freeway Report

Project Information			
Segment Number	3	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	1570	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3630	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1416
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.59
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	73.1
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	19.4
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Merge Report

Project Information			
Segment Number	4	Segment Name	Lancaster+WeaverRiver
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Acceleration Length (LA), ft	330	330
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3630	500
Peak Hour Factor (PHF)	0.94	0.83
Total Trucks, %	10.00	23.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.813
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	4248 | 4989	741
Capacity (c_{md}), pc/h	7200	2200
Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.69	0.34

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	1688.8	Flow Outer Lanes (v_{OA}), pc/h/ln	1534
Downstream Equilibrium Distance (L_{EQ}), ft	4361.3	On-Ramp Influence Area Speed (S_R), mi/h	61.5
Flow in Lanes 1 and 2 (v_{12}), pc/h	2714	Outer Lanes Freeway Speed (S_O), mi/h	71.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3455	Ramp Junction Speed (S), mi/h	64.2
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	25.9
Level of Service (LOS)	D	Density in Ramp Influence Area (D_R), pc/mi/ln	30.1

HCS Overlap Freeway Report

Project Information			
Segment Number	5	Segment Name	Per ODOT
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	1170	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	4130	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1611
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.67
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	64.2
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	25.9
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	6	Segment Name	Columbus
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	330	330
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	4130	500
Peak Hour Factor (PHF)	0.94	0.87
Total Trucks, %	10.00	10.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.909
Flow Rate (v_i), pc/h	4833	632
Capacity (c_{md}), pc/h	7200	2200
Initial Adjusted Capacity (c_{mda}), pc/h	7200	-
Final Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.67	0.29

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	5524.6	Flow Outer Lanes (v_{OA}), pc/h/ln	1638
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	67.6
Flow in Lanes 1 and 2 (v_{12}), pc/h	3195	Outer Lanes Freeway Speed (S_O), mi/h	79.8
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	71.3
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	22.6
Level of Service (LOS)	D	Density in Ramp Influence Area (D_R), pc/mi/ln	28.8

HCS Basic Freeway Report

Project Information			
Segment Number	7	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	1070	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3630	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1416
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.59
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	73.1
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	19.4
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Merge Report

Project Information			
Segment Number	8	Segment Name	Columbus
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Acceleration Length (LA), ft	1500	640
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3630	430
Peak Hour Factor (PHF)	0.94	0.83
Total Trucks, %	10.00	23.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.813
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	4248 | 4885	637
Capacity (c_{md}), pc/h	7200	2200
Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.68	0.29

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	1804.2	Flow Outer Lanes (v_{OA}), pc/h/ln	1720
Downstream Equilibrium Distance (L_{EQ}), ft	3459.1	On-Ramp Influence Area Speed (S_R), mi/h	63.7
Flow in Lanes 1 and 2 (v_{12}), pc/h	2528	Outer Lanes Freeway Speed (S_O), mi/h	70.6
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3165	Ramp Junction Speed (S), mi/h	66.0
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	24.7
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	25.9

HCS Basic Freeway Report

Project Information			
Segment Number	9	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	16450	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	4060	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1584
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.66
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	71.2
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	22.2
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	10	Segment Name	York
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	520
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	4060	480
Peak Hour Factor (PHF)	0.94	0.81
Total Trucks, %	10.00	4.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.962
Flow Rate (v_i), pc/h	4752	616
Capacity (c_{md}), pc/h	7200	2200
Initial Adjusted Capacity (c_{mda}), pc/h	7200	-
Final Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.66	0.28

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	4772.3	Flow Outer Lanes (v_{OA}), pc/h/ln	1601
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	67.6
Flow in Lanes 1 and 2 (v_{12}), pc/h	3151	Outer Lanes Freeway Speed (S_O), mi/h	79.9
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	71.3
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	22.2
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	26.7

HCS Basic Freeway Report

Project Information			
Segment Number	11	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	3000	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.50
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3580	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1397
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.58
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	73.3
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	19.1
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Merge Report

Project Information			
Segment Number	12	Segment Name	York
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Acceleration Length (LA), ft	1500	1060
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3580	460
Peak Hour Factor (PHF)	0.94	0.90
Total Trucks, %	10.00	23.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.813
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	4190 | 4819	629
Capacity (c_{md}), pc/h	7200	2200
Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.67	0.29

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	1976.5	Flow Outer Lanes (v_{OA}), pc/h/ln	1647
Downstream Equilibrium Distance (L_{EQ}), ft	4322.5	On-Ramp Influence Area Speed (S_R), mi/h	65.2
Flow in Lanes 1 and 2 (v_{12}), pc/h	2543	Outer Lanes Freeway Speed (S_O), mi/h	70.9
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3172	Ramp Junction Speed (S), mi/h	67.0
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	24.0
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	23.4

HCS Basic Freeway Report

Project Information			
Segment Number	13	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	11380	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	4040	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1576
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.66
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	71.3
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	22.1
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	14	Segment Name	SR 310
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	480
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	4040	750
Peak Hour Factor (PHF)	0.94	0.84
Total Trucks, %	10.00	8.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.926
Flow Rate (v_i), pc/h	4728	964
Capacity (c_{md}), pc/h	7200	2200
Initial Adjusted Capacity (c_{mda}), pc/h	7200	-
Final Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.66	0.44

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	5907.2	Flow Outer Lanes (v_{OA}), pc/h/ln	1517
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	66.6
Flow in Lanes 1 and 2 (v_{12}), pc/h	3211	Outer Lanes Freeway Speed (S_O), mi/h	80.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	70.5
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	22.4
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	27.5

HCS Basic Freeway Report

Project Information			
Segment Number	15	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	2800	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3290	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1283
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.53
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.1
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	17.3
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Merge Report

Project Information			
Segment Number	16	Segment Name	SR 310
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Acceleration Length (LA), ft	1500	870
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3290	720
Peak Hour Factor (PHF)	0.94	0.88
Total Trucks, %	8.00	6.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.943
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	3780 | 4648	868
Capacity (c_{md}), pc/h	7200	2200
Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.65	0.39

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	1855.6	Flow Outer Lanes (v_{OA}), pc/h/ln	1504
Downstream Equilibrium Distance (L_{EQ}), ft	4613.0	On-Ramp Influence Area Speed (S_R), mi/h	64.6
Flow in Lanes 1 and 2 (v_{12}), pc/h	2276	Outer Lanes Freeway Speed (S_O), mi/h	71.4
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3144	Ramp Junction Speed (S), mi/h	66.7
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	23.2
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	24.2

HCS Basic Freeway Report

Project Information			
Segment Number	17	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	9800	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	4010	Heavy Vehicle Adjustment Factor (f_{HV})	0.926
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1536
Total Trucks, %	8.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.64
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	71.8
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	21.4
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	18	Segment Name	Mink
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	765
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	4010	680
Peak Hour Factor (PHF)	0.94	0.80
Total Trucks, %	8.00	10.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.909
Flow Rate (v_i), pc/h	4607	935
Capacity (c_{md}), pc/h	7200	2200
Initial Adjusted Capacity (c_{mda}), pc/h	7200	-
Final Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.64	0.43

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	8186.9	Flow Outer Lanes (v_{OA}), pc/h/ln	1461
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	66.7
Flow in Lanes 1 and 2 (v_{12}), pc/h	3146	Outer Lanes Freeway Speed (S_O), mi/h	80.5
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	70.5
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	21.8
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	24.4

HCS Basic Freeway Report

Project Information			
Segment Number	19	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	1590	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3330	Heavy Vehicle Adjustment Factor (f_{HV})	0.926
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1275
Total Trucks, %	8.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.53
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.2
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	17.2
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.0		

HCS Freeway Merge Report

Project Information			
Segment Number	20	Segment Name	Mink
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.0	55.0
Segment Length (L) / Acceleration Length (LA), ft	1500	1020
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3330	600
Peak Hour Factor (PHF)	0.94	0.80
Total Trucks, %	7.00	6.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.935	0.943
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	3789 | 4584	795
Capacity (c_{md}), pc/h	7200	2200
Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.64	0.36

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	1908.5	Flow Outer Lanes (v_{OA}), pc/h/ln	1493
Downstream Equilibrium Distance (L_{EQ}), ft	3863.0	On-Ramp Influence Area Speed (S_R), mi/h	65.3
Flow in Lanes 1 and 2 (v_{12}), pc/h	2296	Outer Lanes Freeway Speed (S_O), mi/h	71.4
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3091	Ramp Junction Speed (S), mi/h	67.2
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	22.7
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	22.9

HCS Basic Freeway Report

Project Information			
Segment Number	21	Segment Name	Per ODOT
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	330	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3930	Heavy Vehicle Adjustment Factor (f_{HV})	0.935
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1490
Total Trucks, %	7.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.62
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	69.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	21.6
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Basic Freeway Report

Project Information			
Segment Number	22	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	2750	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3930	Heavy Vehicle Adjustment Factor (f_{HV})	0.935
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1490
Total Trucks, %	7.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.62
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	69.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	21.6
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Freeway Diverge Report

Project Information

Segment Number	23	Segment Name	Beech+Smiths
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	70.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	535
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	3930	650
Peak Hour Factor (PHF)	0.94	0.80
Total Trucks, %	7.00	4.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.935	0.962
Flow Rate (v_i), pc/h	4471	845
Capacity (c_{md}), pc/h	7200	2200
Initial Adjusted Capacity (c_{mda}), pc/h	7200	-
Final Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.62	0.38

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	7252.8	Flow Outer Lanes (v_{OA}), pc/h/ln	1371
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	63.2
Flow in Lanes 1 and 2 (v_{12}), pc/h	3100	Outer Lanes Freeway Speed (S_O), mi/h	75.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	66.5
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	22.4
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	26.1

HCS Basic Freeway Report

Project Information			
Segment Number	24	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	4315	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3280	Heavy Vehicle Adjustment Factor (f_{HV})	0.935
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1244
Total Trucks, %	7.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.52
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	70.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	17.8
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Freeway Merge Report

Project Information			
Segment Number	25	Segment Name	Beech+Smiths
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	70.0	55.0
Segment Length (L) / Acceleration Length (LA), ft	1500	975
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3280	690
Peak Hour Factor (PHF)	0.94	0.80
Total Trucks, %	10.00	23.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.813
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	3839 | 4900	1061
Capacity (c_{md}), pc/h	7200	2200
Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.68	0.48

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	1956.1	Flow Outer Lanes (v_{OA}), pc/h/ln	1516
Downstream Equilibrium Distance (L_{EQ}), ft	5277.6	On-Ramp Influence Area Speed (S_R), mi/h	60.8
Flow in Lanes 1 and 2 (v_{12}), pc/h	2323	Outer Lanes Freeway Speed (S_O), mi/h	66.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3384	Ramp Junction Speed (S), mi/h	62.4
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	26.2
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	25.3

HCS Basic Freeway Report

Project Information			
Segment Number	26	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	5775	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3970	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1549
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.65
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	68.6
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	22.6
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Basic Freeway Report

Project Information			
Segment Number	27	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	2000	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3970	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1549
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.65
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	68.6
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	22.6
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Freeway Diverge Report

Project Information			
Segment Number	28	Segment Name	US 62
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	70.0	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	615
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3970	910
Peak Hour Factor (PHF)	0.94	0.83
Total Trucks, %	10.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.971
Flow Rate (v_i), pc/h	4646	1129
Capacity (c_{md}), pc/h	7200	2200
Initial Adjusted Capacity (c_{mda}), pc/h	7200	-
Final Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.65	0.51

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	11525.8	Flow Outer Lanes (v_{OA}), pc/h/ln	1424
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	62.4
Flow in Lanes 1 and 2 (v_{12}), pc/h	3222	Outer Lanes Freeway Speed (S_O), mi/h	75.1
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	65.8
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	23.5
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	26.4

HCS Basic Freeway Report

Project Information			
Segment Number	29	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	2540	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.50
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3060	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1194
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.50
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	69.8
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	17.1
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS Freeway Merge Report

Project Information			
Segment Number	30	Segment Name	US 62
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	70.0	55.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	715
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3060	940
Peak Hour Factor (PHF)	0.94	0.89
Total Trucks, %	10.00	8.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.926
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	3581 | 4722	1141
Capacity (c_{md}), pc/h	7200	2200
Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.66	0.52

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	1802.6	Flow Outer Lanes (v_{OA}), pc/h/ln	1440
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	60.3
Flow in Lanes 1 and 2 (v_{12}), pc/h	2141	Outer Lanes Freeway Speed (S_O), mi/h	66.6
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3282	Ramp Junction Speed (S), mi/h	62.1
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	25.3
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	26.1

HCS Basic Freeway Report

Project Information			
Segment Number	31	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	1700	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.50
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	4000	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1560
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.65
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	68.5
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	22.8
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

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LOS

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	C	C	C	D	C	D	C	C	C	C	C	C
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	C	C	B	C	C	C	B	C	C	C	C	B
	Seg 25	Seg 26	Seg 27	Seg 28	Seg 29	Seg 30	Seg 31					
AP 1	C	C	C	C	B	C	C					

Speed (mi/h)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	71.4	71.8	73.1	64.2	64.2	71.3	73.1	66.0	71.2	71.3	73.3	67.0
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	71.3	70.5	74.1	66.7	71.8	70.5	74.2	67.2	69.0	69.0	66.5	70.0
	Seg 25	Seg 26	Seg 27	Seg 28	Seg 29	Seg 30	Seg 31					
AP 1	62.4	68.6	68.6	65.8	69.8	62.1	68.5					

Density (pc/mi/ln)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	22.0	21.8	19.4	25.9	25.9	22.6	19.4	24.7	22.2	22.2	19.1	24.0
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	22.1	22.4	17.3	23.2	21.4	21.8	17.2	22.7	21.6	21.6	22.4	17.8
	Seg 25	Seg 26	Seg 27	Seg 28	Seg 29	Seg 30	Seg 31					
AP 1	26.2	22.6	22.6	23.5	17.1	25.3	22.8					

Demand - Capacity Ratio (D/C)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	0.65	0.65	0.59	0.69	0.67	0.67	0.59	0.68	0.66	0.66	0.58	0.67
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	0.66	0.66	0.53	0.65	0.64	0.64	0.53	0.64	0.62	0.62	0.62	0.52
	Seg 25	Seg 26	Seg 27	Seg 28	Seg 29	Seg 30	Seg 31					
AP 1	0.68	0.65	0.65	0.65	0.50	0.66	0.65					

Volume - Capacity Ratio (V/C)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	0.65	0.65	0.59	0.69	0.67	0.67	0.59	0.68	0.66	0.66	0.58	0.67
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	0.66	0.66	0.53	0.65	0.64	0.64	0.53	0.64	0.62	0.62	0.62	0.52
	Seg 25	Seg 26	Seg 27	Seg 28	Seg 29	Seg 30	Seg 31					
AP 1	0.68	0.65	0.65	0.65	0.50	0.66	0.65					

Density (veh/mi/ln)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	20.0	19.8	17.6	23.5	23.5	20.5	17.6	22.5	20.2	20.2	17.4	21.8
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	20.1	20.4	15.7	21.5	19.8	20.2	15.9	21.2	20.2	20.2	20.9	16.6
	Seg 25	Seg 26	Seg 27	Seg 28	Seg 29	Seg 30	Seg 31					

AP 1	23.8	20.5	20.5	21.4	15.5	23.0	20.7

Density in Ramp Influence Area (pc/mi/ln)												
	Seg 1	**Seg 2**	**Seg 3**	**Seg 4**	**Seg 5**	**Seg 6**	**Seg 7**	**Seg 8**	**Seg 9**	**Seg 10**	**Seg 11**	**Seg 12**
AP 1	-	26.8	-	30.1	-	28.8	-	25.9	-	26.7	-	23.4
	Seg 13	**Seg 14**	**Seg 15**	**Seg 16**	**Seg 17**	**Seg 18**	**Seg 19**	**Seg 20**	**Seg 21**	**Seg 22**	**Seg 23**	**Seg 24**
AP 1	-	27.5	-	24.2	-	24.4	-	22.9	-	-	26.1	-
	Seg 25	**Seg 26**	**Seg 27**	**Seg 28**	**Seg 29**	**Seg 30**	**Seg 31**					
AP 1	25.3	-	-	26.4	-	26.1	-					

Density-Based LOS												
	Seg 1	**Seg 2**	**Seg 3**	**Seg 4**	**Seg 5**	**Seg 6**	**Seg 7**	**Seg 8**	**Seg 9**	**Seg 10**	**Seg 11**	**Seg 12**
AP 1	C	C	C	D	C	D	C	C	C	C	C	C
	Seg 13	**Seg 14**	**Seg 15**	**Seg 16**	**Seg 17**	**Seg 18**	**Seg 19**	**Seg 20**	**Seg 21**	**Seg 22**	**Seg 23**	**Seg 24**
AP 1	C	C	B	C	C	C	B	C	C	C	C	B
	Seg 25	**Seg 26**	**Seg 27**	**Seg 28**	**Seg 29**	**Seg 30**	**Seg 31**					
AP 1	C	C	C	C	B	C	C					

Demand-Based LOS												
	Seg 1	**Seg 2**	**Seg 3**	**Seg 4**	**Seg 5**	**Seg 6**	**Seg 7**	**Seg 8**	**Seg 9**	**Seg 10**	**Seg 11**	**Seg 12**
AP 1	-	-	-	-	-	-	-	-	-	-	-	-
	Seg 13	**Seg 14**	**Seg 15**	**Seg 16**	**Seg 17**	**Seg 18**	**Seg 19**	**Seg 20**	**Seg 21**	**Seg 22**	**Seg 23**	**Seg 24**
AP 1	-	-	-	-	-	-	-	-	-	-	-	-
	Seg 25	**Seg 26**	**Seg 27**	**Seg 28**	**Seg 29**	**Seg 30**	**Seg 31**					
AP 1	-	-	-	-	-	-	-					

Westbound 3 Lane (Proposed) - AM No-Build

HCS Freeway Facilities Report

Project Information

Analyst	EJG	Date	11/8/2024
Agency	Woolpert	Analysis Year	2024
Jurisdiction	Franklin and Licking Counties	Time Analyzed	AM 2048 No-Build
Facility Name	WB 161	Units	U.S. Customary
Project Description	3 Lanes (Proposed)		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45
Queue Discharge Capacity Drop, %	7	Total Segments	31
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	17.97		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		8000	3
2	Diverge	Diverge	Lancaster+WeaverRiver	1500	3
3	Basic	Basic		1570	3
4	Merge	Merge	Lancaster+WeaverRiver	330	3
5	Overlap	Overlap	Per ODOT	1170	3
6	Diverge	Diverge	Columbus	330	3
7	Basic	Basic		1070	3
8	Merge	Merge	Columbus	1500	3
9	Basic	Basic		16450	3
10	Diverge	Diverge	York	1500	3
11	Basic	Basic		3000	3
12	Merge	Merge	York	1500	3
13	Basic	Basic		11380	3
14	Diverge	Diverge	SR 310	1500	3
15	Basic	Basic		2800	3
16	Merge	Merge	SR 310	1500	3
17	Basic	Basic		9800	3
18	Diverge	Diverge	Mink	1500	3
19	Basic	Basic		1590	3
20	Merge	Merge	Mink	1500	3
21	Basic	Basic	Per ODOT	330	3
22	Basic	Basic		2750	3
23	Diverge	Diverge	Beech+Smiths	1500	3
24	Basic	Basic		4315	3
25	Merge	Merge	Beech+Smiths	1500	3
26	Basic	Basic		5775	3
27	Basic	Basic		2000	3

28	Diverge	Diverge	US 62	1500	3
29	Basic	Basic		2540	3
30	Merge	Merge	US 62	1500	3
31	Basic	Basic		1700	3

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	4728	7200	0.66	71.5	22.0	C

Segment 2: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.909	0.962	4728	431	7200	2200	0.66	0.20	72.1	68.5	21.9	26.9	C

Segment 3: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	4272	7200	0.59	73.3	19.4	C

Segment 4: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.83	0.909	0.813	4998	726	7200	2200	0.69	0.33	64.5	61.8	25.8	30.1	D

Segment 5: Overlap

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	4845	7200	0.67	64.5	25.8	C

Segment 6: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.87	0.909	0.909	4845	632	7200	2200	0.67	0.29	71.6	67.9	22.6	28.8	D

Segment 7: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	4260	7200	0.59	73.3	19.4	C

Segment 8: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.83	0.909	0.813	4719	459	7200	2200	0.66	0.21	66.7	64.4	23.6	24.7	C

Segment 9: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	4623	7200	0.64	72.0	21.4	C

Segment 10: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.81	0.909	0.962	4623	616	7200	2200	0.64	0.28	71.7	68.0	21.5	26.1	C

Segment 11: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	4061	7200	0.56	73.9	18.3	C

Segment 12: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.90	0.909	0.813	4662	601	7200	2200	0.65	0.27	67.6	65.8	23.0	22.5	C

Segment 13: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	4576	7200	0.64	72.2	21.1	C

Segment 14: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.84	0.909	0.926	4576	951	7200	2200	0.64	0.43	70.8	66.9	21.5	26.9	C

Segment 15: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	3710	7200	0.52	74.7	16.6	B

Segment 16: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.88	0.926	0.943	4401	759	7200	2200	0.61	0.35	67.4	65.4	21.8	22.8	C

Segment 17: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.926	4366	7200	0.61	73.0	19.9	C

Segment 18: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.80	0.926	0.909	4366	976	7200	2200	0.61	0.44	70.7	66.8	20.6	23.2	C

Segment 19: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.926	3550	7200	0.49	75.0	15.8	B

Segment 20: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.80	0.935	0.943	4285	769	7200	2200	0.60	0.35	67.9	66.0	21.0	21.4	C

Segment 21: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.935	4176	7200	0.58	73.6	18.9	C

Segment 22: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.935	4176	7200	0.58	73.6	18.9	C

Segment 23: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.80	0.935	0.962	4176	819	7200	2200	0.58	0.37	71.0	67.3	19.6	24.7	C

Segment 24: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.935	3459	7200	0.48	75.1	15.4	B

Segment 25: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.80	0.909	0.813	4604	1046	7200	2200	0.64	0.48	67.1	65.1	22.9	23.9	C

Segment 26: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	4354	7200	0.60	73.0	19.9	C

Segment 27: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	4354	7200	0.60	73.0	19.9	C

Segment 28: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.83	0.909	0.971	4354	620	7200	2200	0.60	0.28	71.7	67.9	20.2	24.1	C

Segment 29: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	3768	7200	0.52	74.6	16.8	B

Segment 30: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.89	0.909	0.926	4909	1141	7200	2200	0.68	0.52	65.7	63.4	24.9	27.0	C

Segment 31: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.909	4869	7200	0.68	70.9	22.9	C

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	18100	16973	12.02	300.38	71.8	20.5	18.7	15.00	C

Facility Overall Results

Space Mean Speed, mi/h	71.8	Average Density, veh/mi/ln	18.7
Average Travel Time, min	15.00	Average Density, pc/mi/ln	20.5
Total VMT, veh-mi/AP	18100	Total VHD, veh-h	12.02
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	300.38

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HCS Basic Freeway Report

Project Information			
Analyst	EJG	Date	11/8/2024
Agency	Woolpert	Analysis Year	2024
Jurisdiction	Franklin and Licking Counties	Time Analyzed	AM 2048 No-Build
Project Description	3 Lanes (Proposed)	Units	U.S. Customary
Segment Number	1	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	8000	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	4040	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1576
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.66
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	71.5
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	22.0
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

HCS Freeway Diverge Report

Project Information			
Segment Number	2	Segment Name	Lancaster+WeaverRiver
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	450
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	4040	390
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	10.00	4.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.962
Flow Rate (v_i), pc/h	4728	431
Capacity (c_{md}), pc/h	7200	2200
Initial Adjusted Capacity (c_{mda}), pc/h	7200	-
Final Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.66	0.20

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1624
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	68.5
Flow in Lanes 1 and 2 (v_{12}), pc/h	3104	Outer Lanes Freeway Speed (S_O), mi/h	80.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	72.1
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	21.9
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	26.9

HCS Basic Freeway Report

Project Information			
Segment Number	3	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	1570	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3650	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1424
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.59
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	73.3
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	19.4
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

HCS Freeway Merge Report

Project Information			
Segment Number	4	Segment Name	Lancaster+WeaverRiver
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Acceleration Length (LA), ft	330	330
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3650	490
Peak Hour Factor (PHF)	0.94	0.83
Total Trucks, %	10.00	23.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.813
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	4272 | 4998	726
Capacity (c_{md}), pc/h	7200	2200
Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.69	0.33

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	1690.7	Flow Outer Lanes (v_{OA}), pc/h/ln	1542
Downstream Equilibrium Distance (L_{EQ}), ft	4361.3	On-Ramp Influence Area Speed (S_R), mi/h	61.8
Flow in Lanes 1 and 2 (v_{12}), pc/h	2730	Outer Lanes Freeway Speed (S_O), mi/h	71.6
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3456	Ramp Junction Speed (S), mi/h	64.5
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	25.8
Level of Service (LOS)	D	Density in Ramp Influence Area (D_R), pc/mi/ln	30.1

HCS Overlap Freeway Report

Project Information			
Segment Number	5	Segment Name	Per ODOT
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	1170	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	4140	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1615
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.67
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	64.5
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	25.8
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

HCS Freeway Diverge Report

Project Information			
Segment Number	6	Segment Name	Columbus
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Deceleration Length (LD), ft	330	330
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	4140	500
Peak Hour Factor (PHF)	0.94	0.87
Total Trucks, %	10.00	10.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.909
Flow Rate (v_i), pc/h	4845	632
Capacity (c_{md}), pc/h	7200	2200
Initial Adjusted Capacity (c_{mda}), pc/h	7200	-
Final Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.67	0.29

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	5401.7	Flow Outer Lanes (v_{OA}), pc/h/ln	1643
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	67.9
Flow in Lanes 1 and 2 (v_{12}), pc/h	3202	Outer Lanes Freeway Speed (S_O), mi/h	80.2
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	71.6
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	22.6
Level of Service (LOS)	D	Density in Ramp Influence Area (D_R), pc/mi/ln	28.8

HCS Basic Freeway Report

Project Information			
Segment Number	7	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	1070	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3640	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1420
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.59
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	73.3
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	19.4
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

HCS Freeway Merge Report

Project Information			
Segment Number	8	Segment Name	Columbus
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	640
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3640	310
Peak Hour Factor (PHF)	0.94	0.83
Total Trucks, %	10.00	23.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.813
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	4260 | 4719	459
Capacity (c_{md}), pc/h	7200	2200
Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.66	0.21

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	1768.6	Flow Outer Lanes (v_{OA}), pc/h/ln	1725
Downstream Equilibrium Distance (L_{EQ}), ft	3459.1	On-Ramp Influence Area Speed (S_R), mi/h	64.4
Flow in Lanes 1 and 2 (v_{12}), pc/h	2535	Outer Lanes Freeway Speed (S_O), mi/h	71.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2994	Ramp Junction Speed (S), mi/h	66.7
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	23.6
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	24.7

HCS Basic Freeway Report

Project Information			
Segment Number	9	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	16450	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3950	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1541
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.64
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	72.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	21.4
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

HCS Freeway Diverge Report

Project Information			
Segment Number	10	Segment Name	York
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	520
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3950	480
Peak Hour Factor (PHF)	0.94	0.81
Total Trucks, %	10.00	4.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.962
Flow Rate (v_i), pc/h	4623	616
Capacity (c_{md}), pc/h	7200	2200
Initial Adjusted Capacity (c_{mda}), pc/h	7200	-
Final Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.64	0.28

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	3516.9	Flow Outer Lanes (v_{OA}), pc/h/ln	1539
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	68.0
Flow in Lanes 1 and 2 (v_{12}), pc/h	3084	Outer Lanes Freeway Speed (S_O), mi/h	80.6
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	71.7
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	21.5
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	26.1

HCS Basic Freeway Report

Project Information			
Segment Number	11	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	3000	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.50
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3470	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1354
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.56
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	73.9
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	18.3
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

HCS Freeway Merge Report

Project Information			
Segment Number	12	Segment Name	York
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Acceleration Length (LA), ft	1500	1060
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3470	440
Peak Hour Factor (PHF)	0.94	0.90
Total Trucks, %	10.00	23.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.813
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	4061 | 4662	601
Capacity (c_{md}), pc/h	7200	2200
Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.65	0.27

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	1942.9	Flow Outer Lanes (v_{OA}), pc/h/ln	1596
Downstream Equilibrium Distance (L_{EQ}), ft	4264.2	On-Ramp Influence Area Speed (S_R), mi/h	65.8
Flow in Lanes 1 and 2 (v_{12}), pc/h	2465	Outer Lanes Freeway Speed (S_O), mi/h	71.5
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3066	Ramp Junction Speed (S), mi/h	67.6
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	23.0
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	22.5

HCS Basic Freeway Report

Project Information			
Segment Number	13	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	11380	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3910	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1525
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.64
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	72.2
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	21.1
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

HCS Freeway Diverge Report

Project Information			
Segment Number	14	Segment Name	SR 310
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	480
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3910	740
Peak Hour Factor (PHF)	0.94	0.84
Total Trucks, %	10.00	8.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.926
Flow Rate (v_i), pc/h	4576	951
Capacity (c_{md}), pc/h	7200	2200
Initial Adjusted Capacity (c_{mda}), pc/h	7200	-
Final Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.64	0.43

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	5780.4	Flow Outer Lanes (v_{OA}), pc/h/ln	1443
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	66.9
Flow in Lanes 1 and 2 (v_{12}), pc/h	3133	Outer Lanes Freeway Speed (S_O), mi/h	81.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	70.8
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	21.5
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	26.9

HCS Basic Freeway Report

Project Information			
Segment Number	15	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	2800	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3170	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1237
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.52
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.7
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	16.6
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

HCS Freeway Merge Report

Project Information			
Segment Number	16	Segment Name	SR 310
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Acceleration Length (LA), ft	1500	870
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3170	630
Peak Hour Factor (PHF)	0.94	0.88
Total Trucks, %	8.00	6.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.943
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	3642 | 4401	759
Capacity (c_{md}), pc/h	7200	2200
Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.61	0.35

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	1802.7	Flow Outer Lanes (v_{OA}), pc/h/ln	1450
Downstream Equilibrium Distance (L_{EQ}), ft	4815.2	On-Ramp Influence Area Speed (S_R), mi/h	65.4
Flow in Lanes 1 and 2 (v_{12}), pc/h	2192	Outer Lanes Freeway Speed (S_O), mi/h	72.0
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2951	Ramp Junction Speed (S), mi/h	67.4
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	21.8
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	22.8

HCS Basic Freeway Report

Project Information			
Segment Number	17	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	9800	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3800	Heavy Vehicle Adjustment Factor (f_{HV})	0.926
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1455
Total Trucks, %	8.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.61
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	73.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	19.9
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

HCS Freeway Diverge Report

Project Information			
Segment Number	18	Segment Name	Mink
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	785
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3800	710
Peak Hour Factor (PHF)	0.94	0.80
Total Trucks, %	8.00	10.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.926	0.909
Flow Rate (v_i), pc/h	4366	976
Capacity (c_{md}), pc/h	7200	2200
Initial Adjusted Capacity (c_{mda}), pc/h	7200	-
Final Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.61	0.44

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	7805.3	Flow Outer Lanes (v_{OA}), pc/h/ln	1336
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	66.8
Flow in Lanes 1 and 2 (v_{12}), pc/h	3030	Outer Lanes Freeway Speed (S_O), mi/h	81.4
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	70.7
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	20.6
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	23.2

HCS Basic Freeway Report

Project Information			
Segment Number	19	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	1590	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3090	Heavy Vehicle Adjustment Factor (f_{HV})	0.926
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1183
Total Trucks, %	8.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.49
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	15.8
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

HCS Freeway Merge Report

Project Information			
Segment Number	20	Segment Name	Mink
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Acceleration Length (LA), ft	1500	1020
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3090	580
Peak Hour Factor (PHF)	0.94	0.80
Total Trucks, %	7.00	6.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.935	0.943
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	3516 | 4285	769
Capacity (c_{md}), pc/h	7200	2200
Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.60	0.35

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	1844.5	Flow Outer Lanes (v_{OA}), pc/h/ln	1385
Downstream Equilibrium Distance (L_{EQ}), ft	3744.2	On-Ramp Influence Area Speed (S_R), mi/h	66.0
Flow in Lanes 1 and 2 (v_{12}), pc/h	2131	Outer Lanes Freeway Speed (S_O), mi/h	72.2
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2900	Ramp Junction Speed (S), mi/h	67.9
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	21.0
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	21.4

HCS Basic Freeway Report

Project Information			
Segment Number	21	Segment Name	Per ODOT
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	330	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3670	Heavy Vehicle Adjustment Factor (f_{HV})	0.935
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1392
Total Trucks, %	7.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.58
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	73.6
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	18.9
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

HCS Basic Freeway Report

Project Information			
Segment Number	22	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	2750	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3670	Heavy Vehicle Adjustment Factor (f_{HV})	0.935
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1392
Total Trucks, %	7.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.58
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	73.6
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	18.9
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

HCS Freeway Diverge Report

Project Information			
Segment Number	23	Segment Name	Beech+Smiths
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	535
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3670	630
Peak Hour Factor (PHF)	0.94	0.80
Total Trucks, %	7.00	4.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.935	0.962
Flow Rate (v_i), pc/h	4176	819
Capacity (c_{md}), pc/h	7200	2200
Initial Adjusted Capacity (c_{mda}), pc/h	7200	-
Final Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.58	0.37

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	7328.0	Flow Outer Lanes (v_{OA}), pc/h/ln	1242
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	67.3
Flow in Lanes 1 and 2 (v_{12}), pc/h	2934	Outer Lanes Freeway Speed (S_O), mi/h	81.8
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	71.0
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	19.6
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	24.7

HCS Basic Freeway Report

Project Information			
Segment Number	24	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	4315	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3040	Heavy Vehicle Adjustment Factor (f_{HV})	0.935
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1153
Total Trucks, %	7.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.48
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.1
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	15.4
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

HCS Freeway Merge Report

Project Information			
Segment Number	25	Segment Name	Beech+Smiths
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Acceleration Length (LA), ft	1500	975
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3040	680
Peak Hour Factor (PHF)	0.94	0.80
Total Trucks, %	10.00	23.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.813
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	3558 | 4604	1046
Capacity (c_{md}), pc/h	7200	2200
Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.64	0.48

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	1892.8	Flow Outer Lanes (v_{OA}), pc/h/ln	1405
Downstream Equilibrium Distance (L_{EQ}), ft	2898.2	On-Ramp Influence Area Speed (S_R), mi/h	65.1
Flow in Lanes 1 and 2 (v_{12}), pc/h	2153	Outer Lanes Freeway Speed (S_O), mi/h	72.1
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3199	Ramp Junction Speed (S), mi/h	67.1
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	22.9
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	23.9

HCS Basic Freeway Report

Project Information			
Segment Number	26	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	5775	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3720	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1451
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.60
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	73.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	19.9
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

HCS Basic Freeway Report

Project Information			
Segment Number	27	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	2000	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3720	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1451
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.60
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	73.0
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	19.9
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

HCS Freeway Diverge Report

Project Information

Segment Number	28	Segment Name	US 62
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	615
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	3720	500
Peak Hour Factor (PHF)	0.94	0.83
Total Trucks, %	10.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.971
Flow Rate (v_i), pc/h	4354	620
Capacity (c_{md}), pc/h	7200	2200
Initial Adjusted Capacity (c_{mda}), pc/h	7200	-
Final Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.60	0.28

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	8434.0	Flow Outer Lanes (v_{OA}), pc/h/ln	1408
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	67.9
Flow in Lanes 1 and 2 (v_{12}), pc/h	2946	Outer Lanes Freeway Speed (S_O), mi/h	81.1
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	71.7
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	20.2
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	24.1

HCS Basic Freeway Report

Project Information			
Segment Number	29	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	2540	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.50
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3220	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1256
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.52
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	74.6
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	16.8
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

HCS Freeway Merge Report

Project Information			
Segment Number	30	Segment Name	US 62
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	715
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3220	940
Peak Hour Factor (PHF)	0.94	0.89
Total Trucks, %	10.00	8.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.909	0.926
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	3768 | 4909	1141
Capacity (c_{md}), pc/h	7200	2200
Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.68	0.52

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	1842.6	Flow Outer Lanes (v_{OA}), pc/h/ln	1515
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	63.4
Flow in Lanes 1 and 2 (v_{12}), pc/h	2253	Outer Lanes Freeway Speed (S_O), mi/h	71.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3394	Ramp Junction Speed (S), mi/h	65.7
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	24.9
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	27.0

HCS Basic Freeway Report

Project Information			
Segment Number	31	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	1700	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.50
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	4160	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1623
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.68
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	70.9
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	22.9
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

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LOS

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	C	C	C	D	C	D	C	C	C	C	C	C
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	C	C	B	C	C	C	B	C	C	C	C	B
	Seg 25	Seg 26	Seg 27	Seg 28	Seg 29	Seg 30	Seg 31					
AP 1	C	C	C	C	B	C	C					

Speed (mi/h)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	71.5	72.1	73.3	64.5	64.5	71.6	73.3	66.7	72.0	71.7	73.9	67.6
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	72.2	70.8	74.7	67.4	73.0	70.7	75.0	67.9	73.6	73.6	71.0	75.1
	Seg 25	Seg 26	Seg 27	Seg 28	Seg 29	Seg 30	Seg 31					
AP 1	67.1	73.0	73.0	71.7	74.6	65.7	70.9					

Density (pc/mi/ln)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	22.0	21.9	19.4	25.8	25.8	22.6	19.4	23.6	21.4	21.5	18.3	23.0
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	21.1	21.5	16.6	21.8	19.9	20.6	15.8	21.0	18.9	18.9	19.6	15.4
	Seg 25	Seg 26	Seg 27	Seg 28	Seg 29	Seg 30	Seg 31					
AP 1	22.9	19.9	19.9	20.2	16.8	24.9	22.9					

Demand - Capacity Ratio (D/C)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	0.66	0.66	0.59	0.69	0.67	0.67	0.59	0.66	0.64	0.64	0.56	0.65
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	0.64	0.64	0.52	0.61	0.61	0.61	0.49	0.60	0.58	0.58	0.58	0.48
	Seg 25	Seg 26	Seg 27	Seg 28	Seg 29	Seg 30	Seg 31					
AP 1	0.64	0.60	0.60	0.60	0.52	0.68	0.68					

Volume - Capacity Ratio (V/C)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	0.66	0.66	0.59	0.69	0.67	0.67	0.59	0.66	0.64	0.64	0.56	0.65
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	0.64	0.64	0.52	0.61	0.61	0.61	0.49	0.60	0.58	0.58	0.58	0.48
	Seg 25	Seg 26	Seg 27	Seg 28	Seg 29	Seg 30	Seg 31					
AP 1	0.64	0.60	0.60	0.60	0.52	0.68	0.68					

Density (veh/mi/ln)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	20.0	19.9	17.6	23.5	23.5	20.5	17.6	21.5	19.5	19.5	16.6	20.9
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	19.2	19.5	15.1	20.2	18.4	19.1	14.6	19.6	17.7	17.7	18.3	14.4
	Seg 25	Seg 26	Seg 27	Seg 28	Seg 29	Seg 30	Seg 31					

AP 1	20.8	18.1	18.1	18.4	15.3	22.6	20.8

Density in Ramp Influence Area (pc/mi/ln)												
	Seg 1	**Seg 2**	**Seg 3**	**Seg 4**	**Seg 5**	**Seg 6**	**Seg 7**	**Seg 8**	**Seg 9**	**Seg 10**	**Seg 11**	**Seg 12**
AP 1	-	26.9	-	30.1	-	28.8	-	24.7	-	26.1	-	22.5
	Seg 13	**Seg 14**	**Seg 15**	**Seg 16**	**Seg 17**	**Seg 18**	**Seg 19**	**Seg 20**	**Seg 21**	**Seg 22**	**Seg 23**	**Seg 24**
AP 1	-	26.9	-	22.8	-	23.2	-	21.4	-	-	24.7	-
	Seg 25	**Seg 26**	**Seg 27**	**Seg 28**	**Seg 29**	**Seg 30**	**Seg 31**					
AP 1	23.9	-	-	24.1	-	27.0	-					

Density-Based LOS												
	Seg 1	**Seg 2**	**Seg 3**	**Seg 4**	**Seg 5**	**Seg 6**	**Seg 7**	**Seg 8**	**Seg 9**	**Seg 10**	**Seg 11**	**Seg 12**
AP 1	C	C	C	D	C	D	C	C	C	C	C	C
	Seg 13	**Seg 14**	**Seg 15**	**Seg 16**	**Seg 17**	**Seg 18**	**Seg 19**	**Seg 20**	**Seg 21**	**Seg 22**	**Seg 23**	**Seg 24**
AP 1	C	C	B	C	C	C	B	C	C	C	C	B
	Seg 25	**Seg 26**	**Seg 27**	**Seg 28**	**Seg 29**	**Seg 30**	**Seg 31**					
AP 1	C	C	C	C	B	C	C					

Demand-Based LOS												
	Seg 1	**Seg 2**	**Seg 3**	**Seg 4**	**Seg 5**	**Seg 6**	**Seg 7**	**Seg 8**	**Seg 9**	**Seg 10**	**Seg 11**	**Seg 12**
AP 1	-	-	-	-	-	-	-	-	-	-	-	-
	Seg 13	**Seg 14**	**Seg 15**	**Seg 16**	**Seg 17**	**Seg 18**	**Seg 19**	**Seg 20**	**Seg 21**	**Seg 22**	**Seg 23**	**Seg 24**
AP 1	-	-	-	-	-	-	-	-	-	-	-	-
	Seg 25	**Seg 26**	**Seg 27**	**Seg 28**	**Seg 29**	**Seg 30**	**Seg 31**					
AP 1	-	-	-	-	-	-	-					

Westbound 3 Lane (Proposed) - PM Build

HCS Freeway Facilities Report

Project Information

Analyst	EJG	Date	11/8/2024
Agency	Woolpert	Analysis Year	2024
Jurisdiction	Franklin and Licking Counties	Time Analyzed	PM 2048 Build
Facility Name	WB SR-161	Units	U.S. Customary
Project Description	3 Lanes (Proposed)		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45
Queue Discharge Capacity Drop, %	7	Total Segments	31
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	17.97		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		8000	3
2	Diverge	Diverge	Lancaster+WeaverRiver	1500	3
3	Basic	Basic		1570	3
4	Merge	Merge	Lancaster+WeaverRiver	330	3
5	Overlap	Overlap	Per ODOT	1170	3
6	Diverge	Diverge	Columbus	330	3
7	Basic	Basic		1070	3
8	Merge	Merge	Columbus	1500	3
9	Basic	Basic		16450	3
10	Diverge	Diverge	York	1500	3
11	Basic	Basic		3000	3
12	Merge	Merge	York	1500	3
13	Basic	Basic		11380	3
14	Diverge	Diverge	SR 310	1500	3
15	Basic	Basic		2800	3
16	Merge	Merge	SR 310	1500	3
17	Basic	Basic		9800	3
18	Diverge	Diverge	Mink	1500	3
19	Basic	Basic		1590	3
20	Merge	Merge	Mink	1500	3
21	Basic	Basic	Per ODOT	330	3
22	Basic	Basic		2750	3
23	Diverge	Diverge	Beech+Smiths	1500	3
24	Basic	Basic		4315	3
25	Merge	Merge	Beech+Smiths	1500	3
26	Basic	Basic		5775	3
27	Basic	Basic		2000	3

28	Diverge	Diverge	US 62	1500	3
29	Basic	Basic		2540	3
30	Merge	Merge	US 62	1500	3
31	Basic	Basic		1700	3

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.962	2709	7200	0.38	75.4	12.0	B

Segment 2: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.86	0.962	0.980	2709	522	7200	2200	0.38	0.24	71.6	68.2	12.6	17.3	B

Segment 3: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.962	2223	7200	0.31	75.1	9.8	A

Segment 4: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.80	0.962	0.962	2561	338	7200	2200	0.36	0.15	67.8	65.1	12.6	16.8	B

Segment 5: Overlap

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.962	2510	7200	0.35	67.8	12.6	B

Segment 6: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.83	0.962	0.962	2510	526	7200	2200	0.35	0.24	70.8	68.2	11.8	18.3	B

Segment 7: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.962	2046	7200	0.28	73.9	9.0	A

Segment 8: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.91	0.962	0.962	2309	263	7200	2200	0.32	0.12	69.0	66.4	11.2	13.0	B

Segment 9: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.962	2300	7200	0.32	75.4	10.2	A

Segment 10: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.81	0.962	0.980	2300	592	7200	2200	0.32	0.27	71.0	68.0	10.8	14.6	B

Segment 11: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.962	1780	7200	0.25	75.3	7.9	A

Segment 12: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.90	0.962	0.962	1942	162	7200	2200	0.27	0.07	70.3	68.1	9.2	8.5	A

Segment 13: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.962	1935	7200	0.27	75.4	8.6	A

Segment 14: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.80	0.962	0.952	1935	355	7200	2200	0.27	0.16	71.7	68.7	9.0	12.4	B

Segment 15: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.962	1637	7200	0.23	75.3	7.2	A

Segment 16: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.84	0.962	0.926	2061	424	7200	2200	0.29	0.19	69.6	67.4	9.9	10.9	B

Segment 17: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.962	2002	7200	0.28	75.4	8.8	A

Segment 18: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.83	0.962	0.917	2002	145	7200	2200	0.28	0.07	72.6	69.4	9.2	9.7	A

Segment 19: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.962	1880	7200	0.26	75.2	8.3	A

Segment 20: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.83	0.962	0.971	3505	1625	7200	2200	0.49	0.74	67.9	66.3	17.2	20.0	B

Segment 21: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.962	3329	7200	0.46	73.7	14.8	B

Segment 22: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.962	3329	7200	0.46	75.2	14.8	B

Segment 23: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.95	0.962	0.980	3329	161	7200	2200	0.46	0.07	73.0	69.3	15.2	19.0	B

Segment 24: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.962	3163	7200	0.44	75.3	14.0	B

Segment 25: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.85	0.962	0.962	4887	1724	7200	2200	0.68	0.78	65.5	63.3	24.9	27.0	C

Segment 26: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.962	4722	7200	0.66	71.6	22.0	C

Segment 27: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.962	4722	7200	0.66	71.6	22.0	C

Segment 28: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.962	0.971	4722	351	7200	2200	0.66	0.16	72.3	68.7	21.8	25.4	C

Segment 29: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.962	4368	7200	0.61	72.9	20.0	C

Segment 30: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.90	0.971	0.980	6029	1701	7200	2200	0.84	0.77	61.1	57.8	32.9	33.7	D

Segment 31: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.971	5971	7200	0.83	64.3	30.9	D

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	11979	11229	6.35	158.65	72.5	12.7	12.3	14.90	B

Facility Overall Results

Space Mean Speed, mi/h	72.5	Average Density, veh/mi/ln	12.3
Average Travel Time, min	14.90	Average Density, pc/mi/ln	12.7
Total VMT, veh-mi/AP	11979	Total VHD, veh-h	6.35
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	158.65

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HCS Basic Freeway Report

Project Information			
Analyst	EJG	Date	11/8/2024
Agency	Woolpert	Analysis Year	2024
Jurisdiction	Franklin and Licking Counties	Time Analyzed	PM 2048 Build
Project Description	3 Lanes (Proposed)	Units	U.S. Customary
Segment Number	1	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	8000	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	2450	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	903
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.38
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.4
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	12.0
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

HCS Freeway Diverge Report

Project Information			
Segment Number	2	Segment Name	Lancaster+WeaverRiver
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	450
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2450	440
Peak Hour Factor (PHF)	0.94	0.86
Total Trucks, %	4.00	2.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.980
Flow Rate (v_i), pc/h	2709	522
Capacity (c_{md}), pc/h	7200	2200
Initial Adjusted Capacity (c_{mda}), pc/h	7200	-
Final Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.38	0.24

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	726
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	68.2
Flow in Lanes 1 and 2 (v_{12}), pc/h	1983	Outer Lanes Freeway Speed (S_O), mi/h	82.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	71.6
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	12.6
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	17.3

HCS Basic Freeway Report

Project Information			
Segment Number	3	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	1570	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	2010	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	741
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.31
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.1
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	9.8
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

HCS Freeway Merge Report

Project Information			
Segment Number	4	Segment Name	Lancaster+WeaverRiver
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Acceleration Length (LA), ft	330	330
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2010	260
Peak Hour Factor (PHF)	0.94	0.80
Total Trucks, %	4.00	4.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.962
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	2223 | 2561	338
Capacity (c_{md}), pc/h	7200	2200
Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.36	0.15

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	1169.2	Flow Outer Lanes (v_{OA}), pc/h/ln	836
Downstream Equilibrium Distance (L_{EQ}), ft	3629.8	On-Ramp Influence Area Speed (S_R), mi/h	65.1
Flow in Lanes 1 and 2 (v_{12}), pc/h	1387	Outer Lanes Freeway Speed (S_O), mi/h	74.2
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1725	Ramp Junction Speed (S), mi/h	67.8
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	12.6
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	16.8

HCS Overlap Freeway Report

Project Information			
Segment Number	5	Segment Name	Per ODOT
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	1170	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	2270	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	837
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.35
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	67.8
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	12.6
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

HCS Freeway Diverge Report

Project Information			
Segment Number	6	Segment Name	Columbus
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Deceleration Length (LD), ft	330	330
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2270	420
Peak Hour Factor (PHF)	0.94	0.83
Total Trucks, %	4.00	4.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.962
Flow Rate (v_i), pc/h	2510	526
Capacity (c_{md}), pc/h	7200	2200
Initial Adjusted Capacity (c_{mda}), pc/h	7200	-
Final Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.35	0.24

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	3808.3	Flow Outer Lanes (v_{OA}), pc/h/ln	534
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	68.2
Flow in Lanes 1 and 2 (v_{12}), pc/h	1976	Outer Lanes Freeway Speed (S_O), mi/h	82.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	70.8
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	11.8
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	18.3

HCS Basic Freeway Report

Project Information			
Segment Number	7	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	1070	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	1850	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	682
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.28
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	73.9
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	9.0
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

HCS Freeway Merge Report

Project Information			
Segment Number	8	Segment Name	Columbus
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	640
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1850	230
Peak Hour Factor (PHF)	0.94	0.91
Total Trucks, %	4.00	4.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.962
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	2046 | 2309	263
Capacity (c_{md}), pc/h	7200	2200
Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.32	0.12

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	1252.9	Flow Outer Lanes (v_{OA}), pc/h/ln	829
Downstream Equilibrium Distance (L_{EQ}), ft	3324.4	On-Ramp Influence Area Speed (S_R), mi/h	66.4
Flow in Lanes 1 and 2 (v_{12}), pc/h	1217	Outer Lanes Freeway Speed (S_O), mi/h	74.2
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1480	Ramp Junction Speed (S), mi/h	69.0
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	11.2
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	13.0

HCS Basic Freeway Report

Project Information			
Segment Number	9	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	16450	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	2080	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	767
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.32
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.4
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	10.2
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

HCS Freeway Diverge Report

Project Information			
Segment Number	10	Segment Name	York
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	520
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2080	470
Peak Hour Factor (PHF)	0.94	0.81
Total Trucks, %	4.00	2.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.980
Flow Rate (v_i), pc/h	2300	592
Capacity (c_{md}), pc/h	7200	2200
Initial Adjusted Capacity (c_{mda}), pc/h	7200	-
Final Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.32	0.27

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	3333.0	Flow Outer Lanes (v_{OA}), pc/h/ln	555
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	68.0
Flow in Lanes 1 and 2 (v_{12}), pc/h	1745	Outer Lanes Freeway Speed (S_O), mi/h	82.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	71.0
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	10.8
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	14.6

HCS Basic Freeway Report

Project Information			
Segment Number	11	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	3000	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.50
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	1610	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	593
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.25
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.3
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	7.9
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

HCS Freeway Merge Report

Project Information			
Segment Number	12	Segment Name	York
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Acceleration Length (LA), ft	1500	1060
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1610	140
Peak Hour Factor (PHF)	0.94	0.90
Total Trucks, %	4.00	4.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.962
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	1780 | 1942	162
Capacity (c_{md}), pc/h	7200	2200
Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.27	0.07

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	1360.8	Flow Outer Lanes (v_{OA}), pc/h/ln	700
Downstream Equilibrium Distance (L_{EQ}), ft	1587.3	On-Ramp Influence Area Speed (S_R), mi/h	68.1
Flow in Lanes 1 and 2 (v_{12}), pc/h	1080	Outer Lanes Freeway Speed (S_O), mi/h	74.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1242	Ramp Junction Speed (S), mi/h	70.3
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	9.2
Level of Service (LOS)	A	Density in Ramp Influence Area (D_R), pc/mi/ln	8.5

HCS Basic Freeway Report

Project Information			
Segment Number	13	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	11380	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	1750	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	645
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.27
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.4
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	8.6
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

HCS Freeway Diverge Report

Project Information			
Segment Number	14	Segment Name	SR 310
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	480
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1750	270
Peak Hour Factor (PHF)	0.94	0.80
Total Trucks, %	4.00	5.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.952
Flow Rate (v_i), pc/h	1935	355
Capacity (c_{md}), pc/h	7200	2200
Initial Adjusted Capacity (c_{mda}), pc/h	7200	-
Final Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.27	0.16

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	1830.0	Flow Outer Lanes (v_{OA}), pc/h/ln	482
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	68.7
Flow in Lanes 1 and 2 (v_{12}), pc/h	1453	Outer Lanes Freeway Speed (S_O), mi/h	82.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	71.7
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	9.0
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	12.4

HCS Basic Freeway Report

Project Information			
Segment Number	15	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	2800	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	1480	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	546
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.23
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.3
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	7.2
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

HCS Freeway Merge Report

Project Information			
Segment Number	16	Segment Name	SR 310
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Acceleration Length (LA), ft	1500	870
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1480	330
Peak Hour Factor (PHF)	0.94	0.84
Total Trucks, %	4.00	8.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.926
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	1637 | 2061	424
Capacity (c_{md}), pc/h	7200	2200
Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.29	0.19

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	1301.9	Flow Outer Lanes (v_{OA}), pc/h/ln	652
Downstream Equilibrium Distance (L_{EQ}), ft	710.4	On-Ramp Influence Area Speed (S_R), mi/h	67.4
Flow in Lanes 1 and 2 (v_{12}), pc/h	985	Outer Lanes Freeway Speed (S_O), mi/h	74.9
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1409	Ramp Junction Speed (S), mi/h	69.6
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	9.9
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	10.9

HCS Basic Freeway Report

Project Information			
Segment Number	17	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	9800	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	1810	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	667
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.28
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.4
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	8.8
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

HCS Freeway Diverge Report

Project Information			
Segment Number	18	Segment Name	Mink
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	785
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1810	110
Peak Hour Factor (PHF)	0.94	0.83
Total Trucks, %	4.00	9.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.917
Flow Rate (v_i), pc/h	2002	145
Capacity (c_{md}), pc/h	7200	2200
Initial Adjusted Capacity (c_{mda}), pc/h	7200	-
Final Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.28	0.07

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	3999.0	Flow Outer Lanes (v_{OA}), pc/h/ln	552
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	69.4
Flow in Lanes 1 and 2 (v_{12}), pc/h	1450	Outer Lanes Freeway Speed (S_O), mi/h	82.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	72.6
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	9.2
Level of Service (LOS)	A	Density in Ramp Influence Area (D_R), pc/mi/ln	9.7

HCS Basic Freeway Report

Project Information			
Segment Number	19	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	1590	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	1700	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	627
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.26
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.2
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	8.3
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

HCS Freeway Merge Report

Project Information			
Segment Number	20	Segment Name	Mink
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Acceleration Length (LA), ft	1500	1020
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1700	1310
Peak Hour Factor (PHF)	0.94	0.83
Total Trucks, %	4.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.971
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	1880 | 3505	1625
Capacity (c_{md}), pc/h	7200	2200
Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.49	0.74

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	1677.6	Flow Outer Lanes (v_{OA}), pc/h/ln	741
Downstream Equilibrium Distance (L_{EQ}), ft	736.0	On-Ramp Influence Area Speed (S_R), mi/h	66.3
Flow in Lanes 1 and 2 (v_{12}), pc/h	1139	Outer Lanes Freeway Speed (S_O), mi/h	74.5
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2764	Ramp Junction Speed (S), mi/h	67.9
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	17.2
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	20.0

HCS Basic Freeway Report

Project Information			
Segment Number	21	Segment Name	Per ODOT
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	330	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3010	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1110
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.46
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	73.7
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	14.8
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

HCS Basic Freeway Report

Project Information			
Segment Number	22	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	2750	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3010	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1110
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.46
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.2
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	14.8
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

HCS Freeway Diverge Report

Project Information

Segment Number	23	Segment Name	Beech+Smiths
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	535
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	3010	150
Peak Hour Factor (PHF)	0.94	0.95
Total Trucks, %	4.00	2.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.980
Flow Rate (v_i), pc/h	3329	161
Capacity (c_{md}), pc/h	7200	2200
Initial Adjusted Capacity (c_{mda}), pc/h	7200	-
Final Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.46	0.07

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	12015.0	Flow Outer Lanes (v_{OA}), pc/h/ln	1049
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	69.3
Flow in Lanes 1 and 2 (v_{12}), pc/h	2280	Outer Lanes Freeway Speed (S_O), mi/h	82.5
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	73.0
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	15.2
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	19.0

HCS Basic Freeway Report

Project Information			
Segment Number	24	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	4315	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	2860	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1054
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.44
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.3
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	14.0
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

HCS Freeway Merge Report

Project Information			
Segment Number	25	Segment Name	Beech+Smiths
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Acceleration Length (LA), ft	1500	975
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2860	1410
Peak Hour Factor (PHF)	0.94	0.85
Total Trucks, %	4.00	4.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.962
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	3163 | 4887	1724
Capacity (c_{md}), pc/h	7200	2200
Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.68	0.78

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	1953.3	Flow Outer Lanes (v_{OA}), pc/h/ln	1249
Downstream Equilibrium Distance (L_{EQ}), ft	1640.8	On-Ramp Influence Area Speed (S_R), mi/h	63.3
Flow in Lanes 1 and 2 (v_{12}), pc/h	1914	Outer Lanes Freeway Speed (S_O), mi/h	72.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3638	Ramp Junction Speed (S), mi/h	65.5
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	24.9
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	27.0

HCS Basic Freeway Report

Project Information			
Segment Number	26	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	5775	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	4270	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1574
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.66
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	71.6
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	22.0
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

HCS Basic Freeway Report

Project Information			
Segment Number	27	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	2000	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	4270	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1574
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.66
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	71.6
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	22.0
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

HCS Freeway Diverge Report

Project Information			
Segment Number	28	Segment Name	US 62
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	615
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	4270	320
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	4.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.971
Flow Rate (v_i), pc/h	4722	351
Capacity (c_{md}), pc/h	7200	2200
Initial Adjusted Capacity (c_{mda}), pc/h	7200	-
Final Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.66	0.16

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	11279.7	Flow Outer Lanes (v_{OA}), pc/h/ln	1617
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	68.7
Flow in Lanes 1 and 2 (v_{12}), pc/h	3105	Outer Lanes Freeway Speed (S_O), mi/h	80.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	72.3
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	21.8
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	25.4

HCS Basic Freeway Report

Project Information			
Segment Number	29	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	2540	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.50
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3950	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1456
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.61
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	72.9
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	20.0
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

HCS Freeway Merge Report

Project Information			
Segment Number	30	Segment Name	US 62
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	715
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3950	1500
Peak Hour Factor (PHF)	0.94	0.90
Total Trucks, %	3.00	2.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.971	0.980
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	4328 | 6029	1701
Capacity (c_{md}), pc/h	7200	2200
Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.84	0.77

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	2082.3	Flow Outer Lanes (v_{OA}), pc/h/ln	1740
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	57.8
Flow in Lanes 1 and 2 (v_{12}), pc/h	2588	Outer Lanes Freeway Speed (S_O), mi/h	70.9
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	4289	Ramp Junction Speed (S), mi/h	61.1
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	32.9
Level of Service (LOS)	D	Density in Ramp Influence Area (D_R), pc/mi/ln	33.7

HCS Basic Freeway Report

Project Information			
Segment Number	31	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	1700	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.50
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	5450	Heavy Vehicle Adjustment Factor (f_{HV})	0.971
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1990
Total Trucks, %	3.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.83
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	64.3
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	30.9
Total Ramp Density Adjustment	-	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

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LOS												
	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	B	B	A	B	B	B	A	B	A	B	A	A
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	A	B	A	B	A	A	A	B	B	B	B	B
	Seg 25	Seg 26	Seg 27	Seg 28	Seg 29	Seg 30	Seg 31					
AP 1	C	C	C	C	C	D	D					

Speed (mi/h)												
	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	75.4	71.6	75.1	67.8	67.8	70.8	73.9	69.0	75.4	71.0	75.3	70.3
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	75.4	71.7	75.3	69.6	75.4	72.6	75.2	67.9	73.7	75.2	73.0	75.3
	Seg 25	Seg 26	Seg 27	Seg 28	Seg 29	Seg 30	Seg 31					
AP 1	65.5	71.6	71.6	72.3	72.9	61.1	64.3					

Density (pc/mi/ln)												
	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	12.0	12.6	9.8	12.6	12.6	11.8	9.0	11.2	10.2	10.8	7.9	9.2
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	8.6	9.0	7.2	9.9	8.8	9.2	8.3	17.2	14.8	14.8	15.2	14.0
	Seg 25	Seg 26	Seg 27	Seg 28	Seg 29	Seg 30	Seg 31					
AP 1	24.9	22.0	22.0	21.8	20.0	32.9	30.9					

Demand - Capacity Ratio (D/C)												
	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	0.38	0.38	0.31	0.36	0.35	0.35	0.28	0.32	0.32	0.32	0.25	0.27
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	0.27	0.27	0.23	0.29	0.28	0.28	0.26	0.49	0.46	0.46	0.46	0.44
	Seg 25	Seg 26	Seg 27	Seg 28	Seg 29	Seg 30	Seg 31					
AP 1	0.68	0.66	0.66	0.66	0.61	0.84	0.83					

Volume - Capacity Ratio (V/C)												
	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	0.38	0.38	0.31	0.36	0.35	0.35	0.28	0.32	0.32	0.32	0.25	0.27
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	0.27	0.27	0.23	0.29	0.28	0.28	0.26	0.49	0.46	0.46	0.46	0.44
	Seg 25	Seg 26	Seg 27	Seg 28	Seg 29	Seg 30	Seg 31					
AP 1	0.68	0.66	0.66	0.66	0.61	0.84	0.83					

Density (veh/mi/ln)												
	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	11.5	12.1	9.4	12.1	12.1	11.4	8.7	10.8	9.8	10.4	7.6	8.9
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	8.3	8.7	6.9	9.5	8.5	8.9	8.0	16.5	14.2	14.2	14.6	13.5
	Seg 25	Seg 26	Seg 27	Seg 28	Seg 29	Seg 30	Seg 31					

AP 1	24.0	21.2	21.2	21.0	19.2	31.9	30.0

Density in Ramp Influence Area (pc/mi/ln)												
	Seg 1	**Seg 2**	**Seg 3**	**Seg 4**	**Seg 5**	**Seg 6**	**Seg 7**	**Seg 8**	**Seg 9**	**Seg 10**	**Seg 11**	**Seg 12**
AP 1	-	17.3	-	16.8	-	18.3	-	13.0	-	14.6	-	8.5
	Seg 13	**Seg 14**	**Seg 15**	**Seg 16**	**Seg 17**	**Seg 18**	**Seg 19**	**Seg 20**	**Seg 21**	**Seg 22**	**Seg 23**	**Seg 24**
AP 1	-	12.4	-	10.9	-	9.7	-	20.0	-	-	19.0	-
	Seg 25	**Seg 26**	**Seg 27**	**Seg 28**	**Seg 29**	**Seg 30**	**Seg 31**					
AP 1	27.0	-	-	25.4	-	33.7	-					

Density-Based LOS												
	Seg 1	**Seg 2**	**Seg 3**	**Seg 4**	**Seg 5**	**Seg 6**	**Seg 7**	**Seg 8**	**Seg 9**	**Seg 10**	**Seg 11**	**Seg 12**
AP 1	B	B	A	B	B	B	A	B	A	B	A	A
	Seg 13	**Seg 14**	**Seg 15**	**Seg 16**	**Seg 17**	**Seg 18**	**Seg 19**	**Seg 20**	**Seg 21**	**Seg 22**	**Seg 23**	**Seg 24**
AP 1	A	B	A	B	A	A	A	B	B	B	B	B
	Seg 25	**Seg 26**	**Seg 27**	**Seg 28**	**Seg 29**	**Seg 30**	**Seg 31**					
AP 1	C	C	C	C	C	D	D					

Demand-Based LOS												
	Seg 1	**Seg 2**	**Seg 3**	**Seg 4**	**Seg 5**	**Seg 6**	**Seg 7**	**Seg 8**	**Seg 9**	**Seg 10**	**Seg 11**	**Seg 12**
AP 1	-	-	-	-	-	-	-	-	-	-	-	-
	Seg 13	**Seg 14**	**Seg 15**	**Seg 16**	**Seg 17**	**Seg 18**	**Seg 19**	**Seg 20**	**Seg 21**	**Seg 22**	**Seg 23**	**Seg 24**
AP 1	-	-	-	-	-	-	-	-	-	-	-	-
	Seg 25	**Seg 26**	**Seg 27**	**Seg 28**	**Seg 29**	**Seg 30**	**Seg 31**					
AP 1	-	-	-	-	-	-	-					

Westbound 3 Lane (Proposed) - PM No-Build

HCS Freeway Facilities Report

Project Information

Analyst	EJG	Date	11/8/2024
Agency	Woolpert	Analysis Year	2024
Jurisdiction	Franklin and Licking Counties	Time Analyzed	PM 2048 No-Build
Facility Name	WB SR-161	Units	U.S. Customary
Project Description	3 Lanes (Proposed)		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45
Queue Discharge Capacity Drop, %	7	Total Segments	31
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	17.97		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic		8000	3
2	Diverge	Diverge	Lancaster+WeaverRiver	1500	3
3	Basic	Basic		1570	3
4	Merge	Merge	Lancaster+WeaverRiver	330	3
5	Overlap	Overlap	Per ODOT	1170	3
6	Diverge	Diverge	Columbus	330	3
7	Basic	Basic		1070	3
8	Merge	Merge	Columbus	1500	3
9	Basic	Basic		16450	3
10	Diverge	Diverge	York	1500	3
11	Basic	Basic		3000	3
12	Merge	Merge	York	1500	3
13	Basic	Basic		11380	3
14	Diverge	Diverge	SR 310	1500	3
15	Basic	Basic		2800	3
16	Merge	Merge	SR 310	1500	3
17	Basic	Basic		9800	3
18	Diverge	Diverge	Mink	1500	3
19	Basic	Basic		1590	3
20	Merge	Merge	Mink	1500	3
21	Basic	Basic	Per ODOT	330	3
22	Basic	Basic		2750	3
23	Diverge	Diverge	Beech+Smiths	1500	3
24	Basic	Basic		4315	3
25	Merge	Merge	Beech+Smiths	1500	3
26	Basic	Basic		5775	3
27	Basic	Basic		2000	3

28	Diverge	Diverge	US 62	1500	3
29	Basic	Basic		2540	3
30	Merge	Merge	US 62	1500	3
31	Basic	Basic		1700	3

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.962	2687	7200	0.37	75.4	11.9	B

Segment 2: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.86	0.962	0.980	2687	534	7200	2200	0.37	0.24	71.5	68.2	12.5	17.2	B

Segment 3: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.962	2190	7200	0.30	75.1	9.7	A

Segment 4: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.80	0.962	0.962	2515	325	7200	2200	0.35	0.15	67.9	65.2	12.3	16.6	B

Segment 5: Overlap

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.962	2466	7200	0.34	67.9	12.3	B

Segment 6: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.83	0.962	0.962	2466	551	7200	2200	0.34	0.25	70.7	68.1	11.6	18.0	B

Segment 7: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.962	1979	7200	0.27	73.9	8.8	A

Segment 8: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.91	0.962	0.962	2242	263	7200	2200	0.31	0.12	69.1	66.5	10.8	12.7	B

Segment 9: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.962	2234	7200	0.31	75.4	9.9	A

Segment 10: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.81	0.962	0.980	2234	529	7200	2200	0.31	0.24	71.3	68.2	10.4	14.1	B

Segment 11: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.962	1769	7200	0.25	75.3	7.8	A

Segment 12: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.90	0.962	0.962	1931	162	7200	2200	0.27	0.07	70.3	68.1	9.2	8.5	A

Segment 13: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.962	1924	7200	0.27	75.4	8.5	A

Segment 14: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.80	0.962	0.952	1924	368	7200	2200	0.27	0.17	71.7	68.7	8.9	12.4	B

Segment 15: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.962	1615	7200	0.22	75.3	7.1	A

Segment 16: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.84	0.962	0.926	2065	450	7200	2200	0.29	0.20	69.6	67.4	9.9	11.0	B

Segment 17: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.962	2002	7200	0.28	75.4	8.8	A

Segment 18: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.83	0.962	0.917	2002	171	7200	2200	0.28	0.08	72.5	69.3	9.2	9.7	A

Segment 19: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.962	1858	7200	0.26	75.2	8.2	A

Segment 20: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.83	0.962	0.971	3471	1613	7200	2200	0.48	0.73	68.0	66.4	17.0	19.8	B

Segment 21: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.962	3295	7200	0.46	73.7	14.6	B

Segment 22: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.962	3295	7200	0.46	75.3	14.6	B

Segment 23: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.95	0.962	0.980	3295	140	7200	2200	0.46	0.06	73.1	69.4	15.0	18.8	B

Segment 24: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.962	3152	7200	0.44	75.4	13.9	B

Segment 25: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.85	0.962	0.962	4791	1639	7200	2200	0.67	0.74	65.8	63.7	24.3	26.3	C

Segment 26: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.962	4634	7200	0.64	71.9	21.5	C

Segment 27: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.962	4634	7200	0.64	71.9	21.5	C

Segment 28: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.962	0.971	4634	373	7200	2200	0.64	0.17	72.3	68.7	21.4	24.9	C

Segment 29: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.962	4258	7200	0.59	73.3	19.4	C

Segment 30: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.90	0.971	0.980	5953	1735	7200	2200	0.83	0.79	61.3	58.1	32.4	33.5	D

Segment 31: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.971	5894	7200	0.82	64.8	30.3	D

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	11809	11069	5.99	149.64	72.6	12.5	12.1	14.90	B

Facility Overall Results

Space Mean Speed, mi/h	72.6	Average Density, veh/mi/ln	12.1
Average Travel Time, min	14.90	Average Density, pc/mi/ln	12.5
Total VMT, veh-mi/AP	11809	Total VHD, veh-h	5.99
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	149.64

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HCS Basic Freeway Report

Project Information			
Analyst	EJG	Date	11/8/2024
Agency	Woolpert	Analysis Year	2024
Jurisdiction	Franklin and Licking Counties	Time Analyzed	PM 2048 No-Build
Project Description	3 Lanes (Proposed)	Units	U.S. Customary
Segment Number	1	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	8000	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	2430	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	896
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.37
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.4
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	11.9
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

HCS Freeway Diverge Report

Project Information			
Segment Number	2	Segment Name	Lancaster+WeaverRiver
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	450
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2430	450
Peak Hour Factor (PHF)	0.94	0.86
Total Trucks, %	4.00	2.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.980
Flow Rate (v_i), pc/h	2687	534
Capacity (c_{md}), pc/h	7200	2200
Initial Adjusted Capacity (c_{mda}), pc/h	7200	-
Final Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.37	0.24

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	715
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	68.2
Flow in Lanes 1 and 2 (v_{12}), pc/h	1972	Outer Lanes Freeway Speed (S_O), mi/h	82.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	71.5
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	12.5
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	17.2

HCS Basic Freeway Report

Project Information			
Segment Number	3	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	1570	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	1980	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	730
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.30
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.1
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	9.7
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

HCS Freeway Merge Report

Project Information			
Segment Number	4	Segment Name	Lancaster+WeaverRiver
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Acceleration Length (LA), ft	330	330
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1980	250
Peak Hour Factor (PHF)	0.94	0.80
Total Trucks, %	4.00	4.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.962
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	2190 | 2515	325
Capacity (c_{md}), pc/h	7200	2200
Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.35	0.15

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	1159.3	Flow Outer Lanes (v_{OA}), pc/h/ln	815
Downstream Equilibrium Distance (L_{EQ}), ft	3802.4	On-Ramp Influence Area Speed (S_R), mi/h	65.2
Flow in Lanes 1 and 2 (v_{12}), pc/h	1375	Outer Lanes Freeway Speed (S_O), mi/h	74.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1700	Ramp Junction Speed (S), mi/h	67.9
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	12.3
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	16.6

HCS Overlap Freeway Report

Project Information			
Segment Number	5	Segment Name	Per ODOT
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	1170	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	2230	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	822
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.34
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	67.9
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	12.3
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

HCS Freeway Diverge Report

Project Information

Segment Number	6	Segment Name	Columbus
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Deceleration Length (LD), ft	330	330
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	2230	440
Peak Hour Factor (PHF)	0.94	0.83
Total Trucks, %	4.00	4.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.962
Flow Rate (v_i), pc/h	2466	551
Capacity (c_{md}), pc/h	7200	2200
Initial Adjusted Capacity (c_{mda}), pc/h	7200	-
Final Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.34	0.25

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	3786.0	Flow Outer Lanes (v_{OA}), pc/h/ln	521
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	68.1
Flow in Lanes 1 and 2 (v_{12}), pc/h	1945	Outer Lanes Freeway Speed (S_O), mi/h	82.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	70.7
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	11.6
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	18.0

HCS Basic Freeway Report

Project Information			
Segment Number	7	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	1070	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	1790	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	660
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.27
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	73.9
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	8.8
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

HCS Freeway Merge Report

Project Information

Segment Number	8	Segment Name	Columbus
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Acceleration Length (LA), ft	1500	640
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	1790	230
Peak Hour Factor (PHF)	0.94	0.91
Total Trucks, %	4.00	4.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.962
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	1979 | 2242	263
Capacity (c_{md}), pc/h	7200	2200
Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.31	0.12

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	1238.6	Flow Outer Lanes (v_{OA}), pc/h/ln	801
Downstream Equilibrium Distance (L_{EQ}), ft	2970.6	On-Ramp Influence Area Speed (S_R), mi/h	66.5
Flow in Lanes 1 and 2 (v_{12}), pc/h	1178	Outer Lanes Freeway Speed (S_O), mi/h	74.3
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1441	Ramp Junction Speed (S), mi/h	69.1
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	10.8
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	12.7

HCS Basic Freeway Report

Project Information			
Segment Number	9	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	16450	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	2020	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	745
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.31
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.4
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	9.9
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

HCS Freeway Diverge Report

Project Information			
Segment Number	10	Segment Name	York
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	520
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2020	420
Peak Hour Factor (PHF)	0.94	0.81
Total Trucks, %	4.00	2.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.980
Flow Rate (v_i), pc/h	2234	529
Capacity (c_{md}), pc/h	7200	2200
Initial Adjusted Capacity (c_{mda}), pc/h	7200	-
Final Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.31	0.24

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	3200.4	Flow Outer Lanes (v_{OA}), pc/h/ln	546
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	68.2
Flow in Lanes 1 and 2 (v_{12}), pc/h	1688	Outer Lanes Freeway Speed (S_O), mi/h	82.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	71.3
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	10.4
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	14.1

HCS Basic Freeway Report

Project Information			
Segment Number	11	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	3000	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.50
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	1600	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	590
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.25
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.3
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	7.8
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

HCS Freeway Merge Report

Project Information

Segment Number	12	Segment Name	York
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Acceleration Length (LA), ft	1500	1060
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	1600	140
Peak Hour Factor (PHF)	0.94	0.90
Total Trucks, %	4.00	4.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.962
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	1769 | 1931	162
Capacity (c_{md}), pc/h	7200	2200
Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.27	0.07

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	1358.5	Flow Outer Lanes (v_{OA}), pc/h/ln	695
Downstream Equilibrium Distance (L_{EQ}), ft	1650.1	On-Ramp Influence Area Speed (S_R), mi/h	68.1
Flow in Lanes 1 and 2 (v_{12}), pc/h	1074	Outer Lanes Freeway Speed (S_O), mi/h	74.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1236	Ramp Junction Speed (S), mi/h	70.3
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	9.2
Level of Service (LOS)	A	Density in Ramp Influence Area (D_R), pc/mi/ln	8.5

HCS Basic Freeway Report

Project Information			
Segment Number	13	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	11380	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	1740	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	641
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.27
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.4
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	8.5
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

HCS Freeway Diverge Report

Project Information			
Segment Number	14	Segment Name	SR 310
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	480
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1740	280
Peak Hour Factor (PHF)	0.94	0.80
Total Trucks, %	4.00	5.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.952
Flow Rate (v_i), pc/h	1924	368
Capacity (c_{md}), pc/h	7200	2200
Initial Adjusted Capacity (c_{mda}), pc/h	7200	-
Final Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.27	0.17

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	1856.0	Flow Outer Lanes (v_{OA}), pc/h/ln	475
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	68.7
Flow in Lanes 1 and 2 (v_{12}), pc/h	1449	Outer Lanes Freeway Speed (S_O), mi/h	82.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	71.7
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	8.9
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	12.4

HCS Basic Freeway Report

Project Information			
Segment Number	15	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	2800	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	1460	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	538
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.22
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.3
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	7.1
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

HCS Freeway Merge Report

Project Information

Segment Number	16	Segment Name	SR 310
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data

	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	870
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	1460	350
Peak Hour Factor (PHF)	0.94	0.84
Total Trucks, %	4.00	8.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.926
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	1615 | 2065	450
Capacity (c_{md}), pc/h	7200	2200
Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.29	0.20

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	1302.8	Flow Outer Lanes (v_{OA}), pc/h/ln	643
Downstream Equilibrium Distance (L_{EQ}), ft	843.7	On-Ramp Influence Area Speed (S_R), mi/h	67.4
Flow in Lanes 1 and 2 (v_{12}), pc/h	972	Outer Lanes Freeway Speed (S_O), mi/h	74.9
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	1422	Ramp Junction Speed (S), mi/h	69.6
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	9.9
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	11.0

HCS Basic Freeway Report

Project Information			
Segment Number	17	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	9800	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	1810	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	667
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.28
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.4
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	8.8
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

HCS Freeway Diverge Report

Project Information			
Segment Number	18	Segment Name	Mink
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	785
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1810	130
Peak Hour Factor (PHF)	0.94	0.83
Total Trucks, %	4.00	9.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.917
Flow Rate (v_i), pc/h	2002	171
Capacity (c_{md}), pc/h	7200	2200
Initial Adjusted Capacity (c_{mda}), pc/h	7200	-
Final Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.28	0.08

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	4324.8	Flow Outer Lanes (v_{OA}), pc/h/ln	546
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	69.3
Flow in Lanes 1 and 2 (v_{12}), pc/h	1456	Outer Lanes Freeway Speed (S_O), mi/h	82.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	72.5
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	9.2
Level of Service (LOS)	A	Density in Ramp Influence Area (D_R), pc/mi/ln	9.7

HCS Basic Freeway Report

Project Information			
Segment Number	19	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	1590	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	1680	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	619
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.26
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.2
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	8.2
Total Ramp Density Adjustment	-	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

HCS Freeway Merge Report

Project Information			
Segment Number	20	Segment Name	Mink
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Acceleration Length (LA), ft	1500	1020
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	1680	1300
Peak Hour Factor (PHF)	0.94	0.83
Total Trucks, %	4.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.971
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	1858 | 3471	1613
Capacity (c_{md}), pc/h	7200	2200
Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.48	0.73

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	1670.3	Flow Outer Lanes (v_{OA}), pc/h/ln	732
Downstream Equilibrium Distance (L_{EQ}), ft	640.0	On-Ramp Influence Area Speed (S_R), mi/h	66.4
Flow in Lanes 1 and 2 (v_{12}), pc/h	1126	Outer Lanes Freeway Speed (S_O), mi/h	74.6
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2739	Ramp Junction Speed (S), mi/h	68.0
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	17.0
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	19.8

HCS Basic Freeway Report

Project Information			
Segment Number	21	Segment Name	Per ODOT
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	330	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	2980	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1098
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.46
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	73.7
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	14.6
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

HCS Basic Freeway Report

Project Information			
Segment Number	22	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	2750	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	2980	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1098
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.46
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.3
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	14.6
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

HCS Freeway Diverge Report

Project Information			
Segment Number	23	Segment Name	Beech+Smiths
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	535
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2980	130
Peak Hour Factor (PHF)	0.94	0.95
Total Trucks, %	4.00	2.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.980
Flow Rate (v_i), pc/h	3295	140
Capacity (c_{md}), pc/h	7200	2200
Initial Adjusted Capacity (c_{mda}), pc/h	7200	-
Final Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.46	0.06

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	11847.7	Flow Outer Lanes (v_{OA}), pc/h/ln	1038
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	69.4
Flow in Lanes 1 and 2 (v_{12}), pc/h	2257	Outer Lanes Freeway Speed (S_O), mi/h	82.6
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	73.1
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	15.0
Level of Service (LOS)	B	Density in Ramp Influence Area (D_R), pc/mi/ln	18.8

HCS Basic Freeway Report

Project Information			
Segment Number	24	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	4315	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	2850	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1051
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.44
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	75.4
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	13.9
Total Ramp Density Adjustment	-	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

HCS Freeway Merge Report

Project Information			
Segment Number	25	Segment Name	Beech+Smiths
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Acceleration Length (LA), ft	1500	975
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	2850	1340
Peak Hour Factor (PHF)	0.94	0.85
Total Trucks, %	4.00	4.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.962
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	3152 | 4791	1639
Capacity (c_{md}), pc/h	7200	2200
Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.67	0.75

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	1932.8	Flow Outer Lanes (v_{OA}), pc/h/ln	1245
Downstream Equilibrium Distance (L_{EQ}), ft	1743.6	On-Ramp Influence Area Speed (S_R), mi/h	63.7
Flow in Lanes 1 and 2 (v_{12}), pc/h	1907	Outer Lanes Freeway Speed (S_O), mi/h	72.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	3546	Ramp Junction Speed (S), mi/h	65.8
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	24.3
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	26.3

HCS Basic Freeway Report

Project Information			
Segment Number	26	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	5775	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.83
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	4190	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1545
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.64
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	71.9
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	21.5
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

HCS Basic Freeway Report

Project Information			
Segment Number	27	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	2000	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.67
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	4190	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1545
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.64
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	71.9
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	21.5
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

HCS Freeway Diverge Report

Project Information			
Segment Number	28	Segment Name	US 62
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Deceleration Length (LD), ft	1500	615
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	4190	340
Peak Hour Factor (PHF)	0.94	0.94
Total Trucks, %	4.00	3.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.971
Flow Rate (v_i), pc/h	4634	373
Capacity (c_{md}), pc/h	7200	2200
Initial Adjusted Capacity (c_{mda}), pc/h	7200	-
Final Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.64	0.17

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	10989.5	Flow Outer Lanes (v_{OA}), pc/h/ln	1585
Downstream Equilibrium Distance (L_{EQ}), ft	-	Off-Ramp Influence Area Speed (S_R), mi/h	68.7
Flow in Lanes 1 and 2 (v_{12}), pc/h	3049	Outer Lanes Freeway Speed (S_O), mi/h	80.4
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	-	Ramp Junction Speed (S), mi/h	72.3
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	21.4
Level of Service (LOS)	C	Density in Ramp Influence Area (D_R), pc/mi/ln	24.9

HCS Basic Freeway Report

Project Information			
Segment Number	29	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	2540	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.50
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	3850	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1419
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.59
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	73.3
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	19.4
Total Ramp Density Adjustment	-	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

HCS Freeway Merge Report

Project Information			
Segment Number	30	Segment Name	US 62
Analysis Period Number	1	Segment Analysis Period	07:00-07:15

Geometric Data		
	Freeway	Ramp
Number of Lanes (N), ln	3	1
Free-Flow Speed (FFS), mi/h	75.4	55.0
Segment Length (L) / Acceleration Length (L_A), ft	1500	715
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Type	Freeway	Right-Sided One-Lane

Adjustment Factors		
Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Proportion of CAVs in Traffic Stream	0	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000
Capacity Adjustment Factor for CAVs (CAF_{CAV})	1.000	-
Final Capacity Adjustment Factor (CAF)	1.000	1.000

Demand and Capacity		
Demand Volume (V_i), veh/h	3850	1530
Peak Hour Factor (PHF)	0.94	0.90
Total Trucks, %	3.00	2.00
Heavy Vehicle Adjustment Factor (f_{HV})	0.971	0.980
Demand Flow Rate (v_i), pc/h | Total Flow Rate (v_{FO}), pc/h	4218 | 5953	1735
Capacity (c_{md}), pc/h	7200	2200
Adjusted Capacity (c_{mda}), pc/h	7200	2200
Volume-to-Capacity Ratio (v/c)	0.83	0.79

Speed and Density			
Upstream Equilibrium Distance (L_{EQ}), ft	2066.0	Flow Outer Lanes (v_{OA}), pc/h/ln	1696
Downstream Equilibrium Distance (L_{EQ}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	58.1
Flow in Lanes 1 and 2 (v_{12}), pc/h	2522	Outer Lanes Freeway Speed (S_O), mi/h	71.1
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	4257	Ramp Junction Speed (S), mi/h	61.3
Number of Outer Lanes on Freeway (N_O), ln	1	Average Density (D), pc/mi/ln	32.4
Level of Service (LOS)	D	Density in Ramp Influence Area (D_R), pc/mi/ln	33.5

HCS Basic Freeway Report

Project Information			
Segment Number	31	Segment Name	
Analysis Period Number	1	Segment Analysis Period	07:00-07:15
Geometric Data			
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	1700	Percent Grade, %	-
Measured or Base Free-Flow Speed	Measured	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	-	Total Ramp Density (TRD), ramps/mi	0.50
Lane Width, ft	-	Free-Flow Speed (FFS), mi/h	75.4
Right-Side Lateral Clearance, ft	-		
Adjustment Factors			
Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Demand Adjustment Factor (DAF)	1.000
Incident Type	No Incident	Final Capacity Adjustment Factor (CAF)	1.000
Proportion of CAVs in Traffic Stream	0	Capacity Adj. Factor for CAVs (CAF_{CAV})	1.000
Demand and Capacity			
Demand Volume (V), veh/h	5380	Heavy Vehicle Adjustment Factor (f_{HV})	0.971
Peak Hour Factor (PHF)	0.94	Flow Rate (v_p), pc/h/ln	1965
Total Trucks, %	3.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Initial Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Final Adjusted Capacity (c_{adj}), pc/h/ln	2400
Passenger Car Equivalent (E_T)	2.00	Volume-to-Capacity Ratio (v/c)	0.82
Speed and Density			
Lane Width Adjustment (f_{LW})	-	Average Speed (S), mi/h	64.8
Right-Side Lateral Clearance Adj. (f_{RLC})	-	Density (D), pc/mi/ln	30.3
Total Ramp Density Adjustment	-	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	75.4		

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LOS

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	B	B	A	B	B	B	A	B	A	B	A	A
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	A	B	A	B	A	A	A	B	B	B	B	B
	Seg 25	Seg 26	Seg 27	Seg 28	Seg 29	Seg 30	Seg 31					
AP 1	C	C	C	C	C	D	D					

Speed (mi/h)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	75.4	71.5	75.1	67.9	67.9	70.7	73.9	69.1	75.4	71.3	75.3	70.3
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	75.4	71.7	75.3	69.6	75.4	72.5	75.2	68.0	73.7	75.3	73.1	75.4
	Seg 25	Seg 26	Seg 27	Seg 28	Seg 29	Seg 30	Seg 31					
AP 1	65.8	71.9	71.9	72.3	73.3	61.3	64.8					

Density (pc/mi/ln)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	11.9	12.5	9.7	12.3	12.3	11.6	8.8	10.8	9.9	10.4	7.8	9.2
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	8.5	8.9	7.1	9.9	8.8	9.2	8.2	17.0	14.6	14.6	15.0	13.9
	Seg 25	Seg 26	Seg 27	Seg 28	Seg 29	Seg 30	Seg 31					
AP 1	24.3	21.5	21.5	21.4	19.4	32.4	30.3					

Demand - Capacity Ratio (D/C)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	0.37	0.37	0.30	0.35	0.34	0.34	0.27	0.31	0.31	0.31	0.25	0.27
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	0.27	0.27	0.22	0.29	0.28	0.28	0.26	0.48	0.46	0.46	0.46	0.44
	Seg 25	Seg 26	Seg 27	Seg 28	Seg 29	Seg 30	Seg 31					
AP 1	0.67	0.64	0.64	0.64	0.59	0.83	0.82					

Volume - Capacity Ratio (V/C)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	0.37	0.37	0.30	0.35	0.34	0.34	0.27	0.31	0.31	0.31	0.25	0.27
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	0.27	0.27	0.22	0.29	0.28	0.28	0.26	0.48	0.46	0.46	0.46	0.44
	Seg 25	Seg 26	Seg 27	Seg 28	Seg 29	Seg 30	Seg 31					
AP 1	0.67	0.64	0.64	0.64	0.59	0.83	0.82					

Density (veh/mi/ln)

	Seg 1	Seg 2	Seg 3	Seg 4	Seg 5	Seg 6	Seg 7	Seg 8	Seg 9	Seg 10	Seg 11	Seg 12
AP 1	11.4	12.0	9.3	11.8	11.8	11.2	8.5	10.4	9.5	10.0	7.5	8.9
	Seg 13	Seg 14	Seg 15	Seg 16	Seg 17	Seg 18	Seg 19	Seg 20	Seg 21	Seg 22	Seg 23	Seg 24
AP 1	8.2	8.6	6.8	9.5	8.5	8.9	7.9	16.4	14.0	14.0	14.4	13.4
	Seg 25	Seg 26	Seg 27	Seg 28	Seg 29	Seg 30	Seg 31					

AP 1	23.4	20.7	20.7	20.6	18.7	31.5	29.4

Density in Ramp Influence Area (pc/mi/ln)												
	Seg 1	**Seg 2**	**Seg 3**	**Seg 4**	**Seg 5**	**Seg 6**	**Seg 7**	**Seg 8**	**Seg 9**	**Seg 10**	**Seg 11**	**Seg 12**
AP 1	-	17.2	-	16.6	-	18.0	-	12.7	-	14.1	-	8.5
	Seg 13	**Seg 14**	**Seg 15**	**Seg 16**	**Seg 17**	**Seg 18**	**Seg 19**	**Seg 20**	**Seg 21**	**Seg 22**	**Seg 23**	**Seg 24**
AP 1	-	12.4	-	11.0	-	9.7	-	19.8	-	-	18.8	-
	Seg 25	**Seg 26**	**Seg 27**	**Seg 28**	**Seg 29**	**Seg 30**	**Seg 31**					
AP 1	26.3	-	-	24.9	-	33.5	-					

Density-Based LOS												
	Seg 1	**Seg 2**	**Seg 3**	**Seg 4**	**Seg 5**	**Seg 6**	**Seg 7**	**Seg 8**	**Seg 9**	**Seg 10**	**Seg 11**	**Seg 12**
AP 1	B	B	A	B	B	B	A	B	A	B	A	A
	Seg 13	**Seg 14**	**Seg 15**	**Seg 16**	**Seg 17**	**Seg 18**	**Seg 19**	**Seg 20**	**Seg 21**	**Seg 22**	**Seg 23**	**Seg 24**
AP 1	A	B	A	B	A	A	A	B	B	B	B	B
	Seg 25	**Seg 26**	**Seg 27**	**Seg 28**	**Seg 29**	**Seg 30**	**Seg 31**					
AP 1	C	C	C	C	C	D	D					

Demand-Based LOS												
	Seg 1	**Seg 2**	**Seg 3**	**Seg 4**	**Seg 5**	**Seg 6**	**Seg 7**	**Seg 8**	**Seg 9**	**Seg 10**	**Seg 11**	**Seg 12**
AP 1	-	-	-	-	-	-	-	-	-	-	-	-
	Seg 13	**Seg 14**	**Seg 15**	**Seg 16**	**Seg 17**	**Seg 18**	**Seg 19**	**Seg 20**	**Seg 21**	**Seg 22**	**Seg 23**	**Seg 24**
AP 1	-	-	-	-	-	-	-	-	-	-	-	-
	Seg 25	**Seg 26**	**Seg 27**	**Seg 28**	**Seg 29**	**Seg 30**	**Seg 31**					
AP 1	-	-	-	-	-	-	-					

Appendix D: HCS Intersection Analysis

Summary Tables - HCS Output

SR-161 EB AM

Segment	Analysis Type	Location (SR 161 EB)	2048 AM No Build - 2 Lanes				2048 AM Build - 2 Lanes				2048 AM No Build - 3 Lanes				2048 AM Build - 3 Lanes			
			LOS	v/c	d/c		LOS	v/c	d/c		LOS	v/c	d/c		LOS	v/c	d/c	
					F*	R*			F*	R*			F*	R*			F*	R*
1	Basic		D	0.87	0.87	-	E	0.89	0.89	-	D	0.87	0.87	-	E	0.89	0.89	-
2	Diverge	US 62	E	0.87	0.87	0.95	E	0.89	0.89	0.94	E	0.87	0.87	0.95	E	0.89	0.89	0.94
3	Basic		C	0.57	0.57	-	C	0.59	0.59	-	C	0.57	0.57	-	C	0.59	0.59	-
4	Merge	U2 62	C	0.63	0.63	0.17	C	0.65	0.65	0.18	C	0.63	0.63	0.17	C	0.65	0.65	0.18
5	Basic		C	0.62	0.62	-	C	0.65	0.65	-	C	0.62	0.62	-	C	0.65	0.65	-
6	Basic		E	0.94	0.94	-	E	0.97	0.97	-	C	0.62	0.62	-	C	0.65	0.65	-
7	Diverge	Beech	E	0.89	0.89	0.91	E	0.97	0.97	0.91	D	0.62	0.62	0.91	D	0.65	0.65	0.91
8	Basic		C	0.57	0.57	-	C	0.61	0.61	-	B	0.38	0.38	-	B	0.40	0.40	-
9	Merge	Beech	C	0.64	0.64	0.17	C	0.67	0.67	0.17	B	0.42	0.42	0.17	B	0.45	0.45	0.17
10	Basic		C	0.63	0.63	-	C	0.66	0.66	-	B	0.42	0.42	-	B	0.44	0.44	-
11	Diverge	Mink	C	0.63	0.63	0.80	C	0.66	0.66	0.83	C	0.42	0.42	0.80	C	0.44	0.44	0.83
12	Basic		A	0.32	0.32	-	A	0.34	0.34	-	A	0.21	0.21	-	A	0.23	0.23	-
13	Merge	Mink	B	0.38	0.38	0.13	B	0.39	0.39	0.11	A	0.25	0.25	0.13	A	0.26	0.26	0.11
14	Basic		B	0.37	0.37	-	B	0.38	0.38	-	A	0.25	0.25	-	A	0.26	0.26	-
15	Diverge	SR 310	B	0.37	0.37	0.16	B	0.38	0.38	0.19	B	0.25	0.25	0.16	B	0.26	0.26	0.19
16	Basic		A	0.31	0.31	-	A	0.31	0.31	-	A	0.21	0.21	-	A	0.21	0.21	-
17	Merge	SR 310	B	0.35	0.35	0.08	B	0.36	0.36	0.08	A	0.24	0.24	0.08	A	0.24	0.24	0.08
18	Basic		B	0.35	0.35	-	B	0.35	0.35	-	A	0.23	0.23	-	A	0.23	0.23	-
19	Diverge	York	B	0.35	0.35	0.09	B	0.35	0.35	0.08	B	0.23	0.23	0.09	B	0.23	0.23	0.08
20	Basic		A	0.31	0.31	-	A	0.32	0.32	-	A	0.21	0.21	-	A	0.21	0.21	-
21	Merge	York	B	0.39	0.39	0.17	B	0.40	0.40	0.17	A	0.26	0.26	0.17	A	0.27	0.27	0.17
22	Basic		B	0.39	0.39	-	B	0.40	0.40	-	A	0.26	0.26	-	A	0.27	0.27	-
23	Diverge	Columbus	B	0.39	0.39	0.11	B	0.40	0.40	0.10	B	0.26	0.26	0.11	B	0.27	0.26	0.10
24	Basic		B	0.35	0.35	-	B	0.36	0.36	-	A	0.23	0.23	-	A	0.25	0.24	-
25	Weaving	Columbus	B	0.40	0.40	#	B	0.41	0.41	#	A	0.39	0.39	#	A	0.39	0.39	#
26	Basic		B	0.41	0.41	-	B	0.42	0.42	-	A	0.27	0.27	-	A	0.28	0.28	-
27	Merge	Lancaster	B	0.47	0.47	0.14	B	0.48	0.48	0.14	B	0.32	0.32	0.14	B	0.32	0.32	0.14
28	Basic		B	0.47	0.47	-	B	0.48	0.48	-	A	0.31	0.31	-	A	0.32	0.32	-

HCS Results (Facility)				
Category	2048 AM No Build - 2 Lanes	2048 AM Build - 2 Lanes	2048 AM No Build - 3 Lanes	2048 AM Build - 3 Lanes
Facility Length, mi	18.03	18.03	18.03	18.03
Space Mean Speed, mi/h	68.2	67.6	70.6	70.4
Density, pc/mi/ln	17	17.7	11.5	11.9
Density, veh/mi/ln	15.6	16.2	10.5	10.9
Travel Time, min	15.9	16	15.3	15.4
LOS	C	C	B	B

SR-161 EB PM

Segment	Analysis Type	Location (SR 161 EB)	2048 PM No Build - 2 Lanes				2048 PM Build - 2 Lanes				2048 PM No Build - 3 Lanes				2048 PM Build - 3 Lanes			
			LOS	v/c	d/c		LOS	v/c	d/c		LOS	v/c	d/c		LOS	v/c	d/c	
					F*	R*			F*	R*			F*	R*			F*	R*
1	Basic		D	0.75	0.75	-	D	0.77	0.77	-	D	0.75	0.75	-	D	0.77	0.77	-
2	Diverge	US 62	D	0.75	0.75	0.67	D	0.77	0.77	0.67	D	0.75	0.75	0.67	D	0.77	0.77	0.67
3	Basic		C	0.54	0.54	-	C	0.56	0.56	-	C	0.54	0.54	-	C	0.56	0.56	-
4	Merge	U2 62	C	0.62	0.62	0.26	C	0.64	0.64	0.26	C	0.62	0.62	0.26	C	0.64	0.64	0.26
5	Basic		C	0.62	0.62	-	C	0.64	0.63	-	C	0.62	0.62	-	C	0.63	0.63	-
6	Basic		E	0.93	0.92	-	F	0.95	0.95	-	C	0.62	0.62	-	C	0.63	0.63	-
7	Diverge	Beech	E	0.93	0.92	0.30	F	0.93	0.95	0.29	C	0.62	0.62	0.30	C	0.63	0.63	0.29
8	Basic		D	0.79	0.79	-	F	0.74	0.82	-	B	0.53	0.53	-	C	0.55	0.55	-
9	Merge	Beech	E	0.98	0.98	0.41	F	0.93	1.02	0.43	C	0.65	0.65	0.41	C	0.68	0.68	0.43
10	Basic		E	0.98	0.95	-	E	0.93	0.99	-	C	0.63	0.63	-	C	0.66	0.66	-
11	Diverge	Mink	E	0.98	0.95	0.42	E	0.93	0.99	0.42	C	0.63	0.63	0.42	D	0.66	0.66	0.42
12	Basic		D	0.79	0.77	-	C	0.74	0.81	-	B	0.51	0.51	-	B	0.54	0.54	-
13	Merge	Mink	D	0.95	0.93	0.36	D	0.90	0.97	0.35	C	0.62	0.62	0.36	C	0.64	0.64	0.35
14	Basic		E	0.95	0.92	-	E	0.90	0.95	-	C	0.61	0.61	-	C	0.63	0.63	-
15	Diverge	SR 310	E	0.95	0.91	0.29	E	0.90	0.95	0.33	C	0.61	0.61	0.29	C	0.63	0.63	0.33
16	Basic		D	0.82	0.78	-	D	0.75	0.79	-	B	0.52	0.52	-	B	0.53	0.53	-
17	Merge	SR 310	D	0.94	0.90	0.26	D	0.86	0.91	0.26	C	0.60	0.60	0.26	C	0.60	0.60	0.26
18	Basic		F	0.87	0.88	-	D	0.86	0.89	-	C	0.59	0.59	-	C	0.59	0.59	-
19	Diverge	York	F	0.85	0.88	0.14	F	0.85	0.89	0.14	C	0.59	0.59	0.14	C	0.59	0.59	0.14
20	Basic		F	0.74	0.82	-	F	0.74	0.83	-	B	0.55	0.55	-	B	0.55	0.55	-
21	Merge	York	F	0.93	1.01	0.42	F	0.93	1.02	0.43	C	0.68	0.68	0.42	C	0.68	0.68	0.43
22	Basic		F	0.92	0.99	-	F	0.93	1.01	-	C	0.66	0.66	-	C	0.67	0.67	-
23	Diverge	Columbus	F	0.91	0.99	0.09	F	0.92	1.01	0.10	C	0.66	0.66	0.09	C	0.67	0.67	0.10
24	Basic		F	0.85	0.96	-	F	0.86	0.97	-	C	0.64	0.64	-	C	0.64	0.64	-
25	Weaving	Columbus	F	0.77	0.91	#	F	0.78	0.91	#	C	0.68	0.68	#	C	0.70	0.70	#
26	Basic		F	0.80	0.98	-	F	0.80	0.98	-	C	0.66	0.66	-	C	0.66	0.66	-
27	Merge	Lancaster	F	0.93	1.12	0.30	F	0.93	1.12	0.30	C	0.75	0.75	0.30	C	0.75	0.75	0.30
28	Basic		F	0.93	1.11	-	F	0.93	1.11	-	D	0.74	0.74	-	C	0.74	0.74	-

HCS Results (Facility)				
Category	2048 PM No Build - 2 Lanes	2048 PM Build - 2 Lanes	2048 PM No Build - 3 Lanes	2048 PM Build - 3 Lanes
Facility Length, mi	18.03	18.03	18.03	18.03
Space Mean Speed, mi/h	54.3	53.8	69.9	69.7
Density, pc/mi/ln	38	37.9	21.5	21.9
Density, veh/mi/ln	36.2	36	20.4	20.8
Travel Time, min	19.9	20.1	15.5	15.5
LOS	F	F	C	C

SR-161 WB AM

Segment	Analysis Type	Location (SR 161 EB)	2048 AM No Build - 2 Lanes				2048 AM Build - 2 Lanes				2048 AM No Build - 3 Lanes				2048 AM Build - 3 Lanes			
			LOS	v/c	d/c		LOS	v/c	d/c		LOS	v/c	d/c		LOS	v/c	d/c	
					F*	R*			F*	R*			F*	R*			F*	R*
1	Basic		F	0.90	0.99	-	F	0.90	0.98	-	C	0.66	0.66	-	C	0.65	0.65	-
2	Diverge	Lancaster	F	0.89	0.99	0.20	F	0.89	0.98	0.20	C	0.66	0.66	0.20	C	0.65	0.65	0.20
3	Basic		F	0.78	0.89	-	F	0.78	0.89	-	C	0.59	0.59	-	C	0.59	0.59	-
4	Merge	Lancaster	F	0.93	1.04	0.33	F	0.93	1.04	0.34	D	0.69	0.69	0.33	D	0.69	0.69	0.34
5	Overlap		F	0.93	1.01	-	F	0.93	1.01	-	C	0.67	0.67	-	C	0.67	0.67	-
6	Diverge	Columbus	F	0.93	1.01	0.29	F	0.93	1.01	0.29	D	0.67	0.67	0.29	D	0.67	0.67	0.29
7	Basic		D	0.80	0.89	-	F	0.80	0.89	-	C	0.59	0.59	-	C	0.59	0.59	-
8	Merge	Columbus	D	0.90	0.98	0.21	F	0.93	1.02	0.29	C	0.66	0.66	0.21	C	0.68	0.68	0.29
9	Basic		E	0.90	0.96	-	E	0.93	0.99	-	C	0.64	0.64	-	C	0.66	0.66	-
10	Diverge	York	E	0.90	0.96	0.28	E	0.93	0.99	0.28	C	0.64	0.64	0.28	C	0.66	0.66	0.28
11	Basic		D	0.77	0.85	-	D	0.80	0.87	-	C	0.56	0.56	-	C	0.58	0.58	-
12	Merge	York	D	0.89	0.97	0.27	D	0.91	0.98	0.23	C	0.65	0.65	0.27	C	0.67	0.67	0.29
13	Basic		E	0.89	0.95	-	E	0.91	0.99	-	C	0.64	0.64	-	C	0.66	0.66	-
14	Diverge	SR 310	E	0.89	0.95	0.43	E	0.91	0.99	0.44	C	0.64	0.64	0.43	C	0.66	0.66	0.44
15	Basic		C	0.69	0.77	-	C	0.71	0.80	-	B	0.52	0.52	-	B	0.53	0.53	-
16	Merge	SR 310	D	0.85	0.92	0.35	D	0.89	0.97	0.39	C	0.61	0.61	0.35	C	0.65	0.65	0.39
17	Basic		D	0.85	0.91	-	E	0.89	0.96	-	C	0.61	0.61	-	C	0.64	0.64	-
18	Diverge	Mink	D	0.85	0.91	0.44	D	0.89	0.96	0.43	C	0.61	0.61	0.44	C	0.64	0.64	0.43
19	Basic		C	0.65	0.74	-	C	0.69	0.80	-	B	0.49	0.49	-	B	0.53	0.53	-
20	Merge	Mink	D	0.81	0.89	0.35	D	0.86	0.95	0.36	C	0.60	0.60	0.35	C	0.64	0.64	0.36
21	Basic		D	0.81	0.87	-	D	0.86	0.93	-	C	0.58	0.58	-	C	0.62	0.62	-
22	Basic		D	0.81	0.87	-	D	0.86	0.93	-	C	0.58	0.58	-	C	0.62	0.62	-
23	Diverge	Beech	D	0.81	0.87	0.37	D	0.86	0.93	0.38	C	0.58	0.58	0.37	C	0.62	0.62	0.38
24	Basic		C	0.64	0.72	-	C	0.68	0.78	-	B	0.58	0.48	-	B	0.52	0.52	-
25	Merge	Beech	D	0.86	0.96	0.48	F	0.98	1.09	0.64	C	0.48	0.64	0.48	C	0.68	0.68	0.48
26	Basic		D	0.86	0.91	-	F	0.98	1.02	-	C	0.64	0.60	-	C	0.65	0.65	-
27	Basic		C	0.57	0.60	-	C	0.65	0.68	-	C	0.60	0.60	-	C	0.65	0.65	-
28	Diverge	US 62	C	0.57	0.60	0.28	C	0.65	0.68	0.51	C	0.60	0.60	0.28	C	0.65	0.65	0.51
29	Basic		B	0.48	0.52	-	B	0.49	0.53	-	B	0.52	0.52	-	B	0.50	0.50	-
30	Merge	US 62	C	0.64	0.68	0.52	C	0.65	0.69	0.52	C	0.68	0.68	0.52	C	0.66	0.66	0.52
31	Basic		C	0.64	0.68	-	C	0.65	0.69	-	C	0.68	0.68	-	C	0.65	0.65	-

HCS Results (Facility)				
Category	2048 AM No Build - 2 Lanes	2048 AM Build - 2 Lanes	2048 AM No Build - 3 Lanes	2048 AM Build - 3 Lanes
Facility Length, mi	17.97	17.97	17.97	17.97
Space Mean Speed, mi/h	57.8	56.7	71.8	70.1
Density, pc/mi/ln	33.6	35.8	20.5	21.7
Density, veh/mi/ln	30.7	32.7	18.7	19.8
Travel Time, min	18.7	19	15	15.4
LOS	F	F	C	C

SR-161 WB PM

Segment	Analysis Type	Location (SR 161 EB)	2048 PM No Build - 2 Lanes				2048 PM Build - 2 Lanes				2048 PM No Build - 3 Lanes				2048 PM Build - 3 Lanes			
			LOS	v/c	d/c		LOS	v/c	d/c		LOS	v/c	d/c		LOS	v/c	d/c	
					F*	R*			F*	R*			F*	R*			F*	R*
1	Basic		C	0.56	0.56	-	C	0.56	0.56	-	B	0.37	0.37	-	B	0.38	0.38	-
2	Diverge	Lancaster	C	0.56	0.56	0.24	C	0.56	0.56	0.24	B	0.37	0.37	0.24	B	0.38	0.38	0.24
3	Basic		B	0.46	0.46	-	B	0.46	0.46	-	A	0.30	0.30	-	A	0.31	0.31	-
4	Merge	Lancaster	C	0.52	0.52	0.15	C	0.53	0.53	0.15	B	0.35	0.35	0.15	B	0.36	0.36	0.15
5	Overlap		C	0.51	0.51	-	C	0.53	0.52	-	B	0.34	0.34	-	B	0.35	0.35	-
6	Diverge	Columbus	C	0.51	0.51	0.25	C	0.53	0.52	0.24	B	0.34	0.34	0.25	B	0.35	0.35	0.24
7	Basic		B	0.41	0.41	-	B	0.42	0.43	-	A	0.27	0.27	-	A	0.28	0.28	-
8	Merge	Columbus	B	0.47	0.47	0.12	B	0.47	0.48	0.12	B	0.31	0.31	0.12	B	0.32	0.32	0.12
9	Basic		B	0.47	0.47	-	B	0.47	0.48	-	A	0.31	0.31	-	A	0.32	0.32	-
10	Diverge	York	B	0.47	0.47	0.24	B	0.47	0.48	0.27	B	0.31	0.31	0.24	B	0.32	0.32	0.27
11	Basic		B	0.37	0.37	-	B	0.35	0.37	-	A	0.25	0.25	-	A	0.25	0.25	-
12	Merge	York	B	0.40	0.40	0.07	B	0.38	0.40	0.07	A	0.27	0.27	0.07	A	0.27	0.27	0.07
13	Basic		B	0.40	0.40	-	B	0.38	0.40	-	A	0.27	0.27	-	A	0.27	0.27	-
14	Diverge	SR 310	B	0.40	0.40	0.17	B	0.38	0.40	0.16	B	0.27	0.27	0.17	B	0.27	0.27	0.16
15	Basic		A	0.34	0.34	-	A	0.31	0.34	-	A	0.22	0.22	-	A	0.23	0.23	-
16	Merge	SR 310	B	0.43	0.43	0.20	B	0.40	0.43	0.19	B	0.29	0.29	0.20	B	0.29	0.29	0.19
17	Basic		B	0.42	0.42	-	B	0.40	0.42	-	A	0.28	0.28	-	A	0.28	0.28	-
18	Diverge	Mink	B	0.42	0.42	0.08	B	0.40	0.42	0.07	A	0.28	0.28	0.08	A	0.28	0.28	0.07
19	Basic		B	0.39	0.39	-	B	0.37	0.39	-	A	0.26	0.26	-	A	0.26	0.26	-
20	Merge	Mink	C	0.72	0.72	0.73	C	0.70	0.73	0.74	B	0.48	0.48	0.73	B	0.49	0.49	0.74
21	Basic		C	0.69	0.69	-	C	0.70	0.69	-	B	0.46	0.46	-	B	0.46	0.46	-
22	Basic		C	0.69	0.69	-	C	0.70	0.69	-	B	0.46	0.46	-	B	0.46	0.46	-
23	Diverge	Beech	C	0.69	0.69	0.06	D	0.70	0.69	0.07	B	0.46	0.46	0.06	B	0.46	0.46	0.07
24	Basic		C	0.66	0.66	-	C	0.67	0.66	-	B	0.44	0.44	-	B	0.44	0.44	-
25	Merge	Beech	E	1.00	1.00	0.74	F	1.00	1.02	0.78	C	0.67	0.67	0.74	C	0.68	0.68	0.78
26	Basic		E	0.97	0.97	-	E	1.00	0.98	-	C	0.64	0.64	-	C	0.66	0.66	-
27	Basic		C	0.64	0.64	-	C	0.67	0.66	-	C	0.64	0.64	-	C	0.66	0.66	-
28	Diverge	US 62	C	0.64	0.64	0.17	C	0.67	0.66	0.16	C	0.64	0.64	0.17	C	0.66	0.66	0.16
29	Basic		C	0.59	0.59	-	C	0.62	0.61	-	C	0.59	0.59	-	C	0.61	0.61	-
30	Merge	US 62	D	0.83	0.83	0.79	D	0.85	0.84	0.77	D	0.83	0.83	0.79	D	0.84	0.84	0.77
31	Basic		D	0.82	0.82	-	D	0.85	0.83	-	D	0.82	0.82	-	D	0.83	0.83	-

HCS Results (Facility)				
Category	2048 PM No Build - 2 Lanes	2048 PM Build - 2 Lanes	2048 PM No Build - 3 Lanes	2048 PM Build - 3 Lanes
Facility Length, mi	17.97	17.97	17.97	17.97
Space Mean Speed, mi/h	67.9	67.3	72.6	72.5
Density, pc/mi/ln	19.2	19.4	12.5	12.7
Density, veh/mi/ln	18.4	18.6	12.1	12.3
Travel Time, min	15.9	16.2	14.9	14.9
LOS	C	F	B	B

Beech AM

INTERSECTION	APPROACH	2048 No Build AM					2048 Build AM				
		LOS	DELAY	V/C	QSR	QUEUE	LOS	DELAY	V/C	QSR	QUEUE
Beech & Worthington	EB Left	D	43.0	0.36	0.17	83	D	43.0	0.34	0.17	83
	EB Through/Right	D	39.2	0.24	0.05	93	D	39.3	0.24	0.05	93
	Eastbound	**D**	**41.0**	-	-	-	**D**	**41.0**	-	-	-
	WB Left	D	50.0	0.29	0.17	79	D	49.5	0.23	0.13	63
	WB Through	D	53.6	0.72	0.11	200	D	52.8	0.66	0.10	182
	WB Right	D	48.9	0.63	0.31	192	D	48.9	0.63	0.31	192
	Westbound	**D**	**51.0**	-	-	-	**D**	**50.6**	-	-	-
	NB Left	E	61.4	0.38	0.05	18	E	61.4	0.38	0.03	18
	NB Through/Right	C	23.4	0.76	0.31	630	C	21.4	0.71	0.28	566
	Northbound	**C**	**23.6**	-	-	-	**C**	**21.6**	-	-	-
	SB Left	B	16.1	0.17	0.05	16	B	14.2	0.16	0.03	17
	SB Through	B	13.6	0.62	0.60	331	C	22.3	0.65	0.99	546
	SB Right	A	3.5	0.19	0.15	37	A	4.8	0.20	0.09	52
	Southbound	**B**	**12.4**	-	-	-	**B**	**19.9**	-	-	-
	Intersection Total	**C**	**22.1**	-	-	-	**C**	**24.1**	-	-	-
Beech & SR 161 EB Ramps	EB Left	D	38.0	0.80	0.94	562	D	35.2	0.71	0.34	462
	EB Right	F	89.0	1.06	1.69	1014	D	40.6	0.85	0.79	474
	Eastbound	**E**	**57.2**	-	-	-	**D**	**38.0**	-	-	-
	NB Through	F	81.0	1.12	1.55	851	C	30.1	0.96	0.92	505
	NB Right	B	12.8	0.52	0.30	127	B	10.9	0.47	0.21	114
	Northbound	**E**	**70.1**	-	-	-	**C**	**26.8**	-	-	-
	SB Left	E	55.4	0.26	0.06	24	D	54.8	0.23	0.05	19
	SB Through	A	7.3	0.50	0.13	115	A	9.6	0.40	0.13	113
	Southbound	**A**	**9.2**	-	-	-	**B**	**11.3**	-	-	-
	Intersection Total	**D**	**52.6**	-	-	-	**C**	**28.7**	-	-	-
Beech & SR 161 WB Ramps	WB Left	D	51.9	0.90	1.18	568	D	49.9	0.75	0.65	312
	WB Right	C	31.2	0.27	0.27	129	D	45.4	0.54	0.42	200
	Westbound	**D**	**46.5**	-	-	-	**D**	**49.3**	-	-	-
	NB Left	D	44.5	0.87	0.32	129	D	44.6	0.86	0.34	136
	NB Through	B	13.4	0.84	0.41	373	A	4.0	0.69	0.13	120
	Northbound	**B**	**18.2**	-	-	-	**B**	**10.5**	-	-	-
	SB Through	C	25.4	0.30	0.33	201	B	14.5	0.25	0.24	142
	SB Right	C	26.0	0.33	0.52	194	B	17.4	0.27	0.25	158
	Southbound	**C**	**25.6**	-	-	-	**B**	**15.4**	-	-	-
	Intersection Total	**C**	**25.4**	-	-	-	**B**	**19.6**	-	-	-
Beech & Smiths Mill	EB Left	D	48.1	0.18	0.36	46	D	48.1	0.18	0.36	46
	EB Through	D	51.9	0.12	0.05	23	D	51.9	0.12	0.05	23
	EB Right	D	52.3	0.16	0.05	26	D	41.8	0.07	0.05	23
	Eastbound	**D**	**50.1**	-	-	-	**D**	**47.3**	-	-	-
	WB Left	E	57.8	0.48	0.16	62	E	57.8	0.48	0.16	62
	WB Through/Right	D	52.0	0.18	0.03	34	D	52.0	0.18	0.03	34
	Westbound	**E**	**56.5**	-	-	-	**E**	**56.5**	-	-	-
	NB Left	E	58.2	0.73	0.41	155	D	50.8	0.75	0.32	146
	NB Through/Right	A	4.4	0.70	0.10	119	B	13.0	0.69	0.30	385
	Northbound	**B**	**11.2**	-	-	-	**B**	**17.7**	-	-	-
	SB Left	B	11.2	0.05	0.02	6	B	13.2	0.05	0.02	6
	SB Through/Right	B	14.8	0.28	0.28	192	B	14.8	0.29	0.29	199
	Southbound	**B**	**14.7**	-	-	-	**B**	**14.8**	-	-	-
	Intersection Total	**B**	**14.9**	-	-	-	**B**	**19.4**	-	-	-

Beech PM

INTERSECTION	APPROACH	2048 No Build PM					2048 Build PM				
		LOS	DELAY	V/C	QSR	QUEUE	LOS	DELAY	V/C	QSR	QUEUE
Beech & Worthington	EB Left	D	45.4	0.33	0.20	94	D	45.4	0.33	0.20	94
	EB Through/Right	D	42.6	0.35	0.07	137	D	41.9	0.27	0.05	105
	Eastbound	**D**	**43.7**	-	-	-	**D**	**43.5**	-	-	-
	WB Left	D	52.2	0.23	0.10	50	D	51.6	0.15	0.07	33
	WB Through	D	52.3	0.32	0.04	66	D	52.3	0.32	0.04	66
	WB Right	D	46.4	0.28	0.12	77	D	46.6	0.29	0.12	78
	Westbound	**D**	**49.8**	-	-	-	**D**	**49.5**	-	-	-
	NB Left	E	59.1	0.79	0.36	142	E	59.1	0.79	0.24	142
	NB Through/Right	C	31.3	0.89	0.42	838	C	30.8	0.89	0.41	832
	Northbound	**C**	**32.1**	-	-	-	**C**	**31.7**	-	-	-
	SB Left	C	28.2	0.73	0.31	106	C	20.2	0.43	0.09	48
	SB Through	B	18.1	0.34	0.46	254	C	29.5	0.20	0.48	266
	SB Right	A	5.5	0.08	0.10	24	B	15.1	0.05	0.14	75
	Southbound	**B**	**18.5**	-	-	-	**C**	**26.9**	-	-	-
	Intersection Total	**C**	**29.8**	-	-	-	**C**	**32.3**	-	-	-
Beech & SR 161 EB Ramps	EB Left	C	31.5	0.26	0.11	144	D	38.9	0.31	0.05	105
	EB Right	E	63.2	0.93	0.95	570	D	50.1	0.83	0.53	320
	Eastbound	**D**	**50.9**	-	-	-	**D**	**47.2**	-	-	-
	NB Through	B	12.7	0.79	0.40	219	A	9.4	0.68	0.36	196
	NB Right	B	15.5	0.88	0.48	206	A	9.7	0.78	0.31	170
	Northbound	**B**	**13.6**	-	-	-	**A**	**9.5**	-	-	-
	SB Left	E	57.6	0.73	0.28	110	E	55.7	0.72	0.29	117
	SB Through	B	13.9	0.33	0.17	155	B	13.8	0.33	0.21	188
	Southbound	**C**	**25.3**	-	-	-	**C**	**25.0**	-	-	-
	Intersection Total	**C**	**23.6**	-	-	-	**C**	**20.1**	-	-	-
Beech & SR 161 WB Ramps	WB Left	E	61.9	0.70	0.32	153	D	54.5	0.39	0.16	79
	WB Right	D	52.7	0.22	0.08	37	D	54.7	0.37	0.13	64
	Westbound	**E**	**59.0**	-	-	-	**E**	**55.0**	-	-	-
	NB Left	C	28.8	0.95	0.78	311	D	37.0	0.94	0.95	381
	NB Through	A	4.8	0.29	0.15	136	A	7.9	0.31	0.23	203
	Northbound	**B**	**18.2**	-	-	-	**C**	**24.5**	-	-	-
	SB Through	C	22.2	0.39	0.43	259	C	24.2	0.41	0.48	288
	SB Right	C	25.9	0.81	1.17	432	C	28.0	0.84	0.73	458
	Southbound	**C**	**24.0**	-	-	-	**C**	**26.0**	-	-	-
	Intersection Total	**C**	**22.8**	-	-	-	**C**	**26.9**	-	-	-
Beech & Smiths Mill	EB Left	D	37.5	0.17	0.53	70	D	37.1	0.14	0.42	55
	EB Through	D	43.2	0.25	0.17	85	D	43.0	0.26	0.18	91
	EB Right	E	56.5	0.84	0.60	300	D	46.5	0.72	0.59	296
	Eastbound	**D**	**50.7**	-	-	-	**D**	**44.6**	-	-	-
	WB Left	E	57.3	0.77	0.47	188	E	56.8	0.76	0.47	187
	WB Through/Right	D	39.2	0.21	0.09	86	D	38.2	0.20	0.08	85
	Westbound	**D**	**53.3**	-	-	-	**D**	**52.7**	-	-	-
	NB Left	E	56.5	0.30	0.08	32	E	59.4	0.29	0.07	32
	NB Through/Right	C	20.4	0.40	0.22	265	B	11.5	0.40	0.13	159
	Northbound	**C**	**22.3**	-	-	-	**B**	**13.9**	-	-	-
	SB Left	B	17.0	0.04	0.03	9	B	16.8	0.03	0.02	9
	SB Through/Right	C	24.5	0.48	0.49	338	C	25.1	0.50	0.50	346
	Southbound	**C**	**24.3**	-	-	-	**C**	**24.9**	-	-	-
	Intersection Total	**C**	**32.3**	-	-	-	**C**	**28.9**	-	-	-

Mink AM

INTERSECTION	APPROACH	2048 No Build AM					2048 Build - Diamond AM					2048 Build - DDI AM					2048 Build - Parclo AM				
		LOS	DELAY	V/C	QSR	QUEUE	LOS	DELAY	V/C	QSR	QUEUE	LOS	DELAY	V/C	QSR	QUEUE	LOS	DELAY	V/C	QSR	QUEUE
Mink & Worthington	EB Left	D	50.0	0.45	0.42	92	C	32.7	0.59	0.40	130	D	47.8	0.67	0.46	162	D	44.1	0.67	0.51	166
	EB Through/Right	D	47.5	0.14	0.07	35	C	30.3	0.07	0.05	25	D	36.1	0.07	0.01	28	C	34.4	0.07	0.06	29
	Eastbound	**D**	**49.3**	-	-	-	**C**	**32.3**	-	-	-	**D**	**45.9**	-	-	-	**D**	**42.4**	-	-	-
	WB Left	D	48.0	0.05	0.07	16	C	33.5	0.03	0.03	12	D	37.9	0.03	0.04	13	D	36.7	0.03	0.04	13
	WB Through/Right	F	201.0	1.22	0.91	453	D	46.8	0.91	0.67	335	D	52.0	0.91	0.17	345	D	51.2	0.91	0.73	363
	Westbound	**F**	**191.4**	-	-	-	**D**	**46.3**	-	-	-	**D**	**51.4**	-	-	-	**D**	**50.6**	-	-	-
	NB Left	B	10.5	0.17	0.14	34	B	14.7	0.12	0.07	41	B	13.1	0.11	0.06	38	B	14.0	0.11	0.07	42
	NB Through/Right	F	128.3	1.21	4.42	2204	C	34.3	0.80	1.15	573	C	26.6	0.66	0.25	498	C	30.6	0.74	1.14	568
	Northbound	**F**	**121.6**	-	-	-	**C**	**33.3**	-	-	-	**C**	**25.9**	-	-	-	**C**	**29.8**	-	-	-
	SB Left	C	31.9	0.47	0.10	62	B	19.7	0.32	0.07	41	B	18.8	0.39	0.11	66	C	20.8	0.31	0.15	46
	SB Through	B	16.7	0.56	0.63	386	C	21.8	0.16	0.17	102	B	17.1	0.21	0.17	131	C	21.1	0.15	0.17	107
	SB Right						C	21.7	0.24	0.24	148	B	17.4	0.31	0.27	160	B	11.1	0.22	0.29	72
	Southbound	**B**	**18.4**	-	-	-	**C**	**21.4**	-	-	-	**B**	**17.5**	-	-	-	**B**	**17.6**	-	-	-
	Intersection Total	**F**	**95.9**	-	-	-	**C**	**32.4**	-	-	-	**C**	**27.5**	-	-	-	**C**	**30.7**	-	-	-
Mink & SR 161 EB Ramps	EB Left	D	45.4	0.90	1.09	722	D	35.7	0.87	0.70	465	C	28.8	0.72		390	D	40.0	0.88	0.78	513
	EB Right	F	133.5	1.19	3.97	1529	C	27.8	0.30	0.44	130	C	20.7	0.19		100	C	30.6	0.30	0.45	145
	Eastbound	**F**	**95.5**	-	-	-	**D**	**35.3**	-	-	-	**C**	**28.1**	-		-	**D**	**39.7**	-	-	-
	NB Through	F	44.9	1.02	1.00	501	B	16.7	0.71	0.52	259	C	27.7	0.65		403	B	15.6	0.79	0.85	426
	NB Right	B	19.9	0.12	0.09	34	A	9.0	0.06	0.03	13	A	0.0	0.00		0	A	7.8	0.04	0.03	14
	Northbound	**D**	**43.7**	-	-	-	**B**	**16.5**	-	-	-	**C**	**27.1**	-		-	**B**	**15.4**	-	-	-
	SB Left	D	47.9	0.86	0.79	198	B	18.6	0.57	0.21	83	A	0.0	0.00		0					
	SB Through	B	13.4	0.55	0.87	216	A	7.5	0.21	0.15	60	C	21.8	0.24		130	B	10.8	0.17	0.19	76
	SB Right																A	8.3	0.18	0.17	69
	Southbound	**C**	**23.0**	-	-	-	**B**	**10.8**	-	-	-	**C**	**21.3**	-		-	**A**	**9.0**	-	-	-
	Intersection Total	**E**	**63.4**	-	-	-	**C**	**24.0**	-	-	-	**C**	**26.6**	-		-	**C**	**25.2**	-	-	-
Mink & SR 161 WB Ramps	WB Left	D	36.4	0.71	0.48	402	C	31.1	0.30	0.17	140	B	13.6	0.64		301	C	34.0	0.28	0.17	143
	WB Right	D	44.4	0.87	0.77	511	D	41.0	0.90	0.85	360	D	35.0	0.14		71	D	48.7	0.91	0.95	403
	Westbound	**D**	**40.7**	-	-	-	**D**	**39.3**	-	-	-	**C**	**31.5**	-		-	**D**	**46.1**	-	-	-
	NB Left	B	14.0	0.20	0.17	43	B	10.6	0.20	0.11	45	A	0.0	0.00		0					
	NB Through	B	14.9	0.89	1.66	415	B	10.8	0.81	0.73	293	D	37.1	0.97		840	B	11.6	0.13	0.12	55
	NB Right																B	14.6	0.78	1.05	418
	Northbound	**B**	**14.8**	-	-	-	**B**	**10.8**	-	-	-	**D**	**36.1**	-		-	**B**	**14.5**	-	-	-
	SB Through	C	22.1	0.34	0.23	215	C	21.3	0.22	0.31	153	C	29.5	0.23		120	B	13.7	0.26	0.25	125
	SB Right	D	35.9	0.77	0.99	533	C	25.5	0.33	0.35	220	A	0.0	0.00		0	B	18.6	0.45	0.61	350
	Southbound	**C**	**29.2**	-	-	-	**C**	**23.6**	-	-	-	**B**	**12.5**	-		-	**B**	**16.4**	-	-	-
	Intersection Total	**C**	**24.5**	-	-	-	**B**	**18.5**	-	-	-	**C**	**30.5**	-		-	**C**	**20.8**	-	-	-
Mink & Innovation	EB Left	F	5210.3	7.60	1.68	143	D	48.4	0.24	0.29	35	D	53.3	0.24	0.31	37	D	53.3	0.25	0.32	38
	EB Right	B	14.3	0.10	0.00	10	D	49.6	0.40	0.27	53	D	54.7	0.41	0.28	56	D	54.7	0.42	0.29	59
	Eastbound	**F**	**1746.3**	-	-	-	**D**	**49.1**	-	-	-	**D**	**54.1**	-	-	-	**D**	**54.1**	-	-	-
	NB Left	C	15.3	0.46	0.20	65	A	4.7	0.29	0.05	30	A	3.0	0.12	0.02	14	A	4.4	0.29	0.08	31
	NB Through	A	0.0	0.00	0.00	0	A	3.2	0.78	0.00	121	A	4.7	0.36	0.18	170	A	3.3	0.77	0.23	140
	Northbound	**A**	**1.4**	-	-	-	**A**	**3.3**	-	-	-	**A**	**4.6**	-	-	-	**A**	**3.4**	-	-	-
	SB Through/Right	A	0.0	0.00	0.00	0	A	4.8	0.20	0.14	70	A	5.5	0.17	0.08	79	A	4.3	0.19	0.13	67
	Southbound	**A**	**0.0**	-	-	-	**A**	**4.8**	-	-	-	**A**	**5.5**	-	-	-	**A**	**4.2**	-	-	-
	Intersection Total	**D**	**28.9**	-	-	-	**A**	**4.2**	-	-	-	**A**	**6.1**	-	-	-	**A**	**4.3**	-	-	-
Mink & Beaver	WB Left	F	8944.4	19.50	2.00	785	D	51.3	0.75	0.25	152	E	55.6	0.84	0.00	226	E	56.7	0.81	0.32	191
	WB Right						D	53.3	0.71	0.32	144	D	49.1	0.31	0.16	70	E	58.7	0.77	0.41	182
	Westbound	**F**	**8944.4**	-	-	-	**D**	**52.2**	-	-	-	**D**	**54.0**	-	-	-	**E**	**57.6**	-	-	-
	NB Through	A	0.0	0.00	0.00	0	A	5.2	0.75	0.16	158	A	4.7	0.50	0.14	133	A	5.2	0.74	0.17	168
	NB Right	A	0.0	0.00	0.00	0	A	9.7	0.90	0.20	152	A	4.8	0.48	0.00	120	C	26.6	1.00	0.51	408
	Northbound	**A**	**0.0**	-	-	-	**A**	**6.9**	-	-	-	**A**	**4.8**	-	-	-	**B**	**13.3**	-	-	-
	SB Left	E	45.8	0.27	0.04	31.2	A	6.9	0.12	0.02	7	A	4.4	0.05	0.01	6	A	6.3	0.12	0.02	6
	SB Through	A	0.0	0.00	0.00	0	A	1.5	0.18	0.03	23	A	3.7	0.16	0.06	51	A	1.4	0.18	0.03	23
	Southbound	**A**	**1.9**	-	-	-	**A**	**1.8**	-	-	-	**A**	**3.7**	-	-	-	**A**	**1.6**	-	-	-
	Intersection Total	**F**	**593.0**	-	-	-	**A**	**8.8**	-	-	-	**A**	**9.7**	-	-	-	**B**	**14.5**	-	-	-
Mink & Clover Valley	EB Left	D	48.1	0.24	0.30	41	D	46.9	0.24	0.07	40	D	49.6	0.18	0.06		D	52.1	0.26	0.07	44
	EB Right	B	11.3	0.44	1.48	199	A	9.7	0.16	0.05	54	E	56.2	0.82	0.18		B	11.3	0.16	0.08	64
	Eastbound	**B**	**14.2**	-	-	-	**B**	**14.4**	-	-	-	**E**	**55.4**	-	-	-	**B**	**16.4**	-	-	-
	NB Left	F	355.5	1.73	7.21	4440	C	29.6	0.98	1.27	538	E	55.9	0.90	1.09		D	37.2	0.99	1.59	675
	NB Through	A	3.8	0.40	0.19	97	A	1.4	0.40	0.05	38	A	3.3	0.19	0.07		A	1.3	0.39	0.05	38
	Northbound	**F**	**220.9**	-	-	-	**B**	**18.3**	-	-	-	**C**	**34.8**	-	-	-	**C**	**22.9**	-	-	-
	SB Through/Right	F	87.9	0.98	1.06	529	D	45.7	0.63	0.30	305	B	19.3	0.27	0.18		D	43.9	0.56	0.31	311
	Southbound	**F**	**87.5**	-	-	-	**D**	**45.5**	-	-	-	**B**	**19.3**	-	-	-	**D**	**43.8**	-	-	-
	Intersection Total	**F**	**171.0**	-	-	-	**C**	**22.7**	-	-	-	**C**	**33.2**	-	-	-	**C**	**26.0**	-	-	-

Mink PM

INTERSECTION	APPROACH	2048 No Build PM					2048 Build - Diamond PM					2048 Build - DDI PM					2048 Build - Parclo PM				
		LOS	DELAY	V/C	QSR	QUEUE	LOS	DELAY	V/C	QSR	QUEUE	LOS	DELAY	V/C	QSR	QUEUE	LOS	DELAY	V/C	QSR	QUEUE
Mink & Worthington	EB Left	D	54.5	0.70	0.22	48	D	40.3	0.61	0.46	149	D	40.3	0.61	0.46	149	C	30.6	0.49	0.36	118
	EB Through/Right	D	48.8	0.58	0.36	178	D	39.7	0.53	0.29	147	D	39.7	0.53	0.29	147	C	33.2	0.44	0.25	125
	Eastbound	**D**	**51.7**	-	-	-	**D**	**40.0**	-	-	-	**D**	**40.0**	-	-	-	**C**	**31.9**	-	-	-
	WB Left	D	44.3	0.07	0.06	13	D	39.2	0.06	0.03	11	D	39.2	0.06	0.03	11	C	34.4	0.05	0.03	10
	WB Through/Right	E	75.4	0.80	0.40	198	D	45.9	0.73	0.27	136	D	45.9	0.73	0.27	136	D	41.2	0.65	0.24	122
	Westbound	**E**	**72.8**	-	-	-	**D**	**45.4**	-	-	-	**D**	**45.4**	-	-	-	**D**	**40.6**	-	-	-
	NB Left	C	28.0	0.11	0.03	8	B	13.0	0.05	0.01	5	B	13.0	0.05	0.01	5	B	13.9	0.05	0.01	5
	NB Through/Right	C	23.5	0.78	1.17	584	B	17.0	0.52	0.62	309	B	17.0	0.52	0.62	309	C	20.0	0.59	0.64	318
	Northbound	**C**	**23.6**	-	-	-	**B**	**17.0**	-	-	-	**B**	**17.0**	-	-	-	**B**	**19.9**	-	-	-
	SB Left	B	15.5	0.19	0.04	23	B	11.0	0.16	0.04	24	B	11.0	0.16	0.04	24	B	12.1	0.17	0.08	23
	SB Through	F	116.2	1.22	2.73	1661	A	8.4	0.63	0.00	188	A	8.4	0.63	0.00	188	B	14.9	0.68	0.47	285
	SB Right						A	5.1	0.30	0.09	56	A	5.1	0.30	0.09	56	B	19.7	0.31	0.95	237
	Southbound	**F**	**111.9**	-	-	-	**A**	**7.9**	-	-	-	**A**	**7.9**	-	-	-	**B**	**15.6**	-	-	-
	Intersection Total	**E**	**75.5**	-	-	-	**B**	**15.6**	-	-	-	**B**	**15.6**	-	-	-	**B**	**19.8**	-	-	-
Mink & SR 161 EB Ramps	EB Left	D	36.7	0.61	0.45	296	D	40.5	0.76	0.35	228	C	22.4	0.35		181	C	27.5	0.44	0.25	164
	EB Right	F	90.2	1.04	1.80	693	D	42.1	0.80	0.71	214	C	21.7	0.28		157	C	33.7	0.87	0.99	321
	Eastbound	**E**	**69.9**	-	-	-	**D**	**41.1**	-	-	-	**C**	**22.0**	-		-	**C**	**30.5**	-	-	-
	NB Through	D	38.0	0.79	0.78	389	A	8.2	0.48	0.00	110	C	25.0	0.50		303	A	6.1	0.58	0.25	126
	NB Right	C	24.6	0.21	0.21	78	A	4.1	0.12	0.03	15	A	0.0	0.00		0	A	3.2	0.10	0.03	13
	Northbound	**D**	**36.7**	-	-	-	**A**	**7.9**	-	-	-	**C**	**23.2**	-		-	**A**	**5.9**	-	-	-
	SB Left	F	93.9	1.08	3.30	825	**B**	**16.8**	0.89	0.47	187	**A**	**0.0**	0.00		0					
	SB Through	F	72.5	1.08	6.04	1511	B	12.0	0.55	0.00	354	C	28.9	0.71		444	B	14.5	0.65	0.78	312
	SB Right																B	13.6	0.54	0.56	225
	Southbound	**E**	**79.0**	-	-	-	**B**	**13.2**	-	-	-	**C**	**31.1**	-		-	**B**	**14.3**	-	-	-
	Intersection Total	**E**	**65.5**	-	-	-	**B**	**17.8**	-	-	-	**C**	**27.1**	-		-	**B**	**15.0**	-	-	-
Mink & SR 161 WB Ramps	WB Left	D	51.8	0.51	0.12	98	D	42.2	0.27	0.00	48	C	24.6	0.06		27	D	37.1	0.23	0.05	39
	WB Right	D	52.8	0.54	0.14	93	D	42.4	0.31	0.10	42	B	14.9	0.05		23	D	37.4	0.29	0.09	36
	Westbound	**D**	**52.3**	-	-	-	**D**	**42.3**	-	-	-	**C**	**17.8**	-		-	**D**	**37.3**	-	-	-
	NB Left	B	17.6	0.48	0.32	80	B	11.9	0.46	0.16	62	A	0.0	0.00		0					
	NB Through	B	11.1	0.44	1.31	327	A	0.5	0.42	0.00	14	D	41.1	0.88		545	A	5.6	0.42	0.40	159
	NB Right																A	2.1	0.12	0.04	16
	Northbound	**B**	**11.7**	-	-	-	**A**	**1.4**	-	-	-	**D**	**40.0**	-		-	**A**	**5.3**	-	-	-
	SB Through	B	12.8	0.73	0.51	484	A	5.2	0.79	0.00	146	C	27.1	0.81		576	A	7.9	0.93	0.24	119
	SB Right	F	74.9	1.10	2.75	1487	A	2.9	0.64	0.10	61	A	0.0	0.00		0	A	5.9	0.89	0.18	104
	Southbound	**D**	**37.9**	-	-	-	**A**	**4.3**	-	-	-	**B**	**16.9**	-		-	**A**	**7.1**	-	-	-
	Intersection Total	**C**	**30.4**	-	-	-	**A**	**4.2**	-	-	-	**C**	**24.7**	-		-	**A**	**7.2**	-	-	-
Mink & Innovation	EB Left	F	N/A	N/A	N/A	N/A	D	41.3	0.07	0.10	12	D	51.1	0.08	0.12	14	D	36.4	0.06	0.08	10
	EB Right	F	118.4	0.82	0.90	121.4	D	45.7	0.67	0.56	112	E	58.4	0.79	0.72	144	D	41.0	0.62	0.50	101
	Eastbound	**F**	**N/A**	-	-	-	**D**	**45.3**	-	-	-	**E**	**57.7**	-	-	-	**D**	**40.5**	-	-	-
	NB Left	F	297.3	1.40	0.84	273.5	C	28.4	0.17	0.03	16	D	37.1	0.15	0.03	16	C	24.7	0.16	0.04	14
	NB Through	A	0.0	0.00	0.00	0	A	4.8	0.42	0.00	155	A	2.3	0.29	0.07	62	A	5.1	0.44	0.25	148
	Northbound	**F**	**30.4**	-	-	-	**A**	**5.1**	-	-	-	**A**	**2.8**	-	-	-	**A**	**5.3**	-	-	-
	SB Through/Right	A	0.0	0.00	0.00	0	A	4.4	0.77	0.25	124	A	6.4	0.72	0.25	238	A	7.1	0.78	0.35	174
	Southbound	**A**	**0.0**	-	-	-	**A**	**4.5**	-	-	-	**A**	**6.1**	-	-	-	**A**	**6.9**	-	-	-
	Intersection Total	**F**	**N/A**	-	-	-	**A**	**5.6**	-	-	-	**A**	**6.5**	-	-	-	**A**	**7.1**	-	-	-
Mink & Beaver	WB Left	F	23479.1	52.20	10.00	2795	C	31.8	0.78	0.60	363	F	164.3	1.25	2.36	1416	D	47.3	0.88	0.69	412
	WB Right						D	49.2	0.87	1.12	502	C	26.7	0.08	0.08	38	F	82.2	0.99	1.35	609
	Westbound	**F**	**23479.1**	-	-	-	**D**	**41.0**	-	-	-	**F**	**157.0**	-	-	-	**E**	**65.7**	-	-	-
	NB Through	A	0.0	0.00	0.00	0	B	13.2	0.53	0.21	203	C	22.1	0.54	0.37	357	A	8.5	0.51	0.14	133
	NB Right	A	0.0	0.00	0.00	0	A	2.4	0.31	0.05	40	B	19.8	0.36	0.27	215	A	2.1	0.32	0.04	33
	Northbound	**A**	**0.0**	-	-	-	**B**	**10.6**	-	-	-	**C**	**21.5**	-	-	-	**A**	**7.0**	-	-	-
	SB Left	B	11.2	0.04	0.00	2.7	B	12.8	0.04	0.02	5	B	16.0	0.04	0.02	6	B	10.2	0.04	0.01	4
	SB Through	A	0.0	0.00	0.00	0	B	14.2	0.86	0.41	326	C	26.8	0.87	0.72	575	B	10.7	0.82	0.29	231
	Southbound	**A**	**0.1**	-	-	-	**B**	**14.2**	-	-	-	**C**	**26.8**	-	-	-	**B**	**10.7**	-	-	-
	Intersection Total	**F**	**4285.5**	-	-	-	**B**	**18.1**	-	-	-	**D**	**49.6**	-	-	-	**B**	**19.8**	-	-	-
Mink & Clover Valley	EB Left	C	20.1	0.03	0.13	17	B	18.9	0.03	0.03	15	C	23.1	0.03	0.03	18	B	18.3	0.04	0.02	14
	EB Right	F	306.7	1.61	25.54	3448	F	73.4	1.07	0.81	809	F	83.0	1.08	1.14	913	F	83.6	1.10	1.02	818
	Eastbound	**F**	**302.0**	-	-	-	**E**	**72.5**	-	-	-	**F**	**82.0**	-	-	-	**F**	**82.5**	-	-	-
	NB Left	C	32.6	0.48	0.19	116	E	61.3	0.83	0.31	132	E	65.2	0.72	0.27	113	D	39.8	0.73	0.22	95
	NB Through	C	21.3	0.41	0.52	261	B	17.2	0.67	0.39	314	B	15.2	0.46	0.30	239	B	16.3	0.66	0.37	297
	Northbound	**C**	**23.1**	-	-	-	**C**	**23.7**	-	-	-	**C**	**22.5**	-	-	-	**B**	**19.7**	-	-	-
	SB Through/Right	F	153.7	1.21	2.50	1248	F	80.6	1.05	0.86	856	D	49.0	0.89	0.73	732	F	83.9	1.07	0.83	832
	Southbound	**F**	**153.4**	-	-	-	**F**	**80.5**	-	-	-	**D**	**49.0**	-	-	-	**F**	**83.8**	-	-	-
	Intersection Total	**F**	**181.9**	-	-	-	**E**	**59.0**	-	-	-	**D**	**54.0**	-	-	-	**E**	**62.0**	-	-	-

SR-310

Movement	Table 1: 2048 No Improvements Condition / Build Volumes without Improvements									
	AM Peak Hour					PM Peak Hour				
	LOS	Delay (sec/veh)	v/c	QSR	HCS 95th %ile Queue	LOS	Delay (sec/veh)	v/c	QSR	HCS 95th %ile Queue
11A: SR-310 & Worthington Rd (Signalized)										
EBL	D	53.8	0.399	0.16	84	F	101.1	0.694	0.16	85
EBTR	D	53.9	0.148	0.02	33	F	95.4	0.768	0.12	205
EB Approach	D	53.8	-	-	-	F	98.4	-	-	-
WBL	D	54.5	0.056	0.03	14	F	88.8	0.149	0.04	24
WBTR	E	65.4	0.821	0.04	148	F	94.0	0.419	0.02	75
WB Approach	E	64.3	-	-	-	F	92.7	-	-	-
NBL	B	11.8	0.139	0.08	20	E	63.3	0.397	0.25	60
NBTR	F	102.3	1.157	1.06	1,921	B	12.2	0.562	0.26	476
NB Approach	F	98.6	-	-	-	B	14.5	-	-	-
SBL	D	35.6	0.133	0.04	11	A	8.7	0.230	0.18	46
SBTR	B	18.0	0.673	0.71	477	F	186.3	1.349	6.10	4,090
SB Approach	B	18.2	-	-	-	F	175.0	-	-	-
Intersection Total	E	69.7	-	-	-	F	127.1	-	-	-
11B: SR-310 & SR-161 EB Ramp (TWSC)										
EBLT	F	1939.4	4.680	0.58	420	F	9956.7	20.600	0.64	462
EBR	C	15.4	0.390	0.07	48	F	936.5	2.970	1.93	1,389
EB Approach	F	736.9	-	-	-	F	2528.3	-	-	-
NBT	-	-	-	0.00	-	-	-	-	0.00	-
NBR	-	-	-	0.00	-	-	-	-	0.00	-
NB Approach	-	-	-	-	-	-	-	-	-	-
SBL	C	15.3	0.240	0.08	24	B	13.3	0.470	0.21	64
SBT	-	-	-	0.00	-	-	-	-	0.00	-
SB Approach	A	2.7	-	-	-	A	3.1	-	-	-
Intersection Total	-	-	-	-	-	-	-	-	-	-
11C: SR-310 & SR-161 WB Ramp (TWSC)										
WBLT	F	9536.3	18.400	0.48	306	F	7496.1	13.050	0.30	190
WBR	F	615.0	2.290	2.36	1,514	C	19.0	0.500	0.11	70
WB Approach	F	1447.6	-	-	-	F	1126.7	-	-	-
NBL	C	18.0	0.690	0.43	151	E	37.9	0.740	0.42	148
NBT	-	-	-	0.00	-	-	-	-	0.00	-
NB Approach	A	7.0	-	-	-	B	12.0	-	-	-
SBT	-	-	-	0.00	-	-	-	-	0.00	-
SBR	-	-	-	0.00	-	-	-	-	0.00	-
SB Approach	-	-	-	-	-	-	-	-	-	-
Intersection Total	-	-	-	-	-	-	-	-	-	-
11D: SR-310 & Jersey Mill Rd (TWSC)										
EBLTR	-	-	-	0.00	-	F	1395.9	3.970	0.77	1,540
EB Approach	-	-	-	-	-	F	1395.9	-	-	-
WBLTR	-	-	-	0.00	-	-	-	-	0.00	-
WB Approach	-	-	-	-	-	-	-	-	-	-
NBL	B	15.0	0.660	0.20	130	B	12.5	0.240	0.04	23
NBTR	B	15.0	-	0.00	-	A	4.9	-	0.00	-
NB Approach	B	15.0	-	-	-	A	6.3	-	-	-
SBL	B	10.7	0.080	0.00	8	A	9.5	0.110	0.01	10
SBTR	A	1.2	-	0.00	-	A	2.6	-	0.00	-
SB Approach	A	2.1	-	-	-	A	3.2	-	-	-
Intersection Total	-	-	-	-	-	-	-	-	-	-
11E: SR-310 & Jug St (TWSC)										
EBLTR	E	42.3	0.360	0.02	41	F	193.7	1.150	0.11	219
EB Approach	E	42.3	-	-	-	F	193.7	-	-	-
WBLTR	F	65.2	0.360	0.02	39	F	412.1	1.130	0.05	96
WB Approach	F	65.2	-	-	-	F	412.1	-	-	-
NBL	A	9.2	0.040	0.00	3	B	12.9	0.250	0.01	25
NBTR	A	0.7	-	0.00	-	A	4.4	-	0.00	-
NB Approach	A	1.0	-	-	-	A	6.4	-	-	-
SBL	A	10.0	0.010	0.00	0	A	8.5	0.020	0.00	3
SBTR	A	0.2	-	0.00	-	A	0.5	-	0.00	-
SB Approach	A	0.4	-	-	-	A	0.6	-	-	-
Intersection Total	-	-	-	-	-	-	-	-	-	-

SR-310

Movement	Table 1: SR-310 - 2048 Build Condition Alternate 1: Signalized Diamond Interchange									
	AM Peak Hour					PM Peak Hour				
	LOS	Delay (sec/veh)	v/c	QSR	HCS 95th %ile Queue	LOS	Delay (sec/veh)	v/c	QSR	HCS 95th %ile Queue
11A: SR-310 & Worthington Rd (Coordinated Signal)										
EBL	C	33.1	0.256	0.09	50	D	41.4	0.370	0.19	104
EBTR	C	33.4	0.109	0.01	20	D	44.1	0.420	0.06	97
EB Approach	C	33.2	-	-	-	D	42.7	-	-	-
WBL	C	34.7	0.042	0.02	9	D	44.2	0.060	0.02	12
WBTR	D	39.8	0.607	0.02	89	D	46.9	0.234	0.01	36
WB Approach	D	39.3	-	-	-	D	46.2	-	-	-
NBL	A	9.3	0.117	0.05	18	C	21.2	0.200	0.05	17
NBT	B	19.7	0.711	0.20	364	B	14.2	0.374	0.11	207
NBR	B	19.7	0.712	0.20	342	B	14.2	0.375	0.11	197
NB Approach	B	19.3	-	-	-	B	14.5	-	-	-
SBL	B	13.5	0.053	0.01	4	A	9.3	0.239	0.12	44
SBT	B	12.0	0.409	0.21	140	C	24.3	0.884	0.85	568
SBR	A	4.4	0.077	0.03	10	A	4.8	0.063	0.03	12
SB Approach	B	11.4	-	-	-	C	22.8	-	-	-
Intersection Total	**B**	**18.2**	-	-	-	**C**	**22.3**	-	-	-
11B: SR-310 & SR-161 EB Ramp (Coordinated Signal)										
EBLT	D	41.2	0.770	0.18	129	C	33.1	0.308	0.17	122
EBR	D	39.6	0.736	0.21	105	D	52.9	0.915	0.70	342
EB Approach	D	40.2	-	-	-	D	49.4	-	-	-
NBT	A	4.3	0.720	0.13	83	B	10.3	0.498	0.20	130
NBR	A	0.8	0.038	0.00	2	A	5.9	0.115	0.05	18
NB Approach	A	4.2	-	-	-	A	9.9	-	-	-
SBL	A	5.5	0.298	0.04	18	B	16.2	0.732	0.38	160
SBT	B	10.9	0.218	0.16	127	A	5.9	0.612	0.16	130
SB Approach	A	9.9	-	-	-	A	8.3	-	-	
Intersection Total	**B**	**11.0**	-	-	-	**B**	**18.2**	-	-	
11C: SR-310 & SR-161 WB Ramp (Coordinated Signal)										
WBLT	C	21.3	0.146	0.08	49	D	44.0	0.224	0.08	48
WBR	D	36.4	0.909	0.68	322	D	49.5	0.826	0.33	153
WB Approach	C	35.0	-	-	-	D	48.7	-	-	-
NBL	D	37.1	0.905	0.56	220	D	43.5	0.823	0.37	143
NBT	A	7.8	0.540	0.15	121	A	6.6	0.238	0.12	99
NB Approach	B	19.3	-	-	-	B	18.2	-	-	-
SBT	C	22.3	0.669	0.23	154	B	14.5	0.816	0.50	336
SBR	B	15.8	0.511	0.22	78	A	6.9	0.086	0.07	24
SB Approach	C	20.7	-	-	-	B	14.2	-	-	-
Intersection Total	**C**	**23.8**	-	-	-	**B**	**19.0**	-	-	-
11D: SR-310 & Jersey Mill Rd (Coordinated Signal)										
EBLT	D	36.9	0.203	0.02	40	C	21.4	0.054	0.01	23
EBR	C	21.2	0.273	0.13	86	C	33.2	0.858	0.75	485
EB Approach	C	25.1	-	-	-	C	32.5	-	-	-
WBLTR	D	43.2	0.614	0.07	143	C	22.7	0.182	0.04	81
WB Approach	D	43.2	-	-	-	C	22.7	-	-	-
NBL	B	14.0	0.892	0.33	209	C	27.2	0.668	0.17	109
NBT	A	6.3	0.487	0.13	84	C	21.4	0.658	0.25	158
NBR	A	5.2	0.487	0.17	102	B	19.9	0.660	0.35	214
NB Approach	A	9.0	-	-	-	C	21.7	-	-	-
SBL	B	16.1	0.164	0.08	32	C	20.3	0.306	0.16	65
SBT	B	17.4	0.348	0.08	155	D	45.3	0.855	0.27	540
SBTR	B	17.4	0.348	0.08	147	D	45.3	0.855	0.27	514
SB Approach	B	17.3	-	-	-	D	43.2	-	-	-
Intersection Total	**B**	**13.8**	-	-	-	**C**	**33.4**	-	-	-
11E: SR-310 & Jug St (Uncoordinated Signal)										
EBLT	B	18.1	0.067	0.00	8	D	37.6	0.097	0.01	20
EBR	B	16.2	0.123	0.04	11	C	34.5	0.461	0.33	105
EB Approach	B	16.9	-	-	-	C	35.0	-	-	-
WBLTR	B	18.3	0.109	0.01	13	D	38.0	0.152	0.01	30
WB Approach	B	18.3	-	-	-	D	38.0	-	-	-
NBL	A	7.9	0.088	0.01	4	D	43.5	0.779	0.37	132
NBTR	B	19.6	0.889	0.13	252	A	4.5	0.377	0.04	79
NB Approach	B	19.2	-	-	-	B	13.9	-	-	-
SBL	B	18.3	0.046	0.01	5	A	6.8	0.034	0.02	7
SBT	B	17.9	0.736	0.10	194	D	45.1	0.999	0.42	833
SBR	A	9.8	0.266	0.11	40	A	7.1	0.086	0.07	24
SB Approach	B	16.1	-	-	-	D	41.8	-	-	-
Intersection Total	**B**	**17.8**	-	-	-	**C**	**32.2**	-	-	-

SR-310

Movement	Table 2: SR-310 - 2048 Build Condition Alternative 2: Double Roundabout Interchange									
	AM Peak Hour					PM Peak Hour				
	LOS	Delay (sec/veh)	v/c	QSR	HCS 95th %ile Queue	LOS	Delay (sec/veh)	v/c	QSR	HCS 95th %ile Queue
11A: SR-310 & Worthington Rd (Signalized)										
EBL	C	23.8	0.198	0.06	34	C	33.5	0.321	0.15	83
EBTR	C	24.2	0.090	0.01	14	D	35.6	0.368	0.05	77
EB Approach	C	23.9	-	-	-	C	34.5	-	-	-
WBL	C	25.5	0.034	0.01	6	D	36.2	0.050	0.02	9
WBTR	C	29.0	0.494	0.02	62	D	38.4	0.202	0.01	29
WB Approach	C	28.7	-	-	-	D	37.9	-	-	-
NBL	B	11.6	0.143	0.05	18	C	21.8	0.224	0.04	14
NBT	C	32.8	0.885	0.23	412	B	16.5	0.427	0.11	206
NBR	C	32.8	0.885	0.23	386	B	16.5	0.427	0.11	195
NB Approach	C	31.9	-	-	-	B	16.7	-	-	-
SBL	B	16.3	0.070	0.01	4	B	10.4	0.258	0.12	42
SBT	B	17.8	0.527	0.25	166	D	40.6	0.988	1.00	670
SBR	B	13.7	0.099	0.07	24	B	11.0	0.071	0.07	23
SB Approach	B	17.4	-	-	-	D	37.9	-	-	-
Intersection Total	**C**	**26.9**	-	-	-	**C**	**32.2**	-	-	-
11B: SR-310 & SR-161 EB Ramp (Roundabout)										
EBLT	A	6.7	0.170	0.02	16	C	19.6	0.390	0.06	46
EBR	A	0.0	0.000	0.00	-	A	0.0	0.000	0.00	-
EB Approach	A	2.5	-	-	-	A	3.5	-	-	-
NBT	B	12.4	0.630	0.19	124	B	10.1	0.460	0.10	62
NBR	C	15.1	0.710	0.26	169	B	11.3	0.510	0.12	78
NB Approach	B	13.8	-	-	-	B	10.7	-	-	-
SBL	A	3.5	0.080	0.01	8	A	4.9	0.270	0.03	28
SBT	A	6.5	0.390	0.06	51	D	25.6	0.910	0.48	396
SB Approach	A	5.9	-	-	-	C	20.9	-	-	-
Intersection Total	**B**	**10.1**	-	-	-	**B**	**14.3**	-	-	-
11C: SR-310 & SR-161 WB Ramp (Roundabout)										
WBLT	B	14.9	0.230	0.04	24	A	6.5	0.070	0.01	5
WBR	A	0.0	0.000	0.00	-	A	0.0	0.000	0.00	-
WB Approach	A	1.4	-	-	-	A	1.0	-	-	-
NBL	A	7.1	0.440	0.07	61	A	4.3	0.200	0.02	18
NBT	B	11.9	0.690	0.19	156	A	6.9	0.430	0.07	57
NB Approach	B	10.0	-	-	-	A	6.1	-	-	-
SBT	B	12.6	0.490	0.11	71	C	18.7	0.780	0.31	210
SBR	B	14.2	0.560	0.13	90	D	27.0	0.880	0.47	312
SB Approach	B	13.4	-	-	-	C	23.1	-	-	-
Intersection Total	**A**	**8.5**	-	-	-	**C**	**15.7**	-	-	-
11D: SR-310 & Jersey Mill Rd (Roundabout)										
EBLT	A	5.7	0.060	0.00	5	A	8.9	0.070	0.00	5
EBR	A	0.0	0.000	0.00	-	A	0.0	0.000	0.00	-
EB Approach	A	1.4	-	-	-	A	0.5	-	-	-
WBLTR	C	23.3	0.440	0.03	59	A	6.9	0.160	0.01	16
WB Approach	C	23.3	-	-	-	A	6.9	-	-	-
NBL	A	9.3	0.550	0.14	92	A	4.1	0.130	0.02	11
NBTR	C	17.8	0.800	0.38	246	B	10.1	0.580	0.16	102
NB Approach	B	14.4	-	-	-	A	9.0	-	-	-
SBL	B	12.1	0.430	0.03	58	A	9.4	0.510	0.04	79
SBTR	B	13.4	0.480	0.03	68	B	10.7	0.580	0.05	100
SB Approach	B	12.8	-	-	-	B	10.1	-	-	-
Intersection Total	**B**	**13.6**	-	-	-	**A**	**7.5**	-	-	-
11E: SR-310 & Jug St (Signalized)										
EBLT	B	18.1	0.067	0.00	8	D	37.6	0.097	0.01	20
EBR	B	16.2	0.123	0.04	11	C	34.5	0.461	0.33	105
EB Approach	B	16.9	-	-	-	C	35.0	-	-	-
WBLTR	B	18.3	0.109	0.01	13	D	38.0	0.152	0.01	30
WB Approach	B	18.3	-	-	-	D	38.0	-	-	-
NBL	A	7.9	0.088	0.01	4	D	43.5	0.779	0.37	132
NBTR	B	19.6	0.889	0.13	252	A	4.5	0.377	0.04	79
NB Approach	B	19.2	-	-	-	B	13.9	-	-	-
SBL	B	18.3	0.046	0.01	5	A	6.8	0.034	0.02	7
SBT	B	17.9	0.736	0.10	194	D	45.1	0.999	0.42	833
SBR	A	9.8	0.266	0.11	40	A	7.1	0.086	0.07	24
SB Approach	B	16.1	-	-	-	D	41.8	-	-	-
Intersection Total	**B**	**17.8**	-	-	-	**C**	**32.2**	-	-	-

SR-37

Movement	Table 2: 2048 No Improvements Condition / Build Volumes without Improvements									
	AM Peak Hour					PM Peak Hour				
	LOS	Delay (sec/veh)	v/c	QSR	HCS 95th %ile Queue	LOS	Delay (sec/veh)	v/c	QSR	HCS 95th %ile Queue
12A: SR-37 & Worthington Rd (TWSC)										
EBLTR	B	12.9	0.070	0.00	6	D	25.3	0.330	0.02	37
EB Approach	B	12.9	-	-	-	D	25.3	-	-	-
WBLTR	B	12.8	0.110	0.01	12	C	16.4	0.260	0.01	26
WB Approach	B	12.8	-	-	-	C	16.4	-	-	-
NBL	A	7.6	0.010	0.00	0	A	8.3	0.010	0.00	0
NBTR	A	0.1	-	0.00	-	A	0.1	-	0.00	-
NB Approach	A	0.3	-	-	-	A	0.4	-	-	-
SBL	A	8.3	0.020	0.00	3	A	7.8	0.010	0.00	0
SBTR	A	0.2	-	0.00	-	A	0.1	-	0.00	-
SB Approach	A	1.3	-	-	-	A	0.3	-	-	-
Intersection Total	-	-	-	-	-	-	-	-	-	-
12B: SR-37 & SR-161 EB Ramp (TWSC)										
EBLTR	F	71.7	0.760	0.11	136	F	7067.2	15.780	0.79	943
EB Approach	F	71.7	-	-	-	F	7067.2	-	-	-
NBTR	-	-	-	0.00	-	-	-	-	0.00	-
NB Approach	-	-	-	-	-	-	-	-	-	-
SBL	A	9.3	0.270	0.12	28	B	12.9	0.620	0.49	119
SBT	-	-	-	0.00	-	-	-	-	0.00	-
SB Approach	A	6.7	-	-	-	A	8.5	-	-	-
Intersection Total	-	-	-	-	-	-	-	-	-	-
12C: SR-37 & SR-161 WB Ramp (TWSC)										
WBLT	E	45.4	0.380	0.06	41	F	98.0	0.480	0.07	48
WBR	C	19.3	0.660	0.19	129	C	24.5	0.740	0.25	165
WB Approach	C	22.0	-	-	-	D	29.2	-	-	-
NBL	B	10.3	0.170	0.07	17	B	11.9	0.110	0.04	10
NBT	-	-	-	0.00	-	-	-	-	0.00	-
NB Approach	A	3.1	-	-	-	A	1.7	-	-	-
SBTR	-	-	-	0.00	-	-	-	-	0.00	-
SB Approach	-	-	-	-	-	-	-	-	-	-
Intersection Total	-	-	-	-	-	-	-	-	-	-
12D: SR-37 & Moots Run Rd (TWSC)										
EBL	F	124.0	0.550	0.99	59	F	1673.6	1.980	1.03	62
EBTR	D	26.8	0.280	0.01	30	F	186.1	0.800	0.04	88
EB Approach	F	59.2	-	-	-	F	483.6	-	-	-
WBL	F	531.9	1.830	5.09	305	F	6167.4	11.840	4.26	255
WBTR	C	22.4	0.350	0.02	42	F	124.4	0.800	0.06	111
WB Approach	F	289.3	-	-	-	F	2913.5	-	-	-
NBL	A	8.8	0.030	0.00	-	B	10.9	0.030	0.00	3
NBTR	A	0.5	-	0.00	-	A	0.7	-	0.00	-
NB Approach	A	0.9	-	-	-	A	1.0	-	-	-
SBL	A	9.5	0.040	0.00	-	B	11.0	0.210	0.01	20
SBTR	A	0.5	-	0.00	-	A	5.9	-	0.00	-
SB Approach	A	1.0	-	-	-	A	6.6	-	-	-
Intersection Total	-	-	-	-	-	-	-	-	-	-

SR-37

Movement	Table 3: SR-37 - 2048 Build Condition Alternative 1: Signalized Diamond Interchange									
	AM Peak Hour					PM Peak Hour				
	LOS	Delay (sec/veh)	v/c	QSR	HCS 95th %ile Queue	LOS	Delay (sec/veh)	v/c	QSR	HCS 95th %ile Queue
12A: SR-37 & Worthington Rd (TWSC)										
EBLTR	B	12.9	0.070	0.00	6	D	25.3	0.330	0.02	37
EB Approach	B	12.9	-	-	-	D	25.3	-	-	-
WBLTR	B	12.8	0.110	0.01	12	C	16.4	0.260	0.01	26
WB Approach	B	12.8	-	-	-	C	16.4	-	-	-
NBL	A	7.6	0.010	0.00	0	A	8.3	0.010	0.00	0
NBTR	A	0.1	-	0.00	-	A	0.1	-	0.00	-
NB Approach	A	0.3	-	-	-	A	0.4	-	-	-
SBL	A	8.3	0.020	0.00	3	A	7.8	0.010	0.00	0
SBTR	A	0.2	-	0.00	-	A	0.1	-	0.00	-
SB Approach	A	1.3	-	-	-	A	0.3	-	-	-
Intersection Total	-	-	-	-	-	-	-	-	-	-
12B: SR-37 & SR-161 EB Ramp (Coordinated Signal)										
EBLTR	D	43.6	0.831	0.12	141	D	47.1	0.910	0.26	312
EB Approach	D	43.6	-	-	-	D	47.1	-	-	-
NBLTR	B	13.2	0.472	0.37	213	C	30.2	0.563	0.52	302
NB Approach	B	13.2	-	-	-	C	30.2	-	-	-
SBL	C	32.6	0.812	0.24	115	C	29.3	0.942	0.43	206
SBT	A	2.2	0.093	0.01	11	A	5.6	0.326	0.12	99
SB Approach	C	24.0	-	-	-	C	21.2	-	-	-
Intersection Total	**C**	**22.1**	-	-	-	**C**	**27.2**	-	-	-
12C: SR-37 & SR-161 WB Ramp (Coordinated Signal)										
WBLT	B	19.8	0.097	0.05	32	C	24.0	0.057	0.04	24
WBR	D	41.3	0.935	0.65	401	D	44.4	0.946	0.76	470
WB Approach	D	39.0	-	-	-	D	43.1	-	-	-
NBL	B	16.6	0.481	0.20	70	C	24.3	0.423	0.10	34
NBT	A	8.8	0.410	0.13	107	A	6.6	0.436	0.12	99
NB Approach	B	11.1	-	-	-	A	9.0	-	-	-
SBT	C	21.3	0.598	0.38	215	C	25.7	0.813	0.64	359
SBR	C	30.1	0.685	0.49	277	C	25.5	0.814	0.62	346
SB Approach	C	25.6	-	-	-	C	25.6	-	-	-
Intersection Total	**C**	**25.8**	-	-	-	**C**	**26.2**	-	-	-
12D: SR-37 & Moots Run Rd (Coordinated Signal)										
EBL	D	38.5	0.174	0.09	31	D	50.8	0.089	0.04	13
EBTR	C	33.2	0.277	0.03	57	D	47.0	0.311	0.03	50
EB Approach	C	35.0	-	-	-	D	47.8	-	-	-
WBL	D	39.0	0.522	0.35	122	D	51.1	0.422	0.23	79
WBTR	C	35.0	0.500	0.05	103	D	49.0	0.554	0.05	91
WB Approach	D	37.1	-	-	-	D	49.9	-	-	-
NBL	A	8.8	0.063	0.03	12	C	21.3	0.114	0.04	14
NBTR	A	6.1	0.655	0.26	136	B	12.8	0.773	0.59	308
NB Approach	A	6.2	-	-	-	B	13.1	-	-	-
SBL	B	11.0	0.074	0.04	14	B	11.3	0.410	0.17	58
SBTR	A	7.6	0.493	0.08	165	C	25.7	0.917	0.35	690
SB Approach	A	7.7	-	-	-	C	23.8	-	-	-
Intersection Total	**B**	**12.5**	-	-	-	**C**	**21.9**	-	-	-

SR-37

Movement	Table 4: SR-37 - 2048 Build Condition Alternative 2: Double Roundabout Interchange									
	AM Peak Hour					PM Peak Hour				
	LOS	Delay (sec/veh)	v/c	QSR	HCS 95th %ile Queue	LOS	Delay (sec/veh)	v/c	QSR	HCS 95th %ile Queue
12A: SR-37 & Worthington Rd (TWSC)										
EBLTR	B	12.9	0.070	0.00	6	D	25.3	0.330	0.02	37
EB Approach	B	12.9	-	-	-	D	25.3	-	-	-
WBLTR	B	12.8	0.110	0.01	12	C	16.4	0.260	0.01	26
WB Approach	B	12.8	-	-	-	C	16.4	-	-	-
NBL	A	7.6	0.010	0.00	0	A	8.3	0.010	0.00	0
NBTR	A	0.1	-	0.00	-	A	0.1	-	0.00	-
NB Approach	A	0.3	-	-	-	A	0.4	-	-	-
SBL	A	8.3	0.020	0.00	3	A	7.8	0.010	0.00	0
SBTR	A	0.2	-	0.00	-	A	0.1	-	0.00	-
SB Approach	A	1.3	-	-	-	A	0.3	-	-	-
Intersection Total	**-**	**-**	-	-	-	**-**	**-**	-	-	-
12B: SR-37 & SR-161 EB Ramp (Roundabout)										
EBLTR	A	5.7	0.150	0.01	14	C	19.2	0.570	0.08	92
EB Approach	A	5.7	-	-	-	C	19.2	-	-	-
NBLTR	B	12.7	0.530	0.16	92	D	27.1	0.720	0.25	147
NB Approach	B	12.7	-	-	-	D	27.1	-	-	-
SBL	A	4.5	0.220	0.19	23	A	8.4	0.540	0.70	88
SBT	A	3.3	0.090	0.01	8	A	5.0	0.280	0.04	28
SB Approach	A	4.2	-	-	-	A	7.3	-	-	-
Intersection Total	**A**	**8.0**	-	-	-	**B**	**13.2**	-	-	-
12C: SR-37 & SR-161 WB Ramp (Roundabout)										
WBLT	A	4.9	0.070	0.01	5	A	4.4	0.040	0.00	3
WBR	B	12.5	0.560	0.74	93	B	11.2	0.530	0.65	81
WB Approach	B	11.7	-	-	-	B	10.8	-	-	-
NBT	A	6.9	0.390	0.06	48	A	5.9	0.350	0.05	40
NB Approach	A	6.9	-	-	-	A	5.9	-	-	-
SBT	A	6.4	0.320	0.07	37	A	7.5	0.450	0.11	62
SBR	A	6.9	0.360	0.34	42	A	8.4	0.500	0.60	75
SB Approach	A	6.7	-	-	-	A	8.0	-	-	-
Intersection Total	**A**	**8.3**	-	-	-	**A**	**8.2**	-	-	-
12D: SR-37 & Moots Run Rd (Signalized)										
EBL	B	17.9	0.101	0.03	12	D	39.9	0.068	0.03	10
EBTR	B	15.4	0.215	0.01	21	D	36.9	0.264	0.02	38
EB Approach	B	16.2	-	-	-	D	37.5	-	-	-
WBL	B	18.0	0.331	0.13	46	D	40.0	0.339	0.18	61
WBTR	B	16.2	0.389	0.02	39	D	38.3	0.469	0.03	69
WB Approach	B	17.2	-	-	-	D	39.1	-	-	-
NBL	B	12.9	0.085	0.03	11	C	22.8	0.165	0.03	12
NBTR	C	20.4	0.864	0.48	248	C	23.6	0.857	0.95	492
NB Approach	C	20.1	-	-	-	C	23.6	-	-	-
SBL	B	19.5	0.133	0.04	15	B	16.7	0.516	0.21	72
SBTR	B	11.5	0.649	0.06	128	D	41.1	0.994	0.39	783
SB Approach	B	11.9	-	-	-	D	37.9	-	-	-
Intersection Total	**B**	**16.6**	-	-	-	**C**	**32.6**	-	-	-

SR-16

Movement	Table 3: 2048 No Improvements Condition / Build Volumes without Improvements									
	AM Peak Hour					PM Peak Hour				
	LOS	Delay (sec/veh)	v/c	QSR	HCS 95th %ile Queue	LOS	Delay (sec/veh)	v/c	QSR	HCS 95th %ile Queue
13A: Columbus Rd & Granview Rd (Signalized)										
EBL	B	17.2	0.037	0.07	5	C	22.3	0.213	0.42	29
EBTR	B	13.8	0.075	0.01	8	B	17.4	0.077	0.02	10
EB Approach	B	15.0	-	-	-	C	20.9	-	-	-
WBLTR	B	15.5	0.389	0.04	47	B	19.3	0.423	0.06	61
WB Approach	B	15.5	-	-	-	B	19.3	-	-	-
NBL	B	14.2	0.035	0.03	4	B	11.7	0.027	0.03	4
NBTR	B	16.2	0.781	0.15	189	C	24.4	0.916	0.26	335
NB Approach	B	16.2	-	-	-	C	24.3	-	-	-
SBL	B	14.4	0.035	0.03	4	C	33.6	0.529	0.61	79
SBT	B	15.5	0.775	0.26	193	B	10.3	0.639	0.20	153
SBR	A	5.1	0.032	0.02	3	A	4.6	0.026	0.02	3
SB Approach	B	15.2	-	-	-	B	13.5	-	-	-
Intersection Total	**B**	**15.6**	-	-	-	**B**	**19.3**	-	-	-
13B: Columbus Rd & SR-161 EB Ramp (TWSC)										
EBLTR	E	41.2	0.660	0.13	117	F	94.6	0.930	0.22	194
EB Approach	E	41.2	-	-	-	F	94.6	-	-	-
NBT	-	-	-	0.00	-	-	-	-	0.00	-
NB Approach	-	-	-	-	-	-	-	-	-	-
SBL	A	8.1	0.050	0.01	5	A	8.3	0.060	0.01	5
SBT	A	0.7	-	0.00	-	A	0.8	-	0.00	-
SB Approach	A	1.4	-	-	-	A	1.6	-	-	-
Intersection Total	**-**	**-**	-	-	-	**-**	**-**	-	-	-
13C: Columbus Rd & SR-161 WB Ramp (TWSC)										
EBLTR	F	75.7	1.030	0.34	413	D	33.3	0.810	0.17	206
EB Approach	F	75.7	-	-	-	D	33.3	-	-	-
WBLTR	F	108.6	0.590	0.03	67	F	102.5	0.690	0.04	87
WB Approach	F	108.6	-	-	-	F	102.5	-	-	-
NBL	A	9.2	0.060	0.01	5	A	8.4	0.080	0.01	5
NBTR	A	0.7	-	0.00	-	A	0.8	-	0.00	-
NB Approach	A	1.9	-	-	-	A	2.1	-	-	-
SBL	A	8.0	0.010	0.00	0	A	8.2	0.010	0.00	0
SBTR	A	0.1	-	0.00	-	A	0.1	-	0.00	-
SB Approach	A	0.3	-	-	-	A	0.3	-	-	-
Intersection Total	**-**	**-**	-	-	-	**-**	**-**	-	-	-

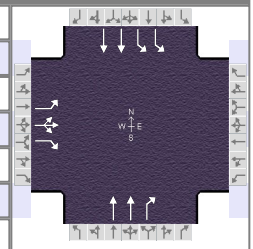
SR-16

Movement	Table 5: Columbus Rd - 2048 Build Condition									
	AM Peak Hour					PM Peak Hour				
	LOS	Delay (sec/veh)	v/c	QSR	HCS 95th %ile Queue	LOS	Delay (sec/veh)	v/c	QSR	HCS 95th %ile Queue
13A: Columbus Rd & Granview Rd (Signalized)										
EBL	B	17.2	0.037	0.07	5	C	22.3	0.213	0.42	29
EBTR	B	13.8	0.075	0.01	8	B	17.4	0.077	0.02	10
EB Approach	B	15.0	-	-	-	C	20.9	-	-	-
WBLTR	B	15.5	0.389	0.04	47	B	19.3	0.423	0.06	61
WB Approach	B	15.5	-	-	-	B	19.3	-	-	-
NBL	B	14.2	0.035	0.02	4	B	11.7	0.027	0.02	4
NBTR	B	16.2	0.781	0.15	189	C	24.4	0.916	0.26	335
NB Approach	B	16.2	-	-	-	C	24.3	-	-	-
SBL	B	14.4	0.035	0.02	4	C	33.6	0.529	0.32	79
SBT	B	15.5	0.775	0.26	193	B	10.3	0.639	0.20	153
SBR	A	5.1	0.032	0.01	3	A	4.6	0.026	0.01	3
SB Approach	B	15.2	-	-	-	B	13.5	-	-	-
Intersection Total	**B**	**15.6**	-	-	-	**B**	**19.3**	-	-	-
13B: Columbus Rd & SR-161 EB Ramp (Signalized)										
EBLTR	C	32.5	0.840	0.15	135	C	32.3	0.834	0.15	134
EB Approach	C	32.5	-	-	-	C	32.3	-	-	-
NBT	A	5.3	0.308	0.03	66	A	5.1	0.314	0.03	66
NB Approach	A	5.3	-	-	-	A	5.1	-	-	-
SBLT	A	3.9	0.572	0.10	64	A	6.8	0.592	0.21	138
SB Approach	A	3.9	-	-	-	A	6.8	-	-	-
Intersection Total	**A**	**8.6**	-	-	-	**B**	**10.1**	-	-	-
13C: Columbus Rd & SR-161 WB Ramp (Signalized)										
EBLT	D	50.2	0.959	0.39	466	C	24.6	0.823	0.22	267
EB Approach	D	50.2	-	-	-	C	24.6	-	-	-
WBLTR	B	14.3	0.143	0.01	18	B	16.1	0.215	0.01	29
WB Approach	B	14.3	-	-	-	B	16.1	-	-	-
NBTR	B	17.5	0.617	0.31	210	B	14.5	0.623	0.29	200
NB Approach	B	17.5	-	-	-	B	14.5	-	-	-
SBLTR	C	28.7	0.839	0.22	383	B	14.7	0.497	0.11	187
SB Approach	C	28.7	-	-	-	B	14.7	-	-	-
Intersection Total	**C**	**32.9**	-	-	-	**B**	**17.9**	-	-	-

Beech Road - AM
No-Build

HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Wooleprt, Inc.			Duration, h	0.250
Analyst	KWA	Analysis Date	Aug 22, 2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.88
Urban Street	Beech	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	161 EB	File Name	No-Build 2048 AM Peak Beech.xus		
Project Description					

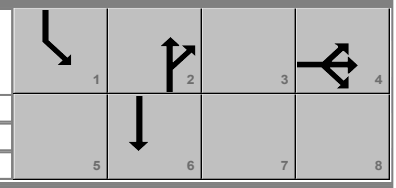


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	760	10	720					1310	250	40	960	

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	44	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	4.8	46.8	49.7	0.0	0.0	0.0						
Yellow	3.4	5.3	5.3	0.0	0.0	0.0						
Red	2.7	1.0	1.0	0.0	0.0	0.0						



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4				2	1	6
Case Number		9.0				7.3	2.0	4.0
Phase Duration, s		56.0				53.1	10.9	64.0
Change Period, ($Y+R_c$), s		6.3				6.3	6.1	6.3
Max Allow Headway (*MAH*), s		5.2				0.0	4.6	0.0
Queue Clearance Time (g_s), s		51.7					3.2	
Green Extension Time (g_e), s		0.0				0.0	0.0	0.0
Phase Call Probability		1.00					0.69	
Max Out Probability		1.00					0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14					2	12	1	6	
Adjusted Flow Rate (*v*), veh/h	518	520	655					1424	272	35	834	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1612	1575	1488					1629	1349	1702	1748	
Queue Service Time (g_s), s	33.3	34.7	49.7					46.8	10.0	1.2	8.8	
Cycle Queue Clearance Time (g_c), s	33.3	34.7	49.7					46.8	10.0	1.2	8.8	
Green Ratio (*g/C*)	0.41	0.41	0.41					0.39	0.39	0.04	0.48	
Capacity (*c*), veh/h	668	652	616					1270	526	136	1681	
Volume-to-Capacity Ratio (*X*)	0.776	0.798	1.062					1.121	0.517	0.255	0.496	
Back of Queue (*Q*), ft/ln (95 th percentile)	548	562	1014					851	127	24	115	
Back of Queue (*Q*), veh/ln (95 th percentile)	19.7	20.2	36.5					29.8	4.4	0.9	4.5	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.41	0.94	1.69					1.55	0.30	0.06	0.13	
Uniform Delay (d_1), s/veh	30.3	30.8	35.2					19.6	10.6	54.6	6.5	
Incremental Delay (d_2), s/veh	6.1	7.3	53.9					61.4	2.2	0.9	0.8	
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh	36.4	38.0	89.0					81.0	12.8	55.4	7.3	
Level of Service (LOS)	D	D	F					F	B	E	A	
Approach Delay, s/veh / LOS	57.2	E		0.0			70.1	E		9.3	A	
Intersection Delay, s/veh / LOS	52.6						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.32	B	2.47	B	1.70	B	1.91	B
Bicycle LOS Score / LOS	3.28	C			1.95	B	1.43	A

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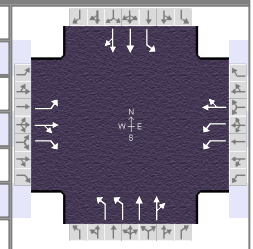
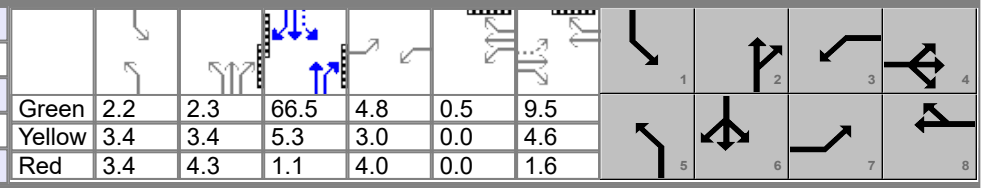
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Wooleprt, Inc.			Duration, h	0.250
Analyst	KWA	Analysis Date	Aug 22, 2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.87
Urban Street	Beech	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Smiths	File Name	No-Build 2048 AM Peak Beech.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	30	10	20	70	10	10	180	1080	140	10	450	30

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	17	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	2.2	2.3	66.5	4.8	0.5	9.5
Yellow	3.4	3.4	5.3	3.0	0.0	4.6
Red	3.4	4.3	1.1	4.0	0.0	1.6

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	3.0	2.0	4.0	2.0	4.0	1.1	4.0
Phase Duration, s	11.8	15.7	12.3	16.3	19.0	82.9	9.0	72.9
Change Period, ($Y+R_c$), s	7.0	6.2	5.8	6.2	7.7	6.4	6.8	6.4
Max Allow Headway (*MAH*), s	4.8	4.9	4.8	4.9	4.8	0.0	4.8	0.0
Queue Clearance Time (g_s), s	4.2	3.4	5.0	3.7	10.2		2.3	
Green Extension Time (g_e), s	0.0	0.2	0.2	0.2	1.2	0.0	0.0	0.0
Phase Call Probability	0.68	0.95	0.93	0.99	1.00		0.32	
Max Out Probability	1.00	0.00	0.00	0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	34	16	18	80	23		231	793	772	11	278	273
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1668	1675	1485	1551	1539		1675	1811	1738	1725	1811	1771
Queue Service Time (g_s), s	2.2	1.1	1.4	3.0	1.7		8.2	13.1	11.8	0.3	9.7	9.8
Cycle Queue Clearance Time (g_c), s	2.2	1.1	1.4	3.0	1.7		8.2	13.1	11.8	0.3	9.7	9.8
Green Ratio (*g/C*)	0.12	0.08	0.08	0.05	0.08		0.09	0.64	0.64	0.57	0.55	0.55
Capacity (*c*), veh/h	196	133	118	169	129		317	1155	1108	254	1004	981
Volume-to-Capacity Ratio (*X*)	0.176	0.121	0.156	0.477	0.178		0.729	0.687	0.697	0.045	0.277	0.279
Back of Queue (*Q*), ft/ln (95 th percentile)	46	23	26	62	34		155	119	100	6	192	180
Back of Queue (*Q*), veh/ln (95 th percentile)	1.7	0.8	1.0	2.2	1.2		5.9	4.5	4.0	0.2	7.3	7.2
Queue Storage Ratio (*RQ*) (95 th percentile)	0.36	0.05	0.05	0.16	0.03		0.41	0.10	0.09	0.02	0.28	0.27
Uniform Delay (d_1), s/veh	47.6	51.3	51.5	55.1	51.1		56.1	2.7	2.2	11.2	14.1	14.1
Incremental Delay (d_2), s/veh	0.5	0.5	0.8	2.7	0.8		2.1	1.7	1.9	0.1	0.7	0.7
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	48.1	51.9	52.3	57.8	52.0		58.2	4.4	4.1	11.2	14.8	14.8
Level of Service (LOS)	D	D	D	E	D		E	A	A	B	B	B
Approach Delay, s/veh / LOS	50.1	D		56.5	E		11.2	B		14.7	B	
Intersection Delay, s/veh / LOS	14.9						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.47	B	2.31	B	2.07	B	2.26	B
Bicycle LOS Score / LOS	0.60	A	0.66	A	1.82	B	0.95	A

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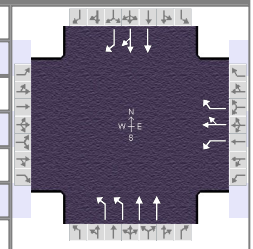
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Wooleprt, Inc.			Duration, h	0.250
Analyst	KWA	Analysis Date	Aug 22, 2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.95
Urban Street	Beech	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	161 WB	File Name	No-Build 2048 AM Peak Beech.xus		
Project Description					

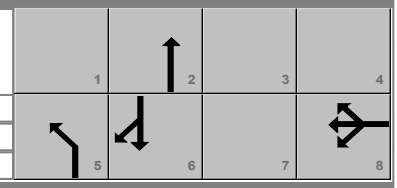


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				470	10	150	320	1750			530	350

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	105	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	13.4	49.2	37.8	0.0	0.0	0.0						
Yellow	3.4	5.3	5.3	0.0	0.0	0.0						
Red	3.6	1.0	1.0	0.0	0.0	0.0						



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8	5	2		6
Case Number				9.0	2.0	4.0		7.3
Phase Duration, s				44.1	20.4	75.9		55.5
Change Period, (*Y+R c*), s				6.3	7.0	6.3		6.3
Max Allow Headway (*MAH*), s				5.2	2.6	0.0		0.0
Queue Clearance Time (*g s*), s				34.3	13.2			
Green Extension Time (*g e*), s				3.5	0.2	0.0		0.0
Phase Call Probability				1.00	1.00			
Max Out Probability				0.17	0.08			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3	8	18	5	2			6	16
Adjusted Flow Rate (*v*), veh/h				495	42	126	300	1638			423	197
Adjusted Saturation Flow Rate (*s*), veh/h/ln				1753	1548	1486	1538	1689			1703	1467
Queue Service Time (*g s*), s				32.3	2.3	7.6	11.2	41.2			10.3	11.2
Cycle Queue Clearance Time (*g c*), s				32.3	2.3	7.6	11.2	41.2			10.3	11.2
Green Ratio (*g/C*)				0.32	0.32	0.32	0.11	0.58			0.41	0.41
Capacity (*c*), veh/h				553	488	469	344	1958			1395	601
Volume-to-Capacity Ratio (*X*)				0.895	0.086	0.270	0.872	0.837			0.303	0.329
Back of Queue (*Q*), ft/ln (95 th percentile)				568	40	129	129	373			201	194
Back of Queue (*Q*), veh/ln (95 th percentile)				22.0	1.6	5.0	4.6	13.2			7.6	7.3
Queue Storage Ratio (*RQ*) (95 th percentile)				1.18	0.04	0.27	0.32	0.41			0.33	0.52
Uniform Delay (*d 1*), s/veh				39.2	28.9	30.7	43.4	13.0			24.8	24.6
Incremental Delay (*d 2*), s/veh				12.7	0.1	0.4	1.1	0.4			0.5	1.4
Initial Queue Delay (*d 3*), s/veh				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Control Delay (*d*), s/veh				51.9	29.0	31.2	44.5	13.4			25.4	26.0
Level of Service (LOS)				D	C	C	D	B			C	C
Approach Delay, s/veh / LOS	0.0			46.5	D		18.2	B		25.6	C	
Intersection Delay, s/veh / LOS	25.4						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.47	B	2.32	B	1.89	B	1.69	B
Bicycle LOS Score / LOS			1.58	B	2.29	B	1.25	A

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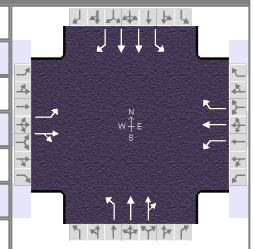
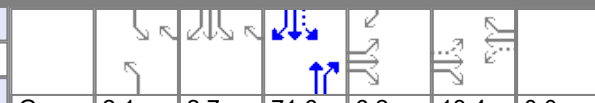
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Wooleprt, Inc.			Duration, h	0.250
Analyst	KWA	Analysis Date	Aug 22, 2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Urban Street	Beech	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Worthington	File Name	No-Build 2048 AM Peak Beech.xus		
Project Description					

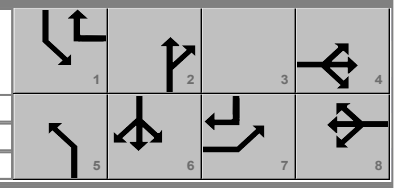


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	60	20	50	50	120	120	10	1380	20	40	1430	210

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	52	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	2.1	2.7	71.6	6.2	13.4	0.0
Yellow	4.0	0.0	4.0	4.0	4.0	0.0
Red	2.0	0.0	2.0	2.0	2.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4		8	5	2	1	6
Case Number	1.0	4.0		5.3	2.0	4.0	1.1	3.0
Phase Duration, s	12.2	31.6		19.4	8.1	77.6	10.8	80.3
Change Period, ($Y+R_c$), s	6.0	6.0		6.0	6.0	6.0	6.0	6.0
Max Allow Headway (*MAH*), s	3.1	3.3		3.3	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s	6.1	7.0		12.7	2.8		3.0	
Green Extension Time (g_e), s	0.0	0.8		0.7	0.0	0.0	0.0	0.0
Phase Call Probability	0.89	1.00		1.00	0.30		0.68	
Max Out Probability	0.01	0.00		0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	65	76		54	130	130	11	762	760	35	1234	181
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1626	1513		1145	1618	1372	1598	1678	1669	1598	1597	1422
Queue Service Time (g_s), s	4.1	5.0		5.3	9.3	10.7	0.8	40.3	40.4	1.0	27.7	2.9
Cycle Queue Clearance Time (g_c), s	4.1	5.0		5.3	9.3	10.7	0.8	40.3	40.4	1.0	27.7	2.9
Green Ratio (*g/C*)	0.18	0.21		0.11	0.11	0.15	0.02	0.60	0.60	0.64	0.62	0.67
Capacity (*c*), veh/h	183	323		188	181	208	28	1001	996	204	1977	954
Volume-to-Capacity Ratio (*X*)	0.357	0.236		0.289	0.722	0.628	0.384	0.761	0.762	0.170	0.624	0.190
Back of Queue (*Q*), ft/ln (95 th percentile)	83	93		79	200	192	18	630	561	16	331	37
Back of Queue (*Q*), veh/ln (95 th percentile)	3.0	3.4		2.8	7.0	6.7	0.6	22.5	22.5	0.6	11.8	1.3
Queue Storage Ratio (*RQ*) (95 th percentile)	0.17	0.05		0.17	0.11	0.31	0.05	0.31	0.31	0.05	0.60	0.15
Uniform Delay (d_1), s/veh	42.6	39.1		49.7	51.5	47.7	58.3	17.9	17.9	16.1	13.2	3.4
Incremental Delay (d_2), s/veh	0.4	0.1		0.3	2.0	1.2	3.1	5.5	5.5	0.0	0.4	0.1
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	43.0	39.2		50.0	53.6	48.9	61.4	23.3	23.4	16.1	13.6	3.5
Level of Service (LOS)	D	D		D	D	D	E	C	C	B	B	A
Approach Delay, s/veh / LOS	41.0	D		51.0	D		23.6	C		12.4	B	
Intersection Delay, s/veh / LOS	22.1						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.30	B	2.46	B	2.25	B	1.88	B
Bicycle LOS Score / LOS	0.72	A	1.01	A	1.75	B	1.99	B

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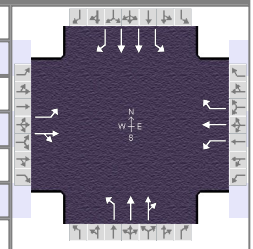
Beech Road - PM
No-Build

HCS Signalized Intersection Results Summary

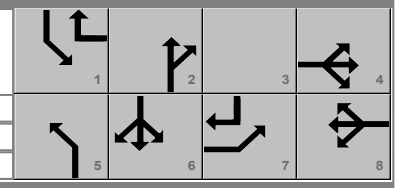
General Information				Intersection Information	
Agency	Wooleprt, Inc.			Duration, h	0.250
Analyst	KWA	Analysis Date	Aug 22, 2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.80
Urban Street	Beech	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Worthington	File Name	No-Build 2048 PM Peak Beech.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	60	70	20	30	40	50	80	1550	50	120	620	70

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	6.9	1.6	71.1	6.4	10.0	0.0
Yellow	4.0	0.0	4.0	4.0	4.0	0.0
Red	2.0	0.0	2.0	2.0	2.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4		8	5	2	1	6
Case Number	1.0	4.0		5.3	2.0	4.0	1.1	3.0
Phase Duration, s	12.4	28.4		16.0	14.5	78.6	12.9	77.1
Change Period, ($Y+R_c$), s	6.0	6.0		6.0	6.0	6.0	6.0	6.0
Max Allow Headway (*MAH*), s	3.1	3.2		3.2	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s	6.6	8.7		6.3	8.6		5.6	
Green Extension Time (g_e), s	0.0	0.5		0.4	0.2	0.0	0.2	0.0
Phase Call Probability	0.92	1.00		1.00	0.96		0.99	
Max Out Probability	0.68	0.00		0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	75	113		38	50	63	100	1000	1000	137	706	80
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1725	1741		1270	1856	1572	1781	1870	1850	1753	1752	1560
Queue Service Time (g_s), s	4.6	6.7		3.3	3.0	4.3	6.6	54.4	55.7	3.6	15.7	1.6
Cycle Queue Clearance Time (g_c), s	4.6	6.7		3.3	3.0	4.3	6.6	54.4	55.7	3.6	15.7	1.6
Green Ratio (*g/C*)	0.15	0.19		0.08	0.08	0.14	0.07	0.61	0.61	0.65	0.59	0.65
Capacity (*c*), veh/h	228	325		166	155	222	126	1132	1120	187	2076	1008
Volume-to-Capacity Ratio (*X*)	0.328	0.346		0.226	0.323	0.282	0.794	0.883	0.893	0.729	0.340	0.079
Back of Queue (*Q*), ft/ln (95 th percentile)	94	137		50	66	77	142	836	838	106	254	24
Back of Queue (*Q*), veh/ln (95 th percentile)	3.6	5.2		1.9	2.6	3.0	5.6	32.9	33.5	4.1	9.8	0.9
Queue Storage Ratio (*RQ*) (95 th percentile)	0.20	0.07		0.10	0.04	0.12	0.36	0.41	0.42	0.31	0.46	0.10
Uniform Delay (d_1), s/veh	45.1	42.4		52.0	51.8	46.1	54.9	20.1	20.3	27.1	17.8	5.4
Incremental Delay (d_2), s/veh	0.3	0.2		0.3	0.4	0.3	4.2	10.1	10.9	1.1	0.2	0.1
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	45.4	42.6		52.2	52.3	46.4	59.1	30.2	31.3	28.2	18.1	5.5
Level of Service (LOS)	D	D		D	D	D	E	C	C	C	B	A
Approach Delay, s/veh / LOS	43.7	D		49.8	D		32.1	C		18.5	B	
Intersection Delay, s/veh / LOS	29.8						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.30	B	2.47	B	2.25	B	1.89	B
Bicycle LOS Score / LOS	0.80	A	0.74	A	2.22	B	1.32	A

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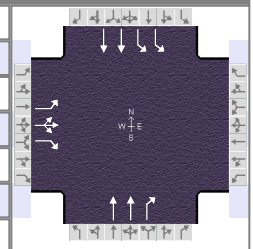
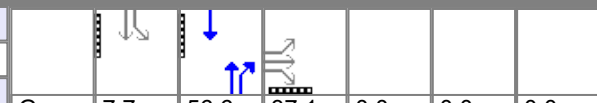
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Wooleprt, Inc.			Duration, h	0.250
Analyst	KWA	Analysis Date	Aug 22, 2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.80
Urban Street	Beech	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	161 EB	File Name	No-Build 2048 PM Peak Beech.xus		
Project Description					

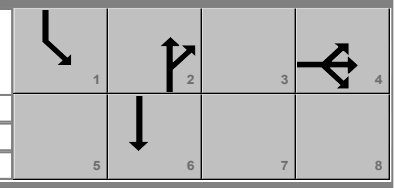


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	130	10	440					1110	550	130	370	

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	118	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	7.7	56.6	37.1	0.0	0.0	0.0
Yellow	3.4	5.3	5.3	0.0	0.0	0.0
Red	2.7	1.0	1.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4				2	1	6
Case Number		9.0				7.3	2.0	4.0
Phase Duration, s		43.4				62.9	13.8	76.6
Change Period, ($Y+R_c$), s		6.3				6.3	6.1	6.3
Max Allow Headway (*MAH*), s		5.3				0.0	4.6	0.0
Queue Clearance Time (g_s), s		35.3					7.4	
Green Extension Time (g_e), s		1.8				0.0	0.3	0.0
Phase Call Probability		1.00					0.99	
Max Out Probability		1.00					0.32	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14					2	12	1	6	
Adjusted Flow Rate (*v*), veh/h	138	147	440					1388	688	157	448	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1725	1585	1537					1859	1653	1702	1695	
Queue Service Time (g_s), s	7.2	8.5	33.3					27.3	33.2	5.4	8.9	
Cycle Queue Clearance Time (g_c), s	7.2	8.5	33.3					27.3	33.2	5.4	8.9	
Green Ratio (*g/C*)	0.31	0.31	0.31					0.47	0.47	0.06	0.40	
Capacity (*c*), veh/h	533	489	475					1753	780	217	1367	
Volume-to-Capacity Ratio (*X*)	0.259	0.300	0.927					0.791	0.882	0.725	0.328	
Back of Queue (*Q*), ft/ln (95 th percentile)	144	155	570					219	206	110	155	
Back of Queue (*Q*), veh/ln (95 th percentile)	5.5	5.9	21.8					8.6	8.1	4.2	6.0	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.11	0.26	0.95					0.40	0.48	0.27	0.17	
Uniform Delay (d_1), s/veh	31.2	31.6	40.2					11.1	9.2	52.5	13.3	
Incremental Delay (d_2), s/veh	0.4	0.5	23.0					1.6	6.4	5.1	0.6	
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh	31.5	32.1	63.2					12.7	15.5	57.6	13.9	
Level of Service (LOS)	C	C	E					B	B	E	B	
Approach Delay, s/veh / LOS	50.9	D		0.0			13.6	B		25.3	C	
Intersection Delay, s/veh / LOS	23.6						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.32	B	2.47	B	1.69	B	1.89	B
Bicycle LOS Score / LOS	1.68	B			2.20	B	1.00	A

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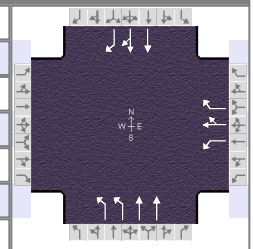
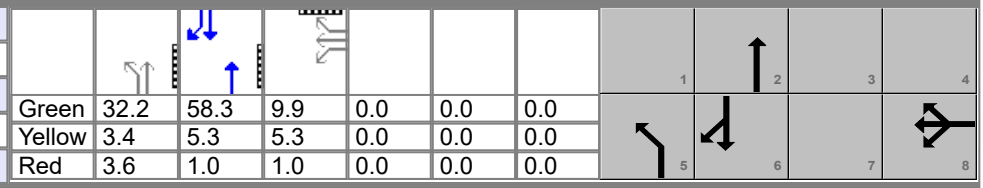
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Wooleprt, Inc.			Duration, h	0.250
Analyst	KWA	Analysis Date	Aug 22, 2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.87
Urban Street	Beech	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	161 WB	File Name	No-Build 2048 PM Peak Beech.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				90	10	30	690	550			410	640

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	64	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	32.2	58.3	9.9	0.0	0.0	0.0			
Yellow	3.4	5.3	5.3	0.0	0.0	0.0			
Red	3.6	1.0	1.0	0.0	0.0	0.0			

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8	5	2		6
Case Number				9.0	2.0	4.0		7.3
Phase Duration, s				16.2	39.2	103.8		64.6
Change Period, (*Y+R c*), s				6.3	7.0	6.3		6.3
Max Allow Headway (*MAH*), s				5.2	2.6	0.0		0.0
Queue Clearance Time (*g s*), s				8.8	30.6			
Green Extension Time (*g e*), s				0.9	1.6	0.0		0.0
Phase Call Probability				0.99	1.00			
Max Out Probability				0.00	0.00			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3	8	18	5	2			6	16
Adjusted Flow Rate (*v*), veh/h				103	18	28	863	688			659	627
Adjusted Saturation Flow Rate (*s*), veh/h/ln				1781	1653	1488	1702	1728			1749	1598
Queue Service Time (*g s*), s				6.8	1.2	2.1	28.6	9.0			15.4	36.6
Cycle Queue Clearance Time (*g c*), s				6.8	1.2	2.1	28.6	9.0			15.4	36.6
Green Ratio (*g/C*)				0.08	0.08	0.08	0.27	0.68			0.49	0.49
Capacity (*c*), veh/h				147	137	123	913	2336			1699	776
Volume-to-Capacity Ratio (*X*)				0.701	0.134	0.224	0.945	0.294			0.388	0.808
Back of Queue (*Q*), ft/ln (95 th percentile)				153	24	37	311	136			259	432
Back of Queue (*Q*), veh/ln (95 th percentile)				6.0	1.0	1.5	12.1	5.3			10.0	16.6
Queue Storage Ratio (*RQ*) (95 th percentile)				0.32	0.02	0.08	0.78	0.15			0.43	1.17
Uniform Delay (*d 1*), s/veh				53.6	51.0	51.4	27.3	4.7			21.8	19.6
Incremental Delay (*d 2*), s/veh				8.3	0.6	1.3	1.5	0.2			0.5	6.3
Initial Queue Delay (*d 3*), s/veh				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Control Delay (*d*), s/veh				61.9	51.7	52.7	28.8	4.8			22.2	25.9
Level of Service (LOS)				E	D	D	C	A			C	C
Approach Delay, s/veh / LOS	0.0			59.0		E	18.2		B	24.0		C
Intersection Delay, s/veh / LOS	22.8						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.47	B	2.32	B	1.83	B	1.68	B
Bicycle LOS Score / LOS			0.73	A	1.66	B	1.48	A

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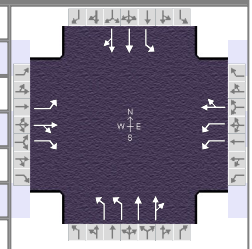
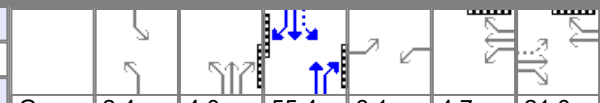
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Wooleprt, Inc.			Duration, h	0.250
Analyst	KWA	Analysis Date	Aug 22, 2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.80
Urban Street	Beech	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Smiths	File Name	No-Build 2048 PM Peak Beech.xus		
Project Description					

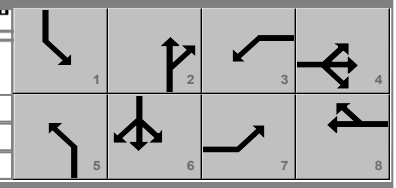


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	50	10	230	210	20	40	20	220	80	10	600	40

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	27	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	2.4	4.0	55.4	6.1	4.7	21.0
Yellow	3.4	0.0	5.3	3.0	0.0	4.6
Red	3.4	0.0	1.1	4.0	0.0	1.6



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	3.0	2.0	4.0	2.0	4.0	1.1	4.0
Phase Duration, s	13.1	27.2	17.8	32.0	13.1	65.7	9.2	61.8
Change Period, ($Y+R_c$), s	7.0	6.2	5.8	6.2	7.7	6.4	6.8	6.4
Max Allow Headway (*MAH*), s	4.8	5.0	4.8	5.0	4.8	0.0	4.8	0.0
Queue Clearance Time (g_s), s	5.4	19.1	11.0	6.5	3.6		2.5	
Green Extension Time (g_e), s	0.1	1.9	1.0	2.1	0.2	0.0	0.0	0.0
Phase Call Probability	0.88	1.00	1.00	1.00	0.78		0.34	
Max Out Probability	0.49	0.00	0.04	0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	63	70	230	263	75		45	353	324	13	404	396
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1753	1610	1560	1702	1644		1675	1811	1646	1725	1811	1771
Queue Service Time (g_s), s	3.4	4.5	17.1	9.0	4.5		1.6	14.4	14.8	0.5	18.6	18.6
Cycle Queue Clearance Time (g_c), s	3.4	4.5	17.1	9.0	4.5		1.6	14.4	14.8	0.5	18.6	18.6
Green Ratio (*g/C*)	0.23	0.18	0.18	0.10	0.21		0.05	0.49	0.49	0.48	0.46	0.46
Capacity (*c*), veh/h	359	282	274	341	353		152	895	814	356	836	817
Volume-to-Capacity Ratio (*X*)	0.174	0.248	0.841	0.769	0.213		0.297	0.394	0.398	0.035	0.484	0.484
Back of Queue (*Q*), ft/ln (95 th percentile)	70	85	300	188	86		32	265	243	9	338	317
Back of Queue (*Q*), veh/ln (95 th percentile)	2.7	3.3	11.6	7.3	3.3		1.2	10.1	9.7	0.3	12.9	12.7
Queue Storage Ratio (*RQ*) (95 th percentile)	0.53	0.17	0.60	0.47	0.09		0.08	0.22	0.21	0.03	0.49	0.48
Uniform Delay (d_1), s/veh	37.2	42.7	47.9	52.6	38.8		55.1	18.4	19.0	17.0	22.4	22.4
Incremental Delay (d_2), s/veh	0.3	0.6	8.6	4.7	0.4		1.3	1.3	1.4	0.1	2.0	2.1
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	37.5	43.2	56.5	57.3	39.2		56.5	19.7	20.4	17.0	24.4	24.5
Level of Service (LOS)	D	D	E	E	D		E	B	C	B	C	C
Approach Delay, s/veh / LOS	50.7	D		53.3	D		22.3	C		24.3	C	
Intersection Delay, s/veh / LOS	32.3						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.46	B	2.30	B	2.10	B	2.27	B
Bicycle LOS Score / LOS	1.09	A	1.04	A	0.82	A	1.16	A

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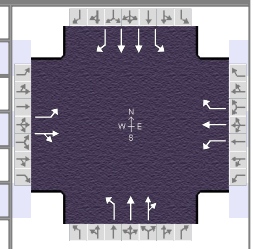
Beech Road - AM Build

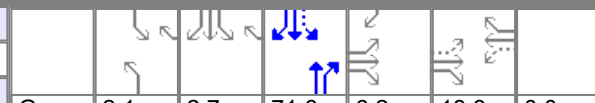
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Wooleprt, Inc.			Duration, h	0.250
Analyst	KWA	Analysis Date	Aug 22, 2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Urban Street	Beech	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Worthington	File Name	Beech 2048 AM Peak Build.xus		
Project Description					

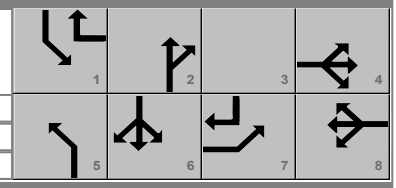


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	60	20	50	40	110	120	10	1290	20	40	1460	220

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	52	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	2.1	2.7	71.6	6.2	13.3	0.0
Yellow	4.0	0.0	4.0	4.0	4.0	0.0
Red	2.0	0.0	2.0	2.0	2.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4		8	5	2	1	6
Case Number	1.0	4.0		5.3	2.0	4.0	1.1	3.0
Phase Duration, s	12.2	31.5		19.3	8.1	77.6	10.9	80.3
Change Period, (*Y+R c*), s	6.0	6.0		6.0	6.0	6.0	6.0	6.0
Max Allow Headway (*MAH*), s	3.1	3.3		3.3	3.1	0.0	3.1	0.0
Queue Clearance Time (*g s*), s	6.1	7.0		12.7	2.8		3.0	
Green Extension Time (*g e*), s	0.0	0.7		0.6	0.0	0.0	0.0	0.0
Phase Call Probability	0.89	1.00		1.00	0.30		0.69	
Max Out Probability	0.01	0.00		0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	65	76		43	120	130	11	713	710	35	1294	195
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1626	1513		1145	1618	1372	1598	1678	1669	1598	1597	1422
Queue Service Time (*g s*), s	4.1	5.0		4.2	8.5	10.7	0.8	35.8	35.9	1.0	36.6	4.0
Cycle Queue Clearance Time (*g c*), s	4.1	5.0		4.2	8.5	10.7	0.8	35.8	35.9	1.0	36.6	4.0
Green Ratio (*g/C*)	0.18	0.21		0.11	0.11	0.15	0.02	0.60	0.60	0.64	0.62	0.67
Capacity (*c*), veh/h	191	322		187	180	208	28	1001	996	225	1979	954
Volume-to-Capacity Ratio (*X*)	0.342	0.236		0.232	0.664	0.627	0.384	0.713	0.714	0.158	0.654	0.204
Back of Queue (*Q*), ft/ln (95 th percentile)	83	93		63	182	192	18	566	504	17	546	52
Back of Queue (*Q*), veh/ln (95 th percentile)	3.0	3.4		2.2	6.3	6.6	0.6	20.2	20.2	0.6	19.5	1.9
Queue Storage Ratio (*RQ*) (95 th percentile)	0.17	0.05		0.13	0.10	0.31	0.03	0.28	0.28	0.03	0.99	0.09
Uniform Delay (*d 1*), s/veh	42.6	39.1		49.3	51.2	47.7	58.3	17.0	17.0	14.1	21.0	4.4
Incremental Delay (*d 2*), s/veh	0.4	0.1		0.2	1.6	1.2	3.1	4.3	4.4	0.1	1.2	0.4
Initial Queue Delay (*d 3*), s/veh	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	43.0	39.3		49.5	52.8	48.9	61.4	21.3	21.4	14.2	22.3	4.8
Level of Service (LOS)	D	D		D	D	D	E	C	C	B	C	A
Approach Delay, s/veh / LOS	41.0	D		50.6	D		21.6	C		19.9	B	
Intersection Delay, s/veh / LOS	24.1						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.30	B	2.46	B	2.25	B	1.88	B
Bicycle LOS Score / LOS	0.72	A	0.97	A	1.67	B	2.03	B

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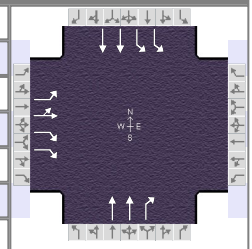
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Wooleprt, Inc.			Duration, h	0.250
Analyst	KWA	Analysis Date	Aug 22, 2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.88
Urban Street	Beech	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	161 EB	File Name	Beech 2048 AM Peak Build.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	770	10	720					1220	250	40	1000	

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	44	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

							1	2	3	4
Green	4.3	51.3	45.7	0.0	0.0	0.0	5	6	7	8
Yellow	3.4	5.3	5.3	0.0	0.0	0.0				
Red	2.7	1.0	1.0	0.0	0.0	0.0				

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4				2	1	6
Case Number		9.0				7.3	2.0	4.0
Phase Duration, s		52.0				57.6	10.4	68.0
Change Period, ($Y+R_c$), s		6.3				6.3	6.1	6.3
Max Allow Headway (*MAH*), s		5.2				0.0	4.6	0.0
Queue Clearance Time (g_s), s		37.5					2.9	
Green Extension Time (g_e), s		8.2				0.0	0.0	0.0
Phase Call Probability		1.00					0.61	
Max Out Probability		0.73					0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14					2	12	1	6	
Adjusted Flow Rate (*v*), veh/h	438	449	818					1326	272	28	706	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1612	1617	1265					1615	1349	1702	1730	
Queue Service Time (g_s), s	27.7	28.5	35.5					45.3	8.8	0.9	9.6	
Cycle Queue Clearance Time (g_c), s	27.7	28.5	35.5					45.3	8.8	0.9	9.6	
Green Ratio (*g/C*)	0.38	0.38	0.38					0.43	0.43	0.04	0.51	
Capacity (*c*), veh/h	614	616	964					1381	577	121	1779	
Volume-to-Capacity Ratio (*X*)	0.712	0.729	0.849					0.960	0.471	0.233	0.397	
Back of Queue (*Q*), ft/ln (95 th percentile)	462	450	474					505	114	19	113	
Back of Queue (*Q*), veh/ln (95 th percentile)	16.6	17.2	17.0					17.7	4.0	0.7	4.4	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.34	0.75	0.79					0.92	0.21	0.05	0.13	
Uniform Delay (d_1), s/veh	31.6	31.8	34.0					17.8	9.0	54.5	9.5	
Incremental Delay (d_2), s/veh	3.7	4.1	6.7					12.3	1.8	0.3	0.1	
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh	35.2	35.9	40.6					30.1	10.9	54.8	9.6	
Level of Service (LOS)	D	D	D					C	B	D	A	
Approach Delay, s/veh / LOS	38.0	D		0.0			26.8	C		11.3	B	
Intersection Delay, s/veh / LOS	28.7						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.32	B	2.47	B	1.69	B	2.09	B
Bicycle LOS Score / LOS	3.30	C			1.87	B	1.46	A

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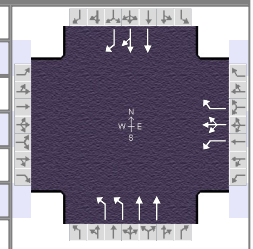
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Wooleprt, Inc.			Duration, h	0.250
Analyst	KWA	Analysis Date	Aug 22, 2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.95
Urban Street	Beech	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	161 WB	File Name	Beech 2048 AM Peak Build.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				490	10	150	320	1670			550	360

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	105	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

							1	2	3	4
Green	14.1	62.6	23.7	0.0	0.0	0.0	5	6	7	8
Yellow	3.4	5.3	5.3	0.0	0.0	0.0				
Red	3.6	1.0	1.0	0.0	0.0	0.0				

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8	5	2		6
Case Number				9.0	2.0	4.0		7.3
Phase Duration, s				30.0	21.1	90.0		68.9
Change Period, ($Y+R_c$), s				6.3	7.0	6.3		6.3
Max Allow Headway (*MAH*), s				5.1	2.6	0.0		0.0
Queue Clearance Time (g_s), s				19.4	13.7			
Green Extension Time (g_e), s				4.3	0.5	0.0		0.0
Phase Call Probability				1.00	1.00			
Max Out Probability				0.01	0.00			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3	8	18	5	2			6	16
Adjusted Flow Rate (*v*), veh/h				258	268	158	312	1628			440	204
Adjusted Saturation Flow Rate (*s*), veh/h/ln				1753	1755	1494	1538	1687			1705	1468
Queue Service Time (g_s), s				16.6	17.4	11.4	11.7	19.8			7.8	9.5
Cycle Queue Clearance Time (g_c), s				16.6	17.4	11.4	11.7	19.8			7.8	9.5
Green Ratio (*g/C*)				0.20	0.20	0.20	0.12	0.70			0.52	0.52
Capacity (*c*), veh/h				346	346	295	362	2355			1780	766
Volume-to-Capacity Ratio (*X*)				0.746	0.776	0.536	0.862	0.691			0.247	0.266
Back of Queue (*Q*), ft/ln (95 th percentile)				312	326	200	136	120			142	158
Back of Queue (*Q*), veh/ln (95 th percentile)				12.1	12.6	7.8	4.8	4.3			5.4	6.0
Queue Storage Ratio (*RQ*) (95 th percentile)				0.65	0.33	0.42	0.34	0.13			0.24	0.25
Uniform Delay (d_1), s/veh				45.3	45.7	43.2	44.4	3.9			14.2	16.6
Incremental Delay (d_2), s/veh				4.5	5.3	2.2	0.2	0.2			0.3	0.8
Initial Queue Delay (d_3), s/veh				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Control Delay (*d*), s/veh				49.9	50.9	45.4	44.6	4.0			14.5	17.4
Level of Service (LOS)				D	D	D	D	A			B	B
Approach Delay, s/veh / LOS	0.0			49.3		D	10.5		B	15.4		B
Intersection Delay, s/veh / LOS	19.6						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.47	B	2.32	B	1.87	B	1.68	B
Bicycle LOS Score / LOS			1.62	B	2.22	B	1.28	A

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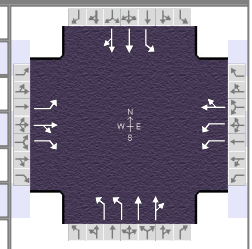
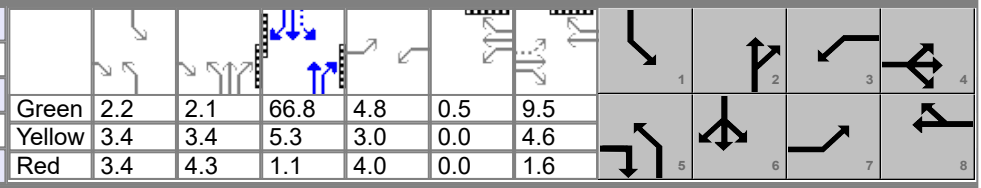
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Wooleprt, Inc.			Duration, h	0.250
Analyst	KWA	Analysis Date	Aug 22, 2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.87
Urban Street	Beech	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Smiths	File Name	Beech 2048 AM Peak Build.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	30	10	20	70	10	10	180	1050	150	10	470	30

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	17	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	2.2	2.1	66.8	4.8	0.5	9.5
Yellow	3.4	3.4	5.3	3.0	0.0	4.6
Red	3.4	4.3	1.1	4.0	0.0	1.6

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	3.0	2.0	4.0	2.0	4.0	1.1	4.0
Phase Duration, s	11.8	15.7	12.3	16.3	18.8	82.9	9.0	73.2
Change Period, ($Y+R_c$), s	7.0	6.2	5.8	6.2	7.7	6.4	6.8	6.4
Max Allow Headway (*MAH*), s	4.8	4.9	4.8	4.9	4.8	0.0	4.8	0.0
Queue Clearance Time (g_s), s	4.2	3.2	5.0	3.7	9.9		2.3	
Green Extension Time (g_e), s	0.0	0.2	0.2	0.2	1.2	0.0	0.0	0.0
Phase Call Probability	0.68	0.95	0.93	0.99	1.00		0.32	
Max Out Probability	1.00	0.00	0.00	0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	34	16	18	80	23		233	788	765	11	290	285
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1668	1675	1485	1551	1539		1675	1811	1732	1725	1811	1772
Queue Service Time (g_s), s	2.2	1.1	1.2	3.0	1.7		7.9	29.6	29.5	0.3	10.1	10.2
Cycle Queue Clearance Time (g_c), s	2.2	1.1	1.2	3.0	1.7		7.9	29.6	29.5	0.3	10.1	10.2
Green Ratio (*g/C*)	0.12	0.08	0.17	0.05	0.08		0.09	0.64	0.64	0.57	0.56	0.56
Capacity (*c*), veh/h	196	133	255	169	129		309	1155	1104	212	1008	986
Volume-to-Capacity Ratio (*X*)	0.176	0.121	0.072	0.477	0.178		0.753	0.682	0.693	0.054	0.288	0.289
Back of Queue (*Q*), ft/ln (95 th percentile)	46	23	23	62	34		146	385	343	6	199	188
Back of Queue (*Q*), veh/ln (95 th percentile)	1.7	0.8	0.8	2.2	1.2		5.6	14.7	13.7	0.2	7.6	7.5
Queue Storage Ratio (*RQ*) (95 th percentile)	0.36	0.05	0.05	0.16	0.03		0.32	0.32	0.30	0.02	0.29	0.28
Uniform Delay (d_1), s/veh	47.6	51.3	41.7	55.1	51.1		47.5	10.7	10.1	13.0	14.1	14.1
Incremental Delay (d_2), s/veh	0.5	0.5	0.2	2.7	0.8		3.3	2.2	2.5	0.1	0.7	0.7
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	48.1	51.9	41.8	57.8	52.0		50.8	13.0	12.6	13.2	14.8	14.8
Level of Service (LOS)	D	D	D	E	D		D	B	B	B	B	B
Approach Delay, s/veh / LOS	47.3	D		56.5	E		17.7	B		14.8	B	
Intersection Delay, s/veh / LOS	19.4						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.47	B	2.31	B	2.07	B	2.26	B
Bicycle LOS Score / LOS	0.60	A	0.66	A	1.80	B	0.97	A

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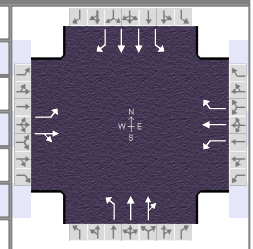
Beech Road - PM Build

HCS Signalized Intersection Results Summary

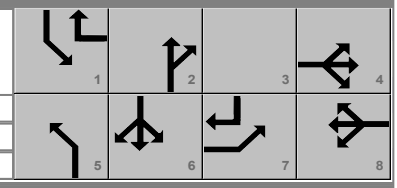
General Information				Intersection Information	
Agency	Wooleprt, Inc.			Duration, h	0.250
Analyst	KWA	Analysis Date	Aug 22, 2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.80
Urban Street	Beech	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Worthington	File Name	Beech 2048 PM Peak Build.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	60	60	10	20	40	50	80	1550	50	120	630	70

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	6.6	1.9		71.1	6.4	10.0	0.0					
Yellow	4.0	0.0		4.0	4.0	4.0	0.0					
Red	2.0	0.0		2.0	2.0	2.0	0.0					



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4		8	5	2	1	6
Case Number	1.0	4.0		5.3	2.0	4.0	1.1	3.0
Phase Duration, s	12.4	28.4		16.0	14.5	79.0	12.6	77.1
Change Period, (*Y+R c*), s	6.0	6.0		6.0	6.0	6.0	6.0	6.0
Max Allow Headway (*MAH*), s	3.1	3.2		3.2	3.1	0.0	3.1	0.0
Queue Clearance Time (*g s*), s	6.6	7.1		6.3	8.6		3.9	
Green Extension Time (*g e*), s	0.0	0.4		0.3	0.2	0.0	0.1	0.0
Phase Call Probability	0.92	1.00		1.00	0.96		0.93	
Max Out Probability	0.16	0.00		0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	75	88		25	50	63	100	1000	1000	79	416	46
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1725	1766		1299	1856	1572	1781	1870	1850	1753	1752	1560
Queue Service Time (*g s*), s	4.6	5.1		2.2	3.0	4.3	6.6	54.1	55.5	1.9	13.5	2.4
Cycle Queue Clearance Time (*g c*), s	4.6	5.1		2.2	3.0	4.3	6.6	54.1	55.5	1.9	13.5	2.4
Green Ratio (*g/C*)	0.15	0.19		0.08	0.08	0.14	0.07	0.61	0.61	0.65	0.59	0.65
Capacity (*c*), veh/h	228	330		168	155	219	126	1136	1123	185	2076	1008
Volume-to-Capacity Ratio (*X*)	0.328	0.265		0.149	0.324	0.286	0.793	0.880	0.890	0.429	0.200	0.046
Back of Queue (*Q*), ft/ln (95 th percentile)	94	105		33	66	78	142	831	832	48	266	75
Back of Queue (*Q*), veh/ln (95 th percentile)	3.6	4.0		1.3	2.6	3.0	5.6	32.7	33.3	1.9	10.3	2.9
Queue Storage Ratio (*RQ*) (95 th percentile)	0.20	0.05		0.07	0.04	0.12	0.24	0.41	0.41	0.09	0.48	0.14
Uniform Delay (*d 1*), s/veh	45.1	41.7		51.4	51.8	46.3	54.9	19.9	20.1	19.8	29.3	15.0
Incremental Delay (*d 2*), s/veh	0.3	0.2		0.1	0.4	0.3	4.2	9.9	10.7	0.5	0.2	0.1
Initial Queue Delay (*d 3*), s/veh	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	45.4	41.9		51.6	52.3	46.6	59.1	29.7	30.8	20.2	29.5	15.1
Level of Service (LOS)	D	D		D	D	D	E	C	C	C	C	B
Approach Delay, s/veh / LOS	43.5	D		49.5	D		31.7	C		26.9	C	
Intersection Delay, s/veh / LOS	32.3						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.30	B	2.47	B	2.25	B	1.89	B
Bicycle LOS Score / LOS	0.76	A	0.71	A	2.22	B	1.33	A

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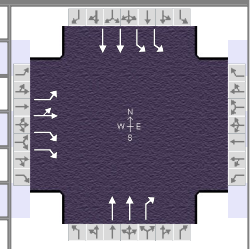
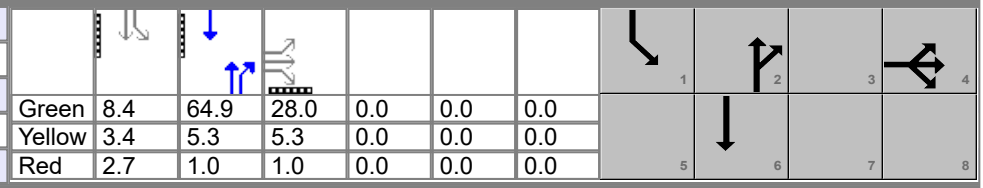
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Wooleprt, Inc.			Duration, h	0.250
Analyst	KWA	Analysis Date	Aug 22, 2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.80
Urban Street	Beech	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	161 EB	File Name	Beech 2048 PM Peak Build.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	130	10	410					1100	560	150	410	

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	120	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	8.4	64.9	28.0	0.0	0.0	0.0
Yellow	3.4	5.3	5.3	0.0	0.0	0.0
Red	2.7	1.0	1.0	0.0	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4				2	1	6
Case Number		9.0				7.3	2.0	4.0
Phase Duration, s		34.3				71.2	14.5	85.7
Change Period, (*Y+R c*), s		6.3				6.3	6.1	6.3
Max Allow Headway (*MAH*), s		5.3				0.0	4.6	0.0
Queue Clearance Time (*g s*), s		24.2					7.9	
Green Extension Time (*g e*), s		3.8				0.0	0.6	0.0
Phase Call Probability		1.00					1.00	
Max Out Probability		0.20					0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14					2	12	1	6	
Adjusted Flow Rate (*v*), veh/h	89	86	513					1375	700	173	472	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1226	1279	1321					1857	1657	1702	1698	
Queue Service Time (*g s*), s	7.2	6.6	22.2					21.3	24.5	5.9	10.4	
Cycle Queue Clearance Time (*g c*), s	7.2	6.6	22.2					21.3	24.5	5.9	10.4	
Green Ratio (*g/C*)	0.23	0.23	0.23					0.54	0.54	0.07	0.42	
Capacity (*c*), veh/h	286	298	616					2009	896	239	1435	
Volume-to-Capacity Ratio (*X*)	0.313	0.287	0.832					0.684	0.781	0.722	0.329	
Back of Queue (*Q*), ft/ln (95 th percentile)	105	107	320					196	170	117	188	
Back of Queue (*Q*), veh/ln (95 th percentile)	4.0	3.8	12.2					7.7	6.7	4.5	7.3	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.05	0.18	0.53					0.36	0.31	0.29	0.21	
Uniform Delay (*d 1*), s/veh	38.1	37.8	43.8					8.6	6.8	51.2	13.2	
Incremental Delay (*d 2*), s/veh	0.9	0.7	6.3					0.8	2.9	4.6	0.6	
Initial Queue Delay (*d 3*), s/veh	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh	38.9	38.6	50.1					9.4	9.7	55.7	13.8	
Level of Service (LOS)	D	D	D					A	A	E	B	
Approach Delay, s/veh / LOS	47.2	D		0.0			9.5	A		25.0	C	
Intersection Delay, s/veh / LOS	20.1						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.32	B	2.47	B	1.67	B	2.07	B
Bicycle LOS Score / LOS	1.62	B			2.20	B	1.07	A

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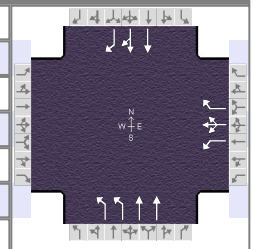
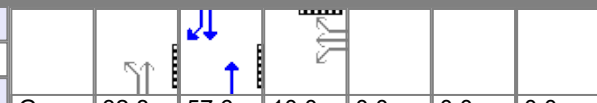
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Wooleprt, Inc.			Duration, h	0.250
Analyst	KWA	Analysis Date	Aug 22, 2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.87
Urban Street	Beech	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	161 WB	File Name	Beech 2048 PM Peak Build.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				100	10	40	700	530			460	700

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	64	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



							1	2	3	4
Green	32.8	57.6	10.0	0.0	0.0	0.0	5	6	7	8
Yellow	3.4	5.3	5.3	0.0	0.0	0.0				
Red	3.6	1.0	1.0	0.0	0.0	0.0				

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8	5	2		6
Case Number				9.0	2.0	4.0		7.3
Phase Duration, s				16.3	39.8	103.7		63.9
Change Period, ($Y+R_c$), s				6.3	7.0	6.3		6.3
Max Allow Headway (*MAH*), s				5.1	2.6	0.0		0.0
Queue Clearance Time (g_s), s				6.4	31.3			
Green Extension Time (g_e), s				1.0	1.5	0.0		0.0
Phase Call Probability				1.00	1.00			
Max Out Probability				0.00	0.00			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3	8	18	5	2			6	16
Adjusted Flow Rate (*v*), veh/h				57	69	46	875	663			692	646
Adjusted Saturation Flow Rate (*s*), veh/h/ln				1781	1779	1492	1702	1724			1755	1603
Queue Service Time (g_s), s				3.7	4.4	3.5	29.3	12.4			16.9	38.8
Cycle Queue Clearance Time (g_c), s				3.7	4.4	3.5	29.3	12.4			16.9	38.8
Green Ratio (*g/C*)				0.08	0.08	0.08	0.27	0.62			0.48	0.48
Capacity (*c*), veh/h				148	148	124	930	2126			1686	770
Volume-to-Capacity Ratio (*X*)				0.388	0.467	0.371	0.941	0.312			0.410	0.838
Back of Queue (*Q*), ft/ln (95 th percentile)				79	96	64	381	203			288	458
Back of Queue (*Q*), veh/ln (95 th percentile)				3.1	3.8	2.5	14.8	7.9			11.1	17.6
Queue Storage Ratio (*RQ*) (95 th percentile)				0.16	0.10	0.13	0.95	0.23			0.48	0.73
Uniform Delay (d_1), s/veh				52.1	52.5	52.0	30.6	7.6			23.6	20.1
Incremental Delay (d_2), s/veh				2.4	3.2	2.6	6.4	0.3			0.5	7.9
Initial Queue Delay (d_3), s/veh				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Control Delay (*d*), s/veh				54.5	55.7	54.7	37.0	7.9			24.2	28.0
Level of Service (LOS)				D	E	D	D	A			C	C
Approach Delay, s/veh / LOS	0.0			55.0	E		24.5	C		26.0	C	
Intersection Delay, s/veh / LOS	26.9						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.47	B	2.32	B	1.83	B	1.68	B
Bicycle LOS Score / LOS			0.77	A	1.65	B	1.59	B

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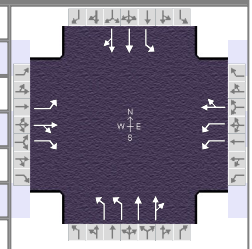
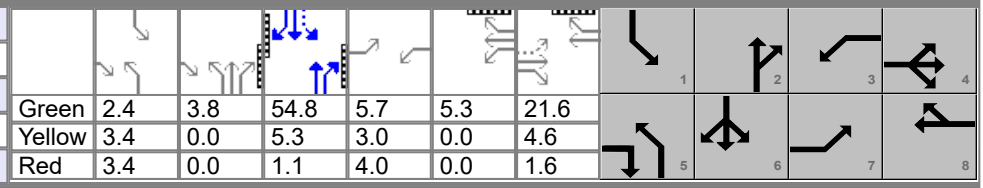
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Wooleprt, Inc.			Duration, h	0.250
Analyst	KWA	Analysis Date	Aug 22, 2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.80
Urban Street	Beech	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Smiths	File Name	Beech 2048 PM Peak Build.xus		
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	40	10	250	210	20	40	20	230	80	10	610	40

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	60	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	2.4	3.8	54.8	5.7	5.3	21.6
Yellow	3.4	0.0	5.3	3.0	0.0	4.6
Red	3.4	0.0	1.1	4.0	0.0	1.6

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	3.0	2.0	4.0	2.0	4.0	1.1	4.0
Phase Duration, s	12.7	27.8	18.0	33.1	13.0	65.1	9.2	61.2
Change Period, ($Y+R_c$), s	7.0	6.2	5.8	6.2	7.7	6.4	6.8	6.4
Max Allow Headway (*MAH*), s	4.8	5.0	4.8	5.0	4.8	0.0	4.8	0.0
Queue Clearance Time (g_s), s	4.7	19.8	11.0	6.5	3.5		2.5	
Green Extension Time (g_e), s	0.1	1.8	1.2	2.2	0.2	0.0	0.0	0.0
Phase Call Probability	0.81	1.00	1.00	1.00	0.76		0.34	
Max Out Probability	0.03	0.04	0.00	0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	50	75	250	263	75		43	347	319	13	411	402
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1753	1607	1560	1702	1644		1675	1811	1651	1725	1811	1771
Queue Service Time (g_s), s	2.7	4.8	17.8	9.0	4.5		1.5	9.2	8.4	0.5	19.1	19.1
Cycle Queue Clearance Time (g_c), s	2.7	4.8	17.8	9.0	4.5		1.5	9.2	8.4	0.5	19.1	19.1
Green Ratio (*g/C*)	0.23	0.18	0.22	0.10	0.22		0.04	0.49	0.49	0.48	0.46	0.46
Capacity (*c*), veh/h	365	289	350	346	368		149	885	807	389	827	809
Volume-to-Capacity Ratio (*X*)	0.137	0.260	0.715	0.759	0.204		0.289	0.392	0.395	0.032	0.496	0.497
Back of Queue (*Q*), ft/ln (95 th percentile)	55	91	296	187	85		32	159	125	9	346	325
Back of Queue (*Q*), veh/ln (95 th percentile)	2.1	3.5	11.5	7.2	3.3		1.2	6.1	5.0	0.3	13.2	13.0
Queue Storage Ratio (*RQ*) (95 th percentile)	0.42	0.18	0.59	0.47	0.08		0.07	0.13	0.11	0.02	0.50	0.49
Uniform Delay (d_1), s/veh	36.9	42.4	43.0	52.5	37.9		58.1	10.2	9.0	16.8	22.9	22.9
Incremental Delay (d_2), s/veh	0.2	0.6	3.5	4.4	0.3		1.3	1.2	1.4	0.0	2.1	2.2
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	37.1	43.0	46.5	56.8	38.2		59.4	11.5	10.4	16.8	25.0	25.1
Level of Service (LOS)	D	D	D	E	D		E	B	B	B	C	C
Approach Delay, s/veh / LOS	44.6	D		52.7	D		13.9	B		24.9	C	
Intersection Delay, s/veh / LOS	28.9						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.46	B	2.30	B	2.10	B	2.27	B
Bicycle LOS Score / LOS	1.11	A	1.04	A	0.83	A	1.17	A

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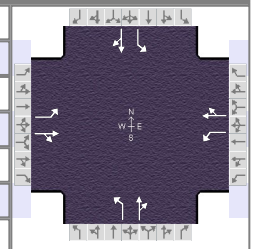
Mink Street - AM
No-Build

HCS Signalized Intersection Results Summary

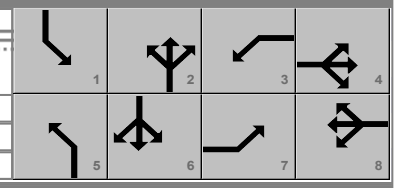
General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	5/13/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.86
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Worthington Rd	File Name	Mink St_AM 2048 No-Build_Worthington-WB Ra…		
Project Description	2048 AM Peak No-Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	50	10	10	10	70	80	70	1140	20	60	370	130

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	6.3	0.2	72.5	2.2	3.7	11.0	
Yellow	4.0	0.0	4.0	4.0	0.0	4.0	
Red	2.0	0.0	2.0	2.0	0.0	2.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	4.0
Phase Duration, s	12.0	20.8	8.2	17.0	12.5	78.7	12.3	78.5
Change Period, ($Y+R_c$), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Allow Headway (*MAH*), s	5.1	5.2	5.1	5.2	5.1	0.0	5.1	0.0
Queue Clearance Time (g_s), s	6.4	3.8	2.8	13.0	4.0		3.8	
Green Extension Time (g_e), s	0.0	0.7	0.0	0.0	0.2	0.0	0.4	0.0
Phase Call Probability	0.86	1.00	0.32	1.00	0.93		0.90	
Max Out Probability	1.00	0.05	1.00	1.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	58	23		12	174		81	1349		70	583	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1414	1362		1626	1558		1753	1835		1711	1716	
Queue Service Time (g_s), s	4.4	1.8		0.8	11.0		2.0	72.7		1.8	25.0	
Cycle Queue Clearance Time (g_c), s	4.4	1.8		0.8	11.0		2.0	72.7		1.8	25.0	
Green Ratio (*g/C*)	0.14	0.12		0.11	0.09		0.66	0.61		0.66	0.60	
Capacity (*c*), veh/h	131	167		206	143		479	1111		150	1036	
Volume-to-Capacity Ratio (*X*)	0.445	0.139		0.057	1.221		0.170	1.214		0.466	0.563	
Back of Queue (*Q*), ft/ln (95 th percentile)	92	35		16	453		34	2204		62	386	
Back of Queue (*Q*), veh/ln (95 th percentile)	3.0	1.2		0.6	16.4		1.3	85.4		2.3	14.6	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.42	0.07		0.07	0.91		0.14	4.42		0.10	0.63	
Uniform Delay (d_1), s/veh	46.6	47.0		47.8	54.5		10.2	23.7		29.1	14.8	
Incremental Delay (d_2), s/veh	3.4	0.5		0.2	146.5		0.2	104.6		2.8	2.0	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh	50.0	47.5		48.0	201.0		10.5	128.3		31.9	16.7	
Level of Service (LOS)	D	D		D	F		B	F		C	B	
Approach Delay, s/veh / LOS	49.3	D		191.4	F		121.6	F		18.4	B	
Intersection Delay, s/veh / LOS	95.9						F					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.95	B	1.95	B	1.89	B	1.89	B
Bicycle LOS Score / LOS	0.62	A	0.79	A	2.85	C	1.56	B

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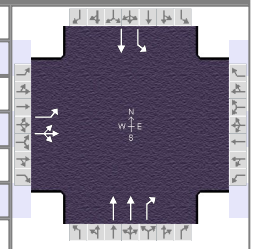
HCS Signalized Intersection Results Summary

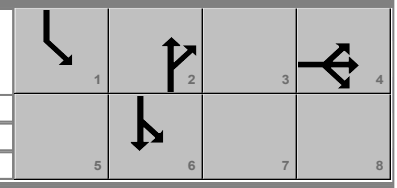
General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	5/13/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.85
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	SR 161 EB Exit Ramps	File Name	Mink St_AM 2048 No-Build_Worthington-WB Ra…		
Project Description	2048 AM Peak No-Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	1130	10	170					1210	60	150	390	

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	114	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	10.3	39.7	52.0	0.0	0.0	0.0	
Yellow	4.0	4.0	4.0	0.0	0.0	0.0	
Red	2.0	2.0	2.0	0.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4				2	1	6
Case Number		10.0				7.3	1.0	4.0
Phase Duration, s		58.0				45.7	16.3	62.0
Change Period, ($Y+R_c$), s		6.0				6.0	6.0	6.0
Max Allow Headway (*MAH*), s		5.3				0.0	5.1	0.0
Queue Clearance Time (g_s), s		54.0					10.0	
Green Extension Time (g_e), s		0.0				0.0	0.3	0.0
Phase Call Probability		1.00					1.00	
Max Out Probability		1.00					1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14					2	12	1	6	
Adjusted Flow Rate (*v*), veh/h	665	876						1169	58	174	453	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1711	1697						1739	1423	1668	1758	
Queue Service Time (g_s), s	43.2	52.0						39.7	2.5	8.0	14.3	
Cycle Queue Clearance Time (g_c), s	43.2	52.0						39.7	2.5	8.0	14.3	
Green Ratio (*g/C*)	0.43	0.43						0.33	0.33	0.43	0.47	
Capacity (*c*), veh/h	741	735						1150	471	203	820	
Volume-to-Capacity Ratio (*X*)	0.897	1.192						1.016	0.123	0.857	0.553	
Back of Queue (*Q*), ft/ln (95 th percentile)	722	1529						501	34	198	216	
Back of Queue (*Q*), veh/ln (95 th percentile)	27.3	57.9						18.8	1.3	7.3	8.0	
Queue Storage Ratio (*RQ*) (95 th percentile)	1.09	3.97						1.00	0.09	0.79	0.87	
Uniform Delay (d_1), s/veh	31.5	34.0						32.5	19.9	27.8	10.9	
Incremental Delay (d_2), s/veh	13.9	99.5						12.4	0.0	20.0	2.6	
Initial Queue Delay (d_3), s/veh	0.0	0.0						0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh	45.4	133.5						44.9	19.9	47.9	13.4	
Level of Service (LOS)	D	F						F	B	D	B	
Approach Delay, s/veh / LOS	95.5	F		0.0			43.7	D		23.0	C	
Intersection Delay, s/veh / LOS	63.4						E					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.15	B	2.15	B	1.41	A	1.69	B
Bicycle LOS Score / LOS	3.03	C			1.72	B	1.54	B

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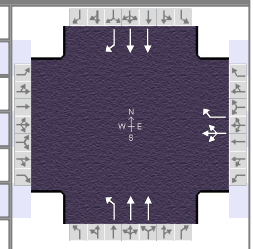
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	5/13/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.86
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	SR 161 WB Exit Ramps	File Name	Mink St_AM 2048 No-Build_Worthington-WB Ra…		
Project Description	2048 AM Peak No-Build				

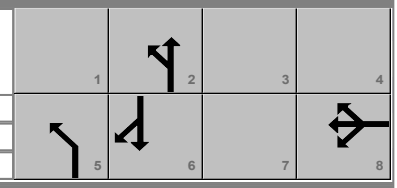


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				110	10	590	110	2230			430	460

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	55	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	6.6	53.9	41.5	0.0	0.0	0.0						
Yellow	4.0	4.0	4.0	0.0	0.0	0.0						
Red	2.0	2.0	2.0	0.0	0.0	0.0						



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8	5	2		6
Case Number				11.0	1.0	4.0		7.3
Phase Duration, s				47.5	12.6	72.5		59.9
Change Period, (*Y+R c*), s				6.0	6.0	6.0		6.0
Max Allow Headway (*MAH*), s				5.3	5.1	0.0		0.0
Queue Clearance Time (*g s*), s				35.6	5.2			
Green Extension Time (*g e*), s				5.9	0.4	0.0		0.0
Phase Call Probability				1.00	0.95			
Max Out Probability				0.03	0.00			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3	8	18	5	2			6	16
Adjusted Flow Rate (*v*), veh/h					380	446	89	1803			500	535
Adjusted Saturation Flow Rate (*s*), veh/h/ln					1557	1488	1697	1835			1661	1548
Queue Service Time (*g s*), s					25.3	33.6	3.2	45.9			11.7	34.9
Cycle Queue Clearance Time (*g c*), s					25.3	33.6	3.2	45.9			11.7	34.9
Green Ratio (*g/C*)					0.35	0.35	0.52	0.55			0.45	0.45
Capacity (*c*), veh/h					538	514	454	2034			1492	695
Volume-to-Capacity Ratio (*X*)					0.705	0.867	0.196	0.886			0.335	0.770
Back of Queue (*Q*), ft/ln (95 th percentile)					402	511	43	415			215	533
Back of Queue (*Q*), veh/ln (95 th percentile)					14.9	18.9	1.6	15.6			8.1	20.2
Queue Storage Ratio (*RQ*) (95 th percentile)					0.48	0.77	0.17	1.66			0.23	0.99
Uniform Delay (*d 1*), s/veh					34.0	36.7	14.0	14.3			21.4	27.8
Incremental Delay (*d 2*), s/veh					2.4	7.7	0.0	0.6			0.6	8.0
Initial Queue Delay (*d 3*), s/veh					0.0	0.0	0.0	0.0			0.0	0.0
Control Delay (*d*), s/veh					36.4	44.4	14.0	14.9			22.1	35.9
Level of Service (LOS)					D	D	B	B			C	D
Approach Delay, s/veh / LOS	0.0			40.7		D	14.8		B	29.2		C
Intersection Delay, s/veh / LOS	24.5						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.32	B	2.32	B	1.67	B	1.40	A
Bicycle LOS Score / LOS			1.85	B	2.73	C	1.34	A

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HCS Two-Way Stop-Control Text Report

TWO-WAY STOP CONTROL (TWSC) Analysis

File Name:	Mink St_AM 2048 No-Build_Innovation Way.xtw
Analyst:	AC
Agency:	Woolpert
Date Performed:	5/13/2024
Time Analyzed:	2048 AM No-Build
Jurisdiction:	ODOT
Analysis Year:	2048
Project Description:	FRA/LIC-161 22.1/0.00
Units:	U.S. Customary
Intersection Name:	Mink St at Innovation Campus Way
Major Street Direction:	North-South
East/West Street Name:	Innovation Campus Way
North/South Street Name:	Mink St
Analysis Time Period (hrs):	0.25

Vehicle Volumes and Adjustments

Major Street:									
Approach		NB				SB			
Movement	1U	1	2	3	4U	4	5	6	
	U	L	T	R	U	L	T	R	
Volume	0	260	2560				850	30	
Peak Hour Factor, PHF					0.88				
Hourly Flow Rate, HFR		295	2909				966	34	
Percent Heavy Vehicles	10	10							
Number of Lanes	0	1	2	0	0	0	2	0	
Lane Configuration		L	T				T	TR	
Median Type					Undivided				
Median Storage									
RT Channelized?									
Left-Turn Lane Storage									
Upstream Signal?					Not Present				

Minor Street:							
Approach	WB				EB		
Movement	7	8	9		10	11	12
	L	T	R		L	T	R
Volume					20		40
Peak Hour Factor, PHF				0.88			
Hourly Flow Rate, HFR					23		45
Percent Heavy Vehicles					37		37
Number of Lanes	0	0	0		1	0	1
Lane Configuration					L		R
RT Channelized?							No
Flared Approach | Storage		|			|	
Percent Grade						0	

Pedestrian Volumes and Adjustments

Approach	NB	SB	WB	EB
Movement	13	14	15	16
Flow (ped/hr)	0	0		0
Lane Width (ft)				
Walking Speed (ft/sec)				
Pedestrian Blockage Factor, f_pb				

Delay, Queue Length, and Level of Service

Approach	NB		SB		WB			EB		
Movement	1U	1	4U	4	7	8	9	10	11	12
Lane Configuration		L						L		R
Flow Rate		295						23		45
Lane Capacity (veh/h)		642						3		433
v/c		0.46						7.60		0.10
95% Queue Length (veh)		2.4						4.4		0.3
Control Delay		15.3						5210.3		14.3
LOS		C						F		B
Approach Delay		1.4							1746.3	
Approach LOS		A							F	
Intersction Delay		28.9								

Step 1: MOVEMENT PRIORITIES

Major Street:									
Approach		NB				SB			
Priority	1U	1	2	3	4U	4	5	6	
Movement	U	L	T	R	U	L	T	R	
Minor Street:									

Approach		WB				EB		
Priority		7	8	9	|	10	11	12
Movement		L	T	R	|	L	T	R

Step 2: MOVEMENT DEMAND VOLUMES AND FLOW RATES

Major Street:								
Approach		NB				SB		
Movement	1U	1	2	3	| 4U	4	5	6
	U	L	T	R	| U	L	T	R
Volume, V_x	0	260	2560				850	30
Flow Rate, v_x		295	2909				966	34

Minor Street:								
Approach		WB				EB		
Movement		7	8	9	|	10	11	12
		L	T	R	|	L	T	R
Volume, V_x						20		40
Flow Rate, v_x						23		45

Step 3: CONFLICTING FLOW RATES

Major Street:								
Approach		NB				SB		
Movement	1U	1	2	3	| 4U	4	5	6
	U	L	T	R	| U	L	T	R
Flow Rate, v_x		295	2909				966	34
Conflicting Flow, v_c,x		1000						

Minor Street:								
Approach		WB				EB		
Movement		7	8	9	|	10	11	12
		L	T	R	|	L	T	R
Flow Rate, v_x						23		45
Conflicting Flow, v_c,x						3028		500

Step 4: CRITICAL HEADWAYS and FOLLOW-UP HEADWAYS

CRITICAL HEADWAYS										
Approach	NB		SB			WB			EB	
Movement	1U	1	4U	4	7	8	9	10	11	12
	U	L	U	L	L	T	R	L	T	R
t_c,base										
Single Stage		4.1						7.5		6.9
Stage I										
Stage II										
t_c,HV		2.0						2.0		2.0
P_HV		0.10						0.37		0.37
t_c,G								0.2		0.1
G								0		0
t_3,LT		0.0						0.7		0.0
t_c										
Single Stage		4.30						7.54		7.64
Stage I										
Stage II										

FOLLOW-UP HEADWAYS										
Approach	NB		SB			WB			EB	
Movement	1U	1	4U	4	7	8	9	10	11	12
	U	L	U	L	L	T	R	L	T	R
t_f,base		2.2						3.5		3.3
t_f,HV		1.0						1.0		1.0
P_HV		0.10						0.37		0.37
t_f		2.30						3.87		3.67

Step 5: POTENTIAL CAPACITIES

NO UPSTREAM SIGNAL EFFECTS PRESENT										
Approach	NB		SB			WB			EB	
Movement	1U	1	4U	4	7	8	9	10	11	12
	U	L	U	L	L	T	R	L	T	R
v_c,x		1000						3028		500
t_c,x		4.30						7.54		7.64
t_f,x		2.30						3.87		3.67
c_p,x		642						6		433

Steps 6 - 9: MOVEMENT CAPACITIES

Pedestrian Impedance				
Approach	NB	SB	WB	EB

Movement	13	14	15	16
Pedestrian Flow Rate v_x	0	0		0
Lane Width, w				
Walking Speed, S_p				
Pedestrian Blockage Factor, f_pb				

Major-Street Left-Turn Movements		1	4	
Conflicting Flow, v_c,x		1000		
Potential Capacity, c_p,x		642		
Pedestrian Impedance Factor, p_p,x		1.000		
Movement Capacity, c_m,x		642		
Probability of Queue-free State, p_0,j		0.539		
Major L-Shared Probability Queue-free State, p*_0,j		1.000		

Minor-Street Right-Turn Movements		9	12	
Conflicting Flow, v_c,x			500	
Potential Capacity, c_p,x			433	
Pedestrian Impedance Factor, p_p,x			1.000	
Movement Capacity, c_m,x			433	
Probability of Queue-free State, p_0,j			0.895	

Major-Street U-Turn Movements		1U	4U	
Conflicting Flow, v_c,x				
Potential Capacity, c_p,x				
Capacity Adjustment Factor, f_x				
Movement Capacity, c_m,x				
Shared L/U Capacity, c_SH				
Probability of Queue-free State, p_0,j				

Minor-Street Through Movements		8	11	
Conflicting Flow, v_c,x				
Potential Capacity, c_p,x				
Pedestrian Impedance Factor, p_p,x				
Capacity Adjustment Factor, f_x				
Movement Capacity, c_m,x				
Probability of Queue-free State, p_0,j				

Minor-Street Left-Turn Movements		7	10	
Conflicting Flow, v_c,x			3028	
Potential Capacity, c_p,x			6	
Pedestrian Impedance Factor, p_p,x			1.000	
Capacity Adjustment Factor, f_x			0.539	
Movement Capacity, c_m,x			3	

Step 10: FINAL CAPACITY ADJUSTMENTS

SHARED-LANE CAPACITY OF MINOR STREET APPROACHES

Approach		WB				EB	
Movement	7	8	9	|	10	11	12
Lane Configuration				|	L		R
Shared Flow Rate, v_y					23		45
Movement Capacity, c_m,x					3		433
Shared Capacity, c_SH							

Step 11: CONTROL DELAY

CONTROL DELAY TO RANK 2 THROUGH 4 MOVEMENTS

Approach	NB			SB		WB			EB	
Movement	1U	1	4U	4	7	8	9	10	11	12
Flow Rate		295						23		45
Movement Capacity		642						3		433
Lane Configuration		L						L		R
Shared Capacity										
Control Delay		15.3						5210.3		14.3

Steps 12 - 13: APPROACH/INTERSECTION CONTROL DELAY and 95% QUEUE LENGTHS

Approach	NB			SB		WB			EB	
Movement	1U	1	4U	4	7	8	9	10	11	12
Lane Configuration		L						L		R
Flow Rate		295						23		45
Lane Capacity (veh/h)		642						3		433
v/c		0.46						7.60		0.10
Avg Queue Spacing (ft/veh)		27.0						32.4		32.4
95% Queue Length (veh)		2.4						4.4		0.3
95% Queue Length (ft)		64.8						142.6		9.7
Control Delay		15.3						5210.3		14.3

LOS	C	F	B
Approach Delay	1.4	1746.3	
Approach LOS	A	F	
Intersection Delay	28.9		

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HCS Two-Way Stop-Control Text Report

TWO-WAY STOP CONTROL (TWSC) Analysis

File Name:	Mink St_AM 2048 No-Build_Beaver Road.xtw
Analyst:	AC
Agency:	Woolpert
Date Performed:	5/13/2024
Time Analyzed:	2048 AM No-Build
Jurisdiction:	ODOT
Analysis Year:	2048
Project Description:	FRA/LIC-161-22.1/0.00
Units:	U.S. Customary
Intersection Name:	Mink St at Beaver Rd
Major Street Direction:	North-South
East/West Street Name:	Beaver Rd
North/South Street Name:	Mink St
Analysis Time Period (hrs):	0.25

Vehicle Volumes and Adjustments

Major Street:									
Approach		NB					SB		
Movement	1U	1	2	3	|	4U	4	5	6
	U	L	T	R	|	U	L	T	R
Volume			1600	630		0	30	700	
Peak Hour Factor, PHF						0.91			
Hourly Flow Rate, HFR			1758	692			33	769	
Percent Heavy Vehicles						31	31		
Number of Lanes	0	0	2	0		0	1	2	0
Lane Configuration			T	TR			L	T	
Median Type						Undivided			
Median Storage									
RT Channelized?									
Left-Turn Lane Storage									
Upstream Signal?						Not Present			

Minor Street:								
Approach		WB				EB		
Movement	7	8	9	|	10	11	12	
	L	T	R	|	L	T	R	
Volume	160	0	50					
Peak Hour Factor, PHF				0.91				
Hourly Flow Rate, HFR	176	0	55					
Percent Heavy Vehicles	5	5	5					
Number of Lanes	0	1	0		0	0	0	
Lane Configuration		LTR						
RT Channelized?								
Flared Approach | Storage	No	|				|	
Percent Grade		0						

Pedestrian Volumes and Adjustments

Approach	NB	SB	WB	EB
Movement	13	14	15	16
Flow (ped/hr)	0	0	0	
Lane Width (ft)				
Walking Speed (ft/sec)				
Pedestrian Blockage Factor, f_pb				

Delay, Queue Length, and Level of Service

Approach	NB		SB		WB			EB	
Movement	1U	1	4U	4	7	8	9	10	11	12
Lane Configuration				L		LTR				
Flow Rate				33		231				
Lane Capacity (veh/h)				120		12				
v/c				0.27		19.50				
95% Queue Length (veh)				1.0		30.2				
Control Delay				45.8		8944.4				
LOS				E		F				
Approach Delay				1.9		8944.4				
Approach LOS				A		F				
Intersction Delay	593.0									

Step 1: MOVEMENT PRIORITIES

Major Street:									
Approach		NB					SB		
Priority	1U	1	2	3	|	4U	4	5	6
Movement	U	L	T	R	|	U	L	T	R

Minor Street:

Approach		WB				EB		
Priority		7	8	9	|	10	11	12
Movement		L	T	R	|	L	T	R

Step 2: MOVEMENT DEMAND VOLUMES AND FLOW RATES

Major Street:								
Approach		NB				SB		
Movement	1U	1	2	3	| 4U	4	5	6
	U	L	T	R	| U	L	T	R
Volume, V_x			1600	630	0	30	700	
Flow Rate, v_x			1758	692		33	769	

Minor Street:							
Approach	WB				EB		
Movement	7	8	9	|	10	11	12
	L	T	R	|	L	T	R
Volume, V_x	160	0	50				
Flow Rate, v_x	176	0	55				

Step 3: CONFLICTING FLOW RATES

Major Street:								
Approach		NB				SB		
Movement	1U	1	2	3	| 4U	4	5	6
	U	L	T	R	| U	L	T	R
Flow Rate, v_x			1758	692		33	769	
Conflicting Flow, v_c,x						2451		

Minor Street:							
Approach	WB				EB		
Movement	7	8	9	|	10	11	12
	L	T	R	|	L	T	R
Flow Rate, v_x	176	0	55				
Conflicting Flow, v_c,x	2555	2940	1225				

Step 4: CRITICAL HEADWAYS and FOLLOW-UP HEADWAYS

CRITICAL HEADWAYS										
Approach	NB		SB		WB			EB		
Movement	1U	1	4U	4	7	8	9	10	11	12
	U	L	U	L	L	T	R	L	T	R
t_c,base										
Single Stage				4.1	7.5	6.5	6.9			
Stage I										
Stage II										
t_c,HV				2.0	2.0	2.0	2.0			
P_HV				0.31	0.05	0.05	0.05			
t_c,G					0.2	0.2	0.1			
G					0	0	0			
t_3,LT				0.0	0.0	0.0	0.0			
t_c										
Single Stage				4.72	7.60	6.60	7.00			
Stage I										
Stage II										

FOLLOW-UP HEADWAYS										
Approach	NB		SB		WB			EB		
Movement	1U	1	4U	4	7	8	9	10	11	12
	U	L	U	L	L	T	R	L	T	R
t_f,base				2.2	3.5	4.0	3.3			
t_f,HV				1.0	1.0	1.0	1.0			
P_HV				0.31	0.05	0.05	0.05			
t_f				2.51	3.55	4.05	3.35			

Step 5: POTENTIAL CAPACITIES

NO UPSTREAM SIGNAL EFFECTS PRESENT										
Approach	NB		SB		WB			EB		
Movement	1U	1	4U	4	7	8	9	10	11	12
	U	L	U	L	L	T	R	L	T	R
v_c,x				2451	2555	2940	1225			
t_c,x				4.72	7.60	6.60	7.00			
t_f,x				2.51	3.55	4.05	3.35			
c_p,x				120	13	14	166			

Steps 6 - 9: MOVEMENT CAPACITIES

Pedestrian Impedance				
Approach	NB	SB	WB	EB

Movement	13	14	15	16
Pedestrian Flow Rate v_x	0	0	0	
Lane Width, w				
Walking Speed, S_p				
Pedestrian Blockage Factor, f_pb				

Major-Street Left-Turn Movements		1	4
Conflicting Flow, v_c,x			2451
Potential Capacity, c_p,x			120
Pedestrian Impedance Factor, p_p,x			1.000
Movement Capacity, c_m,x			120
Probability of Queue-free State, p_0,j			0.726
Major L-Shared Probability Queue-free State, p*_0,j			1.000

Minor-Street Right-Turn Movements		9	12
Conflicting Flow, v_c,x		1225	
Potential Capacity, c_p,x		166	
Pedestrian Impedance Factor, p_p,x		1.000	
Movement Capacity, c_m,x		166	
Probability of Queue-free State, p_0,j		0.670	

Major-Street U-Turn Movements		1U	4U
Conflicting Flow, v_c,x			
Potential Capacity, c_p,x			
Capacity Adjustment Factor, f_x			
Movement Capacity, c_m,x			
Shared L/U Capacity, c_SH			
Probability of Queue-free State, p_0,j			

Minor-Street Through Movements		8	11
Conflicting Flow, v_c,x		2940	
Potential Capacity, c_p,x		14	
Pedestrian Impedance Factor, p_p,x		1.000	
Capacity Adjustment Factor, f_x		0.726	
Movement Capacity, c_m,x		10	
Probability of Queue-free State, p_0,j		1.000	

Minor-Street Left-Turn Movements		7	10
Conflicting Flow, v_c,x		2555	
Potential Capacity, c_p,x		13	
Pedestrian Impedance Factor, p_p,x		1.000	
Capacity Adjustment Factor, f_x		0.726	
Movement Capacity, c_m,x		9	

Step 10: FINAL CAPACITY ADJUSTMENTS

SHARED-LANE CAPACITY OF MINOR STREET APPROACHES

Approach		WB			EB	
Movement	7	8	9	10	11	12
Lane Configuration		LTR				
Shared Flow Rate, v_y		231				
Movement Capacity, c_m,x	9	10	166			
Shared Capacity, c_SH		12				

Step 11: CONTROL DELAY

CONTROL DELAY TO RANK 2 THROUGH 4 MOVEMENTS

Approach	NB			SB		WB			EB	
Movement	1U	1	4U	4	7	8	9	10	11	12
Flow Rate				33	176	0	55			
Movement Capacity				120	9	10	166			
Lane Configuration				L		LTR				
Shared Capacity						12				
Control Delay				45.8		8944.4				

Steps 12 - 13: APPROACH/INTERSECTION CONTROL DELAY and 95% QUEUE LENGTHS

Approach	NB			SB		WB			EB	
Movement	1U	1	4U	4	7	8	9	10	11	12
Lane Configuration				L		LTR				
Flow Rate				33		231				
Lane Capacity (veh/h)				120		12				
v/c				0.27		19.50				
Avg Queue Spacing (ft/veh)				31.2		26.0				
95% Queue Length (veh)				1.0		30.2				
95% Queue Length (ft)				31.2		785.2				
Control Delay				45.8		8944.4				

LOS		E	F
Approach Delay		1.9	8944.4
Approach LOS		A	F
Intersection Delay	593.0		

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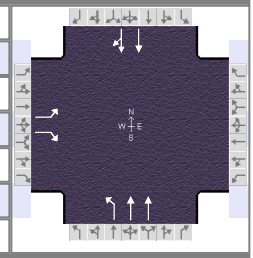
HCS Signalized Intersection Results Summary

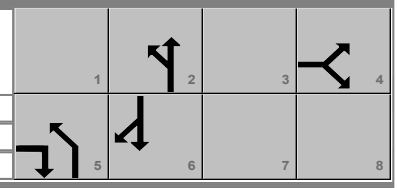
General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	5/13/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.80
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Clover Valley Rd	File Name	Mink St_AM 2048 No-Build_CloverValley.xus		
Project Description	AM 2048 No-Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	20		230				1000	620			480	20

Signal Information			
Cycle, s	110.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	59.0	23.0	10.0	0.0	0.0	0.0	
Yellow	4.0	4.0	4.0	0.0	0.0	0.0	
Red	2.0	2.0	2.0	0.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4			5	2		6
Case Number		9.0			1.0	4.0		8.3
Phase Duration, s		16.0			65.0	94.0		29.0
Change Period, ($Y+R_c$), s		6.0			6.0	6.0		6.0
Max Allow Headway (*MAH*), s		5.2			5.0	0.0		0.0
Queue Clearance Time (g_s), s		12.0			61.0			
Green Extension Time (g_e), s		0.0			0.0	0.0		0.0
Phase Call Probability		1.00			1.00			
Max Out Probability		1.00			1.00			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7		14				5	2			6	16
Adjusted Flow Rate (*v*), veh/h	25		288				1250	775			314	311
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1160		1032				1217	1216			1544	1522
Queue Service Time (g_s), s	2.2		10.0				59.0	10.3			22.3	22.3
Cycle Queue Clearance Time (g_c), s	2.2		10.0				59.0	10.3			22.3	22.3
Green Ratio (*g/C*)	0.09		0.63				0.76	0.80			0.21	0.21
Capacity (*c*), veh/h	105		648				722	1946			323	318
Volume-to-Capacity Ratio (*X*)	0.237		0.444				1.732	0.398			0.974	0.976
Back of Queue (*Q*), ft/ln (95 th percentile)	41		199				4440	97			529	441
Back of Queue (*Q*), veh/ln (95 th percentile)	1.2		5.8				132.9	2.9			17.8	17.7
Queue Storage Ratio (*RQ*) (95 th percentile)	0.30		1.48				7.21	0.19			1.06	1.05
Uniform Delay (d_1), s/veh	46.5		10.6				20.2	3.2			43.2	43.2
Incremental Delay (d_2), s/veh	1.6		0.7				335.4	0.6			43.9	44.6
Initial Queue Delay (d_3), s/veh	0.0		0.0				0.0	0.0			0.0	0.0
Control Delay (*d*), s/veh	48.1		11.3				355.5	3.8			87.1	87.9
Level of Service (LOS)	D		B				F	A			F	F
Approach Delay, s/veh / LOS	14.2	B		0.0			220.9	F		87.5	F	
Intersection Delay, s/veh / LOS	171.0						F					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.32	B	2.15	B	0.63	A	1.94	B
Bicycle LOS Score / LOS		F			2.16	B	1.00	A

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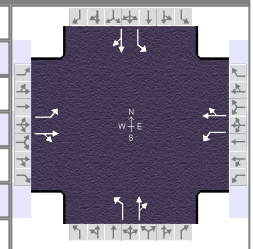
Mink Street - PM
No-Build

HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	5/13/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.91
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Worthington Rd	File Name	Mink St_PM 2048 No-Build_Worthington-WB Ra…		
Project Description	2048 PM Peak No-Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	130	100	30	10	40	70	10	710	40	60	1060	270

Signal Information			
Cycle, s	110.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	2.0	3.9	63.1	2.0	5.0	10.0	1	2	3	4		
Yellow	4.0	0.0	4.0	4.0	0.0	4.0	5	6	7	8		
Red	2.0	0.0	2.0	2.0	0.0	2.0						

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	4.0
Phase Duration, s	13.0	21.0	8.0	16.0	8.0	69.1	11.9	73.0
Change Period, ($Y+R_c$), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Allow Headway (*MAH*), s	5.1	5.2	5.1	5.2	5.1	0.0	5.1	0.0
Queue Clearance Time (g_s), s	9.0	10.2	2.6	9.8	2.3		3.5	
Green Extension Time (g_e), s	0.0	0.6	0.0	0.0	0.0	0.0	0.3	0.0
Phase Call Probability	0.99	1.00	0.29	1.00	0.29		0.84	
Max Out Probability	1.00	1.00	1.00	1.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	143	143		11	121		11	824		60	1329	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1781	1796		1767	1665		1781	1853		1767	1790	
Queue Service Time (g_s), s	7.0	8.2		0.6	7.8		0.3	37.6		1.5	67.0	
Cycle Queue Clearance Time (g_c), s	7.0	8.2		0.6	7.8		0.3	37.6		1.5	67.0	
Green Ratio (*g/C*)	0.16	0.14		0.11	0.09		0.59	0.57		0.63	0.61	
Capacity (*c*), veh/h	204	245		151	151		98	1063		313	1090	
Volume-to-Capacity Ratio (*X*)	0.701	0.583		0.073	0.799		0.112	0.775		0.192	1.219	
Back of Queue (*Q*), ft/ln (95 th percentile)	48	178		13	198		8	584		23	1661	
Back of Queue (*Q*), veh/ln (95 th percentile)	1.9	7.0		0.5	7.7		0.3	23.0		0.9	64.9	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.22	0.36		0.06	0.40		0.03	1.17		0.04	2.73	
Uniform Delay (d_1), s/veh	43.3	44.6		44.1	49.0		27.3	18.0		15.5	16.9	
Incremental Delay (d_2), s/veh	11.2	4.3		0.3	26.4		0.7	5.5		0.0	99.4	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh	54.5	48.8		44.3	75.4		28.0	23.5		15.5	116.2	
Level of Service (LOS)	D	D		D	E		C	C		B	F	
Approach Delay, s/veh / LOS	51.7	D		72.8	E		23.6	C		111.9	F	
Intersection Delay, s/veh / LOS	75.5						E					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.95	B	1.95	B	1.89	B	1.88	B
Bicycle LOS Score / LOS	0.96	A	0.71	A	1.87	B	3.01	C

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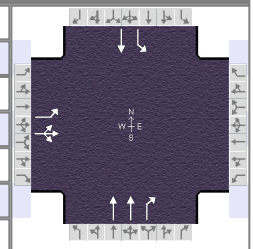
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	5/13/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.97
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	SR 161 EB Exit Ramps	File Name	Mink St_PM 2048 No-Build_Worthington-WB Ra…		
Project Description	2048 PM Peak No-Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	590	10	180					820	90	530	1210	

Signal Information			
Cycle, s	110.0	Reference Phase	2
Offset, s	94	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

							1	2	3	4
Green	26.0	35.0	31.0	0.0	0.0	0.0	5	6	7	8
Yellow	4.0	4.0	4.0	0.0	0.0	0.0				
Red	2.0	2.0	2.0	0.0	0.0	0.0				

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4				2	1	6
Case Number		10.0				7.3	1.0	4.0
Phase Duration, s		37.0				41.0	32.0	73.0
Change Period, ($Y+R_c$), s		6.0				6.0	6.0	6.0
Max Allow Headway (*MAH*), s		5.3				0.0	5.1	0.0
Queue Clearance Time (g_s), s		33.0					28.0	
Green Extension Time (g_e), s		0.0				0.0	0.0	0.0
Phase Call Probability		1.00					1.00	
Max Out Probability		1.00					1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14					2	12	1	6	
Adjusted Flow Rate (*v*), veh/h	304	500						901	99	570	1301	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1781	1712						1789	1514	1739	1976	
Queue Service Time (g_s), s	16.3	31.0						25.4	4.7	26.0	67.0	
Cycle Queue Clearance Time (g_c), s	16.3	31.0						25.4	4.7	26.0	67.0	
Green Ratio (*g/C*)	0.28	0.28						0.32	0.32	0.57	0.61	
Capacity (*c*), veh/h	502	483						1139	482	530	1203	
Volume-to-Capacity Ratio (*X*)	0.606	1.036						0.791	0.205	1.076	1.081	
Back of Queue (*Q*), ft/ln (95 th percentile)	296	693						389	78	825	1511	
Back of Queue (*Q*), veh/ln (95 th percentile)	11.7	27.3						15.4	3.1	31.7	58.1	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.45	1.80						0.78	0.21	3.30	6.04	
Uniform Delay (d_1), s/veh	34.2	39.5						34.8	24.1	40.4	26.1	
Incremental Delay (d_2), s/veh	2.5	50.7						3.2	0.5	53.5	46.3	
Initial Queue Delay (d_3), s/veh	0.0	0.0						0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh	36.7	90.2						38.0	24.6	93.9	72.5	
Level of Service (LOS)	D	F						D	C	F	F	
Approach Delay, s/veh / LOS	69.9	E		0.0			36.7	D		79.0	E	
Intersection Delay, s/veh / LOS	65.5						E					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.15	B	2.15	B	1.41	A	1.66	B
Bicycle LOS Score / LOS	1.81	B			1.26	A	3.45	C

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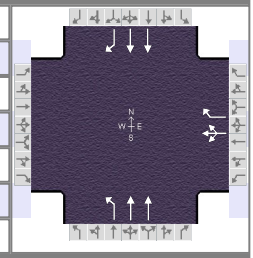
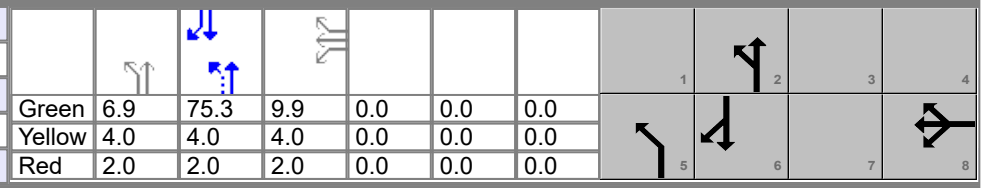
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	5/13/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.93
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	SR 161 WB Exit Ramps	File Name	Mink St_PM 2048 No-Build_Worthington-WB Ra…		
Project Description	2048 PM Peak No-Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				30	10	90	130	1280			1710	1160

Signal Information			
Cycle, s	110.0	Reference Phase	2
Offset, s	1	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



							1	2	3	4
Green	6.9	75.3	9.9	0.0	0.0	0.0	5	6	7	8
Yellow	4.0	4.0	4.0	0.0	0.0	0.0				
Red	2.0	2.0	2.0	0.0	0.0	0.0				

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8	5	2		6
Case Number				11.0	1.0	4.0		7.3
Phase Duration, s				15.9	12.9	94.1		81.3
Change Period, (*Y+R c*), s				6.0	6.0	6.0		6.0
Max Allow Headway (*MAH*), s				5.2	5.1	0.0		0.0
Queue Clearance Time (*g s*), s				7.0	4.0			
Green Extension Time (*g e*), s				0.7	0.7	0.0		0.0
Phase Call Probability				0.99	0.98			
Max Out Probability				0.00	0.00			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3	8	18	5	2			6	16
Adjusted Flow Rate (*v*), veh/h					72	68	129	1274			1839	1247
Adjusted Saturation Flow Rate (*s*), veh/h/ln					1572	1412	1767	1811			1847	1661
Queue Service Time (*g s*), s					4.8	5.0	2.0	24.1			34.4	75.3
Cycle Queue Clearance Time (*g c*), s					4.8	5.0	2.0	24.1			34.4	75.3
Green Ratio (*g/C*)					0.09	0.09	0.76	0.80			0.68	0.68
Capacity (*c*), veh/h					141	127	269	2902			2528	1136
Volume-to-Capacity Ratio (*X*)					0.511	0.535	0.482	0.439			0.727	1.098
Back of Queue (*Q*), ft/ln (95 th percentile)					98	93	80	327			484	1487
Back of Queue (*Q*), veh/ln (95 th percentile)					3.6	3.5	3.1	12.8			18.5	56.7
Queue Storage Ratio (*RQ*) (95 th percentile)					0.12	0.14	0.32	1.31			0.51	2.75
Uniform Delay (*d 1*), s/veh					47.8	47.9	17.2	11.1			10.9	17.4
Incremental Delay (*d 2*), s/veh					4.0	4.9	0.4	0.1			1.9	57.5
Initial Queue Delay (*d 3*), s/veh					0.0	0.0	0.0	0.0			0.0	0.0
Control Delay (*d*), s/veh					51.8	52.8	17.6	11.1			12.8	74.9
Level of Service (LOS)					D	D	B	B			B	F
Approach Delay, s/veh / LOS	0.0			52.3		D	11.7		B	37.9		D
Intersection Delay, s/veh / LOS	30.4						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.32	B	2.32	B	1.60	B	1.35	A
Bicycle LOS Score / LOS			0.72	A	1.74	B	3.03	C

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HCS Two-Way Stop-Control Text Report

TWO-WAY STOP CONTROL (TWSC) Analysis

File Name:	Mink St_PM 2048 No-Build_Innovation Way.xtw
Analyst:	AC
Agency:	Woolpert
Date Performed:	5/13/2024
Time Analyzed:	2048 PM No-Build
Jurisdiction:	ODOT
Analysis Year:	2048
Project Description:	FRA/LIC-161 22.1/0.00
Units:	U.S. Customary
Intersection Name:	Mink St at Innovation Campus Way
Major Street Direction:	North-South
East/West Street Name:	Innovation Campus Way
North/South Street Name:	Mink St
Analysis Time Period (hrs):	0.25

Vehicle Volumes and Adjustments

Major Street:									
Approach		NB				SB			
Movement	1U	1	2	3	4U	4	5	6	
	U	L	T	R	U	L	T	R	
Volume	0	140	1230				2790	10	
Peak Hour Factor, PHF				0.93					
Hourly Flow Rate, HFR		151	1323				3000	11	
Percent Heavy Vehicles	4	4							
Number of Lanes	0	1	2	0	0	0	2	0	
Lane Configuration		L	T				T	TR	
Median Type				Undivided					
Median Storage									
RT Channelized?									
Left-Turn Lane Storage									
Upstream Signal?				Not Present					

Minor Street:							
Approach	WB			EB			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume				10		80	
Peak Hour Factor, PHF			0.93				
Hourly Flow Rate, HFR				11		86	
Percent Heavy Vehicles				7		7	
Number of Lanes	0	0	0	1	0	1	
Lane Configuration				L		R	
RT Channelized?						No	
Flared Approach | Storage		|		|		
Percent Grade					0		

Pedestrian Volumes and Adjustments

Approach	NB	SB	WB	EB
Movement	13	14	15	16
Flow (ped/hr)	0	0		0
Lane Width (ft)				
Walking Speed (ft/sec)				
Pedestrian Blockage Factor, f_pb				

Delay, Queue Length, and Level of Service

Approach	NB		SB		WB			EB		
Movement	1U	1	4U	4	7	8	9	10	11	12
Lane Configuration		L						L		R
Flow Rate		151						11		86
Lane Capacity (veh/h)		108						0		105
v/c		1.40								0.82
95% Queue Length (veh)		10.6								4.6
Control Delay		297.3								118.4
LOS		F								F
Approach Delay		30.4								
Approach LOS		F								
Intersction Delay										

Step 1: MOVEMENT PRIORITIES

Major Street:									
Approach		NB				SB			
Priority	1U	1	2	3	4U	4	5	6	
Movement	U	L	T	R	U	L	T	R	

Minor Street:

Approach		WB				EB		
Priority		7	8	9	|	10	11	12
Movement		L	T	R	|	L	T	R

Step 2: MOVEMENT DEMAND VOLUMES AND FLOW RATES

Major Street:								
Approach		NB				SB		
Movement	1U	1	2	3	| 4U	4	5	6
	U	L	T	R	| U	L	T	R
Volume, V_x	0	140	1230				2790	10
Flow Rate, v_x		151	1323				3000	11

Minor Street:							
Approach	WB				EB		
Movement	7	8	9	|	10	11	12
	L	T	R	|	L	T	R
Volume, V_x					10		80
Flow Rate, v_x					11		86

Step 3: CONFLICTING FLOW RATES

Major Street:								
Approach		NB				SB		
Movement	1U	1	2	3	| 4U	4	5	6
	U	L	T	R	| U	L	T	R
Flow Rate, v_x		151	1323				3000	11
Conflicting Flow, v_c,x		3011						

Minor Street:							
Approach	WB				EB		
Movement	7	8	9	|	10	11	12
	L	T	R	|	L	T	R
Flow Rate, v_x					11		86
Conflicting Flow, v_c,x					3968		1505

Step 4: CRITICAL HEADWAYS and FOLLOW-UP HEADWAYS

CRITICAL HEADWAYS										
Approach	NB		SB			WB			EB	
Movement	1U	1	4U	4	7	8	9	10	11	12
	U	L	U	L	L	T	R	L	T	R
t_c,base										
Single Stage		4.1						7.5		6.9
Stage I										
Stage II										
t_c,HV		2.0						2.0		2.0
P_HV		0.04						0.07		0.07
t_c,G								0.2		0.1
G								0		0
t_3,LT		0.0						0.7		0.0
t_c										
Single Stage		4.18						6.94		7.04
Stage I										
Stage II										

FOLLOW-UP HEADWAYS										
Approach	NB		SB			WB			EB	
Movement	1U	1	4U	4	7	8	9	10	11	12
	U	L	U	L	L	T	R	L	T	R
t_f,base		2.2						3.5		3.3
t_f,HV		1.0						1.0		1.0
P_HV		0.04						0.07		0.07
t_f		2.24						3.57		3.37

Step 5: POTENTIAL CAPACITIES

NO UPSTREAM SIGNAL EFFECTS PRESENT										
Approach	NB		SB			WB			EB	
Movement	1U	1	4U	4	7	8	9	10	11	12
	U	L	U	L	L	T	R	L	T	R
v_c,x		3011						3968		1505
t_c,x		4.18						6.94		7.04
t_f,x		2.24						3.57		3.37
c_p,x		108						2		105

Steps 6 - 9: MOVEMENT CAPACITIES

Pedestrian Impedance				
Approach	NB	SB	WB	EB

Movement	13	14	15	16
Pedestrian Flow Rate v_x	0	0		0
Lane Width, w				
Walking Speed, S_p				
Pedestrian Blockage Factor, f_pb				

Major-Street Left-Turn Movements		1	4	
Conflicting Flow, v_c,x		3011		
Potential Capacity, c_p,x		108		
Pedestrian Impedance Factor, p_p,x		1.000		
Movement Capacity, c_m,x		108		
Probability of Queue-free State, p_0,j		-0.396		
Major L-Shared Probability Queue-free State, p*_0,j		1.000		

Minor-Street Right-Turn Movements		9	12	
Conflicting Flow, v_c,x			1505	
Potential Capacity, c_p,x			105	
Pedestrian Impedance Factor, p_p,x			1.000	
Movement Capacity, c_m,x			105	
Probability of Queue-free State, p_0,j			0.180	

Major-Street U-Turn Movements		1U	4U	
Conflicting Flow, v_c,x				
Potential Capacity, c_p,x				
Capacity Adjustment Factor, f_x				
Movement Capacity, c_m,x				
Shared L/U Capacity, c_SH				
Probability of Queue-free State, p_0,j				

Minor-Street Through Movements		8	11	
Conflicting Flow, v_c,x				
Potential Capacity, c_p,x				
Pedestrian Impedance Factor, p_p,x				
Capacity Adjustment Factor, f_x				
Movement Capacity, c_m,x				
Probability of Queue-free State, p_0,j				

Minor-Street Left-Turn Movements		7	10	
Conflicting Flow, v_c,x			3968	
Potential Capacity, c_p,x			2	
Pedestrian Impedance Factor, p_p,x			1.000	
Capacity Adjustment Factor, f_x			-0.396	
Movement Capacity, c_m,x			0	

Step 10: FINAL CAPACITY ADJUSTMENTS

SHARED-LANE CAPACITY OF MINOR STREET APPROACHES

Approach	WB			EB		
Movement	7	8	9	10	11	12
Lane Configuration				L		R
Shared Flow Rate, v_y				11		86
Movement Capacity, c_m,x				0		105
Shared Capacity, c_SH						

Step 11: CONTROL DELAY

CONTROL DELAY TO RANK 2 THROUGH 4 MOVEMENTS

Approach	NB			SB		WB			EB		
Movement	1U	1	4U	4	7	8	9	10	11	12
Flow Rate		151						11		86
Movement Capacity		108						0		105
Lane Configuration		L						L		R
Shared Capacity										
Control Delay		297.3								118.4

Steps 12 - 13: APPROACH/INTERSECTION CONTROL DELAY and 95% QUEUE LENGTHS

Approach	NB			SB		WB			EB		
Movement	1U	1	4U	4	7	8	9	10	11	12
Lane Configuration		L						L		R
Flow Rate		151						11		86
Lane Capacity (veh/h)		108						0		105
v/c		1.40								0.82
Avg Queue Spacing (ft/veh)		25.8								26.4
95% Queue Length (veh)		10.6								4.6
95% Queue Length (ft)		273.5								121.4
Control Delay		297.3								118.4

LOS	F	F
Approach Delay	30.4	
Approach LOS	F	
Intersection Delay		

This TWSC text report was created in HCS TWSC Version 2024 on 2/12/2025 3:21:51 PM

HCS Two-Way Stop-Control Text Report

TWO-WAY STOP CONTROL (TWSC) Analysis

File Name:	Mink St_PM 2048 No-Build_Beaver Road.xtw
Analyst:	AC
Agency:	Woolpert
Date Performed:	5/13/2024
Time Analyzed:	2048 PM No-Build
Jurisdiction:	ODOT
Analysis Year:	2048
Project Description:	FRA/LIC-161-22.1/0.00
Units:	U.S. Customary
Intersection Name:	Mink St at Beaver Rd
Major Street Direction:	North-South
East/West Street Name:	Beaver Rd
North/South Street Name:	Mink St
Analysis Time Period (hrs):	0.25

Vehicle Volumes and Adjustments

Major Street:									
Approach		NB					SB		
Movement	1U	1	2	3	4U	4	5	6	
	U	L	T	R	U	L	T	R	
Volume			660	200	0	20	2300		
Peak Hour Factor, PHF					0.80				
Hourly Flow Rate, HFR			825	250		25	2875		
Percent Heavy Vehicles					8	8			
Number of Lanes	0	0	2	0	0	1	2	0	
Lane Configuration			T	TR		L	T		
Median Type					Undivided				
Median Storage									
RT Channelized?									
Left-Turn Lane Storage									
Upstream Signal?					Not Present				

Minor Street:							
Approach	WB				EB		
Movement	7	8	9		10	11	12
	L	T	R		L	T	R
Volume	670	0	40				
Peak Hour Factor, PHF				0.80			
Hourly Flow Rate, HFR	838	0	50				
Percent Heavy Vehicles	0	0	0				
Number of Lanes	0	1	0		0	0	0
Lane Configuration		LTR					
RT Channelized?							
Flared Approach | Storage	No	|			|	
Percent Grade		0					

Pedestrian Volumes and Adjustments

Approach	NB	SB	WB	EB
Movement	13	14	15	16
Flow (ped/hr)	0	0	0	
Lane Width (ft)				
Walking Speed (ft/sec)				
Pedestrian Blockage Factor, f_pb				

Delay, Queue Length, and Level of Service

Approach	NB		SB		WB			EB	
Movement	1U	1	4U	4	7	8	9	10	11	12
Lane Configuration				L		LTR				
Flow Rate				25		888				
Lane Capacity (veh/h)				610		17				
v/c				0.04		52.22				
95% Queue Length (veh)				0.1		111.8				
Control Delay				11.2		23479.1				
LOS				B		F				
Approach Delay				0.1		23479.1				
Approach LOS				A		F				
Intersction Delay	4285.5									

Step 1: MOVEMENT PRIORITIES

Major Street:									
Approach		NB					SB		
Priority	1U	1	2	3	4U	4	5	6	
Movement	U	L	T	R	U	L	T	R	
Minor Street:									

Approach	WB			EB		
Priority	7	8	9	10	11	12
Movement	L	T	R	L	T	R

Step 2: MOVEMENT DEMAND VOLUMES AND FLOW RATES

Major Street:

Approach	NB				SB			
Movement	1U	1	2	3	4U	4	5	6
	U	L	T	R	U	L	T	R
Volume, V_x			660	200	0	20	2300	
Flow Rate, v_x			825	250		25	2875	

Minor Street:

Approach	WB			EB		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume, V_x	670	0	40			
Flow Rate, v_x	838	0	50			

Step 3: CONFLICTING FLOW RATES

Major Street:

Approach	NB				SB			
Movement	1U	1	2	3	4U	4	5	6
	U	L	T	R	U	L	T	R
Flow Rate, v_x			825	250		25	2875	
Conflicting Flow, v_c,x						1075		

Minor Street:

Approach	WB			EB		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Flow Rate, v_x	838	0	50			
Conflicting Flow, v_c,x	2438	3875	538			

Step 4: CRITICAL HEADWAYS and FOLLOW-UP HEADWAYS

CRITICAL HEADWAYS

Approach	NB		SB		WB		EB		
Movement	1U	1	4U	4	7	8	9	10	11	12
	U	L	U	L	L	T	R	L	T	R
t_c,base										
Single Stage				4.1	7.5	6.5	6.9			
Stage I										
Stage II										
t_c,HV				2.0	2.0	2.0	2.0			
P_HV				0.08	0.00	0.00	0.00			
t_c,G					0.2	0.2	0.1			
G					0	0	0			
t_3,LT				0.0	0.0	0.0	0.0			
t_c										
Single Stage				4.26	7.50	6.50	6.90			
Stage I										
Stage II										

FOLLOW-UP HEADWAYS

Approach	NB		SB		WB		EB		
Movement	1U	1	4U	4	7	8	9	10	11	12
	U	L	U	L	L	T	R	L	T	R
t_f,base				2.2	3.5	4.0	3.3			
t_f,HV				1.0	1.0	1.0	1.0			
P_HV				0.08	0.00	0.00	0.00			
t_f				2.28	3.50	4.00	3.30			

Step 5: POTENTIAL CAPACITIES

NO UPSTREAM SIGNAL EFFECTS PRESENT

Approach	NB		SB		WB		EB		
Movement	1U	1	4U	4	7	8	9	10	11	12
	U	L	U	L	L	T	R	L	T	R
v_c,x				1075	2438	3875	538			
t_c,x				4.26	7.50	6.50	6.90			
t_f,x				2.28	3.50	4.00	3.30			
c_p,x				610	17	4	493			

Steps 6 - 9: MOVEMENT CAPACITIES

Pedestrian Impedance Approach	NB	SB	WB	EB

Movement	13	14	15	16
Pedestrian Flow Rate v_x	0	0	0	
Lane Width, w				
Walking Speed, S_p				
Pedestrian Blockage Factor, f_pb				

Major-Street Left-Turn Movements		1	4
Conflicting Flow, v_c,x			1075
Potential Capacity, c_p,x			610
Pedestrian Impedance Factor, p_p,x			1.000
Movement Capacity, c_m,x			610
Probability of Queue-free State, p_0,j			0.959
Major L-Shared Probability Queue-free State, p*_0,j			1.000

Minor-Street Right-Turn Movements		9	12
Conflicting Flow, v_c,x		538	
Potential Capacity, c_p,x		493	
Pedestrian Impedance Factor, p_p,x		1.000	
Movement Capacity, c_m,x		493	
Probability of Queue-free State, p_0,j		0.899	

Major-Street U-Turn Movements		1U	4U
Conflicting Flow, v_c,x			
Potential Capacity, c_p,x			
Capacity Adjustment Factor, f_x			
Movement Capacity, c_m,x			
Shared L/U Capacity, c_SH			
Probability of Queue-free State, p_0,j			

Minor-Street Through Movements		8	11
Conflicting Flow, v_c,x		3875	
Potential Capacity, c_p,x		4	
Pedestrian Impedance Factor, p_p,x		1.000	
Capacity Adjustment Factor, f_x		0.959	
Movement Capacity, c_m,x		3	
Probability of Queue-free State, p_0,j		1.000	

Minor-Street Left-Turn Movements		7	10
Conflicting Flow, v_c,x		2438	
Potential Capacity, c_p,x		17	
Pedestrian Impedance Factor, p_p,x		1.000	
Capacity Adjustment Factor, f_x		0.959	
Movement Capacity, c_m,x		16	

Step 10: FINAL CAPACITY ADJUSTMENTS

SHARED-LANE CAPACITY OF MINOR STREET APPROACHES

Approach		WB			EB	
Movement	7	8	9	10	11	12
Lane Configuration		LTR				
Shared Flow Rate, v_y		888				
Movement Capacity, c_m,x	16	3	493			
Shared Capacity, c_SH		17				

Step 11: CONTROL DELAY

CONTROL DELAY TO RANK 2 THROUGH 4 MOVEMENTS

Approach	NB			SB		WB			EB	
Movement	1U	1	4U	4	7	8	9	10	11	12
Flow Rate				25	838	0	50			
Movement Capacity				610	16	3	493			
Lane Configuration				L		LTR				
Shared Capacity						17				
Control Delay				11.2		23479.1				

Steps 12 - 13: APPROACH/INTERSECTION CONTROL DELAY and 95% QUEUE LENGTHS

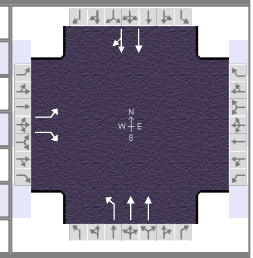
Approach	NB			SB		WB			EB	
Movement	1U	1	4U	4	7	8	9	10	11	12
Lane Configuration				L		LTR				
Flow Rate				25		888				
Lane Capacity (veh/h)				610		17				
v/c				0.04		52.22				
Avg Queue Spacing (ft/veh)				26.6		25.0				
95% Queue Length (veh)				0.1		111.8				
95% Queue Length (ft)				2.7		2795.0				
Control Delay				11.2		23479.1				

LOS		B	F
Approach Delay		0.1	23479.1
Approach LOS		A	F
Intersection Delay	4285.5		

This TWSC text report was created in HCS TWSC Version 2024 on 2/12/2025 3:21:02 PM

HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	5/13/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.89
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Clover Valley Rd	File Name	Mink St_PM 2048 No-Build_CloverValley.xus		
Project Description	PM 2048 No-Build				

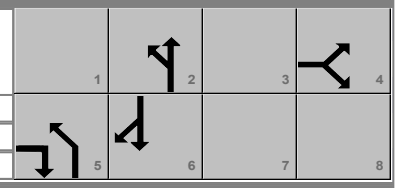


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	20		1180				110	590			1120	30

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	14.0	37.0	51.0	0.0	0.0	0.0						
Yellow	4.0	4.0	4.0	0.0	0.0	0.0						
Red	2.0	2.0	2.0	0.0	0.0	0.0						



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4			5	2		6
Case Number		9.0			1.0	4.0		8.3
Phase Duration, s		57.0			20.0	63.0		43.0
Change Period, ($Y+R_c$), s		6.0			6.0	6.0		6.0
Max Allow Headway (*MAH*), s		5.3			5.0	0.0		0.0
Queue Clearance Time (g_s), s		53.0			7.2			
Green Extension Time (g_e), s		0.0			0.3	0.0		0.0
Phase Call Probability		1.00			1.00			
Max Out Probability		1.00			0.30			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7		14				5	2			6	16
Adjusted Flow Rate (*v*), veh/h	22		1326				124	663			649	643
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1711		1522				1711	1710			1737	1721
Queue Service Time (g_s), s	0.9		51.0				5.2	15.1			49.5	37.0
Cycle Queue Clearance Time (g_c), s	0.9		51.0				5.2	15.1			49.5	37.0
Green Ratio (*g/C*)	0.42		0.54				0.44	0.48			0.31	0.31
Capacity (*c*), veh/h	727		825				260	1625			536	531
Volume-to-Capacity Ratio (*X*)	0.031		1.608				0.476	0.408			1.211	1.213
Back of Queue (*Q*), ft/ln (95 th percentile)	17		3448				116	261			1248	1141
Back of Queue (*Q*), veh/ln (95 th percentile)	0.6		130.6				4.4	9.9			45.9	45.7
Queue Storage Ratio (*RQ*) (95 th percentile)	0.13		25.54				0.19	0.52			2.50	2.49
Uniform Delay (d_1), s/veh	20.1		27.5				26.5	20.5			41.5	41.5
Incremental Delay (d_2), s/veh	0.0		279.2				6.1	0.8			111.5	112.2
Initial Queue Delay (d_3), s/veh	0.0		0.0				0.0	0.0			0.0	0.0
Control Delay (*d*), s/veh	20.1		306.7				32.6	21.3			153.0	153.7
Level of Service (LOS)	C		F				C	C			F	F
Approach Delay, s/veh / LOS	302.0	F		0.0			23.1	C		153.4	F	
Intersection Delay, s/veh / LOS	181.9						F					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.32	B	2.15	B	0.71	A	1.93	B
Bicycle LOS Score / LOS		F			1.14	A	1.55	B

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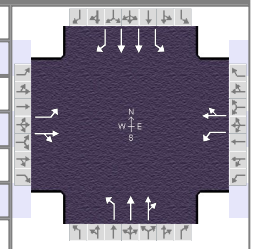
Mink Street (Diamond Interchange) - AM Build

HCS Signalized Intersection Results Summary

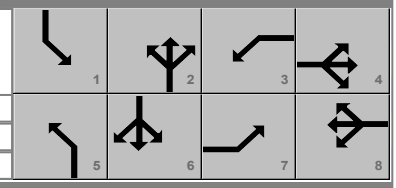
General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	11/12/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.86
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Worthington Rd	File Name	DIAMOND 2048 Build AM Peak.xus		
Project Description	2048 Build AM Peak				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	100	10	10	10	70	170	60	1090	20	70	240	160

Signal Information			
Cycle, s	110.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	6.2	48.7	2.1	0.7	22.4	0.0	
Yellow	4.0	4.0	4.0	4.0	4.0	0.0	
Red	2.0	2.0	2.0	2.0	2.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	3.0
Phase Duration, s	14.7	35.1	8.1	28.4	12.2	54.7	12.2	54.7
Change Period, ($Y+R_c$), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Allow Headway (*MAH*), s	3.1	3.3	3.1	3.3	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s	8.9	3.4	2.6	21.8	4.3		4.3	
Green Extension Time (g_e), s	0.1	0.6	0.0	0.6	0.1	0.0	0.1	0.0
Phase Call Probability	0.97	1.00	0.30	1.00	0.88		0.88	
Max Out Probability	0.00	0.00	0.00	0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	116	23		12	279		70	647	643	70	239	159
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1414	1362		1626	1514		1753	1841	1829	1711	1710	1522
Queue Service Time (g_s), s	6.9	1.4		0.6	19.8		2.3	33.3	33.3	2.3	5.3	7.7
Cycle Queue Clearance Time (g_c), s	6.9	1.4		0.6	19.8		2.3	33.3	33.3	2.3	5.3	7.7
Green Ratio (*g/C*)	0.30	0.26		0.22	0.20		0.50	0.44	0.44	0.50	0.44	0.44
Capacity (*c*), veh/h	199	360		354	308		586	815	809	219	1514	674
Volume-to-Capacity Ratio (*X*)	0.585	0.065		0.033	0.905		0.119	0.794	0.795	0.319	0.158	0.237
Back of Queue (*Q*), ft/ln (95 th percentile)	130	25		12	335		41	573	552	41	102	148
Back of Queue (*Q*), veh/ln (95 th percentile)	4.2	0.8		0.4	12.1		1.6	22.2	22.1	1.5	3.9	5.6
Queue Storage Ratio (*RQ*) (95 th percentile)	0.40	0.05		0.03	0.67		0.07	1.15	1.14	0.07	0.17	0.24
Uniform Delay (d_1), s/veh	31.7	30.3		33.5	42.8		14.7	26.4	26.4	19.4	21.6	20.8
Incremental Delay (d_2), s/veh	1.0	0.0		0.0	4.1		0.0	7.9	7.9	0.3	0.2	0.8
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	32.7	30.3		33.5	46.8		14.7	34.2	34.3	19.7	21.8	21.7
Level of Service (LOS)	C	C		C	D		B	C	C	B	C	C
Approach Delay, s/veh / LOS	32.3	C		46.3	D		33.3	C		21.4	C	
Intersection Delay, s/veh / LOS	32.4						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.29	B	2.45	B	1.91	B	1.91	B
Bicycle LOS Score / LOS	0.72	A	0.97	A	1.61	B	0.94	A

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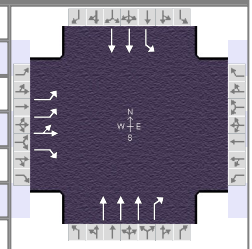
HCS Signalized Intersection Results Summary

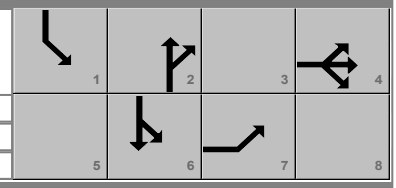
General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	11/12/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.85
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	EB SR-161	File Name	DIAMOND 2048 Build AM Peak.xus		
Project Description	2048 Build AM Peak				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	1230	10	120					1330	30	150	350	

Signal Information			
Cycle, s	110.0	Reference Phase	2
Offset, s	28	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	7.0	49.1	35.9	0.0	0.0	0.0	
Yellow	4.0	4.0	4.0	0.0	0.0	0.0	
Red	2.0	2.0	2.0	0.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4				2	1	6
Case Number		9.0				7.3	1.0	4.0
Phase Duration, s		41.9				55.1	13.0	68.1
Change Period, ($Y+R_c$), s		6.0				6.0	6.0	6.0
Max Allow Headway (*MAH*), s		3.1				0.0	3.1	0.0
Queue Clearance Time (g_s), s		31.6					6.8	
Green Extension Time (g_e), s		4.3				0.0	0.2	0.0
Phase Call Probability		1.00					0.99	
Max Out Probability		0.00					0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14					2	12	1	6	
Adjusted Flow Rate (*v*), veh/h	970	489	141					1547	35	140	327	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1711	1713	1451					1620	1418	1668	1595	
Queue Service Time (g_s), s	29.3	29.6	8.0					23.5	0.8	4.8	3.7	
Cycle Queue Clearance Time (g_c), s	29.3	29.6	8.0					23.5	0.8	4.8	3.7	
Green Ratio (*g/C*)	0.33	0.33	0.33					0.45	0.45	0.53	0.49	
Capacity (*c*), veh/h	1117	559	474					2170	633	244	1568	
Volume-to-Capacity Ratio (*X*)	0.868	0.875	0.298					0.713	0.055	0.574	0.209	
Back of Queue (*Q*), ft/ln (95 th percentile)	465	474	130					259	13	83	60	
Back of Queue (*Q*), veh/ln (95 th percentile)	17.6	18.0	4.9					9.7	0.5	3.1	2.2	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.70	0.47	0.44					0.52	0.03	0.21	0.15	
Uniform Delay (d_1), s/veh	34.8	34.9	27.6					15.6	8.9	17.8	7.2	
Incremental Delay (d_2), s/veh	0.8	1.8	0.1					1.0	0.1	0.8	0.3	
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh	35.7	36.7	27.8					16.7	9.0	18.6	7.5	
Level of Service (LOS)	D	D	C					B	A	B	A	
Approach Delay, s/veh / LOS	35.3	D		0.0			16.5	B		10.8	B	
Intersection Delay, s/veh / LOS	24.0						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.47	B	2.47	B	1.39	A	2.08	B
Bicycle LOS Score / LOS	3.13	C			1.37	A	0.97	A

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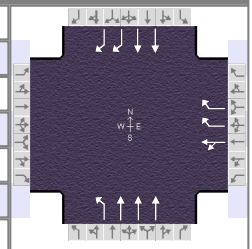
HCS Signalized Intersection Results Summary

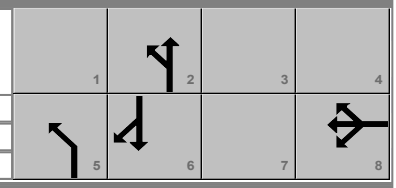
General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	11/12/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.86
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	WB SR-161	File Name	DIAMOND 2048 Build AM Peak.xus		
Project Description	2048 Build AM Peak				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				110	10	560	110	2450			390	480

Signal Information			
Cycle, s	110.0	Reference Phase	2
Offset, s	87	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	6.8	54.2	31.0	0.0	0.0	0.0	
Yellow	4.0	4.0	4.0	0.0	0.0	0.0	
Red	2.0	2.0	2.0	0.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8	5	2		6
Case Number				11.0	1.0	4.0		7.3
Phase Duration, s				37.0	12.8	73.0		60.2
Change Period, (*Y+R c*), s				6.0	6.0	6.0		6.0
Max Allow Headway (*MAH*), s				3.3	3.1	0.0		0.0
Queue Clearance Time (*g s*), s				28.8	5.4			
Green Extension Time (*g e*), s				2.2	0.2	0.0		0.0
Phase Call Probability				1.00	0.97			
Max Out Probability				0.00	0.00			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3	8	18	5	2			6	16
Adjusted Flow Rate (*v*), veh/h					140	651	114	2549			340	418
Adjusted Saturation Flow Rate (*s*), veh/h/ln					1670	1286	1697	1714			1558	1297
Queue Service Time (*g s*), s					7.2	26.8	3.4	36.1			8.5	14.0
Cycle Queue Clearance Time (*g c*), s					7.2	26.8	3.4	36.1			8.5	14.0
Green Ratio (*g/C*)					0.28	0.28	0.57	0.61			0.49	0.49
Capacity (*c*), veh/h					470	724	582	3133			1537	1279
Volume-to-Capacity Ratio (*X*)					0.297	0.899	0.196	0.814			0.221	0.327
Back of Queue (*Q*), ft/ln (95 th percentile)					140	360	45	293			153	220
Back of Queue (*Q*), veh/ln (95 th percentile)					5.2	13.3	1.7	11.0			5.8	8.3
Queue Storage Ratio (*RQ*) (95 th percentile)					0.17	0.85	0.11	0.73			0.31	0.35
Uniform Delay (*d 1*), s/veh					31.0	38.0	10.6	10.6			21.0	24.9
Incremental Delay (*d 2*), s/veh					0.1	3.0	0.0	0.3			0.3	0.7
Initial Queue Delay (*d 3*), s/veh					0.0	0.0	0.0	0.0			0.0	0.0
Control Delay (*d*), s/veh					31.1	41.0	10.6	10.8			21.3	25.5
Level of Service (LOS)					C	D	B	B			C	C
Approach Delay, s/veh / LOS	0.0			39.3		D	10.8		B	23.6		C
Intersection Delay, s/veh / LOS	18.5						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.47	B	2.61	C	1.88	B	1.68	B
Bicycle LOS Score / LOS			1.79	B	2.12	B	1.32	A

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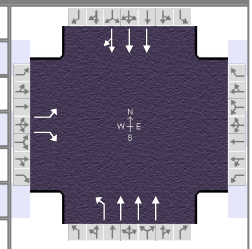
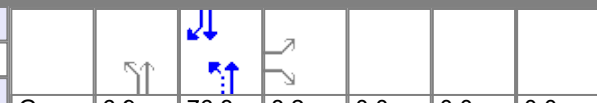
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	11/12/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.88
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Innovation	File Name	DIAMOND 2048 Build AM Peak.xus		
Project Description	2048 Build AM Peak				

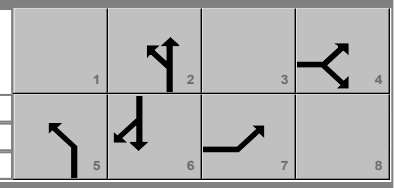


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	20		30				150	2860			840	20

Signal Information			
Cycle, s	110.0	Reference Phase	2
Offset, s	21	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	6.9	76.8	8.2	0.0	0.0	0.0						
Yellow	4.0	4.0	4.0	0.0	0.0	0.0						
Red	2.0	2.0	2.0	0.0	0.0	0.0						



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4			5	2		6
Case Number		9.0			1.0	4.0		8.3
Phase Duration, s		14.2			12.9	95.8		82.8
Change Period, ($Y+R_c$), s		6.0			6.0	6.0		6.0
Max Allow Headway (*MAH*), s		3.3			3.1	0.0		0.0
Queue Clearance Time (g_s), s		5.1			4.6			
Green Extension Time (g_e), s		0.0			0.3	0.0		0.0
Phase Call Probability		0.82			0.99			
Max Out Probability		0.00			0.00			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7		14				5	2			6	16
Adjusted Flow Rate (*v*), veh/h	23		34				159	3040			495	245
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1287		1145				1668	1591			1811	1788
Queue Service Time (g_s), s	1.8		3.1				2.6	23.9			15.9	4.4
Cycle Queue Clearance Time (g_c), s	1.8		3.1				2.6	23.9			15.9	4.4
Green Ratio (*g/C*)	0.07		0.07				0.78	0.82			0.70	0.70
Capacity (*c*), veh/h	96		86				543	3894			2529	1249
Volume-to-Capacity Ratio (*X*)	0.236		0.397				0.293	0.781			0.196	0.196
Back of Queue (*Q*), ft/ln (95 th percentile)	35		53				30	121			68	70
Back of Queue (*Q*), veh/ln (95 th percentile)	1.1		1.6				1.1	4.5			2.6	2.7
Queue Storage Ratio (*RQ*) (95 th percentile)	0.29		0.27				0.05	0.00			0.14	0.14
Uniform Delay (d_1), s/veh	47.9		48.5				4.6	2.2			4.6	4.6
Incremental Delay (d_2), s/veh	0.5		1.1				0.1	0.9			0.2	0.3
Initial Queue Delay (d_3), s/veh	0.0		0.0				0.0	0.0			0.0	0.0
Control Delay (*d*), s/veh	48.4		49.6				4.7	3.2			4.8	5.0
Level of Service (LOS)	D		D				A	A			A	A
Approach Delay, s/veh / LOS	49.1	D		0.0			3.3	A		4.8	A	
Intersection Delay, s/veh / LOS	4.2						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.61	C	2.47	B	0.62	A	1.86	B
Bicycle LOS Score / LOS		F			2.37	B	1.03	A

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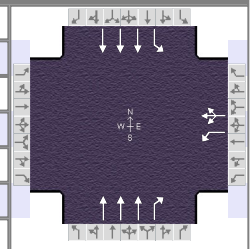
HCS Signalized Intersection Results Summary

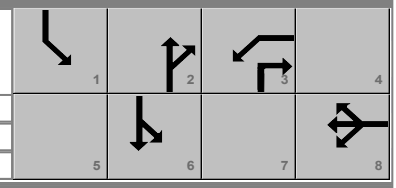
General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	11/12/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.91
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Beaver Rd	File Name	DIAMOND 2048 Build AM Peak.xus		
Project Description	2048 Build AM Peak				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				160	0	50		1030	630	20	490	

Signal Information			
Cycle, s	110.0	Reference Phase	2
Offset, s	30	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	3.6	78.4	10.0	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	2.0	2.0	2.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8		2	1	6
Case Number				10.0		7.3	1.0	4.0
Phase Duration, s				16.0		84.4	9.6	94.0
Change Period, ($Y+R_c$), s				6.0		6.0	6.0	6.0
Max Allow Headway (*MAH*), s				3.2		0.0	3.1	0.0
Queue Clearance Time (g_s), s				9.3			2.5	
Green Extension Time (g_e), s				0.3		0.0	0.0	0.0
Phase Call Probability				1.00			0.51	
Max Out Probability				0.02			0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3	8	18		2	12	1	6	
Adjusted Flow Rate (*v*), veh/h				123	108			1901	1163	24	576	
Adjusted Saturation Flow Rate (*s*), veh/h/ln				1810	1676			1187	1610	1372	1308	
Queue Service Time (g_s), s				7.3	7.0			23.8	58.8	0.5	2.3	
Cycle Queue Clearance Time (g_c), s				7.3	7.0			23.8	58.8	0.5	2.3	
Green Ratio (*g/C*)				0.09	0.09			0.71	0.80	0.76	0.80	
Capacity (*c*), veh/h				164	152			2538	1294	201	3140	
Volume-to-Capacity Ratio (*X*)				0.749	0.707			0.749	0.898	0.117	0.184	
Back of Queue (*Q*), ft/ln (95 th percentile)				152	144			158	152	7	23	
Back of Queue (*Q*), veh/ln (95 th percentile)				6.1	5.6			4.8	6.1	0.2	0.7	
Queue Storage Ratio (*RQ*) (95 th percentile)				0.25	0.32			0.16	0.20	0.02	0.03	
Uniform Delay (d_1), s/veh				48.8	51.0			4.1	3.9	6.8	1.4	
Incremental Delay (d_2), s/veh				2.6	2.3			1.1	5.9	0.1	0.1	
Initial Queue Delay (d_3), s/veh				0.0	0.0			0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh				51.3	53.3			5.2	9.7	6.9	1.5	
Level of Service (LOS)				D	D			A	A	A	A	
Approach Delay, s/veh / LOS	0.0			52.2		D	6.9		A	1.8		A
Intersection Delay, s/veh / LOS	8.8						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.61	C	2.61	C	1.86	B	1.31	A
Bicycle LOS Score / LOS			0.87	A	1.49	A	0.80	A

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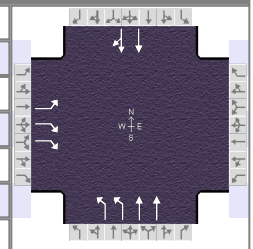
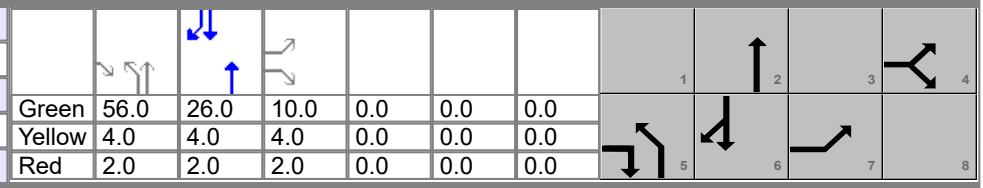
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	11/12/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.80
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Clover Valley Rd	File Name	DIAMOND 2048 Build AM Peak.xus		
Project Description	2048 Build AM Peak				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	20		140				660	440			340	20

Signal Information			
Cycle, s	110.0	Reference Phase	2
Offset, s	65	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	56.0	26.0	10.0	0.0	0.0	0.0						
Yellow	4.0	4.0	4.0	0.0	0.0	0.0						
Red	2.0	2.0	2.0	0.0	0.0	0.0						

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4			5	2		6
Case Number		9.0			2.0	4.0		8.3
Phase Duration, s		16.0			62.0	94.0		32.0
Change Period, ($Y+R_c$), s		6.0			6.0	6.0		6.0
Max Allow Headway (*MAH*), s		3.3			3.1	0.0		0.0
Queue Clearance Time (g_s), s		6.7			53.8			
Green Extension Time (g_e), s		0.5			2.3	0.0		0.0
Phase Call Probability		1.00			1.00			
Max Out Probability		0.00			0.29			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7		14				5	2			6	16
Adjusted Flow Rate (*v*), veh/h	25		175				1173	782			227	223
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1160		914				1181	1216			1544	1514
Queue Service Time (g_s), s	2.2		4.7				51.8	4.4			15.3	14.5
Cycle Queue Clearance Time (g_c), s	2.2		4.7				51.8	4.4			15.3	14.5
Green Ratio (*g/C*)	0.09		0.60				0.51	0.80			0.24	0.24
Capacity (*c*), veh/h	105		1097				1204	1946			365	357
Volume-to-Capacity Ratio (*X*)	0.237		0.160				0.975	0.402			0.621	0.625
Back of Queue (*Q*), ft/ln (95 th percentile)	40		54				538	38			305	254
Back of Queue (*Q*), veh/ln (95 th percentile)	1.2		1.6				16.1	1.1			10.2	10.2
Queue Storage Ratio (*RQ*) (95 th percentile)	0.07		0.05				1.27	0.05			0.30	0.30
Uniform Delay (d_1), s/veh	46.5		9.7				16.6	1.0			37.6	37.6
Incremental Delay (d_2), s/veh	0.4		0.0				13.0	0.4			7.7	8.0
Initial Queue Delay (d_3), s/veh	0.0		0.0				0.0	0.0			0.0	0.0
Control Delay (*d*), s/veh	46.9		9.7				29.6	1.4			45.4	45.7
Level of Service (LOS)	D		A				C	A			D	D
Approach Delay, s/veh / LOS	14.4		B	0.0			18.3		B	45.5		D
Intersection Delay, s/veh / LOS	22.7						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.47	B	2.15	B	0.63	A	2.30	B
Bicycle LOS Score / LOS		F			1.62	B	0.86	A

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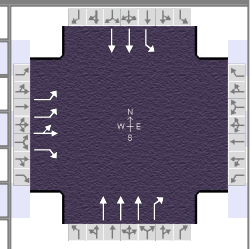
HCS Signalized Intersection Results Summary

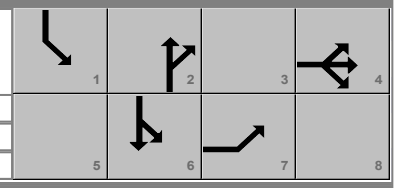
General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	11/12/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.85
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	EB SR-161	File Name	DIAMOND 2048 Build AM Peak.xus		
Project Description	2048 Build AM Peak				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	1230	10	120					1330	30	150	350	

Signal Information			
Cycle, s	110.0	Reference Phase	2
Offset, s	28	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	7.0	49.1	35.9	0.0	0.0	0.0	
Yellow	4.0	4.0	4.0	0.0	0.0	0.0	
Red	2.0	2.0	2.0	0.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4				2	1	6
Case Number		9.0				7.3	1.0	4.0
Phase Duration, s		41.9				55.1	13.0	68.1
Change Period, ($Y+R_c$), s		6.0				6.0	6.0	6.0
Max Allow Headway (*MAH*), s		3.1				0.0	3.1	0.0
Queue Clearance Time (g_s), s		31.6					6.8	
Green Extension Time (g_e), s		4.3				0.0	0.2	0.0
Phase Call Probability		1.00					0.99	
Max Out Probability		0.00					0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14					2	12	1	6	
Adjusted Flow Rate (*v*), veh/h	970	489	141					1547	35	140	327	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1711	1713	1451					1620	1418	1668	1595	
Queue Service Time (g_s), s	29.3	29.6	8.0					23.5	0.8	4.8	3.7	
Cycle Queue Clearance Time (g_c), s	29.3	29.6	8.0					23.5	0.8	4.8	3.7	
Green Ratio (*g/C*)	0.33	0.33	0.33					0.45	0.45	0.53	0.49	
Capacity (*c*), veh/h	1117	559	474					2170	633	244	1568	
Volume-to-Capacity Ratio (*X*)	0.868	0.875	0.298					0.713	0.055	0.574	0.209	
Back of Queue (*Q*), ft/ln (95 th percentile)	465	474	130					259	13	83	60	
Back of Queue (*Q*), veh/ln (95 th percentile)	17.6	18.0	4.9					9.7	0.5	3.1	2.2	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.70	0.47	0.44					0.52	0.03	0.21	0.15	
Uniform Delay (d_1), s/veh	34.8	34.9	27.6					15.6	8.9	17.8	7.2	
Incremental Delay (d_2), s/veh	0.8	1.8	0.1					1.0	0.1	0.8	0.3	
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh	35.7	36.7	27.8					16.7	9.0	18.6	7.5	
Level of Service (LOS)	D	D	C					B	A	B	A	
Approach Delay, s/veh / LOS	35.3	D		0.0			16.5	B		10.8	B	
Intersection Delay, s/veh / LOS	24.0						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.47	B	2.47	B	1.39	A	2.08	B
Bicycle LOS Score / LOS	3.13	C			1.37	A	0.97	A

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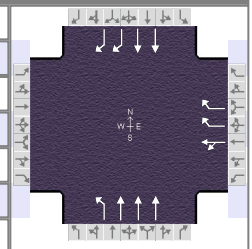
HCS Signalized Intersection Results Summary

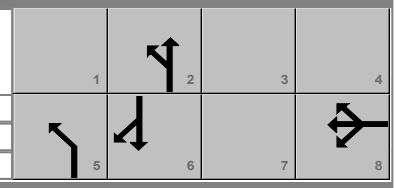
General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	11/12/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.86
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	WB SR-161	File Name	DIAMOND 2048 Build AM Peak.xus		
Project Description	2048 Build AM Peak				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				110	10	560	110	2450			390	480

Signal Information			
Cycle, s	110.0	Reference Phase	2
Offset, s	87	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	6.8	54.2	31.0	0.0	0.0	0.0	
Yellow	4.0	4.0	4.0	0.0	0.0	0.0	
Red	2.0	2.0	2.0	0.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8	5	2		6
Case Number				11.0	1.0	4.0		7.3
Phase Duration, s				37.0	12.8	73.0		60.2
Change Period, (*Y+R c*), s				6.0	6.0	6.0		6.0
Max Allow Headway (*MAH*), s				3.3	3.1	0.0		0.0
Queue Clearance Time (*g s*), s				28.8	5.4			
Green Extension Time (*g e*), s				2.2	0.2	0.0		0.0
Phase Call Probability				1.00	0.97			
Max Out Probability				0.00	0.00			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3	8	18	5	2			6	16
Adjusted Flow Rate (*v*), veh/h					140	651	114	2549			340	418
Adjusted Saturation Flow Rate (*s*), veh/h/ln					1670	1286	1697	1714			1558	1297
Queue Service Time (*g s*), s					7.2	26.8	3.4	36.1			8.5	14.0
Cycle Queue Clearance Time (*g c*), s					7.2	26.8	3.4	36.1			8.5	14.0
Green Ratio (*g/C*)					0.28	0.28	0.57	0.61			0.49	0.49
Capacity (*c*), veh/h					470	724	582	3133			1537	1279
Volume-to-Capacity Ratio (*X*)					0.297	0.899	0.196	0.814			0.221	0.327
Back of Queue (*Q*), ft/ln (95 th percentile)					140	360	45	293			153	220
Back of Queue (*Q*), veh/ln (95 th percentile)					5.2	13.3	1.7	11.0			5.8	8.3
Queue Storage Ratio (*RQ*) (95 th percentile)					0.17	0.85	0.11	0.73			0.31	0.35
Uniform Delay (*d 1*), s/veh					31.0	38.0	10.6	10.6			21.0	24.9
Incremental Delay (*d 2*), s/veh					0.1	3.0	0.0	0.3			0.3	0.7
Initial Queue Delay (*d 3*), s/veh					0.0	0.0	0.0	0.0			0.0	0.0
Control Delay (*d*), s/veh					31.1	41.0	10.6	10.8			21.3	25.5
Level of Service (LOS)					C	D	B	B			C	C
Approach Delay, s/veh / LOS	0.0			39.3		D	10.8		B	23.6		C
Intersection Delay, s/veh / LOS	18.5						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.47	B	2.61	C	1.88	B	1.68	B
Bicycle LOS Score / LOS			1.79	B	2.12	B	1.32	A

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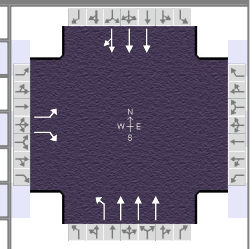
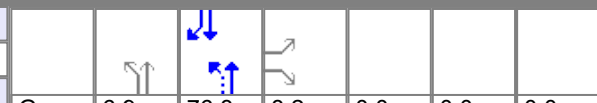
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	11/12/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.88
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Innovation	File Name	DIAMOND 2048 Build AM Peak.xus		
Project Description	2048 Build AM Peak				

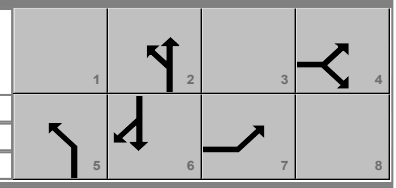


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	20		30				150	2860			840	20

Signal Information			
Cycle, s	110.0	Reference Phase	2
Offset, s	21	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	6.9	76.8	8.2	0.0	0.0	0.0						
Yellow	4.0	4.0	4.0	0.0	0.0	0.0						
Red	2.0	2.0	2.0	0.0	0.0	0.0						



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4			5	2		6
Case Number		9.0			1.0	4.0		8.3
Phase Duration, s		14.2			12.9	95.8		82.8
Change Period, ($Y+R_c$), s		6.0			6.0	6.0		6.0
Max Allow Headway (*MAH*), s		3.3			3.1	0.0		0.0
Queue Clearance Time (g_s), s		5.1			4.6			
Green Extension Time (g_e), s		0.0			0.3	0.0		0.0
Phase Call Probability		0.82			0.99			
Max Out Probability		0.00			0.00			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7		14				5	2			6	16
Adjusted Flow Rate (*v*), veh/h	23		34				159	3040			495	245
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1287		1145				1668	1591			1811	1788
Queue Service Time (g_s), s	1.8		3.1				2.6	23.9			15.9	4.4
Cycle Queue Clearance Time (g_c), s	1.8		3.1				2.6	23.9			15.9	4.4
Green Ratio (*g/C*)	0.07		0.07				0.78	0.82			0.70	0.70
Capacity (*c*), veh/h	96		86				543	3894			2529	1249
Volume-to-Capacity Ratio (*X*)	0.236		0.397				0.293	0.781			0.196	0.196
Back of Queue (*Q*), ft/ln (95 th percentile)	35		53				30	121			68	70
Back of Queue (*Q*), veh/ln (95 th percentile)	1.1		1.6				1.1	4.5			2.6	2.7
Queue Storage Ratio (*RQ*) (95 th percentile)	0.29		0.27				0.05	0.00			0.14	0.14
Uniform Delay (d_1), s/veh	47.9		48.5				4.6	2.2			4.6	4.6
Incremental Delay (d_2), s/veh	0.5		1.1				0.1	0.9			0.2	0.3
Initial Queue Delay (d_3), s/veh	0.0		0.0				0.0	0.0			0.0	0.0
Control Delay (*d*), s/veh	48.4		49.6				4.7	3.2			4.8	5.0
Level of Service (LOS)	D		D				A	A			A	A
Approach Delay, s/veh / LOS	49.1	D		0.0			3.3	A		4.8	A	
Intersection Delay, s/veh / LOS	4.2						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.61	C	2.47	B	0.62	A	1.86	B
Bicycle LOS Score / LOS		F			2.37	B	1.03	A

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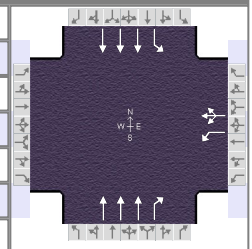
HCS Signalized Intersection Results Summary

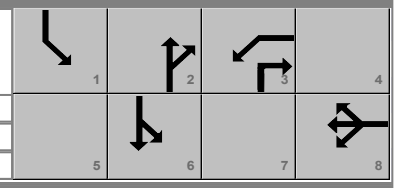
General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	11/12/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.91
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Beaver Rd	File Name	DIAMOND 2048 Build AM Peak.xus		
Project Description	2048 Build AM Peak				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				160	0	50		1030	630	20	490	

Signal Information			
Cycle, s	110.0	Reference Phase	2
Offset, s	30	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	3.6	78.4	10.0	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	2.0	2.0	2.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8		2	1	6
Case Number				10.0		7.3	1.0	4.0
Phase Duration, s				16.0		84.4	9.6	94.0
Change Period, ($Y+R_c$), s				6.0		6.0	6.0	6.0
Max Allow Headway (*MAH*), s				3.2		0.0	3.1	0.0
Queue Clearance Time (g_s), s				9.3			2.5	
Green Extension Time (g_e), s				0.3		0.0	0.0	0.0
Phase Call Probability				1.00			0.51	
Max Out Probability				0.02			0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3	8	18		2	12	1	6	
Adjusted Flow Rate (*v*), veh/h				123	108			1901	1163	24	576	
Adjusted Saturation Flow Rate (*s*), veh/h/ln				1810	1676			1187	1610	1372	1308	
Queue Service Time (g_s), s				7.3	7.0			23.8	58.8	0.5	2.3	
Cycle Queue Clearance Time (g_c), s				7.3	7.0			23.8	58.8	0.5	2.3	
Green Ratio (*g/C*)				0.09	0.09			0.71	0.80	0.76	0.80	
Capacity (*c*), veh/h				164	152			2538	1294	201	3140	
Volume-to-Capacity Ratio (*X*)				0.749	0.707			0.749	0.898	0.117	0.184	
Back of Queue (*Q*), ft/ln (95 th percentile)				152	144			158	152	7	23	
Back of Queue (*Q*), veh/ln (95 th percentile)				6.1	5.6			4.8	6.1	0.2	0.7	
Queue Storage Ratio (*RQ*) (95 th percentile)				0.25	0.32			0.16	0.20	0.02	0.03	
Uniform Delay (d_1), s/veh				48.8	51.0			4.1	3.9	6.8	1.4	
Incremental Delay (d_2), s/veh				2.6	2.3			1.1	5.9	0.1	0.1	
Initial Queue Delay (d_3), s/veh				0.0	0.0			0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh				51.3	53.3			5.2	9.7	6.9	1.5	
Level of Service (LOS)				D	D			A	A	A	A	
Approach Delay, s/veh / LOS	0.0			52.2		D	6.9		A	1.8		A
Intersection Delay, s/veh / LOS	8.8						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.61	C	2.61	C	1.86	B	1.31	A
Bicycle LOS Score / LOS			0.87	A	1.49	A	0.80	A

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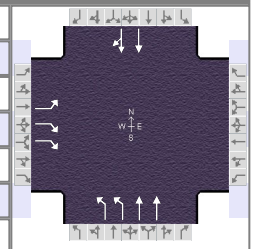
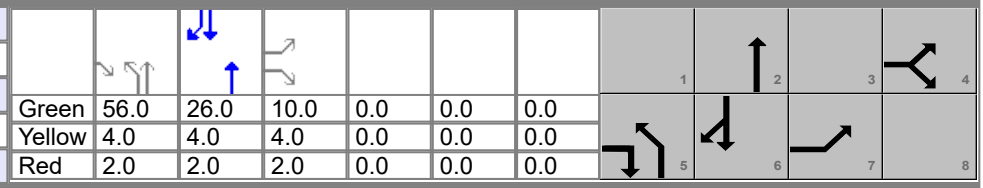
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	11/12/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.80
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Clover Valley Rd	File Name	DIAMOND 2048 Build AM Peak.xus		
Project Description	2048 Build AM Peak				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	20		140				660	440			340	20

Signal Information			
Cycle, s	110.0	Reference Phase	2
Offset, s	65	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	56.0	26.0	10.0	0.0	0.0	0.0						
Yellow	4.0	4.0	4.0	0.0	0.0	0.0						
Red	2.0	2.0	2.0	0.0	0.0	0.0						

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4			5	2		6
Case Number		9.0			2.0	4.0		8.3
Phase Duration, s		16.0			62.0	94.0		32.0
Change Period, ($Y+R_c$), s		6.0			6.0	6.0		6.0
Max Allow Headway (*MAH*), s		3.3			3.1	0.0		0.0
Queue Clearance Time (g_s), s		6.7			53.8			
Green Extension Time (g_e), s		0.5			2.3	0.0		0.0
Phase Call Probability		1.00			1.00			
Max Out Probability		0.00			0.29			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7		14				5	2			6	16
Adjusted Flow Rate (*v*), veh/h	25		175				1173	782			227	223
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1160		914				1181	1216			1544	1514
Queue Service Time (g_s), s	2.2		4.7				51.8	4.4			15.3	14.5
Cycle Queue Clearance Time (g_c), s	2.2		4.7				51.8	4.4			15.3	14.5
Green Ratio (*g/C*)	0.09		0.60				0.51	0.80			0.24	0.24
Capacity (*c*), veh/h	105		1097				1204	1946			365	357
Volume-to-Capacity Ratio (*X*)	0.237		0.160				0.975	0.402			0.621	0.625
Back of Queue (*Q*), ft/ln (95 th percentile)	40		54				538	38			305	254
Back of Queue (*Q*), veh/ln (95 th percentile)	1.2		1.6				16.1	1.1			10.2	10.2
Queue Storage Ratio (*RQ*) (95 th percentile)	0.07		0.05				1.27	0.05			0.30	0.30
Uniform Delay (d_1), s/veh	46.5		9.7				16.6	1.0			37.6	37.6
Incremental Delay (d_2), s/veh	0.4		0.0				13.0	0.4			7.7	8.0
Initial Queue Delay (d_3), s/veh	0.0		0.0				0.0	0.0			0.0	0.0
Control Delay (*d*), s/veh	46.9		9.7				29.6	1.4			45.4	45.7
Level of Service (LOS)	D		A				C	A			D	D
Approach Delay, s/veh / LOS	14.4		B	0.0			18.3		B	45.5		D
Intersection Delay, s/veh / LOS	22.7						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.47	B	2.15	B	0.63	A	2.30	B
Bicycle LOS Score / LOS		F			1.62	B	0.86	A

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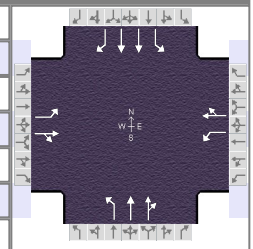
HCS Signalized Intersection Results Summary

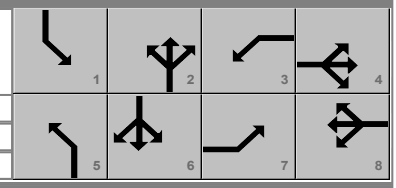
General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	11/12/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.86
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Worthington Rd	File Name	DIAMOND 2048 Build AM Peak.xus		
Project Description	2048 Build AM Peak				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	100	10	10	10	70	170	60	1090	20	70	240	160

Signal Information			
Cycle, s	110.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	6.2	48.7	2.1	0.7	22.4	0.0	
Yellow	4.0	4.0	4.0	4.0	4.0	0.0	
Red	2.0	2.0	2.0	2.0	2.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	3.0
Phase Duration, s	14.7	35.1	8.1	28.4	12.2	54.7	12.2	54.7
Change Period, ($Y+R_c$), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Allow Headway (*MAH*), s	3.1	3.3	3.1	3.3	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s	8.9	3.4	2.6	21.8	4.3		4.3	
Green Extension Time (g_e), s	0.1	0.6	0.0	0.6	0.1	0.0	0.1	0.0
Phase Call Probability	0.97	1.00	0.30	1.00	0.88		0.88	
Max Out Probability	0.00	0.00	0.00	0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	116	23		12	279		70	647	643	70	239	159
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1414	1362		1626	1514		1753	1841	1829	1711	1710	1522
Queue Service Time (g_s), s	6.9	1.4		0.6	19.8		2.3	33.3	33.3	2.3	5.3	7.7
Cycle Queue Clearance Time (g_c), s	6.9	1.4		0.6	19.8		2.3	33.3	33.3	2.3	5.3	7.7
Green Ratio (*g/C*)	0.30	0.26		0.22	0.20		0.50	0.44	0.44	0.50	0.44	0.44
Capacity (*c*), veh/h	199	360		354	308		586	815	809	219	1514	674
Volume-to-Capacity Ratio (*X*)	0.585	0.065		0.033	0.905		0.119	0.794	0.795	0.319	0.158	0.237
Back of Queue (*Q*), ft/ln (95 th percentile)	130	25		12	335		41	573	552	41	102	148
Back of Queue (*Q*), veh/ln (95 th percentile)	4.2	0.8		0.4	12.1		1.6	22.2	22.1	1.5	3.9	5.6
Queue Storage Ratio (*RQ*) (95 th percentile)	0.40	0.05		0.03	0.67		0.07	1.15	1.14	0.07	0.17	0.24
Uniform Delay (d_1), s/veh	31.7	30.3		33.5	42.8		14.7	26.4	26.4	19.4	21.6	20.8
Incremental Delay (d_2), s/veh	1.0	0.0		0.0	4.1		0.0	7.9	7.9	0.3	0.2	0.8
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	32.7	30.3		33.5	46.8		14.7	34.2	34.3	19.7	21.8	21.7
Level of Service (LOS)	C	C		C	D		B	C	C	B	C	C
Approach Delay, s/veh / LOS	32.3	C		46.3	D		33.3	C		21.4	C	
Intersection Delay, s/veh / LOS	32.4						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.29	B	2.45	B	1.91	B	1.91	B
Bicycle LOS Score / LOS	0.72	A	0.97	A	1.61	B	0.94	A

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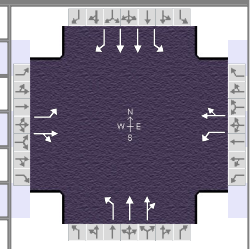
Mink Street (Diamond Interchange) - PM Build

HCS Signalized Intersection Results Summary

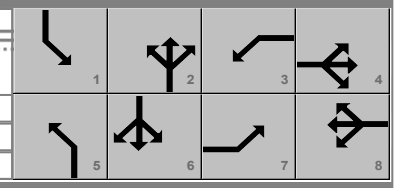
General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	11/12/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.91
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Worthington	File Name	DIAMOND 2048 Build PM Peak.xus		
Project Description	2048 Build PM Peak				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	130	100	30	10	40	70	10	910	30	60	1290	270

Signal Information			
Cycle, s	100.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	1.8	3.8	53.3	1.8	5.2	10.0						
Yellow	4.0	0.0	4.0	4.0	0.0	4.0						
Red	2.0	0.0	2.0	2.0	0.0	2.0						



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	3.0
Phase Duration, s	13.0	21.2	7.8	16.0	7.8	59.3	11.7	63.2
Change Period, ($Y+R_c$), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Allow Headway (*MAH*), s	3.1	3.2	3.1	3.2	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s	9.0	9.3	2.6	9.0	2.3		3.4	
Green Extension Time (g_e), s	0.0	0.5	0.0	0.4	0.0	0.0	0.1	0.0
Phase Call Probability	0.98	1.00	0.26	1.00	0.26		0.81	
Max Out Probability	1.00	0.00	0.00	0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	143	143		11	121		11	519	514	59	1277	267
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1781	1796		1767	1665		1781	1870	1849	1767	1766	1572
Queue Service Time (g_s), s	7.0	7.3		0.6	7.0		0.3	17.9	17.9	1.4	16.8	4.3
Cycle Queue Clearance Time (g_c), s	7.0	7.3		0.6	7.0		0.3	17.9	17.9	1.4	16.8	4.3
Green Ratio (*g/C*)	0.18	0.15		0.12	0.10		0.55	0.53	0.53	0.59	0.57	0.57
Capacity (*c*), veh/h	234	272		177	166		234	998	986	364	2019	899
Volume-to-Capacity Ratio (*X*)	0.610	0.525		0.062	0.726		0.047	0.521	0.521	0.163	0.632	0.297
Back of Queue (*Q*), ft/ln (95 th percentile)	149	147		11	136		5	309	301	24	188	56
Back of Queue (*Q*), veh/ln (95 th percentile)	5.9	5.8		0.4	5.3		0.2	12.2	12.0	1.0	7.3	2.2
Queue Storage Ratio (*RQ*) (95 th percentile)	0.46	0.29		0.03	0.27		0.01	0.62	0.61	0.04	0.00	0.09
Uniform Delay (d_1), s/veh	36.9	39.1		39.2	43.7		12.9	15.1	15.1	10.9	7.2	4.5
Incremental Delay (d_2), s/veh	3.3	0.6		0.1	2.3		0.0	1.9	2.0	0.1	1.2	0.7
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	40.3	39.7		39.2	45.9		13.0	17.0	17.0	11.0	8.4	5.1
Level of Service (LOS)	D	D		D	D		B	B	B	B	A	A
Approach Delay, s/veh / LOS	40.0	D		45.4	D		17.0	B		7.9	A	
Intersection Delay, s/veh / LOS	15.6						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.30	B	2.46	B	1.89	B	1.89	B
Bicycle LOS Score / LOS	0.96	A	0.71	A	1.35	A	1.96	B

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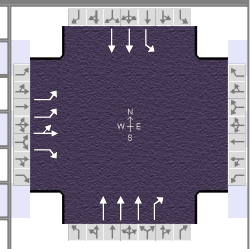
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	11/12/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.89
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	EB SR-161	File Name	DIAMOND 2048 Build PM Peak.xus		
Project Description	2048 Build PM Peak				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	600	10	180					1030	80	520	1440	

Signal Information			
Cycle, s	100.0	Reference Phase	2
Offset, s	10	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

							1	2	3	4
Green	17.7	47.6	16.7	0.0	0.0	0.0	5	6	7	8
Yellow	4.0	4.0	4.0	0.0	0.0	0.0				
Red	2.0	2.0	2.0	0.0	0.0	0.0				

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4				2	1	6
Case Number		9.0				7.3	1.0	4.0
Phase Duration, s		22.7				53.6	23.7	77.3
Change Period, ($Y+R_c$), s		6.0				6.0	6.0	6.0
Max Allow Headway (*MAH*), s		3.2				0.0	3.1	0.0
Queue Clearance Time (g_s), s		14.8					16.9	
Green Extension Time (g_e), s		2.0				0.0	0.8	0.0
Phase Call Probability		1.00					1.00	
Max Out Probability		0.00					0.03	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14					2	12	1	6	
Adjusted Flow Rate (*v*), veh/h	452	234	202					1132	88	507	1405	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1781	1782	1520					1664	1510	1739	1783	
Queue Service Time (g_s), s	12.1	12.6	12.8					8.8	0.9	14.9	24.7	
Cycle Queue Clearance Time (g_c), s	12.1	12.6	12.8					8.8	0.9	14.9	24.7	
Green Ratio (*g/C*)	0.17	0.17	0.17					0.48	0.48	0.67	0.71	
Capacity (*c*), veh/h	596	298	254					2376	719	568	2541	
Volume-to-Capacity Ratio (*X*)	0.758	0.784	0.795					0.476	0.122	0.894	0.553	
Back of Queue (*Q*), ft/ln (95 th percentile)	228	238	214					110	15	187	354	
Back of Queue (*Q*), veh/ln (95 th percentile)	9.0	9.4	8.4					4.4	0.6	7.2	13.6	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.35	0.00	0.71					0.00	0.03	0.47	0.00	
Uniform Delay (d_1), s/veh	39.7	39.9	40.0					7.6	3.8	11.0	11.5	
Incremental Delay (d_2), s/veh	0.8	1.7	2.2					0.6	0.3	5.8	0.5	
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh	40.5	41.6	42.1					8.2	4.1	16.8	12.0	
Level of Service (LOS)	D	D	D					A	A	B	B	
Approach Delay, s/veh / LOS	41.1	D		0.0			7.9	A		13.2	B	
Intersection Delay, s/veh / LOS	17.8						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.47	B	2.47	B	1.39	A	2.05	B
Bicycle LOS Score / LOS	1.95	B			1.17	A	2.30	B

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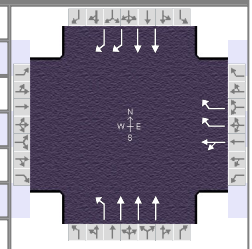
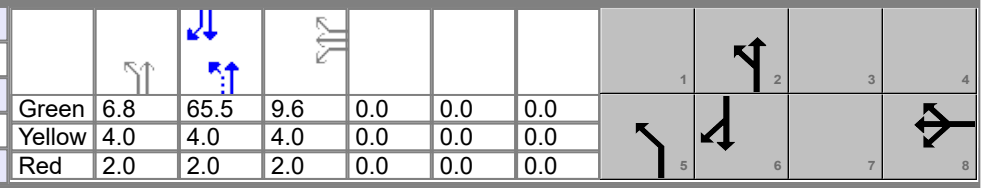
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	11/12/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.93
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	WB SR-161	File Name	DIAMOND 2048 Build PM Peak.xus		
Project Description	2048 Build PM Peak				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				30	10	70	130	1500			1930	1170

Signal Information			
Cycle, s	100.0	Reference Phase	2
Offset, s	43	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	6.8	65.5	9.6	0.0	0.0	0.0		
Yellow	4.0	4.0	4.0	0.0	0.0	0.0		
Red	2.0	2.0	2.0	0.0	0.0	0.0		

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8	5	2		6
Case Number				11.0	1.0	4.0		7.3
Phase Duration, s				15.6	12.8	84.4		71.5
Change Period, ($Y+R_c$), s				6.0	6.0	6.0		6.0
Max Allow Headway (*MAH*), s				3.3	3.1	0.0		0.0
Queue Clearance Time (g_s), s				4.8	4.1			
Green Extension Time (g_e), s				0.2	0.2	0.0		0.0
Phase Call Probability				0.96	0.98			
Max Out Probability				0.00	0.00			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3	8	18	5	2			6	16
Adjusted Flow Rate (*v*), veh/h					43	75	138	1590			1880	1140
Adjusted Saturation Flow Rate (*s*), veh/h/ln					1678	1244	1767	1687			1807	1368
Queue Service Time (g_s), s					2.4	2.8	2.1	1.4			21.5	8.6
Cycle Queue Clearance Time (g_c), s					2.4	2.8	2.1	1.4			21.5	8.6
Green Ratio (*g/C*)					0.10	0.10	0.74	0.74			0.66	0.66
Capacity (*c*), veh/h					162	240	298	3751			2368	1792
Volume-to-Capacity Ratio (*X*)					0.266	0.314	0.462	0.424			0.794	0.636
Back of Queue (*Q*), ft/ln (95 th percentile)					48	42	62	14			146	61
Back of Queue (*Q*), veh/ln (95 th percentile)					1.8	1.6	2.4	0.5			5.6	2.3
Queue Storage Ratio (*RQ*) (95 th percentile)					0.00	0.10	0.16	0.00			0.00	0.10
Uniform Delay (d_1), s/veh					41.9	42.1	11.6	0.3			3.6	1.9
Incremental Delay (d_2), s/veh					0.3	0.3	0.3	0.2			1.7	1.0
Initial Queue Delay (d_3), s/veh					0.0	0.0	0.0	0.0			0.0	0.0
Control Delay (*d*), s/veh					42.2	42.4	11.9	0.5			5.2	2.9
Level of Service (LOS)					D	D	B	A			A	A
Approach Delay, s/veh / LOS	0.0			42.3		D	1.4		A	4.3		A
Intersection Delay, s/veh / LOS	4.2						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.47	B	2.61	C	1.83	B	1.64	B
Bicycle LOS Score / LOS			0.68	A	1.45	A	3.24	C

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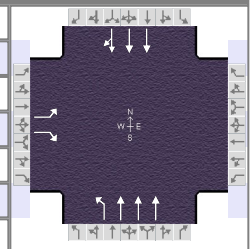
HCS Signalized Intersection Results Summary

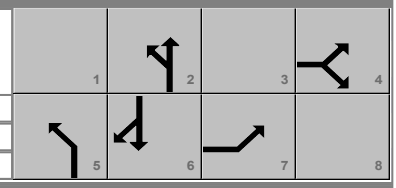
General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	11/12/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.93
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Innovation	File Name	DIAMOND 2048 Build PM Peak.xus		
Project Description	2048 Build PM Peak				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10		90				20	1550			3010	10

Signal Information			
Cycle, s	100.0	Reference Phase	2
Offset, s	27	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	3.1	69.4	9.5	0.0	0.0	0.0	
Yellow	4.0	4.0	4.0	0.0	0.0	0.0	
Red	2.0	2.0	2.0	0.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4			5	2		6
Case Number		9.0			1.0	4.0		8.3
Phase Duration, s		15.5			9.1	84.5		75.4
Change Period, ($Y+R_c$), s		6.0			6.0	6.0		6.0
Max Allow Headway (*MAH*), s		3.3			3.1	0.0		0.0
Queue Clearance Time (g_s), s		8.1			2.3			
Green Extension Time (g_e), s		0.1			0.0	0.0		0.0
Phase Call Probability		0.95			0.45			
Max Out Probability		0.00			0.00			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7		14				5	2			6	16
Adjusted Flow Rate (*v*), veh/h	11		97				21	1644			1955	977
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1711		1522				1753	1671			1841	1837
Queue Service Time (g_s), s	0.6		6.1				0.3	12.5			85.8	23.4
Cycle Queue Clearance Time (g_c), s	0.6		6.1				0.3	12.5			85.8	23.4
Green Ratio (*g/C*)	0.09		0.09				0.75	0.79			0.69	0.69
Capacity (*c*), veh/h	162		145				127	3936			2554	1275
Volume-to-Capacity Ratio (*X*)	0.066		0.669				0.167	0.418			0.765	0.767
Back of Queue (*Q*), ft/ln (95 th percentile)	12		112				16	155			122	124
Back of Queue (*Q*), veh/ln (95 th percentile)	0.4		4.2				0.6	6.0			4.7	4.8
Queue Storage Ratio (*RQ*) (95 th percentile)	0.10		0.56				0.03	0.00			0.24	0.25
Uniform Delay (d_1), s/veh	41.2		43.7				28.2	4.5			4.2	4.2
Incremental Delay (d_2), s/veh	0.1		2.0				0.2	0.3			0.2	0.4
Initial Queue Delay (d_3), s/veh	0.0		0.0				0.0	0.0			0.0	0.0
Control Delay (*d*), s/veh	41.3		45.7				28.4	4.8			4.4	4.6
Level of Service (LOS)	D		D				C	A			A	A
Approach Delay, s/veh / LOS	45.3		D	0.0			5.1		A	4.5		A
Intersection Delay, s/veh / LOS	5.6						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.61	C	2.47	B	0.63	A	1.86	B
Bicycle LOS Score / LOS		F			1.42	A	2.27	B

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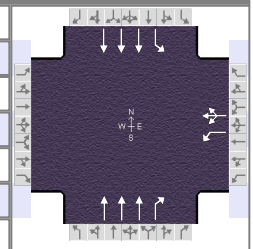
HCS Signalized Intersection Results Summary

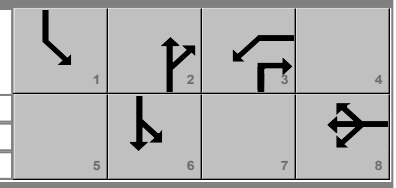
General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	11/12/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.80
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Beaver Rd	File Name	DIAMOND 2048 Build PM Peak.xus		
Project Description	2048 Build PM Peak				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				710	0	40		670	210	10	2290	

Signal Information			
Cycle, s	100.0	Reference Phase	2
Offset, s	6	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	1.7	48.6	31.6	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	2.0	2.0	2.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8		2	1	6
Case Number				10.0		7.3	1.0	4.0
Phase Duration, s				37.6		54.6	7.7	62.4
Change Period, (*Y+R c*), s				6.0		6.0	6.0	6.0
Max Allow Headway (*MAH*), s				3.3		0.0	3.1	0.0
Queue Clearance Time (*g s*), s				29.5			2.3	
Green Extension Time (*g e*), s				2.1		0.0	0.0	0.0
Phase Call Probability				1.00			0.25	
Max Out Probability				0.00			0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3	8	18		2	12	1	6	
Adjusted Flow Rate (*v*), veh/h				444	494			1260	395	10	2360	
Adjusted Saturation Flow Rate (*s*), veh/h/ln				1810	1789			1644	1610	1697	1618	
Queue Service Time (*g s*), s				22.2	27.5			14.4	5.2	0.3	38.3	
Cycle Queue Clearance Time (*g c*), s				22.2	27.5			14.4	5.2	0.3	38.3	
Green Ratio (*g/C*)				0.32	0.32			0.49	0.80	0.52	0.56	
Capacity (*c*), veh/h				572	566			2399	1292	245	2736	
Volume-to-Capacity Ratio (*X*)				0.775	0.873			0.525	0.306	0.042	0.863	
Back of Queue (*Q*), ft/ln (95 th percentile)				363	502			203	40	5	326	
Back of Queue (*Q*), veh/ln (95 th percentile)				14.5	20.1			7.7	1.6	0.2	12.3	
Queue Storage Ratio (*RQ*) (95 th percentile)				0.60	1.12			0.21	0.05	0.02	0.41	
Uniform Delay (*d 1*), s/veh				31.0	46.4			12.5	1.8	12.8	13.9	
Incremental Delay (*d 2*), s/veh				0.9	2.8			0.8	0.6	0.0	0.4	
Initial Queue Delay (*d 3*), s/veh				0.0	0.0			0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh				31.8	49.2			13.2	2.4	12.8	14.2	
Level of Service (LOS)				C	D			B	A	B	B	
Approach Delay, s/veh / LOS	0.0			41.0		D	10.6		B	14.2		B
Intersection Delay, s/veh / LOS	18.1						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.61	C	2.61	C	1.90	B	1.37	A
Bicycle LOS Score / LOS			2.03	B	1.09	A	2.07	B

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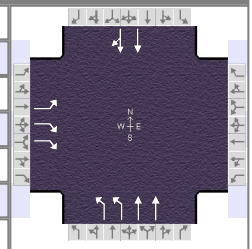
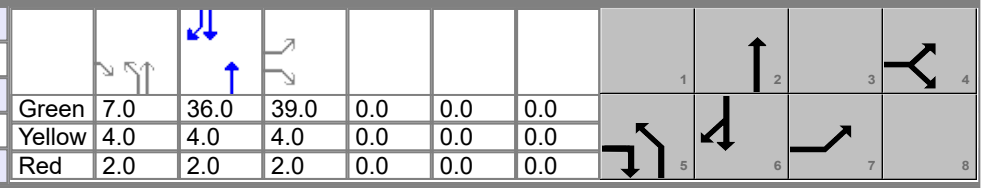
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	11/12/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.89
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Clover Valley Rd	File Name	DIAMOND 2048 Build PM Peak.xus		
Project Description	2048 Build PM Peak				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	20		1180				110	640			1140	20

Signal Information			
Cycle, s	100.0	Reference Phase	2
Offset, s	52	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	7.0	36.0	39.0	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	2.0	2.0	2.0	0.0	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4			5	2		6
Case Number		9.0			2.0	4.0		8.3
Phase Duration, s		45.0			13.0	55.0		42.0
Change Period, ($Y+R_c$), s		6.0			6.0	6.0		6.0
Max Allow Headway (*MAH*), s		3.4			3.1	0.0		0.0
Queue Clearance Time (g_s), s		41.0			7.7			
Green Extension Time (g_e), s		0.0			0.0	0.0		0.0
Phase Call Probability		1.00			1.00			
Max Out Probability		1.00			1.00			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7		14				5	2			6	16
Adjusted Flow Rate (*v*), veh/h	22		1326				192	1118			653	650
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1711		1347				1661	1710			1737	1726
Queue Service Time (g_s), s	0.8		39.0				5.7	22.4			38.6	36.0
Cycle Queue Clearance Time (g_c), s	0.8		39.0				5.7	22.4			38.6	36.0
Green Ratio (*g/C*)	0.39		0.46				0.07	0.49			0.36	0.36
Capacity (*c*), veh/h	667		1239				233	1676			625	621
Volume-to-Capacity Ratio (*X*)	0.034		1.070				0.826	0.667			1.045	1.046
Back of Queue (*Q*), ft/ln (95 th percentile)	15		809				132	314			856	785
Back of Queue (*Q*), veh/ln (95 th percentile)	0.6		30.6				5.0	11.9			31.5	31.4
Queue Storage Ratio (*RQ*) (95 th percentile)	0.03		0.81				0.31	0.39			0.86	0.85
Uniform Delay (d_1), s/veh	18.9		27.0				43.9	15.4			32.0	32.0
Incremental Delay (d_2), s/veh	0.0		46.4				17.4	1.8			48.3	48.6
Initial Queue Delay (d_3), s/veh	0.0		0.0				0.0	0.0			0.0	0.0
Control Delay (*d*), s/veh	18.9		73.4				61.3	17.2			80.3	80.6
Level of Service (LOS)	B		F				E	B			F	F
Approach Delay, s/veh / LOS	72.5		E	0.0			23.7		C	80.5		F
Intersection Delay, s/veh / LOS	59.0						E					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.47	B	2.15	B	0.70	A	2.28	B
Bicycle LOS Score / LOS		F			1.18	A	1.56	B

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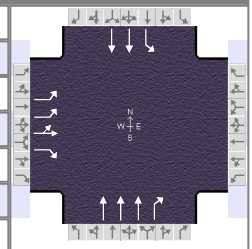
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	11/12/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.89
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	EB SR-161	File Name	DIAMOND 2048 Build PM Peak.xus		
Project Description	2048 Build PM Peak				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	600	10	180					1030	80	520	1440	

Signal Information			
Cycle, s	100.0	Reference Phase	2
Offset, s	10	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

							1	2	3	4
Green	17.7	47.6	16.7	0.0	0.0	0.0	5	6	7	8
Yellow	4.0	4.0	4.0	0.0	0.0	0.0				
Red	2.0	2.0	2.0	0.0	0.0	0.0				

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4				2	1	6
Case Number		9.0				7.3	1.0	4.0
Phase Duration, s		22.7				53.6	23.7	77.3
Change Period, ($Y+R_c$), s		6.0				6.0	6.0	6.0
Max Allow Headway (*MAH*), s		3.2				0.0	3.1	0.0
Queue Clearance Time (g_s), s		14.8					16.9	
Green Extension Time (g_e), s		2.0				0.0	0.8	0.0
Phase Call Probability		1.00					1.00	
Max Out Probability		0.00					0.03	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14					2	12	1	6	
Adjusted Flow Rate (*v*), veh/h	452	234	202					1132	88	507	1405	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1781	1782	1520					1664	1510	1739	1783	
Queue Service Time (g_s), s	12.1	12.6	12.8					8.8	0.9	14.9	24.7	
Cycle Queue Clearance Time (g_c), s	12.1	12.6	12.8					8.8	0.9	14.9	24.7	
Green Ratio (*g/C*)	0.17	0.17	0.17					0.48	0.48	0.67	0.71	
Capacity (*c*), veh/h	596	298	254					2376	719	568	2541	
Volume-to-Capacity Ratio (*X*)	0.758	0.784	0.795					0.476	0.122	0.894	0.553	
Back of Queue (*Q*), ft/ln (95 th percentile)	228	238	214					110	15	187	354	
Back of Queue (*Q*), veh/ln (95 th percentile)	9.0	9.4	8.4					4.4	0.6	7.2	13.6	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.35	0.00	0.71					0.00	0.03	0.47	0.00	
Uniform Delay (d_1), s/veh	39.7	39.9	40.0					7.6	3.8	11.0	11.5	
Incremental Delay (d_2), s/veh	0.8	1.7	2.2					0.6	0.3	5.8	0.5	
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh	40.5	41.6	42.1					8.2	4.1	16.8	12.0	
Level of Service (LOS)	D	D	D					A	A	B	B	
Approach Delay, s/veh / LOS	41.1	D		0.0			7.9	A		13.2	B	
Intersection Delay, s/veh / LOS	17.8						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.47	B	2.47	B	1.39	A	2.05	B
Bicycle LOS Score / LOS	1.95	B			1.17	A	2.30	B

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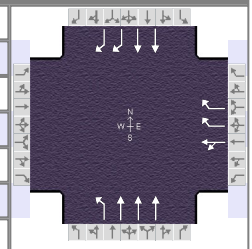
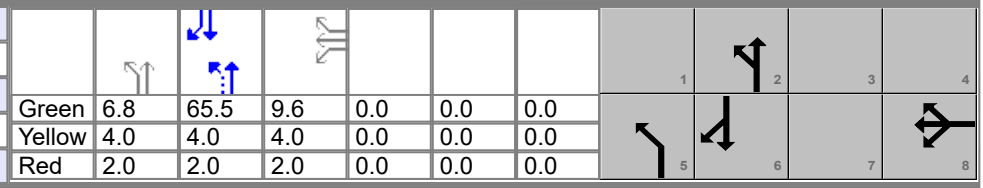
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	11/12/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.93
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	WB SR-161	File Name	DIAMOND 2048 Build PM Peak.xus		
Project Description	2048 Build PM Peak				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				30	10	70	130	1500			1930	1170

Signal Information			
Cycle, s	100.0	Reference Phase	2
Offset, s	43	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	6.8	65.5	9.6	0.0	0.0	0.0		
Yellow	4.0	4.0	4.0	0.0	0.0	0.0		
Red	2.0	2.0	2.0	0.0	0.0	0.0		

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8	5	2		6
Case Number				11.0	1.0	4.0		7.3
Phase Duration, s				15.6	12.8	84.4		71.5
Change Period, ($Y+R_c$), s				6.0	6.0	6.0		6.0
Max Allow Headway (*MAH*), s				3.3	3.1	0.0		0.0
Queue Clearance Time (g_s), s				4.8	4.1			
Green Extension Time (g_e), s				0.2	0.2	0.0		0.0
Phase Call Probability				0.96	0.98			
Max Out Probability				0.00	0.00			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3	8	18	5	2			6	16
Adjusted Flow Rate (*v*), veh/h					43	75	138	1590			1880	1140
Adjusted Saturation Flow Rate (*s*), veh/h/ln					1678	1244	1767	1687			1807	1368
Queue Service Time (g_s), s					2.4	2.8	2.1	1.4			21.5	8.6
Cycle Queue Clearance Time (g_c), s					2.4	2.8	2.1	1.4			21.5	8.6
Green Ratio (*g/C*)					0.10	0.10	0.74	0.74			0.66	0.66
Capacity (*c*), veh/h					162	240	298	3751			2368	1792
Volume-to-Capacity Ratio (*X*)					0.266	0.314	0.462	0.424			0.794	0.636
Back of Queue (*Q*), ft/ln (95 th percentile)					48	42	62	14			146	61
Back of Queue (*Q*), veh/ln (95 th percentile)					1.8	1.6	2.4	0.5			5.6	2.3
Queue Storage Ratio (*RQ*) (95 th percentile)					0.00	0.10	0.16	0.00			0.00	0.10
Uniform Delay (d_1), s/veh					41.9	42.1	11.6	0.3			3.6	1.9
Incremental Delay (d_2), s/veh					0.3	0.3	0.3	0.2			1.7	1.0
Initial Queue Delay (d_3), s/veh					0.0	0.0	0.0	0.0			0.0	0.0
Control Delay (*d*), s/veh					42.2	42.4	11.9	0.5			5.2	2.9
Level of Service (LOS)					D	D	B	A			A	A
Approach Delay, s/veh / LOS	0.0			42.3		D	1.4		A	4.3		A
Intersection Delay, s/veh / LOS	4.2						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.47	B	2.61	C	1.83	B	1.64	B
Bicycle LOS Score / LOS			0.68	A	1.45	A	3.24	C

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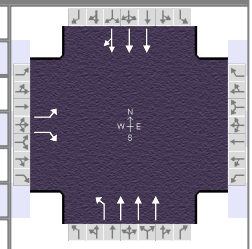
HCS Signalized Intersection Results Summary

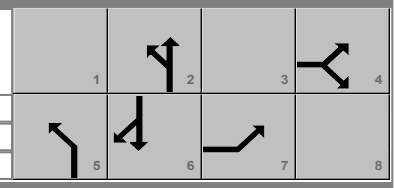
General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	11/12/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.93
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Innovation	File Name	DIAMOND 2048 Build PM Peak.xus		
Project Description	2048 Build PM Peak				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10		90				20	1550			3010	10

Signal Information			
Cycle, s	100.0	Reference Phase	2
Offset, s	27	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	3.1	69.4	9.5	0.0	0.0	0.0	
Yellow	4.0	4.0	4.0	0.0	0.0	0.0	
Red	2.0	2.0	2.0	0.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4			5	2		6
Case Number		9.0			1.0	4.0		8.3
Phase Duration, s		15.5			9.1	84.5		75.4
Change Period, ($Y+R_c$), s		6.0			6.0	6.0		6.0
Max Allow Headway (*MAH*), s		3.3			3.1	0.0		0.0
Queue Clearance Time (g_s), s		8.1			2.3			
Green Extension Time (g_e), s		0.1			0.0	0.0		0.0
Phase Call Probability		0.95			0.45			
Max Out Probability		0.00			0.00			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7		14				5	2			6	16
Adjusted Flow Rate (*v*), veh/h	11		97				21	1644			1955	977
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1711		1522				1753	1671			1841	1837
Queue Service Time (g_s), s	0.6		6.1				0.3	12.5			85.8	23.4
Cycle Queue Clearance Time (g_c), s	0.6		6.1				0.3	12.5			85.8	23.4
Green Ratio (*g/C*)	0.09		0.09				0.75	0.79			0.69	0.69
Capacity (*c*), veh/h	162		145				127	3936			2554	1275
Volume-to-Capacity Ratio (*X*)	0.066		0.669				0.167	0.418			0.765	0.767
Back of Queue (*Q*), ft/ln (95 th percentile)	12		112				16	155			122	124
Back of Queue (*Q*), veh/ln (95 th percentile)	0.4		4.2				0.6	6.0			4.7	4.8
Queue Storage Ratio (*RQ*) (95 th percentile)	0.10		0.56				0.03	0.00			0.24	0.25
Uniform Delay (d_1), s/veh	41.2		43.7				28.2	4.5			4.2	4.2
Incremental Delay (d_2), s/veh	0.1		2.0				0.2	0.3			0.2	0.4
Initial Queue Delay (d_3), s/veh	0.0		0.0				0.0	0.0			0.0	0.0
Control Delay (*d*), s/veh	41.3		45.7				28.4	4.8			4.4	4.6
Level of Service (LOS)	D		D				C	A			A	A
Approach Delay, s/veh / LOS	45.3		D	0.0			5.1		A	4.5		A
Intersection Delay, s/veh / LOS	5.6						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.61	C	2.47	B	0.63	A	1.86	B
Bicycle LOS Score / LOS		F			1.42	A	2.27	B

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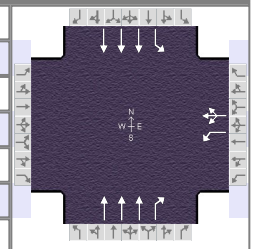
HCS Signalized Intersection Results Summary

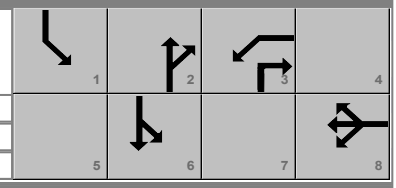
General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	11/12/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.80
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Beaver Rd	File Name	DIAMOND 2048 Build PM Peak.xus		
Project Description	2048 Build PM Peak				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				710	0	40		670	210	10	2290	

Signal Information			
Cycle, s	100.0	Reference Phase	2
Offset, s	6	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	1.7	48.6	31.6	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	2.0	2.0	2.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8		2	1	6
Case Number				10.0		7.3	1.0	4.0
Phase Duration, s				37.6		54.6	7.7	62.4
Change Period, (*Y+R c*), s				6.0		6.0	6.0	6.0
Max Allow Headway (*MAH*), s				3.3		0.0	3.1	0.0
Queue Clearance Time (*g s*), s				29.5			2.3	
Green Extension Time (*g e*), s				2.1		0.0	0.0	0.0
Phase Call Probability				1.00			0.25	
Max Out Probability				0.00			0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3	8	18		2	12	1	6	
Adjusted Flow Rate (*v*), veh/h				444	494			1260	395	10	2360	
Adjusted Saturation Flow Rate (*s*), veh/h/ln				1810	1789			1644	1610	1697	1618	
Queue Service Time (*g s*), s				22.2	27.5			14.4	5.2	0.3	38.3	
Cycle Queue Clearance Time (*g c*), s				22.2	27.5			14.4	5.2	0.3	38.3	
Green Ratio (*g/C*)				0.32	0.32			0.49	0.80	0.52	0.56	
Capacity (*c*), veh/h				572	566			2399	1292	245	2736	
Volume-to-Capacity Ratio (*X*)				0.775	0.873			0.525	0.306	0.042	0.863	
Back of Queue (*Q*), ft/ln (95 th percentile)				363	502			203	40	5	326	
Back of Queue (*Q*), veh/ln (95 th percentile)				14.5	20.1			7.7	1.6	0.2	12.3	
Queue Storage Ratio (*RQ*) (95 th percentile)				0.60	1.12			0.21	0.05	0.02	0.41	
Uniform Delay (*d 1*), s/veh				31.0	46.4			12.5	1.8	12.8	13.9	
Incremental Delay (*d 2*), s/veh				0.9	2.8			0.8	0.6	0.0	0.4	
Initial Queue Delay (*d 3*), s/veh				0.0	0.0			0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh				31.8	49.2			13.2	2.4	12.8	14.2	
Level of Service (LOS)				C	D			B	A	B	B	
Approach Delay, s/veh / LOS	0.0			41.0		D	10.6		B	14.2		B
Intersection Delay, s/veh / LOS	18.1						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.61	C	2.61	C	1.90	B	1.37	A
Bicycle LOS Score / LOS			2.03	B	1.09	A	2.07	B

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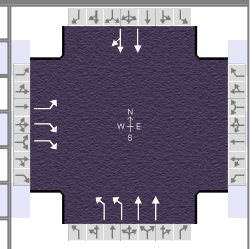
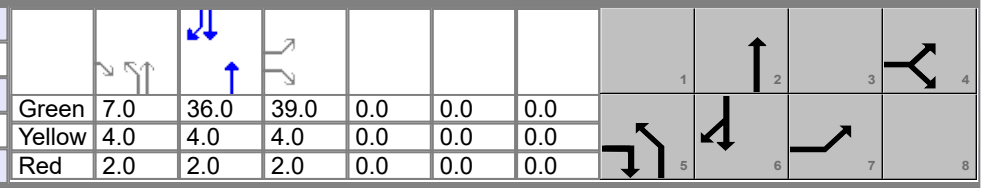
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	11/12/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.89
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Clover Valley Rd	File Name	DIAMOND 2048 Build PM Peak.xus		
Project Description	2048 Build PM Peak				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	20		1180				110	640			1140	20

Signal Information			
Cycle, s	100.0	Reference Phase	2
Offset, s	52	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	7.0	36.0	39.0	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	2.0	2.0	2.0	0.0	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4			5	2		6
Case Number		9.0			2.0	4.0		8.3
Phase Duration, s		45.0			13.0	55.0		42.0
Change Period, ($Y+R_c$), s		6.0			6.0	6.0		6.0
Max Allow Headway (*MAH*), s		3.4			3.1	0.0		0.0
Queue Clearance Time (g_s), s		41.0			7.7			
Green Extension Time (g_e), s		0.0			0.0	0.0		0.0
Phase Call Probability		1.00			1.00			
Max Out Probability		1.00			1.00			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7		14				5	2			6	16
Adjusted Flow Rate (*v*), veh/h	22		1326				192	1118			653	650
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1711		1347				1661	1710			1737	1726
Queue Service Time (g_s), s	0.8		39.0				5.7	22.4			38.6	36.0
Cycle Queue Clearance Time (g_c), s	0.8		39.0				5.7	22.4			38.6	36.0
Green Ratio (*g/C*)	0.39		0.46				0.07	0.49			0.36	0.36
Capacity (*c*), veh/h	667		1239				233	1676			625	621
Volume-to-Capacity Ratio (*X*)	0.034		1.070				0.826	0.667			1.045	1.046
Back of Queue (*Q*), ft/ln (95 th percentile)	15		809				132	314			856	785
Back of Queue (*Q*), veh/ln (95 th percentile)	0.6		30.6				5.0	11.9			31.5	31.4
Queue Storage Ratio (*RQ*) (95 th percentile)	0.03		0.81				0.31	0.39			0.86	0.85
Uniform Delay (d_1), s/veh	18.9		27.0				43.9	15.4			32.0	32.0
Incremental Delay (d_2), s/veh	0.0		46.4				17.4	1.8			48.3	48.6
Initial Queue Delay (d_3), s/veh	0.0		0.0				0.0	0.0			0.0	0.0
Control Delay (*d*), s/veh	18.9		73.4				61.3	17.2			80.3	80.6
Level of Service (LOS)	B		F				E	B			F	F
Approach Delay, s/veh / LOS	72.5		E	0.0			23.7		C	80.5		F
Intersection Delay, s/veh / LOS	59.0						E					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.47	B	2.15	B	0.70	A	2.28	B
Bicycle LOS Score / LOS		F			1.18	A	1.56	B

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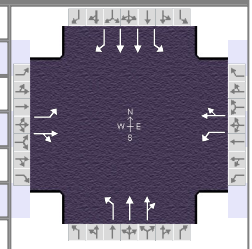
HCS Signalized Intersection Results Summary

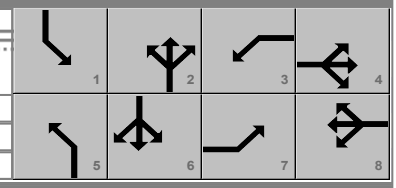
General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	11/12/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.91
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Worthington	File Name	DIAMOND 2048 Build PM Peak.xus		
Project Description	2048 Build PM Peak				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	130	100	30	10	40	70	10	910	30	60	1290	270

Signal Information			
Cycle, s	100.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	1.8	3.8	53.3	1.8	5.2	10.0						
Yellow	4.0	0.0	4.0	4.0	0.0	4.0						
Red	2.0	0.0	2.0	2.0	0.0	2.0						



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	3.0
Phase Duration, s	13.0	21.2	7.8	16.0	7.8	59.3	11.7	63.2
Change Period, ($Y+R_c$), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Allow Headway (*MAH*), s	3.1	3.2	3.1	3.2	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s	9.0	9.3	2.6	9.0	2.3		3.4	
Green Extension Time (g_e), s	0.0	0.5	0.0	0.4	0.0	0.0	0.1	0.0
Phase Call Probability	0.98	1.00	0.26	1.00	0.26		0.81	
Max Out Probability	1.00	0.00	0.00	0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	143	143		11	121		11	519	514	59	1277	267
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1781	1796		1767	1665		1781	1870	1849	1767	1766	1572
Queue Service Time (g_s), s	7.0	7.3		0.6	7.0		0.3	17.9	17.9	1.4	16.8	4.3
Cycle Queue Clearance Time (g_c), s	7.0	7.3		0.6	7.0		0.3	17.9	17.9	1.4	16.8	4.3
Green Ratio (*g/C*)	0.18	0.15		0.12	0.10		0.55	0.53	0.53	0.59	0.57	0.57
Capacity (*c*), veh/h	234	272		177	166		234	998	986	364	2019	899
Volume-to-Capacity Ratio (*X*)	0.610	0.525		0.062	0.726		0.047	0.521	0.521	0.163	0.632	0.297
Back of Queue (*Q*), ft/ln (95 th percentile)	149	147		11	136		5	309	301	24	188	56
Back of Queue (*Q*), veh/ln (95 th percentile)	5.9	5.8		0.4	5.3		0.2	12.2	12.0	1.0	7.3	2.2
Queue Storage Ratio (*RQ*) (95 th percentile)	0.46	0.29		0.03	0.27		0.01	0.62	0.61	0.04	0.00	0.09
Uniform Delay (d_1), s/veh	36.9	39.1		39.2	43.7		12.9	15.1	15.1	10.9	7.2	4.5
Incremental Delay (d_2), s/veh	3.3	0.6		0.1	2.3		0.0	1.9	2.0	0.1	1.2	0.7
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	40.3	39.7		39.2	45.9		13.0	17.0	17.0	11.0	8.4	5.1
Level of Service (LOS)	D	D		D	D		B	B	B	B	A	A
Approach Delay, s/veh / LOS	40.0	D		45.4	D		17.0	B		7.9	A	
Intersection Delay, s/veh / LOS	15.6						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.30	B	2.46	B	1.89	B	1.89	B
Bicycle LOS Score / LOS	0.96	A	0.71	A	1.35	A	1.96	B

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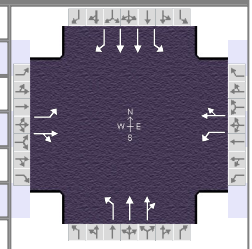
Mink Street (DDI Interchange) - AM Build

HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	11/12/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Worthington Rd	File Name	DDI 2048 Build AM Peak.xus		
Project Description	2048 AM Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	100	10	10	10	70	170	60	1090	20	70	240	160

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	6.2	0.6	59.4	2.1	4.9	22.8	1	2	3	4		
Yellow	4.0	0.0	4.0	4.0	0.0	4.0	5	6	7	8		
Red	2.0	0.0	2.0	2.0	0.0	2.0						

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	3.0
Phase Duration, s	13.0	33.7	8.1	28.8	12.2	65.4	12.8	66.0
Change Period, ($Y+R_c$), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Allow Headway (*MAH*), s	3.1	3.3	3.1	3.3	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s	9.0	3.5	2.6	22.2	4.1		5.4	
Green Extension Time (g_e), s	0.0	0.6	0.0	0.6	0.1	0.0	0.2	0.0
Phase Call Probability	0.97	1.00	0.30	1.00	0.89		0.97	
Max Out Probability	1.00	0.00	0.00	0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	109	22		11	261		65	605	601	103	353	236
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1414	1362		1626	1514		1753	1841	1829	1711	1710	1522
Queue Service Time (g_s), s	7.0	1.5		0.6	20.2		2.1	29.7	29.7	3.4	6.9	10.4
Cycle Queue Clearance Time (g_c), s	7.0	1.5		0.6	20.2		2.1	29.7	29.7	3.4	6.9	10.4
Green Ratio (*g/C*)	0.26	0.23		0.21	0.19		0.55	0.50	0.50	0.55	0.50	0.50
Capacity (*c*), veh/h	161	314		330	288		581	912	906	267	1710	761
Volume-to-Capacity Ratio (*X*)	0.673	0.069		0.033	0.907		0.112	0.664	0.664	0.386	0.207	0.310
Back of Queue (*Q*), ft/ln (95 th percentile)	162	28		13	345		38	498	481	66	131	160
Back of Queue (*Q*), veh/ln (95 th percentile)	5.3	0.9		0.5	12.5		1.5	19.3	19.2	2.5	4.9	6.1
Queue Storage Ratio (*RQ*) (95 th percentile)	0.46	0.01		0.04	0.17		0.06	0.25	0.25	0.11	0.17	0.27
Uniform Delay (d_1), s/veh	39.2	36.1		37.9	47.6		13.1	22.8	22.8	18.5	16.8	16.4
Incremental Delay (d_2), s/veh	8.6	0.0		0.0	4.4		0.0	3.8	3.8	0.3	0.3	1.0
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	47.8	36.1		37.9	52.0		13.1	26.6	26.6	18.8	17.1	17.4
Level of Service (LOS)	D	D		D	D		B	C	C	B	B	B
Approach Delay, s/veh / LOS	45.9	D		51.4	D		25.9	C		17.5	B	
Intersection Delay, s/veh / LOS	27.5						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.30	B	2.46	B	1.91	B	1.91	B
Bicycle LOS Score / LOS	0.70	A	0.94	A	1.54	B	0.91	A

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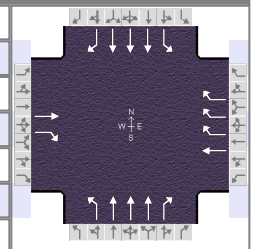
HCS Signalized Intersection Results Summary

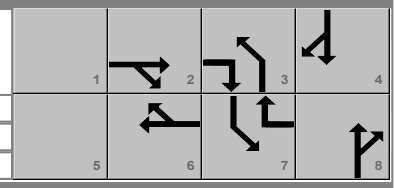
General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	2/5/2025	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Urban Street	Mink St	Analysis Year	2025	Analysis Period	1> 7:00
Intersection	Mink St at SR 161 EB R…	File Name	2048 AM Peak DDI EB Ramp.xus		
Project Description	2048 AM Peak DDI EB Ramp				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h		0	120		0	1230	0	1330	30	0	350	150

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	1.0	51.5	51.5	0.0	0.0	0.0						
Yellow	0.0	4.0	4.0	0.0	0.0	0.0						
Red	0.0	4.0	4.0	0.0	0.0	0.0						



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		7.0		7.0		9.0		9.0
Phase Duration, s		1.0		1.0		59.5		59.5
Change Period, ($Y+R_c$), s		0.0		0.0		8.0		8.0
Max Allow Headway (*MAH*), s		3.4		3.4		3.0		3.1
Queue Clearance Time (g_s), s		3.0		3.0		28.5		9.7
Green Extension Time (g_e), s		0.0		0.0		4.3		1.3
Phase Call Probability		1.00		1.00		1.00		1.00
Max Out Probability		1.00		1.00		0.01		0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		2	12		6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h		0	130		0	1337	0	1446	33	0	380	163
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1900	1610		1900	1425	1810	1725		1810	1725	1610
Queue Service Time (g_s), s		0.0	1.0		0.0	1.0	0.0	26.5		0.0	5.4	7.7
Cycle Queue Clearance Time (g_c), s		0.0	1.0		0.0	1.0	0.0	26.5		0.0	5.4	7.7
Green Ratio (*g/C*)		0.01	0.44		0.01	0.44	0.43	0.43		0.43	0.43	0.43
Capacity (*c*), veh/h		16	704		16	1870	777	2221		777	2221	691
Volume-to-Capacity Ratio (*X*)		0.000	0.185		0.000	0.715	0.000	0.651		0.000	0.171	0.236
Back of Queue (*Q*), ft/ln (95 th percentile)		0	100		0	390	0	403		0	98	130
Back of Queue (*Q*), veh/ln (95 th percentile)		0.0	4.0		0.0	15.6	0.0	16.1		0.0	3.9	5.2
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.00
Uniform Delay (d_1), s/veh		0.0	20.7		0.0	27.6	0.0	27.1		0.0	21.1	21.8
Incremental Delay (d_2), s/veh		0.0	0.0		0.0	1.1	0.0	0.5		0.0	0.0	0.1
Initial Queue Delay (d_3), s/veh		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0
Control Delay (*d*), s/veh		0.0	20.7		0.0	28.8	0.0	27.7	0.0	0.0	21.1	21.8
Level of Service (LOS)			C			C		C	A		C	C
Approach Delay, s/veh / LOS	20.7		C	28.8		C	27.1		C	21.3		C
Intersection Delay, s/veh / LOS	26.6						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.75	C	2.75	C	2.32	B	1.92	B
Bicycle LOS Score / LOS	0.70	A	2.69	C	1.30	A	0.79	A

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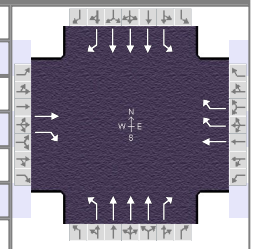
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	2/5/2025	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Urban Street	Mink St	Analysis Year	2025	Analysis Period	1> 7:00
Intersection	Mink St at SR 161 WB…	File Name	2048 AM Peak DDI WB Ramp.xus		
Project Description	2048 AM Peak DDI WB Ramp				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h		0	110		0	560	0	2450	110	0	350	480

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

							1	2	3	4
Green	1.0	64.0	39.0	0.0	0.0	0.0	5	6	7	8
Yellow	0.0	4.0	4.0	0.0	0.0	0.0				
Red	0.0	4.0	4.0	0.0	0.0	0.0				

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		7.0		7.0		9.0		9.0
Phase Duration, s		1.0		1.0		72.0		47.0
Change Period, ($Y+R_c$), s		0.0		0.0		8.0		8.0
Max Allow Headway (*MAH*), s		3.4		3.4		3.0		3.2
Queue Clearance Time (g_s), s		3.0		3.0		61.4		40.8
Green Extension Time (g_e), s		0.0		0.0		2.2		0.0
Phase Call Probability		1.00		1.00		1.00		1.00
Max Out Probability		1.00		1.00		1.00		1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		2	12		6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h		0	120		0	609	0	2663	120	0	380	522
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1900	1610		1900	1425	1810	1725	1610	1810	1725	
Queue Service Time (g_s), s		0.0	1.0		0.0	1.0	0.0	59.4	4.5	0.0	6.4	
Cycle Queue Clearance Time (g_c), s		0.0	1.0		0.0	1.0	0.0	59.4	4.5	0.0	6.4	
Green Ratio (*g/C*)		0.01	0.54		0.01	0.33	0.53	0.53	0.53	0.32	0.32	
Capacity (*c*), veh/h		16	872		16	950	965	2760	859	588	1682	
Volume-to-Capacity Ratio (*X*)		0.000	0.137		0.000	0.641	0.000	0.965	0.139	0.000	0.226	
Back of Queue (*Q*), ft/ln (95 th percentile)		0	71		0	301	0	840	72	0	120	
Back of Queue (*Q*), veh/ln (95 th percentile)		0.0	2.8		0.0	12.0	0.0	33.6	2.9	0.0	4.8	
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Uniform Delay (d_1), s/veh		0.0	13.6		0.0	33.9	0.0	26.9	14.1	0.0	29.5	
Incremental Delay (d_2), s/veh		0.0	0.0		0.0	1.1	0.0	10.2	0.0	0.0	0.0	
Initial Queue Delay (d_3), s/veh		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh		0.0	13.6		0.0	35.0	0.0	37.1	14.1	0.0	29.5	0.0
Level of Service (LOS)			B			D		D	B		C	A
Approach Delay, s/veh / LOS	13.6		B	35.0		D	36.1		D	12.5		B
Intersection Delay, s/veh / LOS	30.5						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.75	C	2.75	C	2.15	B	1.93	B
Bicycle LOS Score / LOS	0.68	A	1.49	A	2.02	B	0.98	A

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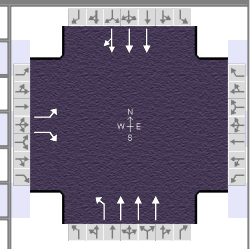
HCS Signalized Intersection Results Summary

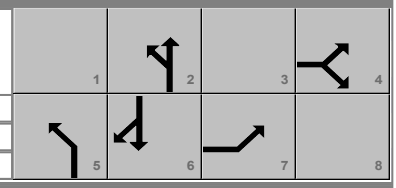
General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	11/12/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Innovation	File Name	DDI 2048 Build AM Peak.xus		
Project Description	2048 AM Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	20		30				150	2860			840	20

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	6.4	87.2	8.4	0.0	0.0	0.0	
Yellow	4.0	4.0	4.0	0.0	0.0	0.0	
Red	2.0	2.0	2.0	0.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4			5	2		6
Case Number		9.0			1.0	4.0		8.3
Phase Duration, s		14.4			12.4	105.6		93.2
Change Period, ($Y+R_c$), s		6.0			6.0	6.0		6.0
Max Allow Headway (*MAH*), s		3.3			3.1	0.0		0.0
Queue Clearance Time (g_s), s		5.3			3.1			
Green Extension Time (g_e), s		0.0			0.0	0.0		0.0
Phase Call Probability		0.84			0.91			
Max Out Probability		0.10			0.03			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7		14				5	2			6	16
Adjusted Flow Rate (*v*), veh/h	22		33				74	1405			451	224
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1287		1145				1668	1591			1811	1788
Queue Service Time (g_s), s	1.9		3.3				1.1	13.0			7.3	4.8
Cycle Queue Clearance Time (g_c), s	1.9		3.3				1.1	13.0			7.3	4.8
Green Ratio (*g/C*)	0.07		0.07				0.80	0.83			0.73	0.73
Capacity (*c*), veh/h	90		80				625	3962			2633	1300
Volume-to-Capacity Ratio (*X*)	0.242		0.408				0.118	0.355			0.171	0.172
Back of Queue (*Q*), ft/ln (95 th percentile)	37		56				14	170			78	79
Back of Queue (*Q*), veh/ln (95 th percentile)	1.1		1.7				0.5	6.3			3.0	3.0
Queue Storage Ratio (*RQ*) (95 th percentile)	0.31		0.28				0.02	0.18			0.08	0.08
Uniform Delay (d_1), s/veh	52.8		53.4				3.0	4.6			5.3	5.2
Incremental Delay (d_2), s/veh	0.5		1.2				0.0	0.2			0.1	0.3
Initial Queue Delay (d_3), s/veh	0.0		0.0				0.0	0.0			0.0	0.0
Control Delay (*d*), s/veh	53.3		54.7				3.0	4.7			5.5	5.5
Level of Service (LOS)	D		D				A	A			A	A
Approach Delay, s/veh / LOS	54.1	D		0.0			4.6	A		5.5	A	
Intersection Delay, s/veh / LOS	6.1						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.62	C	2.47	B	0.62	A	1.86	B
Bicycle LOS Score / LOS		F			2.29	B	1.00	A

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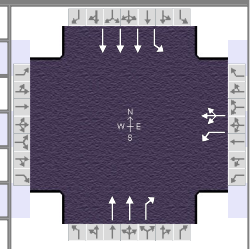
HCS Signalized Intersection Results Summary

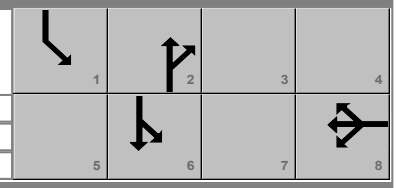
General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	11/12/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Beaver	File Name	DDI 2048 Build AM Peak.xus		
Project Description	2048 AM Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				160	0	50		1030	630	20	490	

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	3.5	84.8	13.7	0.0	0.0	0.0	
Yellow	4.0	4.0	4.0	0.0	0.0	0.0	
Red	2.0	2.0	2.0	0.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8		2	1	6
Case Number				10.0		7.3	1.0	4.0
Phase Duration, s				19.7		90.8	9.5	100.3
Change Period, (*Y+R c*), s				6.0		6.0	6.0	6.0
Max Allow Headway (*MAH*), s				3.2		0.0	3.1	0.0
Queue Clearance Time (*g s*), s				13.3			2.4	
Green Extension Time (*g e*), s				0.4		0.0	0.0	0.0
Phase Call Probability				1.00			0.49	
Max Out Probability				0.00			0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3	8	18		2	12	1	6	
Adjusted Flow Rate (*v*), veh/h				174	54			885	541	20	501	
Adjusted Saturation Flow Rate (*s*), veh/h/ln				1810	1547			1244	1610	1372	1308	
Queue Service Time (*g s*), s				11.3	3.9			11.8	10.2	0.4	4.2	
Cycle Queue Clearance Time (*g c*), s				11.3	3.9			11.8	10.2	0.4	4.2	
Green Ratio (*g/C*)				0.11	0.11			0.71	0.71	0.75	0.79	
Capacity (*c*), veh/h				207	177			1759	1138	393	3083	
Volume-to-Capacity Ratio (*X*)				0.840	0.307			0.503	0.476	0.052	0.163	
Back of Queue (*Q*), ft/ln (95 th percentile)				226	70			133	120	6	51	
Back of Queue (*Q*), veh/ln (95 th percentile)				9.1	2.7			4.0	4.8	0.2	1.6	
Queue Storage Ratio (*RQ*) (95 th percentile)				0.00	0.16			0.14	0.00	0.01	0.06	
Uniform Delay (*d 1*), s/veh				52.1	48.8			3.8	3.4	4.4	3.6	
Incremental Delay (*d 2*), s/veh				3.5	0.4			1.0	1.3	0.0	0.1	
Initial Queue Delay (*d 3*), s/veh				0.0	0.0			0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh				55.6	49.1			4.7	4.8	4.4	3.7	
Level of Service (LOS)				E	D			A	A	A	A	
Approach Delay, s/veh / LOS	0.0			54.0		D	4.8		A	3.7		A
Intersection Delay, s/veh / LOS	9.7						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.47	B	2.47	B	1.86	B	1.32	A
Bicycle LOS Score / LOS			0.86	A	1.98	B	0.79	A

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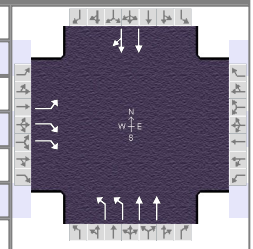
HCS Signalized Intersection Results Summary

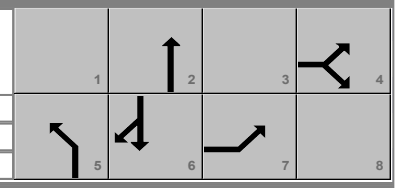
General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	11/12/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Clover Valley Rd	File Name	DDI 2048 Build AM Peak.xus		
Project Description	2048 AM Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	20		140				660	440			340	20

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	31.8	58.0	12.2	0.0	0.0	0.0						
Yellow	4.0	4.0	4.0	0.0	0.0	0.0						
Red	2.0	2.0	2.0	0.0	0.0	0.0						



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4			5	2		6
Case Number		9.0			2.0	4.0		8.3
Phase Duration, s		18.2			37.8	101.8		64.0
Change Period, ($Y+R_c$), s		6.0			6.0	6.0		6.0
Max Allow Headway (*MAH*), s		3.3			3.1	0.0		0.0
Queue Clearance Time (g_s), s		11.8			30.4			
Green Extension Time (g_e), s		0.4			1.4	0.0		0.0
Phase Call Probability		1.00			1.00			
Max Out Probability		0.00			0.00			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7		14				5	2			6	16
Adjusted Flow Rate (*v*), veh/h	22		152				564	376			197	194
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1160		914				1181	1216			1544	1514
Queue Service Time (g_s), s	2.1		9.8				28.4	4.7			14.1	9.1
Cycle Queue Clearance Time (g_c), s	2.1		9.8				28.4	4.7			14.1	9.1
Green Ratio (*g/C*)	0.10		0.10				0.27	0.80			0.48	0.48
Capacity (*c*), veh/h	118		186				627	1942			746	731
Volume-to-Capacity Ratio (*X*)	0.184		0.819				0.900	0.193			0.264	0.266
Back of Queue (*Q*), ft/ln (95 th percentile)	37		142				463	55			181	150
Back of Queue (*Q*), veh/ln (95 th percentile)	1.1		4.2				13.9	1.6			6.1	6.0
Queue Storage Ratio (*RQ*) (95 th percentile)	0.06		0.18				1.09	0.07			0.18	0.18
Uniform Delay (d_1), s/veh	49.3		52.8				54.2	3.1			18.4	18.4
Incremental Delay (d_2), s/veh	0.3		3.4				1.7	0.2			0.9	0.9
Initial Queue Delay (d_3), s/veh	0.0		0.0				0.0	0.0			0.0	0.0
Control Delay (*d*), s/veh	49.6		56.2				55.9	3.3			19.2	19.3
Level of Service (LOS)	D		E				E	A			B	B
Approach Delay, s/veh / LOS	55.4		E	0.0			34.8		C	19.3		B
Intersection Delay, s/veh / LOS	33.2						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.47	B	2.15	B	0.64	A	2.27	B
Bicycle LOS Score / LOS		F			1.47	A	0.81	A

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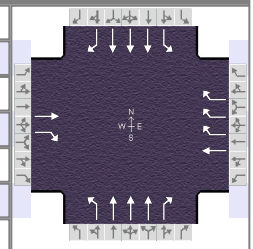
HCS Signalized Intersection Results Summary

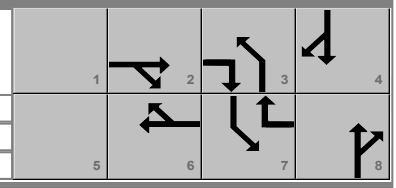
General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	2/5/2025	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Urban Street	Mink St	Analysis Year	2025	Analysis Period	1> 7:00
Intersection	Mink St at SR 161 EB R…	File Name	2048 AM Peak DDI EB Ramp.xus		
Project Description	2048 AM Peak DDI EB Ramp				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h		0	120		0	1230	0	1330	30	0	350	150

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	1.0	51.5	51.5	0.0	0.0	0.0						
Yellow	0.0	4.0	4.0	0.0	0.0	0.0						
Red	0.0	4.0	4.0	0.0	0.0	0.0						



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		7.0		7.0		9.0		9.0
Phase Duration, s		1.0		1.0		59.5		59.5
Change Period, ($Y+R_c$), s		0.0		0.0		8.0		8.0
Max Allow Headway (*MAH*), s		3.4		3.4		3.0		3.1
Queue Clearance Time (g_s), s		3.0		3.0		28.5		9.7
Green Extension Time (g_e), s		0.0		0.0		4.3		1.3
Phase Call Probability		1.00		1.00		1.00		1.00
Max Out Probability		1.00		1.00		0.01		0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		2	12		6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h		0	130		0	1337	0	1446	33	0	380	163
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1900	1610		1900	1425	1810	1725		1810	1725	1610
Queue Service Time (g_s), s		0.0	1.0		0.0	1.0	0.0	26.5		0.0	5.4	7.7
Cycle Queue Clearance Time (g_c), s		0.0	1.0		0.0	1.0	0.0	26.5		0.0	5.4	7.7
Green Ratio (*g/C*)		0.01	0.44		0.01	0.44	0.43	0.43		0.43	0.43	0.43
Capacity (*c*), veh/h		16	704		16	1870	777	2221		777	2221	691
Volume-to-Capacity Ratio (*X*)		0.000	0.185		0.000	0.715	0.000	0.651		0.000	0.171	0.236
Back of Queue (*Q*), ft/ln (95 th percentile)		0	100		0	390	0	403		0	98	130
Back of Queue (*Q*), veh/ln (95 th percentile)		0.0	4.0		0.0	15.6	0.0	16.1		0.0	3.9	5.2
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.00
Uniform Delay (d_1), s/veh		0.0	20.7		0.0	27.6	0.0	27.1		0.0	21.1	21.8
Incremental Delay (d_2), s/veh		0.0	0.0		0.0	1.1	0.0	0.5		0.0	0.0	0.1
Initial Queue Delay (d_3), s/veh		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0
Control Delay (*d*), s/veh		0.0	20.7		0.0	28.8	0.0	27.7	0.0	0.0	21.1	21.8
Level of Service (LOS)			C			C		C	A		C	C
Approach Delay, s/veh / LOS	20.7		C	28.8		C	27.1		C	21.3		C
Intersection Delay, s/veh / LOS	26.6						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.75	C	2.75	C	2.32	B	1.92	B
Bicycle LOS Score / LOS	0.70	A	2.69	C	1.30	A	0.79	A

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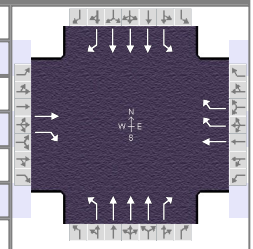
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	2/5/2025	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Urban Street	Mink St	Analysis Year	2025	Analysis Period	1> 7:00
Intersection	Mink St at SR 161 WB…	File Name	2048 AM Peak DDI WB Ramp.xus		
Project Description	2048 AM Peak DDI WB Ramp				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h		0	110		0	560	0	2450	110	0	350	480

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

							1	2	3	4
Green	1.0	64.0	39.0	0.0	0.0	0.0	5	6	7	8
Yellow	0.0	4.0	4.0	0.0	0.0	0.0				
Red	0.0	4.0	4.0	0.0	0.0	0.0				

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		7.0		7.0		9.0		9.0
Phase Duration, s		1.0		1.0		72.0		47.0
Change Period, ($Y+R_c$), s		0.0		0.0		8.0		8.0
Max Allow Headway (*MAH*), s		3.4		3.4		3.0		3.2
Queue Clearance Time (g_s), s		3.0		3.0		61.4		40.8
Green Extension Time (g_e), s		0.0		0.0		2.2		0.0
Phase Call Probability		1.00		1.00		1.00		1.00
Max Out Probability		1.00		1.00		1.00		1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		2	12		6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h		0	120		0	609	0	2663	120	0	380	522
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1900	1610		1900	1425	1810	1725	1610	1810	1725	
Queue Service Time (g_s), s		0.0	1.0		0.0	1.0	0.0	59.4	4.5	0.0	6.4	
Cycle Queue Clearance Time (g_c), s		0.0	1.0		0.0	1.0	0.0	59.4	4.5	0.0	6.4	
Green Ratio (*g/C*)		0.01	0.54		0.01	0.33	0.53	0.53	0.53	0.32	0.32	
Capacity (*c*), veh/h		16	872		16	950	965	2760	859	588	1682	
Volume-to-Capacity Ratio (*X*)		0.000	0.137		0.000	0.641	0.000	0.965	0.139	0.000	0.226	
Back of Queue (*Q*), ft/ln (95 th percentile)		0	71		0	301	0	840	72	0	120	
Back of Queue (*Q*), veh/ln (95 th percentile)		0.0	2.8		0.0	12.0	0.0	33.6	2.9	0.0	4.8	
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Uniform Delay (d_1), s/veh		0.0	13.6		0.0	33.9	0.0	26.9	14.1	0.0	29.5	
Incremental Delay (d_2), s/veh		0.0	0.0		0.0	1.1	0.0	10.2	0.0	0.0	0.0	
Initial Queue Delay (d_3), s/veh		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh		0.0	13.6		0.0	35.0	0.0	37.1	14.1	0.0	29.5	0.0
Level of Service (LOS)			B			D		D	B		C	A
Approach Delay, s/veh / LOS	13.6		B	35.0		D	36.1		D	12.5		B
Intersection Delay, s/veh / LOS	30.5						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.75	C	2.75	C	2.15	B	1.93	B
Bicycle LOS Score / LOS	0.68	A	1.49	A	2.02	B	0.98	A

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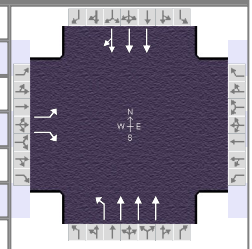
HCS Signalized Intersection Results Summary

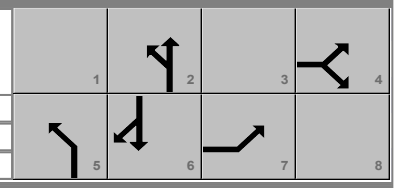
General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	11/12/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Innovation	File Name	DDI 2048 Build AM Peak.xus		
Project Description	2048 AM Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	20		30				150	2860			840	20

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	6.4	87.2	8.4	0.0	0.0	0.0	
Yellow	4.0	4.0	4.0	0.0	0.0	0.0	
Red	2.0	2.0	2.0	0.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4			5	2		6
Case Number		9.0			1.0	4.0		8.3
Phase Duration, s		14.4			12.4	105.6		93.2
Change Period, ($Y+R_c$), s		6.0			6.0	6.0		6.0
Max Allow Headway (*MAH*), s		3.3			3.1	0.0		0.0
Queue Clearance Time (g_s), s		5.3			3.1			
Green Extension Time (g_e), s		0.0			0.0	0.0		0.0
Phase Call Probability		0.84			0.91			
Max Out Probability		0.10			0.03			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7		14				5	2			6	16
Adjusted Flow Rate (*v*), veh/h	22		33				74	1405			451	224
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1287		1145				1668	1591			1811	1788
Queue Service Time (g_s), s	1.9		3.3				1.1	13.0			7.3	4.8
Cycle Queue Clearance Time (g_c), s	1.9		3.3				1.1	13.0			7.3	4.8
Green Ratio (*g/C*)	0.07		0.07				0.80	0.83			0.73	0.73
Capacity (*c*), veh/h	90		80				625	3962			2633	1300
Volume-to-Capacity Ratio (*X*)	0.242		0.408				0.118	0.355			0.171	0.172
Back of Queue (*Q*), ft/ln (95 th percentile)	37		56				14	170			78	79
Back of Queue (*Q*), veh/ln (95 th percentile)	1.1		1.7				0.5	6.3			3.0	3.0
Queue Storage Ratio (*RQ*) (95 th percentile)	0.31		0.28				0.02	0.18			0.08	0.08
Uniform Delay (d_1), s/veh	52.8		53.4				3.0	4.6			5.3	5.2
Incremental Delay (d_2), s/veh	0.5		1.2				0.0	0.2			0.1	0.3
Initial Queue Delay (d_3), s/veh	0.0		0.0				0.0	0.0			0.0	0.0
Control Delay (*d*), s/veh	53.3		54.7				3.0	4.7			5.5	5.5
Level of Service (LOS)	D		D				A	A			A	A
Approach Delay, s/veh / LOS	54.1	D		0.0			4.6	A		5.5	A	
Intersection Delay, s/veh / LOS	6.1						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.62	C	2.47	B	0.62	A	1.86	B
Bicycle LOS Score / LOS		F			2.29	B	1.00	A

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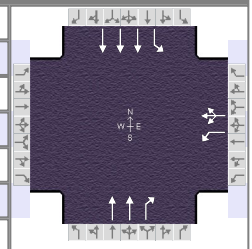
HCS Signalized Intersection Results Summary

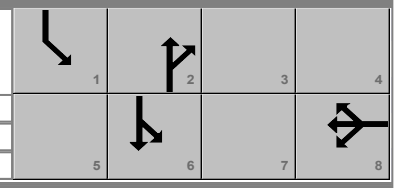
General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	11/12/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Beaver	File Name	DDI 2048 Build AM Peak.xus		
Project Description	2048 AM Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				160	0	50		1030	630	20	490	

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	3.5	84.8	13.7	0.0	0.0	0.0	
Yellow	4.0	4.0	4.0	0.0	0.0	0.0	
Red	2.0	2.0	2.0	0.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8		2	1	6
Case Number				10.0		7.3	1.0	4.0
Phase Duration, s				19.7		90.8	9.5	100.3
Change Period, (*Y+R c*), s				6.0		6.0	6.0	6.0
Max Allow Headway (*MAH*), s				3.2		0.0	3.1	0.0
Queue Clearance Time (*g s*), s				13.3			2.4	
Green Extension Time (*g e*), s				0.4		0.0	0.0	0.0
Phase Call Probability				1.00			0.49	
Max Out Probability				0.00			0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3	8	18		2	12	1	6	
Adjusted Flow Rate (*v*), veh/h				174	54			885	541	20	501	
Adjusted Saturation Flow Rate (*s*), veh/h/ln				1810	1547			1244	1610	1372	1308	
Queue Service Time (*g s*), s				11.3	3.9			11.8	10.2	0.4	4.2	
Cycle Queue Clearance Time (*g c*), s				11.3	3.9			11.8	10.2	0.4	4.2	
Green Ratio (*g/C*)				0.11	0.11			0.71	0.71	0.75	0.79	
Capacity (*c*), veh/h				207	177			1759	1138	393	3083	
Volume-to-Capacity Ratio (*X*)				0.840	0.307			0.503	0.476	0.052	0.163	
Back of Queue (*Q*), ft/ln (95 th percentile)				226	70			133	120	6	51	
Back of Queue (*Q*), veh/ln (95 th percentile)				9.1	2.7			4.0	4.8	0.2	1.6	
Queue Storage Ratio (*RQ*) (95 th percentile)				0.00	0.16			0.14	0.00	0.01	0.06	
Uniform Delay (*d 1*), s/veh				52.1	48.8			3.8	3.4	4.4	3.6	
Incremental Delay (*d 2*), s/veh				3.5	0.4			1.0	1.3	0.0	0.1	
Initial Queue Delay (*d 3*), s/veh				0.0	0.0			0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh				55.6	49.1			4.7	4.8	4.4	3.7	
Level of Service (LOS)				E	D			A	A	A	A	
Approach Delay, s/veh / LOS	0.0			54.0		D	4.8		A	3.7		A
Intersection Delay, s/veh / LOS	9.7						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.47	B	2.47	B	1.86	B	1.32	A
Bicycle LOS Score / LOS			0.86	A	1.98	B	0.79	A

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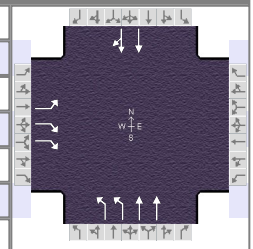
HCS Signalized Intersection Results Summary

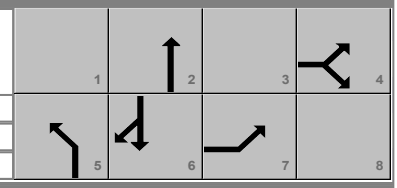
General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	11/12/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Clover Valley Rd	File Name	DDI 2048 Build AM Peak.xus		
Project Description	2048 AM Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	20		140				660	440			340	20

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	31.8	58.0	12.2	0.0	0.0	0.0						
Yellow	4.0	4.0	4.0	0.0	0.0	0.0						
Red	2.0	2.0	2.0	0.0	0.0	0.0						



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4			5	2		6
Case Number		9.0			2.0	4.0		8.3
Phase Duration, s		18.2			37.8	101.8		64.0
Change Period, ($Y+R_c$), s		6.0			6.0	6.0		6.0
Max Allow Headway (*MAH*), s		3.3			3.1	0.0		0.0
Queue Clearance Time (g_s), s		11.8			30.4			
Green Extension Time (g_e), s		0.4			1.4	0.0		0.0
Phase Call Probability		1.00			1.00			
Max Out Probability		0.00			0.00			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7		14				5	2			6	16
Adjusted Flow Rate (*v*), veh/h	22		152				564	376			197	194
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1160		914				1181	1216			1544	1514
Queue Service Time (g_s), s	2.1		9.8				28.4	4.7			14.1	9.1
Cycle Queue Clearance Time (g_c), s	2.1		9.8				28.4	4.7			14.1	9.1
Green Ratio (*g/C*)	0.10		0.10				0.27	0.80			0.48	0.48
Capacity (*c*), veh/h	118		186				627	1942			746	731
Volume-to-Capacity Ratio (*X*)	0.184		0.819				0.900	0.193			0.264	0.266
Back of Queue (*Q*), ft/ln (95 th percentile)	37		142				463	55			181	150
Back of Queue (*Q*), veh/ln (95 th percentile)	1.1		4.2				13.9	1.6			6.1	6.0
Queue Storage Ratio (*RQ*) (95 th percentile)	0.06		0.18				1.09	0.07			0.18	0.18
Uniform Delay (d_1), s/veh	49.3		52.8				54.2	3.1			18.4	18.4
Incremental Delay (d_2), s/veh	0.3		3.4				1.7	0.2			0.9	0.9
Initial Queue Delay (d_3), s/veh	0.0		0.0				0.0	0.0			0.0	0.0
Control Delay (*d*), s/veh	49.6		56.2				55.9	3.3			19.2	19.3
Level of Service (LOS)	D		E				E	A			B	B
Approach Delay, s/veh / LOS	55.4		E	0.0			34.8		C	19.3		B
Intersection Delay, s/veh / LOS	33.2						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.47	B	2.15	B	0.64	A	2.27	B
Bicycle LOS Score / LOS		F			1.47	A	0.81	A

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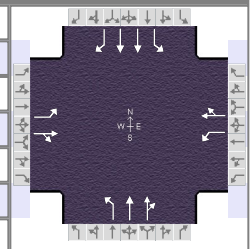
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	11/12/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Worthington Rd	File Name	DDI 2048 Build AM Peak.xus		
Project Description	2048 AM Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	100	10	10	10	70	170	60	1090	20	70	240	160

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	6.2	0.6	59.4	2.1	4.9	22.8	1	2	3	4		
Yellow	4.0	0.0	4.0	4.0	0.0	4.0	5	6	7	8		
Red	2.0	0.0	2.0	2.0	0.0	2.0						

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	3.0
Phase Duration, s	13.0	33.7	8.1	28.8	12.2	65.4	12.8	66.0
Change Period, ($Y+R_c$), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Allow Headway (*MAH*), s	3.1	3.3	3.1	3.3	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s	9.0	3.5	2.6	22.2	4.1		5.4	
Green Extension Time (g_e), s	0.0	0.6	0.0	0.6	0.1	0.0	0.2	0.0
Phase Call Probability	0.97	1.00	0.30	1.00	0.89		0.97	
Max Out Probability	1.00	0.00	0.00	0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	109	22		11	261		65	605	601	103	353	236
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1414	1362		1626	1514		1753	1841	1829	1711	1710	1522
Queue Service Time (g_s), s	7.0	1.5		0.6	20.2		2.1	29.7	29.7	3.4	6.9	10.4
Cycle Queue Clearance Time (g_c), s	7.0	1.5		0.6	20.2		2.1	29.7	29.7	3.4	6.9	10.4
Green Ratio (*g/C*)	0.26	0.23		0.21	0.19		0.55	0.50	0.50	0.55	0.50	0.50
Capacity (*c*), veh/h	161	314		330	288		581	912	906	267	1710	761
Volume-to-Capacity Ratio (*X*)	0.673	0.069		0.033	0.907		0.112	0.664	0.664	0.386	0.207	0.310
Back of Queue (*Q*), ft/ln (95 th percentile)	162	28		13	345		38	498	481	66	131	160
Back of Queue (*Q*), veh/ln (95 th percentile)	5.3	0.9		0.5	12.5		1.5	19.3	19.2	2.5	4.9	6.1
Queue Storage Ratio (*RQ*) (95 th percentile)	0.46	0.01		0.04	0.17		0.06	0.25	0.25	0.11	0.17	0.27
Uniform Delay (d_1), s/veh	39.2	36.1		37.9	47.6		13.1	22.8	22.8	18.5	16.8	16.4
Incremental Delay (d_2), s/veh	8.6	0.0		0.0	4.4		0.0	3.8	3.8	0.3	0.3	1.0
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	47.8	36.1		37.9	52.0		13.1	26.6	26.6	18.8	17.1	17.4
Level of Service (LOS)	D	D		D	D		B	C	C	B	B	B
Approach Delay, s/veh / LOS	45.9	D		51.4	D		25.9	C		17.5	B	
Intersection Delay, s/veh / LOS	27.5						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.30	B	2.46	B	1.91	B	1.91	B
Bicycle LOS Score / LOS	0.70	A	0.94	A	1.54	B	0.91	A

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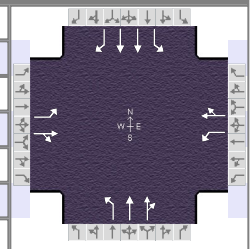
Mink Street (DDI Interchange) - PM Build

HCS Signalized Intersection Results Summary

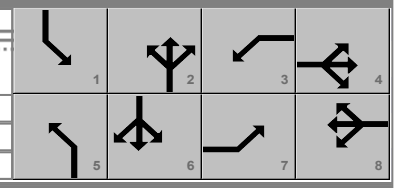
General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	11/12/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.91
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Worthington	File Name	2048 PM Peak DDI at Worthington.xus		
Project Description	2048 Build PM Peak				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	130	100	30	10	40	70	10	910	30	60	1290	270

Signal Information			
Cycle, s	100.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	1.8	3.8	53.3	1.8	5.2	10.0						
Yellow	4.0	0.0	4.0	4.0	0.0	4.0						
Red	2.0	0.0	2.0	2.0	0.0	2.0						



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	3.0
Phase Duration, s	13.0	21.2	7.8	16.0	7.8	59.3	11.7	63.2
Change Period, ($Y+R_c$), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Allow Headway (*MAH*), s	3.1	3.2	3.1	3.2	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s	9.0	9.3	2.6	9.0	2.3		3.4	
Green Extension Time (g_e), s	0.0	0.5	0.0	0.4	0.0	0.0	0.1	0.0
Phase Call Probability	0.98	1.00	0.26	1.00	0.26		0.81	
Max Out Probability	1.00	0.00	0.00	0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	143	143		11	121		11	519	514	59	1277	267
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1781	1796		1767	1665		1781	1870	1849	1767	1766	1572
Queue Service Time (g_s), s	7.0	7.3		0.6	7.0		0.3	17.9	17.9	1.4	16.8	4.3
Cycle Queue Clearance Time (g_c), s	7.0	7.3		0.6	7.0		0.3	17.9	17.9	1.4	16.8	4.3
Green Ratio (*g/C*)	0.18	0.15		0.12	0.10		0.55	0.53	0.53	0.59	0.57	0.57
Capacity (*c*), veh/h	234	272		177	166		234	998	986	364	2019	899
Volume-to-Capacity Ratio (*X*)	0.610	0.525		0.062	0.726		0.047	0.521	0.521	0.163	0.632	0.297
Back of Queue (*Q*), ft/ln (95 th percentile)	149	147		11	136		5	309	301	24	188	56
Back of Queue (*Q*), veh/ln (95 th percentile)	5.9	5.8		0.4	5.3		0.2	12.2	12.0	1.0	7.3	2.2
Queue Storage Ratio (*RQ*) (95 th percentile)	0.46	0.29		0.03	0.27		0.01	0.62	0.61	0.04	0.00	0.09
Uniform Delay (d_1), s/veh	36.9	39.1		39.2	43.7		12.9	15.1	15.1	10.9	7.2	4.5
Incremental Delay (d_2), s/veh	3.3	0.6		0.1	2.3		0.0	1.9	2.0	0.1	1.2	0.7
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	40.3	39.7		39.2	45.9		13.0	17.0	17.0	11.0	8.4	5.1
Level of Service (LOS)	D	D		D	D		B	B	B	B	A	A
Approach Delay, s/veh / LOS	40.0	D		45.4	D		17.0	B		7.9	A	
Intersection Delay, s/veh / LOS	15.6						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.30	B	2.46	B	1.89	B	1.89	B
Bicycle LOS Score / LOS	0.96	A	0.71	A	1.35	A	1.96	B

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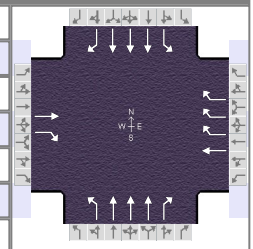
HCS Signalized Intersection Results Summary

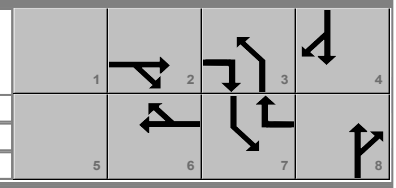
General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	2/5/2025	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Urban Street	Mink St	Analysis Year	2025	Analysis Period	1> 7:00
Intersection	Mink St at SR 161 EB R…	File Name	2048 PM Peak DDI EB Ramp.xus		
Project Description	2048 PM Peak DDI EB Ramp				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h		0	180		0	600	0	1030	80	0	1440	520

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	1.0	51.5	51.5	0.0	0.0	0.0						
Yellow	0.0	4.0	4.0	0.0	0.0	0.0						
Red	0.0	4.0	4.0	0.0	0.0	0.0						



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		7.0		7.0		9.0		9.0
Phase Duration, s		1.0		1.0		59.5		59.5
Change Period, ($Y+R_c$), s		0.0		0.0		8.0		8.0
Max Allow Headway (*MAH*), s		3.4		3.4		3.1		3.1
Queue Clearance Time (g_s), s		3.0		3.0		20.9		39.1
Green Extension Time (g_e), s		0.0		0.0		3.3		5.4
Phase Call Probability		1.00		1.00		1.00		1.00
Max Out Probability		1.00		1.00		0.00		0.31

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		2	12		6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h		0	196		0	652	0	1120	87	0	1565	565
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1900	1610		1900	1425	1810	1725		1810	1725	1610
Queue Service Time (g_s), s		0.0	1.0		0.0	1.0	0.0	18.9		0.0	29.7	37.1
Cycle Queue Clearance Time (g_c), s		0.0	1.0		0.0	1.0	0.0	18.9		0.0	29.7	37.1
Green Ratio (*g/C*)		0.01	0.44		0.01	0.44	0.43	0.43		0.43	0.43	0.43
Capacity (*c*), veh/h		16	704		16	1870	777	2221		777	2221	691
Volume-to-Capacity Ratio (*X*)		0.000	0.278		0.000	0.349	0.000	0.504		0.000	0.705	0.818
Back of Queue (*Q*), ft/ln (95 th percentile)		0	157		0	181	0	303		0	444	540
Back of Queue (*Q*), veh/ln (95 th percentile)		0.0	6.3		0.0	7.2	0.0	12.1		0.0	17.8	21.6
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.00
Uniform Delay (d_1), s/veh		0.0	21.6		0.0	22.4	0.0	24.9		0.0	28.0	30.1
Incremental Delay (d_2), s/veh		0.0	0.1		0.0	0.0	0.0	0.1		0.0	0.9	7.2
Initial Queue Delay (d_3), s/veh		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0
Control Delay (*d*), s/veh		0.0	21.7		0.0	22.4	0.0	25.0	0.0	0.0	28.9	37.3
Level of Service (LOS)			C			C		C	A		C	D
Approach Delay, s/veh / LOS	21.7	C		22.4	C		23.2	C		31.1	C	
Intersection Delay, s/veh / LOS	27.1						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.75	C	2.75	C	2.32	B	1.92	B
Bicycle LOS Score / LOS	0.81	A	1.56	B	1.15	A	1.66	B

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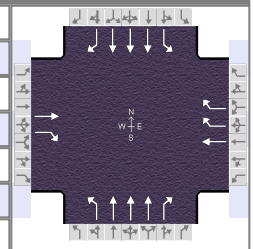
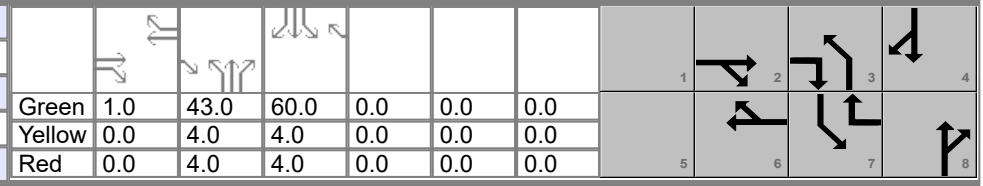
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	2/5/2025	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Urban Street	Mink St	Analysis Year	2025	Analysis Period	1> 7:00
Intersection	Mink St at SR 161 WB…	File Name	2048 PM Peak DDI WB Ramp.xus		
Project Description	2048 PM Peak DDI WB Ramp				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h		0	30		0	70	0	1500	130	0	1930	1170

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	1.0	43.0	60.0	0.0	0.0	0.0			
Yellow	0.0	4.0	4.0	0.0	0.0	0.0			
Red	0.0	4.0	4.0	0.0	0.0	0.0			

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		7.0		7.0		9.0		9.0
Phase Duration, s		1.0		1.0		51.0		68.0
Change Period, ($Y+R_c$), s		0.0		0.0		8.0		8.0
Max Allow Headway (*MAH*), s		3.4		3.4		3.1		3.2
Queue Clearance Time (g_s), s		3.0		3.0		37.4		62.0
Green Extension Time (g_e), s		0.0		0.0		2.8		0.0
Phase Call Probability		1.00		1.00		1.00		1.00
Max Out Probability		1.00		1.00		0.62		1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		2	12		6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h		0	33		0	76	0	1630	141	0	2098	1272
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1900	1610		1900	1425	1810	1725	1610	1810	1725	
Queue Service Time (g_s), s		0.0	1.0		0.0	1.0	0.0	35.4	7.4	0.0	40.9	
Cycle Queue Clearance Time (g_c), s		0.0	1.0		0.0	1.0	0.0	35.4	7.4	0.0	40.9	
Green Ratio (*g/C*)		0.01	0.37		0.01	0.51	0.36	0.36	0.36	0.50	0.50	
Capacity (*c*), veh/h		16	590		16	1449	648	1855	577	905	2588	
Volume-to-Capacity Ratio (*X*)		0.000	0.055		0.000	0.053	0.000	0.879	0.245	0.000	0.811	
Back of Queue (*Q*), ft/ln (95 th percentile)		0	27		0	23	0	545	128	0	576	
Back of Queue (*Q*), veh/ln (95 th percentile)		0.0	1.1		0.0	0.9	0.0	21.8	5.1	0.0	23.0	
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Uniform Delay (d_1), s/veh		0.0	24.6		0.0	14.9	0.0	36.1	27.1	0.0	25.2	
Incremental Delay (d_2), s/veh		0.0	0.0		0.0	0.0	0.0	5.0	0.1	0.0	1.9	
Initial Queue Delay (d_3), s/veh		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh		0.0	24.6		0.0	14.9	0.0	41.1	27.2	0.0	27.1	0.0
Level of Service (LOS)			C			B		D	C		C	A
Approach Delay, s/veh / LOS	24.6		C	14.9		B	40.0		D	16.9		B
Intersection Delay, s/veh / LOS	24.7						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.75	C	2.75	C	2.15	B	1.91	B
Bicycle LOS Score / LOS	0.54	A	0.61	A	1.46	A	2.34	B

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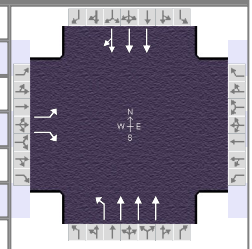
HCS Signalized Intersection Results Summary

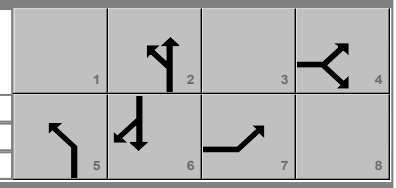
General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	11/12/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Innovation	File Name	DDI 2048 Build PM Peak.xus		
Project Description	2048 PM Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10		90				20	1550			3010	10

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	2.8	89.5	9.7	0.0	0.0	0.0	
Yellow	4.0	4.0	4.0	0.0	0.0	0.0	
Red	2.0	2.0	2.0	0.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4			5	2		6
Case Number		9.0			1.0	4.0		8.3
Phase Duration, s		15.7			8.8	104.3		95.5
Change Period, ($Y+R_c$), s		6.0			6.0	6.0		6.0
Max Allow Headway (*MAH*), s		3.3			3.1	0.0		0.0
Queue Clearance Time (g_s), s		9.6			2.2			
Green Extension Time (g_e), s		0.1			0.0	0.0		0.0
Phase Call Probability		0.97			0.40			
Max Out Probability		0.03			0.00			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7		14				5	2			6	16
Adjusted Flow Rate (*v*), veh/h	11		98				15	1191			1980	990
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1711		1522				1753	1671			1841	1837
Queue Service Time (g_s), s	0.7		7.6				0.2	6.0			83.7	29.7
Cycle Queue Clearance Time (g_c), s	0.7		7.6				0.2	6.0			83.7	29.7
Green Ratio (*g/C*)	0.08		0.08				0.79	0.82			0.75	0.75
Capacity (*c*), veh/h	139		123				105	4106			2744	1370
Volume-to-Capacity Ratio (*X*)	0.078		0.792				0.147	0.290			0.721	0.723
Back of Queue (*Q*), ft/ln (95 th percentile)	14		144				16	62			234	238
Back of Queue (*Q*), veh/ln (95 th percentile)	0.5		5.4				0.6	2.4			9.1	9.2
Queue Storage Ratio (*RQ*) (95 th percentile)	0.12		0.72				0.03	0.07			0.24	0.25
Uniform Delay (d_1), s/veh	51.0		54.1				36.9	2.2			5.7	5.7
Incremental Delay (d_2), s/veh	0.1		4.3				0.2	0.2			0.3	0.6
Initial Queue Delay (d_3), s/veh	0.0		0.0				0.0	0.0			0.0	0.0
Control Delay (*d*), s/veh	51.1		58.4				37.1	2.3			6.0	6.4
Level of Service (LOS)	D		E				D	A			A	A
Approach Delay, s/veh / LOS	57.7		E	0.0			2.8		A	6.1		A
Intersection Delay, s/veh / LOS	6.5						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.62	C	2.47	B	0.63	A	1.85	B
Bicycle LOS Score / LOS		F			1.43	A	2.29	B

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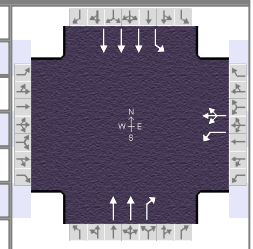
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	11/12/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Beaver Rd	File Name	DDI 2048 Build PM Peak.xus		
Project Description	2048 PM Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				710	0	40		670	210	10	2290	

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

							1	2	3	4
Green	2.0	59.0	41.0	0.0	0.0	0.0	5	6	7	8
Yellow	4.0	4.0	4.0	0.0	0.0	0.0				
Red	2.0	2.0	2.0	0.0	0.0	0.0				

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8		2	1	6
Case Number				10.0		7.3	1.0	4.0
Phase Duration, s				47.0		65.0	8.0	73.0
Change Period, ($Y+R_c$), s				6.0		6.0	6.0	6.0
Max Allow Headway (*MAH*), s				3.1		0.0	3.1	0.0
Queue Clearance Time (g_s), s				43.0			2.3	
Green Extension Time (g_e), s				0.0		0.0	0.0	0.0
Phase Call Probability				1.00			0.29	
Max Out Probability				1.00			0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3	8	18		2	12	1	6	
Adjusted Flow Rate (*v*), veh/h				772	43			915	287	10	2352	
Adjusted Saturation Flow Rate (*s*), veh/h/ln				1810	1610			1724	1610	1697	1618	
Queue Service Time (g_s), s				41.0	2.2			21.9	13.1	0.3	51.5	
Cycle Queue Clearance Time (g_c), s				41.0	2.2			21.9	13.1	0.3	51.5	
Green Ratio (*g/C*)				0.34	0.34			0.49	0.49	0.52	0.56	
Capacity (*c*), veh/h				618	550			1695	791	268	2709	
Volume-to-Capacity Ratio (*X*)				1.248	0.079			0.540	0.363	0.038	0.868	
Back of Queue (*Q*), ft/ln (95 th percentile)				1416	38			357	215	6	575	
Back of Queue (*Q*), veh/ln (95 th percentile)				56.6	1.5			13.6	8.6	0.2	21.6	
Queue Storage Ratio (*RQ*) (95 th percentile)				2.36	0.08			0.37	0.27	0.02	0.72	
Uniform Delay (d_1), s/veh				39.5	26.7			20.9	18.5	16.0	26.4	
Incremental Delay (d_2), s/veh				124.8	0.0			1.2	1.2	0.0	0.4	
Initial Queue Delay (d_3), s/veh				0.0	0.0			0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh				164.3	26.7			22.1	19.8	16.0	26.8	
Level of Service (LOS)				F	C			C	B	B	C	
Approach Delay, s/veh / LOS	0.0			157.0		F	21.5		C	26.8		C
Intersection Delay, s/veh / LOS	49.6						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.47	B	2.47	B	1.91	B	1.38	A
Bicycle LOS Score / LOS			1.83	B	1.28	A	1.86	B

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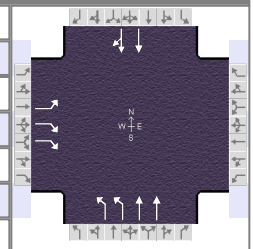
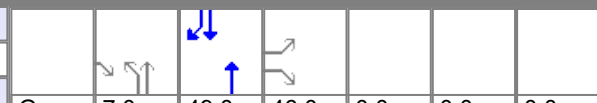
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	11/12/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Clover Valley Rd	File Name	DDI 2048 Build PM Peak.xus		
Project Description	2048 PM Build				

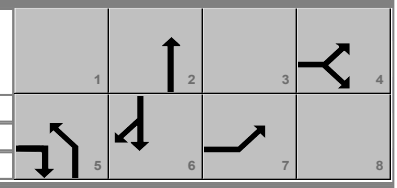


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	20		1180				110	640			1140	20

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	7.0		49.0	46.0	0.0	0.0	0.0					
Yellow	4.0		4.0	4.0	0.0	0.0	0.0					
Red	2.0		2.0	2.0	0.0	0.0	0.0					



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4			5	2		6
Case Number		9.0			2.0	4.0		8.3
Phase Duration, s		52.0			13.0	68.0		55.0
Change Period, ($Y+R_c$), s		6.0			6.0	6.0		6.0
Max Allow Headway (*MAH*), s		3.4			3.1	0.0		0.0
Queue Clearance Time (g_s), s		48.0			7.1			
Green Extension Time (g_e), s		0.0			0.0	0.0		0.0
Phase Call Probability		1.00			0.99			
Max Out Probability		1.00			1.00			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7		14				5	2			6	16
Adjusted Flow Rate (*v*), veh/h	22		1283				141	818			632	629
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1711		1347				1661	1710			1737	1726
Queue Service Time (g_s), s	1.0		46.0				5.1	15.7			41.2	40.7
Cycle Queue Clearance Time (g_c), s	1.0		46.0				5.1	15.7			41.2	40.7
Green Ratio (*g/C*)	0.38		0.44				0.06	0.52			0.41	0.41
Capacity (*c*), veh/h	656		1191				195	1767			709	704
Volume-to-Capacity Ratio (*X*)	0.033		1.077				0.722	0.463			0.892	0.892
Back of Queue (*Q*), ft/ln (95 th percentile)	18		913				113	239			732	671
Back of Queue (*Q*), veh/ln (95 th percentile)	0.7		34.6				4.3	9.1			26.9	26.8
Queue Storage Ratio (*RQ*) (95 th percentile)	0.03		1.14				0.27	0.30			0.73	0.73
Uniform Delay (d_1), s/veh	23.1		33.5				58.9	14.4			33.1	33.1
Incremental Delay (d_2), s/veh	0.0		49.5				6.3	0.7			15.8	16.0
Initial Queue Delay (d_3), s/veh	0.0		0.0				0.0	0.0			0.0	0.0
Control Delay (*d*), s/veh	23.1		83.0				65.2	15.2			48.9	49.0
Level of Service (LOS)	C		F				E	B			D	D
Approach Delay, s/veh / LOS	82.0		F	0.0			22.5		C	49.0		D
Intersection Delay, s/veh / LOS	54.0						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.47	B	2.15	B	0.71	A	2.28	B
Bicycle LOS Score / LOS		F			1.16	A	1.53	B

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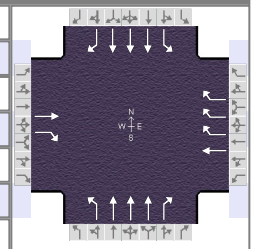
HCS Signalized Intersection Results Summary

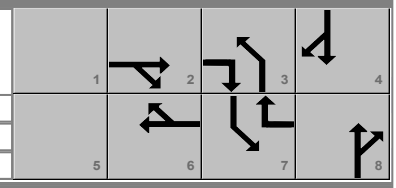
General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	2/5/2025	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Urban Street	Mink St	Analysis Year	2025	Analysis Period	1> 7:00
Intersection	Mink St at SR 161 EB R…	File Name	2048 PM Peak DDI EB Ramp.xus		
Project Description	2048 PM Peak DDI EB Ramp				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h		0	180		0	600	0	1030	80	0	1440	520

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	1.0	51.5	51.5	0.0	0.0	0.0						
Yellow	0.0	4.0	4.0	0.0	0.0	0.0						
Red	0.0	4.0	4.0	0.0	0.0	0.0						



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		7.0		7.0		9.0		9.0
Phase Duration, s		1.0		1.0		59.5		59.5
Change Period, ($Y+R_c$), s		0.0		0.0		8.0		8.0
Max Allow Headway (*MAH*), s		3.4		3.4		3.1		3.1
Queue Clearance Time (g_s), s		3.0		3.0		20.9		39.1
Green Extension Time (g_e), s		0.0		0.0		3.3		5.4
Phase Call Probability		1.00		1.00		1.00		1.00
Max Out Probability		1.00		1.00		0.00		0.31

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		2	12		6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h		0	196		0	652	0	1120	87	0	1565	565
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1900	1610		1900	1425	1810	1725		1810	1725	1610
Queue Service Time (g_s), s		0.0	1.0		0.0	1.0	0.0	18.9		0.0	29.7	37.1
Cycle Queue Clearance Time (g_c), s		0.0	1.0		0.0	1.0	0.0	18.9		0.0	29.7	37.1
Green Ratio (*g/C*)		0.01	0.44		0.01	0.44	0.43	0.43		0.43	0.43	0.43
Capacity (*c*), veh/h		16	704		16	1870	777	2221		777	2221	691
Volume-to-Capacity Ratio (*X*)		0.000	0.278		0.000	0.349	0.000	0.504		0.000	0.705	0.818
Back of Queue (*Q*), ft/ln (95 th percentile)		0	157		0	181	0	303		0	444	540
Back of Queue (*Q*), veh/ln (95 th percentile)		0.0	6.3		0.0	7.2	0.0	12.1		0.0	17.8	21.6
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00	0.00		0.00	0.00	0.00	0.00		0.00	0.00	0.00
Uniform Delay (d_1), s/veh		0.0	21.6		0.0	22.4	0.0	24.9		0.0	28.0	30.1
Incremental Delay (d_2), s/veh		0.0	0.1		0.0	0.0	0.0	0.1		0.0	0.9	7.2
Initial Queue Delay (d_3), s/veh		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0
Control Delay (*d*), s/veh		0.0	21.7		0.0	22.4	0.0	25.0	0.0	0.0	28.9	37.3
Level of Service (LOS)			C			C		C	A		C	D
Approach Delay, s/veh / LOS	21.7	C		22.4	C		23.2	C		31.1	C	
Intersection Delay, s/veh / LOS	27.1						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.75	C	2.75	C	2.32	B	1.92	B
Bicycle LOS Score / LOS	0.81	A	1.56	B	1.15	A	1.66	B

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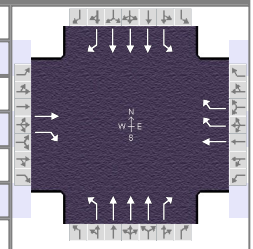
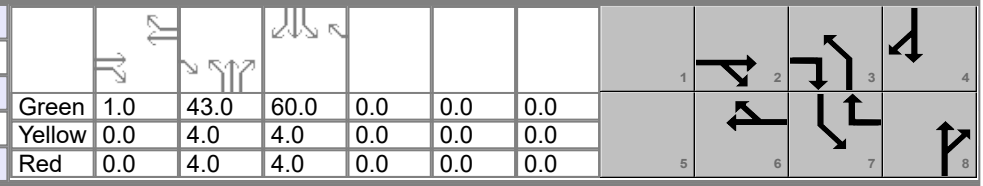
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	2/5/2025	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Urban Street	Mink St	Analysis Year	2025	Analysis Period	1> 7:00
Intersection	Mink St at SR 161 WB…	File Name	2048 PM Peak DDI WB Ramp.xus		
Project Description	2048 PM Peak DDI WB Ramp				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h		0	30		0	70	0	1500	130	0	1930	1170

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	1.0	43.0	60.0	0.0	0.0	0.0			
Yellow	0.0	4.0	4.0	0.0	0.0	0.0			
Red	0.0	4.0	4.0	0.0	0.0	0.0			

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		7.0		7.0		9.0		9.0
Phase Duration, s		1.0		1.0		51.0		68.0
Change Period, ($Y+R_c$), s		0.0		0.0		8.0		8.0
Max Allow Headway (*MAH*), s		3.4		3.4		3.1		3.2
Queue Clearance Time (g_s), s		3.0		3.0		37.4		62.0
Green Extension Time (g_e), s		0.0		0.0		2.8		0.0
Phase Call Probability		1.00		1.00		1.00		1.00
Max Out Probability		1.00		1.00		0.62		1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		2	12		6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h		0	33		0	76	0	1630	141	0	2098	1272
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1900	1610		1900	1425	1810	1725	1610	1810	1725	
Queue Service Time (g_s), s		0.0	1.0		0.0	1.0	0.0	35.4	7.4	0.0	40.9	
Cycle Queue Clearance Time (g_c), s		0.0	1.0		0.0	1.0	0.0	35.4	7.4	0.0	40.9	
Green Ratio (*g/C*)		0.01	0.37		0.01	0.51	0.36	0.36	0.36	0.50	0.50	
Capacity (*c*), veh/h		16	590		16	1449	648	1855	577	905	2588	
Volume-to-Capacity Ratio (*X*)		0.000	0.055		0.000	0.053	0.000	0.879	0.245	0.000	0.811	
Back of Queue (*Q*), ft/ln (95 th percentile)		0	27		0	23	0	545	128	0	576	
Back of Queue (*Q*), veh/ln (95 th percentile)		0.0	1.1		0.0	0.9	0.0	21.8	5.1	0.0	23.0	
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Uniform Delay (d_1), s/veh		0.0	24.6		0.0	14.9	0.0	36.1	27.1	0.0	25.2	
Incremental Delay (d_2), s/veh		0.0	0.0		0.0	0.0	0.0	5.0	0.1	0.0	1.9	
Initial Queue Delay (d_3), s/veh		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh		0.0	24.6		0.0	14.9	0.0	41.1	27.2	0.0	27.1	0.0
Level of Service (LOS)			C			B		D	C		C	A
Approach Delay, s/veh / LOS	24.6		C	14.9		B	40.0		D	16.9		B
Intersection Delay, s/veh / LOS	24.7						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.75	C	2.75	C	2.15	B	1.91	B
Bicycle LOS Score / LOS	0.54	A	0.61	A	1.46	A	2.34	B

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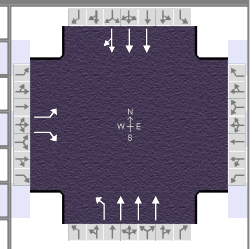
HCS Signalized Intersection Results Summary

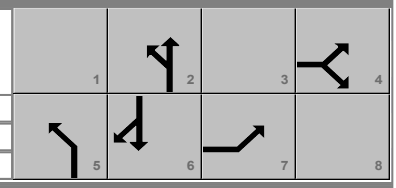
General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	11/12/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Innovation	File Name	DDI 2048 Build PM Peak.xus		
Project Description	2048 PM Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10		90				20	1550			3010	10

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	2.8	89.5	9.7	0.0	0.0	0.0	
Yellow	4.0	4.0	4.0	0.0	0.0	0.0	
Red	2.0	2.0	2.0	0.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4			5	2		6
Case Number		9.0			1.0	4.0		8.3
Phase Duration, s		15.7			8.8	104.3		95.5
Change Period, ($Y+R_c$), s		6.0			6.0	6.0		6.0
Max Allow Headway (*MAH*), s		3.3			3.1	0.0		0.0
Queue Clearance Time (g_s), s		9.6			2.2			
Green Extension Time (g_e), s		0.1			0.0	0.0		0.0
Phase Call Probability		0.97			0.40			
Max Out Probability		0.03			0.00			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7		14				5	2			6	16
Adjusted Flow Rate (*v*), veh/h	11		98				15	1191			1980	990
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1711		1522				1753	1671			1841	1837
Queue Service Time (g_s), s	0.7		7.6				0.2	6.0			83.7	29.7
Cycle Queue Clearance Time (g_c), s	0.7		7.6				0.2	6.0			83.7	29.7
Green Ratio (*g/C*)	0.08		0.08				0.79	0.82			0.75	0.75
Capacity (*c*), veh/h	139		123				105	4106			2744	1370
Volume-to-Capacity Ratio (*X*)	0.078		0.792				0.147	0.290			0.721	0.723
Back of Queue (*Q*), ft/ln (95 th percentile)	14		144				16	62			234	238
Back of Queue (*Q*), veh/ln (95 th percentile)	0.5		5.4				0.6	2.4			9.1	9.2
Queue Storage Ratio (*RQ*) (95 th percentile)	0.12		0.72				0.03	0.07			0.24	0.25
Uniform Delay (d_1), s/veh	51.0		54.1				36.9	2.2			5.7	5.7
Incremental Delay (d_2), s/veh	0.1		4.3				0.2	0.2			0.3	0.6
Initial Queue Delay (d_3), s/veh	0.0		0.0				0.0	0.0			0.0	0.0
Control Delay (*d*), s/veh	51.1		58.4				37.1	2.3			6.0	6.4
Level of Service (LOS)	D		E				D	A			A	A
Approach Delay, s/veh / LOS	57.7		E	0.0			2.8		A	6.1		A
Intersection Delay, s/veh / LOS	6.5						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.62	C	2.47	B	0.63	A	1.85	B
Bicycle LOS Score / LOS		F			1.43	A	2.29	B

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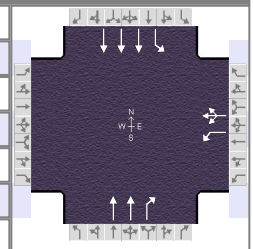
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	11/12/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Beaver Rd	File Name	DDI 2048 Build PM Peak.xus		
Project Description	2048 PM Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				710	0	40		670	210	10	2290	

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

							1	2	3	4
Green	2.0	59.0	41.0	0.0	0.0	0.0	5	6	7	8
Yellow	4.0	4.0	4.0	0.0	0.0	0.0				
Red	2.0	2.0	2.0	0.0	0.0	0.0				

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8		2	1	6
Case Number				10.0		7.3	1.0	4.0
Phase Duration, s				47.0		65.0	8.0	73.0
Change Period, ($Y+R_c$), s				6.0		6.0	6.0	6.0
Max Allow Headway (*MAH*), s				3.1		0.0	3.1	0.0
Queue Clearance Time (g_s), s				43.0			2.3	
Green Extension Time (g_e), s				0.0		0.0	0.0	0.0
Phase Call Probability				1.00			0.29	
Max Out Probability				1.00			0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3	8	18		2	12	1	6	
Adjusted Flow Rate (*v*), veh/h				772	43			915	287	10	2352	
Adjusted Saturation Flow Rate (*s*), veh/h/ln				1810	1610			1724	1610	1697	1618	
Queue Service Time (g_s), s				41.0	2.2			21.9	13.1	0.3	51.5	
Cycle Queue Clearance Time (g_c), s				41.0	2.2			21.9	13.1	0.3	51.5	
Green Ratio (*g/C*)				0.34	0.34			0.49	0.49	0.52	0.56	
Capacity (*c*), veh/h				618	550			1695	791	268	2709	
Volume-to-Capacity Ratio (*X*)				1.248	0.079			0.540	0.363	0.038	0.868	
Back of Queue (*Q*), ft/ln (95 th percentile)				1416	38			357	215	6	575	
Back of Queue (*Q*), veh/ln (95 th percentile)				56.6	1.5			13.6	8.6	0.2	21.6	
Queue Storage Ratio (*RQ*) (95 th percentile)				2.36	0.08			0.37	0.27	0.02	0.72	
Uniform Delay (d_1), s/veh				39.5	26.7			20.9	18.5	16.0	26.4	
Incremental Delay (d_2), s/veh				124.8	0.0			1.2	1.2	0.0	0.4	
Initial Queue Delay (d_3), s/veh				0.0	0.0			0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh				164.3	26.7			22.1	19.8	16.0	26.8	
Level of Service (LOS)				F	C			C	B	B	C	
Approach Delay, s/veh / LOS	0.0			157.0		F	21.5		C	26.8		C
Intersection Delay, s/veh / LOS	49.6						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.47	B	2.47	B	1.91	B	1.38	A
Bicycle LOS Score / LOS			1.83	B	1.28	A	1.86	B

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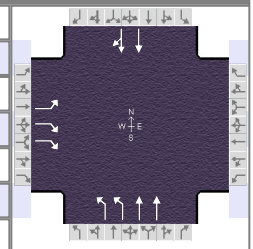
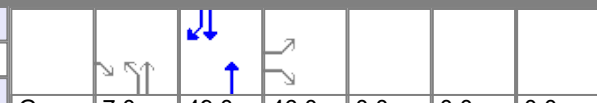
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	11/12/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Clover Valley Rd	File Name	DDI 2048 Build PM Peak.xus		
Project Description	2048 PM Build				

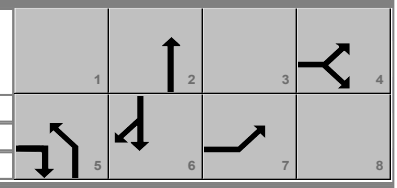


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	20		1180				110	640			1140	20

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	7.0		49.0	46.0	0.0	0.0	0.0					
Yellow	4.0		4.0	4.0	0.0	0.0	0.0					
Red	2.0		2.0	2.0	0.0	0.0	0.0					



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4			5	2		6
Case Number		9.0			2.0	4.0		8.3
Phase Duration, s		52.0			13.0	68.0		55.0
Change Period, ($Y+R_c$), s		6.0			6.0	6.0		6.0
Max Allow Headway (*MAH*), s		3.4			3.1	0.0		0.0
Queue Clearance Time (g_s), s		48.0			7.1			
Green Extension Time (g_e), s		0.0			0.0	0.0		0.0
Phase Call Probability		1.00			0.99			
Max Out Probability		1.00			1.00			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7		14				5	2			6	16
Adjusted Flow Rate (*v*), veh/h	22		1283				141	818			632	629
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1711		1347				1661	1710			1737	1726
Queue Service Time (g_s), s	1.0		46.0				5.1	15.7			41.2	40.7
Cycle Queue Clearance Time (g_c), s	1.0		46.0				5.1	15.7			41.2	40.7
Green Ratio (*g/C*)	0.38		0.44				0.06	0.52			0.41	0.41
Capacity (*c*), veh/h	656		1191				195	1767			709	704
Volume-to-Capacity Ratio (*X*)	0.033		1.077				0.722	0.463			0.892	0.892
Back of Queue (*Q*), ft/ln (95 th percentile)	18		913				113	239			732	671
Back of Queue (*Q*), veh/ln (95 th percentile)	0.7		34.6				4.3	9.1			26.9	26.8
Queue Storage Ratio (*RQ*) (95 th percentile)	0.03		1.14				0.27	0.30			0.73	0.73
Uniform Delay (d_1), s/veh	23.1		33.5				58.9	14.4			33.1	33.1
Incremental Delay (d_2), s/veh	0.0		49.5				6.3	0.7			15.8	16.0
Initial Queue Delay (d_3), s/veh	0.0		0.0				0.0	0.0			0.0	0.0
Control Delay (*d*), s/veh	23.1		83.0				65.2	15.2			48.9	49.0
Level of Service (LOS)	C		F				E	B			D	D
Approach Delay, s/veh / LOS	82.0		F	0.0			22.5		C	49.0		D
Intersection Delay, s/veh / LOS	54.0						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.47	B	2.15	B	0.71	A	2.28	B
Bicycle LOS Score / LOS		F			1.16	A	1.53	B

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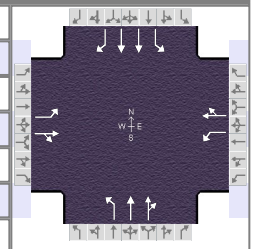
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	11/12/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Worthington Rd	File Name	DDI 2048 Build PM Peak.xus		
Project Description	2048 PM Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	130	100	30	10	40	70	10	910	30	60	1290	270

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	2.1	4.7	72.2	2.1	4.9	10.0	1	2	3	4		
Yellow	4.0	0.0	4.0	4.0	0.0	4.0	5	6	7	8		
Red	2.0	0.0	2.0	2.0	0.0	2.0						

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	3.0
Phase Duration, s	13.0	20.9	8.1	16.0	8.1	78.2	12.8	82.9
Change Period, ($Y+R_c$), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Allow Headway (*MAH*), s	3.1	3.2	3.1	3.2	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s	9.0	11.0	2.7	10.5	2.3		4.8	
Green Extension Time (g_e), s	0.0	0.2	0.0	0.0	0.0	0.0	0.2	0.0
Phase Call Probability	0.99	1.00	0.30	1.00	0.30		0.98	
Max Out Probability	1.00	0.53	0.05	1.00	0.02		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	141	141		11	120		11	514	508	113	2435	510
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1781	1796		1767	1665		1781	1870	1849	1767	1766	1610
Queue Service Time (g_s), s	7.0	9.0		0.7	8.5		0.3	18.1	18.1	2.8	76.9	23.8
Cycle Queue Clearance Time (g_c), s	7.0	9.0		0.7	8.5		0.3	18.1	18.1	2.8	76.9	23.8
Green Ratio (*g/C*)	0.15	0.12		0.10	0.08		0.62	0.60	0.60	0.66	0.64	0.64
Capacity (*c*), veh/h	180	223		131	139		92	1125	1112	407	2263	1031
Volume-to-Capacity Ratio (*X*)	0.786	0.635		0.083	0.862		0.119	0.457	0.457	0.278	1.076	0.494
Back of Queue (*Q*), ft/ln (95 th percentile)	80	195		14	221		9	309	302	45	1424	335
Back of Queue (*Q*), veh/ln (95 th percentile)	3.1	7.7		0.5	8.6		0.3	12.2	12.1	1.8	55.6	13.4
Queue Storage Ratio (*RQ*) (95 th percentile)	0.23	0.10		0.04	0.11		0.01	0.15	0.15	0.08	1.90	0.57
Uniform Delay (d_1), s/veh	49.3	50.0		48.9	54.3		30.5	13.1	13.1	9.0	26.5	15.4
Incremental Delay (d_2), s/veh	18.7	4.5		0.1	37.6		0.2	1.3	1.4	0.1	40.2	1.1
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	68.1	54.5		49.0	91.9		30.7	14.5	14.5	9.1	66.7	16.5
Level of Service (LOS)	E	D		D	F		C	B	B	A	F	B
Approach Delay, s/veh / LOS	61.3	E		88.3	F		14.7	B		56.2	E	
Intersection Delay, s/veh / LOS	47.9						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.31	B	2.47	B	1.89	B	1.88	B
Bicycle LOS Score / LOS	0.95	A	0.70	A	1.34	A	1.94	B

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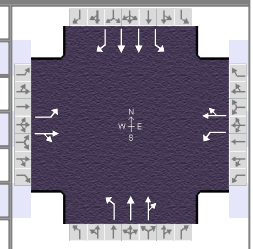
Mink Street (PARCLO Interchange) - AM Build

HCS Signalized Intersection Results Summary

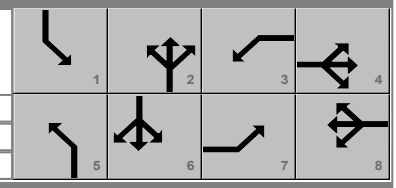
General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	11/12/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.86
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Worthington	File Name	PARCLO 2048 Build AM Peak.xus		
Project Description	2048 Build AM Peak				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	100	10	10	10	70	170	60	1090	20	70	240	160

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	6.3	57.4	2.2	5.8	24.3	0.0						
Yellow	4.0	4.0	4.0	0.0	4.0	0.0						
Red	2.0	2.0	2.0	0.0	2.0	0.0						



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	3.0
Phase Duration, s	14.0	36.0	8.2	30.3	12.3	63.4	12.3	63.4
Change Period, ($Y+R_c$), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Allow Headway (*MAH*), s	3.1	3.3	3.1	3.3	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s	9.7	3.6	2.7	23.6	4.3		4.4	
Green Extension Time (g_e), s	0.0	0.6	0.0	0.6	0.1	0.0	0.1	0.0
Phase Call Probability	0.98	1.00	0.32	1.00	0.90		0.90	
Max Out Probability	1.00	0.00	0.00	0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	116	23		12	279		70	647	643	70	240	160
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1414	1362		1626	1514		1753	1841	1829	1711	1710	1522
Queue Service Time (g_s), s	7.7	1.6		0.7	21.6		2.3	33.9	34.0	2.4	5.5	4.6
Cycle Queue Clearance Time (g_c), s	7.7	1.6		0.7	21.6		2.3	33.9	34.0	2.4	5.5	4.6
Green Ratio (*g/C*)	0.28	0.25		0.22	0.20		0.53	0.48	0.48	0.53	0.48	0.48
Capacity (*c*), veh/h	173	341		347	306		619	881	875	230	1637	728
Volume-to-Capacity Ratio (*X*)	0.670	0.068		0.034	0.912		0.113	0.735	0.735	0.305	0.147	0.220
Back of Queue (*Q*), ft/ln (95 th percentile)	166	29		13	363		42	568	549	46	107	72
Back of Queue (*Q*), veh/ln (95 th percentile)	5.4	0.9		0.5	13.2		1.6	22.0	22.0	1.8	4.0	2.7
Queue Storage Ratio (*RQ*) (95 th percentile)	0.51	0.06		0.04	0.73		0.07	1.14	1.13	0.15	0.17	0.29
Uniform Delay (d_1), s/veh	36.2	34.3		36.7	46.8		14.0	25.2	25.2	20.5	20.9	10.4
Incremental Delay (d_2), s/veh	7.9	0.0		0.0	4.4		0.0	5.4	5.5	0.3	0.2	0.7
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	44.1	34.4		36.7	51.2		14.0	30.6	30.6	20.8	21.1	11.1
Level of Service (LOS)	D	C		D	D		B	C	C	C	C	B
Approach Delay, s/veh / LOS	42.4	D		50.6	D		29.8	C		17.6	B	
Intersection Delay, s/veh / LOS	30.7						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.30	B	2.46	B	1.91	B	1.91	B
Bicycle LOS Score / LOS	0.72	A	0.97	A	1.61	B	0.94	A

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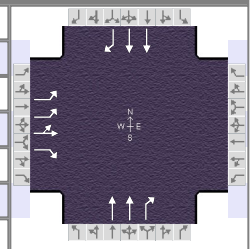
HCS Signalized Intersection Results Summary

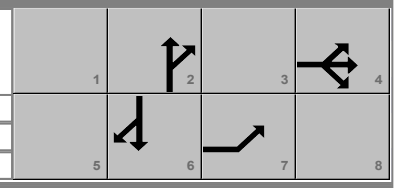
General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	11/12/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.85
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	EB SR-161	File Name	PARCLO 2048 Build AM Peak.xus		
Project Description	2048 Build AM Peak				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	1230	10	120					1330	30		350	150

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	111	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	69.3	38.7	0.0	0.0	0.0	0.0	
Yellow	4.0	4.0	0.0	0.0	0.0	0.0	
Red	2.0	2.0	0.0	0.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4				2		6
Case Number		9.0				7.0		7.0
Phase Duration, s		44.7				75.3		75.3
Change Period, ($Y+R_c$), s		6.0				6.0		6.0
Max Allow Headway (*MAH*), s		3.1				0.0		0.0
Queue Clearance Time (g_s), s		34.5						
Green Extension Time (g_e), s		4.3				0.0		0.0
Phase Call Probability		1.00						
Max Out Probability		0.00						

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14					2	12		6	16
Adjusted Flow Rate (*v*), veh/h	970	489	141					1547	35		330	141
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1711	1713	1454					1705	1418		1599	1418
Queue Service Time (g_s), s	32.1	32.5	8.7					37.0	0.9		4.2	5.0
Cycle Queue Clearance Time (g_c), s	32.1	32.5	8.7					37.0	0.9		4.2	5.0
Green Ratio (*g/C*)	0.32	0.32	0.32					0.58	0.58		0.58	0.58
Capacity (*c*), veh/h	1105	553	469					1968	819		1845	818
Volume-to-Capacity Ratio (*X*)	0.878	0.885	0.301					0.786	0.043		0.179	0.173
Back of Queue (*Q*), ft/ln (95 th percentile)	513	527	145					426	14		69	76
Back of Queue (*Q*), veh/ln (95 th percentile)	19.4	20.0	5.5					16.0	0.5		2.5	2.8
Queue Storage Ratio (*RQ*) (95 th percentile)	0.78	0.53	0.45					0.85	0.03		0.17	0.19
Uniform Delay (d_1), s/veh	38.4	38.5	30.5					13.7	7.7		8.1	10.4
Incremental Delay (d_2), s/veh	1.6	3.4	0.1					1.9	0.1		0.2	0.4
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0					0.0	0.0		0.0	0.0
Control Delay (*d*), s/veh	40.0	41.9	30.6					15.6	7.8		8.3	10.8
Level of Service (LOS)	D	D	C					B	A		A	B
Approach Delay, s/veh / LOS	39.7	D		0.0			15.4	B		9.0	A	
Intersection Delay, s/veh / LOS	25.2						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.32	B	2.32	B	1.38	A	2.25	B
Bicycle LOS Score / LOS	3.13	C			1.81	B	0.97	A

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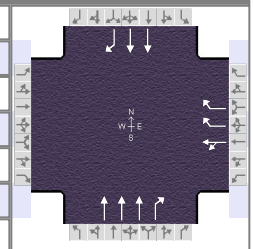
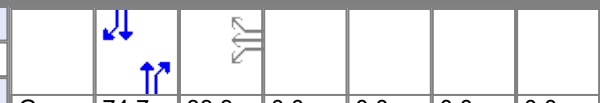
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	11/12/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.86
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	WB SR-161	File Name	PARCLO 2048 Build AM Peak.xus		
Project Description	2048 Build AM Peak				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				110	10	560		2450	110		390	480

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	68	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



							1	2	3	4
Green	74.7	33.3	0.0	0.0	0.0	0.0	5	6	7	8
Yellow	4.0	4.0	0.0	0.0	0.0	0.0				
Red	2.0	2.0	0.0	0.0	0.0	0.0				

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8		2		6
Case Number				11.0		7.0		7.0
Phase Duration, s				39.3		80.7		80.7
Change Period, ($Y+R_c$), s				6.0		6.0		6.0
Max Allow Headway (*MAH*), s				3.3		0.0		0.0
Queue Clearance Time (g_s), s				31.2				
Green Extension Time (g_e), s				2.1		0.0		0.0
Phase Call Probability				1.00				
Max Out Probability				0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3	8	18		2	12		6	16
Adjusted Flow Rate (*v*), veh/h					140	651		2537	114		343	422
Adjusted Saturation Flow Rate (*s*), veh/h/ln					1811	1292		1734	1436		1046	1520
Queue Service Time (g_s), s					7.2	29.2		40.9	4.7		10.8	21.7
Cycle Queue Clearance Time (g_c), s					7.2	29.2		40.9	4.7		10.8	21.7
Green Ratio (*g/C*)					0.28	0.28		0.62	0.62		0.62	0.62
Capacity (*c*), veh/h					503	717		3238	894		1303	946
Volume-to-Capacity Ratio (*X*)					0.278	0.908		0.784	0.127		0.263	0.446
Back of Queue (*Q*), ft/ln (95 th percentile)					143	403		418	55		125	350
Back of Queue (*Q*), veh/ln (95 th percentile)					5.7	14.9		15.7	2.1		4.8	13.3
Queue Storage Ratio (*RQ*) (95 th percentile)					0.17	0.95		1.05	0.12		0.25	0.61
Uniform Delay (d_1), s/veh					33.9	41.9		14.4	11.6		13.2	17.0
Incremental Delay (d_2), s/veh					0.1	6.8		0.2	0.0		0.5	1.5
Initial Queue Delay (d_3), s/veh					0.0	0.0		0.0	0.0		0.0	0.0
Control Delay (*d*), s/veh					34.0	48.7		14.6	11.6		13.7	18.6
Level of Service (LOS)					C	D		B	B		B	B
Approach Delay, s/veh / LOS	0.0			46.1		D	14.5		B	16.4		B
Intersection Delay, s/veh / LOS	20.8						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.47	B	2.47	B	2.07	B	1.37	A
Bicycle LOS Score / LOS			1.79	B	2.12	B	1.32	A

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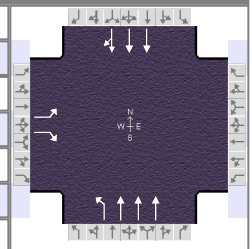
HCS Signalized Intersection Results Summary

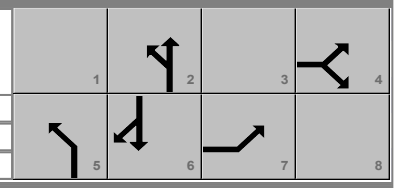
General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	11/12/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.88
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Innovation	File Name	PARCLO 2048 Build AM Peak.xus		
Project Description	2048 Build AM Peak				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	20		30				150	2860			840	20

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	118	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	7.0	86.5	8.5	0.0	0.0	0.0	
Yellow	4.0	4.0	4.0	0.0	0.0	0.0	
Red	2.0	2.0	2.0	0.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4			5	2		6
Case Number		9.0			1.0	4.0		8.3
Phase Duration, s		14.5			13.0	105.5		92.5
Change Period, ($Y+R_c$), s		6.0			6.0	6.0		6.0
Max Allow Headway (*MAH*), s		3.3			3.1	0.0		0.0
Queue Clearance Time (g_s), s		5.4			4.6			
Green Extension Time (g_e), s		0.1			0.3	0.0		0.0
Phase Call Probability		0.85			0.99			
Max Out Probability		0.00			0.00			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7		14				5	2			6	16
Adjusted Flow Rate (*v*), veh/h	23		34				159	3029			501	248
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1287		1145				1668	1591			1811	1788
Queue Service Time (g_s), s	2.0		3.4				2.6	25.8			15.6	4.2
Cycle Queue Clearance Time (g_c), s	2.0		3.4				2.6	25.8			15.6	4.2
Green Ratio (*g/C*)	0.07		0.07				0.80	0.83			0.72	0.72
Capacity (*c*), veh/h	91		81				551	3957			2612	1290
Volume-to-Capacity Ratio (*X*)	0.249		0.420				0.288	0.766			0.192	0.192
Back of Queue (*Q*), ft/ln (95 th percentile)	38		59				31	140			65	67
Back of Queue (*Q*), veh/ln (95 th percentile)	1.2		1.8				1.1	5.2			2.5	2.6
Queue Storage Ratio (*RQ*) (95 th percentile)	0.32		0.29				0.08	0.23			0.13	0.13
Uniform Delay (d_1), s/veh	52.7		53.4				4.4	2.5			4.0	4.0
Incremental Delay (d_2), s/veh	0.5		1.3				0.1	0.9			0.1	0.3
Initial Queue Delay (d_3), s/veh	0.0		0.0				0.0	0.0			0.0	0.0
Control Delay (*d*), s/veh	53.3		54.7				4.4	3.3			4.1	4.3
Level of Service (LOS)	D		D				A	A			A	A
Approach Delay, s/veh / LOS	54.1		D	0.0			3.4		A	4.2		A
Intersection Delay, s/veh / LOS	4.3						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.62	C	2.47	B	0.62	A	1.86	B
Bicycle LOS Score / LOS		F			2.37	B	1.03	A

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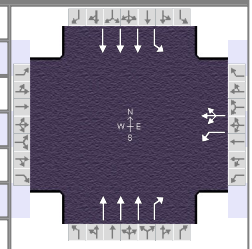
HCS Signalized Intersection Results Summary

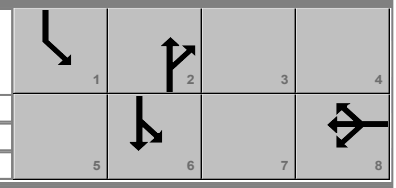
General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	11/12/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.80
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Beaver Rd	File Name	PARCLO 2048 Build AM Peak.xus		
Project Description	2048 Build AM Peak				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				160	0	50		1030	630	20	490	

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	8	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	3.8	86.8	11.4	0.0	0.0	0.0	
Yellow	4.0	4.0	4.0	0.0	0.0	0.0	
Red	2.0	2.0	2.0	0.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8		2	1	6
Case Number				10.0		7.3	1.0	4.0
Phase Duration, s				17.4		92.8	9.8	102.6
Change Period, ($Y+R_c$), s				6.0		6.0	6.0	6.0
Max Allow Headway (*MAH*), s				3.2		0.0	3.1	0.0
Queue Clearance Time (g_s), s				11.1			2.5	
Green Extension Time (g_e), s				0.3		0.0	0.0	0.0
Phase Call Probability				1.00			0.54	
Max Out Probability				0.02			0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3	8	18		2	12	1	6	
Adjusted Flow Rate (*v*), veh/h				140	123			1894	1158	24	576	
Adjusted Saturation Flow Rate (*s*), veh/h/ln				1810	1676			1187	1610	1372	1308	
Queue Service Time (g_s), s				9.1	8.7			24.5	83.7	0.5	2.2	
Cycle Queue Clearance Time (g_c), s				9.1	8.7			24.5	83.7	0.5	2.2	
Green Ratio (*g/C*)				0.10	0.10			0.72	0.72	0.77	0.80	
Capacity (*c*), veh/h				172	160			2574	1164	200	3158	
Volume-to-Capacity Ratio (*X*)				0.812	0.767			0.736	0.995	0.118	0.183	
Back of Queue (*Q*), ft/ln (95 th percentile)				191	183			168	408	6	23	
Back of Queue (*Q*), veh/ln (95 th percentile)				7.7	7.0			5.1	16.3	0.2	0.7	
Queue Storage Ratio (*RQ*) (95 th percentile)				0.32	0.41			0.17	0.51	0.02	0.03	
Uniform Delay (d_1), s/veh				53.2	55.8			4.1	8.0	6.2	1.3	
Incremental Delay (d_2), s/veh				3.5	2.9			1.1	18.6	0.1	0.1	
Initial Queue Delay (d_3), s/veh				0.0	0.0			0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh				56.7	58.7			5.2	26.6	6.3	1.4	
Level of Service (LOS)				E	E			A	C	A	A	
Approach Delay, s/veh / LOS	0.0			57.6		E	13.3		B	1.6		A
Intersection Delay, s/veh / LOS	14.5						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.62	C	2.62	C	1.86	B	1.31	A
Bicycle LOS Score / LOS			0.92	A	1.63	B	0.84	A

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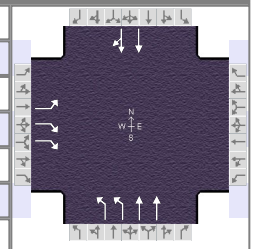
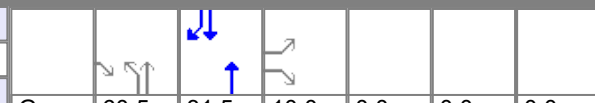
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	11/12/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.80
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Clover Valley Rd	File Name	PARCLO 2048 Build AM Peak.xus		
Project Description	2048 Build AM Peak				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	20		140				660	440			340	20

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	44	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



							1	2	3	4
Green	60.5	31.5	10.0	0.0	0.0	0.0	5	6	7	8
Yellow	4.0	4.0	4.0	0.0	0.0	0.0				
Red	2.0	2.0	2.0	0.0	0.0	0.0				

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4			5	2		6
Case Number		9.0			2.0	4.0		8.3
Phase Duration, s		16.0			66.5	104.0		37.5
Change Period, ($Y+R_c$), s		6.0			6.0	6.0		6.0
Max Allow Headway (*MAH*), s		3.3			3.1	0.0		0.0
Queue Clearance Time (g_s), s		7.2			60.0			
Green Extension Time (g_e), s		0.1			0.5	0.0		0.0
Phase Call Probability		1.00			1.00			
Max Out Probability		1.00			1.00			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7		14				5	2			6	16
Adjusted Flow Rate (*v*), veh/h	25		175				1174	783			227	223
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1160		914				1181	1216			1544	1514
Queue Service Time (g_s), s	2.4		5.2				58.0	4.4			15.3	15.3
Cycle Queue Clearance Time (g_c), s	2.4		5.2				58.0	4.4			15.3	15.3
Green Ratio (*g/C*)	0.08		0.59				0.50	0.82			0.26	0.26
Capacity (*c*), veh/h	97		1073				1191	1987			406	398
Volume-to-Capacity Ratio (*X*)	0.259		0.163				0.985	0.394			0.559	0.562
Back of Queue (*Q*), ft/ln (95 th percentile)	44		64				675	38			311	259
Back of Queue (*Q*), veh/ln (95 th percentile)	1.3		1.9				20.2	1.1			10.4	10.3
Queue Storage Ratio (*RQ*) (95 th percentile)	0.07		0.08				1.59	0.05			0.31	0.31
Uniform Delay (d_1), s/veh	51.5		11.3				20.3	1.0			38.2	38.3
Incremental Delay (d_2), s/veh	0.5		0.0				16.9	0.4			5.5	5.6
Initial Queue Delay (d_3), s/veh	0.0		0.0				0.0	0.0			0.0	0.0
Control Delay (*d*), s/veh	52.1		11.3				37.2	1.3			43.7	43.9
Level of Service (LOS)	D		B				D	A			D	D
Approach Delay, s/veh / LOS	16.4		B	0.0			22.9		C	43.8		D
Intersection Delay, s/veh / LOS	26.0						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.47	B	2.15	B	0.63	A	2.30	B
Bicycle LOS Score / LOS		F			1.62	B	0.86	A

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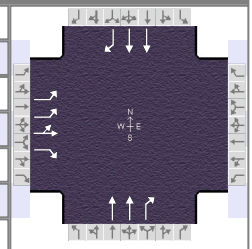
HCS Signalized Intersection Results Summary

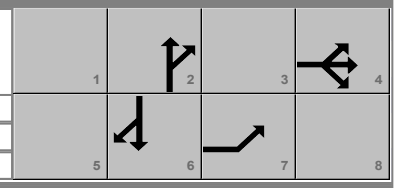
General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	11/12/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.85
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	EB SR-161	File Name	PARCLO 2048 Build AM Peak.xus		
Project Description	2048 Build AM Peak				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	1230	10	120					1330	30		350	150

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	111	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	69.3	38.7	0.0	0.0	0.0	0.0	
Yellow	4.0	4.0	0.0	0.0	0.0	0.0	
Red	2.0	2.0	0.0	0.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4				2		6
Case Number		9.0				7.0		7.0
Phase Duration, s		44.7				75.3		75.3
Change Period, ($Y+R_c$), s		6.0				6.0		6.0
Max Allow Headway (*MAH*), s		3.1				0.0		0.0
Queue Clearance Time (g_s), s		34.5						
Green Extension Time (g_e), s		4.3				0.0		0.0
Phase Call Probability		1.00						
Max Out Probability		0.00						

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14					2	12		6	16
Adjusted Flow Rate (*v*), veh/h	970	489	141					1547	35		330	141
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1711	1713	1454					1705	1418		1599	1418
Queue Service Time (g_s), s	32.1	32.5	8.7					37.0	0.9		4.2	5.0
Cycle Queue Clearance Time (g_c), s	32.1	32.5	8.7					37.0	0.9		4.2	5.0
Green Ratio (*g/C*)	0.32	0.32	0.32					0.58	0.58		0.58	0.58
Capacity (*c*), veh/h	1105	553	469					1968	819		1845	818
Volume-to-Capacity Ratio (*X*)	0.878	0.885	0.301					0.786	0.043		0.179	0.173
Back of Queue (*Q*), ft/ln (95 th percentile)	513	527	145					426	14		69	76
Back of Queue (*Q*), veh/ln (95 th percentile)	19.4	20.0	5.5					16.0	0.5		2.5	2.8
Queue Storage Ratio (*RQ*) (95 th percentile)	0.78	0.53	0.45					0.85	0.03		0.17	0.19
Uniform Delay (d_1), s/veh	38.4	38.5	30.5					13.7	7.7		8.1	10.4
Incremental Delay (d_2), s/veh	1.6	3.4	0.1					1.9	0.1		0.2	0.4
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0					0.0	0.0		0.0	0.0
Control Delay (*d*), s/veh	40.0	41.9	30.6					15.6	7.8		8.3	10.8
Level of Service (LOS)	D	D	C					B	A		A	B
Approach Delay, s/veh / LOS	39.7	D		0.0			15.4	B		9.0	A	
Intersection Delay, s/veh / LOS	25.2						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.32	B	2.32	B	1.38	A	2.25	B
Bicycle LOS Score / LOS	3.13	C			1.81	B	0.97	A

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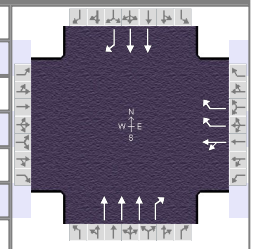
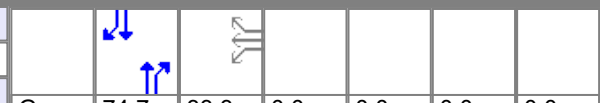
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	11/12/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.86
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	WB SR-161	File Name	PARCLO 2048 Build AM Peak.xus		
Project Description	2048 Build AM Peak				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				110	10	560		2450	110		390	480

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	68	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



							1	2	3	4
Green	74.7	33.3	0.0	0.0	0.0	0.0	5	6	7	8
Yellow	4.0	4.0	0.0	0.0	0.0	0.0				
Red	2.0	2.0	0.0	0.0	0.0	0.0				

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8		2		6
Case Number				11.0		7.0		7.0
Phase Duration, s				39.3		80.7		80.7
Change Period, ($Y+R_c$), s				6.0		6.0		6.0
Max Allow Headway (*MAH*), s				3.3		0.0		0.0
Queue Clearance Time (g_s), s				31.2				
Green Extension Time (g_e), s				2.1		0.0		0.0
Phase Call Probability				1.00				
Max Out Probability				0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3	8	18		2	12		6	16
Adjusted Flow Rate (*v*), veh/h					140	651		2537	114		343	422
Adjusted Saturation Flow Rate (*s*), veh/h/ln					1811	1292		1734	1436		1046	1520
Queue Service Time (g_s), s					7.2	29.2		40.9	4.7		10.8	21.7
Cycle Queue Clearance Time (g_c), s					7.2	29.2		40.9	4.7		10.8	21.7
Green Ratio (*g/C*)					0.28	0.28		0.62	0.62		0.62	0.62
Capacity (*c*), veh/h					503	717		3238	894		1303	946
Volume-to-Capacity Ratio (*X*)					0.278	0.908		0.784	0.127		0.263	0.446
Back of Queue (*Q*), ft/ln (95 th percentile)					143	403		418	55		125	350
Back of Queue (*Q*), veh/ln (95 th percentile)					5.7	14.9		15.7	2.1		4.8	13.3
Queue Storage Ratio (*RQ*) (95 th percentile)					0.17	0.95		1.05	0.12		0.25	0.61
Uniform Delay (d_1), s/veh					33.9	41.9		14.4	11.6		13.2	17.0
Incremental Delay (d_2), s/veh					0.1	6.8		0.2	0.0		0.5	1.5
Initial Queue Delay (d_3), s/veh					0.0	0.0		0.0	0.0		0.0	0.0
Control Delay (*d*), s/veh					34.0	48.7		14.6	11.6		13.7	18.6
Level of Service (LOS)					C	D		B	B		B	B
Approach Delay, s/veh / LOS	0.0			46.1		D	14.5		B	16.4		B
Intersection Delay, s/veh / LOS	20.8						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.47	B	2.47	B	2.07	B	1.37	A
Bicycle LOS Score / LOS			1.79	B	2.12	B	1.32	A

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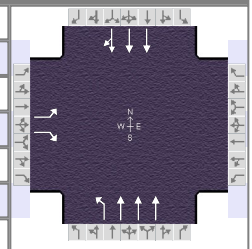
HCS Signalized Intersection Results Summary

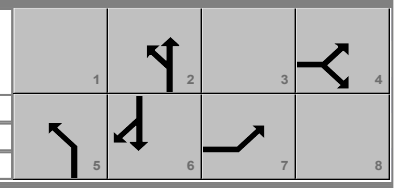
General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	11/12/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.88
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Innovation	File Name	PARCLO 2048 Build AM Peak.xus		
Project Description	2048 Build AM Peak				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	20		30				150	2860			840	20

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	118	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	7.0	86.5	8.5	0.0	0.0	0.0	
Yellow	4.0	4.0	4.0	0.0	0.0	0.0	
Red	2.0	2.0	2.0	0.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4			5	2		6
Case Number		9.0			1.0	4.0		8.3
Phase Duration, s		14.5			13.0	105.5		92.5
Change Period, ($Y+R_c$), s		6.0			6.0	6.0		6.0
Max Allow Headway (*MAH*), s		3.3			3.1	0.0		0.0
Queue Clearance Time (g_s), s		5.4			4.6			
Green Extension Time (g_e), s		0.1			0.3	0.0		0.0
Phase Call Probability		0.85			0.99			
Max Out Probability		0.00			0.00			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7		14				5	2			6	16
Adjusted Flow Rate (*v*), veh/h	23		34				159	3029			501	248
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1287		1145				1668	1591			1811	1788
Queue Service Time (g_s), s	2.0		3.4				2.6	25.8			15.6	4.2
Cycle Queue Clearance Time (g_c), s	2.0		3.4				2.6	25.8			15.6	4.2
Green Ratio (*g/C*)	0.07		0.07				0.80	0.83			0.72	0.72
Capacity (*c*), veh/h	91		81				551	3957			2612	1290
Volume-to-Capacity Ratio (*X*)	0.249		0.420				0.288	0.766			0.192	0.192
Back of Queue (*Q*), ft/ln (95 th percentile)	38		59				31	140			65	67
Back of Queue (*Q*), veh/ln (95 th percentile)	1.2		1.8				1.1	5.2			2.5	2.6
Queue Storage Ratio (*RQ*) (95 th percentile)	0.32		0.29				0.08	0.23			0.13	0.13
Uniform Delay (d_1), s/veh	52.7		53.4				4.4	2.5			4.0	4.0
Incremental Delay (d_2), s/veh	0.5		1.3				0.1	0.9			0.1	0.3
Initial Queue Delay (d_3), s/veh	0.0		0.0				0.0	0.0			0.0	0.0
Control Delay (*d*), s/veh	53.3		54.7				4.4	3.3			4.1	4.3
Level of Service (LOS)	D		D				A	A			A	A
Approach Delay, s/veh / LOS	54.1		D	0.0			3.4		A	4.2		A
Intersection Delay, s/veh / LOS	4.3						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.62	C	2.47	B	0.62	A	1.86	B
Bicycle LOS Score / LOS		F			2.37	B	1.03	A

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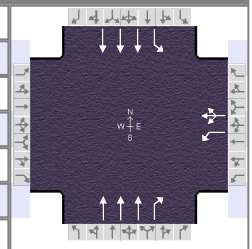
HCS Signalized Intersection Results Summary

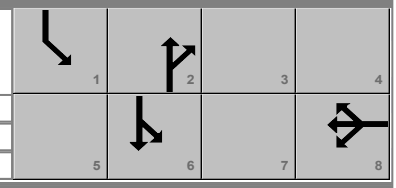
General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	11/12/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.80
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Beaver Rd	File Name	PARCLO 2048 Build AM Peak.xus		
Project Description	2048 Build AM Peak				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				160	0	50		1030	630	20	490	

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	8	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	3.8	86.8	11.4	0.0	0.0	0.0	
Yellow	4.0	4.0	4.0	0.0	0.0	0.0	
Red	2.0	2.0	2.0	0.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8		2	1	6
Case Number				10.0		7.3	1.0	4.0
Phase Duration, s				17.4		92.8	9.8	102.6
Change Period, ($Y+R_c$), s				6.0		6.0	6.0	6.0
Max Allow Headway (*MAH*), s				3.2		0.0	3.1	0.0
Queue Clearance Time (g_s), s				11.1			2.5	
Green Extension Time (g_e), s				0.3		0.0	0.0	0.0
Phase Call Probability				1.00			0.54	
Max Out Probability				0.02			0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3	8	18		2	12	1	6	
Adjusted Flow Rate (*v*), veh/h				140	123			1894	1158	24	576	
Adjusted Saturation Flow Rate (*s*), veh/h/ln				1810	1676			1187	1610	1372	1308	
Queue Service Time (g_s), s				9.1	8.7			24.5	83.7	0.5	2.2	
Cycle Queue Clearance Time (g_c), s				9.1	8.7			24.5	83.7	0.5	2.2	
Green Ratio (*g/C*)				0.10	0.10			0.72	0.72	0.77	0.80	
Capacity (*c*), veh/h				172	160			2574	1164	200	3158	
Volume-to-Capacity Ratio (*X*)				0.812	0.767			0.736	0.995	0.118	0.183	
Back of Queue (*Q*), ft/ln (95 th percentile)				191	183			168	408	6	23	
Back of Queue (*Q*), veh/ln (95 th percentile)				7.7	7.0			5.1	16.3	0.2	0.7	
Queue Storage Ratio (*RQ*) (95 th percentile)				0.32	0.41			0.17	0.51	0.02	0.03	
Uniform Delay (d_1), s/veh				53.2	55.8			4.1	8.0	6.2	1.3	
Incremental Delay (d_2), s/veh				3.5	2.9			1.1	18.6	0.1	0.1	
Initial Queue Delay (d_3), s/veh				0.0	0.0			0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh				56.7	58.7			5.2	26.6	6.3	1.4	
Level of Service (LOS)				E	E			A	C	A	A	
Approach Delay, s/veh / LOS	0.0			57.6		E	13.3		B	1.6		A
Intersection Delay, s/veh / LOS	14.5						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.62	C	2.62	C	1.86	B	1.31	A
Bicycle LOS Score / LOS			0.92	A	1.63	B	0.84	A

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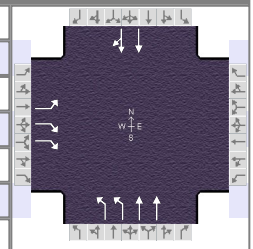
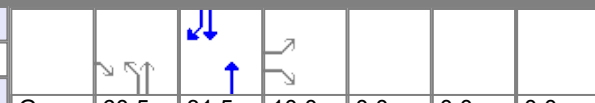
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	11/12/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.80
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Clover Valley Rd	File Name	PARCLO 2048 Build AM Peak.xus		
Project Description	2048 Build AM Peak				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	20		140				660	440			340	20

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	44	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



							1	2	3	4
Green	60.5	31.5	10.0	0.0	0.0	0.0	5	6	7	8
Yellow	4.0	4.0	4.0	0.0	0.0	0.0				
Red	2.0	2.0	2.0	0.0	0.0	0.0				

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4			5	2		6
Case Number		9.0			2.0	4.0		8.3
Phase Duration, s		16.0			66.5	104.0		37.5
Change Period, ($Y+R_c$), s		6.0			6.0	6.0		6.0
Max Allow Headway (*MAH*), s		3.3			3.1	0.0		0.0
Queue Clearance Time (g_s), s		7.2			60.0			
Green Extension Time (g_e), s		0.1			0.5	0.0		0.0
Phase Call Probability		1.00			1.00			
Max Out Probability		1.00			1.00			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7		14				5	2			6	16
Adjusted Flow Rate (*v*), veh/h	25		175				1174	783			227	223
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1160		914				1181	1216			1544	1514
Queue Service Time (g_s), s	2.4		5.2				58.0	4.4			15.3	15.3
Cycle Queue Clearance Time (g_c), s	2.4		5.2				58.0	4.4			15.3	15.3
Green Ratio (*g/C*)	0.08		0.59				0.50	0.82			0.26	0.26
Capacity (*c*), veh/h	97		1073				1191	1987			406	398
Volume-to-Capacity Ratio (*X*)	0.259		0.163				0.985	0.394			0.559	0.562
Back of Queue (*Q*), ft/ln (95 th percentile)	44		64				675	38			311	259
Back of Queue (*Q*), veh/ln (95 th percentile)	1.3		1.9				20.2	1.1			10.4	10.3
Queue Storage Ratio (*RQ*) (95 th percentile)	0.07		0.08				1.59	0.05			0.31	0.31
Uniform Delay (d_1), s/veh	51.5		11.3				20.3	1.0			38.2	38.3
Incremental Delay (d_2), s/veh	0.5		0.0				16.9	0.4			5.5	5.6
Initial Queue Delay (d_3), s/veh	0.0		0.0				0.0	0.0			0.0	0.0
Control Delay (*d*), s/veh	52.1		11.3				37.2	1.3			43.7	43.9
Level of Service (LOS)	D		B				D	A			D	D
Approach Delay, s/veh / LOS	16.4		B	0.0			22.9		C	43.8		D
Intersection Delay, s/veh / LOS	26.0						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.47	B	2.15	B	0.63	A	2.30	B
Bicycle LOS Score / LOS		F			1.62	B	0.86	A

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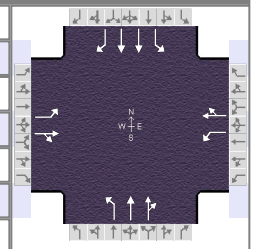
HCS Signalized Intersection Results Summary

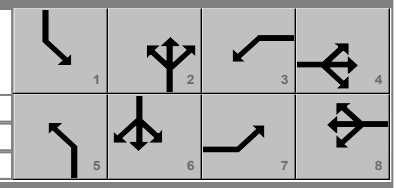
General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	11/12/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.86
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Worthington	File Name	PARCLO 2048 Build AM Peak.xus		
Project Description	2048 Build AM Peak				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	100	10	10	10	70	170	60	1090	20	70	240	160

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	6.3	57.4	2.2	5.8	24.3	0.0						
Yellow	4.0	4.0	4.0	0.0	4.0	0.0						
Red	2.0	2.0	2.0	0.0	2.0	0.0						



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	3.0
Phase Duration, s	14.0	36.0	8.2	30.3	12.3	63.4	12.3	63.4
Change Period, ($Y+R_c$), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Allow Headway (*MAH*), s	3.1	3.3	3.1	3.3	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s	9.7	3.6	2.7	23.6	4.3		4.4	
Green Extension Time (g_e), s	0.0	0.6	0.0	0.6	0.1	0.0	0.1	0.0
Phase Call Probability	0.98	1.00	0.32	1.00	0.90		0.90	
Max Out Probability	1.00	0.00	0.00	0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	116	23		12	279		70	647	643	70	240	160
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1414	1362		1626	1514		1753	1841	1829	1711	1710	1522
Queue Service Time (g_s), s	7.7	1.6		0.7	21.6		2.3	33.9	34.0	2.4	5.5	4.6
Cycle Queue Clearance Time (g_c), s	7.7	1.6		0.7	21.6		2.3	33.9	34.0	2.4	5.5	4.6
Green Ratio (*g/C*)	0.28	0.25		0.22	0.20		0.53	0.48	0.48	0.53	0.48	0.48
Capacity (*c*), veh/h	173	341		347	306		619	881	875	230	1637	728
Volume-to-Capacity Ratio (*X*)	0.670	0.068		0.034	0.912		0.113	0.735	0.735	0.305	0.147	0.220
Back of Queue (*Q*), ft/ln (95 th percentile)	166	29		13	363		42	568	549	46	107	72
Back of Queue (*Q*), veh/ln (95 th percentile)	5.4	0.9		0.5	13.2		1.6	22.0	22.0	1.8	4.0	2.7
Queue Storage Ratio (*RQ*) (95 th percentile)	0.51	0.06		0.04	0.73		0.07	1.14	1.13	0.15	0.17	0.29
Uniform Delay (d_1), s/veh	36.2	34.3		36.7	46.8		14.0	25.2	25.2	20.5	20.9	10.4
Incremental Delay (d_2), s/veh	7.9	0.0		0.0	4.4		0.0	5.4	5.5	0.3	0.2	0.7
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	44.1	34.4		36.7	51.2		14.0	30.6	30.6	20.8	21.1	11.1
Level of Service (LOS)	D	C		D	D		B	C	C	C	C	B
Approach Delay, s/veh / LOS	42.4	D		50.6	D		29.8	C		17.6	B	
Intersection Delay, s/veh / LOS	30.7						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.30	B	2.46	B	1.91	B	1.91	B
Bicycle LOS Score / LOS	0.72	A	0.97	A	1.61	B	0.94	A

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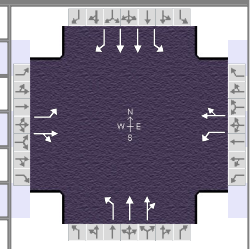
Mink Street (PARCLO Interchange) - PM Build

HCS Signalized Intersection Results Summary

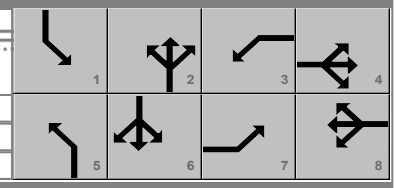
General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	11/12/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.91
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Worthington	File Name	PARCLO 2048 Build PM Peak.xus		
Project Description	2048 Build PM Peak				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	130	100	30	10	40	70	10	910	30	60	1290	270

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	1.7	3.7	42.7	1.7	0.2	10.0						
Yellow	4.0	0.0	4.0	4.0	4.0	4.0						
Red	2.0	0.0	2.0	2.0	2.0	2.0						



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	3.0
Phase Duration, s	13.9	22.2	7.7	16.0	7.7	48.7	11.3	52.4
Change Period, ($Y+R_c$), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Allow Headway (*MAH*), s	3.1	3.2	3.1	3.2	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s	8.1	8.4	2.5	8.3	2.3		3.4	
Green Extension Time (g_e), s	0.0	0.4	0.0	0.2	0.0	0.0	0.1	0.0
Phase Call Probability	0.97	1.00	0.24	1.00	0.24		0.76	
Max Out Probability	1.00	0.00	0.00	0.57	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	143	143		11	121		11	519	514	58	1236	259
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1781	1796		1767	1665		1781	1870	1849	1767	1766	1610
Queue Service Time (g_s), s	6.1	6.4		0.5	6.3		0.3	18.2	18.2	1.4	21.6	11.1
Cycle Queue Clearance Time (g_c), s	6.1	6.4		0.5	6.3		0.3	18.2	18.2	1.4	21.6	11.1
Green Ratio (*g/C*)	0.22	0.18		0.13	0.11		0.49	0.47	0.47	0.53	0.52	0.52
Capacity (*c*), veh/h	289	324		221	185		228	888	878	333	1822	830
Volume-to-Capacity Ratio (*X*)	0.494	0.441		0.050	0.654		0.048	0.585	0.585	0.173	0.679	0.312
Back of Queue (*Q*), ft/ln (95 th percentile)	118	125		10	122		5	318	310	23	285	237
Back of Queue (*Q*), veh/ln (95 th percentile)	4.6	4.9		0.4	4.7		0.2	12.5	12.4	0.9	11.1	9.5
Queue Storage Ratio (*RQ*) (95 th percentile)	0.36	0.25		0.03	0.24		0.01	0.64	0.63	0.08	0.47	0.95
Uniform Delay (d_1), s/veh	30.1	32.8		34.3	38.3		13.9	17.2	17.2	12.1	13.4	19.0
Incremental Delay (d_2), s/veh	0.5	0.4		0.0	2.8		0.0	2.8	2.8	0.1	1.5	0.7
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	30.6	33.2		34.4	41.2		13.9	20.0	20.0	12.1	14.9	19.7
Level of Service (LOS)	C	C		C	D		B	B	C	B	B	B
Approach Delay, s/veh / LOS	31.9	C		40.6	D		19.9	B		15.6	B	
Intersection Delay, s/veh / LOS	19.8						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.29	B	2.45	B	1.90	B	1.89	B
Bicycle LOS Score / LOS	0.96	A	0.71	A	1.35	A	1.96	B

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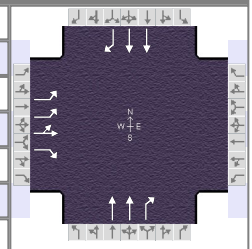
HCS Signalized Intersection Results Summary

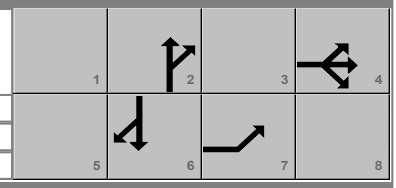
General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	11/12/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.97
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	EB SR-161	File Name	PARCLO 2048 Build PM Peak.xus		
Project Description	2048 Build PM Peak				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	600	0	180					1030	80		1440	520

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	32	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	54.0	24.0	0.0	0.0	0.0	0.0	
Yellow	4.0	4.0	0.0	0.0	0.0	0.0	
Red	2.0	2.0	0.0	0.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4				2		6
Case Number		9.0				7.0		7.0
Phase Duration, s		30.0				60.0		60.0
Change Period, ($Y+R_c$), s		6.0				6.0		6.0
Max Allow Headway (*MAH*), s		3.2				0.0		0.0
Queue Clearance Time (g_s), s		22.1						
Green Extension Time (g_e), s		1.9				0.0		0.0
Phase Call Probability		1.00						
Max Out Probability		0.00						

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14					2	12		6	16
Adjusted Flow Rate (*v*), veh/h	414	0	390					1132	88		1367	494
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1781	1776	1671					1630	1508		1761	1532
Queue Service Time (g_s), s	8.7	0.0	20.1					12.1	0.9		24.8	19.1
Cycle Queue Clearance Time (g_c), s	8.7	0.0	20.1					12.1	0.9		24.8	19.1
Green Ratio (*g/C*)	0.27	0.27	0.27					0.60	0.60		0.60	0.60
Capacity (*c*), veh/h	950	474	446					1956	905		2113	919
Volume-to-Capacity Ratio (*X*)	0.436	0.000	0.874					0.579	0.097		0.647	0.537
Back of Queue (*Q*), ft/ln (95 th percentile)	164	0	321					126	13		312	225
Back of Queue (*Q*), veh/ln (95 th percentile)	6.5	0.0	12.6					5.0	0.5		12.0	8.7
Queue Storage Ratio (*RQ*) (95 th percentile)	0.25	0.00	0.99					0.25	0.03		0.78	0.56
Uniform Delay (d_1), s/veh	27.4	0.0	31.6					5.1	3.0		14.1	13.0
Incremental Delay (d_2), s/veh	0.1	0.0	2.2					1.0	0.2		0.4	0.6
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0					0.0	0.0		0.0	0.0
Control Delay (*d*), s/veh	27.5	0.0	33.7					6.1	3.2		14.5	13.6
Level of Service (LOS)	C		C					A	A		B	B
Approach Delay, s/veh / LOS	30.5	C		0.0			5.9	A		14.3	B	
Intersection Delay, s/veh / LOS	15.0						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.31	B	2.31	B	1.36	A	2.24	B
Bicycle LOS Score / LOS	1.81	B			1.43	A	2.15	B

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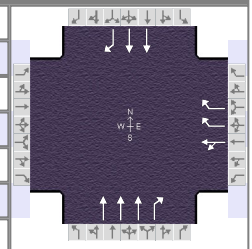
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	11/12/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.93
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	WB SR-161	File Name	PARCLO 2048 Build PM Peak.xus		
Project Description	2048 Build PM Peak				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				30	10	70		1500	130		1930	1170

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	51	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

								1	2	3	4
Green	68.5	9.5	0.0	0.0	0.0	0.0		5	6	7	8
Yellow	4.0	4.0	0.0	0.0	0.0	0.0					
Red	2.0	2.0	0.0	0.0	0.0	0.0					

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8		2		6
Case Number				11.0		7.0		7.0
Phase Duration, s				15.5		74.5		74.5
Change Period, ($Y+R_c$), s				6.0		6.0		6.0
Max Allow Headway (*MAH*), s				3.3		0.0		0.0
Queue Clearance Time (g_s), s				4.5				
Green Extension Time (g_e), s				0.3		0.0		0.0
Phase Call Probability				0.95				
Max Out Probability				0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3	8	18		2	12		6	16
Adjusted Flow Rate (*v*), veh/h					43	75		1611	140		1828	1108
Adjusted Saturation Flow Rate (*s*), veh/h/ln					1804	1244		1677	1493		1286	1641
Queue Service Time (g_s), s					2.0	2.5		12.6	1.6		34.0	8.8
Cycle Queue Clearance Time (g_c), s					2.0	2.5		12.6	1.6		34.0	8.8
Green Ratio (*g/C*)					0.11	0.11		0.76	0.76		0.76	0.76
Capacity (*c*), veh/h					190	262		3830	1137		1959	1249
Volume-to-Capacity Ratio (*X*)					0.226	0.287		0.421	0.123		0.934	0.887
Back of Queue (*Q*), ft/ln (95 th percentile)					39	36		159	16		119	104
Back of Queue (*Q*), veh/ln (95 th percentile)					1.5	1.4		6.2	0.6		4.5	4.0
Queue Storage Ratio (*RQ*) (95 th percentile)					0.05	0.09		0.40	0.04		0.24	0.18
Uniform Delay (d_1), s/veh					36.9	37.1		5.3	1.9		1.9	0.3
Incremental Delay (d_2), s/veh					0.2	0.2		0.3	0.2		5.9	5.6
Initial Queue Delay (d_3), s/veh					0.0	0.0		0.0	0.0		0.0	0.0
Control Delay (*d*), s/veh					37.1	37.4		5.6	2.1		7.9	5.9
Level of Service (LOS)					D	D		A	A		A	A
Approach Delay, s/veh / LOS	0.0			37.3		D	5.3		A	7.1		A
Intersection Delay, s/veh / LOS	7.2						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.46	B	2.46	B	2.03	B	1.32	A
Bicycle LOS Score / LOS			0.68	A	1.45	A	3.24	C

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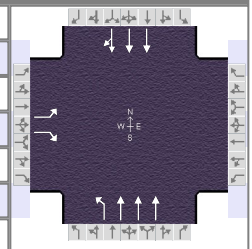
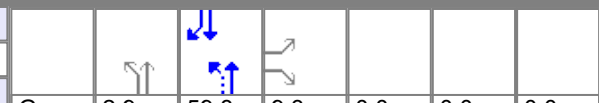
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	11/12/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Innovation	File Name	PARCLO 2048 Build PM Peak.xus		
Project Description	2048 Build PM Peak				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10		90				20	1550			3010	10

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	27	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



							1	2	3	4
Green	2.9	59.8	9.3	0.0	0.0	0.0	5	6	7	8
Yellow	4.0	4.0	4.0	0.0	0.0	0.0				
Red	2.0	2.0	2.0	0.0	0.0	0.0				

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4			5	2		6
Case Number		9.0			1.0	4.0		8.3
Phase Duration, s		15.3			8.9	74.7		65.8
Change Period, ($Y+R_c$), s		6.0			6.0	6.0		6.0
Max Allow Headway (*MAH*), s		3.3			3.1	0.0		0.0
Queue Clearance Time (g_s), s		7.5			2.3			
Green Extension Time (g_e), s		0.1			0.0	0.0		0.0
Phase Call Probability		0.93			0.42			
Max Out Probability		0.87			0.00			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7		14				5	2			6	16
Adjusted Flow Rate (*v*), veh/h	11		98				21	1665			1899	949
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1711		1522				1753	1671			1841	1837
Queue Service Time (g_s), s	0.5		5.5				0.3	12.3			80.7	26.9
Cycle Queue Clearance Time (g_c), s	0.5		5.5				0.3	12.3			80.7	26.9
Green Ratio (*g/C*)	0.10		0.10				0.72	0.76			0.66	0.66
Capacity (*c*), veh/h	178		158				137	3825			2444	1220
Volume-to-Capacity Ratio (*X*)	0.061		0.619				0.157	0.435			0.777	0.778
Back of Queue (*Q*), ft/ln (95 th percentile)	10		101				14	148			172	174
Back of Queue (*Q*), veh/ln (95 th percentile)	0.4		3.8				0.6	5.8			6.7	6.7
Queue Storage Ratio (*RQ*) (95 th percentile)	0.08		0.50				0.04	0.25			0.34	0.35
Uniform Delay (d_1), s/veh	36.4		38.6				24.5	4.7			6.6	6.6
Incremental Delay (d_2), s/veh	0.1		2.3				0.2	0.3			0.2	0.5
Initial Queue Delay (d_3), s/veh	0.0		0.0				0.0	0.0			0.0	0.0
Control Delay (*d*), s/veh	36.4		41.0				24.7	5.1			6.9	7.1
Level of Service (LOS)	D		D				C	A			A	A
Approach Delay, s/veh / LOS	40.5		D	0.0			5.3		A	6.9		A
Intersection Delay, s/veh / LOS	7.1						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.60	C	2.46	B	0.64	A	1.86	B
Bicycle LOS Score / LOS		F			1.43	A	2.29	B

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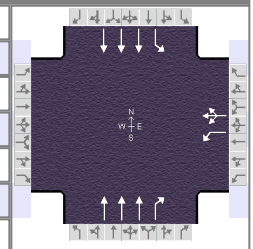
HCS Signalized Intersection Results Summary

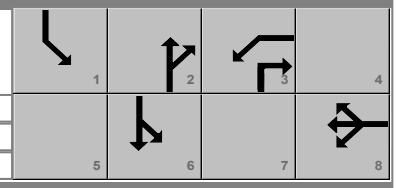
General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	11/12/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.80
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Beaver Rd	File Name	PARCLO 2048 Build PM Peak.xus		
Project Description	2048 Build PM Peak				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				710	0	40		670	210	10	2290	

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	22	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	1.6	45.4	25.0	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	2.0	2.0	2.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8		2	1	6
Case Number				10.0		7.3	1.0	4.0
Phase Duration, s				31.0		51.4	7.6	59.0
Change Period, (*Y+R c*), s				6.0		6.0	6.0	6.0
Max Allow Headway (*MAH*), s				3.3		0.0	3.1	0.0
Queue Clearance Time (*g s*), s				26.8			2.2	
Green Extension Time (*g e*), s				0.0		0.0	0.0	0.0
Phase Call Probability				1.00			0.23	
Max Out Probability				1.00			0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3	8	18		2	12	1	6	
Adjusted Flow Rate (*v*), veh/h				444	494			1276	400	10	2346	
Adjusted Saturation Flow Rate (*s*), veh/h/ln				1810	1789			1644	1610	1697	1618	
Queue Service Time (*g s*), s				21.1	24.8			10.5	4.3	0.2	31.0	
Cycle Queue Clearance Time (*g c*), s				21.1	24.8			10.5	4.3	0.2	31.0	
Green Ratio (*g/C*)				0.28	0.28			0.50	0.78	0.54	0.59	
Capacity (*c*), veh/h				503	497			2490	1260	270	2858	
Volume-to-Capacity Ratio (*X*)				0.883	0.993			0.512	0.317	0.038	0.821	
Back of Queue (*Q*), ft/ln (95 th percentile)				412	609			133	33	4	231	
Back of Queue (*Q*), veh/ln (95 th percentile)				16.5	24.4			5.1	1.3	0.2	8.7	
Queue Storage Ratio (*RQ*) (95 th percentile)				0.69	1.35			0.14	0.04	0.01	0.29	
Uniform Delay (*d 1*), s/veh				31.1	43.7			7.9	1.5	10.2	10.4	
Incremental Delay (*d 2*), s/veh				16.2	38.5			0.7	0.6	0.0	0.3	
Initial Queue Delay (*d 3*), s/veh				0.0	0.0			0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh				47.3	82.2			8.5	2.1	10.2	10.7	
Level of Service (LOS)				D	F			A	A	B	B	
Approach Delay, s/veh / LOS	0.0			65.7		E	7.0		A	10.7		B
Intersection Delay, s/veh / LOS	19.8						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.60	C	2.60	C	1.89	B	1.36	A
Bicycle LOS Score / LOS			2.03	B	1.09	A	2.07	B

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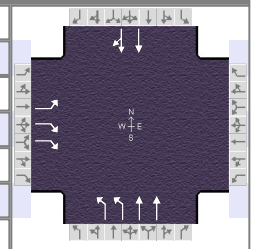
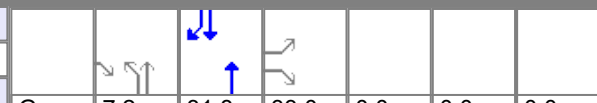
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	11/12/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.89
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Clover Valley Rd	File Name	PARCLO 2048 Build PM Peak.xus		
Project Description	2048 Build PM Peak				

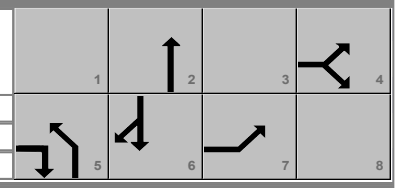


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	20		1180				110	640			1140	20

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	62	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	7.2		31.8	33.0	0.0	0.0	0.0					
Yellow	4.0		4.0	4.0	0.0	0.0	0.0					
Red	2.0		2.0	2.0	0.0	0.0	0.0					



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4			5	2		6
Case Number		9.0			2.0	4.0		8.3
Phase Duration, s		39.0			13.2	51.0		37.8
Change Period, ($Y+R_c$), s		6.0			6.0	6.0		6.0
Max Allow Headway (*MAH*), s		3.4			3.1	0.0		0.0
Queue Clearance Time (g_s), s		35.0			7.1			
Green Extension Time (g_e), s		0.0			0.2	0.0		0.0
Phase Call Probability		1.00			0.99			
Max Out Probability		1.00			0.39			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7		14				5	2			6	16
Adjusted Flow Rate (*v*), veh/h	22		1326				194	1131			653	650
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1711		1347				1661	1710			1737	1726
Queue Service Time (g_s), s	0.8		33.0				5.1	20.8			37.4	31.8
Cycle Queue Clearance Time (g_c), s	0.8		33.0				5.1	20.8			37.4	31.8
Green Ratio (*g/C*)	0.37		0.45				0.08	0.50			0.35	0.35
Capacity (*c*), veh/h	627		1203				265	1710			614	610
Volume-to-Capacity Ratio (*X*)	0.036		1.102				0.734	0.662			1.064	1.065
Back of Queue (*Q*), ft/ln (95 th percentile)	14		818				95	297			832	763
Back of Queue (*Q*), veh/ln (95 th percentile)	0.5		31.0				3.6	11.3			30.6	30.5
Queue Storage Ratio (*RQ*) (95 th percentile)	0.02		1.02				0.22	0.37			0.83	0.83
Uniform Delay (d_1), s/veh	18.3		24.9				38.5	14.5			29.1	29.1
Incremental Delay (d_2), s/veh	0.0		58.7				1.3	1.7			54.5	54.8
Initial Queue Delay (d_3), s/veh	0.0		0.0				0.0	0.0			0.0	0.0
Control Delay (*d*), s/veh	18.3		83.6				39.8	16.3			83.6	83.9
Level of Service (LOS)	B		F				D	B			F	F
Approach Delay, s/veh / LOS	82.5		F	0.0			19.7		B	83.8		F
Intersection Delay, s/veh / LOS	62.0						E					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.46	B	2.14	B	0.70	A	2.27	B
Bicycle LOS Score / LOS		F			1.18	A	1.56	B

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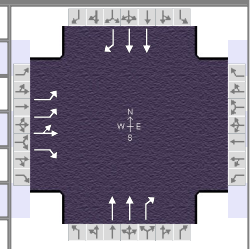
HCS Signalized Intersection Results Summary

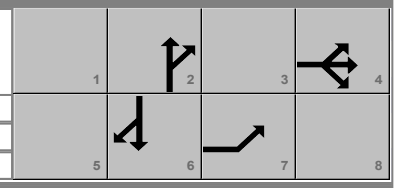
General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	11/12/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.97
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	EB SR-161	File Name	PARCLO 2048 Build PM Peak.xus		
Project Description	2048 Build PM Peak				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	600	0	180					1030	80		1440	520

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	32	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	54.0	24.0	0.0	0.0	0.0	0.0	
Yellow	4.0	4.0	0.0	0.0	0.0	0.0	
Red	2.0	2.0	0.0	0.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4				2		6
Case Number		9.0				7.0		7.0
Phase Duration, s		30.0				60.0		60.0
Change Period, ($Y+R_c$), s		6.0				6.0		6.0
Max Allow Headway (*MAH*), s		3.2				0.0		0.0
Queue Clearance Time (g_s), s		22.1						
Green Extension Time (g_e), s		1.9				0.0		0.0
Phase Call Probability		1.00						
Max Out Probability		0.00						

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14					2	12		6	16
Adjusted Flow Rate (*v*), veh/h	414	0	390					1132	88		1367	494
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1781	1776	1671					1630	1508		1761	1532
Queue Service Time (g_s), s	8.7	0.0	20.1					12.1	0.9		24.8	19.1
Cycle Queue Clearance Time (g_c), s	8.7	0.0	20.1					12.1	0.9		24.8	19.1
Green Ratio (*g/C*)	0.27	0.27	0.27					0.60	0.60		0.60	0.60
Capacity (*c*), veh/h	950	474	446					1956	905		2113	919
Volume-to-Capacity Ratio (*X*)	0.436	0.000	0.874					0.579	0.097		0.647	0.537
Back of Queue (*Q*), ft/ln (95 th percentile)	164	0	321					126	13		312	225
Back of Queue (*Q*), veh/ln (95 th percentile)	6.5	0.0	12.6					5.0	0.5		12.0	8.7
Queue Storage Ratio (*RQ*) (95 th percentile)	0.25	0.00	0.99					0.25	0.03		0.78	0.56
Uniform Delay (d_1), s/veh	27.4	0.0	31.6					5.1	3.0		14.1	13.0
Incremental Delay (d_2), s/veh	0.1	0.0	2.2					1.0	0.2		0.4	0.6
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0					0.0	0.0		0.0	0.0
Control Delay (*d*), s/veh	27.5	0.0	33.7					6.1	3.2		14.5	13.6
Level of Service (LOS)	C		C					A	A		B	B
Approach Delay, s/veh / LOS	30.5	C		0.0			5.9	A		14.3	B	
Intersection Delay, s/veh / LOS	15.0						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.31	B	2.31	B	1.36	A	2.24	B
Bicycle LOS Score / LOS	1.81	B			1.43	A	2.15	B

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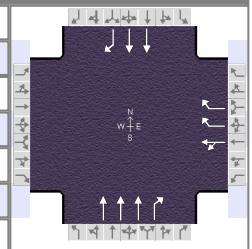
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	11/12/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.93
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	WB SR-161	File Name	PARCLO 2048 Build PM Peak.xus		
Project Description	2048 Build PM Peak				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				30	10	70		1500	130		1930	1170

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	51	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

								1	2	3	4
Green	68.5	9.5	0.0	0.0	0.0	0.0		5	6	7	8
Yellow	4.0	4.0	0.0	0.0	0.0	0.0					
Red	2.0	2.0	0.0	0.0	0.0	0.0					

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8		2		6
Case Number				11.0		7.0		7.0
Phase Duration, s				15.5		74.5		74.5
Change Period, ($Y+R_c$), s				6.0		6.0		6.0
Max Allow Headway (*MAH*), s				3.3		0.0		0.0
Queue Clearance Time (g_s), s				4.5				
Green Extension Time (g_e), s				0.3		0.0		0.0
Phase Call Probability				0.95				
Max Out Probability				0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3	8	18		2	12		6	16
Adjusted Flow Rate (*v*), veh/h					43	75		1611	140		1828	1108
Adjusted Saturation Flow Rate (*s*), veh/h/ln					1804	1244		1677	1493		1286	1641
Queue Service Time (g_s), s					2.0	2.5		12.6	1.6		34.0	8.8
Cycle Queue Clearance Time (g_c), s					2.0	2.5		12.6	1.6		34.0	8.8
Green Ratio (*g/C*)					0.11	0.11		0.76	0.76		0.76	0.76
Capacity (*c*), veh/h					190	262		3830	1137		1959	1249
Volume-to-Capacity Ratio (*X*)					0.226	0.287		0.421	0.123		0.934	0.887
Back of Queue (*Q*), ft/ln (95 th percentile)					39	36		159	16		119	104
Back of Queue (*Q*), veh/ln (95 th percentile)					1.5	1.4		6.2	0.6		4.5	4.0
Queue Storage Ratio (*RQ*) (95 th percentile)					0.05	0.09		0.40	0.04		0.24	0.18
Uniform Delay (d_1), s/veh					36.9	37.1		5.3	1.9		1.9	0.3
Incremental Delay (d_2), s/veh					0.2	0.2		0.3	0.2		5.9	5.6
Initial Queue Delay (d_3), s/veh					0.0	0.0		0.0	0.0		0.0	0.0
Control Delay (*d*), s/veh					37.1	37.4		5.6	2.1		7.9	5.9
Level of Service (LOS)					D	D		A	A		A	A
Approach Delay, s/veh / LOS	0.0			37.3		D	5.3		A	7.1		A
Intersection Delay, s/veh / LOS	7.2						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.46	B	2.46	B	2.03	B	1.32	A
Bicycle LOS Score / LOS			0.68	A	1.45	A	3.24	C

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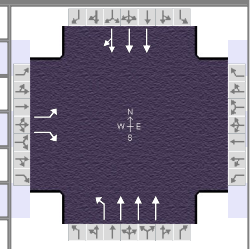
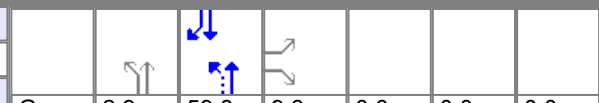
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	11/12/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.92
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Innovation	File Name	PARCLO 2048 Build PM Peak.xus		
Project Description	2048 Build PM Peak				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10		90				20	1550			3010	10

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	27	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



							1	2	3	4
Green	2.9	59.8	9.3	0.0	0.0	0.0	5	6	7	8
Yellow	4.0	4.0	4.0	0.0	0.0	0.0				
Red	2.0	2.0	2.0	0.0	0.0	0.0				

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4			5	2		6
Case Number		9.0			1.0	4.0		8.3
Phase Duration, s		15.3			8.9	74.7		65.8
Change Period, ($Y+R_c$), s		6.0			6.0	6.0		6.0
Max Allow Headway (*MAH*), s		3.3			3.1	0.0		0.0
Queue Clearance Time (g_s), s		7.5			2.3			
Green Extension Time (g_e), s		0.1			0.0	0.0		0.0
Phase Call Probability		0.93			0.42			
Max Out Probability		0.87			0.00			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7		14				5	2			6	16
Adjusted Flow Rate (*v*), veh/h	11		98				21	1665			1899	949
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1711		1522				1753	1671			1841	1837
Queue Service Time (g_s), s	0.5		5.5				0.3	12.3			80.7	26.9
Cycle Queue Clearance Time (g_c), s	0.5		5.5				0.3	12.3			80.7	26.9
Green Ratio (*g/C*)	0.10		0.10				0.72	0.76			0.66	0.66
Capacity (*c*), veh/h	178		158				137	3825			2444	1220
Volume-to-Capacity Ratio (*X*)	0.061		0.619				0.157	0.435			0.777	0.778
Back of Queue (*Q*), ft/ln (95 th percentile)	10		101				14	148			172	174
Back of Queue (*Q*), veh/ln (95 th percentile)	0.4		3.8				0.6	5.8			6.7	6.7
Queue Storage Ratio (*RQ*) (95 th percentile)	0.08		0.50				0.04	0.25			0.34	0.35
Uniform Delay (d_1), s/veh	36.4		38.6				24.5	4.7			6.6	6.6
Incremental Delay (d_2), s/veh	0.1		2.3				0.2	0.3			0.2	0.5
Initial Queue Delay (d_3), s/veh	0.0		0.0				0.0	0.0			0.0	0.0
Control Delay (*d*), s/veh	36.4		41.0				24.7	5.1			6.9	7.1
Level of Service (LOS)	D		D				C	A			A	A
Approach Delay, s/veh / LOS	40.5		D	0.0			5.3		A	6.9		A
Intersection Delay, s/veh / LOS	7.1						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.60	C	2.46	B	0.64	A	1.86	B
Bicycle LOS Score / LOS		F			1.43	A	2.29	B

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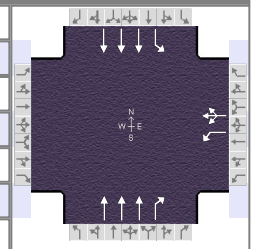
HCS Signalized Intersection Results Summary

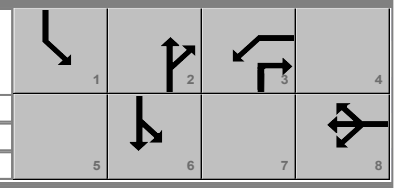
General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	11/12/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.80
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Beaver Rd	File Name	PARCLO 2048 Build PM Peak.xus		
Project Description	2048 Build PM Peak				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				710	0	40		670	210	10	2290	

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	22	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	1.6	45.4	25.0	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	2.0	2.0	2.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8		2	1	6
Case Number				10.0		7.3	1.0	4.0
Phase Duration, s				31.0		51.4	7.6	59.0
Change Period, (*Y+R c*), s				6.0		6.0	6.0	6.0
Max Allow Headway (*MAH*), s				3.3		0.0	3.1	0.0
Queue Clearance Time (*g s*), s				26.8			2.2	
Green Extension Time (*g e*), s				0.0		0.0	0.0	0.0
Phase Call Probability				1.00			0.23	
Max Out Probability				1.00			0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3	8	18		2	12	1	6	
Adjusted Flow Rate (*v*), veh/h				444	494			1276	400	10	2346	
Adjusted Saturation Flow Rate (*s*), veh/h/ln				1810	1789			1644	1610	1697	1618	
Queue Service Time (*g s*), s				21.1	24.8			10.5	4.3	0.2	31.0	
Cycle Queue Clearance Time (*g c*), s				21.1	24.8			10.5	4.3	0.2	31.0	
Green Ratio (*g/C*)				0.28	0.28			0.50	0.78	0.54	0.59	
Capacity (*c*), veh/h				503	497			2490	1260	270	2858	
Volume-to-Capacity Ratio (*X*)				0.883	0.993			0.512	0.317	0.038	0.821	
Back of Queue (*Q*), ft/ln (95 th percentile)				412	609			133	33	4	231	
Back of Queue (*Q*), veh/ln (95 th percentile)				16.5	24.4			5.1	1.3	0.2	8.7	
Queue Storage Ratio (*RQ*) (95 th percentile)				0.69	1.35			0.14	0.04	0.01	0.29	
Uniform Delay (*d 1*), s/veh				31.1	43.7			7.9	1.5	10.2	10.4	
Incremental Delay (*d 2*), s/veh				16.2	38.5			0.7	0.6	0.0	0.3	
Initial Queue Delay (*d 3*), s/veh				0.0	0.0			0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh				47.3	82.2			8.5	2.1	10.2	10.7	
Level of Service (LOS)				D	F			A	A	B	B	
Approach Delay, s/veh / LOS	0.0			65.7		E	7.0		A	10.7		B
Intersection Delay, s/veh / LOS	19.8						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.60	C	2.60	C	1.89	B	1.36	A
Bicycle LOS Score / LOS			2.03	B	1.09	A	2.07	B

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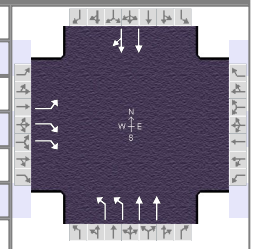
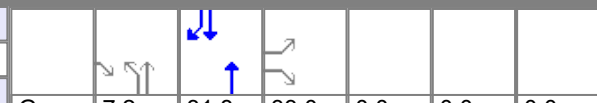
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	11/12/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.89
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Clover Valley Rd	File Name	PARCLO 2048 Build PM Peak.xus		
Project Description	2048 Build PM Peak				

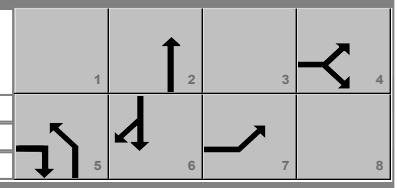


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	20		1180				110	640			1140	20

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	62	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	7.2		31.8	33.0	0.0	0.0	0.0					
Yellow	4.0		4.0	4.0	0.0	0.0	0.0					
Red	2.0		2.0	2.0	0.0	0.0	0.0					



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4			5	2		6
Case Number		9.0			2.0	4.0		8.3
Phase Duration, s		39.0			13.2	51.0		37.8
Change Period, ($Y+R_c$), s		6.0			6.0	6.0		6.0
Max Allow Headway (*MAH*), s		3.4			3.1	0.0		0.0
Queue Clearance Time (g_s), s		35.0			7.1			
Green Extension Time (g_e), s		0.0			0.2	0.0		0.0
Phase Call Probability		1.00			0.99			
Max Out Probability		1.00			0.39			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7		14				5	2			6	16
Adjusted Flow Rate (*v*), veh/h	22		1326				194	1131			653	650
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1711		1347				1661	1710			1737	1726
Queue Service Time (g_s), s	0.8		33.0				5.1	20.8			37.4	31.8
Cycle Queue Clearance Time (g_c), s	0.8		33.0				5.1	20.8			37.4	31.8
Green Ratio (*g/C*)	0.37		0.45				0.08	0.50			0.35	0.35
Capacity (*c*), veh/h	627		1203				265	1710			614	610
Volume-to-Capacity Ratio (*X*)	0.036		1.102				0.734	0.662			1.064	1.065
Back of Queue (*Q*), ft/ln (95 th percentile)	14		818				95	297			832	763
Back of Queue (*Q*), veh/ln (95 th percentile)	0.5		31.0				3.6	11.3			30.6	30.5
Queue Storage Ratio (*RQ*) (95 th percentile)	0.02		1.02				0.22	0.37			0.83	0.83
Uniform Delay (d_1), s/veh	18.3		24.9				38.5	14.5			29.1	29.1
Incremental Delay (d_2), s/veh	0.0		58.7				1.3	1.7			54.5	54.8
Initial Queue Delay (d_3), s/veh	0.0		0.0				0.0	0.0			0.0	0.0
Control Delay (*d*), s/veh	18.3		83.6				39.8	16.3			83.6	83.9
Level of Service (LOS)	B		F				D	B			F	F
Approach Delay, s/veh / LOS	82.5		F	0.0			19.7		B	83.8		F
Intersection Delay, s/veh / LOS	62.0						E					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.46	B	2.14	B	0.70	A	2.27	B
Bicycle LOS Score / LOS		F			1.18	A	1.56	B

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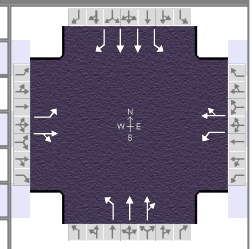
HCS Signalized Intersection Results Summary

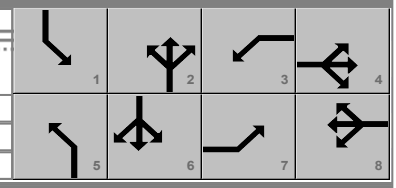
General Information				Intersection Information	
Agency				Duration, h	0.250
Analyst		Analysis Date	11/12/2024	Area Type	Other
Jurisdiction		Time Period		PHF	0.91
Urban Street	Mink St	Analysis Year	2024	Analysis Period	1> 7:00
Intersection	Worthington	File Name	PARCLO 2048 Build PM Peak.xus		
Project Description	2048 Build PM Peak				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	130	100	30	10	40	70	10	910	30	60	1290	270

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	1.7	3.7	42.7	1.7	0.2	10.0						
Yellow	4.0	0.0	4.0	4.0	4.0	4.0						
Red	2.0	0.0	2.0	2.0	2.0	2.0						



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	3.0
Phase Duration, s	13.9	22.2	7.7	16.0	7.7	48.7	11.3	52.4
Change Period, ($Y+R_c$), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Allow Headway (*MAH*), s	3.1	3.2	3.1	3.2	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s	8.1	8.4	2.5	8.3	2.3		3.4	
Green Extension Time (g_e), s	0.0	0.4	0.0	0.2	0.0	0.0	0.1	0.0
Phase Call Probability	0.97	1.00	0.24	1.00	0.24		0.76	
Max Out Probability	1.00	0.00	0.00	0.57	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	143	143		11	121		11	519	514	58	1236	259
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1781	1796		1767	1665		1781	1870	1849	1767	1766	1610
Queue Service Time (g_s), s	6.1	6.4		0.5	6.3		0.3	18.2	18.2	1.4	21.6	11.1
Cycle Queue Clearance Time (g_c), s	6.1	6.4		0.5	6.3		0.3	18.2	18.2	1.4	21.6	11.1
Green Ratio (*g/C*)	0.22	0.18		0.13	0.11		0.49	0.47	0.47	0.53	0.52	0.52
Capacity (*c*), veh/h	289	324		221	185		228	888	878	333	1822	830
Volume-to-Capacity Ratio (*X*)	0.494	0.441		0.050	0.654		0.048	0.585	0.585	0.173	0.679	0.312
Back of Queue (*Q*), ft/ln (95 th percentile)	118	125		10	122		5	318	310	23	285	237
Back of Queue (*Q*), veh/ln (95 th percentile)	4.6	4.9		0.4	4.7		0.2	12.5	12.4	0.9	11.1	9.5
Queue Storage Ratio (*RQ*) (95 th percentile)	0.36	0.25		0.03	0.24		0.01	0.64	0.63	0.08	0.47	0.95
Uniform Delay (d_1), s/veh	30.1	32.8		34.3	38.3		13.9	17.2	17.2	12.1	13.4	19.0
Incremental Delay (d_2), s/veh	0.5	0.4		0.0	2.8		0.0	2.8	2.8	0.1	1.5	0.7
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	30.6	33.2		34.4	41.2		13.9	20.0	20.0	12.1	14.9	19.7
Level of Service (LOS)	C	C		C	D		B	B	C	B	B	B
Approach Delay, s/veh / LOS	31.9	C		40.6	D		19.9	B		15.6	B	
Intersection Delay, s/veh / LOS	19.8						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.29	B	2.45	B	1.90	B	1.89	B
Bicycle LOS Score / LOS	0.96	A	0.71	A	1.35	A	1.96	B

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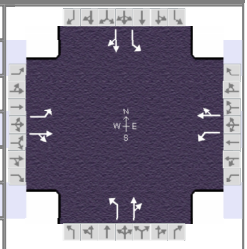
SR-310 - AM
No-Build

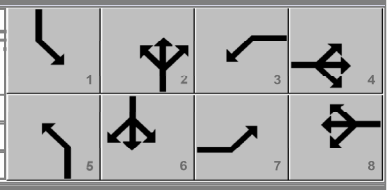
HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	AM Ex. Roadway	PHF	0.92
Urban Street	SR310	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR310 - Worthington	File Name	11A_AM_ExRoadway_SR310_Worthington_2048…		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	50	10	10	10	10	80	50	1170	10	10	600	50

Signal Information													
Cycle, s	132.6	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	Yes	Simult. Gap E/W	On										
Force Mode	Fixed	Simult. Gap N/S	On										
				Green	2.3	3.7	86.0	2.3	3.7	10.5			
				Yellow	4.0	0.0	4.0	4.0	0.0	4.0			
				Red	2.0	0.0	2.0	2.0	0.0	2.0			



Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	50	10	10	10	10	80	50	1170	10	10	600	50
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	19	19		0	0		8	8		8	8	
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (*W*), ft	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Turn Bay Length, ft	540	1670		550	4120		240	1820		250	670	
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h	55	55	55	55	55	55	55	55	55	55	55	55

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s	7.0	10.0	7.0	18.0	7.0	20.0	7.0	86.0
Yellow Change Interval (*Y*), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Red Clearance Interval (R_c), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Green (G_{min}), s	7	10	7	10	7	20	7	20
Start-Up Lost Time (*lt*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Recall Mode	Off	Off	Off	Off	Off	Max	Off	Max
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Walk (*Walk*), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

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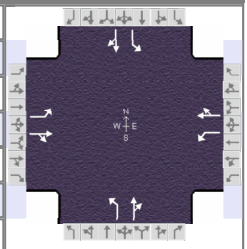
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	AM Ex. Roadway	PHF	0.92
Urban Street	SR310	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR310 - Worthington	File Name	11A_AM_ExRoadway_SR310_Worthington_2048…		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	50	10	10	10	10	80	50	1170	10	10	600	50

Signal Information			
Cycle, s	132.6	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	2.3	3.7	86.0	2.3	3.7	10.5	1	2	3	4		
Yellow	4.0	0.0	4.0	4.0	0.0	4.0	5	6	7	8		
Red	2.0	0.0	2.0	2.0	0.0	2.0						

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	4.0
Phase Duration, s	12.1	20.2	8.3	16.5	12.1	95.7	8.3	92.0
Change Period, ($Y+R_c$), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Allow Headway (*MAH*), s	2.9	3.1	2.9	3.1	2.9	2.8	2.9	2.8
Queue Clearance Time (g_s), s	6.6	3.9	2.8	10.5	3.5	91.7	2.3	38.1
Green Extension Time (g_e), s	0.0	0.1	0.0	0.1	0.0	0.0	0.0	5.4
Phase Call Probability	0.86	1.00	0.33	0.99	0.86	1.00	0.33	1.00
Max Out Probability	1.00	0.03	0.04	0.00	0.36	1.00	0.01	0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	54	22		11	98		54	1283		11	707	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1420	1368		1667	1509		1563	1638		1563	1618	
Queue Service Time (g_s), s	4.6	1.9		0.8	8.5		1.5	89.7		0.3	36.1	
Cycle Queue Clearance Time (g_c), s	4.6	1.9		0.8	8.5		1.5	89.7		0.3	36.1	
Green Ratio (*g/C*)	0.12	0.11		0.10	0.08		0.69	0.68		0.67	0.65	
Capacity (*c*), veh/h	136	147		193	119		392	1109		82	1050	
Volume-to-Capacity Ratio (*X*)	0.399	0.148		0.056	0.821		0.139	1.157		0.133	0.673	
Back of Queue (*Q*), ft/ln (95 th percentile)	84	33		14	148		20	1921		11	477	
Back of Queue (*Q*), veh/ln (95 th percentile)	2.9	1.2		0.6	5.9		0.7	72.2		0.4	17.9	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.16	0.02		0.03	0.04		0.08	1.06		0.04	0.71	
Uniform Delay (d_1), s/veh	53.1	53.7		54.5	60.1		11.7	21.4		35.3	14.5	
Incremental Delay (d_2), s/veh	0.7	0.2		0.0	5.2		0.1	80.9		0.3	3.4	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh	53.8	53.9		54.5	65.4		11.8	102.3		35.6	18.0	
Level of Service (LOS)	D	D		D	E		B	F		D	B	
Approach Delay, s/veh / LOS	53.8	D		64.3	E		98.6	F		18.2	B	
Intersection Delay, s/veh / LOS	69.7						E					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.96	B	1.96	B	1.88	B	1.88	B
Bicycle LOS Score / LOS	0.61	A	0.67	A	2.69	C	1.67	B

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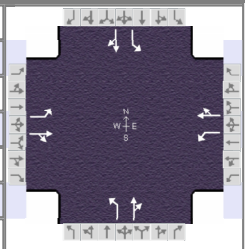
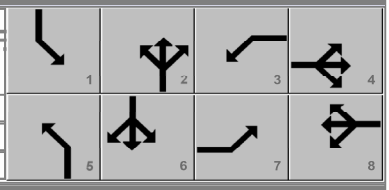
HCS Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	AM Ex. Roadway	PHF	0.92
Urban Street	SR310	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR310 - Worthington	File Name	11A_AM_ExRoadway_SR310_Worthington_2048…		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	50	10	10	10	10	80	50	1170	10	10	600	50

Signal Information												
Cycle, s	132.6	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	Yes	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
				Green	2.3	3.7	86.0	2.3	3.7	10.5		
				Yellow	4.0	0.0	4.0	4.0	0.0	4.0		
				Red	2.0	0.0	2.0	2.0	0.0	2.0		



Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	0.852	0.852	1.000	1.000	1.000	1.000	0.938	0.938	1.000	0.938	0.938	1.000
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.952	0.000		0.952	0.000		0.952	0.000		0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.917	0.917		0.862	0.862		0.998	0.998		0.986	0.986
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000			1.000			1.000			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Prot. CAV Adj. Factor ($f_{CAV,prot}$)	1.00			1.00			1.00			1.00		
Left-Turn Perm. CAV Adj. Factor ($f_{CAV,perm}$)												
Movement Saturation Flow Rate (s), veh/h	1420	684	684	1667	168	1341	1563	1624	14	1563	1494	124
Proportion of Vehicles Arriving on Green (P)	0.05	0.11	0.11	0.02	0.08	0.08	0.05	0.68	0.68	0.02	0.65	0.65
Incremental Delay Factor (k)	0.04	0.04		0.04	0.04		0.04	0.50		0.04	0.50	

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Green Ratio (g/C)	0.12	0.11	0.10	0.08	0.69	0.68	0.67	0.65
Permitted Saturation Flow Rate (s_p), veh/h/ln	1123	0	1412	0	706	0	410	0
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								
Permitted Effective Green Time (g_p), s	10.5	0.0	10.5	0.0	86.0	0.0	86.0	0.0
Permitted Service Time (g_u), s	2.0	0.0	10.3	0.0	49.9	0.0	0.0	0.0
Permitted Queue Service Time (g_{ps}), s	0.4		0.0		3.0		0.0	
Time to First Blockage (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln								
Protected Right Effective Green Time (g_R), s								

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.198	0.000	1.198	0.000	1.198	0.000	1.198	0.000
Pedestrian F_s / F_{delay}	0.000	0.159	0.000	0.162	0.000	0.078	0.000	0.084
Pedestrian M_{corner} / M_{cw}	0.00		0.00		0.00		0.00	
Bicycle c_b / d_b	214.36	52.84	157.87	56.23	1353.87	6.92	1297.40	8.18
Bicycle F_w / F_v	-3.64	0.13	-3.64	0.18	-3.64	2.21	-3.64	1.18

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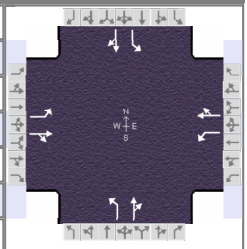
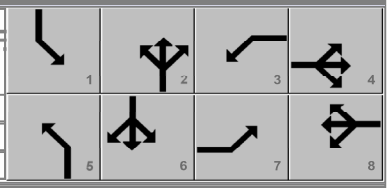
HCS Signalized Intersection Results Graphical Summary

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	AM Ex. Roadway	PHF	0.92
Urban Street	SR310	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR310 - Worthington	File Name	11A_AM_ExRoadway_SR310_Worthington_2048…		
Project Description	FRA/LIC-161-22.1/0.00				

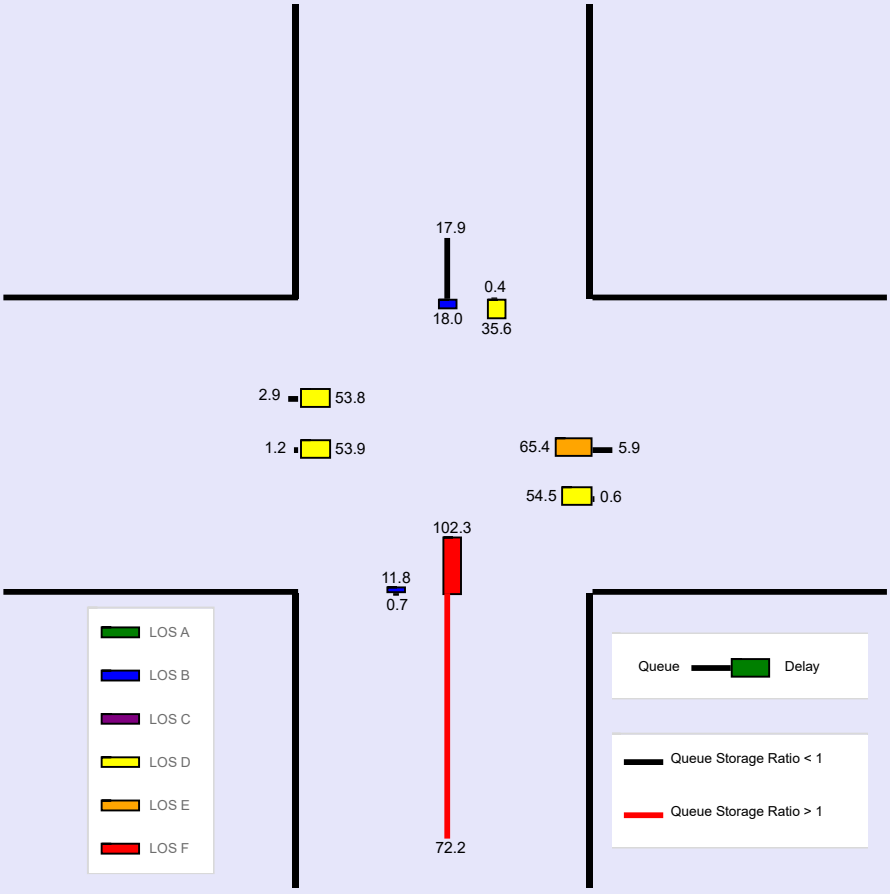


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	50	10	10	10	10	80	50	1170	10	10	600	50

Signal Information													
Cycle, s	132.6	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	Yes	Simult. Gap E/W	On	Green	2.3	3.7	86.0	2.3	3.7	10.5			
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	0.0	4.0	4.0	0.0	4.0			
				Red	2.0	0.0	2.0	2.0	0.0	2.0			



Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)	84	33		14	148		20	1921		11	477	
Back of Queue (*Q*), veh/ln (95 th percentile)	2.9	1.2		0.6	5.9		0.7	72.2		0.4	17.9	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.16	0.02		0.03	0.04		0.08	1.06		0.04	0.71	
Control Delay (*d*), s/veh	53.8	53.9		54.5	65.4		11.8	102.3		35.6	18.0	
Level of Service (LOS)	D	D		D	E		B	F		D	B	
Approach Delay, s/veh / LOS	53.8	D		64.3	E		98.6	F		18.2	B	
Intersection Delay, s/veh / LOS	69.7						E					



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--- Messages ---

WARNING: Since queue spillover from turn lanes and spillback into upstream intersections is not accounted for in the HCM procedures, use of a simulation tool may be advised in situations where the Queue Storage Ratio exceeds 1.0.

WARNING: If demand exceeds capacity, a multiple-period analysis should be conducted.

--- Comments ---

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HCS Two-Way Stop-Control Report

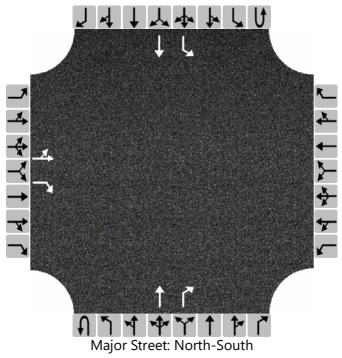
General Information

Analyst	SED
Agency/Co.	Michael Baker Intl.
Date Performed	7/19/2024
Analysis Year	2048
Time Analyzed	AM Ex. Roadway
Intersection Orientation	North-South
Project Description	FRA/LIC-161-22.1/0.00

Site Information

Intersection	SR310 - SR161 EB Ramp
Jurisdiction	ODOT D05
East/West Street	SR161 EB Ramp
North/South Street	SR 310
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	1		0	0	0	0	0	1	1	0	1	1	0
Configuration		LT		R							T	R		L	T	
Volume (veh/h)		110	10	200							1270	30		100	460	
Percent Heavy Vehicles (%)		7	7	7										10		
Proportion Time Blocked		0.000	0.000	0.000										0.000		
Percent Grade (%)		0														
Right Turn Channelized		No								No						
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2										4.1		
Critical Headway (sec)		7.17	6.57	6.27										4.20		
Base Follow-Up Headway (sec)		3.5	4.0	3.3										2.2		
Follow-Up Headway (sec)		3.56	4.06	3.36										2.29		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		130		217										109		
Capacity, c (veh/h)		28		561										458		
v/c Ratio		4.68		0.39										0.24		
95% Queue Length, Q_{95} (veh)		15.9		1.8										0.9		
95% Queue Length, Q_{95} (ft)		419.8		47.5										24.3		
Control Delay (s/veh)		1939.4		15.4										15.3		
Level of Service (LOS)		F		C										C		
Approach Delay (s/veh)		736.9												2.7		
Approach LOS		F												A		

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HCS Two-Way Stop-Control Report

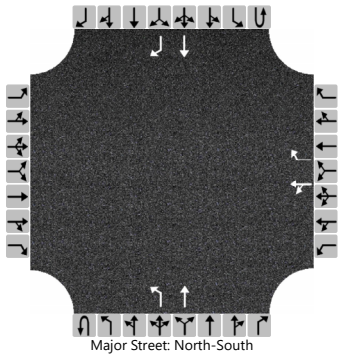
General Information

Analyst	SED
Agency/Co.	Michael Baker Intl.
Date Performed	7/19/2024
Analysis Year	2048
Time Analyzed	AM Ex. Roadway
Intersection Orientation	North-South
Project Description	FRA/LIC-161-22.1/0.00

Site Information

Intersection	SR310 - SR161 WB Ramp
Jurisdiction	ODOT D05
East/West Street	SR161 WB Ramp
North/South Street	SR 310
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	1	0	1	1	0	0	0	1	1
Configuration						LT		R		L	T				T	R
Volume (veh/h)						60	10	680		540	840				500	170
Percent Heavy Vehicles (%)						8	8	8		7						
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized						No								No		
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1	6.5	6.2		4.1						
Critical Headway (sec)						7.18	6.58	6.28		4.17						
Base Follow-Up Headway (sec)						3.5	4.0	3.3		2.2						
Follow-Up Headway (sec)						3.57	4.07	3.37		2.26						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						76		739		587						
Capacity, c (veh/h)						4		323		853						
v/c Ratio						18.40		2.29		0.69						
95% Queue Length, Q_{95} (veh)						11.5		56.9		5.7						
95% Queue Length, Q_{95} (ft)						305.9		1513.5		150.5						
Control Delay (s/veh)						9536.3		615.0		18.0						
Level of Service (LOS)						F		F		C						
Approach Delay (s/veh)						1447.6				7.0						
Approach LOS						F				A						

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HCS Two-Way Stop-Control Report

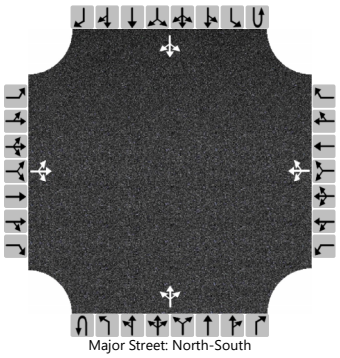
General Information

Analyst	SED
Agency/Co.	Michael Baker Intl.
Date Performed	7/19/2024
Analysis Year	2048
Time Analyzed	AM Ex. Roadway
Intersection Orientation	North-South
Project Description	FRA/LIC-161-22.1/0.00

Site Information

Intersection	SR310 - Jersey Mill
Jurisdiction	ODOT D05
East/West Street	Jersey Mill Road
North/South Street	SR 310
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		30	10	120		80	10	30		620	800	100		50	470	10
Percent Heavy Vehicles (%)		10	10	10		15	15	15		6				6		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.20	6.60	6.30		7.25	6.65	6.35		4.16				4.16		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.59	4.09	3.39		3.64	4.14	3.44		2.25				2.25		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			174				130			674				54		
Capacity, c (veh/h)			0				0			1025				690		
v/c Ratio										0.66				0.08		
95% Queue Length, Q_{95} (veh)										5.2				0.3		
95% Queue Length, Q_{95} (ft)										130.0				7.5		
Control Delay (s/veh)										15.0	15.0	15.0		10.7	1.2	1.2
Level of Service (LOS)										B	B	B		B	A	A
Approach Delay (s/veh)									15.0				2.1			
Approach LOS									B				A			

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HCS Two-Way Stop-Control Report

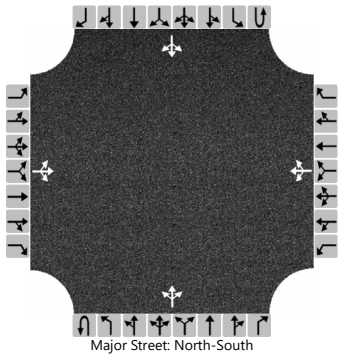
General Information

Analyst	SED
Agency/Co.	Michael Baker Intl.
Date Performed	7/19/2024
Analysis Year	2048
Time Analyzed	AM Ex. Roadway
Intersection Orientation	North-South
Project Description	FRA/LIC-161-22.1/0.00

Site Information

Intersection	SR310 - Jug St
Jurisdiction	ODOT D05
East/West Street	Jug Street
North/South Street	SR 310
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		10	10	30		10	10	10		30	820	10		10	490	150
Percent Heavy Vehicles (%)		10	10	10		15	15	15		6				6		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.20	6.60	6.30		7.25	6.65	6.35		4.16				4.16		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.59	4.09	3.39		3.64	4.14	3.44		2.25				2.25		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			54				33			33				11		
Capacity, c (veh/h)			149				91			882				737		
v/c Ratio			0.36				0.36			0.04				0.01		
95% Queue Length, Q_{95} (veh)			1.5				1.4			0.1				0.0		
95% Queue Length, Q_{95} (ft)			40.5				39.2			2.5				0.0		
Control Delay (s/veh)			42.3				65.2			9.2	0.7	0.7		10.0	0.2	0.2
Level of Service (LOS)			E				F			A	A	A		A	A	A
Approach Delay (s/veh)	42.3				65.2				1.0				0.4			
Approach LOS	E				F				A				A			

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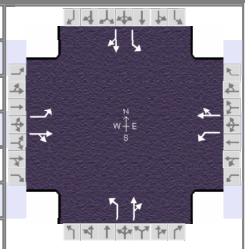
SR-310 - PM
No-Build

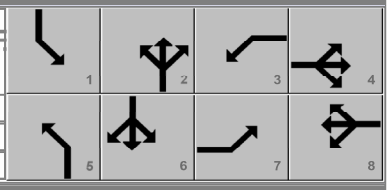
HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	PM Ex. Roadway	PHF	0.92
Urban Street	SR310	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR310 - Worthington	File Name	11A_PM_ExRoadway_SR310_Worthington_2048…		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	90	30	50	10	10	20	30	640	10	110	1570	50

Signal Information												
Cycle, s	200.9	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	Yes	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
				Green	5.9	1.1	151.9	3.2	4.8	10.0		
				Yellow	4.0	0.0	4.0	4.0	0.0	4.0		
				Red	2.0	0.0	2.0	2.0	0.0	2.0		



Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	90	30	50	10	10	20	30	640	10	110	1570	50
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	3	3		0	0		6	6		2	2	
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (*W*), ft	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Turn Bay Length, ft	540	1670		550	4120		240	1820		250	670	
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h	55	55	55	55	55	55	55	55	55	55	55	55

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s	8.0	23.0	7.0	10.0	7.0	20.0	7.0	153.0
Yellow Change Interval (*Y*), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Red Clearance Interval (R_c), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Green (G_{min}), s	7	10	7	10	7	20	7	20
Start-Up Lost Time (*lt*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Recall Mode	Off	Off	Off	Off	Off	Max	Off	Max
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Walk (*Walk*), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

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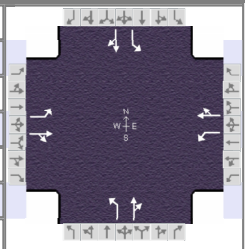
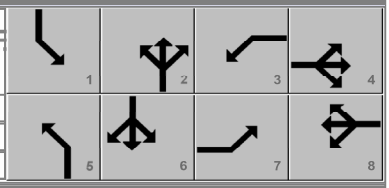
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	PM Ex. Roadway	PHF	0.92
Urban Street	SR310	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR310 - Worthington	File Name	11A_PM_ExRoadway_SR310_Worthington_2048…		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	90	30	50	10	10	20	30	640	10	110	1570	50

Signal Information												
Cycle, s	200.9	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	Yes	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
				Green	5.9	1.1	151.9	3.2	4.8	10.0		
				Yellow	4.0	0.0	4.0	4.0	0.0	4.0		
				Red	2.0	0.0	2.0	2.0	0.0	2.0		



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	4.0
Phase Duration, s	14.0	20.8	9.2	16.0	11.9	157.9	13.0	159.0
Change Period, ($Y+R_c$), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Allow Headway (*MAH*), s	2.9	3.1	2.9	3.1	2.9	2.8	2.9	2.8
Queue Clearance Time (g_s), s	10.0	13.2	3.2	6.1	2.9	38.2	5.3	155.0
Green Extension Time (g_e), s	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0
Phase Call Probability	1.00	1.00	0.45	1.00	0.84	1.00	1.00	1.00
Max Out Probability	1.00	0.00	0.12	0.34	0.10	1.00	1.00	1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	98	87		11	33		33	707		120	1761	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1628	1536		1667	1563		1589	1663		1641	1713	
Queue Service Time (g_s), s	8.0	11.2		1.2	4.1		0.9	36.2		3.3	153.0	
Cycle Queue Clearance Time (g_c), s	8.0	11.2		1.2	4.1		0.9	36.2		3.3	153.0	
Green Ratio (*g/C*)	0.09	0.07		0.07	0.05		0.79	0.76		0.79	0.76	
Capacity (*c*), veh/h	141	113		73	78		82	1258		520	1305	
Volume-to-Capacity Ratio (*X*)	0.694	0.768		0.149	0.419		0.397	0.562		0.230	1.349	
Back of Queue (*Q*), ft/ln (95 th percentile)	85	205		24	75		60	476		46	4090	
Back of Queue (*Q*), veh/ln (95 th percentile)	3.3	8.0		1.0	3.0		2.3	18.2		1.8	161.0	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.16	0.12		0.04	0.02		0.25	0.26		0.18	6.10	
Uniform Delay (d_1), s/veh	89.4	91.3		88.4	92.6		62.1	10.4		8.6	23.9	
Incremental Delay (d_2), s/veh	11.7	4.1		0.3	1.3		1.1	1.8		0.1	162.4	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh	101.1	95.4		88.8	94.0		63.3	12.2		8.7	186.3	
Level of Service (LOS)	F	F		F	F		E	B		A	F	
Approach Delay, s/veh / LOS	98.4	F		92.7	F		14.5	B		175.0	F	
Intersection Delay, s/veh / LOS	127.1						F					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.98	B	1.98	B	1.87	B	1.87	B
Bicycle LOS Score / LOS	0.79	A	0.56	A	1.71	B	3.59	D

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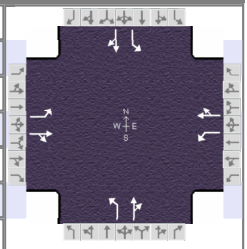
HCS Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	PM Ex. Roadway	PHF	0.92
Urban Street	SR310	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR310 - Worthington	File Name	11A_PM_ExRoadway_SR310_Worthington_2048…		
Project Description	FRA/LIC-161-22.1/0.00				

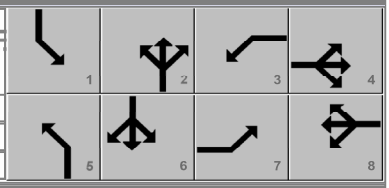


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	90	30	50	10	10	20	30	640	10	110	1570	50

Signal Information			
Cycle, s	200.9	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	5.9	1.1	151.9	3.2	4.8	10.0
Yellow	4.0	0.0	4.0	4.0	0.0	4.0
Red	2.0	0.0	2.0	2.0	0.0	2.0



Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	0.977	0.977	1.000	1.000	1.000	1.000	0.953	0.953	1.000	0.984	0.984	1.000
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.952	0.000		0.952	0.000		0.952	0.000		0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.899	0.899		0.893	0.893		0.997	0.997		0.994	0.994
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000			1.000			1.000			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Prot. CAV Adj. Factor ($f_{CAV,prot}$)	1.00			1.00			1.00			1.00		
Left-Turn Perm. CAV Adj. Factor ($f_{CAV,perm}$)												
Movement Saturation Flow Rate (s), veh/h	1628	576	960	1667	521	1042	1589	1638	26	1641	1660	53
Proportion of Vehicles Arriving on Green (P)	0.04	0.07	0.07	0.02	0.05	0.05	0.03	0.76	0.76	0.03	0.76	0.76
Incremental Delay Factor (k)	0.22	0.04		0.04	0.04		0.04	0.50		0.04	0.50	

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Green Ratio (g/C)	0.09	0.07	0.07	0.05	0.79	0.76	0.79	0.76
Permitted Saturation Flow Rate (s_p), veh/h/ln	1365	0	1331	0	263	0	742	0
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								
Permitted Effective Green Time (g_p), s	10.8	0.0	10.0	0.0	151.9	0.0	151.9	0.0
Permitted Service Time (g_u), s	5.9	0.0	1.7	0.0	0.0	0.0	115.6	0.0
Permitted Queue Service Time (g_{ps}), s	4.8		0.1		0.0		7.0	
Time to First Blockage (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln								
Protected Right Effective Green Time (g_R), s								

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.198	0.000	1.198	0.000	1.198	0.000	1.198	0.000
Pedestrian F_s / F_{delay}	0.000	0.179	0.000	0.181	0.000	0.072	0.000	0.070
Pedestrian M_{corner} / M_{cw}	0.00		0.00		0.00		0.00	
Bicycle c_b / d_b	147.47	86.17	99.50	90.68	1512.21	5.97	1523.46	5.70
Bicycle F_w / F_v	-3.64	0.30	-3.64	0.07	-3.64	1.22	-3.64	3.10

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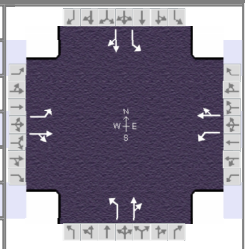
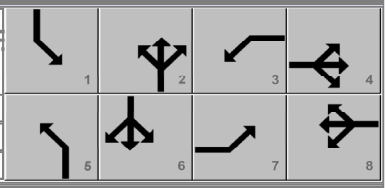
HCS Signalized Intersection Results Graphical Summary

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	PM Ex. Roadway	PHF	0.92
Urban Street	SR310	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR310 - Worthington	File Name	11A_PM_ExRoadway_SR310_Worthington_2048…		
Project Description	FRA/LIC-161-22.1/0.00				

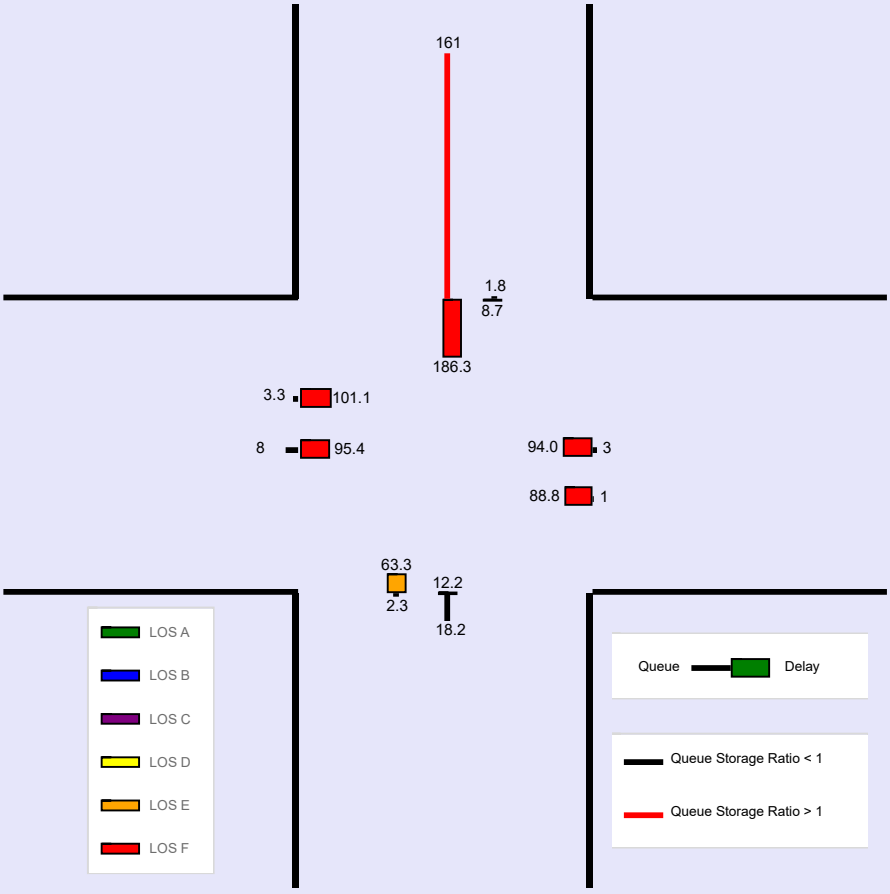


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	90	30	50	10	10	20	30	640	10	110	1570	50

Signal Information					EB			WB			NB			SB		
Cycle, s	200.9	Reference Phase	2		L	T	R	L	T	R	L	T	R	L	T	R
Offset, s	0	Reference Point	End	Green	5.9	1.1		151.9	3.2	4.8	10.0					
Uncoordinated	Yes	Simult. Gap E/W	On	Yellow	4.0	0.0		4.0	4.0	0.0	4.0					
Force Mode	Fixed	Simult. Gap N/S	On	Red	2.0	0.0		2.0	2.0	0.0	2.0					



Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)	85	205		24	75		60	476		46	4090	
Back of Queue (*Q*), veh/ln (95 th percentile)	3.3	8.0		1.0	3.0		2.3	18.2		1.8	161.0	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.16	0.12		0.04	0.02		0.25	0.26		0.18	6.10	
Control Delay (*d*), s/veh	101.1	95.4		88.8	94.0		63.3	12.2		8.7	186.3	
Level of Service (LOS)	F	F		F	F		E	B		A	F	
Approach Delay, s/veh / LOS	98.4		F	92.7		F	14.5		B	175.0		F
Intersection Delay, s/veh / LOS	127.1						F					



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--- Messages ---

WARNING: Since queue spillover from turn lanes and spillback into upstream intersections is not accounted for in the HCM procedures, use of a simulation tool may be advised in situations where the Queue Storage Ratio exceeds 1.0.

WARNING: If demand exceeds capacity, a multiple-period analysis should be conducted.

--- Comments ---

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HCS Two-Way Stop-Control Report

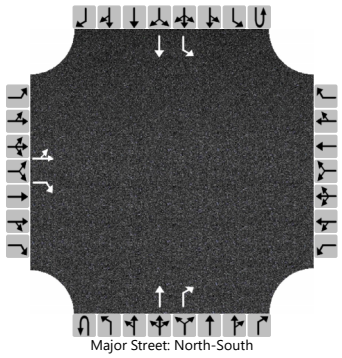
General Information

Analyst	SED
Agency/Co.	Michael Baker Intl.
Date Performed	7/19/2024
Analysis Year	2048
Time Analyzed	PM Ex. Roadway
Intersection Orientation	North-South
Project Description	FRA/LIC-161-22.1/0.00

Site Information

Intersection	SR310 - SR161 EB Ramp
Jurisdiction	ODOT D05
East/West Street	SR161 EB Ramp
North/South Street	SR 310
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	1		0	0	0	0	0	1	1	0	1	1	0
Configuration		LT		R							T	R		L	T	
Volume (veh/h)		110	10	560							680	70		350	1170	
Percent Heavy Vehicles (%)		2	2	2										2		
Proportion Time Blocked		0.000	0.000	0.000										0.000		
Percent Grade (%)		0														
Right Turn Channelized		No								No						
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2										4.1		
Critical Headway (sec)		7.12	6.52	6.22										4.12		
Base Follow-Up Headway (sec)		3.5	4.0	3.3										2.2		
Follow-Up Headway (sec)		3.52	4.02	3.32										2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		130		609										380		
Capacity, c (veh/h)		6		205										812		
v/c Ratio		20.60		2.97										0.47		
95% Queue Length, Q_{95} (veh)		18.2		54.7										2.5		
95% Queue Length, Q_{95} (ft)		462.3		1389.4										63.5		
Control Delay (s/veh)		9956.7		936.5										13.3		
Level of Service (LOS)		F		F										B		
Approach Delay (s/veh)		2528.3												3.1		
Approach LOS		F												A		

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HCS Two-Way Stop-Control Report

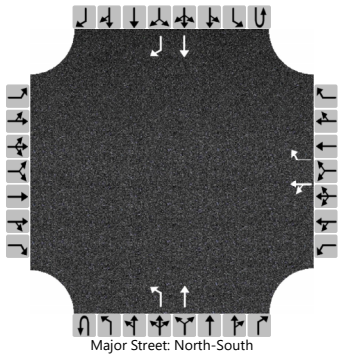
General Information

Analyst	SED
Agency/Co.	Michael Baker Intl.
Date Performed	7/19/2024
Analysis Year	2048
Time Analyzed	PM Ex. Roadway
Intersection Orientation	North-South
Project Description	FRA/LIC-161-22.1/0.00

Site Information

Intersection	SR310 - SR161 WB Ramp
Jurisdiction	ODOT D05
East/West Street	SR161 WB Ramp
North/South Street	SR 310
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	1	0	1	1	0	0	0	1	1
Configuration						LT		R		L	T				T	R
Volume (veh/h)						30	10	230		250	540				1490	70
Percent Heavy Vehicles (%)						5	5	5		5						
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized						No								No		
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1	6.5	6.2		4.1						
Critical Headway (sec)						7.15	6.55	6.25		4.15						
Base Follow-Up Headway (sec)						3.5	4.0	3.3		2.2						
Follow-Up Headway (sec)						3.55	4.05	3.35		2.25						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						43		250		272						
Capacity, c (veh/h)						3		504		368						
v/c Ratio						13.05		0.50		0.74						
95% Queue Length, Q_{95} (veh)						7.3		2.7		5.7						
95% Queue Length, Q_{95} (ft)						189.8		70.2		148.2						
Control Delay (s/veh)						7496.1		19.0		37.9						
Level of Service (LOS)						F		C		E						
Approach Delay (s/veh)						1126.7				12.0						
Approach LOS						F				B						

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HCS Two-Way Stop-Control Report

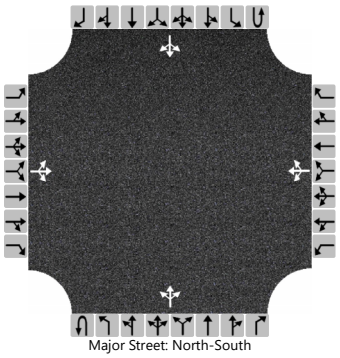
General Information

Analyst	SED
Agency/Co.	Michael Baker Intl.
Date Performed	7/19/2024
Analysis Year	2048
Time Analyzed	PM Ex. Roadway
Intersection Orientation	North-South
Project Description	FRA/LIC-161-22.1/0.00

Site Information

Intersection	SR310 - Jersey Mill
Jurisdiction	ODOT D05
East/West Street	Jersey Mill Road
North/South Street	SR 310
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		20	10	520		60	10	30		140	530	100		90	980	10
Percent Heavy Vehicles (%)		4	4	4		4	4	4		6				6		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.14	6.54	6.24		7.14	6.54	6.24		4.16				4.16		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.54	4.04	3.34		3.54	4.04	3.34		2.25				2.25		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			598				109			152				98		
Capacity, c (veh/h)			151				0			633				890		
v/c Ratio			3.97							0.24				0.11		
95% Queue Length, Q_{95} (veh)			59.7							0.9				0.4		
95% Queue Length, Q_{95} (ft)			1540.3							22.5				10.0		
Control Delay (s/veh)			1395.9							12.5	4.9	4.9		9.5	2.6	2.6
Level of Service (LOS)			F							B	A	A		A	A	A
Approach Delay (s/veh)	1395.9								6.3				3.2			
Approach LOS	F								A				A			

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HCS Two-Way Stop-Control Report

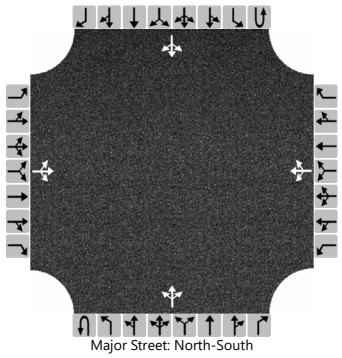
General Information

Analyst	SED
Agency/Co.	Michael Baker Intl.
Date Performed	7/19/2024
Analysis Year	2048
Time Analyzed	PM Ex. Roadway
Intersection Orientation	North-South
Project Description	FRA/LIC-161-22.1/0.00

Site Information

Intersection	SR310 - Jug St
Jurisdiction	ODOT D05
East/West Street	Jug Street
North/South Street	SR 310
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		10	10	110		10	10	10		140	430	10		20	960	70
Percent Heavy Vehicles (%)		4	4	4		4	4	4		6				6		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.14	6.54	6.24		7.14	6.54	6.24		4.16				4.16		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.54	4.04	3.34		3.54	4.04	3.34		2.25				2.25		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			141				33			152				22		
Capacity, c (veh/h)			123				29			609				1063		
v/c Ratio			1.15				1.13			0.25				0.02		
95% Queue Length, Q_{95} (veh)			8.5				3.7			1.0				0.1		
95% Queue Length, Q_{95} (ft)			219.3				95.5			25.0				2.5		
Control Delay (s/veh)			193.7				412.1			12.9	4.4	4.4		8.5	0.5	0.5
Level of Service (LOS)			F				F			B	A	A		A	A	A
Approach Delay (s/veh)	193.7				412.1				6.4				0.6			
Approach LOS	F				F				A				A			

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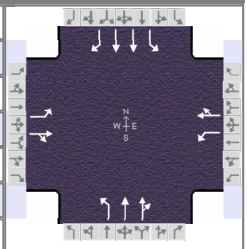
SR-310 (Signalized) - AM Build

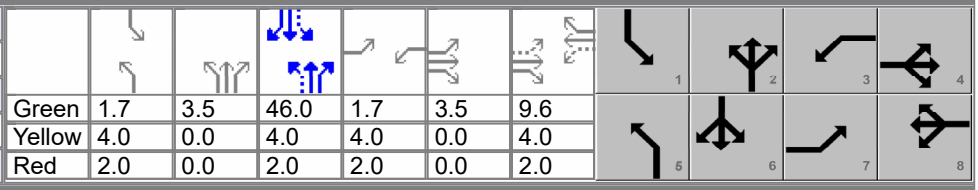
HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	AM Pr. Roadway	PHF	0.92
Urban Street	SR310	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR310 - Worthington	File Name	_AM_ProposedRoadway_SR310 (Corridor 11).xus		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	50	10	10	10	10	80	50	1170	10	10	600	50

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	1.7	3.5	46.0	1.7	3.5	9.6						
Yellow	4.0	0.0	4.0	4.0	0.0	4.0						
Red	2.0	0.0	2.0	2.0	0.0	2.0						

Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	50	10	10	10	10	80	50	1170	10	10	600	50
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1750
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	19	19		0	0		8	8		8	8	8
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.98	0.98	0.98
Lane Width (*W*), ft	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	12.0
Turn Bay Length, ft	540	1670		550	4120		345	1820		360	670	345
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h	55	55	55	55	55	55	55	55	55	55	55	55

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s	14.0	17.0	14.0	17.0	31.0	44.0	15.0	28.0
Yellow Change Interval (*Y*), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Red Clearance Interval (R_c), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Green (G_{min}), s	7	10	7	10	7	20	7	20
Start-Up Lost Time (*lt*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Recall Mode	Off	Off	Off	Off	Off	Max	Off	Max
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Walk (*Walk*), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

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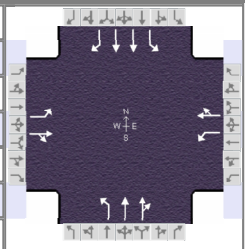
HCS Signalized Intersection Results Summary

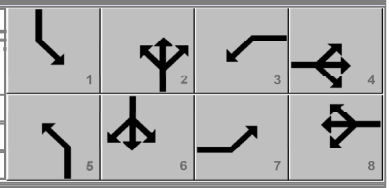
General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	AM Pr. Roadway	PHF	0.92
Urban Street	SR310	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR310 - Worthington	File Name	_AM_ProposedRoadway_SR310 (Corridor 11).xus		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	50	10	10	10	10	80	50	1170	10	10	600	50

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	1.7	3.5	46.0	1.7	3.5	9.6
Yellow	4.0	0.0	4.0	4.0	0.0	4.0
Red	2.0	0.0	2.0	2.0	0.0	2.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	3.0
Phase Duration, s	11.2	19.2	7.7	15.6	11.2	55.5	7.7	52.0
Change Period, ($Y+R_c$), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Allow Headway (*MAH*), s	2.9	3.1	2.9	3.1	2.9	0.0	2.9	0.0
Queue Clearance Time (g_s), s	5.0	3.2	2.5	7.6	3.4		2.3	
Green Extension Time (g_e), s	0.0	0.2	0.0	0.1	0.1	0.0	0.0	0.0
Phase Call Probability	0.74	0.99	0.24	0.96	0.74		0.24	
Max Out Probability	0.89	0.00	0.00	0.02	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	54	22		11	98		54	642	640	11	652	54
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1420	1368		1667	1509		1563	1641	1636	1563	1562	1391
Queue Service Time (g_s), s	3.0	1.2		0.5	5.6		1.4	26.0	26.0	0.3	10.2	0.7
Cycle Queue Clearance Time (g_c), s	3.0	1.2		0.5	5.6		1.4	26.0	26.0	0.3	10.2	0.7
Green Ratio (*g/C*)	0.16	0.15		0.13	0.11		0.57	0.55	0.55	0.53	0.51	0.51
Capacity (*c*), veh/h	212	200		262	161		466	903	900	207	1596	710
Volume-to-Capacity Ratio (*X*)	0.256	0.109		0.042	0.607		0.117	0.711	0.712	0.053	0.409	0.077
Back of Queue (*Q*), ft/ln (95 th percentile)	50	20		9	89		18	364	342	4	140	10
Back of Queue (*Q*), veh/ln (95 th percentile)	1.7	0.7		0.4	3.6		0.7	13.7	13.7	0.2	5.2	0.4
Queue Storage Ratio (*RQ*) (95 th percentile)	0.09	0.01		0.02	0.02		0.05	0.20	0.20	0.01	0.21	0.03
Uniform Delay (d_1), s/veh	32.8	33.3		34.7	38.4		9.3	15.0	15.0	13.4	11.2	4.2
Incremental Delay (d_2), s/veh	0.2	0.1		0.0	1.4		0.0	4.7	4.8	0.0	0.8	0.2
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	33.1	33.4		34.7	39.8		9.3	19.7	19.7	13.5	12.0	4.4
Level of Service (LOS)	C	C		C	D		A	B	B	B	B	A
Approach Delay, s/veh / LOS	33.2	C		39.3	D		19.3	B		11.4	B	
Intersection Delay, s/veh / LOS	18.2						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.30	B	2.45	B	1.89	B	1.89	B
Bicycle LOS Score / LOS	0.61	A	0.67	A	1.59	B	1.08	A

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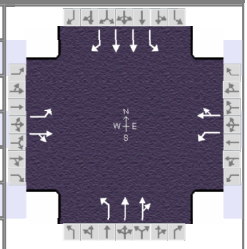
HCS Signalized Intersection Intermediate Values

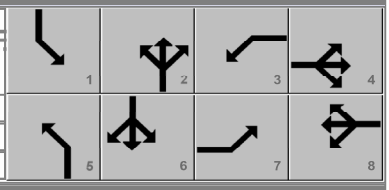
General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	AM Pr. Roadway	PHF	0.92
Urban Street	SR310	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR310 - Worthington	File Name	_AM_ProposedRoadway_SR310 (Corridor 11).xus		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	50	10	10	10	10	80	50	1170	10	10	600	50

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	1.7	3.5	46.0	1.7	3.5	9.6
Yellow	4.0	0.0	4.0	4.0	0.0	4.0
Red	2.0	0.0	2.0	2.0	0.0	2.0



Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	0.852	0.852	1.000	1.000	1.000	1.000	0.938	0.938	1.000	0.938	0.938	0.938
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.952	1.000
Left-Turn Adjustment Factor (f_{LT})	0.952	0.000		0.952	0.000		0.952	0.000		0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.917	0.917		0.862	0.862		0.997	0.997		0.000	0.847
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000			1.000			1.000			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Prot. CAV Adj. Factor ($f_{CAV,prot}$)	1.00			1.00			1.00			1.00		
Left-Turn Perm. CAV Adj. Factor ($f_{CAV,perm}$)												
Movement Saturation Flow Rate (s), veh/h	1420	684	684	1667	168	1341	1563	3249	28	1563	3124	1391
Proportion of Vehicles Arriving on Green (P)	0.06	0.15	0.15	0.02	0.11	0.11	0.06	0.55	0.55	0.02	0.59	0.81
Incremental Delay Factor (k)	0.04	0.04		0.04	0.04		0.04	0.50	0.50	0.04	0.50	0.50

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Green Ratio (g/C)	0.16	0.15	0.13	0.11	0.57	0.55	0.53	0.51
Permitted Saturation Flow Rate (s_p), veh/h/ln	1123	0	1412	0	743	0	410	0
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								
Permitted Effective Green Time (g_p), s	9.6	0.0	9.6	0.0	46.0	0.0	46.0	0.0
Permitted Service Time (g_u), s	4.0	0.0	9.6	0.0	35.8	0.0	21.5	0.0
Permitted Queue Service Time (g_{ps}), s	0.3		0.0		0.8		0.7	
Time to First Blockage (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln								0
Protected Right Effective Green Time (g_R), s								0.0

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.557	0.000	1.710	0.000	1.198	0.000	1.198	0.000
Pedestrian F_s / F_{delay}	0.000	0.140	0.000	0.144	0.000	0.089	0.000	0.095
Pedestrian M_{corner} / M_{cw}	0.00		0.00		0.00		0.00	
Bicycle c_b / d_b	292.26	32.81	213.70	35.90	1100.37	9.11	1021.79	10.76
Bicycle F_w / F_v	-3.64	0.13	-3.64	0.18	-3.64	1.10	-3.64	0.59

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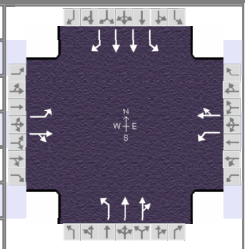
HCS Signalized Intersection Results Graphical Summary

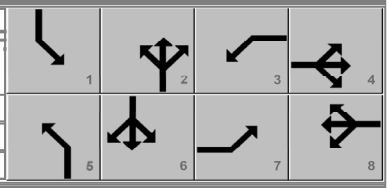
General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	AM Pr. Roadway	PHF	0.92
Urban Street	SR310	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR310 - Worthington	File Name	_AM_ProposedRoadway_SR310 (Corridor 11).xus		
Project Description	FRA/LIC-161-22.1/0.00				



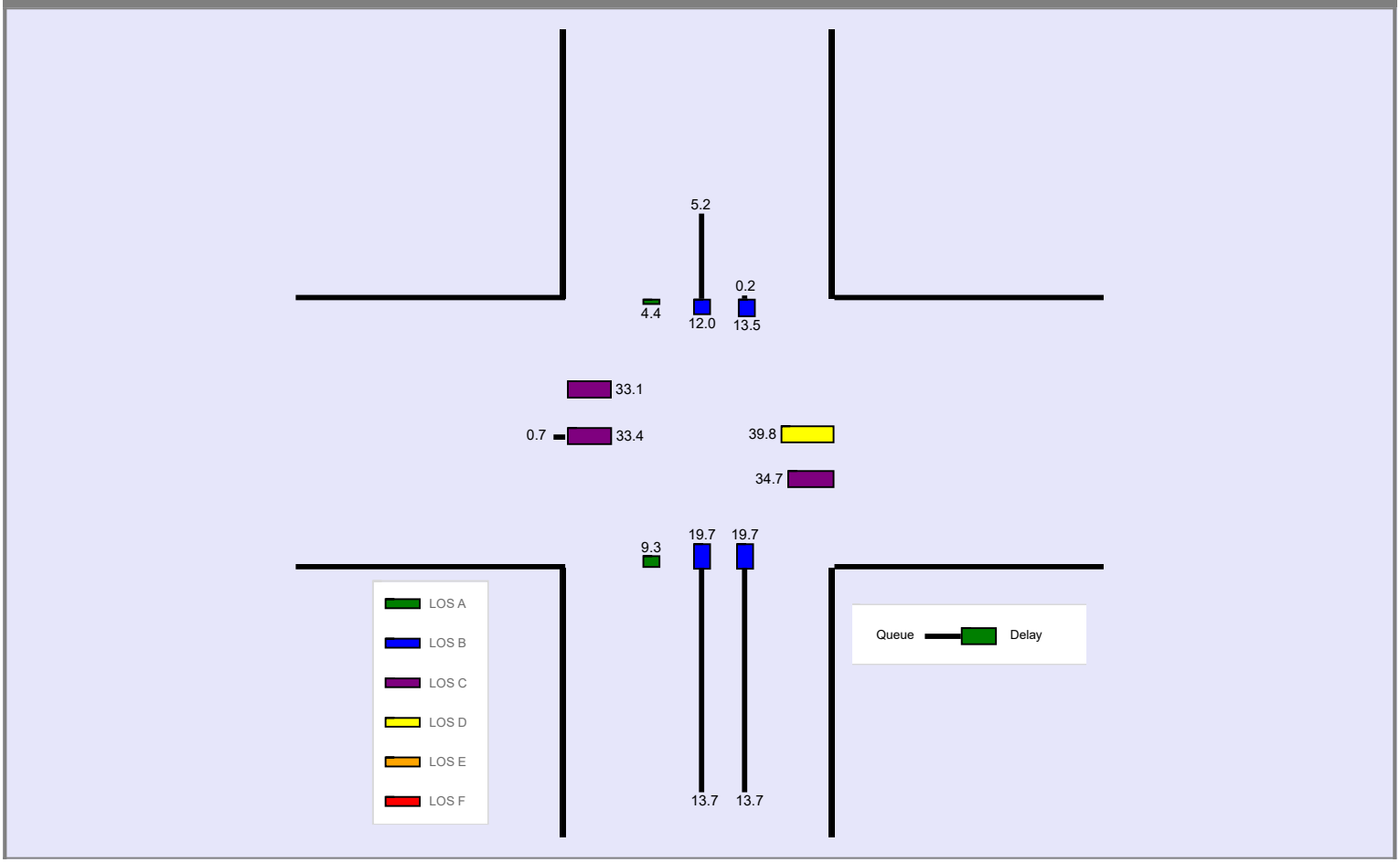
Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	50	10	10	10	10	80	50	1170	10	10	600	50

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	1.7	3.5	46.0	1.7	3.5	9.6	
Yellow	4.0	0.0	4.0	4.0	0.0	4.0	
Red	2.0	0.0	2.0	2.0	0.0	2.0	



Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)	50	20		9	89		18	364	342	4	140	10
Back of Queue (*Q*), veh/ln (95 th percentile)	1.7	0.7		0.4	3.6		0.7	13.7	13.7	0.2	5.2	0.4
Queue Storage Ratio (*RQ*) (95 th percentile)	0.09	0.01		0.02	0.02		0.05	0.20	0.20	0.01	0.21	0.03
Control Delay (*d*), s/veh	33.1	33.4		34.7	39.8		9.3	19.7	19.7	13.5	12.0	4.4
Level of Service (LOS)	C	C		C	D		A	B	B	B	B	A
Approach Delay, s/veh / LOS	33.2	C		39.3	D		19.3	B		11.4	B	
Intersection Delay, s/veh / LOS	18.2						B					



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--- Messages ---

No errors or warnings exist.

--- Comments ---

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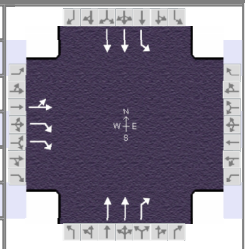
HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	AM Pr. Roadway	PHF	0.92
Urban Street	SR310	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR310 - SR161 EB Ramp	File Name	_AM_ProposedRoadway_SR310 (Corridor 11).xus		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	110	10	200					1270	30	100	460	

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	11	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

							1	2	3	4
Green	6.5	54.8	10.7	0.0	0.0	0.0	5	6	7	8
Yellow	4.0	4.0	4.0	0.0	0.0	0.0				
Red	2.0	2.0	2.0	0.0	0.0	0.0				

Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	110	10	200					1270	30	100	460	
Initial Queue (Q_b), veh/h	0	0	0					0	0	0	0	
Base Saturation Flow Rate (s_o), veh/h	1750	1750	1750					1750	1750	1750	1750	
Parking (N_m), man/h	0	L						None			None	
Heavy Vehicles (P_{HV}), %		7	7					7	7	10	10	
Ped / Bike / RTOR, /h	0	0	0	0	0		0	0	0	0	0	
Buses (N_b), buses/h	0	0	0				0	0	0	0	0	0
Arrival Type (*AT*)	3	3	3					3	3	3	3	
Upstream Filtering (*I*)	1.00	1.00	1.00					0.67	0.67	0.75	0.75	
Lane Width (*W*), ft		12.0	12.0					12.0	12.0	12.0	12.0	
Turn Bay Length, ft		720	490					650	345	425	820	
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h	55	55	55					55	55	55	55	

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s		40.0				32.0	18.0	50.0
Yellow Change Interval (*Y*), s		4.0				4.0	4.0	4.0
Red Clearance Interval (R_c), s		2.0				2.0	2.0	2.0
Minimum Green (G_{min}), s		10				20	7	20
Start-Up Lost Time (*lt*), s	2.0	2.0				2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0				2.0	2.0	2.0
Passage (*PT*), s		2.0				2.0	2.0	2.0
Recall Mode		Off				Max	Off	Max
Dual Entry		Yes				Yes	No	Yes
Walk (*Walk*), s		0.0		0.0				0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0				0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0				0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0				9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No		0		0.0		No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0				12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No				0.50		No	0.50	

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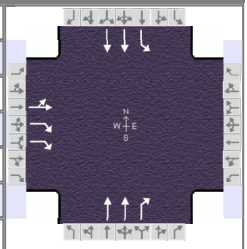
HCS Signalized Intersection Results Summary

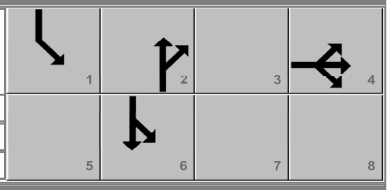
General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	AM Pr. Roadway	PHF	0.92
Urban Street	SR310	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR310 - SR161 EB Ramp	File Name	_AM_ProposedRoadway_SR310 (Corridor 11).xus		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	110	10	200					1270	30	100	460	

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	11	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	6.5	54.8	10.7	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	2.0	2.0	2.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4				2	1	6
Case Number		11.0				7.3	1.0	4.0
Phase Duration, s		16.7				60.8	12.5	73.3
Change Period, ($Y+R_c$), s		6.0				6.0	6.0	6.0
Max Allow Headway (*MAH*), s		3.1				0.0	2.9	0.0
Queue Clearance Time (g_s), s		10.0					4.0	
Green Extension Time (g_e), s		0.7				0.0	0.2	0.0
Phase Call Probability		1.00					0.93	
Max Out Probability		0.00					0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14					2	12	1	6	
Adjusted Flow Rate (*v*), veh/h		130	217					1380	33	109	500	
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1424	1241					1575	1402	1537	1536	
Queue Service Time (g_s), s		8.0	7.6					12.5	0.1	2.0	10.3	
Cycle Queue Clearance Time (g_c), s		8.0	7.6					12.5	0.1	2.0	10.3	
Green Ratio (*g/C*)		0.12	0.12					0.61	0.61	0.70	0.75	
Capacity (*c*), veh/h		169	295					1916	853	364	2297	
Volume-to-Capacity Ratio (*X*)		0.770	0.736					0.720	0.038	0.298	0.218	
Back of Queue (*Q*), ft/ln (95 th percentile)		129	105					83	2	18	127	
Back of Queue (*Q*), veh/ln (95 th percentile)		4.9	4.0					3.2	0.1	0.7	4.7	
Queue Storage Ratio (*RQ*) (95 th percentile)		0.18	0.21					0.13	0.00	0.04	0.16	
Uniform Delay (d_1), s/veh		38.4	38.3					2.7	0.8	5.4	10.7	
Incremental Delay (d_2), s/veh		2.8	1.3					1.6	0.1	0.1	0.2	
Initial Queue Delay (d_3), s/veh		0.0	0.0					0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh		41.2	39.6					4.3	0.8	5.5	10.9	
Level of Service (LOS)		D	D					A	A	A	B	
Approach Delay, s/veh / LOS	40.2	D		0.0			4.2	A		9.9	A	
Intersection Delay, s/veh / LOS	11.0						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.31	B	2.31	B	1.36	A	1.84	B
Bicycle LOS Score / LOS	1.06	A			1.65	B	0.99	A

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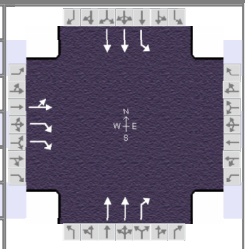
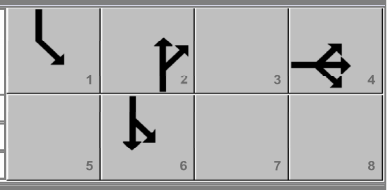
HCS Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	AM Pr. Roadway	PHF	0.92
Urban Street	SR310	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR310 - SR161 EB Ramp	File Name	_AM_ProposedRoadway_SR310 (Corridor 11).xus		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	110	10	200					1270	30	100	460	

Signal Information													
Cycle, s	90.0	Reference Phase	2										
Offset, s	11	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On	Green	6.5	54.8	10.7	0.0	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0			
				Red	2.0	2.0	2.0	0.0	0.0	0.0			



Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000				1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	0.852	0.945	0.945				0.938	0.945	0.945	0.922	0.922	1.000
Parking Activity Adjustment Factor (f_p)	0.900	1.000	1.000	0.000	0.000	0.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	0.000	0.000	0.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000				1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	0.885	1.000	1.000	1.000	1.000	0.952	1.000	1.000	0.952	1.000
Left-Turn Adjustment Factor (f_{LT})	0.861	0.861					1.000	1.000		0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.000	0.847					0.000	0.847		1.000	1.000
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000						1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000						1.000			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000				1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000				1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Prot. CAV Adj. Factor ($f_{CAV,prot}$)										1.00		
Left-Turn Perm. CAV Adj. Factor ($f_{CAV,perm}$)							1.00					
Movement Saturation Flow Rate (s), veh/h	1305	119	2482				0	3229	1402	1537	3150	0
Proportion of Vehicles Arriving on Green (P)	0.12	0.12	0.12	0.00	0.00	0.00	0.00	0.89	0.96	0.15	0.35	0.00
Incremental Delay Factor (k)		0.04	0.04					0.50	0.50	0.04	0.50	

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)		4.0				6.0	6.0	6.0
Green Ratio (g/C)		0.12				0.61	0.70	0.75
Permitted Saturation Flow Rate (s_p), veh/h/ln		0				912	368	0
Shared Saturation Flow Rate (s_{sh}), veh/h/ln						0		
Permitted Effective Green Time (g_p), s		0.0				0.0	56.8	0.0
Permitted Service Time (g_u), s		0.0				0.0	42.3	0.0
Permitted Queue Service Time (g_{ps}), s							5.4	
Time to First Blockage (g_f), s		0.0				54.8	0.0	0.0
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln		0				0		
Protected Right Effective Green Time (g_R), s		0.0				0.0		

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.557	0.000	1.557	0.000	0.681	0.000	1.198	0.000
Pedestrian F_s / F_{delay}	0.000	0.153	0.000	0.153	0.000	0.077	0.000	0.042
Pedestrian M_{corner} / M_{cw}	0.00		0.00		0.00		0.00	
Bicycle c_b / d_b		52.27		50.14	1216.68	6.90	1495.29	2.87
Bicycle F_w / F_v	-3.64	0.57	-3.64		-3.64	1.17	-3.64	0.50

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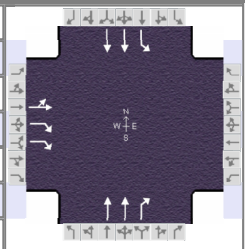
HCS Signalized Intersection Results Graphical Summary

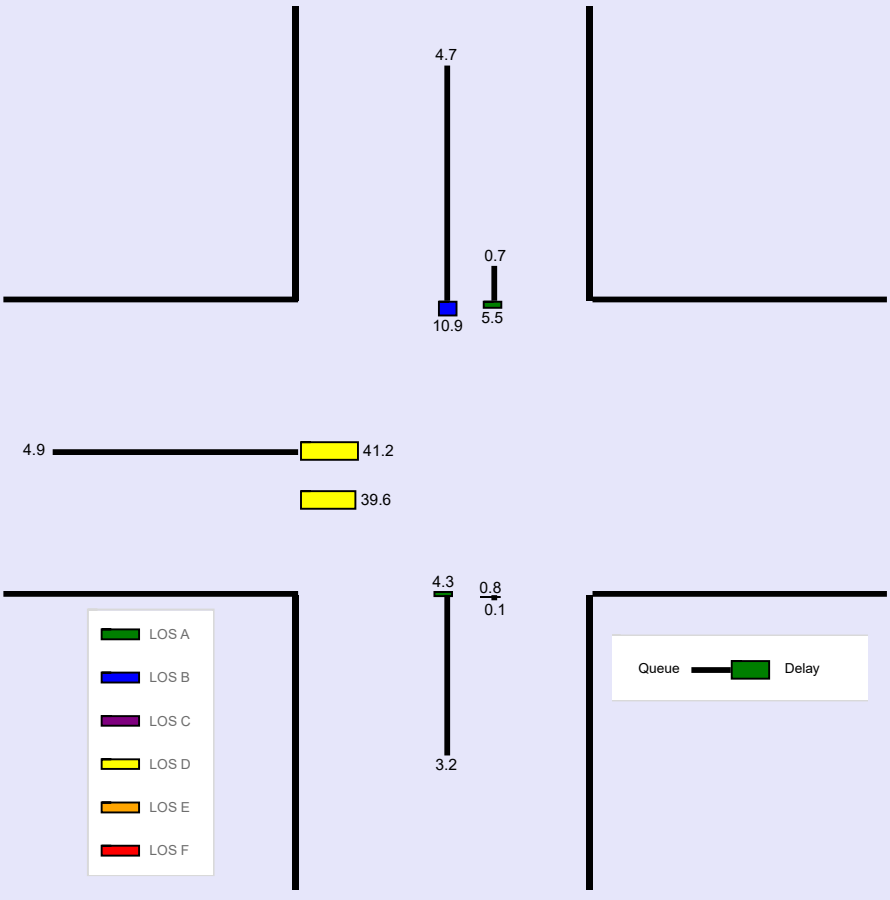
General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	AM Pr. Roadway	PHF	0.92
Urban Street	SR310	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR310 - SR161 EB Ramp	File Name	_AM_ProposedRoadway_SR310 (Corridor 11).xus		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	110	10	200					1270	30	100	460	

Signal Information					EB			WB			NB			SB		
Cycle, s	90.0	Reference Phase	2		L	T	R	L	T	R	L	T	R	L	T	R
Offset, s	11	Reference Point	End	Green	6.5	54.8	10.7	0.0	0.0	0.0						
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0						
Force Mode	Fixed	Simult. Gap N/S	On	Red	2.0	2.0	2.0	0.0	0.0	0.0						

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)		129	105					83	2	18	127	
Back of Queue (*Q*), veh/ln (95 th percentile)		4.9	4.0					3.2	0.1	0.7	4.7	
Queue Storage Ratio (*RQ*) (95 th percentile)		0.18	0.21					0.13	0.00	0.04	0.16	
Control Delay (*d*), s/veh		41.2	39.6					4.3	0.8	5.5	10.9	
Level of Service (LOS)		D	D					A	A	A	B	
Approach Delay, s/veh / LOS	40.2	D		0.0			4.2	A		9.9	A	
Intersection Delay, s/veh / LOS	11.0						B					



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--- Messages ---

No errors or warnings exist.

--- Comments ---

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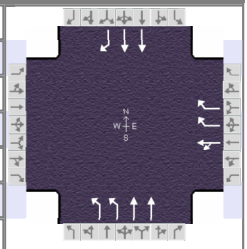
HCS Signalized Intersection Input Data

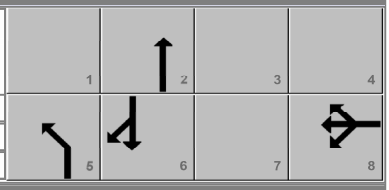
General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	AM Pr. Roadway	PHF	0.92
Urban Street	SR310	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR310 - SR161 WB Ramp	File Name	_AM_ProposedRoadway_SR310 (Corridor 11).xus		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				60	10	680	540	840			500	170

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	25	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	19.1	23.2	29.7	0.0	0.0	0.0						
Yellow	4.0	4.0	4.0	0.0	0.0	0.0						
Red	2.0	2.0	2.0	0.0	0.0	0.0						



Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				60	10	680	540	840			500	170
Initial Queue (Q_b), veh/h				0	0	0	0	0			0	0
Base Saturation Flow Rate (s_o), veh/h				1750	1750	1750	1750	1750			1750	1750
Parking (N_m), man/h					None			None			None	
Heavy Vehicles (P_{HV}), %					8	8	7	7			7	7
Ped / Bike / RTOR, /h	0	0		0	0	0	0	0		0	0	0
Buses (N_b), buses/h				0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)				3	3	3	3	3			3	3
Upstream Filtering (*I*)				1.00	1.00	1.00	0.62	0.62			0.95	0.95
Lane Width (*W*), ft					12.0	12.0	12.0	12.0			12.0	12.0
Turn Bay Length, ft					640	470	390	820			670	360
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h				55	55	55	55	55			55	55

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s				46.0	18.0	44.0		26.0
Yellow Change Interval (*Y*), s				4.0	4.0	4.0		4.0
Red Clearance Interval (R_c), s				2.0	2.0	2.0		2.0
Minimum Green (G_{min}), s				10	7	20		20
Start-Up Lost Time (*l1*), s			2.0	2.0	2.0	2.0		2.0
Extension of Effective Green (*e*), s			2.0	2.0	2.0	2.0		2.0
Passage (*PT*), s				2.0	2.0	2.0		2.0
Recall Mode				Off	Off	Max		Max
Dual Entry				Yes	No	Yes		Yes
Walk (*Walk*), s		0.0		0.0		0.0		
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0			
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0			
Street Width / Island / Curb, ft		0		0.0	0	No	0.0	0	No	0.0		No
Width Outside / Bike Lane / Shoulder, ft				12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No			No		0.50	No		0.50			0.50

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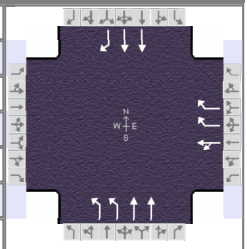
HCS Signalized Intersection Results Summary

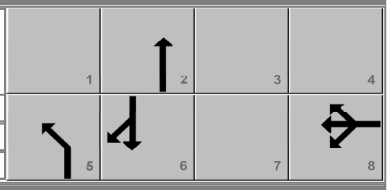
General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	AM Pr. Roadway	PHF	0.92
Urban Street	SR310	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR310 - SR161 WB Ramp	File Name	_AM_ProposedRoadway_SR310 (Corridor 11).xus		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				60	10	680	540	840			500	170

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	25	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	19.1	23.2	29.7	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	2.0	2.0	2.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8	5	2		6
Case Number				11.0	2.0	4.0		7.3
Phase Duration, s				35.7	25.1	54.3		29.2
Change Period, ($Y+R_c$), s				6.0	6.0	6.0		6.0
Max Allow Headway (*MAH*), s				3.2	2.9	0.0		0.0
Queue Clearance Time (g_s), s				27.9	18.5			
Green Extension Time (g_e), s				1.9	0.6	0.0		0.0
Phase Call Probability				1.00	1.00			
Max Out Probability				0.02	0.57			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3	8	18	5	2			6	16
Adjusted Flow Rate (*v*), veh/h					76	739	587	913			543	185
Adjusted Saturation Flow Rate (*s*), veh/h/ln					1573	1231	1530	1575			1575	1402
Queue Service Time (g_s), s					3.1	25.9	16.5	11.5			11.3	5.6
Cycle Queue Clearance Time (g_c), s					3.1	25.9	16.5	11.5			11.3	5.6
Green Ratio (*g/C*)					0.33	0.33	0.21	0.54			0.26	0.26
Capacity (*c*), veh/h					520	813	649	1689			812	361
Volume-to-Capacity Ratio (*X*)					0.146	0.909	0.905	0.540			0.669	0.511
Back of Queue (*Q*), ft/ln (95 th percentile)					49	322	220	121			154	78
Back of Queue (*Q*), veh/ln (95 th percentile)					1.8	12.1	8.3	4.6			5.8	2.9
Queue Storage Ratio (*RQ*) (95 th percentile)					0.08	0.68	0.56	0.15			0.23	0.22
Uniform Delay (d_1), s/veh					21.2	28.8	29.0	7.1			18.2	10.9
Incremental Delay (d_2), s/veh					0.0	7.5	8.1	0.8			4.2	4.8
Initial Queue Delay (d_3), s/veh					0.0	0.0	0.0	0.0			0.0	0.0
Control Delay (*d*), s/veh					21.3	36.4	37.1	7.8			22.3	15.8
Level of Service (LOS)					C	D	D	A			C	B
Approach Delay, s/veh / LOS	0.0			35.0		C	19.3		B	20.7		C
Intersection Delay, s/veh / LOS	23.8						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.46	B	2.31	B	1.89	B	1.70	B
Bicycle LOS Score / LOS			1.83	B	1.73	B	1.09	A

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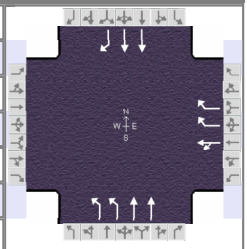
HCS Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	AM Pr. Roadway	PHF	0.92
Urban Street	SR310	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR310 - SR161 WB Ramp	File Name	_AM_ProposedRoadway_SR310 (Corridor 11).xus		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				60	10	680	540	840			500	170

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	25	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

							1	2	3	4
Green	19.1	23.2	29.7	0.0	0.0	0.0	5	6	7	8
Yellow	4.0	4.0	4.0	0.0	0.0	0.0				
Red	2.0	2.0	2.0	0.0	0.0	0.0				

Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)				1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})				1.000	0.938	0.938	0.945	0.945	0.945	0.922	0.945	0.945
Parking Activity Adjustment Factor (f_p)	0.000	0.000	0.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	0.000	0.000	0.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)				1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	0.885	0.971	0.952	1.000	1.000	0.952	1.000
Left-Turn Adjustment Factor (f_{LT})				0.959	0.959		0.952	0.000		1.000	1.000	
Right-Turn Adjustment Factor (f_{RT})					0.000	0.847		1.000	1.000		0.000	0.847
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})				1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})						1.000			1.000			1.000
Work Zone Adjustment Factor (f_{wz})				1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})				1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Prot. CAV Adj. Factor ($f_{CAV,prot}$)							1.00					
Left-Turn Perm. CAV Adj. Factor ($f_{CAV,perm}$)										1.00		
Movement Saturation Flow Rate (s), veh/h				1349	225	2461	3060	3229	0	0	3229	1402
Proportion of Vehicles Arriving on Green (P)	0.00	0.00	0.00	0.33	0.33	0.33	0.34	0.73	0.00	0.00	0.53	0.70
Incremental Delay Factor (k)					0.04	0.20	0.29	0.50			0.50	0.50

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)				4.0	6.0	6.0		6.0
Green Ratio (g/C)				0.33	0.21	0.54		0.26
Permitted Saturation Flow Rate (s_p), veh/h/ln				0	0	0		621
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								0
Permitted Effective Green Time (g_p), s				0.0	0.0	0.0		0.0
Permitted Service Time (g_u), s				0.0	0.0	0.0		0.0
Permitted Queue Service Time (g_{ps}), s								
Time to First Blockage (g_f), s				0.0	0.0	0.0		23.2
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln				0				0
Protected Right Effective Green Time (g_R), s				0.0				0.0

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.710	0.000	1.557	0.000	1.198	0.000	0.972	0.000
Pedestrian F_s / F_{delay}	0.000	0.153	0.000	0.153	0.000	0.091	0.000	0.129
Pedestrian M_{corner} / M_{cw}	0.00		0.00		0.00		0.00	
Bicycle c_b / d_b		50.14		52.27	1072.63	9.68	515.41	24.79
Bicycle F_w / F_v	-3.64		-3.64	1.35	-3.64	1.24	-3.64	0.60

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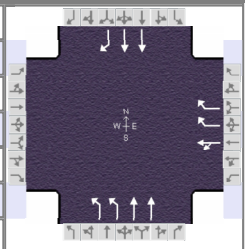
HCS Signalized Intersection Results Graphical Summary

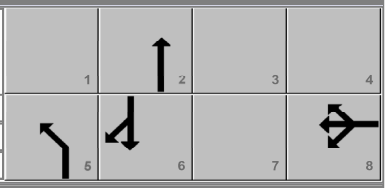
General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	AM Pr. Roadway	PHF	0.92
Urban Street	SR310	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR310 - SR161 WB Ramp	File Name	_AM_ProposedRoadway_SR310 (Corridor 11).xus		
Project Description	FRA/LIC-161-22.1/0.00				



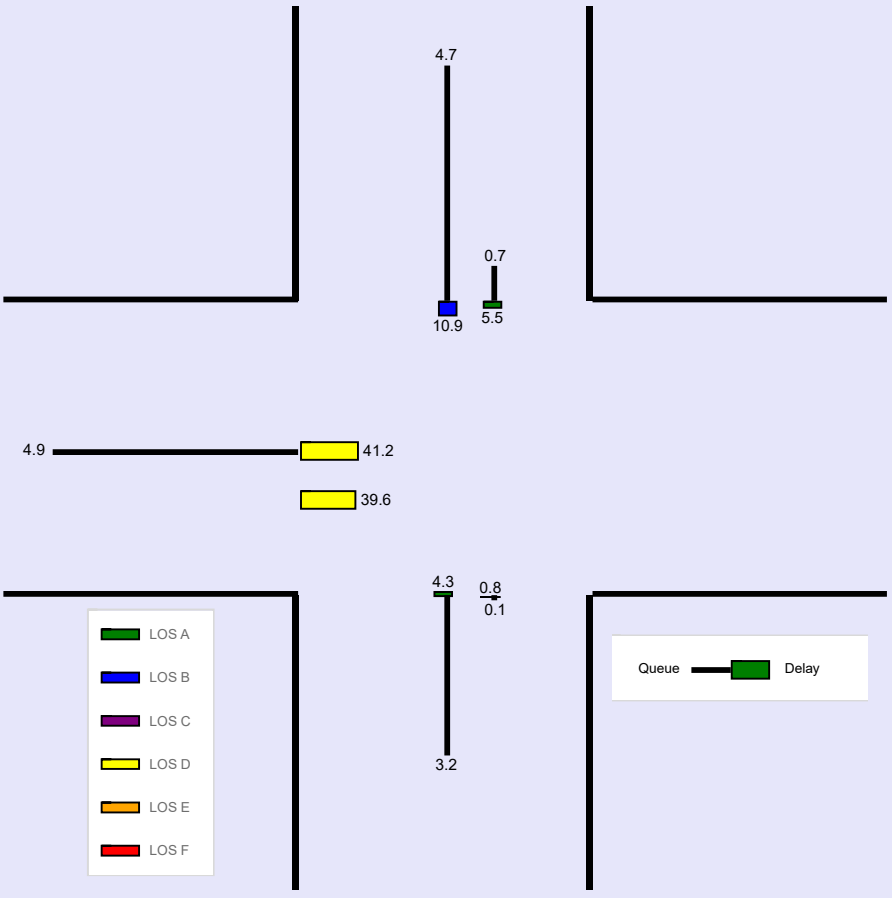
Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				60	10	680	540	840			500	170

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	25	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	19.1	23.2	29.7	0.0	0.0	0.0	
Yellow	4.0	4.0	4.0	0.0	0.0	0.0	
Red	2.0	2.0	2.0	0.0	0.0	0.0	



Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)					49	322	220	121			154	78
Back of Queue (*Q*), veh/ln (95 th percentile)					1.8	12.1	8.3	4.6			5.8	2.9
Queue Storage Ratio (*RQ*) (95 th percentile)					0.08	0.68	0.56	0.15			0.23	0.22
Control Delay (*d*), s/veh					21.3	36.4	37.1	7.8			22.3	15.8
Level of Service (LOS)					C	D	D	A			C	B
Approach Delay, s/veh / LOS	0.0			35.0		C	19.3		B	20.7		C
Intersection Delay, s/veh / LOS	23.8						C					



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--- Messages ---

No errors or warnings exist.

--- Comments ---

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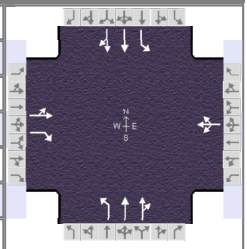
HCS Signalized Intersection Input Data

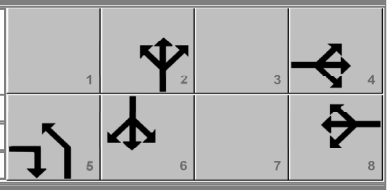
General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	AM Pr. Roadway	PHF	0.92
Urban Street	SR310	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR310 - Jersey Mill	File Name	_AM_ProposedRoadway_SR310 (Corridor 11).xus		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	30	10	120	80	10	30	620	800	100	50	470	10

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	32	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	21.4	40.6	10.0	0.0	0.0	0.0	
Yellow	4.0	4.0	4.0	0.0	0.0	0.0	
Red	2.0	2.0	2.0	0.0	0.0	0.0	



Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	30	10	120	80	10	30	620	800	100	50	470	10
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1750	1750	1750	1750	1750	1900	1750	1750	1900	1750	1750	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %		10	10		15		6	6		6	6	
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	0.77	0.77	0.77	1.00	1.00	1.00
Lane Width (*W*), ft		12.0	12.0		12.0		12.0	12.0		12.0	12.0	
Turn Bay Length, ft		1999	650		1999		640	640		415	1999	
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h	55	55	55	55	55	55	55	55	55	55	55	55

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s		16.0		16.0	48.0	74.0		26.0
Yellow Change Interval (*Y*), s		4.0		4.0	4.0	4.0		4.0
Red Clearance Interval (R_c), s		2.0		2.0	2.0	2.0		2.0
Minimum Green (G_{min}), s		10		10	7	20		20
Start-Up Lost Time (*l1*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s		2.0		2.0	2.0	2.0		2.0
Recall Mode		Off		Off	Off	Max		Max
Dual Entry		Yes		Yes	No	Yes		Yes
Walk (*Walk*), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

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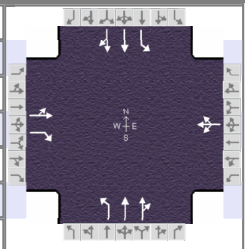
HCS Signalized Intersection Results Summary

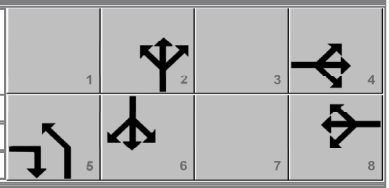
General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	AM Pr. Roadway	PHF	0.92
Urban Street	SR310	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR310 - Jersey Mill	File Name	_AM_ProposedRoadway_SR310 (Corridor 11).xus		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	30	10	120	80	10	30	620	800	100	50	470	10

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	32	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	21.4	40.6	10.0	0.0	0.0	0.0	
Yellow	4.0	4.0	4.0	0.0	0.0	0.0	
Red	2.0	2.0	2.0	0.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2		6
Case Number		7.0		8.0	1.0	4.0		6.3
Phase Duration, s		16.0		16.0	27.4	74.0		46.6
Change Period, (*Y+R c*), s		6.0		6.0	6.0	6.0		6.0
Max Allow Headway (*MAH*), s		3.1		3.1	2.9	0.0		0.0
Queue Clearance Time (*g s*), s		8.2		10.8	20.2			
Green Extension Time (*g e*), s		0.1		0.0	1.3	0.0		0.0
Phase Call Probability		1.00		1.00	1.00			
Max Out Probability		1.00		1.00	0.00			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h		43	130		130		674	384	594	54	262	260
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1293	1367		1311		1589	1043	1615	557	1668	1656
Queue Service Time (*g s*), s		0.0	6.2		6.1		18.2	13.5	12.5	5.3	9.2	9.2
Cycle Queue Clearance Time (*g c*), s		2.7	6.2		8.8		18.2	13.5	12.5	5.4	9.2	9.2
Green Ratio (*g/C*)		0.11	0.35		0.11		0.71	0.76	0.76	0.45	0.45	0.45
Capacity (*c*), veh/h		214	477		212		755	788	1220	331	752	746
Volume-to-Capacity Ratio (*X*)		0.203	0.273		0.614		0.892	0.487	0.487	0.164	0.348	0.348
Back of Queue (*Q*), ft/ln (95 th percentile)		40	86		143		209	84	102	32	155	147
Back of Queue (*Q*), veh/ln (95 th percentile)		1.5	3.2		5.1		8.0	3.2	4.1	1.2	5.9	5.9
Queue Storage Ratio (*RQ*) (95 th percentile)		0.02	0.13		0.07		0.33	0.13	0.17	0.08	0.08	0.08
Uniform Delay (*d 1*), s/veh		36.7	21.1		39.4		10.2	4.6	4.1	15.0	16.1	16.1
Incremental Delay (*d 2*), s/veh		0.2	0.1		3.8		3.8	1.7	1.1	1.1	1.3	1.3
Initial Queue Delay (*d 3*), s/veh		0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh		36.9	21.2		43.2		14.0	6.3	5.2	16.1	17.4	17.4
Level of Service (LOS)		D	C		D		B	A	A	B	B	B
Approach Delay, s/veh / LOS	25.1	C		43.2	D		9.0	A		17.3	B	
Intersection Delay, s/veh / LOS	13.8						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.30	B	2.30	B	1.61	B	1.90	B
Bicycle LOS Score / LOS	0.77	A	0.70	A	1.85	B	0.96	A

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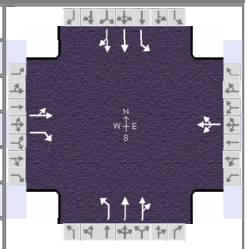
HCS Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	AM Pr. Roadway	PHF	0.92
Urban Street	SR310	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR310 - Jersey Mill	File Name	_AM_ProposedRoadway_SR310 (Corridor 11).xus		
Project Description	FRA/LIC-161-22.1/0.00				

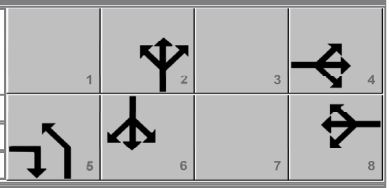


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	30	10	120	80	10	30	620	800	100	50	470	10

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	32	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	21.4	40.6	10.0	0.0	0.0	0.0						
Yellow	4.0	4.0	4.0	0.0	0.0	0.0						
Red	2.0	2.0	2.0	0.0	0.0	0.0						



Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	0.852	0.922	0.922	1.000	0.883	1.000	0.953	0.953	1.000	0.953	0.953	1.000
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.625	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.801	0.801		0.875	0.849		0.952	0.000		0.318	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.000	0.847		0.000	0.849		0.968	0.968		0.993	0.993
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000			1.000			1.000			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Prot. CAV Adj. Factor ($f_{CAV,prot}$)							1.00					
Left-Turn Perm. CAV Adj. Factor ($f_{CAV,perm}$)	1.00			1.00						1.00		
Movement Saturation Flow Rate (s), veh/h	970	323	1367	874	109	328	1589	2362	295	557	3255	69
Proportion of Vehicles Arriving on Green (P)	0.11	0.11	0.11	0.11	0.11	0.11	0.21	0.74	0.87	0.45	0.45	0.45
Incremental Delay Factor (k)		0.04	0.04		0.15		0.13	0.50	0.50	0.50	0.50	0.50

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)		6.0		6.0	6.0	6.0		6.0
Green Ratio (g/C)		0.11		0.11	0.71	0.76		0.45
Permitted Saturation Flow Rate (s_p), veh/h/ln		1385		1426	852	0		557
Shared Saturation Flow Rate (s_{sh}), veh/h/ln		1259		1342				
Permitted Effective Green Time (g_p), s		10.0		10.0	42.6	0.0		40.6
Permitted Service Time (g_u), s		1.2		7.3	31.4	0.0		40.6
Permitted Queue Service Time (g_{ps}), s		0.0		6.1	31.4			5.3
Time to First Blockage (g_f), s		0.7		0.5	0.0	0.0		0.0
Queue Service Time Before Blockage (g_{fs}), s		0.7		0.5				
Protected Right Saturation Flow (s_R), veh/h/ln		1367						
Protected Right Effective Green Time (g_R), s		21.4						

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.557	0.000	1.557	0.000	0.972	0.000	1.198	0.000
Pedestrian F_s / F_{delay}	0.000	0.143	0.000	0.143	0.000	0.040	0.000	0.105
Pedestrian M_{corner} / M_{cw}	0.00		0.00		0.00		0.00	
Bicycle c_b / d_b	222.22	35.56	222.22	35.56	1511.11	2.69	901.66	13.57
Bicycle F_w / F_v	-3.64	0.29	-3.64	0.22	-3.64	1.36	-3.64	0.48

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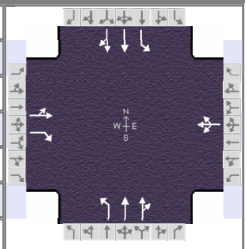
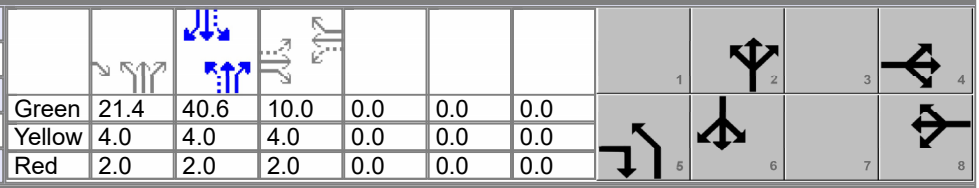
HCS Signalized Intersection Results Graphical Summary

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	AM Pr. Roadway	PHF	0.92
Urban Street	SR310	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR310 - Jersey Mill	File Name	_AM_ProposedRoadway_SR310 (Corridor 11).xus		
Project Description	FRA/LIC-161-22.1/0.00				



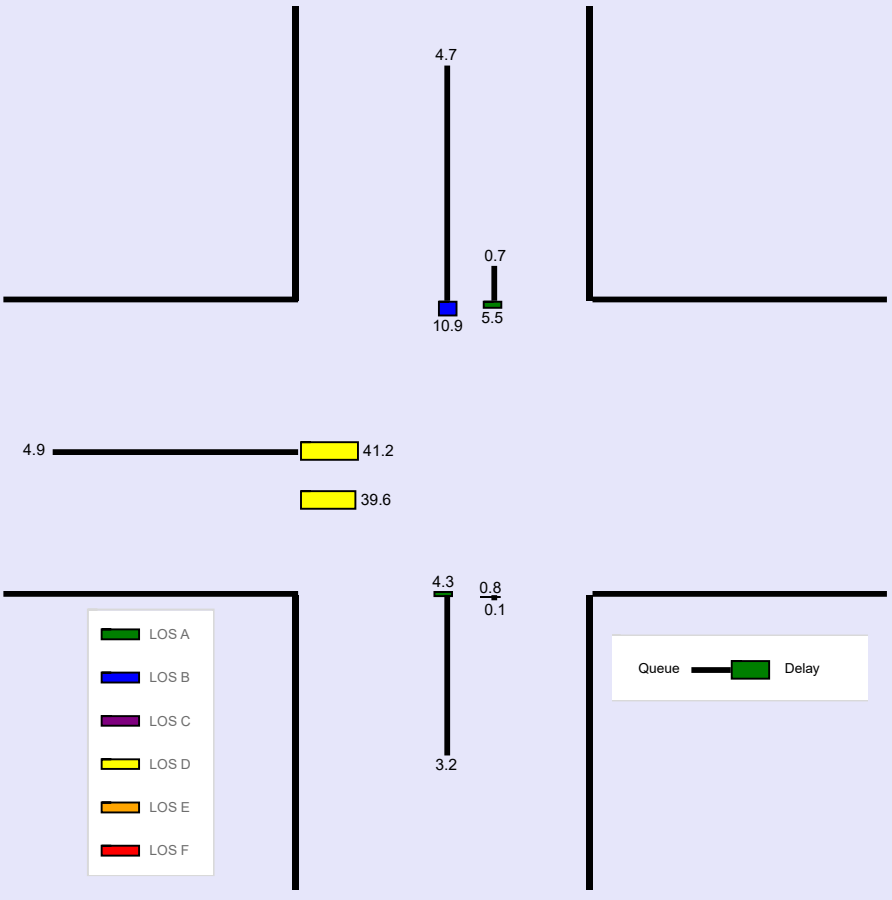
Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	30	10	120	80	10	30	620	800	100	50	470	10

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	32	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	21.4	40.6	10.0	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	2.0	2.0	2.0	0.0	0.0	0.0

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)		40	86		143		209	84	102	32	155	147
Back of Queue (*Q*), veh/ln (95 th percentile)		1.5	3.2		5.1		8.0	3.2	4.1	1.2	5.9	5.9
Queue Storage Ratio (*RQ*) (95 th percentile)		0.02	0.13		0.07		0.33	0.13	0.17	0.08	0.08	0.08
Control Delay (*d*), s/veh		36.9	21.2		43.2		14.0	6.3	5.2	16.1	17.4	17.4
Level of Service (LOS)		D	C		D		B	A	A	B	B	B
Approach Delay, s/veh / LOS	25.1	C		43.2	D		9.0	A		17.3	B	
Intersection Delay, s/veh / LOS	13.8						B					



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--- Messages ---

WARNING: According to input data, upstream feeding volume is equal to 84% of downstream exit volume during time period #1, for thru movement #2.

--- Comments ---

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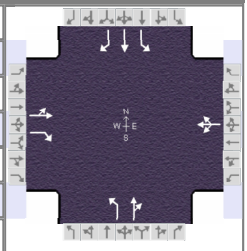
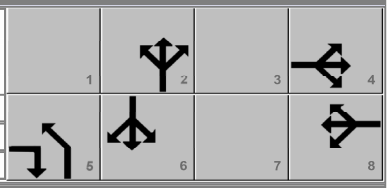
HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	AMP	Analysis Date	Sep 27, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	AM Pr. Roadway	PHF	0.92
Urban Street	SR310	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR310 - Jug St	File Name	11E_AM_ProposedRoadway_SR310_JugSt_204…		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	10	30	10	10	10	30	820	10	10	490	150

Signal Information													
Cycle, s	48.4	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	Yes	Simult. Gap E/W	On										
Force Mode	Fixed	Simult. Gap N/S	On										
				Green	2.5	21.0	6.9	0.0	0.0	0.0			
				Yellow	4.0	4.0	4.0	0.0	0.0	0.0			
				Red	2.0	2.0	2.0	0.0	0.0	0.0			



Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	10	30	10	10	10	30	820	10	10	490	150
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1750	1750	1750	1750	1750	1900	1750	1750	1900	1750	1750	1750
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %		10	10		15		6	6		6	6	6
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (*W*), ft		12.0	12.0		12.0		12.0	12.0		12.0	12.0	12.0
Turn Bay Length, ft		1999	315		1999		360	1999		345	1999	360
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h	55	55	55	55	55	55	55	55	55	55	55	55

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s		10.0		10.0	7.0	20.0		21.0
Yellow Change Interval (*Y*), s		4.0		4.0	4.0	4.0		4.0
Red Clearance Interval (R_c), s		2.0		2.0	2.0	2.0		2.0
Minimum Green (G_{min}), s		10		10	7	20		20
Start-Up Lost Time (*l1*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s		2.0		2.0	2.0	2.0		2.0
Recall Mode		Off		Off	Off	Max		Max
Dual Entry		Yes		Yes	No	Yes		Yes
Walk (*Walk*), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

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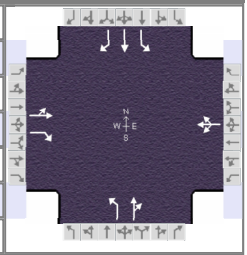
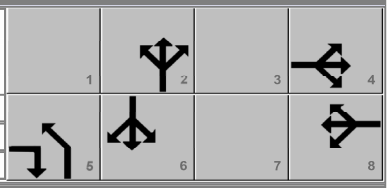
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	AMP	Analysis Date	Sep 27, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	AM Pr. Roadway	PHF	0.92
Urban Street	SR310	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR310 - Jug St	File Name	11E_AM_ProposedRoadway_SR310_JugSt_204…		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	10	30	10	10	10	30	820	10	10	490	150

Signal Information													
Cycle, s	48.4	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	Yes	Simult. Gap E/W	On										
Force Mode	Fixed	Simult. Gap N/S	On										
				Green	2.5	21.0	6.9	0.0	0.0	0.0			
				Yellow	4.0	4.0	4.0	0.0	0.0	0.0			
				Red	2.0	2.0	2.0	0.0	0.0	0.0			



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2		6
Case Number		7.0		8.0	1.0	4.0		5.3
Phase Duration, s		12.9		12.9	8.5	35.5		27.0
Change Period, (*Y+R c*), s		6.0		6.0	6.0	6.0		6.0
Max Allow Headway (*MAH*), s		3.0		3.0	2.9	2.9		2.9
Queue Clearance Time (*g s*), s		3.0		2.9	2.5	24.4		16.7
Green Extension Time (*g e*), s		0.1		0.1	0.0	0.0		1.7
Phase Call Probability		0.69		0.69	0.35	1.00		1.00
Max Out Probability		0.00		0.00	0.04	1.00		0.74

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h		22	33		33		33	902		11	533	163
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1486	1367		1403		1589	1664		598	1668	1414
Queue Service Time (*g s*), s		0.0	1.0		0.0		0.5	22.4		0.8	12.8	3.6
Cycle Queue Clearance Time (*g c*), s		0.6	1.0		0.9		0.5	22.4		14.7	12.8	3.6
Green Ratio (*g/C*)		0.14	0.19		0.14		0.53	0.61		0.43	0.43	0.43
Capacity (*c*), veh/h		323	265		299		373	1014		237	724	614
Volume-to-Capacity Ratio (*X*)		0.067	0.123		0.109		0.088	0.889		0.046	0.736	0.266
Back of Queue (*Q*), ft/ln (95 th percentile)		8	11		13		4	252		5	194	40
Back of Queue (*Q*), veh/ln (95 th percentile)		0.3	0.4		0.5		0.1	9.6		0.2	7.4	1.5
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00	0.04		0.01		0.01	0.13		0.01	0.10	0.11
Uniform Delay (*d 1*), s/veh		18.0	16.1		18.2		7.9	8.1		17.9	11.4	8.8
Incremental Delay (*d 2*), s/veh		0.0	0.1		0.1		0.0	11.6		0.4	6.6	1.1
Initial Queue Delay (*d 3*), s/veh		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Control Delay (*d*), s/veh		18.1	16.2		18.3		7.9	19.6		18.3	17.9	9.8
Level of Service (LOS)		B	B		B		A	B		B	B	A
Approach Delay, s/veh / LOS	16.9	B		18.3	B		19.2	B		16.1	B	
Intersection Delay, s/veh / LOS	17.8						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.91	B	2.10	B	1.62	B	1.88	B
Bicycle LOS Score / LOS	0.58	A	0.54	A	2.03	B	1.65	B

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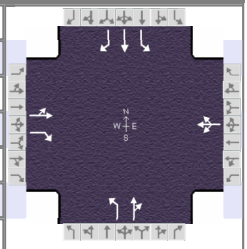
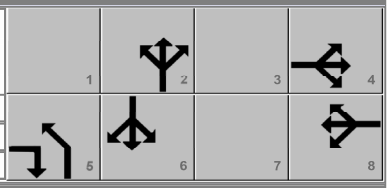
HCS Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	AMP	Analysis Date	Sep 27, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	AM Pr. Roadway	PHF	0.92
Urban Street	SR310	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR310 - Jug St	File Name	11E_AM_ProposedRoadway_SR310_JugSt_204…		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	10	30	10	10	10	30	820	10	10	490	150

Signal Information													
Cycle, s	48.4	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	Yes	Simult. Gap E/W	On	Green	2.5	21.0	6.9	0.0	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0			
				Red	2.0	2.0	2.0	0.0	0.0	0.0			



Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	0.852	0.922	0.922	1.000	0.883	1.000	0.953	0.953	1.000	0.953	0.953	0.953
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.921	0.921		0.960	0.908		0.952	0.000		0.342	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.000	0.847		0.000	0.908		0.998	0.998		0.000	0.847
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000			1.000			1.000			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Prot. CAV Adj. Factor ($f_{CAV,prot}$)							1.00					
Left-Turn Perm. CAV Adj. Factor ($f_{CAV,perm}$)	1.00			1.00						1.00		
Movement Saturation Flow Rate (s), veh/h	743	743	1367	468	468	468	1589	1644	20	598	1668	1414
Proportion of Vehicles Arriving on Green (P)	0.14	0.14	0.14	0.14	0.14	0.14	0.05	0.61	0.61	0.43	0.43	0.43
Incremental Delay Factor (k)		0.04	0.04		0.04		0.04	0.50		0.50	0.50	0.50

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)		6.0		6.0	6.0	6.0		6.0
Green Ratio (g/C)		0.14		0.14	0.53	0.61		0.43
Permitted Saturation Flow Rate (s_p), veh/h/ln		1412		1426	844	0		598
Shared Saturation Flow Rate (s_{sh}), veh/h/ln		1441		1436				
Permitted Effective Green Time (g_p), s		6.9		6.9	23.0	0.0		21.0
Permitted Service Time (g_u), s		5.9		6.3	8.1	0.0		7.1
Permitted Queue Service Time (g_{ps}), s		0.0		0.0	0.6			0.8
Time to First Blockage (g_f), s		1.8		3.0	0.0	0.0		0.0
Queue Service Time Before Blockage (g_{fs}), s		0.6		0.5				
Protected Right Saturation Flow (s_R), veh/h/ln		1367						0
Protected Right Effective Green Time (g_R), s		2.5						0.0

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.198	0.000	1.389	0.000	0.972	0.000	1.198	0.000
Pedestrian F_s / F_{delay}	0.000	0.115	0.000	0.115	0.000	0.052	0.000	0.082
Pedestrian M_{corner} / M_{cw}	0.00		0.00		0.00		0.00	
Bicycle c_b / d_b	284.95	17.79	284.95	17.79	1218.93	3.69	868.19	7.75
Bicycle F_w / F_v	-3.64	0.09	-3.64	0.05	-3.64	1.54	-3.64	1.17

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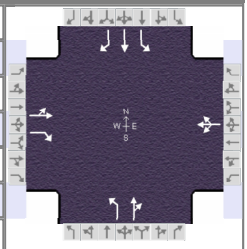
HCS Signalized Intersection Results Graphical Summary

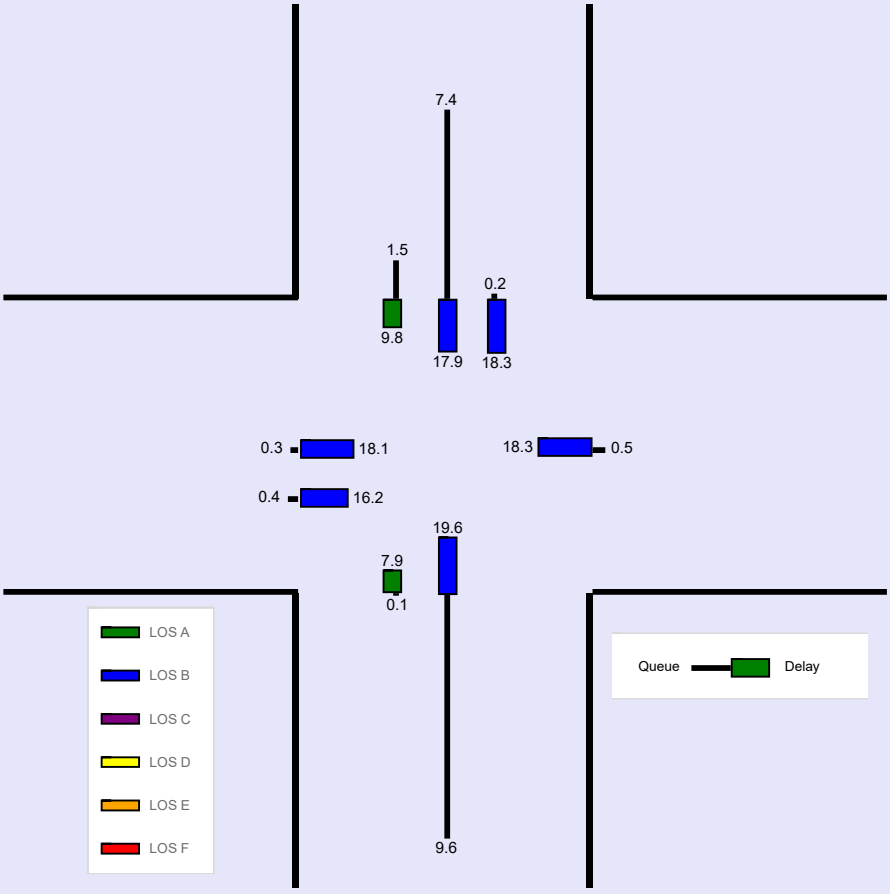
General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	AMP	Analysis Date	Sep 27, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	AM Pr. Roadway	PHF	0.92
Urban Street	SR310	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR310 - Jug St	File Name	11E_AM_ProposedRoadway_SR310_JugSt_204…		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	10	30	10	10	10	30	820	10	10	490	150

Signal Information													
Cycle, s	48.4	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	Yes	Simult. Gap E/W	On	Green	2.5	21.0	6.9	0.0	0.0	0.0	1	2	3	4
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0	5	6	7	8
				Red	2.0	2.0	2.0	0.0	0.0	0.0				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)		8	11		13		4	252		5	194	40
Back of Queue (*Q*), veh/ln (95 th percentile)		0.3	0.4		0.5		0.1	9.6		0.2	7.4	1.5
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00	0.04		0.01		0.01	0.13		0.01	0.10	0.11
Control Delay (*d*), s/veh		18.1	16.2		18.3		7.9	19.6		18.3	17.9	9.8
Level of Service (LOS)		B	B		B		A	B		B	B	A
Approach Delay, s/veh / LOS	16.9		B	18.3		B	19.2		B	16.1		B
Intersection Delay, s/veh / LOS	17.8						B					



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--- Messages ---

No errors or warnings exist.

--- Comments ---

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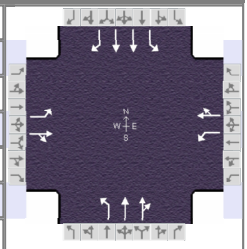
SR-310 (Signalized) - PM Build

HCS Signalized Intersection Input Data

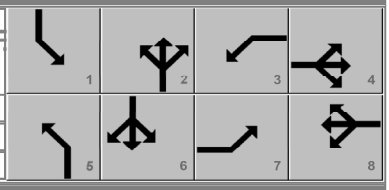
General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	PM Pr. Build	PHF	0.92
Urban Street	SR310	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR310 - Worthington	File Name	_PM_ProposedRoadway_SR310 (Corridor 11).xus		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	90	30	50	10	10	20	30	640	10	110	1570	50

Signal Information			
Cycle, s	110.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	4.4	2.4	62.4	2.0	5.0	9.8						
Yellow	4.0	0.0	4.0	4.0	0.0	4.0						
Red	2.0	0.0	2.0	2.0	0.0	2.0						



Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	90	30	50	10	10	20	30	640	10	110	1570	50
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1750
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	3	3		0	0		6	6		2	2	2
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.69	0.69	0.69
Lane Width (*W*), ft	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	12.0
Turn Bay Length, ft	540	1670		550	4120		345	1820		360	670	345
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h	55	55	55	55	55	55	55	55	55	55	55	55

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s	13.0	16.0	13.0	16.0	15.0	26.0	55.0	66.0
Yellow Change Interval (*Y*), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Red Clearance Interval (R_c), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Green (G_{min}), s	7	10	7	10	7	20	7	20
Start-Up Lost Time (*lt*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Recall Mode	Off	Off	Off	Off	Off	Max	Off	Max
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Walk (*Walk*), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

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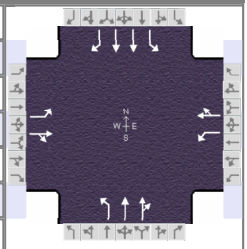
HCS Signalized Intersection Results Summary

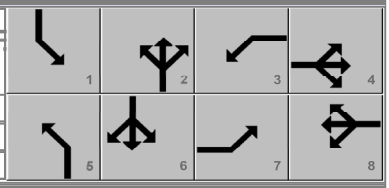
General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	PM Pr. Build	PHF	0.92
Urban Street	SR310	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR310 - Worthington	File Name	_PM_ProposedRoadway_SR310 (Corridor 11).xus		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	90	30	50	10	10	20	30	640	10	110	1570	50

Signal Information			
Cycle, s	110.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	4.4	2.4	62.4	2.0	5.0	9.8
Yellow	4.0	0.0	4.0	4.0	0.0	4.0
Red	2.0	0.0	2.0	2.0	0.0	2.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	3.0
Phase Duration, s	13.0	20.8	8.0	15.8	10.4	68.4	12.8	70.8
Change Period, ($Y+R_c$), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Allow Headway (*MAH*), s	2.9	3.1	2.9	3.1	2.9	0.0	2.9	0.0
Queue Clearance Time (g_s), s	7.9	7.7	2.6	4.1	2.9		5.2	
Green Extension Time (g_e), s	0.0	0.1	0.0	0.1	0.0	0.0	0.2	0.0
Phase Call Probability	0.95	1.00	0.28	0.98	0.63		0.97	
Max Out Probability	1.00	0.00	0.03	0.03	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	98	87		11	33		33	354	352	120	1707	54
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1628	1536		1667	1563		1589	1668	1659	1641	1640	1460
Queue Service Time (g_s), s	5.9	5.7		0.6	2.1		0.9	12.8	12.8	3.2	49.3	0.9
Cycle Queue Clearance Time (g_c), s	5.9	5.7		0.6	2.1		0.9	12.8	12.8	3.2	49.3	0.9
Green Ratio (*g/C*)	0.16	0.13		0.11	0.09		0.61	0.57	0.57	0.63	0.59	0.59
Capacity (*c*), veh/h	264	207		182	139		163	946	941	501	1931	860
Volume-to-Capacity Ratio (*X*)	0.370	0.420		0.060	0.234		0.200	0.374	0.375	0.239	0.884	0.063
Back of Queue (*Q*), ft/ln (95 th percentile)	104	97		12	36		17	207	197	44	568	12
Back of Queue (*Q*), veh/ln (95 th percentile)	4.1	3.8		0.5	1.5		0.7	7.9	7.9	1.7	22.4	0.5
Queue Storage Ratio (*RQ*) (95 th percentile)	0.19	0.06		0.02	0.01		0.05	0.11	0.11	0.12	0.85	0.03
Uniform Delay (d_1), s/veh	41.1	43.6		44.2	46.6		21.0	13.1	13.1	9.2	19.8	4.7
Incremental Delay (d_2), s/veh	0.3	0.5		0.1	0.3		0.2	1.1	1.1	0.1	4.5	0.1
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	41.4	44.1		44.2	46.9		21.2	14.2	14.2	9.3	24.3	4.8
Level of Service (LOS)	D	D		D	D		C	B	B	A	C	A
Approach Delay, s/veh / LOS	42.7	D		46.2	D		14.5	B		22.8	C	
Intersection Delay, s/veh / LOS	22.3						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.31	B	2.46	B	1.89	B	1.89	B
Bicycle LOS Score / LOS	0.79	A	0.56	A	1.10	A	2.04	B

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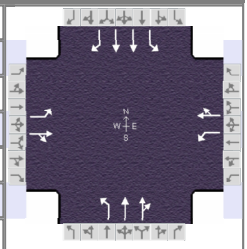
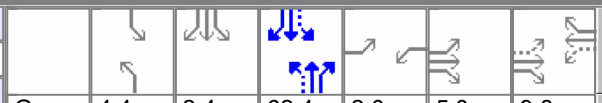
HCS Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	PM Pr. Build	PHF	0.92
Urban Street	SR310	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR310 - Worthington	File Name	_PM_ProposedRoadway_SR310 (Corridor 11).xus		
Project Description	FRA/LIC-161-22.1/0.00				

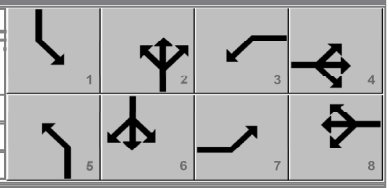


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	90	30	50	10	10	20	30	640	10	110	1570	50

Signal Information			
Cycle, s	110.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	4.4	2.4	62.4	2.0	5.0	9.8
Yellow	4.0	0.0	4.0	4.0	0.0	4.0
Red	2.0	0.0	2.0	2.0	0.0	2.0



Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	0.977	0.977	1.000	1.000	1.000	1.000	0.953	0.953	1.000	0.984	0.984	0.984
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.952	1.000
Left-Turn Adjustment Factor (f_{LT})	0.952	0.000		0.952	0.000		0.952	0.000		0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.899	0.899		0.893	0.893		0.994	0.994		0.000	0.847
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000			1.000			1.000			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Prot. CAV Adj. Factor ($f_{CAV,prot}$)	1.00			1.00			1.00			1.00		
Left-Turn Perm. CAV Adj. Factor ($f_{CAV,perm}$)												
Movement Saturation Flow Rate (s), veh/h	1628	576	960	1667	521	1042	1589	3276	51	1641	3280	1460
Proportion of Vehicles Arriving on Green (P)	0.06	0.13	0.13	0.02	0.09	0.09	0.04	0.57	0.57	0.05	0.58	0.80
Incremental Delay Factor (k)	0.04	0.04		0.04	0.04		0.04	0.50	0.50	0.04	0.50	0.50

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Green Ratio (g/C)	0.16	0.13	0.11	0.09	0.61	0.57	0.63	0.59
Permitted Saturation Flow Rate (s_p), veh/h/ln	1365	0	1331	0	278	0	742	0
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								
Permitted Effective Green Time (g_p), s	10.8	0.0	9.8	0.0	62.4	0.0	62.4	0.0
Permitted Service Time (g_u), s	7.7	0.0	7.1	0.0	13.5	0.0	49.5	0.0
Permitted Queue Service Time (g_{ps}), s	0.2		0.0		6.5		2.5	
Time to First Blockage (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln								0
Protected Right Effective Green Time (g_R), s								0.0

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.557	0.000	1.710	0.000	1.198	0.000	1.198	0.000
Pedestrian F_s / F_{delay}	0.000	0.149	0.000	0.153	0.000	0.094	0.000	0.089
Pedestrian M_{corner} / M_{cw}	0.00		0.00		0.00		0.00	
Bicycle c_b / d_b	269.74	41.16	178.44	45.62	1133.93	10.31	1177.64	9.30
Bicycle F_w / F_v	-3.64	0.30	-3.64	0.07	-3.64	0.61	-3.64	1.55

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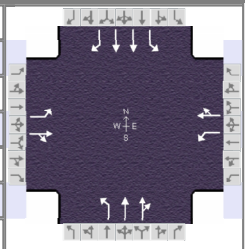
HCS Signalized Intersection Results Graphical Summary

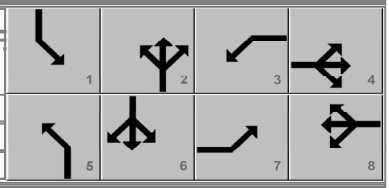
General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	PM Pr. Build	PHF	0.92
Urban Street	SR310	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR310 - Worthington	File Name	_PM_ProposedRoadway_SR310 (Corridor 11).xus		
Project Description	FRA/LIC-161-22.1/0.00				



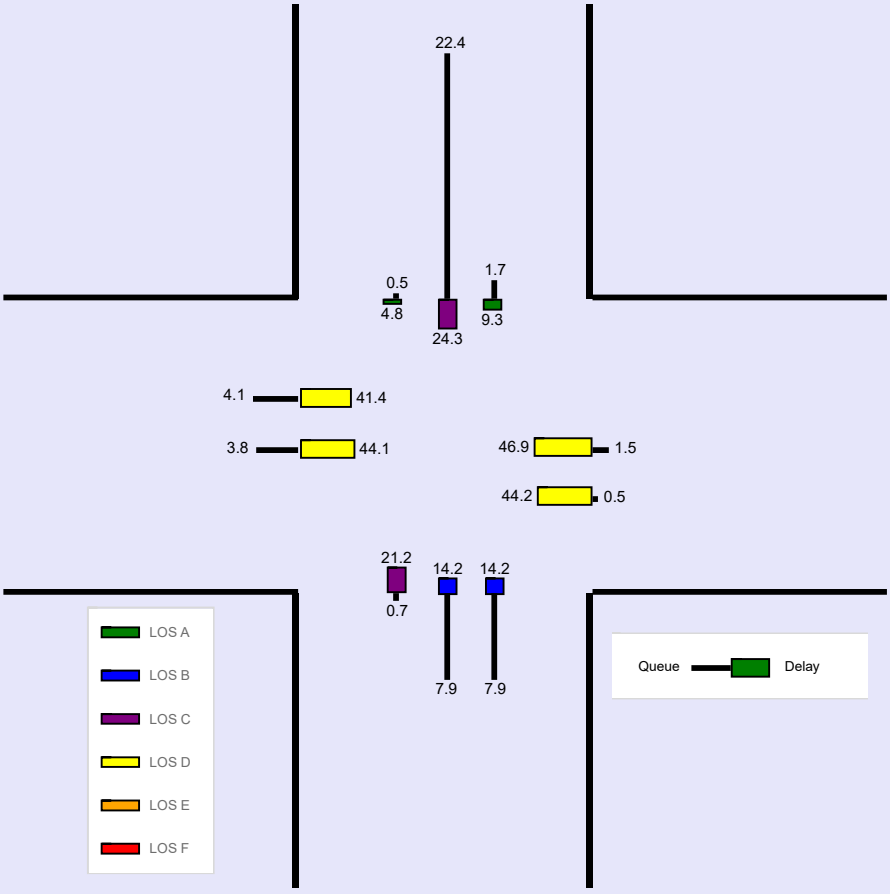
Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	90	30	50	10	10	20	30	640	10	110	1570	50

Signal Information			
Cycle, s	110.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	4.4	2.4	62.4	2.0	5.0	9.8	
Yellow	4.0	0.0	4.0	4.0	0.0	4.0	
Red	2.0	0.0	2.0	2.0	0.0	2.0	



Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)	104	97		12	36		17	207	197	44	568	12
Back of Queue (*Q*), veh/ln (95 th percentile)	4.1	3.8		0.5	1.5		0.7	7.9	7.9	1.7	22.4	0.5
Queue Storage Ratio (*RQ*) (95 th percentile)	0.19	0.06		0.02	0.01		0.05	0.11	0.11	0.12	0.85	0.03
Control Delay (*d*), s/veh	41.4	44.1		44.2	46.9		21.2	14.2	14.2	9.3	24.3	4.8
Level of Service (LOS)	D	D		D	D		C	B	B	A	C	A
Approach Delay, s/veh / LOS	42.7	D		46.2	D		14.5	B		22.8	C	
Intersection Delay, s/veh / LOS	22.3						C					



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--- Messages ---

WARNING: According to input data, upstream feeding volume is equal to 85% of downstream exit volume during time period #1, for thru movement #6.

--- Comments ---

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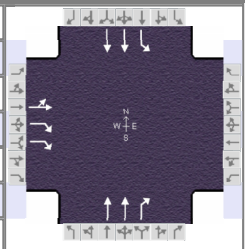
HCS Signalized Intersection Input Data

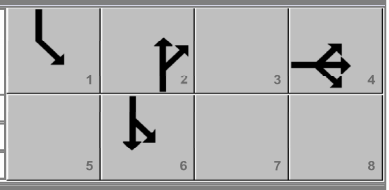
General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	PM Pr. Build	PHF	0.92
Urban Street	SR310	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR310 - SR161 EB Ramp	File Name	_PM_ProposedRoadway_SR310 (Corridor 11).xus		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	110	10	560					680	70	350	1170	

Signal Information			
Cycle, s	110.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	12.7	51.0	28.3	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	2.0	2.0	2.0	0.0	0.0	0.0



Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	110	10	560					680	70	350	1170	
Initial Queue (Q_b), veh/h	0	0	0					0	0	0	0	
Base Saturation Flow Rate (s_o), veh/h	1750	1750	1750					1750	1750	1750	1750	
Parking (N_m), man/h		None						None			None	
Heavy Vehicles (P_{HV}), %		2	2					5	5	2	2	
Ped / Bike / RTOR, /h	0	0	0	0	0		0	0	0	0	0	
Buses (N_b), buses/h	0	0	0				0	0	0	0	0	0
Arrival Type (*AT*)	3	3	3					3	3	3	3	
Upstream Filtering (*I*)	1.00	1.00	1.00					0.94	0.94	0.49	0.49	
Lane Width (*W*), ft		12.0	12.0					12.0	12.0	12.0	12.0	
Turn Bay Length, ft		720	490					650	345	425	820	
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h	55	55	55					55	55	55	55	

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s		39.0				57.0	14.0	71.0
Yellow Change Interval (*Y*), s		4.0				4.0	4.0	4.0
Red Clearance Interval (R_c), s		2.0				2.0	2.0	2.0
Minimum Green (G_{min}), s		10				20	7	20
Start-Up Lost Time (*l*t), s	2.0	2.0				2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0				2.0	2.0	2.0
Passage (*PT*), s		2.0				2.0	2.0	2.0
Recall Mode		Off				Max	Off	Max
Dual Entry		Yes				Yes	No	Yes
Walk (*Walk*), s		0.0		0.0				0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0				0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0				0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0				9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No		0		0.0		No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0				12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No				0.50		No	0.50	

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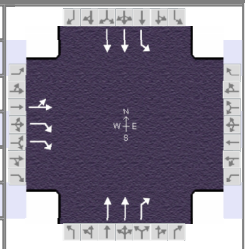
HCS Signalized Intersection Results Summary

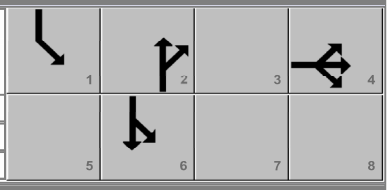
General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	PM Pr. Build	PHF	0.92
Urban Street	SR310	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR310 - SR161 EB Ramp	File Name	_PM_ProposedRoadway_SR310 (Corridor 11).xus		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	110	10	560					680	70	350	1170	

Signal Information			
Cycle, s	110.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	12.7	51.0	28.3	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	2.0	2.0	2.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4				2	1	6
Case Number		11.0				7.3	1.0	4.0
Phase Duration, s		34.3				57.0	18.7	75.7
Change Period, ($Y+R_c$), s		6.0				6.0	6.0	6.0
Max Allow Headway (*MAH*), s		3.2				0.0	2.9	0.0
Queue Clearance Time (g_s), s		27.2					14.7	
Green Extension Time (g_e), s		1.1				0.0	0.0	0.0
Phase Call Probability		1.00					1.00	
Max Out Probability		0.28					1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14					2	12	1	6	
Adjusted Flow Rate (*v*), veh/h		130	609					739	76	380	1272	
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1647	1292					1601	1425	1641	1640	
Queue Service Time (g_s), s		7.0	25.2					10.6	1.2	12.7	15.8	
Cycle Queue Clearance Time (g_c), s		7.0	25.2					10.6	1.2	12.7	15.8	
Green Ratio (*g/C*)		0.26	0.26					0.46	0.46	0.60	0.63	
Capacity (*c*), veh/h		424	665					1485	661	520	2078	
Volume-to-Capacity Ratio (*X*)		0.308	0.915					0.498	0.115	0.732	0.612	
Back of Queue (*Q*), ft/ln (95 th percentile)		122	342					130	18	160	130	
Back of Queue (*Q*), veh/ln (95 th percentile)		4.8	13.5					5.0	0.7	6.3	5.1	
Queue Storage Ratio (*RQ*) (95 th percentile)		0.17	0.70					0.20	0.05	0.38	0.16	
Uniform Delay (d_1), s/veh		32.9	39.7					9.2	5.6	13.9	5.2	
Incremental Delay (d_2), s/veh		0.2	13.2					1.1	0.3	2.3	0.7	
Initial Queue Delay (d_3), s/veh		0.0	0.0					0.0	0.0	0.0	0.0	
Control Delay (*d*), s/veh		33.1	52.9					10.3	5.9	16.2	5.9	
Level of Service (LOS)		C	D					B	A	B	A	
Approach Delay, s/veh / LOS	49.4	D		0.0			9.9	A		8.3	A	
Intersection Delay, s/veh / LOS	18.2						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.32	B	2.32	B	1.39	A	1.88	B
Bicycle LOS Score / LOS	1.71	B			1.16	A	1.85	B

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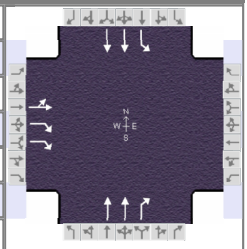
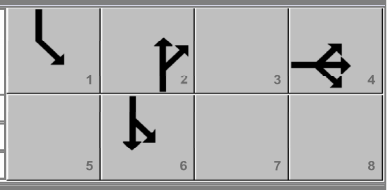
HCS Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	PM Pr. Build	PHF	0.92
Urban Street	SR310	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR310 - SR161 EB Ramp	File Name	_PM_ProposedRoadway_SR310 (Corridor 11).xus		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	110	10	560					680	70	350	1170	

Signal Information												
Cycle, s	110.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
				Green	12.7	51.0	28.3	0.0	0.0	0.0		
				Yellow	4.0	4.0	4.0	0.0	0.0	0.0		
				Red	2.0	2.0	2.0	0.0	0.0	0.0		



Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000				1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	0.852	0.984	0.984				0.938	0.961	0.961	0.984	0.984	1.000
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	0.000	0.000	0.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	0.000	0.000	0.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000				1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	0.885	1.000	1.000	1.000	1.000	0.952	1.000	1.000	0.952	1.000
Left-Turn Adjustment Factor (f_{LT})	0.956	0.956					1.000	1.000		0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.000	0.847					0.000	0.847		1.000	1.000
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000						1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000						1.000			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000				1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000				1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Prot. CAV Adj. Factor ($f_{CAV,prot}$)										1.00		
Left-Turn Perm. CAV Adj. Factor ($f_{CAV,perm}$)							1.00					
Movement Saturation Flow Rate (s), veh/h	1510	137	2584				0	3283	1425	1641	3363	0
Proportion of Vehicles Arriving on Green (P)	0.26	0.26	0.26	0.00	0.00	0.00	0.00	0.74	0.81	0.19	0.81	0.00
Incremental Delay Factor (k)		0.04	0.30					0.50	0.50	0.25	0.50	

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)		4.0				6.0	6.0	6.0
Green Ratio (g/C)		0.26				0.46	0.60	0.63
Permitted Saturation Flow Rate (s_p), veh/h/ln		0				442	719	0
Shared Saturation Flow Rate (s_{sh}), veh/h/ln						0		
Permitted Effective Green Time (g_p), s		0.0				0.0	53.0	0.0
Permitted Service Time (g_u), s		0.0				0.0	40.5	0.0
Permitted Queue Service Time (g_{ps}), s							18.7	
Time to First Blockage (g_f), s		0.0				51.0	0.0	0.0
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln		0				0		
Protected Right Effective Green Time (g_R), s		0.0				0.0		

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.557	0.000	1.557	0.000	0.681	0.000	1.198	0.000
Pedestrian F_s / F_{delay}	0.000	0.161	0.000	0.161	0.000	0.111	0.000	0.080
Pedestrian M_{corner} / M_{cw}	0.00		0.00		0.00		0.00	
Bicycle c_b / d_b		62.22	-90.91	60.11	927.29	15.82	1267.18	7.38
Bicycle F_w / F_v	-3.64	1.22	-3.64		-3.64	0.67	-3.64	1.36

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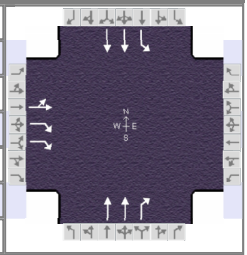
HCS Signalized Intersection Results Graphical Summary

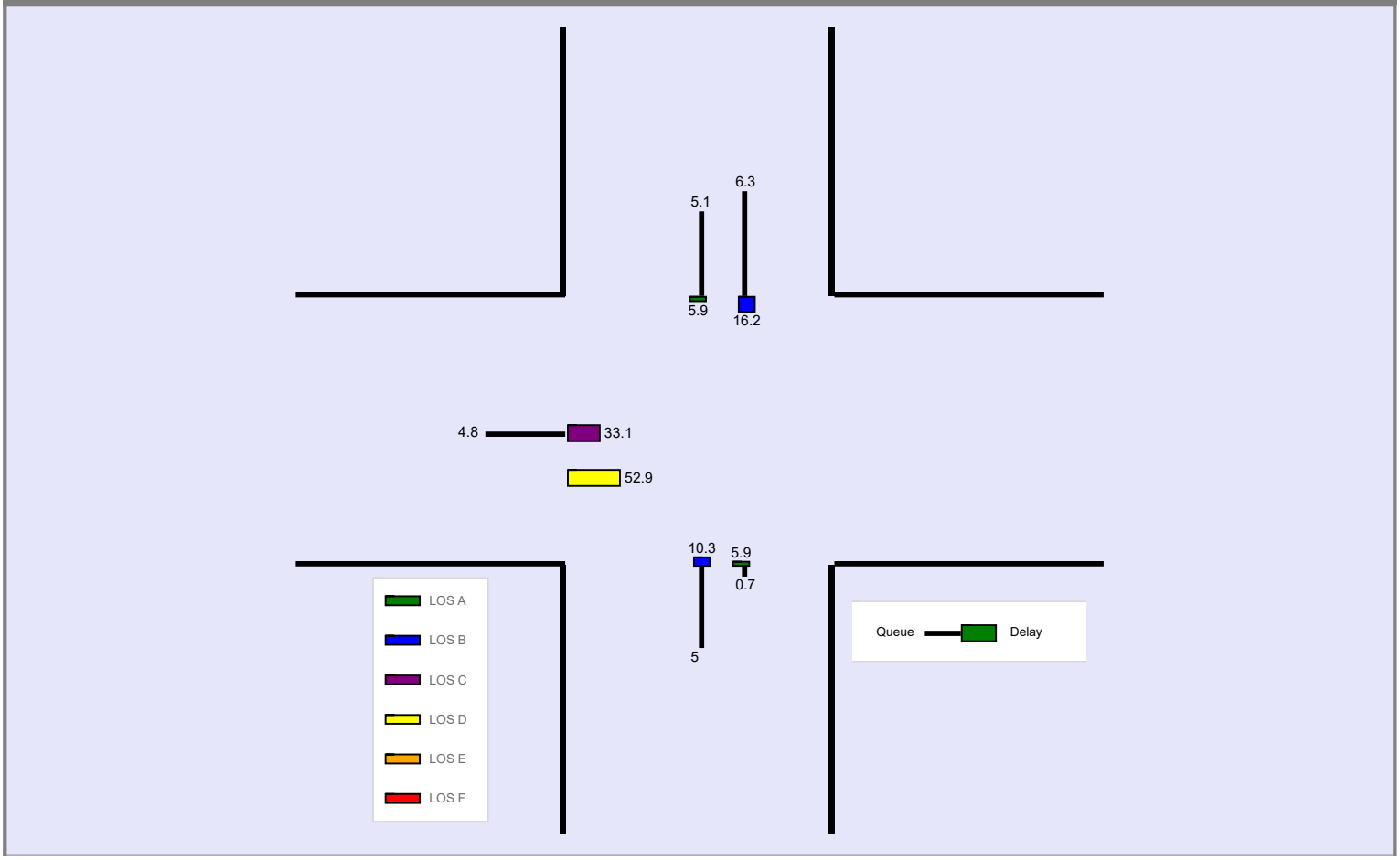
General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	PM Pr. Build	PHF	0.92
Urban Street	SR310	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR310 - SR161 EB Ramp	File Name	_PM_ProposedRoadway_SR310 (Corridor 11).xus		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	110	10	560					680	70	350	1170	

Signal Information					EB			WB			NB			SB		
Cycle, s	110.0	Reference Phase	2		L	T	R	L	T	R	L	T	R	L	T	R
Offset, s	0	Reference Point	End	Green	12.7	51.0	28.3	0.0	0.0	0.0						
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0						
Force Mode	Fixed	Simult. Gap N/S	On	Red	2.0	2.0	2.0	0.0	0.0	0.0						

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)		122	342					130	18	160	130	
Back of Queue (*Q*), veh/ln (95 th percentile)		4.8	13.5					5.0	0.7	6.3	5.1	
Queue Storage Ratio (*RQ*) (95 th percentile)		0.17	0.70					0.20	0.05	0.38	0.16	
Control Delay (*d*), s/veh		33.1	52.9					10.3	5.9	16.2	5.9	
Level of Service (LOS)		C	D					B	A	B	A	
Approach Delay, s/veh / LOS	49.4	D		0.0			9.9	A		8.3	A	
Intersection Delay, s/veh / LOS	18.2						B					



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--- Messages ---

WARNING: According to input data, upstream feeding volume is equal to 78% of downstream exit volume during time period #1, for thru movement #6.

--- Comments ---

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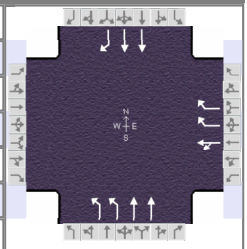
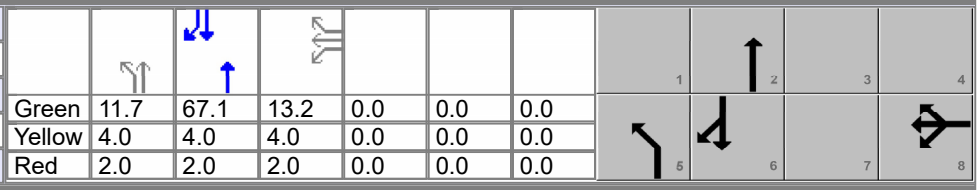
HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	PM Pr. Build	PHF	0.92
Urban Street	SR310	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR310 - SR161 WB Ramp	File Name	_PM_ProposedRoadway_SR310 (Corridor 11).xus		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				30	10	230	250	540			1490	70

Signal Information			
Cycle, s	110.0	Reference Phase	2
Offset, s	81	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	11.7	67.1	13.2	0.0	0.0	0.0						
Yellow	4.0	4.0	4.0	0.0	0.0	0.0						
Red	2.0	2.0	2.0	0.0	0.0	0.0						

Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				30	10	230	250	540			1490	70
Initial Queue (Q_b), veh/h				0	0	0	0	0			0	0
Base Saturation Flow Rate (s_o), veh/h				1750	1750	1750	1750	1750			1750	1750
Parking (N_m), man/h					None			None			None	
Heavy Vehicles (P_{HV}), %					5	5	5	5			3	3
Ped / Bike / RTOR, /h	0	0		0	0	0	0	0		0	0	0
Buses (N_b), buses/h				0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)				3	3	3	3	3			3	3
Upstream Filtering (*I*)				1.00	1.00	1.00	0.88	0.88			0.58	0.58
Lane Width (*W*), ft					12.0	12.0	12.0	12.0			12.0	12.0
Turn Bay Length, ft					640	470	390	820			670	360
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h				55	55	55	55	55			55	55

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s				31.0	27.0	79.0		52.0
Yellow Change Interval (*Y*), s				4.0	4.0	4.0		4.0
Red Clearance Interval (R_c), s				2.0	2.0	2.0		2.0
Minimum Green (G_{min}), s				10	7	20		20
Start-Up Lost Time (*l*t), s			2.0	2.0	2.0	2.0		2.0
Extension of Effective Green (*e*), s			2.0	2.0	2.0	2.0		2.0
Passage (*PT*), s				2.0	2.0	2.0		2.0
Recall Mode				Off	Off	Max		Max
Dual Entry				Yes	No	Yes		Yes
Walk (*Walk*), s		0.0		0.0		0.0		
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0			
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0			
Street Width / Island / Curb, ft		0		0.0	0	No	0.0	0	No	0.0		No
Width Outside / Bike Lane / Shoulder, ft				12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No			No	0.50		No	0.50			0.50	

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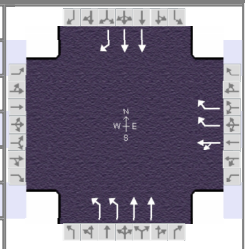
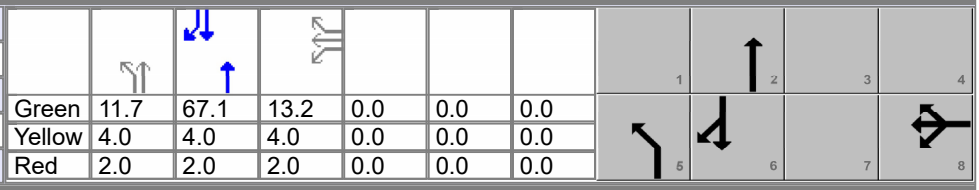
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	PM Pr. Build	PHF	0.92
Urban Street	SR310	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR310 - SR161 WB Ramp	File Name	_PM_ProposedRoadway_SR310 (Corridor 11).xus		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				30	10	230	250	540			1490	70

Signal Information			
Cycle, s	110.0	Reference Phase	2
Offset, s	81	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	11.7	67.1	13.2	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	2.0	2.0	2.0	0.0	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8	5	2		6
Case Number				11.0	2.0	4.0		7.3
Phase Duration, s				19.2	17.7	90.8		73.1
Change Period, ($Y+R_c$), s				6.0	6.0	6.0		6.0
Max Allow Headway (*MAH*), s				3.2	2.9	0.0		0.0
Queue Clearance Time (g_s), s				12.6	11.1			
Green Extension Time (g_e), s				0.5	0.5	0.0		0.0
Phase Call Probability				1.00	1.00			
Max Out Probability				0.00	0.00			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3	8	18	5	2			6	16
Adjusted Flow Rate (*v*), veh/h					43	250	272	587			1620	76
Adjusted Saturation Flow Rate (*s*), veh/h/ln					1621	1261	1555	1601			1627	1448
Queue Service Time (g_s), s					2.7	10.6	9.1	8.9			38.4	1.9
Cycle Queue Clearance Time (g_c), s					2.7	10.6	9.1	8.9			38.4	1.9
Green Ratio (*g/C*)					0.12	0.12	0.11	0.77			0.61	0.61
Capacity (*c*), veh/h					194	303	330	2469			1986	884
Volume-to-Capacity Ratio (*X*)					0.224	0.826	0.823	0.238			0.816	0.086
Back of Queue (*Q*), ft/ln (95 th percentile)					48	153	143	99			336	24
Back of Queue (*Q*), veh/ln (95 th percentile)					1.9	5.9	5.5	3.8			13.1	0.9
Queue Storage Ratio (*RQ*) (95 th percentile)					0.08	0.33	0.37	0.12			0.50	0.07
Uniform Delay (d_1), s/veh					43.8	47.3	41.7	6.4			12.3	6.8
Incremental Delay (d_2), s/veh					0.2	2.2	1.8	0.2			2.2	0.1
Initial Queue Delay (d_3), s/veh					0.0	0.0	0.0	0.0			0.0	0.0
Control Delay (*d*), s/veh					44.0	49.5	43.5	6.6			14.5	6.9
Level of Service (LOS)					D	D	D	A			B	A
Approach Delay, s/veh / LOS	0.0			48.7		D	18.2		B	14.2		B
Intersection Delay, s/veh / LOS	19.0						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.47	B	2.32	B	1.84	B	1.66	B
Bicycle LOS Score / LOS			0.97	A	1.20	A	1.89	B

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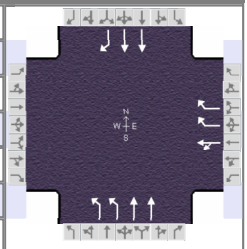
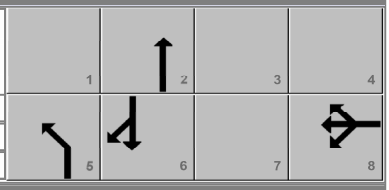
HCS Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	PM Pr. Build	PHF	0.92
Urban Street	SR310	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR310 - SR161 WB Ramp	File Name	_PM_ProposedRoadway_SR310 (Corridor 11).xus		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				30	10	230	250	540			1490	70

Signal Information													
Cycle, s	110.0	Reference Phase	2										
Offset, s	81	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On	Green	11.7	67.1	13.2	0.0	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0			
				Red	2.0	2.0	2.0	0.0	0.0	0.0			



Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)				1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})				1.000	0.961	0.961	0.961	0.961	0.945	0.922	0.977	0.977
Parking Activity Adjustment Factor (f_p)	0.000	0.000	0.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	0.000	0.000	0.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)				1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	0.885	0.971	0.952	1.000	1.000	0.952	1.000
Left-Turn Adjustment Factor (f_{LT})				0.964	0.964		0.952	0.000		1.000	1.000	
Right-Turn Adjustment Factor (f_{RT})					0.000	0.847		1.000	1.000		0.000	0.847
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})				1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})						1.000			1.000			1.000
Work Zone Adjustment Factor (f_{wz})				1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})				1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Prot. CAV Adj. Factor ($f_{CAV,prot}$)							1.00					
Left-Turn Perm. CAV Adj. Factor ($f_{CAV,perm}$)										1.00		
Movement Saturation Flow Rate (s), veh/h				1216	405	2523	3110	3283	0	0	3336	1448
Proportion of Vehicles Arriving on Green (P)	0.00	0.00	0.00	0.12	0.12	0.12	0.22	0.63	0.00	0.00	0.70	0.70
Incremental Delay Factor (k)					0.04	0.04	0.04	0.50			0.50	0.50

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)				4.0	6.0	6.0		6.0
Green Ratio (g/C)				0.12	0.11	0.77		0.61
Permitted Saturation Flow Rate (s_p), veh/h/ln				0	0	0		842
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								0
Permitted Effective Green Time (g_p), s				0.0	0.0	0.0		0.0
Permitted Service Time (g_u), s				0.0	0.0	0.0		0.0
Permitted Queue Service Time (g_{ps}), s								
Time to First Blockage (g_f), s				0.0	0.0	0.0		67.1
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln				0				0
Protected Right Effective Green Time (g_R), s				0.0				0.0

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.710	0.000	1.557	0.000	1.198	0.000	0.972	0.000
Pedestrian F_s / F_{delay}	0.000	0.161	0.000	0.161	0.000	0.042	0.000	0.085
Pedestrian M_{corner} / M_{cw}	0.00		0.00		0.00		0.00	
Bicycle c_b / d_b	-90.91	60.11		62.22	1541.90	2.89	1220.56	8.35
Bicycle F_w / F_v	-3.64		-3.64	0.48	-3.64	0.71	-3.64	1.40

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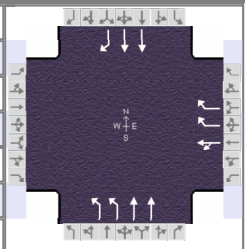
HCS Signalized Intersection Results Graphical Summary

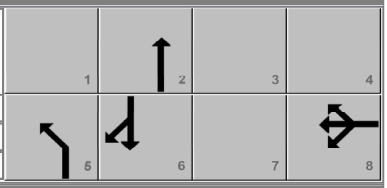
General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	PM Pr. Build	PHF	0.92
Urban Street	SR310	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR310 - SR161 WB Ramp	File Name	_PM_ProposedRoadway_SR310 (Corridor 11).xus		
Project Description	FRA/LIC-161-22.1/0.00				



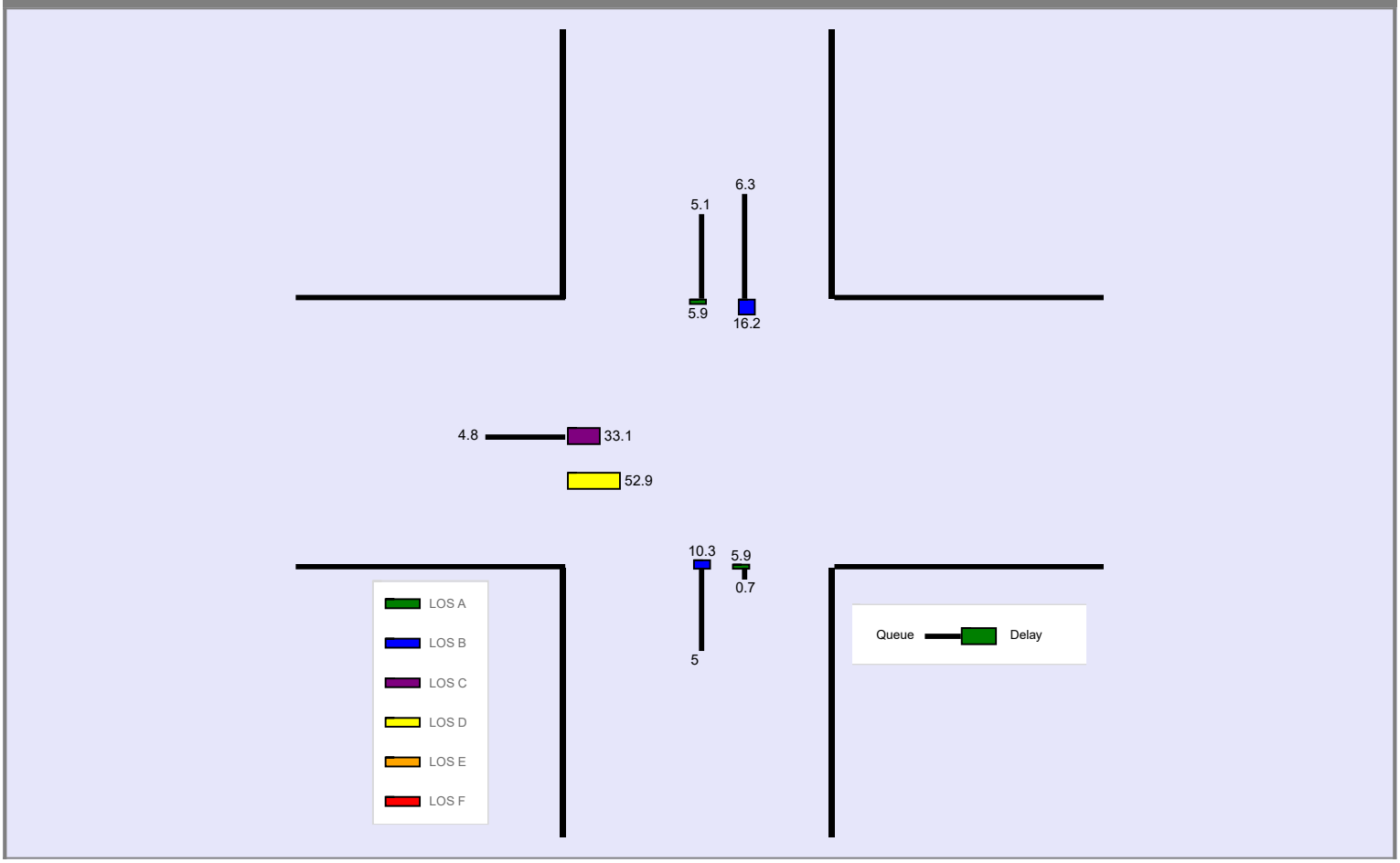
Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				30	10	230	250	540			1490	70

Signal Information			
Cycle, s	110.0	Reference Phase	2
Offset, s	81	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	11.7	67.1	13.2	0.0	0.0	0.0	
Yellow	4.0	4.0	4.0	0.0	0.0	0.0	
Red	2.0	2.0	2.0	0.0	0.0	0.0	



Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)					48	153	143	99			336	24
Back of Queue (*Q*), veh/ln (95 th percentile)					1.9	5.9	5.5	3.8			13.1	0.9
Queue Storage Ratio (*RQ*) (95 th percentile)					0.08	0.33	0.37	0.12			0.50	0.07
Control Delay (*d*), s/veh					44.0	49.5	43.5	6.6			14.5	6.9
Level of Service (LOS)					D	D	D	A			B	A
Approach Delay, s/veh / LOS	0.0			48.7		D	18.2		B	14.2		B
Intersection Delay, s/veh / LOS	19.0						B					



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--- Messages ---

WARNING: According to input data, upstream feeding volume is equal to 89% of downstream exit volume during time period #1, for thru movement #2.

--- Comments ---

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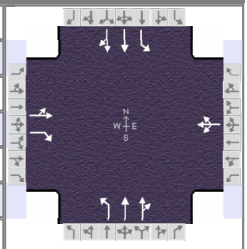
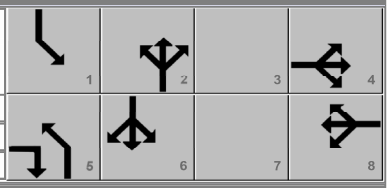
HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	PM Pr. Build	PHF	0.92
Urban Street	SR310	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR310 - Jersey Mill	File Name	_PM_ProposedRoadway_SR310 (Corridor 11).xus		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	20	10	520	60	10	30	140	530	100	90	980	10

Signal Information												
Cycle, s	110.0	Reference Phase	2									
Offset, s	33	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
				Green	6.6	1.8	41.6	42.0	0.0	0.0		
				Yellow	4.0	0.0	4.0	4.0	0.0	0.0		
				Red	2.0	0.0	2.0	2.0	0.0	0.0		



Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	20	10	520	60	10	30	140	530	100	90	980	10
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1750	1750	1750	1750	1750	1900	1750	1750	1900	1750	1750	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %		4	4		4		6	6		6	6	
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	0.96	0.96	0.96	1.00	1.00	1.00
Lane Width (*W*), ft		12.0	12.0		12.0		12.0	12.0		12.0	12.0	
Turn Bay Length, ft		1999	650		1999		640	640		415	1999	
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h	55	55	55	55	55	55	55	55	55	55	55	55

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s		60.0		60.0	21.0	35.0	15.0	29.0
Yellow Change Interval (*Y*), s		4.0		4.0	4.0	4.0	4.0	4.0
Red Clearance Interval (R_c), s		2.0		2.0	2.0	2.0	2.0	2.0
Minimum Green (G_{min}), s		10		10	7	20	7	20
Start-Up Lost Time (*l1*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s		2.0		2.0	2.0	2.0	2.0	2.0
Recall Mode		Off		Off	Off	Max	Off	Max
Dual Entry		Yes		Yes	No	Yes	No	Yes
Walk (*Walk*), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

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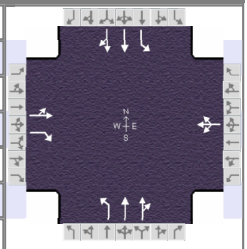
HCS Signalized Intersection Results Summary

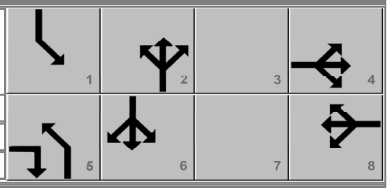
General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	PM Pr. Build	PHF	0.92
Urban Street	SR310	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR310 - Jersey Mill	File Name	_PM_ProposedRoadway_SR310 (Corridor 11).xus		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	20	10	520	60	10	30	140	530	100	90	980	10

Signal Information			
Cycle, s	110.0	Reference Phase	2
Offset, s	33	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	6.6	1.8	41.6	42.0	0.0	0.0
Yellow	4.0	0.0	4.0	4.0	0.0	0.0
Red	2.0	0.0	2.0	2.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		7.0		8.0	1.1	4.0	1.1	4.0
Phase Duration, s		48.0		48.0	14.4	49.3	12.6	47.6
Change Period, ($Y+R_c$), s		6.0		6.0	6.0	6.0	6.0	6.0
Max Allow Headway (*MAH*), s		3.2		3.2	2.9	0.0	2.9	0.0
Queue Clearance Time (g_s), s		40.6		7.4	8.3		6.1	
Green Extension Time (g_e), s		1.4		1.5	0.2	0.0	0.1	0.0
Phase Call Probability		1.00		1.00	0.99		0.95	
Max Out Probability		0.01		0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h		33	565		109		152	270	415	98	539	537
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1448	1437		1430		1589	1043	1593	1589	1668	1662
Queue Service Time (g_s), s		0.0	38.6		4.0		6.3	16.8	17.5	4.1	32.7	32.7
Cycle Queue Clearance Time (g_c), s		1.4	38.6		5.4		6.3	16.8	17.5	4.1	32.7	32.7
Green Ratio (*g/C*)		0.38	0.46		0.38		0.45	0.39	0.39	0.44	0.38	0.38
Capacity (*c*), veh/h		607	658		599		228	411	628	320	631	628
Volume-to-Capacity Ratio (*X*)		0.054	0.858		0.182		0.668	0.658	0.660	0.306	0.855	0.855
Back of Queue (*Q*), ft/ln (95 th percentile)		23	485		81		109	158	214	65	540	514
Back of Queue (*Q*), veh/ln (95 th percentile)		0.9	18.8		3.2		4.2	6.0	8.6	2.5	20.6	20.6
Queue Storage Ratio (*RQ*) (95 th percentile)		0.01	0.75		0.04		0.17	0.25	0.35	0.16	0.27	0.27
Uniform Delay (d_1), s/veh		21.4	26.6		22.6		26.0	13.7	14.7	20.1	31.4	31.4
Incremental Delay (d_2), s/veh		0.0	6.6		0.1		1.2	7.7	5.2	0.2	13.8	13.9
Initial Queue Delay (d_3), s/veh		0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh		21.4	33.2		22.7		27.2	21.4	19.9	20.3	45.3	45.3
Level of Service (LOS)		C	C		C		C	C	B	C	D	D
Approach Delay, s/veh / LOS	32.5	C		22.7	C		21.7	C		43.2	D	
Intersection Delay, s/veh / LOS	33.4						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.28	B	2.28	B	1.69	B	1.92	B
Bicycle LOS Score / LOS	1.47	A	0.67	A	1.18	A	1.46	A

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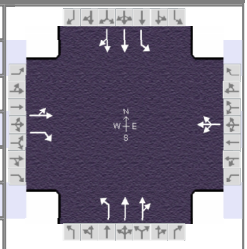
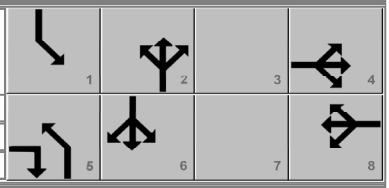
HCS Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	PM Pr. Build	PHF	0.92
Urban Street	SR310	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR310 - Jersey Mill	File Name	_PM_ProposedRoadway_SR310 (Corridor 11).xus		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	20	10	520	60	10	30	140	530	100	90	980	10

Signal Information												
Cycle, s	110.0	Reference Phase	2									
Offset, s	33	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
				Green	6.6	1.8	41.6	42.0	0.0	0.0		
				Yellow	4.0	0.0	4.0	4.0	0.0	0.0		
				Red	2.0	0.0	2.0	2.0	0.0	0.0		



Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	0.852	0.969	0.969	1.000	0.969	1.000	0.953	0.953	1.000	0.953	0.953	1.000
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.625	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.854	0.854		0.884	0.844		0.952	0.000		0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.000	0.847		0.000	0.844		0.955	0.955		0.996	0.996
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000			1.000			1.000			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Prot. CAV Adj. Factor ($f_{CAV,prot}$)							1.00			1.00		
Left-Turn Perm. CAV Adj. Factor ($f_{CAV,perm}$)	1.00			1.00								
Movement Saturation Flow Rate (s), veh/h	965	483	1437	858	143	429	1589	2218	418	1589	3297	34
Proportion of Vehicles Arriving on Green (P)	0.38	0.38	0.38	0.38	0.38	0.38	0.03	0.67	0.59	0.06	0.38	0.38
Incremental Delay Factor (k)		0.04	0.22		0.04		0.04	0.50	0.50	0.04	0.50	0.50

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)		6.0		6.0	6.0	6.0	6.0	6.0
Green Ratio (g/C)		0.38		0.38	0.45	0.39	0.44	0.38
Permitted Saturation Flow Rate (s_p), veh/h/ln		1385		1426	508	0	733	0
Shared Saturation Flow Rate (s_{sh}), veh/h/ln		1442		1492				
Permitted Effective Green Time (g_p), s		42.0		42.0	41.6	0.0	41.6	0.0
Permitted Service Time (g_u), s		36.6		40.6	8.9	0.0	23.8	0.0
Permitted Queue Service Time (g_{ps}), s		0.0		4.0	8.9		2.7	
Time to First Blockage (g_f), s		1.0		1.3	0.0	0.0	0.0	0.0
Queue Service Time Before Blockage (g_{fs}), s		1.0		1.3				
Protected Right Saturation Flow (s_R), veh/h/ln		1437						
Protected Right Effective Green Time (g_R), s		8.4						

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.557	0.000	1.557	0.000	0.972	0.000	1.198	0.000
Pedestrian F_s / F_{delay}	0.000	0.122	0.000	0.122	0.000	0.121	0.000	0.123
Pedestrian M_{corner} / M_{cw}	0.00		0.00		0.00		0.00	
Bicycle c_b / d_b	763.83	21.01	763.83	21.01	788.03	20.20	756.20	21.27
Bicycle F_w / F_v	-3.64	0.99	-3.64	0.18	-3.64	0.69	-3.64	0.97

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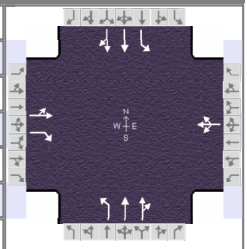
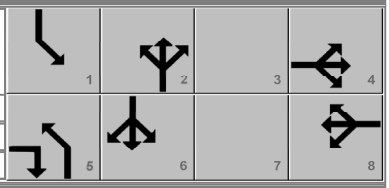
HCS Signalized Intersection Results Graphical Summary

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	PM Pr. Build	PHF	0.92
Urban Street	SR310	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR310 - Jersey Mill	File Name	_PM_ProposedRoadway_SR310 (Corridor 11).xus		
Project Description	FRA/LIC-161-22.1/0.00				

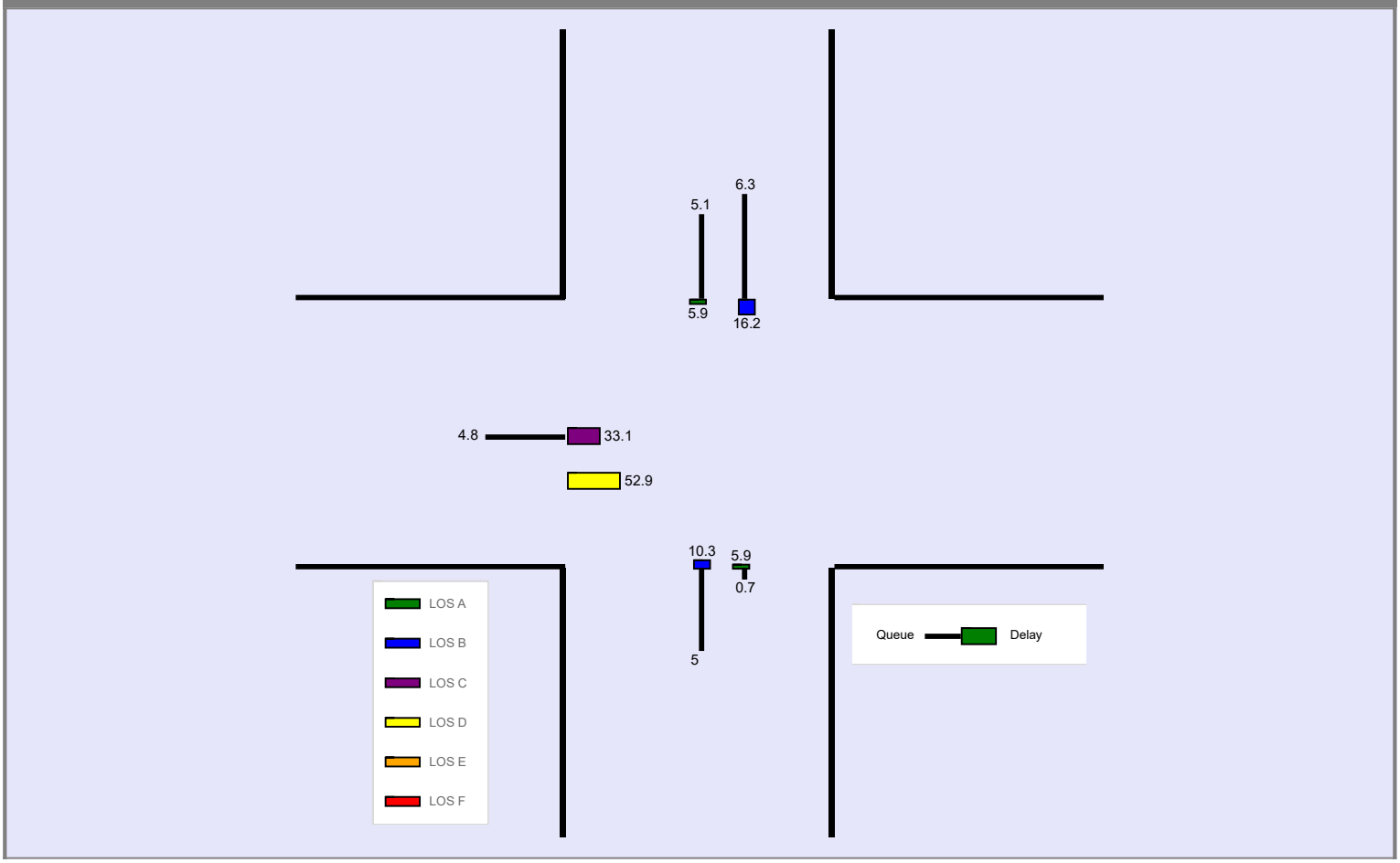


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	20	10	520	60	10	30	140	530	100	90	980	10

Signal Information												
Cycle, s	110.0	Reference Phase	2									
Offset, s	33	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On	Green	6.6	1.8	41.6	42.0	0.0	0.0		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	0.0	4.0	4.0	0.0	0.0		
				Red	2.0	0.0	2.0	2.0	0.0	0.0		



Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)		23	485		81		109	158	214	65	540	514
Back of Queue (*Q*), veh/ln (95 th percentile)		0.9	18.8		3.2		4.2	6.0	8.6	2.5	20.6	20.6
Queue Storage Ratio (*RQ*) (95 th percentile)		0.01	0.75		0.04		0.17	0.25	0.35	0.16	0.27	0.27
Control Delay (*d*), s/veh		21.4	33.2		22.7		27.2	21.4	19.9	20.3	45.3	45.3
Level of Service (LOS)		C	C		C		C	C	B	C	D	D
Approach Delay, s/veh / LOS	32.5	C		22.7	C		21.7	C		43.2	D	
Intersection Delay, s/veh / LOS	33.4						C					



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--- Messages ---

No errors or warnings exist.

--- Comments ---

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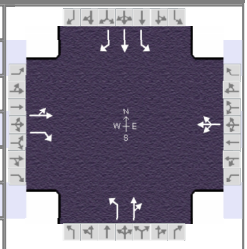
HCS Signalized Intersection Input Data

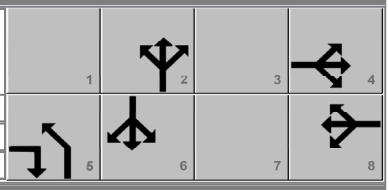
General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	AMP	Analysis Date	Sep 27, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	PM Pr. Roadway	PHF	0.92
Urban Street	SR310	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR310 - Jug St	File Name	11E_PM_ProposedRoadway_SR310_JugSt_204…		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	10	110	10	10	10	140	430	10	20	960	70

Signal Information			
Cycle, s	92.9	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	6.9	58.1	9.9	0.0	0.0	0.0	
Yellow	4.0	4.0	4.0	0.0	0.0	0.0	
Red	2.0	2.0	2.0	0.0	0.0	0.0	



Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	10	110	10	10	10	140	430	10	20	960	70
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1750	1750	1750	1750	1750	1900	1750	1750	1900	1750	1750	1750
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %		4	4		4		6	6		6	6	6
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (*W*), ft		12.0	12.0		12.0		12.0	12.0		12.0	12.0	12.0
Turn Bay Length, ft		1999	315		1999		360	1999		345	1999	360
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h	55	55	55	55	55	55	55	55	55	55	55	55

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s		10.0		10.0	7.0	71.0		20.0
Yellow Change Interval (*Y*), s		4.0		4.0	4.0	4.0		4.0
Red Clearance Interval (R_c), s		2.0		2.0	2.0	2.0		2.0
Minimum Green (G_{min}), s		10		10	7	20		20
Start-Up Lost Time (*l1*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s		2.0		2.0	2.0	2.0		2.0
Recall Mode		Off		Off	Off	Max		Max
Dual Entry		Yes		Yes	No	Yes		Yes
Walk (*Walk*), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

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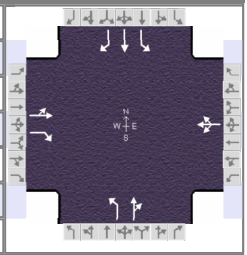
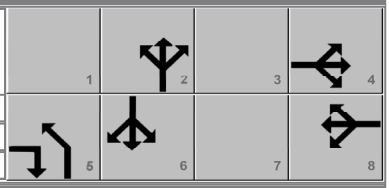
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	AMP	Analysis Date	Sep 27, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	PM Pr. Roadway	PHF	0.92
Urban Street	SR310	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR310 - Jug St	File Name	11E_PM_ProposedRoadway_SR310_JugSt_204…		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	10	110	10	10	10	140	430	10	20	960	70

Signal Information												
Cycle, s	92.9	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	Yes	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
				Green	6.9	58.1	9.9	0.0	0.0	0.0		
				Yellow	4.0	4.0	4.0	0.0	0.0	0.0		
				Red	2.0	2.0	2.0	0.0	0.0	0.0		



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2		6
Case Number		7.0		8.0	1.0	4.0		5.3
Phase Duration, s		15.9		15.9	12.9	77.0		64.1
Change Period, ($Y+R_c$), s		6.0		6.0	6.0	6.0		6.0
Max Allow Headway (*MAH*), s		3.1		3.1	2.9	2.9		2.9
Queue Clearance Time (g_s), s		8.9		3.7	6.1	10.8		60.1
Green Extension Time (g_e), s		0.0		0.2	0.0	3.5		0.0
Phase Call Probability		0.99		0.99	0.98	1.00		1.00
Max Out Probability		1.00		0.03	1.00	0.00		1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h		22	120		33		152	478		22	1043	76
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1550	1437		1530		1589	1661		887	1668	1414
Queue Service Time (g_s), s		0.0	6.9		0.0		4.1	8.8		0.9	58.1	2.0
Cycle Queue Clearance Time (g_c), s		1.1	6.9		1.7		4.1	8.8		0.9	58.1	2.0
Green Ratio (*g/C*)		0.11	0.18		0.11		0.72	0.76		0.63	0.63	0.63
Capacity (*c*), veh/h		223	259		215		195	1270		633	1044	885
Volume-to-Capacity Ratio (*X*)		0.097	0.461		0.152		0.779	0.377		0.034	0.999	0.086
Back of Queue (*Q*), ft/ln (95 th percentile)		20	105		30		132	79		7	833	24
Back of Queue (*Q*), veh/ln (95 th percentile)		0.8	4.1		1.2		5.0	3.0		0.3	31.8	0.9
Queue Storage Ratio (*RQ*) (95 th percentile)		0.01	0.33		0.01		0.37	0.04		0.02	0.42	0.07
Uniform Delay (d_1), s/veh		37.6	34.0		37.9		27.4	3.6		6.7	17.4	6.9
Incremental Delay (d_2), s/veh		0.1	0.5		0.1		16.1	0.9		0.1	27.7	0.2
Initial Queue Delay (d_3), s/veh		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Control Delay (*d*), s/veh		37.6	34.5		38.0		43.5	4.5		6.8	45.1	7.1
Level of Service (LOS)		D	C		D		D	A		A	D	A
Approach Delay, s/veh / LOS	35.0	C		38.0	D		13.9	B		41.8	D	
Intersection Delay, s/veh / LOS	32.2						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.94	B	2.13	B	1.61	B	1.87	B
Bicycle LOS Score / LOS	0.72	A	0.54	A	1.53	B	2.37	B

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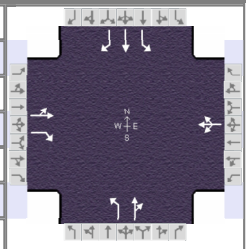
HCS Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	AMP	Analysis Date	Sep 27, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	PM Pr. Roadway	PHF	0.92
Urban Street	SR310	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR310 - Jug St	File Name	11E_PM_ProposedRoadway_SR310_JugSt_204…		
Project Description	FRA/LIC-161-22.1/0.00				

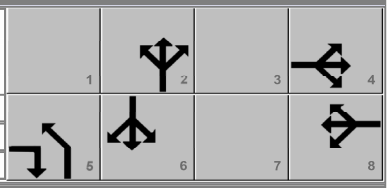


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	10	110	10	10	10	140	430	10	20	960	70

Signal Information			
Cycle, s	92.9	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	6.9	58.1	9.9	0.0	0.0	0.0						
Yellow	4.0	4.0	4.0	0.0	0.0	0.0						
Red	2.0	2.0	2.0	0.0	0.0	0.0						



Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	0.852	0.969	0.969	1.000	0.969	1.000	0.953	0.953	1.000	0.953	0.953	0.953
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.914	0.914		0.954	0.902		0.952	0.000		0.507	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.000	0.847		0.000	0.902		0.996	0.996		0.000	0.847
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000			1.000			1.000			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Prot. CAV Adj. Factor ($f_{CAV,prot}$)							1.00					
Left-Turn Perm. CAV Adj. Factor ($f_{CAV,perm}$)	1.00			1.00						1.00		
Movement Saturation Flow Rate (s), veh/h	775	775	1437	510	510	510	1589	1624	38	887	1668	1414
Proportion of Vehicles Arriving on Green (P)	0.11	0.11	0.11	0.11	0.11	0.11	0.07	0.76	0.76	0.63	0.63	0.63
Incremental Delay Factor (k)		0.04	0.04		0.04		0.29	0.50		0.50	0.50	0.50

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)		6.0		6.0	6.0	6.0		6.0
Green Ratio (g/C)		0.11		0.11	0.72	0.76		0.63
Permitted Saturation Flow Rate (s_p), veh/h/ln		1412		1426	524	0		887
Shared Saturation Flow Rate (s_{sh}), veh/h/ln		1514		1576				
Permitted Effective Green Time (g_p), s		9.9		9.9	60.1	0.0		58.1
Permitted Service Time (g_u), s		8.2		8.8	0.1	0.0		58.1
Permitted Queue Service Time (g_{ps}), s		0.0		0.0	0.1			0.9
Time to First Blockage (g_f), s		1.9		3.5	0.0	0.0		0.0
Queue Service Time Before Blockage (g_{fs}), s		1.1		1.0				
Protected Right Saturation Flow (s_R), veh/h/ln		1437						0
Protected Right Effective Green Time (g_R), s		6.9						0.0

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.198	0.000	1.389	0.000	0.972	0.000	1.198	0.000
Pedestrian F_s / F_{delay}	0.000	0.145	0.000	0.145	0.000	0.038	0.000	0.075
Pedestrian M_{corner} / M_{cw}	0.00		0.00		0.00		0.00	
Bicycle c_b / d_b	212.89	37.08	212.89	37.08	1528.73	2.58	1251.77	6.50
Bicycle F_w / F_v	-3.64	0.23	-3.64	0.05	-3.64	1.04	-3.64	1.88

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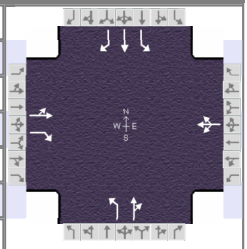
HCS Signalized Intersection Results Graphical Summary

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	AMP	Analysis Date	Sep 27, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	PM Pr. Roadway	PHF	0.92
Urban Street	SR310	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR310 - Jug St	File Name	11E_PM_ProposedRoadway_SR310_JugSt_204…		
Project Description	FRA/LIC-161-22.1/0.00				

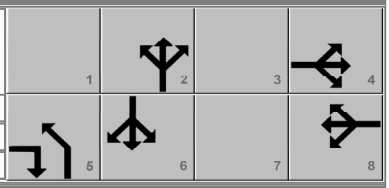


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	10	110	10	10	10	140	430	10	20	960	70

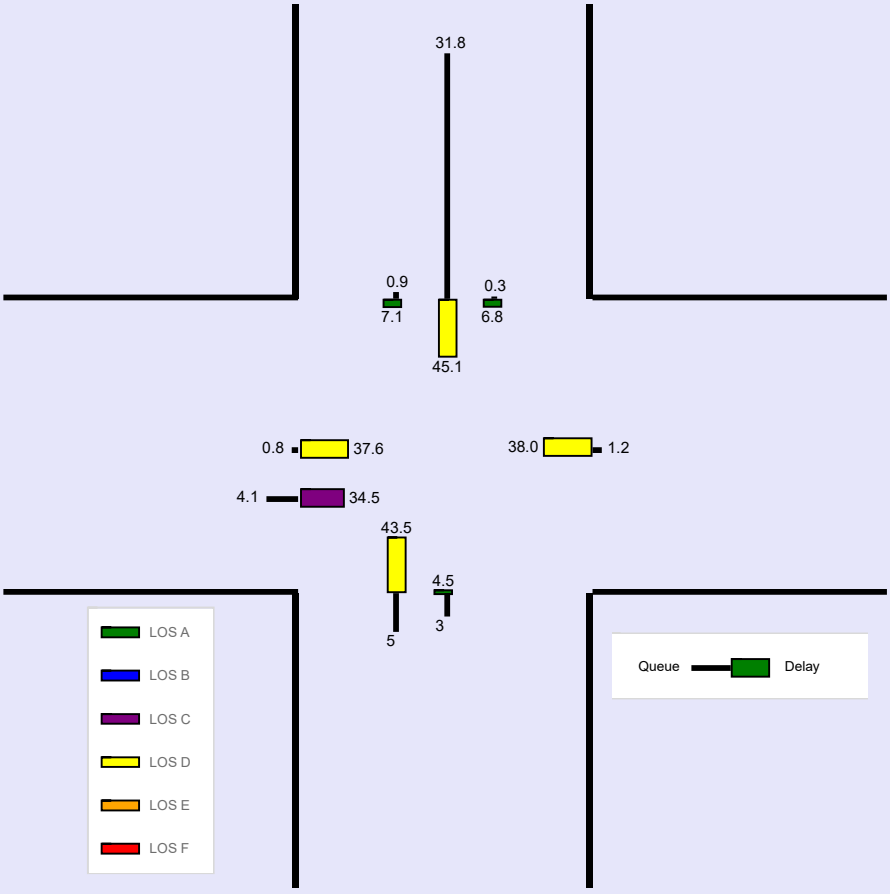
Signal Information			
Cycle, s	92.9	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	6.9	58.1	9.9	0.0	0.0	0.0						
Yellow	4.0	4.0	4.0	0.0	0.0	0.0						
Red	2.0	2.0	2.0	0.0	0.0	0.0						



Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)		20	105		30		132	79		7	833	24
Back of Queue (*Q*), veh/ln (95 th percentile)		0.8	4.1		1.2		5.0	3.0		0.3	31.8	0.9
Queue Storage Ratio (*RQ*) (95 th percentile)		0.01	0.33		0.01		0.37	0.04		0.02	0.42	0.07
Control Delay (*d*), s/veh		37.6	34.5		38.0		43.5	4.5		6.8	45.1	7.1
Level of Service (LOS)		D	C		D		D	A		A	D	A
Approach Delay, s/veh / LOS	35.0	C		38.0	D		13.9	B		41.8	D	
Intersection Delay, s/veh / LOS	32.2						C					



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--- Messages ---

No errors or warnings exist.

--- Comments ---

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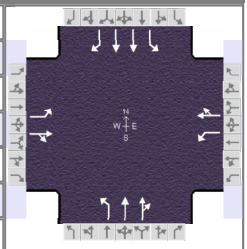
SR-310 (Roundabout) - AM Build

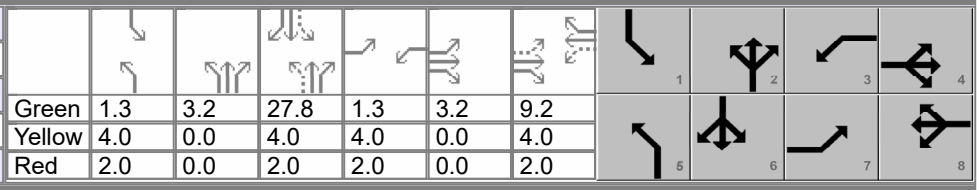
HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	AM Pr. Roadway	PHF	0.92
Urban Street	SR310	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR310 - Worthington	File Name	11A_AM_ProposedRoadway_SR310_Worthingto…		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	50	10	10	10	10	80	50	1170	10	10	600	50

Signal Information			
Cycle, s	70.1	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	1.3	3.2	27.8	1.3	3.2	9.2
Yellow	4.0	0.0	4.0	4.0	0.0	4.0
Red	2.0	0.0	2.0	2.0	0.0	2.0

Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	50	10	10	10	10	80	50	1170	10	10	600	50
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1750
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	19	19		0	0		8	8		8	8	8
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (*W*), ft	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	12.0
Turn Bay Length, ft	540	1670		550	4120		345	1820		360	670	345
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h	55	55	55	55	55	55	55	55	55	55	55	55

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s	7.0	10.0	7.0	10.0	7.0	31.0	7.0	20.0
Yellow Change Interval (*Y*), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Red Clearance Interval (R_c), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Green (G_{min}), s	7	10	7	10	7	20	7	20
Start-Up Lost Time (*lt*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Recall Mode	Off	Off	Off	Off	Off	Max	Off	Max
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Walk (*Walk*), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

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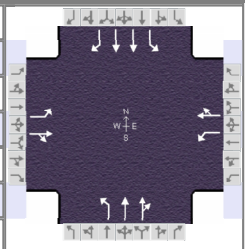
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	AM Pr. Roadway	PHF	0.92
Urban Street	SR310	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR310 - Worthington	File Name	11A_AM_ProposedRoadway_SR310_Worthingto…		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	50	10	10	10	10	80	50	1170	10	10	600	50

Signal Information			
Cycle, s	70.1	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	1.3	3.2	27.8	1.3	3.2	9.2	1	2	3	4		
Yellow	4.0	0.0	4.0	4.0	0.0	4.0	5	6	7	8		
Red	2.0	0.0	2.0	2.0	0.0	2.0						

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	3.0
Phase Duration, s	10.6	18.4	7.3	15.2	10.6	37.0	7.3	33.8
Change Period, ($Y+R_c$), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Allow Headway (*MAH*), s	2.9	3.1	2.9	3.1	2.9	2.9	2.9	2.9
Queue Clearance Time (g_s), s	4.2	2.9	2.4	6.2	3.4	27.2	2.3	13.2
Green Extension Time (g_e), s	0.0	0.1	0.0	0.0	0.0	1.9	0.0	2.8
Phase Call Probability	0.65	0.97	0.19	0.92	0.65	1.00	0.19	1.00
Max Out Probability	1.00	0.01	0.01	0.46	0.30	0.84	0.01	0.50

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	54	22		11	98		54	642	640	11	652	54
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1420	1368		1667	1509		1563	1641	1636	1563	1562	1391
Queue Service Time (g_s), s	2.2	0.9		0.4	4.2		1.4	25.1	25.2	0.3	11.2	1.7
Cycle Queue Clearance Time (g_c), s	2.2	0.9		0.4	4.2		1.4	25.1	25.2	0.3	11.2	1.7
Green Ratio (*g/C*)	0.20	0.18		0.15	0.13		0.46	0.44	0.44	0.42	0.40	0.40
Capacity (*c*), veh/h	275	243		320	198		380	726	723	155	1237	551
Volume-to-Capacity Ratio (*X*)	0.198	0.090		0.034	0.494		0.143	0.885	0.885	0.070	0.527	0.099
Back of Queue (*Q*), ft/ln (95 th percentile)	34	14		6	62		18	412	386	4	166	24
Back of Queue (*Q*), veh/ln (95 th percentile)	1.2	0.5		0.2	2.5		0.7	15.5	15.5	0.2	6.2	0.9
Queue Storage Ratio (*RQ*) (95 th percentile)	0.06	0.01		0.01	0.02		0.05	0.23	0.23	0.01	0.25	0.07
Uniform Delay (d_1), s/veh	23.7	24.1		25.5	28.3		11.5	17.9	17.9	16.3	16.2	13.3
Incremental Delay (d_2), s/veh	0.1	0.1		0.0	0.7		0.1	14.9	14.9	0.1	1.6	0.4
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	23.8	24.2		25.5	29.0		11.6	32.8	32.8	16.3	17.8	13.7
Level of Service (LOS)	C	C		C	C		B	C	C	B	B	B
Approach Delay, s/veh / LOS	23.9	C		28.7	C		31.9	C		17.4	B	
Intersection Delay, s/veh / LOS	26.9						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.28	B	2.44	B	1.89	B	1.90	B
Bicycle LOS Score / LOS	0.61	A	0.67	A	1.59	B	1.08	A

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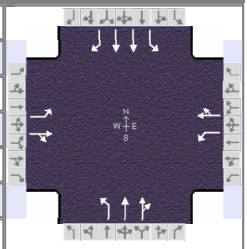
HCS Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	AM Pr. Roadway	PHF	0.92
Urban Street	SR310	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR310 - Worthington	File Name	11A_AM_ProposedRoadway_SR310_Worthingto…		
Project Description	FRA/LIC-161-22.1/0.00				

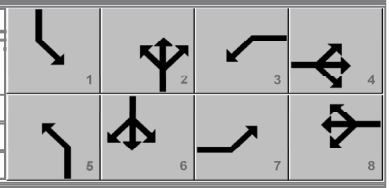


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	50	10	10	10	10	80	50	1170	10	10	600	50

Signal Information			
Cycle, s	70.1	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	1.3	3.2	27.8	1.3	3.2	9.2
Yellow	4.0	0.0	4.0	4.0	0.0	4.0
Red	2.0	0.0	2.0	2.0	0.0	2.0



Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	0.852	0.852	1.000	1.000	1.000	1.000	0.938	0.938	1.000	0.938	0.938	0.938
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.952	1.000
Left-Turn Adjustment Factor (f_{LT})	0.952	0.000		0.952	0.000		0.952	0.000		0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.917	0.917		0.862	0.862		0.997	0.997		0.000	0.847
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000			1.000			1.000			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Prot. CAV Adj. Factor ($f_{CAV,prot}$)	1.00			1.00			1.00			1.00		
Left-Turn Perm. CAV Adj. Factor ($f_{CAV,perm}$)												
Movement Saturation Flow Rate (s), veh/h	1420	684	684	1667	168	1341	1563	3249	28	1563	3124	1391
Proportion of Vehicles Arriving on Green (P)	0.07	0.18	0.18	0.02	0.13	0.13	0.07	0.44	0.44	0.02	0.40	0.40
Incremental Delay Factor (k)	0.04	0.04		0.04	0.04		0.04	0.50	0.50	0.04	0.50	0.50

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Green Ratio (g/C)	0.20	0.18	0.15	0.13	0.46	0.44	0.42	0.40
Permitted Saturation Flow Rate (s_p), veh/h/ln	1123	0	1412	0	743	0	410	0
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								
Permitted Effective Green Time (g_p), s	9.2	0.0	9.2	0.0	27.8	0.0	27.8	0.0
Permitted Service Time (g_u), s	5.0	0.0	9.2	0.0	16.6	0.0	3.8	0.0
Permitted Queue Service Time (g_{ps}), s	0.2		0.0		0.9		0.7	
Time to First Blockage (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln								0
Protected Right Effective Green Time (g_R), s								0.0

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.557	0.000	1.710	0.000	1.198	0.000	1.198	0.000
Pedestrian F_s / F_{delay}	0.000	0.127	0.000	0.131	0.000	0.096	0.000	0.102
Pedestrian M_{corner} / M_{cw}	0.00		0.00		0.00		0.00	
Bicycle c_b / d_b	354.78	23.72	262.48	26.46	884.35	10.91	792.04	12.79
Bicycle F_w / F_v	-3.64	0.13	-3.64	0.18	-3.64	1.10	-3.64	0.59

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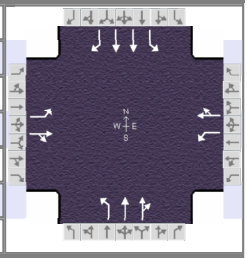
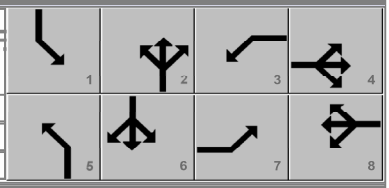
HCS Signalized Intersection Results Graphical Summary

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	AM Pr. Roadway	PHF	0.92
Urban Street	SR310	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR310 - Worthington	File Name	11A_AM_ProposedRoadway_SR310_Worthingto…		
Project Description	FRA/LIC-161-22.1/0.00				

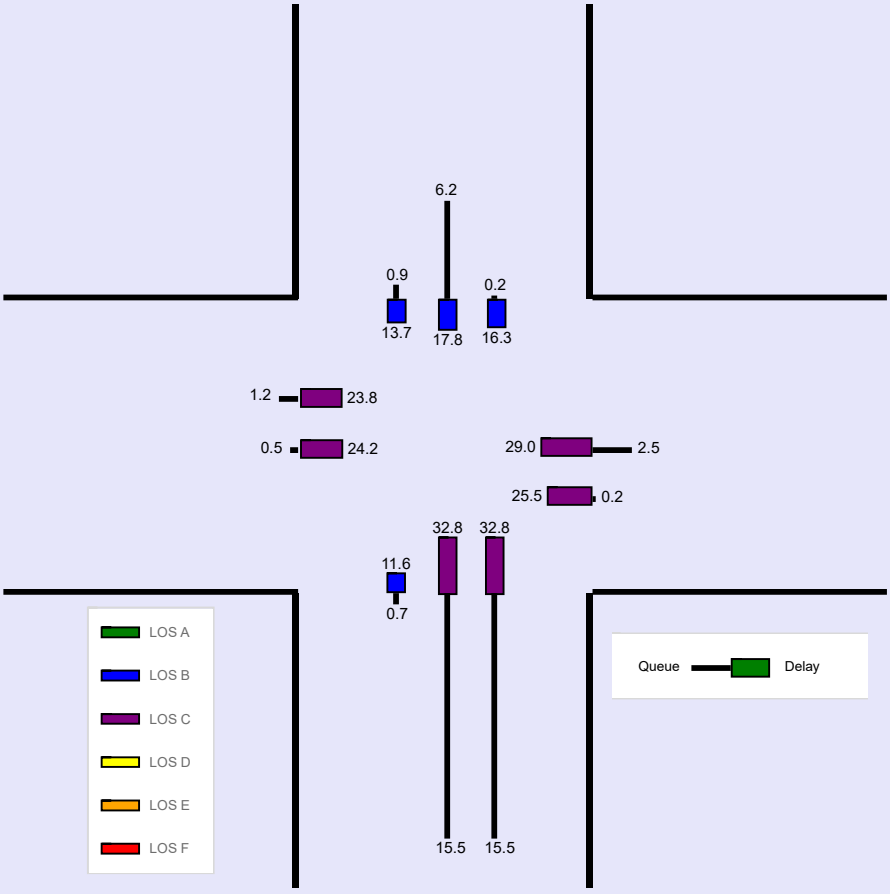


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	50	10	10	10	10	80	50	1170	10	10	600	50

Signal Information													
Cycle, s	70.1	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	Yes	Simult. Gap E/W	On										
Force Mode	Fixed	Simult. Gap N/S	On										
				Green	1.3	3.2	27.8	1.3	3.2	9.2			
				Yellow	4.0	0.0	4.0	4.0	0.0	4.0			
				Red	2.0	0.0	2.0	2.0	0.0	2.0			



Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)	34	14		6	62		18	412	386	4	166	24
Back of Queue (*Q*), veh/ln (95 th percentile)	1.2	0.5		0.2	2.5		0.7	15.5	15.5	0.2	6.2	0.9
Queue Storage Ratio (*RQ*) (95 th percentile)	0.06	0.01		0.01	0.02		0.05	0.23	0.23	0.01	0.25	0.07
Control Delay (*d*), s/veh	23.8	24.2		25.5	29.0		11.6	32.8	32.8	16.3	17.8	13.7
Level of Service (LOS)	C	C		C	C		B	C	C	B	B	B
Approach Delay, s/veh / LOS	23.9	C		28.7	C		31.9	C		17.4	B	
Intersection Delay, s/veh / LOS	26.9						C					



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--- Messages ---

No errors or warnings exist.

--- Comments ---

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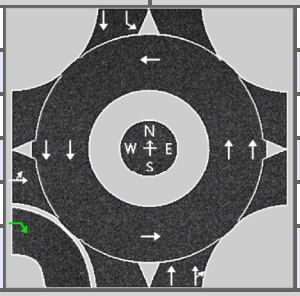
HCS Roundabouts Report

General Information

Analyst	AMP
Agency or Co.	Michael Baker Intl.
Date Performed	9/27/2024
Analysis Year	2048
Time Analyzed	AM Pr. Roadway
Project Description	FRA/LIC-161-22.1/0.00



Site Information

Intersection	SR310 - SR161 EB Ramp
E/W Street Name	SR161 EB Ramp
N/S Street Name	SR310
Analysis Time Period, hrs	0.25
Peak Hour Factor	0.92
Jurisdiction	ODOT D05

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	0	0	0	0	2	0	0	1	1	0
Lane Assignment			LT						T		TR		L		T	
Volume (V), veh/h	0	110	10	200					0		1270	30	0	100	460	
Percent Heavy Vehicles, %	7	7	7	7					7		7	7	10	10	10	
Flow Rate (v_{PCE}), pc/h	0	128	12	233					0		1477	35	0	120	550	
Right-Turn Bypass	Non-Yielding				None				None				None			
Conflicting Lanes	2								1				1			
Pedestrians Crossing, p/h	0								0				0			
Proportion of CAVs, %	0															

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway, s		4.3276					4.5436	4.5436		4.5436	4.5436	
Follow-Up Headway, s		2.5352					2.5352	2.5352		2.5352	2.5352	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		140	233				711	801		120	550	
Entry Volume, veh/h		131	218				664	749		109	500	
Circulating Flow (v_c), pc/h	670			1605			260			0		
Exiting Flow (v_{ex}), pc/h	167			0			1605			550		
Capacity (c_{pce}), pc/h		803					1121	1121		1420	1420	
Capacity (c), veh/h		751					1047	1047		1291	1291	
v/c Ratio (x)		0.17					0.63	0.71		0.08	0.39	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		6.7					12.4	15.1		3.5	6.5	
Lane LOS		A	A				B	C		A	A	
95% Queue Length, Q_{95} (veh)		0.6					4.7	6.4		0.3	1.9	
95% Queue Length, Q_{95} (ft)		15.8					124.1	169.0		8.1	51.3	
Approach Delay, s/veh | LOS	2.5	A					13.8	B		5.9	A	
Intersection Delay, s/veh | LOS	10.1						B					

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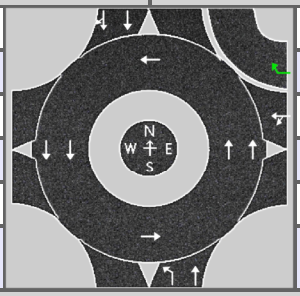
HCS Roundabouts Report

General Information

Analyst	AMP
Agency or Co.	Michael Baker Intl.
Date Performed	9/27/2024
Analysis Year	2048
Time Analyzed	AM Pr. Roadway
Project Description	FRA/LIC-161-22.1/0.00



Site Information

Intersection	SR310 - SR161 WB Ramp
E/W Street Name	SR161 WB Ramp
N/S Street Name	SR310
Analysis Time Period, hrs	0.25
Peak Hour Factor	0.92
Jurisdiction	ODOT D05

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	0	0	0	0	1	0	0	1	1	0	0	0	2	0
Lane Assignment							LT		L		T		T		TR	
Volume (V), veh/h					0	60	10	680	0	540	840		0		500	170
Percent Heavy Vehicles, %					8	8	8	8	7	7	7		7		7	7
Flow Rate (v_{PCE}), pc/h					0	70	12	798	0	628	977		0		582	198
Right-Turn Bypass	None				Non-Yielding				None				None			
Conflicting Lanes					2				1				1			
Pedestrians Crossing, p/h					0				0				0			
Proportion of CAVs, %	0															

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway, s					4.3276		4.5436	4.5436		4.5436	4.5436	
Follow-Up Headway, s					2.5352		2.5352	2.5352		2.5352	2.5352	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h					82	798	628	977		367	413	
Entry Volume, veh/h					76	739	587	913		343	386	
Circulating Flow (v_c), pc/h	652			1605			0			710		
Exiting Flow (v_{ex}), pc/h	0			838			977			652		
Capacity (c_{pce}), pc/h					363		1420	1420		744	744	
Capacity (c), veh/h					336		1327	1327		696	696	
v/c Ratio (x)					0.23		0.44	0.69		0.49	0.56	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh					14.9		7.1	11.9		12.6	14.2	
Lane LOS					B	A	A	B		B	B	
95% Queue Length, Q_{95} (veh)					0.9		2.3	5.9		2.7	3.4	
95% Queue Length, Q_{95} (ft)					23.9		60.7	155.8		71.3	89.8	
Approach Delay, s/veh | LOS				1.4	A		10.0	B		13.4	B	
Intersection Delay, s/veh | LOS	8.5						A					

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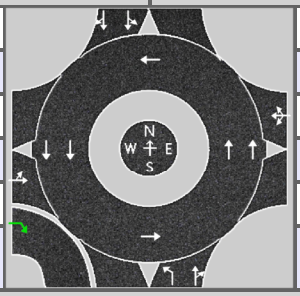
HCS Roundabouts Report

General Information

Analyst	AMP
Agency or Co.	Michael Baker Intl.
Date Performed	9/27/2024
Analysis Year	2048
Time Analyzed	AM Pr. Roadway
Project Description	FRA/LIC-161-22.1/0.00



Site Information

Intersection	SR310 - Jersey Mill Rd
E/W Street Name	Jersey Mill Rd
N/S Street Name	SR310
Analysis Time Period, hrs	0.25
Peak Hour Factor	0.92
Jurisdiction	ODOT D05

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	1	1	0	0	0	2	0
Lane Assignment			LT				LTR		L		TR		LT		TR	
Volume (V), veh/h	0	30	10	120	0	80	10	30	0	620	800	100	0	50	470	10
Percent Heavy Vehicles, %	10	10	10	10	15	15	15	15	6	6	6	6	6	6	6	6
Flow Rate (v_{PCE}), pc/h	0	36	12	143	0	100	12	38	0	714	922	115	0	58	542	12
Right-Turn Bypass	Non-Yielding				None				None				None			
Conflicting Lanes	2				2				1				1			
Pedestrians Crossing, p/h	0				0				0				0			
Proportion of CAVs, %	0															

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway, s		4.3276			4.3276		4.5436	4.5436		4.5436	4.5436	
Follow-Up Headway, s		2.5352			2.5352		2.5352	2.5352		2.5352	2.5352	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		48	143		150		714	1037		288	324	
Entry Volume, veh/h		44	130		130		674	978		271	306	
Circulating Flow (v_c), pc/h	700			1672			106			826		
Exiting Flow (v_{ex}), pc/h	185			738			996			642		
Capacity (c_{pce}), pc/h		783			343		1289	1289		670	670	
Capacity (c), veh/h		712			298		1216	1216		632	632	
v/c Ratio (x)		0.06			0.44		0.55	0.80		0.43	0.48	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		5.7			23.3		9.3	17.8		12.1	13.4	
Lane LOS		A	A		C		A	C		B	B	
95% Queue Length, Q_{95} (veh)		0.2			2.1		3.5	9.4		2.2	2.6	
95% Queue Length, Q_{95} (ft)		5.4			58.8		91.7	246.3		57.6	68.1	
Approach Delay, s/veh | LOS	1.4	A		23.3	C		14.4	B		12.8	B	
Intersection Delay, s/veh | LOS	13.6						B					

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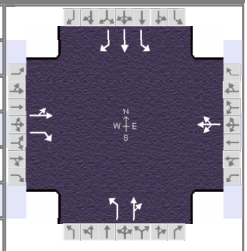
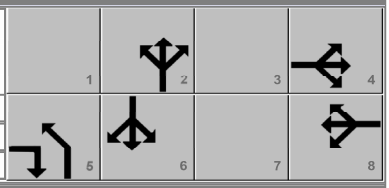
HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	AMP	Analysis Date	Sep 27, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	AM Pr. Roadway	PHF	0.92
Urban Street	SR310	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR310 - Jug St	File Name	11E_AM_ProposedRoadway_SR310_JugSt_204…		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	10	30	10	10	10	30	820	10	10	490	150

Signal Information													
Cycle, s	48.4	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	Yes	Simult. Gap E/W	On										
Force Mode	Fixed	Simult. Gap N/S	On										
				Green	2.5	21.0	6.9	0.0	0.0	0.0			
				Yellow	4.0	4.0	4.0	0.0	0.0	0.0			
				Red	2.0	2.0	2.0	0.0	0.0	0.0			



Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	10	30	10	10	10	30	820	10	10	490	150
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1750	1750	1750	1750	1750	1900	1750	1750	1900	1750	1750	1750
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %		10	10		15		6	6		6	6	6
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (*W*), ft		12.0	12.0		12.0		12.0	12.0		12.0	12.0	12.0
Turn Bay Length, ft		1999	315		1999		360	1999		345	1999	360
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h	55	55	55	55	55	55	55	55	55	55	55	55

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s		10.0		10.0	7.0	20.0		21.0
Yellow Change Interval (*Y*), s		4.0		4.0	4.0	4.0		4.0
Red Clearance Interval (R_c), s		2.0		2.0	2.0	2.0		2.0
Minimum Green (G_{min}), s		10		10	7	20		20
Start-Up Lost Time (*l1*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s		2.0		2.0	2.0	2.0		2.0
Recall Mode		Off		Off	Off	Max		Max
Dual Entry		Yes		Yes	No	Yes		Yes
Walk (*Walk*), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

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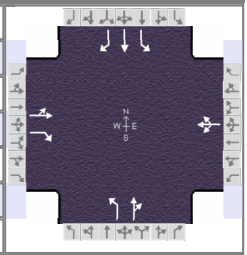
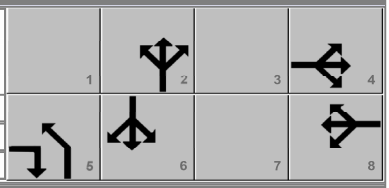
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	AMP	Analysis Date	Sep 27, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	AM Pr. Roadway	PHF	0.92
Urban Street	SR310	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR310 - Jug St	File Name	11E_AM_ProposedRoadway_SR310_JugSt_204…		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	10	30	10	10	10	30	820	10	10	490	150

Signal Information													
Cycle, s	48.4	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	Yes	Simult. Gap E/W	On										
Force Mode	Fixed	Simult. Gap N/S	On										
				Green	2.5	21.0	6.9	0.0	0.0	0.0			
				Yellow	4.0	4.0	4.0	0.0	0.0	0.0			
				Red	2.0	2.0	2.0	0.0	0.0	0.0			



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2		6
Case Number		7.0		8.0	1.0	4.0		5.3
Phase Duration, s		12.9		12.9	8.5	35.5		27.0
Change Period, (*Y+R c*), s		6.0		6.0	6.0	6.0		6.0
Max Allow Headway (*MAH*), s		3.0		3.0	2.9	2.9		2.9
Queue Clearance Time (*g s*), s		3.0		2.9	2.5	24.4		16.7
Green Extension Time (*g e*), s		0.1		0.1	0.0	0.0		1.7
Phase Call Probability		0.69		0.69	0.35	1.00		1.00
Max Out Probability		0.00		0.00	0.04	1.00		0.74

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h		22	33		33		33	902		11	533	163
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1486	1367		1403		1589	1664		598	1668	1414
Queue Service Time (*g s*), s		0.0	1.0		0.0		0.5	22.4		0.8	12.8	3.6
Cycle Queue Clearance Time (*g c*), s		0.6	1.0		0.9		0.5	22.4		14.7	12.8	3.6
Green Ratio (*g/C*)		0.14	0.19		0.14		0.53	0.61		0.43	0.43	0.43
Capacity (*c*), veh/h		323	265		299		373	1014		237	724	614
Volume-to-Capacity Ratio (*X*)		0.067	0.123		0.109		0.088	0.889		0.046	0.736	0.266
Back of Queue (*Q*), ft/ln (95 th percentile)		8	11		13		4	252		5	194	40
Back of Queue (*Q*), veh/ln (95 th percentile)		0.3	0.4		0.5		0.1	9.6		0.2	7.4	1.5
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00	0.04		0.01		0.01	0.13		0.01	0.10	0.11
Uniform Delay (*d 1*), s/veh		18.0	16.1		18.2		7.9	8.1		17.9	11.4	8.8
Incremental Delay (*d 2*), s/veh		0.0	0.1		0.1		0.0	11.6		0.4	6.6	1.1
Initial Queue Delay (*d 3*), s/veh		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Control Delay (*d*), s/veh		18.1	16.2		18.3		7.9	19.6		18.3	17.9	9.8
Level of Service (LOS)		B	B		B		A	B		B	B	A
Approach Delay, s/veh / LOS	16.9	B		18.3	B		19.2	B		16.1	B	
Intersection Delay, s/veh / LOS	17.8						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.91	B	2.10	B	1.62	B	1.88	B
Bicycle LOS Score / LOS	0.58	A	0.54	A	2.03	B	1.65	B

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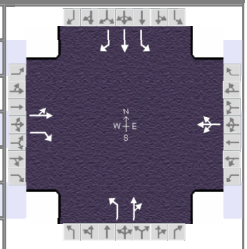
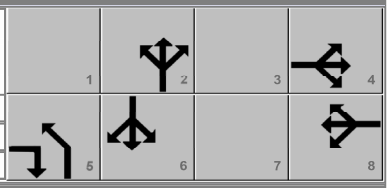
HCS Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	AMP	Analysis Date	Sep 27, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	AM Pr. Roadway	PHF	0.92
Urban Street	SR310	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR310 - Jug St	File Name	11E_AM_ProposedRoadway_SR310_JugSt_204…		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	10	30	10	10	10	30	820	10	10	490	150

Signal Information													
Cycle, s	48.4	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	Yes	Simult. Gap E/W	On	Green	2.5	21.0	6.9	0.0	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0			
				Red	2.0	2.0	2.0	0.0	0.0	0.0			



Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	0.852	0.922	0.922	1.000	0.883	1.000	0.953	0.953	1.000	0.953	0.953	0.953
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.921	0.921		0.960	0.908		0.952	0.000		0.342	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.000	0.847		0.000	0.908		0.998	0.998		0.000	0.847
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000			1.000			1.000			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Prot. CAV Adj. Factor ($f_{CAV,prot}$)							1.00					
Left-Turn Perm. CAV Adj. Factor ($f_{CAV,perm}$)	1.00			1.00						1.00		
Movement Saturation Flow Rate (s), veh/h	743	743	1367	468	468	468	1589	1644	20	598	1668	1414
Proportion of Vehicles Arriving on Green (P)	0.14	0.14	0.14	0.14	0.14	0.14	0.05	0.61	0.61	0.43	0.43	0.43
Incremental Delay Factor (k)		0.04	0.04		0.04		0.04	0.50		0.50	0.50	0.50

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)		6.0		6.0	6.0	6.0		6.0
Green Ratio (g/C)		0.14		0.14	0.53	0.61		0.43
Permitted Saturation Flow Rate (s_p), veh/h/ln		1412		1426	844	0		598
Shared Saturation Flow Rate (s_{sh}), veh/h/ln		1441		1436				
Permitted Effective Green Time (g_p), s		6.9		6.9	23.0	0.0		21.0
Permitted Service Time (g_u), s		5.9		6.3	8.1	0.0		7.1
Permitted Queue Service Time (g_{ps}), s		0.0		0.0	0.6			0.8
Time to First Blockage (g_f), s		1.8		3.0	0.0	0.0		0.0
Queue Service Time Before Blockage (g_{fs}), s		0.6		0.5				
Protected Right Saturation Flow (s_R), veh/h/ln		1367						0
Protected Right Effective Green Time (g_R), s		2.5						0.0

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.198	0.000	1.389	0.000	0.972	0.000	1.198	0.000
Pedestrian F_s / F_{delay}	0.000	0.115	0.000	0.115	0.000	0.052	0.000	0.082
Pedestrian M_{corner} / M_{cw}	0.00		0.00		0.00		0.00	
Bicycle c_b / d_b	284.95	17.79	284.95	17.79	1218.93	3.69	868.19	7.75
Bicycle F_w / F_v	-3.64	0.09	-3.64	0.05	-3.64	1.54	-3.64	1.17

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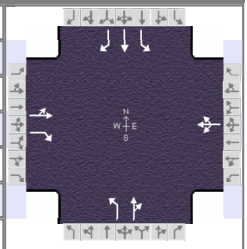
HCS Signalized Intersection Results Graphical Summary

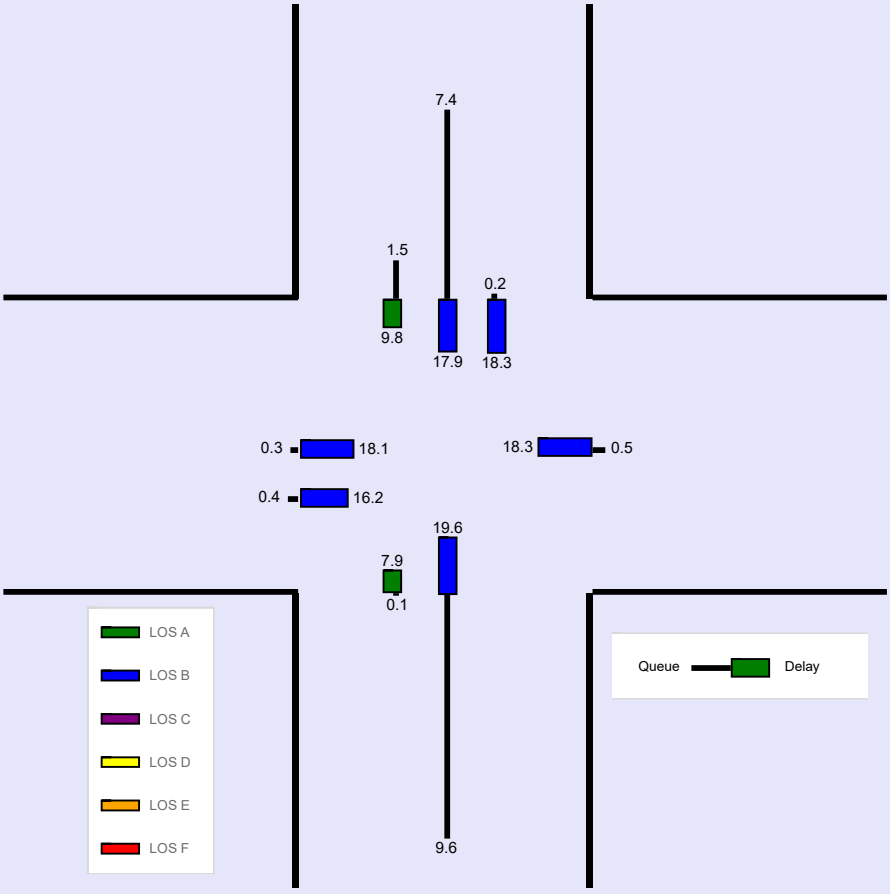
General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	AMP	Analysis Date	Sep 27, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	AM Pr. Roadway	PHF	0.92
Urban Street	SR310	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR310 - Jug St	File Name	11E_AM_ProposedRoadway_SR310_JugSt_204…		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	10	30	10	10	10	30	820	10	10	490	150

Signal Information													
Cycle, s	48.4	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	Yes	Simult. Gap E/W	On	Green	2.5	21.0	6.9	0.0	0.0	0.0	1	2	3	4
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0	5	6	7	8
				Red	2.0	2.0	2.0	0.0	0.0	0.0				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)		8	11		13		4	252		5	194	40
Back of Queue (*Q*), veh/ln (95 th percentile)		0.3	0.4		0.5		0.1	9.6		0.2	7.4	1.5
Queue Storage Ratio (*RQ*) (95 th percentile)		0.00	0.04		0.01		0.01	0.13		0.01	0.10	0.11
Control Delay (*d*), s/veh		18.1	16.2		18.3		7.9	19.6		18.3	17.9	9.8
Level of Service (LOS)		B	B		B		A	B		B	B	A
Approach Delay, s/veh / LOS	16.9		B	18.3		B	19.2		B	16.1		B
Intersection Delay, s/veh / LOS	17.8						B					



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--- Messages ---

No errors or warnings exist.

--- Comments ---

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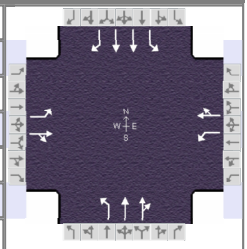
SR-310 (Roundabout) - PM Build

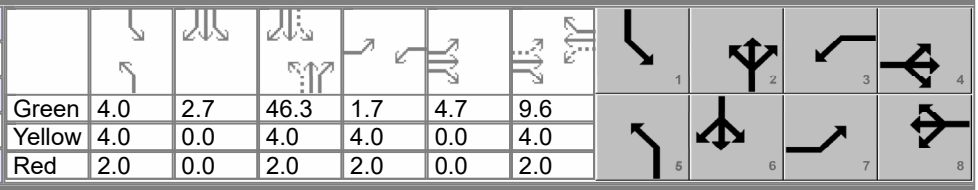
HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	PM Pr. Roadway	PHF	0.92
Urban Street	SR310	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR310 - Worthington	File Name	11A_PM_ProposedRoadway_SR310_Worthingto…		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	90	30	50	10	10	20	30	640	10	110	1570	50

Signal Information			
Cycle, s	93.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	4.0	2.7	46.3	1.7	4.7	9.6						
Yellow	4.0	0.0	4.0	4.0	0.0	4.0						
Red	2.0	0.0	2.0	2.0	0.0	2.0						

Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	90	30	50	10	10	20	30	640	10	110	1570	50
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1750
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	3	3		0	0		6	6		2	2	2
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (*W*), ft	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	12.0
Turn Bay Length, ft	540	1670		550	4120		345	1820		360	670	345
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h	55	55	55	55	55	55	55	55	55	55	55	55

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s	7.0	10.0	7.0	10.0	7.0	20.0	7.0	49.0
Yellow Change Interval (*Y*), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Red Clearance Interval (R_c), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Green (G_{min}), s	7	10	7	10	7	20	7	20
Start-Up Lost Time (*lt*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Recall Mode	Off	Off	Off	Off	Off	Max	Off	Max
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Walk (*Walk*), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

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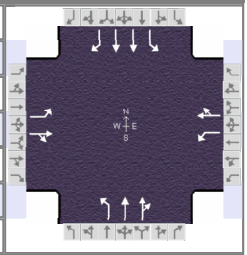
HCS Signalized Intersection Results Summary

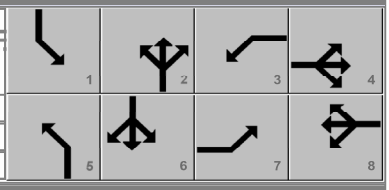
General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	PM Pr. Roadway	PHF	0.92
Urban Street	SR310	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR310 - Worthington	File Name	11A_PM_ProposedRoadway_SR310_Worthingto…		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	90	30	50	10	10	20	30	640	10	110	1570	50

Signal Information			
Cycle, s	93.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	4.0	2.7	46.3	1.7	4.7	9.6						
Yellow	4.0	0.0	4.0	4.0	0.0	4.0						
Red	2.0	0.0	2.0	2.0	0.0	2.0						



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	3.0
Phase Duration, s	12.4	20.3	7.7	15.6	10.0	52.3	12.7	55.0
Change Period, ($Y+R_c$), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Allow Headway (*MAH*), s	2.9	3.1	2.9	3.1	2.9	2.8	2.9	2.8
Queue Clearance Time (g_s), s	6.9	6.7	2.5	3.8	2.9	14.6	5.1	49.7
Green Extension Time (g_e), s	0.0	0.0	0.0	0.0	0.0	3.2	0.0	0.0
Phase Call Probability	0.92	1.00	0.24	0.97	0.57	1.00	0.95	1.00
Max Out Probability	1.00	0.77	0.02	0.02	0.10	0.73	1.00	1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	98	87		11	33		33	354	352	120	1707	54
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1628	1536		1667	1563		1589	1668	1659	1641	1640	1460
Queue Service Time (g_s), s	4.9	4.7		0.5	1.8		0.9	12.6	12.6	3.1	47.7	1.7
Cycle Queue Clearance Time (g_c), s	4.9	4.7		0.5	1.8		0.9	12.6	12.6	3.1	47.7	1.7
Green Ratio (*g/C*)	0.18	0.15		0.12	0.10		0.54	0.50	0.50	0.57	0.53	0.53
Capacity (*c*), veh/h	305	237		217	161		145	830	826	464	1728	769
Volume-to-Capacity Ratio (*X*)	0.321	0.368		0.050	0.202		0.224	0.427	0.427	0.258	0.988	0.071
Back of Queue (*Q*), ft/ln (95 th percentile)	83	77		9	29		14	206	195	42	670	23
Back of Queue (*Q*), veh/ln (95 th percentile)	3.2	3.0		0.4	1.2		0.5	7.8	7.8	1.7	26.4	0.9
Queue Storage Ratio (*RQ*) (95 th percentile)	0.15	0.05		0.02	0.01		0.04	0.11	0.11	0.12	1.00	0.07
Uniform Delay (d_1), s/veh	33.3	35.3		36.1	38.2		21.5	14.9	14.9	10.3	21.7	10.8
Incremental Delay (d_2), s/veh	0.2	0.4		0.0	0.2		0.3	1.6	1.6	0.1	18.9	0.2
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	33.5	35.6		36.2	38.4		21.8	16.5	16.5	10.4	40.6	11.0
Level of Service (LOS)	C	D		D	D		C	B	B	B	D	B
Approach Delay, s/veh / LOS	34.5	C		37.9	D		16.7	B		37.9	D	
Intersection Delay, s/veh / LOS	32.2						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.30	B	2.46	B	1.90	B	1.89	B
Bicycle LOS Score / LOS	0.79	A	0.56	A	1.10	A	2.04	B

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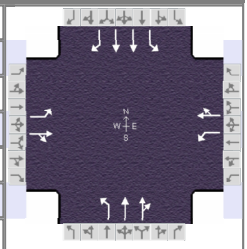
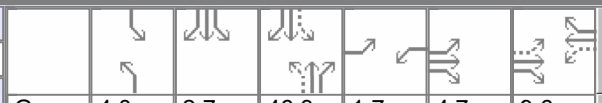
HCS Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	PM Pr. Roadway	PHF	0.92
Urban Street	SR310	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR310 - Worthington	File Name	11A_PM_ProposedRoadway_SR310_Worthingto…		
Project Description	FRA/LIC-161-22.1/0.00				

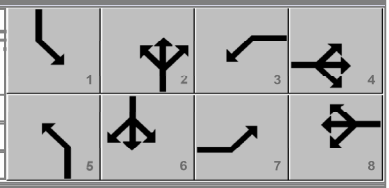


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	90	30	50	10	10	20	30	640	10	110	1570	50

Signal Information			
Cycle, s	93.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	4.0	2.7	46.3	1.7	4.7	9.6
Yellow	4.0	0.0	4.0	4.0	0.0	4.0
Red	2.0	0.0	2.0	2.0	0.0	2.0



Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	0.977	0.977	1.000	1.000	1.000	1.000	0.953	0.953	1.000	0.984	0.984	0.984
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.952	1.000
Left-Turn Adjustment Factor (f_{LT})	0.952	0.000		0.952	0.000		0.952	0.000		0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.899	0.899		0.893	0.893		0.994	0.994		0.000	0.847
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000			1.000			1.000			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Prot. CAV Adj. Factor ($f_{CAV,prot}$)	1.00			1.00			1.00			1.00		
Left-Turn Perm. CAV Adj. Factor ($f_{CAV,perm}$)												
Movement Saturation Flow Rate (s), veh/h	1628	576	960	1667	521	1042	1589	3276	51	1641	3280	1460
Proportion of Vehicles Arriving on Green (P)	0.07	0.15	0.15	0.02	0.10	0.10	0.04	0.50	0.50	0.07	0.53	0.53
Incremental Delay Factor (k)	0.04	0.04		0.04	0.04		0.04	0.50	0.50	0.04	0.50	0.50

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Green Ratio (g/C)	0.18	0.15	0.12	0.10	0.54	0.50	0.57	0.53
Permitted Saturation Flow Rate (s_p), veh/h/ln	1365	0	1331	0	278	0	742	0
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								
Permitted Effective Green Time (g_p), s	10.3	0.0	9.6	0.0	46.3	0.0	46.3	0.0
Permitted Service Time (g_u), s	7.8	0.0	7.6	0.0	0.0	0.0	33.7	0.0
Permitted Queue Service Time (g_{ps}), s	0.2		0.0		0.0		2.4	
Time to First Blockage (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln								0
Protected Right Effective Green Time (g_R), s								0.0

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.557	0.000	1.710	0.000	1.198	0.000	1.198	0.000
Pedestrian F_s / F_{delay}	0.000	0.141	0.000	0.145	0.000	0.099	0.000	0.094
Pedestrian M_{corner} / M_{cw}	0.00		0.00		0.00		0.00	
Bicycle c_b / d_b	307.92	33.29	206.29	37.41	995.54	11.73	1053.51	10.42
Bicycle F_w / F_v	-3.64	0.30	-3.64	0.07	-3.64	0.61	-3.64	1.55

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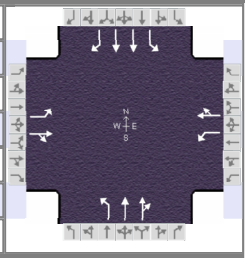
HCS Signalized Intersection Results Graphical Summary

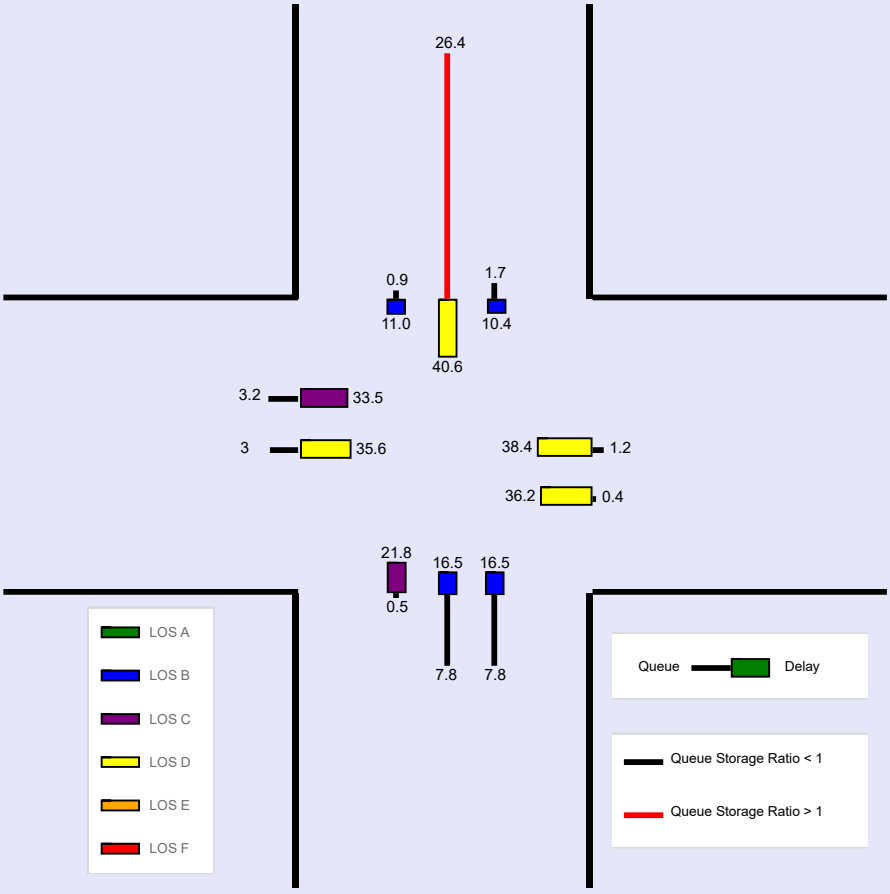
General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	PM Pr. Roadway	PHF	0.92
Urban Street	SR310	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR310 - Worthington	File Name	11A_PM_ProposedRoadway_SR310_Worthingto…		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	90	30	50	10	10	20	30	640	10	110	1570	50

Signal Information													
Cycle, s	93.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	Yes	Simult. Gap E/W	On	Green	4.0	2.7	46.3	1.7	4.7	9.6			
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	0.0	4.0	4.0	0.0	4.0			
				Red	2.0	0.0	2.0	2.0	0.0	2.0			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)	83	77		9	29		14	206	195	42	670	23
Back of Queue (*Q*), veh/ln (95 th percentile)	3.2	3.0		0.4	1.2		0.5	7.8	7.8	1.7	26.4	0.9
Queue Storage Ratio (*RQ*) (95 th percentile)	0.15	0.05		0.02	0.01		0.04	0.11	0.11	0.12	1.00	0.07
Control Delay (*d*), s/veh	33.5	35.6		36.2	38.4		21.8	16.5	16.5	10.4	40.6	11.0
Level of Service (LOS)	C	D		D	D		C	B	B	B	D	B
Approach Delay, s/veh / LOS	34.5	C		37.9	D		16.7	B		37.9	D	
Intersection Delay, s/veh / LOS	32.2						C					



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--- Messages ---

No errors or warnings exist.

--- Comments ---

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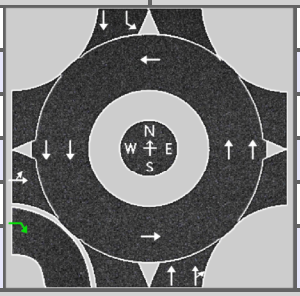
HCS Roundabouts Report

General Information

Analyst	AMP
Agency or Co.	Michael Baker Intl.
Date Performed	9/27/2024
Analysis Year	2048
Time Analyzed	PM Pr. Roadway
Project Description	FRA/LIC-161-22.1/0.00



Site Information

Intersection	SR310 - SR161 EB Ramp
E/W Street Name	SR161 EB Ramp
N/S Street Name	SR310
Analysis Time Period, hrs	0.25
Peak Hour Factor	0.92
Jurisdiction	ODOT D05

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	0	0	0	0	2	0	0	1	1	0
Lane Assignment			LT						T		TR		L		T	
Volume (V), veh/h	0	110	10	560					0		680	70	0	350	1170	
Percent Heavy Vehicles, %	2	2	2	2					5		5	5	2	2	2	
Flow Rate (v_{PCE}), pc/h	0	122	11	621					0		776	80	0	388	1297	
Right-Turn Bypass	Non-Yielding				None				None				None			
Conflicting Lanes	2								1				1			
Pedestrians Crossing, p/h	0								0				0			
Proportion of CAVs, %	0															

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway, s		4.3276					4.5436	4.5436		4.5436	4.5436	
Follow-Up Headway, s		2.5352					2.5352	2.5352		2.5352	2.5352	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		133	621				402	454		388	1297	
Entry Volume, veh/h		130	609				383	432		380	1272	
Circulating Flow (v_c), pc/h	1685			898			521			0		
Exiting Flow (v_{ex}), pc/h	479			0			898			1297		
Capacity (c_{pce}), pc/h		339					884	884		1420	1420	
Capacity (c), veh/h		332					842	842		1392	1392	
v/c Ratio (x)		0.39					0.46	0.51		0.27	0.91	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		19.6					10.1	11.3		4.9	25.6	
Lane LOS		C	A				B	B		A	D	
95% Queue Length, Q_{95} (veh)		1.8					2.4	3.0		1.1	15.6	
95% Queue Length, Q_{95} (ft)		45.7					62.4	78.0		27.9	396.2	
Approach Delay, s/veh | LOS	3.5	A					10.7	B		20.9	C	
Intersection Delay, s/veh | LOS	14.3						B					

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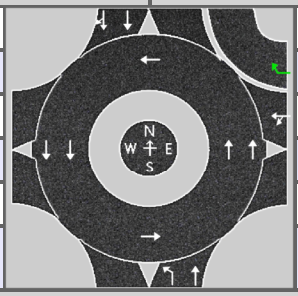
HCS Roundabouts Report

General Information

Analyst	AMP
Agency or Co.	Michael Baker Intl.
Date Performed	9/27/2024
Analysis Year	2048
Time Analyzed	PM Pr. Roadway
Project Description	FRA/LIC-161-22.1/0.00



Site Information

Intersection	SR310 - SR161 WB Ramp
E/W Street Name	SR161 WB Ramp
N/S Street Name	SR310
Analysis Time Period, hrs	0.25
Peak Hour Factor	0.92
Jurisdiction	ODOT D05

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	0	0	0	0	1	0	0	1	1	0	0	0	2	0
Lane Assignment							LT		L		T		T		TR	
Volume (V), veh/h					0	30	10	230	0	250	540		0		1490	70
Percent Heavy Vehicles, %					5	5	5	5	5	5	5		3		3	3
Flow Rate (v_{PCE}), pc/h					0	34	11	262	0	285	616		0		1668	78
Right-Turn Bypass	None				Non-Yielding				None				None			
Conflicting Lanes					2				1				1			
Pedestrians Crossing, p/h					0				0				0			
Proportion of CAVs, %	0															

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway, s					4.3276		4.5436	4.5436		4.5436	4.5436	
Follow-Up Headway, s					2.5352		2.5352	2.5352		2.5352	2.5352	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h					45	262	285	616		821	925	
Entry Volume, veh/h					43	250	271	587		797	898	
Circulating Flow (v_c), pc/h	1702			901			0			330		
Exiting Flow (v_{ex}), pc/h	0			374			616			1702		
Capacity (c_{pce}), pc/h					660		1420	1420		1052	1052	
Capacity (c), veh/h					629		1352	1352		1021	1021	
v/c Ratio (x)					0.07		0.20	0.43		0.78	0.88	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh					6.5		4.3	6.9		18.7	27.0	
Lane LOS					A	A	A	A		C	D	
95% Queue Length, Q_{95} (veh)					0.2		0.7	2.2		8.2	12.2	
95% Queue Length, Q_{95} (ft)					5.2		18.2	57.2		209.9	312.3	
Approach Delay, s/veh | LOS				1.0	A		6.1	A		23.1	C	
Intersection Delay, s/veh | LOS	15.7						C					

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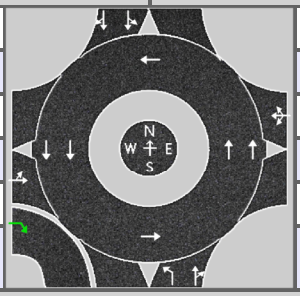
HCS Roundabouts Report

General Information

Analyst	AMP
Agency or Co.	Michael Baker Intl.
Date Performed	9/27/2024
Analysis Year	2048
Time Analyzed	PM Pr. Roadway
Project Description	FRA/LIC-161-22.1/0.00



Site Information

Intersection	SR310 - Jersey Mill Rd
E/W Street Name	Jersey Mill Rd
N/S Street Name	SR310
Analysis Time Period, hrs	0.25
Peak Hour Factor	0.92
Jurisdiction	ODOT D05

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	1	1	0	0	0	2	0
Lane Assignment			LT				LTR		L		TR		LT		TR	
Volume (V), veh/h	0	20	10	520	0	60	10	30	0	140	530	100	0	90	980	10
Percent Heavy Vehicles, %	4	4	4	4	4	4	4	4	6	6	6	6	6	6	6	6
Flow Rate (v_{PCE}), pc/h	0	23	11	588	0	68	11	34	0	161	611	115	0	104	1129	12
Right-Turn Bypass	Non-Yielding				None				None				None			
Conflicting Lanes	2				2				1				1			
Pedestrians Crossing, p/h	0				0				0				0			
Proportion of CAVs, %	0															

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway, s		4.3276			4.3276		4.5436	4.5436		4.5436	4.5436	
Follow-Up Headway, s		2.5352			2.5352		2.5352	2.5352		2.5352	2.5352	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		34	588		113		161	726		585	660	
Entry Volume, veh/h		33	565		109		152	685		552	623	
Circulating Flow (v_c), pc/h	1301			795			138			240		
Exiting Flow (v_{ex}), pc/h	230			184			668			1197		
Capacity (c_{pce}), pc/h		470			722		1252	1252		1141	1141	
Capacity (c), veh/h		452			695		1182	1182		1077	1077	
v/c Ratio (x)		0.07			0.16		0.13	0.58		0.51	0.58	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		8.9			6.9		4.1	10.1		9.4	10.7	
Lane LOS		A	A		A		A	B		A	B	
95% Queue Length, Q_{95} (veh)		0.2			0.6		0.4	3.9		3.0	3.8	
95% Queue Length, Q_{95} (ft)		5.2			15.5		10.5	102.2		78.6	99.6	
Approach Delay, s/veh | LOS	0.5	A		6.9	A		9.0	A		10.1	B	
Intersection Delay, s/veh | LOS	7.5						A					

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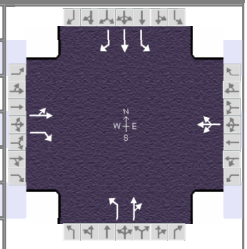
HCS Signalized Intersection Input Data

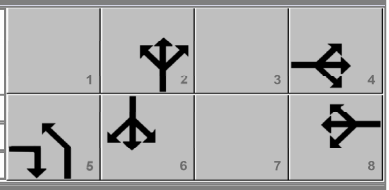
General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	AMP	Analysis Date	Sep 27, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	PM Pr. Roadway	PHF	0.92
Urban Street	SR310	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR310 - Jug St	File Name	11E_PM_ProposedRoadway_SR310_JugSt_204…		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	10	110	10	10	10	140	430	10	20	960	70

Signal Information			
Cycle, s	92.9	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	6.9	58.1	9.9	0.0	0.0	0.0	
Yellow	4.0	4.0	4.0	0.0	0.0	0.0	
Red	2.0	2.0	2.0	0.0	0.0	0.0	



Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	10	110	10	10	10	140	430	10	20	960	70
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1750	1750	1750	1750	1750	1900	1750	1750	1900	1750	1750	1750
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %		4	4		4		6	6		6	6	6
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (*W*), ft		12.0	12.0		12.0		12.0	12.0		12.0	12.0	12.0
Turn Bay Length, ft		1999	315		1999		360	1999		345	1999	360
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h	55	55	55	55	55	55	55	55	55	55	55	55

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s		10.0		10.0	7.0	71.0		20.0
Yellow Change Interval (*Y*), s		4.0		4.0	4.0	4.0		4.0
Red Clearance Interval (R_c), s		2.0		2.0	2.0	2.0		2.0
Minimum Green (G_{min}), s		10		10	7	20		20
Start-Up Lost Time (*l1*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s		2.0		2.0	2.0	2.0		2.0
Recall Mode		Off		Off	Off	Max		Max
Dual Entry		Yes		Yes	No	Yes		Yes
Walk (*Walk*), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

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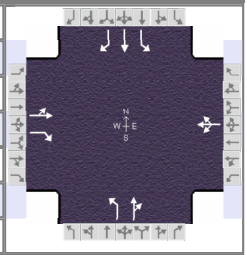
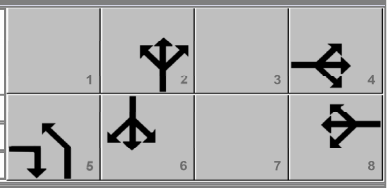
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	AMP	Analysis Date	Sep 27, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	PM Pr. Roadway	PHF	0.92
Urban Street	SR310	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR310 - Jug St	File Name	11E_PM_ProposedRoadway_SR310_JugSt_204…		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	10	110	10	10	10	140	430	10	20	960	70

Signal Information												
Cycle, s	92.9	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	Yes	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
				Green	6.9	58.1	9.9	0.0	0.0	0.0		
				Yellow	4.0	4.0	4.0	0.0	0.0	0.0		
				Red	2.0	2.0	2.0	0.0	0.0	0.0		



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2		6
Case Number		7.0		8.0	1.0	4.0		5.3
Phase Duration, s		15.9		15.9	12.9	77.0		64.1
Change Period, ($Y+R_c$), s		6.0		6.0	6.0	6.0		6.0
Max Allow Headway (*MAH*), s		3.1		3.1	2.9	2.9		2.9
Queue Clearance Time (g_s), s		8.9		3.7	6.1	10.8		60.1
Green Extension Time (g_e), s		0.0		0.2	0.0	3.5		0.0
Phase Call Probability		0.99		0.99	0.98	1.00		1.00
Max Out Probability		1.00		0.03	1.00	0.00		1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h		22	120		33		152	478		22	1043	76
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1550	1437		1530		1589	1661		887	1668	1414
Queue Service Time (g_s), s		0.0	6.9		0.0		4.1	8.8		0.9	58.1	2.0
Cycle Queue Clearance Time (g_c), s		1.1	6.9		1.7		4.1	8.8		0.9	58.1	2.0
Green Ratio (*g/C*)		0.11	0.18		0.11		0.72	0.76		0.63	0.63	0.63
Capacity (*c*), veh/h		223	259		215		195	1270		633	1044	885
Volume-to-Capacity Ratio (*X*)		0.097	0.461		0.152		0.779	0.377		0.034	0.999	0.086
Back of Queue (*Q*), ft/ln (95 th percentile)		20	105		30		132	79		7	833	24
Back of Queue (*Q*), veh/ln (95 th percentile)		0.8	4.1		1.2		5.0	3.0		0.3	31.8	0.9
Queue Storage Ratio (*RQ*) (95 th percentile)		0.01	0.33		0.01		0.37	0.04		0.02	0.42	0.07
Uniform Delay (d_1), s/veh		37.6	34.0		37.9		27.4	3.6		6.7	17.4	6.9
Incremental Delay (d_2), s/veh		0.1	0.5		0.1		16.1	0.9		0.1	27.7	0.2
Initial Queue Delay (d_3), s/veh		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Control Delay (*d*), s/veh		37.6	34.5		38.0		43.5	4.5		6.8	45.1	7.1
Level of Service (LOS)		D	C		D		D	A		A	D	A
Approach Delay, s/veh / LOS	35.0	C		38.0	D		13.9	B		41.8	D	
Intersection Delay, s/veh / LOS	32.2						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.94	B	2.13	B	1.61	B	1.87	B
Bicycle LOS Score / LOS	0.72	A	0.54	A	1.53	B	2.37	B

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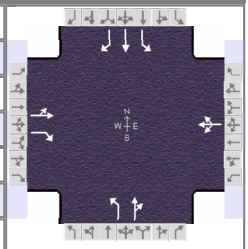
HCS Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	AMP	Analysis Date	Sep 27, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	PM Pr. Roadway	PHF	0.92
Urban Street	SR310	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR310 - Jug St	File Name	11E_PM_ProposedRoadway_SR310_JugSt_204…		
Project Description	FRA/LIC-161-22.1/0.00				

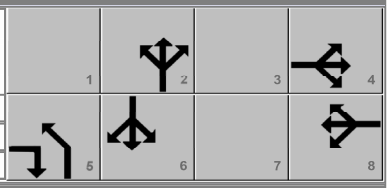


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	10	110	10	10	10	140	430	10	20	960	70

Signal Information			
Cycle, s	92.9	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	6.9	58.1	9.9	0.0	0.0	0.0						
Yellow	4.0	4.0	4.0	0.0	0.0	0.0						
Red	2.0	2.0	2.0	0.0	0.0	0.0						



Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	0.852	0.969	0.969	1.000	0.969	1.000	0.953	0.953	1.000	0.953	0.953	0.953
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.914	0.914		0.954	0.902		0.952	0.000		0.507	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.000	0.847		0.000	0.902		0.996	0.996		0.000	0.847
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000			1.000			1.000			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Prot. CAV Adj. Factor ($f_{CAV,prot}$)							1.00					
Left-Turn Perm. CAV Adj. Factor ($f_{CAV,perm}$)	1.00			1.00						1.00		
Movement Saturation Flow Rate (s), veh/h	775	775	1437	510	510	510	1589	1624	38	887	1668	1414
Proportion of Vehicles Arriving on Green (P)	0.11	0.11	0.11	0.11	0.11	0.11	0.07	0.76	0.76	0.63	0.63	0.63
Incremental Delay Factor (k)		0.04	0.04		0.04		0.29	0.50		0.50	0.50	0.50

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)		6.0		6.0	6.0	6.0		6.0
Green Ratio (g/C)		0.11		0.11	0.72	0.76		0.63
Permitted Saturation Flow Rate (s_p), veh/h/ln		1412		1426	524	0		887
Shared Saturation Flow Rate (s_{sh}), veh/h/ln		1514		1576				
Permitted Effective Green Time (g_p), s		9.9		9.9	60.1	0.0		58.1
Permitted Service Time (g_u), s		8.2		8.8	0.1	0.0		58.1
Permitted Queue Service Time (g_{ps}), s		0.0		0.0	0.1			0.9
Time to First Blockage (g_f), s		1.9		3.5	0.0	0.0		0.0
Queue Service Time Before Blockage (g_{fs}), s		1.1		1.0				
Protected Right Saturation Flow (s_R), veh/h/ln		1437						0
Protected Right Effective Green Time (g_R), s		6.9						0.0

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.198	0.000	1.389	0.000	0.972	0.000	1.198	0.000
Pedestrian F_s / F_{delay}	0.000	0.145	0.000	0.145	0.000	0.038	0.000	0.075
Pedestrian M_{corner} / M_{cw}	0.00		0.00		0.00		0.00	
Bicycle c_b / d_b	212.89	37.08	212.89	37.08	1528.73	2.58	1251.77	6.50
Bicycle F_w / F_v	-3.64	0.23	-3.64	0.05	-3.64	1.04	-3.64	1.88

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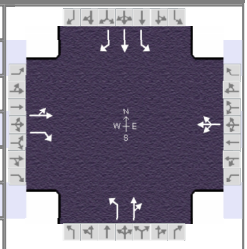
HCS Signalized Intersection Results Graphical Summary

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	AMP	Analysis Date	Sep 27, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	PM Pr. Roadway	PHF	0.92
Urban Street	SR310	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR310 - Jug St	File Name	11E_PM_ProposedRoadway_SR310_JugSt_204…		
Project Description	FRA/LIC-161-22.1/0.00				

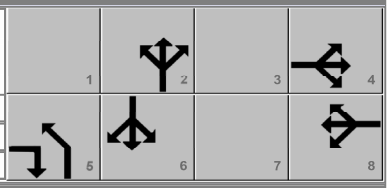


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	10	110	10	10	10	140	430	10	20	960	70

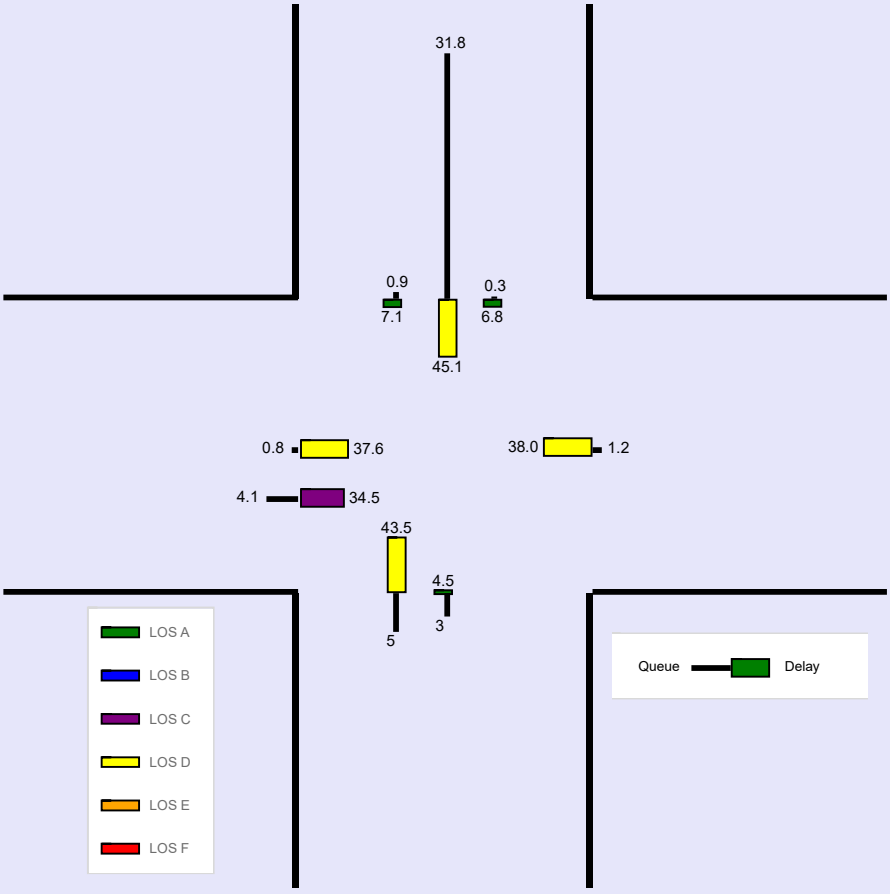
Signal Information			
Cycle, s	92.9	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	6.9	58.1	9.9	0.0	0.0	0.0						
Yellow	4.0	4.0	4.0	0.0	0.0	0.0						
Red	2.0	2.0	2.0	0.0	0.0	0.0						



Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)		20	105		30		132	79		7	833	24
Back of Queue (*Q*), veh/ln (95 th percentile)		0.8	4.1		1.2		5.0	3.0		0.3	31.8	0.9
Queue Storage Ratio (*RQ*) (95 th percentile)		0.01	0.33		0.01		0.37	0.04		0.02	0.42	0.07
Control Delay (*d*), s/veh		37.6	34.5		38.0		43.5	4.5		6.8	45.1	7.1
Level of Service (LOS)		D	C		D		D	A		A	D	A
Approach Delay, s/veh / LOS	35.0	C		38.0	D		13.9	B		41.8	D	
Intersection Delay, s/veh / LOS	32.2						C					



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--- Messages ---

No errors or warnings exist.

--- Comments ---

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SR-37 - AM
No-Build

HCS Two-Way Stop-Control Report

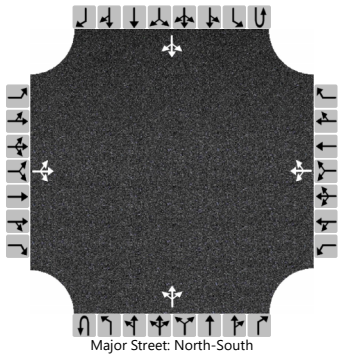
General Information

Analyst	SED
Agency/Co.	Michael Baker Intl.
Date Performed	7/19/2024
Analysis Year	2048
Time Analyzed	AM Ex. Roadway
Intersection Orientation	North-South
Project Description	FRA/LIC-161-22.1/0.00

Site Information

Intersection	SR37 - Worthington
Jurisdiction	ODOT D05
East/West Street	Worthinton Road
North/South Street	SR 37
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		10	10	10		10	10	30		10	330	10		20	80	40
Percent Heavy Vehicles (%)		13	13	13		19	19	19		15				15		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.23	6.63	6.33		7.29	6.69	6.39		4.25				4.25		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.62	4.12	3.42		3.67	4.17	3.47		2.34				2.34		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			33				54			11				22		
Capacity, c (veh/h)			490				516			1378				1121		
v/c Ratio			0.07				0.11			0.01				0.02		
95% Queue Length, Q_{95} (veh)			0.2				0.4			0.0				0.1		
95% Queue Length, Q_{95} (ft)			5.5				11.5			0.0				2.5		
Control Delay (s/veh)			12.9				12.8			7.6	0.1	0.1		8.3	0.2	0.2
Level of Service (LOS)			B				B			A	A	A		A	A	A
Approach Delay (s/veh)	12.9				12.8				0.3				1.3			
Approach LOS	B				B				A				A			

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HCS Two-Way Stop-Control Report

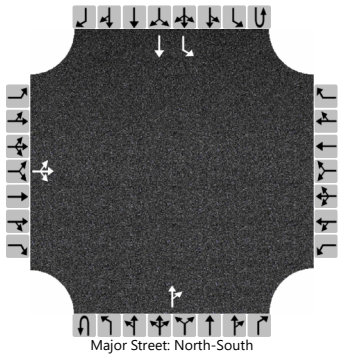
General Information

Analyst	SED
Agency/Co.	Michael Baker Intl.
Date Performed	7/19/2024
Analysis Year	2048
Time Analyzed	AM Ex. Roadway
Intersection Orientation	North-South
Project Description	FRA/LIC-161-22.1/0.00

Site Information

Intersection	SR37 - SR161 EB Ramp
Jurisdiction	ODOT D05
East/West Street	SR161 EB Ramp
North/South Street	SR 37
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	1	1	0
Configuration			LTR									TR		L	T	
Volume (veh/h)		80	10	30							350	20		280	110	
Percent Heavy Vehicles (%)		14	14	14										4		
Proportion Time Blocked																
Percent Grade (%)		0														
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2										4.1		
Critical Headway (sec)		7.24	6.64	6.34										4.14		
Base Follow-Up Headway (sec)		3.5	4.0	3.3										2.2		
Follow-Up Headway (sec)		3.63	4.13	3.43										2.24		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			130											304		
Capacity, c (veh/h)			172											1146		
v/c Ratio			0.76											0.27		
95% Queue Length, Q_{95} (veh)			4.9											1.1		
95% Queue Length, Q_{95} (ft)			136.2											28.4		
Control Delay (s/veh)			71.7											9.3		
Level of Service (LOS)			F											A		
Approach Delay (s/veh)		71.7												6.7		
Approach LOS		F												A		

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HCS Two-Way Stop-Control Report

General Information

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Agency/Co.	Michael Baker Intl.
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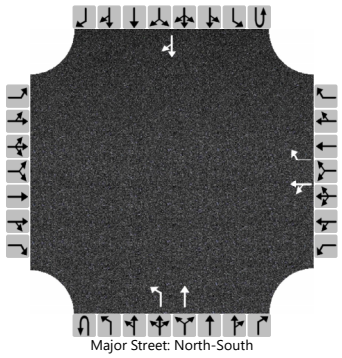
Time Analyzed	AM Ex. Roadway
Intersection Orientation	North-South
Project Description	FRA/LIC-161-22.1/0.00

Site Information

Intersection	SR37 - SR161 WB Ramp
Jurisdiction	ODOT D05
East/West Street	SR161 WB Ramp
North/South Street	SR 37
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	1	0	1	1	0	0	0	1	0
Configuration						LT		R		L	T					TR
Volume (veh/h)						50	0	430		130	300				340	330
Percent Heavy Vehicles (%)						4	4	4		16						
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized						No										
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1	6.5	6.2		4.1						
Critical Headway (sec)						7.14	6.54	6.24		4.26						
Base Follow-Up Headway (sec)						3.5	4.0	3.3		2.2						
Follow-Up Headway (sec)						3.54	4.04	3.34		2.34						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						54		467		141						
Capacity, c (veh/h)						142		711		815						
v/c Ratio						0.38		0.66		0.17						
95% Queue Length, Q_{95} (veh)						1.6		5.0		0.6						
95% Queue Length, Q_{95} (ft)						41.3		129.0		16.9						
Control Delay (s/veh)						45.4		19.3		10.3						
Level of Service (LOS)						E		C		B						
Approach Delay (s/veh)						22.0				3.1						
Approach LOS						C				A						

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HCS Two-Way Stop-Control Report

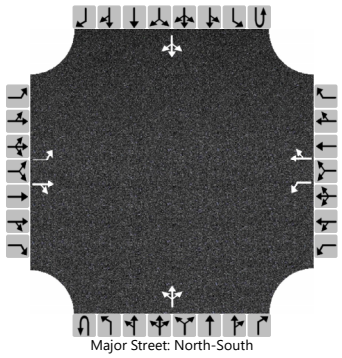
General Information

Analyst	SED
Agency/Co.	Michael Baker Intl.
Date Performed	7/19/2024
Analysis Year	2048
Time Analyzed	AM Ex. Roadway
Intersection Orientation	North-South
Project Description	FRA/LIC-161-22.1/0.00

Site Information

Intersection	SR37 - Moots Run
Jurisdiction	ODOT D05
East/West Street	Moots Run Road
North/South Street	SR 37
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		1	1	0		1	1	0	0	0	1	0	0	0	1	0
Configuration		L		TR		L		TR			LTR				LTR	
Volume (veh/h)		30	20	40		110	10	90		30	660	40		30	520	10
Percent Heavy Vehicles (%)		10	10	10		15	15	15		6				6		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.20	6.60	6.30		7.25	6.65	6.35		4.16				4.16		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.59	4.09	3.39		3.64	4.14	3.44		2.25				2.25		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		33		65		120		109		33				33		
Capacity, c (veh/h)		59		230		65		314		978				833		
v/c Ratio		0.55		0.28		1.83		0.35		0.03				0.04		
95% Queue Length, Q_{95} (veh)		2.2		1.1		10.9		1.5		0.1				0.1		
95% Queue Length, Q_{95} (ft)		59.4		29.7		305.2		42.0		2.5				2.5		
Control Delay (s/veh)		124.0		26.8		531.9		22.4		8.8	0.5	0.5		9.5	0.5	0.5
Level of Service (LOS)		F		D		F		C		A	A	A		A	A	A
Approach Delay (s/veh)	59.2				289.3				0.9				1.0			
Approach LOS	F				F				A				A			

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SR-37 - PM
No-Build

HCS Two-Way Stop-Control Report

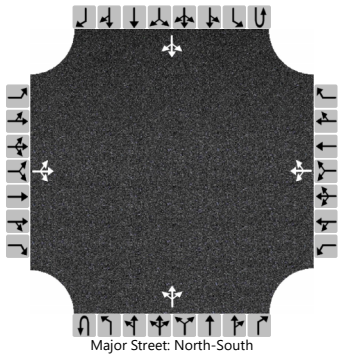
General Information

Analyst	SED
Agency/Co.	Michael Baker Intl.
Date Performed	7/19/2024
Analysis Year	2048
Time Analyzed	PM Ex. Roadway
Intersection Orientation	North-South
Project Description	FRA/LIC-161-22.1/0.00

Site Information

Intersection	SR37 - Worthington
Jurisdiction	ODOT D05
East/West Street	Worthinton Road
North/South Street	SR 37
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		60	10	10		10	50	40		10	230	10		10	400	20
Percent Heavy Vehicles (%)		6	6	6		3	3	3		2				4		
Proportion Time Blocked																
Percent Grade (%)		0				0										
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.16	6.56	6.26		7.13	6.53	6.23		4.12				4.14		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.55	4.05	3.35		3.53	4.03	3.33		2.22				2.24		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			87				109			11				11		
Capacity, c (veh/h)			263				423			1104				1292		
v/c Ratio			0.33				0.26			0.01				0.01		
95% Queue Length, Q_{95} (veh)			1.4				1.0			0.0				0.0		
95% Queue Length, Q_{95} (ft)			36.7				25.6			0.0				0.0		
Control Delay (s/veh)			25.3				16.4			8.3	0.1	0.1		7.8	0.1	0.1
Level of Service (LOS)			D				C			A	A	A		A	A	A
Approach Delay (s/veh)		25.3				16.4				0.4				0.3		
Approach LOS		D				C				A				A		

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HCS Two-Way Stop-Control Report

General Information

Analyst	SED
Agency/Co.	Michael Baker Intl.
Date Performed	7/19/2024
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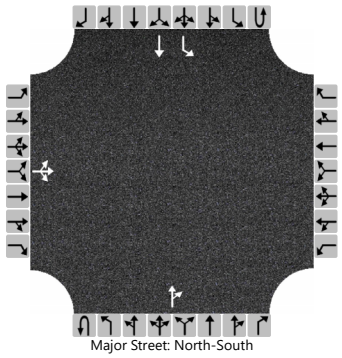
Time Analyzed	PM Ex. Roadway
Intersection Orientation	North-South
Project Description	FRA/LIC-161-22.1/0.00

Site Information

Intersection	SR37 - SR161 EB Ramp
Jurisdiction	ODOT D05
East/West Street	SR161 EB Ramp
North/South Street	SR 37
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	1	1	0
Configuration			LTR									TR		L	T	
Volume (veh/h)		170	10	80							260	70		680	350	
Percent Heavy Vehicles (%)		6	6	6										4		
Proportion Time Blocked																
Percent Grade (%)		0														
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2										4.1		
Critical Headway (sec)		7.16	6.56	6.26										4.14		
Base Follow-Up Headway (sec)		3.5	4.0	3.3										2.2		
Follow-Up Headway (sec)		3.55	4.05	3.35										2.24		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			283											739		
Capacity, c (veh/h)			18											1189		
v/c Ratio			15.78											0.62		
95% Queue Length, Q_{95} (veh)			36.0											4.6		
95% Queue Length, Q_{95} (ft)			943.2											118.7		
Control Delay (s/veh)			7067.2											12.9		
Level of Service (LOS)			F											B		
Approach Delay (s/veh)		7067.2												8.5		
Approach LOS		F												A		

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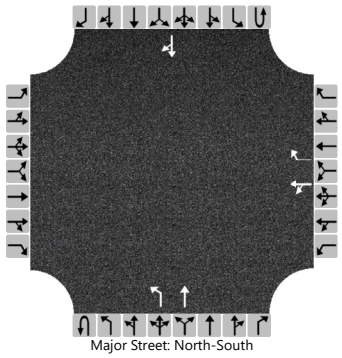
Site Information

Intersection	SR37 - SR161 WB Ramp
Jurisdiction	ODOT D05
East/West Street	SR161 WB Ramp
North/South Street	SR 37
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	1	0	1	1	0	0	0	1	0
Configuration						LT		R		L	T					TR
Volume (veh/h)						30	0	440		60	370				1000	80
Percent Heavy Vehicles (%)						2	2	2		4						
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized						No										
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1	6.5	6.2		4.1						
Critical Headway (sec)						7.12	6.52	6.22		4.14						
Base Follow-Up Headway (sec)						3.5	4.0	3.3		2.2						
Follow-Up Headway (sec)						3.52	4.02	3.32		2.24						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						33		478		65						
Capacity, c (veh/h)						69		648		588						
v/c Ratio						0.48		0.74		0.11						
95% Queue Length, Q_{95} (veh)						1.9		6.5		0.4						
95% Queue Length, Q_{95} (ft)						48.3		165.1		10.3						
Control Delay (s/veh)						98.0		24.5		11.9						
Level of Service (LOS)						F		C		B						
Approach Delay (s/veh)						29.2				1.7						
Approach LOS						D				A						

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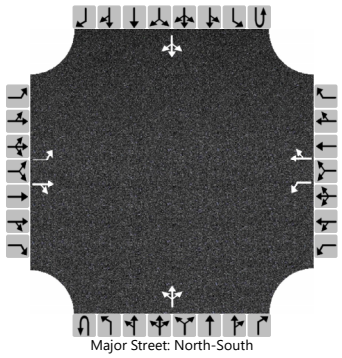
Project Description	FRA/LIC-161-22.1/0.00

Site Information

Intersection	SR37 - Moots Run
Jurisdiction	ODOT D05
East/West Street	Moots Run Road
North/South Street	SR 37
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		1	1	0		1	1	0	0	0	1	0	0	0	1	0
Configuration		L		TR		L		TR			LTR				LTR	
Volume (veh/h)		10	10	30		60	10	60		20	700	90		150	990	10
Percent Heavy Vehicles (%)		4	4	4		4	4	4		6				6		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.14	6.54	6.24		7.14	6.54	6.24		4.16				4.16		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.54	4.04	3.34		3.54	4.04	3.34		2.25				2.25		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		11		43		65		76		22				163		
Capacity, c (veh/h)		5		55		6		95		627				765		
v/c Ratio		1.98		0.80		11.84		0.80		0.03				0.21		
95% Queue Length, Q_{95} (veh)		2.4		3.4		9.9		4.3		0.1				0.8		
95% Queue Length, Q_{95} (ft)		61.9		87.7		255.4		110.9		2.5				20.0		
Control Delay (s/veh)		1673.6		186.1		6167.4		124.4		10.9	0.7	0.7		11.0	5.9	5.9
Level of Service (LOS)		F		F		F		F		B	A	A		B	A	A
Approach Delay (s/veh)	483.6				2913.5				1.0				6.6			
Approach LOS	F				F				A				A			

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SR-37 (Signalized) - AM Build

HCS Two-Way Stop-Control Report

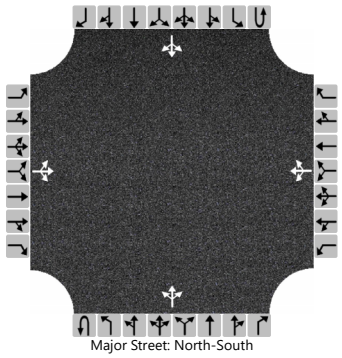
General Information

Analyst	SED
Agency/Co.	Michael Baker Intl.
Date Performed	7/19/2024
Analysis Year	2048
Time Analyzed	AM Pr. Roadway
Intersection Orientation	North-South
Project Description	FRA/LIC-161-22.1/0.00

Site Information

Intersection	SR37 - Worthington
Jurisdiction	ODOT D05
East/West Street	Worthinton Road
North/South Street	SR 37
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		10	10	10		10	10	30		10	330	10		20	80	40
Percent Heavy Vehicles (%)		13	13	13		19	19	19		15				15		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.23	6.63	6.33		7.29	6.69	6.39		4.25				4.25		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.62	4.12	3.42		3.67	4.17	3.47		2.34				2.34		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			33				54			11				22		
Capacity, c (veh/h)			490				516			1378				1121		
v/c Ratio			0.07				0.11			0.01				0.02		
95% Queue Length, Q_{95} (veh)			0.2				0.4			0.0				0.1		
95% Queue Length, Q_{95} (ft)			5.5				11.5			0.0				2.5		
Control Delay (s/veh)			12.9				12.8			7.6	0.1	0.1		8.3	0.2	0.2
Level of Service (LOS)			B				B			A	A	A		A	A	A
Approach Delay (s/veh)	12.9				12.8				0.3				1.3			
Approach LOS	B				B				A				A			

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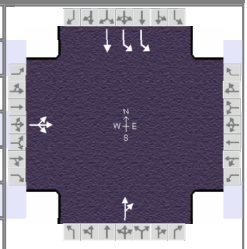
HCS Signalized Intersection Input Data

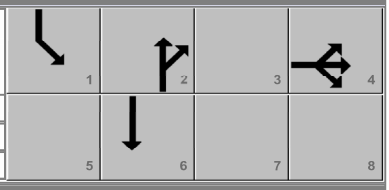
General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	AMP	Analysis Date	Sep 27, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	AM Pr. Roadway	PHF	0.92
Urban Street	SR37	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR37 - SR161 EB Ramp	File Name	_AM_ProposedRoadway_SR37 (Corridor 12).xus		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	80	10	30					350	20	280	110	

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	10.8	51.5	9.8	0.0	0.0	0.0	
Yellow	4.0	4.0	4.0	0.0	0.0	0.0	
Red	2.0	2.0	2.0	0.0	0.0	0.0	



Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	80	10	30					350	20	280	110	
Initial Queue (Q_b), veh/h	0	0	0					0	0	0	0	
Base Saturation Flow Rate (s_o), veh/h	1750	1750	1750					1750	1750	1750	1750	
Parking (N_m), man/h		None						None			None	
Heavy Vehicles (P_{HV}), %		14						18		4	4	
Ped / Bike / RTOR, /h	0	0	0	0	0		0	0	0	0	0	
Buses (N_b), buses/h	0	0	0				0	0	0	0	0	0
Arrival Type (*AT*)	3	3	3					3	3	3	3	
Upstream Filtering (*I*)	1.00	1.00	1.00					1.00	1.00	0.83	0.83	
Lane Width (*W*), ft		12.0						12.0		12.0	12.0	
Turn Bay Length, ft		1200						580		485	800	
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h	55	55	55					55	55	55	55	

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s		48.0				28.0	14.0	42.0
Yellow Change Interval (*Y*), s		4.0				4.0	4.0	4.0
Red Clearance Interval (R_c), s		2.0				2.0	2.0	2.0
Minimum Green (G_{min}), s		10				20	7	20
Start-Up Lost Time (*l*t), s	2.0	2.0				2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0				2.0	2.0	2.0
Passage (*PT*), s		2.0				2.0	2.0	2.0
Recall Mode		Off				Max	Off	Max
Dual Entry		Yes				Yes	No	Yes
Walk (*Walk*), s		0.0		0.0				0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0				0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0				0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0				9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No		0		0.0		No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0				12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No				0.50		No	0.50	

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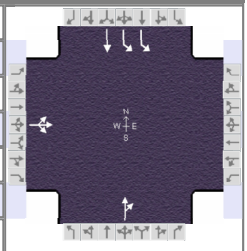
HCS Signalized Intersection Results Summary

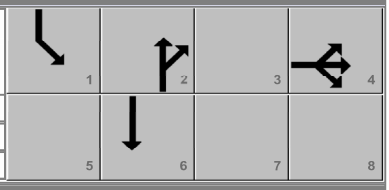
General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	AMP	Analysis Date	Sep 27, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	AM Pr. Roadway	PHF	0.92
Urban Street	SR37	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR37 - SR161 EB Ramp	File Name	_AM_ProposedRoadway_SR37 (Corridor 12).xus		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	80	10	30					350	20	280	110	

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	10.8	51.5	9.8	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	2.0	2.0	2.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4				2	1	6
Case Number		12.0				8.3	2.0	4.0
Phase Duration, s		15.8				57.5	16.8	74.2
Change Period, (*Y+R c*), s		6.0				6.0	6.0	6.0
Max Allow Headway (*MAH*), s		3.0				0.0	2.9	0.0
Queue Clearance Time (*g s*), s		10.0					10.1	
Green Extension Time (*g e*), s		0.2				0.0	0.6	0.0
Phase Call Probability		0.96					1.00	
Max Out Probability		0.00					0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14					2	12	1	6	
Adjusted Flow Rate (*v*), veh/h		130						402		304	120	
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1446						1490		1568	1695	
Queue Service Time (*g s*), s		8.0						14.2		8.1	1.2	
Cycle Queue Clearance Time (*g c*), s		8.0						14.2		8.1	1.2	
Green Ratio (*g/C*)		0.11						0.57		0.12	0.76	
Capacity (*c*), veh/h		157						852		375	1285	
Volume-to-Capacity Ratio (*X*)		0.831						0.472		0.812	0.093	
Back of Queue (*Q*), ft/ln (95 th percentile)		141						213		115	11	
Back of Queue (*Q*), veh/ln (95 th percentile)		5.1						7.5		4.5	0.4	
Queue Storage Ratio (*RQ*) (95 th percentile)		0.12						0.37		0.24	0.01	
Uniform Delay (*d 1*), s/veh		39.3						11.3		31.2	2.1	
Incremental Delay (*d 2*), s/veh		4.3						1.9		1.4	0.1	
Initial Queue Delay (*d 3*), s/veh		0.0						0.0		0.0	0.0	
Control Delay (*d*), s/veh		43.6						13.2		32.6	2.2	
Level of Service (LOS)		D						B		C	A	
Approach Delay, s/veh / LOS	43.6	D		0.0			13.2	B		24.0	C	
Intersection Delay, s/veh / LOS	22.1						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.72	B	2.14	B	1.66	B	1.32	A
Bicycle LOS Score / LOS	0.70	A			1.15	A	1.19	A

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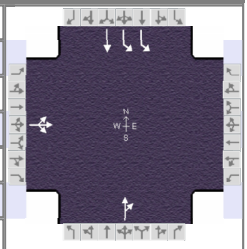
HCS Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	AMP	Analysis Date	Sep 27, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	AM Pr. Roadway	PHF	0.92
Urban Street	SR37	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR37 - SR161 EB Ramp	File Name	_AM_ProposedRoadway_SR37 (Corridor 12).xus		
Project Description	FRA/LIC-161-22.1/0.00				

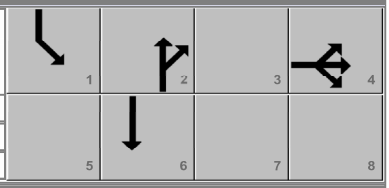


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	80	10	30					350	20	280	110	

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	10.8	51.5	9.8	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	2.0	2.0	2.0	0.0	0.0	0.0



Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000				1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	0.852	0.891	0.945				0.938	0.860	0.945	0.969	0.969	1.000
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	0.000	0.000	0.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	0.000	0.000	0.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000				1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.971	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.927	0.927					1.000	0.990		0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.000	0.000					0.000	0.990		1.000	1.000
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000						1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000						1.000			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000				1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000				1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Prot. CAV Adj. Factor ($f_{CAV,prot}$)										1.00		
Left-Turn Perm. CAV Adj. Factor ($f_{CAV,perm}$)							1.00					
Movement Saturation Flow Rate (s), veh/h	964	120	361				0	1409	81	3136	1695	0
Proportion of Vehicles Arriving on Green (P)	0.11	0.11	0.11	0.00	0.00	0.00	0.00	0.57	0.57	0.28	0.82	0.00
Incremental Delay Factor (k)		0.04						0.50		0.04	0.50	

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)		4.0				6.0	6.0	6.0
Green Ratio (g/C)		0.11				0.57	0.12	0.76
Permitted Saturation Flow Rate (s_p), veh/h/ln		0				1292	0	0
Shared Saturation Flow Rate (s_{sh}), veh/h/ln						0		
Permitted Effective Green Time (g_p), s		0.0				0.0	0.0	0.0
Permitted Service Time (g_u), s		0.0				0.0	0.0	0.0
Permitted Queue Service Time (g_{ps}), s								
Time to First Blockage (g_f), s		0.0				51.5	0.0	0.0
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln								
Protected Right Effective Green Time (g_R), s								

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	0.972	0.000	1.389	0.000	0.972	0.000	0.681	0.000
Pedestrian F_s / F_{delay}	0.000	0.153	0.000	0.153	0.000	0.085	0.000	0.039
Pedestrian M_{corner} / M_{cw}	0.00		0.00		0.00		0.00	
Bicycle c_b / d_b		52.27		50.14	1143.95	8.24	1516.22	2.63
Bicycle F_w / F_v	-3.64	0.22	-3.64		-3.64	0.66	-3.64	0.70

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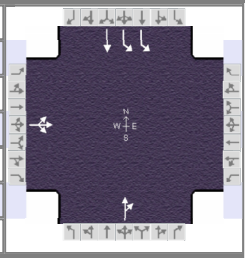
HCS Signalized Intersection Results Graphical Summary

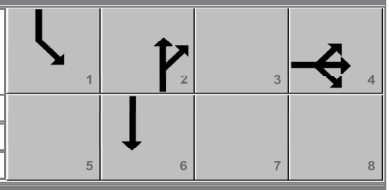
General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	AMP	Analysis Date	Sep 27, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	AM Pr. Roadway	PHF	0.92
Urban Street	SR37	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR37 - SR161 EB Ramp	File Name	_AM_ProposedRoadway_SR37 (Corridor 12).xus		
Project Description	FRA/LIC-161-22.1/0.00				



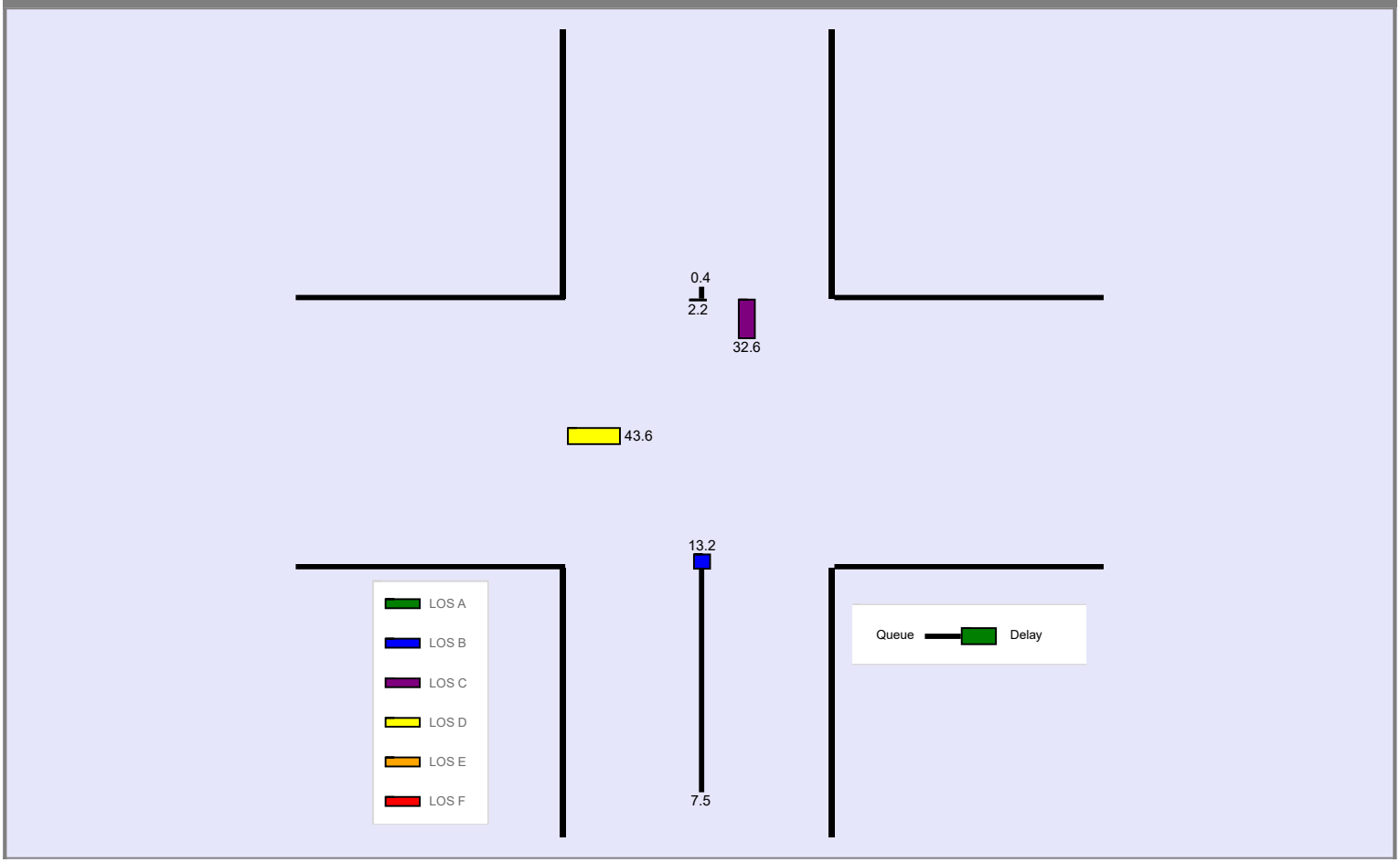
Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	80	10	30					350	20	280	110	

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	10.8	51.5	9.8	0.0	0.0	0.0	
Yellow	4.0	4.0	4.0	0.0	0.0	0.0	
Red	2.0	2.0	2.0	0.0	0.0	0.0	



Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)		141						213		115	11	
Back of Queue (*Q*), veh/ln (95 th percentile)		5.1						7.5		4.5	0.4	
Queue Storage Ratio (*RQ*) (95 th percentile)		0.12						0.37		0.24	0.01	
Control Delay (*d*), s/veh		43.6						13.2		32.6	2.2	
Level of Service (LOS)		D						B		C	A	
Approach Delay, s/veh / LOS	43.6	D		0.0			13.2	B		24.0	C	
Intersection Delay, s/veh / LOS	22.1						C					



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--- Messages ---

No errors or warnings exist.

--- Comments ---

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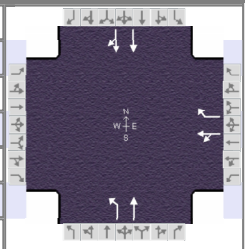
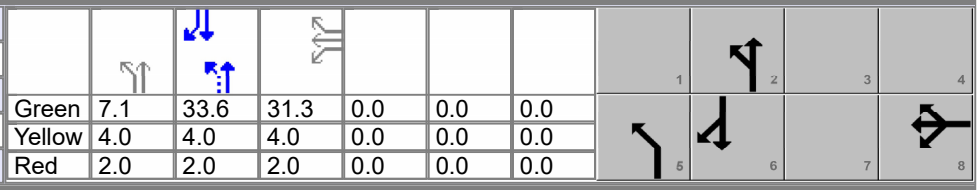
HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	AMP	Analysis Date	Sep 27, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	AM Pr. Roadway	PHF	0.92
Urban Street	SR37	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR37 - SR161 WB Ramp	File Name	_AM_ProposedRoadway_SR37 (Corridor 12).xus		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				50	0	430	130	300			340	330

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	32	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	7.1	33.6	31.3	0.0	0.0	0.0						
Yellow	4.0	4.0	4.0	0.0	0.0	0.0						
Red	2.0	2.0	2.0	0.0	0.0	0.0						

Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				50	0	430	130	300			340	330
Initial Queue (Q_b), veh/h				0	0	0	0	0			0	0
Base Saturation Flow Rate (s_o), veh/h				1750	1750	1750	1750	1750			1750	1750
Parking (N_m), man/h					None			None			None	
Heavy Vehicles (P_{HV}), %					4	4	16	16			7	
Ped / Bike / RTOR, /h	0	0		0	0	0	0	0		0	0	0
Buses (N_b), buses/h				0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)				3	3	3	3	3			3	3
Upstream Filtering (*I*)				1.00	1.00	1.00	0.83	0.83			0.87	0.87
Lane Width (*W*), ft					12.0	12.0	12.0	12.0			12.0	
Turn Bay Length, ft					665	615	350	800			560	
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h				55	55	55	55	55			55	55

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s				51.0	13.0	39.0		26.0
Yellow Change Interval (*Y*), s				4.0	4.0	4.0		4.0
Red Clearance Interval (R_c), s				2.0	2.0	2.0		2.0
Minimum Green (G_{min}), s				10	7	20		20
Start-Up Lost Time (*l*t), s			2.0	2.0	2.0	2.0		2.0
Extension of Effective Green (*e*), s			2.0	2.0	2.0	2.0		2.0
Passage (*PT*), s				2.0	2.0	2.0		2.0
Recall Mode				Off	Off	Max		Max
Dual Entry				Yes	No	Yes		Yes
Walk (*Walk*), s		0.0		0.0		0.0		
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0			
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0			
Street Width / Island / Curb, ft		0		0.0	0	No	0.0	0	No	0.0		No
Width Outside / Bike Lane / Shoulder, ft				12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No			No		0.50	No		0.50			0.50

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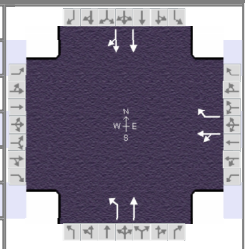
HCS Signalized Intersection Results Summary

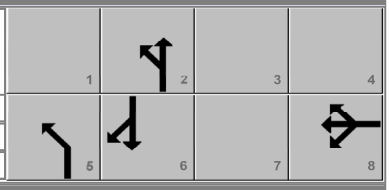
General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	AMP	Analysis Date	Sep 27, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	AM Pr. Roadway	PHF	0.92
Urban Street	SR37	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR37 - SR161 WB Ramp	File Name	_AM_ProposedRoadway_SR37 (Corridor 12).xus		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				50	0	430	130	300			340	330

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	32	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	7.1	33.6	31.3	0.0	0.0	0.0	
Yellow	4.0	4.0	4.0	0.0	0.0	0.0	
Red	2.0	2.0	2.0	0.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8	5	2		6
Case Number				11.0	1.0	4.0		8.3
Phase Duration, s				37.3	13.1	52.7		39.6
Change Period, ($Y+R_c$), s				6.0	6.0	6.0		6.0
Max Allow Headway (*MAH*), s				3.2	2.9	0.0		0.0
Queue Clearance Time (g_s), s				30.3	7.1			
Green Extension Time (g_e), s				1.0	0.2	0.0		0.0
Phase Call Probability				1.00	0.97			
Max Out Probability				0.00	0.00			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3	8	18	5	2			6	16
Adjusted Flow Rate (*v*), veh/h					54	467	141	326			370	359
Adjusted Saturation Flow Rate (*s*), veh/h/ln					1615	1437	1459	1532			1654	1402
Queue Service Time (g_s), s					2.0	28.3	5.1	7.9			19.8	19.4
Cycle Queue Clearance Time (g_c), s					2.0	28.3	5.1	7.9			19.8	19.4
Green Ratio (*g/C*)					0.35	0.35	0.47	0.52			0.37	0.37
Capacity (*c*), veh/h					562	500	294	795			618	524
Volume-to-Capacity Ratio (*X*)					0.097	0.935	0.481	0.410			0.598	0.685
Back of Queue (*Q*), ft/ln (95 th percentile)					32	401	70	107			215	277
Back of Queue (*Q*), veh/ln (95 th percentile)					1.3	15.6	2.5	3.8			8.1	10.5
Queue Storage Ratio (*RQ*) (95 th percentile)					0.05	0.65	0.20	0.13			0.38	0.49
Uniform Delay (d_1), s/veh					19.8	28.4	16.3	7.5			17.6	23.9
Incremental Delay (d_2), s/veh					0.0	12.9	0.4	1.3			3.7	6.2
Initial Queue Delay (d_3), s/veh					0.0	0.0	0.0	0.0			0.0	0.0
Control Delay (*d*), s/veh					19.8	41.3	16.6	8.8			21.3	30.1
Level of Service (LOS)					B	D	B	A			C	C
Approach Delay, s/veh / LOS	0.0			39.0		D	11.1		B	25.6		C
Intersection Delay, s/veh / LOS	25.8						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.14	B	1.95	B	1.67	B	1.40	A
Bicycle LOS Score / LOS			1.35	A	1.26	A	1.09	A

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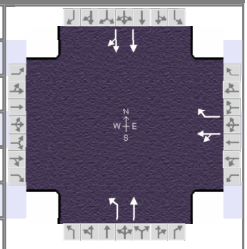
HCS Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	AMP	Analysis Date	Sep 27, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	AM Pr. Roadway	PHF	0.92
Urban Street	SR37	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR37 - SR161 WB Ramp	File Name	_AM_ProposedRoadway_SR37 (Corridor 12).xus		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				50	0	430	130	300			340	330

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	32	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

							1	2	3	4
Green	7.1	33.6	31.3	0.0	0.0	0.0	5	6	7	8
Yellow	4.0	4.0	4.0	0.0	0.0	0.0				
Red	2.0	2.0	2.0	0.0	0.0	0.0				

Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)				1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})				1.000	0.969	0.969	0.875	0.875	0.945	0.922	0.945	0.945
Parking Activity Adjustment Factor (f_p)	0.000	0.000	0.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	0.000	0.000	0.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)				1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})				0.952	0.952		0.952	0.000		1.000	1.000	
Right-Turn Adjustment Factor (f_{RT})					0.000	0.847		1.000	1.000		0.847	0.847
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})				1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})						1.000			1.000			1.000
Work Zone Adjustment Factor (f_{wz})				1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})				1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Prot. CAV Adj. Factor ($f_{CAV,prot}$)							1.00					
Left-Turn Perm. CAV Adj. Factor ($f_{CAV,perm}$)										1.00		
Movement Saturation Flow Rate (s), veh/h				1615	0	1437	1459	1532	0	0	1654	1402
Proportion of Vehicles Arriving on Green (P)	0.00	0.00	0.00	0.35	0.00	0.35	0.12	0.71	0.00	0.00	0.50	0.37
Incremental Delay Factor (k)					0.04	0.18	0.04	0.50			0.50	0.50

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)				4.0	6.0	6.0		6.0
Green Ratio (g/C)				0.35	0.47	0.52		0.37
Permitted Saturation Flow Rate (s_p), veh/h/ln				0	646	0		1070
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								0
Permitted Effective Green Time (g_p), s				0.0	35.6	0.0		0.0
Permitted Service Time (g_u), s				0.0	13.8	0.0		0.0
Permitted Queue Service Time (g_{ps}), s					5.7			
Time to First Blockage (g_f), s				0.0	0.0	0.0		33.6
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln				0				
Protected Right Effective Green Time (g_R), s				0.0				

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.389	0.000	1.198	0.000	0.972	0.000	0.681	0.000
Pedestrian F_s / F_{delay}	0.000	0.153	0.000	0.153	0.000	0.094	0.000	0.115
Pedestrian M_{corner} / M_{cw}	0.00		0.00		0.00		0.00	
Bicycle c_b / d_b		50.14		52.27	1037.71	10.42	746.81	17.67
Bicycle F_w / F_v	-3.64		-3.64	0.86	-3.64	0.77	-3.64	0.60

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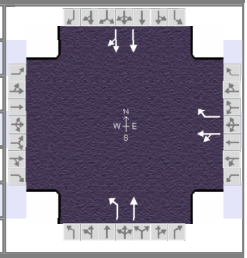
HCS Signalized Intersection Results Graphical Summary

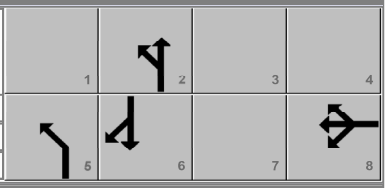
General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	AMP	Analysis Date	Sep 27, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	AM Pr. Roadway	PHF	0.92
Urban Street	SR37	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR37 - SR161 WB Ramp	File Name	_AM_ProposedRoadway_SR37 (Corridor 12).xus		
Project Description	FRA/LIC-161-22.1/0.00				



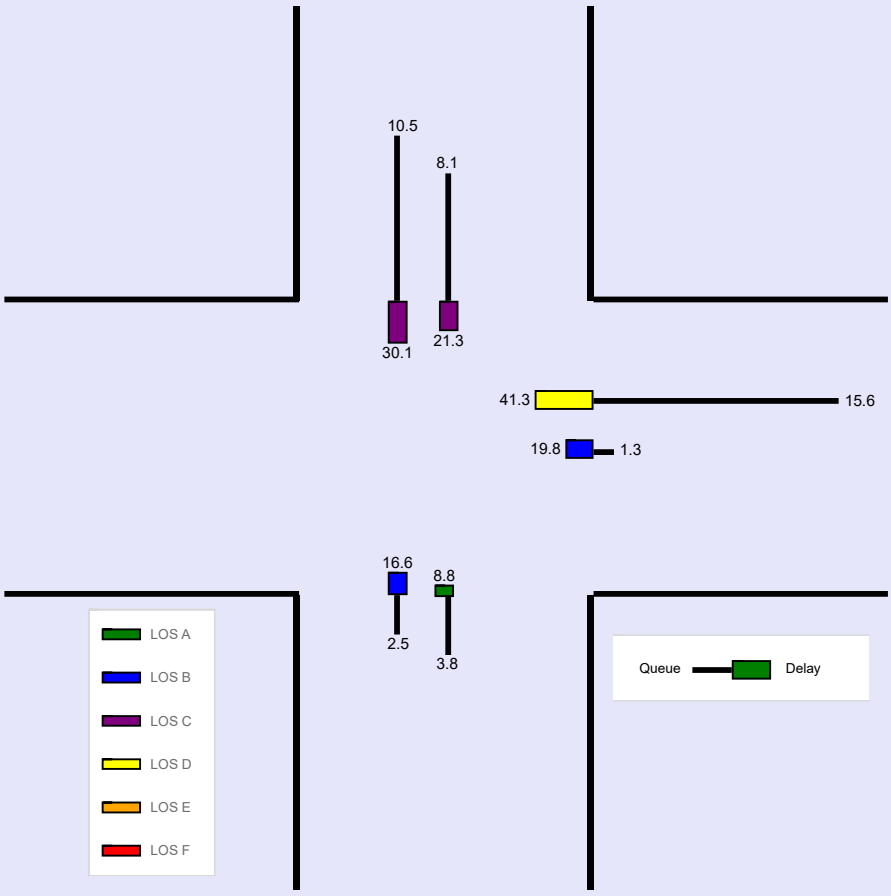
Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				50	0	430	130	300			340	330

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	32	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	7.1	33.6	31.3	0.0	0.0	0.0	
Yellow	4.0	4.0	4.0	0.0	0.0	0.0	
Red	2.0	2.0	2.0	0.0	0.0	0.0	



Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)					32	401	70	107			215	277
Back of Queue (*Q*), veh/ln (95 th percentile)					1.3	15.6	2.5	3.8			8.1	10.5
Queue Storage Ratio (*RQ*) (95 th percentile)					0.05	0.65	0.20	0.13			0.38	0.49
Control Delay (*d*), s/veh					19.8	41.3	16.6	8.8			21.3	30.1
Level of Service (LOS)					B	D	B	A			C	C
Approach Delay, s/veh / LOS	0.0			39.0		D	11.1		B	25.6		C
Intersection Delay, s/veh / LOS	25.8						C					



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--- Messages ---

No errors or warnings exist.

--- Comments ---

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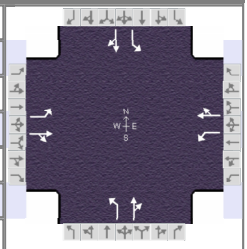
HCS Signalized Intersection Input Data

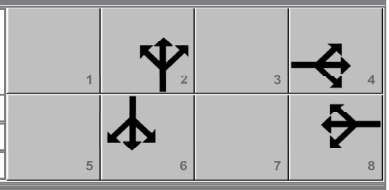
General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	AMP	Analysis Date	Sep 27, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	AM Pr. Roadway	PHF	0.92
Urban Street	SR37	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR37 - Moots Run	File Name	_AM_ProposedRoadway_SR37 (Corridor 12).xus		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	30	20	40	110	10	90	30	660	40	30	520	10

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	4	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	63.3	14.7	0.0	0.0	0.0	0.0	
Yellow	4.0	4.0	0.0	0.0	0.0	0.0	
Red	2.0	2.0	0.0	0.0	0.0	0.0	



Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	30	20	40	110	10	90	30	660	40	30	520	10
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	10	10		15	15		6	6		6	6	
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	0.82	0.82	0.82	1.00	1.00	1.00
Lane Width (*W*), ft	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Turn Bay Length, ft	345	1999		345	1999		345	520		345	1999	
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h	55	55	55	55	55	55	55	55	55	55	55	55

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s		28.0		28.0		62.0		62.0
Yellow Change Interval (*Y*), s		4.0		4.0		4.0		4.0
Red Clearance Interval (R_c), s		2.0		2.0		2.0		2.0
Minimum Green (G_{min}), s		10		10		20		20
Start-Up Lost Time (*l1*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s		2.0		2.0		2.0		2.0
Recall Mode		Off		Off		Max		Max
Dual Entry		Yes		Yes		Yes		Yes
Walk (*Walk*), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

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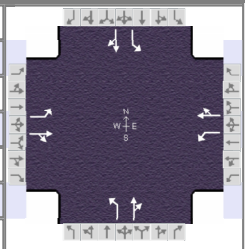
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	AMP	Analysis Date	Sep 27, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	AM Pr. Roadway	PHF	0.92
Urban Street	SR37	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR37 - Moots Run	File Name	_AM_ProposedRoadway_SR37 (Corridor 12).xus		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	30	20	40	110	10	90	30	660	40	30	520	10

Signal Information			
Cycle, s	90.0	Reference Phase	2
Offset, s	4	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

							1	2	3	4
Green	63.3	14.7	0.0	0.0	0.0	0.0	5	6	7	8
Yellow	4.0	4.0	0.0	0.0	0.0	0.0				
Red	2.0	2.0	0.0	0.0	0.0	0.0				

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		6.0		6.0		6.0		6.0
Phase Duration, s		20.7		20.7		69.3		69.3
Change Period, ($Y+R_c$), s		6.0		6.0		6.0		6.0
Max Allow Headway (*MAH*), s		3.2		3.2		0.0		0.0
Queue Clearance Time (g_s), s		10.9		14.3				
Green Extension Time (g_e), s		0.5		0.4		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		0.03				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	33	65		120	109		33	761		33	576	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1203	1441		1199	1330		811	1651		683	1662	
Queue Service Time (g_s), s	2.3	3.6		8.7	6.7		1.5	15.9		2.1	14.2	
Cycle Queue Clearance Time (g_c), s	8.9	3.6		12.3	6.7		15.9	15.9		18.1	14.2	
Green Ratio (*g/C*)	0.16	0.16		0.16	0.16		0.70	0.70		0.70	0.70	
Capacity (*c*), veh/h	188	236		229	217		522	1161		439	1169	
Volume-to-Capacity Ratio (*X*)	0.174	0.277		0.522	0.500		0.063	0.655		0.074	0.493	
Back of Queue (*Q*), ft/ln (95 th percentile)	31	57		122	103		12	136		14	165	
Back of Queue (*Q*), veh/ln (95 th percentile)	1.1	2.1		4.4	3.7		0.4	5.2		0.6	6.3	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.09	0.03		0.35	0.05		0.03	0.26		0.04	0.08	
Uniform Delay (d_1), s/veh	38.3	33.0		38.3	34.3		8.7	3.8		10.6	6.1	
Incremental Delay (d_2), s/veh	0.2	0.2		0.7	0.7		0.2	2.4		0.3	1.5	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh	38.5	33.2		39.0	35.0		8.8	6.1		11.0	7.6	
Level of Service (LOS)	D	C		D	C		A	A		B	A	
Approach Delay, s/veh / LOS	35.0	C		37.1	D		6.2	A		7.7	A	
Intersection Delay, s/veh / LOS	12.5						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.94	B	1.94	B	1.85	B	1.85	B
Bicycle LOS Score / LOS	0.65	A	0.86	A	1.80	B	1.49	A

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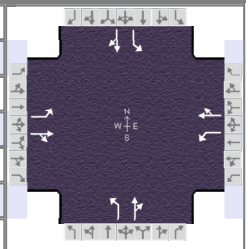
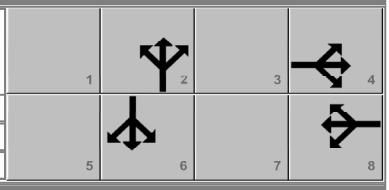
HCS Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	AMP	Analysis Date	Sep 27, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	AM Pr. Roadway	PHF	0.92
Urban Street	SR37	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR37 - Moots Run	File Name	_AM_ProposedRoadway_SR37 (Corridor 12).xus		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	30	20	40	110	10	90	30	660	40	30	520	10

Signal Information												
Cycle, s	90.0	Reference Phase	2									
Offset, s	4	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
				Green	63.3	14.7	0.0	0.0	0.0	0.0		
				Yellow	4.0	4.0	0.0	0.0	0.0	0.0		
				Red	2.0	2.0	0.0	0.0	0.0	0.0		



Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	0.922	0.922	1.000	0.883	0.883	1.000	0.953	0.953	1.000	0.953	0.953	1.000
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.688	0.000		0.685	0.000		0.463	0.000		0.390	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.893	0.893		0.861	0.861		0.990	0.990		0.997	0.997
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000			1.000			1.000			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Prot. CAV Adj. Factor ($f_{CAV,prot}$)												
Left-Turn Perm. CAV Adj. Factor ($f_{CAV,perm}$)	1.00			1.00			1.00			1.00		
Movement Saturation Flow Rate (s), veh/h	1203	480	960	1199	133	1197	811	1557	94	683	1631	31
Proportion of Vehicles Arriving on Green (P)	0.16	0.16	0.16	0.16	0.16	0.16	0.74	0.83	0.66	0.70	0.70	0.70
Incremental Delay Factor (k)	0.04	0.04		0.04	0.04		0.50	0.50		0.50	0.50	

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)		6.0		6.0		6.0		6.0
Green Ratio (g/C)		0.16		0.16		0.70		0.70
Permitted Saturation Flow Rate (s_p), veh/h/ln		1203		1199		811		683
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								
Permitted Effective Green Time (g_p), s		14.7		14.7		63.3		63.3
Permitted Service Time (g_u), s		8.1		11.2		49.0		47.3
Permitted Queue Service Time (g_{ps}), s		2.3		8.7		1.6		2.1
Time to First Blockage (g_f), s		0.0		0.0		0.0		0.0
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln								
Protected Right Effective Green Time (g_R), s								

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.198	0.000	1.198	0.000	1.198	0.000	1.198	0.000
Pedestrian F_s / F_{delay}	0.000	0.138	0.000	0.138	0.000	0.055	0.000	0.055
Pedestrian M_{corner} / M_{cw}	0.00		0.00		0.00		0.00	
Bicycle c_b / d_b	326.51	31.51	326.51	31.51	1406.83	3.96	1406.83	3.96
Bicycle F_w / F_v	-3.64	0.16	-3.64	0.38	-3.64	1.31	-3.64	1.00

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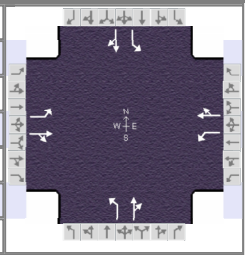
HCS Signalized Intersection Results Graphical Summary

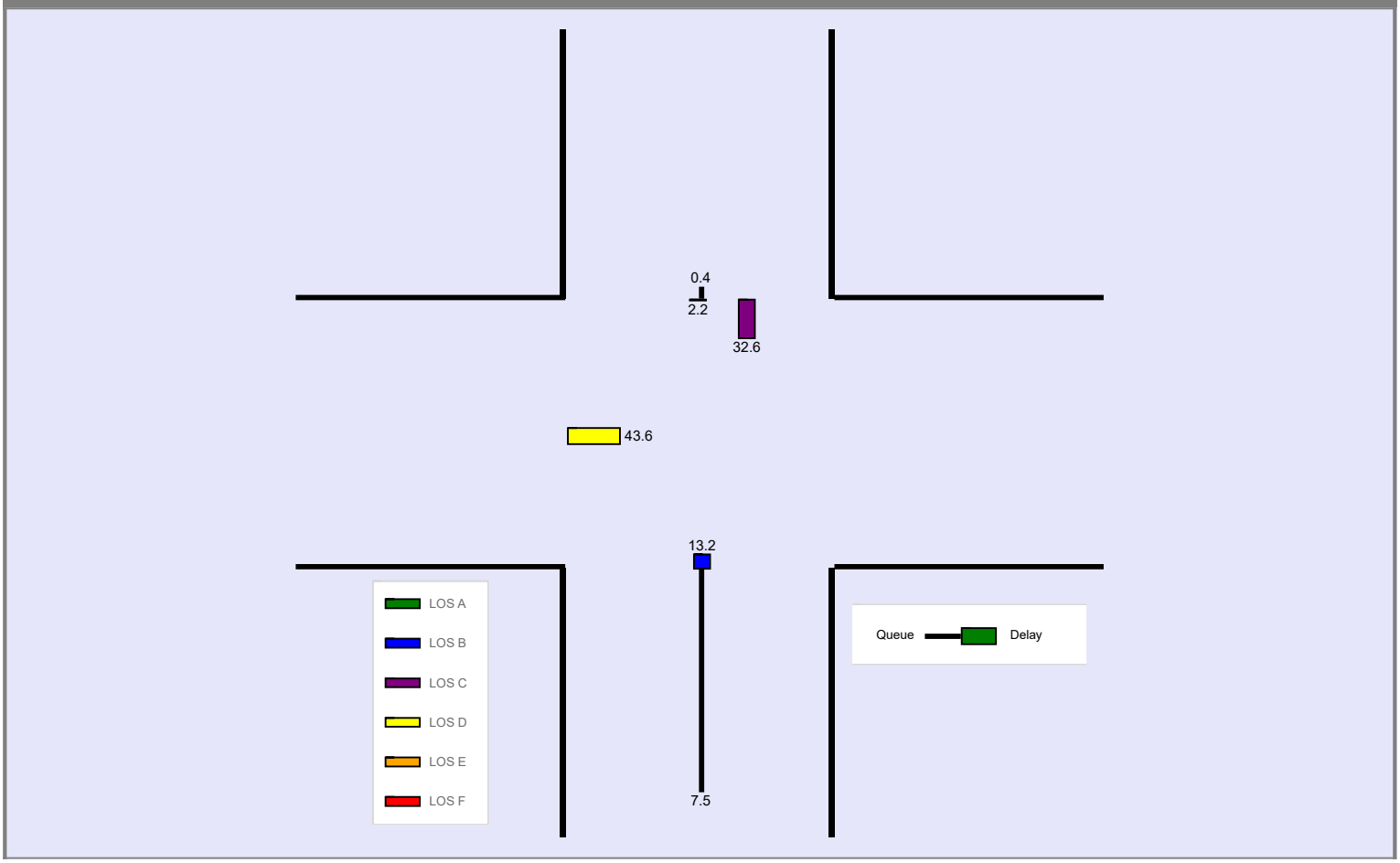
General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	AMP	Analysis Date	Sep 27, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	AM Pr. Roadway	PHF	0.92
Urban Street	SR37	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR37 - Moots Run	File Name	_AM_ProposedRoadway_SR37 (Corridor 12).xus		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	30	20	40	110	10	90	30	660	40	30	520	10

Signal Information													
Cycle, s	90.0	Reference Phase	2										
Offset, s	4	Reference Point	End	Green	63.3	14.7	0.0	0.0	0.0	0.0	1	2	3	4
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.0	4.0	0.0	0.0	0.0	0.0	5	6	7	8
Force Mode	Fixed	Simult. Gap N/S	On	Red	2.0	2.0	0.0	0.0	0.0	0.0				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)	31	57		122	103		12	136		14	165	
Back of Queue (*Q*), veh/ln (95 th percentile)	1.1	2.1		4.4	3.7		0.4	5.2		0.6	6.3	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.09	0.03		0.35	0.05		0.03	0.26		0.04	0.08	
Control Delay (*d*), s/veh	38.5	33.2		39.0	35.0		8.8	6.1		11.0	7.6	
Level of Service (LOS)	D	C		D	C		A	A		B	A	
Approach Delay, s/veh / LOS	35.0	C		37.1	D		6.2	A		7.7	A	
Intersection Delay, s/veh / LOS	12.5						B					



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--- Messages ---

No errors or warnings exist.

--- Comments ---

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SR-37 (Signalized) - PM Build

HCS Two-Way Stop-Control Report

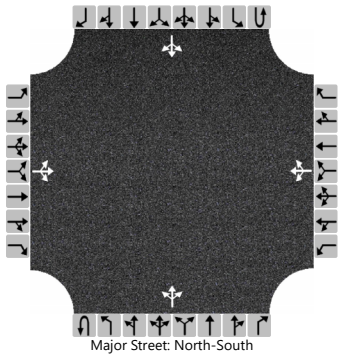
General Information

Analyst	SED
Agency/Co.	Michael Baker Intl.
Date Performed	7/19/2024
Analysis Year	2048
Time Analyzed	PM Pr. Roadway
Intersection Orientation	North-South
Project Description	FRA/LIC-161-22.1/0.00

Site Information

Intersection	SR37 - Worthington
Jurisdiction	ODOT D05
East/West Street	Worthinton Road
North/South Street	SR 37
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		60	10	10		10	50	40		10	230	10		10	400	20
Percent Heavy Vehicles (%)		6	6	6		3	3	3		2				4		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.16	6.56	6.26		7.13	6.53	6.23		4.12				4.14		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.55	4.05	3.35		3.53	4.03	3.33		2.22				2.24		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			87				109			11				11		
Capacity, c (veh/h)			263				423			1104				1292		
v/c Ratio			0.33				0.26			0.01				0.01		
95% Queue Length, Q_{95} (veh)			1.4				1.0			0.0				0.0		
95% Queue Length, Q_{95} (ft)			36.7				25.6			0.0				0.0		
Control Delay (s/veh)			25.3				16.4			8.3	0.1	0.1		7.8	0.1	0.1
Level of Service (LOS)			D				C			A	A	A		A	A	A
Approach Delay (s/veh)	25.3				16.4				0.4				0.3			
Approach LOS	D				C				A				A			

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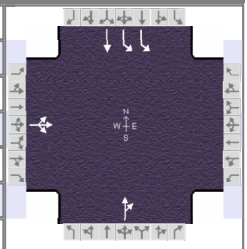
HCS Signalized Intersection Input Data

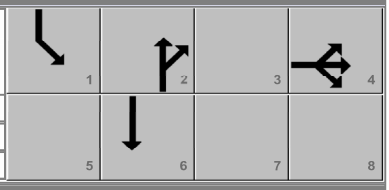
General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	AMP	Analysis Date	Sep 27, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	PM Pr. Roadway	PHF	0.92
Urban Street	SR37	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR37 - SR161 EB Ramp	File Name	_PM_ProposedRoadway_SR37 (Corridor 12).xus		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	170	10	80					260	70	680	350	

Signal Information			
Cycle, s	110.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	27.5	42.2	22.3	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	2.0	2.0	2.0	0.0	0.0	0.0



Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	170	10	80					260	70	680	350	
Initial Queue (Q_b), veh/h	0	0	0					0	0	0	0	
Base Saturation Flow Rate (s_o), veh/h	1750	1750	1750					1750	1750	1750	1750	
Parking (N_m), man/h		None						None			None	
Heavy Vehicles (P_{HV}), %		6						2		4	4	
Ped / Bike / RTOR, /h	0	0	0	0	0		0	0	0	0	0	
Buses (N_b), buses/h	0	0	0				0	0	0	0	0	0
Arrival Type (*AT*)	3	3	3					3	3	3	3	
Upstream Filtering (*I*)	1.00	1.00	1.00					1.00	1.00	0.51	0.51	
Lane Width (*W*), ft		12.0						12.0		12.0	12.0	
Turn Bay Length, ft		1200						580		485	800	
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h	55	55	55					55	55	55	55	

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s		48.0				38.0	24.0	62.0
Yellow Change Interval (*Y*), s		4.0				4.0	4.0	4.0
Red Clearance Interval (R_c), s		2.0				2.0	2.0	2.0
Minimum Green (G_{min}), s		10				20	7	20
Start-Up Lost Time (*l1*), s	2.0	2.0				2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0				2.0	2.0	2.0
Passage (*PT*), s		2.0				2.0	2.0	2.0
Recall Mode		Off				Max	Off	Max
Dual Entry		Yes				Yes	No	Yes
Walk (*Walk*), s		0.0		0.0				0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0				0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0				0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0				9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No		0		0.0		No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0				12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No				0.50		No	0.50	

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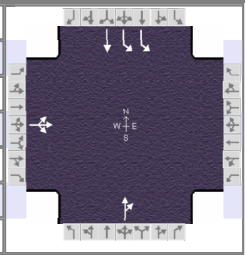
HCS Signalized Intersection Results Summary

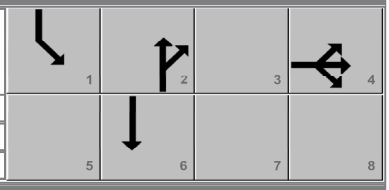
General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	AMP	Analysis Date	Sep 27, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	PM Pr. Roadway	PHF	0.92
Urban Street	SR37	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR37 - SR161 EB Ramp	File Name	_PM_ProposedRoadway_SR37 (Corridor 12).xus		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	170	10	80					260	70	680	350	

Signal Information			
Cycle, s	110.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	27.5	42.2	22.3	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	2.0	2.0	2.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4				2	1	6
Case Number		12.0				8.3	2.0	4.0
Phase Duration, s		28.3				48.2	33.5	81.7
Change Period, ($Y+R_c$), s		6.0				6.0	6.0	6.0
Max Allow Headway (*MAH*), s		3.0				0.0	2.9	0.0
Queue Clearance Time (g_s), s		21.8					26.1	
Green Extension Time (g_e), s		0.5				0.0	1.5	0.0
Phase Call Probability		1.00					1.00	
Max Out Probability		0.00					0.01	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14					2	12	1	6	
Adjusted Flow Rate (*v*), veh/h		283						359		739	380	
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1533						1659		1568	1695	
Queue Service Time (g_s), s		19.8						18.7		24.1	8.1	
Cycle Queue Clearance Time (g_c), s		19.8						18.7		24.1	8.1	
Green Ratio (*g/C*)		0.20						0.38		0.25	0.69	
Capacity (*c*), veh/h		311						637		784	1167	
Volume-to-Capacity Ratio (*X*)		0.910						0.563		0.942	0.326	
Back of Queue (*Q*), ft/ln (95 th percentile)		312						302		206	99	
Back of Queue (*Q*), veh/ln (95 th percentile)		11.9						11.9		8.0	3.8	
Queue Storage Ratio (*RQ*) (95 th percentile)		0.26						0.52		0.43	0.12	
Uniform Delay (d_1), s/veh		42.9						26.7		22.7	5.2	
Incremental Delay (d_2), s/veh		4.3						3.6		6.5	0.4	
Initial Queue Delay (d_3), s/veh		0.0						0.0		0.0	0.0	
Control Delay (*d*), s/veh		47.1						30.2		29.3	5.6	
Level of Service (LOS)		D						C		C	A	
Approach Delay, s/veh / LOS	47.1	D		0.0			30.2	C		21.2	C	
Intersection Delay, s/veh / LOS	27.2						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.73	B	2.15	B	1.69	B	1.35	A
Bicycle LOS Score / LOS	0.95	A			1.08	A	2.33	B

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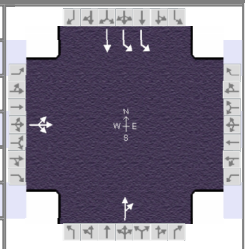
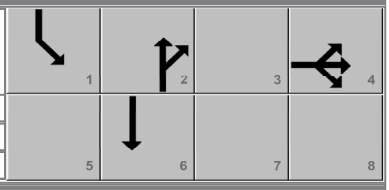
HCS Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	AMP	Analysis Date	Sep 27, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	PM Pr. Roadway	PHF	0.92
Urban Street	SR37	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR37 - SR161 EB Ramp	File Name	_PM_ProposedRoadway_SR37 (Corridor 12).xus		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	170	10	80					260	70	680	350	

Signal Information													
Cycle, s	110.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On										
Force Mode	Fixed	Simult. Gap N/S	On										
				Green	27.5	42.2	22.3	0.0	0.0	0.0			
				Yellow	4.0	4.0	4.0	0.0	0.0	0.0			
				Red	2.0	2.0	2.0	0.0	0.0	0.0			



Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000				1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	0.852	0.953	0.945				0.938	0.984	0.945	0.969	0.969	1.000
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	0.000	0.000	0.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	0.000	0.000	0.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000				1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.971	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.919	0.919					1.000	0.963		0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.000	0.000					0.000	0.963		1.000	1.000
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000						1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000						1.000			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000				1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000				1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Prot. CAV Adj. Factor ($f_{CAV,prot}$)										1.00		
Left-Turn Perm. CAV Adj. Factor ($f_{CAV,perm}$)							1.00					
Movement Saturation Flow Rate (s), veh/h	1002	59	472				0	1307	352	3136	1695	0
Proportion of Vehicles Arriving on Green (P)	0.20	0.20	0.20	0.00	0.00	0.00	0.00	0.38	0.38	0.57	0.75	0.00
Incremental Delay Factor (k)		0.04						0.50		0.21	0.50	

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)		4.0				6.0	6.0	6.0
Green Ratio (g/C)		0.20				0.38	0.25	0.69
Permitted Saturation Flow Rate (s_p), veh/h/ln		0				1018	0	0
Shared Saturation Flow Rate (s_{sh}), veh/h/ln						0		
Permitted Effective Green Time (g_p), s		0.0				0.0	0.0	0.0
Permitted Service Time (g_u), s		0.0				0.0	0.0	0.0
Permitted Queue Service Time (g_{ps}), s								
Time to First Blockage (g_f), s		0.0				42.2	0.0	0.0
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln								
Protected Right Effective Green Time (g_R), s								

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	0.972	0.000	1.389	0.000	0.972	0.000	0.681	0.000
Pedestrian F_s / F_{delay}	0.000	0.161	0.000	0.161	0.000	0.122	0.000	0.067
Pedestrian M_{corner} / M_{cw}	0.00		0.00		0.00		0.00	
Bicycle c_b / d_b		62.22	-90.91	60.11	767.25	20.90	1376.68	5.34
Bicycle F_w / F_v	-3.64	0.47	-3.64		-3.64	0.59	-3.64	1.85

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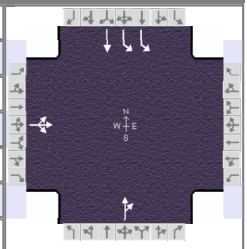
HCS Signalized Intersection Results Graphical Summary

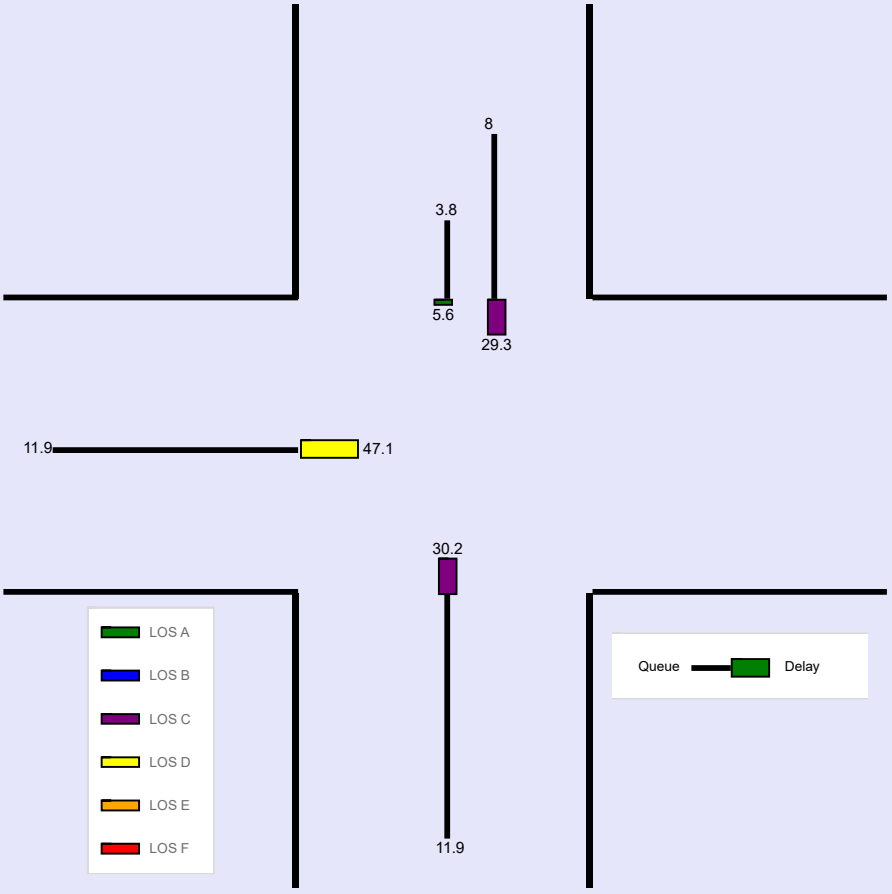
General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	AMP	Analysis Date	Sep 27, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	PM Pr. Roadway	PHF	0.92
Urban Street	SR37	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR37 - SR161 EB Ramp	File Name	_PM_ProposedRoadway_SR37 (Corridor 12).xus		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	170	10	80					260	70	680	350	

Signal Information					EB			WB			NB			SB		
Cycle, s	110.0	Reference Phase	2		L	T	R	L	T	R	L	T	R	L	T	R
Offset, s	0	Reference Point	End	Green	27.5	42.2	22.3	0.0	0.0	0.0						
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0						
Force Mode	Fixed	Simult. Gap N/S	On	Red	2.0	2.0	2.0	0.0	0.0	0.0						

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)		312						302		206	99	
Back of Queue (*Q*), veh/ln (95 th percentile)		11.9						11.9		8.0	3.8	
Queue Storage Ratio (*RQ*) (95 th percentile)		0.26						0.52		0.43	0.12	
Control Delay (*d*), s/veh		47.1						30.2		29.3	5.6	
Level of Service (LOS)		D						C		C	A	
Approach Delay, s/veh / LOS	47.1	D		0.0			30.2	C		21.2	C	
Intersection Delay, s/veh / LOS	27.2						C					



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--- Messages ---

WARNING: According to input data, upstream feeding volume is equal to 64% of downstream exit volume during time period #1, for thru movement #6.

--- Comments ---

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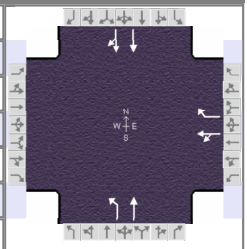
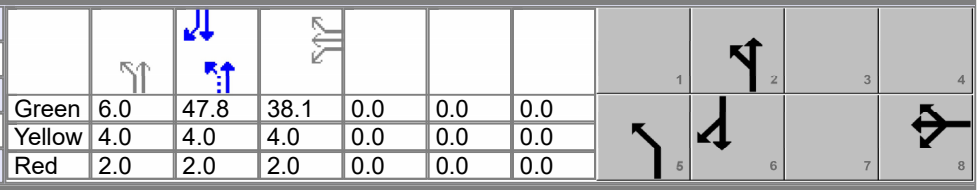
HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	AMP	Analysis Date	Sep 27, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	PM Pr. Roadway	PHF	0.92
Urban Street	SR37	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR37 - SR161 WB Ramp	File Name	_PM_ProposedRoadway_SR37 (Corridor 12).xus		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				30	0	440	60	370			1000	80

Signal Information			
Cycle, s	110.0	Reference Phase	2
Offset, s	56	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	6.0	47.8	38.1	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	2.0	2.0	2.0	0.0	0.0	0.0

Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				30	0	440	60	370			1000	80
Initial Queue (Q_b), veh/h				0	0	0	0	0			0	0
Base Saturation Flow Rate (s_o), veh/h				1750	1750	1750	1750	1750			1750	1750
Parking (N_m), man/h					None			None			None	
Heavy Vehicles (P_{HV}), %					2	2	4	4			5	
Ped / Bike / RTOR, /h	0	0		0	0	0	0	0		0	0	0
Buses (N_b), buses/h				0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)				3	3	3	3	3			3	3
Upstream Filtering (*I*)				1.00	1.00	1.00	0.65	0.65			0.37	0.37
Lane Width (*W*), ft					12.0	12.0	12.0	12.0			12.0	
Turn Bay Length, ft					665	615	350	800			560	
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h				55	55	55	55	55			55	55

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s				69.0	14.0	41.0		27.0
Yellow Change Interval (*Y*), s				4.0	4.0	4.0		4.0
Red Clearance Interval (R_c), s				2.0	2.0	2.0		2.0
Minimum Green (G_{min}), s				10	7	20		20
Start-Up Lost Time (*l1*), s			2.0	2.0	2.0	2.0		2.0
Extension of Effective Green (*e*), s			2.0	2.0	2.0	2.0		2.0
Passage (*PT*), s				2.0	2.0	2.0		2.0
Recall Mode				Off	Off	Max		Max
Dual Entry				Yes	No	Yes		Yes
Walk (*Walk*), s		0.0		0.0		0.0		
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0			
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0			
Street Width / Island / Curb, ft		0		0.0	0	No	0.0	0	No	0.0		No
Width Outside / Bike Lane / Shoulder, ft				12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No			No	0.50		No	0.50			0.50	

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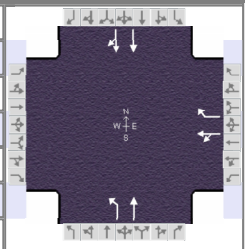
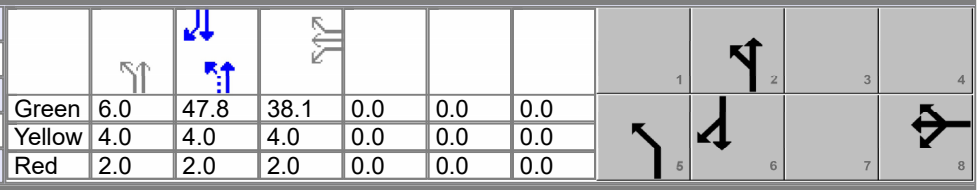
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	AMP	Analysis Date	Sep 27, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	PM Pr. Roadway	PHF	0.92
Urban Street	SR37	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR37 - SR161 WB Ramp	File Name	_PM_ProposedRoadway_SR37 (Corridor 12).xus		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				30	0	440	60	370			1000	80

Signal Information			
Cycle, s	110.0	Reference Phase	2
Offset, s	56	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	6.0	47.8	38.1	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	2.0	2.0	2.0	0.0	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8	5	2		6
Case Number				11.0	1.0	4.0		8.3
Phase Duration, s				44.1	12.0	65.9		53.8
Change Period, ($Y+R_c$), s				6.0	6.0	6.0		6.0
Max Allow Headway (*MAH*), s				3.2	2.9	0.0		0.0
Queue Clearance Time (g_s), s				37.0	4.2			
Green Extension Time (g_e), s				1.1	0.1	0.0		0.0
Phase Call Probability				1.00	0.86			
Max Out Probability				0.00	0.00			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3	8	18	5	2			6	16
Adjusted Flow Rate (*v*), veh/h					33	478	65	402			594	579
Adjusted Saturation Flow Rate (*s*), veh/h/ln					1641	1460	1615	1695			1682	1638
Queue Service Time (g_s), s					1.5	35.0	2.2	7.8			48.6	31.9
Cycle Queue Clearance Time (g_c), s					1.5	35.0	2.2	7.8			48.6	31.9
Green Ratio (*g/C*)					0.35	0.35	0.51	0.54			0.43	0.43
Capacity (*c*), veh/h					568	506	154	923			732	712
Volume-to-Capacity Ratio (*X*)					0.057	0.946	0.423	0.436			0.813	0.814
Back of Queue (*Q*), ft/ln (95 th percentile)					24	470	34	99			359	346
Back of Queue (*Q*), veh/ln (95 th percentile)					1.0	18.5	1.3	3.8			13.8	13.3
Queue Storage Ratio (*RQ*) (95 th percentile)					0.04	0.76	0.10	0.12			0.64	0.62
Uniform Delay (d_1), s/veh					24.0	34.9	23.8	5.6			22.0	21.6
Incremental Delay (d_2), s/veh					0.0	9.5	0.4	1.0			3.8	3.9
Initial Queue Delay (d_3), s/veh					0.0	0.0	0.0	0.0			0.0	0.0
Control Delay (*d*), s/veh					24.0	44.4	24.3	6.6			25.7	25.5
Level of Service (LOS)					C	D	C	A			C	C
Approach Delay, s/veh / LOS	0.0			43.1		D	9.0		A	25.6		C
Intersection Delay, s/veh / LOS	26.2						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.15	B	1.96	B	1.67	B	1.40	A
Bicycle LOS Score / LOS			1.33	A	1.26	A	1.46	A

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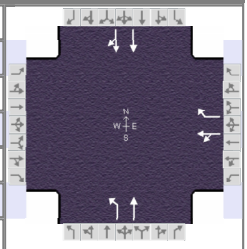
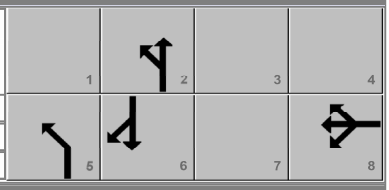
HCS Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	AMP	Analysis Date	Sep 27, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	PM Pr. Roadway	PHF	0.92
Urban Street	SR37	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR37 - SR161 WB Ramp	File Name	_PM_ProposedRoadway_SR37 (Corridor 12).xus		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				30	0	440	60	370			1000	80

Signal Information			
Cycle, s	110.0	Reference Phase	2
Offset, s	56	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	6.0	47.8	38.1	0.0	0.0	0.0						
Yellow	4.0	4.0	4.0	0.0	0.0	0.0						
Red	2.0	2.0	2.0	0.0	0.0	0.0						

Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)				1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})				1.000	0.984	0.984	0.969	0.969	0.945	0.922	0.961	0.961
Parking Activity Adjustment Factor (f_p)	0.000	0.000	0.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	0.000	0.000	0.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)				1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})				0.952	0.952		0.952	0.000		1.000	1.000	
Right-Turn Adjustment Factor (f_{RT})					0.000	0.847		1.000	1.000		0.974	0.974
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})				1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})						1.000			1.000			1.000
Work Zone Adjustment Factor (f_{wz})				1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})				1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Prot. CAV Adj. Factor ($f_{CAV,prot}$)							1.00					
Left-Turn Perm. CAV Adj. Factor ($f_{CAV,perm}$)										1.00		
Movement Saturation Flow Rate (s), veh/h				1641	0	1460	1615	1695	0	0	3074	246
Proportion of Vehicles Arriving on Green (P)	0.00	0.00	0.00	0.35	0.00	0.35	0.11	0.81	0.00	0.00	0.53	0.58
Incremental Delay Factor (k)					0.04	0.11	0.04	0.50			0.50	0.50

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)				4.0	6.0	6.0		6.0
Green Ratio (g/C)				0.35	0.51	0.54		0.43
Permitted Saturation Flow Rate (s_p), veh/h/ln				0	470	0		998
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								0
Permitted Effective Green Time (g_p), s				0.0	49.8	0.0		0.0
Permitted Service Time (g_u), s				0.0	0.0	0.0		0.0
Permitted Queue Service Time (g_{ps}), s					0.0			
Time to First Blockage (g_f), s				0.0	0.0	0.0		47.8
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln				0				
Protected Right Effective Green Time (g_R), s				0.0				

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.389	0.000	1.198	0.000	0.972	0.000	0.681	0.000
Pedestrian F_s / F_{delay}	0.000	0.161	0.000	0.161	0.000	0.098	0.000	0.115
Pedestrian M_{corner} / M_{cw}	0.00		0.00		0.00		0.00	
Bicycle c_b / d_b	-90.91	60.11		62.22	1088.94	11.41	869.93	17.56
Bicycle F_w / F_v	-3.64		-3.64	0.84	-3.64	0.77	-3.64	0.97

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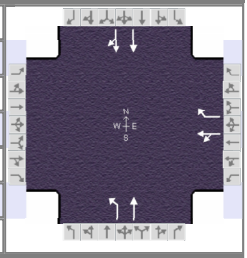
HCS Signalized Intersection Results Graphical Summary

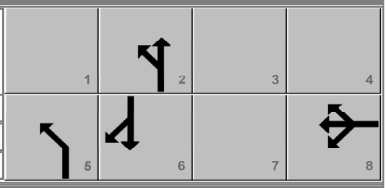
General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	AMP	Analysis Date	Sep 27, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	PM Pr. Roadway	PHF	0.92
Urban Street	SR37	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR37 - SR161 WB Ramp	File Name	_PM_ProposedRoadway_SR37 (Corridor 12).xus		
Project Description	FRA/LIC-161-22.1/0.00				



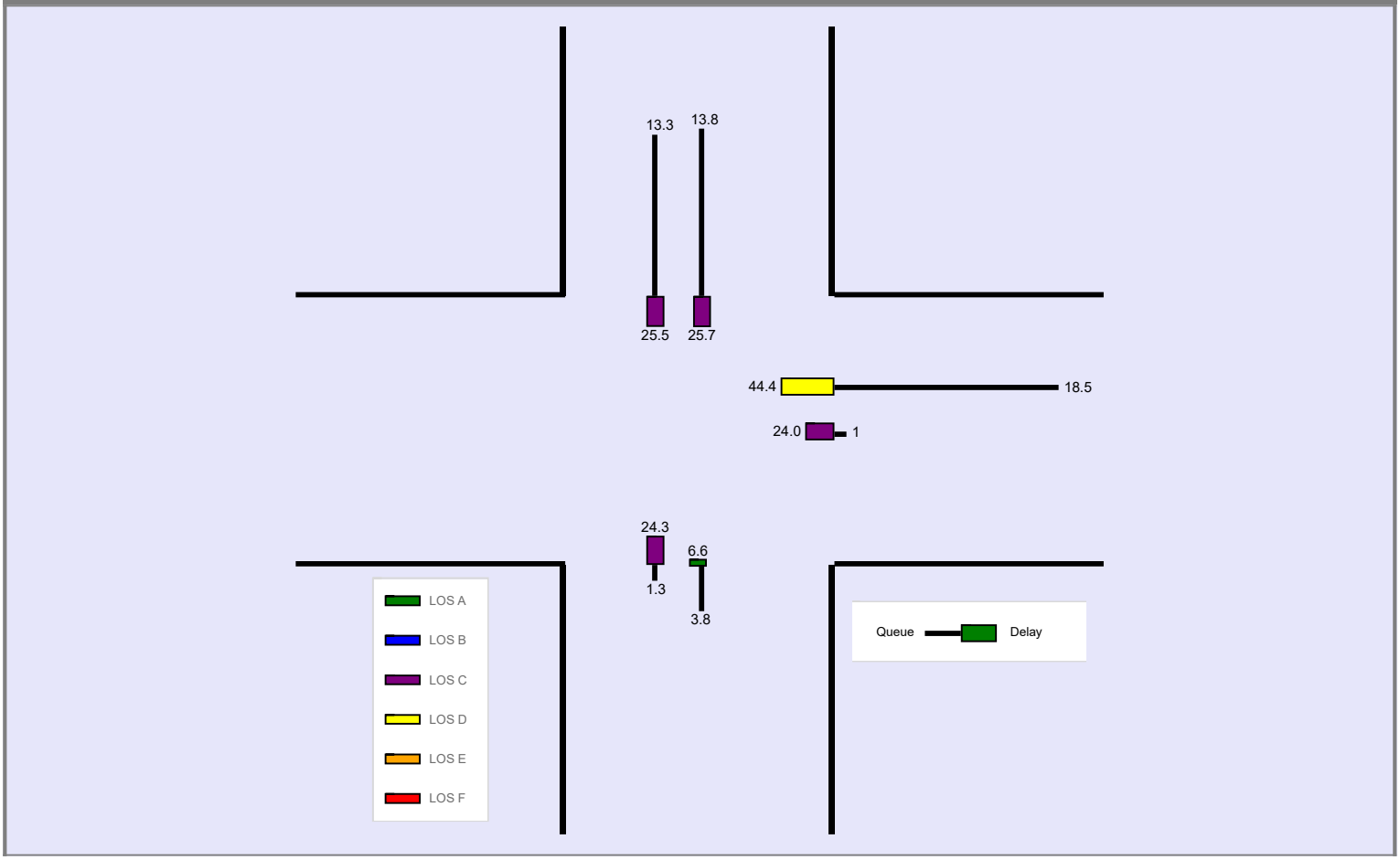
Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				30	0	440	60	370			1000	80

Signal Information			
Cycle, s	110.0	Reference Phase	2
Offset, s	56	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	6.0	47.8	38.1	0.0	0.0	0.0	
Yellow	4.0	4.0	4.0	0.0	0.0	0.0	
Red	2.0	2.0	2.0	0.0	0.0	0.0	



Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)					24	470	34	99			359	346
Back of Queue (*Q*), veh/ln (95 th percentile)					1.0	18.5	1.3	3.8			13.8	13.3
Queue Storage Ratio (*RQ*) (95 th percentile)					0.04	0.76	0.10	0.12			0.64	0.62
Control Delay (*d*), s/veh					24.0	44.4	24.3	6.6			25.7	25.5
Level of Service (LOS)					C	D	C	A			C	C
Approach Delay, s/veh / LOS	0.0			43.1		D	9.0		A	25.6		C
Intersection Delay, s/veh / LOS	26.2						C					



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--- Messages ---

No errors or warnings exist.

--- Comments ---

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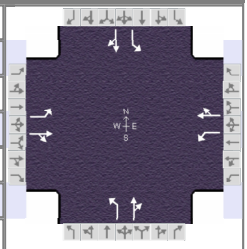
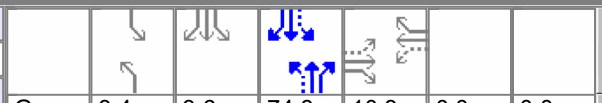
HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	AMP	Analysis Date	Sep 27, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	PM Pr. Roadway	PHF	0.92
Urban Street	SR37	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR37 - Moots Run	File Name	_PM_ProposedRoadway_SR37 (Corridor 12).xus		
Project Description	FRA/LIC-161-22.1/0.00				

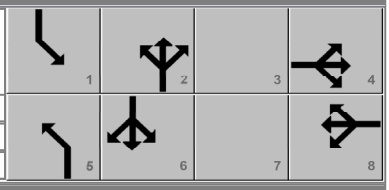


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	10	30	60	10	60	20	700	90	150	990	10

Signal Information										
Cycle, s	110.0	Reference Phase	2							
Offset, s	45	Reference Point	End							
Uncoordinated	No	Simult. Gap E/W	On							
Force Mode	Fixed	Simult. Gap N/S	On							



Green	3.4	3.6	74.8	10.3	0.0	0.0
Yellow	4.0	0.0	4.0	4.0	0.0	0.0
Red	2.0	0.0	2.0	2.0	0.0	0.0



Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	10	30	60	10	60	20	700	90	150	990	10
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	4	4		4	4		6	6		6	6	
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	0.85	0.85	0.85	1.00	1.00	1.00
Lane Width (*W*), ft	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Turn Bay Length, ft	345	1999		345	1999		345	520		345	1999	
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h	55	55	55	55	55	55	55	55	55	55	55	55

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s		18.0		18.0	43.0	41.0	51.0	49.0
Yellow Change Interval (*Y*), s		4.0		4.0	4.0	4.0	4.0	4.0
Red Clearance Interval (R_c), s		2.0		2.0	2.0	2.0	2.0	2.0
Minimum Green (G_{min}), s		10		10	7	20	7	24
Start-Up Lost Time (*l1*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s		2.0		2.0	2.0	2.0	2.0	2.0
Recall Mode		Off		Off	Off	Max	Off	Max
Dual Entry		Yes		Yes	No	Yes	No	Yes
Walk (*Walk*), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

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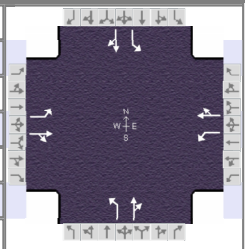
HCS Signalized Intersection Results Summary

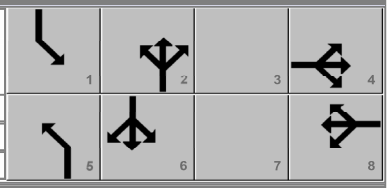
General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	AMP	Analysis Date	Sep 27, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	PM Pr. Roadway	PHF	0.92
Urban Street	SR37	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR37 - Moots Run	File Name	_PM_ProposedRoadway_SR37 (Corridor 12).xus		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	10	30	60	10	60	20	700	90	150	990	10

Signal Information			
Cycle, s	110.0	Reference Phase	2
Offset, s	45	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	3.4	3.6	74.8	10.3	0.0	0.0
Yellow	4.0	0.0	4.0	4.0	0.0	0.0
Red	2.0	0.0	2.0	2.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		6.0		6.0	1.1	4.0	1.1	4.0
Phase Duration, s		16.3		16.3	9.4	80.8	13.0	84.3
Change Period, (*Y+R c*), s		6.0		6.0	6.0	6.0	6.0	6.0
Max Allow Headway (*MAH*), s		3.1		3.1	2.9	0.0	2.9	0.0
Queue Clearance Time (*g s*), s		8.3		10.2	2.4		5.2	
Green Extension Time (*g e*), s		0.1		0.1	0.0	0.0	0.3	0.0
Phase Call Probability		1.00		1.00	0.49		0.99	
Max Out Probability		0.56		1.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	11	43		65	76		22	859		163	1087	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1302	1494		1341	1469		1589	1635		1589	1665	
Queue Service Time (*g s*), s	0.9	3.0		5.2	5.4		0.4	33.8		3.2	59.6	
Cycle Queue Clearance Time (*g c*), s	6.3	3.0		8.2	5.4		0.4	33.8		3.2	59.6	
Green Ratio (*g/C*)	0.09	0.09		0.09	0.09		0.71	0.68		0.74	0.71	
Capacity (*c*), veh/h	123	140		154	137		191	1111		398	1186	
Volume-to-Capacity Ratio (*X*)	0.089	0.311		0.422	0.554		0.114	0.773		0.410	0.917	
Back of Queue (*Q*), ft/ln (95 th percentile)	13	50		79	91		14	308		58	690	
Back of Queue (*Q*), veh/ln (95 th percentile)	0.5	1.9		3.1	3.5		0.5	11.8		2.2	26.3	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.04	0.03		0.23	0.05		0.04	0.59		0.17	0.35	
Uniform Delay (*d 1*), s/veh	50.7	46.6		50.4	47.7		21.3	8.4		11.1	13.1	
Incremental Delay (*d 2*), s/veh	0.1	0.5		0.7	1.3		0.1	4.5		0.3	12.5	
Initial Queue Delay (*d 3*), s/veh	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh	50.8	47.0		51.1	49.0		21.3	12.8		11.3	25.7	
Level of Service (LOS)	D	D		D	D		C	B		B	C	
Approach Delay, s/veh / LOS	47.8	D		49.9	D		13.1	B		23.8	C	
Intersection Delay, s/veh / LOS	21.9						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.95	B	1.95	B	1.87	B	1.86	B
Bicycle LOS Score / LOS	0.58	A	0.72	A	1.94	B	2.55	C

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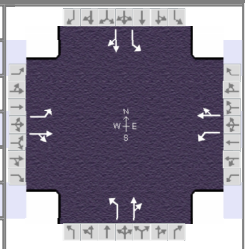
HCS Signalized Intersection Intermediate Values

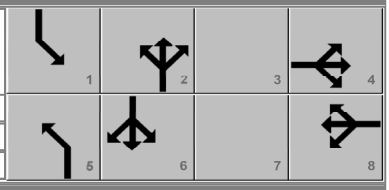
General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	AMP	Analysis Date	Sep 27, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	PM Pr. Roadway	PHF	0.92
Urban Street	SR37	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR37 - Moots Run	File Name	_PM_ProposedRoadway_SR37 (Corridor 12).xus		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	10	30	60	10	60	20	700	90	150	990	10

Signal Information										
Cycle, s	110.0	Reference Phase	2							
Offset, s	45	Reference Point	End							
Uncoordinated	No	Simult. Gap E/W	On							
Force Mode	Fixed	Simult. Gap N/S	On							

Green	3.4	3.6	74.8	10.3	0.0	0.0
Yellow	4.0	0.0	4.0	4.0	0.0	0.0
Red	2.0	0.0	2.0	2.0	0.0	0.0



Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	0.969	0.969	1.000	0.969	0.969	1.000	0.953	0.953	1.000	0.953	0.953	1.000
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.744	0.000		0.766	0.000		0.952	0.000		0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.881	0.881		0.866	0.866		0.980	0.980		0.998	0.998
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000			1.000			1.000			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Prot. CAV Adj. Factor ($f_{CAV,prot}$)							1.00			1.00		
Left-Turn Perm. CAV Adj. Factor ($f_{CAV,perm}$)	1.00			1.00								
Movement Saturation Flow Rate (s), veh/h	1302	373	1120	1341	210	1259	1589	1448	186	1589	1648	17
Proportion of Vehicles Arriving on Green (P)	0.09	0.09	0.09	0.09	0.09	0.09	0.01	0.76	0.73	0.06	0.71	0.71
Incremental Delay Factor (k)	0.04	0.04		0.04	0.04		0.04	0.50		0.04	0.50	

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)		6.0		6.0	6.0	6.0	6.0	6.0
Green Ratio (g/C)		0.09		0.09	0.71	0.68	0.74	0.71
Permitted Saturation Flow Rate (s_p), veh/h/ln		1302		1341	502	0	623	0
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								
Permitted Effective Green Time (g_p), s		10.3		10.3	74.8	0.0	74.8	0.0
Permitted Service Time (g_u), s		4.8		7.3	16.7	0.0	40.9	0.0
Permitted Queue Service Time (g_{ps}), s		0.9		5.2	2.7		12.0	
Time to First Blockage (g_f), s		0.0		0.0	0.0	0.0	0.0	0.0
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln								
Protected Right Effective Green Time (g_R), s								

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.198	0.000	1.198	0.000	1.198	0.000	1.198	0.000
Pedestrian F_s / F_{delay}	0.000	0.153	0.000	0.153	0.000	0.069	0.000	0.061
Pedestrian M_{corner} / M_{cw}	0.00		0.00		0.00		0.00	
Bicycle c_b / d_b	186.85	45.20	186.85	45.20	1359.45	5.64	1424.08	4.56
Bicycle F_w / F_v	-3.64	0.09	-3.64	0.23	-3.64	1.45	-3.64	2.06

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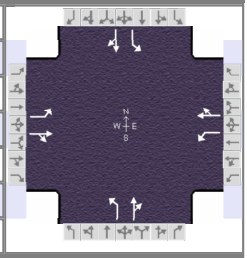
HCS Signalized Intersection Results Graphical Summary

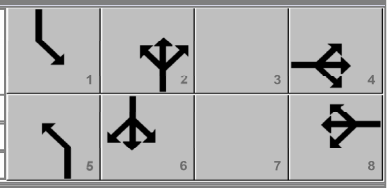
General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	AMP	Analysis Date	Sep 27, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	PM Pr. Roadway	PHF	0.92
Urban Street	SR37	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR37 - Moots Run	File Name	_PM_ProposedRoadway_SR37 (Corridor 12).xus		
Project Description	FRA/LIC-161-22.1/0.00				



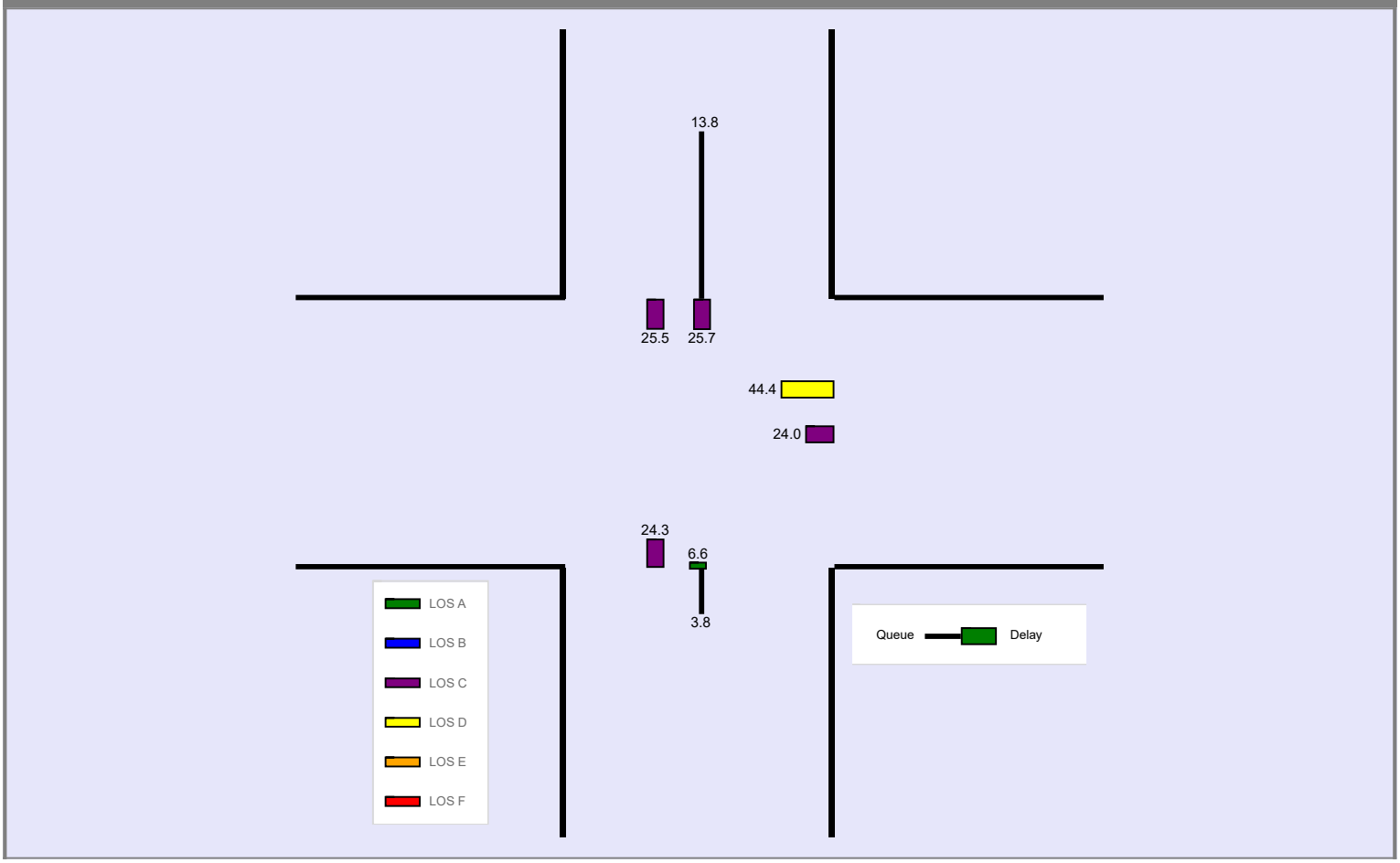
Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	10	30	60	10	60	20	700	90	150	990	10

Signal Information										
Cycle, s	110.0	Reference Phase	2							
Offset, s	45	Reference Point	End							
Uncoordinated	No	Simult. Gap E/W	On							
Force Mode	Fixed	Simult. Gap N/S	On							

Green	3.4	3.6	74.8	10.3	0.0	0.0
Yellow	4.0	0.0	4.0	4.0	0.0	0.0
Red	2.0	0.0	2.0	2.0	0.0	0.0



Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)	13	50		79	91		14	308		58	690	
Back of Queue (*Q*), veh/ln (95 th percentile)	0.5	1.9		3.1	3.5		0.5	11.8		2.2	26.3	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.04	0.03		0.23	0.05		0.04	0.59		0.17	0.35	
Control Delay (*d*), s/veh	50.8	47.0		51.1	49.0		21.3	12.8		11.3	25.7	
Level of Service (LOS)	D	D		D	D		C	B		B	C	
Approach Delay, s/veh / LOS	47.8	D		49.9	D		13.1	B		23.8	C	
Intersection Delay, s/veh / LOS	21.9						C					



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--- Messages ---

No errors or warnings exist.

--- Comments ---

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SR-37 (Roundabout) - AM Build

HCS Two-Way Stop-Control Report

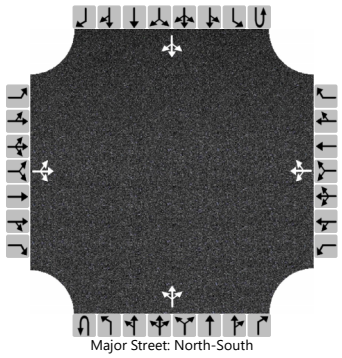
General Information

Analyst	SED
Agency/Co.	Michael Baker Intl.
Date Performed	7/19/2024
Analysis Year	2048
Time Analyzed	AM Pr. Roadway
Intersection Orientation	North-South
Project Description	FRA/LIC-161-22.1/0.00

Site Information

Intersection	SR37 - Worthington
Jurisdiction	ODOT D05
East/West Street	Worthinton Road
North/South Street	SR 37
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		10	10	10		10	10	30		10	330	10		20	80	40
Percent Heavy Vehicles (%)		13	13	13		19	19	19		15				15		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.23	6.63	6.33		7.29	6.69	6.39		4.25				4.25		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.62	4.12	3.42		3.67	4.17	3.47		2.34				2.34		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			33				54			11				22		
Capacity, c (veh/h)			490				516			1378				1121		
v/c Ratio			0.07				0.11			0.01				0.02		
95% Queue Length, Q_{95} (veh)			0.2				0.4			0.0				0.1		
95% Queue Length, Q_{95} (ft)			5.5				11.5			0.0				2.5		
Control Delay (s/veh)			12.9				12.8			7.6	0.1	0.1		8.3	0.2	0.2
Level of Service (LOS)			B				B			A	A	A		A	A	A
Approach Delay (s/veh)	12.9				12.8				0.3				1.3			
Approach LOS	B				B				A				A			

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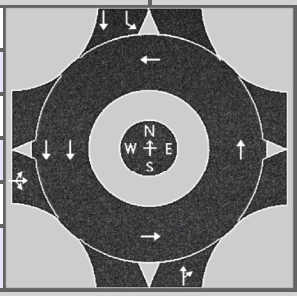
HCS Roundabouts Report

General Information

Analyst	AMP
Agency or Co.	Michael Baker Intl.
Date Performed	9/27/2024
Analysis Year	2048
Time Analyzed	AM Pr. Roadway
Project Description	FRA/LIC-161-22.1/0.00



Site Information

Intersection	SR37 - SR161 EB Ramp
E/W Street Name	SR161 EB Ramp
N/S Street Name	SR37
Analysis Time Period, hrs	0.25
Peak Hour Factor	0.92
Jurisdiction	ODOT D05

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	0	0	0	0	1	0	0	1	1	0
Lane Assignment			LTR								TR		L		T	
Volume (V), veh/h	0	80	10	30					0		350	20	0	280	110	
Percent Heavy Vehicles, %	14	14	14	14					18		18	18	4	4	4	
Flow Rate (v_{PCE}), pc/h	0	99	12	37					0		449	26	0	317	124	
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	2								1				1			
Pedestrians Crossing, p/h	0								0				0			
Proportion of CAVs, %	0															

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway, s		4.3276						4.9763		4.5436	4.5436	
Follow-Up Headway, s		2.5352						2.6087		2.5352	2.5352	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		148						475		317	124	
Entry Volume, veh/h		130						403		305	119	
Circulating Flow (v_c), pc/h	441			548			428			0		
Exiting Flow (v_{ex}), pc/h	355			0			548			161		
Capacity (c_{pce}), pc/h		976						892		1420	1420	
Capacity (c), veh/h		856						756		1365	1365	
v/c Ratio (x)		0.15						0.53		0.22	0.09	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		5.7						12.7		4.5	3.3	
Lane LOS		A						B		A	A	
95% Queue Length, Q_{95} (veh)		0.5						3.2		0.9	0.3	
95% Queue Length, Q_{95} (ft)		13.9						91.5		23.2	7.7	
Approach Delay, s/veh | LOS	5.7	A					12.7	B		4.2	A	
Intersection Delay, s/veh | LOS	8.0						A					

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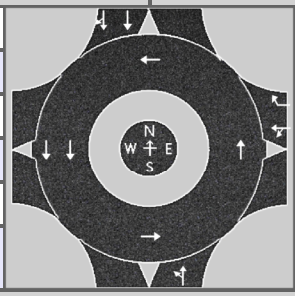
HCS Roundabouts Report

General Information

Analyst	AMP
Agency or Co.	Michael Baker Intl.
Date Performed	9/27/2024
Analysis Year	2048
Time Analyzed	AM Pr. Roadway
Project Description	FRA/LIC-161-22.1/0.00



Site Information

Intersection	SR37 - SR161 WB Ramp
E/W Street Name	SR161 WB Ramp
N/S Street Name	SR37
Analysis Time Period, hrs	0.25
Peak Hour Factor	0.92
Jurisdiction	ODOT D05

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	0	0	0	0	1	1	0	0	1	0	0	0	2	0
Lane Assignment					LT		R				LT		T		TR	
Volume (V), veh/h					0	50	0	430	0	130	300		0		340	330
Percent Heavy Vehicles, %					4	4	4	4	16	16	16		7		7	7
Flow Rate (v_{PCE}), pc/h					0	57	0	486	0	164	378		0		395	384
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes					1				1				1			
Pedestrians Crossing, p/h					0				0				0			
Proportion of CAVs, %	0															

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway, s				4.5436	4.5436			4.9763		4.5436	4.5436	
Follow-Up Headway, s				2.5352	2.5352			2.6087		2.5352	2.5352	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h				57	486			542		366	413	
Entry Volume, veh/h				55	467			467		342	386	
Circulating Flow (v_c), pc/h	452			542			0			221		
Exiting Flow (v_{ex}), pc/h	0			548			864			452		
Capacity (c_{pce}), pc/h				867	867			1380		1161	1161	
Capacity (c), veh/h				834	834			1190		1085	1085	
v/c Ratio (x)				0.07	0.56			0.39		0.32	0.36	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh				4.9	12.5			6.9		6.4	6.9	
Lane LOS				A	B			A		A	A	
95% Queue Length, Q_{95} (veh)				0.2	3.6			1.9		1.4	1.6	
95% Queue Length, Q_{95} (ft)				5.2	92.9			47.5		37.0	42.2	
Approach Delay, s/veh | LOS				11.7	B		6.9	A		6.7	A	
Intersection Delay, s/veh | LOS	8.3						A					

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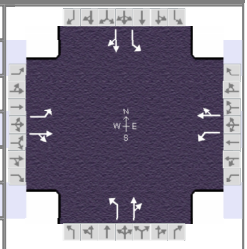
HCS Signalized Intersection Input Data

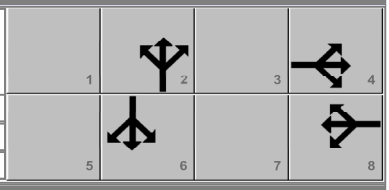
General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	AMP	Analysis Date	Sep 27, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	AM Pr. Roadway	PHF	0.92
Urban Street	SR37	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR37 - Moots Run	File Name	12D_AM_ProposedRoadway_SR37_MootsRun_…		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	30	20	40	110	10	90	30	660	40	30	520	10

Signal Information			
Cycle, s	46.9	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	25.0	9.9	0.0	0.0	0.0	0.0	
Yellow	4.0	4.0	0.0	0.0	0.0	0.0	
Red	2.0	2.0	0.0	0.0	0.0	0.0	



Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	30	20	40	110	10	90	30	660	40	30	520	10
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	10	10		15	15		6	6		6	6	
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (*W*), ft	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Turn Bay Length, ft	345	1999		345	1999		345	520		345	1999	
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h	55	55	55	55	55	55	55	55	55	55	55	55

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s		10.0		10.0		20.0		25.0
Yellow Change Interval (*Y*), s		4.0		4.0		4.0		4.0
Red Clearance Interval (R_c), s		2.0		2.0		2.0		2.0
Minimum Green (G_{min}), s		10		10		20		20
Start-Up Lost Time (*l*t), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s		2.0		2.0		2.0		2.0
Recall Mode		Off		Off		Max		Max
Dual Entry		Yes		Yes		Yes		Yes
Walk (*Walk*), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

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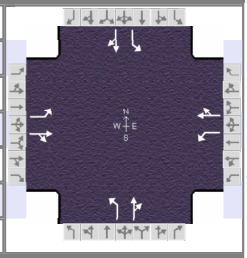
HCS Signalized Intersection Results Summary

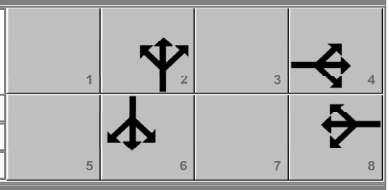
General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	AMP	Analysis Date	Sep 27, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	AM Pr. Roadway	PHF	0.92
Urban Street	SR37	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR37 - Moots Run	File Name	12D_AM_ProposedRoadway_SR37_MootsRun_…		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	30	20	40	110	10	90	30	660	40	30	520	10

Signal Information			
Cycle, s	46.9	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	25.0	9.9	0.0	0.0	0.0	0.0	
Yellow	4.0	4.0	0.0	0.0	0.0	0.0	
Red	2.0	2.0	0.0	0.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		6.0		6.0		6.0		6.0
Phase Duration, s		15.9		15.9		31.0		31.0
Change Period, ($Y+R_c$), s		6.0		6.0		6.0		6.0
Max Allow Headway (*MAH*), s		3.2		3.2		2.9		2.9
Queue Clearance Time (g_s), s		6.4		8.0		20.7		22.7
Green Extension Time (g_e), s		0.3		0.2		0.0		0.9
Phase Call Probability		0.99		0.99		1.00		1.00
Max Out Probability		0.77		1.00		1.00		1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	33	65		120	109		33	761		33	576	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1203	1441		1199	1330		811	1651		683	1662	
Queue Service Time (g_s), s	1.1	1.8		4.3	3.3		1.4	18.7		2.0	11.6	
Cycle Queue Clearance Time (g_c), s	4.4	1.8		6.0	3.3		13.0	18.7		20.7	11.6	
Green Ratio (*g/C*)	0.21	0.21		0.21	0.21		0.53	0.53		0.53	0.53	
Capacity (*c*), veh/h	322	303		361	280		386	881		246	887	
Volume-to-Capacity Ratio (*X*)	0.101	0.215		0.331	0.389		0.085	0.864		0.133	0.649	
Back of Queue (*Q*), ft/ln (95 th percentile)	12	21		46	39		11	248		15	128	
Back of Queue (*Q*), veh/ln (95 th percentile)	0.4	0.8		1.6	1.4		0.4	9.5		0.6	4.9	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.03	0.01		0.13	0.02		0.03	0.48		0.04	0.06	
Uniform Delay (d_1), s/veh	17.8	15.3		17.8	15.9		12.4	9.5		18.4	7.8	
Incremental Delay (d_2), s/veh	0.1	0.1		0.2	0.3		0.4	11.0		1.1	3.7	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh	17.9	15.4		18.0	16.2		12.9	20.4		19.5	11.5	
Level of Service (LOS)	B	B		B	B		B	C		B	B	
Approach Delay, s/veh / LOS	16.2	B		17.2	B		20.1	C		11.9	B	
Intersection Delay, s/veh / LOS	16.6						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.91	B	1.91	B	1.86	B	1.86	B
Bicycle LOS Score / LOS	0.65	A	0.86	A	1.80	B	1.49	A

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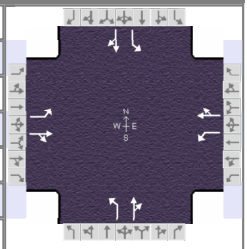
HCS Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	AMP	Analysis Date	Sep 27, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	AM Pr. Roadway	PHF	0.92
Urban Street	SR37	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR37 - Moots Run	File Name	12D_AM_ProposedRoadway_SR37_MootsRun_…		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	30	20	40	110	10	90	30	660	40	30	520	10

Signal Information													
Cycle, s	46.9	Reference Phase	2							1	2	3	4
Offset, s	0	Reference Point	End										
Uncoordinated	Yes	Simult. Gap E/W	On	Green	25.0	9.9	0.0	0.0	0.0	0.0	5	6	7	8
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	0.0	0.0	0.0	0.0				
				Red	2.0	2.0	0.0	0.0	0.0	0.0				

Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	0.922	0.922	1.000	0.883	0.883	1.000	0.953	0.953	1.000	0.953	0.953	1.000
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.688	0.000		0.685	0.000		0.463	0.000		0.390	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.893	0.893		0.861	0.861		0.990	0.990		0.997	0.997
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000			1.000			1.000			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Prot. CAV Adj. Factor ($f_{CAV,prot}$)												
Left-Turn Perm. CAV Adj. Factor ($f_{CAV,perm}$)	1.00			1.00			1.00			1.00		
Movement Saturation Flow Rate (s), veh/h	1203	480	960	1199	133	1197	811	1557	94	683	1631	31
Proportion of Vehicles Arriving on Green (P)	0.21	0.21	0.21	0.21	0.21	0.21	0.53	0.53	0.53	0.53	0.53	0.53
Incremental Delay Factor (k)	0.04	0.04		0.04	0.04		0.50	0.50		0.50	0.50	

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)		6.0		6.0		6.0		6.0
Green Ratio (g/C)		0.21		0.21		0.53		0.53
Permitted Saturation Flow Rate (s_p), veh/h/ln		1203		1199		811		683
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								
Permitted Effective Green Time (g_p), s		9.9		9.9		25.0		25.0
Permitted Service Time (g_u), s		6.6		8.1		13.4		6.3
Permitted Queue Service Time (g_{ps}), s		1.1		4.3		1.4		2.0
Time to First Blockage (g_f), s		0.0		0.0		0.0		0.0
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln								
Protected Right Effective Green Time (g_R), s								

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.198	0.000	1.198	0.000	1.198	0.000	1.198	0.000
Pedestrian F_s / F_{delay}	0.000	0.108	0.000	0.108	0.000	0.065	0.000	0.065
Pedestrian M_{corner} / M_{cw}	0.00		0.00		0.00		0.00	
Bicycle c_b / d_b	420.71	14.61	420.71	14.61	1067.08	5.10	1067.09	5.10
Bicycle F_w / F_v	-3.64	0.16	-3.64	0.38	-3.64	1.31	-3.64	1.00

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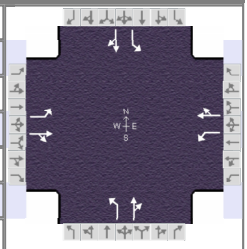
HCS Signalized Intersection Results Graphical Summary

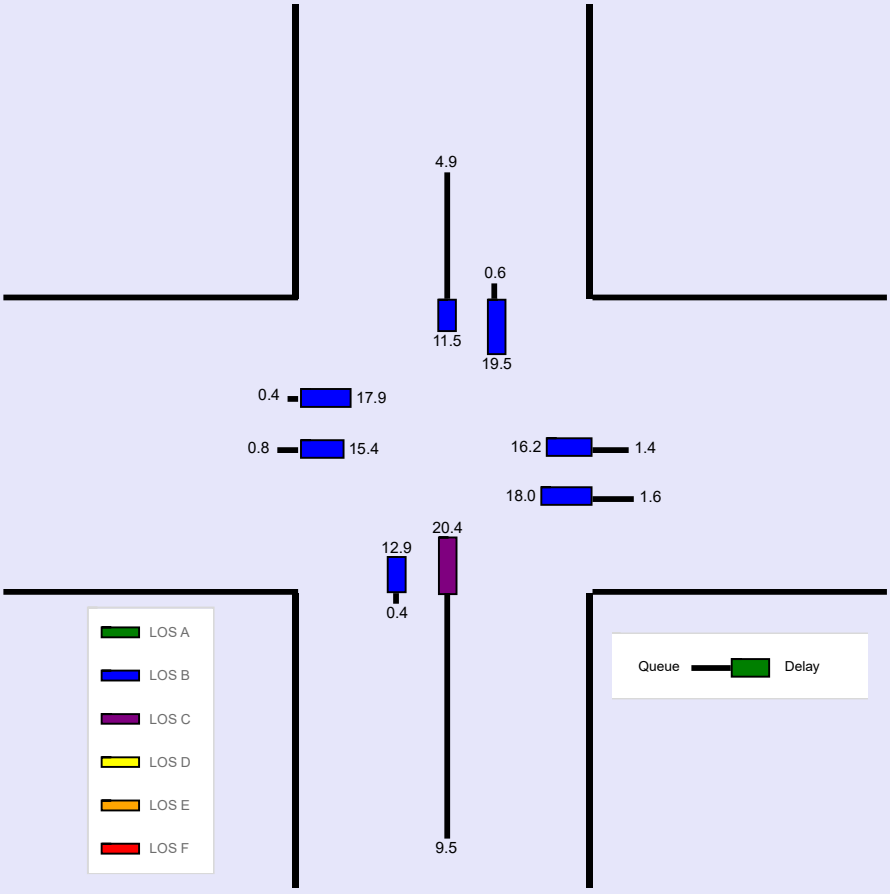
General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	AMP	Analysis Date	Sep 27, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	AM Pr. Roadway	PHF	0.92
Urban Street	SR37	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR37 - Moots Run	File Name	12D_AM_ProposedRoadway_SR37_MootsRun_…		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	30	20	40	110	10	90	30	660	40	30	520	10

Signal Information													
Cycle, s	46.9	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	Yes	Simult. Gap E/W	On	Green	25.0	9.9	0.0	0.0	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	0.0	0.0	0.0	0.0			
				Red	2.0	2.0	0.0	0.0	0.0	0.0			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)	12	21		46	39		11	248		15	128	
Back of Queue (*Q*), veh/ln (95 th percentile)	0.4	0.8		1.6	1.4		0.4	9.5		0.6	4.9	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.03	0.01		0.13	0.02		0.03	0.48		0.04	0.06	
Control Delay (*d*), s/veh	17.9	15.4		18.0	16.2		12.9	20.4		19.5	11.5	
Level of Service (LOS)	B	B		B	B		B	C		B	B	
Approach Delay, s/veh / LOS	16.2		B	17.2		B	20.1		C	11.9		B
Intersection Delay, s/veh / LOS	16.6						B					



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--- Messages ---

No errors or warnings exist.

--- Comments ---

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SR-37 (Roundabout) - PM Build

HCS Two-Way Stop-Control Report

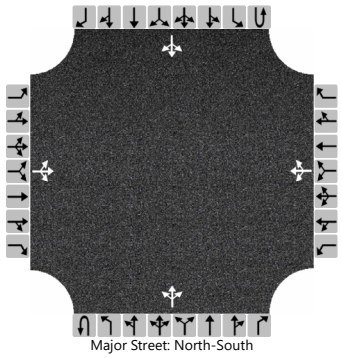
General Information

Analyst	SED
Agency/Co.	Michael Baker Intl.
Date Performed	7/19/2024
Analysis Year	2048
Time Analyzed	PM Pr. Roadway
Intersection Orientation	North-South
Project Description	FRA/LIC-161-22.1/0.00

Site Information

Intersection	SR37 - Worthington
Jurisdiction	ODOT D05
East/West Street	Worthinton Road
North/South Street	SR 37
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		60	10	10		10	50	40		10	230	10		10	400	20
Percent Heavy Vehicles (%)		6	6	6		3	3	3		2				4		
Proportion Time Blocked																
Percent Grade (%)		0				0										
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.16	6.56	6.26		7.13	6.53	6.23		4.12				4.14		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.55	4.05	3.35		3.53	4.03	3.33		2.22				2.24		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			87				109			11				11		
Capacity, c (veh/h)			263				423			1104				1292		
v/c Ratio			0.33				0.26			0.01				0.01		
95% Queue Length, Q_{95} (veh)			1.4				1.0			0.0				0.0		
95% Queue Length, Q_{95} (ft)			36.7				25.6			0.0				0.0		
Control Delay (s/veh)			25.3				16.4			8.3	0.1	0.1		7.8	0.1	0.1
Level of Service (LOS)			D				C			A	A	A		A	A	A
Approach Delay (s/veh)		25.3				16.4				0.4				0.3		
Approach LOS		D				C				A				A		

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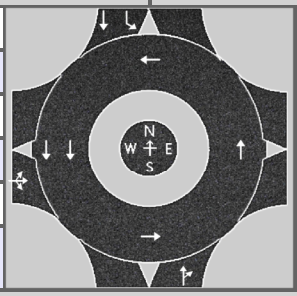
HCS Roundabouts Report

General Information

Analyst	AMP
Agency or Co.	Michael Baker Intl.
Date Performed	9/27/2024
Analysis Year	2048
Time Analyzed	PM Pr. Roadway
Project Description	FRA/LIC-161-22.1/0.00



Site Information

Intersection	SR37 - SR161 EB Ramp
E/W Street Name	SR161 EB Ramp
N/S Street Name	SR37
Analysis Time Period, hrs	0.25
Peak Hour Factor	0.92
Jurisdiction	ODOT D05

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	0	0	0	0	1	0	0	1	1	0
Lane Assignment			LTR								TR		L		T	
Volume (V), veh/h	0	170	10	80					0		260	70	0	680	350	
Percent Heavy Vehicles, %	6	6	6	6					2		2	2	4	4	4	
Flow Rate (v_{PCE}), pc/h	0	196	12	92					0		288	78	0	769	396	
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	2								1				1			
Pedestrians Crossing, p/h	0								0				0			
Proportion of CAVs, %	0															

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway, s		4.3276						4.9763		4.5436	4.5436	
Follow-Up Headway, s		2.5352						2.6087		2.5352	2.5352	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		300						366		769	396	
Entry Volume, veh/h		283						359		739	381	
Circulating Flow (v_c), pc/h	1165			484			977			0		
Exiting Flow (v_{ex}), pc/h	859			0			484			488		
Capacity (c_{pce}), pc/h		528						509		1420	1420	
Capacity (c), veh/h		498						499		1365	1365	
v/c Ratio (x)		0.57						0.72		0.54	0.28	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		19.2						27.1		8.4	5.0	
Lane LOS		C						D		A	A	
95% Queue Length, Q_{95} (veh)		3.5						5.8		3.4	1.1	
95% Queue Length, Q_{95} (ft)		91.7						147.3		87.7	28.4	
Approach Delay, s/veh | LOS	19.2	C					27.1	D		7.3	A	
Intersection Delay, s/veh | LOS	13.2						B					

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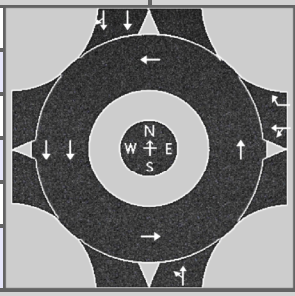
HCS Roundabouts Report

General Information

Analyst	AMP
Agency or Co.	Michael Baker Intl.
Date Performed	9/27/2024
Analysis Year	2048
Time Analyzed	PM Pr. Roadway
Project Description	FRA/LIC-161-22.1/0.00



Site Information

Intersection	SR37 - SR161 WB Ramp
E/W Street Name	SR161 WB Ramp
N/S Street Name	SR37
Analysis Time Period, hrs	0.25
Peak Hour Factor	0.92
Jurisdiction	ODOT D05

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	0	0	0	0	1	1	0	0	1	0	0	0	2	0
Lane Assignment					LT		R				LT		T		TR	
Volume (V), veh/h					0	30	0	440	0	60	370		0		1000	80
Percent Heavy Vehicles, %					2	2	2	2	4	4	4		5		5	5
Flow Rate (v_{PCE}), pc/h					0	33	0	488	0	68	418		0		1141	91
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes					1				1				1			
Pedestrians Crossing, p/h					0				0				0			
Proportion of CAVs, %	0															

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway, s				4.5436	4.5436			4.9763		4.5436	4.5436	
Follow-Up Headway, s				2.5352	2.5352			2.6087		2.5352	2.5352	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h				33	488			486		579	653	
Entry Volume, veh/h				32	478			467		551	622	
Circulating Flow (v_c), pc/h	1174			486			0			101		
Exiting Flow (v_{ex}), pc/h	0			159			906			1174		
Capacity (c_{pce}), pc/h				912	912			1380		1295	1295	
Capacity (c), veh/h				895	895			1327		1234	1234	
v/c Ratio (x)				0.04	0.53			0.35		0.45	0.50	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh				4.4	11.2			5.9		7.5	8.4	
Lane LOS				A	B			A		A	A	
95% Queue Length, Q_{95} (veh)				0.1	3.2			1.6		2.4	2.9	
95% Queue Length, Q_{95} (ft)				2.5	81.3			40.0		62.4	75.4	
Approach Delay, s/veh | LOS				10.8	B		5.9	A		8.0	A	
Intersection Delay, s/veh | LOS	8.2						A					

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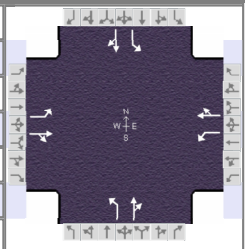
HCS Signalized Intersection Input Data

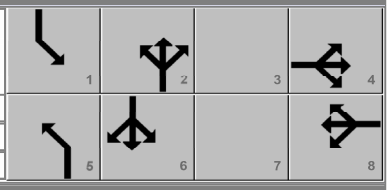
General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	AMP	Analysis Date	Sep 27, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	PM Pr. Roadway	PHF	0.92
Urban Street	SR37	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR37 - Moots Run	File Name	12D_PM_ProposedRoadway_SR37_MootsRun_…		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	10	30	60	10	60	20	700	90	150	990	10

Signal Information			
Cycle, s	89.9	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	2.9	3.9	55.0	9.9	0.0	0.0						
Yellow	4.0	0.0	4.0	4.0	0.0	0.0						
Red	2.0	0.0	2.0	2.0	0.0	0.0						



Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	10	30	60	10	60	20	700	90	150	990	10
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1750	1750	1900	1750	1750	1900	1750	1750	1900	1750	1750	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	4	4		4	4		6	6		6	6	
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (*W*), ft	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Turn Bay Length, ft	345	1999		345	1999		345	520		345	1999	
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h	55	55	55	55	55	55	55	55	55	55	55	55

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s		10.0		10.0	7.0	20.0	7.0	59.0
Yellow Change Interval (*Y*), s		4.0		4.0	4.0	4.0	4.0	4.0
Red Clearance Interval (R_c), s		2.0		2.0	2.0	2.0	2.0	2.0
Minimum Green (G_{min}), s		10		10	7	20	7	24
Start-Up Lost Time (*l*t), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s		2.0		2.0	2.0	2.0	2.0	2.0
Recall Mode		Off		Off	Off	Max	Off	Max
Dual Entry		Yes		Yes	No	Yes	No	Yes
Walk (*Walk*), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

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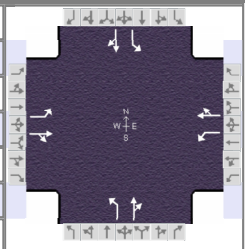
HCS Signalized Intersection Results Summary

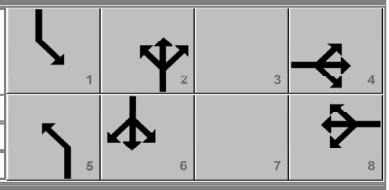
General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	AMP	Analysis Date	Sep 27, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	PM Pr. Roadway	PHF	0.92
Urban Street	SR37	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR37 - Moots Run	File Name	12D_PM_ProposedRoadway_SR37_MootsRun_…		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	10	30	60	10	60	20	700	90	150	990	10

Signal Information			
Cycle, s	89.9	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	2.9	3.9	55.0	9.9	0.0	0.0						
Yellow	4.0	0.0	4.0	4.0	0.0	0.0						
Red	2.0	0.0	2.0	2.0	0.0	0.0						



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		6.0		6.0	1.1	4.0	1.1	4.0
Phase Duration, s		15.9		15.9	8.9	61.0	12.9	65.0
Change Period, ($Y+R_c$), s		6.0		6.0	6.0	6.0	6.0	6.0
Max Allow Headway (*MAH*), s		3.1		3.1	2.9	2.9	2.9	2.9
Queue Clearance Time (g_s), s		7.1		8.6	2.4	40.5	5.2	60.0
Green Extension Time (g_e), s		0.1		0.0	0.0	0.0	0.0	0.0
Phase Call Probability		0.99		0.99	0.42	1.00	0.98	1.00
Max Out Probability		1.00		1.00	0.03	1.00	1.00	1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	11	43		65	76		22	859		163	1087	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1302	1494		1341	1469		1589	1635		1589	1665	
Queue Service Time (g_s), s	0.7	2.4		4.2	4.4		0.4	38.5		3.2	58.0	
Cycle Queue Clearance Time (g_c), s	5.1	2.4		6.6	4.4		0.4	38.5		3.2	58.0	
Green Ratio (*g/C*)	0.11	0.11		0.11	0.11		0.65	0.61		0.69	0.66	
Capacity (*c*), veh/h	161	165		193	162		132	1001		316	1093	
Volume-to-Capacity Ratio (*X*)	0.068	0.264		0.339	0.469		0.165	0.857		0.516	0.994	
Back of Queue (*Q*), ft/ln (95 th percentile)	10	38		61	69		12	492		72	783	
Back of Queue (*Q*), veh/ln (95 th percentile)	0.4	1.5		2.4	2.7		0.5	18.8		2.8	29.9	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.03	0.02		0.18	0.03		0.03	0.95		0.21	0.39	
Uniform Delay (d_1), s/veh	39.9	36.6		39.6	37.5		22.6	14.2		16.0	15.3	
Incremental Delay (d_2), s/veh	0.1	0.3		0.4	0.8		0.2	9.4		0.6	25.9	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh	39.9	36.9		40.0	38.3		22.8	23.6		16.7	41.1	
Level of Service (LOS)	D	D		D	D		C	C		B	D	
Approach Delay, s/veh / LOS	37.5	D		39.1	D		23.6	C		37.9	D	
Intersection Delay, s/veh / LOS	32.6						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.94	B	1.94	B	1.87	B	1.86	B
Bicycle LOS Score / LOS	0.58	A	0.72	A	1.94	B	2.55	C

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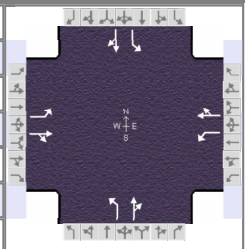
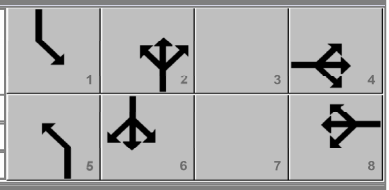
HCS Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	AMP	Analysis Date	Sep 27, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	PM Pr. Roadway	PHF	0.92
Urban Street	SR37	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR37 - Moots Run	File Name	12D_PM_ProposedRoadway_SR37_MootsRun_…		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	10	30	60	10	60	20	700	90	150	990	10

Signal Information												
Cycle, s	89.9	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	Yes	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
				Green	2.9	3.9	55.0	9.9	0.0	0.0		
				Yellow	4.0	0.0	4.0	4.0	0.0	0.0		
				Red	2.0	0.0	2.0	2.0	0.0	0.0		



Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	0.969	0.969	1.000	0.969	0.969	1.000	0.953	0.953	1.000	0.953	0.953	1.000
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.744	0.000		0.766	0.000		0.952	0.000		0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.881	0.881		0.866	0.866		0.980	0.980		0.998	0.998
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000			1.000			1.000			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Prot. CAV Adj. Factor ($f_{CAV,prot}$)							1.00			1.00		
Left-Turn Perm. CAV Adj. Factor ($f_{CAV,perm}$)	1.00			1.00								
Movement Saturation Flow Rate (s), veh/h	1302	373	1120	1341	210	1259	1589	1448	186	1589	1648	17
Proportion of Vehicles Arriving on Green (P)	0.11	0.11	0.11	0.11	0.11	0.11	0.03	0.61	0.61	0.08	0.66	0.66
Incremental Delay Factor (k)	0.04	0.04		0.04	0.04		0.04	0.50		0.05	0.50	

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)		6.0		6.0	6.0	6.0	6.0	6.0
Green Ratio (g/C)		0.11		0.11	0.65	0.61	0.69	0.66
Permitted Saturation Flow Rate (s_p), veh/h/ln		1302		1341	502	0	623	0
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								
Permitted Effective Green Time (g_p), s		9.9		9.9	55.0	0.0	55.0	0.0
Permitted Service Time (g_u), s		5.6		7.5	0.0	0.0	16.5	0.0
Permitted Queue Service Time (g_{ps}), s		0.7		4.2	0.0		13.7	
Time to First Blockage (g_f), s		0.0		0.0	0.0	0.0	0.0	0.0
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln								
Protected Right Effective Green Time (g_R), s								

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.198	0.000	1.198	0.000	1.198	0.000	1.198	0.000
Pedestrian F_s / F_{delay}	0.000	0.143	0.000	0.143	0.000	0.077	0.000	0.067
Pedestrian M_{corner} / M_{cw}	0.00		0.00		0.00		0.00	
Bicycle c_b / d_b	220.89	35.55	220.89	35.55	1225.29	6.74	1313.21	5.30
Bicycle F_w / F_v	-3.64	0.09	-3.64	0.23	-3.64	1.45	-3.64	2.06

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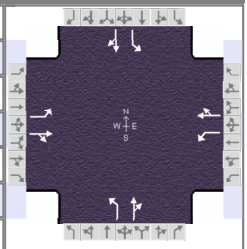
HCS Signalized Intersection Results Graphical Summary

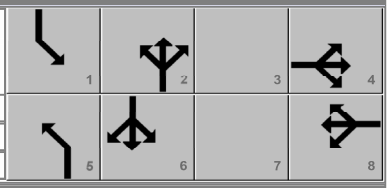
General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	AMP	Analysis Date	Sep 27, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	PM Pr. Roadway	PHF	0.92
Urban Street	SR37	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	SR37 - Moots Run	File Name	12D_PM_ProposedRoadway_SR37_MootsRun_…		
Project Description	FRA/LIC-161-22.1/0.00				



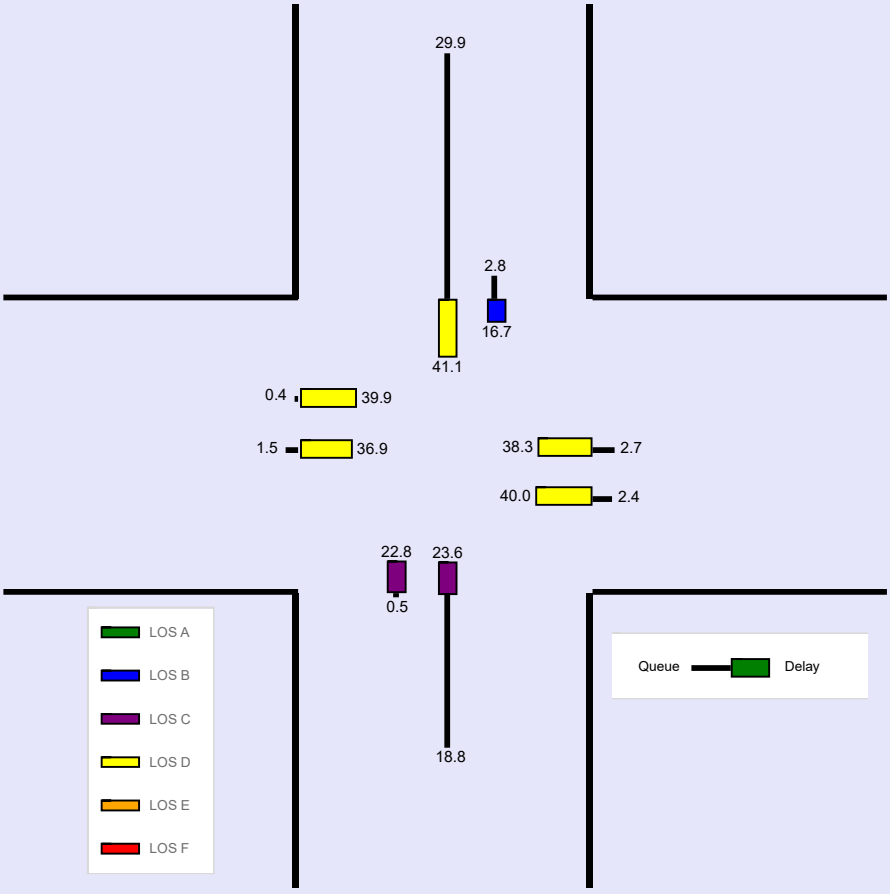
Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	10	30	60	10	60	20	700	90	150	990	10

Signal Information			
Cycle, s	89.9	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	2.9	3.9	55.0	9.9	0.0	0.0	
Yellow	4.0	0.0	4.0	4.0	0.0	0.0	
Red	2.0	0.0	2.0	2.0	0.0	0.0	



Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)	10	38		61	69		12	492		72	783	
Back of Queue (*Q*), veh/ln (95 th percentile)	0.4	1.5		2.4	2.7		0.5	18.8		2.8	29.9	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.03	0.02		0.18	0.03		0.03	0.95		0.21	0.39	
Control Delay (*d*), s/veh	39.9	36.9		40.0	38.3		22.8	23.6		16.7	41.1	
Level of Service (LOS)	D	D		D	D		C	C		B	D	
Approach Delay, s/veh / LOS	37.5	D		39.1	D		23.6	C		37.9	D	
Intersection Delay, s/veh / LOS	32.6						C					



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--- Messages ---

No errors or warnings exist.

--- Comments ---

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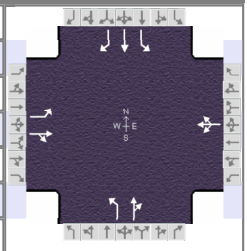
SR-16 - AM
No-Build

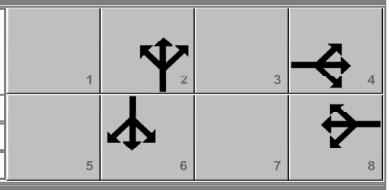
HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	AM Ex. Roadway	PHF	0.92
Urban Street	Columbus Road	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	Columbus - Granview	File Name	13A_AM_ExRoadway_Columbus_Granview_204…		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	10	10	10	10	100	10	530	10	10	570	20

Signal Information												
Cycle, s	42.5	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	Yes	Simult. Gap E/W	On									
Force Mode	Float	Simult. Gap N/S	On									
				Green	22.0	8.5	0.0	0.0	0.0	0.0		
				Yellow	4.0	4.0	0.0	0.0	0.0	0.0		
				Red	2.0	2.0	0.0	0.0	0.0	0.0		



Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	10	10	10	10	100	10	530	10	10	570	20
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1750	1750	1900	1900	1750	1900	1750	1750	1900	1750	1750	1750
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	13	13			19		15	15		15	15	15
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (*W*), ft	12.0	12.0			12.0		12.0	12.0		12.0	12.0	12.0
Turn Bay Length, ft	70	635			1110		135	1290		130	750	130
Grade (*Pg*), %		0			4			4			0	
Speed Limit, mi/h	15	15	15	40	40	40	45	45	45	45	45	45

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s		10.0		10.0		20.0		22.0
Yellow Change Interval (*Y*), s		4.0		4.0		4.0		4.0
Red Clearance Interval (R_c), s		2.0		2.0		2.0		2.0
Minimum Green (G_{min}), s		10		10		20		20
Start-Up Lost Time (*l*t), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s		2.0		2.0		2.0		2.0
Recall Mode		Off		Off		Max		Max
Dual Entry		Yes		Yes		Yes		Yes
Walk (*Walk*), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

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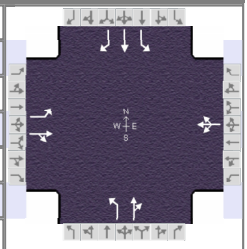
HCS Signalized Intersection Results Summary

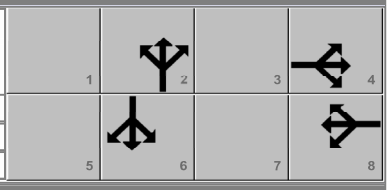
General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	AM Ex. Roadway	PHF	0.92
Urban Street	Columbus Road	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	Columbus - Granview	File Name	13A_AM_ExRoadway_Columbus_Granview_204…		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	10	10	10	10	100	10	530	10	10	570	20

Signal Information			
Cycle, s	42.5	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Float	Simult. Gap N/S	On

Green	22.0	8.5	0.0	0.0	0.0	0.0	
Yellow	4.0	4.0	0.0	0.0	0.0	0.0	
Red	2.0	2.0	0.0	0.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		6.0		8.0		6.0		5.0
Phase Duration, s		14.5		14.5		28.0		28.0
Change Period, ($Y+R_c$), s		6.0		6.0		6.0		6.0
Max Allow Headway (*MAH*), s		3.4		3.4		3.0		3.0
Queue Clearance Time (g_s), s		6.4		6.1		16.3		16.4
Green Extension Time (g_e), s		0.1		0.1		1.2		1.6
Phase Call Probability		0.85		0.85		1.00		1.00
Max Out Probability		0.80		0.56		0.81		0.48

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	11	22			130		11	587		11	620	22
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1161	1443			1211		721	1454		743	1545	1310
Queue Service Time (g_s), s	0.4	0.5			0.0		0.5	13.9		0.5	13.8	0.3
Cycle Queue Clearance Time (g_c), s	4.4	0.5			4.1		14.3	13.9		14.4	13.8	0.3
Green Ratio (*g/C*)	0.20	0.20			0.20		0.52	0.52		0.52	0.52	0.52
Capacity (*c*), veh/h	291	290			335		309	752		310	799	677
Volume-to-Capacity Ratio (*X*)	0.037	0.075			0.389		0.035	0.781		0.035	0.775	0.032
Back of Queue (*Q*), ft/ln (95 th percentile)	5	8			47		4	189		4	193	3
Back of Queue (*Q*), veh/ln (95 th percentile)	0.2	0.3			1.6		0.2	6.8		0.2	6.9	0.1
Queue Storage Ratio (*RQ*) (95 th percentile)	0.07	0.01			0.04		0.03	0.15		0.03	0.26	0.02
Uniform Delay (d_1), s/veh	17.2	13.8			15.2		14.0	8.3		14.2	8.3	5.0
Incremental Delay (d_2), s/veh	0.0	0.0			0.3		0.2	7.9		0.2	7.3	0.1
Initial Queue Delay (d_3), s/veh	0.0	0.0			0.0		0.0	0.0		0.0	0.0	0.0
Control Delay (*d*), s/veh	17.2	13.8			15.5		14.2	16.2		14.4	15.5	5.1
Level of Service (LOS)	B	B			B		B	B		B	B	A
Approach Delay, s/veh / LOS	15.0	B		15.5	B		16.2	B		15.2	B	
Intersection Delay, s/veh / LOS	15.6						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.90	B	2.09	B	1.64	B	1.86	B
Bicycle LOS Score / LOS	0.54	A	0.70	A	1.47	A	1.56	B

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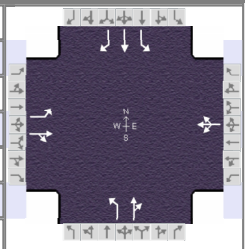
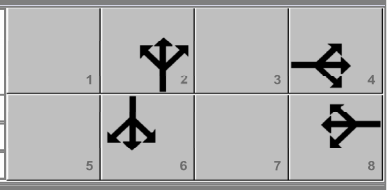
HCS Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	AM Ex. Roadway	PHF	0.92
Urban Street	Columbus Road	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	Columbus - Granview	File Name	13A_AM_ExRoadway_Columbus_Granview_204…		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	10	10	10	10	100	10	530	10	10	570	20

Signal Information												
Cycle, s	42.5	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	Yes	Simult. Gap E/W	On									
Force Mode	Float	Simult. Gap N/S	On									
				Green	22.0	8.5	0.0	0.0	0.0	0.0		
				Yellow	4.0	4.0	0.0	0.0	0.0	0.0		
				Red	2.0	2.0	0.0	0.0	0.0	0.0		



Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	0.899	0.899	1.000	1.000	0.802	0.950	0.883	0.833	0.950	0.883	0.883	0.883
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.664	0.000		0.991	0.863		0.412	0.000		0.425	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.917	0.917		0.000	0.863		0.997	0.997		0.000	0.847
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000			1.000			1.000			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Prot. CAV Adj. Factor ($f_{CAV,prot}$)												
Left-Turn Perm. CAV Adj. Factor ($f_{CAV,perm}$)	1.00			1.00			1.00			1.00		
Movement Saturation Flow Rate (s), veh/h	1161	721	721	101	101	1010	721	1427	27	743	1545	1310
Proportion of Vehicles Arriving on Green (P)	0.20	0.20	0.20	0.20	0.20	0.20	0.52	0.52	0.52	0.52	0.52	0.52
Incremental Delay Factor (k)	0.04	0.04			0.04		0.50	0.50		0.50	0.50	0.50

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)		6.0		6.0		6.0		6.0
Green Ratio (g/C)		0.20		0.20		0.52		0.52
Permitted Saturation Flow Rate (s_p), veh/h/ln		1161		1412		721		743
Shared Saturation Flow Rate (s_{sh}), veh/h/ln				0				
Permitted Effective Green Time (g_p), s		8.5		8.5		22.0		22.0
Permitted Service Time (g_u), s		4.5		8.0		8.2		8.1
Permitted Queue Service Time (g_{ps}), s		0.4		0.0		0.5		0.5
Time to First Blockage (g_f), s		0.0		4.7		0.0		0.0
Queue Service Time Before Blockage (g_{fs}), s				0.1				
Protected Right Saturation Flow (s_R), veh/h/ln								0
Protected Right Effective Green Time (g_R), s								0.0

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.198	0.000	1.389	0.000	0.972	0.000	1.198	0.000
Pedestrian F_s / F_{delay}	0.000	0.105	0.000	0.105	0.000	0.064	0.000	0.064
Pedestrian M_{corner} / M_{cw}	0.00		0.00		0.00		0.00	
Bicycle c_b / d_b	401.65	13.59	401.65	13.59	1034.22	4.96	1034.22	4.96
Bicycle F_w / F_v	-3.64	0.05	-3.64	0.22	-3.64	0.99	-3.64	1.08

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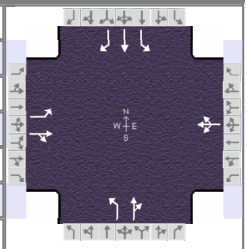
HCS Signalized Intersection Results Graphical Summary

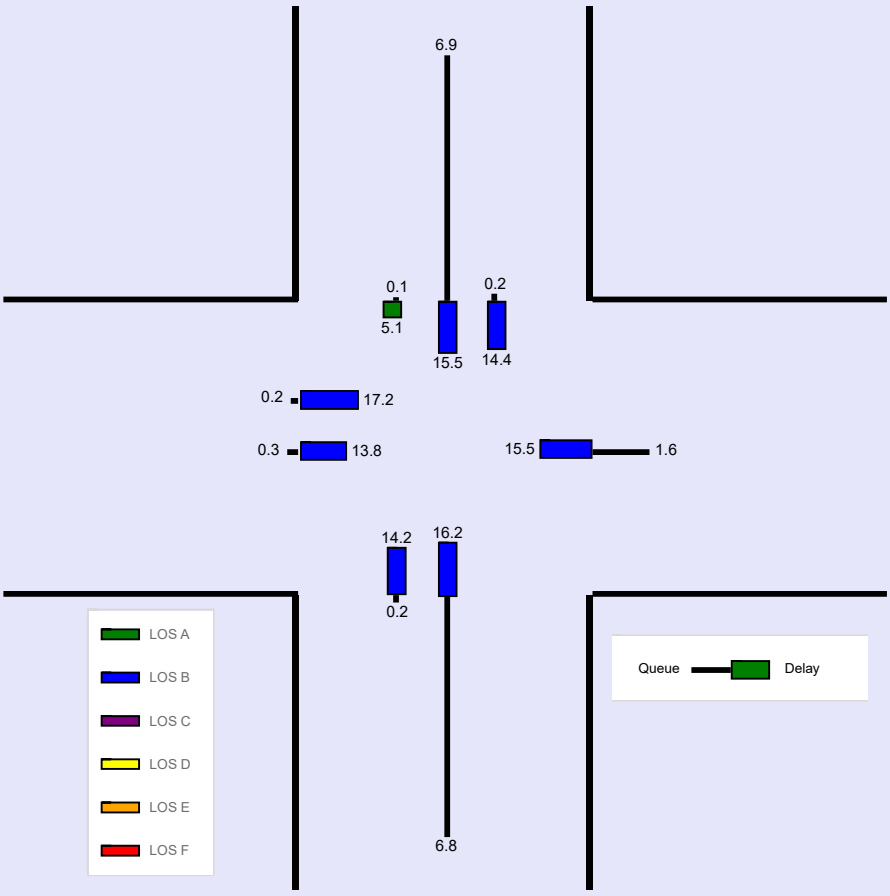
General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	AM Ex. Roadway	PHF	0.92
Urban Street	Columbus Road	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	Columbus - Granview	File Name	13A_AM_ExRoadway_Columbus_Granview_204…		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	10	10	10	10	100	10	530	10	10	570	20

Signal Information													
Cycle, s	42.5	Reference Phase	2										
Offset, s	0	Reference Point	End	Green	22.0	8.5	0.0	0.0	0.0	0.0	1	2	3	4
Uncoordinated	Yes	Simult. Gap E/W	On	Yellow	4.0	4.0	0.0	0.0	0.0	0.0	5	6	7	8
Force Mode	Float	Simult. Gap N/S	On	Red	2.0	2.0	0.0	0.0	0.0	0.0				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)	5	8			47		4	189		4	193	3
Back of Queue (*Q*), veh/ln (95 th percentile)	0.2	0.3			1.6		0.2	6.8		0.2	6.9	0.1
Queue Storage Ratio (*RQ*) (95 th percentile)	0.07	0.01			0.04		0.03	0.15		0.03	0.26	0.02
Control Delay (*d*), s/veh	17.2	13.8			15.5		14.2	16.2		14.4	15.5	5.1
Level of Service (LOS)	B	B			B		B	B		B	B	A
Approach Delay, s/veh / LOS	15.0	B		15.5	B		16.2	B		15.2	B	
Intersection Delay, s/veh / LOS	15.6						B					



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--- Messages ---

No errors or warnings exist.

--- Comments ---

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HCS Two-Way Stop-Control Report

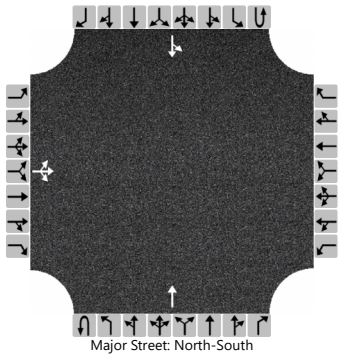
General Information

Analyst	SED
Agency/Co.	Michael Baker Intl.
Date Performed	7/19/2024
Analysis Year	2048
Time Analyzed	AM Ex. Roadway
Intersection Orientation	North-South
Project Description	FRA/LIC-161-22.1/0.00

Site Information

Intersection	Columbus - SR161 EB Ramp
Jurisdiction	ODOT D05
East/West Street	SR161 EB Ramp
North/South Street	Columbus Road
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LTR								T			LT		
Volume (veh/h)		70	0	90							290			60	580	
Percent Heavy Vehicles (%)		14	14	14										4		
Proportion Time Blocked		0.000	0.000	0.000										0.000		
Percent Grade (%)			0													
Right Turn Channelized																
Median Type | Storage			Undivided													

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2										4.1		
Critical Headway (sec)		7.24	6.64	6.34										4.14		
Base Follow-Up Headway (sec)		3.5	4.0	3.3										2.2		
Follow-Up Headway (sec)		3.63	4.13	3.43										2.24		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			174											65		
Capacity, c (veh/h)			265											1234		
v/c Ratio			0.66											0.05		
95% Queue Length, Q_{95} (veh)			4.2											0.2		
95% Queue Length, Q_{95} (ft)			116.8											5.2		
Control Delay (s/veh)			41.2											8.1	0.7	
Level of Service (LOS)			E											A	A	
Approach Delay (s/veh)		41.2												1.4		
Approach LOS		E												A		

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HCS Two-Way Stop-Control Report

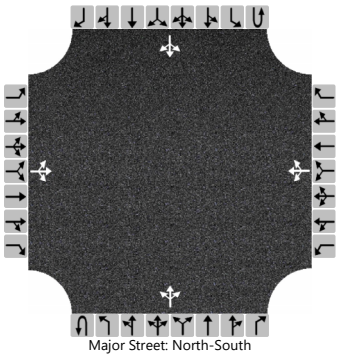
General Information

Analyst	SED
Agency/Co.	Michael Baker Intl.
Date Performed	7/19/2024
Analysis Year	2048
Time Analyzed	AM Ex. Roadway
Intersection Orientation	North-South
Project Description	FRA/LIC-161-22.1/0.00

Site Information

Intersection	Columbus - SR161 WB Ramp
Jurisdiction	ODOT D05
East/West Street	SR161 WB Ramp
North/South Street	Columbus Road
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		50	10	440		20	10	10		50	280	30		10	180	370
Percent Heavy Vehicles (%)		10	10	10		3	3	3		16				7		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.20	6.60	6.30		7.13	6.53	6.23		4.26				4.17		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.59	4.09	3.39		3.53	4.03	3.33		2.34				2.26		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			543				43			54				11		
Capacity, c (veh/h)			527				74			914				1195		
v/c Ratio			1.03				0.59			0.06				0.01		
95% Queue Length, Q_{95} (veh)			15.3				2.6			0.2				0.0		
95% Queue Length, Q_{95} (ft)			413.1				66.6			5.0				0.0		
Control Delay (s/veh)			75.7				108.6			9.2	0.7	0.7		8.0	0.1	0.1
Level of Service (LOS)			F				F			A	A	A		A	A	A
Approach Delay (s/veh)	75.7				108.6				1.9				0.3			
Approach LOS	F				F				A				A			

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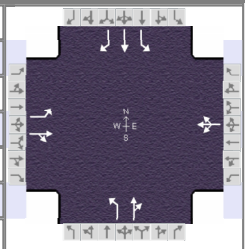
SR-16 - PM
No-Build

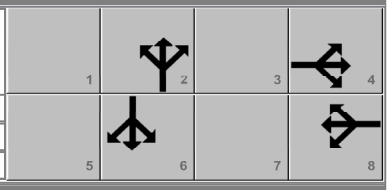
HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	PM Ex.Roadway	PHF	0.92
Urban Street	Columbus Road	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	Columbus - Granview	File Name	13A_PM_ExRoadway_Columbus_Granview_204…		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	50	10	10	10	10	110	10	790	10	100	580	20

Signal Information												
Cycle, s	51.6	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	Yes	Simult. Gap E/W	On	Green	30.0	9.6	0.0	0.0	0.0	0.0		
Force Mode	Float	Simult. Gap N/S	On	Yellow	4.0	4.0	0.0	0.0	0.0	0.0		
				Red	2.0	2.0	0.0	0.0	0.0	0.0		



Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	50	10	10	10	10	110	10	790	10	100	580	20
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1750	1750	1900	1900	1750	1900	1750	1750	1900	1750	1750	1750
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	6	6			3		2	2		4	4	4
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (*W*), ft	12.0	12.0			12.0		12.0	12.0		12.0	12.0	12.0
Turn Bay Length, ft	70	635			1110		135	1290		130	750	130
Grade (*Pg*), %		0			4			4			0	
Speed Limit, mi/h	15	15	15	40	40	40	45	45	45	45	45	45

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s		10.0		10.0		20.0		30.0
Yellow Change Interval (*Y*), s		4.0		4.0		4.0		4.0
Red Clearance Interval (R_c), s		2.0		2.0		2.0		2.0
Minimum Green (G_{min}), s		10		10		20		20
Start-Up Lost Time (*l*t), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s		2.0		2.0		2.0		2.0
Recall Mode		Off		Off		Max		Max
Dual Entry		Yes		Yes		Yes		Yes
Walk (*Walk*), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

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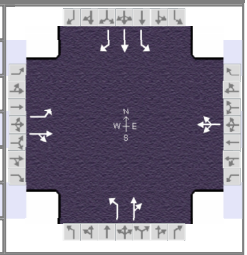
HCS Signalized Intersection Results Summary

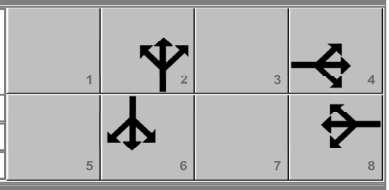
General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	PM Ex.Roadway	PHF	0.92
Urban Street	Columbus Road	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	Columbus - Granview	File Name	13A_PM_ExRoadway_Columbus_Granview_204…		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	50	10	10	10	10	110	10	790	10	100	580	20

Signal Information			
Cycle, s	51.6	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Float	Simult. Gap N/S	On

Green	30.0	9.6	0.0	0.0	0.0	0.0	
Yellow	4.0	4.0	0.0	0.0	0.0	0.0	
Red	2.0	2.0	0.0	0.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		6.0		8.0		6.0		5.0
Phase Duration, s		15.6		15.6		36.0		36.0
Change Period, ($Y+R_c$), s		6.0		6.0		6.0		6.0
Max Allow Headway (*MAH*), s		3.4		3.4		3.1		3.1
Queue Clearance Time (g_s), s		8.9		6.7		26.6		32.0
Green Extension Time (g_e), s		0.1		0.2		0.0		0.0
Phase Call Probability		0.96		0.96		1.00		1.00
Max Out Probability		1.00		1.00		1.00		1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	54	22			141		11	870		109	630	22
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1220	1530			1398		796	1632		627	1695	1437
Queue Service Time (g_s), s	2.2	0.6			0.0		0.5	24.6		5.4	12.8	0.3
Cycle Queue Clearance Time (g_c), s	6.9	0.6			4.7		13.2	24.6		30.0	12.8	0.3
Green Ratio (*g/C*)	0.19	0.19			0.19		0.58	0.58		0.58	0.58	0.58
Capacity (*c*), veh/h	255	284			334		406	950		205	987	836
Volume-to-Capacity Ratio (*X*)	0.213	0.077			0.423		0.027	0.916		0.529	0.639	0.026
Back of Queue (*Q*), ft/ln (95 th percentile)	29	10			61		4	335		79	153	3
Back of Queue (*Q*), veh/ln (95 th percentile)	1.1	0.4			2.4		0.1	13.2		3.1	5.9	0.1
Queue Storage Ratio (*RQ*) (95 th percentile)	0.42	0.02			0.06		0.03	0.26		0.61	0.20	0.02
Uniform Delay (d_1), s/veh	22.1	17.4			19.0		11.6	9.6		24.1	7.2	4.6
Incremental Delay (d_2), s/veh	0.2	0.0			0.3		0.1	14.8		9.4	3.2	0.1
Initial Queue Delay (d_3), s/veh	0.0	0.0			0.0		0.0	0.0		0.0	0.0	0.0
Control Delay (*d*), s/veh	22.3	17.4			19.3		11.7	24.4		33.6	10.3	4.6
Level of Service (LOS)	C	B			B		B	C		C	B	A
Approach Delay, s/veh / LOS	20.9	C		19.3	B		24.3	C		13.5	B	
Intersection Delay, s/veh / LOS	19.3						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.91	B	2.10	B	1.63	B	1.86	B
Bicycle LOS Score / LOS	0.61	A	0.72	A	1.94	B	1.74	B

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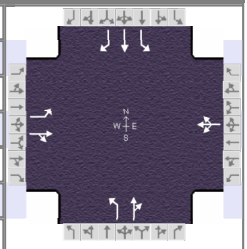
HCS Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	PM Ex.Roadway	PHF	0.92
Urban Street	Columbus Road	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	Columbus - Granview	File Name	13A_PM_ExRoadway_Columbus_Granview_204…		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	50	10	10	10	10	110	10	790	10	100	580	20

Signal Information			
Cycle, s	51.6	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Float	Simult. Gap N/S	On

							1	2	3	4
Green	30.0	9.6	0.0	0.0	0.0	0.0	5	6	7	8
Yellow	4.0	4.0	0.0	0.0	0.0	0.0				
Red	2.0	2.0	0.0	0.0	0.0	0.0				

Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	0.953	0.953	1.000	1.000	0.927	0.950	0.984	0.935	0.950	0.969	0.969	0.969
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.697	0.000		0.992	0.862		0.455	0.000		0.358	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.917	0.917		0.000	0.862		0.998	0.998		0.000	0.847
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000			1.000			1.000			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Prot. CAV Adj. Factor ($f_{CAV,prot}$)												
Left-Turn Perm. CAV Adj. Factor ($f_{CAV,perm}$)	1.00			1.00			1.00			1.00		
Movement Saturation Flow Rate (s), veh/h	1220	765	765	108	108	1183	796	1612	20	627	1695	1437
Proportion of Vehicles Arriving on Green (P)	0.19	0.19	0.19	0.19	0.19	0.19	0.58	0.58	0.58	0.58	0.58	0.58
Incremental Delay Factor (k)	0.04	0.04			0.04		0.50	0.50		0.50	0.50	0.50

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)		6.0		6.0		6.0		6.0
Green Ratio (g/C)		0.19		0.19		0.58		0.58
Permitted Saturation Flow Rate (s_p), veh/h/ln		1220		1412		796		627
Shared Saturation Flow Rate (s_{sh}), veh/h/ln				0				
Permitted Effective Green Time (g_p), s		9.6		9.6		30.0		30.0
Permitted Service Time (g_u), s		4.9		9.0		17.2		5.4
Permitted Queue Service Time (g_{ps}), s		2.2		0.0		0.5		5.4
Time to First Blockage (g_f), s		0.0		5.3		0.0		0.0
Queue Service Time Before Blockage (g_{fs}), s				0.0				
Protected Right Saturation Flow (s_R), veh/h/ln								0
Protected Right Effective Green Time (g_R), s								0.0

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.198	0.000	1.389	0.000	0.972	0.000	1.198	0.000
Pedestrian F_s / F_{delay}	0.000	0.114	0.000	0.114	0.000	0.060	0.000	0.060
Pedestrian M_{corner} / M_{cw}	0.00		0.00		0.00		0.00	
Bicycle c_b / d_b	370.69	17.11	370.69	17.11	1163.78	4.51	1163.80	4.51
Bicycle F_w / F_v	-3.64	0.13	-3.64	0.23	-3.64	1.45	-3.64	1.26

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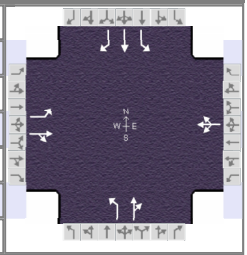
HCS Signalized Intersection Results Graphical Summary

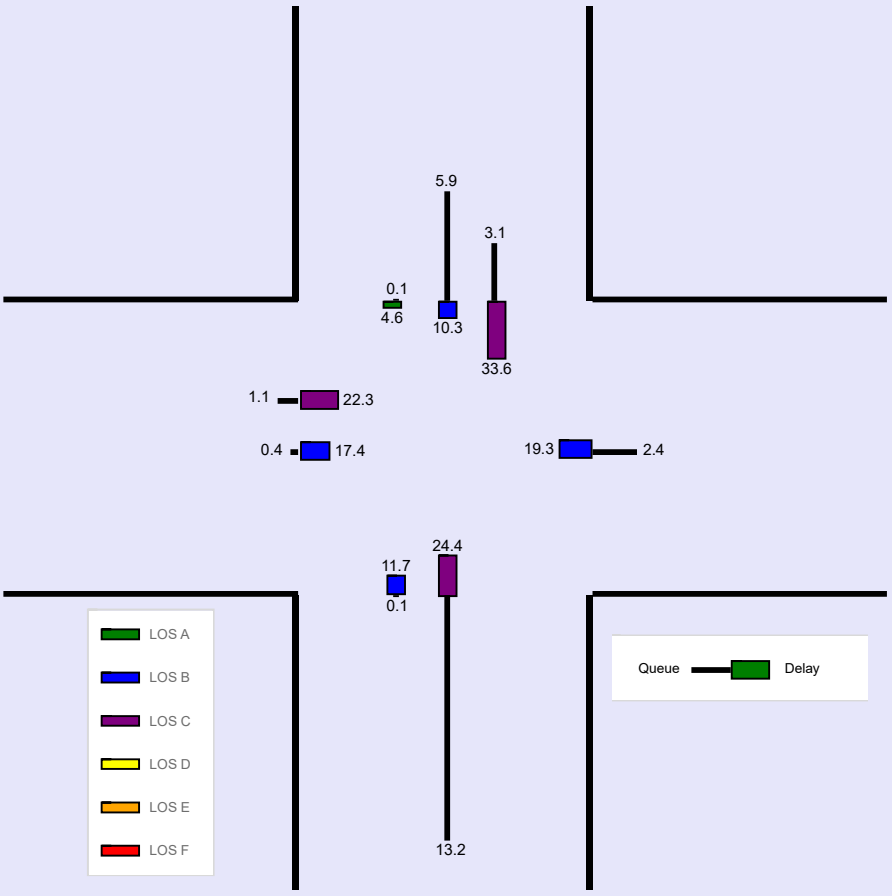
General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	PM Ex.Roadway	PHF	0.92
Urban Street	Columbus Road	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	Columbus - Granview	File Name	13A_PM_ExRoadway_Columbus_Granview_204…		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	50	10	10	10	10	110	10	790	10	100	580	20

Signal Information													
Cycle, s	51.6	Reference Phase	2										
Offset, s	0	Reference Point	End	Green	30.0	9.6	0.0	0.0	0.0	0.0	1	2	3	4
Uncoordinated	Yes	Simult. Gap E/W	On	Yellow	4.0	4.0	0.0	0.0	0.0	0.0	5	6	7	8
Force Mode	Float	Simult. Gap N/S	On	Red	2.0	2.0	0.0	0.0	0.0	0.0				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)	29	10			61		4	335		79	153	3
Back of Queue (*Q*), veh/ln (95 th percentile)	1.1	0.4			2.4		0.1	13.2		3.1	5.9	0.1
Queue Storage Ratio (*RQ*) (95 th percentile)	0.42	0.02			0.06		0.03	0.26		0.61	0.20	0.02
Control Delay (*d*), s/veh	22.3	17.4			19.3		11.7	24.4		33.6	10.3	4.6
Level of Service (LOS)	C	B			B		B	C		C	B	A
Approach Delay, s/veh / LOS	20.9	C		19.3	B		24.3	C		13.5	B	
Intersection Delay, s/veh / LOS	19.3						B					



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--- Messages ---

No errors or warnings exist.

--- Comments ---

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HCS Two-Way Stop-Control Report

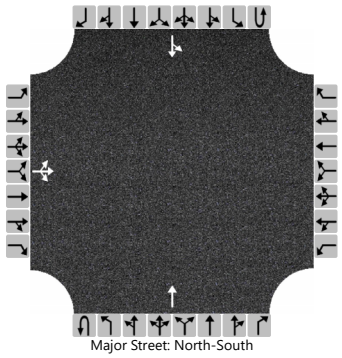
General Information

Analyst	SED
Agency/Co.	Michael Baker Intl.
Date Performed	7/19/2024
Analysis Year	2048
Time Analyzed	PM Ex. Roadway
Intersection Orientation	North-South
Project Description	FRA/LIC-161-22.1/0.00

Site Information

Intersection	Columbus - SR161 EB Ramp
Jurisdiction	ODOT D05
East/West Street	SR161 EB Ramp
North/South Street	Columbus Road
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LTR								T			LT		
Volume (veh/h)		120	0	50							340			70	560	
Percent Heavy Vehicles (%)		6	6	6										4		
Proportion Time Blocked		0.000	0.000	0.000										0.000		
Percent Grade (%)			0													
Right Turn Channelized																
Median Type | Storage			Undivided													

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2										4.1		
Critical Headway (sec)		7.16	6.56	6.26										4.14		
Base Follow-Up Headway (sec)		3.5	4.0	3.3										2.2		
Follow-Up Headway (sec)		3.55	4.05	3.35										2.24		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			185											76		
Capacity, c (veh/h)			200											1178		
v/c Ratio			0.93											0.06		
95% Queue Length, Q_{95} (veh)			7.4											0.2		
95% Queue Length, Q_{95} (ft)			193.9											5.2		
Control Delay (s/veh)			94.6											8.3	0.8	
Level of Service (LOS)			F											A	A	
Approach Delay (s/veh)		94.6												1.6		
Approach LOS		F												A		

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HCS Two-Way Stop-Control Report

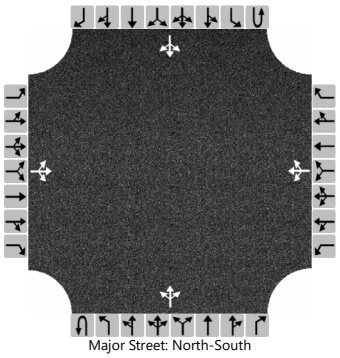
General Information

Analyst	SED
Agency/Co.	Michael Baker Intl.
Date Performed	7/19/2024
Analysis Year	2048
Time Analyzed	PM Ex. Roadway
Intersection Orientation	North-South
Project Description	FRA/LIC-161-22.1/0.00

Site Information

Intersection	Columbus - SR161 WB Ramp
Jurisdiction	ODOT D05
East/West Street	SR161 WB Ramp
North/South Street	Columbus Road
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		40	10	370		40	10	10		80	350	30		10	220	140
Percent Heavy Vehicles (%)		4	4	4		3	3	3		4				5		
Proportion Time Blocked																
Percent Grade (%)		0				0										
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.14	6.54	6.24		7.13	6.53	6.23		4.14				4.15		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.54	4.04	3.34		3.53	4.03	3.33		2.24				2.25		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			457				65			87				11		
Capacity, c (veh/h)			563				95			1156				1130		
v/c Ratio			0.81				0.69			0.08				0.01		
95% Queue Length, Q_{95} (veh)			8.0				3.4			0.2				0.0		
95% Queue Length, Q_{95} (ft)			206.4				87.0			5.0				0.0		
Control Delay (s/veh)			33.3				102.5			8.4	0.8	0.8		8.2	0.1	0.1
Level of Service (LOS)			D				F			A	A	A		A	A	A
Approach Delay (s/veh)		33.3				102.5				2.1				0.3		
Approach LOS		D				F				A				A		

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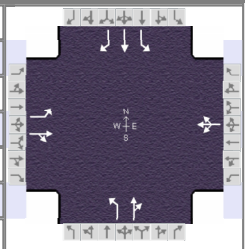
SR-16 (Signalized) - AM Build

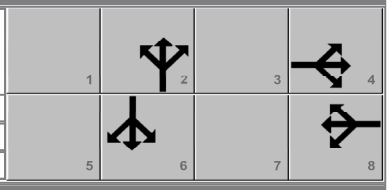
HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	AM Build	PHF	0.92
Urban Street	Columbus Road	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	Columbus - Granview	File Name	13A_AM_Build_Columbus_Granview_2048.xus		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	10	10	10	10	100	10	530	10	10	570	20

Signal Information												
Cycle, s	42.5	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	Yes	Simult. Gap E/W	On									
Force Mode	Float	Simult. Gap N/S	On									
				Green	22.0	8.5	0.0	0.0	0.0	0.0		
				Yellow	4.0	4.0	0.0	0.0	0.0	0.0		
				Red	2.0	2.0	0.0	0.0	0.0	0.0		



Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	10	10	10	10	100	10	530	10	10	570	20
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1750	1750	1900	1900	1750	1900	1750	1750	1900	1750	1750	1750
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	13	13			19		15	15		15	15	15
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (*W*), ft	12.0	12.0			12.0		12.0	12.0		12.0	12.0	12.0
Turn Bay Length, ft	70	635			1110		225	1290		245	750	225
Grade (*Pg*), %		0			4			4			0	
Speed Limit, mi/h	15	15	15	40	40	40	45	45	45	45	45	45

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s		10.0		10.0		20.0		22.0
Yellow Change Interval (*Y*), s		4.0		4.0		4.0		4.0
Red Clearance Interval (R_c), s		2.0		2.0		2.0		2.0
Minimum Green (G_{min}), s		10		10		20		20
Start-Up Lost Time (*l*t), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s		2.0		2.0		2.0		2.0
Recall Mode		Off		Off		Max		Max
Dual Entry		Yes		Yes		Yes		Yes
Walk (*Walk*), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

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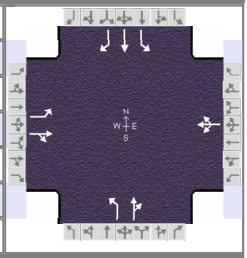
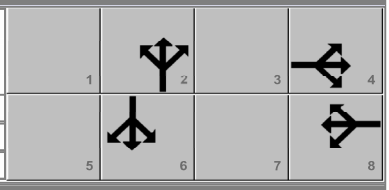
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	AM Build	PHF	0.92
Urban Street	Columbus Road	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	Columbus - Granview	File Name	13A_AM_Build_Columbus_Granview_2048.xus		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	10	10	10	10	100	10	530	10	10	570	20

Signal Information												
Cycle, s	42.5	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	Yes	Simult. Gap E/W	On									
Force Mode	Float	Simult. Gap N/S	On									
				Green	22.0	8.5	0.0	0.0	0.0	0.0		
				Yellow	4.0	4.0	0.0	0.0	0.0	0.0		
				Red	2.0	2.0	0.0	0.0	0.0	0.0		



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		6.0		8.0		6.0		5.0
Phase Duration, s		14.5		14.5		28.0		28.0
Change Period, ($Y+R_c$), s		6.0		6.0		6.0		6.0
Max Allow Headway (*MAH*), s		3.4		3.4		3.0		3.0
Queue Clearance Time (g_s), s		6.4		6.1		16.3		16.4
Green Extension Time (g_e), s		0.1		0.1		1.2		1.6
Phase Call Probability		0.85		0.85		1.00		1.00
Max Out Probability		0.80		0.56		0.81		0.48

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	11	22			130		11	587		11	620	22
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1161	1443			1211		721	1454		743	1545	1310
Queue Service Time (g_s), s	0.4	0.5			0.0		0.5	13.9		0.5	13.8	0.3
Cycle Queue Clearance Time (g_c), s	4.4	0.5			4.1		14.3	13.9		14.4	13.8	0.3
Green Ratio (*g/C*)	0.20	0.20			0.20		0.52	0.52		0.52	0.52	0.52
Capacity (*c*), veh/h	291	290			335		309	752		310	799	677
Volume-to-Capacity Ratio (*X*)	0.037	0.075			0.389		0.035	0.781		0.035	0.775	0.032
Back of Queue (*Q*), ft/ln (95 th percentile)	5	8			47		4	189		4	193	3
Back of Queue (*Q*), veh/ln (95 th percentile)	0.2	0.3			1.6		0.2	6.8		0.2	6.9	0.1
Queue Storage Ratio (*RQ*) (95 th percentile)	0.07	0.01			0.04		0.02	0.15		0.02	0.26	0.01
Uniform Delay (d_1), s/veh	17.2	13.8			15.2		14.0	8.3		14.2	8.3	5.0
Incremental Delay (d_2), s/veh	0.0	0.0			0.3		0.2	7.9		0.2	7.3	0.1
Initial Queue Delay (d_3), s/veh	0.0	0.0			0.0		0.0	0.0		0.0	0.0	0.0
Control Delay (*d*), s/veh	17.2	13.8			15.5		14.2	16.2		14.4	15.5	5.1
Level of Service (LOS)	B	B			B		B	B		B	B	A
Approach Delay, s/veh / LOS	15.0	B		15.5	B		16.2	B		15.2	B	
Intersection Delay, s/veh / LOS	15.6						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.90	B	2.09	B	1.64	B	1.86	B
Bicycle LOS Score / LOS	0.54	A	0.70	A	1.47	A	1.56	B

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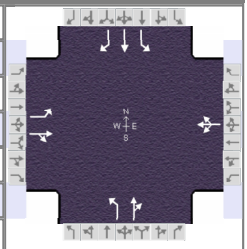
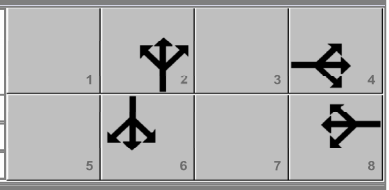
HCS Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	AM Build	PHF	0.92
Urban Street	Columbus Road	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	Columbus - Granview	File Name	13A_AM_Build_Columbus_Granview_2048.xus		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	10	10	10	10	100	10	530	10	10	570	20

Signal Information												
Cycle, s	42.5	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	Yes	Simult. Gap E/W	On									
Force Mode	Float	Simult. Gap N/S	On									
				Green	22.0	8.5	0.0	0.0	0.0	0.0		
				Yellow	4.0	4.0	0.0	0.0	0.0	0.0		
				Red	2.0	2.0	0.0	0.0	0.0	0.0		



Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	0.899	0.899	1.000	1.000	0.802	0.950	0.883	0.833	0.950	0.883	0.883	0.883
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.664	0.000		0.991	0.863		0.412	0.000		0.425	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.917	0.917		0.000	0.863		0.997	0.997		0.000	0.847
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000			1.000			1.000			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Prot. CAV Adj. Factor ($f_{CAV,prot}$)												
Left-Turn Perm. CAV Adj. Factor ($f_{CAV,perm}$)	1.00			1.00			1.00			1.00		
Movement Saturation Flow Rate (s), veh/h	1161	721	721	101	101	1010	721	1427	27	743	1545	1310
Proportion of Vehicles Arriving on Green (P)	0.20	0.20	0.20	0.20	0.20	0.20	0.52	0.52	0.52	0.52	0.52	0.52
Incremental Delay Factor (k)	0.04	0.04			0.04		0.50	0.50		0.50	0.50	0.50

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)		6.0		6.0		6.0		6.0
Green Ratio (g/C)		0.20		0.20		0.52		0.52
Permitted Saturation Flow Rate (s_p), veh/h/ln		1161		1412		721		743
Shared Saturation Flow Rate (s_{sh}), veh/h/ln				0				
Permitted Effective Green Time (g_p), s		8.5		8.5		22.0		22.0
Permitted Service Time (g_u), s		4.5		8.0		8.2		8.1
Permitted Queue Service Time (g_{ps}), s		0.4		0.0		0.5		0.5
Time to First Blockage (g_f), s		0.0		4.7		0.0		0.0
Queue Service Time Before Blockage (g_{fs}), s				0.1				
Protected Right Saturation Flow (s_R), veh/h/ln								0
Protected Right Effective Green Time (g_R), s								0.0

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.198	0.000	1.389	0.000	0.972	0.000	1.198	0.000
Pedestrian F_s / F_{delay}	0.000	0.105	0.000	0.105	0.000	0.064	0.000	0.064
Pedestrian M_{corner} / M_{cw}	0.00		0.00		0.00		0.00	
Bicycle c_b / d_b	401.65	13.59	401.65	13.59	1034.22	4.96	1034.22	4.96
Bicycle F_w / F_v	-3.64	0.05	-3.64	0.22	-3.64	0.99	-3.64	1.08

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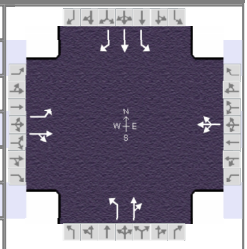
HCS Signalized Intersection Results Graphical Summary

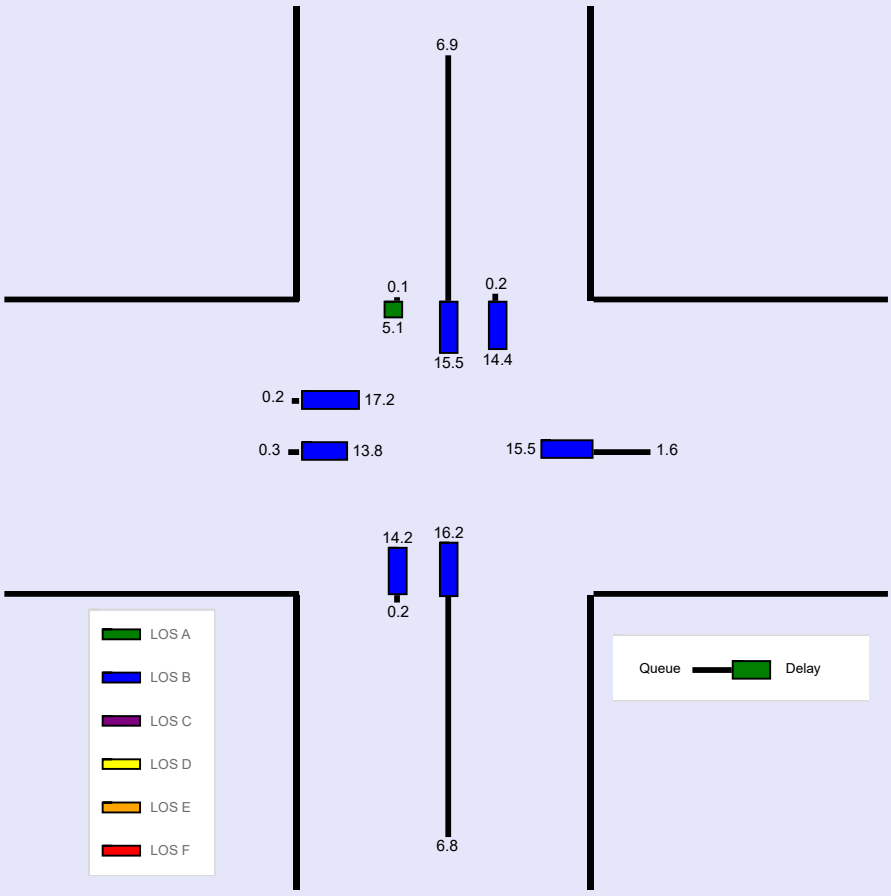
General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	AM Build	PHF	0.92
Urban Street	Columbus Road	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	Columbus - Granview	File Name	13A_AM_Build_Columbus_Granview_2048.xus		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	10	10	10	10	100	10	530	10	10	570	20

Signal Information													
Cycle, s	42.5	Reference Phase	2										
Offset, s	0	Reference Point	End	Green	22.0	8.5	0.0	0.0	0.0	0.0	1	2	3	4
Uncoordinated	Yes	Simult. Gap E/W	On	Yellow	4.0	4.0	0.0	0.0	0.0	0.0	5	6	7	8
Force Mode	Float	Simult. Gap N/S	On	Red	2.0	2.0	0.0	0.0	0.0	0.0				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)	5	8			47		4	189		4	193	3
Back of Queue (*Q*), veh/ln (95 th percentile)	0.2	0.3			1.6		0.2	6.8		0.2	6.9	0.1
Queue Storage Ratio (*RQ*) (95 th percentile)	0.07	0.01			0.04		0.02	0.15		0.02	0.26	0.01
Control Delay (*d*), s/veh	17.2	13.8			15.5		14.2	16.2		14.4	15.5	5.1
Level of Service (LOS)	B	B			B		B	B		B	B	A
Approach Delay, s/veh / LOS	15.0	B		15.5	B		16.2	B		15.2	B	
Intersection Delay, s/veh / LOS	15.6						B					



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--- Messages ---

No errors or warnings exist.

--- Comments ---

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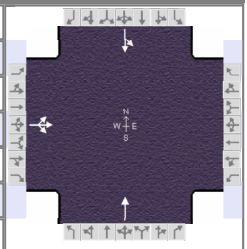
HCS Signalized Intersection Input Data

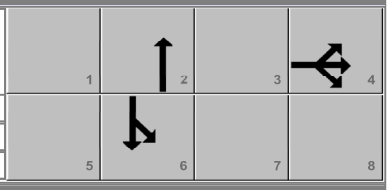
General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	AM Pr. Roadway	PHF	0.92
Urban Street	Columbus Road	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	Columbus - SR161 EB…	File Name	_AM_ProposedRoadway_Columbus (Corridor 13)…		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	70	0	90					290		60	580	

Signal Information			
Cycle, s	70.0	Reference Phase	2
Offset, s	69	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	47.6	10.4	0.0	0.0	0.0	0.0	
Yellow	4.0	4.0	0.0	0.0	0.0	0.0	
Red	2.0	2.0	0.0	0.0	0.0	0.0	



Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	70	0	90					290		60	580	
Initial Queue (Q_b), veh/h	0	0	0					0		0	0	
Base Saturation Flow Rate (s_o), veh/h	1750	1750	1750					1750		1750	1750	
Parking (N_m), man/h		None						None			None	
Heavy Vehicles (P_{HV}), %		14						18			4	
Ped / Bike / RTOR, /h	0	0	0	0	0		0	0		0	0	
Buses (N_b), buses/h	0	0	0				0	0	0	0	0	0
Arrival Type (*AT*)	3	3	3					3		3	3	
Upstream Filtering (*I*)	1.00	1.00	1.00					1.00		0.14	0.14	
Lane Width (*W*), ft		12.0						12.0			12.0	
Turn Bay Length, ft		890						2080			670	
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h	55	55	55					45		45	45	

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s		38.0				32.0		32.0
Yellow Change Interval (*Y*), s		4.0				4.0		4.0
Red Clearance Interval (R_c), s		2.0				2.0		2.0
Minimum Green (G_{min}), s		10				20		20
Start-Up Lost Time (*l1*), s	2.0	2.0				2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0				2.0	2.0	2.0
Passage (*PT*), s		2.0				2.0		2.0
Recall Mode		Off				Max		Max
Dual Entry		Yes				Yes		Yes
Walk (*Walk*), s		0.0		0.0				0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0				0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0				0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0				9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No		0		0.0		No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0				12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No				0.50		No	0.50	

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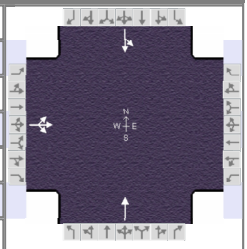
HCS Signalized Intersection Results Summary

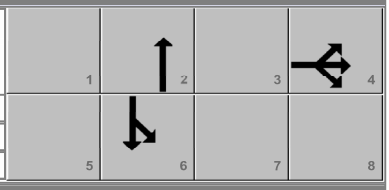
General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	AM Pr. Roadway	PHF	0.92
Urban Street	Columbus Road	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	Columbus - SR161 EB…	File Name	_AM_ProposedRoadway_Columbus (Corridor 13)…		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	70	0	90					290		60	580	

Signal Information			
Cycle, s	70.0	Reference Phase	2
Offset, s	69	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	47.6	10.4	0.0	0.0	0.0	0.0	
Yellow	4.0	4.0	0.0	0.0	0.0	0.0	
Red	2.0	2.0	0.0	0.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4				2		6
Case Number		12.0				8.0		8.0
Phase Duration, s		16.4				53.6		53.6
Change Period, ($Y+R_c$), s		6.0				6.0		6.0
Max Allow Headway (*MAH*), s		3.1				0.0		0.0
Queue Clearance Time (g_s), s		10.5						
Green Extension Time (g_e), s		0.3				0.0		0.0
Phase Call Probability		0.97						
Max Out Probability		0.00						

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14					2		1	6	
Adjusted Flow Rate (*v*), veh/h		174						315			667	
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1388						1504			1634	
Queue Service Time (g_s), s		8.5						5.9			0.0	
Cycle Queue Clearance Time (g_c), s		8.5						5.9			10.8	
Green Ratio (*g/C*)		0.15						0.68			0.68	
Capacity (*c*), veh/h		207						1022			1166	
Volume-to-Capacity Ratio (*X*)		0.840						0.308			0.572	
Back of Queue (*Q*), ft/ln (95 th percentile)		135						66			64	
Back of Queue (*Q*), veh/ln (95 th percentile)		4.8						2.3			2.5	
Queue Storage Ratio (*RQ*) (95 th percentile)		0.15						0.03			0.10	
Uniform Delay (d_1), s/veh		29.0						4.6			3.6	
Incremental Delay (d_2), s/veh		3.5						0.8			0.3	
Initial Queue Delay (d_3), s/veh		0.0						0.0			0.0	
Control Delay (*d*), s/veh		32.5						5.3			3.9	
Level of Service (LOS)		C						A			A	
Approach Delay, s/veh / LOS	32.5		C	0.0			5.3		A	3.9		A
Intersection Delay, s/veh / LOS	8.6						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.71	B	1.71	B	1.33	A	1.33	A
Bicycle LOS Score / LOS	0.77	A			1.01	A	1.64	B

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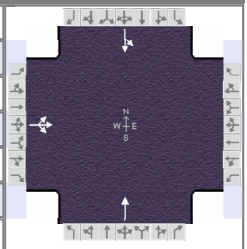
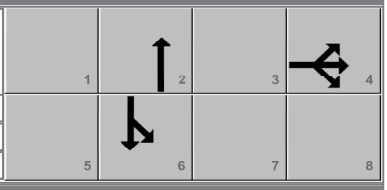
HCS Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	AM Pr. Roadway	PHF	0.92
Urban Street	Columbus Road	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	Columbus - SR161 EB…	File Name	_AM_ProposedRoadway_Columbus (Corridor 13)…		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	70	0	90					290		60	580	

Signal Information			
Cycle, s	70.0	Reference Phase	2
Offset, s	69	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	47.6	10.4	0.0	0.0	0.0	0.0						
Yellow	4.0	4.0	0.0	0.0	0.0	0.0						
Red	2.0	2.0	0.0	0.0	0.0	0.0						

Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000				1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	0.891	0.891	0.945				0.938	0.860	0.945	0.969	0.969	1.000
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	0.000	0.000	0.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	0.000	0.000	0.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000				1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.890	0.890					1.000	1.000		0.964	0.964	
Right-Turn Adjustment Factor (f_{RT})		0.000	0.000					0.000	1.000		0.000	0.964
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000						1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000						1.000			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000				1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000				1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Prot. CAV Adj. Factor ($f_{CAV,prot}$)												
Left-Turn Perm. CAV Adj. Factor ($f_{CAV,perm}$)							1.00			1.00		
Movement Saturation Flow Rate (s), veh/h	607	0	781				0	1504	0	153	1481	0
Proportion of Vehicles Arriving on Green (P)	0.15	0.00	0.15	0.00	0.00	0.00	0.00	0.68	0.00	0.66	0.80	0.00
Incremental Delay Factor (k)		0.04						0.50			0.50	

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)		4.0				6.0		6.0
Green Ratio (g/C)		0.15				0.68		0.68
Permitted Saturation Flow Rate (s_p), veh/h/ln		0				829		1081
Shared Saturation Flow Rate (s_{sh}), veh/h/ln						1504		0
Permitted Effective Green Time (g_p), s		0.0				0.0		47.6
Permitted Service Time (g_u), s		0.0				0.0		41.6
Permitted Queue Service Time (g_{ps}), s								0.0
Time to First Blockage (g_f), s		0.0				47.6		16.0
Queue Service Time Before Blockage (g_{fs}), s								10.8
Protected Right Saturation Flow (s_R), veh/h/ln								
Protected Right Effective Green Time (g_R), s								

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	0.972	0.000	0.972	0.000	0.681	0.000	0.681	0.000
Pedestrian F_s / F_{delay}	0.000	0.143	0.000	0.143	0.000	0.051	0.000	0.051
Pedestrian M_{corner} / M_{cw}	0.00		0.00		0.00		0.00	
Bicycle c_b / d_b	-200.00	42.35		40.18	1358.76	3.60	1358.76	3.60
Bicycle F_w / F_v	-3.64	0.29	-3.64		-3.64	0.52	-3.64	1.15

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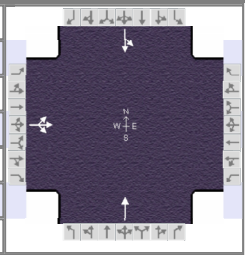
HCS Signalized Intersection Results Graphical Summary

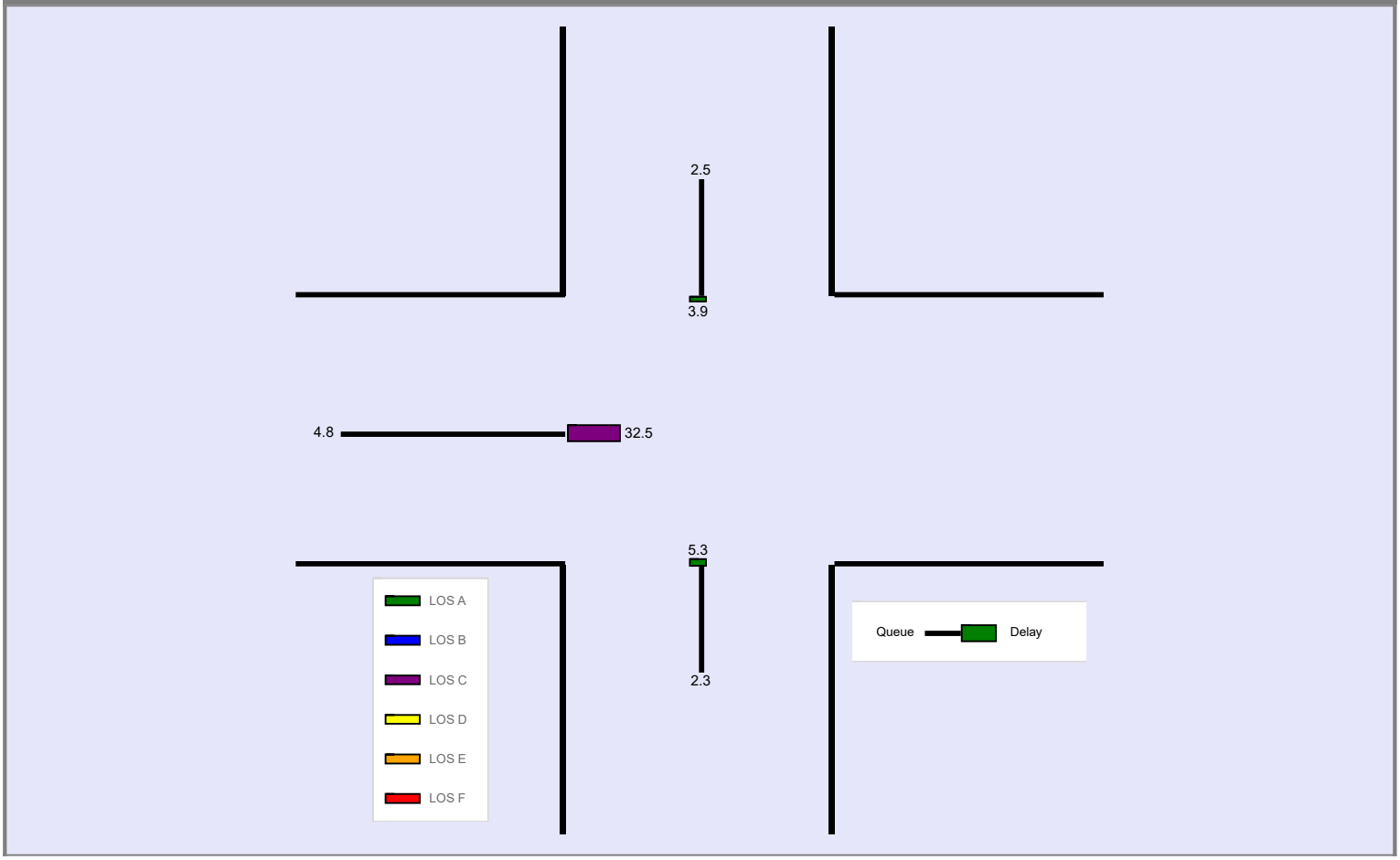
General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	AM Pr. Roadway	PHF	0.92
Urban Street	Columbus Road	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	Columbus - SR161 EB…	File Name	_AM_ProposedRoadway_Columbus (Corridor 13)…		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	70	0	90					290		60	580	

Signal Information													
Cycle, s	70.0	Reference Phase	2								1	2	3	4
Offset, s	69	Reference Point	End								5	6	7	8
Uncoordinated	No	Simult. Gap E/W	On	Green	47.6	10.4	0.0	0.0	0.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	0.0	0.0	0.0	0.0				
				Red	2.0	2.0	0.0	0.0	0.0	0.0				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)		135						66			64	
Back of Queue (*Q*), veh/ln (95 th percentile)		4.8						2.3			2.5	
Queue Storage Ratio (*RQ*) (95 th percentile)		0.15						0.03			0.10	
Control Delay (*d*), s/veh		32.5						5.3			3.9	
Level of Service (LOS)		C						A			A	
Approach Delay, s/veh / LOS	32.5	C		0.0			5.3	A		3.9	A	
Intersection Delay, s/veh / LOS	8.6						A					



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--- Messages ---

No errors or warnings exist.

--- Comments ---

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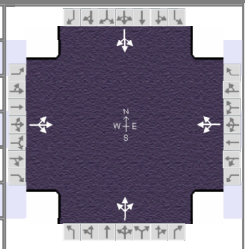
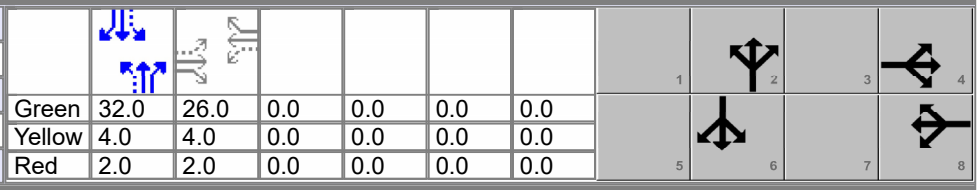
HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	AM Pr. Roadway	PHF	0.92
Urban Street	Columbus Road	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	Columbus - SR-161 WB…	File Name	_AM_ProposedRoadway_Columbus (Corridor 13)…		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	50	10	440	20	10	10	50	280	30	10	180	370

Signal Information			
Cycle, s	70.0	Reference Phase	2
Offset, s	13	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	32.0	26.0	0.0	0.0	0.0	0.0						
Yellow	4.0	4.0	0.0	0.0	0.0	0.0						
Red	2.0	2.0	0.0	0.0	0.0	0.0						

Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	50	10	440	20	10	10	50	280	30	10	180	370
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1750	1750	1750	1750	1750	1900	1750	1750	1900	1750	1750	1750
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %		10			10			16			7	
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	0.92	0.92	0.92	1.00	1.00	1.00
Lane Width (*W*), ft		12.0			12.0			12.0			12.0	
Turn Bay Length, ft		1210			2120			680			1730	
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h	55	55	55	55	55	55	45	45	45	45	45	45

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s		32.0		32.0		38.0		38.0
Yellow Change Interval (*Y*), s		4.0		4.0		4.0		4.0
Red Clearance Interval (R_c), s		2.0		2.0		2.0		2.0
Minimum Green (G_{min}), s		10		10		20		20
Start-Up Lost Time (*l*t), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s		2.0		2.0		2.0		2.0
Recall Mode		Off		Off		Max		Max
Dual Entry		Yes		Yes		Yes		Yes
Walk (*Walk*), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

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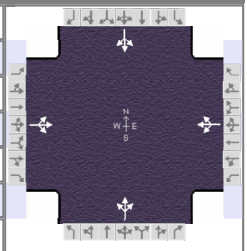
HCS Signalized Intersection Results Summary

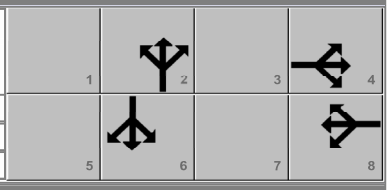
General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	AM Pr. Roadway	PHF	0.92
Urban Street	Columbus Road	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	Columbus - SR-161 WB…	File Name	_AM_ProposedRoadway_Columbus (Corridor 13)…		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	50	10	440	20	10	10	50	280	30	10	180	370

Signal Information			
Cycle, s	70.0	Reference Phase	2
Offset, s	13	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	32.0	26.0	0.0	0.0	0.0	0.0	
Yellow	4.0	4.0	0.0	0.0	0.0	0.0	
Red	2.0	2.0	0.0	0.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		8.0		8.0		8.0		8.0
Phase Duration, s		32.0		32.0		38.0		38.0
Change Period, ($Y+R_c$), s		6.0		6.0		6.0		6.0
Max Allow Headway (*MAH*), s		3.2		3.2		0.0		0.0
Queue Clearance Time (g_s), s		28.0		3.3				
Green Extension Time (g_e), s		0.0		1.3		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		1.00		0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h		543			43			391			609	
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1374			611			1258			1473	
Queue Service Time (g_s), s		17.3			0.0			0.0			5.5	
Cycle Queue Clearance Time (g_c), s		26.0			1.3			14.3			26.7	
Green Ratio (*g/C*)		0.37			0.37			0.46			0.46	
Capacity (*c*), veh/h		567			304			634			726	
Volume-to-Capacity Ratio (*X*)		0.959			0.143			0.617			0.839	
Back of Queue (*Q*), ft/ln (95 th percentile)		466			18			210			383	
Back of Queue (*Q*), veh/ln (95 th percentile)		17.3			0.7			7.5			14.5	
Queue Storage Ratio (*RQ*) (95 th percentile)		0.39			0.01			0.31			0.22	
Uniform Delay (d_1), s/veh		22.7			14.2			13.4			17.5	
Incremental Delay (d_2), s/veh		27.5			0.1			4.1			11.2	
Initial Queue Delay (d_3), s/veh		0.0			0.0			0.0			0.0	
Control Delay (*d*), s/veh		50.2			14.3			17.5			28.7	
Level of Service (LOS)		D			B			B			C	
Approach Delay, s/veh / LOS	50.2	D		14.3	B		17.5	B		28.7	C	
Intersection Delay, s/veh / LOS	32.9						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.68	B	1.68	B	1.67	B	1.67	B
Bicycle LOS Score / LOS	1.38	A	0.56	A	1.13	A	1.49	A

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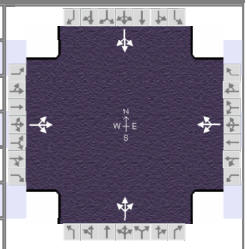
HCS Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	AM Pr. Roadway	PHF	0.92
Urban Street	Columbus Road	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	Columbus - SR-161 WB…	File Name	_AM_ProposedRoadway_Columbus (Corridor 13)…		
Project Description	FRA/LIC-161-22.1/0.00				

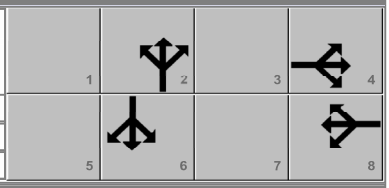


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	50	10	440	20	10	10	50	280	30	10	180	370

Signal Information			
Cycle, s	70.0	Reference Phase	2
Offset, s	13	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	32.0	26.0	0.0	0.0	0.0	0.0
Yellow	4.0	4.0	0.0	0.0	0.0	0.0
Red	2.0	2.0	0.0	0.0	0.0	0.0



Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	0.852	0.922	0.922	0.883	0.922	1.000	0.875	0.875	1.000	0.953	0.945	0.945
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.984	0.852		0.382	0.379		0.829	0.822		0.996	0.891	
Right-Turn Adjustment Factor (f_{RT})		0.000	0.852		0.000	0.379		0.000	0.822		0.000	0.891
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000			1.000			1.000			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Prot. CAV Adj. Factor ($f_{CAV,prot}$)												
Left-Turn Perm. CAV Adj. Factor ($f_{CAV,perm}$)	1.00			1.00			1.00			1.00		
Movement Saturation Flow Rate (s), veh/h	137	27	1209	306	153	153	175	979	105	26	474	974
Proportion of Vehicles Arriving on Green (P)	0.37	0.37	0.37	0.37	0.37	0.37	0.60	0.45	0.54	0.46	0.46	0.46
Incremental Delay Factor (k)		0.46			0.04			0.50			0.50	

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)		6.0		6.0		6.0		6.0
Green Ratio (g/C)		0.37		0.37		0.46		0.46
Permitted Saturation Flow Rate (s_p), veh/h/ln		1412		922		833		1060
Shared Saturation Flow Rate (s_{sh}), veh/h/ln		1576		533		1061		1635
Permitted Effective Green Time (g_p), s		26.0		26.0		32.0		32.0
Permitted Service Time (g_u), s		24.7		0.0		5.3		17.7
Permitted Queue Service Time (g_{ps}), s		17.3		0.0		0.0		5.5
Time to First Blockage (g_f), s		8.7		2.0		11.1		21.2
Queue Service Time Before Blockage (g_{fs}), s		8.7		0.9		11.1		9.8
Protected Right Saturation Flow (s_R), veh/h/ln								
Protected Right Effective Green Time (g_R), s								

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	0.972	0.000	0.972	0.000	0.972	0.000	0.972	0.000
Pedestrian F_s / F_{delay}	0.000	0.105	0.000	0.105	0.000	0.094	0.000	0.094
Pedestrian M_{corner} / M_{cw}	0.00		0.00		0.00		0.00	
Bicycle c_b / d_b	742.86	13.83	742.86	13.83	914.29	10.31	914.29	10.31
Bicycle F_w / F_v	-3.64	0.90	-3.64	0.07	-3.64	0.65	-3.64	1.00

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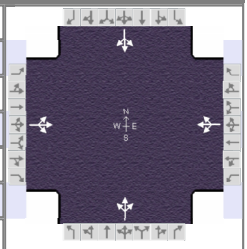
HCS Signalized Intersection Results Graphical Summary

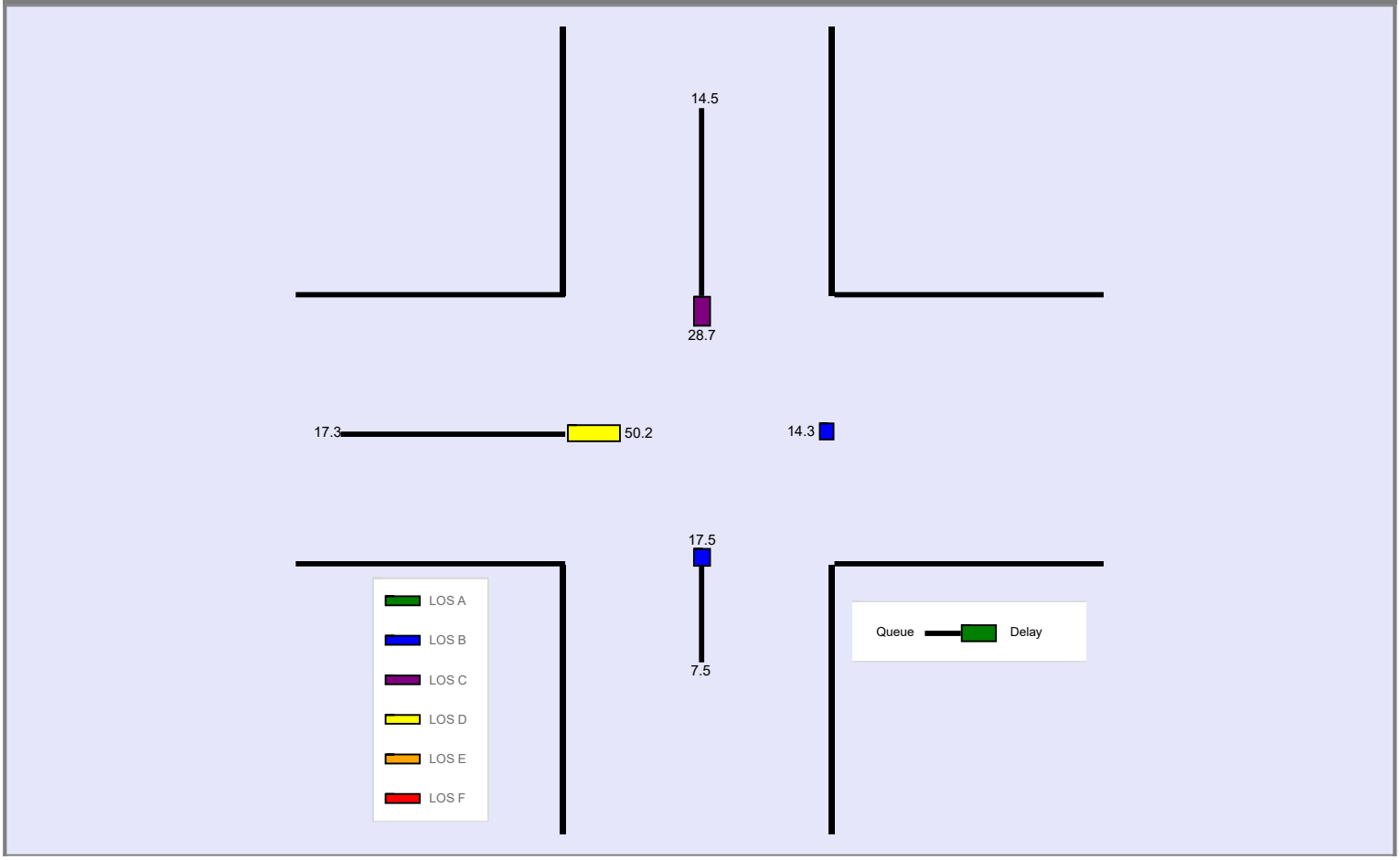
General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	AM Pr. Roadway	PHF	0.92
Urban Street	Columbus Road	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	Columbus - SR-161 WB…	File Name	_AM_ProposedRoadway_Columbus (Corridor 13)…		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	50	10	440	20	10	10	50	280	30	10	180	370

Signal Information													
Cycle, s	70.0	Reference Phase	2										
Offset, s	13	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On	Green	32.0	26.0	0.0	0.0	0.0	0.0	1	2	3	4
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	0.0	0.0	0.0	0.0	5	6	7	8
				Red	2.0	2.0	0.0	0.0	0.0	0.0				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)		466			18			210			383	
Back of Queue (*Q*), veh/ln (95 th percentile)		17.3			0.7			7.5			14.5	
Queue Storage Ratio (*RQ*) (95 th percentile)		0.39			0.01			0.31			0.22	
Control Delay (*d*), s/veh		50.2			14.3			17.5			28.7	
Level of Service (LOS)		D			B			B			C	
Approach Delay, s/veh / LOS	50.2	D		14.3	B		17.5	B		28.7	C	
Intersection Delay, s/veh / LOS	32.9						C					



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--- Messages ---

No errors or warnings exist.

--- Comments ---

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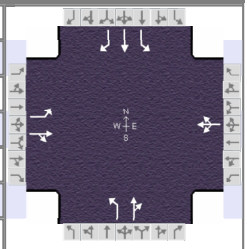
SR-16 (Signalized) - PM Build

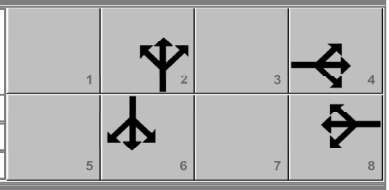
HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	PM Build	PHF	0.92
Urban Street	Columbus Road	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	Columbus - Granview	File Name	13A_PM_Build_Columbus_Granview_2048.xus		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	50	10	10	10	10	110	10	790	10	100	580	20

Signal Information													
Cycle, s	51.6	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	Yes	Simult. Gap E/W	On	Green	30.0	9.6	0.0	0.0	0.0	0.0			
Force Mode	Float	Simult. Gap N/S	On	Yellow	4.0	4.0	0.0	0.0	0.0	0.0			
				Red	2.0	2.0	0.0	0.0	0.0	0.0			



Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	50	10	10	10	10	110	10	790	10	100	580	20
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1750	1750	1900	1900	1750	1900	1750	1750	1900	1750	1750	1750
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	6	6			3		2	2		4	4	4
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (*W*), ft	12.0	12.0			12.0		12.0	12.0		12.0	12.0	12.0
Turn Bay Length, ft	70	635			1110		225	1290		245	750	225
Grade (*Pg*), %		0			4			4			0	
Speed Limit, mi/h	15	15	15	40	40	40	45	45	45	45	45	45

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s		10.0		10.0		20.0		30.0
Yellow Change Interval (*Y*), s		4.0		4.0		4.0		4.0
Red Clearance Interval (R_c), s		2.0		2.0		2.0		2.0
Minimum Green (G_{min}), s		10		10		20		20
Start-Up Lost Time (*l*t), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s		2.0		2.0		2.0		2.0
Recall Mode		Off		Off		Max		Max
Dual Entry		Yes		Yes		Yes		Yes
Walk (*Walk*), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

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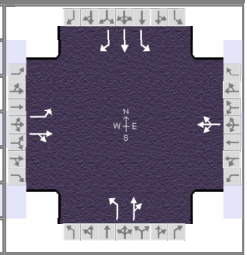
HCS Signalized Intersection Results Summary

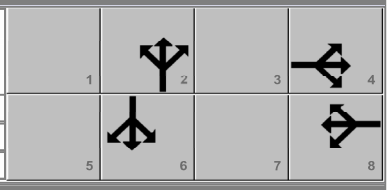
General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	PM Build	PHF	0.92
Urban Street	Columbus Road	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	Columbus - Granview	File Name	13A_PM_Build_Columbus_Granview_2048.xus		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	50	10	10	10	10	110	10	790	10	100	580	20

Signal Information			
Cycle, s	51.6	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Float	Simult. Gap N/S	On

Green	30.0	9.6	0.0	0.0	0.0	0.0	
Yellow	4.0	4.0	0.0	0.0	0.0	0.0	
Red	2.0	2.0	0.0	0.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		6.0		8.0		6.0		5.0
Phase Duration, s		15.6		15.6		36.0		36.0
Change Period, ($Y+R_c$), s		6.0		6.0		6.0		6.0
Max Allow Headway (*MAH*), s		3.4		3.4		3.1		3.1
Queue Clearance Time (g_s), s		8.9		6.7		26.6		32.0
Green Extension Time (g_e), s		0.1		0.2		0.0		0.0
Phase Call Probability		0.96		0.96		1.00		1.00
Max Out Probability		1.00		1.00		1.00		1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	54	22			141		11	870		109	630	22
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1220	1530			1398		796	1632		627	1695	1437
Queue Service Time (g_s), s	2.2	0.6			0.0		0.5	24.6		5.4	12.8	0.3
Cycle Queue Clearance Time (g_c), s	6.9	0.6			4.7		13.2	24.6		30.0	12.8	0.3
Green Ratio (*g/C*)	0.19	0.19			0.19		0.58	0.58		0.58	0.58	0.58
Capacity (*c*), veh/h	255	284			334		406	950		205	987	836
Volume-to-Capacity Ratio (*X*)	0.213	0.077			0.423		0.027	0.916		0.529	0.639	0.026
Back of Queue (*Q*), ft/ln (95 th percentile)	29	10			61		4	335		79	153	3
Back of Queue (*Q*), veh/ln (95 th percentile)	1.1	0.4			2.4		0.1	13.2		3.1	5.9	0.1
Queue Storage Ratio (*RQ*) (95 th percentile)	0.42	0.02			0.06		0.02	0.26		0.32	0.20	0.01
Uniform Delay (d_1), s/veh	22.1	17.4			19.0		11.6	9.6		24.1	7.2	4.6
Incremental Delay (d_2), s/veh	0.2	0.0			0.3		0.1	14.8		9.4	3.2	0.1
Initial Queue Delay (d_3), s/veh	0.0	0.0			0.0		0.0	0.0		0.0	0.0	0.0
Control Delay (*d*), s/veh	22.3	17.4			19.3		11.7	24.4		33.6	10.3	4.6
Level of Service (LOS)	C	B			B		B	C		C	B	A
Approach Delay, s/veh / LOS	20.9	C		19.3	B		24.3	C		13.5	B	
Intersection Delay, s/veh / LOS	19.3						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.91	B	2.10	B	1.63	B	1.86	B
Bicycle LOS Score / LOS	0.61	A	0.72	A	1.94	B	1.74	B

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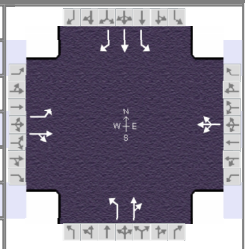
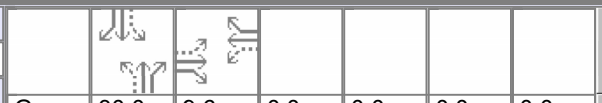
HCS Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	PM Build	PHF	0.92
Urban Street	Columbus Road	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	Columbus - Granview	File Name	13A_PM_Build_Columbus_Granview_2048.xus		
Project Description	FRA/LIC-161-22.1/0.00				

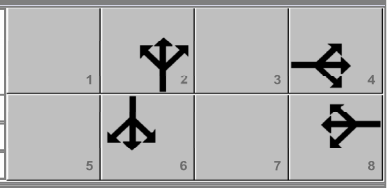


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	50	10	10	10	10	110	10	790	10	100	580	20

Signal Information			
Cycle, s	51.6	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	Yes	Simult. Gap E/W	On
Force Mode	Float	Simult. Gap N/S	On



Green	30.0	9.6	0.0	0.0	0.0	0.0						
Yellow	4.0	4.0	0.0	0.0	0.0	0.0						
Red	2.0	2.0	0.0	0.0	0.0	0.0						



Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	0.953	0.953	1.000	1.000	0.927	0.950	0.984	0.935	0.950	0.969	0.969	0.969
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.697	0.000		0.992	0.862		0.455	0.000		0.358	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.917	0.917		0.000	0.862		0.998	0.998		0.000	0.847
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000			1.000			1.000			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Prot. CAV Adj. Factor ($f_{CAV,prot}$)												
Left-Turn Perm. CAV Adj. Factor ($f_{CAV,perm}$)	1.00			1.00			1.00			1.00		
Movement Saturation Flow Rate (s), veh/h	1220	765	765	108	108	1183	796	1612	20	627	1695	1437
Proportion of Vehicles Arriving on Green (P)	0.19	0.19	0.19	0.19	0.19	0.19	0.58	0.58	0.58	0.58	0.58	0.58
Incremental Delay Factor (k)	0.04	0.04			0.04		0.50	0.50		0.50	0.50	0.50

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)		6.0		6.0		6.0		6.0
Green Ratio (g/C)		0.19		0.19		0.58		0.58
Permitted Saturation Flow Rate (s_p), veh/h/ln		1220		1412		796		627
Shared Saturation Flow Rate (s_{sh}), veh/h/ln				0				
Permitted Effective Green Time (g_p), s		9.6		9.6		30.0		30.0
Permitted Service Time (g_u), s		4.9		9.0		17.2		5.4
Permitted Queue Service Time (g_{ps}), s		2.2		0.0		0.5		5.4
Time to First Blockage (g_f), s		0.0		5.3		0.0		0.0
Queue Service Time Before Blockage (g_{fs}), s				0.0				
Protected Right Saturation Flow (s_R), veh/h/ln								0
Protected Right Effective Green Time (g_R), s								0.0

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.198	0.000	1.389	0.000	0.972	0.000	1.198	0.000
Pedestrian F_s / F_{delay}	0.000	0.114	0.000	0.114	0.000	0.060	0.000	0.060
Pedestrian M_{corner} / M_{cw}	0.00		0.00		0.00		0.00	
Bicycle c_b / d_b	370.69	17.11	370.69	17.11	1163.78	4.51	1163.80	4.51
Bicycle F_w / F_v	-3.64	0.13	-3.64	0.23	-3.64	1.45	-3.64	1.26

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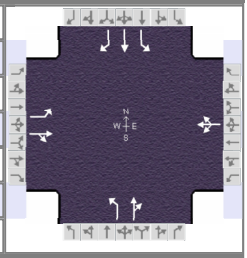
HCS Signalized Intersection Results Graphical Summary

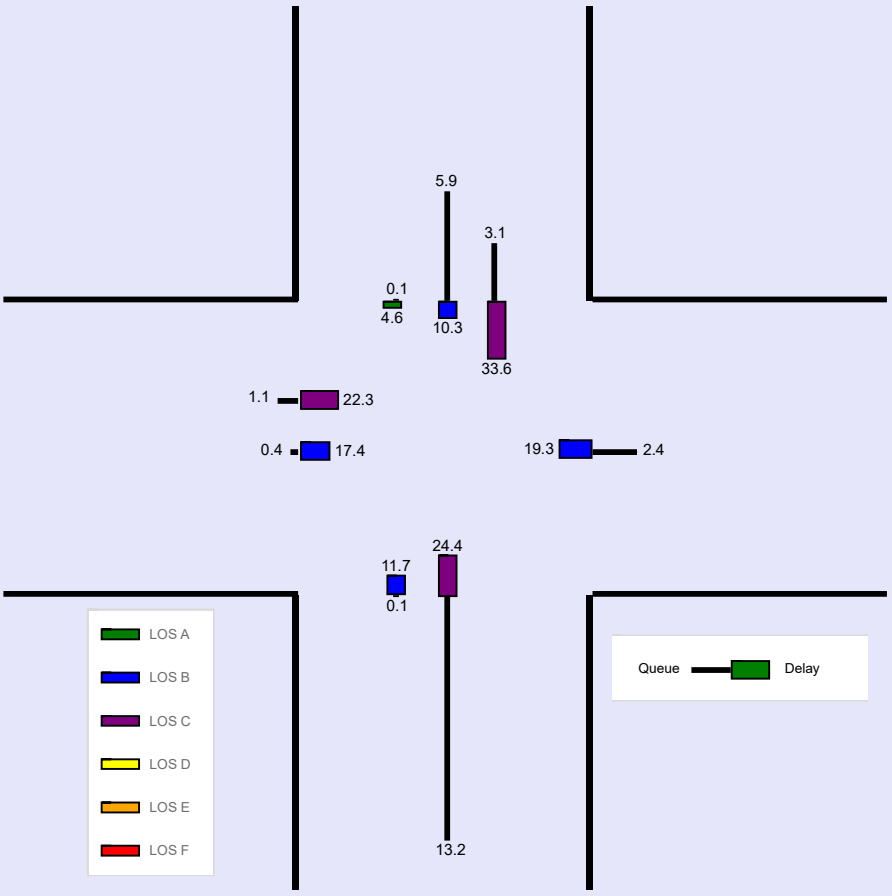
General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	PM Build	PHF	0.92
Urban Street	Columbus Road	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	Columbus - Granview	File Name	13A_PM_Build_Columbus_Granview_2048.xus		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	50	10	10	10	10	110	10	790	10	100	580	20

Signal Information					EB			WB			NB			SB		
Cycle, s	51.6	Reference Phase	2													
Offset, s	0	Reference Point	End	Green	30.0	9.6		0.0	0.0		0.0	0.0		0.0	0.0	
Uncoordinated	Yes	Simult. Gap E/W	On	Yellow	4.0	4.0		0.0	0.0		0.0	0.0		0.0	0.0	
Force Mode	Float	Simult. Gap N/S	On	Red	2.0	2.0		0.0	0.0		0.0	0.0		0.0	0.0	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)	29	10			61		4	335		79	153	3
Back of Queue (*Q*), veh/ln (95 th percentile)	1.1	0.4			2.4		0.1	13.2		3.1	5.9	0.1
Queue Storage Ratio (*RQ*) (95 th percentile)	0.42	0.02			0.06		0.02	0.26		0.32	0.20	0.01
Control Delay (*d*), s/veh	22.3	17.4			19.3		11.7	24.4		33.6	10.3	4.6
Level of Service (LOS)	C	B			B		B	C		C	B	A
Approach Delay, s/veh / LOS	20.9	C		19.3	B		24.3	C		13.5	B	
Intersection Delay, s/veh / LOS	19.3						B					



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--- Messages ---

No errors or warnings exist.

--- Comments ---

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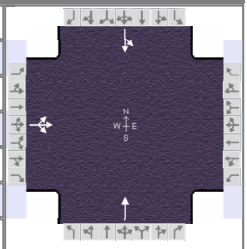
HCS Signalized Intersection Input Data

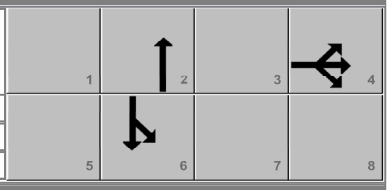
General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	PM Pr. Roadway	PHF	0.92
Urban Street	Columbus Road	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	Columbus - SR161 EB…	File Name	_PM_ProposedRoadway_Columbus (Corridor 13)…		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	120	0	50					340		70	560	

Signal Information			
Cycle, s	70.0	Reference Phase	2
Offset, s	69	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	47.9	10.1	0.0	0.0	0.0	0.0	
Yellow	4.0	4.0	0.0	0.0	0.0	0.0	
Red	2.0	2.0	0.0	0.0	0.0	0.0	



Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	120	0	50					340		70	560	
Initial Queue (Q_b), veh/h	0	0	0					0		0	0	
Base Saturation Flow Rate (s_o), veh/h	1750	1750	1750					1750		1750	1750	
Parking (N_m), man/h		None						None			None	
Heavy Vehicles (P_{HV}), %		6						2			4	
Ped / Bike / RTOR, /h	0	0	0	0	0		0	0		0	0	
Buses (N_b), buses/h	0	0	0				0	0	0	0	0	0
Arrival Type (*AT*)	3	3	3					3		3	3	
Upstream Filtering (*I*)	1.00	1.00	1.00					1.00		0.61	0.61	
Lane Width (*W*), ft		12.0						12.0			12.0	
Turn Bay Length, ft		890						2080			670	
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h	55	55	55					45		45	45	

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s		25.0				45.0		45.0
Yellow Change Interval (*Y*), s		4.0				4.0		4.0
Red Clearance Interval (R_c), s		2.0				2.0		2.0
Minimum Green (G_{min}), s		10				20		20
Start-Up Lost Time (*lt*), s	2.0	2.0				2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0				2.0	2.0	2.0
Passage (*PT*), s		2.0				2.0		2.0
Recall Mode		Off				Max		Max
Dual Entry		Yes				Yes		Yes
Walk (*Walk*), s		0.0		0.0				0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0				0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0				0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0				9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No		0		0.0		No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0				12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No				0.50		No	0.50	

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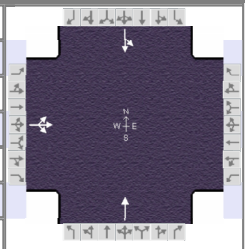
HCS Signalized Intersection Results Summary

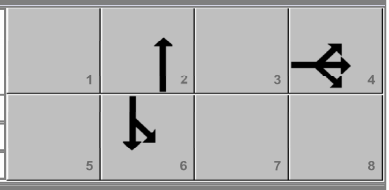
General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	PM Pr. Roadway	PHF	0.92
Urban Street	Columbus Road	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	Columbus - SR161 EB…	File Name	_PM_ProposedRoadway_Columbus (Corridor 13)…		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	120	0	50					340		70	560	

Signal Information			
Cycle, s	70.0	Reference Phase	2
Offset, s	69	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	47.9	10.1	0.0	0.0	0.0	0.0	
Yellow	4.0	4.0	0.0	0.0	0.0	0.0	
Red	2.0	2.0	0.0	0.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4				2		6
Case Number		12.0				8.0		8.0
Phase Duration, s		16.1				53.9		53.9
Change Period, (*Y+R c*), s		6.0				6.0		6.0
Max Allow Headway (*MAH*), s		3.0				0.0		0.0
Queue Clearance Time (*g s*), s		10.2						
Green Extension Time (*g e*), s		0.2				0.0		0.0
Phase Call Probability		0.97						
Max Out Probability		0.00						

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14					2		1	6	
Adjusted Flow Rate (*v*), veh/h		185						370			685	
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1533						1723			1609	
Queue Service Time (*g s*), s		8.2						6.0			0.5	
Cycle Queue Clearance Time (*g c*), s		8.2						6.0			14.4	
Green Ratio (*g/C*)		0.14						0.68			0.68	
Capacity (*c*), veh/h		222						1178			1157	
Volume-to-Capacity Ratio (*X*)		0.834						0.314			0.592	
Back of Queue (*Q*), ft/ln (95 th percentile)		134						66			138	
Back of Queue (*Q*), veh/ln (95 th percentile)		5.1						2.6			5.4	
Queue Storage Ratio (*RQ*) (95 th percentile)		0.15						0.03			0.21	
Uniform Delay (*d 1*), s/veh		29.1						4.4			5.4	
Incremental Delay (*d 2*), s/veh		3.1						0.7			1.4	
Initial Queue Delay (*d 3*), s/veh		0.0						0.0			0.0	
Control Delay (*d*), s/veh		32.3						5.1			6.8	
Level of Service (LOS)		C						A			A	
Approach Delay, s/veh / LOS	32.3	C		0.0			5.1	A		6.8	A	
Intersection Delay, s/veh / LOS	10.1						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.71	B	1.71	B	1.33	A	1.33	A
Bicycle LOS Score / LOS	0.79	A			1.10	A	1.62	B

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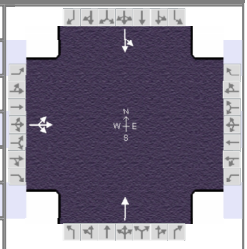
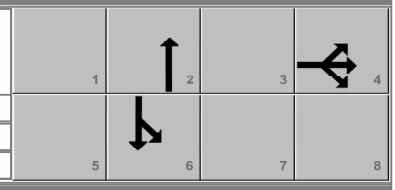
HCS Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	PM Pr. Roadway	PHF	0.92
Urban Street	Columbus Road	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	Columbus - SR161 EB…	File Name	_PM_ProposedRoadway_Columbus (Corridor 13)…		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	120	0	50					340		70	560	

Signal Information			
Cycle, s	70.0	Reference Phase	2
Offset, s	69	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	47.9	10.1	0.0	0.0	0.0	0.0						
Yellow	4.0	4.0	0.0	0.0	0.0	0.0						
Red	2.0	2.0	0.0	0.0	0.0	0.0						

Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000				1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	0.953	0.953	0.945				0.938	0.984	0.860	0.969	0.969	1.000
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	0.000	0.000	0.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	0.000	0.000	0.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000				1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.919	0.919					1.000	1.000		0.949	0.949	
Right-Turn Adjustment Factor (f_{RT})		0.000	0.000					0.000	1.000		0.000	0.949
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000						1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000						1.000			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000				1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000				1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Prot. CAV Adj. Factor ($f_{CAV,prot}$)												
Left-Turn Perm. CAV Adj. Factor ($f_{CAV,perm}$)							1.00			1.00		
Movement Saturation Flow Rate (s), veh/h	1082	0	451				0	1723	0	179	1430	0
Proportion of Vehicles Arriving on Green (P)	0.14	0.00	0.14	0.00	0.00	0.00	0.00	0.68	0.00	0.63	0.71	0.00
Incremental Delay Factor (k)		0.04						0.50			0.50	

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)		4.0				6.0		6.0
Green Ratio (g/C)		0.14				0.68		0.68
Permitted Saturation Flow Rate (s_p), veh/h/ln		0				825		1029
Shared Saturation Flow Rate (s_{sh}), veh/h/ln						1723		0
Permitted Effective Green Time (g_p), s		0.0				0.0		47.9
Permitted Service Time (g_u), s		0.0				0.0		41.8
Permitted Queue Service Time (g_{ps}), s								0.5
Time to First Blockage (g_f), s		0.0				47.9		13.9
Queue Service Time Before Blockage (g_{fs}), s								13.9
Protected Right Saturation Flow (s_R), veh/h/ln								
Protected Right Effective Green Time (g_R), s								

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	0.972	0.000	0.972	0.000	0.681	0.000	0.681	0.000
Pedestrian F_s / F_{delay}	0.000	0.143	0.000	0.143	0.000	0.050	0.000	0.050
Pedestrian M_{corner} / M_{cw}	0.00		0.00		0.00		0.00	
Bicycle c_b / d_b	-200.00	42.35		40.18	1368.11	3.49	1368.11	3.49
Bicycle F_w / F_v	-3.64	0.30	-3.64		-3.64	0.61	-3.64	1.13

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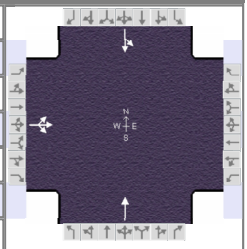
HCS Signalized Intersection Results Graphical Summary

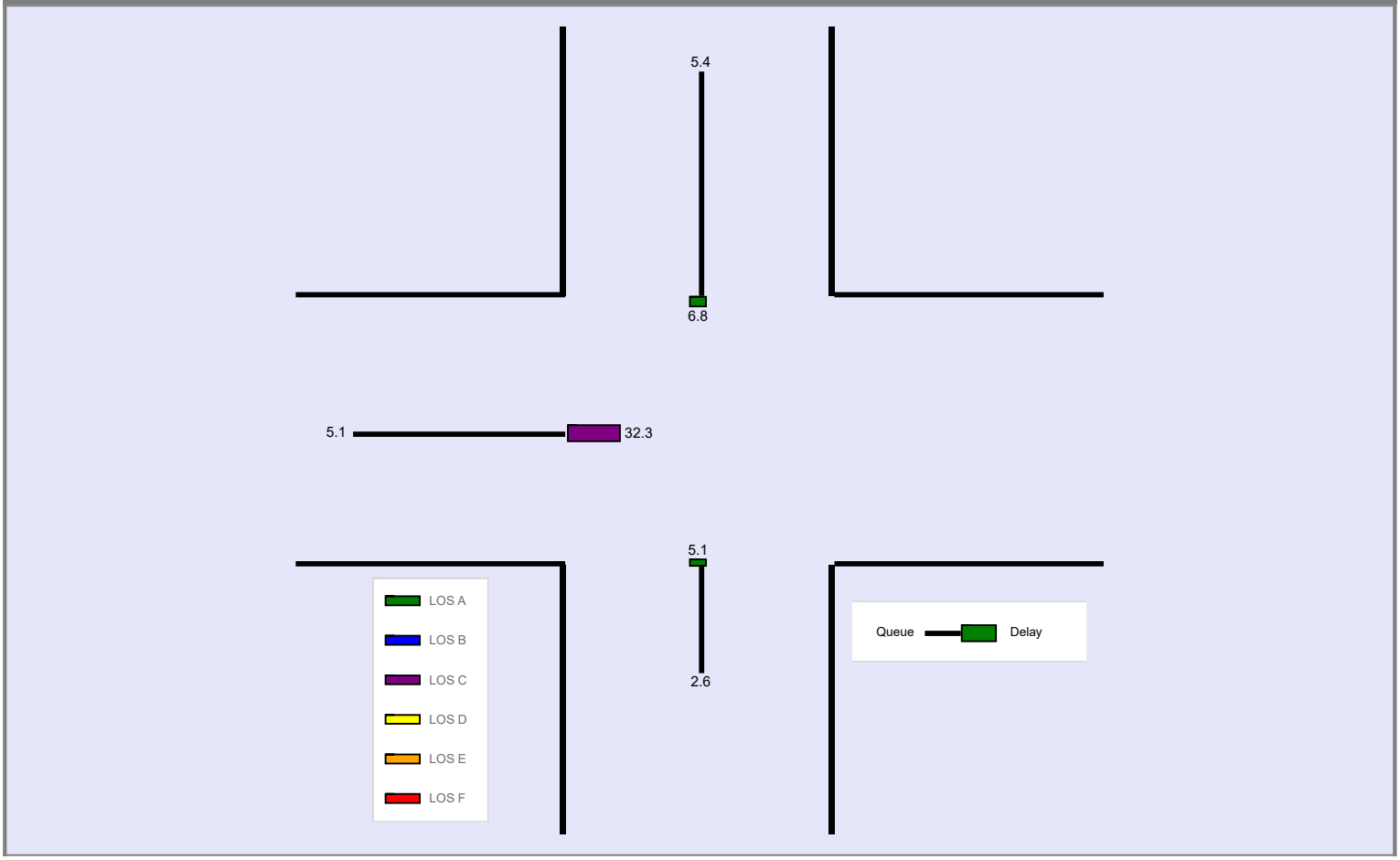
General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	PM Pr. Roadway	PHF	0.92
Urban Street	Columbus Road	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	Columbus - SR161 EB…	File Name	_PM_ProposedRoadway_Columbus (Corridor 13)…		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	120	0	50					340		70	560	

Signal Information													
Cycle, s	70.0	Reference Phase	2										
Offset, s	69	Reference Point	End							1	2	3	4
Uncoordinated	No	Simult. Gap E/W	On	Green	47.9	10.1	0.0	0.0	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	0.0	0.0	0.0	0.0			
				Red	2.0	2.0	0.0	0.0	0.0	0.0	5	6	7	8

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)		134						66			138	
Back of Queue (*Q*), veh/ln (95 th percentile)		5.1						2.6			5.4	
Queue Storage Ratio (*RQ*) (95 th percentile)		0.15						0.03			0.21	
Control Delay (*d*), s/veh		32.3						5.1			6.8	
Level of Service (LOS)		C						A			A	
Approach Delay, s/veh / LOS	32.3	C		0.0			5.1	A		6.8	A	
Intersection Delay, s/veh / LOS	10.1						B					



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--- Messages ---

No errors or warnings exist.

--- Comments ---

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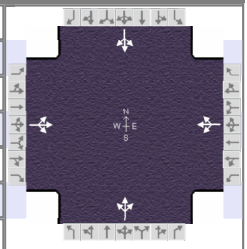
HCS Signalized Intersection Input Data

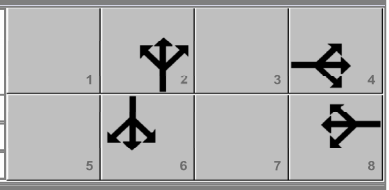
General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	PM Pr. Roadway	PHF	0.92
Urban Street	Columbus Road	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	Columbus Rd - SR-161…	File Name	_PM_ProposedRoadway_Columbus (Corridor 13)…		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	40	10	370	40	10	10	80	350	30	10	220	140

Signal Information			
Cycle, s	70.0	Reference Phase	2
Offset, s	30	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	33.9	24.1	0.0	0.0	0.0	0.0	
Yellow	4.0	4.0	0.0	0.0	0.0	0.0	
Red	2.0	2.0	0.0	0.0	0.0	0.0	



Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	40	10	370	40	10	10	80	350	30	10	220	140
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1750	1750	1750	1750	1750	1900	1750	1750	1900	1750	1750	1750
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %		4			4			4			5	
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	0.89	0.89	0.89	1.00	1.00	1.00
Lane Width (*W*), ft		12.0			12.0			12.0			12.0	
Turn Bay Length, ft		1210			2120			680			1730	
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h	55	55	55	55	55	55	45	45	45	45	45	45

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s		43.0		43.0		27.0		27.0
Yellow Change Interval (*Y*), s		4.0		4.0		4.0		4.0
Red Clearance Interval (R_c), s		2.0		2.0		2.0		2.0
Minimum Green (G_{min}), s		10		10		20		20
Start-Up Lost Time (*l*t), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (*PT*), s		2.0		2.0		2.0		2.0
Recall Mode		Off		Off		Max		Max
Dual Entry		Yes		Yes		Yes		Yes
Walk (*Walk*), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (*PC*), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

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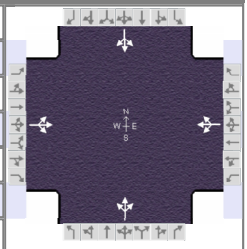
HCS Signalized Intersection Results Summary

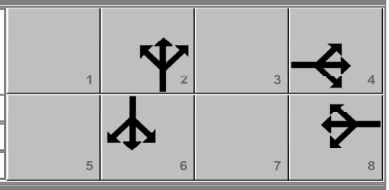
General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	PM Pr. Roadway	PHF	0.92
Urban Street	Columbus Road	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	Columbus Rd - SR-161…	File Name	_PM_ProposedRoadway_Columbus (Corridor 13)…		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	40	10	370	40	10	10	80	350	30	10	220	140

Signal Information			
Cycle, s	70.0	Reference Phase	2
Offset, s	30	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	33.9	24.1	0.0	0.0	0.0	0.0	
Yellow	4.0	4.0	0.0	0.0	0.0	0.0	
Red	2.0	2.0	0.0	0.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		8.0		8.0		8.0		8.0
Phase Duration, s		30.1		30.1		39.9		39.9
Change Period, ($Y+R_c$), s		6.0		6.0		6.0		6.0
Max Allow Headway (*MAH*), s		3.2		3.2		0.0		0.0
Queue Clearance Time (g_s), s		23.1		6.2				
Green Extension Time (g_e), s		1.0		1.1		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h		457			65			500			402	
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1446			629			1535			1564	
Queue Service Time (g_s), s		12.0			0.0			2.9			0.0	
Cycle Queue Clearance Time (g_c), s		21.1			4.2			15.3			12.4	
Green Ratio (*g/C*)		0.34			0.34			0.48			0.48	
Capacity (*c*), veh/h		555			303			803			809	
Volume-to-Capacity Ratio (*X*)		0.823			0.215			0.623			0.497	
Back of Queue (*Q*), ft/ln (95 th percentile)		267			29			200			187	
Back of Queue (*Q*), veh/ln (95 th percentile)		10.3			1.1			7.7			7.2	
Queue Storage Ratio (*RQ*) (95 th percentile)		0.22			0.01			0.29			0.11	
Uniform Delay (d_1), s/veh		21.9			16.0			11.3			12.5	
Incremental Delay (d_2), s/veh		2.7			0.1			3.2			2.2	
Initial Queue Delay (d_3), s/veh		0.0			0.0			0.0			0.0	
Control Delay (*d*), s/veh		24.6			16.1			14.5			14.7	
Level of Service (LOS)		C			B			B			B	
Approach Delay, s/veh / LOS	24.6	C		16.1	B		14.5	B		14.7	B	
Intersection Delay, s/veh / LOS	17.9						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.68	B	1.68	B	1.66	B	1.66	B
Bicycle LOS Score / LOS	1.24	A	0.60	A	1.31	A	1.15	A

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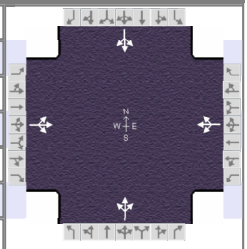
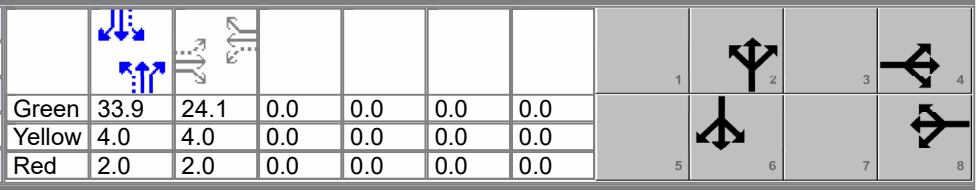
HCS Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	PM Pr. Roadway	PHF	0.92
Urban Street	Columbus Road	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	Columbus Rd - SR-161…	File Name	_PM_ProposedRoadway_Columbus (Corridor 13)…		
Project Description	FRA/LIC-161-22.1/0.00				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	40	10	370	40	10	10	80	350	30	10	220	140

Signal Information			
Cycle, s	70.0	Reference Phase	2
Offset, s	30	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	33.9	24.1	0.0	0.0	0.0	0.0						
Yellow	4.0	4.0	0.0	0.0	0.0	0.0						
Red	2.0	2.0	0.0	0.0	0.0	0.0						

Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	0.852	0.969	0.969	0.883	0.969	1.000	0.969	0.969	1.000	0.953	0.961	0.961
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.986	0.853		0.374	0.371		0.914	0.906		0.993	0.930	
Right-Turn Adjustment Factor (f_{RT})		0.000	0.853		0.000	0.371		0.000	0.906		0.000	0.930
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000			1.000			1.000			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Prot. CAV Adj. Factor ($f_{CAV,prot}$)												
Left-Turn Perm. CAV Adj. Factor ($f_{CAV,perm}$)	1.00			1.00			1.00			1.00		
Movement Saturation Flow Rate (s), veh/h	138	34	1274	419	105	105	267	1168	100	42	930	592
Proportion of Vehicles Arriving on Green (P)	0.34	0.34	0.34	0.34	0.34	0.34	0.42	0.59	0.49	0.48	0.48	0.48
Incremental Delay Factor (k)		0.09			0.04			0.50			0.50	

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)		6.0		6.0		6.0		6.0
Green Ratio (g/C)		0.34		0.34		0.48		0.48
Permitted Saturation Flow Rate (s_p), veh/h/ln		1412		988		1008		988
Shared Saturation Flow Rate (s_{sh}), veh/h/ln		1658		508		1503		1647
Permitted Effective Green Time (g_p), s		24.1		24.1		33.9		33.9
Permitted Service Time (g_u), s		20.0		3.0		21.5		18.6
Permitted Queue Service Time (g_{ps}), s		12.0		0.0		2.9		0.0
Time to First Blockage (g_f), s		9.1		1.0		8.2		22.5
Queue Service Time Before Blockage (g_{fs}), s		9.1		1.0		8.2		5.5
Protected Right Saturation Flow (s_R), veh/h/ln								
Protected Right Effective Green Time (g_R), s								

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	0.972	0.000	0.972	0.000	0.972	0.000	0.972	0.000
Pedestrian F_s / F_{delay}	0.000	0.109	0.000	0.109	0.000	0.090	0.000	0.090
Pedestrian M_{corner} / M_{cw}	0.00		0.00		0.00		0.00	
Bicycle c_b / d_b	689.79	15.02	689.79	15.02	967.36	9.33	967.36	9.33
Bicycle F_w / F_v	-3.64	0.75	-3.64	0.11	-3.64	0.83	-3.64	0.66

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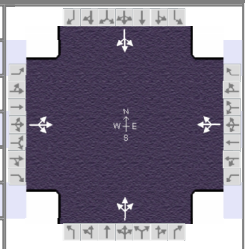
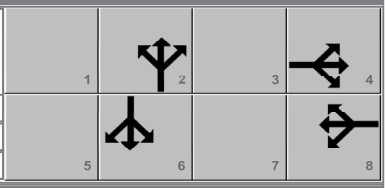
HCS Signalized Intersection Results Graphical Summary

General Information				Intersection Information	
Agency	Michael Baker Intl.			Duration, h	0.250
Analyst	SED	Analysis Date	Jul 19, 2024	Area Type	Other
Jurisdiction	ODOT D05	Time Period	PM Pr. Roadway	PHF	0.92
Urban Street	Columbus Road	Analysis Year	2048	Analysis Period	1> 7:00
Intersection	Columbus Rd - SR-161…	File Name	_PM_ProposedRoadway_Columbus (Corridor 13)…		
Project Description	FRA/LIC-161-22.1/0.00				

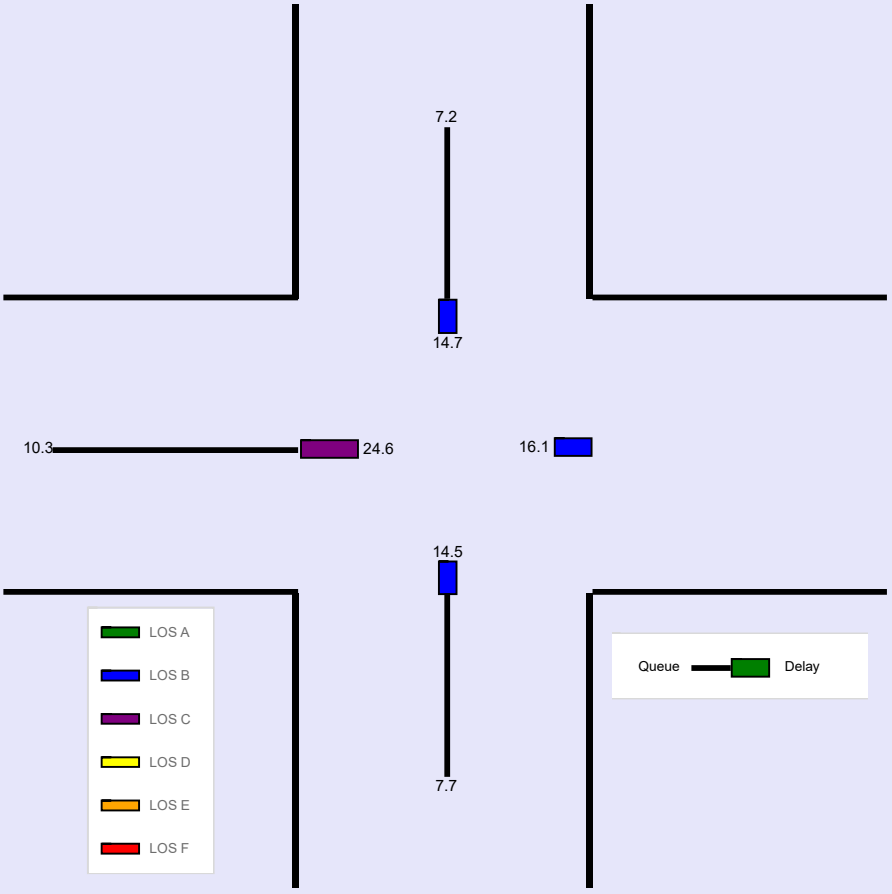


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	40	10	370	40	10	10	80	350	30	10	220	140

Signal Information												
Cycle, s	70.0	Reference Phase	2									
Offset, s	30	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On	Green	33.9	24.1	0.0	0.0	0.0	0.0		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	0.0	0.0	0.0	0.0		
				Red	2.0	2.0	0.0	0.0	0.0	0.0		



Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)		267			29			200			187	
Back of Queue (*Q*), veh/ln (95 th percentile)		10.3			1.1			7.7			7.2	
Queue Storage Ratio (*RQ*) (95 th percentile)		0.22			0.01			0.29			0.11	
Control Delay (*d*), s/veh		24.6			16.1			14.5			14.7	
Level of Service (LOS)		C			B			B			B	
Approach Delay, s/veh / LOS	24.6	C		16.1	B		14.5	B		14.7	B	
Intersection Delay, s/veh / LOS	17.9						B					



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--- Messages ---

No errors or warnings exist.

--- Comments ---

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Appendix E: Turn Lane Length Calculations

INTERSECTION	APPROACH	Beech				
		Existing Length	L&D Length	HCS Length	Recommended Length	Notes
Beech & Worthington	EB Left	475’	300’	105’*	No Change	
	WB Left	480’	300’	182’*	No Change	
	WB Right	620’	335’	192’*	No Change	
	NB Left	390’	867’*	831’*	600’	Maximum length per L&D 401.6.1
	SB Left	340’	808’*	546’*	550’	Limited by intersection spacing with EB Ramps to North
	SB Right	245’	808’*	546’*	550’	Limited by intersection spacing with EB Ramps to North
Beech & EB Ramps	EB Left	1350'	529’	462’	No Change	
	EB Right	600’	500’	474’	No Change	
	NB Right	425’	742’	505’*	550’	Limited by intersection spacing with Worthington to South
	SB Left	400’	583’*	188’*	No Change	Limited by back-to-back left turn lanes with NBL at WB Ramps
Beech & WB Ramps	WB Left	480’	383’	326’*	No Change	
	WB Right	480’	300’	326’*	No Change	
	NB Left	400’	921’	381’	No Change	Limited by back-to-back left turn lanes with SBL at EB Ramps
	SB Right	370’	883’	458’	625’	Limited by intersection spacing to driveway to North
Beech & Smiths Mill	EB Left	130’	142’	91’*	No Change	
	EB Right	500’	408’	296’	No Change	
	WB Left	400’	213’	187’	No Change	
	NB Left	380’	613’*	385’*	450’	Limited by intersection spacing to driveway to South
	SB Left	280’	379’*	346’*	400’	

*Denotes length caused by through backup

INTERSECTION	APPROACH	Mink Alt 1 Diamond					
		Existing Length	L&D Length	HCS Length	TSM Length	Recommended Length	Notes
Mink & Worthington	EB Left	220’	325’	149’		325’	
	WB Left	220’	300’	335’*		350’	
	NB Left	250’	583’*	573’*		600’	
	SB Left	605’	623’*	188’*		No Change	Existing turn lane exceeds maximum length per L&D 401.6.1
	SB Right		623’*	188’*		625’	
Mink & EB Ramps	EB Left	660’	695’	474’		No Change	Existing turn lane exceeds maximum length per L&D 401.6.1
	EB Right		300’	238’*		300’	Max. 600’ available do to Geometrics
	NB Right	380’	489’*	259’*		500’	
	SB Left	250’	586’	354’*		No Change	Limited by intersection spacing with WB Ramp intersection, meets HCS results
Mink & WB Ramps	WB Right	660’	401’	360’		425’	2-Lane Exit and both lanes are for Right Turns
	WB Left	X	X	X		X	No Storage Length Provided. Max. of 600’ provided.
	NB Left	250’	824’*	293’*		No Change	Limited by intersection spacing with EB Ramp intersection, meets HCS results
	SB Right	540’	622’*	220’		625’	
Mink & Innovation	EB Left	85’	125’	112’*		No Change	
	NB Left	325’	953’*	155’*		600'	Maximum length per L&D 401.6.1
Mink & Beaver	WB Left		718’	502’*		600’	Maximum length per L&D 401.6.1
	NB Right		731’	203’*		750’	
	SB Left	800’	730’*	326’*		325’	Limited by intersection spacing with Clover Valley intersection, meets HCS results
Mink & Clover Valley	EB Left	135’	125’	809’*		600’	Maximum length per L&D 401.6.1
	EB Right		610’	809’		800’	Maximum length per L&D 401.6.2
	NB Left	616’	417’	538’		425’	

*Denotes length caused by through backup

INTERSECTION	APPROACH	Mink Alt 2 DDI					
		Existing Length	L&D Length	HCS Length	TSM Length	Recommended Length	Notes
Mink & Worthington	EB Left	220’	343’	195’*		350’	
	WB Left	220’	300’	345’*		350’	
	NB Left	250’	629’*	498’*		600’	Maximum length per L&D 401.6.1
	SB Left	605’	738’*	1424’*		No Change	Existing turn lane exceeds maximum length per L&D 401.6.1
	SB Right		738’*	1424’*		585’	Limited by intersection spacing with EB Ramps to North
Mink & EB Ramps	EB Left	660’	533’	390’		550’	
	EB Right		350’	157’		350’	
Mink & WB Ramps	WB Left		242’	71’		250’	380’ Length Needed Geometrically. 125’ from the diverge location
	WB Right	660’	371’	301’		400’	
Mink & Innovation	EB Left	85’	125’	144’*		No Change	
	NB Left	325’	1044’*	170’*		600’	Maximum length per L&D 401.6.1
Mink & Beaver	WB Left		842’	1416’		600’	Maximum length per L&D 401.6.1
	NB Right		800’	357’*		800’	Maximum length per L&D 401.6.2
	SB Left	800’	847’*	575’*		325’	Limited by intersection spacing with Clover Valley intersection, meets HCS results
Mink & Clover Valley	EB Left	135’	125’	913’*		600’	Maximum length per L&D 401.6.1
	EB Right		1308’	913’		800’	Maximum length per L&D 401.6.2
	NB Left	616’	825’	463’		425’	Limited by intersection spacing with Beaver intersection, meets HCS results

*Denotes length caused by through backup

INTERSECTION	APPROACH	Mink Alt 3 Parclo					
		Existing Length	L&D Length	HCS Length	TSM Length	Recommended Length	Notes
Mink & Worthington	EB Left	220’	318’	166’		325’	
	WB Left	220’	300’	363’*		375’	
	NB Left	250’	629’*	568’*		600’	Maximum length per L&D 401.6.1
	SB Left	605’	556’*	285’*		300’	Limited by intersection spacing with EB Ramps to North
	SB Right		556’*	285’*		250’	Limited by intersection spacing with EB Ramps to North
Mink & EB Ramps	EB Left	660’	750’	527’		No Change	Existing turn lane exceeds maximum length per L&D 401.6.1
	EB Right		288’	321’		325’	
	NB Right	380’	519’*	426’*		525’	
	SB Right	250’	550’	312’*		550’	
Mink & WB Ramps	WB Right	660’	421’	403’		425’	
	WB Left	X	X	X		X	No Storage Length Provided
	NB Right	250’	906’*	418’*		450’	Limited by intersection spacing with EB Ramps to South
	SB Right	540’	554’*	350’		575’	
Mink & Innovation	EB Left	85’	125’	101’*		No Change	
	NB Left	325’	1044’*	148’*		400’	Limited by intersection spacing with WB Ramps to South
Mink & Beaver	WB Left		669’	609’*		600’	Maximum length per L&D 401.6.1
	NB Right		800’	408’		800’	Maximum length per L&D 401.6.2
	SB Left	800’	652’*	231’*		325’	Limited by intersection spacing with Clover Valley intersection, meets HCS results
Mink & Clover Valley	EB Left	135’	125’	818’*		600’	Maximum length per L&D 401.6.1
	EB Right		556’	818’		800’	Maximum length per L&D 401.6.2
	NB Left	616’	450’	675’		425	Limited by intersection spacing with Beaver intersection

*Denotes length caused by through backup

SR-310							
Intersection	Approach	Build Alternative 1: Signalized Diamond			Build Alternative 2: Double Roundabout		
		L&D Length	HCS Length	Recommended Length	L&D Length	HCS Length	Recommended Length
SR-310 & Worthington Rd	EB Left	345'	290'	540' (Existing)	345'	270'	540' (Existing)
	WB Left	345'	200'	550' (Existing)	345'	195'	550' (Existing)
	NB Left	345'	205'	345'	345'	205'	345'
	SB Left	360'	230'	360'	360'	230'	360'
	SB Right	345'	200'	345'	345'	210'	345'
SR-310 & SR-161 EB Ramp	EB Left/Thru	-	-	-	125'	50'	125'
	EB Right (1)	395'	490'	490'	-	-	-
	EB Right (2)	395'	490'	490'	-	-	-
	NB Right	345'	205'	345'	-	-	-
	SB Left	535'	345'	425'**	125'	30'	Drop Lane
SR-310 & SR-161 WB Ramp	WB Right (1)	445'	470'	470'	125'	25'	125'
	WB Right (2)	445'	470'	470'	-	-	-
	NB Left (1)	435'	405'	390'**	125'	156'	Drop Lane
	NB Left (2)	435'	405'	390'**	-	-	-
	SB Right	360'	336'	360'	-	-	-
SR-310 & Jersey Mill Rd	EB Right	640'	650'	650'	125'	5'	125'
	NB Left	735'	395'	640'**	125'	95'	Drop Lane
	SB Left	413'	250'	415'	-	-	-
SR-310 & Jug St	EB Right	315'	270'	315'	315'	270'	315'
	NB Left	360'	320'	360'	360'	320'	360'
	SB Left	345'	195'	345'	345'	195'	345'
	SB Right	360'	225'	360'	360'	225'	360'

*Denotes length driven by thru backup (when within 100' of storage calculation)

**Recommended length driven by field conditions

SR-37							
Intersection	Approach	Build Alternative 1: Signalized Diamond			Build Alternative 2: Double Roundabout		
		L&D Length	HCS Length	Recommended Length	L&D Length	HCS Length	Recommended Length
SR-37 & SR-161 EB Ramp	SB Left (1)	485'	395'	485'	125'	90'	125'
	SB Left (2)	485'	395'	485'	-	-	-
SR-37 & SR-161 WB Ramp	WB Right	545'	615'	615'	125'	95'	125'
	NB Left	350'	255'	350'	-	-	-
	SB Right	-	-	-	125'	75'	125'
SR-37 & Moots Run Rd	EB Left	345'	220'	345'	345'	200'	345'
	WB Left	345'	310'	345'	345'	250'	345'
	NB Left	345'	200'	345'	345'	200'	345'
	SB Left	345'	245'	345'	345'	260'	345'

SR-16 (Columbus)							
Intersection	Approach	Build Alternative 1: Signalized Diamond					
		L&D Length	HCS Length	Recommended Length	L&D Length	HCS Length	Recommended Length
Columbus Rd & Granview Rd	EB Left	50'	30'	70' (Existing)	-	-	-
	NB Left	225'	150'	225'	-	-	-
	SB Left	245'	225'	245'	-	-	-
	SB Right	225'	193'	225'	-	-	-

*Denotes length driven by thru backup (when within 100' of storage calculation)

**Recommended length driven by field conditions

Appendix F: TransModeler Analysis

Mink Street (Diamond Interchange) - AM

Project: Mink Corridor Proposed Diamond w North
Scenario: AM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 08:00:00 - 09:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Intersection Level of Service - Overview

MINK ST NW & BEAVER RD -- SIGNALIZED — NODE: 18

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
1	2,673.0	5.70	7.7	A
2	2,669.0	6.00	8.2	A
3	2,636.0	5.40	7.4	A
4	2,691.0	5.50	7.4	A
5	2,690.0	4.70	6.2	A
6	2,684.0	6.50	8.7	A
7	2,690.0	6.60	8.8	A
8	2,651.0	5.70	7.8	A
9	2,678.0	6.00	8.1	A
10	2,665.0	5.60	7.6	A
Average:	**2,672.7**	**5.77**	**7.8**	**A**

MINK ST NW & CLOVER VALLEY EXT -- SIGNALIZED — NODE: 7

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
1	1,826.0	6.70	13.2	B
2	1,819.0	6.80	13.5	B
3	1,797.0	6.10	12.2	B
4	1,822.0	7.20	14.2	B
5	1,840.0	6.70	13.1	B
6	1,817.0	6.90	13.7	B
7	1,840.0	6.60	13.0	B
8	1,812.0	6.20	12.3	B
9	1,800.0	6.60	13.1	B
10	1,807.0	7.00	13.9	B
Average:	**1,818.0**	**6.68**	**13.2**	**B**

MINK ST NW & INNOVATION WAY -- SIGNALIZED — NODE: 15

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
1	4,434.0	12.00	9.8	A
2	4,423.0	13.40	10.9	B
3	4,365.0	12.00	9.9	A
4	4,427.0	12.40	10.1	B
5	4,455.0	9.80	7.9	A
6	4,432.0	11.80	9.6	A
7	4,429.0	14.20	11.6	B
8	4,389.0	14.20	11.7	B

9	4,460.0	12.30	9.9	A
10	4,440.0	11.30	9.2	A
Average:	**4,425.4**	**12.34**	**10.0**	**B**

MINK ST NW & JUG ST -- SIGNALIZED — NODE: 33082

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
1	971.0	1.10	4.1	A
2	970.0	0.90	3.3	A
3	954.0	1.10	4.0	A
4	965.0	0.90	3.4	A
5	992.0	1.30	4.9	A
6	966.0	0.90	3.5	A
7	962.0	1.10	4.0	A
8	987.0	0.90	3.1	A
9	969.0	1.10	3.9	A
10	970.0	1.00	3.9	A
Average:	**970.6**	**1.03**	**3.8**	**A**

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP -- SIGNALIZED — NODE: 10

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
1	3,654.0	75.60	74.5	E
2	3,614.0	77.70	77.4	E
3	3,581.0	79.10	79.6	E
4	3,621.0	84.80	84.3	F
5	3,603.0	88.40	88.3	F
6	3,662.0	91.60	90.1	F
7	3,646.0	79.20	78.2	E
8	3,614.0	81.20	80.9	F
9	3,687.0	82.00	80.1	F
10	3,625.0	85.10	84.5	F
Average:	**3,630.7**	**82.47**	**81.8**	**F**

MINK ST NW, SR 161 WB EXIT RAMP & SR 161 WB ENTRANCE RAMP -- SIGNALIZED — NODE: 5

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
1	4,636.0	27.80	21.6	C
2	4,607.0	27.40	21.4	C
3	4,554.0	29.40	23.2	C
4	4,620.0	29.40	22.9	C
5	4,567.0	40.30	31.8	C
6	4,627.0	29.50	22.9	C
7	4,616.0	28.40	22.1	C
8	4,605.0	27.80	21.7	C
9	4,649.0	28.60	22.2	C

10	4,591.0	32.10	25.1	C
Average:	**4,607.2**	**30.07**	**23.5**	**C**

WORTHINGTON RD, MINK ST NW & MINK ST SW -- SIGNALIZED NODE: 32764

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
1	2,089.0	17.30	29.9	C
2	2,087.0	20.00	34.5	C
3	2,035.0	37.50	66.3	E
4	2,061.0	32.50	56.8	E
5	2,050.0	27.40	48.1	D
6	2,101.0	26.60	45.7	D
7	2,055.0	28.10	49.3	D
8	2,071.0	25.00	43.5	D
9	2,058.0	25.60	44.8	D
10	2,069.0	25.60	44.5	D
Average:	**2,067.6**	**26.56**	**46.3**	**D**

Project: Mink Corridor Proposed Diamond w North
Scenario: AM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 08:00:00 - 09:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Intersection Level of Service - Total Control Delay

Node ID	Intersection	Control Type	Average	Std Dev	Minimum	Maximum	# Samples
18	MINK ST NW & BEAVER RD	Actuated	5.8	0.5	4.7	6.6	10
7	MINK ST NW & CLOVER VALLEY EXT	Actuated	6.7	0.3	6.1	7.2	10
15	MINK ST NW & INNOVATION WAY	Actuated	12.3	1.3	9.8	14.2	10
33082	MINK ST NW & JUG ST	Actuated	1.0	0.1	0.9	1.3	10
10	MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP	Actuated	82.5	5.0	75.6	91.6	10
5	MINK ST NW, SR 161 WB EXIT RAMP & SR 161 WB ENTRANCE RAMP	Actuated	30.1	3.8	27.4	40.3	10
32764	WORTHINGTON RD, MINK ST NW & MINK ST SW	Actuated	26.6	5.7	17.3	37.5	10

Project: Mink Corridor Proposed Diamond w North
Scenario: AM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 08:00:00 - 09:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Intersection Level of Service - Avg Control Delay

Node ID	Intersection	Control Type	Average	Std Dev	Minimum	Maximum	# Samples
18	MINK ST NW & BEAVER RD	Actuated	7.8	0.7	6.2	8.8	10
7	MINK ST NW & CLOVER VALLEY EXT	Actuated	13.2	0.6	12.2	14.2	10
15	MINK ST NW & INNOVATION WAY	Actuated	10.0	1.1	7.9	11.7	10
33082	MINK ST NW & JUG ST	Actuated	3.8	0.5	3.1	4.9	10
10	MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP	Actuated	81.8	4.9	74.5	90.1	10
5	MINK ST NW, SR 161 WB EXIT RAMP & SR 161 WB ENTRANCE RAMP	Actuated	23.5	3.1	21.4	31.8	10
32764	WORTHINGTON RD, MINK ST NW & MINK ST SW	Actuated	46.3	10.3	29.9	66.3	10

Project: Mink Corridor Proposed Diamond w North
Scenario: AM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 08:00:00 - 09:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Intersection Level of Service by Approach - Overview

MINK ST NW & BEAVER RD -- SIGNALIZED — NODE: 18

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
NEB on MINK ST NW: Superlink ID 61211				
1	1,877.0	2.20	4.2	A
2	1,885.0	2.40	4.6	A
3	1,859.0	2.00	3.9	A
4	1,883.0	1.80	3.4	A
5	1,894.0	1.30	2.5	A
6	1,889.0	3.00	5.8	A
7	1,893.0	2.60	4.9	A
8	1,870.0	2.20	4.3	A
9	1,890.0	2.40	4.6	A
10	1,874.0	1.80	3.6	A
Average:	**1,881.4**	**2.17**	**4.2**	**A**
NWB on BEAVER RD: Superlink ID 61210				
1	227.0	2.90	45.6	D
2	217.0	2.80	47.0	D
3	225.0	2.80	44.8	D
4	235.0	3.20	48.9	D
5	229.0	2.80	44.0	D
6	227.0	3.00	47.3	D
7	229.0	3.40	53.9	D
8	225.0	3.10	48.9	D
9	231.0	3.10	48.7	D
10	230.0	3.00	47.2	D
Average:	**227.5**	**3.01**	**47.6**	**D**
SWB on MINK ST NW: Superlink ID 61213				
1	569.0	0.60	3.8	A
2	567.0	0.80	5.1	A
3	552.0	0.60	3.8	A
4	573.0	0.60	3.6	A
5	567.0	0.60	3.6	A
6	568.0	0.50	3.2	A
7	568.0	0.60	3.6	A
8	556.0	0.40	2.8	A
9	557.0	0.50	3.2	A

MINK ST NW & BEAVER RD -- SIGNALIZED — NODE: 18

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
10	561.0	0.70	4.8	A
Average:	**563.8**	**0.59**	**3.7**	**A**

MINK ST NW & CLOVER VALLEY EXT -- SIGNALIZED — NODE: 7

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
NEB on MINK ST NW: Superlink ID 61213				
1	1,240.0	2.10	6.0	A
2	1,238.0	1.90	5.4	A
3	1,231.0	1.90	5.4	A
4	1,241.0	2.40	6.8	A
5	1,255.0	2.30	6.7	A
6	1,242.0	1.80	5.1	A
7	1,261.0	2.30	6.6	A
8	1,244.0	1.90	5.4	A
9	1,225.0	1.90	5.4	A
10	1,233.0	2.30	6.8	A
Average:	**1,241.0**	**2.08**	**6.0**	**A**
SEB on CLOVER VALLEY EXT: Superlink ID 61212				
1	178.0	0.60	13.1	B
2	179.0	0.60	11.9	B
3	164.0	0.60	13.3	B
4	173.0	0.70	14.2	B
5	169.0	0.60	12.5	B
6	171.0	0.70	14.3	B
7	166.0	0.60	12.7	B
8	165.0	0.60	12.4	B
9	173.0	0.60	12.9	B
10	167.0	0.60	13.2	B
Average:	**170.5**	**0.62**	**13.0**	**B**
SWB on MINK ST NW: Superlink ID 61222				
1	408.0	4.00	35.0	C
2	402.0	4.40	39.3	D
3	402.0	3.60	32.6	C
4	408.0	4.10	36.5	D
5	416.0	3.80	32.7	C
6	404.0	4.50	39.8	D
7	413.0	3.70	32.5	C
8	403.0	3.80	33.9	C
9	402.0	4.10	36.6	D
10	407.0	4.00	35.8	D
Average:	**406.5**	**4.00**	**35.5**	**D**

MINK ST NW & INNOVATION WAY -- SIGNALIZED — NODE: 15

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
EB on INNOVATION WAY: Superlink ID 61207				
1	83.0	0.70	29.5	C
2	81.0	0.80	37.3	D
3	86.0	0.90	38.5	D
4	84.0	0.80	34.9	C
5	84.0	0.90	36.9	D
6	84.0	0.60	27.7	C
7	78.0	0.70	34.3	C
8	81.0	0.70	29.1	C
9	80.0	0.60	29.0	C
10	73.0	0.80	37.1	D
Average:	**81.4**	**0.75**	**33.4**	**C**
NEB on MINK ST NW: Superlink ID 61209				
1	3,397.0	6.00	6.3	A
2	3,399.0	6.60	7.0	A
3	3,340.0	6.10	6.5	A
4	3,400.0	6.40	6.8	A
5	3,418.0	3.60	3.8	A
6	3,413.0	6.20	6.5	A
7	3,408.0	7.50	7.9	A
8	3,379.0	8.00	8.5	A
9	3,443.0	6.30	6.6	A
10	3,421.0	5.50	5.8	A
Average:	**3,401.8**	**6.22**	**6.6**	**A**
SWB on MINK ST NW: Superlink ID 61211				
1	954.0	5.40	20.4	C
2	943.0	6.00	22.8	C
3	939.0	5.00	19.3	B
4	943.0	5.10	19.5	B
5	953.0	5.40	20.2	C
6	935.0	5.00	19.3	B
7	943.0	6.00	22.8	C
8	929.0	5.60	21.7	C
9	937.0	5.40	20.7	C
10	946.0	5.10	19.4	B
Average:	**942.2**	**5.40**	**20.6**	**C**

MINK ST NW & JUG ST -- SIGNALIZED — NODE: 33082

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
EB on JUG ST: Superlink ID 29977				
1	73.0	0.20	9.5	A
2	69.0	0.20	8.7	A

MINK ST NW & JUG ST -- SIGNALIZED — NODE: 33082

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
3	76.0	0.20	10.7	B
4	73.0	0.20	9.3	A
5	90.0	0.30	11.1	B
6	70.0	0.20	8.9	A
7	72.0	0.20	11.0	B
8	80.0	0.20	8.5	A
9	75.0	0.20	10.3	B
10	78.0	0.20	9.6	A
Average:	**75.6**	**0.21**	**9.8**	**A**
NEB on MINK ST NW: Superlink ID 61222				
1	528.0	0.50	3.4	A
2	536.0	0.40	2.7	A
3	509.0	0.40	3.2	A
4	521.0	0.40	2.7	A
5	534.0	0.50	3.7	A
6	529.0	0.40	2.7	A
7	520.0	0.40	2.6	A
8	537.0	0.30	2.2	A
9	525.0	0.50	3.2	A
10	521.0	0.40	2.8	A
Average:	**526.0**	**0.42**	**2.9**	**A**
SB on MINK ST NW: Superlink ID 29606				
1	370.0	0.40	4.1	A
2	365.0	0.30	3.2	A
3	369.0	0.40	3.9	A
4	371.0	0.30	3.1	A
5	368.0	0.50	5.0	A
6	367.0	0.40	3.6	A
7	370.0	0.50	4.6	A
8	370.0	0.30	3.3	A
9	369.0	0.40	3.7	A
10	371.0	0.40	4.2	A
Average:	**369.0**	**0.39**	**3.9**	**A**

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP -- SIGNALIZED — NODE: 10

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
NEB on MINK ST NW: Superlink ID 61202				
1	1,552.0	24.00	55.6	E
2	1,534.0	23.40	54.9	D
3	1,454.0	29.60	73.3	E
4	1,489.0	28.60	69.1	E

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP -- SIGNALIZED

NODE: 10

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
5	1,498.0	30.70	73.9	E
6	1,522.0	31.00	73.4	E
7	1,490.0	27.30	66.0	E
8	1,497.0	26.00	62.5	E
9	1,499.0	29.60	71.1	E
10	1,504.0	28.30	67.8	E
Average:	**1,503.9**	**27.85**	**66.7**	**E**
SEB on SR 161 EB EXIT RAMP: Superlink ID 61221				
1	1,529.0	47.00	110.7	F
2	1,522.0	49.70	117.5	F
3	1,577.0	40.00	91.4	F
4	1,573.0	46.60	106.6	F
5	1,585.0	45.60	103.6	F
6	1,573.0	49.30	112.8	F
7	1,614.0	42.80	95.5	F
8	1,554.0	46.90	108.7	F
9	1,628.0	44.50	98.4	F
10	1,577.0	46.00	105.0	F
Average:	**1,573.2**	**45.84**	**105.0**	**F**
SWB on MINK ST NW: Superlink ID 61198				
1	573.0	4.60	29.1	C
2	558.0	4.60	29.7	C
3	550.0	9.50	62.3	E
4	559.0	9.60	62.1	E
5	520.0	12.00	83.1	F
6	567.0	11.30	71.9	E
7	542.0	9.10	60.6	E
8	563.0	8.20	52.7	D
9	560.0	7.90	50.8	D
10	544.0	10.80	71.2	E
Average:	**553.6**	**8.76**	**57.4**	**E**

MINK ST NW, SR 161 WB EXIT RAMP & SR 161 WB ENTRANCE RAMP -- SIGNALIZED

NODE: 5

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
NEB on MINK ST NW: Superlink ID 61198				
1	2,889.0	14.40	18.0	B
2	2,862.0	14.20	17.8	B
3	2,831.0	14.80	18.8	B
4	2,879.0	14.60	18.2	B
5	2,887.0	16.20	20.2	C

MINK ST NW, SR 161 WB EXIT RAMP & SR 161 WB ENTRANCE RAMP -- SIGNALIZED

NODE: 5

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
6	2,892.0	14.80	18.4	B
7	2,898.0	15.70	19.5	B
8	2,864.0	14.80	18.6	B
9	2,920.0	15.30	18.9	B
10	2,881.0	15.70	19.6	B
Average:	**2,880.3**	**15.05**	**18.8**	**B**
NWB on SR 161 WB EXIT RAMP: Superlink ID 61205				
1	763.0	7.50	35.3	D
2	777.0	7.70	35.8	D
3	769.0	8.10	37.8	D
4	763.0	8.30	39.1	D
5	714.0	16.40	82.5	F
6	760.0	8.10	38.4	D
7	751.0	8.20	39.5	D
8	769.0	8.00	37.7	D
9	765.0	7.60	35.7	D
10	756.0	9.80	46.5	D
Average:	**758.7**	**8.97**	**42.8**	**D**
SWB on MINK ST NW: Superlink ID 61209				
1	984.0	5.90	21.5	C
2	968.0	5.50	20.5	C
3	954.0	6.50	24.5	C
4	978.0	6.50	24.0	C
5	966.0	7.80	29.0	C
6	975.0	6.60	24.2	C
7	967.0	4.40	16.4	B
8	972.0	4.90	18.2	B
9	964.0	5.70	21.4	C
10	954.0	6.60	25.0	C
Average:	**968.2**	**6.04**	**22.5**	**C**

WORTHINGTON RD, MINK ST NW & MINK ST SW -- SIGNALIZED

NODE: 32764

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
EB on WORTHINGTON RD: Superlink ID 29557				
1	182.0	2.90	57.0	E
2	186.0	4.60	89.5	F
3	180.0	8.60	172.6	F
4	181.0	8.80	175.4	F
5	171.0	7.30	154.0	F
6	183.0	8.20	161.5	F
7	174.0	8.60	177.4	F

WORTHINGTON RD, MINK ST NW & MINK ST SW -- SIGNALIZED NODE: 32764

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
8	165.0	5.50	120.9	F
9	158.0	4.30	97.5	F
10	188.0	4.80	91.7	F
Average:	**176.8**	**6.36**	**129.8**	**F**
NEB on MINK ST SW: Superlink ID 24528				
1	1,089.0	7.00	23.2	C
2	1,094.0	7.60	25.0	C
3	1,044.0	20.60	71.1	E
4	1,072.0	15.70	52.6	D
5	1,092.0	13.00	42.9	D
6	1,104.0	10.60	34.5	C
7	1,071.0	11.70	39.2	D
8	1,101.0	11.20	36.6	D
9	1,085.0	12.60	42.0	D
10	1,074.0	13.00	43.5	D
Average:	**1,082.6**	**12.30**	**41.0**	**D**
SWB on MINK ST NW: Superlink ID 61202				
1	537.0	4.00	26.7	C
2	530.0	4.10	27.6	C
3	537.0	4.10	27.2	C
4	535.0	4.30	29.0	C
5	511.0	4.20	29.3	C
6	540.0	4.20	27.8	C
7	532.0	4.20	28.7	C
8	535.0	3.90	26.5	C
9	541.0	4.20	27.9	C
10	530.0	4.20	28.5	C
Average:	**532.8**	**4.14**	**27.9**	**C**
WB on WORTHINGTON RD: Superlink ID 29572				
1	281.0	3.50	44.3	D
2	277.0	3.70	48.5	D
3	274.0	4.20	55.1	E
4	273.0	3.70	49.2	D
5	276.0	2.90	37.8	D
6	274.0	3.70	48.4	D
7	278.0	3.70	47.4	D
8	270.0	4.30	57.9	E
9	274.0	4.50	58.9	E
10	277.0	3.60	46.9	D
Average:	**275.4**	**3.78**	**49.4**	**D**

Project: Mink Corridor Proposed Diamond w North
Scenario: AM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 08:00:00 - 09:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Intersection Level of Service by Approach - Total Control Delay

MINK ST NW & BEAVER RD — NODE: 18

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
NEB	MINK ST NW	61211	2.2	0.5	1.3	3.0	10
NWB	BEAVER RD	61210	3.0	0.2	2.8	3.4	10
SWB	MINK ST NW	61213	0.6	0.1	0.4	0.8	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
NEB	MINK ST NW	61213	2.1	0.2	1.8	2.4	10
SEB	CLOVER VALLEY EXT	61212	0.6	0.0	0.6	0.7	10
SWB	MINK ST NW	61222	4.0	0.3	3.6	4.5	10

MINK ST NW & INNOVATION WAY — NODE: 15

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
EB	INNOVATION WAY	61207	0.8	0.1	0.6	0.9	10
NEB	MINK ST NW	61209	6.2	1.2	3.6	8.0	10
SWB	MINK ST NW	61211	5.4	0.4	5.0	6.0	10

MINK ST NW & JUG ST — NODE: 33082

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
EB	JUG ST	29977	0.2	0.0	0.2	0.3	10
NEB	MINK ST NW	61222	0.4	0.1	0.3	0.5	10
SB	MINK ST NW	29606	0.4	0.1	0.3	0.5	10

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP — NODE: 10

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
NEB	MINK ST NW	61202	27.9	2.7	23.4	31.0	10
SEB	SR 161 EB EXIT RAMP	61221	45.8	2.9	40.0	49.7	10
SWB	MINK ST NW	61198	8.8	2.5	4.6	12.0	10

MINK ST NW, SR 161 WB EXIT RAMP & SR 161 WB ENTRANCE RAMP — NODE: 5

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
NEB	MINK ST NW	61198	15.1	0.6	14.2	16.2	10
NWB	SR 161 WB EXIT RAMP	61205	9.0	2.7	7.5	16.4	10
SWB	MINK ST NW	61209	6.0	1.0	4.4	7.8	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
EB	WORTHINGTON RD	29557	6.4	2.2	2.9	8.8	10
NEB	MINK ST SW	24528	12.3	3.9	7.0	20.6	10
SWB	MINK ST NW	61202	4.1	0.1	3.9	4.3	10
WB	WORTHINGTON RD	29572	3.8	0.5	2.9	4.5	10

Project: Mink Corridor Proposed Diamond w North
Scenario: AM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 08:00:00 - 09:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Intersection Level of Service by Approach - Avg Control Delay

MINK ST NW & BEAVER RD — NODE: 18

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
NEB	MINK ST NW	61211	4.2	0.9	2.5	5.8	10
NWB	BEAVER RD	61210	47.6	2.8	44.0	53.9	10
SWB	MINK ST NW	61213	3.7	0.7	2.8	5.1	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
NEB	MINK ST NW	61213	6.0	0.7	5.1	6.8	10
SEB	CLOVER VALLEY EXT	61212	13.0	0.8	11.9	14.3	10
SWB	MINK ST NW	61222	35.5	2.7	32.5	39.8	10

MINK ST NW & INNOVATION WAY — NODE: 15

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
EB	INNOVATION WAY	61207	33.4	4.2	27.7	38.5	10
NEB	MINK ST NW	61209	6.6	1.3	3.8	8.5	10
SWB	MINK ST NW	61211	20.6	1.4	19.3	22.8	10

MINK ST NW & JUG ST — NODE: 33082

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
EB	JUG ST	29977	9.8	1.0	8.5	11.1	10
NEB	MINK ST NW	61222	2.9	0.4	2.2	3.7	10
SB	MINK ST NW	29606	3.9	0.6	3.1	5.0	10

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP — NODE: 10

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
NEB	MINK ST NW	61202	66.7	7.0	54.9	73.9	10
SEB	SR 161 EB EXIT RAMP	61221	105.0	8.1	91.4	117.5	10
SWB	MINK ST NW	61198	57.4	17.5	29.1	83.1	10

MINK ST NW, SR 161 WB EXIT RAMP & SR 161 WB ENTRANCE RAMP — NODE: 5

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
NEB	MINK ST NW	61198	18.8	0.8	17.8	20.2	10
NWB	SR 161 WB EXIT RAMP	61205	42.8	14.3	35.3	82.5	10
SWB	MINK ST NW	61209	22.5	3.6	16.4	29.0	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
EB	WORTHINGTON RD	29557	129.8	43.8	57.0	177.4	10
NEB	MINK ST SW	24528	41.0	13.7	23.2	71.1	10
SWB	MINK ST NW	61202	27.9	0.9	26.5	29.3	10
WB	WORTHINGTON RD	29572	49.4	6.4	37.8	58.9	10

Project: Mink Corridor Proposed Diamond w North
Scenario: AM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 08:00:00 - 09:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Lane Queue by Intersection - Overview

MINK ST NW & BEAVER RD — NODE: 18

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NEB R on MINK ST NW - Lane ID 156348						
1	120.0	0.8	0.0	0.0	0.0	0.0%
2	120.0	5.2	0.2	41.3	2.0	0.0%
3	120.0	2.6	0.1	16.3	1.0	0.0%
4	120.0	3.4	0.1	0.9	0.0	0.0%
5	120.0	4.7	0.1	0.0	0.0	0.0%
6	120.0	4.3	0.2	37.7	2.0	0.0%
7	120.0	2.9	0.1	0.0	0.0	0.0%
8	120.0	1.5	0.1	0.0	0.0	0.0%
9	120.0	3.1	0.1	0.7	0.0	0.0%
10	120.0	4.1	0.2	18.5	1.0	0.0%
Average:	**120.0**	**3.3**	**0.1**	**11.5**	**0.6**	**0.0%**
NEB T on MINK ST NW - Lane ID 156206						
1	120.0	18.9	0.7	157.7	5.0	0.0%
2	120.0	22.1	0.9	146.0	5.0	0.0%
3	120.0	15.7	0.6	126.2	4.0	0.0%
4	120.0	14.3	0.6	123.9	5.0	0.0%
5	120.0	9.1	0.4	72.8	2.0	0.0%
6	120.0	16.3	0.7	116.2	5.0	0.0%
7	120.0	24.3	0.9	175.9	6.0	0.0%
8	120.0	20.3	0.7	135.5	5.0	0.0%
9	120.0	20.3	0.7	139.1	5.0	0.0%
10	120.0	16.2	0.6	119.1	5.0	0.0%
Average:	**120.0**	**17.8**	**0.7**	**131.2**	**4.7**	**0.0%**
NEB T on MINK ST NW - Lane ID 156207						
1	120.0	8.3	0.3	59.0	2.0	0.0%
2	120.0	10.2	0.4	79.0	3.0	0.0%
3	120.0	7.3	0.3	61.0	2.0	0.0%
4	120.0	5.1	0.2	20.6	1.0	0.0%
5	120.0	6.5	0.2	36.0	2.0	0.0%
6	120.0	8.2	0.3	67.1	2.0	0.0%
7	120.0	8.9	0.3	76.5	3.0	0.0%
8	120.0	9.4	0.3	79.1	2.0	0.0%
9	120.0	10.5	0.4	73.9	3.0	0.0%

MINK ST NW & BEAVER RD — NODE: 18

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NEB T on MINK ST NW - Lane ID 156207						
10	120.0	9.1	0.3	92.1	3.0	0.0%
Average:	**120.0**	**8.4**	**0.3**	**64.4**	**2.3**	**0.0%**
NWB L on BEAVER RD - Lane ID 156389						
1	120.0	28.9	1.2	95.5	3.0	0.0%
2	120.0	30.7	1.2	112.8	4.0	0.0%
3	120.0	25.3	1.1	89.0	3.0	0.0%
4	120.0	32.2	1.3	110.2	4.0	0.0%
5	120.0	31.8	1.2	107.6	4.0	0.0%
6	120.0	34.0	1.4	98.2	3.0	0.0%
7	120.0	39.6	1.5	132.9	4.0	0.0%
8	120.0	34.9	1.3	107.6	4.0	0.0%
9	120.0	31.0	1.3	119.9	4.0	0.0%
10	120.0	28.0	1.2	96.9	4.0	0.0%
Average:	**120.0**	**31.6**	**1.3**	**107.1**	**3.7**	**0.0%**
NWB LR on BEAVER RD - Lane ID 156390						
1	120.0	30.9	1.3	119.5	4.0	0.0%
2	120.0	45.4	1.6	156.1	4.0	0.0%
3	120.0	37.5	1.4	127.2	4.0	0.0%
4	120.0	35.4	1.5	105.7	4.0	0.0%
5	120.0	39.1	1.6	148.9	5.0	0.0%
6	120.0	36.3	1.4	124.1	4.0	0.0%
7	120.0	47.0	1.7	160.0	6.0	0.0%
8	120.0	36.6	1.4	133.2	5.0	0.0%
9	120.0	38.4	1.4	127.5	4.0	0.0%
10	120.0	43.1	1.5	142.6	4.0	0.0%
Average:	**120.0**	**39.0**	**1.5**	**134.5**	**4.4**	**0.0%**
SWB L on MINK ST NW - Lane ID 156233						
1	120.0	0.2	0.1	0.0	1.0	0.0%
2	120.0	1.7	0.2	7.7	1.0	0.0%
3	120.0	0.5	0.2	0.0	1.0	0.0%
4	120.0	0.9	0.2	0.0	1.0	0.0%
5	120.0	0.4	0.2	0.1	1.0	0.0%
6	120.0	1.3	0.2	2.6	1.0	0.0%
7	120.0	1.8	0.2	6.6	1.0	0.0%
8	120.0	0.7	0.2	0.0	1.0	0.0%
9	120.0	1.1	0.2	12.8	1.0	0.0%
10	120.0	1.4	0.2	7.4	1.0	0.0%
Average:	**120.0**	**1.0**	**0.2**	**3.7**	**1.0**	**0.0%**

MINK ST NW & BEAVER RD — NODE: 18

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
SWB T on MINK ST NW - Lane ID 156234						
1	120.0	4.5	0.2	17.1	1.0	0.0%
2	120.0	5.2	0.2	18.4	1.0	0.0%
3	120.0	2.5	0.1	16.4	1.0	0.0%
4	120.0	3.0	0.1	0.3	0.0	0.0%
5	120.0	1.9	0.1	0.0	0.0	0.0%
6	120.0	2.7	0.1	0.7	0.0	0.0%
7	120.0	2.8	0.1	15.3	1.0	0.0%
8	120.0	2.5	0.1	11.5	1.0	0.0%
9	120.0	5.2	0.2	20.0	1.0	0.0%
10	120.0	6.4	0.3	46.4	2.0	0.0%
Average:	**120.0**	**3.7**	**0.2**	**14.6**	**0.8**	**0.0%**
SWB T on MINK ST NW - Lane ID 156235						
1	120.0	3.6	0.1	0.0	0.0	0.0%
2	120.0	3.2	0.1	15.8	1.0	0.0%
3	120.0	1.7	0.1	0.7	0.0	0.0%
4	120.0	1.2	0.1	0.7	0.0	0.0%
5	120.0	1.3	0.1	0.0	0.0	0.0%
6	120.0	1.1	0.1	0.0	0.0	0.0%
7	120.0	4.6	0.1	21.5	1.0	0.0%
8	120.0	2.9	0.1	15.3	1.0	0.0%
9	120.0	5.3	0.2	18.9	1.0	0.0%
10	120.0	1.8	0.1	0.7	0.0	0.0%
Average:	**120.0**	**2.7**	**0.1**	**7.4**	**0.4**	**0.0%**
SWB T on MINK ST NW - Lane ID 156351						
1	120.0	1.5	0.1	0.8	0.0	0.0%
2	120.0	2.5	0.1	14.2	1.0	0.0%
3	120.0	1.8	0.1	0.0	0.0	0.0%
4	120.0	1.0	0.1	0.7	0.0	0.0%
5	120.0	1.1	0.1	0.0	0.0	0.0%
6	120.0	0.7	0.0	0.0	0.0	0.0%
7	120.0	0.9	0.1	0.8	0.0	0.0%
8	120.0	1.7	0.1	0.0	0.0	0.0%
9	120.0	1.3	0.1	0.0	0.0	0.0%
10	120.0	1.6	0.1	15.6	1.0	0.0%
Average:	**120.0**	**1.4**	**0.1**	**3.2**	**0.2**	**0.0%**

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NEB L on MINK ST NW - Lane ID 156400						
1	120.0	12.5	0.5	94.1	4.0	0.0%

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NEB L on MINK ST NW - Lane ID 156400						
2	120.0	10.2	0.5	56.7	3.0	0.0%
3	120.0	12.4	0.6	84.2	3.0	0.0%
4	120.0	18.1	0.8	141.4	5.0	0.0%
5	120.0	14.2	0.7	82.7	4.0	0.0%
6	120.0	12.0	0.6	89.1	4.0	0.0%
7	120.0	11.0	0.5	71.0	3.0	0.0%
8	120.0	13.9	0.5	97.0	4.0	0.0%
9	120.0	9.6	0.5	70.3	3.0	0.0%
10	120.0	16.2	0.7	97.4	3.0	0.0%
Average:	**120.0**	**13.0**	**0.6**	**88.4**	**3.6**	**0.0%**
NEB L on MINK ST NW - Lane ID 156401						
1	120.0	9.3	0.5	61.1	3.0	0.0%
2	120.0	10.2	0.6	77.4	4.0	0.0%
3	120.0	10.9	0.6	95.5	3.0	0.0%
4	120.0	15.2	0.7	105.1	4.0	0.0%
5	120.0	11.8	0.6	100.1	4.0	0.0%
6	120.0	9.1	0.6	72.8	3.0	0.0%
7	120.0	13.3	0.7	86.9	4.0	0.0%
8	120.0	7.3	0.5	69.4	3.0	0.0%
9	120.0	8.9	0.5	73.1	3.0	0.0%
10	120.0	9.1	0.6	43.7	4.0	0.0%
Average:	**120.0**	**10.5**	**0.6**	**78.5**	**3.5**	**0.0%**
NEB T on MINK ST NW - Lane ID 156402						
1	120.0	1.2	0.1	0.0	0.0	0.0%
2	120.0	1.8	0.1	0.8	0.0	0.0%
3	120.0	2.0	0.1	0.0	0.0	0.0%
4	120.0	0.6	0.0	0.0	0.0	0.0%
5	120.0	2.0	0.1	13.8	1.0	0.0%
6	120.0	1.8	0.1	0.0	0.0	0.0%
7	120.0	3.1	0.1	16.5	1.0	0.0%
8	120.0	0.4	0.0	0.0	0.0	0.0%
9	120.0	2.5	0.1	17.3	1.0	0.0%
10	120.0	2.1	0.1	0.8	0.0	0.0%
Average:	**120.0**	**1.8**	**0.1**	**4.9**	**0.3**	**0.0%**
NEB T on MINK ST NW - Lane ID 156403						
1	120.0	3.0	0.1	17.8	1.0	0.0%
2	120.0	2.3	0.1	0.0	0.0	0.0%
3	120.0	2.2	0.1	0.7	0.0	0.0%
4	120.0	1.9	0.1	15.3	1.0	0.0%
5	120.0	2.9	0.1	15.0	1.0	0.0%

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NEB T on MINK ST NW - Lane ID 156403						
6	120.0	1.8	0.1	0.0	0.0	0.0%
7	120.0	3.2	0.2	17.4	1.0	0.0%
8	120.0	1.4	0.1	0.4	0.0	0.0%
9	120.0	1.4	0.1	0.7	0.0	0.0%
10	120.0	2.9	0.1	16.5	1.0	0.0%
Average:	**120.0**	**2.3**	**0.1**	**8.4**	**0.5**	**0.0%**
SEB L on CLOVER VALLEY EXT - Lane ID 156228						
1	120.0	5.5	0.3	17.5	1.0	0.0%
2	120.0	6.3	0.3	22.0	1.0	0.0%
3	120.0	8.3	0.4	42.8	1.0	0.0%
4	120.0	7.0	0.3	43.5	2.0	0.0%
5	120.0	5.9	0.3	42.0	1.0	0.0%
6	120.0	8.1	0.3	49.8	1.0	0.0%
7	120.0	5.5	0.2	17.8	1.0	0.0%
8	120.0	5.3	0.3	19.2	1.0	0.0%
9	120.0	7.5	0.3	45.1	1.0	0.0%
10	120.0	8.5	0.3	64.3	1.0	0.0%
Average:	**120.0**	**6.8**	**0.3**	**36.4**	**1.1**	**0.0%**
SEB R on CLOVER VALLEY EXT - Lane ID 156229						
1	120.0	4.0	0.2	22.5	1.0	0.0%
2	120.0	2.7	0.1	17.5	1.0	0.0%
3	120.0	1.4	0.1	15.7	1.0	0.0%
4	120.0	3.8	0.2	20.9	1.0	0.0%
5	120.0	3.2	0.2	18.9	1.0	0.0%
6	120.0	2.2	0.1	15.8	1.0	0.0%
7	120.0	3.5	0.1	18.1	1.0	0.0%
8	120.0	2.8	0.1	17.1	1.0	0.0%
9	120.0	2.3	0.1	17.0	1.0	0.0%
10	120.0	2.1	0.1	15.3	1.0	0.0%
Average:	**120.0**	**2.8**	**0.1**	**17.9**	**1.0**	**0.0%**
SEB R on CLOVER VALLEY EXT - Lane ID 156359						
1	120.0	4.0	0.2	20.0	1.0	0.0%
2	120.0	3.2	0.1	18.5	1.0	0.0%
3	120.0	3.1	0.2	17.7	1.0	0.0%
4	120.0	3.6	0.2	18.2	1.0	0.0%
5	120.0	4.0	0.2	17.3	1.0	0.0%
6	120.0	2.8	0.2	16.8	1.0	0.0%
7	120.0	4.6	0.2	44.7	1.0	0.0%
8	120.0	2.0	0.1	14.9	1.0	0.0%
9	120.0	2.6	0.1	16.5	1.0	0.0%

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
SEB R on CLOVER VALLEY EXT - Lane ID 156359						
10	120.0	2.1	0.1	16.4	1.0	0.0%
Average:	**120.0**	**3.2**	**0.2**	**20.1**	**1.0**	**0.0%**
SWB T on MINK ST NW - Lane ID 156245						
1	120.0	52.4	1.8	177.8	6.0	0.0%
2	120.0	49.6	1.8	160.8	6.0	0.0%
3	120.0	41.6	1.6	141.5	6.0	0.0%
4	120.0	45.2	1.8	140.1	5.0	0.0%
5	120.0	49.2	1.8	144.0	5.0	0.0%
6	120.0	47.1	1.8	158.5	6.0	0.0%
7	120.0	45.3	1.7	166.3	5.0	0.0%
8	120.0	47.3	1.7	158.9	5.0	0.0%
9	120.0	49.2	1.9	163.4	6.0	0.0%
10	120.0	50.2	1.9	154.0	6.0	0.0%
Average:	**120.0**	**47.7**	**1.8**	**156.5**	**5.6**	**0.0%**
SWB TR on MINK ST NW - Lane ID 156246						
1	120.0	47.7	2.0	157.4	6.0	0.0%
2	120.0	47.6	1.7	179.3	6.0	0.0%
3	120.0	43.1	1.6	133.7	5.0	0.0%
4	120.0	43.4	1.7	146.6	6.0	0.0%
5	120.0	41.4	1.6	162.6	6.0	0.0%
6	120.0	56.3	2.0	185.7	6.0	0.0%
7	120.0	41.8	1.6	137.7	5.0	0.0%
8	120.0	48.3	1.8	160.9	5.0	0.0%
9	120.0	44.1	1.6	149.5	5.0	0.0%
10	120.0	44.8	1.7	128.6	5.0	0.0%
Average:	**120.0**	**45.9**	**1.7**	**154.2**	**5.5**	**0.0%**

MINK ST NW & INNOVATION WAY — NODE: 15

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
EB L on INNOVATION WAY - Lane ID 156208						
1	120.0	11.2	0.5	72.7	2.0	0.0%
2	120.0	13.1	0.7	46.6	2.0	0.0%
3	120.0	13.8	0.6	72.7	3.0	0.0%
4	120.0	12.8	0.6	48.3	2.0	0.0%
5	120.0	11.3	0.5	50.3	2.0	0.0%
6	120.0	11.7	0.5	66.1	2.0	0.0%
7	120.0	9.5	0.5	51.0	2.0	0.0%
8	120.0	6.8	0.4	42.5	2.0	0.0%
9	120.0	13.0	0.5	74.7	2.0	0.0%
10	120.0	9.6	0.5	49.6	2.0	0.0%

MINK ST NW & INNOVATION WAY — NODE: 15

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
EB L on INNOVATION WAY - Lane ID 156208						
Average:	**120.0**	**11.3**	**0.5**	**57.5**	**2.1**	**0.0%**
EB R on INNOVATION WAY - Lane ID 156209						
1	120.0	6.0	0.2	43.6	2.0	0.0%
2	120.0	4.0	0.3	17.2	1.0	0.0%
3	120.0	4.3	0.2	20.9	1.0	0.0%
4	120.0	5.4	0.3	23.0	1.0	0.0%
5	120.0	7.2	0.3	51.7	1.0	0.0%
6	120.0	3.0	0.2	19.4	1.0	0.0%
7	120.0	4.6	0.3	25.7	1.0	0.0%
8	120.0	3.7	0.2	20.9	1.0	0.0%
9	120.0	4.1	0.2	38.9	2.0	0.0%
10	120.0	7.1	0.3	43.2	1.0	0.0%
Average:	**120.0**	**4.9**	**0.3**	**30.5**	**1.2**	**0.0%**
NEB L on MINK ST NW - Lane ID 156416						
1	120.0	9.8	0.6	63.7	3.0	0.0%
2	120.0	10.4	0.5	65.0	2.0	0.0%
3	120.0	14.3	0.7	85.3	3.0	0.0%
4	120.0	9.1	0.5	62.8	2.0	0.0%
5	120.0	9.9	0.6	58.9	3.0	0.0%
6	120.0	11.2	0.6	57.9	3.0	0.0%
7	120.0	9.5	0.5	62.2	2.0	0.0%
8	120.0	6.9	0.4	48.0	2.0	0.0%
9	120.0	7.7	0.4	40.5	2.0	0.0%
10	120.0	12.7	0.7	85.4	3.0	0.0%
Average:	**120.0**	**10.2**	**0.6**	**63.0**	**2.5**	**0.0%**
NEB T on MINK ST NW - Lane ID 156417						
1	120.0	8.0	0.3	20.4	1.0	0.0%
2	120.0	10.7	0.4	81.5	3.0	0.0%
3	120.0	17.4	0.6	144.1	6.0	0.0%
4	120.0	4.6	0.2	16.2	1.0	0.0%
5	120.0	12.6	0.5	97.2	4.0	0.0%
6	120.0	11.7	0.4	79.3	3.0	0.0%
7	120.0	15.3	0.6	136.7	6.0	0.0%
8	120.0	13.1	0.5	125.0	5.0	0.0%
9	120.0	9.9	0.4	45.2	2.0	0.0%
10	120.0	9.0	0.3	65.0	2.0	0.0%
Average:	**120.0**	**11.2**	**0.4**	**81.1**	**3.3**	**0.0%**
NEB T on MINK ST NW - Lane ID 156418						
1	120.0	23.1	0.7	122.3	5.0	0.0%

MINK ST NW & INNOVATION WAY — NODE: 15

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NEB T on MINK ST NW - Lane ID 156418						
2	120.0	22.5	0.7	189.4	5.0	0.0%
3	120.0	29.7	0.9	250.8	7.0	0.0%
4	120.0	11.1	0.4	46.1	2.0	0.0%
5	120.0	13.1	0.4	98.4	4.0	0.0%
6	120.0	17.4	0.6	126.9	4.0	0.0%
7	120.0	22.6	0.8	200.4	7.0	0.0%
8	120.0	24.4	0.8	156.7	5.0	0.0%
9	120.0	11.5	0.4	76.6	3.0	0.0%
10	120.0	12.5	0.4	66.5	2.0	0.0%
Average:	**120.0**	**18.8**	**0.6**	**133.4**	**4.4**	**0.0%**
NEB T on MINK ST NW - Lane ID 156419						
1	120.0	13.9	0.4	125.4	3.0	0.0%
2	120.0	12.8	0.5	120.6	5.0	0.0%
3	120.0	21.2	0.7	145.4	6.0	0.0%
4	120.0	8.1	0.3	67.0	3.0	0.0%
5	120.0	13.0	0.5	94.3	4.0	0.0%
6	120.0	18.9	0.7	116.0	3.0	0.0%
7	120.0	20.4	0.7	175.5	6.0	0.0%
8	120.0	18.0	0.7	121.2	4.0	0.0%
9	120.0	10.2	0.4	89.9	3.0	0.0%
10	120.0	13.1	0.5	77.3	3.0	0.0%
Average:	**120.0**	**15.0**	**0.5**	**113.3**	**4.0**	**0.0%**
SWB T on MINK ST NW - Lane ID 156397						
1	120.0	54.5	2.0	234.7	8.0	0.0%
2	120.0	58.5	2.1	201.3	7.0	0.0%
3	120.0	53.3	1.9	212.3	8.0	0.0%
4	120.0	47.8	1.7	231.2	7.0	0.0%
5	120.0	49.4	1.8	245.7	9.0	0.0%
6	120.0	44.7	1.7	193.6	7.0	0.0%
7	120.0	61.9	2.1	270.0	9.0	0.0%
8	120.0	60.5	2.0	220.5	8.0	0.0%
9	120.0	43.4	1.6	211.0	8.0	0.0%
10	120.0	35.0	1.2	190.0	7.0	0.0%
Average:	**120.0**	**50.9**	**1.8**	**221.0**	**7.8**	**0.0%**
SWB T on MINK ST NW - Lane ID 156398						
1	120.0	46.3	1.6	203.9	6.0	0.0%
2	120.0	54.7	1.9	191.4	7.0	0.0%
3	120.0	40.3	1.4	169.0	5.0	0.0%
4	120.0	41.0	1.4	217.8	6.0	0.0%
5	120.0	34.6	1.3	164.5	5.0	0.0%

MINK ST NW & INNOVATION WAY — NODE: 15

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
SWB T on MINK ST NW - Lane ID 156398						
6	120.0	39.8	1.5	180.5	6.0	0.0%
7	120.0	47.1	1.7	222.2	8.0	0.0%
8	120.0	51.1	1.8	215.1	7.0	0.0%
9	120.0	38.7	1.2	205.8	6.0	0.0%
10	120.0	30.4	1.1	155.9	6.0	0.0%
Average:	**120.0**	**42.4**	**1.5**	**192.6**	**6.2**	**0.0%**
SWB TR on MINK ST NW - Lane ID 156399						
1	120.0	22.3	0.9	102.6	4.0	0.0%
2	120.0	29.3	1.1	129.3	5.0	0.0%
3	120.0	18.5	0.8	100.3	4.0	0.0%
4	120.0	18.4	0.8	91.8	4.0	0.0%
5	120.0	16.4	0.7	94.2	4.0	0.0%
6	120.0	12.2	0.5	74.4	3.0	0.0%
7	120.0	19.1	0.8	83.7	3.0	0.0%
8	120.0	25.0	1.0	130.3	5.0	0.0%
9	120.0	16.2	0.7	80.5	3.0	0.0%
10	120.0	16.5	0.7	99.3	4.0	0.0%
Average:	**120.0**	**19.4**	**0.8**	**98.6**	**3.9**	**0.0%**

MINK ST NW & JUG ST — NODE: 33082

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
EB L on JUG ST - Lane ID 156252						
1	120.0	2.1	0.1	17.0	1.0	0.0%
2	120.0	2.4	0.1	17.0	1.0	0.0%
3	120.0	2.5	0.1	16.3	1.0	0.0%
4	120.0	2.1	0.1	16.2	1.0	0.0%
5	120.0	3.5	0.2	19.9	1.0	0.0%
6	120.0	1.9	0.1	16.4	1.0	0.0%
7	120.0	2.9	0.2	17.1	1.0	0.0%
8	120.0	1.5	0.1	16.1	1.0	0.0%
9	120.0	2.8	0.1	16.9	1.0	0.0%
10	120.0	3.1	0.1	17.0	1.0	0.0%
Average:	**120.0**	**2.5**	**0.1**	**17.0**	**1.0**	**0.0%**
EB R on JUG ST - Lane ID 156253						
1	120.0	0.3	0.0	0.0	0.0	0.0%
2	120.0	1.2	0.1	0.4	0.0	0.0%
3	120.0	1.3	0.1	10.3	1.0	0.0%
4	120.0	0.1	0.0	0.0	0.0	0.0%
5	120.0	1.0	0.1	15.3	1.0	0.0%
6	120.0	0.9	0.0	0.0	0.0	0.0%

MINK ST NW & JUG ST — NODE: 33082

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
EB R on JUG ST - Lane ID 156253						
7	120.0	0.5	0.0	0.0	0.0	0.0%
8	120.0	0.7	0.0	0.0	0.0	0.0%
9	120.0	0.6	0.0	0.0	0.0	0.0%
10	120.0	0.6	0.0	0.0	0.0	0.0%
Average:	**120.0**	**0.7**	**0.0**	**2.6**	**0.2**	**0.0%**
NEB L on MINK ST NW - Lane ID 156247						
1	120.0	0.9	0.1	4.1	1.0	0.0%
2	120.0	0.1	0.0	0.0	0.0	0.0%
3	120.0	0.2	0.0	0.0	0.0	0.0%
4	120.0	1.5	0.0	0.0	0.0	0.0%
5	120.0	2.8	0.1	6.3	1.0	0.0%
6	120.0	0.1	0.0	0.0	0.0	0.0%
7	120.0	0.4	0.0	0.0	0.0	0.0%
8	120.0	0.2	0.0	0.0	0.0	0.0%
9	120.0	0.0	0.0	0.0	0.0	0.0%
10	120.0	0.1	0.0	0.0	0.0	0.0%
Average:	**120.0**	**0.6**	**0.0**	**1.0**	**0.2**	**0.0%**
NEB T on MINK ST NW - Lane ID 153566						
1	120.0	2.7	0.1	16.7	1.0	0.0%
2	120.0	3.6	0.1	23.3	1.0	0.0%
3	120.0	2.7	0.1	16.6	1.0	0.0%
4	120.0	3.0	0.1	18.9	1.0	0.0%
5	120.0	2.9	0.1	17.2	1.0	0.0%
6	120.0	2.9	0.1	15.6	1.0	0.0%
7	120.0	1.8	0.1	15.8	1.0	0.0%
8	120.0	0.6	0.0	0.0	0.0	0.0%
9	120.0	3.4	0.2	16.3	1.0	0.0%
10	120.0	2.5	0.1	17.9	1.0	0.0%
Average:	**120.0**	**2.6**	**0.1**	**15.8**	**0.9**	**0.0%**
NEB T on MINK ST NW - Lane ID 156220						
1	120.0	3.2	0.1	15.3	1.0	0.0%
2	120.0	2.2	0.1	16.2	1.0	0.0%
3	120.0	5.1	0.2	36.8	2.0	0.0%
4	120.0	3.9	0.1	20.0	1.0	0.0%
5	120.0	4.3	0.2	22.6	1.0	0.0%
6	120.0	3.7	0.2	16.1	1.0	0.0%
7	120.0	2.5	0.1	17.6	1.0	0.0%
8	120.0	3.0	0.1	17.1	1.0	0.0%
9	120.0	3.6	0.2	17.4	1.0	0.0%
10	120.0	2.5	0.1	16.3	1.0	0.0%

MINK ST NW & JUG ST — NODE: 33082

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NEB T on MINK ST NW - Lane ID 156220						
Average:	**120.0**	**3.4**	**0.1**	**19.5**	**1.1**	**0.0%**
SB T on MINK ST NW - Lane ID 153676						
1	120.0	2.9	0.1	16.8	1.0	0.0%
2	120.0	2.8	0.1	17.7	1.0	0.0%
3	120.0	4.1	0.2	17.4	1.0	0.0%
4	120.0	2.1	0.1	0.8	0.0	0.0%
5	120.0	3.7	0.2	17.3	1.0	0.0%
6	120.0	5.2	0.2	42.4	2.0	0.0%
7	120.0	4.2	0.2	42.6	2.0	0.0%
8	120.0	3.2	0.1	16.8	1.0	0.0%
9	120.0	0.8	0.0	0.0	0.0	0.0%
10	120.0	3.0	0.1	17.9	1.0	0.0%
Average:	**120.0**	**3.2**	**0.1**	**19.0**	**1.0**	**0.0%**
SB TR on MINK ST NW - Lane ID 156248						
1	120.0	2.9	0.1	16.8	1.0	0.0%
2	120.0	2.3	0.1	16.4	1.0	0.0%
3	120.0	3.0	0.2	16.7	1.0	0.0%
4	120.0	2.2	0.1	16.5	1.0	0.0%
5	120.0	5.4	0.2	42.5	2.0	0.0%
6	120.0	2.4	0.1	16.8	1.0	0.0%
7	120.0	4.1	0.2	38.9	1.0	0.0%
8	120.0	5.2	0.2	38.5	1.0	0.0%
9	120.0	4.1	0.2	36.3	2.0	0.0%
10	120.0	4.3	0.2	19.3	1.0	0.0%
Average:	**120.0**	**3.6**	**0.2**	**25.9**	**1.2**	**0.0%**

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP — NODE: 10

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NEB R on MINK ST NW - Lane ID 156411						
1	120.0	0.8	0.1	0.5	0.0	0.0%
2	120.0	0.5	0.0	0.0	0.0	0.0%
3	120.0	0.8	0.0	0.0	0.0	0.0%
4	120.0	0.8	0.1	0.7	0.0	0.0%
5	120.0	0.0	0.0	0.0	0.0	0.0%
6	120.0	0.1	0.0	0.0	0.0	0.0%
7	120.0	0.1	0.0	0.0	0.0	0.0%
8	120.0	0.8	0.0	0.0	0.0	0.0%
9	120.0	0.3	0.0	0.0	0.0	0.0%
10	120.0	0.3	0.0	0.0	0.0	0.0%
Average:	**120.0**	**0.5**	**0.0**	**0.1**	**0.0**	**0.0%**

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP — NODE: 10

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NEB R on MINK ST NW - Lane ID 156411						
NEB T on MINK ST NW - Lane ID 156408						
1	120.0	189.1	6.3	555.7	18.0	0.0%
2	120.0	190.9	6.2	558.2	17.0	0.8%
3	120.0	237.8	7.5	637.7	22.0	7.5%
4	120.0	240.6	8.2	637.9	21.0	8.3%
5	120.0	245.3	8.0	619.7	21.0	5.8%
6	120.0	251.3	8.5	636.2	21.0	7.5%
7	120.0	227.9	7.3	612.6	19.0	5.0%
8	120.0	216.0	7.2	623.6	20.0	5.8%
9	120.0	241.8	7.9	649.8	22.0	15.8%
10	120.0	239.8	8.2	624.9	21.0	6.7%
Average:	**120.0**	**228.1**	**7.5**	**615.6**	**20.2**	**6.3%**
NEB T on MINK ST NW - Lane ID 156409						
1	120.0	163.2	5.7	446.6	16.0	0.0%
2	120.0	165.4	5.8	462.1	17.0	0.0%
3	120.0	213.9	7.2	572.5	19.0	2.5%
4	120.0	212.3	7.3	596.7	19.0	3.3%
5	120.0	217.3	7.6	542.7	19.0	2.5%
6	120.0	216.5	7.6	542.5	20.0	2.5%
7	120.0	200.9	6.9	577.4	20.0	3.3%
8	120.0	199.8	6.9	562.7	19.0	0.0%
9	120.0	218.2	7.7	604.4	21.0	4.2%
10	120.0	217.1	7.6	561.0	20.0	0.8%
Average:	**120.0**	**202.5**	**7.0**	**546.9**	**19.0**	**1.9%**
NEB T on MINK ST NW - Lane ID 156410						
1	120.0	153.7	5.5	414.3	15.0	0.0%
2	120.0	151.3	5.2	449.8	15.0	0.0%
3	120.0	206.1	7.2	566.9	19.0	0.8%
4	120.0	192.3	6.5	513.7	16.0	0.8%
5	120.0	214.9	7.2	529.0	17.0	1.7%
6	120.0	208.7	7.4	552.4	20.0	2.5%
7	120.0	199.3	6.6	535.7	17.0	0.8%
8	120.0	196.3	6.8	540.6	18.0	0.8%
9	120.0	208.6	7.2	595.2	20.0	3.3%
10	120.0	204.2	7.1	545.5	19.0	3.3%
Average:	**120.0**	**193.5**	**6.7**	**524.3**	**17.6**	**1.4%**
SEB L on SR 161 EB EXIT RAMP - Lane ID 156329						
1	120.0	280.2	9.5	919.0	31.1	12.5%
2	120.0	240.9	8.5	897.9	27.0	5.8%

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP — NODE: 10

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
SEB L on SR 161 EB EXIT RAMP - Lane ID 156329						
3	120.0	246.8	8.3	880.8	27.0	5.8%
4	120.0	246.5	8.4	904.0	30.0	7.5%
5	120.0	236.1	8.4	903.7	31.0	8.3%
6	120.0	272.6	9.2	915.8	29.0	10.0%
7	120.0	282.9	9.7	915.4	32.0	10.8%
8	120.0	225.8	7.5	898.8	27.0	6.7%
9	120.0	255.2	8.9	897.8	29.1	6.7%
10	120.0	255.2	8.6	910.8	30.0	6.7%
Average:	**120.0**	**254.2**	**8.7**	**904.4**	**29.3**	**8.1%**
SEB L on SR 161 EB EXIT RAMP - Lane ID 156330						
1	120.0	274.2	9.1	897.4	28.1	6.7%
2	120.0	305.6	10.0	916.6	30.1	13.3%
3	120.0	247.1	8.4	722.0	24.0	4.2%
4	120.0	233.4	7.7	870.7	28.1	4.2%
5	120.0	224.5	7.8	698.1	24.1	4.2%
6	120.0	276.8	9.4	900.3	29.1	10.0%
7	120.0	227.2	8.0	566.3	20.3	2.5%
8	120.0	252.0	8.4	900.6	28.1	8.3%
9	120.0	234.0	8.4	751.0	26.2	5.0%
10	120.0	249.2	8.2	898.8	28.0	7.5%
Average:	**120.0**	**252.4**	**8.5**	**812.2**	**26.6**	**6.6%**
SEB LT on SR 161 EB EXIT RAMP - Lane ID 156176						
1	120.0	374.3	12.1	912.4	31.1	25.0%
2	120.0	390.2	12.4	917.2	31.1	28.3%
3	120.0	282.4	9.6	911.9	31.0	14.2%
4	120.0	337.2	11.0	917.1	31.1	21.7%
5	120.0	301.8	10.2	918.4	32.1	20.8%
6	120.0	346.5	11.9	914.5	33.0	25.8%
7	120.0	347.7	11.7	918.5	32.1	23.3%
8	120.0	327.3	10.6	911.0	31.1	20.0%
9	120.0	332.5	11.5	918.3	33.1	16.7%
10	120.0	318.7	10.8	912.9	32.0	20.0%
Average:	**120.0**	**335.9**	**11.2**	**915.2**	**31.8**	**21.6%**
SEB R on SR 161 EB EXIT RAMP - Lane ID 156177						
1	120.0	3.5	0.2	36.4	1.0	0.0%
2	120.0	3.8	0.2	16.8	1.0	0.0%
3	120.0	3.8	0.2	16.2	1.0	0.0%
4	120.0	4.2	0.2	40.2	2.0	0.0%
5	120.0	1.6	0.1	13.4	1.0	0.0%
6	120.0	3.0	0.1	18.8	1.0	0.0%

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP — NODE: 10

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
SEB R on SR 161 EB EXIT RAMP - Lane ID 156177						
7	120.0	4.8	0.2	23.9	1.0	0.0%
8	120.0	3.2	0.2	29.3	1.0	0.0%
9	120.0	4.4	0.2	15.9	1.0	0.0%
10	120.0	2.4	0.1	16.4	1.0	0.0%
Average:	**120.0**	**3.5**	**0.2**	**22.7**	**1.1**	**0.0%**
SWB L on MINK ST NW - Lane ID 156420						
1	120.0	57.1	2.5	169.9	6.0	0.0%
2	120.0	68.6	2.7	223.0	7.0	0.0%
3	120.0	196.3	6.9	395.1	13.0	5.0%
4	120.0	197.5	7.2	369.2	13.0	1.7%
5	120.0	306.4	10.3	429.7	16.0	36.7%
6	120.0	253.2	8.9	413.6	15.0	11.7%
7	120.0	194.8	6.6	416.9	12.0	9.2%
8	120.0	165.5	5.9	325.0	11.0	0.0%
9	120.0	139.4	5.1	267.6	10.0	0.0%
10	120.0	257.0	8.6	425.9	14.0	19.2%
Average:	**120.0**	**183.6**	**6.5**	**343.6**	**11.7**	**8.4%**
SWB T on MINK ST NW - Lane ID 156421						
1	120.0	20.3	0.8	91.9	3.0	0.0%
2	120.0	19.1	0.8	88.4	3.0	0.0%
3	120.0	17.7	0.7	91.0	3.0	0.0%
4	120.0	12.7	0.6	80.5	3.0	0.0%
5	120.0	19.8	0.7	132.4	4.0	0.0%
6	120.0	13.4	0.6	72.7	3.0	0.0%
7	120.0	27.4	1.1	137.7	5.0	0.0%
8	120.0	14.6	0.6	78.7	3.0	0.0%
9	120.0	21.1	0.8	134.4	5.0	0.0%
10	120.0	18.1	0.7	81.9	3.0	0.0%
Average:	**120.0**	**18.4**	**0.7**	**99.0**	**3.5**	**0.0%**
SWB T on MINK ST NW - Lane ID 156422						
1	120.0	26.6	1.0	147.7	5.0	0.0%
2	120.0	17.2	0.6	120.7	4.0	0.0%
3	120.0	24.0	0.9	131.5	5.0	0.0%
4	120.0	17.5	0.8	85.4	3.0	0.0%
5	120.0	32.1	1.2	158.8	4.0	0.0%
6	120.0	23.0	0.9	113.9	4.0	0.0%
7	120.0	31.2	1.1	156.5	5.0	0.0%
8	120.0	16.1	0.7	88.5	3.0	0.0%
9	120.0	22.7	0.9	134.0	5.0	0.0%
10	120.0	27.3	1.0	135.2	5.0	0.0%

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP — NODE: 10

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
SWB T on MINK ST NW - Lane ID 156422						
Average:	**120.0**	**23.8**	**0.9**	**127.2**	**4.3**	**0.0%**

MINK ST NW, SR 161 WB EXIT RAMP & SR 161 WB ENTRANCE RAMP — NODE: 5

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NEB L on MINK ST NW - Lane ID 156427						
1	120.0	8.9	0.4	48.6	2.0	0.0%
2	120.0	8.8	0.5	57.1	2.0	0.0%
3	120.0	10.4	0.5	52.5	2.0	0.0%
4	120.0	10.1	0.5	76.4	2.0	0.0%
5	120.0	12.0	0.6	72.9	3.0	0.0%
6	120.0	12.6	0.6	73.1	2.0	0.0%
7	120.0	15.0	0.7	77.6	3.0	0.0%
8	120.0	9.2	0.5	47.2	2.0	0.0%
9	120.0	10.4	0.6	47.8	2.0	0.0%
10	120.0	12.4	0.7	90.4	4.0	0.0%
Average:	**120.0**	**11.0**	**0.6**	**64.4**	**2.4**	**0.0%**
NEB T on MINK ST NW - Lane ID 156428						
1	120.0	89.3	3.2	428.3	16.0	9.2%
2	120.0	88.0	3.2	419.0	15.0	5.8%
3	120.0	87.5	3.0	412.8	13.1	6.7%
4	120.0	92.9	3.3	422.9	15.0	9.2%
5	120.0	120.3	4.4	428.2	16.0	17.5%
6	120.0	111.7	3.7	432.5	15.0	14.2%
7	120.0	100.5	3.5	428.2	16.0	13.3%
8	120.0	91.1	3.1	417.0	15.0	7.5%
9	120.0	88.2	3.2	413.7	15.0	7.5%
10	120.0	107.7	3.7	428.1	15.0	14.2%
Average:	**120.0**	**97.7**	**3.4**	**423.1**	**15.1**	**10.5%**
NEB T on MINK ST NW - Lane ID 156429						
1	120.0	90.3	3.0	427.8	15.0	9.2%
2	120.0	88.3	3.0	420.9	14.0	8.3%
3	120.0	98.7	3.4	422.5	14.0	10.0%
4	120.0	100.0	3.3	428.1	15.0	12.5%
5	120.0	120.2	4.1	428.3	16.0	17.5%
6	120.0	114.3	3.7	434.6	15.0	15.8%
7	120.0	107.6	3.8	428.0	16.0	15.8%
8	120.0	92.5	3.2	426.2	15.0	10.0%
9	120.0	89.5	3.3	424.7	16.0	9.2%
10	120.0	101.0	3.5	427.9	15.0	12.5%
Average:	**120.0**	**100.2**	**3.4**	**426.9**	**15.1**	**12.1%**

MINK ST NW, SR 161 WB EXIT RAMP & SR 161 WB ENTRANCE RAMP — NODE: 5

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NEB T on MINK ST NW - Lane ID 156429						
NEB T on MINK ST NW - Lane ID 156430						
1	120.0	83.0	2.8	426.5	14.0	9.2%
2	120.0	85.6	2.8	428.0	14.0	7.5%
3	120.0	86.5	3.0	427.7	14.0	8.3%
4	120.0	95.0	3.2	427.8	15.0	10.8%
5	120.0	117.8	4.0	428.0	16.0	18.3%
6	120.0	114.5	3.9	428.1	15.0	18.3%
7	120.0	103.1	3.5	427.8	15.0	13.3%
8	120.0	85.3	2.9	421.9	14.0	8.3%
9	120.0	84.2	3.1	424.4	15.0	9.2%
10	120.0	105.1	3.6	427.7	16.0	15.0%
Average:	**120.0**	**96.0**	**3.3**	**426.8**	**14.8**	**11.8%**
NWB LT on SR 161 WB EXIT RAMP - Lane ID 156184						
1	120.0	23.7	1.0	91.6	3.0	0.0%
2	120.0	26.0	1.1	93.5	3.0	0.0%
3	120.0	33.9	1.3	126.5	5.0	0.0%
4	120.0	30.3	1.2	124.1	4.0	0.0%
5	120.0	548.9	17.2	1,269.4	39.0	7.5%
6	120.0	43.5	1.8	161.2	7.0	0.0%
7	120.0	66.5	2.5	323.3	12.1	0.0%
8	120.0	29.1	1.2	104.1	4.0	0.0%
9	120.0	21.8	1.0	79.5	3.0	0.0%
10	120.0	117.4	4.0	397.1	13.0	0.0%
Average:	**120.0**	**94.1**	**3.2**	**277.0**	**9.3**	**0.8%**
NWB R on SR 161 WB EXIT RAMP - Lane ID 156185						
1	120.0	72.2	2.6	204.8	7.0	0.0%
2	120.0	67.2	2.6	216.2	7.0	0.0%
3	120.0	68.5	2.5	195.0	7.0	0.0%
4	120.0	75.8	2.8	212.9	7.0	0.0%
5	120.0	83.6	2.9	230.6	9.0	0.0%
6	120.0	63.6	2.4	199.4	7.0	0.0%
7	120.0	71.2	2.7	189.5	7.0	0.0%
8	120.0	71.7	2.4	204.8	7.0	0.0%
9	120.0	75.6	2.8	216.0	6.1	0.0%
10	120.0	74.3	2.6	206.2	8.0	0.0%
Average:	**120.0**	**72.4**	**2.6**	**207.5**	**7.2**	**0.0%**
NWB R on SR 161 WB EXIT RAMP - Lane ID 156340						
1	120.0	70.4	2.6	209.0	7.0	0.0%
2	120.0	66.4	2.5	183.0	7.0	0.0%

MINK ST NW, SR 161 WB EXIT RAMP & SR 161 WB ENTRANCE RAMP — NODE: 5

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NWB R on SR 161 WB EXIT RAMP - Lane ID 156340						
3	120.0	63.7	2.5	182.2	7.0	0.0%
4	120.0	74.1	2.8	209.3	8.0	0.0%
5	120.0	80.3	2.8	256.8	9.0	0.0%
6	120.0	66.4	2.5	219.5	8.0	0.0%
7	120.0	67.4	2.6	203.5	8.0	0.0%
8	120.0	70.5	2.6	215.6	8.0	0.0%
9	120.0	70.9	2.7	206.2	7.0	0.0%
10	120.0	67.3	2.6	202.0	7.0	0.0%
Average:	**120.0**	**69.7**	**2.6**	**208.7**	**7.6**	**0.0%**
SWB R on MINK ST NW - Lane ID 156414						
1	120.0	40.9	1.4	200.7	7.0	0.0%
2	120.0	40.8	1.4	210.8	8.0	0.0%
3	120.0	43.7	1.7	210.4	8.0	0.0%
4	120.0	48.6	1.7	264.4	9.0	0.0%
5	120.0	48.8	1.6	204.6	7.0	0.0%
6	120.0	44.6	1.6	174.4	6.0	0.0%
7	120.0	33.2	1.1	165.5	6.0	0.0%
8	120.0	40.7	1.4	222.1	7.0	0.0%
9	120.0	33.3	1.1	205.4	7.0	0.0%
10	120.0	38.4	1.4	185.0	7.0	0.0%
Average:	**120.0**	**41.3**	**1.4**	**204.3**	**7.2**	**0.0%**
SWB R on MINK ST NW - Lane ID 156415						
1	120.0	38.0	1.4	181.9	6.0	0.0%
2	120.0	31.1	1.2	165.6	6.0	0.0%
3	120.0	36.4	1.4	181.3	6.0	0.0%
4	120.0	41.5	1.4	247.2	8.0	0.0%
5	120.0	39.7	1.5	172.9	7.0	0.0%
6	120.0	33.3	1.2	167.2	5.0	0.0%
7	120.0	25.0	1.0	140.0	5.0	0.0%
8	120.0	33.4	1.2	199.2	6.0	0.0%
9	120.0	25.0	0.9	150.2	5.0	0.0%
10	120.0	33.8	1.3	172.1	6.0	0.0%
Average:	**120.0**	**33.7**	**1.3**	**177.8**	**6.0**	**0.0%**
SWB T on MINK ST NW - Lane ID 156412						
1	120.0	32.8	1.3	178.8	7.0	0.0%
2	120.0	32.1	1.1	213.2	7.0	0.0%
3	120.0	36.8	1.4	180.7	6.0	0.0%
4	120.0	41.7	1.5	218.7	8.0	0.0%
5	120.0	52.1	1.9	184.4	6.0	0.0%
6	120.0	41.7	1.5	196.4	7.0	0.0%

MINK ST NW, SR 161 WB EXIT RAMP & SR 161 WB ENTRANCE RAMP — NODE: 5

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
SWB T on MINK ST NW - Lane ID 156412						
7	120.0	28.1	1.1	142.0	5.0	0.0%
8	120.0	33.2	1.3	185.1	7.0	0.0%
9	120.0	27.0	0.9	166.8	6.0	0.0%
10	120.0	42.1	1.4	194.1	7.0	0.0%
Average:	**120.0**	**36.8**	**1.3**	**186.0**	**6.6**	**0.0%**
SWB T on MINK ST NW - Lane ID 156413						
1	120.0	25.0	0.9	151.0	5.0	0.0%
2	120.0	22.5	0.9	139.5	5.0	0.0%
3	120.0	26.6	1.0	125.3	5.0	0.0%
4	120.0	32.3	1.1	178.8	5.0	0.0%
5	120.0	32.2	1.2	157.6	6.0	0.0%
6	120.0	27.4	1.1	127.9	5.0	0.0%
7	120.0	20.3	0.7	102.2	3.0	0.0%
8	120.0	26.5	1.0	151.7	5.0	0.0%
9	120.0	18.8	0.7	98.1	4.0	0.0%
10	120.0	28.4	1.0	140.6	5.0	0.0%
Average:	**120.0**	**26.0**	**1.0**	**137.3**	**4.8**	**0.0%**

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
EB L on WORTHINGTON RD - Lane ID 153286						
1	120.0	56.1	2.2	182.2	6.0	0.0%
2	120.0	131.6	4.3	369.9	10.1	0.0%
3	120.0	214.4	7.4	619.4	21.0	0.0%
4	120.0	234.6	8.3	528.6	18.0	0.0%
5	120.0	221.0	7.1	595.0	18.0	0.0%
6	120.0	211.1	7.9	667.6	24.0	0.0%
7	120.0	251.6	8.6	656.2	23.1	0.0%
8	120.0	190.9	6.5	760.6	26.0	0.0%
9	120.0	212.6	7.4	988.8	31.1	0.0%
10	120.0	112.9	4.2	387.5	14.0	0.0%
Average:	**120.0**	**183.7**	**6.4**	**575.6**	**19.1**	**0.0%**
EB TR on WORTHINGTON RD - Lane ID 153287						
1	120.0	1.9	0.1	17.0	1.0	0.0%
2	120.0	4.4	0.2	36.5	1.0	0.0%
3	120.0	2.2	0.1	14.6	1.0	0.0%
4	120.0	1.7	0.1	16.7	1.0	0.0%
5	120.0	3.8	0.2	23.2	1.0	0.0%
6	120.0	6.9	0.3	36.6	2.0	0.0%
7	120.0	2.9	0.1	16.6	1.0	0.0%

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
EB TR on WORTHINGTON RD - Lane ID 153287						
8	120.0	2.2	0.1	15.4	1.0	0.0%
9	120.0	2.5	0.1	16.8	1.0	0.0%
10	120.0	4.6	0.2	19.0	1.0	0.0%
Average:	**120.0**	**3.3**	**0.2**	**21.2**	**1.1**	**0.0%**
NEB L on MINK ST SW - Lane ID 156321						
1	120.0	3.5	0.2	17.4	1.0	0.0%
2	120.0	5.5	0.3	32.2	1.0	0.0%
3	120.0	2.5	0.1	16.5	1.0	0.0%
4	120.0	4.2	0.2	19.0	1.0	0.0%
5	120.0	3.9	0.3	16.6	1.0	0.0%
6	120.0	6.5	0.3	39.6	1.0	0.0%
7	120.0	4.2	0.2	18.1	1.0	0.0%
8	120.0	3.4	0.2	17.3	1.0	0.0%
9	120.0	5.4	0.3	18.2	1.0	0.0%
10	120.0	4.2	0.2	18.9	1.0	0.0%
Average:	**120.0**	**4.3**	**0.2**	**21.4**	**1.0**	**0.0%**
NEB T on MINK ST SW - Lane ID 153565						
1	120.0	74.8	2.6	266.5	9.0	0.0%
2	120.0	76.9	2.6	280.4	10.0	0.0%
3	120.0	225.8	7.2	652.4	22.1	0.0%
4	120.0	173.7	5.8	552.3	18.0	0.0%
5	120.0	128.1	4.2	454.2	14.0	0.0%
6	120.0	90.1	3.1	285.9	10.0	0.0%
7	120.0	123.8	4.2	425.7	15.0	0.0%
8	120.0	123.6	3.9	498.6	15.1	0.0%
9	120.0	141.4	4.6	457.8	13.0	0.0%
10	120.0	153.4	4.9	467.2	15.1	0.0%
Average:	**120.0**	**131.2**	**4.3**	**434.1**	**14.1**	**0.0%**
NEB TR on MINK ST SW - Lane ID 156374						
1	120.0	71.6	2.5	259.5	9.0	0.0%
2	120.0	79.6	2.8	284.6	9.0	0.0%
3	120.0	200.4	6.6	648.0	22.0	0.0%
4	120.0	171.4	5.8	574.7	18.0	0.0%
5	120.0	120.7	4.2	403.0	13.1	0.0%
6	120.0	91.1	3.2	319.1	11.0	0.0%
7	120.0	128.3	4.2	494.9	14.0	0.0%
8	120.0	109.4	3.7	472.1	14.0	0.0%
9	120.0	131.1	4.4	386.7	13.0	0.0%
10	120.0	153.2	5.2	516.2	18.0	0.0%
Average:	**120.0**	**125.7**	**4.3**	**435.9**	**14.1**	**0.0%**

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NEB TR on MINK ST SW - Lane ID 156374						
SWB L on MINK ST NW - Lane ID 156270						
1	120.0	14.5	0.7	78.2	3.0	0.0%
2	120.0	13.3	0.7	63.5	3.0	0.0%
3	120.0	17.4	0.8	77.0	3.0	0.0%
4	120.0	25.8	1.0	112.9	3.0	0.0%
5	120.0	24.7	1.1	96.8	3.0	0.0%
6	120.0	28.0	1.2	142.9	4.0	0.0%
7	120.0	17.9	0.8	75.0	3.0	0.0%
8	120.0	15.4	0.7	80.1	3.0	0.0%
9	120.0	19.4	0.9	95.7	3.0	0.0%
10	120.0	27.6	1.1	108.7	4.0	0.0%
Average:	**120.0**	**20.4**	**0.9**	**93.1**	**3.2**	**0.0%**
SWB R on MINK ST NW - Lane ID 156376						
1	120.0	12.1	0.4	72.7	2.0	0.0%
2	120.0	13.6	0.5	78.4	3.0	0.0%
3	120.0	11.4	0.4	79.7	3.0	0.0%
4	120.0	10.6	0.4	64.8	3.0	0.0%
5	120.0	9.9	0.4	70.1	3.0	0.0%
6	120.0	14.9	0.6	77.5	3.0	0.0%
7	120.0	12.4	0.5	96.7	3.0	0.0%
8	120.0	11.5	0.4	69.7	2.0	0.0%
9	120.0	12.4	0.5	75.8	2.0	0.0%
10	120.0	10.4	0.4	74.8	3.0	0.0%
Average:	**120.0**	**11.9**	**0.5**	**76.0**	**2.7**	**0.0%**
SWB T on MINK ST NW - Lane ID 156258						
1	120.0	37.8	1.3	178.3	5.0	0.0%
2	120.0	28.3	1.1	109.1	4.0	0.0%
3	120.0	36.1	1.2	144.0	4.0	0.0%
4	120.0	29.5	1.1	101.3	4.0	0.0%
5	120.0	23.5	0.9	117.4	3.0	0.0%
6	120.0	29.2	1.1	119.7	4.0	0.0%
7	120.0	34.0	1.2	123.4	4.0	0.0%
8	120.0	28.3	1.1	107.4	4.0	0.0%
9	120.0	33.8	1.3	136.3	5.0	0.0%
10	120.0	29.5	1.1	138.0	4.0	0.0%
Average:	**120.0**	**31.0**	**1.1**	**127.5**	**4.1**	**0.0%**
SWB T on MINK ST NW - Lane ID 156337						
1	120.0	31.8	1.2	127.8	4.0	0.0%
2	120.0	39.1	1.4	165.5	5.0	0.0%

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
SWB T on MINK ST NW - Lane ID 156337						
3	120.0	37.7	1.3	137.5	5.0	0.0%
4	120.0	33.2	1.4	117.9	5.0	0.0%
5	120.0	30.0	1.1	119.1	4.0	0.0%
6	120.0	29.8	1.0	142.5	4.0	0.0%
7	120.0	35.1	1.2	161.7	4.0	0.0%
8	120.0	34.2	1.3	134.2	5.0	0.0%
9	120.0	36.1	1.4	119.8	4.0	0.0%
10	120.0	36.6	1.3	109.7	4.0	0.0%
Average:	**120.0**	**34.4**	**1.3**	**133.6**	**4.4**	**0.0%**
WB L on WORTHINGTON RD - Lane ID 153562						
1	120.0	0.7	0.1	0.5	0.0	0.0%
2	120.0	1.3	0.1	15.9	1.0	0.0%
3	120.0	0.8	0.1	0.7	0.0	0.0%
4	120.0	2.4	0.1	17.5	1.0	0.0%
5	120.0	0.9	0.1	15.3	1.0	0.0%
6	120.0	1.3	0.1	14.7	1.0	0.0%
7	120.0	1.9	0.1	15.7	1.0	0.0%
8	120.0	3.1	0.1	15.6	1.0	0.0%
9	120.0	1.7	0.1	16.5	1.0	0.0%
10	120.0	2.6	0.1	15.4	1.0	0.0%
Average:	**120.0**	**1.7**	**0.1**	**12.8**	**0.8**	**0.0%**
WB TR on WORTHINGTON RD - Lane ID 153563						
1	120.0	64.4	2.5	200.7	7.0	0.0%
2	120.0	81.7	2.9	239.1	8.0	0.0%
3	120.0	91.4	3.4	268.1	9.0	0.0%
4	120.0	84.4	2.8	260.1	7.0	0.0%
5	120.0	64.6	2.3	195.0	7.0	0.0%
6	120.0	76.8	2.9	212.4	7.0	0.0%
7	120.0	82.4	3.0	262.4	8.0	0.0%
8	120.0	95.2	3.4	283.6	9.0	0.0%
9	120.0	91.8	3.3	265.8	9.0	0.0%
10	120.0	75.4	2.8	228.2	7.0	0.0%
Average:	**120.0**	**80.8**	**2.9**	**241.5**	**7.8**	**0.0%**

Project: Mink Corridor Proposed Diamond w North
Scenario: AM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 08:00:00 - 09:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Lane Queue by Intersection - Avg Queue

MINK ST NW & BEAVER RD — NODE: 18

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NWB L	156389	BEAVER RD	31.6	4.0	25.3	39.6	10
NWB LR	156390	BEAVER RD	39.0	4.9	30.9	47.0	10

MINK ST NW & BEAVER RD — NODE: 18

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156206	MINK ST NW	17.8	4.4	9.1	24.3	10
NEB T	156207	MINK ST NW	8.4	1.7	5.1	10.5	10
SWB L	156233	MINK ST NW	1.0	0.6	0.2	1.8	10
SWB T	156234	MINK ST NW	3.7	1.5	1.9	6.4	10
SWB T	156235	MINK ST NW	2.7	1.5	1.1	5.3	10
NEB R	156348	MINK ST NW	3.3	1.4	0.8	5.2	10
SWB T	156351	MINK ST NW	1.4	0.5	0.7	2.5	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SEB L	156228	CLOVER VALLEY EXT	6.8	1.2	5.3	8.5	10
SEB R	156229	CLOVER VALLEY EXT	2.8	0.8	1.4	4.0	10
SEB R	156359	CLOVER VALLEY EXT	3.2	0.9	2.0	4.6	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB T	156245	MINK ST NW	47.7	3.1	41.6	52.4	10
SWB TR	156246	MINK ST NW	45.9	4.4	41.4	56.3	10
NEB L	156400	MINK ST NW	13.0	2.7	9.6	18.1	10
NEB L	156401	MINK ST NW	10.5	2.4	7.3	15.2	10
NEB T	156402	MINK ST NW	1.8	0.8	0.4	3.1	10
NEB T	156403	MINK ST NW	2.3	0.7	1.4	3.2	10

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156208	INNOVATION WAY	11.3	2.1	6.8	13.8	10
EB R	156209	INNOVATION WAY	4.9	1.4	3.0	7.2	10

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB T	156397	MINK ST NW	50.9	8.5	35.0	61.9	10
SWB T	156398	MINK ST NW	42.4	7.4	30.4	54.7	10
SWB TR	156399	MINK ST NW	19.4	4.9	12.2	29.3	10
NEB L	156416	MINK ST NW	10.2	2.2	6.9	14.3	10
NEB T	156417	MINK ST NW	11.2	3.7	4.6	17.4	10
NEB T	156418	MINK ST NW	18.8	6.5	11.1	29.7	10
NEB T	156419	MINK ST NW	15.0	4.4	8.1	21.2	10

MINK ST NW & JUG ST — NODE: 33082

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156252	JUG ST	2.5	0.6	1.5	3.5	10
EB R	156253	JUG ST	0.7	0.4	0.1	1.3	10

MINK ST NW & JUG ST — NODE: 33082

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	153566	MINK ST NW	2.6	0.9	0.6	3.6	10
SB T	153676	MINK ST NW	3.2	1.2	0.8	5.2	10
NEB T	156220	MINK ST NW	3.4	0.9	2.2	5.1	10
NEB L	156247	MINK ST NW	0.6	0.9	0.0	2.8	10
SB TR	156248	MINK ST NW	3.6	1.2	2.2	5.4	10

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP — NODE: 10

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156408	MINK ST NW	228.1	22.3	189.1	251.3	10
NEB T	156409	MINK ST NW	202.5	21.2	163.2	218.2	10
NEB T	156410	MINK ST NW	193.5	22.6	151.3	214.9	10
NEB R	156411	MINK ST NW	0.5	0.3	0.0	0.8	10
SWB L	156420	MINK ST NW	183.6	79.8	57.1	306.4	10
SWB T	156421	MINK ST NW	18.4	4.3	12.7	27.4	10
SWB T	156422	MINK ST NW	23.8	5.7	16.1	32.1	10

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP — NODE: 10

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SEB LT	156176	SR 161 EB EXIT RAMP	335.9	31.8	282.4	390.2	10
SEB R	156177	SR 161 EB EXIT RAMP	3.5	1.0	1.6	4.8	10
SEB L	156329	SR 161 EB EXIT RAMP	254.2	19.0	225.8	282.9	10

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP — NODE: 10

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SEB L	156330	SR 161 EB EXIT RAMP	252.4	25.9	224.5	305.6	10

MINK ST NW, SR 161 WB EXIT RAMP & SR 161 WB ENTRANCE RAMP — NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB T	156412	MINK ST NW	36.8	7.7	27.0	52.1	10
SWB T	156413	MINK ST NW	26.0	4.5	18.8	32.3	10
SWB R	156414	MINK ST NW	41.3	5.4	33.2	48.8	10
SWB R	156415	MINK ST NW	33.7	5.6	25.0	41.5	10
NEB L	156427	MINK ST NW	11.0	2.0	8.8	15.0	10
NEB T	156428	MINK ST NW	97.7	11.7	87.5	120.3	10
NEB T	156429	MINK ST NW	100.2	10.9	88.3	120.2	10
NEB T	156430	MINK ST NW	96.0	13.2	83.0	117.8	10

MINK ST NW, SR 161 WB EXIT RAMP & SR 161 WB ENTRANCE RAMP — NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NWB LT	156184	SR 161 WB EXIT RAMP	94.1	162.4	21.8	548.9	10
NWB R	156185	SR 161 WB EXIT RAMP	72.4	5.5	63.6	83.6	10
NWB R	156340	SR 161 WB EXIT RAMP	69.7	4.8	63.7	80.3	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB T	156258	MINK ST NW	31.0	4.3	23.5	37.8	10
SWB L	156270	MINK ST NW	20.4	5.6	13.3	28.0	10
SWB T	156337	MINK ST NW	34.4	3.2	29.8	39.1	10
SWB R	156376	MINK ST NW	11.9	1.5	9.9	14.9	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	153565	MINK ST SW	131.2	46.3	74.8	225.8	10
NEB L	156321	MINK ST SW	4.3	1.2	2.5	6.5	10
NEB TR	156374	MINK ST SW	125.7	40.8	71.6	200.4	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	153286	WORTHINGTON RD	183.7	62.5	56.1	251.6	10
EB TR	153287	WORTHINGTON RD	3.3	1.6	1.7	6.9	10
WB L	153562	WORTHINGTON RD	1.7	0.8	0.7	3.1	10
WB TR	153563	WORTHINGTON RD	80.8	10.7	64.4	95.2	10

WORTHINGTON RD, MINK ST NW & MINK ST SW NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples

Project: Mink Corridor Proposed Diamond w North
Scenario: AM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 08:00:00 - 09:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Lane Queue by Intersection - Avg Num Queued

MINK ST NW & BEAVER RD — NODE: 18

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NWB L	156389	BEAVER RD	1.3	0.1	1.1	1.5	10
NWB LR	156390	BEAVER RD	1.5	0.1	1.3	1.7	10

MINK ST NW & BEAVER RD — NODE: 18

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156206	MINK ST NW	0.7	0.1	0.4	0.9	10
NEB T	156207	MINK ST NW	0.3	0.1	0.2	0.4	10
SWB L	156233	MINK ST NW	0.2	0.0	0.1	0.2	10
SWB T	156234	MINK ST NW	0.2	0.1	0.1	0.3	10
SWB T	156235	MINK ST NW	0.1	0.0	0.1	0.2	10
NEB R	156348	MINK ST NW	0.1	0.1	0.0	0.2	10
SWB T	156351	MINK ST NW	0.1	0.0	0.0	0.1	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SEB L	156228	CLOVER VALLEY EXT	0.3	0.0	0.2	0.4	10
SEB R	156229	CLOVER VALLEY EXT	0.1	0.0	0.1	0.2	10
SEB R	156359	CLOVER VALLEY EXT	0.2	0.1	0.1	0.2	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB T	156245	MINK ST NW	1.8	0.1	1.6	1.9	10
SWB TR	156246	MINK ST NW	1.7	0.2	1.6	2.0	10
NEB L	156400	MINK ST NW	0.6	0.1	0.5	0.8	10
NEB L	156401	MINK ST NW	0.6	0.1	0.5	0.7	10
NEB T	156402	MINK ST NW	0.1	0.0	0.0	0.1	10
NEB T	156403	MINK ST NW	0.1	0.0	0.1	0.2	10

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156208	INNOVATION WAY	0.5	0.1	0.4	0.7	10
EB R	156209	INNOVATION WAY	0.3	0.1	0.2	0.3	10

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB T	156397	MINK ST NW	1.8	0.3	1.2	2.1	10
SWB T	156398	MINK ST NW	1.5	0.3	1.1	1.9	10
SWB TR	156399	MINK ST NW	0.8	0.2	0.5	1.1	10
NEB L	156416	MINK ST NW	0.6	0.1	0.4	0.7	10
NEB T	156417	MINK ST NW	0.4	0.1	0.2	0.6	10
NEB T	156418	MINK ST NW	0.6	0.2	0.4	0.9	10
NEB T	156419	MINK ST NW	0.5	0.2	0.3	0.7	10

MINK ST NW & JUG ST — NODE: 33082

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156252	JUG ST	0.1	0.0	0.1	0.2	10
EB R	156253	JUG ST	0.0	0.0	0.0	0.1	10

MINK ST NW & JUG ST — NODE: 33082

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	153566	MINK ST NW	0.1	0.0	0.0	0.2	10
SB T	153676	MINK ST NW	0.1	0.1	0.0	0.2	10
NEB T	156220	MINK ST NW	0.1	0.1	0.1	0.2	10
NEB L	156247	MINK ST NW	0.0	0.0	0.0	0.1	10
SB TR	156248	MINK ST NW	0.2	0.1	0.1	0.2	10

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP — NODE: 10

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156408	MINK ST NW	7.5	0.8	6.2	8.5	10
NEB T	156409	MINK ST NW	7.0	0.7	5.7	7.7	10
NEB T	156410	MINK ST NW	6.7	0.8	5.2	7.4	10
NEB R	156411	MINK ST NW	0.0	0.0	0.0	0.1	10
SWB L	156420	MINK ST NW	6.5	2.5	2.5	10.3	10
SWB T	156421	MINK ST NW	0.7	0.2	0.6	1.1	10
SWB T	156422	MINK ST NW	0.9	0.2	0.6	1.2	10

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP — NODE: 10

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SEB LT	156176	SR 161 EB EXIT RAMP	11.2	0.9	9.6	12.4	10
SEB R	156177	SR 161 EB EXIT RAMP	0.2	0.0	0.1	0.2	10
SEB L	156329	SR 161 EB EXIT RAMP	8.7	0.6	7.5	9.7	10

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP — NODE: 10

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SEB L	156330	SR 161 EB EXIT RAMP	8.5	0.7	7.7	10.0	10

MINK ST NW, SR 161 WB EXIT RAMP & SR 161 WB ENTRANCE RAMP — NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB T	156412	MINK ST NW	1.3	0.3	0.9	1.9	10
SWB T	156413	MINK ST NW	1.0	0.2	0.7	1.2	10
SWB R	156414	MINK ST NW	1.4	0.2	1.1	1.7	10
SWB R	156415	MINK ST NW	1.3	0.2	0.9	1.5	10
NEB L	156427	MINK ST NW	0.6	0.1	0.4	0.7	10
NEB T	156428	MINK ST NW	3.4	0.4	3.0	4.4	10
NEB T	156429	MINK ST NW	3.4	0.4	3.0	4.1	10
NEB T	156430	MINK ST NW	3.3	0.4	2.8	4.0	10

MINK ST NW, SR 161 WB EXIT RAMP & SR 161 WB ENTRANCE RAMP — NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NWB LT	156184	SR 161 WB EXIT RAMP	3.2	5.0	1.0	17.2	10
NWB R	156185	SR 161 WB EXIT RAMP	2.6	0.2	2.4	2.9	10
NWB R	156340	SR 161 WB EXIT RAMP	2.6	0.1	2.5	2.8	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB T	156258	MINK ST NW	1.1	0.1	0.9	1.3	10
SWB L	156270	MINK ST NW	0.9	0.2	0.7	1.2	10
SWB T	156337	MINK ST NW	1.3	0.1	1.0	1.4	10
SWB R	156376	MINK ST NW	0.5	0.1	0.4	0.6	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	153565	MINK ST SW	4.3	1.4	2.6	7.2	10
NEB L	156321	MINK ST SW	0.2	0.1	0.1	0.3	10
NEB TR	156374	MINK ST SW	4.3	1.3	2.5	6.6	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	153286	WORTHINGTON RD	6.4	2.1	2.2	8.6	10
EB TR	153287	WORTHINGTON RD	0.2	0.1	0.1	0.3	10
WB L	153562	WORTHINGTON RD	0.1	0.0	0.1	0.1	10
WB TR	153563	WORTHINGTON RD	2.9	0.4	2.3	3.4	10

WORTHINGTON RD, MINK ST NW & MINK ST SW NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples

Project: Mink Corridor Proposed Diamond w North
Scenario: AM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 08:00:00 - 09:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Lane Queue by Intersection - Percentile Queue

MINK ST NW & BEAVER RD — NODE: 18

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NWB L	156389	BEAVER RD	107.1	13.0	89.0	132.9	10
NWB LR	156390	BEAVER RD	134.5	17.2	105.7	160.0	10

MINK ST NW & BEAVER RD — NODE: 18

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156206	MINK ST NW	131.2	27.6	72.8	175.9	10
NEB T	156207	MINK ST NW	64.4	21.6	20.6	92.1	10
SWB L	156233	MINK ST NW	3.7	4.6	0.0	12.8	10
SWB T	156234	MINK ST NW	14.6	13.7	0.0	46.4	10
SWB T	156235	MINK ST NW	7.4	9.2	0.0	21.5	10
NEB R	156348	MINK ST NW	11.5	16.3	0.0	41.3	10
SWB T	156351	MINK ST NW	3.2	6.2	0.0	15.6	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SEB L	156228	CLOVER VALLEY EXT	36.4	16.2	17.5	64.3	10
SEB R	156229	CLOVER VALLEY EXT	17.9	2.3	15.3	22.5	10
SEB R	156359	CLOVER VALLEY EXT	20.1	8.8	14.9	44.7	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB T	156245	MINK ST NW	156.5	11.9	140.1	177.8	10
SWB TR	156246	MINK ST NW	154.2	18.8	128.6	185.7	10
NEB L	156400	MINK ST NW	88.4	22.8	56.7	141.4	10
NEB L	156401	MINK ST NW	78.5	18.8	43.7	105.1	10
NEB T	156402	MINK ST NW	4.9	7.6	0.0	17.3	10
NEB T	156403	MINK ST NW	8.4	8.5	0.0	17.8	10

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156208	INNOVATION WAY	57.5	12.5	42.5	74.7	10
EB R	156209	INNOVATION WAY	30.5	12.5	17.2	51.7	10

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB T	156397	MINK ST NW	221.0	24.9	190.0	270.0	10
SWB T	156398	MINK ST NW	192.6	23.9	155.9	222.2	10
SWB TR	156399	MINK ST NW	98.6	18.8	74.4	130.3	10
NEB L	156416	MINK ST NW	63.0	14.1	40.5	85.4	10
NEB T	156417	MINK ST NW	81.1	45.6	16.2	144.1	10
NEB T	156418	MINK ST NW	133.4	65.5	46.1	250.8	10
NEB T	156419	MINK ST NW	113.3	32.5	67.0	175.5	10

MINK ST NW & JUG ST — NODE: 33082

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156252	JUG ST	17.0	1.1	16.1	19.9	10
EB R	156253	JUG ST	2.6	5.5	0.0	15.3	10

MINK ST NW & JUG ST — NODE: 33082

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	153566	MINK ST NW	15.8	6.0	0.0	23.3	10
SB T	153676	MINK ST NW	19.0	14.2	0.0	42.6	10
NEB T	156220	MINK ST NW	19.5	6.4	15.3	36.8	10
NEB L	156247	MINK ST NW	1.0	2.3	0.0	6.3	10
SB TR	156248	MINK ST NW	25.9	11.5	16.4	42.5	10

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP — NODE: 10

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156408	MINK ST NW	615.6	32.7	555.7	649.8	10
NEB T	156409	MINK ST NW	546.9	52.8	446.6	604.4	10
NEB T	156410	MINK ST NW	524.3	54.0	414.3	595.2	10
NEB R	156411	MINK ST NW	0.1	0.3	0.0	0.7	10
SWB L	156420	MINK ST NW	343.6	93.5	169.9	429.7	10
SWB T	156421	MINK ST NW	99.0	25.5	72.7	137.7	10
SWB T	156422	MINK ST NW	127.2	25.5	85.4	158.8	10

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP — NODE: 10

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SEB LT	156176	SR 161 EB EXIT RAMP	915.2	3.0	911.0	918.5	10
SEB R	156177	SR 161 EB EXIT RAMP	22.7	9.4	13.4	40.2	10
SEB L	156329	SR 161 EB EXIT RAMP	904.4	11.4	880.8	919.0	10

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP — NODE: 10

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SEB L	156330	SR 161 EB EXIT RAMP	812.2	120.2	566.3	916.6	10

MINK ST NW, SR 161 WB EXIT RAMP & SR 161 WB ENTRANCE RAMP — NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB T	156412	MINK ST NW	186.0	22.0	142.0	218.7	10
SWB T	156413	MINK ST NW	137.3	24.8	98.1	178.8	10
SWB R	156414	MINK ST NW	204.3	27.5	165.5	264.4	10
SWB R	156415	MINK ST NW	177.8	29.5	140.0	247.2	10
NEB L	156427	MINK ST NW	64.4	15.5	47.2	90.4	10
NEB T	156428	MINK ST NW	423.1	7.0	412.8	432.5	10
NEB T	156429	MINK ST NW	426.9	3.7	420.9	434.6	10
NEB T	156430	MINK ST NW	426.8	2.1	421.9	428.1	10

MINK ST NW, SR 161 WB EXIT RAMP & SR 161 WB ENTRANCE RAMP — NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NWB LT	156184	SR 161 WB EXIT RAMP	277.0	364.8	79.5	1,269.4	10
NWB R	156185	SR 161 WB EXIT RAMP	207.5	11.9	189.5	230.6	10
NWB R	156340	SR 161 WB EXIT RAMP	208.7	20.9	182.2	256.8	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB T	156258	MINK ST NW	127.5	22.7	101.3	178.3	10
SWB L	156270	MINK ST NW	93.1	23.5	63.5	142.9	10
SWB T	156337	MINK ST NW	133.6	18.7	109.7	165.5	10
SWB R	156376	MINK ST NW	76.0	8.6	64.8	96.7	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	153565	MINK ST SW	434.1	125.4	266.5	652.4	10
NEB L	156321	MINK ST SW	21.4	7.9	16.5	39.6	10
NEB TR	156374	MINK ST SW	435.9	127.6	259.5	648.0	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	153286	WORTHINGTON RD	575.6	225.3	182.2	988.8	10
EB TR	153287	WORTHINGTON RD	21.2	8.4	14.6	36.6	10
WB L	153562	WORTHINGTON RD	12.8	6.5	0.5	17.5	10
WB TR	153563	WORTHINGTON RD	241.5	31.1	195.0	283.6	10

WORTHINGTON RD, MINK ST NW & MINK ST SW NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples

Project: Mink Corridor Proposed Diamond w North
Scenario: AM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 08:00:00 - 09:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Lane Queue by Intersection - Percentile Num Queued

MINK ST NW & BEAVER RD — NODE: 18

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NWB L	156389	BEAVER RD	3.7	0.5	3.0	4.0	10
NWB LR	156390	BEAVER RD	4.4	0.7	4.0	6.0	10

MINK ST NW & BEAVER RD — NODE: 18

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156206	MINK ST NW	4.7	1.1	2.0	6.0	10
NEB T	156207	MINK ST NW	2.3	0.7	1.0	3.0	10
SWB L	156233	MINK ST NW	1.0	0.0	1.0	1.0	10
SWB T	156234	MINK ST NW	0.8	0.6	0.0	2.0	10
SWB T	156235	MINK ST NW	0.4	0.5	0.0	1.0	10
NEB R	156348	MINK ST NW	0.6	0.8	0.0	2.0	10
SWB T	156351	MINK ST NW	0.2	0.4	0.0	1.0	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SEB L	156228	CLOVER VALLEY EXT	1.1	0.3	1.0	2.0	10
SEB R	156229	CLOVER VALLEY EXT	1.0	0.0	1.0	1.0	10
SEB R	156359	CLOVER VALLEY EXT	1.0	0.0	1.0	1.0	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB T	156245	MINK ST NW	5.6	0.5	5.0	6.0	10
SWB TR	156246	MINK ST NW	5.5	0.5	5.0	6.0	10
NEB L	156400	MINK ST NW	3.6	0.7	3.0	5.0	10
NEB L	156401	MINK ST NW	3.5	0.5	3.0	4.0	10
NEB T	156402	MINK ST NW	0.3	0.5	0.0	1.0	10
NEB T	156403	MINK ST NW	0.5	0.5	0.0	1.0	10

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156208	INNOVATION WAY	2.1	0.3	2.0	3.0	10
EB R	156209	INNOVATION WAY	1.2	0.4	1.0	2.0	10

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB T	156397	MINK ST NW	7.8	0.8	7.0	9.0	10
SWB T	156398	MINK ST NW	6.2	0.9	5.0	8.0	10
SWB TR	156399	MINK ST NW	3.9	0.7	3.0	5.0	10
NEB L	156416	MINK ST NW	2.5	0.5	2.0	3.0	10
NEB T	156417	MINK ST NW	3.3	1.9	1.0	6.0	10
NEB T	156418	MINK ST NW	4.4	1.8	2.0	7.0	10
NEB T	156419	MINK ST NW	4.0	1.2	3.0	6.0	10

MINK ST NW & JUG ST — NODE: 33082

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156252	JUG ST	1.0	0.0	1.0	1.0	10
EB R	156253	JUG ST	0.2	0.4	0.0	1.0	10

MINK ST NW & JUG ST — NODE: 33082

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	153566	MINK ST NW	0.9	0.3	0.0	1.0	10
SB T	153676	MINK ST NW	1.0	0.7	0.0	2.0	10
NEB T	156220	MINK ST NW	1.1	0.3	1.0	2.0	10
NEB L	156247	MINK ST NW	0.2	0.4	0.0	1.0	10
SB TR	156248	MINK ST NW	1.2	0.4	1.0	2.0	10

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP — NODE: 10

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156408	MINK ST NW	20.2	1.7	17.0	22.0	10
NEB T	156409	MINK ST NW	19.0	1.5	16.0	21.0	10
NEB T	156410	MINK ST NW	17.6	1.9	15.0	20.0	10
NEB R	156411	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB L	156420	MINK ST NW	11.7	3.3	6.0	16.0	10
SWB T	156421	MINK ST NW	3.5	0.8	3.0	5.0	10
SWB T	156422	MINK ST NW	4.3	0.8	3.0	5.0	10

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP — NODE: 10

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SEB LT	156176	SR 161 EB EXIT RAMP	31.8	0.8	31.0	33.1	10
SEB R	156177	SR 161 EB EXIT RAMP	1.1	0.3	1.0	2.0	10
SEB L	156329	SR 161 EB EXIT RAMP	29.3	1.8	27.0	32.0	10

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP — NODE: 10

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SEB L	156330	SR 161 EB EXIT RAMP	26.6	3.0	20.3	30.1	10

MINK ST NW, SR 161 WB EXIT RAMP & SR 161 WB ENTRANCE RAMP — NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB T	156412	MINK ST NW	6.6	0.8	5.0	8.0	10
SWB T	156413	MINK ST NW	4.8	0.8	3.0	6.0	10
SWB R	156414	MINK ST NW	7.2	0.9	6.0	9.0	10
SWB R	156415	MINK ST NW	6.0	0.9	5.0	8.0	10
NEB L	156427	MINK ST NW	2.4	0.7	2.0	4.0	10
NEB T	156428	MINK ST NW	15.1	0.8	13.1	16.0	10
NEB T	156429	MINK ST NW	15.1	0.7	14.0	16.0	10
NEB T	156430	MINK ST NW	14.8	0.8	14.0	16.0	10

MINK ST NW, SR 161 WB EXIT RAMP & SR 161 WB ENTRANCE RAMP — NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NWB LT	156184	SR 161 WB EXIT RAMP	9.3	11.1	3.0	39.0	10
NWB R	156185	SR 161 WB EXIT RAMP	7.2	0.8	6.1	9.0	10
NWB R	156340	SR 161 WB EXIT RAMP	7.6	0.7	7.0	9.0	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB T	156258	MINK ST NW	4.1	0.6	3.0	5.0	10
SWB L	156270	MINK ST NW	3.2	0.4	3.0	4.0	10
SWB T	156337	MINK ST NW	4.4	0.5	4.0	5.0	10
SWB R	156376	MINK ST NW	2.7	0.5	2.0	3.0	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	153565	MINK ST SW	14.1	4.0	9.0	22.1	10
NEB L	156321	MINK ST SW	1.0	0.0	1.0	1.0	10
NEB TR	156374	MINK ST SW	14.1	4.2	9.0	22.0	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	153286	WORTHINGTON RD	19.1	7.6	6.0	31.1	10
EB TR	153287	WORTHINGTON RD	1.1	0.3	1.0	2.0	10
WB L	153562	WORTHINGTON RD	0.8	0.4	0.0	1.0	10
WB TR	153563	WORTHINGTON RD	7.8	0.9	7.0	9.0	10

WORTHINGTON RD, MINK ST NW & MINK ST SW NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples

Project: Mink Corridor Proposed Diamond w North
Scenario: AM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 08:00:00 - 09:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Lane Queue by Intersection - Spillback Rate

MINK ST NW & BEAVER RD — NODE: 18

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NWB L	156389	BEAVER RD	0.0	0.0	0.0	0.0	10
NWB LR	156390	BEAVER RD	0.0	0.0	0.0	0.0	10

MINK ST NW & BEAVER RD — NODE: 18

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156206	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB T	156207	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB L	156233	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB T	156234	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB T	156235	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB R	156348	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB T	156351	MINK ST NW	0.0	0.0	0.0	0.0	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SEB L	156228	CLOVER VALLEY EXT	0.0	0.0	0.0	0.0	10
SEB R	156229	CLOVER VALLEY EXT	0.0	0.0	0.0	0.0	10
SEB R	156359	CLOVER VALLEY EXT	0.0	0.0	0.0	0.0	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB T	156245	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB TR	156246	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB L	156400	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB L	156401	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB T	156402	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB T	156403	MINK ST NW	0.0	0.0	0.0	0.0	10

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156208	INNOVATION WAY	0.0	0.0	0.0	0.0	10
EB R	156209	INNOVATION WAY	0.0	0.0	0.0	0.0	10

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB T	156397	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB T	156398	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB TR	156399	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB L	156416	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB T	156417	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB T	156418	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB T	156419	MINK ST NW	0.0	0.0	0.0	0.0	10

MINK ST NW & JUG ST — NODE: 33082

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156252	JUG ST	0.0	0.0	0.0	0.0	10
EB R	156253	JUG ST	0.0	0.0	0.0	0.0	10

MINK ST NW & JUG ST — NODE: 33082

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	153566	MINK ST NW	0.0	0.0	0.0	0.0	10
SB T	153676	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB T	156220	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB L	156247	MINK ST NW	0.0	0.0	0.0	0.0	10
SB TR	156248	MINK ST NW	0.0	0.0	0.0	0.0	10

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP — NODE: 10

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156408	MINK ST NW	0.1	0.0	0.0	0.2	10
NEB T	156409	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB T	156410	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB R	156411	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB L	156420	MINK ST NW	0.1	0.1	0.0	0.4	10
SWB T	156421	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB T	156422	MINK ST NW	0.0	0.0	0.0	0.0	10

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP — NODE: 10

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SEB LT	156176	SR 161 EB EXIT RAMP	0.2	0.0	0.1	0.3	10
SEB R	156177	SR 161 EB EXIT RAMP	0.0	0.0	0.0	0.0	10
SEB L	156329	SR 161 EB EXIT RAMP	0.1	0.0	0.1	0.1	10

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP — NODE: 10

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SEB L	156330	SR 161 EB EXIT RAMP	0.1	0.0	0.0	0.1	10

MINK ST NW, SR 161 WB EXIT RAMP & SR 161 WB ENTRANCE RAMP — NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB T	156412	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB T	156413	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB R	156414	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB R	156415	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB L	156427	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB T	156428	MINK ST NW	0.1	0.0	0.1	0.2	10
NEB T	156429	MINK ST NW	0.1	0.0	0.1	0.2	10
NEB T	156430	MINK ST NW	0.1	0.0	0.1	0.2	10

MINK ST NW, SR 161 WB EXIT RAMP & SR 161 WB ENTRANCE RAMP — NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NWB LT	156184	SR 161 WB EXIT RAMP	0.0	0.0	0.0	0.1	10
NWB R	156185	SR 161 WB EXIT RAMP	0.0	0.0	0.0	0.0	10
NWB R	156340	SR 161 WB EXIT RAMP	0.0	0.0	0.0	0.0	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB T	156258	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB L	156270	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB T	156337	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB R	156376	MINK ST NW	0.0	0.0	0.0	0.0	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	153565	MINK ST SW	0.0	0.0	0.0	0.0	10
NEB L	156321	MINK ST SW	0.0	0.0	0.0	0.0	10
NEB TR	156374	MINK ST SW	0.0	0.0	0.0	0.0	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	153286	WORTHINGTON RD	0.0	0.0	0.0	0.0	10
EB TR	153287	WORTHINGTON RD	0.0	0.0	0.0	0.0	10
WB L	153562	WORTHINGTON RD	0.0	0.0	0.0	0.0	10
WB TR	153563	WORTHINGTON RD	0.0	0.0	0.0	0.0	10

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples

Project: Mink Corridor Proposed Diamond w North
Scenario: AM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 08:00:00 - 09:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Spillback Queue by Intersection - Overview

MINK ST NW & BEAVER RD — NODE: 18

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
NEB on MINK ST NW							
1	60.0	17.7	1.2	264.4	20.0	1.2	20.0
2	60.0	21.2	1.3	312.3	18.0	1.3	18.0
3	60.0	29.8	1.7	266.8	13.0	1.7	13.0
4	60.0	34.4	1.7	417.9	16.0	1.7	16.0
5	60.0	20.1	1.2	312.3	16.0	1.2	16.0
6	60.0	21.9	1.3	222.7	11.0	1.3	11.0
7	60.0	57.8	2.8	382.1	18.0	2.8	18.0
8	60.0	38.0	1.9	227.7	13.0	1.9	13.0
9	60.0	24.3	1.5	265.3	22.0	1.5	22.0
10	60.0	21.5	1.0	261.7	15.0	1.0	15.0
Average:	**60.0**	**28.7**	**1.6**	**293.3**	**16.2**	**1.6**	**16.2**
NWB on BEAVER RD							
1	60.0	49.1	2.9	211.6	10.0	2.9	10.0
2	60.0	57.5	3.2	239.7	11.0	3.2	11.0
3	60.0	52.9	3.0	189.3	8.0	3.0	8.0
4	60.0	53.5	3.3	239.3	10.0	3.3	10.0
5	60.0	45.5	2.6	173.0	10.0	2.6	10.0
6	60.0	47.6	2.8	151.7	9.0	2.8	9.0
7	60.0	60.3	3.2	279.0	14.0	3.2	14.0
8	60.0	54.5	3.1	191.1	10.0	3.1	10.0
9	60.0	58.5	3.3	175.0	9.0	3.3	9.0
10	60.0	63.9	3.6	296.0	15.0	3.6	15.0
Average:	**60.0**	**54.3**	**3.1**	**214.6**	**10.6**	**3.1**	**10.6**
SWB on MINK ST NW							
1	60.0	2.3	0.1	120.1	5.0	0.1	5.0
2	60.0	7.9	0.7	124.8	12.0	0.7	12.0
3	60.0	5.4	0.4	111.9	10.0	0.4	10.0
4	60.0	7.4	0.3	114.6	3.0	0.3	3.0
5	60.0	3.9	0.3	98.5	5.0	0.3	5.0
6	60.0	3.4	0.3	67.7	4.0	0.3	4.0
7	60.0	8.3	0.5	118.1	9.0	0.5	9.0
8	60.0	3.8	0.3	81.6	9.0	0.3	9.0

MINK ST NW & BEAVER RD

NODE: 18

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
9	60.0	4.7	0.3	106.3	8.0	0.3	8.0
10	60.0	9.0	0.6	173.4	13.0	0.6	13.0
Average:	**60.0**	**5.6**	**0.4**	**111.7**	**7.8**	**0.4**	**7.8**

MINK ST NW & CLOVER VALLEY EXT

NODE: 7

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
NEB on MINK ST NW							
1	60.0	18.9	1.1	229.4	13.0	1.1	13.0
2	60.0	24.8	1.4	215.8	10.0	1.4	10.0
3	60.0	20.7	1.2	187.4	10.0	1.2	10.0
4	60.0	31.7	1.8	243.5	13.0	1.8	13.0
5	60.0	29.5	2.0	235.8	21.0	2.0	21.0
6	60.0	18.2	1.1	175.9	10.0	1.1	10.0
7	60.0	27.8	1.6	395.6	15.0	1.6	15.0
8	60.0	19.8	1.2	197.7	10.0	1.2	10.0
9	60.0	27.7	1.6	192.5	11.0	1.6	11.0
10	60.0	26.8	1.5	162.6	11.0	1.5	11.0
Average:	**60.0**	**24.6**	**1.5**	**223.6**	**12.4**	**1.5**	**12.4**
SEB on CLOVER VALLEY EXT							
1	60.0	8.6	0.7	67.6	5.0	0.7	5.0
2	60.0	10.5	0.6	81.3	5.0	0.6	5.0
3	60.0	8.8	0.5	64.6	2.0	0.5	2.0
4	60.0	11.4	0.7	76.8	6.0	0.7	6.0
5	60.0	9.7	0.6	138.6	5.0	0.6	5.0
6	60.0	8.9	0.7	61.0	4.0	0.7	4.0
7	60.0	9.7	0.6	68.3	5.0	0.6	5.0
8	60.0	8.4	0.5	75.4	4.0	0.5	4.0
9	60.0	10.8	0.7	80.1	4.0	0.7	4.0
10	60.0	11.0	0.5	74.5	4.0	0.5	4.0
Average:	**60.0**	**9.8**	**0.6**	**78.8**	**4.4**	**0.6**	**4.4**
SWB on MINK ST NW							
1	60.0	63.0	3.8	253.7	15.0	3.8	15.0
2	60.0	85.9	4.9	239.9	15.0	4.9	15.0
3	60.0	68.2	3.7	228.6	14.0	3.7	14.0
4	60.0	66.7	4.1	304.7	16.0	4.1	16.0
5	60.0	73.7	4.3	243.9	15.0	4.3	15.0
6	60.0	71.5	4.4	213.2	15.0	4.4	15.0
7	60.0	61.9	3.3	217.2	13.0	3.3	13.0
8	60.0	64.0	3.8	256.1	14.0	3.8	14.0

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
9	60.0	58.3	3.8	265.5	13.0	3.8	13.0
10	60.0	65.6	4.0	247.0	16.0	4.0	16.0
Average:	**60.0**	**67.9**	**4.0**	**247.0**	**14.6**	**4.0**	**14.6**

MINK ST NW & INNOVATION WAY — NODE: 15

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
EB on INNOVATION WAY							
1	60.0	14.3	0.7	161.7	6.0	0.7	6.0
2	60.0	13.2	0.8	74.4	4.0	0.8	4.0
3	60.0	17.7	0.9	81.7	4.0	0.9	4.0
4	60.0	13.8	0.8	52.9	4.0	0.8	4.0
5	60.0	18.2	0.9	102.7	4.0	0.9	4.0
6	60.0	20.5	0.9	143.4	4.0	0.9	4.0
7	60.0	12.4	0.8	95.2	5.0	0.8	5.0
8	60.0	9.7	0.6	73.5	4.0	0.6	4.0
9	60.0	12.9	0.6	83.9	4.0	0.6	4.0
10	60.0	16.3	0.9	107.0	4.0	0.9	4.0
Average:	**60.0**	**14.9**	**0.8**	**97.6**	**4.3**	**0.8**	**4.3**
NEB on MINK ST NW							
1	60.0	54.7	3.6	525.5	32.0	3.6	32.0
2	60.0	47.6	3.4	505.3	40.0	3.4	40.0
3	60.0	57.7	3.8	443.0	40.0	3.8	40.0
4	60.0	55.1	3.3	463.6	32.0	3.3	32.0
5	60.0	27.5	2.1	272.9	25.0	2.1	25.0
6	60.0	38.5	2.2	509.0	31.0	2.2	31.0
7	60.0	60.0	3.8	437.3	28.0	3.8	28.0
8	60.0	57.8	4.3	508.6	37.0	4.3	37.0
9	60.0	65.5	4.9	471.1	40.0	4.9	40.0
10	60.0	46.2	3.1	400.1	28.0	3.1	28.0
Average:	**60.0**	**51.1**	**3.5**	**453.6**	**33.3**	**3.5**	**33.3**
SWB on MINK ST NW							
1	60.0	68.5	4.4	395.6	24.0	4.4	24.0
2	60.0	62.1	4.4	260.5	20.0	4.4	20.0
3	60.0	68.2	4.9	314.9	22.0	4.9	22.0
4	60.0	68.8	4.8	432.3	26.0	4.8	26.0
5	60.0	69.4	4.8	308.4	24.0	4.8	24.0
6	60.0	67.2	4.4	394.4	22.0	4.4	22.0
7	60.0	83.4	5.7	337.1	23.0	5.7	23.0
8	60.0	88.9	6.1	311.7	25.0	6.1	25.0

MINK ST NW & INNOVATION WAY

NODE: 15

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
9	60.0	64.9	4.1	389.6	19.0	4.1	19.0
10	60.0	65.6	4.7	308.4	22.0	4.7	22.0
Average:	**60.0**	**70.7**	**4.8**	**345.3**	**22.7**	**4.8**	**22.7**

MINK ST NW & JUG ST

NODE: 33082

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
EB on JUG ST							
1	60.0	3.9	0.2	67.9	2.0	0.2	2.0
2	60.0	2.0	0.1	52.7	2.0	0.1	2.0
3	60.0	3.6	0.2	65.8	2.0	0.2	2.0
4	60.0	4.1	0.2	99.5	2.0	0.2	2.0
5	60.0	5.3	0.3	69.5	3.0	0.3	3.0
6	60.0	3.2	0.1	74.5	2.0	0.1	2.0
7	60.0	3.3	0.2	66.1	2.0	0.2	2.0
8	60.0	2.9	0.2	44.6	2.0	0.2	2.0
9	60.0	5.3	0.3	46.5	2.0	0.3	2.0
10	60.0	3.7	0.1	76.8	1.0	0.1	1.0
Average:	**60.0**	**3.7**	**0.2**	**66.4**	**2.0**	**0.2**	**2.0**
NEB on MINK ST NW							
1	60.0	7.8	0.5	158.9	9.0	0.5	9.0
2	60.0	4.5	0.3	47.7	3.0	0.3	3.0
3	60.0	7.4	0.4	149.7	6.0	0.4	6.0
4	60.0	3.7	0.3	65.9	4.0	0.3	4.0
5	60.0	5.0	0.3	95.6	4.0	0.3	4.0
6	60.0	7.6	0.4	105.2	6.0	0.4	6.0
7	60.0	4.8	0.2	103.8	4.0	0.2	4.0
8	60.0	3.2	0.1	99.1	5.0	0.1	5.0
9	60.0	7.7	0.4	159.9	9.0	0.4	9.0
10	60.0	1.3	0.1	23.3	1.0	0.1	1.0
Average:	**60.0**	**5.3**	**0.3**	**100.9**	**5.1**	**0.3**	**5.1**
SB on MINK ST NW							
1	60.0	8.6	0.4	75.8	4.0	0.4	4.0
2	60.0	3.2	0.2	63.0	3.0	0.2	3.0
3	60.0	5.7	0.3	71.4	4.0	0.3	4.0
4	60.0	4.4	0.3	49.4	3.0	0.3	3.0
5	60.0	8.4	0.4	98.2	5.0	0.4	5.0
6	60.0	6.5	0.3	85.8	2.0	0.3	2.0
7	60.0	11.9	0.6	214.7	10.0	0.6	10.0
8	60.0	5.5	0.2	155.8	5.0	0.2	5.0

MINK ST NW & JUG ST — NODE: 33082

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
9	60.0	10.0	0.4	102.5	3.0	0.4	3.0
10	60.0	8.7	0.4	92.9	4.0	0.4	4.0
Average:	**60.0**	**7.3**	**0.4**	**101.0**	**4.3**	**0.4**	**4.3**

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP — NODE: 10

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
NEB on MINK ST NW							
1	60.0	178.8	14.4	940.3	54.0	14.5	57.0
2	60.0	262.7	21.2	1,031.5	55.0	21.4	61.0
3	60.0	413.3	29.9	1,429.4	86.0	33.0	110.0
4	60.0	409.7	29.2	1,316.4	77.0	30.7	100.0
5	60.0	390.9	25.9	1,546.8	87.0	27.6	96.0
6	60.0	424.6	30.3	1,654.7	91.0	32.0	104.0
7	60.0	388.5	29.1	1,632.4	88.0	30.6	118.0
8	60.0	319.9	24.4	1,621.9	95.0	25.3	113.0
9	60.0	310.5	21.7	1,594.8	88.0	23.2	94.0
10	60.0	320.0	24.2	1,370.0	77.0	25.3	91.0
Average:	**60.0**	**341.9**	**25.0**	**1,413.8**	**79.8**	**26.4**	**94.4**
SEB on SR 161 EB EXIT RAMP							
1	60.0	620.9	42.5	3,211.9	153.0	42.5	153.0
2	60.0	625.1	39.9	1,395.5	100.0	39.9	100.0
3	60.0	458.7	33.0	1,734.2	91.0	33.0	91.0
4	60.0	504.1	35.1	1,966.9	109.0	35.1	109.0
5	60.0	569.8	40.3	1,941.6	108.0	40.3	108.0
6	60.0	741.2	47.7	3,149.0	134.0	47.7	134.0
7	60.0	499.1	35.5	1,304.4	98.0	35.5	98.0
8	60.0	581.9	39.3	1,358.1	103.0	39.3	103.0
9	60.0	525.1	39.4	1,330.5	102.0	39.4	102.0
10	60.0	532.7	37.0	2,112.5	111.0	37.0	111.0
Average:	**60.0**	**565.9**	**39.0**	**1,950.5**	**110.9**	**39.0**	**110.9**
SWB on MINK ST NW							
1	60.0	66.1	4.0	261.9	15.0	4.0	15.0
2	60.0	83.1	4.8	229.9	16.0	4.8	16.0
3	60.0	226.1	9.9	735.4	34.0	10.1	34.0
4	60.0	219.3	9.9	611.0	26.0	10.0	31.0
5	60.0	535.2	19.7	1,923.9	78.0	22.0	84.0
6	60.0	259.4	11.1	823.7	37.0	11.2	40.0
7	60.0	216.5	9.4	1,026.0	43.0	10.0	55.0
8	60.0	183.6	8.6	602.8	26.0	8.6	26.0

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP — NODE: 10

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
9	60.0	166.9	7.6	348.0	25.0	7.6	25.0
10	60.0	362.8	14.5	982.1	41.0	15.8	46.0
Average:	**60.0**	**231.9**	**10.0**	**754.5**	**34.1**	**10.4**	**37.2**

MINK ST NW, SR 161 WB EXIT RAMP & SR 161 WB ENTRANCE RAMP — NODE: 5

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
NEB on MINK ST NW							
1	60.0	187.0	14.4	982.0	88.0	16.9	117.0
2	60.0	310.4	23.8	1,793.8	102.0	29.7	149.0
3	60.0	324.7	25.4	1,659.6	114.0	31.2	163.0
4	60.0	323.1	22.8	1,698.8	111.0	28.9	153.0
5	60.0	162.3	13.0	1,847.8	100.0	15.0	132.0
6	60.0	249.5	18.3	1,722.4	105.0	22.4	168.0
7	60.0	255.4	20.0	1,939.9	112.0	25.0	156.0
8	60.0	230.5	17.8	1,698.0	113.0	21.6	162.0
9	60.0	204.9	16.2	2,124.7	129.0	19.2	157.0
10	60.0	291.7	22.3	1,899.9	116.0	27.9	170.0
Average:	**60.0**	**254.0**	**19.4**	**1,736.7**	**109.0**	**23.8**	**152.7**
NWB on SR 161 WB EXIT RAMP							
1	60.0	96.3	6.8	258.1	19.0	6.8	19.0
2	60.0	77.6	5.4	284.9	22.0	5.4	22.0
3	60.0	106.3	7.3	327.3	22.0	7.3	22.0
4	60.0	113.2	7.4	471.7	25.0	7.4	25.0
5	60.0	623.6	26.3	1,498.7	64.0	26.3	64.0
6	60.0	106.3	7.8	315.7	23.0	7.8	23.0
7	60.0	121.9	7.9	544.7	29.0	7.9	29.0
8	60.0	105.8	6.6	319.4	17.0	6.6	17.0
9	60.0	102.5	7.2	316.0	20.0	7.2	20.0
10	60.0	181.3	10.6	515.7	29.0	10.6	29.0
Average:	**60.0**	**163.5**	**9.3**	**485.2**	**27.0**	**9.3**	**27.0**
SWB on MINK ST NW							
1	60.0	51.0	4.5	397.2	41.0	4.5	41.0
2	60.0	74.3	6.7	409.1	33.0	6.7	33.0
3	60.0	80.6	7.5	326.5	33.0	7.5	33.0
4	60.0	64.1	5.7	349.1	33.0	5.7	33.0
5	60.0	69.9	6.2	352.4	28.0	6.2	28.0
6	60.0	61.5	5.6	367.2	28.0	5.6	28.0
7	60.0	65.1	5.6	312.8	30.0	5.6	30.0
8	60.0	48.1	4.7	310.1	33.0	4.7	33.0

MINK ST NW, SR 161 WB EXIT RAMP & SR 161 WB ENTRANCE RAMP — NODE: 5

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
9	60.0	51.0	4.2	367.4	34.0	4.2	34.0
10	60.0	71.2	6.2	302.3	35.0	6.2	35.0
Average:	**60.0**	**63.7**	**5.7**	**349.4**	**32.8**	**5.7**	**32.8**

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
EB on WORTHINGTON RD							
1	60.0	57.8	2.1	203.2	7.0	2.1	7.0
2	60.0	156.2	5.2	522.0	18.0	5.2	18.0
3	60.0	250.8	8.7	722.6	25.0	8.7	25.0
4	60.0	279.5	9.8	676.7	21.0	9.8	21.0
5	60.0	265.3	8.6	747.8	24.0	8.6	24.0
6	60.0	241.0	9.2	855.7	30.0	9.2	30.0
7	60.0	288.4	9.8	833.4	29.0	9.8	29.0
8	60.0	243.8	8.1	879.2	31.0	8.1	31.0
9	60.0	204.2	7.0	1,192.2	40.0	7.0	40.0
10	60.0	132.6	5.0	571.0	22.0	5.0	22.0
Average:	**60.0**	**212.0**	**7.4**	**720.4**	**24.7**	**7.4**	**24.7**
NEB on MINK ST SW							
1	60.0	111.1	6.6	385.1	21.0	6.6	21.0
2	60.0	79.7	4.5	365.9	20.0	4.5	20.0
3	60.0	263.9	13.6	1,761.0	67.0	13.6	67.0
4	60.0	223.2	12.8	789.4	47.0	12.8	47.0
5	60.0	210.2	12.1	644.7	35.0	12.1	35.0
6	60.0	155.1	9.1	526.2	29.0	9.1	29.0
7	60.0	142.1	8.2	1,173.5	47.0	8.2	47.0
8	60.0	155.9	8.4	969.1	44.0	8.4	44.0
9	60.0	200.5	11.8	503.6	32.0	11.8	32.0
10	60.0	205.6	11.4	1,063.9	54.0	11.4	54.0
Average:	**60.0**	**174.7**	**9.9**	**818.2**	**39.6**	**9.9**	**39.6**
SWB on MINK ST NW							
1	60.0	55.2	4.3	276.4	14.0	4.3	14.0
2	60.0	34.4	2.9	149.8	15.0	2.9	15.0
3	60.0	49.2	3.6	230.8	15.0	3.6	15.0
4	60.0	45.9	3.5	187.4	16.0	3.5	16.0
5	60.0	53.9	4.8	230.9	20.0	4.8	20.0
6	60.0	55.5	4.0	217.4	15.0	4.0	15.0
7	60.0	47.6	3.5	289.8	14.0	3.5	14.0
8	60.0	42.9	3.2	171.9	13.0	3.2	13.0

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
9	60.0	61.3	4.7	187.8	15.0	4.7	15.0
10	60.0	65.2	4.4	257.8	15.0	4.4	15.0
Average:	**60.0**	**51.1**	**3.9**	**220.0**	**15.2**	**3.9**	**15.2**
WB on WORTHINGTON RD							
1	60.0	89.8	3.3	341.3	11.0	3.3	11.0
2	60.0	101.6	3.6	403.7	10.0	3.6	10.0
3	60.0	114.2	4.1	437.0	12.0	4.1	12.0
4	60.0	94.9	3.2	302.9	8.0	3.2	8.0
5	60.0	82.9	2.9	439.7	12.0	2.9	12.0
6	60.0	88.3	3.3	271.7	10.0	3.3	10.0
7	60.0	92.6	3.4	425.3	14.0	3.4	14.0
8	60.0	113.5	4.0	333.0	11.0	4.0	11.0
9	60.0	137.5	4.6	364.8	12.0	4.6	12.0
10	60.0	92.2	3.3	322.4	11.0	3.3	11.0
Average:	**60.0**	**100.8**	**3.6**	**364.2**	**11.1**	**3.6**	**11.1**

ABOUT SPILLBACK QUEUES

Spillback queues begin at the front bumper of the first vehicle in queue on a link. From there, the queue can branch as a tree in different directions as it spills upstream through intersections. The various branches of the spillback queue will extend beyond the originating link and superlink boundaries until the back of the queue is reached on every branch in the tree.

- Average/Maximum Queue Length: Distance from the front bumper of the first queued vehicle to the back bumper of the last queued vehicle for the longest branch
- Average/Maximum Vehicles Queued: Number of vehicles queued in all lanes for the longest branch

Project: Mink Corridor Proposed Diamond w North
Scenario: AM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 08:00:00 - 09:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Spillback Queue by Intersection - Avg Queue

MINK ST NW & BEAVER RD — NODE: 18

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	28.7	12.2	17.7	57.8	10
NWB	BEAVER RD	54.3	5.9	45.5	63.9	10
SWB	MINK ST NW	5.6	2.4	2.3	9.0	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	24.6	4.8	18.2	31.7	10
SEB	CLOVER VALLEY EXT	9.8	1.1	8.4	11.4	10
SWB	MINK ST NW	67.9	7.8	58.3	85.9	10

MINK ST NW & INNOVATION WAY — NODE: 15

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	INNOVATION WAY	14.9	3.2	9.7	20.5	10
NEB	MINK ST NW	51.1	11.3	27.5	65.5	10
SWB	MINK ST NW	70.7	8.5	62.1	88.9	10

MINK ST NW & JUG ST — NODE: 33082

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	JUG ST	3.7	1.0	2.0	5.3	10
NEB	MINK ST NW	5.3	2.3	1.3	7.8	10
SB	MINK ST NW	7.3	2.7	3.2	11.9	10

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP — NODE: 10

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	341.9	78.8	178.8	424.6	10
SEB	SR 161 EB EXIT RAMP	565.9	81.7	458.7	741.2	10
SWB	MINK ST NW	231.9	136.0	66.1	535.2	10

MINK ST NW, SR 161 WB EXIT RAMP & SR 161 WB ENTRANCE RAMP — NODE: 5

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	254.0	58.0	162.3	324.7	10
NWB	SR 161 WB EXIT RAMP	163.5	163.9	77.6	623.6	10
SWB	MINK ST NW	63.7	10.9	48.1	80.6	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	WORTHINGTON RD	212.0	74.4	57.8	288.4	10
NEB	MINK ST SW	174.7	55.8	79.7	263.9	10
SWB	MINK ST NW	51.1	9.0	34.4	65.2	10
WB	WORTHINGTON RD	100.8	16.5	82.9	137.5	10

Project: Mink Corridor Proposed Diamond w North
Scenario: AM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 08:00:00 - 09:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Spillback Queue by Intersection - Avg Num Queued

MINK ST NW & BEAVER RD — NODE: 18

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	1.6	0.5	1.0	2.8	10
NWB	BEAVER RD	3.1	0.3	2.6	3.6	10
SWB	MINK ST NW	0.4	0.2	0.1	0.7	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	1.5	0.3	1.1	2.0	10
SEB	CLOVER VALLEY EXT	0.6	0.1	0.5	0.7	10
SWB	MINK ST NW	4.0	0.4	3.3	4.9	10

MINK ST NW & INNOVATION WAY — NODE: 15

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	INNOVATION WAY	0.8	0.1	0.6	0.9	10
NEB	MINK ST NW	3.5	0.9	2.1	4.9	10
SWB	MINK ST NW	4.8	0.6	4.1	6.1	10

MINK ST NW & JUG ST — NODE: 33082

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	JUG ST	0.2	0.1	0.1	0.3	10
NEB	MINK ST NW	0.3	0.1	0.1	0.5	10
SB	MINK ST NW	0.4	0.1	0.2	0.6	10

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP — NODE: 10

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	25.0	5.0	14.4	30.3	10
SEB	SR 161 EB EXIT RAMP	39.0	4.2	33.0	47.7	10
SWB	MINK ST NW	10.0	4.6	4.0	19.7	10

MINK ST NW, SR 161 WB EXIT RAMP & SR 161 WB ENTRANCE RAMP — NODE: 5

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	19.4	4.2	13.0	25.4	10
NWB	SR 161 WB EXIT RAMP	9.3	6.1	5.4	26.3	10
SWB	MINK ST NW	5.7	1.0	4.2	7.5	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	WORTHINGTON RD	7.4	2.5	2.1	9.8	10
NEB	MINK ST SW	9.9	3.0	4.5	13.6	10
SWB	MINK ST NW	3.9	0.6	2.9	4.8	10
WB	WORTHINGTON RD	3.6	0.5	2.9	4.6	10

Project: Mink Corridor Proposed Diamond w North
Scenario: AM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 08:00:00 - 09:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Spillback Queue by Intersection - Avg Total Queued

MINK ST NW & BEAVER RD — NODE: 18

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	1.6	0.5	1.0	2.8	10
NWB	BEAVER RD	3.1	0.3	2.6	3.6	10
SWB	MINK ST NW	0.4	0.2	0.1	0.7	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	1.5	0.3	1.1	2.0	10
SEB	CLOVER VALLEY EXT	0.6	0.1	0.5	0.7	10
SWB	MINK ST NW	4.0	0.4	3.3	4.9	10

MINK ST NW & INNOVATION WAY — NODE: 15

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	INNOVATION WAY	0.8	0.1	0.6	0.9	10
NEB	MINK ST NW	3.5	0.9	2.1	4.9	10
SWB	MINK ST NW	4.8	0.6	4.1	6.1	10

MINK ST NW & JUG ST — NODE: 33082

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	JUG ST	0.2	0.1	0.1	0.3	10
NEB	MINK ST NW	0.3	0.1	0.1	0.5	10
SB	MINK ST NW	0.4	0.1	0.2	0.6	10

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP — NODE: 10

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	26.4	5.7	14.5	33.0	10
SEB	SR 161 EB EXIT RAMP	39.0	4.2	33.0	47.7	10
SWB	MINK ST NW	10.4	5.3	4.0	22.0	10

MINK ST NW, SR 161 WB EXIT RAMP & SR 161 WB ENTRANCE RAMP — NODE: 5

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	23.8	5.6	15.0	31.2	10
NWB	SR 161 WB EXIT RAMP	9.3	6.1	5.4	26.3	10
SWB	MINK ST NW	5.7	1.0	4.2	7.5	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	WORTHINGTON RD	7.4	2.5	2.1	9.8	10
NEB	MINK ST SW	9.9	3.0	4.5	13.6	10
SWB	MINK ST NW	3.9	0.6	2.9	4.8	10
WB	WORTHINGTON RD	3.6	0.5	2.9	4.6	10

Project: Mink Corridor Proposed Diamond w North
Scenario: AM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 08:00:00 - 09:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Spillback Queue by Intersection - Max Queue

MINK ST NW & BEAVER RD — NODE: 18

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	293.3	63.9	222.7	417.9	10
NWB	BEAVER RD	214.6	47.7	151.7	296.0	10
SWB	MINK ST NW	111.7	28.2	67.7	173.4	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	223.6	66.0	162.6	395.6	10
SEB	CLOVER VALLEY EXT	78.8	22.0	61.0	138.6	10
SWB	MINK ST NW	247.0	26.3	213.2	304.7	10

MINK ST NW & INNOVATION WAY — NODE: 15

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	INNOVATION WAY	97.6	33.1	52.9	161.7	10
NEB	MINK ST NW	453.6	74.7	272.9	525.5	10
SWB	MINK ST NW	345.3	54.3	260.5	432.3	10

MINK ST NW & JUG ST — NODE: 33082

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	JUG ST	66.4	16.1	44.6	99.5	10
NEB	MINK ST NW	100.9	46.4	23.3	159.9	10
SB	MINK ST NW	101.0	49.3	49.4	214.7	10

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP — NODE: 10

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	1,413.8	254.2	940.3	1,654.7	10
SEB	SR 161 EB EXIT RAMP	1,950.5	711.9	1,304.4	3,211.9	10
SWB	MINK ST NW	754.5	497.2	229.9	1,923.9	10

MINK ST NW, SR 161 WB EXIT RAMP & SR 161 WB ENTRANCE RAMP — NODE: 5

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	1,736.7	300.5	982.0	2,124.7	10
NWB	SR 161 WB EXIT RAMP	485.2	370.2	258.1	1,498.7	10
SWB	MINK ST NW	349.4	36.7	302.3	409.1	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	WORTHINGTON RD	720.4	260.5	203.2	1,192.2	10
NEB	MINK ST SW	818.2	435.3	365.9	1,761.0	10
SWB	MINK ST NW	220.0	46.0	149.8	289.8	10
WB	WORTHINGTON RD	364.2	59.5	271.7	439.7	10

Project: Mink Corridor Proposed Diamond w North
Scenario: AM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 08:00:00 - 09:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Spillback Queue by Intersection - Max Num Queued

MINK ST NW & BEAVER RD — NODE: 18

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	16.2	3.4	11.0	22.0	10
NWB	BEAVER RD	10.6	2.2	8.0	15.0	10
SWB	MINK ST NW	7.8	3.4	3.0	13.0	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	12.4	3.5	10.0	21.0	10
SEB	CLOVER VALLEY EXT	4.4	1.1	2.0	6.0	10
SWB	MINK ST NW	14.6	1.1	13.0	16.0	10

MINK ST NW & INNOVATION WAY — NODE: 15

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	INNOVATION WAY	4.3	0.7	4.0	6.0	10
NEB	MINK ST NW	33.3	5.6	25.0	40.0	10
SWB	MINK ST NW	22.7	2.2	19.0	26.0	10

MINK ST NW & JUG ST — NODE: 33082

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	JUG ST	2.0	0.5	1.0	3.0	10
NEB	MINK ST NW	5.1	2.5	1.0	9.0	10
SB	MINK ST NW	4.3	2.2	2.0	10.0	10

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP — NODE: 10

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	79.8	14.4	54.0	95.0	10
SEB	SR 161 EB EXIT RAMP	110.9	18.7	91.0	153.0	10
SWB	MINK ST NW	34.1	18.2	15.0	78.0	10

MINK ST NW, SR 161 WB EXIT RAMP & SR 161 WB ENTRANCE RAMP — NODE: 5

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	109.0	11.0	88.0	129.0	10
NWB	SR 161 WB EXIT RAMP	27.0	13.6	17.0	64.0	10
SWB	MINK ST NW	32.8	3.8	28.0	41.0	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	WORTHINGTON RD	24.7	8.8	7.0	40.0	10
NEB	MINK ST SW	39.6	14.9	20.0	67.0	10
SWB	MINK ST NW	15.2	1.9	13.0	20.0	10
WB	WORTHINGTON RD	11.1	1.6	8.0	14.0	10

Project: Mink Corridor Proposed Diamond w North
Scenario: AM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 08:00:00 - 09:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Spillback Queue by Intersection - Max Total Queued

MINK ST NW & BEAVER RD — NODE: 18

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	16.2	3.4	11.0	22.0	10
NWB	BEAVER RD	10.6	2.2	8.0	15.0	10
SWB	MINK ST NW	7.8	3.4	3.0	13.0	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	12.4	3.5	10.0	21.0	10
SEB	CLOVER VALLEY EXT	4.4	1.1	2.0	6.0	10
SWB	MINK ST NW	14.6	1.1	13.0	16.0	10

MINK ST NW & INNOVATION WAY — NODE: 15

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	INNOVATION WAY	4.3	0.7	4.0	6.0	10
NEB	MINK ST NW	33.3	5.6	25.0	40.0	10
SWB	MINK ST NW	22.7	2.2	19.0	26.0	10

MINK ST NW & JUG ST — NODE: 33082

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	JUG ST	2.0	0.5	1.0	3.0	10
NEB	MINK ST NW	5.1	2.5	1.0	9.0	10
SB	MINK ST NW	4.3	2.2	2.0	10.0	10

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP — NODE: 10

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	94.4	20.5	57.0	118.0	10
SEB	SR 161 EB EXIT RAMP	110.9	18.7	91.0	153.0	10
SWB	MINK ST NW	37.2	20.7	15.0	84.0	10

MINK ST NW, SR 161 WB EXIT RAMP & SR 161 WB ENTRANCE RAMP — NODE: 5

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	152.7	16.6	117.0	170.0	10
NWB	SR 161 WB EXIT RAMP	27.0	13.6	17.0	64.0	10
SWB	MINK ST NW	32.8	3.8	28.0	41.0	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	WORTHINGTON RD	24.7	8.8	7.0	40.0	10
NEB	MINK ST SW	39.6	14.9	20.0	67.0	10
SWB	MINK ST NW	15.2	1.9	13.0	20.0	10
WB	WORTHINGTON RD	11.1	1.6	8.0	14.0	10

Mink Street (Diamond Interchange) - PM

Project: Mink Corridor Proposed Diamond w North
Scenario: PM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 16:00:00 - 17:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Intersection Level of Service - Overview

MINK ST NW & BEAVER RD -- SIGNALIZED — NODE: 18

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
1	3,640.0	54.20	53.6	D
2	3,780.0	42.30	40.3	D
3	3,777.0	37.50	35.8	D
4	3,666.0	47.80	47.0	D
5	3,738.0	51.30	49.4	D
6	3,740.0	53.50	51.5	D
7	3,729.0	55.20	53.3	D
8	3,734.0	52.50	50.6	D
9	3,713.0	57.80	56.1	E
10	3,713.0	77.00	74.6	E
Average:	**3,723.0**	**52.91**	**51.2**	**D**

MINK ST NW & CLOVER VALLEY EXT -- SIGNALIZED — NODE: 7

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
1	2,828.0	125.40	159.7	F
2	2,912.0	106.50	131.7	F
3	2,908.0	111.70	138.2	F
4	2,839.0	119.20	151.2	F
5	2,904.0	109.90	136.2	F
6	2,913.0	106.00	131.1	F
7	2,914.0	113.20	139.9	F
8	2,905.0	118.20	146.5	F
9	2,881.0	111.50	139.3	F
10	2,903.0	111.00	137.7	F
Average:	**2,890.7**	**113.26**	**141.1**	**F**

MINK ST NW & INNOVATION WAY -- SIGNALIZED — NODE: 15

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
1	4,462.0	47.50	38.3	D
2	4,605.0	48.70	38.1	D
3	4,552.0	47.60	37.6	D
4	4,479.0	48.20	38.8	D
5	4,553.0	48.00	38.0	D
6	4,513.0	45.50	36.3	D
7	4,545.0	46.90	37.1	D
8	4,514.0	47.10	37.5	D

9	4,514.0	47.90	38.2	D
10	4,523.0	47.50	37.8	D
Average:	**4,526.0**	**47.49**	**37.8**	**D**

MINK ST NW & JUG ST -- SIGNALIZED NODE: 33082

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
1	1,796.0	22.70	45.5	D
2	1,876.0	16.90	32.4	C
3	1,875.0	17.00	32.7	C
4	1,805.0	21.20	42.2	D
5	1,855.0	16.30	31.6	C
6	1,897.0	16.70	31.7	C
7	1,899.0	18.00	34.1	C
8	1,882.0	19.80	38.0	D
9	1,840.0	19.10	37.4	D
10	1,889.0	17.90	34.1	C
Average:	**1,861.4**	**18.56**	**36.0**	**D**

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP -- SIGNALIZED NODE: 10

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
1	3,847.0	55.40	51.8	D
2	3,961.0	59.40	54.0	D
3	3,845.0	59.80	56.0	E
4	3,834.0	60.20	56.6	E
5	3,910.0	58.10	53.5	D
6	3,876.0	59.30	55.1	E
7	3,906.0	54.80	50.5	D
8	3,847.0	58.20	54.5	D
9	3,818.0	56.80	53.6	D
10	3,873.0	58.50	54.4	D
Average:	**3,871.7**	**58.05**	**54.0**	**D**

MINK ST NW, SR 161 WB EXIT RAMP & SR 161 WB ENTRANCE RAMP -- SIGNALIZED NODE: 5

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
1	4,652.0	19.30	15.0	B
2	4,799.0	21.40	16.1	B
3	4,687.0	21.80	16.7	B
4	4,647.0	24.50	19.0	B
5	4,732.0	20.80	15.9	B
6	4,688.0	18.40	14.1	B
7	4,751.0	19.30	14.6	B
8	4,691.0	21.10	16.2	B
9	4,685.0	19.90	15.3	B

10	4,687.0	21.50	16.6	B
Average:	**4,701.9**	**20.80**	**15.9**	**B**

WORTHINGTON RD, MINK ST NW & MINK ST SW -- SIGNALIZED NODE: 32764

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
1	2,865.0	79.40	99.8	F
2	2,948.0	66.30	81.0	F
3	2,833.0	91.60	116.4	F
4	2,851.0	77.60	98.0	F
5	2,928.0	84.80	104.2	F
6	2,821.0	92.60	118.1	F
7	2,898.0	60.10	74.7	E
8	2,888.0	77.10	96.1	F
9	2,828.0	88.00	112.0	F
10	2,881.0	78.90	98.6	F
Average:	**2,874.1**	**79.64**	**99.9**	**F**

Project: Mink Corridor Proposed Diamond w North
Scenario: PM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 16:00:00 - 17:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Intersection Level of Service - Total Control Delay

Node ID	Intersection	Control Type	Average	Std Dev	Minimum	Maximum	# Samples
18	MINK ST NW & BEAVER RD	Actuated	52.9	10.5	37.5	77.0	10
7	MINK ST NW & CLOVER VALLEY EXT	Actuated	113.3	6.0	106.0	125.4	10
15	MINK ST NW & INNOVATION WAY	Actuated	47.5	0.9	45.5	48.7	10
33082	MINK ST NW & JUG ST	Actuated	18.6	2.1	16.3	22.7	10
10	MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP	Actuated	58.1	1.8	54.8	60.2	10
5	MINK ST NW, SR 161 WB EXIT RAMP & SR 161 WB ENTRANCE RAMP	Actuated	20.8	1.7	18.4	24.5	10
32764	WORTHINGTON RD, MINK ST NW & MINK ST SW	Actuated	79.6	10.4	60.1	92.6	10

Project: Mink Corridor Proposed Diamond w North
Scenario: PM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 16:00:00 - 17:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Intersection Level of Service - Avg Control Delay

Node ID	Intersection	Control Type	Average	Std Dev	Minimum	Maximum	# Samples
18	MINK ST NW & BEAVER RD	Actuated	51.2	10.3	35.8	74.6	10
7	MINK ST NW & CLOVER VALLEY EXT	Actuated	141.1	8.9	131.1	159.7	10
15	MINK ST NW & INNOVATION WAY	Actuated	37.8	0.7	36.3	38.8	10
33082	MINK ST NW & JUG ST	Actuated	36.0	4.7	31.6	45.5	10
10	MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP	Actuated	54.0	1.8	50.5	56.6	10
5	MINK ST NW, SR 161 WB EXIT RAMP & SR 161 WB ENTRANCE RAMP	Actuated	15.9	1.4	14.1	19.0	10
32764	WORTHINGTON RD, MINK ST NW & MINK ST SW	Actuated	99.9	14.1	74.7	118.1	10

Project: Mink Corridor Proposed Diamond w North
Scenario: PM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 16:00:00 - 17:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Intersection Level of Service by Approach - Overview

MINK ST NW & BEAVER RD -- SIGNALIZED — NODE: 18

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
NEB on MINK ST NW: Superlink ID 61211				
1	925.0	2.00	7.7	A
2	942.0	1.90	7.1	A
3	925.0	1.80	7.0	A
4	913.0	2.10	8.1	A
5	923.0	2.00	7.8	A
6	910.0	2.20	8.7	A
7	913.0	1.80	7.3	A
8	904.0	2.00	7.8	A
9	919.0	2.00	7.9	A
10	930.0	2.00	7.6	A
Average:	**920.4**	**1.98**	**7.7**	**A**
NWB on BEAVER RD: Superlink ID 61210				
1	762.0	32.60	154.0	F
2	826.0	20.90	90.9	F
3	802.0	15.40	69.3	E
4	780.0	24.90	115.2	F
5	800.0	28.70	129.2	F
6	792.0	32.40	147.3	F
7	770.0	34.60	161.6	F
8	788.0	30.30	138.4	F
9	782.0	34.30	158.0	F
10	777.0	55.10	255.4	F
Average:	**787.9**	**30.92**	**141.9**	**F**
SWB on MINK ST NW: Superlink ID 61213				
1	1,953.0	19.60	36.1	D
2	2,012.0	19.60	35.0	D
3	2,050.0	20.30	35.6	D
4	1,973.0	20.80	38.0	D
5	2,015.0	20.60	36.8	D
6	2,038.0	18.90	33.4	C
7	2,046.0	18.80	33.0	C
8	2,042.0	20.20	35.7	D
9	2,012.0	21.50	38.5	D

MINK ST NW & BEAVER RD -- SIGNALIZED — NODE: 18

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
10	2,006.0	19.90	35.7	D
Average:	**2,014.7**	**20.02**	**35.8**	**D**

MINK ST NW & CLOVER VALLEY EXT -- SIGNALIZED — NODE: 7

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
NEB on MINK ST NW: Superlink ID 61213				
1	799.0	9.00	40.6	D
2	821.0	8.60	37.8	D
3	791.0	8.60	39.2	D
4	792.0	8.90	40.5	D
5	808.0	8.50	37.7	D
6	777.0	8.60	39.9	D
7	792.0	8.70	39.5	D
8	781.0	8.40	38.8	D
9	796.0	8.80	39.7	D
10	807.0	8.90	39.8	D
Average:	**796.4**	**8.70**	**39.3**	**D**
SEB on CLOVER VALLEY EXT: Superlink ID 61212				
1	1,154.0	6.60	20.7	C
2	1,153.0	6.60	20.6	C
3	1,158.0	6.90	21.4	C
4	1,163.0	7.00	21.7	C
5	1,159.0	6.60	20.5	C
6	1,152.0	6.70	20.8	C
7	1,152.0	6.90	21.7	C
8	1,161.0	7.20	22.3	C
9	1,166.0	7.50	23.2	C
10	1,141.0	7.60	24.0	C
Average:	**1,155.9**	**6.96**	**21.7**	**C**
SWB on MINK ST NW: Superlink ID 61222				
1	875.0	109.80	451.6	F
2	938.0	91.30	350.6	F
3	959.0	96.20	361.0	F
4	884.0	103.30	420.6	F
5	937.0	94.80	364.3	F
6	984.0	90.80	332.1	F
7	970.0	97.60	362.2	F
8	963.0	102.60	383.7	F
9	919.0	95.20	372.9	F
10	955.0	94.50	356.3	F
Average:	**938.4**	**97.61**	**375.5**	**F**

MINK ST NW & INNOVATION WAY -- SIGNALIZED — NODE: 15

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
EB on INNOVATION WAY: Superlink ID 61207				
1	133.0	1.70	46.4	D
2	128.0	1.60	43.6	D
3	131.0	1.60	44.8	D
4	131.0	1.70	47.1	D
5	132.0	1.60	43.0	D
6	127.0	1.70	49.3	D
7	126.0	1.60	46.4	D
8	122.0	1.50	44.9	D
9	127.0	1.80	51.1	D
10	125.0	1.70	48.7	D
Average:	**128.2**	**1.65**	**46.5**	**D**
NEB on MINK ST NW: Superlink ID 61209				
1	1,672.0	2.40	5.1	A
2	1,704.0	2.30	4.9	A
3	1,636.0	2.40	5.2	A
4	1,647.0	2.20	4.8	A
5	1,673.0	2.40	5.1	A
6	1,622.0	2.20	4.9	A
7	1,663.0	2.50	5.5	A
8	1,620.0	2.20	4.9	A
9	1,651.0	2.20	4.9	A
10	1,682.0	2.40	5.2	A
Average:	**1,657.0**	**2.32**	**5.0**	**A**
SWB on MINK ST NW: Superlink ID 61211				
1	2,657.0	43.40	58.8	E
2	2,773.0	44.80	58.2	E
3	2,785.0	43.60	56.4	E
4	2,701.0	44.30	59.1	E
5	2,748.0	44.00	57.7	E
6	2,764.0	41.50	54.1	D
7	2,756.0	42.70	55.8	E
8	2,772.0	43.30	56.3	E
9	2,736.0	43.90	57.7	E
10	2,716.0	43.40	57.5	E
Average:	**2,740.8**	**43.49**	**57.2**	**E**

MINK ST NW & JUG ST -- SIGNALIZED — NODE: 33082

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
EB on JUG ST: Superlink ID 29977				
1	83.0	1.00	43.1	D
2	89.0	1.20	47.9	D

MINK ST NW & JUG ST -- SIGNALIZED — NODE: 33082

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
3	83.0	0.90	38.2	D
4	87.0	1.20	50.7	D
5	87.0	0.90	38.8	D
6	95.0	0.90	32.6	C
7	90.0	0.90	35.7	D
8	93.0	0.90	36.4	D
9	89.0	0.80	34.3	C
10	88.0	1.00	41.3	D
Average:	**88.4**	**0.97**	**39.9**	**D**
NEB on MINK ST NW: Superlink ID 61222				
1	745.0	1.90	9.0	A
2	769.0	1.30	6.0	A
3	750.0	1.50	7.3	A
4	753.0	1.70	8.1	A
5	747.0	1.30	6.3	A
6	744.0	1.30	6.5	A
7	757.0	1.60	7.6	A
8	744.0	1.60	7.6	A
9	759.0	1.60	7.8	A
10	743.0	1.40	6.7	A
Average:	**751.1**	**1.52**	**7.3**	**A**
SB on MINK ST NW: Superlink ID 29606				
1	968.0	19.80	73.8	E
2	1,018.0	14.40	50.9	D
3	1,042.0	14.60	50.6	D
4	965.0	18.30	68.2	E
5	1,021.0	14.10	49.6	D
6	1,058.0	14.50	49.4	D
7	1,052.0	15.50	53.0	D
8	1,045.0	17.30	59.7	E
9	992.0	16.60	60.4	E
10	1,058.0	15.50	52.7	D
Average:	**1,021.9**	**16.06**	**56.8**	**E**

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP -- SIGNALIZED — NODE: 10

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
NEB on MINK ST NW: Superlink ID 61202				
1	1,021.0	40.00	141.2	F
2	1,069.0	42.50	143.2	F
3	967.0	44.10	164.1	F
4	1,006.0	42.90	153.6	F

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP -- SIGNALIZED

NODE: 10

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
5	1,033.0	42.90	149.5	F
6	982.0	44.80	164.1	F
7	1,031.0	39.10	136.5	F
8	989.0	41.60	151.4	F
9	999.0	41.50	149.4	F
10	1,032.0	42.40	147.8	F
Average:	**1,012.9**	**42.18**	**150.1**	**F**
SEB on SR 161 EB EXIT RAMP: Superlink ID 61221				
1	1,030.0	7.40	25.9	C
2	1,010.0	7.10	25.4	C
3	1,036.0	7.40	25.7	C
4	998.0	7.10	25.6	C
5	1,003.0	7.00	25.1	C
6	1,016.0	6.80	24.3	C
7	1,008.0	7.10	25.4	C
8	1,001.0	7.00	25.0	C
9	999.0	6.90	24.9	C
10	1,007.0	7.10	25.5	C
Average:	**1,010.8**	**7.09**	**25.3**	**C**
SWB on MINK ST NW: Superlink ID 61198				
1	1,796.0	7.90	15.9	B
2	1,882.0	9.80	18.8	B
3	1,842.0	8.30	16.3	B
4	1,830.0	10.20	20.1	C
5	1,874.0	8.20	15.8	B
6	1,878.0	7.70	14.8	B
7	1,867.0	8.60	16.6	B
8	1,857.0	9.60	18.7	B
9	1,820.0	8.50	16.8	B
10	1,834.0	9.00	17.6	B
Average:	**1,848.0**	**8.78**	**17.1**	**B**

MINK ST NW, SR 161 WB EXIT RAMP & SR 161 WB ENTRANCE RAMP -- SIGNALIZED

NODE: 5

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
NEB on MINK ST NW: Superlink ID 61198				
1	1,736.0	3.80	7.9	A
2	1,767.0	3.90	8.0	A
3	1,678.0	3.50	7.6	A
4	1,694.0	3.70	7.8	A
5	1,730.0	4.00	8.3	A

MINK ST NW, SR 161 WB EXIT RAMP & SR 161 WB ENTRANCE RAMP -- SIGNALIZED

NODE: 5

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
6	1,676.0	3.70	8.0	A
7	1,721.0	3.50	7.4	A
8	1,679.0	3.70	8.0	A
9	1,698.0	3.60	7.6	A
10	1,720.0	3.90	8.2	A
Average:	**1,709.9**	**3.73**	**7.9**	**A**
NWB on SR 161 WB EXIT RAMP: Superlink ID 61205				
1	122.0	1.30	37.0	D
2	121.0	1.40	40.7	D
3	124.0	1.30	38.6	D
4	120.0	1.40	41.6	D
5	118.0	1.40	42.4	D
6	113.0	1.20	38.5	D
7	122.0	1.30	39.2	D
8	123.0	1.20	34.1	C
9	121.0	1.30	39.4	D
10	125.0	1.30	36.5	D
Average:	**120.9**	**1.31**	**38.8**	**D**
SWB on MINK ST NW: Superlink ID 61209				
1	2,794.0	14.20	18.4	B
2	2,911.0	16.10	20.0	B
3	2,885.0	16.90	21.1	C
4	2,833.0	19.50	24.8	C
5	2,884.0	15.50	19.3	B
6	2,899.0	13.40	16.7	B
7	2,908.0	14.40	17.8	B
8	2,889.0	16.10	20.1	C
9	2,866.0	15.00	18.9	B
10	2,842.0	16.40	20.7	C
Average:	**2,871.1**	**15.75**	**19.8**	**B**

WORTHINGTON RD, MINK ST NW & MINK ST SW -- SIGNALIZED

NODE: 32764

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
EB on WORTHINGTON RD: Superlink ID 29557				
1	238.0	21.60	326.9	F
2	211.0	23.80	406.3	F
3	193.0	22.50	419.6	F
4	210.0	27.70	475.5	F
5	230.0	20.40	320.1	F
6	199.0	23.70	428.7	F
7	240.0	17.30	260.1	F

WORTHINGTON RD, MINK ST NW & MINK ST SW -- SIGNALIZED NODE: 32764

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
8	266.0	14.60	197.9	F
9	231.0	26.00	405.2	F
10	212.0	21.20	359.3	F
Average:	**223.0**	**21.88**	**359.9**	**F**
NEB on MINK ST SW: Superlink ID 24528				
1	932.0	49.90	192.7	F
2	993.0	34.20	123.8	F
3	908.0	60.30	239.0	F
4	928.0	41.20	159.7	F
5	946.0	55.70	211.8	F
6	884.0	59.90	244.1	F
7	919.0	34.00	133.2	F
8	890.0	53.50	216.4	F
9	894.0	53.40	215.1	F
10	943.0	48.90	186.7	F
Average:	**923.7**	**49.10**	**192.2**	**F**
SWB on MINK ST NW: Superlink ID 61202				
1	1,564.0	6.60	15.2	B
2	1,613.0	6.80	15.3	B
3	1,596.0	7.10	16.0	B
4	1,583.0	7.20	16.4	B
5	1,617.0	7.30	16.2	B
6	1,608.0	7.80	17.4	B
7	1,606.0	7.40	16.7	B
8	1,599.0	7.70	17.4	B
9	1,569.0	7.10	16.4	B
10	1,595.0	7.30	16.5	B
Average:	**1,595.0**	**7.23**	**16.3**	**B**
WB on WORTHINGTON RD: Superlink ID 29572				
1	131.0	1.30	34.8	C
2	131.0	1.50	41.7	D
3	136.0	1.80	47.3	D
4	130.0	1.50	41.4	D
5	135.0	1.40	36.8	D
6	130.0	1.20	32.1	C
7	133.0	1.30	36.3	D
8	133.0	1.20	33.4	C
9	134.0	1.40	38.9	D
10	131.0	1.50	42.0	D
Average:	**132.4**	**1.41**	**38.5**	**D**

Project: Mink Corridor Proposed Diamond w North
Scenario: PM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 16:00:00 - 17:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Intersection Level of Service by Approach - Total Control Delay

MINK ST NW & BEAVER RD — NODE: 18

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
NEB	MINK ST NW	61211	2.0	0.1	1.8	2.2	10
NWB	BEAVER RD	61210	30.9	10.5	15.4	55.1	10
SWB	MINK ST NW	61213	20.0	0.8	18.8	21.5	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
NEB	MINK ST NW	61213	8.7	0.2	8.4	9.0	10
SEB	CLOVER VALLEY EXT	61212	7.0	0.4	6.6	7.6	10
SWB	MINK ST NW	61222	97.6	5.9	90.8	109.8	10

MINK ST NW & INNOVATION WAY — NODE: 15

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
EB	INNOVATION WAY	61207	1.7	0.1	1.5	1.8	10
NEB	MINK ST NW	61209	2.3	0.1	2.2	2.5	10
SWB	MINK ST NW	61211	43.5	0.9	41.5	44.8	10

MINK ST NW & JUG ST — NODE: 33082

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
EB	JUG ST	29977	1.0	0.1	0.8	1.2	10
NEB	MINK ST NW	61222	1.5	0.2	1.3	1.9	10
SB	MINK ST NW	29606	16.1	1.9	14.1	19.8	10

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP — NODE: 10

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
NEB	MINK ST NW	61202	42.2	1.7	39.1	44.8	10
SEB	SR 161 EB EXIT RAMP	61221	7.1	0.2	6.8	7.4	10
SWB	MINK ST NW	61198	8.8	0.8	7.7	10.2	10

MINK ST NW, SR 161 WB EXIT RAMP & SR 161 WB ENTRANCE RAMP — NODE: 5

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
NEB	MINK ST NW	61198	3.7	0.2	3.5	4.0	10
NWB	SR 161 WB EXIT RAMP	61205	1.3	0.1	1.2	1.4	10
SWB	MINK ST NW	61209	15.8	1.7	13.4	19.5	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
EB	WORTHINGTON RD	29557	21.9	3.9	14.6	27.7	10
NEB	MINK ST SW	24528	49.1	9.6	34.0	60.3	10
SWB	MINK ST NW	61202	7.2	0.4	6.6	7.8	10
WB	WORTHINGTON RD	29572	1.4	0.2	1.2	1.8	10

Project: Mink Corridor Proposed Diamond w North
Scenario: PM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 16:00:00 - 17:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Intersection Level of Service by Approach - Avg Control Delay

MINK ST NW & BEAVER RD — NODE: 18

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
NEB	MINK ST NW	61211	7.7	0.5	7.0	8.7	10
NWB	BEAVER RD	61210	141.9	49.9	69.3	255.4	10
SWB	MINK ST NW	61213	35.8	1.7	33.0	38.5	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
NEB	MINK ST NW	61213	39.3	1.0	37.7	40.6	10
SEB	CLOVER VALLEY EXT	61212	21.7	1.2	20.5	24.0	10
SWB	MINK ST NW	61222	375.5	35.4	332.1	451.6	10

MINK ST NW & INNOVATION WAY — NODE: 15

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
EB	INNOVATION WAY	61207	46.5	2.6	43.0	51.1	10
NEB	MINK ST NW	61209	5.0	0.2	4.8	5.5	10
SWB	MINK ST NW	61211	57.2	1.5	54.1	59.1	10

MINK ST NW & JUG ST — NODE: 33082

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
EB	JUG ST	29977	39.9	5.9	32.6	50.7	10
NEB	MINK ST NW	61222	7.3	0.9	6.0	9.0	10
SB	MINK ST NW	29606	56.8	8.5	49.4	73.8	10

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP — NODE: 10

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
NEB	MINK ST NW	61202	150.1	9.0	136.5	164.1	10
SEB	SR 161 EB EXIT RAMP	61221	25.3	0.5	24.3	25.9	10
SWB	MINK ST NW	61198	17.1	1.6	14.8	20.1	10

MINK ST NW, SR 161 WB EXIT RAMP & SR 161 WB ENTRANCE RAMP — NODE: 5

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
NEB	MINK ST NW	61198	7.9	0.3	7.4	8.3	10
NWB	SR 161 WB EXIT RAMP	61205	38.8	2.5	34.1	42.4	10
SWB	MINK ST NW	61209	19.8	2.2	16.7	24.8	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
EB	WORTHINGTON RD	29557	359.9	84.8	197.9	475.5	10
NEB	MINK ST SW	24528	192.2	41.7	123.8	244.1	10
SWB	MINK ST NW	61202	16.3	0.7	15.2	17.4	10
WB	WORTHINGTON RD	29572	38.5	4.7	32.1	47.3	10

Project: Mink Corridor Proposed Diamond w North
Scenario: PM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 16:00:00 - 17:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Lane Queue by Intersection - Overview

MINK ST NW & BEAVER RD — NODE: 18

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NEB R on MINK ST NW - Lane ID 156348						
1	120.0	0.1	0.0	0.0	0.0	0.0%
2	120.0	0.2	0.0	0.0	0.0	0.0%
3	120.0	0.0	0.0	0.0	0.0	0.0%
4	120.0	0.0	0.0	0.0	0.0	0.0%
5	120.0	0.1	0.0	0.0	0.0	0.0%
6	120.0	0.0	0.0	0.0	0.0	0.0%
7	120.0	0.9	0.0	0.0	0.0	0.0%
8	120.0	0.0	0.0	0.0	0.0	0.0%
9	120.0	0.2	0.0	0.0	0.0	0.0%
10	120.0	0.0	0.0	0.0	0.0	0.0%
Average:	**120.0**	**0.2**	**0.0**	**0.0**	**0.0**	**0.0%**
NEB T on MINK ST NW - Lane ID 156206						
1	120.0	18.1	0.7	134.0	4.0	0.0%
2	120.0	16.1	0.6	136.0	4.0	0.0%
3	120.0	17.0	0.7	126.0	5.0	0.0%
4	120.0	23.3	0.8	212.3	8.0	0.0%
5	120.0	19.6	0.7	177.4	5.1	0.0%
6	120.0	26.6	0.9	170.6	6.0	0.0%
7	120.0	18.0	0.7	135.3	4.0	0.0%
8	120.0	20.8	0.8	141.1	5.0	0.0%
9	120.0	23.8	0.8	159.4	6.0	0.0%
10	120.0	26.8	0.9	184.9	6.0	0.0%
Average:	**120.0**	**21.0**	**0.8**	**157.7**	**5.3**	**0.0%**
NEB T on MINK ST NW - Lane ID 156207						
1	120.0	18.9	0.7	120.9	5.0	0.0%
2	120.0	18.1	0.7	128.8	4.0	0.0%
3	120.0	17.9	0.7	142.1	6.0	0.0%
4	120.0	30.9	1.0	259.9	7.0	0.0%
5	120.0	19.8	0.8	151.6	6.0	0.0%
6	120.0	20.4	0.8	129.1	5.0	0.0%
7	120.0	21.2	0.8	170.9	6.0	0.0%
8	120.0	23.5	0.9	147.8	5.0	0.0%
9	120.0	25.8	1.0	179.6	7.0	0.0%

MINK ST NW & BEAVER RD — NODE: 18

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NEB T on MINK ST NW - Lane ID 156207						
10	120.0	26.4	0.7	193.7	5.0	0.0%
Average:	**120.0**	**22.3**	**0.8**	**162.4**	**5.6**	**0.0%**
NWB L on BEAVER RD - Lane ID 156389						
1	120.0	388.4	12.5	855.1	29.0	0.0%
2	120.0	247.4	8.3	571.2	19.0	0.0%
3	120.0	171.1	5.6	445.1	15.0	0.0%
4	120.0	295.3	10.2	715.8	25.0	0.0%
5	120.0	331.8	10.9	710.8	23.0	0.0%
6	120.0	355.4	11.5	845.6	29.0	0.0%
7	120.0	409.1	13.3	926.2	29.1	0.0%
8	120.0	380.5	12.4	818.2	27.1	0.0%
9	120.0	392.0	12.3	887.9	27.1	0.0%
10	120.0	563.4	18.6	1,373.3	46.1	0.0%
Average:	**120.0**	**353.4**	**11.6**	**814.9**	**26.9**	**0.0%**
NWB LR on BEAVER RD - Lane ID 156390						
1	120.0	353.1	11.5	914.9	26.0	0.0%
2	120.0	230.3	8.2	541.1	20.0	0.0%
3	120.0	166.8	5.6	434.1	14.0	0.0%
4	120.0	259.2	8.7	630.5	20.2	0.0%
5	120.0	324.2	10.9	739.4	25.0	0.0%
6	120.0	318.3	10.5	815.7	26.1	0.0%
7	120.0	385.5	12.2	871.9	27.0	0.0%
8	120.0	333.5	11.3	820.5	27.0	0.0%
9	120.0	372.1	11.7	860.7	28.1	0.0%
10	120.0	509.2	16.5	1,363.9	48.1	0.0%
Average:	**120.0**	**325.2**	**10.7**	**799.3**	**26.2**	**0.0%**
SWB L on MINK ST NW - Lane ID 156233						
1	120.0	0.4	0.1	0.0	1.0	0.0%
2	120.0	0.1	0.0	0.0	0.0	0.0%
3	120.0	0.4	0.0	0.0	0.0	0.0%
4	120.0	0.4	0.0	0.0	0.0	0.0%
5	120.0	0.5	0.0	0.0	0.0	0.0%
6	120.0	0.9	0.1	0.0	1.0	0.0%
7	120.0	0.0	0.0	0.0	0.0	0.0%
8	120.0	0.1	0.0	0.0	0.0	0.0%
9	120.0	0.0	0.0	0.0	0.0	0.0%
10	120.0	0.1	0.0	0.0	0.0	0.0%
Average:	**120.0**	**0.3**	**0.0**	**0.0**	**0.2**	**0.0%**

MINK ST NW & BEAVER RD — NODE: 18

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
SWB T on MINK ST NW - Lane ID 156234						
1	120.0	195.0	5.9	629.3	20.0	0.8%
2	120.0	158.0	4.9	625.4	18.0	1.7%
3	120.0	174.0	5.6	628.1	20.0	1.7%
4	120.0	195.7	6.0	617.4	19.0	1.7%
5	120.0	202.9	6.3	660.9	21.0	2.5%
6	120.0	168.5	4.9	536.8	16.0	0.8%
7	120.0	196.2	5.8	665.4	19.0	4.2%
8	120.0	172.2	5.4	633.8	17.0	1.7%
9	120.0	211.1	6.5	657.3	20.0	3.3%
10	120.0	167.0	5.3	644.3	20.0	4.2%
Average:	**120.0**	**184.1**	**5.7**	**629.9**	**19.0**	**2.3%**
SWB T on MINK ST NW - Lane ID 156235						
1	120.0	89.3	2.9	255.5	9.0	0.0%
2	120.0	72.1	2.4	263.4	10.0	0.0%
3	120.0	80.1	2.7	255.3	8.1	0.0%
4	120.0	83.6	2.7	308.3	10.1	0.0%
5	120.0	73.8	2.5	258.2	8.1	0.0%
6	120.0	66.5	2.2	255.3	8.0	0.0%
7	120.0	59.3	2.1	224.8	8.0	0.0%
8	120.0	70.0	2.3	255.3	8.0	0.0%
9	120.0	76.5	2.6	255.5	8.0	0.0%
10	120.0	70.9	2.5	255.3	9.0	0.0%
Average:	**120.0**	**74.2**	**2.5**	**258.7**	**8.6**	**0.0%**
SWB T on MINK ST NW - Lane ID 156351						
1	120.0	49.3	1.7	220.6	8.0	0.0%
2	120.0	42.3	1.5	209.7	6.0	0.0%
3	120.0	50.8	1.8	254.9	8.0	0.0%
4	120.0	58.8	2.0	358.6	11.0	0.0%
5	120.0	50.0	1.7	252.3	8.0	0.0%
6	120.0	46.7	1.7	207.3	8.0	0.0%
7	120.0	46.2	1.6	254.9	8.0	0.0%
8	120.0	64.9	2.2	257.0	9.0	0.0%
9	120.0	68.3	2.4	264.7	10.0	0.0%
10	120.0	55.8	2.0	254.9	8.0	0.0%
Average:	**120.0**	**53.3**	**1.9**	**253.5**	**8.4**	**0.0%**

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NEB L on MINK ST NW - Lane ID 156400						
1	120.0	13.3	0.6	68.5	3.0	0.0%

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NEB L on MINK ST NW - Lane ID 156400						
2	120.0	10.1	0.5	46.8	2.0	0.0%
3	120.0	11.1	0.6	47.9	2.0	0.0%
4	120.0	10.1	0.5	47.8	2.0	0.0%
5	120.0	8.1	0.5	40.2	2.0	0.0%
6	120.0	11.5	0.5	60.9	2.0	0.0%
7	120.0	11.2	0.5	65.3	2.0	0.0%
8	120.0	13.2	0.5	67.9	2.0	0.0%
9	120.0	15.9	0.6	66.3	2.0	0.0%
10	120.0	12.6	0.6	59.9	2.0	0.0%
Average:	**120.0**	**11.7**	**0.5**	**57.2**	**2.1**	**0.0%**
NEB L on MINK ST NW - Lane ID 156401						
1	120.0	12.8	0.6	65.0	3.0	0.0%
2	120.0	17.8	0.7	95.9	3.0	0.0%
3	120.0	12.9	0.5	67.1	2.0	0.0%
4	120.0	8.7	0.5	42.6	2.0	0.0%
5	120.0	12.4	0.6	55.1	2.0	0.0%
6	120.0	8.9	0.5	52.7	2.0	0.0%
7	120.0	12.7	0.6	67.6	2.0	0.0%
8	120.0	14.1	0.6	50.9	2.0	0.0%
9	120.0	9.3	0.4	51.1	2.0	0.0%
10	120.0	18.3	0.7	75.4	3.0	0.0%
Average:	**120.0**	**12.8**	**0.6**	**62.3**	**2.3**	**0.0%**
NEB T on MINK ST NW - Lane ID 156402						
1	120.0	83.0	2.9	299.0	10.0	0.0%
2	120.0	85.9	3.1	307.8	12.0	0.0%
3	120.0	79.6	3.0	271.8	11.0	0.0%
4	120.0	86.4	2.9	295.8	11.0	0.0%
5	120.0	77.8	2.7	285.5	10.0	0.0%
6	120.0	76.4	2.7	313.3	10.0	0.0%
7	120.0	86.0	3.1	284.6	10.0	0.0%
8	120.0	90.9	3.3	291.8	11.0	0.0%
9	120.0	85.4	2.8	283.7	10.0	0.0%
10	120.0	89.9	3.3	290.5	11.0	0.0%
Average:	**120.0**	**84.1**	**3.0**	**292.4**	**10.6**	**0.0%**
NEB T on MINK ST NW - Lane ID 156403						
1	120.0	93.5	3.3	302.2	10.0	0.0%
2	120.0	92.7	3.3	292.3	10.0	0.0%
3	120.0	87.3	3.0	319.4	10.0	0.0%
4	120.0	100.1	3.2	350.3	11.0	0.0%
5	120.0	80.8	2.8	306.8	9.0	0.0%

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NEB T on MINK ST NW - Lane ID 156403						
6	120.0	78.6	2.8	326.7	11.0	0.0%
7	120.0	100.5	3.5	341.8	12.0	0.0%
8	120.0	100.9	3.4	311.2	10.0	0.0%
9	120.0	82.7	3.0	297.6	10.0	0.0%
10	120.0	101.4	3.2	329.9	10.0	0.0%
Average:	**120.0**	**91.9**	**3.2**	**317.8**	**10.3**	**0.0%**
SEB L on CLOVER VALLEY EXT - Lane ID 156228						
1	120.0	2.3	0.1	15.6	1.0	0.0%
2	120.0	1.9	0.1	15.3	1.0	0.0%
3	120.0	1.1	0.1	15.5	1.0	0.0%
4	120.0	2.3	0.1	16.5	1.0	0.0%
5	120.0	1.0	0.1	15.9	1.0	0.0%
6	120.0	1.5	0.1	16.0	1.0	0.0%
7	120.0	1.7	0.1	17.0	1.0	0.0%
8	120.0	1.8	0.1	15.4	1.0	0.0%
9	120.0	2.3	0.1	16.0	1.0	0.0%
10	120.0	1.7	0.1	17.9	1.0	0.0%
Average:	**120.0**	**1.8**	**0.1**	**16.1**	**1.0**	**0.0%**
SEB R on CLOVER VALLEY EXT - Lane ID 156229						
1	120.0	59.0	2.0	242.5	7.0	0.0%
2	120.0	53.1	1.9	256.1	9.0	0.0%
3	120.0	54.2	2.0	217.2	8.0	0.0%
4	120.0	71.5	2.5	289.0	10.0	0.0%
5	120.0	67.6	2.4	272.3	9.0	0.0%
6	120.0	57.2	1.8	244.6	7.0	0.0%
7	120.0	62.6	2.2	253.1	9.1	0.0%
8	120.0	60.8	2.2	253.2	8.0	0.0%
9	120.0	64.5	2.3	249.0	9.0	0.0%
10	120.0	73.4	2.6	274.0	9.0	0.0%
Average:	**120.0**	**62.4**	**2.2**	**255.1**	**8.5**	**0.0%**
SEB R on CLOVER VALLEY EXT - Lane ID 156359						
1	120.0	50.9	1.8	210.5	7.0	0.0%
2	120.0	49.3	1.8	241.7	9.0	0.0%
3	120.0	56.6	2.0	255.3	8.0	0.0%
4	120.0	60.2	2.2	264.1	10.0	0.0%
5	120.0	49.2	1.8	239.0	8.0	0.0%
6	120.0	61.8	2.1	241.1	9.0	0.0%
7	120.0	59.4	2.1	253.2	9.0	0.0%
8	120.0	60.1	2.0	254.8	9.0	0.0%
9	120.0	61.1	2.2	257.8	10.0	0.0%

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
SEB R on CLOVER VALLEY EXT - Lane ID 156359						
10	120.0	65.6	2.3	277.7	10.0	0.0%
Average:	**120.0**	**57.4**	**2.0**	**249.5**	**8.9**	**0.0%**
SWB T on MINK ST NW - Lane ID 156245						
1	120.0	1,008.2	33.1	2,687.2	87.1	6.7%
2	120.0	1,087.5	35.1	2,691.9	86.0	8.3%
3	120.0	879.1	28.8	2,604.1	83.1	2.5%
4	120.0	981.4	32.1	2,687.6	89.0	6.7%
5	120.0	1,010.3	33.4	2,702.3	91.0	8.3%
6	120.0	969.3	30.7	2,651.7	84.1	5.0%
7	120.0	866.7	28.1	2,565.9	82.1	2.5%
8	120.0	1,130.8	36.9	2,695.9	86.1	6.7%
9	120.0	986.9	31.8	2,650.5	83.1	3.3%
10	120.0	933.6	31.5	2,581.4	87.0	0.8%
Average:	**120.0**	**985.4**	**32.2**	**2,651.9**	**85.9**	**5.1%**
SWB TR on MINK ST NW - Lane ID 156246						
1	120.0	847.3	26.1	2,568.5	79.1	2.5%
2	120.0	897.9	28.8	2,525.4	83.0	2.5%
3	120.0	774.7	26.0	2,454.8	80.1	0.8%
4	120.0	879.3	28.2	2,643.5	86.1	4.2%
5	120.0	879.6	29.0	2,645.8	85.0	4.2%
6	120.0	832.3	27.7	2,544.0	85.0	1.7%
7	120.0	749.0	24.9	2,553.1	84.1	0.0%
8	120.0	864.9	28.9	2,587.5	84.1	1.7%
9	120.0	823.7	27.2	2,533.8	83.0	1.7%
10	120.0	762.0	25.0	2,417.5	83.1	0.8%
Average:	**120.0**	**831.1**	**27.2**	**2,547.4**	**83.3**	**2.0%**

MINK ST NW & INNOVATION WAY — NODE: 15

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
EB L on INNOVATION WAY - Lane ID 156208						
1	120.0	3.1	0.1	16.3	1.0	0.0%
2	120.0	2.4	0.1	16.7	1.0	0.0%
3	120.0	5.2	0.2	45.0	1.0	0.0%
4	120.0	3.5	0.2	16.2	1.0	0.0%
5	120.0	3.5	0.2	20.0	1.0	0.0%
6	120.0	4.5	0.3	17.9	1.0	0.0%
7	120.0	5.5	0.2	21.1	1.0	0.0%
8	120.0	3.0	0.2	16.7	1.0	0.0%
9	120.0	2.9	0.1	17.8	1.0	0.0%
10	120.0	3.0	0.1	17.6	1.0	0.0%

MINK ST NW & INNOVATION WAY — NODE: 15

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
EB L on INNOVATION WAY - Lane ID 156208						
Average:	**120.0**	**3.7**	**0.2**	**20.5**	**1.0**	**0.0%**
EB R on INNOVATION WAY - Lane ID 156209						
1	120.0	36.0	1.4	124.8	4.0	0.0%
2	120.0	40.3	1.5	158.4	5.0	0.0%
3	120.0	34.4	1.4	140.6	5.0	0.0%
4	120.0	35.2	1.5	105.3	4.0	0.0%
5	120.0	35.2	1.4	109.0	4.0	0.0%
6	120.0	37.8	1.4	134.0	4.0	0.0%
7	120.0	30.6	1.3	104.0	4.0	0.0%
8	120.0	35.8	1.4	156.1	4.0	0.0%
9	120.0	44.4	1.6	155.6	4.0	0.0%
10	120.0	34.6	1.3	136.9	4.0	0.0%
Average:	**120.0**	**36.4**	**1.4**	**132.5**	**4.2**	**0.0%**
NEB L on MINK ST NW - Lane ID 156416						
1	120.0	4.9	0.3	27.9	2.0	0.0%
2	120.0	2.4	0.3	16.9	1.0	0.0%
3	120.0	1.3	0.2	4.2	1.0	0.0%
4	120.0	1.5	0.2	6.6	1.0	0.0%
5	120.0	3.8	0.2	21.9	1.0	0.0%
6	120.0	2.4	0.2	5.3	1.0	0.0%
7	120.0	3.2	0.3	19.5	1.0	0.0%
8	120.0	3.0	0.2	6.0	1.0	0.0%
9	120.0	1.0	0.1	3.9	1.0	0.0%
10	120.0	1.0	0.1	3.1	1.0	0.0%
Average:	**120.0**	**2.5**	**0.2**	**11.5**	**1.1**	**0.0%**
NEB T on MINK ST NW - Lane ID 156417						
1	120.0	8.9	0.3	21.7	1.0	0.0%
2	120.0	6.4	0.2	1.2	0.0	0.0%
3	120.0	8.2	0.3	44.4	2.0	0.0%
4	120.0	4.7	0.2	15.3	1.0	0.0%
5	120.0	7.5	0.2	22.8	1.1	0.0%
6	120.0	15.9	0.6	129.7	5.1	0.0%
7	120.0	14.4	0.5	153.4	5.0	0.0%
8	120.0	7.4	0.3	18.4	1.0	0.0%
9	120.0	14.3	0.5	195.9	6.0	0.0%
10	120.0	13.2	0.4	101.1	4.0	0.0%
Average:	**120.0**	**10.1**	**0.4**	**70.4**	**2.6**	**0.0%**
NEB T on MINK ST NW - Lane ID 156418						
1	120.0	11.4	0.4	68.4	1.1	0.0%

MINK ST NW & INNOVATION WAY — NODE: 15

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NEB T on MINK ST NW - Lane ID 156418						
2	120.0	7.2	0.3	3.2	0.1	0.0%
3	120.0	11.5	0.4	99.4	4.0	0.0%
4	120.0	15.5	0.5	54.2	2.1	0.0%
5	120.0	11.7	0.4	87.1	3.1	0.0%
6	120.0	14.5	0.5	78.5	3.1	0.0%
7	120.0	14.2	0.5	101.4	4.0	0.0%
8	120.0	11.4	0.4	43.9	2.0	0.0%
9	120.0	15.6	0.6	160.5	5.0	0.0%
10	120.0	13.3	0.5	114.8	5.0	0.0%
Average:	**120.0**	**12.6**	**0.5**	**81.1**	**3.0**	**0.0%**
NEB T on MINK ST NW - Lane ID 156419						
1	120.0	10.9	0.3	20.1	1.1	0.0%
2	120.0	6.2	0.2	0.9	0.0	0.0%
3	120.0	7.6	0.3	47.1	2.0	0.0%
4	120.0	8.6	0.3	0.8	0.0	0.0%
5	120.0	10.3	0.3	84.3	1.0	0.0%
6	120.0	13.6	0.5	126.6	5.0	0.0%
7	120.0	13.2	0.4	77.0	3.1	0.0%
8	120.0	9.6	0.3	14.5	1.0	0.0%
9	120.0	13.0	0.5	133.2	2.1	0.0%
10	120.0	13.6	0.5	112.9	5.0	0.0%
Average:	**120.0**	**10.7**	**0.4**	**61.7**	**2.0**	**0.0%**
SWB T on MINK ST NW - Lane ID 156397						
1	120.0	203.3	6.1	891.2	25.1	0.8%
2	120.0	172.1	5.4	855.1	27.1	0.0%
3	120.0	242.1	7.1	881.0	28.0	0.0%
4	120.0	255.2	8.0	937.0	29.0	0.0%
5	120.0	208.9	6.5	900.3	27.1	1.7%
6	120.0	223.8	6.6	909.8	27.0	0.0%
7	120.0	224.1	6.8	920.8	29.0	0.0%
8	120.0	226.4	6.8	972.3	29.0	3.3%
9	120.0	239.3	7.1	878.4	27.0	0.8%
10	120.0	201.1	6.2	868.7	26.0	0.0%
Average:	**120.0**	**219.6**	**6.7**	**901.5**	**27.4**	**0.7%**
SWB T on MINK ST NW - Lane ID 156398						
1	120.0	124.3	4.0	670.3	20.0	0.0%
2	120.0	117.9	3.9	652.3	21.0	0.0%
3	120.0	126.7	4.2	688.2	24.0	0.0%
4	120.0	143.7	4.7	709.8	24.0	0.0%
5	120.0	135.6	4.4	663.7	23.0	0.0%

MINK ST NW & INNOVATION WAY — NODE: 15

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
SWB T on MINK ST NW - Lane ID 156398						
6	120.0	122.9	4.0	682.6	22.0	0.0%
7	120.0	132.4	4.5	695.5	24.0	0.0%
8	120.0	120.0	4.1	678.5	23.0	0.8%
9	120.0	143.5	4.6	689.7	22.1	0.0%
10	120.0	125.4	3.9	629.1	20.0	0.0%
Average:	**120.0**	**129.2**	**4.2**	**676.0**	**22.3**	**0.1%**
SWB TR on MINK ST NW - Lane ID 156399						
1	120.0	54.1	2.0	298.2	10.0	0.0%
2	120.0	52.9	1.9	333.0	12.0	0.0%
3	120.0	54.5	2.0	332.0	12.0	0.0%
4	120.0	52.2	1.9	291.1	11.0	0.0%
5	120.0	59.2	2.1	339.2	12.0	0.0%
6	120.0	51.6	1.9	259.3	10.0	0.0%
7	120.0	56.3	2.0	317.9	11.0	0.0%
8	120.0	54.6	2.0	294.6	10.0	0.0%
9	120.0	62.8	2.3	292.5	11.1	0.0%
10	120.0	60.3	2.1	321.2	12.0	0.0%
Average:	**120.0**	**55.9**	**2.0**	**307.9**	**11.1**	**0.0%**

MINK ST NW & JUG ST — NODE: 33082

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
EB L on JUG ST - Lane ID 156252						
1	120.0	11.4	0.6	47.7	2.0	0.0%
2	120.0	16.6	0.7	66.4	2.0	0.0%
3	120.0	16.6	0.7	78.1	2.0	0.0%
4	120.0	10.9	0.5	46.6	2.0	0.0%
5	120.0	14.9	0.6	62.4	2.0	0.0%
6	120.0	10.4	0.5	63.8	2.0	0.0%
7	120.0	9.0	0.4	44.8	2.0	0.0%
8	120.0	11.5	0.6	43.4	2.0	0.0%
9	120.0	8.7	0.5	32.4	2.0	0.0%
10	120.0	18.0	0.8	75.3	3.0	0.0%
Average:	**120.0**	**12.8**	**0.6**	**56.1**	**2.1**	**0.0%**
EB R on JUG ST - Lane ID 156253						
1	120.0	8.2	0.3	70.3	2.0	0.0%
2	120.0	17.2	0.5	126.0	3.0	0.0%
3	120.0	4.1	0.2	21.5	1.0	0.0%
4	120.0	20.8	0.6	124.6	3.0	0.0%
5	120.0	5.5	0.3	20.4	1.0	0.0%
6	120.0	5.7	0.3	21.0	1.0	0.0%

MINK ST NW & JUG ST — NODE: 33082

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
EB R on JUG ST - Lane ID 156253						
7	120.0	10.2	0.4	76.2	2.0	0.0%
8	120.0	5.7	0.3	21.5	1.0	0.0%
9	120.0	6.5	0.3	39.1	2.0	0.0%
10	120.0	4.0	0.2	18.7	1.0	0.0%
Average:	**120.0**	**8.8**	**0.3**	**53.9**	**1.7**	**0.0%**
NEB L on MINK ST NW - Lane ID 156247						
1	120.0	24.2	1.1	99.4	4.0	0.0%
2	120.0	16.9	0.8	110.2	4.0	0.0%
3	120.0	19.6	0.9	83.6	3.0	0.0%
4	120.0	37.8	1.4	174.7	6.0	0.0%
5	120.0	13.2	0.7	93.8	4.0	0.0%
6	120.0	16.4	0.8	105.6	5.0	0.0%
7	120.0	23.8	1.0	148.2	6.0	0.0%
8	120.0	22.2	0.9	120.4	4.0	0.0%
9	120.0	18.8	0.7	120.1	4.0	0.0%
10	120.0	15.6	0.7	92.7	3.0	0.0%
Average:	**120.0**	**20.9**	**0.9**	**114.9**	**4.3**	**0.0%**
NEB T on MINK ST NW - Lane ID 153566						
1	120.0	7.0	0.2	19.0	1.0	0.0%
2	120.0	1.9	0.1	0.0	0.0	0.0%
3	120.0	2.4	0.1	0.0	0.0	0.0%
4	120.0	0.7	0.0	0.0	0.0	0.0%
5	120.0	3.8	0.2	0.0	0.0	0.0%
6	120.0	0.0	0.0	0.0	0.0	0.0%
7	120.0	5.2	0.2	0.8	0.0	0.0%
8	120.0	4.7	0.2	15.0	1.0	0.0%
9	120.0	3.2	0.1	0.0	0.0	0.0%
10	120.0	6.0	0.3	24.1	1.0	0.0%
Average:	**120.0**	**3.5**	**0.1**	**5.9**	**0.3**	**0.0%**
NEB T on MINK ST NW - Lane ID 156220						
1	120.0	6.0	0.2	17.2	1.0	0.0%
2	120.0	2.4	0.1	0.0	0.0	0.0%
3	120.0	1.2	0.1	0.0	0.0	0.0%
4	120.0	1.1	0.0	0.0	0.0	0.0%
5	120.0	2.8	0.1	0.7	0.0	0.0%
6	120.0	1.1	0.1	0.0	0.0	0.0%
7	120.0	3.4	0.1	0.0	0.0	0.0%
8	120.0	3.7	0.2	0.0	0.0	0.0%
9	120.0	2.3	0.1	13.4	1.0	0.0%
10	120.0	5.7	0.2	37.3	1.0	0.0%

MINK ST NW & JUG ST — NODE: 33082

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NEB T on MINK ST NW - Lane ID 156220						
Average:	**120.0**	**3.0**	**0.1**	**6.9**	**0.3**	**0.0%**
SB T on MINK ST NW - Lane ID 153676						
1	120.0	277.5	8.9	577.0	21.0	0.0%
2	120.0	183.7	5.9	574.3	19.0	0.0%
3	120.0	158.8	5.3	577.8	21.0	0.0%
4	120.0	211.8	6.7	572.6	20.0	0.0%
5	120.0	175.9	5.5	575.5	19.0	0.0%
6	120.0	164.8	5.4	568.6	21.0	0.0%
7	120.0	195.3	6.3	574.9	20.0	0.0%
8	120.0	178.2	5.9	570.4	20.0	0.0%
9	120.0	189.8	6.1	576.6	19.0	0.0%
10	120.0	173.1	6.0	574.3	21.0	0.0%
Average:	**120.0**	**190.9**	**6.2**	**574.2**	**20.1**	**0.0%**
SB TR on MINK ST NW - Lane ID 156248						
1	120.0	211.6	6.5	574.0	19.0	0.0%
2	120.0	153.6	4.9	573.3	19.0	0.0%
3	120.0	146.7	4.8	571.1	20.0	0.0%
4	120.0	184.6	6.2	572.0	20.0	0.0%
5	120.0	121.9	4.1	558.7	19.0	0.0%
6	120.0	148.1	4.8	568.9	19.0	0.0%
7	120.0	186.1	6.1	570.4	20.0	0.0%
8	120.0	168.0	5.7	575.2	20.0	0.0%
9	120.0	161.1	5.4	573.9	19.0	0.0%
10	120.0	160.0	5.3	576.0	19.0	0.0%
Average:	**120.0**	**164.2**	**5.4**	**571.4**	**19.4**	**0.0%**

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP — NODE: 10

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NEB R on MINK ST NW - Lane ID 156411						
1	120.0	2.9	0.1	20.4	1.0	0.0%
2	120.0	3.0	0.1	22.4	1.0	0.0%
3	120.0	2.7	0.1	13.7	1.0	0.0%
4	120.0	2.4	0.1	16.8	1.0	0.0%
5	120.0	2.6	0.1	5.6	1.0	0.0%
6	120.0	1.7	0.1	17.2	1.0	0.0%
7	120.0	4.4	0.2	19.4	1.0	0.0%
8	120.0	4.9	0.1	17.6	1.0	0.0%
9	120.0	2.3	0.1	15.8	1.0	0.0%
10	120.0	2.3	0.1	16.5	1.0	0.0%
Average:	**120.0**	**2.9**	**0.1**	**16.5**	**1.0**	**0.0%**

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP — NODE: 10

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NEB R on MINK ST NW - Lane ID 156411						
NEB T on MINK ST NW - Lane ID 156408						
1	120.0	379.4	11.5	652.4	21.0	24.2%
2	120.0	363.8	11.6	653.8	21.0	22.5%
3	120.0	383.8	13.0	653.9	23.0	29.2%
4	120.0	388.9	12.3	653.8	22.0	26.7%
5	120.0	375.2	11.7	654.0	22.0	19.2%
6	120.0	394.6	13.1	653.7	22.0	26.7%
7	120.0	348.4	11.8	653.5	24.0	19.2%
8	120.0	377.3	11.8	653.9	22.0	25.8%
9	120.0	351.4	10.9	653.9	22.0	25.0%
10	120.0	364.9	11.9	653.8	23.0	23.3%
Average:	**120.0**	**372.8**	**12.0**	**653.7**	**22.2**	**24.2%**
NEB T on MINK ST NW - Lane ID 156409						
1	120.0	334.5	11.4	634.1	23.0	10.8%
2	120.0	337.0	11.6	640.9	22.0	10.0%
3	120.0	347.6	12.4	642.9	24.0	16.7%
4	120.0	338.7	11.5	635.1	23.0	11.7%
5	120.0	328.4	11.7	638.0	23.0	15.0%
6	120.0	364.0	12.0	635.3	22.0	13.3%
7	120.0	309.2	10.4	633.1	21.0	7.5%
8	120.0	322.8	10.8	636.8	22.0	10.0%
9	120.0	306.4	10.8	638.6	22.1	10.8%
10	120.0	326.6	11.1	648.0	22.0	10.0%
Average:	**120.0**	**331.5**	**11.4**	**638.3**	**22.4**	**11.6%**
NEB T on MINK ST NW - Lane ID 156410						
1	120.0	316.8	10.3	631.0	20.0	10.0%
2	120.0	337.5	11.6	640.2	22.0	12.5%
3	120.0	334.4	11.2	639.4	22.0	10.8%
4	120.0	335.5	11.2	641.6	22.0	10.0%
5	120.0	324.2	11.1	640.8	23.0	15.0%
6	120.0	348.7	12.1	642.6	22.1	12.5%
7	120.0	304.5	10.2	631.2	21.0	7.5%
8	120.0	321.6	10.7	641.7	22.0	13.3%
9	120.0	311.4	11.0	635.4	23.0	10.0%
10	120.0	311.6	10.1	649.0	21.0	11.7%
Average:	**120.0**	**324.6**	**11.0**	**639.3**	**21.8**	**11.3%**
SEB L on SR 161 EB EXIT RAMP - Lane ID 156329						
1	120.0	40.6	1.6	149.3	6.0	0.0%
2	120.0	32.7	1.4	111.0	4.0	0.0%

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP — NODE: 10

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
SEB L on SR 161 EB EXIT RAMP - Lane ID 156329						
3	120.0	36.0	1.4	125.7	5.0	0.0%
4	120.0	36.2	1.4	153.6	5.0	0.0%
5	120.0	43.6	1.6	169.6	5.0	0.0%
6	120.0	31.8	1.4	118.3	4.0	0.0%
7	120.0	33.2	1.3	107.8	4.0	0.0%
8	120.0	34.5	1.3	127.9	4.0	0.0%
9	120.0	38.5	1.3	152.6	4.0	0.0%
10	120.0	36.2	1.4	135.2	4.0	0.0%
Average:	**120.0**	**36.3**	**1.4**	**135.1**	**4.5**	**0.0%**
SEB L on SR 161 EB EXIT RAMP - Lane ID 156330						
1	120.0	39.0	1.6	134.6	5.0	0.0%
2	120.0	40.7	1.6	130.4	5.0	0.0%
3	120.0	45.9	1.8	150.8	5.0	0.0%
4	120.0	45.0	1.7	123.3	5.0	0.0%
5	120.0	45.4	1.8	150.4	5.0	0.0%
6	120.0	38.0	1.5	120.6	5.0	0.0%
7	120.0	44.2	1.7	132.9	5.0	0.0%
8	120.0	41.5	1.6	142.1	5.0	0.0%
9	120.0	43.8	1.7	143.2	5.0	0.0%
10	120.0	48.1	1.8	158.6	5.0	0.0%
Average:	**120.0**	**43.2**	**1.7**	**138.7**	**5.0**	**0.0%**
SEB LT on SR 161 EB EXIT RAMP - Lane ID 156176						
1	120.0	46.3	1.7	158.7	5.0	0.0%
2	120.0	46.9	1.7	164.4	6.0	0.0%
3	120.0	47.4	1.7	158.0	5.0	0.0%
4	120.0	42.8	1.7	153.0	5.0	0.0%
5	120.0	46.9	1.8	142.8	5.0	0.0%
6	120.0	41.9	1.6	129.4	5.0	0.0%
7	120.0	46.8	1.8	153.0	5.0	0.0%
8	120.0	51.5	1.9	157.8	6.0	0.0%
9	120.0	43.5	1.7	143.1	5.0	0.0%
10	120.0	48.5	1.6	158.5	5.0	0.0%
Average:	**120.0**	**46.3**	**1.7**	**151.9**	**5.2**	**0.0%**
SEB R on SR 161 EB EXIT RAMP - Lane ID 156177						
1	120.0	31.0	1.1	114.1	4.0	0.0%
2	120.0	34.9	1.3	130.1	4.0	0.0%
3	120.0	25.9	1.1	103.2	4.0	0.0%
4	120.0	34.7	1.3	127.9	4.0	0.0%
5	120.0	31.4	1.3	125.5	5.0	0.0%
6	120.0	31.4	1.2	126.8	4.0	0.0%

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP — NODE: 10

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
SEB R on SR 161 EB EXIT RAMP - Lane ID 156177						
7	120.0	28.9	1.2	116.0	4.0	0.0%
8	120.0	30.9	1.2	102.2	4.0	0.0%
9	120.0	30.8	1.3	120.2	4.0	0.0%
10	120.0	29.9	1.1	123.3	4.0	0.0%
Average:	**120.0**	**31.0**	**1.2**	**118.9**	**4.1**	**0.0%**
SWB L on MINK ST NW - Lane ID 156420						
1	120.0	137.1	4.6	380.0	11.0	5.0%
2	120.0	178.2	6.1	417.2	15.0	11.7%
3	120.0	152.4	5.2	406.9	13.0	7.5%
4	120.0	175.7	5.9	399.9	14.0	9.2%
5	120.0	123.2	4.4	347.6	12.0	0.8%
6	120.0	115.7	4.1	318.9	11.0	2.5%
7	120.0	142.0	4.9	373.9	13.0	2.5%
8	120.0	157.4	5.4	355.6	12.0	3.3%
9	120.0	155.5	5.2	369.2	12.0	3.3%
10	120.0	182.1	6.0	420.0	14.0	9.2%
Average:	**120.0**	**151.9**	**5.2**	**378.9**	**12.7**	**5.5%**
SWB T on MINK ST NW - Lane ID 156421						
1	120.0	7.1	0.3	20.8	1.0	0.0%
2	120.0	6.1	0.3	23.7	1.0	0.0%
3	120.0	8.1	0.3	47.3	2.0	0.0%
4	120.0	5.7	0.3	25.2	1.0	0.0%
5	120.0	4.0	0.2	18.9	1.0	0.0%
6	120.0	10.9	0.5	43.3	2.0	0.0%
7	120.0	9.4	0.4	56.8	2.0	0.0%
8	120.0	7.8	0.3	66.0	1.1	0.0%
9	120.0	7.1	0.3	43.7	2.0	0.0%
10	120.0	10.6	0.4	70.2	2.0	0.0%
Average:	**120.0**	**7.7**	**0.3**	**41.6**	**1.5**	**0.0%**
SWB T on MINK ST NW - Lane ID 156422						
1	120.0	7.9	0.3	36.5	2.0	0.0%
2	120.0	11.9	0.5	67.9	3.0	0.0%
3	120.0	6.8	0.2	18.8	1.0	0.0%
4	120.0	7.2	0.3	44.8	1.0	0.0%
5	120.0	4.8	0.2	14.1	1.0	0.0%
6	120.0	6.5	0.3	16.6	1.0	0.0%
7	120.0	9.8	0.4	68.9	3.0	0.0%
8	120.0	10.7	0.4	78.1	3.0	0.0%
9	120.0	6.8	0.3	25.2	1.1	0.0%
10	120.0	12.3	0.5	73.3	3.0	0.0%

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP — NODE: 10

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
SWB T on MINK ST NW - Lane ID 156422						
Average:	**120.0**	**8.5**	**0.3**	**44.4**	**1.9**	**0.0%**

MINK ST NW, SR 161 WB EXIT RAMP & SR 161 WB ENTRANCE RAMP — NODE: 5

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NEB L on MINK ST NW - Lane ID 156427						
1	120.0	16.9	1.1	102.5	4.0	0.0%
2	120.0	16.7	1.3	77.9	4.0	0.0%
3	120.0	17.3	1.2	102.8	5.0	0.0%
4	120.0	10.5	1.0	65.4	4.0	0.0%
5	120.0	13.6	1.1	64.8	4.0	0.0%
6	120.0	15.1	1.3	85.1	4.0	0.0%
7	120.0	10.8	1.0	58.1	3.0	0.0%
8	120.0	13.2	1.1	72.3	3.0	0.0%
9	120.0	10.6	1.0	75.4	3.0	0.0%
10	120.0	17.2	1.2	121.5	4.0	0.0%
Average:	**120.0**	**14.2**	**1.1**	**82.6**	**3.8**	**0.0%**
NEB T on MINK ST NW - Lane ID 156428						
1	120.0	5.9	0.2	22.3	1.0	0.0%
2	120.0	16.3	0.5	124.0	5.0	0.0%
3	120.0	9.6	0.4	68.1	3.0	0.0%
4	120.0	5.5	0.2	0.0	0.0	0.0%
5	120.0	7.8	0.3	43.5	2.0	0.0%
6	120.0	7.3	0.3	3.1	1.1	0.0%
7	120.0	9.6	0.3	46.4	2.1	0.0%
8	120.0	8.3	0.3	68.9	2.0	0.0%
9	120.0	4.8	0.2	20.7	1.0	0.0%
10	120.0	8.8	0.3	51.2	2.0	0.0%
Average:	**120.0**	**8.4**	**0.3**	**44.8**	**1.9**	**0.0%**
NEB T on MINK ST NW - Lane ID 156429						
1	120.0	7.9	0.3	53.2	2.0	0.0%
2	120.0	12.9	0.5	51.8	2.1	0.0%
3	120.0	12.1	0.5	91.4	4.0	0.0%
4	120.0	7.0	0.3	44.3	2.0	0.0%
5	120.0	11.6	0.4	77.6	3.0	0.0%
6	120.0	6.9	0.2	2.1	0.0	0.0%
7	120.0	11.2	0.4	59.7	2.0	0.0%
8	120.0	10.8	0.4	63.6	3.0	0.0%
9	120.0	6.8	0.3	27.2	1.0	0.0%
10	120.0	12.7	0.4	75.2	3.0	0.0%
Average:	**120.0**	**10.0**	**0.4**	**54.6**	**2.2**	**0.0%**

MINK ST NW, SR 161 WB EXIT RAMP & SR 161 WB ENTRANCE RAMP — NODE: 5

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NEB T on MINK ST NW - Lane ID 156429						
NEB T on MINK ST NW - Lane ID 156430						
1	120.0	9.0	0.3	42.9	2.0	0.0%
2	120.0	12.9	0.5	104.0	4.0	0.0%
3	120.0	11.4	0.4	29.2	1.1	0.0%
4	120.0	7.7	0.3	24.0	1.0	0.0%
5	120.0	13.7	0.5	91.5	4.1	0.8%
6	120.0	8.6	0.3	4.8	0.1	0.8%
7	120.0	11.0	0.4	101.9	3.0	0.0%
8	120.0	17.8	0.6	108.8	4.0	0.0%
9	120.0	6.0	0.2	15.5	1.0	0.0%
10	120.0	11.2	0.4	67.6	3.0	0.0%
Average:	**120.0**	**10.9**	**0.4**	**59.0**	**2.3**	**0.2%**
NWB LT on SR 161 WB EXIT RAMP - Lane ID 156184						
1	120.0	13.6	0.6	68.6	2.0	0.0%
2	120.0	11.7	0.6	46.5	2.0	0.0%
3	120.0	9.8	0.5	43.7	2.0	0.0%
4	120.0	12.9	0.5	67.1	2.0	0.0%
5	120.0	12.3	0.6	51.2	2.0	0.0%
6	120.0	9.9	0.5	46.5	2.0	0.0%
7	120.0	9.2	0.4	49.7	2.0	0.0%
8	120.0	5.9	0.3	16.9	1.0	0.0%
9	120.0	9.7	0.5	40.4	2.0	0.0%
10	120.0	11.2	0.4	72.3	2.0	0.0%
Average:	**120.0**	**10.6**	**0.5**	**50.3**	**1.9**	**0.0%**
NWB R on SR 161 WB EXIT RAMP - Lane ID 156185						
1	120.0	8.1	0.4	22.4	1.0	0.0%
2	120.0	9.1	0.4	46.1	2.0	0.0%
3	120.0	6.3	0.4	40.0	2.0	0.0%
4	120.0	6.5	0.3	44.6	1.0	0.0%
5	120.0	7.0	0.4	36.9	2.0	0.0%
6	120.0	7.3	0.4	37.7	1.0	0.0%
7	120.0	8.2	0.4	45.1	2.0	0.0%
8	120.0	6.0	0.3	19.3	1.0	0.0%
9	120.0	7.2	0.4	36.7	2.0	0.0%
10	120.0	10.3	0.5	42.9	2.0	0.0%
Average:	**120.0**	**7.6**	**0.4**	**37.2**	**1.6**	**0.0%**
NWB R on SR 161 WB EXIT RAMP - Lane ID 156340						
1	120.0	6.3	0.3	40.2	2.0	0.0%
2	120.0	6.5	0.3	46.6	2.0	0.0%

MINK ST NW, SR 161 WB EXIT RAMP & SR 161 WB ENTRANCE RAMP — NODE: 5

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NWB R on SR 161 WB EXIT RAMP - Lane ID 156340						
3	120.0	6.8	0.4	20.9	1.0	0.0%
4	120.0	7.1	0.4	19.3	1.0	0.0%
5	120.0	10.1	0.4	49.5	2.0	0.0%
6	120.0	7.7	0.5	20.0	1.0	0.0%
7	120.0	7.8	0.4	20.4	1.0	0.0%
8	120.0	7.4	0.4	40.8	2.0	0.0%
9	120.0	7.1	0.4	19.2	1.0	0.0%
10	120.0	5.3	0.3	21.7	1.0	0.0%
Average:	**120.0**	**7.2**	**0.4**	**29.9**	**1.4**	**0.0%**
SWB R on MINK ST NW - Lane ID 156414						
1	120.0	25.3	0.9	149.0	4.0	0.0%
2	120.0	21.0	0.7	132.1	5.0	0.0%
3	120.0	26.3	0.9	183.7	7.0	0.0%
4	120.0	19.5	0.8	134.6	5.0	0.0%
5	120.0	26.8	1.0	139.6	5.0	0.0%
6	120.0	19.6	0.7	118.9	4.0	0.0%
7	120.0	22.8	0.8	154.1	5.0	0.0%
8	120.0	26.3	0.9	146.5	5.0	0.0%
9	120.0	24.2	0.8	154.2	5.0	0.0%
10	120.0	32.3	1.1	187.1	6.0	0.0%
Average:	**120.0**	**24.4**	**0.9**	**150.0**	**5.1**	**0.0%**
SWB R on MINK ST NW - Lane ID 156415						
1	120.0	31.8	1.1	164.3	5.0	0.0%
2	120.0	28.0	1.1	181.6	6.0	0.0%
3	120.0	31.1	1.1	174.1	6.0	0.0%
4	120.0	27.0	1.0	137.8	5.0	0.0%
5	120.0	32.2	1.2	183.3	6.0	0.0%
6	120.0	27.0	1.0	176.3	7.0	0.0%
7	120.0	27.4	1.0	161.4	6.0	0.0%
8	120.0	32.9	1.2	181.8	6.0	0.0%
9	120.0	36.7	1.4	181.3	7.0	0.0%
10	120.0	35.7	1.2	216.5	7.0	0.0%
Average:	**120.0**	**31.0**	**1.1**	**175.8**	**6.1**	**0.0%**
SWB T on MINK ST NW - Lane ID 156412						
1	120.0	97.6	3.2	445.3	14.0	0.0%
2	120.0	100.4	3.3	402.2	12.0	0.0%
3	120.0	133.4	4.2	424.7	14.0	0.0%
4	120.0	142.5	4.6	528.4	17.0	0.0%
5	120.0	101.4	3.3	402.1	13.0	0.0%
6	120.0	57.9	2.0	278.8	10.0	0.0%

MINK ST NW, SR 161 WB EXIT RAMP & SR 161 WB ENTRANCE RAMP — NODE: 5

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
SWB T on MINK ST NW - Lane ID 156412						
7	120.0	71.8	2.4	302.0	9.0	0.0%
8	120.0	90.5	3.1	349.9	13.0	0.0%
9	120.0	90.2	3.0	359.7	12.0	0.0%
10	120.0	111.6	3.6	391.8	12.1	0.0%
Average:	**120.0**	**99.7**	**3.3**	**388.5**	**12.6**	**0.0%**
SWB T on MINK ST NW - Lane ID 156413						
1	120.0	60.4	2.1	381.1	12.0	0.0%
2	120.0	50.0	1.8	288.9	10.0	0.0%
3	120.0	62.6	2.2	326.4	10.1	0.0%
4	120.0	80.5	2.9	353.2	13.0	0.0%
5	120.0	63.2	2.3	278.3	10.0	0.0%
6	120.0	40.0	1.4	250.4	8.0	0.0%
7	120.0	56.4	2.1	242.4	9.0	0.0%
8	120.0	53.8	1.9	239.5	9.0	0.0%
9	120.0	61.5	2.0	310.0	9.0	0.0%
10	120.0	60.7	2.0	330.4	11.0	0.0%
Average:	**120.0**	**58.9**	**2.1**	**300.1**	**10.1**	**0.0%**

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
EB L on WORTHINGTON RD - Lane ID 153286						
1	120.0	590.2	20.6	1,399.3	49.0	0.0%
2	120.0	753.3	25.1	1,436.2	51.0	0.0%
3	120.0	672.3	21.3	1,441.6	45.1	0.0%
4	120.0	649.4	20.8	1,444.8	46.1	0.0%
5	120.0	594.1	20.2	1,391.3	49.1	0.0%
6	120.0	626.2	20.8	1,439.1	48.0	0.0%
7	120.0	557.1	18.7	1,430.8	51.0	0.0%
8	120.0	409.8	13.2	1,400.9	46.1	0.0%
9	120.0	691.8	23.4	1,435.1	50.0	0.0%
10	120.0	609.4	19.6	1,404.7	49.0	0.0%
Average:	**120.0**	**615.4**	**20.4**	**1,422.4**	**48.4**	**0.0%**
EB TR on WORTHINGTON RD - Lane ID 153287						
1	120.0	26.2	1.1	99.7	4.0	0.0%
2	120.0	22.7	0.9	103.7	3.0	0.0%
3	120.0	25.0	1.0	134.0	4.0	0.0%
4	120.0	35.5	1.3	118.0	3.0	0.0%
5	120.0	29.8	1.1	124.8	4.0	0.0%
6	120.0	18.9	0.8	84.9	3.0	0.0%
7	120.0	25.4	1.0	101.3	4.0	0.0%

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
EB TR on WORTHINGTON RD - Lane ID 153287						
8	120.0	31.5	1.2	137.9	4.0	0.0%
9	120.0	27.4	1.1	96.8	4.0	0.0%
10	120.0	32.1	1.2	144.7	5.0	0.0%
Average:	**120.0**	**27.5**	**1.1**	**114.6**	**3.8**	**0.0%**
NEB L on MINK ST SW - Lane ID 156321						
1	120.0	0.6	0.1	0.3	0.0	0.0%
2	120.0	0.3	0.0	0.0	0.0	0.0%
3	120.0	0.6	0.1	4.9	1.0	0.0%
4	120.0	0.4	0.1	4.6	1.0	0.0%
5	120.0	0.4	0.0	0.0	0.0	0.0%
6	120.0	1.1	0.1	5.4	1.0	0.0%
7	120.0	0.7	0.1	5.8	1.0	0.0%
8	120.0	0.5	0.0	0.0	0.0	0.0%
9	120.0	0.6	0.1	0.2	0.0	0.0%
10	120.0	0.4	0.0	0.0	0.0	0.0%
Average:	**120.0**	**0.6**	**0.1**	**2.1**	**0.4**	**0.0%**
NEB T on MINK ST SW - Lane ID 153565						
1	120.0	375.0	11.8	1,158.9	35.2	0.0%
2	120.0	325.1	10.4	1,092.8	34.1	0.0%
3	120.0	381.2	13.1	1,219.6	41.2	0.0%
4	120.0	434.5	13.9	1,590.9	54.1	0.0%
5	120.0	398.2	12.6	1,151.2	36.2	0.0%
6	120.0	426.9	14.3	1,326.3	41.1	0.0%
7	120.0	276.5	9.0	864.9	29.3	0.0%
8	120.0	382.4	11.9	1,032.5	31.0	0.0%
9	120.0	380.3	12.3	1,194.8	38.2	0.0%
10	120.0	359.0	11.8	1,062.1	35.0	0.0%
Average:	**120.0**	**373.9**	**12.1**	**1,169.4**	**37.5**	**0.0%**
NEB TR on MINK ST SW - Lane ID 156374						
1	120.0	318.4	10.0	910.2	31.0	0.0%
2	120.0	266.0	8.9	739.8	26.0	0.0%
3	120.0	367.1	12.2	1,434.0	48.2	0.0%
4	120.0	268.0	8.8	737.6	26.1	0.0%
5	120.0	397.7	13.1	1,277.7	42.1	0.0%
6	120.0	359.8	11.4	1,212.0	37.1	0.0%
7	120.0	205.5	6.8	664.3	22.0	0.0%
8	120.0	313.5	10.2	966.7	30.1	0.0%
9	120.0	339.9	11.4	1,127.6	39.1	0.0%
10	120.0	291.7	9.5	934.2	29.1	0.0%
Average:	**120.0**	**312.8**	**10.2**	**1,000.4**	**33.1**	**0.0%**

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NEB TR on MINK ST SW - Lane ID 156374						
SWB L on MINK ST NW - Lane ID 156270						
1	120.0	5.3	0.3	23.8	1.0	0.0%
2	120.0	5.9	0.3	33.6	1.0	0.0%
3	120.0	5.5	0.3	42.2	2.0	0.0%
4	120.0	10.0	0.4	55.2	2.0	0.0%
5	120.0	8.8	0.4	46.3	2.0	0.0%
6	120.0	6.0	0.3	44.5	1.0	0.0%
7	120.0	7.2	0.4	44.2	2.0	0.0%
8	120.0	7.7	0.4	41.4	2.0	0.0%
9	120.0	6.9	0.4	44.9	2.0	0.0%
10	120.0	7.7	0.4	46.1	2.0	0.0%
Average:	**120.0**	**7.1**	**0.4**	**42.2**	**1.7**	**0.0%**
SWB R on MINK ST NW - Lane ID 156376						
1	120.0	10.3	0.4	74.1	2.0	0.0%
2	120.0	7.2	0.3	63.0	2.0	0.0%
3	120.0	8.0	0.3	70.9	2.0	0.0%
4	120.0	8.5	0.3	47.0	2.0	0.0%
5	120.0	7.2	0.3	50.2	2.0	0.0%
6	120.0	10.1	0.4	70.0	3.0	0.0%
7	120.0	2.9	0.2	17.3	1.0	0.0%
8	120.0	5.9	0.3	40.4	2.0	0.0%
9	120.0	5.4	0.2	43.4	2.0	0.0%
10	120.0	7.6	0.3	64.2	2.0	0.0%
Average:	**120.0**	**7.3**	**0.3**	**54.1**	**2.0**	**0.0%**
SWB T on MINK ST NW - Lane ID 156258						
1	120.0	61.0	2.1	332.1	11.0	0.0%
2	120.0	51.0	1.8	245.2	9.0	0.0%
3	120.0	49.9	1.8	229.0	8.0	0.0%
4	120.0	74.7	2.6	312.0	11.0	0.0%
5	120.0	67.2	2.3	288.5	10.0	0.0%
6	120.0	62.4	2.2	308.0	10.0	0.0%
7	120.0	64.9	2.3	290.4	10.0	0.0%
8	120.0	79.0	2.8	291.8	10.0	0.0%
9	120.0	64.2	2.3	270.8	10.0	0.0%
10	120.0	66.5	2.3	304.6	10.0	0.0%
Average:	**120.0**	**64.1**	**2.3**	**287.2**	**9.9**	**0.0%**
SWB T on MINK ST NW - Lane ID 156337						
1	120.0	67.4	2.3	323.9	11.0	0.0%
2	120.0	64.9	2.3	291.9	10.0	0.0%

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
SWB T on MINK ST NW - Lane ID 156337						
3	120.0	63.3	2.1	295.1	10.0	0.0%
4	120.0	85.5	2.8	345.9	11.0	0.0%
5	120.0	75.5	2.7	320.8	11.0	0.0%
6	120.0	74.5	2.5	342.6	11.0	0.0%
7	120.0	76.0	2.6	311.8	11.0	0.0%
8	120.0	83.7	2.9	324.2	11.0	0.0%
9	120.0	79.1	2.5	296.5	9.0	0.0%
10	120.0	78.3	2.8	317.3	11.0	0.0%
Average:	**120.0**	**74.8**	**2.6**	**317.0**	**10.6**	**0.0%**
WB L on WORTHINGTON RD - Lane ID 153562						
1	120.0	1.2	0.1	15.7	1.0	0.0%
2	120.0	1.5	0.1	15.3	1.0	0.0%
3	120.0	1.1	0.1	14.7	1.0	0.0%
4	120.0	3.3	0.1	17.5	1.0	0.0%
5	120.0	1.5	0.1	16.0	1.0	0.0%
6	120.0	1.5	0.1	15.8	1.0	0.0%
7	120.0	1.7	0.1	16.2	1.0	0.0%
8	120.0	1.5	0.1	14.9	1.0	0.0%
9	120.0	1.4	0.1	16.2	1.0	0.0%
10	120.0	1.9	0.1	16.8	1.0	0.0%
Average:	**120.0**	**1.7**	**0.1**	**15.9**	**1.0**	**0.0%**
WB TR on WORTHINGTON RD - Lane ID 153563						
1	120.0	24.7	1.0	99.8	3.0	0.0%
2	120.0	27.9	1.2	96.3	3.0	0.0%
3	120.0	42.7	1.4	147.5	5.0	0.0%
4	120.0	30.0	1.2	111.6	4.0	0.0%
5	120.0	26.6	1.1	103.0	4.0	0.0%
6	120.0	21.1	0.9	84.6	3.0	0.0%
7	120.0	25.6	1.0	101.2	3.0	0.0%
8	120.0	31.6	1.1	133.1	3.0	0.0%
9	120.0	31.6	1.3	102.9	4.0	0.0%
10	120.0	32.4	1.2	111.4	4.0	0.0%
Average:	**120.0**	**29.4**	**1.1**	**109.1**	**3.6**	**0.0%**

Project: Mink Corridor Proposed Diamond w North
Scenario: PM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 16:00:00 - 17:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Lane Queue by Intersection - Avg Queue

MINK ST NW & BEAVER RD — NODE: 18

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NWB L	156389	BEAVER RD	353.4	104.9	171.1	563.4	10
NWB LR	156390	BEAVER RD	325.2	93.7	166.8	509.2	10

MINK ST NW & BEAVER RD — NODE: 18

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156206	MINK ST NW	21.0	3.9	16.1	26.8	10
NEB T	156207	MINK ST NW	22.3	4.3	17.9	30.9	10
SWB L	156233	MINK ST NW	0.3	0.3	0.0	0.9	10
SWB T	156234	MINK ST NW	184.1	18.1	158.0	211.1	10
SWB T	156235	MINK ST NW	74.2	8.6	59.3	89.3	10
NEB R	156348	MINK ST NW	0.2	0.3	0.0	0.9	10
SWB T	156351	MINK ST NW	53.3	8.5	42.3	68.3	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SEB L	156228	CLOVER VALLEY EXT	1.8	0.5	1.0	2.3	10
SEB R	156229	CLOVER VALLEY EXT	62.4	6.9	53.1	73.4	10
SEB R	156359	CLOVER VALLEY EXT	57.4	5.7	49.2	65.6	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB T	156245	MINK ST NW	985.4	82.4	866.7	1,130.8	10
SWB TR	156246	MINK ST NW	831.1	53.0	749.0	897.9	10
NEB L	156400	MINK ST NW	11.7	2.2	8.1	15.9	10
NEB L	156401	MINK ST NW	12.8	3.4	8.7	18.3	10
NEB T	156402	MINK ST NW	84.1	4.9	76.4	90.9	10
NEB T	156403	MINK ST NW	91.9	9.0	78.6	101.4	10

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156208	INNOVATION WAY	3.7	1.0	2.4	5.5	10
EB R	156209	INNOVATION WAY	36.4	3.7	30.6	44.4	10

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB T	156397	MINK ST NW	219.6	24.1	172.1	255.2	10
SWB T	156398	MINK ST NW	129.2	9.2	117.9	143.7	10
SWB TR	156399	MINK ST NW	55.9	3.7	51.6	62.8	10
NEB L	156416	MINK ST NW	2.5	1.3	1.0	4.9	10
NEB T	156417	MINK ST NW	10.1	4.0	4.7	15.9	10
NEB T	156418	MINK ST NW	12.6	2.5	7.2	15.6	10
NEB T	156419	MINK ST NW	10.7	2.7	6.2	13.6	10

MINK ST NW & JUG ST — NODE: 33082

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156252	JUG ST	12.8	3.4	8.7	18.0	10
EB R	156253	JUG ST	8.8	5.7	4.0	20.8	10

MINK ST NW & JUG ST — NODE: 33082

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	153566	MINK ST NW	3.5	2.3	0.0	7.0	10
SB T	153676	MINK ST NW	190.9	34.0	158.8	277.5	10
NEB T	156220	MINK ST NW	3.0	1.8	1.1	6.0	10
NEB L	156247	MINK ST NW	20.9	7.0	13.2	37.8	10
SB TR	156248	MINK ST NW	164.2	25.1	121.9	211.6	10

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP — NODE: 10

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156408	MINK ST NW	372.8	15.4	348.4	394.6	10
NEB T	156409	MINK ST NW	331.5	17.1	306.4	364.0	10
NEB T	156410	MINK ST NW	324.6	14.1	304.5	348.7	10
NEB R	156411	MINK ST NW	2.9	1.0	1.7	4.9	10
SWB L	156420	MINK ST NW	151.9	22.8	115.7	182.1	10
SWB T	156421	MINK ST NW	7.7	2.2	4.0	10.9	10
SWB T	156422	MINK ST NW	8.5	2.5	4.8	12.3	10

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP — NODE: 10

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SEB LT	156176	SR 161 EB EXIT RAMP	46.3	2.9	41.9	51.5	10
SEB R	156177	SR 161 EB EXIT RAMP	31.0	2.6	25.9	34.9	10
SEB L	156329	SR 161 EB EXIT RAMP	36.3	3.7	31.8	43.6	10

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP — NODE: 10

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SEB L	156330	SR 161 EB EXIT RAMP	43.2	3.2	38.0	48.1	10

MINK ST NW, SR 161 WB EXIT RAMP & SR 161 WB ENTRANCE RAMP — NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB T	156412	MINK ST NW	99.7	25.4	57.9	142.5	10
SWB T	156413	MINK ST NW	58.9	10.4	40.0	80.5	10
SWB R	156414	MINK ST NW	24.4	3.9	19.5	32.3	10
SWB R	156415	MINK ST NW	31.0	3.6	27.0	36.7	10
NEB L	156427	MINK ST NW	14.2	2.8	10.5	17.3	10
NEB T	156428	MINK ST NW	8.4	3.2	4.8	16.3	10
NEB T	156429	MINK ST NW	10.0	2.5	6.8	12.9	10
NEB T	156430	MINK ST NW	10.9	3.4	6.0	17.8	10

MINK ST NW, SR 161 WB EXIT RAMP & SR 161 WB ENTRANCE RAMP — NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NWB LT	156184	SR 161 WB EXIT RAMP	10.6	2.2	5.9	13.6	10
NWB R	156185	SR 161 WB EXIT RAMP	7.6	1.3	6.0	10.3	10
NWB R	156340	SR 161 WB EXIT RAMP	7.2	1.3	5.3	10.1	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB T	156258	MINK ST NW	64.1	9.0	49.9	79.0	10
SWB L	156270	MINK ST NW	7.1	1.5	5.3	10.0	10
SWB T	156337	MINK ST NW	74.8	7.5	63.3	85.5	10
SWB R	156376	MINK ST NW	7.3	2.2	2.9	10.3	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	153565	MINK ST SW	373.9	46.3	276.5	434.5	10
NEB L	156321	MINK ST SW	0.6	0.2	0.3	1.1	10
NEB TR	156374	MINK ST SW	312.8	57.0	205.5	397.7	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	153286	WORTHINGTON RD	615.4	92.0	409.8	753.3	10
EB TR	153287	WORTHINGTON RD	27.5	4.9	18.9	35.5	10
WB L	153562	WORTHINGTON RD	1.7	0.6	1.1	3.3	10
WB TR	153563	WORTHINGTON RD	29.4	5.9	21.1	42.7	10

WORTHINGTON RD, MINK ST NW & MINK ST SW NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples

Project: Mink Corridor Proposed Diamond w North
Scenario: PM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 16:00:00 - 17:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Lane Queue by Intersection - Avg Num Queued

MINK ST NW & BEAVER RD — NODE: 18

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NWB L	156389	BEAVER RD	11.6	3.4	5.6	18.6	10
NWB LR	156390	BEAVER RD	10.7	2.9	5.6	16.5	10

MINK ST NW & BEAVER RD — NODE: 18

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156206	MINK ST NW	0.8	0.1	0.6	0.9	10
NEB T	156207	MINK ST NW	0.8	0.1	0.7	1.0	10
SWB L	156233	MINK ST NW	0.0	0.0	0.0	0.1	10
SWB T	156234	MINK ST NW	5.7	0.5	4.9	6.5	10
SWB T	156235	MINK ST NW	2.5	0.2	2.1	2.9	10
NEB R	156348	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB T	156351	MINK ST NW	1.9	0.3	1.5	2.4	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SEB L	156228	CLOVER VALLEY EXT	0.1	0.0	0.1	0.1	10
SEB R	156229	CLOVER VALLEY EXT	2.2	0.3	1.8	2.6	10
SEB R	156359	CLOVER VALLEY EXT	2.0	0.2	1.8	2.3	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB T	156245	MINK ST NW	32.2	2.7	28.1	36.9	10
SWB TR	156246	MINK ST NW	27.2	1.6	24.9	29.0	10
NEB L	156400	MINK ST NW	0.5	0.1	0.5	0.6	10
NEB L	156401	MINK ST NW	0.6	0.1	0.4	0.7	10
NEB T	156402	MINK ST NW	3.0	0.2	2.7	3.3	10
NEB T	156403	MINK ST NW	3.2	0.2	2.8	3.5	10

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156208	INNOVATION WAY	0.2	0.1	0.1	0.3	10
EB R	156209	INNOVATION WAY	1.4	0.1	1.3	1.6	10

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB T	156397	MINK ST NW	6.7	0.7	5.4	8.0	10
SWB T	156398	MINK ST NW	4.2	0.3	3.9	4.7	10
SWB TR	156399	MINK ST NW	2.0	0.1	1.9	2.3	10
NEB L	156416	MINK ST NW	0.2	0.1	0.1	0.3	10
NEB T	156417	MINK ST NW	0.4	0.1	0.2	0.6	10
NEB T	156418	MINK ST NW	0.5	0.1	0.3	0.6	10
NEB T	156419	MINK ST NW	0.4	0.1	0.2	0.5	10

MINK ST NW & JUG ST — NODE: 33082

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156252	JUG ST	0.6	0.1	0.4	0.8	10
EB R	156253	JUG ST	0.3	0.1	0.2	0.6	10

MINK ST NW & JUG ST — NODE: 33082

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	153566	MINK ST NW	0.1	0.1	0.0	0.3	10
SB T	153676	MINK ST NW	6.2	1.0	5.3	8.9	10
NEB T	156220	MINK ST NW	0.1	0.1	0.0	0.2	10
NEB L	156247	MINK ST NW	0.9	0.2	0.7	1.4	10
SB TR	156248	MINK ST NW	5.4	0.8	4.1	6.5	10

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP — NODE: 10

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156408	MINK ST NW	12.0	0.7	10.9	13.1	10
NEB T	156409	MINK ST NW	11.4	0.6	10.4	12.4	10
NEB T	156410	MINK ST NW	11.0	0.6	10.1	12.1	10
NEB R	156411	MINK ST NW	0.1	0.0	0.1	0.2	10
SWB L	156420	MINK ST NW	5.2	0.7	4.1	6.1	10
SWB T	156421	MINK ST NW	0.3	0.1	0.2	0.5	10
SWB T	156422	MINK ST NW	0.3	0.1	0.2	0.5	10

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP — NODE: 10

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SEB LT	156176	SR 161 EB EXIT RAMP	1.7	0.1	1.6	1.9	10
SEB R	156177	SR 161 EB EXIT RAMP	1.2	0.1	1.1	1.3	10
SEB L	156329	SR 161 EB EXIT RAMP	1.4	0.1	1.3	1.6	10

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP — NODE: 10

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SEB L	156330	SR 161 EB EXIT RAMP	1.7	0.1	1.5	1.8	10

MINK ST NW, SR 161 WB EXIT RAMP & SR 161 WB ENTRANCE RAMP — NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB T	156412	MINK ST NW	3.3	0.8	2.0	4.6	10
SWB T	156413	MINK ST NW	2.1	0.4	1.4	2.9	10
SWB R	156414	MINK ST NW	0.9	0.1	0.7	1.1	10
SWB R	156415	MINK ST NW	1.1	0.1	1.0	1.4	10
NEB L	156427	MINK ST NW	1.1	0.1	1.0	1.3	10
NEB T	156428	MINK ST NW	0.3	0.1	0.2	0.5	10
NEB T	156429	MINK ST NW	0.4	0.1	0.2	0.5	10
NEB T	156430	MINK ST NW	0.4	0.1	0.2	0.6	10

MINK ST NW, SR 161 WB EXIT RAMP & SR 161 WB ENTRANCE RAMP — NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NWB LT	156184	SR 161 WB EXIT RAMP	0.5	0.1	0.3	0.6	10
NWB R	156185	SR 161 WB EXIT RAMP	0.4	0.1	0.3	0.5	10
NWB R	156340	SR 161 WB EXIT RAMP	0.4	0.1	0.3	0.5	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB T	156258	MINK ST NW	2.3	0.3	1.8	2.8	10
SWB L	156270	MINK ST NW	0.4	0.1	0.3	0.4	10
SWB T	156337	MINK ST NW	2.6	0.3	2.1	2.9	10
SWB R	156376	MINK ST NW	0.3	0.1	0.2	0.4	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	153565	MINK ST SW	12.1	1.6	9.0	14.3	10
NEB L	156321	MINK ST SW	0.1	0.1	0.0	0.1	10
NEB TR	156374	MINK ST SW	10.2	1.9	6.8	13.1	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	153286	WORTHINGTON RD	20.4	3.1	13.2	25.1	10
EB TR	153287	WORTHINGTON RD	1.1	0.1	0.8	1.3	10
WB L	153562	WORTHINGTON RD	0.1	0.0	0.1	0.1	10
WB TR	153563	WORTHINGTON RD	1.1	0.2	0.9	1.4	10

WORTHINGTON RD, MINK ST NW & MINK ST SW NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples

Project: Mink Corridor Proposed Diamond w North
Scenario: PM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 16:00:00 - 17:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Lane Queue by Intersection - Percentile Queue

MINK ST NW & BEAVER RD — NODE: 18

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NWB L	156389	BEAVER RD	814.9	247.0	445.1	1,373.3	10
NWB LR	156390	BEAVER RD	799.3	252.5	434.1	1,363.9	10

MINK ST NW & BEAVER RD — NODE: 18

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156206	MINK ST NW	157.7	28.1	126.0	212.3	10
NEB T	156207	MINK ST NW	162.4	41.6	120.9	259.9	10
SWB L	156233	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB T	156234	MINK ST NW	629.9	36.6	536.8	665.4	10
SWB T	156235	MINK ST NW	258.7	20.3	224.8	308.3	10
NEB R	156348	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB T	156351	MINK ST NW	253.5	42.6	207.3	358.6	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SEB L	156228	CLOVER VALLEY EXT	16.1	0.8	15.3	17.9	10
SEB R	156229	CLOVER VALLEY EXT	255.1	19.9	217.2	289.0	10
SEB R	156359	CLOVER VALLEY EXT	249.5	18.0	210.5	277.7	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB T	156245	MINK ST NW	2,651.9	50.8	2,565.9	2,702.3	10
SWB TR	156246	MINK ST NW	2,547.4	72.4	2,417.5	2,645.8	10
NEB L	156400	MINK ST NW	57.2	10.5	40.2	68.5	10
NEB L	156401	MINK ST NW	62.3	15.4	42.6	95.9	10
NEB T	156402	MINK ST NW	292.4	12.2	271.8	313.3	10
NEB T	156403	MINK ST NW	317.8	19.2	292.3	350.3	10

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156208	INNOVATION WAY	20.5	8.7	16.2	45.0	10
EB R	156209	INNOVATION WAY	132.5	21.1	104.0	158.4	10

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB T	156397	MINK ST NW	901.5	35.0	855.1	972.3	10
SWB T	156398	MINK ST NW	676.0	23.2	629.1	709.8	10
SWB TR	156399	MINK ST NW	307.9	25.0	259.3	339.2	10
NEB L	156416	MINK ST NW	11.5	9.1	3.1	27.9	10
NEB T	156417	MINK ST NW	70.4	69.1	1.2	195.9	10
NEB T	156418	MINK ST NW	81.1	42.9	3.2	160.5	10
NEB T	156419	MINK ST NW	61.7	51.9	0.8	133.2	10

MINK ST NW & JUG ST — NODE: 33082

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156252	JUG ST	56.1	15.2	32.4	78.1	10
EB R	156253	JUG ST	53.9	43.1	18.7	126.0	10

MINK ST NW & JUG ST — NODE: 33082

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	153566	MINK ST NW	5.9	9.5	0.0	24.1	10
SB T	153676	MINK ST NW	574.2	2.9	568.6	577.8	10
NEB T	156220	MINK ST NW	6.9	12.5	0.0	37.3	10
NEB L	156247	MINK ST NW	114.9	27.9	83.6	174.7	10
SB TR	156248	MINK ST NW	571.4	5.0	558.7	576.0	10

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP — NODE: 10

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156408	MINK ST NW	653.7	0.5	652.4	654.0	10
NEB T	156409	MINK ST NW	638.3	4.6	633.1	648.0	10
NEB T	156410	MINK ST NW	639.3	5.5	631.0	649.0	10
NEB R	156411	MINK ST NW	16.5	4.6	5.6	22.4	10
SWB L	156420	MINK ST NW	378.9	32.7	318.9	420.0	10
SWB T	156421	MINK ST NW	41.6	18.9	18.9	70.2	10
SWB T	156422	MINK ST NW	44.4	25.6	14.1	78.1	10

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP — NODE: 10

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SEB LT	156176	SR 161 EB EXIT RAMP	151.9	10.5	129.4	164.4	10
SEB R	156177	SR 161 EB EXIT RAMP	118.9	9.9	102.2	130.1	10
SEB L	156329	SR 161 EB EXIT RAMP	135.1	20.5	107.8	169.6	10

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP — NODE: 10

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SEB L	156330	SR 161 EB EXIT RAMP	138.7	12.5	120.6	158.6	10

MINK ST NW, SR 161 WB EXIT RAMP & SR 161 WB ENTRANCE RAMP — NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB T	156412	MINK ST NW	388.5	71.7	278.8	528.4	10
SWB T	156413	MINK ST NW	300.1	48.5	239.5	381.1	10
SWB R	156414	MINK ST NW	150.0	21.6	118.9	187.1	10
SWB R	156415	MINK ST NW	175.8	20.0	137.8	216.5	10
NEB L	156427	MINK ST NW	82.6	20.3	58.1	121.5	10
NEB T	156428	MINK ST NW	44.8	36.9	0.0	124.0	10
NEB T	156429	MINK ST NW	54.6	25.9	2.1	91.4	10
NEB T	156430	MINK ST NW	59.0	40.4	4.8	108.8	10

MINK ST NW, SR 161 WB EXIT RAMP & SR 161 WB ENTRANCE RAMP — NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NWB LT	156184	SR 161 WB EXIT RAMP	50.3	16.3	16.9	72.3	10
NWB R	156185	SR 161 WB EXIT RAMP	37.2	9.3	19.3	46.1	10
NWB R	156340	SR 161 WB EXIT RAMP	29.9	12.7	19.2	49.5	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB T	156258	MINK ST NW	287.2	31.3	229.0	332.1	10
SWB L	156270	MINK ST NW	42.2	8.4	23.8	55.2	10
SWB T	156337	MINK ST NW	317.0	18.7	291.9	345.9	10
SWB R	156376	MINK ST NW	54.1	17.8	17.3	74.1	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	153565	MINK ST SW	1,169.4	192.9	864.9	1,590.9	10
NEB L	156321	MINK ST SW	2.1	2.6	0.0	5.8	10
NEB TR	156374	MINK ST SW	1,000.4	255.9	664.3	1,434.0	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	153286	WORTHINGTON RD	1,422.4	20.7	1,391.3	1,444.8	10
EB TR	153287	WORTHINGTON RD	114.6	20.2	84.9	144.7	10
WB L	153562	WORTHINGTON RD	15.9	0.8	14.7	17.5	10
WB TR	153563	WORTHINGTON RD	109.1	18.4	84.6	147.5	10

WORTHINGTON RD, MINK ST NW & MINK ST SW NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples

Project: Mink Corridor Proposed Diamond w North
Scenario: PM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 16:00:00 - 17:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Lane Queue by Intersection - Percentile Num Queued

MINK ST NW & BEAVER RD — NODE: 18

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NWB L	156389	BEAVER RD	26.9	8.2	15.0	46.1	10
NWB LR	156390	BEAVER RD	26.2	8.9	14.0	48.1	10

MINK ST NW & BEAVER RD — NODE: 18

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156206	MINK ST NW	5.3	1.2	4.0	8.0	10
NEB T	156207	MINK ST NW	5.6	1.0	4.0	7.0	10
SWB L	156233	MINK ST NW	0.2	0.4	0.0	1.0	10
SWB T	156234	MINK ST NW	19.0	1.6	16.0	21.0	10
SWB T	156235	MINK ST NW	8.6	0.8	8.0	10.1	10
NEB R	156348	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB T	156351	MINK ST NW	8.4	1.3	6.0	11.0	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SEB L	156228	CLOVER VALLEY EXT	1.0	0.0	1.0	1.0	10
SEB R	156229	CLOVER VALLEY EXT	8.5	1.0	7.0	10.0	10
SEB R	156359	CLOVER VALLEY EXT	8.9	1.0	7.0	10.0	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB T	156245	MINK ST NW	85.9	2.8	82.1	91.0	10
SWB TR	156246	MINK ST NW	83.3	2.2	79.1	86.1	10
NEB L	156400	MINK ST NW	2.1	0.3	2.0	3.0	10
NEB L	156401	MINK ST NW	2.3	0.5	2.0	3.0	10
NEB T	156402	MINK ST NW	10.6	0.7	10.0	12.0	10
NEB T	156403	MINK ST NW	10.3	0.8	9.0	12.0	10

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156208	INNOVATION WAY	1.0	0.0	1.0	1.0	10
EB R	156209	INNOVATION WAY	4.2	0.4	4.0	5.0	10

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB T	156397	MINK ST NW	27.4	1.3	25.1	29.0	10
SWB T	156398	MINK ST NW	22.3	1.6	20.0	24.0	10
SWB TR	156399	MINK ST NW	11.1	0.9	10.0	12.0	10
NEB L	156416	MINK ST NW	1.1	0.3	1.0	2.0	10
NEB T	156417	MINK ST NW	2.6	2.2	0.0	6.0	10
NEB T	156418	MINK ST NW	3.0	1.6	0.1	5.0	10
NEB T	156419	MINK ST NW	2.0	1.8	0.0	5.0	10

MINK ST NW & JUG ST — NODE: 33082

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156252	JUG ST	2.1	0.3	2.0	3.0	10
EB R	156253	JUG ST	1.7	0.8	1.0	3.0	10

MINK ST NW & JUG ST — NODE: 33082

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	153566	MINK ST NW	0.3	0.5	0.0	1.0	10
SB T	153676	MINK ST NW	20.1	0.9	19.0	21.0	10
NEB T	156220	MINK ST NW	0.3	0.5	0.0	1.0	10
NEB L	156247	MINK ST NW	4.3	1.1	3.0	6.0	10
SB TR	156248	MINK ST NW	19.4	0.5	19.0	20.0	10

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP — NODE: 10

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156408	MINK ST NW	22.2	0.9	21.0	24.0	10
NEB T	156409	MINK ST NW	22.4	0.8	21.0	24.0	10
NEB T	156410	MINK ST NW	21.8	0.9	20.0	23.0	10
NEB R	156411	MINK ST NW	1.0	0.0	1.0	1.0	10
SWB L	156420	MINK ST NW	12.7	1.3	11.0	15.0	10
SWB T	156421	MINK ST NW	1.5	0.5	1.0	2.0	10
SWB T	156422	MINK ST NW	1.9	1.0	1.0	3.0	10

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP — NODE: 10

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SEB LT	156176	SR 161 EB EXIT RAMP	5.2	0.4	5.0	6.0	10
SEB R	156177	SR 161 EB EXIT RAMP	4.1	0.3	4.0	5.0	10
SEB L	156329	SR 161 EB EXIT RAMP	4.5	0.7	4.0	6.0	10

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP — NODE: 10

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SEB L	156330	SR 161 EB EXIT RAMP	5.0	0.0	5.0	5.0	10

MINK ST NW, SR 161 WB EXIT RAMP & SR 161 WB ENTRANCE RAMP — NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB T	156412	MINK ST NW	12.6	2.2	9.0	17.0	10
SWB T	156413	MINK ST NW	10.1	1.5	8.0	13.0	10
SWB R	156414	MINK ST NW	5.1	0.9	4.0	7.0	10
SWB R	156415	MINK ST NW	6.1	0.7	5.0	7.0	10
NEB L	156427	MINK ST NW	3.8	0.6	3.0	5.0	10
NEB T	156428	MINK ST NW	1.9	1.4	0.0	5.0	10
NEB T	156429	MINK ST NW	2.2	1.1	0.0	4.0	10
NEB T	156430	MINK ST NW	2.3	1.5	0.1	4.1	10

MINK ST NW, SR 161 WB EXIT RAMP & SR 161 WB ENTRANCE RAMP — NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NWB LT	156184	SR 161 WB EXIT RAMP	1.9	0.3	1.0	2.0	10
NWB R	156185	SR 161 WB EXIT RAMP	1.6	0.5	1.0	2.0	10
NWB R	156340	SR 161 WB EXIT RAMP	1.4	0.5	1.0	2.0	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB T	156258	MINK ST NW	9.9	0.9	8.0	11.0	10
SWB L	156270	MINK ST NW	1.7	0.5	1.0	2.0	10
SWB T	156337	MINK ST NW	10.6	0.7	9.0	11.0	10
SWB R	156376	MINK ST NW	2.0	0.5	1.0	3.0	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	153565	MINK ST SW	37.5	7.0	29.3	54.1	10
NEB L	156321	MINK ST SW	0.4	0.5	0.0	1.0	10
NEB TR	156374	MINK ST SW	33.1	8.3	22.0	48.2	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	153286	WORTHINGTON RD	48.4	2.1	45.1	51.0	10
EB TR	153287	WORTHINGTON RD	3.8	0.6	3.0	5.0	10
WB L	153562	WORTHINGTON RD	1.0	0.0	1.0	1.0	10
WB TR	153563	WORTHINGTON RD	3.6	0.7	3.0	5.0	10

WORTHINGTON RD, MINK ST NW & MINK ST SW NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples

Project: Mink Corridor Proposed Diamond w North
Scenario: PM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 16:00:00 - 17:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Lane Queue by Intersection - Spillback Rate

MINK ST NW & BEAVER RD — NODE: 18

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NWB L	156389	BEAVER RD	0.0	0.0	0.0	0.0	10
NWB LR	156390	BEAVER RD	0.0	0.0	0.0	0.0	10

MINK ST NW & BEAVER RD — NODE: 18

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156206	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB T	156207	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB L	156233	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB T	156234	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB T	156235	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB R	156348	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB T	156351	MINK ST NW	0.0	0.0	0.0	0.0	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SEB L	156228	CLOVER VALLEY EXT	0.0	0.0	0.0	0.0	10
SEB R	156229	CLOVER VALLEY EXT	0.0	0.0	0.0	0.0	10
SEB R	156359	CLOVER VALLEY EXT	0.0	0.0	0.0	0.0	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB T	156245	MINK ST NW	0.1	0.0	0.0	0.1	10
SWB TR	156246	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB L	156400	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB L	156401	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB T	156402	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB T	156403	MINK ST NW	0.0	0.0	0.0	0.0	10

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156208	INNOVATION WAY	0.0	0.0	0.0	0.0	10
EB R	156209	INNOVATION WAY	0.0	0.0	0.0	0.0	10

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB T	156397	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB T	156398	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB TR	156399	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB L	156416	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB T	156417	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB T	156418	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB T	156419	MINK ST NW	0.0	0.0	0.0	0.0	10

MINK ST NW & JUG ST — NODE: 33082

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156252	JUG ST	0.0	0.0	0.0	0.0	10
EB R	156253	JUG ST	0.0	0.0	0.0	0.0	10

MINK ST NW & JUG ST — NODE: 33082

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	153566	MINK ST NW	0.0	0.0	0.0	0.0	10
SB T	153676	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB T	156220	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB L	156247	MINK ST NW	0.0	0.0	0.0	0.0	10
SB TR	156248	MINK ST NW	0.0	0.0	0.0	0.0	10

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP — NODE: 10

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156408	MINK ST NW	0.2	0.0	0.2	0.3	10
NEB T	156409	MINK ST NW	0.1	0.0	0.1	0.2	10
NEB T	156410	MINK ST NW	0.1	0.0	0.1	0.2	10
NEB R	156411	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB L	156420	MINK ST NW	0.1	0.0	0.0	0.1	10
SWB T	156421	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB T	156422	MINK ST NW	0.0	0.0	0.0	0.0	10

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP — NODE: 10

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SEB LT	156176	SR 161 EB EXIT RAMP	0.0	0.0	0.0	0.0	10
SEB R	156177	SR 161 EB EXIT RAMP	0.0	0.0	0.0	0.0	10
SEB L	156329	SR 161 EB EXIT RAMP	0.0	0.0	0.0	0.0	10

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP — NODE: 10

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SEB L	156330	SR 161 EB EXIT RAMP	0.0	0.0	0.0	0.0	10

MINK ST NW, SR 161 WB EXIT RAMP & SR 161 WB ENTRANCE RAMP — NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB T	156412	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB T	156413	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB R	156414	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB R	156415	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB L	156427	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB T	156428	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB T	156429	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB T	156430	MINK ST NW	0.0	0.0	0.0	0.0	10

MINK ST NW, SR 161 WB EXIT RAMP & SR 161 WB ENTRANCE RAMP — NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NWB LT	156184	SR 161 WB EXIT RAMP	0.0	0.0	0.0	0.0	10
NWB R	156185	SR 161 WB EXIT RAMP	0.0	0.0	0.0	0.0	10
NWB R	156340	SR 161 WB EXIT RAMP	0.0	0.0	0.0	0.0	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB T	156258	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB L	156270	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB T	156337	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB R	156376	MINK ST NW	0.0	0.0	0.0	0.0	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	153565	MINK ST SW	0.0	0.0	0.0	0.0	10
NEB L	156321	MINK ST SW	0.0	0.0	0.0	0.0	10
NEB TR	156374	MINK ST SW	0.0	0.0	0.0	0.0	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	153286	WORTHINGTON RD	0.0	0.0	0.0	0.0	10
EB TR	153287	WORTHINGTON RD	0.0	0.0	0.0	0.0	10
WB L	153562	WORTHINGTON RD	0.0	0.0	0.0	0.0	10
WB TR	153563	WORTHINGTON RD	0.0	0.0	0.0	0.0	10

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples

Project: Mink Corridor Proposed Diamond w North
Scenario: PM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 16:00:00 - 17:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Spillback Queue by Intersection - Overview

MINK ST NW & BEAVER RD — NODE: 18

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
NEB on MINK ST NW							
1	60.0	33.9	1.8	340.7	20.0	1.8	20.0
2	60.0	26.9	1.6	236.6	15.0	1.6	15.0
3	60.0	25.0	1.6	286.9	18.0	1.6	18.0
4	60.0	25.8	1.5	323.4	15.0	1.5	15.0
5	60.0	38.6	2.3	347.8	17.0	2.3	17.0
6	60.0	30.1	1.6	359.7	21.0	1.6	21.0
7	60.0	36.3	1.9	296.5	14.0	1.9	14.0
8	60.0	28.2	1.6	215.7	14.0	1.6	14.0
9	60.0	23.0	1.2	179.4	11.0	1.2	11.0
10	60.0	36.0	1.9	355.0	19.0	1.9	19.0
Average:	**60.0**	**30.4**	**1.7**	**294.2**	**16.4**	**1.7**	**16.4**
NWB on BEAVER RD							
1	60.0	597.9	30.8	2,013.5	78.0	30.8	78.0
2	60.0	351.0	20.0	697.4	43.0	20.0	43.0
3	60.0	261.3	14.0	633.8	34.0	14.0	34.0
4	60.0	408.6	23.5	1,391.9	69.0	23.5	69.0
5	60.0	448.1	24.8	773.1	50.0	24.8	50.0
6	60.0	592.0	33.5	1,293.1	63.0	33.5	63.0
7	60.0	634.0	32.9	1,829.2	78.0	32.9	78.0
8	60.0	482.4	27.1	1,038.9	58.0	27.1	58.0
9	60.0	587.7	31.1	1,186.6	65.0	31.1	65.0
10	60.0	999.1	50.1	2,525.6	106.0	50.1	106.0
Average:	**60.0**	**536.2**	**28.8**	**1,338.3**	**64.4**	**28.8**	**64.4**
SWB on MINK ST NW							
1	60.0	397.2	16.4	4,185.7	155.0	16.8	170.0
2	60.0	477.1	20.2	4,200.8	219.0	21.0	231.0
3	60.0	513.4	21.8	4,197.3	178.0	22.7	183.0
4	60.0	784.1	34.0	4,228.7	227.0	36.5	243.0
5	60.0	572.6	25.9	4,199.8	220.0	27.1	232.0
6	60.0	402.3	18.7	4,193.9	219.0	19.3	234.0
7	60.0	771.1	33.6	4,201.0	217.0	35.8	225.0
8	60.0	657.0	27.1	4,177.7	161.0	28.6	172.0

MINK ST NW & BEAVER RD — NODE: 18

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
9	60.0	470.7	20.5	4,236.9	196.0	21.4	211.0
10	60.0	537.7	24.6	4,234.0	222.0	25.5	234.0
Average:	**60.0**	**558.3**	**24.3**	**4,205.6**	**201.4**	**25.5**	**213.5**

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
NEB on MINK ST NW							
1	60.0	115.7	7.9	444.1	31.0	7.9	31.0
2	60.0	99.3	7.0	414.3	32.0	7.0	32.0
3	60.0	115.6	8.5	352.8	27.0	8.5	27.0
4	60.0	135.8	8.3	489.0	30.0	8.3	30.0
5	60.0	102.6	7.3	402.7	26.0	7.3	26.0
6	60.0	124.5	8.5	454.9	28.0	8.5	28.0
7	60.0	134.0	9.1	419.5	27.0	9.1	27.0
8	60.0	100.1	7.1	476.5	28.0	7.1	28.0
9	60.0	111.6	7.5	479.3	28.0	7.5	28.0
10	60.0	130.0	8.5	595.0	33.0	8.5	33.0
Average:	**60.0**	**116.9**	**8.0**	**452.8**	**29.0**	**8.0**	**29.0**
SEB on CLOVER VALLEY EXT							
1	60.0	119.1	5.8	357.7	21.0	5.8	21.0
2	60.0	112.9	6.0	360.1	23.0	6.0	23.0
3	60.0	115.9	6.3	426.1	24.0	6.3	24.0
4	60.0	127.5	6.9	389.2	26.0	6.9	26.0
5	60.0	114.6	6.0	343.8	23.0	6.0	23.0
6	60.0	114.9	5.7	414.5	26.0	5.7	26.0
7	60.0	127.8	6.5	541.5	23.0	6.5	23.0
8	60.0	123.3	6.2	416.7	21.0	6.2	21.0
9	60.0	125.6	6.2	420.0	27.0	6.2	27.0
10	60.0	137.3	6.6	517.4	32.0	6.6	32.0
Average:	**60.0**	**121.9**	**6.2**	**418.7**	**24.6**	**6.2**	**24.6**
SWB on MINK ST NW							
1	60.0	2,386.5	127.7	3,396.3	208.0	128.3	209.0
2	60.0	1,965.3	105.8	3,382.5	199.0	106.4	201.0
3	60.0	2,034.4	108.0	3,410.9	208.0	108.4	208.0
4	60.0	2,200.2	116.8	3,388.0	210.0	117.3	210.0
5	60.0	1,930.4	102.8	3,360.0	208.0	103.1	210.0
6	60.0	2,023.0	112.1	3,410.4	214.0	112.4	214.0
7	60.0	2,051.4	109.8	3,360.4	211.0	110.1	213.0
8	60.0	2,214.5	114.2	3,360.3	211.0	114.5	211.0

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
9	60.0	2,094.5	111.8	3,396.3	191.0	112.2	194.0
10	60.0	1,969.2	110.0	3,393.3	199.0	110.6	202.0
Average:	**60.0**	**2,086.9**	**111.9**	**3,385.8**	**205.9**	**112.3**	**207.2**

MINK ST NW & INNOVATION WAY — NODE: 15

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
EB on INNOVATION WAY							
1	60.0	46.8	1.9	245.6	7.0	1.9	7.0
2	60.0	41.3	1.7	169.5	7.0	1.7	7.0
3	60.0	32.8	1.4	190.9	5.0	1.4	5.0
4	60.0	39.3	1.6	129.9	5.0	1.6	5.0
5	60.0	34.3	1.4	147.6	5.0	1.4	5.0
6	60.0	37.3	1.7	162.8	6.0	1.7	6.0
7	60.0	34.8	1.6	178.8	5.0	1.6	5.0
8	60.0	38.9	1.6	267.3	8.0	1.6	8.0
9	60.0	40.4	1.6	156.5	7.0	1.6	7.0
10	60.0	47.9	1.9	184.8	8.0	1.9	8.0
Average:	**60.0**	**39.4**	**1.6**	**183.4**	**6.3**	**1.6**	**6.3**
NEB on MINK ST NW							
1	60.0	22.3	2.1	298.4	32.0	2.1	32.0
2	60.0	10.5	0.8	170.9	13.0	0.8	13.0
3	60.0	28.6	2.4	359.7	32.0	2.4	32.0
4	60.0	20.9	1.6	391.3	29.0	1.6	29.0
5	60.0	37.7	2.9	446.6	35.0	2.9	35.0
6	60.0	20.9	1.6	310.4	29.0	1.6	29.0
7	60.0	26.9	1.5	314.4	20.0	1.5	20.0
8	60.0	20.6	1.3	271.9	16.0	1.3	16.0
9	60.0	30.4	2.1	492.8	31.0	2.1	31.0
10	60.0	9.2	0.8	261.3	25.0	0.8	25.0
Average:	**60.0**	**22.8**	**1.7**	**331.8**	**26.2**	**1.7**	**26.2**
SWB on MINK ST NW							
1	60.0	921.8	39.8	2,520.9	116.0	41.7	122.0
2	60.0	1,010.7	42.3	5,326.0	205.0	44.9	250.0
3	60.0	939.9	41.7	5,317.7	209.0	43.1	244.0
4	60.0	873.5	39.1	5,322.5	272.0	41.7	321.0
5	60.0	944.7	41.8	3,430.3	134.0	45.5	168.0
6	60.0	777.4	33.0	5,319.0	264.0	34.3	315.0
7	60.0	983.2	44.8	5,308.2	236.0	48.7	284.0
8	60.0	1,054.5	45.0	5,302.8	220.0	48.5	273.0

MINK ST NW & INNOVATION WAY — NODE: 15

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
9	60.0	1,034.8	45.2	5,362.0	240.0	49.4	292.0
10	60.0	1,114.7	48.3	5,328.1	258.0	53.3	326.0
Average:	**60.0**	**965.5**	**42.1**	**4,853.8**	**215.4**	**45.1**	**259.5**

MINK ST NW & JUG ST — NODE: 33082

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
EB on JUG ST							
1	60.0	18.3	1.1	86.7	5.0	1.1	5.0
2	60.0	28.1	1.2	126.0	5.0	1.2	5.0
3	60.0	20.8	0.9	125.6	6.0	0.9	6.0
4	60.0	24.0	1.0	147.6	5.0	1.0	5.0
5	60.0	15.3	0.8	99.8	4.0	0.8	4.0
6	60.0	15.7	0.7	79.6	5.0	0.7	5.0
7	60.0	14.8	0.8	134.3	6.0	0.8	6.0
8	60.0	12.6	0.8	57.4	3.0	0.8	3.0
9	60.0	15.1	0.8	97.8	4.0	0.8	4.0
10	60.0	18.7	1.0	103.3	6.0	1.0	6.0
Average:	**60.0**	**18.3**	**0.9**	**105.8**	**4.9**	**0.9**	**4.9**
NEB on MINK ST NW							
1	60.0	33.7	1.5	258.4	20.0	1.5	20.0
2	60.0	18.0	0.8	151.4	5.0	0.8	5.0
3	60.0	24.4	1.3	176.8	17.0	1.3	17.0
4	60.0	42.6	1.7	241.1	14.0	1.7	14.0
5	60.0	21.4	1.2	189.1	14.0	1.2	14.0
6	60.0	24.4	1.0	215.4	6.0	1.0	6.0
7	60.0	26.2	1.3	263.2	13.0	1.3	13.0
8	60.0	40.0	2.0	339.5	16.0	2.0	16.0
9	60.0	36.0	1.9	209.7	14.0	1.9	14.0
10	60.0	24.8	1.4	327.6	19.0	1.4	19.0
Average:	**60.0**	**29.2**	**1.4**	**237.2**	**13.8**	**1.4**	**13.8**
SB on MINK ST NW							
1	60.0	363.9	19.4	610.8	39.0	19.4	39.0
2	60.0	292.2	15.5	596.9	40.0	15.5	40.0
3	60.0	265.4	15.3	630.5	41.0	15.3	41.0
4	60.0	314.9	17.0	631.1	40.0	17.0	40.0
5	60.0	251.5	13.6	575.2	41.0	13.6	41.0
6	60.0	287.9	15.9	624.9	39.0	15.9	39.0
7	60.0	273.8	15.1	574.8	39.0	15.1	39.0
8	60.0	295.0	17.4	604.5	40.0	17.4	40.0

MINK ST NW & JUG ST — NODE: 33082

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
9	60.0	303.9	18.4	610.7	41.0	18.4	41.0
10	60.0	272.3	15.5	607.8	43.0	15.5	43.0
Average:	**60.0**	**292.1**	**16.3**	**606.7**	**40.3**	**16.3**	**40.3**

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP — NODE: 10

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
NEB on MINK ST NW							
1	60.0	852.8	49.7	4,373.2	173.0	58.2	227.0
2	60.0	669.4	45.3	2,232.8	113.0	50.1	145.0
3	60.0	919.5	55.6	2,281.5	115.0	64.1	155.0
4	60.0	1,127.1	62.5	4,389.3	189.0	72.1	236.0
5	60.0	827.5	53.0	3,260.5	121.0	58.8	159.0
6	60.0	890.6	55.7	2,280.5	118.0	63.3	167.0
7	60.0	1,006.0	55.8	4,373.4	174.0	65.8	228.0
8	60.0	825.1	48.3	4,386.2	181.0	53.3	212.0
9	60.0	1,127.4	62.3	4,383.9	187.0	72.6	236.0
10	60.0	902.6	50.3	3,600.9	148.0	58.5	201.0
Average:	**60.0**	**914.8**	**53.9**	**3,556.2**	**151.9**	**61.7**	**196.6**
SEB on SR 161 EB EXIT RAMP							
1	60.0	92.7	8.3	297.1	21.0	8.3	21.0
2	60.0	55.1	5.4	263.0	22.0	5.4	22.0
3	60.0	63.9	6.1	220.9	22.0	6.1	22.0
4	60.0	76.1	6.8	239.6	23.0	6.8	23.0
5	60.0	58.6	5.8	224.8	23.0	5.8	23.0
6	60.0	66.9	6.0	215.6	20.0	6.0	20.0
7	60.0	78.2	7.0	233.6	22.0	7.0	22.0
8	60.0	68.6	5.8	263.0	24.0	5.8	24.0
9	60.0	63.7	5.9	250.7	17.0	5.9	17.0
10	60.0	83.9	7.5	213.6	19.0	7.5	19.0
Average:	**60.0**	**70.8**	**6.5**	**242.2**	**21.3**	**6.5**	**21.3**
SWB on MINK ST NW							
1	60.0	162.5	5.9	1,297.2	40.0	6.0	44.0
2	60.0	200.6	7.5	1,022.9	35.0	7.6	35.0
3	60.0	141.0	5.5	788.9	29.0	5.5	29.0
4	60.0	186.4	6.6	1,001.3	38.0	6.7	40.0
5	60.0	128.7	5.2	1,149.6	41.0	5.2	42.0
6	60.0	91.8	3.6	775.7	33.0	3.6	34.0
7	60.0	161.1	6.5	849.8	36.0	6.5	38.0
8	60.0	251.3	10.2	839.7	35.0	10.3	37.0

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP — NODE: 10

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
9	60.0	139.8	5.8	850.8	31.0	5.8	31.0
10	60.0	175.9	6.4	980.6	27.0	6.4	27.0
Average:	**60.0**	**163.9**	**6.3**	**955.7**	**34.5**	**6.4**	**35.7**

MINK ST NW, SR 161 WB EXIT RAMP & SR 161 WB ENTRANCE RAMP — NODE: 5

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
NEB on MINK ST NW							
1	60.0	38.1	2.4	383.3	36.0	2.4	36.0
2	60.0	33.4	2.6	382.8	39.0	2.6	39.0
3	60.0	24.5	1.6	287.0	25.0	1.6	25.0
4	60.0	17.0	1.1	102.5	8.0	1.1	8.0
5	60.0	32.7	2.1	336.7	31.0	2.1	31.0
6	60.0	23.2	1.3	257.1	15.0	1.3	15.0
7	60.0	22.2	2.0	366.3	39.0	2.0	39.0
8	60.0	45.6	3.3	417.5	39.0	3.3	39.0
9	60.0	15.5	1.1	304.4	23.0	1.1	23.0
10	60.0	47.0	3.5	340.8	36.0	3.5	36.0
Average:	**60.0**	**29.9**	**2.1**	**317.8**	**29.1**	**2.1**	**29.1**
NWB on SR 161 WB EXIT RAMP							
1	60.0	20.7	1.4	113.6	7.0	1.4	7.0
2	60.0	15.7	1.2	68.7	4.0	1.2	4.0
3	60.0	17.9	1.2	121.1	4.0	1.2	4.0
4	60.0	18.9	1.4	102.5	5.0	1.4	5.0
5	60.0	20.3	1.4	77.4	6.0	1.4	6.0
6	60.0	17.6	1.3	103.7	4.0	1.3	4.0
7	60.0	18.1	1.2	102.6	6.0	1.2	6.0
8	60.0	12.0	1.0	49.2	4.0	1.0	4.0
9	60.0	18.5	1.4	71.9	5.0	1.4	5.0
10	60.0	20.1	1.1	75.4	6.0	1.1	6.0
Average:	**60.0**	**18.0**	**1.3**	**88.6**	**5.1**	**1.3**	**5.1**
SWB on MINK ST NW							
1	60.0	153.7	9.9	779.7	44.0	9.9	44.0
2	60.0	215.8	13.3	598.2	42.0	13.3	42.0
3	60.0	205.0	13.0	591.7	50.0	13.0	50.0
4	60.0	238.3	11.4	1,017.6	41.0	11.4	41.0
5	60.0	190.2	11.6	632.1	49.0	11.6	49.0
6	60.0	114.5	8.3	519.4	41.0	8.3	41.0
7	60.0	145.5	8.8	572.8	46.0	8.8	46.0
8	60.0	170.1	11.5	585.2	42.0	11.5	42.0

MINK ST NW, SR 161 WB EXIT RAMP & SR 161 WB ENTRANCE RAMP — NODE: 5

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
9	60.0	156.4	8.7	551.9	36.0	8.7	36.0
10	60.0	177.4	9.2	688.8	41.0	9.2	41.0
Average:	**60.0**	**176.7**	**10.6**	**653.7**	**43.2**	**10.6**	**43.2**

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
EB on WORTHINGTON RD							
1	60.0	657.9	23.8	1,478.0	54.0	23.8	54.0
2	60.0	779.8	26.9	1,466.0	52.0	26.9	52.0
3	60.0	770.3	25.0	1,482.5	51.0	25.0	51.0
4	60.0	879.2	28.7	1,561.8	50.0	28.7	50.0
5	60.0	758.8	26.8	1,427.7	51.0	26.8	51.0
6	60.0	833.5	28.4	1,481.5	49.0	28.4	49.0
7	60.0	611.5	21.5	1,484.8	53.0	21.5	53.0
8	60.0	535.3	17.4	1,427.6	49.0	17.4	49.0
9	60.0	922.9	31.8	1,516.4	57.0	31.8	57.0
10	60.0	758.2	25.0	1,489.3	53.0	25.0	53.0
Average:	**60.0**	**750.7**	**25.5**	**1,481.6**	**51.9**	**25.5**	**51.9**
NEB on MINK ST SW							
1	60.0	959.5	38.1	3,601.7	134.0	38.1	134.0
2	60.0	595.4	27.2	2,570.3	95.0	27.2	95.0
3	60.0	960.0	39.5	3,601.3	134.0	39.5	134.0
4	60.0	869.1	32.8	3,601.8	141.0	32.8	141.0
5	60.0	849.7	32.9	3,595.5	124.0	32.9	124.0
6	60.0	917.3	36.5	3,596.0	126.0	36.5	126.0
7	60.0	588.4	24.8	3,588.7	121.0	24.8	121.0
8	60.0	1,166.2	40.8	3,598.0	125.0	40.8	125.0
9	60.0	896.4	36.2	3,601.4	136.0	36.2	136.0
10	60.0	916.8	36.3	3,606.2	127.0	36.3	127.0
Average:	**60.0**	**871.9**	**34.5**	**3,496.1**	**126.3**	**34.5**	**126.3**
SWB on MINK ST NW							
1	60.0	90.5	5.6	394.6	28.0	5.6	28.0
2	60.0	98.9	6.0	463.4	29.0	6.0	29.0
3	60.0	112.0	6.9	599.8	24.0	6.9	24.0
4	60.0	69.1	4.4	351.2	25.0	4.4	25.0
5	60.0	70.4	4.4	397.2	31.0	4.4	31.0
6	60.0	103.4	6.0	449.8	27.0	6.0	27.0
7	60.0	105.6	6.6	462.0	30.0	6.6	30.0
8	60.0	127.4	7.7	414.5	29.0	7.7	29.0

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
9	60.0	91.6	5.6	397.3	21.0	5.6	21.0
10	60.0	106.5	6.9	355.7	25.0	6.9	25.0
Average:	**60.0**	**97.5**	**6.0**	**428.6**	**26.9**	**6.0**	**26.9**
WB on WORTHINGTON RD							
1	60.0	30.5	1.3	154.2	6.0	1.3	6.0
2	60.0	29.9	1.4	190.8	8.0	1.4	8.0
3	60.0	49.9	1.7	205.7	6.0	1.7	6.0
4	60.0	38.2	1.6	246.5	7.0	1.6	7.0
5	60.0	26.0	1.1	188.1	6.0	1.1	6.0
6	60.0	19.2	0.9	105.1	4.0	0.9	4.0
7	60.0	32.1	1.2	212.0	6.0	1.2	6.0
8	60.0	24.3	0.9	174.7	4.0	0.9	4.0
9	60.0	34.1	1.4	147.8	5.0	1.4	5.0
10	60.0	41.4	1.5	228.8	6.0	1.5	6.0
Average:	**60.0**	**32.6**	**1.3**	**185.4**	**5.8**	**1.3**	**5.8**

ABOUT SPILLBACK QUEUES

Spillback queues begin at the front bumper of the first vehicle in queue on a link. From there, the queue can branch as a tree in different directions as it spills upstream through intersections. The various branches of the spillback queue will extend beyond the originating link and superlink boundaries until the back of the queue is reached on every branch in the tree.

- Average/Maximum Queue Length: Distance from the front bumper of the first queued vehicle to the back bumper of the last queued vehicle for the longest branch
- Average/Maximum Vehicles Queued: Number of vehicles queued in all lanes for the longest branch

Project: Mink Corridor Proposed Diamond w North
Scenario: PM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 16:00:00 - 17:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Spillback Queue by Intersection - Avg Queue

MINK ST NW & BEAVER RD — NODE: 18

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	30.4	5.5	23.0	38.6	10
NWB	BEAVER RD	536.2	202.8	261.3	999.1	10
SWB	MINK ST NW	558.3	138.7	397.2	784.1	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	116.9	13.8	99.3	135.8	10
SEB	CLOVER VALLEY EXT	121.9	7.8	112.9	137.3	10
SWB	MINK ST NW	2,086.9	141.5	1,930.4	2,386.5	10

MINK ST NW & INNOVATION WAY — NODE: 15

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	INNOVATION WAY	39.4	5.0	32.8	47.9	10
NEB	MINK ST NW	22.8	8.7	9.2	37.7	10
SWB	MINK ST NW	965.5	96.7	777.4	1,114.7	10

MINK ST NW & JUG ST — NODE: 33082

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	JUG ST	18.3	4.8	12.6	28.1	10
NEB	MINK ST NW	29.2	8.3	18.0	42.6	10
SB	MINK ST NW	292.1	31.5	251.5	363.9	10

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP — NODE: 10

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	914.8	141.1	669.4	1,127.4	10
SEB	SR 161 EB EXIT RAMP	70.8	11.8	55.1	92.7	10
SWB	MINK ST NW	163.9	43.7	91.8	251.3	10

MINK ST NW, SR 161 WB EXIT RAMP & SR 161 WB ENTRANCE RAMP — NODE: 5

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	29.9	11.2	15.5	47.0	10
NWB	SR 161 WB EXIT RAMP	18.0	2.6	12.0	20.7	10
SWB	MINK ST NW	176.7	36.7	114.5	238.3	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	WORTHINGTON RD	750.7	119.6	535.3	922.9	10
NEB	MINK ST SW	871.9	171.3	588.4	1,166.2	10
SWB	MINK ST NW	97.5	18.0	69.1	127.4	10
WB	WORTHINGTON RD	32.6	8.9	19.2	49.9	10

Project: Mink Corridor Proposed Diamond w North
Scenario: PM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 16:00:00 - 17:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Spillback Queue by Intersection - Avg Num Queued

MINK ST NW & BEAVER RD — NODE: 18

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	1.7	0.3	1.2	2.3	10
NWB	BEAVER RD	28.8	9.7	14.0	50.1	10
SWB	MINK ST NW	24.3	6.0	16.4	34.0	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	8.0	0.7	7.0	9.1	10
SEB	CLOVER VALLEY EXT	6.2	0.4	5.7	6.9	10
SWB	MINK ST NW	111.9	6.8	102.8	127.7	10

MINK ST NW & INNOVATION WAY — NODE: 15

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	INNOVATION WAY	1.6	0.2	1.4	1.9	10
NEB	MINK ST NW	1.7	0.7	0.8	2.9	10
SWB	MINK ST NW	42.1	4.2	33.0	48.3	10

MINK ST NW & JUG ST — NODE: 33082

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	JUG ST	0.9	0.2	0.7	1.2	10
NEB	MINK ST NW	1.4	0.4	0.8	2.0	10
SB	MINK ST NW	16.3	1.7	13.6	19.4	10

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP — NODE: 10

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	53.9	5.7	45.3	62.5	10
SEB	SR 161 EB EXIT RAMP	6.5	0.9	5.4	8.3	10
SWB	MINK ST NW	6.3	1.7	3.6	10.2	10

MINK ST NW, SR 161 WB EXIT RAMP & SR 161 WB ENTRANCE RAMP — NODE: 5

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	2.1	0.9	1.1	3.5	10
NWB	SR 161 WB EXIT RAMP	1.3	0.1	1.0	1.4	10
SWB	MINK ST NW	10.6	1.8	8.3	13.3	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	WORTHINGTON RD	25.5	4.0	17.4	31.8	10
NEB	MINK ST SW	34.5	5.2	24.8	40.8	10
SWB	MINK ST NW	6.0	1.1	4.4	7.7	10
WB	WORTHINGTON RD	1.3	0.3	0.9	1.7	10

Project: Mink Corridor Proposed Diamond w North
Scenario: PM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 16:00:00 - 17:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Spillback Queue by Intersection - Avg Total Queued

MINK ST NW & BEAVER RD — NODE: 18

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	1.7	0.3	1.2	2.3	10
NWB	BEAVER RD	28.8	9.7	14.0	50.1	10
SWB	MINK ST NW	25.5	6.7	16.8	36.5	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	8.0	0.7	7.0	9.1	10
SEB	CLOVER VALLEY EXT	6.2	0.4	5.7	6.9	10
SWB	MINK ST NW	112.3	6.9	103.1	128.3	10

MINK ST NW & INNOVATION WAY — NODE: 15

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	INNOVATION WAY	1.6	0.2	1.4	1.9	10
NEB	MINK ST NW	1.7	0.7	0.8	2.9	10
SWB	MINK ST NW	45.1	5.3	34.3	53.3	10

MINK ST NW & JUG ST — NODE: 33082

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	JUG ST	0.9	0.2	0.7	1.2	10
NEB	MINK ST NW	1.4	0.4	0.8	2.0	10
SB	MINK ST NW	16.3	1.7	13.6	19.4	10

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP — NODE: 10

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	61.7	7.4	50.1	72.6	10
SEB	SR 161 EB EXIT RAMP	6.5	0.9	5.4	8.3	10
SWB	MINK ST NW	6.4	1.7	3.6	10.3	10

MINK ST NW, SR 161 WB EXIT RAMP & SR 161 WB ENTRANCE RAMP — NODE: 5

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	2.1	0.9	1.1	3.5	10
NWB	SR 161 WB EXIT RAMP	1.3	0.1	1.0	1.4	10
SWB	MINK ST NW	10.6	1.8	8.3	13.3	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	WORTHINGTON RD	25.5	4.0	17.4	31.8	10
NEB	MINK ST SW	34.5	5.2	24.8	40.8	10
SWB	MINK ST NW	6.0	1.1	4.4	7.7	10
WB	WORTHINGTON RD	1.3	0.3	0.9	1.7	10

Project: Mink Corridor Proposed Diamond w North
Scenario: PM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 16:00:00 - 17:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Spillback Queue by Intersection - Max Queue

MINK ST NW & BEAVER RD — NODE: 18

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	294.2	63.8	179.4	359.7	10
NWB	BEAVER RD	1,338.3	619.2	633.8	2,525.6	10
SWB	MINK ST NW	4,205.6	20.5	4,177.7	4,236.9	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	452.8	65.0	352.8	595.0	10
SEB	CLOVER VALLEY EXT	418.7	65.4	343.8	541.5	10
SWB	MINK ST NW	3,385.8	19.7	3,360.0	3,410.9	10

MINK ST NW & INNOVATION WAY — NODE: 15

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	INNOVATION WAY	183.4	42.8	129.9	267.3	10
NEB	MINK ST NW	331.8	94.1	170.9	492.8	10
SWB	MINK ST NW	4,853.8	1,012.9	2,520.9	5,362.0	10

MINK ST NW & JUG ST — NODE: 33082

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	JUG ST	105.8	27.6	57.4	147.6	10
NEB	MINK ST NW	237.2	61.8	151.4	339.5	10
SB	MINK ST NW	606.7	20.1	574.8	631.1	10

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP — NODE: 10

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	3,556.2	971.6	2,232.8	4,389.3	10
SEB	SR 161 EB EXIT RAMP	242.2	26.5	213.6	297.1	10
SWB	MINK ST NW	955.7	169.1	775.7	1,297.2	10

MINK ST NW, SR 161 WB EXIT RAMP & SR 161 WB ENTRANCE RAMP — NODE: 5

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	317.8	90.0	102.5	417.5	10
NWB	SR 161 WB EXIT RAMP	88.6	23.2	49.2	121.1	10
SWB	MINK ST NW	653.7	147.8	519.4	1,017.6	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	WORTHINGTON RD	1,481.6	39.1	1,427.6	1,561.8	10
NEB	MINK ST SW	3,496.1	325.3	2,570.3	3,606.2	10
SWB	MINK ST NW	428.6	72.0	351.2	599.8	10
WB	WORTHINGTON RD	185.4	41.8	105.1	246.5	10

Project: Mink Corridor Proposed Diamond w North
Scenario: PM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 16:00:00 - 17:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Spillback Queue by Intersection - Max Num Queued

MINK ST NW & BEAVER RD — NODE: 18

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	16.4	3.1	11.0	21.0	10
NWB	BEAVER RD	64.4	20.4	34.0	106.0	10
SWB	MINK ST NW	201.4	27.2	155.0	227.0	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	29.0	2.4	26.0	33.0	10
SEB	CLOVER VALLEY EXT	24.6	3.3	21.0	32.0	10
SWB	MINK ST NW	205.9	7.2	191.0	214.0	10

MINK ST NW & INNOVATION WAY — NODE: 15

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	INNOVATION WAY	6.3	1.3	5.0	8.0	10
NEB	MINK ST NW	26.2	7.5	13.0	35.0	10
SWB	MINK ST NW	215.4	52.8	116.0	272.0	10

MINK ST NW & JUG ST — NODE: 33082

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	JUG ST	4.9	1.0	3.0	6.0	10
NEB	MINK ST NW	13.8	4.9	5.0	20.0	10
SB	MINK ST NW	40.3	1.3	39.0	43.0	10

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP — NODE: 10

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	151.9	32.3	113.0	189.0	10
SEB	SR 161 EB EXIT RAMP	21.3	2.1	17.0	24.0	10
SWB	MINK ST NW	34.5	4.6	27.0	41.0	10

MINK ST NW, SR 161 WB EXIT RAMP & SR 161 WB ENTRANCE RAMP — NODE: 5

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	29.1	11.0	8.0	39.0	10
NWB	SR 161 WB EXIT RAMP	5.1	1.1	4.0	7.0	10
SWB	MINK ST NW	43.2	4.2	36.0	50.0	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	WORTHINGTON RD	51.9	2.5	49.0	57.0	10
NEB	MINK ST SW	126.3	12.7	95.0	141.0	10
SWB	MINK ST NW	26.9	3.1	21.0	31.0	10
WB	WORTHINGTON RD	5.8	1.2	4.0	8.0	10

Project: Mink Corridor Proposed Diamond w North
Scenario: PM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 16:00:00 - 17:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Spillback Queue by Intersection - Max Total Queued

MINK ST NW & BEAVER RD — NODE: 18

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	16.4	3.1	11.0	21.0	10
NWB	BEAVER RD	64.4	20.4	34.0	106.0	10
SWB	MINK ST NW	213.5	28.0	170.0	243.0	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	29.0	2.4	26.0	33.0	10
SEB	CLOVER VALLEY EXT	24.6	3.3	21.0	32.0	10
SWB	MINK ST NW	207.2	6.3	194.0	214.0	10

MINK ST NW & INNOVATION WAY — NODE: 15

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	INNOVATION WAY	6.3	1.3	5.0	8.0	10
NEB	MINK ST NW	26.2	7.5	13.0	35.0	10
SWB	MINK ST NW	259.5	67.3	122.0	326.0	10

MINK ST NW & JUG ST — NODE: 33082

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	JUG ST	4.9	1.0	3.0	6.0	10
NEB	MINK ST NW	13.8	4.9	5.0	20.0	10
SB	MINK ST NW	40.3	1.3	39.0	43.0	10

MINK ST NW, SR 161 EB EXIT RAMP & SR 161 EB ENTRANCE RAMP — NODE: 10

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	196.6	36.4	145.0	236.0	10
SEB	SR 161 EB EXIT RAMP	21.3	2.1	17.0	24.0	10
SWB	MINK ST NW	35.7	5.6	27.0	44.0	10

MINK ST NW, SR 161 WB EXIT RAMP & SR 161 WB ENTRANCE RAMP — NODE: 5

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	29.1	11.0	8.0	39.0	10
NWB	SR 161 WB EXIT RAMP	5.1	1.1	4.0	7.0	10
SWB	MINK ST NW	43.2	4.2	36.0	50.0	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	WORTHINGTON RD	51.9	2.5	49.0	57.0	10
NEB	MINK ST SW	126.3	12.7	95.0	141.0	10
SWB	MINK ST NW	26.9	3.1	21.0	31.0	10
WB	WORTHINGTON RD	5.8	1.2	4.0	8.0	10

Mink Street (DDI Interchange) - AM

Project: Mink Corridor Proposed DDI w North
Scenario: AM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 08:00:00 - 09:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Intersection Level of Service - Overview

MINK ST NW & BEAVER RD -- SIGNALIZED — NODE: 18

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
1	2,732.0	6.40	8.5	A
2	2,765.0	6.60	8.6	A
3	2,780.0	6.60	8.6	A
4	2,771.0	7.10	9.2	A
5	2,751.0	6.90	9.0	A
6	2,774.0	6.30	8.2	A
7	2,767.0	6.30	8.2	A
8	2,757.0	6.80	8.9	A
9	2,758.0	7.70	10.1	B
10	2,775.0	7.80	10.2	B
Average:	**2,763.0**	**6.85**	**8.9**	**A**

MINK ST NW & CLOVER VALLEY EXT -- SIGNALIZED — NODE: 7

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
1	2,371.0	7.10	10.8	B
2	2,427.0	8.70	12.9	B
3	2,444.0	8.10	11.9	B
4	2,435.0	8.20	12.1	B
5	2,389.0	6.90	10.4	B
6	2,424.0	7.20	10.7	B
7	2,433.0	7.90	11.7	B
8	2,434.0	9.10	13.4	B
9	2,406.0	6.90	10.4	B
10	2,443.0	7.40	11.0	B
Average:	**2,420.6**	**7.75**	**11.5**	**B**

MINK ST NW & INNOVATION WAY -- SIGNALIZED — NODE: 15

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
1	4,555.0	5.20	4.1	A
2	4,603.0	6.10	4.7	A
3	4,623.0	6.00	4.6	A
4	4,617.0	7.00	5.5	A
5	4,596.0	5.10	4.0	A
6	4,607.0	5.90	4.6	A
7	4,607.0	5.20	4.0	A
8	4,608.0	5.40	4.2	A

9	4,604.0	5.20	4.0	A
10	4,596.0	5.60	4.4	A
Average:	**4,601.6**	**5.67**	**4.4**	**A**

MINK ST NW & JUG ST -- SIGNALIZED — NODE: 33082

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
1	441.0	1.40	11.4	B
2	444.0	1.20	9.9	A
3	451.0	1.60	13.1	B
4	442.0	1.20	9.9	A
5	441.0	1.40	11.1	B
6	439.0	1.40	11.4	B
7	441.0	1.20	9.4	A
8	445.0	1.30	10.8	B
9	445.0	1.30	10.8	B
10	445.0	1.40	11.6	B
Average:	**443.4**	**1.34**	**10.9**	**B**

MINK ST NW & SR 161 EB EXIT RAMP -- SIGNALIZED — NODE: 34

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
1	3,379.0	29.00	30.9	C
2	3,411.0	31.20	32.9	C
3	3,410.0	30.60	32.4	C
4	3,411.0	31.00	32.8	C
5	3,400.0	28.60	30.3	C
6	3,401.0	30.50	32.3	C
7	3,426.0	31.70	33.3	C
8	3,405.0	29.70	31.4	C
9	3,390.0	29.00	30.8	C
10	3,387.0	30.40	32.3	C
Average:	**3,402.0**	**30.17**	**31.9**	**C**

MINK ST NW & SR 161 WB EXIT RAMP -- SIGNALIZED — NODE: 38

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
1	4,005.0	24.60	22.1	C
2	4,028.0	24.70	22.1	C
3	4,034.0	24.70	22.1	C
4	4,035.0	24.70	22.0	C
5	4,025.0	24.70	22.1	C
6	4,028.0	24.70	22.0	C
7	4,039.0	24.80	22.1	C
8	4,032.0	24.60	22.0	C
9	4,027.0	24.70	22.1	C
10	4,026.0	24.70	22.1	C
Average:	**4,027.9**	**24.69**	**22.1**	**C**

WORTHINGTON RD, MINK ST NW & MINK ST SW -- SIGNALIZED NODE: 32764

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
1	1,974.0	13.30	24.3	C
2	2,000.0	13.30	24.0	C
3	2,005.0	13.80	24.9	C
4	2,005.0	14.10	25.2	C
5	2,017.0	13.60	24.3	C
6	2,001.0	13.20	23.7	C
7	2,014.0	13.30	23.8	C
8	2,004.0	13.00	23.3	C
9	2,012.0	13.40	23.9	C
10	1,993.0	13.00	23.5	C
Average:	**2,002.5**	**13.40**	**24.1**	**C**

Project: Mink Corridor Proposed DDI w North
Scenario: AM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 08:00:00 - 09:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Intersection Level of Service - Total Control Delay

Node ID	Intersection	Control Type	Average	Std Dev	Minimum	Maximum	# Samples
18	MINK ST NW & BEAVER RD	Actuated	6.9	0.5	6.3	7.8	10
7	MINK ST NW & CLOVER VALLEY EXT	Actuated	7.8	0.8	6.9	9.1	10
15	MINK ST NW & INNOVATION WAY	Actuated	5.7	0.6	5.1	7.0	10
33082	MINK ST NW & JUG ST	Actuated	1.3	0.1	1.2	1.6	10
34	MINK ST NW & SR 161 EB EXIT RAMP	Actuated	30.2	1.0	28.6	31.7	10
38	MINK ST NW & SR 161 WB EXIT RAMP	Actuated	24.7	0.1	24.6	24.8	10
32764	WORTHINGTON RD, MINK ST NW & MINK ST SW	Actuated	13.4	0.3	13.0	14.1	10

Project: Mink Corridor Proposed DDI w North
Scenario: AM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 08:00:00 - 09:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Intersection Level of Service - Avg Control Delay

Node ID	Intersection	Control Type	Average	Std Dev	Minimum	Maximum	# Samples
18	MINK ST NW & BEAVER RD	Actuated	8.9	0.7	8.2	10.2	10
7	MINK ST NW & CLOVER VALLEY EXT	Actuated	11.5	1.1	10.4	13.4	10
15	MINK ST NW & INNOVATION WAY	Actuated	4.4	0.5	4.0	5.5	10
33082	MINK ST NW & JUG ST	Actuated	10.9	1.0	9.4	13.1	10
34	MINK ST NW & SR 161 EB EXIT RAMP	Actuated	31.9	1.0	30.3	33.3	10
38	MINK ST NW & SR 161 WB EXIT RAMP	Actuated	22.1	0.0	22.0	22.1	10
32764	WORTHINGTON RD, MINK ST NW & MINK ST SW	Actuated	24.1	0.6	23.3	25.2	10

Project: Mink Corridor Proposed DDI w North
Scenario: AM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 08:00:00 - 09:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Intersection Level of Service by Approach - Overview

MINK ST NW & BEAVER RD -- SIGNALIZED — NODE: 18

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
NEB on MINK ST NW: Superlink ID 61211				
1	1,970.0	1.40	2.6	A
2	1,969.0	1.10	2.1	A
3	1,985.0	1.30	2.3	A
4	1,985.0	1.10	2.0	A
5	1,979.0	1.50	2.8	A
6	1,990.0	1.50	2.7	A
7	1,973.0	1.20	2.3	A
8	1,966.0	1.10	2.0	A
9	1,979.0	1.50	2.7	A
10	1,978.0	1.40	2.6	A
Average:	**1,977.4**	**1.31**	**2.4**	**A**
NWB on BEAVER RD: Superlink ID 61210				
1	228.0	4.60	72.4	E
2	224.0	4.90	79.2	E
3	225.0	4.80	76.7	E
4	225.0	5.40	86.6	F
5	219.0	4.80	79.6	E
6	221.0	4.30	70.6	E
7	225.0	4.70	75.9	E
8	225.0	5.20	83.5	F
9	229.0	5.90	92.6	F
10	231.0	6.00	93.2	F
Average:	**225.2**	**5.06**	**81.0**	**F**
SWB on MINK ST NW: Superlink ID 61213				
1	534.0	0.40	2.9	A
2	572.0	0.50	3.3	A
3	570.0	0.60	3.6	A
4	561.0	0.50	3.5	A
5	553.0	0.50	3.5	A
6	563.0	0.50	3.2	A
7	569.0	0.30	2.1	A
8	566.0	0.50	3.0	A
9	550.0	0.40	2.6	A

MINK ST NW & BEAVER RD -- SIGNALIZED — NODE: 18

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
10	566.0	0.40	2.6	A
Average:	**560.4**	**0.46**	**3.0**	**A**

MINK ST NW & CLOVER VALLEY EXT -- SIGNALIZED — NODE: 7

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
NEB on MINK ST NW: Superlink ID 61213				
1	1,290.0	1.30	3.6	A
2	1,296.0	1.30	3.7	A
3	1,317.0	1.40	3.7	A
4	1,304.0	1.60	4.5	A
5	1,304.0	1.40	4.0	A
6	1,308.0	1.30	3.5	A
7	1,295.0	1.50	4.1	A
8	1,296.0	1.40	3.9	A
9	1,299.0	1.50	4.0	A
10	1,311.0	1.60	4.3	A
Average:	**1,302.0**	**1.43**	**3.9**	**A**
SEB on CLOVER VALLEY EXT: Superlink ID 61212				
1	153.0	0.50	10.6	B
2	177.0	0.60	12.1	B
3	174.0	0.50	10.8	B
4	177.0	0.50	9.4	A
5	160.0	0.40	8.3	A
6	174.0	0.50	9.5	A
7	184.0	0.50	10.5	B
8	180.0	0.60	11.1	B
9	169.0	0.50	10.0	A
10	171.0	0.40	8.8	A
Average:	**171.9**	**0.50**	**10.1**	**B**
SWB on MINK ST NW: Superlink ID 29573				
1	928.0	5.40	20.8	C
2	954.0	6.80	25.5	C
3	953.0	6.20	23.4	C
4	954.0	6.10	23.0	C
5	925.0	5.10	19.9	B
6	942.0	5.50	21.0	C
7	954.0	5.90	22.3	C
8	958.0	7.10	26.7	C
9	938.0	5.00	19.2	B
10	961.0	5.40	20.4	C
Average:	**946.7**	**5.85**	**22.2**	**C**

MINK ST NW & INNOVATION WAY -- SIGNALIZED — NODE: 15

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
EB on INNOVATION WAY: Superlink ID 61207				
1	75.0	0.70	35.9	D
2	72.0	0.60	30.7	C
3	78.0	0.60	29.7	C
4	83.0	0.80	35.5	D
5	83.0	0.60	26.3	C
6	88.0	0.80	33.7	C
7	76.0	0.60	29.7	C
8	80.0	0.70	31.5	C
9	88.0	0.60	24.6	C
10	76.0	0.80	37.3	D
Average:	**79.9**	**0.68**	**31.5**	**C**
NEB on MINK ST NW: Superlink ID 61252				
1	3,562.0	4.10	4.2	A
2	3,584.0	4.60	4.6	A
3	3,593.0	4.40	4.4	A
4	3,597.0	5.20	5.3	A
5	3,584.0	4.00	4.1	A
6	3,577.0	4.60	4.6	A
7	3,585.0	4.10	4.2	A
8	3,585.0	4.10	4.1	A
9	3,583.0	4.10	4.1	A
10	3,576.0	4.10	4.2	A
Average:	**3,582.6**	**4.33**	**4.4**	**A**
SWB on MINK ST NW: Superlink ID 61211				
1	918.0	0.40	1.4	A
2	947.0	0.90	3.4	A
3	952.0	0.90	3.4	A
4	937.0	1.00	3.7	A
5	929.0	0.40	1.6	A
6	942.0	0.50	1.9	A
7	946.0	0.40	1.5	A
8	943.0	0.60	2.2	A
9	933.0	0.50	1.8	A
10	944.0	0.60	2.5	A
Average:	**939.1**	**0.62**	**2.3**	**A**

MINK ST NW & JUG ST -- SIGNALIZED — NODE: 33082

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
EB on JUG ST: Superlink ID 29977				
1	73.0	1.20	61.1	E
2	75.0	1.10	53.3	D

MINK ST NW & JUG ST -- SIGNALIZED — NODE: 33082

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
3	82.0	1.50	65.4	E
4	72.0	1.10	53.4	D
5	72.0	1.20	61.8	E
6	71.0	1.30	64.3	E
7	70.0	1.00	52.1	D
8	75.0	1.00	49.6	D
9	73.0	1.20	58.8	E
10	75.0	1.30	61.7	E
Average:	**73.8**	**1.19**	**58.1**	**E**
SB on MINK ST NW: Superlink ID 29606				
1	368.0	0.20	1.6	A
2	369.0	0.10	1.1	A
3	369.0	0.10	1.4	A
4	370.0	0.10	1.4	A
5	369.0	0.10	1.2	A
6	368.0	0.10	1.2	A
7	371.0	0.10	1.3	A
8	370.0	0.30	3.0	A
9	372.0	0.10	1.4	A
10	370.0	0.10	1.4	A
Average:	**369.6**	**0.13**	**1.5**	**A**

MINK ST NW & SR 161 EB EXIT RAMP -- SIGNALIZED — NODE: 34

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
NB on MINK ST NW: Superlink ID 61231				
1	1,468.0	20.10	49.3	D
2	1,496.0	22.80	54.9	D
3	1,482.0	22.10	53.8	D
4	1,486.0	21.80	52.7	D
5	1,506.0	19.90	47.6	D
6	1,487.0	21.10	51.2	D
7	1,498.0	22.80	54.7	D
8	1,490.0	20.80	50.3	D
9	1,470.0	20.40	50.0	D
10	1,462.0	21.00	51.7	D
Average:	**1,484.5**	**21.28**	**51.6**	**D**
NEB on SR 161 EB EXIT RAMP: Superlink ID 61228				
1	1,521.0	8.70	20.7	C
2	1,516.0	8.10	19.3	B
3	1,533.0	8.20	19.4	B
4	1,529.0	9.00	21.1	C
5	1,502.0	8.40	20.1	C

MINK ST NW & SR 161 EB EXIT RAMP -- SIGNALIZED — NODE: 34

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
6	1,521.0	9.10	21.5	C
7	1,532.0	8.60	20.3	C
8	1,516.0	8.60	20.4	C
9	1,523.0	8.30	19.7	B
10	1,522.0	9.10	21.6	C
Average:	**1,521.5**	**8.61**	**20.4**	**C**
SWB on MINK ST NW: Superlink ID 61240				
1	390.0	0.20	1.9	A
2	399.0	0.30	2.4	A
3	395.0	0.30	2.5	A
4	396.0	0.30	2.7	A
5	392.0	0.20	2.2	A
6	393.0	0.30	2.5	A
7	396.0	0.30	2.4	A
8	399.0	0.20	2.1	A
9	397.0	0.30	2.6	A
10	403.0	0.30	2.5	A
Average:	**396.0**	**0.27**	**2.4**	**A**

MINK ST NW & SR 161 WB EXIT RAMP -- SIGNALIZED — NODE: 38

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
NB on SR 161 WB EXIT RAMP: Superlink ID 61251				
1	649.0	9.40	52.2	D
2	639.0	8.90	50.1	D
3	640.0	8.90	50.3	D
4	640.0	8.80	49.6	D
5	641.0	8.70	48.8	D
6	642.0	8.60	48.5	D
7	641.0	9.10	51.2	D
8	641.0	9.20	51.7	D
9	639.0	9.00	50.5	D
10	647.0	8.90	49.7	D
Average:	**641.9**	**8.95**	**50.3**	**D**
NEB on MINK ST NW: Superlink ID 61248				
1	2,919.0	10.80	13.3	B
2	2,947.0	11.40	14.0	B
3	2,944.0	11.30	13.9	B
4	2,956.0	11.40	13.9	B
5	2,947.0	11.40	14.0	B
6	2,932.0	11.40	14.0	B
7	2,953.0	11.50	14.0	B
8	2,945.0	11.10	13.6	B

MINK ST NW & SR 161 WB EXIT RAMP -- SIGNALIZED — NODE: 38

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
9	2,937.0	11.30	13.8	B
10	2,932.0	11.30	13.9	B
Average:	**2,941.2**	**11.29**	**13.8**	**B**
SB on MINK ST NW: Superlink ID 61250				
1	437.0	4.40	36.4	D
2	442.0	4.40	35.7	D
3	450.0	4.50	35.8	D
4	439.0	4.40	36.4	D
5	437.0	4.60	38.0	D
6	454.0	4.60	36.6	D
7	445.0	4.20	34.1	C
8	446.0	4.30	34.6	C
9	451.0	4.50	35.9	D
10	447.0	4.50	36.0	D
Average:	**444.8**	**4.44**	**35.9**	**D**

WORTHINGTON RD, MINK ST NW & MINK ST SW -- SIGNALIZED — NODE: 32764

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
EB on WORTHINGTON RD: Superlink ID 29557				
1	137.0	1.60	43.0	D
2	142.0	2.00	50.2	D
3	132.0	1.70	47.5	D
4	140.0	2.40	60.8	E
5	144.0	1.90	47.6	D
6	135.0	1.80	47.9	D
7	150.0	2.00	47.2	D
8	133.0	1.70	47.1	D
9	133.0	1.70	47.3	D
10	135.0	1.90	49.5	D
Average:	**138.1**	**1.87**	**48.8**	**D**
NEB on MINK ST SW: Superlink ID 24528				
1	1,095.0	5.60	18.4	B
2	1,098.0	5.30	17.4	B
3	1,106.0	6.00	19.5	B
4	1,101.0	5.80	18.8	B
5	1,108.0	5.40	17.6	B
6	1,102.0	5.30	17.4	B
7	1,110.0	5.50	18.0	B
8	1,100.0	5.20	17.0	B
9	1,107.0	5.50	18.0	B

WORTHINGTON RD, MINK ST NW & MINK ST SW -- SIGNALIZED NODE: 32764

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
10	1,099.0	5.50	18.1	B
Average:	**1,102.6**	**5.51**	**18.0**	**B**

SWB on MINK ST NW: Superlink ID 61229

1	535.0	3.60	24.0	C
2	554.0	3.50	23.0	C
3	556.0	3.70	23.7	C
4	555.0	3.50	22.8	C
5	551.0	3.60	23.6	C
6	561.0	3.60	22.9	C
7	547.0	3.30	21.6	C
8	561.0	3.40	21.7	C
9	560.0	3.80	24.4	C
10	556.0	3.30	21.7	C
Average:	**553.6**	**3.53**	**22.9**	**C**

WB on WORTHINGTON RD: Superlink ID 29572

1	207.0	2.50	43.8	D
2	206.0	2.50	43.7	D
3	211.0	2.50	42.1	D
4	209.0	2.40	41.5	D
5	214.0	2.70	44.6	D
6	203.0	2.50	44.1	D
7	207.0	2.50	43.7	D
8	210.0	2.70	45.6	D
9	212.0	2.30	39.0	D
10	203.0	2.20	39.9	D
Average:	**208.2**	**2.48**	**42.8**	**D**

Project: Mink Corridor Proposed DDI w North
Scenario: AM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 08:00:00 - 09:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Intersection Level of Service by Approach - Total Control Delay

MINK ST NW & BEAVER RD — NODE: 18

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
NEB	MINK ST NW	61211	1.3	0.2	1.1	1.5	10
NWB	BEAVER RD	61210	5.1	0.6	4.3	6.0	10
SWB	MINK ST NW	61213	0.5	0.1	0.3	0.6	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
NEB	MINK ST NW	61213	1.4	0.1	1.3	1.6	10
SEB	CLOVER VALLEY EXT	61212	0.5	0.1	0.4	0.6	10
SWB	MINK ST NW	29573	5.9	0.7	5.0	7.1	10

MINK ST NW & INNOVATION WAY — NODE: 15

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
EB	INNOVATION WAY	61207	0.7	0.1	0.6	0.8	10
NEB	MINK ST NW	61252	4.3	0.4	4.0	5.2	10
SWB	MINK ST NW	61211	0.6	0.2	0.4	1.0	10

MINK ST NW & JUG ST — NODE: 33082

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
EB	JUG ST	29977	1.2	0.2	1.0	1.5	10
SB	MINK ST NW	29606	0.1	0.1	0.1	0.3	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 34

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
NB	MINK ST NW	61231	21.3	1.1	19.9	22.8	10
NEB	SR 161 EB EXIT RAMP	61228	8.6	0.4	8.1	9.1	10
SWB	MINK ST NW	61240	0.3	0.0	0.2	0.3	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 38

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
NB	SR 161 WB EXIT RAMP	61251	9.0	0.2	8.6	9.4	10
NEB	MINK ST NW	61248	11.3	0.2	10.8	11.5	10
SB	MINK ST NW	61250	4.4	0.1	4.2	4.6	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
EB	WORTHINGTON RD	29557	1.9	0.2	1.6	2.4	10
NEB	MINK ST SW	24528	5.5	0.2	5.2	6.0	10
SWB	MINK ST NW	61229	3.5	0.2	3.3	3.8	10
WB	WORTHINGTON RD	29572	2.5	0.2	2.2	2.7	10

Project: Mink Corridor Proposed DDI w North
Scenario: AM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 08:00:00 - 09:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Intersection Level of Service by Approach - Avg Control Delay

MINK ST NW & BEAVER RD — NODE: 18

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
NEB	MINK ST NW	61211	2.4	0.3	2.0	2.8	10
NWB	BEAVER RD	61210	81.0	7.8	70.6	93.2	10
SWB	MINK ST NW	61213	3.0	0.5	2.1	3.6	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
NEB	MINK ST NW	61213	3.9	0.3	3.5	4.5	10
SEB	CLOVER VALLEY EXT	61212	10.1	1.1	8.3	12.1	10
SWB	MINK ST NW	29573	22.2	2.5	19.2	26.7	10

MINK ST NW & INNOVATION WAY — NODE: 15

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
EB	INNOVATION WAY	61207	31.5	4.1	24.6	37.3	10
NEB	MINK ST NW	61252	4.4	0.4	4.1	5.3	10
SWB	MINK ST NW	61211	2.3	0.9	1.4	3.7	10

MINK ST NW & JUG ST — NODE: 33082

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
EB	JUG ST	29977	58.1	5.6	49.6	65.4	10
SB	MINK ST NW	29606	1.5	0.5	1.1	3.0	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 34

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
NB	MINK ST NW	61231	51.6	2.4	47.6	54.9	10
NEB	SR 161 EB EXIT RAMP	61228	20.4	0.8	19.3	21.6	10
SWB	MINK ST NW	61240	2.4	0.2	1.9	2.7	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 38

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
NB	SR 161 WB EXIT RAMP	61251	50.3	1.2	48.5	52.2	10
NEB	MINK ST NW	61248	13.8	0.2	13.3	14.0	10
SB	MINK ST NW	61250	35.9	1.1	34.1	38.0	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
EB	WORTHINGTON RD	29557	48.8	4.6	43.0	60.8	10
NEB	MINK ST SW	24528	18.0	0.7	17.0	19.5	10
SWB	MINK ST NW	61229	22.9	1.0	21.6	24.4	10
WB	WORTHINGTON RD	29572	42.8	2.1	39.0	45.6	10

Project: Mink Corridor Proposed DDI w North
Scenario: AM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 08:00:00 - 09:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Lane Queue by Intersection - Overview

MINK ST NW & BEAVER RD — NODE: 18

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NEB R on MINK ST NW - Lane ID 156492						
1	120.0	1.8	0.1	1.1	0.0	0.0%
2	120.0	1.1	0.1	0.0	0.0	0.0%
3	120.0	3.4	0.1	0.8	0.0	0.0%
4	120.0	2.5	0.1	0.9	0.0	0.0%
5	120.0	1.5	0.1	0.0	0.0	0.0%
6	120.0	2.7	0.1	0.0	0.0	0.0%
7	120.0	1.2	0.1	0.0	0.0	0.0%
8	120.0	1.3	0.1	0.0	0.0	0.0%
9	120.0	1.0	0.1	0.8	1.0	0.0%
10	120.0	0.8	0.0	0.0	0.0	0.0%
Average:	**120.0**	**1.7**	**0.1**	**0.4**	**0.1**	**0.0%**
NEB T on MINK ST NW - Lane ID 156469						
1	120.0	10.7	0.4	76.6	3.0	0.0%
2	120.0	14.7	0.5	101.1	4.0	0.0%
3	120.0	9.0	0.3	78.7	3.0	0.0%
4	120.0	10.2	0.4	89.6	3.0	0.0%
5	120.0	16.7	0.6	116.6	4.0	0.0%
6	120.0	13.4	0.5	92.8	4.0	0.0%
7	120.0	12.1	0.4	107.8	4.0	0.0%
8	120.0	11.8	0.5	96.8	4.0	0.0%
9	120.0	8.6	0.3	92.7	2.1	0.0%
10	120.0	8.5	0.3	78.1	3.0	0.0%
Average:	**120.0**	**11.6**	**0.4**	**93.1**	**3.4**	**0.0%**
NEB T on MINK ST NW - Lane ID 156470						
1	120.0	3.5	0.2	23.2	1.0	0.0%
2	120.0	5.3	0.2	41.9	2.0	0.0%
3	120.0	3.9	0.1	19.2	1.0	0.0%
4	120.0	4.1	0.2	23.6	1.0	0.0%
5	120.0	6.4	0.3	37.7	2.0	0.0%
6	120.0	7.1	0.3	70.3	2.0	0.0%
7	120.0	7.9	0.3	68.1	2.0	0.0%
8	120.0	5.7	0.2	21.3	1.0	0.0%
9	120.0	6.0	0.2	43.2	2.0	0.0%

MINK ST NW & BEAVER RD — NODE: 18

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NEB T on MINK ST NW - Lane ID 156470						
10	120.0	4.8	0.2	17.8	1.0	0.0%
Average:	**120.0**	**5.5**	**0.2**	**36.6**	**1.5**	**0.0%**
NWB L on BEAVER RD - Lane ID 156456						
1	120.0	52.3	2.1	136.5	5.0	0.0%
2	120.0	63.6	2.2	154.1	5.0	0.0%
3	120.0	64.3	2.4	181.8	6.0	0.0%
4	120.0	62.2	2.5	142.4	6.0	0.0%
5	120.0	56.0	2.1	153.4	6.0	0.0%
6	120.0	52.3	1.9	135.5	5.0	0.0%
7	120.0	53.4	2.0	143.4	5.0	0.0%
8	120.0	59.2	2.3	165.3	7.0	0.0%
9	120.0	74.0	2.6	188.2	6.0	0.0%
10	120.0	79.0	2.8	190.2	7.0	0.0%
Average:	**120.0**	**61.6**	**2.3**	**159.1**	**5.8**	**0.0%**
NWB LR on BEAVER RD - Lane ID 156457						
1	120.0	68.0	2.4	162.8	5.0	0.0%
2	120.0	71.8	2.7	192.6	6.0	0.0%
3	120.0	61.6	2.3	154.4	5.0	0.0%
4	120.0	78.8	2.9	174.5	7.0	0.0%
5	120.0	61.7	2.3	198.9	6.0	0.0%
6	120.0	60.3	2.3	151.6	5.0	0.0%
7	120.0	64.5	2.3	177.7	6.0	0.0%
8	120.0	76.5	2.7	184.7	7.0	0.0%
9	120.0	89.5	3.1	219.0	6.0	0.0%
10	120.0	78.0	2.7	206.7	7.0	0.0%
Average:	**120.0**	**71.1**	**2.6**	**182.3**	**6.0**	**0.0%**
SWB L on MINK ST NW - Lane ID 156233						
1	120.0	2.3	0.3	8.5	1.0	0.0%
2	120.0	2.7	0.4	19.4	2.0	0.0%
3	120.0	3.0	0.3	37.0	2.0	0.0%
4	120.0	1.8	0.4	14.7	2.0	0.0%
5	120.0	0.5	0.4	0.1	1.0	0.0%
6	120.0	2.8	0.4	7.2	2.0	0.0%
7	120.0	1.6	0.3	4.2	1.0	0.0%
8	120.0	2.1	0.3	7.8	2.0	0.0%
9	120.0	1.0	0.3	7.3	1.0	0.0%
10	120.0	5.0	0.4	43.8	2.0	0.0%
Average:	**120.0**	**2.3**	**0.4**	**15.0**	**1.6**	**0.0%**

MINK ST NW & BEAVER RD — NODE: 18

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
SWB T on MINK ST NW - Lane ID 156234						
1	120.0	0.5	0.0	0.0	0.0	0.0%
2	120.0	0.5	0.0	0.0	0.0	0.0%
3	120.0	0.0	0.0	0.0	0.0	0.0%
4	120.0	0.3	0.0	0.0	0.0	0.0%
5	120.0	1.9	0.1	9.5	1.0	0.0%
6	120.0	0.6	0.0	0.0	0.0	0.0%
7	120.0	0.3	0.0	0.0	0.0	0.0%
8	120.0	0.3	0.0	0.0	0.0	0.0%
9	120.0	0.3	0.0	0.0	0.0	0.0%
10	120.0	0.3	0.0	0.0	0.0	0.0%
Average:	**120.0**	**0.5**	**0.0**	**1.0**	**0.1**	**0.0%**
SWB T on MINK ST NW - Lane ID 156235						
1	120.0	0.6	0.0	0.0	0.0	0.0%
2	120.0	0.3	0.0	0.0	0.0	0.0%
3	120.0	0.3	0.0	0.0	0.0	0.0%
4	120.0	0.2	0.0	0.0	0.0	0.0%
5	120.0	0.7	0.0	0.0	0.0	0.0%
6	120.0	0.4	0.0	0.0	0.0	0.0%
7	120.0	0.0	0.0	0.0	0.0	0.0%
8	120.0	0.1	0.0	0.0	0.0	0.0%
9	120.0	0.1	0.0	0.0	0.0	0.0%
10	120.0	0.1	0.0	0.0	0.0	0.0%
Average:	**120.0**	**0.3**	**0.0**	**0.0**	**0.0**	**0.0%**
SWB T on MINK ST NW - Lane ID 156499						
1	120.0	0.1	0.0	0.0	0.0	0.0%
2	120.0	0.4	0.0	0.0	0.0	0.0%
3	120.0	0.1	0.0	0.0	0.0	0.0%
4	120.0	0.7	0.0	0.0	0.0	0.0%
5	120.0	1.0	0.1	0.0	0.0	0.0%
6	120.0	0.0	0.0	0.0	0.0	0.0%
7	120.0	0.4	0.0	0.0	0.0	0.0%
8	120.0	0.0	0.0	0.0	0.0	0.0%
9	120.0	0.1	0.0	0.0	0.0	0.0%
10	120.0	0.6	0.0	0.0	0.0	0.0%
Average:	**120.0**	**0.3**	**0.0**	**0.0**	**0.0**	**0.0%**

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NB L on MINK ST NW - Lane ID 156247						
1	120.0	0.0	0.0	0.0	0.0	0.0%

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NB L on MINK ST NW - Lane ID 156247						
2	120.0	0.1	0.0	0.0	0.0	0.0%
3	120.0	0.0	0.0	0.0	0.0	0.0%
4	120.0	0.0	0.0	0.0	0.0	0.0%
5	120.0	0.1	0.0	0.0	0.0	0.0%
6	120.0	0.3	0.0	0.0	0.0	0.0%
7	120.0	0.3	0.0	0.0	0.0	0.0%
8	120.0	0.1	0.0	0.0	0.0	0.0%
9	120.0	0.1	0.0	0.0	0.0	0.0%
10	120.0	0.4	0.0	0.0	0.0	0.0%
Average:	**120.0**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0%**
NB T on MINK ST NW - Lane ID 153566						
1	120.0	1.5	0.1	0.7	0.0	0.0%
2	120.0	0.6	0.0	0.0	0.0	0.0%
3	120.0	1.1	0.1	0.0	0.0	0.0%
4	120.0	1.3	0.1	0.0	0.0	0.0%
5	120.0	0.7	0.0	0.0	0.0	0.0%
6	120.0	0.6	0.0	0.0	0.0	0.0%
7	120.0	0.8	0.1	0.7	0.0	0.0%
8	120.0	2.1	0.1	10.9	1.0	0.0%
9	120.0	0.8	0.0	0.0	0.0	0.0%
10	120.0	0.5	0.0	0.0	0.0	0.0%
Average:	**120.0**	**1.0**	**0.1**	**1.2**	**0.1**	**0.0%**
NB T on MINK ST NW - Lane ID 156220						
1	120.0	1.3	0.1	0.0	0.0	0.0%
2	120.0	1.6	0.1	0.0	0.0	0.0%
3	120.0	1.0	0.1	0.0	0.0	0.0%
4	120.0	0.9	0.1	0.0	0.0	0.0%
5	120.0	1.5	0.1	0.7	0.0	0.0%
6	120.0	1.3	0.0	0.0	0.0	0.0%
7	120.0	1.9	0.1	13.3	1.0	0.0%
8	120.0	1.6	0.1	0.7	0.0	0.0%
9	120.0	1.0	0.1	0.0	0.0	0.0%
10	120.0	0.8	0.1	0.7	0.0	0.0%
Average:	**120.0**	**1.3**	**0.1**	**1.5**	**0.1**	**0.0%**
NEB L on MINK ST NW - Lane ID 156226						
1	120.0	8.9	0.4	77.5	2.0	0.0%
2	120.0	12.5	0.5	77.2	3.0	0.0%
3	120.0	11.9	0.5	69.6	3.0	0.0%
4	120.0	13.4	0.6	73.2	3.0	0.0%
5	120.0	12.4	0.5	76.2	3.0	0.0%

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NEB L on MINK ST NW - Lane ID 156226						
6	120.0	9.1	0.4	68.4	3.0	0.0%
7	120.0	17.3	0.6	89.5	3.0	0.0%
8	120.0	10.7	0.5	67.0	3.0	0.0%
9	120.0	12.3	0.6	72.5	3.0	0.0%
10	120.0	13.6	0.5	86.0	3.0	0.0%
Average:	**120.0**	**12.2**	**0.5**	**75.7**	**2.9**	**0.0%**
NEB L on MINK ST NW - Lane ID 156498						
1	120.0	9.8	0.4	66.4	2.0	0.0%
2	120.0	16.3	0.6	100.3	3.0	0.0%
3	120.0	11.4	0.5	66.1	2.0	0.0%
4	120.0	13.4	0.6	77.3	3.0	0.0%
5	120.0	16.1	0.6	93.3	3.0	0.0%
6	120.0	13.9	0.5	91.0	3.0	0.0%
7	120.0	19.2	0.7	91.9	3.0	0.0%
8	120.0	12.1	0.4	72.1	2.0	0.0%
9	120.0	13.9	0.5	89.5	3.0	0.0%
10	120.0	9.5	0.4	65.2	3.0	0.0%
Average:	**120.0**	**13.6**	**0.5**	**81.3**	**2.7**	**0.0%**
NEB T on MINK ST NW - Lane ID 156227						
1	120.0	0.3	0.0	0.0	0.0	0.0%
2	120.0	0.9	0.1	0.0	0.0	0.0%
3	120.0	0.7	0.0	0.0	0.0	0.0%
4	120.0	0.8	0.0	0.0	0.0	0.0%
5	120.0	0.0	0.0	0.0	0.0	0.0%
6	120.0	0.4	0.0	0.0	0.0	0.0%
7	120.0	1.1	0.1	0.7	0.0	0.0%
8	120.0	0.9	0.0	0.0	0.0	0.0%
9	120.0	0.7	0.0	0.0	0.0	0.0%
10	120.0	0.7	0.0	0.0	0.0	0.0%
Average:	**120.0**	**0.7**	**0.0**	**0.1**	**0.0**	**0.0%**
NEB T on MINK ST NW - Lane ID 156482						
1	120.0	0.3	0.0	0.0	0.0	0.0%
2	120.0	1.1	0.1	15.1	1.0	0.0%
3	120.0	0.8	0.1	0.6	0.0	0.0%
4	120.0	0.1	0.0	0.0	0.0	0.0%
5	120.0	0.2	0.0	0.0	0.0	0.0%
6	120.0	0.3	0.0	0.0	0.0	0.0%
7	120.0	0.4	0.0	0.0	0.0	0.0%
8	120.0	0.7	0.0	0.0	0.0	0.0%
9	120.0	0.9	0.1	0.7	0.0	0.0%

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NEB T on MINK ST NW - Lane ID 156482						
10	120.0	0.4	0.0	0.0	0.0	0.0%
Average:	**120.0**	**0.5**	**0.0**	**1.6**	**0.1**	**0.0%**
SEB L on CLOVER VALLEY EXT - Lane ID 156228						
1	120.0	5.2	0.3	17.6	1.0	0.0%
2	120.0	8.6	0.5	36.0	2.0	0.0%
3	120.0	6.5	0.3	19.9	1.0	0.0%
4	120.0	6.1	0.3	19.1	1.0	0.0%
5	120.0	7.0	0.3	20.6	1.0	0.0%
6	120.0	5.6	0.3	18.8	1.0	0.0%
7	120.0	7.9	0.3	22.1	1.0	0.0%
8	120.0	5.9	0.3	20.1	1.0	0.0%
9	120.0	5.5	0.3	17.9	1.0	0.0%
10	120.0	3.6	0.2	16.5	1.0	0.0%
Average:	**120.0**	**6.2**	**0.3**	**20.9**	**1.1**	**0.0%**
SEB R on CLOVER VALLEY EXT - Lane ID 156229						
1	120.0	1.2	0.1	0.0	0.0	0.0%
2	120.0	1.1	0.0	0.0	0.0	0.0%
3	120.0	1.2	0.1	0.5	0.0	0.0%
4	120.0	1.1	0.0	0.0	0.0	0.0%
5	120.0	0.7	0.0	0.0	0.0	0.0%
6	120.0	3.0	0.1	16.9	1.0	0.0%
7	120.0	3.0	0.1	16.7	1.0	0.0%
8	120.0	2.0	0.1	16.1	1.0	0.0%
9	120.0	1.2	0.1	0.0	0.0	0.0%
10	120.0	0.8	0.0	0.0	0.0	0.0%
Average:	**120.0**	**1.5**	**0.1**	**5.0**	**0.3**	**0.0%**
SEB R on CLOVER VALLEY EXT - Lane ID 156411						
1	120.0	1.1	0.0	0.0	0.0	0.0%
2	120.0	3.1	0.1	16.2	1.0	0.0%
3	120.0	2.0	0.1	15.2	1.0	0.0%
4	120.0	1.0	0.1	15.1	1.0	0.0%
5	120.0	1.2	0.1	0.7	0.0	0.0%
6	120.0	0.9	0.1	10.6	1.0	0.0%
7	120.0	1.6	0.1	12.7	1.0	0.0%
8	120.0	2.8	0.1	17.6	1.0	0.0%
9	120.0	0.9	0.1	12.3	1.0	0.0%
10	120.0	0.9	0.1	0.0	0.0	0.0%
Average:	**120.0**	**1.6**	**0.1**	**10.0**	**0.7**	**0.0%**

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
SWB T on MINK ST NW - Lane ID 156417						
1	120.0	67.1	2.5	174.7	6.0	0.0%
2	120.0	77.7	2.9	211.8	8.0	0.0%
3	120.0	81.6	2.8	208.6	7.0	0.0%
4	120.0	71.6	2.6	191.0	6.0	0.0%
5	120.0	64.0	2.4	166.6	6.0	0.0%
6	120.0	67.6	2.5	178.2	7.0	0.0%
7	120.0	69.1	2.4	162.9	6.0	0.0%
8	120.0	84.9	3.0	221.3	7.0	0.0%
9	120.0	60.7	2.3	179.9	6.0	0.0%
10	120.0	65.4	2.4	154.4	5.0	0.0%
Average:	**120.0**	**71.0**	**2.6**	**184.9**	**6.4**	**0.0%**
SWB TR on MINK ST NW - Lane ID 156418						
1	120.0	57.2	2.2	157.2	6.0	0.0%
2	120.0	85.9	2.8	253.0	7.0	0.0%
3	120.0	71.1	2.6	190.8	6.0	0.0%
4	120.0	75.4	2.6	200.0	6.0	0.0%
5	120.0	54.7	2.2	158.9	6.0	0.0%
6	120.0	64.8	2.4	173.5	6.0	0.0%
7	120.0	65.3	2.5	179.6	6.0	0.0%
8	120.0	83.0	3.2	193.0	7.0	0.0%
9	120.0	60.3	2.3	160.5	6.0	0.0%
10	120.0	65.0	2.5	168.2	6.0	0.0%
Average:	**120.0**	**68.3**	**2.5**	**183.5**	**6.2**	**0.0%**

MINK ST NW & INNOVATION WAY — NODE: 15

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
EB L on INNOVATION WAY - Lane ID 156208						
1	120.0	14.6	0.7	68.1	3.0	0.0%
2	120.0	9.4	0.5	46.9	2.0	0.0%
3	120.0	11.9	0.6	46.5	2.0	0.0%
4	120.0	16.1	0.7	71.9	2.0	0.0%
5	120.0	11.0	0.4	74.3	2.0	0.0%
6	120.0	15.1	0.6	72.0	2.0	0.0%
7	120.0	10.7	0.5	44.1	2.0	0.0%
8	120.0	14.4	0.6	75.4	2.0	0.0%
9	120.0	12.3	0.5	78.2	2.0	0.0%
10	120.0	13.8	0.7	62.2	2.0	0.0%
Average:	**120.0**	**12.9**	**0.6**	**64.0**	**2.1**	**0.0%**
EB R on INNOVATION WAY - Lane ID 156209						
1	120.0	1.9	0.1	15.5	1.0	0.0%

MINK ST NW & INNOVATION WAY — NODE: 15

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
EB R on INNOVATION WAY - Lane ID 156209						
2	120.0	1.8	0.1	17.2	1.0	0.0%
3	120.0	2.9	0.1	20.9	1.0	0.0%
4	120.0	4.0	0.1	21.1	1.0	0.0%
5	120.0	3.5	0.2	25.4	1.0	0.0%
6	120.0	3.9	0.2	19.1	1.0	0.0%
7	120.0	3.8	0.2	18.0	1.0	0.0%
8	120.0	2.8	0.2	17.5	1.0	0.0%
9	120.0	2.6	0.1	16.2	1.0	0.0%
10	120.0	3.5	0.1	19.4	1.0	0.0%
Average:	**120.0**	**3.1**	**0.1**	**19.0**	**1.0**	**0.0%**
NEB L on MINK ST NW - Lane ID 156218						
1	120.0	7.4	0.6	46.7	3.0	0.0%
2	120.0	6.5	0.6	48.9	3.0	0.0%
3	120.0	8.6	0.6	64.7	3.0	0.0%
4	120.0	3.2	0.4	24.5	2.0	0.0%
5	120.0	6.1	0.5	44.9	3.0	0.0%
6	120.0	8.7	0.8	59.5	3.0	0.0%
7	120.0	5.6	0.6	35.0	3.0	0.0%
8	120.0	7.0	0.7	43.4	3.0	0.0%
9	120.0	4.2	0.4	18.6	2.0	0.0%
10	120.0	4.9	0.6	40.9	2.0	0.0%
Average:	**120.0**	**6.2**	**0.6**	**42.7**	**2.7**	**0.0%**
NEB T on MINK ST NW - Lane ID 156193						
1	120.0	8.4	0.3	90.2	4.0	0.0%
2	120.0	6.7	0.3	65.5	2.0	0.0%
3	120.0	4.7	0.2	43.6	2.0	0.0%
4	120.0	6.8	0.3	22.5	1.1	0.0%
5	120.0	5.1	0.2	28.3	1.0	0.0%
6	120.0	12.2	0.5	81.6	3.0	0.0%
7	120.0	7.8	0.3	68.4	3.0	0.0%
8	120.0	10.5	0.4	90.9	3.0	0.0%
9	120.0	5.5	0.2	45.1	2.0	0.0%
10	120.0	8.5	0.3	62.0	2.0	0.0%
Average:	**120.0**	**7.6**	**0.3**	**59.8**	**2.3**	**0.0%**
NEB T on MINK ST NW - Lane ID 156194						
1	120.0	16.0	0.5	144.7	5.0	0.0%
2	120.0	12.0	0.5	105.9	4.0	0.0%
3	120.0	13.9	0.5	103.5	4.0	0.0%
4	120.0	12.3	0.5	100.8	3.0	0.0%
5	120.0	7.2	0.3	44.5	2.0	0.0%

MINK ST NW & INNOVATION WAY — NODE: 15

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NEB T on MINK ST NW - Lane ID 156194						
6	120.0	20.3	0.8	146.9	6.0	0.0%
7	120.0	10.8	0.4	87.6	3.0	0.0%
8	120.0	14.8	0.5	102.8	4.0	0.0%
9	120.0	13.5	0.4	101.6	4.0	0.0%
10	120.0	17.6	0.6	130.8	5.0	0.0%
Average:	**120.0**	**13.8**	**0.5**	**106.9**	**4.0**	**0.0%**
NEB T on MINK ST NW - Lane ID 156383						
1	120.0	16.6	0.6	157.5	6.0	0.0%
2	120.0	13.4	0.5	112.3	4.1	0.0%
3	120.0	10.9	0.4	68.9	3.0	0.0%
4	120.0	17.9	0.6	144.2	5.0	0.0%
5	120.0	9.0	0.4	45.1	2.0	0.0%
6	120.0	22.9	0.8	177.6	6.0	0.0%
7	120.0	11.3	0.4	139.6	5.0	0.0%
8	120.0	17.9	0.6	187.1	5.0	0.0%
9	120.0	11.6	0.4	119.6	4.0	0.0%
10	120.0	13.0	0.5	128.6	5.0	0.0%
Average:	**120.0**	**14.5**	**0.5**	**128.1**	**4.5**	**0.0%**
SWB T on MINK ST NW - Lane ID 156476						
1	120.0	1.3	0.0	0.0	0.0	0.0%
2	120.0	2.5	0.1	16.5	1.0	0.0%
3	120.0	2.4	0.1	0.9	0.0	0.0%
4	120.0	4.1	0.2	16.2	1.0	0.0%
5	120.0	0.6	0.0	0.0	0.0	0.0%
6	120.0	1.6	0.1	14.3	1.0	0.0%
7	120.0	0.8	0.1	0.7	0.0	0.0%
8	120.0	1.6	0.1	0.8	0.0	0.0%
9	120.0	1.9	0.1	15.1	1.0	0.0%
10	120.0	1.3	0.1	15.1	1.0	0.0%
Average:	**120.0**	**1.8**	**0.1**	**8.0**	**0.5**	**0.0%**
SWB T on MINK ST NW - Lane ID 156477						
1	120.0	1.3	0.1	0.7	0.0	0.0%
2	120.0	5.7	0.2	26.1	1.0	0.0%
3	120.0	1.4	0.1	14.4	1.0	0.0%
4	120.0	2.0	0.1	15.3	1.0	0.0%
5	120.0	1.9	0.1	16.1	1.0	0.0%
6	120.0	2.4	0.1	17.3	1.0	0.0%
7	120.0	1.5	0.1	0.0	0.0	0.0%
8	120.0	1.7	0.1	15.5	1.0	0.0%
9	120.0	2.7	0.1	17.7	1.0	0.0%

MINK ST NW & INNOVATION WAY — NODE: 15

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
SWB T on MINK ST NW - Lane ID 156477						
10	120.0	1.4	0.1	12.4	1.0	0.0%
Average:	**120.0**	**2.2**	**0.1**	**13.6**	**0.8**	**0.0%**
SWB TR on MINK ST NW - Lane ID 156478						
1	120.0	4.1	0.2	17.3	1.0	0.0%
2	120.0	4.0	0.2	17.6	1.0	0.0%
3	120.0	3.4	0.1	19.7	1.0	0.0%
4	120.0	4.2	0.2	41.4	2.0	0.0%
5	120.0	3.5	0.2	17.4	1.0	0.0%
6	120.0	5.1	0.2	41.9	2.0	0.0%
7	120.0	3.1	0.2	18.1	1.0	0.0%
8	120.0	3.7	0.2	22.7	1.0	0.0%
9	120.0	3.0	0.1	17.7	1.0	0.0%
10	120.0	1.6	0.1	15.5	1.0	0.0%
Average:	**120.0**	**3.6**	**0.2**	**22.9**	**1.2**	**0.0%**

MINK ST NW & JUG ST — NODE: 33082

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
EB L on JUG ST - Lane ID 156252						
1	120.0	14.2	0.7	62.2	3.0	0.0%
2	120.0	13.5	0.6	44.1	2.0	0.0%
3	120.0	13.3	0.7	48.3	2.0	0.0%
4	120.0	12.9	0.6	70.2	2.0	0.0%
5	120.0	14.7	0.6	72.2	2.0	0.0%
6	120.0	15.0	0.7	63.9	3.0	0.0%
7	120.0	12.0	0.6	50.7	2.0	0.0%
8	120.0	12.5	0.5	62.0	2.0	0.0%
9	120.0	17.5	0.8	67.5	3.0	0.0%
10	120.0	20.4	0.8	70.4	2.0	0.0%
Average:	**120.0**	**14.6**	**0.7**	**61.2**	**2.3**	**0.0%**
EB R on JUG ST - Lane ID 156253						
1	120.0	10.0	0.5	43.0	2.0	0.0%
2	120.0	11.9	0.5	66.0	3.0	0.0%
3	120.0	17.1	0.7	95.5	2.0	0.0%
4	120.0	9.6	0.4	63.4	2.0	0.0%
5	120.0	11.0	0.5	65.8	3.0	0.0%
6	120.0	11.9	0.5	46.5	2.0	0.0%
7	120.0	10.1	0.4	65.9	2.0	0.0%
8	120.0	9.3	0.4	66.7	2.0	0.0%
9	120.0	8.3	0.4	66.3	2.0	0.0%
10	120.0	10.4	0.5	42.8	2.0	0.0%

MINK ST NW & JUG ST — NODE: 33082

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
EB R on JUG ST - Lane ID 156253						
Average:	**120.0**	**11.0**	**0.5**	**62.2**	**2.2**	**0.0%**
SB T on MINK ST NW - Lane ID 153676						
1	120.0	1.8	0.1	16.3	1.0	0.0%
2	120.0	0.5	0.0	0.0	0.0	0.0%
3	120.0	2.7	0.1	16.3	1.0	0.0%
4	120.0	0.6	0.0	0.0	0.0	0.0%
5	120.0	2.0	0.1	11.1	1.0	0.0%
6	120.0	1.2	0.0	0.0	0.0	0.0%
7	120.0	0.8	0.0	0.0	0.0	0.0%
8	120.0	2.4	0.1	16.5	1.0	0.0%
9	120.0	1.1	0.1	0.0	0.0	0.0%
10	120.0	0.5	0.0	0.0	0.0	0.0%
Average:	**120.0**	**1.4**	**0.1**	**6.0**	**0.4**	**0.0%**
SB TR on MINK ST NW - Lane ID 156248						
1	120.0	2.5	0.1	16.3	1.0	0.0%
2	120.0	0.3	0.0	0.0	0.0	0.0%
3	120.0	1.2	0.0	0.0	0.0	0.0%
4	120.0	1.0	0.0	0.0	0.0	0.0%
5	120.0	1.3	0.1	0.0	0.0	0.0%
6	120.0	1.2	0.1	0.6	0.0	0.0%
7	120.0	2.3	0.1	18.7	1.0	0.0%
8	120.0	2.9	0.1	17.2	1.0	0.0%
9	120.0	1.9	0.1	17.6	1.0	0.0%
10	120.0	1.3	0.1	0.0	0.0	0.0%
Average:	**120.0**	**1.6**	**0.1**	**7.0**	**0.4**	**0.0%**

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 34

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NB T on MINK ST NW - Lane ID 156328						
1	120.0	192.6	6.4	424.8	14.0	0.0%
2	120.0	228.2	7.5	457.2	15.0	0.0%
3	120.0	216.0	7.0	451.9	15.0	0.0%
4	120.0	212.6	7.2	440.3	16.0	0.0%
5	120.0	181.3	5.8	429.9	14.0	0.0%
6	120.0	205.6	6.7	418.6	14.0	0.0%
7	120.0	226.1	7.6	472.9	16.0	0.0%
8	120.0	202.2	6.8	459.4	14.0	0.0%
9	120.0	206.7	6.7	451.2	14.0	0.0%
10	120.0	205.4	6.9	452.2	15.0	0.0%
Average:	**120.0**	**207.7**	**6.9**	**445.8**	**14.7**	**0.0%**

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 34

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NB T on MINK ST NW - Lane ID 156328						
NB T on MINK ST NW - Lane ID 156329						
1	120.0	155.3	5.4	356.3	13.0	0.0%
2	120.0	186.0	6.5	396.0	14.0	0.0%
3	120.0	180.0	6.3	396.5	15.0	0.0%
4	120.0	179.3	5.9	387.0	12.0	0.0%
5	120.0	147.9	5.1	359.5	13.0	0.0%
6	120.0	166.0	5.7	369.9	12.0	0.0%
7	120.0	185.0	6.2	366.1	13.0	0.0%
8	120.0	162.9	5.5	371.5	12.0	0.0%
9	120.0	164.1	5.5	376.3	12.0	0.0%
10	120.0	161.1	5.4	406.2	14.0	0.0%
Average:	**120.0**	**168.8**	**5.8**	**378.5**	**13.0**	**0.0%**
NB T on MINK ST NW - Lane ID 156436						
1	120.0	139.3	4.8	341.7	13.0	0.0%
2	120.0	164.3	5.4	368.1	13.0	0.0%
3	120.0	161.0	5.5	358.6	12.0	0.0%
4	120.0	147.0	5.0	368.3	12.0	0.0%
5	120.0	121.0	4.2	317.4	11.0	0.0%
6	120.0	152.6	5.2	348.1	13.0	0.0%
7	120.0	169.3	5.7	379.3	14.0	0.0%
8	120.0	147.7	5.1	344.4	12.0	0.0%
9	120.0	137.3	4.9	360.9	12.0	0.0%
10	120.0	143.4	4.8	385.7	12.0	0.0%
Average:	**120.0**	**148.3**	**5.1**	**357.3**	**12.4**	**0.0%**
NEB T on SR 161 EB EXIT RAMP - Lane ID 156323						
1	120.0	76.0	2.4	254.6	8.0	0.0%
2	120.0	71.2	2.4	256.2	8.0	0.0%
3	120.0	62.6	2.2	228.8	8.0	0.0%
4	120.0	69.8	2.4	234.4	7.0	0.0%
5	120.0	78.2	2.6	231.3	8.0	0.0%
6	120.0	74.0	2.6	240.4	8.0	0.0%
7	120.0	70.1	2.4	236.7	8.0	0.0%
8	120.0	71.7	2.4	231.0	7.0	0.0%
9	120.0	77.4	2.5	241.2	7.0	0.0%
10	120.0	83.4	3.0	249.4	9.0	0.0%
Average:	**120.0**	**73.4**	**2.5**	**240.4**	**7.8**	**0.0%**
NEB T on SR 161 EB EXIT RAMP - Lane ID 156324						
1	120.0	48.4	1.8	191.7	7.0	0.0%
2	120.0	45.3	1.8	184.1	7.0	0.0%

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 34

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NEB T on SR 161 EB EXIT RAMP - Lane ID 156324						
3	120.0	46.8	1.8	163.3	6.0	0.0%
4	120.0	52.1	2.0	182.9	7.0	0.0%
5	120.0	47.2	1.7	160.2	6.0	0.0%
6	120.0	58.8	2.1	217.6	7.0	0.0%
7	120.0	44.5	1.6	153.2	5.0	0.0%
8	120.0	48.6	1.8	179.2	6.0	0.0%
9	120.0	52.5	1.9	208.3	7.0	0.0%
10	120.0	69.3	2.2	238.3	7.0	0.0%
Average:	**120.0**	**51.4**	**1.9**	**187.9**	**6.5**	**0.0%**
NEB T on SR 161 EB EXIT RAMP - Lane ID 156353						
1	120.0	36.6	1.3	155.4	5.0	0.0%
2	120.0	31.1	1.2	131.9	4.0	0.0%
3	120.0	30.6	1.1	127.7	5.0	0.0%
4	120.0	32.1	1.2	126.4	5.0	0.0%
5	120.0	25.4	1.0	127.9	5.0	0.0%
6	120.0	42.6	1.6	168.2	5.0	0.0%
7	120.0	34.5	1.3	149.2	5.0	0.0%
8	120.0	36.8	1.3	151.7	5.0	0.0%
9	120.0	34.9	1.3	145.4	5.0	0.0%
10	120.0	46.3	1.7	167.9	6.0	0.0%
Average:	**120.0**	**35.1**	**1.3**	**145.2**	**5.0**	**0.0%**
SWB T on MINK ST NW - Lane ID 156342						
1	120.0	2.1	0.1	15.1	1.0	0.0%
2	120.0	1.4	0.1	15.9	1.0	0.0%
3	120.0	2.1	0.1	15.2	1.0	0.0%
4	120.0	2.5	0.1	16.6	1.0	0.0%
5	120.0	1.9	0.1	16.9	1.0	0.0%
6	120.0	1.6	0.1	16.1	1.0	0.0%
7	120.0	1.2	0.1	16.2	1.0	0.0%
8	120.0	0.3	0.0	0.0	0.0	0.0%
9	120.0	2.3	0.1	16.4	1.0	0.0%
10	120.0	1.1	0.1	15.6	1.0	0.0%
Average:	**120.0**	**1.7**	**0.1**	**14.4**	**0.9**	**0.0%**
SWB T on MINK ST NW - Lane ID 156343						
1	120.0	1.6	0.1	16.5	1.0	0.0%
2	120.0	0.6	0.0	0.0	0.0	0.0%
3	120.0	0.9	0.1	14.7	1.0	0.0%
4	120.0	1.8	0.1	15.4	1.0	0.0%
5	120.0	0.7	0.0	0.0	0.0	0.0%
6	120.0	1.8	0.1	15.7	1.0	0.0%

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 34

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
SWB T on MINK ST NW - Lane ID 156343						
7	120.0	1.6	0.1	15.1	1.0	0.0%
8	120.0	1.1	0.1	0.0	0.0	0.0%
9	120.0	1.1	0.0	0.0	0.0	0.0%
10	120.0	2.7	0.1	16.5	1.0	0.0%
Average:	**120.0**	**1.4**	**0.1**	**9.4**	**0.6**	**0.0%**
SWB T on MINK ST NW - Lane ID 156449						
1	120.0	1.2	0.1	15.5	1.0	0.0%
2	120.0	1.9	0.1	16.1	1.0	0.0%
3	120.0	1.9	0.1	16.0	1.0	0.0%
4	120.0	1.0	0.1	0.7	0.0	0.0%
5	120.0	0.7	0.0	0.0	0.0	0.0%
6	120.0	0.5	0.0	0.0	0.0	0.0%
7	120.0	2.2	0.1	15.9	1.0	0.0%
8	120.0	1.3	0.1	15.3	1.0	0.0%
9	120.0	1.2	0.1	15.2	1.0	0.0%
10	120.0	1.6	0.1	15.7	1.0	0.0%
Average:	**120.0**	**1.4**	**0.1**	**11.0**	**0.7**	**0.0%**

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 38

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NB R on SR 161 WB EXIT RAMP - Lane ID 156372						
1	120.0	112.5	4.1	282.4	10.0	0.0%
2	120.0	106.0	3.7	269.4	9.0	0.0%
3	120.0	100.2	3.6	248.9	9.0	0.0%
4	120.0	102.8	3.4	253.3	9.0	0.0%
5	120.0	104.4	3.8	275.3	9.0	0.0%
6	120.0	95.1	3.5	243.6	9.0	0.0%
7	120.0	103.5	3.9	254.5	9.0	0.0%
8	120.0	106.2	3.8	279.1	9.0	0.0%
9	120.0	109.8	3.8	256.3	8.0	0.0%
10	120.0	104.9	3.9	268.5	9.0	0.0%
Average:	**120.0**	**104.5**	**3.8**	**263.1**	**9.0**	**0.0%**
NB R on SR 161 WB EXIT RAMP - Lane ID 156373						
1	120.0	97.9	3.4	258.0	9.0	0.0%
2	120.0	102.8	3.7	271.4	10.0	0.0%
3	120.0	98.4	3.6	241.9	9.0	0.0%
4	120.0	93.5	3.4	251.3	9.0	0.0%
5	120.0	94.3	3.4	222.6	8.0	0.0%
6	120.0	93.7	3.2	276.8	9.0	0.0%
7	120.0	99.0	3.5	247.8	9.0	0.0%

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 38

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NB R on SR 161 WB EXIT RAMP - Lane ID 156373						
8	120.0	94.7	3.5	264.1	9.0	0.0%
9	120.0	108.5	3.9	263.4	10.0	0.0%
10	120.0	105.0	3.6	296.7	9.0	0.0%
Average:	**120.0**	**98.8**	**3.5**	**259.4**	**9.1**	**0.0%**
NEB T on MINK ST NW - Lane ID 156364						
1	120.0	76.3	2.6	363.9	12.0	9.2%
2	120.0	64.3	2.2	360.2	12.0	10.0%
3	120.0	76.4	2.6	360.7	13.0	10.8%
4	120.0	78.3	2.6	362.3	13.0	11.7%
5	120.0	54.2	1.8	353.0	12.0	7.5%
6	120.0	79.3	2.8	362.9	14.0	13.3%
7	120.0	66.5	2.3	359.8	13.0	9.2%
8	120.0	71.4	2.3	366.0	12.0	12.5%
9	120.0	70.2	2.4	356.8	12.0	11.7%
10	120.0	78.2	2.6	364.2	12.0	13.3%
Average:	**120.0**	**71.5**	**2.4**	**361.0**	**12.5**	**10.9%**
NEB T on MINK ST NW - Lane ID 156365						
1	120.0	72.9	2.6	359.6	13.0	10.8%
2	120.0	71.5	2.4	362.0	12.0	9.2%
3	120.0	76.4	2.8	359.8	13.0	13.3%
4	120.0	82.1	2.9	363.3	13.0	14.2%
5	120.0	56.4	2.0	357.5	13.0	10.0%
6	120.0	76.9	2.6	360.1	13.0	10.8%
7	120.0	65.4	2.2	355.7	12.0	8.3%
8	120.0	72.2	2.7	366.9	14.0	14.2%
9	120.0	69.4	2.5	356.9	13.0	10.8%
10	120.0	74.0	2.6	362.3	13.0	12.5%
Average:	**120.0**	**71.7**	**2.5**	**360.4**	**12.9**	**11.4%**
NEB T on MINK ST NW - Lane ID 156366						
1	120.0	65.4	2.3	357.3	12.0	9.2%
2	120.0	62.9	2.2	355.9	12.0	7.5%
3	120.0	70.4	2.4	352.1	12.0	10.8%
4	120.0	78.9	2.8	366.0	13.0	12.5%
5	120.0	49.1	1.8	353.8	12.0	6.7%
6	120.0	77.9	2.6	364.2	13.0	11.7%
7	120.0	59.3	2.2	358.2	12.0	8.3%
8	120.0	68.2	2.3	359.1	12.0	11.7%
9	120.0	65.2	2.3	357.5	12.0	10.0%
10	120.0	74.4	2.4	358.7	12.0	11.7%
Average:	**120.0**	**67.2**	**2.3**	**358.3**	**12.2**	**10.0%**

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 38

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NEB T on MINK ST NW - Lane ID 156366						
SB T on MINK ST NW - Lane ID 156369						
1	120.0	38.2	1.4	170.8	5.0	0.0%
2	120.0	48.0	1.7	195.6	6.0	0.8%
3	120.0	48.3	1.6	208.3	7.0	1.7%
4	120.0	37.1	1.4	158.0	6.0	0.0%
5	120.0	51.9	1.7	210.0	6.0	0.0%
6	120.0	36.6	1.4	147.8	5.0	0.0%
7	120.0	42.6	1.6	179.9	5.0	0.0%
8	120.0	38.3	1.5	153.6	6.0	0.0%
9	120.0	38.3	1.6	129.8	5.0	0.0%
10	120.0	45.3	1.7	185.0	7.0	0.0%
Average:	**120.0**	**42.5**	**1.6**	**173.9**	**5.8**	**0.3%**
SB T on MINK ST NW - Lane ID 156370						
1	120.0	24.2	1.0	122.3	5.0	0.0%
2	120.0	34.0	1.2	163.4	5.0	0.0%
3	120.0	28.9	1.1	120.9	4.0	0.0%
4	120.0	28.7	1.1	111.7	4.0	0.0%
5	120.0	33.3	1.4	135.5	5.0	0.0%
6	120.0	27.1	1.1	130.9	5.0	0.0%
7	120.0	23.4	0.9	124.5	4.0	0.0%
8	120.0	24.4	1.0	106.7	4.0	0.0%
9	120.0	33.8	1.2	136.5	4.0	0.0%
10	120.0	29.2	1.2	117.9	4.0	0.0%
Average:	**120.0**	**28.7**	**1.1**	**127.0**	**4.4**	**0.0%**
SB T on MINK ST NW - Lane ID 156451						
1	120.0	29.3	1.1	131.8	4.0	0.0%
2	120.0	29.3	1.1	122.1	4.0	0.0%
3	120.0	25.5	1.0	113.4	4.0	0.0%
4	120.0	25.8	1.0	120.0	4.0	0.0%
5	120.0	31.9	1.1	123.5	4.0	0.0%
6	120.0	25.0	0.9	124.3	4.0	0.0%
7	120.0	21.9	0.9	111.3	4.0	0.0%
8	120.0	23.0	0.9	107.4	4.0	0.0%
9	120.0	27.3	1.1	117.8	4.0	0.0%
10	120.0	28.0	1.2	108.9	5.0	0.0%
Average:	**120.0**	**26.7**	**1.0**	**118.1**	**4.1**	**0.0%**

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
EB L on WORTHINGTON RD - Lane ID 153286						
1	120.0	28.2	1.2	77.1	3.0	0.0%
2	120.0	37.5	1.5	121.6	4.0	0.0%
3	120.0	38.7	1.3	154.3	4.0	0.0%
4	120.0	48.4	1.9	209.7	8.1	0.0%
5	120.0	29.5	1.2	96.6	4.0	0.0%
6	120.0	27.3	1.2	88.1	4.0	0.0%
7	120.0	36.1	1.3	111.3	4.0	0.0%
8	120.0	30.1	1.2	108.8	4.0	0.0%
9	120.0	29.8	1.2	120.1	4.0	0.0%
10	120.0	33.2	1.3	149.5	5.0	0.0%
Average:	**120.0**	**33.9**	**1.3**	**123.7**	**4.4**	**0.0%**
EB TR on WORTHINGTON RD - Lane ID 153287						
1	120.0	4.9	0.3	19.1	1.0	0.0%
2	120.0	7.4	0.3	49.7	2.0	0.0%
3	120.0	6.0	0.3	41.8	1.0	0.0%
4	120.0	6.0	0.3	40.4	2.0	0.0%
5	120.0	8.8	0.3	63.9	1.0	0.0%
6	120.0	6.6	0.3	44.6	1.0	0.0%
7	120.0	5.7	0.3	39.8	1.0	0.0%
8	120.0	9.6	0.4	51.4	2.0	0.0%
9	120.0	9.0	0.3	71.1	2.0	0.0%
10	120.0	7.4	0.4	43.5	2.0	0.0%
Average:	**120.0**	**7.1**	**0.3**	**46.5**	**1.5**	**0.0%**
NEB L on MINK ST SW - Lane ID 156321						
1	120.0	2.8	0.2	16.9	1.0	0.0%
2	120.0	4.6	0.2	18.5	1.0	0.0%
3	120.0	4.5	0.2	17.0	1.0	0.0%
4	120.0	2.2	0.1	16.7	1.0	0.0%
5	120.0	3.9	0.2	19.5	1.0	0.0%
6	120.0	2.8	0.2	16.9	1.0	0.0%
7	120.0	3.0	0.2	17.6	1.0	0.0%
8	120.0	3.3	0.2	16.8	1.0	0.0%
9	120.0	5.6	0.3	18.9	1.0	0.0%
10	120.0	2.9	0.2	17.0	1.0	0.0%
Average:	**120.0**	**3.6**	**0.2**	**17.6**	**1.0**	**0.0%**
NEB T on MINK ST SW - Lane ID 153565						
1	120.0	57.4	2.0	264.7	9.0	0.0%
2	120.0	56.7	2.0	225.7	8.0	0.0%
3	120.0	61.2	2.2	231.3	8.0	0.0%
4	120.0	50.9	1.9	213.1	8.0	0.0%

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NEB T on MINK ST SW - Lane ID 153565						
5	120.0	53.3	2.0	241.6	9.0	0.0%
6	120.0	53.4	1.9	221.9	8.0	0.0%
7	120.0	55.0	1.9	235.1	8.0	0.0%
8	120.0	54.1	1.9	236.1	8.0	0.0%
9	120.0	57.2	2.0	266.3	8.0	0.0%
10	120.0	55.2	1.9	240.0	9.0	0.0%
Average:	**120.0**	**55.4**	**2.0**	**237.6**	**8.3**	**0.0%**
NEB TR on MINK ST SW - Lane ID 156392						
1	120.0	60.9	2.2	241.7	8.0	0.0%
2	120.0	60.3	2.0	253.2	8.0	0.0%
3	120.0	57.8	2.1	221.3	8.0	0.0%
4	120.0	62.7	2.2	250.2	8.0	0.0%
5	120.0	52.5	1.9	201.6	7.0	0.0%
6	120.0	49.3	1.8	219.6	8.0	0.0%
7	120.0	54.3	1.9	240.8	8.0	0.0%
8	120.0	57.0	2.1	245.0	9.0	0.0%
9	120.0	59.5	2.1	236.1	8.0	0.0%
10	120.0	52.7	1.9	237.1	8.0	0.0%
Average:	**120.0**	**56.7**	**2.0**	**234.7**	**8.0**	**0.0%**
SWB L on MINK ST NW - Lane ID 156270						
1	120.0	9.0	0.5	43.5	2.0	0.0%
2	120.0	14.3	0.7	66.2	2.0	0.0%
3	120.0	14.8	0.7	64.3	2.0	0.0%
4	120.0	12.9	0.6	71.8	3.0	0.0%
5	120.0	16.4	0.7	98.1	4.0	0.0%
6	120.0	15.1	0.7	86.5	3.0	0.0%
7	120.0	9.7	0.5	49.6	2.0	0.0%
8	120.0	8.3	0.4	50.2	2.0	0.0%
9	120.0	11.7	0.6	62.7	2.0	0.0%
10	120.0	6.9	0.4	45.2	2.0	0.0%
Average:	**120.0**	**11.9**	**0.6**	**63.8**	**2.4**	**0.0%**
SWB R on MINK ST NW - Lane ID 156445						
1	120.0	15.7	0.6	92.5	3.0	0.0%
2	120.0	17.9	0.6	102.0	3.0	0.0%
3	120.0	16.0	0.6	86.1	3.0	0.0%
4	120.0	15.4	0.6	88.3	3.0	0.0%
5	120.0	17.5	0.6	90.1	3.0	0.0%
6	120.0	16.1	0.6	78.5	3.0	0.0%
7	120.0	14.0	0.6	73.5	3.0	0.0%
8	120.0	16.7	0.6	93.0	4.0	0.0%

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
SWB R on MINK ST NW - Lane ID 156445						
9	120.0	23.6	0.8	121.1	4.0	0.0%
10	120.0	9.7	0.4	67.7	2.0	0.0%
Average:	**120.0**	**16.3**	**0.6**	**89.3**	**3.1**	**0.0%**
SWB T on MINK ST NW - Lane ID 156258						
1	120.0	19.4	0.8	100.1	3.0	0.0%
2	120.0	23.1	0.9	93.0	3.0	0.0%
3	120.0	23.6	0.9	106.9	4.0	0.0%
4	120.0	21.7	0.8	105.8	3.0	0.0%
5	120.0	22.0	0.9	96.8	3.0	0.0%
6	120.0	14.5	0.7	68.5	3.0	0.0%
7	120.0	25.9	0.9	121.3	3.0	0.0%
8	120.0	17.0	0.7	76.4	3.0	0.0%
9	120.0	24.5	1.0	98.9	4.0	0.0%
10	120.0	18.6	0.7	102.8	3.0	0.0%
Average:	**120.0**	**21.0**	**0.8**	**97.1**	**3.2**	**0.0%**
SWB T on MINK ST NW - Lane ID 156393						
1	120.0	27.4	1.1	105.5	4.0	0.0%
2	120.0	32.2	1.2	133.4	4.0	0.0%
3	120.0	32.0	1.1	125.1	4.0	0.0%
4	120.0	32.9	1.1	110.6	4.0	0.0%
5	120.0	32.1	1.3	110.4	4.0	0.0%
6	120.0	30.4	1.2	113.0	4.0	0.0%
7	120.0	29.6	1.2	105.1	4.0	0.0%
8	120.0	29.2	1.1	118.6	5.0	0.0%
9	120.0	35.2	1.4	122.7	5.0	0.0%
10	120.0	26.5	1.1	102.7	4.0	0.0%
Average:	**120.0**	**30.8**	**1.2**	**114.7**	**4.2**	**0.0%**
WB L on WORTHINGTON RD - Lane ID 153562						
1	120.0	2.0	0.1	15.6	1.0	0.0%
2	120.0	2.8	0.1	15.2	1.0	0.0%
3	120.0	2.0	0.1	15.0	1.0	0.0%
4	120.0	1.3	0.1	14.3	1.0	0.0%
5	120.0	2.0	0.1	15.4	1.0	0.0%
6	120.0	1.6	0.1	17.1	1.0	0.0%
7	120.0	1.0	0.1	12.5	1.0	0.0%
8	120.0	2.5	0.1	15.1	1.0	0.0%
9	120.0	3.7	0.1	17.3	1.0	0.0%
10	120.0	2.2	0.1	16.1	1.0	0.0%
Average:	**120.0**	**2.1**	**0.1**	**15.4**	**1.0**	**0.0%**

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
WB TR on WORTHINGTON RD - Lane ID 153563						
1	120.0	50.8	2.0	168.7	6.0	0.0%
2	120.0	50.5	1.9	179.1	5.0	0.0%
3	120.0	52.4	2.0	178.9	6.0	0.0%
4	120.0	49.0	1.9	153.3	5.0	0.0%
5	120.0	52.4	2.0	163.4	6.0	0.0%
6	120.0	49.4	2.0	184.1	6.0	0.0%
7	120.0	52.8	2.0	179.6	6.0	0.0%
8	120.0	60.6	2.2	186.2	6.0	0.0%
9	120.0	38.6	1.5	175.3	5.0	0.0%
10	120.0	47.1	1.8	145.8	5.0	0.0%
Average:	**120.0**	**50.4**	**1.9**	**171.4**	**5.6**	**0.0%**

Project: Mink Corridor Proposed DDI w North
Scenario: AM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 08:00:00 - 09:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Lane Queue by Intersection - Avg Queue

MINK ST NW & BEAVER RD — NODE: 18

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NWB L	156456	BEAVER RD	61.6	9.1	52.3	79.0	10
NWB LR	156457	BEAVER RD	71.1	9.6	60.3	89.5	10

MINK ST NW & BEAVER RD — NODE: 18

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB L	156233	MINK ST NW	2.3	1.2	0.5	5.0	10
SWB T	156234	MINK ST NW	0.5	0.5	0.0	1.9	10
SWB T	156235	MINK ST NW	0.3	0.2	0.0	0.7	10
NEB T	156469	MINK ST NW	11.6	2.7	8.5	16.7	10
NEB T	156470	MINK ST NW	5.5	1.4	3.5	7.9	10
NEB R	156492	MINK ST NW	1.7	0.9	0.8	3.4	10
SWB T	156499	MINK ST NW	0.3	0.3	0.0	1.0	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SEB L	156228	CLOVER VALLEY EXT	6.2	1.4	3.6	8.6	10
SEB R	156229	CLOVER VALLEY EXT	1.5	0.8	0.7	3.0	10
SEB R	156411	CLOVER VALLEY EXT	1.6	0.8	0.9	3.1	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB T	153566	MINK ST NW	1.0	0.5	0.5	2.1	10
NB T	156220	MINK ST NW	1.3	0.4	0.8	1.9	10
NEB L	156226	MINK ST NW	12.2	2.4	8.9	17.3	10
NEB T	156227	MINK ST NW	0.7	0.3	0.0	1.1	10
NB L	156247	MINK ST NW	0.1	0.1	0.0	0.4	10
SWB T	156417	MINK ST NW	71.0	7.9	60.7	84.9	10
SWB TR	156418	MINK ST NW	68.3	10.5	54.7	85.9	10
NEB T	156482	MINK ST NW	0.5	0.3	0.1	1.1	10
NEB L	156498	MINK ST NW	13.6	3.0	9.5	19.2	10

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156208	INNOVATION WAY	12.9	2.2	9.4	16.1	10
EB R	156209	INNOVATION WAY	3.1	0.8	1.8	4.0	10

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156193	MINK ST NW	7.6	2.4	4.7	12.2	10
NEB T	156194	MINK ST NW	13.8	3.7	7.2	20.3	10
NEB L	156218	MINK ST NW	6.2	1.8	3.2	8.7	10
NEB T	156383	MINK ST NW	14.5	4.3	9.0	22.9	10
SWB T	156476	MINK ST NW	1.8	1.0	0.6	4.1	10
SWB T	156477	MINK ST NW	2.2	1.3	1.3	5.7	10
SWB TR	156478	MINK ST NW	3.6	0.9	1.6	5.1	10

MINK ST NW & JUG ST — NODE: 33082

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156252	JUG ST	14.6	2.6	12.0	20.4	10
EB R	156253	JUG ST	11.0	2.4	8.3	17.1	10

MINK ST NW & JUG ST — NODE: 33082

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SB T	153676	MINK ST NW	1.4	0.8	0.5	2.7	10
SB TR	156248	MINK ST NW	1.6	0.8	0.3	2.9	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 34

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB T	156328	MINK ST NW	207.7	14.2	181.3	228.2	10
NB T	156329	MINK ST NW	168.8	13.1	147.9	186.0	10
SWB T	156342	MINK ST NW	1.7	0.7	0.3	2.5	10
SWB T	156343	MINK ST NW	1.4	0.6	0.6	2.7	10
NB T	156436	MINK ST NW	148.3	14.3	121.0	169.3	10
SWB T	156449	MINK ST NW	1.4	0.5	0.5	2.2	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 34

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156323	SR 161 EB EXIT RAMP	73.4	5.7	62.6	83.4	10
NEB T	156324	SR 161 EB EXIT RAMP	51.4	7.6	44.5	69.3	10
NEB T	156353	SR 161 EB EXIT RAMP	35.1	6.0	25.4	46.3	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 38

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156364	MINK ST NW	71.5	8.0	54.2	79.3	10
NEB T	156365	MINK ST NW	71.7	7.0	56.4	82.1	10
NEB T	156366	MINK ST NW	67.2	9.0	49.1	78.9	10
SB T	156369	MINK ST NW	42.5	5.6	36.6	51.9	10
SB T	156370	MINK ST NW	28.7	4.0	23.4	34.0	10
SB T	156451	MINK ST NW	26.7	3.1	21.9	31.9	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 38

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB R	156372	SR 161 WB EXIT RAMP	104.5	4.8	95.1	112.5	10
NB R	156373	SR 161 WB EXIT RAMP	98.8	5.2	93.5	108.5	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB T	156258	MINK ST NW	21.0	3.6	14.5	25.9	10
SWB L	156270	MINK ST NW	11.9	3.3	6.9	16.4	10
SWB T	156393	MINK ST NW	30.8	2.6	26.5	35.2	10
SWB R	156445	MINK ST NW	16.3	3.5	9.7	23.6	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	153565	MINK ST SW	55.4	2.9	50.9	61.2	10
NEB L	156321	MINK ST SW	3.6	1.1	2.2	5.6	10
NEB TR	156392	MINK ST SW	56.7	4.3	49.3	62.7	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	153286	WORTHINGTON RD	33.9	6.5	27.3	48.4	10
EB TR	153287	WORTHINGTON RD	7.1	1.6	4.9	9.6	10
WB L	153562	WORTHINGTON RD	2.1	0.8	1.0	3.7	10
WB TR	153563	WORTHINGTON RD	50.4	5.5	38.6	60.6	10

Project: Mink Corridor Proposed DDI w North
Scenario: AM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 08:00:00 - 09:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Lane Queue by Intersection - Avg Num Queued

MINK ST NW & BEAVER RD — NODE: 18

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NWB L	156456	BEAVER RD	2.3	0.3	1.9	2.8	10
NWB LR	156457	BEAVER RD	2.6	0.3	2.3	3.1	10

MINK ST NW & BEAVER RD — NODE: 18

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB L	156233	MINK ST NW	0.4	0.1	0.3	0.4	10
SWB T	156234	MINK ST NW	0.0	0.0	0.0	0.1	10
SWB T	156235	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB T	156469	MINK ST NW	0.4	0.1	0.3	0.6	10
NEB T	156470	MINK ST NW	0.2	0.1	0.1	0.3	10
NEB R	156492	MINK ST NW	0.1	0.0	0.0	0.1	10
SWB T	156499	MINK ST NW	0.0	0.0	0.0	0.1	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SEB L	156228	CLOVER VALLEY EXT	0.3	0.1	0.2	0.5	10
SEB R	156229	CLOVER VALLEY EXT	0.1	0.1	0.0	0.1	10
SEB R	156411	CLOVER VALLEY EXT	0.1	0.0	0.0	0.1	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB T	153566	MINK ST NW	0.1	0.1	0.0	0.1	10
NB T	156220	MINK ST NW	0.1	0.0	0.0	0.1	10
NEB L	156226	MINK ST NW	0.5	0.1	0.4	0.6	10
NEB T	156227	MINK ST NW	0.0	0.0	0.0	0.1	10
NB L	156247	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB T	156417	MINK ST NW	2.6	0.2	2.3	3.0	10
SWB TR	156418	MINK ST NW	2.5	0.3	2.2	3.2	10
NEB T	156482	MINK ST NW	0.0	0.0	0.0	0.1	10
NEB L	156498	MINK ST NW	0.5	0.1	0.4	0.7	10

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156208	INNOVATION WAY	0.6	0.1	0.4	0.7	10
EB R	156209	INNOVATION WAY	0.1	0.1	0.1	0.2	10

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156193	MINK ST NW	0.3	0.1	0.2	0.5	10
NEB T	156194	MINK ST NW	0.5	0.1	0.3	0.8	10
NEB L	156218	MINK ST NW	0.6	0.1	0.4	0.8	10
NEB T	156383	MINK ST NW	0.5	0.1	0.4	0.8	10
SWB T	156476	MINK ST NW	0.1	0.1	0.0	0.2	10
SWB T	156477	MINK ST NW	0.1	0.0	0.1	0.2	10
SWB TR	156478	MINK ST NW	0.2	0.0	0.1	0.2	10

MINK ST NW & JUG ST — NODE: 33082

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156252	JUG ST	0.7	0.1	0.5	0.8	10
EB R	156253	JUG ST	0.5	0.1	0.4	0.7	10

MINK ST NW & JUG ST — NODE: 33082

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SB T	153676	MINK ST NW	0.1	0.1	0.0	0.1	10
SB TR	156248	MINK ST NW	0.1	0.0	0.0	0.1	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 34

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB T	156328	MINK ST NW	6.9	0.5	5.8	7.6	10
NB T	156329	MINK ST NW	5.8	0.5	5.1	6.5	10
SWB T	156342	MINK ST NW	0.1	0.0	0.0	0.1	10
SWB T	156343	MINK ST NW	0.1	0.0	0.0	0.1	10
NB T	156436	MINK ST NW	5.1	0.4	4.2	5.7	10
SWB T	156449	MINK ST NW	0.1	0.0	0.0	0.1	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 34

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156323	SR 161 EB EXIT RAMP	2.5	0.2	2.2	3.0	10
NEB T	156324	SR 161 EB EXIT RAMP	1.9	0.2	1.6	2.2	10
NEB T	156353	SR 161 EB EXIT RAMP	1.3	0.2	1.0	1.7	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 38

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156364	MINK ST NW	2.4	0.3	1.8	2.8	10
NEB T	156365	MINK ST NW	2.5	0.3	2.0	2.9	10
NEB T	156366	MINK ST NW	2.3	0.3	1.8	2.8	10
SB T	156369	MINK ST NW	1.6	0.1	1.4	1.7	10
SB T	156370	MINK ST NW	1.1	0.1	0.9	1.4	10
SB T	156451	MINK ST NW	1.0	0.1	0.9	1.2	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 38

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB R	156372	SR 161 WB EXIT RAMP	3.8	0.2	3.4	4.1	10
NB R	156373	SR 161 WB EXIT RAMP	3.5	0.2	3.2	3.9	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB T	156258	MINK ST NW	0.8	0.1	0.7	1.0	10
SWB L	156270	MINK ST NW	0.6	0.1	0.4	0.7	10
SWB T	156393	MINK ST NW	1.2	0.1	1.1	1.4	10
SWB R	156445	MINK ST NW	0.6	0.1	0.4	0.8	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	153565	MINK ST SW	2.0	0.1	1.9	2.2	10
NEB L	156321	MINK ST SW	0.2	0.0	0.1	0.3	10
NEB TR	156392	MINK ST SW	2.0	0.1	1.8	2.2	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	153286	WORTHINGTON RD	1.3	0.2	1.2	1.9	10
EB TR	153287	WORTHINGTON RD	0.3	0.0	0.3	0.4	10
WB L	153562	WORTHINGTON RD	0.1	0.0	0.1	0.1	10
WB TR	153563	WORTHINGTON RD	1.9	0.2	1.5	2.2	10

Project: Mink Corridor Proposed DDI w North
Scenario: AM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 08:00:00 - 09:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Lane Queue by Intersection - Percentile Queue

MINK ST NW & BEAVER RD — NODE: 18

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NWB L	156456	BEAVER RD	159.1	21.1	135.5	190.2	10
NWB LR	156457	BEAVER RD	182.3	22.4	151.6	219.0	10

MINK ST NW & BEAVER RD — NODE: 18

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB L	156233	MINK ST NW	15.0	14.5	0.1	43.8	10
SWB T	156234	MINK ST NW	1.0	3.0	0.0	9.5	10
SWB T	156235	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB T	156469	MINK ST NW	93.1	13.2	76.6	116.6	10
NEB T	156470	MINK ST NW	36.6	19.5	17.8	70.3	10
NEB R	156492	MINK ST NW	0.4	0.5	0.0	1.1	10
SWB T	156499	MINK ST NW	0.0	0.0	0.0	0.0	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SEB L	156228	CLOVER VALLEY EXT	20.9	5.6	16.5	36.0	10
SEB R	156229	CLOVER VALLEY EXT	5.0	8.0	0.0	16.9	10
SEB R	156411	CLOVER VALLEY EXT	10.0	7.1	0.0	17.6	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB T	153566	MINK ST NW	1.2	3.4	0.0	10.9	10
NB T	156220	MINK ST NW	1.5	4.1	0.0	13.3	10
NEB L	156226	MINK ST NW	75.7	7.3	67.0	89.5	10
NEB T	156227	MINK ST NW	0.1	0.2	0.0	0.7	10
NB L	156247	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB T	156417	MINK ST NW	184.9	22.5	154.4	221.3	10
SWB TR	156418	MINK ST NW	183.5	28.7	157.2	253.0	10
NEB T	156482	MINK ST NW	1.6	4.7	0.0	15.1	10
NEB L	156498	MINK ST NW	81.3	13.3	65.2	100.3	10

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156208	INNOVATION WAY	64.0	13.2	44.1	78.2	10
EB R	156209	INNOVATION WAY	19.0	2.9	15.5	25.4	10

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156193	MINK ST NW	59.8	24.4	22.5	90.9	10
NEB T	156194	MINK ST NW	106.9	29.7	44.5	146.9	10
NEB L	156218	MINK ST NW	42.7	14.1	18.6	64.7	10
NEB T	156383	MINK ST NW	128.1	44.6	45.1	187.1	10
SWB T	156476	MINK ST NW	8.0	7.9	0.0	16.5	10
SWB T	156477	MINK ST NW	13.6	7.8	0.0	26.1	10
SWB TR	156478	MINK ST NW	22.9	10.0	15.5	41.9	10

MINK ST NW & JUG ST — NODE: 33082

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156252	JUG ST	61.2	10.0	44.1	72.2	10
EB R	156253	JUG ST	62.2	15.6	42.8	95.5	10

MINK ST NW & JUG ST — NODE: 33082

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SB T	153676	MINK ST NW	6.0	7.9	0.0	16.5	10
SB TR	156248	MINK ST NW	7.0	9.0	0.0	18.7	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 34

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB T	156328	MINK ST NW	445.8	17.1	418.6	472.9	10
NB T	156329	MINK ST NW	378.5	17.0	356.3	406.2	10
SWB T	156342	MINK ST NW	14.4	5.1	0.0	16.9	10
SWB T	156343	MINK ST NW	9.4	8.1	0.0	16.5	10
NB T	156436	MINK ST NW	357.3	20.1	317.4	385.7	10
SWB T	156449	MINK ST NW	11.0	7.5	0.0	16.1	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 34

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156323	SR 161 EB EXIT RAMP	240.4	9.9	228.8	256.2	10
NEB T	156324	SR 161 EB EXIT RAMP	187.9	27.0	153.2	238.3	10
NEB T	156353	SR 161 EB EXIT RAMP	145.2	16.1	126.4	168.2	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 38

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156364	MINK ST NW	361.0	3.8	353.0	366.0	10
NEB T	156365	MINK ST NW	360.4	3.3	355.7	366.9	10
NEB T	156366	MINK ST NW	358.3	4.2	352.1	366.0	10
SB T	156369	MINK ST NW	173.9	26.7	129.8	210.0	10
SB T	156370	MINK ST NW	127.0	16.0	106.7	163.4	10
SB T	156451	MINK ST NW	118.1	7.8	107.4	131.8	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 38

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB R	156372	SR 161 WB EXIT RAMP	263.1	13.5	243.6	282.4	10
NB R	156373	SR 161 WB EXIT RAMP	259.4	20.4	222.6	296.7	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB T	156258	MINK ST NW	97.1	15.1	68.5	121.3	10
SWB L	156270	MINK ST NW	63.8	18.0	43.5	98.1	10
SWB T	156393	MINK ST NW	114.7	10.0	102.7	133.4	10
SWB R	156445	MINK ST NW	89.3	15.1	67.7	121.1	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	153565	MINK ST SW	237.6	17.1	213.1	266.3	10
NEB L	156321	MINK ST SW	17.6	1.0	16.7	19.5	10
NEB TR	156392	MINK ST SW	234.7	15.9	201.6	253.2	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	153286	WORTHINGTON RD	123.7	38.8	77.1	209.7	10
EB TR	153287	WORTHINGTON RD	46.5	14.2	19.1	71.1	10
WB L	153562	WORTHINGTON RD	15.4	1.4	12.5	17.3	10
WB TR	153563	WORTHINGTON RD	171.4	13.5	145.8	186.2	10

Project: Mink Corridor Proposed DDI w North
Scenario: AM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 08:00:00 - 09:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Lane Queue by Intersection - Percentile Num Queued

MINK ST NW & BEAVER RD — NODE: 18

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NWB L	156456	BEAVER RD	5.8	0.8	5.0	7.0	10
NWB LR	156457	BEAVER RD	6.0	0.8	5.0	7.0	10

MINK ST NW & BEAVER RD — NODE: 18

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB L	156233	MINK ST NW	1.6	0.5	1.0	2.0	10
SWB T	156234	MINK ST NW	0.1	0.3	0.0	1.0	10
SWB T	156235	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB T	156469	MINK ST NW	3.4	0.7	2.1	4.0	10
NEB T	156470	MINK ST NW	1.5	0.5	1.0	2.0	10
NEB R	156492	MINK ST NW	0.1	0.3	0.0	1.0	10
SWB T	156499	MINK ST NW	0.0	0.0	0.0	0.0	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SEB L	156228	CLOVER VALLEY EXT	1.1	0.3	1.0	2.0	10
SEB R	156229	CLOVER VALLEY EXT	0.3	0.5	0.0	1.0	10
SEB R	156411	CLOVER VALLEY EXT	0.7	0.5	0.0	1.0	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB T	153566	MINK ST NW	0.1	0.3	0.0	1.0	10
NB T	156220	MINK ST NW	0.1	0.3	0.0	1.0	10
NEB L	156226	MINK ST NW	2.9	0.3	2.0	3.0	10
NEB T	156227	MINK ST NW	0.0	0.0	0.0	0.0	10
NB L	156247	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB T	156417	MINK ST NW	6.4	0.8	5.0	8.0	10
SWB TR	156418	MINK ST NW	6.2	0.4	6.0	7.0	10
NEB T	156482	MINK ST NW	0.1	0.3	0.0	1.0	10
NEB L	156498	MINK ST NW	2.7	0.5	2.0	3.0	10

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156208	INNOVATION WAY	2.1	0.3	2.0	3.0	10
EB R	156209	INNOVATION WAY	1.0	0.0	1.0	1.0	10

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156193	MINK ST NW	2.3	0.9	1.0	4.0	10
NEB T	156194	MINK ST NW	4.0	1.2	2.0	6.0	10
NEB L	156218	MINK ST NW	2.7	0.5	2.0	3.0	10
NEB T	156383	MINK ST NW	4.5	1.3	2.0	6.0	10
SWB T	156476	MINK ST NW	0.5	0.5	0.0	1.0	10
SWB T	156477	MINK ST NW	0.8	0.4	0.0	1.0	10
SWB TR	156478	MINK ST NW	1.2	0.4	1.0	2.0	10

MINK ST NW & JUG ST — NODE: 33082

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156252	JUG ST	2.3	0.5	2.0	3.0	10
EB R	156253	JUG ST	2.2	0.4	2.0	3.0	10

MINK ST NW & JUG ST — NODE: 33082

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SB T	153676	MINK ST NW	0.4	0.5	0.0	1.0	10
SB TR	156248	MINK ST NW	0.4	0.5	0.0	1.0	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 34

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB T	156328	MINK ST NW	14.7	0.8	14.0	16.0	10
NB T	156329	MINK ST NW	13.0	1.1	12.0	15.0	10
SWB T	156342	MINK ST NW	0.9	0.3	0.0	1.0	10
SWB T	156343	MINK ST NW	0.6	0.5	0.0	1.0	10
NB T	156436	MINK ST NW	12.4	0.8	11.0	14.0	10
SWB T	156449	MINK ST NW	0.7	0.5	0.0	1.0	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 34

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156323	SR 161 EB EXIT RAMP	7.8	0.6	7.0	9.0	10
NEB T	156324	SR 161 EB EXIT RAMP	6.5	0.7	5.0	7.0	10
NEB T	156353	SR 161 EB EXIT RAMP	5.0	0.5	4.0	6.0	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 38

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156364	MINK ST NW	12.5	0.7	12.0	14.0	10
NEB T	156365	MINK ST NW	12.9	0.6	12.0	14.0	10
NEB T	156366	MINK ST NW	12.2	0.4	12.0	13.0	10
SB T	156369	MINK ST NW	5.8	0.8	5.0	7.0	10
SB T	156370	MINK ST NW	4.4	0.5	4.0	5.0	10
SB T	156451	MINK ST NW	4.1	0.3	4.0	5.0	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 38

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB R	156372	SR 161 WB EXIT RAMP	9.0	0.5	8.0	10.0	10
NB R	156373	SR 161 WB EXIT RAMP	9.1	0.6	8.0	10.0	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB T	156258	MINK ST NW	3.2	0.4	3.0	4.0	10
SWB L	156270	MINK ST NW	2.4	0.7	2.0	4.0	10
SWB T	156393	MINK ST NW	4.2	0.4	4.0	5.0	10
SWB R	156445	MINK ST NW	3.1	0.6	2.0	4.0	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	153565	MINK ST SW	8.3	0.5	8.0	9.0	10
NEB L	156321	MINK ST SW	1.0	0.0	1.0	1.0	10
NEB TR	156392	MINK ST SW	8.0	0.5	7.0	9.0	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	153286	WORTHINGTON RD	4.4	1.4	3.0	8.1	10
EB TR	153287	WORTHINGTON RD	1.5	0.5	1.0	2.0	10
WB L	153562	WORTHINGTON RD	1.0	0.0	1.0	1.0	10
WB TR	153563	WORTHINGTON RD	5.6	0.5	5.0	6.0	10

Project: Mink Corridor Proposed DDI w North
Scenario: AM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 08:00:00 - 09:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Lane Queue by Intersection - Spillback Rate

MINK ST NW & BEAVER RD — NODE: 18

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NWB L	156456	BEAVER RD	0.0	0.0	0.0	0.0	10
NWB LR	156457	BEAVER RD	0.0	0.0	0.0	0.0	10

MINK ST NW & BEAVER RD — NODE: 18

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB L	156233	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB T	156234	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB T	156235	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB T	156469	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB T	156470	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB R	156492	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB T	156499	MINK ST NW	0.0	0.0	0.0	0.0	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SEB L	156228	CLOVER VALLEY EXT	0.0	0.0	0.0	0.0	10
SEB R	156229	CLOVER VALLEY EXT	0.0	0.0	0.0	0.0	10
SEB R	156411	CLOVER VALLEY EXT	0.0	0.0	0.0	0.0	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB T	153566	MINK ST NW	0.0	0.0	0.0	0.0	10
NB T	156220	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB L	156226	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB T	156227	MINK ST NW	0.0	0.0	0.0	0.0	10
NB L	156247	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB T	156417	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB TR	156418	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB T	156482	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB L	156498	MINK ST NW	0.0	0.0	0.0	0.0	10

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156208	INNOVATION WAY	0.0	0.0	0.0	0.0	10
EB R	156209	INNOVATION WAY	0.0	0.0	0.0	0.0	10

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156193	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB T	156194	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB L	156218	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB T	156383	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB T	156476	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB T	156477	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB TR	156478	MINK ST NW	0.0	0.0	0.0	0.0	10

MINK ST NW & JUG ST — NODE: 33082

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156252	JUG ST	0.0	0.0	0.0	0.0	10
EB R	156253	JUG ST	0.0	0.0	0.0	0.0	10

MINK ST NW & JUG ST — NODE: 33082

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SB T	153676	MINK ST NW	0.0	0.0	0.0	0.0	10
SB TR	156248	MINK ST NW	0.0	0.0	0.0	0.0	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 34

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB T	156328	MINK ST NW	0.0	0.0	0.0	0.0	10
NB T	156329	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB T	156342	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB T	156343	MINK ST NW	0.0	0.0	0.0	0.0	10
NB T	156436	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB T	156449	MINK ST NW	0.0	0.0	0.0	0.0	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 34

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156323	SR 161 EB EXIT RAMP	0.0	0.0	0.0	0.0	10
NEB T	156324	SR 161 EB EXIT RAMP	0.0	0.0	0.0	0.0	10
NEB T	156353	SR 161 EB EXIT RAMP	0.0	0.0	0.0	0.0	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 38

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156364	MINK ST NW	0.1	0.0	0.1	0.1	10
NEB T	156365	MINK ST NW	0.1	0.0	0.1	0.1	10
NEB T	156366	MINK ST NW	0.1	0.0	0.1	0.1	10
SB T	156369	MINK ST NW	0.0	0.0	0.0	0.0	10
SB T	156370	MINK ST NW	0.0	0.0	0.0	0.0	10
SB T	156451	MINK ST NW	0.0	0.0	0.0	0.0	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 38

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB R	156372	SR 161 WB EXIT RAMP	0.0	0.0	0.0	0.0	10
NB R	156373	SR 161 WB EXIT RAMP	0.0	0.0	0.0	0.0	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB T	156258	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB L	156270	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB T	156393	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB R	156445	MINK ST NW	0.0	0.0	0.0	0.0	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	153565	MINK ST SW	0.0	0.0	0.0	0.0	10
NEB L	156321	MINK ST SW	0.0	0.0	0.0	0.0	10
NEB TR	156392	MINK ST SW	0.0	0.0	0.0	0.0	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	153286	WORTHINGTON RD	0.0	0.0	0.0	0.0	10
EB TR	153287	WORTHINGTON RD	0.0	0.0	0.0	0.0	10
WB L	153562	WORTHINGTON RD	0.0	0.0	0.0	0.0	10
WB TR	153563	WORTHINGTON RD	0.0	0.0	0.0	0.0	10

Project: Mink Corridor Proposed DDI w North
Scenario: AM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 08:00:00 - 09:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Spillback Queue by Intersection - Overview

MINK ST NW & BEAVER RD — NODE: 18

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
NEB on MINK ST NW							
1	60.0	23.6	1.2	201.8	10.0	1.2	10.0
2	60.0	18.0	0.8	165.2	9.0	0.8	9.0
3	60.0	21.5	1.0	263.7	8.0	1.0	8.0
4	60.0	39.0	1.2	1,207.7	24.0	1.2	25.0
5	60.0	32.0	1.5	291.2	17.0	1.5	17.0
6	60.0	26.0	1.3	164.8	9.0	1.3	9.0
7	60.0	18.7	1.0	225.8	9.0	1.0	9.0
8	60.0	14.0	0.8	220.8	8.0	0.8	8.0
9	60.0	17.6	1.0	204.8	19.0	1.0	19.0
10	60.0	21.9	1.3	136.1	8.0	1.3	8.0
Average:	**60.0**	**23.2**	**1.1**	**308.2**	**12.1**	**1.1**	**12.2**
NWB on BEAVER RD							
1	60.0	75.6	4.5	191.4	12.0	4.5	12.0
2	60.0	94.7	5.5	209.8	11.0	5.5	11.0
3	60.0	76.9	4.7	264.7	13.0	4.7	13.0
4	60.0	91.8	5.4	189.5	13.0	5.4	13.0
5	60.0	80.2	4.8	211.3	11.0	4.8	11.0
6	60.0	71.4	4.1	214.9	11.0	4.1	11.0
7	60.0	84.0	4.9	258.9	12.0	4.9	12.0
8	60.0	97.8	5.1	201.5	14.0	5.1	14.0
9	60.0	114.1	6.2	303.0	14.0	6.2	14.0
10	60.0	90.2	5.3	285.2	18.0	5.3	18.0
Average:	**60.0**	**87.7**	**5.1**	**233.0**	**12.9**	**5.1**	**12.9**
SWB on MINK ST NW							
1	60.0	4.0	0.2	64.5	3.0	0.2	3.0
2	60.0	4.0	0.2	42.9	3.0	0.2	3.0
3	60.0	3.4	0.2	39.9	2.0	0.2	2.0
4	60.0	2.1	0.1	38.2	1.0	0.1	1.0
5	60.0	2.8	0.2	159.0	10.0	0.2	10.0
6	60.0	3.2	0.2	56.6	2.0	0.2	2.0
7	60.0	2.4	0.2	40.8	2.0	0.2	2.0
8	60.0	1.9	0.1	62.8	3.0	0.1	3.0

MINK ST NW & BEAVER RD — NODE: 18

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
9	60.0	2.8	0.2	72.5	4.0	0.2	4.0
10	60.0	8.3	0.3	129.5	3.0	0.3	3.0
Average:	**60.0**	**3.5**	**0.2**	**70.7**	**3.3**	**0.2**	**3.3**

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
NEB on MINK ST NW							
1	60.0	21.7	1.4	107.0	9.0	1.4	9.0
2	60.0	22.4	1.1	125.5	7.0	1.1	7.0
3	60.0	11.7	0.8	102.7	7.0	0.8	7.0
4	60.0	18.3	1.1	167.2	8.0	1.1	8.0
5	60.0	23.2	1.5	125.5	9.0	1.5	9.0
6	60.0	15.3	1.1	94.2	8.0	1.1	8.0
7	60.0	22.2	1.3	149.4	11.0	1.3	11.0
8	60.0	19.3	1.3	144.9	7.0	1.3	7.0
9	60.0	20.1	1.3	152.9	11.0	1.3	11.0
10	60.0	29.6	1.8	190.8	11.0	1.8	11.0
Average:	**60.0**	**20.4**	**1.3**	**136.0**	**8.8**	**1.3**	**8.8**
SEB on CLOVER VALLEY EXT							
1	60.0	7.3	0.4	73.9	5.0	0.4	5.0
2	60.0	9.7	0.6	69.9	3.0	0.6	3.0
3	60.0	6.9	0.5	41.8	3.0	0.5	3.0
4	60.0	6.9	0.5	42.9	2.0	0.5	2.0
5	60.0	6.2	0.3	72.2	2.0	0.3	2.0
6	60.0	7.5	0.5	66.6	3.0	0.5	3.0
7	60.0	12.6	0.7	74.9	4.0	0.7	4.0
8	60.0	8.3	0.6	67.1	4.0	0.6	4.0
9	60.0	6.3	0.4	73.0	6.0	0.4	6.0
10	60.0	7.8	0.6	81.8	4.0	0.6	4.0
Average:	**60.0**	**8.0**	**0.5**	**66.4**	**3.6**	**0.5**	**3.6**
SWB on MINK ST NW							
1	60.0	85.1	5.1	248.1	14.0	5.1	14.0
2	60.0	118.1	7.0	347.6	17.0	7.0	17.0
3	60.0	91.9	5.4	276.1	16.0	5.4	16.0
4	60.0	91.1	5.4	226.4	14.0	5.4	14.0
5	60.0	74.3	4.6	247.9	14.0	4.6	14.0
6	60.0	81.5	4.7	288.6	15.0	4.7	15.0
7	60.0	86.5	5.4	242.7	14.0	5.4	14.0
8	60.0	107.5	6.4	251.9	15.0	6.4	15.0

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
9	60.0	83.1	5.1	315.2	16.0	5.1	16.0
10	60.0	69.2	4.2	291.1	13.0	4.2	13.0
Average:	**60.0**	**88.8**	**5.3**	**273.6**	**14.8**	**5.3**	**14.8**

MINK ST NW & INNOVATION WAY — NODE: 15

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
EB on INNOVATION WAY							
1	60.0	15.8	0.7	191.4	6.0	0.7	6.0
2	60.0	9.2	0.5	84.7	3.0	0.5	3.0
3	60.0	13.9	0.7	95.1	3.0	0.7	3.0
4	60.0	17.5	0.8	101.9	4.0	0.8	4.0
5	60.0	14.4	0.7	93.9	5.0	0.7	5.0
6	60.0	19.0	0.9	127.0	5.0	0.9	5.0
7	60.0	9.9	0.6	64.3	3.0	0.6	3.0
8	60.0	17.3	0.7	126.2	3.0	0.7	3.0
9	60.0	13.2	0.5	106.3	3.0	0.5	3.0
10	60.0	15.9	0.8	138.3	6.0	0.8	6.0
Average:	**60.0**	**14.6**	**0.7**	**112.9**	**4.1**	**0.7**	**4.1**
NEB on MINK ST NW							
1	60.0	21.7	1.4	203.0	18.0	1.4	18.0
2	60.0	46.8	3.4	283.0	21.0	3.4	21.0
3	60.0	42.3	2.8	286.9	22.0	2.8	22.0
4	60.0	39.9	2.6	355.8	30.0	2.6	30.0
5	60.0	23.8	1.5	229.4	18.0	1.5	18.0
6	60.0	42.1	2.6	289.3	26.0	2.6	26.0
7	60.0	15.5	1.2	220.9	19.0	1.2	19.0
8	60.0	24.5	1.7	282.1	24.0	1.7	24.0
9	60.0	22.7	1.7	279.9	21.0	1.7	21.0
10	60.0	31.7	2.0	294.6	25.0	2.0	25.0
Average:	**60.0**	**31.1**	**2.1**	**272.5**	**22.4**	**2.1**	**22.4**
SWB on MINK ST NW							
1	60.0	7.3	0.4	120.6	5.0	0.4	5.0
2	60.0	10.9	0.7	143.3	9.0	0.7	9.0
3	60.0	4.0	0.3	49.0	4.0	0.3	4.0
4	60.0	9.0	0.5	201.2	8.0	0.5	8.0
5	60.0	4.8	0.3	76.7	6.0	0.3	6.0
6	60.0	5.1	0.4	102.4	6.0	0.4	6.0
7	60.0	3.7	0.3	104.9	5.0	0.3	5.0
8	60.0	2.7	0.1	59.5	3.0	0.1	3.0

MINK ST NW & INNOVATION WAY — NODE: 15

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
9	60.0	2.7	0.2	51.1	4.0	0.2	4.0
10	60.0	10.4	0.5	116.2	4.0	0.5	4.0
Average:	**60.0**	**6.1**	**0.4**	**102.5**	**5.4**	**0.4**	**5.4**

MINK ST NW & JUG ST — NODE: 33082

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
EB on JUG ST							
1	60.0	20.4	1.3	79.2	5.0	1.3	5.0
2	60.0	22.0	1.1	132.3	5.0	1.1	5.0
3	60.0	22.9	1.3	105.6	5.0	1.3	5.0
4	60.0	21.4	1.0	130.4	6.0	1.0	6.0
5	60.0	19.2	1.0	184.3	5.0	1.0	5.0
6	60.0	23.4	1.2	103.7	6.0	1.2	6.0
7	60.0	14.3	0.9	78.6	4.0	0.9	4.0
8	60.0	24.4	1.1	142.8	4.0	1.1	4.0
9	60.0	24.8	1.3	101.8	6.0	1.3	6.0
10	60.0	25.9	1.2	134.2	6.0	1.2	6.0
Average:	**60.0**	**21.9**	**1.1**	**119.3**	**5.2**	**1.1**	**5.2**
NB on MINK ST NW							
1	60.0	2.9	0.1	57.1	3.0	0.1	3.0
2	60.0	4.0	0.3	79.0	3.0	0.3	3.0
3	60.0	2.7	0.2	72.5	3.0	0.2	3.0
4	60.0	3.0	0.2	67.5	2.0	0.2	2.0
5	60.0	1.4	0.1	18.3	2.0	0.1	2.0
6	60.0	1.5	0.1	46.8	2.0	0.1	2.0
7	60.0	1.1	0.1	53.2	3.0	0.1	3.0
8	60.0	3.9	0.3	73.2	5.0	0.3	5.0
9	60.0	1.5	0.0	92.6	2.0	0.0	2.0
10	60.0	1.3	0.1	61.7	3.0	0.1	3.0
Average:	**60.0**	**2.3**	**0.2**	**62.2**	**2.8**	**0.2**	**2.8**
SB on MINK ST NW							
1	60.0	4.1	0.2	63.3	3.0	0.2	3.0
2	60.0	1.6	0.1	78.7	5.0	0.1	5.0
3	60.0	6.1	0.3	65.6	3.0	0.3	3.0
4	60.0	3.0	0.2	47.2	2.0	0.2	2.0
5	60.0	2.9	0.2	93.7	5.0	0.2	5.0
6	60.0	4.5	0.2	92.9	3.0	0.2	3.0
7	60.0	4.4	0.2	102.7	2.0	0.2	2.0
8	60.0	5.1	0.2	101.4	3.0	0.2	3.0

MINK ST NW & JUG ST — NODE: 33082

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
9	60.0	0.0	0.0	0.0	0.0	0.0	0.0
10	60.0	1.2	0.1	42.2	4.0	0.1	4.0
Average:	**60.0**	**3.3**	**0.2**	**68.8**	**3.0**	**0.2**	**3.0**

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 34

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
NB on MINK ST NW							
1	60.0	214.6	17.2	510.6	41.0	17.2	41.0
2	60.0	253.3	19.9	507.2	40.0	19.9	40.0
3	60.0	209.8	17.1	510.7	44.0	17.1	44.0
4	60.0	218.3	17.7	479.6	43.0	17.7	43.0
5	60.0	202.0	16.3	474.8	39.0	16.3	39.0
6	60.0	189.7	15.9	464.0	42.0	15.9	42.0
7	60.0	248.9	19.6	973.6	52.0	19.6	53.0
8	60.0	230.2	18.7	527.9	47.0	18.7	47.0
9	60.0	227.1	17.6	501.8	45.0	17.6	45.0
10	60.0	217.1	17.0	484.3	41.0	17.0	41.0
Average:	**60.0**	**221.1**	**17.7**	**543.5**	**43.4**	**17.7**	**43.5**
NEB on SR 161 EB EXIT RAMP							
1	60.0	112.4	7.0	334.1	23.0	7.0	23.0
2	60.0	103.8	6.6	353.1	18.0	6.6	18.0
3	60.0	105.1	7.2	322.6	25.0	7.2	25.0
4	60.0	115.0	8.2	286.5	23.0	8.2	23.0
5	60.0	106.7	6.9	289.5	21.0	6.9	21.0
6	60.0	109.2	7.5	321.0	21.0	7.5	21.0
7	60.0	101.5	6.8	315.1	23.0	6.8	23.0
8	60.0	98.3	6.0	300.0	21.0	6.0	21.0
9	60.0	99.7	6.9	283.8	21.0	6.9	21.0
10	60.0	119.8	7.3	351.7	21.0	7.3	21.0
Average:	**60.0**	**107.2**	**7.0**	**315.7**	**21.7**	**7.0**	**21.7**
SWB on MINK ST NW							
1	60.0	1.6	0.1	17.4	2.0	0.1	2.0
2	60.0	3.0	0.2	68.2	2.0	0.2	2.0
3	60.0	4.0	0.2	64.1	2.0	0.2	2.0
4	60.0	5.3	0.3	67.3	3.0	0.3	3.0
5	60.0	3.4	0.2	64.5	2.0	0.2	2.0
6	60.0	5.5	0.4	73.9	6.0	0.4	6.0
7	60.0	4.8	0.3	75.1	3.0	0.3	3.0
8	60.0	1.6	0.1	18.9	2.0	0.1	2.0

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 34

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
9	60.0	4.4	0.2	67.1	2.0	0.2	2.0
10	60.0	2.8	0.2	20.3	3.0	0.2	3.0
Average:	**60.0**	**3.6**	**0.2**	**53.7**	**2.7**	**0.2**	**2.7**

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 38

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
NB on SR 161 WB EXIT RAMP							
1	60.0	136.8	8.1	398.1	24.0	8.1	24.0
2	60.0	98.0	6.0	338.3	20.0	6.0	20.0
3	60.0	142.6	8.7	319.7	20.0	8.7	20.0
4	60.0	142.6	8.5	408.9	20.0	8.5	20.0
5	60.0	122.8	7.5	332.5	19.0	7.5	19.0
6	60.0	141.7	8.6	357.2	20.0	8.6	20.0
7	60.0	132.6	8.3	359.4	20.0	8.3	20.0
8	60.0	124.0	7.8	380.3	19.0	7.8	19.0
9	60.0	126.7	7.8	315.5	20.0	7.8	20.0
10	60.0	134.3	7.9	327.7	20.0	7.9	20.0
Average:	**60.0**	**130.2**	**7.9**	**353.8**	**20.2**	**7.9**	**20.2**
NEB on MINK ST NW							
1	60.0	147.6	10.7	961.7	63.0	12.1	77.0
2	60.0	284.3	21.0	983.0	67.0	23.9	80.0
3	60.0	115.7	8.8	882.5	66.0	10.0	84.0
4	60.0	203.2	14.3	922.4	68.0	17.0	78.0
5	60.0	143.6	10.1	887.6	64.0	11.5	75.0
6	60.0	114.8	7.8	934.2	64.0	9.2	73.0
7	60.0	125.9	9.5	832.1	62.0	10.4	74.0
8	60.0	156.0	11.5	915.4	68.0	12.9	83.0
9	60.0	162.0	11.7	842.2	68.0	13.4	80.0
10	60.0	166.5	11.3	910.2	66.0	13.0	80.0
Average:	**60.0**	**162.0**	**11.7**	**907.1**	**65.6**	**13.3**	**78.4**
SB on MINK ST NW							
1	60.0	55.7	4.0	186.5	15.0	4.0	15.0
2	60.0	44.9	3.1	305.6	17.0	3.1	17.0
3	60.0	68.1	4.5	306.9	17.0	4.5	17.0
4	60.0	61.3	4.5	205.8	15.0	4.5	15.0
5	60.0	59.2	3.9	236.5	16.0	3.9	16.0
6	60.0	66.0	4.7	260.3	17.0	4.7	17.0
7	60.0	53.1	3.7	326.5	17.0	3.7	17.0
8	60.0	39.8	3.0	217.4	19.0	3.0	19.0

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 38

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
9	60.0	55.0	4.1	275.3	18.0	4.1	18.0
10	60.0	49.3	3.6	240.7	14.0	3.6	14.0
Average:	**60.0**	**55.2**	**3.9**	**256.2**	**16.5**	**3.9**	**16.5**

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
EB on WORTHINGTON RD							
1	60.0	35.9	1.8	157.4	6.0	1.8	6.0
2	60.0	51.7	2.3	165.9	10.0	2.3	10.0
3	60.0	41.0	1.6	228.3	6.0	1.6	6.0
4	60.0	52.6	2.3	289.3	11.0	2.3	11.0
5	60.0	36.3	1.6	148.2	5.0	1.6	5.0
6	60.0	29.3	1.5	124.7	6.0	1.5	6.0
7	60.0	44.7	1.8	252.5	8.0	1.8	8.0
8	60.0	30.6	1.4	211.5	11.0	1.4	11.0
9	60.0	35.8	1.6	171.1	7.0	1.6	7.0
10	60.0	33.0	1.6	222.5	8.0	1.6	8.0
Average:	**60.0**	**39.1**	**1.8**	**197.1**	**7.8**	**1.8**	**7.8**
NEB on MINK ST SW							
1	60.0	70.8	4.4	328.3	19.0	4.4	19.0
2	60.0	54.2	3.2	399.7	18.0	3.2	18.0
3	60.0	108.0	5.8	504.2	27.0	5.8	27.0
4	60.0	89.1	5.4	303.9	20.0	5.4	20.0
5	60.0	73.4	4.8	282.7	19.0	4.8	19.0
6	60.0	76.3	4.8	370.7	21.0	4.8	21.0
7	60.0	67.7	3.9	423.5	20.0	3.9	20.0
8	60.0	90.1	5.4	361.4	19.0	5.4	19.0
9	60.0	90.4	5.5	436.3	24.0	5.5	24.0
10	60.0	89.0	5.1	331.4	19.0	5.1	19.0
Average:	**60.0**	**80.9**	**4.8**	**374.2**	**20.6**	**4.8**	**20.6**
SWB on MINK ST NW							
1	60.0	36.7	3.2	133.4	14.0	3.2	14.0
2	60.0	39.3	2.6	183.4	12.0	2.6	12.0
3	60.0	44.0	3.1	170.5	11.0	3.1	11.0
4	60.0	42.5	3.0	198.3	14.0	3.0	14.0
5	60.0	46.2	4.0	141.6	15.0	4.0	15.0
6	60.0	44.8	3.6	196.5	13.0	3.6	13.0
7	60.0	36.6	2.9	153.7	14.0	2.9	14.0
8	60.0	45.8	3.6	220.6	13.0	3.6	13.0

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
9	60.0	49.2	3.8	217.7	17.0	3.8	17.0
10	60.0	38.8	3.1	157.6	12.0	3.1	12.0
Average:	**60.0**	**42.4**	**3.3**	**177.3**	**13.5**	**3.3**	**13.5**
WB on WORTHINGTON RD							
1	60.0	48.6	2.0	225.2	8.0	2.0	8.0
2	60.0	72.9	2.9	269.0	10.0	2.9	10.0
3	60.0	62.9	2.2	294.3	8.0	2.2	8.0
4	60.0	52.3	2.0	179.3	7.0	2.0	7.0
5	60.0	61.8	2.4	251.7	8.0	2.4	8.0
6	60.0	60.8	2.3	282.3	8.0	2.3	8.0
7	60.0	67.3	2.5	308.9	8.0	2.5	8.0
8	60.0	58.6	2.1	231.0	6.0	2.1	6.0
9	60.0	48.2	1.8	191.8	8.0	1.8	8.0
10	60.0	66.9	2.6	206.3	7.0	2.6	7.0
Average:	**60.0**	**60.0**	**2.3**	**244.0**	**7.8**	**2.3**	**7.8**

ABOUT SPILLBACK QUEUES
Spillback queues begin at the front bumper of the first vehicle in queue on a link. From there, the queue can branch as a tree in different directions as it spills upstream through intersections. The various branches of the spillback queue will extend beyond the originating link and superlink boundaries until the back of the queue is reached on every branch in the tree.

- Average/Maximum Queue Length: Distance from the front bumper of the first queued vehicle to the back bumper of the last queued vehicle for the longest branch
- Average/Maximum Vehicles Queued: Number of vehicles queued in all lanes for the longest branch

Project: Mink Corridor Proposed DDI w North
Scenario: AM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 08:00:00 - 09:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Spillback Queue by Intersection - Avg Queue

MINK ST NW & BEAVER RD — NODE: 18

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	23.2	7.5	14.0	39.0	10
NWB	BEAVER RD	87.7	12.8	71.4	114.1	10
SWB	MINK ST NW	3.5	1.8	1.9	8.3	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	20.4	4.8	11.7	29.6	10
SEB	CLOVER VALLEY EXT	8.0	1.9	6.2	12.6	10
SWB	MINK ST NW	88.8	14.6	69.2	118.1	10

MINK ST NW & INNOVATION WAY — NODE: 15

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	INNOVATION WAY	14.6	3.2	9.2	19.0	10
NEB	MINK ST NW	31.1	10.9	15.5	46.8	10
SWB	MINK ST NW	6.1	3.1	2.7	10.9	10

MINK ST NW & JUG ST — NODE: 33082

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	JUG ST	21.9	3.4	14.3	25.9	10
NB	MINK ST NW	2.3	1.1	1.1	4.0	10
SB	MINK ST NW	3.3	1.9	0.0	6.1	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 34

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB	MINK ST NW	221.1	19.6	189.7	253.3	10
NEB	SR 161 EB EXIT RAMP	107.2	7.0	98.3	119.8	10
SWB	MINK ST NW	3.6	1.4	1.6	5.5	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 38

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB	SR 161 WB EXIT RAMP	130.2	13.5	98.0	142.6	10
NEB	MINK ST NW	162.0	50.5	114.8	284.3	10
SB	MINK ST NW	55.2	8.9	39.8	68.1	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	WORTHINGTON RD	39.1	8.2	29.3	52.6	10
NEB	MINK ST SW	80.9	15.3	54.2	108.0	10
SWB	MINK ST NW	42.4	4.3	36.6	49.2	10
WB	WORTHINGTON RD	60.0	8.2	48.2	72.9	10

Project: Mink Corridor Proposed DDI w North
Scenario: AM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 08:00:00 - 09:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Spillback Queue by Intersection - Avg Num Queued

MINK ST NW & BEAVER RD — NODE: 18

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	1.1	0.2	0.8	1.5	10
NWB	BEAVER RD	5.1	0.6	4.1	6.2	10
SWB	MINK ST NW	0.2	0.1	0.1	0.3	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	1.3	0.3	0.8	1.8	10
SEB	CLOVER VALLEY EXT	0.5	0.1	0.3	0.7	10
SWB	MINK ST NW	5.3	0.8	4.2	7.0	10

MINK ST NW & INNOVATION WAY — NODE: 15

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	INNOVATION WAY	0.7	0.1	0.5	0.9	10
NEB	MINK ST NW	2.1	0.7	1.2	3.4	10
SWB	MINK ST NW	0.4	0.2	0.1	0.7	10

MINK ST NW & JUG ST — NODE: 33082

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	JUG ST	1.1	0.1	0.9	1.3	10
NB	MINK ST NW	0.2	0.1	0.0	0.3	10
SB	MINK ST NW	0.2	0.1	0.0	0.3	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 34

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB	MINK ST NW	17.7	1.3	15.9	19.9	10
NEB	SR 161 EB EXIT RAMP	7.0	0.6	6.0	8.2	10
SWB	MINK ST NW	0.2	0.1	0.1	0.4	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 38

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB	SR 161 WB EXIT RAMP	7.9	0.8	6.0	8.7	10
NEB	MINK ST NW	11.7	3.7	7.8	21.0	10
SB	MINK ST NW	3.9	0.6	3.0	4.7	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	WORTHINGTON RD	1.8	0.3	1.4	2.3	10
NEB	MINK ST SW	4.8	0.8	3.2	5.8	10
SWB	MINK ST NW	3.3	0.4	2.6	4.0	10
WB	WORTHINGTON RD	2.3	0.3	1.8	2.9	10

Project: Mink Corridor Proposed DDI w North
Scenario: AM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 08:00:00 - 09:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Spillback Queue by Intersection - Avg Total Queued

MINK ST NW & BEAVER RD — NODE: 18

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	1.1	0.2	0.8	1.5	10
NWB	BEAVER RD	5.1	0.6	4.1	6.2	10
SWB	MINK ST NW	0.2	0.1	0.1	0.3	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	1.3	0.3	0.8	1.8	10
SEB	CLOVER VALLEY EXT	0.5	0.1	0.3	0.7	10
SWB	MINK ST NW	5.3	0.8	4.2	7.0	10

MINK ST NW & INNOVATION WAY — NODE: 15

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	INNOVATION WAY	0.7	0.1	0.5	0.9	10
NEB	MINK ST NW	2.1	0.7	1.2	3.4	10
SWB	MINK ST NW	0.4	0.2	0.1	0.7	10

MINK ST NW & JUG ST — NODE: 33082

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	JUG ST	1.1	0.1	0.9	1.3	10
NB	MINK ST NW	0.2	0.1	0.0	0.3	10
SB	MINK ST NW	0.2	0.1	0.0	0.3	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 34

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB	MINK ST NW	17.7	1.3	15.9	19.9	10
NEB	SR 161 EB EXIT RAMP	7.0	0.6	6.0	8.2	10
SWB	MINK ST NW	0.2	0.1	0.1	0.4	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 38

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB	SR 161 WB EXIT RAMP	7.9	0.8	6.0	8.7	10
NEB	MINK ST NW	13.3	4.3	9.2	23.9	10
SB	MINK ST NW	3.9	0.6	3.0	4.7	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	WORTHINGTON RD	1.8	0.3	1.4	2.3	10
NEB	MINK ST SW	4.8	0.8	3.2	5.8	10
SWB	MINK ST NW	3.3	0.4	2.6	4.0	10
WB	WORTHINGTON RD	2.3	0.3	1.8	2.9	10

Project: Mink Corridor Proposed DDI w North
Scenario: AM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 08:00:00 - 09:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Spillback Queue by Intersection - Max Queue

MINK ST NW & BEAVER RD — NODE: 18

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	308.2	319.5	136.1	1,207.7	10
NWB	BEAVER RD	233.0	41.2	189.5	303.0	10
SWB	MINK ST NW	70.7	41.1	38.2	159.0	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	136.0	30.6	94.2	190.8	10
SEB	CLOVER VALLEY EXT	66.4	13.4	41.8	81.8	10
SWB	MINK ST NW	273.6	37.6	226.4	347.6	10

MINK ST NW & INNOVATION WAY — NODE: 15

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	INNOVATION WAY	112.9	35.2	64.3	191.4	10
NEB	MINK ST NW	272.5	44.1	203.0	355.8	10
SWB	MINK ST NW	102.5	47.1	49.0	201.2	10

MINK ST NW & JUG ST — NODE: 33082

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	JUG ST	119.3	32.1	78.6	184.3	10
NB	MINK ST NW	62.2	20.4	18.3	92.6	10
SB	MINK ST NW	68.8	32.4	0.0	102.7	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 34

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB	MINK ST NW	543.5	152.4	464.0	973.6	10
NEB	SR 161 EB EXIT RAMP	315.7	25.6	283.8	353.1	10
SWB	MINK ST NW	53.7	24.3	17.4	75.1	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 38

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB	SR 161 WB EXIT RAMP	353.8	32.9	315.5	408.9	10
NEB	MINK ST NW	907.1	47.9	832.1	983.0	10
SB	MINK ST NW	256.2	47.0	186.5	326.5	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	WORTHINGTON RD	197.1	51.9	124.7	289.3	10
NEB	MINK ST SW	374.2	67.7	282.7	504.2	10
SWB	MINK ST NW	177.3	30.8	133.4	220.6	10
WB	WORTHINGTON RD	244.0	44.4	179.3	308.9	10

Project: Mink Corridor Proposed DDI w North
Scenario: AM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 08:00:00 - 09:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Spillback Queue by Intersection - Max Num Queued

MINK ST NW & BEAVER RD — NODE: 18

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	12.1	5.7	8.0	24.0	10
NWB	BEAVER RD	12.9	2.1	11.0	18.0	10
SWB	MINK ST NW	3.3	2.5	1.0	10.0	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	8.8	1.7	7.0	11.0	10
SEB	CLOVER VALLEY EXT	3.6	1.3	2.0	6.0	10
SWB	MINK ST NW	14.8	1.2	13.0	17.0	10

MINK ST NW & INNOVATION WAY — NODE: 15

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	INNOVATION WAY	4.1	1.3	3.0	6.0	10
NEB	MINK ST NW	22.4	3.9	18.0	30.0	10
SWB	MINK ST NW	5.4	1.9	3.0	9.0	10

MINK ST NW & JUG ST — NODE: 33082

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	JUG ST	5.2	0.8	4.0	6.0	10
NB	MINK ST NW	2.8	0.9	2.0	5.0	10
SB	MINK ST NW	3.0	1.5	0.0	5.0	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 34

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB	MINK ST NW	43.4	3.9	39.0	52.0	10
NEB	SR 161 EB EXIT RAMP	21.7	1.9	18.0	25.0	10
SWB	MINK ST NW	2.7	1.3	2.0	6.0	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 38

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB	SR 161 WB EXIT RAMP	20.2	1.4	19.0	24.0	10
NEB	MINK ST NW	65.6	2.2	62.0	68.0	10
SB	MINK ST NW	16.5	1.5	14.0	19.0	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	WORTHINGTON RD	7.8	2.2	5.0	11.0	10
NEB	MINK ST SW	20.6	2.8	18.0	27.0	10
SWB	MINK ST NW	13.5	1.7	11.0	17.0	10
WB	WORTHINGTON RD	7.8	1.0	6.0	10.0	10

Project: Mink Corridor Proposed DDI w North
Scenario: AM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 08:00:00 - 09:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Spillback Queue by Intersection - Max Total Queued

MINK ST NW & BEAVER RD — NODE: 18

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	12.2	6.0	8.0	25.0	10
NWB	BEAVER RD	12.9	2.1	11.0	18.0	10
SWB	MINK ST NW	3.3	2.5	1.0	10.0	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	8.8	1.7	7.0	11.0	10
SEB	CLOVER VALLEY EXT	3.6	1.3	2.0	6.0	10
SWB	MINK ST NW	14.8	1.2	13.0	17.0	10

MINK ST NW & INNOVATION WAY — NODE: 15

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	INNOVATION WAY	4.1	1.3	3.0	6.0	10
NEB	MINK ST NW	22.4	3.9	18.0	30.0	10
SWB	MINK ST NW	5.4	1.9	3.0	9.0	10

MINK ST NW & JUG ST — NODE: 33082

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	JUG ST	5.2	0.8	4.0	6.0	10
NB	MINK ST NW	2.8	0.9	2.0	5.0	10
SB	MINK ST NW	3.0	1.5	0.0	5.0	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 34

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB	MINK ST NW	43.5	4.1	39.0	53.0	10
NEB	SR 161 EB EXIT RAMP	21.7	1.9	18.0	25.0	10
SWB	MINK ST NW	2.7	1.3	2.0	6.0	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 38

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB	SR 161 WB EXIT RAMP	20.2	1.4	19.0	24.0	10
NEB	MINK ST NW	78.4	3.7	73.0	84.0	10
SB	MINK ST NW	16.5	1.5	14.0	19.0	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	WORTHINGTON RD	7.8	2.2	5.0	11.0	10
NEB	MINK ST SW	20.6	2.8	18.0	27.0	10
SWB	MINK ST NW	13.5	1.7	11.0	17.0	10
WB	WORTHINGTON RD	7.8	1.0	6.0	10.0	10

Mink Street (DDI Interchange) - PM

Project: Mink Corridor Proposed DDI w North
Scenario: PM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 16:00:00 - 17:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Intersection Level of Service - Overview

MINK ST NW & BEAVER RD -- SIGNALIZED — NODE: 18

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
1	4,003.0	45.00	40.5	D
2	3,976.0	55.80	50.6	D
3	4,018.0	42.50	38.1	D
4	3,970.0	48.20	43.7	D
5	4,008.0	51.90	46.6	D
6	3,980.0	61.00	55.2	E
7	4,057.0	37.30	33.1	C
8	3,939.0	48.60	44.4	D
9	3,981.0	52.20	47.2	D
10	3,971.0	45.10	40.9	D
Average:	**3,990.3**	**48.76**	**44.0**	**D**

MINK ST NW & CLOVER VALLEY EXT -- SIGNALIZED — NODE: 7

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
1	4,003.0	62.10	55.8	E
2	3,942.0	73.00	66.6	E
3	3,990.0	57.20	51.6	D
4	3,954.0	66.00	60.1	E
5	3,983.0	60.50	54.7	D
6	3,979.0	67.80	61.4	E
7	3,997.0	55.10	49.6	D
8	3,921.0	75.40	69.3	E
9	3,985.0	63.00	56.9	E
10	3,954.0	72.00	65.5	E
Average:	**3,970.8**	**65.21**	**59.2**	**E**

MINK ST NW & INNOVATION WAY -- SIGNALIZED — NODE: 15

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
1	4,876.0	50.20	37.1	D
2	4,865.0	50.90	37.7	D
3	4,892.0	46.80	34.5	C
4	4,847.0	47.80	35.5	D
5	4,882.0	45.50	33.5	C
6	4,847.0	46.60	34.6	C
7	4,919.0	47.10	34.5	C
8	4,831.0	47.70	35.6	D

9	4,856.0	47.00	34.9	C
10	4,854.0	48.10	35.6	D
Average:	**4,866.9**	**47.77**	**35.3**	**D**

MINK ST NW & JUG ST -- SIGNALIZED — NODE: 33082

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
1	1,295.0	4.00	11.1	B
2	1,305.0	3.90	10.9	B
3	1,305.0	3.90	10.7	B
4	1,281.0	4.00	11.3	B
5	1,275.0	3.60	10.2	B
6	1,312.0	3.40	9.3	A
7	1,293.0	4.10	11.4	B
8	1,279.0	4.50	12.8	B
9	1,290.0	3.80	10.7	B
10	1,278.0	4.40	12.3	B
Average:	**1,291.3**	**3.96**	**11.1**	**B**

MINK ST NW & SR 161 EB EXIT RAMP -- SIGNALIZED — NODE: 34

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
1	3,258.0	14.30	15.8	B
2	3,249.0	14.60	16.2	B
3	3,245.0	14.00	15.5	B
4	3,259.0	14.80	16.4	B
5	3,255.0	14.10	15.6	B
6	3,252.0	14.60	16.2	B
7	3,270.0	14.30	15.7	B
8	3,212.0	13.30	14.9	B
9	3,261.0	14.30	15.8	B
10	3,258.0	13.90	15.4	B
Average:	**3,251.9**	**14.22**	**15.7**	**B**

MINK ST NW & SR 161 WB EXIT RAMP -- SIGNALIZED — NODE: 38

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
1	3,725.0	41.60	40.2	D
2	3,711.0	40.40	39.2	D
3	3,713.0	41.10	39.8	D
4	3,723.0	41.00	39.6	D
5	3,719.0	40.90	39.6	D
6	3,704.0	40.50	39.3	D
7	3,736.0	41.00	39.5	D
8	3,688.0	40.40	39.5	D
9	3,709.0	40.60	39.4	D
10	3,718.0	40.20	39.0	D
Average:	**3,714.6**	**40.77**	**39.5**	**D**

WORTHINGTON RD, MINK ST NW & MINK ST SW -- SIGNALIZED NODE: 32764

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
1	3,149.0	13.00	14.9	B
2	3,131.0	11.30	13.0	B
3	3,136.0	11.50	13.2	B
4	3,156.0	12.60	14.4	B
5	3,119.0	12.10	14.0	B
6	3,132.0	11.70	13.5	B
7	3,140.0	12.60	14.4	B
8	3,111.0	12.00	13.9	B
9	3,151.0	11.90	13.6	B
10	3,136.0	11.40	13.1	B
Average:	**3,136.1**	**12.01**	**13.8**	**B**

Project: Mink Corridor Proposed DDI w North
Scenario: PM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 16:00:00 - 17:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Intersection Level of Service - Total Control Delay

Node ID	Intersection	Control Type	Average	Std Dev	Minimum	Maximum	# Samples
18	MINK ST NW & BEAVER RD	Actuated	48.8	6.8	37.3	61.0	10
7	MINK ST NW & CLOVER VALLEY EXT	Actuated	65.2	6.8	55.1	75.4	10
15	MINK ST NW & INNOVATION WAY	Actuated	47.8	1.6	45.5	50.9	10
33082	MINK ST NW & JUG ST	Actuated	4.0	0.3	3.4	4.5	10
34	MINK ST NW & SR 161 EB EXIT RAMP	Actuated	14.2	0.4	13.3	14.8	10
38	MINK ST NW & SR 161 WB EXIT RAMP	Actuated	40.8	0.4	40.2	41.6	10
32764	WORTHINGTON RD, MINK ST NW & MINK ST SW	Actuated	12.0	0.6	11.3	13.0	10

Project: Mink Corridor Proposed DDI w North
Scenario: PM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 16:00:00 - 17:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Intersection Level of Service - Avg Control Delay

Node ID	Intersection	Control Type	Average	Std Dev	Minimum	Maximum	# Samples
18	MINK ST NW & BEAVER RD	Actuated	44.0	6.3	33.1	55.2	10
7	MINK ST NW & CLOVER VALLEY EXT	Actuated	59.2	6.6	49.6	69.3	10
15	MINK ST NW & INNOVATION WAY	Actuated	35.3	1.3	33.5	37.7	10
33082	MINK ST NW & JUG ST	Actuated	11.1	1.0	9.3	12.8	10
34	MINK ST NW & SR 161 EB EXIT RAMP	Actuated	15.7	0.4	14.9	16.4	10
38	MINK ST NW & SR 161 WB EXIT RAMP	Actuated	39.5	0.3	39.0	40.2	10
32764	WORTHINGTON RD, MINK ST NW & MINK ST SW	Actuated	13.8	0.6	13.0	14.9	10

Project: Mink Corridor Proposed DDI w North
Scenario: PM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 16:00:00 - 17:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Intersection Level of Service by Approach - Overview

MINK ST NW & BEAVER RD -- SIGNALIZED — NODE: 18

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
NEB on MINK ST NW: Superlink ID 61211				
1	1,027.0	1.20	4.3	A
2	1,031.0	1.20	4.3	A
3	1,028.0	1.30	4.6	A
4	1,025.0	1.40	5.0	A
5	1,032.0	1.20	4.2	A
6	1,026.0	1.40	5.0	A
7	1,041.0	1.40	5.0	A
8	1,022.0	1.60	5.5	A
9	1,040.0	1.60	5.4	A
10	1,021.0	1.50	5.1	A
Average:	**1,029.3**	**1.38**	**4.8**	**A**
NWB on BEAVER RD: Superlink ID 61210				
1	757.0	25.70	122.3	F
2	751.0	35.30	169.2	F
3	772.0	22.60	105.3	F
4	762.0	28.20	133.1	F
5	757.0	32.80	156.1	F
6	755.0	41.00	195.3	F
7	805.0	16.70	74.7	E
8	734.0	28.90	141.6	F
9	731.0	31.60	155.4	F
10	761.0	24.00	113.6	F
Average:	**758.5**	**28.68**	**136.7**	**F**
SWB on MINK ST NW: Superlink ID 61213				
1	2,219.0	18.10	29.3	C
2	2,194.0	19.30	31.7	C
3	2,218.0	18.60	30.2	C
4	2,183.0	18.60	30.6	C
5	2,219.0	17.80	28.9	C
6	2,199.0	18.60	30.5	C
7	2,211.0	19.20	31.2	C
8	2,183.0	18.10	29.9	C
9	2,210.0	19.10	31.1	C

MINK ST NW & BEAVER RD -- SIGNALIZED — NODE: 18

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
10	2,189.0	19.60	32.2	C
Average:	**2,202.5**	**18.70**	**30.6**	**C**

MINK ST NW & CLOVER VALLEY EXT -- SIGNALIZED — NODE: 7

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
NEB on MINK ST NW: Superlink ID 61213				
1	868.0	0.90	3.6	A
2	868.0	1.00	4.2	A
3	872.0	0.80	3.2	A
4	864.0	0.90	3.6	A
5	872.0	0.80	3.3	A
6	868.0	0.80	3.4	A
7	883.0	0.90	3.8	A
8	853.0	0.70	3.1	A
9	877.0	0.90	3.6	A
10	870.0	0.90	3.6	A
Average:	**869.5**	**0.86**	**3.5**	**A**
SEB on CLOVER VALLEY EXT: Superlink ID 61212				
1	1,180.0	10.00	30.4	C
2	1,152.0	10.10	31.6	C
3	1,160.0	9.10	28.3	C
4	1,143.0	9.60	30.3	C
5	1,177.0	10.80	32.9	C
6	1,153.0	10.40	32.6	C
7	1,150.0	10.50	32.9	C
8	1,149.0	10.40	32.6	C
9	1,181.0	10.20	31.1	C
10	1,166.0	10.00	30.8	C
Average:	**1,161.1**	**10.11**	**31.3**	**C**
SWB on MINK ST NW: Superlink ID 29573				
1	1,955.0	51.20	94.3	F
2	1,922.0	61.90	115.9	F
3	1,958.0	47.30	87.0	F
4	1,947.0	55.50	102.7	F
5	1,934.0	48.90	91.1	F
6	1,958.0	56.60	104.0	F
7	1,964.0	43.60	80.0	E
8	1,919.0	64.30	120.6	F
9	1,927.0	51.90	97.0	F
10	1,918.0	61.10	114.7	F
Average:	**1,940.2**	**54.23**	**100.7**	**F**

MINK ST NW & INNOVATION WAY -- SIGNALIZED — NODE: 15

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
EB on INNOVATION WAY: Superlink ID 61207				
1	128.0	5.50	153.5	F
2	131.0	2.20	60.8	E
3	130.0	2.10	59.5	E
4	123.0	2.10	61.4	E
5	130.0	2.10	58.1	E
6	124.0	2.50	72.5	E
7	119.0	2.40	73.8	E
8	129.0	2.30	63.7	E
9	128.0	2.50	70.0	E
10	120.0	1.70	52.2	D
Average:	**126.2**	**2.54**	**72.6**	**E**
NEB on MINK ST NW: Superlink ID 61252				
1	1,846.0	1.70	3.2	A
2	1,852.0	1.60	3.1	A
3	1,830.0	1.50	3.1	A
4	1,840.0	1.70	3.4	A
5	1,839.0	1.90	3.7	A
6	1,836.0	1.80	3.5	A
7	1,865.0	1.90	3.6	A
8	1,841.0	1.70	3.3	A
9	1,866.0	1.80	3.5	A
10	1,842.0	1.60	3.2	A
Average:	**1,845.7**	**1.72**	**3.4**	**A**
SWB on MINK ST NW: Superlink ID 61211				
1	2,902.0	43.10	53.5	D
2	2,882.0	47.10	58.8	E
3	2,932.0	43.10	53.0	D
4	2,884.0	43.90	54.8	D
5	2,913.0	41.50	51.3	D
6	2,887.0	42.30	52.8	D
7	2,935.0	42.80	52.5	D
8	2,861.0	43.80	55.1	E
9	2,862.0	42.70	53.7	D
10	2,892.0	44.70	55.6	E
Average:	**2,895.0**	**43.50**	**54.1**	**D**

MINK ST NW & JUG ST -- SIGNALIZED — NODE: 33082

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
EB on JUG ST: Superlink ID 29977				
1	83.0	1.50	64.1	E
2	97.0	1.30	48.4	D

MINK ST NW & JUG ST -- SIGNALIZED — NODE: 33082

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
3	85.0	1.10	45.5	D
4	96.0	1.50	57.0	E
5	84.0	1.30	57.7	E
6	94.0	1.50	58.1	E
7	89.0	1.20	50.2	D
8	89.0	1.50	59.9	E
9	84.0	1.10	47.1	D
10	87.0	1.20	49.7	D
Average:	**88.8**	**1.32**	**53.8**	**D**
SB on MINK ST NW: Superlink ID 29606				
1	1,212.0	2.50	7.5	A
2	1,208.0	2.60	7.9	A
3	1,220.0	2.80	8.3	A
4	1,185.0	2.50	7.6	A
5	1,191.0	2.30	6.9	A
6	1,218.0	1.90	5.6	A
7	1,204.0	2.90	8.6	A
8	1,190.0	3.10	9.3	A
9	1,206.0	2.70	8.2	A
10	1,191.0	3.20	9.6	A
Average:	**1,202.5**	**2.65**	**7.9**	**A**

MINK ST NW & SR 161 EB EXIT RAMP -- SIGNALIZED — NODE: 34

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
NB on MINK ST NW: Superlink ID 61231				
1	1,121.0	10.80	34.8	C
2	1,136.0	11.30	36.0	D
3	1,123.0	10.90	34.9	C
4	1,127.0	11.10	35.5	D
5	1,130.0	10.90	34.9	C
6	1,138.0	11.50	36.3	D
7	1,154.0	11.30	35.4	D
8	1,119.0	10.30	33.2	C
9	1,152.0	11.40	35.5	D
10	1,139.0	10.90	34.5	C
Average:	**1,133.9**	**11.04**	**35.1**	**D**
NEB on SR 161 EB EXIT RAMP: Superlink ID 61228				
1	731.0	2.00	9.8	A
2	720.0	2.00	10.0	B
3	721.0	2.00	10.0	B
4	716.0	2.00	10.0	A
5	725.0	2.00	9.8	A

MINK ST NW & SR 161 EB EXIT RAMP -- SIGNALIZED — NODE: 34

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
6	723.0	2.10	10.3	B
7	720.0	2.10	10.4	B
8	718.0	1.90	9.5	A
9	715.0	2.00	10.0	B
10	721.0	1.90	9.4	A
Average:	**721.0**	**2.00**	**9.9**	**A**
SWB on MINK ST NW: Superlink ID 61240				
1	1,406.0	1.50	3.8	A
2	1,393.0	1.30	3.3	A
3	1,401.0	1.10	2.9	A
4	1,416.0	1.70	4.3	A
5	1,400.0	1.10	2.9	A
6	1,391.0	1.10	2.9	A
7	1,396.0	0.90	2.2	A
8	1,375.0	1.10	2.8	A
9	1,394.0	1.00	2.5	A
10	1,398.0	1.10	2.9	A
Average:	**1,397.0**	**1.19**	**3.0**	**A**

MINK ST NW & SR 161 WB EXIT RAMP -- SIGNALIZED — NODE: 38

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
NB on SR 161 WB EXIT RAMP: Superlink ID 61251				
1	78.0	0.40	18.0	B
2	79.0	0.40	16.6	B
3	76.0	0.50	23.7	C
4	77.0	0.40	20.2	C
5	75.0	0.40	18.3	B
6	74.0	0.50	23.1	C
7	81.0	0.40	18.7	B
8	81.0	0.40	19.4	B
9	77.0	0.30	16.3	B
10	74.0	0.40	20.6	C
Average:	**77.2**	**0.41**	**19.5**	**B**
NEB on MINK ST NW: Superlink ID 61248				
1	1,776.0	13.90	28.2	C
2	1,779.0	13.50	27.4	C
3	1,771.0	13.60	27.6	C
4	1,774.0	14.00	28.3	C
5	1,782.0	13.80	27.8	C
6	1,778.0	14.10	28.5	C
7	1,795.0	13.70	27.5	C
8	1,768.0	13.70	27.8	C

MINK ST NW & SR 161 WB EXIT RAMP -- SIGNALIZED — NODE: 38

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
9	1,784.0	14.10	28.4	C
10	1,785.0	13.00	26.2	C
Average:	**1,779.2**	**13.74**	**27.8**	**C**
SB on MINK ST NW: Superlink ID 61250				
1	1,871.0	27.30	52.5	D
2	1,853.0	26.50	51.5	D
3	1,866.0	27.00	52.1	D
4	1,872.0	26.60	51.1	D
5	1,862.0	26.80	51.7	D
6	1,852.0	25.90	50.4	D
7	1,860.0	26.80	52.0	D
8	1,839.0	26.30	51.5	D
9	1,848.0	26.20	51.1	D
10	1,859.0	26.90	52.0	D
Average:	**1,858.2**	**26.63**	**51.6**	**D**

WORTHINGTON RD, MINK ST NW & MINK ST SW -- SIGNALIZED — NODE: 32764

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
EB on WORTHINGTON RD: Superlink ID 29557				
1	341.0	5.30	55.6	E
2	327.0	4.50	49.0	D
3	332.0	4.80	52.2	D
4	345.0	5.00	52.2	D
5	323.0	4.90	54.4	D
6	332.0	4.50	49.3	D
7	333.0	4.80	51.9	D
8	334.0	5.00	53.6	D
9	339.0	4.70	50.0	D
10	331.0	4.70	50.6	D
Average:	**333.7**	**4.82**	**51.9**	**D**
NEB on MINK ST SW: Superlink ID 24528				
1	1,044.0	4.10	14.3	B
2	1,049.0	3.80	13.0	B
3	1,051.0	3.80	12.9	B
4	1,042.0	4.30	14.9	B
5	1,041.0	4.20	14.6	B
6	1,047.0	4.20	14.5	B
7	1,047.0	4.20	14.3	B
8	1,048.0	4.10	14.2	B
9	1,048.0	4.30	14.6	B

WORTHINGTON RD, MINK ST NW & MINK ST SW -- SIGNALIZED NODE: 32764

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
10	1,048.0	4.00	13.6	B
Average:	**1,046.5**	**4.10**	**14.1**	**B**

SWB on MINK ST NW: Superlink ID 61229

1	1,630.0	1.40	3.0	A
2	1,624.0	1.50	3.4	A
3	1,622.0	1.20	2.6	A
4	1,635.0	1.40	3.2	A
5	1,624.0	1.40	3.1	A
6	1,621.0	1.20	2.7	A
7	1,626.0	1.10	2.4	A
8	1,600.0	1.20	2.7	A
9	1,630.0	1.40	3.0	A
10	1,630.0	1.30	2.9	A
Average:	**1,624.2**	**1.31**	**2.9**	**A**

WB on WORTHINGTON RD: Superlink ID 29572

1	134.0	2.30	61.2	E
2	131.0	1.60	42.8	D
3	131.0	1.70	47.9	D
4	134.0	1.90	50.1	D
5	131.0	1.60	44.3	D
6	132.0	1.80	47.9	D
7	134.0	2.50	67.2	E
8	129.0	1.80	48.9	D
9	134.0	1.60	42.0	D
10	127.0	1.50	43.0	D
Average:	**131.7**	**1.83**	**49.5**	**D**

Project: Mink Corridor Proposed DDI w North
Scenario: PM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 16:00:00 - 17:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Intersection Level of Service by Approach - Total Control Delay

MINK ST NW & BEAVER RD — NODE: 18

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
NEB	MINK ST NW	61211	1.4	0.2	1.2	1.6	10
NWB	BEAVER RD	61210	28.7	6.9	16.7	41.0	10
SWB	MINK ST NW	61213	18.7	0.6	17.8	19.6	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
NEB	MINK ST NW	61213	0.9	0.1	0.7	1.0	10
SEB	CLOVER VALLEY EXT	61212	10.1	0.5	9.1	10.8	10
SWB	MINK ST NW	29573	54.2	6.8	43.6	64.3	10

MINK ST NW & INNOVATION WAY — NODE: 15

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
EB	INNOVATION WAY	61207	2.5	1.1	1.7	5.5	10
NEB	MINK ST NW	61252	1.7	0.1	1.5	1.9	10
SWB	MINK ST NW	61211	43.5	1.5	41.5	47.1	10

MINK ST NW & JUG ST — NODE: 33082

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
EB	JUG ST	29977	1.3	0.2	1.1	1.5	10
SB	MINK ST NW	29606	2.7	0.4	1.9	3.2	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 34

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
NB	MINK ST NW	61231	11.0	0.4	10.3	11.5	10
NEB	SR 161 EB EXIT RAMP	61228	2.0	0.1	1.9	2.1	10
SWB	MINK ST NW	61240	1.2	0.2	0.9	1.7	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 38

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
NB	SR 161 WB EXIT RAMP	61251	0.4	0.1	0.3	0.5	10
NEB	MINK ST NW	61248	13.7	0.3	13.0	14.1	10
SB	MINK ST NW	61250	26.6	0.4	25.9	27.3	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
EB	WORTHINGTON RD	29557	4.8	0.2	4.5	5.3	10
NEB	MINK ST SW	24528	4.1	0.2	3.8	4.3	10
SWB	MINK ST NW	61229	1.3	0.1	1.1	1.5	10
WB	WORTHINGTON RD	29572	1.8	0.3	1.5	2.5	10

Project: Mink Corridor Proposed DDI w North
Scenario: PM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 16:00:00 - 17:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Intersection Level of Service by Approach - Avg Control Delay

MINK ST NW & BEAVER RD — NODE: 18

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
NEB	MINK ST NW	61211	4.8	0.5	4.2	5.5	10
NWB	BEAVER RD	61210	136.7	34.7	74.7	195.3	10
SWB	MINK ST NW	61213	30.6	1.0	28.9	32.2	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
NEB	MINK ST NW	61213	3.5	0.3	3.1	4.2	10
SEB	CLOVER VALLEY EXT	61212	31.3	1.5	28.3	32.9	10
SWB	MINK ST NW	29573	100.7	13.3	80.0	120.6	10

MINK ST NW & INNOVATION WAY — NODE: 15

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
EB	INNOVATION WAY	61207	72.6	29.2	52.2	153.5	10
NEB	MINK ST NW	61252	3.4	0.2	3.1	3.7	10
SWB	MINK ST NW	61211	54.1	2.1	51.3	58.8	10

MINK ST NW & JUG ST — NODE: 33082

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
EB	JUG ST	29977	53.8	6.3	45.5	64.1	10
SB	MINK ST NW	29606	7.9	1.2	5.6	9.6	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 34

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
NB	MINK ST NW	61231	35.1	0.9	33.2	36.3	10
NEB	SR 161 EB EXIT RAMP	61228	9.9	0.3	9.4	10.4	10
SWB	MINK ST NW	61240	3.0	0.6	2.2	4.3	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 38

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
NB	SR 161 WB EXIT RAMP	61251	19.5	2.5	16.3	23.7	10
NEB	MINK ST NW	61248	27.8	0.7	26.2	28.5	10
SB	MINK ST NW	61250	51.6	0.6	50.4	52.5	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
EB	WORTHINGTON RD	29557	51.9	2.2	49.0	55.6	10
NEB	MINK ST SW	24528	14.1	0.7	12.9	14.9	10
SWB	MINK ST NW	61229	2.9	0.3	2.4	3.4	10
WB	WORTHINGTON RD	29572	49.5	8.3	42.0	67.2	10

Project: Mink Corridor Proposed DDI w North
Scenario: PM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 16:00:00 - 17:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Lane Queue by Intersection - Overview

MINK ST NW & BEAVER RD — NODE: 18

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NEB R on MINK ST NW - Lane ID 156492						
1	120.0	0.8	0.0	0.0	0.0	0.0%
2	120.0	0.6	0.0	0.0	0.0	0.0%
3	120.0	0.1	0.0	0.0	0.0	0.0%
4	120.0	0.4	0.0	0.0	0.0	0.0%
5	120.0	0.7	0.0	0.0	0.0	0.0%
6	120.0	0.3	0.0	0.0	0.0	0.0%
7	120.0	0.4	0.0	0.0	0.0	0.0%
8	120.0	0.1	0.0	0.0	0.0	0.0%
9	120.0	0.7	0.0	0.0	0.0	0.0%
10	120.0	0.0	0.0	0.0	0.0	0.0%
Average:	**120.0**	**0.4**	**0.0**	**0.0**	**0.0**	**0.0%**
NEB T on MINK ST NW - Lane ID 156469						
1	120.0	9.8	0.4	68.1	3.0	0.0%
2	120.0	11.2	0.5	45.8	2.0	0.0%
3	120.0	11.7	0.5	64.8	2.0	0.0%
4	120.0	15.2	0.6	83.5	3.0	0.0%
5	120.0	11.1	0.4	95.3	2.0	0.0%
6	120.0	15.6	0.7	81.2	3.0	0.0%
7	120.0	13.5	0.6	70.1	3.0	0.0%
8	120.0	13.4	0.6	91.1	3.0	0.0%
9	120.0	14.5	0.6	86.9	3.0	0.0%
10	120.0	17.2	0.7	96.8	3.0	0.0%
Average:	**120.0**	**13.3**	**0.6**	**78.4**	**2.7**	**0.0%**
NEB T on MINK ST NW - Lane ID 156470						
1	120.0	13.1	0.6	92.4	3.0	0.0%
2	120.0	13.3	0.5	76.9	3.0	0.0%
3	120.0	17.9	0.6	97.9	3.0	0.0%
4	120.0	18.5	0.7	90.7	4.0	0.0%
5	120.0	14.8	0.6	91.5	4.0	0.0%
6	120.0	15.6	0.6	80.0	3.0	0.0%
7	120.0	17.3	0.7	102.8	4.0	0.0%
8	120.0	16.8	0.7	95.1	3.0	0.0%
9	120.0	16.9	0.7	91.1	3.0	0.0%

MINK ST NW & BEAVER RD — NODE: 18

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NEB T on MINK ST NW - Lane ID 156470						
10	120.0	16.2	0.7	99.6	3.0	0.0%
Average:	**120.0**	**16.0**	**0.6**	**91.8**	**3.3**	**0.0%**
NWB L on BEAVER RD - Lane ID 156456						
1	120.0	308.1	10.9	1,015.4	36.1	0.0%
2	120.0	418.4	12.9	1,106.5	37.0	0.0%
3	120.0	243.1	8.3	917.9	31.1	0.0%
4	120.0	348.7	11.6	897.5	32.0	0.0%
5	120.0	366.7	12.1	1,100.8	34.1	0.0%
6	120.0	509.9	16.2	1,344.9	42.1	0.0%
7	120.0	186.4	6.2	481.9	16.0	0.0%
8	120.0	362.8	12.2	1,154.7	41.0	0.0%
9	120.0	384.8	12.2	1,141.5	37.1	0.0%
10	120.0	291.6	9.5	845.6	28.1	0.0%
Average:	**120.0**	**342.1**	**11.2**	**1,000.7**	**33.5**	**0.0%**
NWB LR on BEAVER RD - Lane ID 156457						
1	120.0	266.1	9.2	969.8	33.1	0.0%
2	120.0	354.2	11.4	1,130.5	36.0	0.0%
3	120.0	240.2	8.0	895.1	31.0	0.0%
4	120.0	289.7	9.2	885.0	28.1	0.0%
5	120.0	333.8	10.8	1,074.8	35.1	0.0%
6	120.0	392.8	12.9	1,160.0	39.0	0.0%
7	120.0	170.7	5.8	507.1	18.0	0.0%
8	120.0	306.1	10.0	1,082.3	35.1	0.0%
9	120.0	350.9	11.4	1,166.7	39.0	0.0%
10	120.0	238.4	8.2	771.9	27.0	0.0%
Average:	**120.0**	**294.3**	**9.7**	**964.3**	**32.1**	**0.0%**
SWB L on MINK ST NW - Lane ID 156233						
1	120.0	0.5	0.1	0.0	1.0	0.0%
2	120.0	1.3	0.1	0.0	0.0	0.0%
3	120.0	0.4	0.1	0.0	0.0	0.0%
4	120.0	0.3	0.0	0.0	0.0	0.0%
5	120.0	1.0	0.1	0.0	1.0	0.0%
6	120.0	0.6	0.1	0.0	1.0	0.0%
7	120.0	0.4	0.1	0.0	0.0	0.0%
8	120.0	0.2	0.0	0.0	0.0	0.0%
9	120.0	0.3	0.1	0.0	1.0	0.0%
10	120.0	1.4	0.1	10.4	1.0	0.0%
Average:	**120.0**	**0.6**	**0.1**	**1.0**	**0.5**	**0.0%**

MINK ST NW & BEAVER RD — NODE: 18

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
SWB T on MINK ST NW - Lane ID 156234						
1	120.0	115.5	3.7	618.3	20.0	2.5%
2	120.0	155.7	5.1	640.9	20.1	4.2%
3	120.0	137.4	4.4	711.2	21.0	5.8%
4	120.0	161.8	5.4	699.8	22.0	5.0%
5	120.0	149.2	4.9	687.4	22.0	3.3%
6	120.0	161.3	5.4	643.7	23.0	4.2%
7	120.0	164.2	5.4	713.1	22.0	5.8%
8	120.0	141.8	4.5	677.5	22.0	4.2%
9	120.0	165.5	5.6	657.9	22.0	2.5%
10	120.0	167.2	5.3	703.2	22.0	4.2%
Average:	**120.0**	**152.0**	**5.0**	**675.3**	**21.6**	**4.2%**
SWB T on MINK ST NW - Lane ID 156235						
1	120.0	64.4	2.2	255.7	10.0	0.8%
2	120.0	83.0	2.9	349.7	10.1	0.8%
3	120.0	73.1	2.6	285.6	10.0	0.8%
4	120.0	103.8	3.5	444.3	14.0	1.7%
5	120.0	67.1	2.3	285.6	10.0	0.0%
6	120.0	87.1	2.9	337.2	10.1	0.8%
7	120.0	86.3	2.9	349.9	13.0	1.7%
8	120.0	74.3	2.6	405.8	13.0	1.7%
9	120.0	78.5	2.7	293.6	11.0	0.8%
10	120.0	98.0	3.3	505.5	14.1	1.7%
Average:	**120.0**	**81.6**	**2.8**	**351.3**	**11.5**	**1.1%**
SWB T on MINK ST NW - Lane ID 156499						
1	120.0	55.4	1.9	281.7	8.1	0.0%
2	120.0	75.5	2.6	330.5	10.1	0.0%
3	120.0	60.9	2.2	260.0	10.0	0.8%
4	120.0	80.9	2.7	298.3	10.0	0.0%
5	120.0	80.5	2.8	367.5	13.0	0.8%
6	120.0	70.9	2.4	286.5	10.0	0.8%
7	120.0	73.4	2.6	301.4	11.1	0.0%
8	120.0	60.8	2.0	261.0	8.0	0.0%
9	120.0	78.8	2.7	323.7	12.0	0.8%
10	120.0	79.0	2.7	299.9	11.1	0.0%
Average:	**120.0**	**71.6**	**2.5**	**301.1**	**10.3**	**0.3%**

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NB L on MINK ST NW - Lane ID 156247						
1	120.0	13.7	0.7	69.3	3.0	0.0%

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NB L on MINK ST NW - Lane ID 156247						
2	120.0	22.4	1.0	146.6	5.0	0.0%
3	120.0	14.7	0.8	76.6	3.0	0.0%
4	120.0	14.3	0.7	76.9	3.0	0.0%
5	120.0	16.8	0.9	70.5	3.0	0.0%
6	120.0	19.2	0.9	85.6	3.0	0.0%
7	120.0	18.7	0.8	99.8	4.0	0.0%
8	120.0	16.5	0.8	94.9	4.0	0.0%
9	120.0	10.0	0.6	61.9	3.0	0.0%
10	120.0	22.3	1.0	102.7	3.0	0.0%
Average:	**120.0**	**16.9**	**0.8**	**88.5**	**3.4**	**0.0%**
NB T on MINK ST NW - Lane ID 153566						
1	120.0	1.3	0.1	0.7	0.0	0.0%
2	120.0	7.6	0.2	48.3	2.0	0.0%
3	120.0	3.6	0.1	15.6	1.0	0.0%
4	120.0	7.7	0.3	54.1	2.0	0.0%
5	120.0	5.1	0.2	43.3	2.0	0.0%
6	120.0	6.5	0.2	49.4	2.0	0.0%
7	120.0	6.6	0.3	47.7	2.0	0.0%
8	120.0	6.2	0.3	46.7	2.0	0.0%
9	120.0	4.5	0.2	40.6	1.0	0.0%
10	120.0	8.2	0.3	74.5	2.0	0.0%
Average:	**120.0**	**5.7**	**0.2**	**42.1**	**1.6**	**0.0%**
NB T on MINK ST NW - Lane ID 156220						
1	120.0	2.3	0.1	0.0	0.0	0.0%
2	120.0	6.6	0.3	44.2	2.0	0.0%
3	120.0	5.0	0.2	18.6	1.0	0.0%
4	120.0	8.9	0.3	70.2	3.0	0.0%
5	120.0	5.2	0.2	49.0	2.0	0.0%
6	120.0	8.5	0.3	69.6	3.0	0.0%
7	120.0	7.3	0.3	66.4	2.0	0.0%
8	120.0	5.7	0.2	43.3	2.0	0.0%
9	120.0	5.5	0.2	20.0	1.0	0.0%
10	120.0	6.7	0.3	69.4	3.0	0.0%
Average:	**120.0**	**6.2**	**0.2**	**45.1**	**1.9**	**0.0%**
NEB L on MINK ST NW - Lane ID 156226						
1	120.0	10.3	0.4	54.6	1.0	0.0%
2	120.0	4.7	0.3	17.9	1.0	0.0%
3	120.0	4.4	0.3	18.3	1.0	0.0%
4	120.0	6.6	0.3	41.6	1.0	0.0%
5	120.0	8.3	0.3	62.3	1.0	0.0%

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NEB L on MINK ST NW - Lane ID 156226						
6	120.0	3.5	0.2	19.9	1.0	0.0%
7	120.0	8.1	0.4	40.8	2.0	0.0%
8	120.0	3.9	0.2	19.2	1.0	0.0%
9	120.0	6.0	0.3	45.3	2.0	0.0%
10	120.0	4.8	0.2	18.0	1.0	0.0%
Average:	**120.0**	**6.1**	**0.3**	**33.8**	**1.2**	**0.0%**
NEB L on MINK ST NW - Lane ID 156498						
1	120.0	3.6	0.2	17.7	1.0	0.0%
2	120.0	9.1	0.4	42.9	2.0	0.0%
3	120.0	5.3	0.2	20.1	1.0	0.0%
4	120.0	6.5	0.3	41.7	1.0	0.0%
5	120.0	5.4	0.2	37.6	1.0	0.0%
6	120.0	6.0	0.3	42.1	1.0	0.0%
7	120.0	7.0	0.4	43.9	2.0	0.0%
8	120.0	4.2	0.2	19.8	1.0	0.0%
9	120.0	5.9	0.3	40.3	1.0	0.0%
10	120.0	4.8	0.3	18.0	1.0	0.0%
Average:	**120.0**	**5.8**	**0.3**	**32.4**	**1.2**	**0.0%**
NEB T on MINK ST NW - Lane ID 156227						
1	120.0	0.9	0.1	0.0	0.0	0.0%
2	120.0	0.4	0.0	0.0	0.0	0.0%
3	120.0	1.2	0.0	0.0	0.0	0.0%
4	120.0	1.6	0.1	0.0	0.0	0.0%
5	120.0	2.2	0.1	0.7	0.0	0.0%
6	120.0	1.4	0.1	0.8	0.0	0.0%
7	120.0	1.5	0.1	0.7	0.0	0.0%
8	120.0	1.2	0.1	0.7	0.0	0.0%
9	120.0	4.0	0.2	22.4	1.0	0.0%
10	120.0	1.3	0.1	0.7	0.0	0.0%
Average:	**120.0**	**1.6**	**0.1**	**2.6**	**0.1**	**0.0%**
NEB T on MINK ST NW - Lane ID 156482						
1	120.0	0.9	0.1	0.0	0.0	0.0%
2	120.0	2.3	0.1	15.2	1.0	0.0%
3	120.0	2.7	0.1	14.3	1.0	0.0%
4	120.0	2.8	0.1	13.8	1.0	0.0%
5	120.0	1.5	0.1	15.5	1.0	0.0%
6	120.0	2.0	0.1	16.6	1.0	0.0%
7	120.0	0.9	0.1	0.0	0.0	0.0%
8	120.0	1.9	0.1	15.0	1.0	0.0%
9	120.0	3.3	0.2	18.4	1.0	0.0%

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NEB T on MINK ST NW - Lane ID 156482						
10	120.0	2.3	0.1	17.4	1.0	0.0%
Average:	**120.0**	**2.1**	**0.1**	**12.6**	**0.8**	**0.0%**
SEB L on CLOVER VALLEY EXT - Lane ID 156228						
1	120.0	5.6	0.3	19.9	1.0	0.0%
2	120.0	6.7	0.2	54.0	1.0	0.0%
3	120.0	5.0	0.3	17.3	1.0	0.0%
4	120.0	5.1	0.2	21.0	1.0	0.0%
5	120.0	5.7	0.3	17.7	1.0	0.0%
6	120.0	6.9	0.4	44.0	2.0	0.0%
7	120.0	4.3	0.3	18.0	1.0	0.0%
8	120.0	4.5	0.3	17.6	1.0	0.0%
9	120.0	2.5	0.2	16.7	1.0	0.0%
10	120.0	6.2	0.3	20.5	1.0	0.0%
Average:	**120.0**	**5.3**	**0.3**	**24.7**	**1.1**	**0.0%**
SEB R on CLOVER VALLEY EXT - Lane ID 156229						
1	120.0	99.7	3.4	309.3	11.0	0.0%
2	120.0	86.0	3.1	275.8	10.0	0.0%
3	120.0	82.4	3.0	281.3	10.0	0.0%
4	120.0	81.3	2.8	282.1	11.0	0.0%
5	120.0	97.6	3.4	306.1	11.0	0.0%
6	120.0	106.3	3.3	325.5	10.0	0.0%
7	120.0	93.8	3.3	314.5	11.0	0.0%
8	120.0	97.2	3.2	313.5	10.0	0.0%
9	120.0	92.9	3.3	336.1	11.0	0.0%
10	120.0	100.0	3.4	342.5	12.0	0.0%
Average:	**120.0**	**93.7**	**3.2**	**308.7**	**10.7**	**0.0%**
SEB R on CLOVER VALLEY EXT - Lane ID 156411						
1	120.0	98.8	3.5	309.4	11.0	0.0%
2	120.0	83.5	2.9	286.4	10.0	0.0%
3	120.0	83.4	2.8	326.1	11.0	0.0%
4	120.0	86.7	3.0	323.1	11.0	0.0%
5	120.0	100.4	3.4	315.7	11.0	0.0%
6	120.0	101.7	3.4	301.9	10.0	0.0%
7	120.0	84.4	2.8	304.2	10.0	0.0%
8	120.0	94.7	3.3	329.2	11.0	0.0%
9	120.0	94.9	3.4	325.8	11.0	0.0%
10	120.0	86.1	3.0	299.5	11.0	0.0%
Average:	**120.0**	**91.5**	**3.2**	**312.1**	**10.7**	**0.0%**

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
SWB T on MINK ST NW - Lane ID 156417						
1	120.0	485.2	16.0	1,955.5	65.0	0.0%
2	120.0	542.5	17.5	1,989.6	64.1	0.0%
3	120.0	465.1	15.2	1,838.9	61.1	0.0%
4	120.0	500.0	16.6	2,060.0	67.0	0.0%
5	120.0	511.2	16.7	1,990.4	69.1	1.7%
6	120.0	448.0	15.4	1,727.6	59.1	0.0%
7	120.0	457.6	15.0	1,951.3	62.1	0.0%
8	120.0	632.2	21.2	2,565.3	84.1	1.7%
9	120.0	496.0	17.0	1,976.9	65.7	0.8%
10	120.0	573.9	18.9	2,030.4	68.1	0.0%
Average:	**120.0**	**511.2**	**17.0**	**2,008.6**	**66.5**	**0.4%**
SWB TR on MINK ST NW - Lane ID 156418						
1	120.0	423.6	13.8	1,720.6	52.5	0.0%
2	120.0	435.6	14.7	1,646.9	55.1	0.0%
3	120.0	386.7	13.3	1,580.4	51.1	0.0%
4	120.0	470.9	16.0	1,850.3	66.1	0.0%
5	120.0	474.9	15.5	1,938.8	59.1	0.0%
6	120.0	443.2	14.7	1,713.7	59.1	0.0%
7	120.0	399.6	13.0	1,823.0	60.1	0.0%
8	120.0	546.1	17.7	1,974.2	64.2	0.0%
9	120.0	487.9	15.7	2,046.0	68.2	0.0%
10	120.0	538.4	17.4	1,974.4	62.3	0.0%
Average:	**120.0**	**460.7**	**15.2**	**1,826.8**	**59.8**	**0.0%**

MINK ST NW & INNOVATION WAY — NODE: 15

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
EB L on INNOVATION WAY - Lane ID 156208						
1	120.0	4.3	0.3	17.2	1.0	0.0%
2	120.0	3.8	0.2	16.7	1.0	0.0%
3	120.0	3.1	0.2	16.4	1.0	0.0%
4	120.0	4.7	0.3	20.1	1.0	0.0%
5	120.0	5.9	0.2	44.8	1.0	0.0%
6	120.0	5.5	0.3	17.0	1.0	0.0%
7	120.0	3.2	0.2	16.9	1.0	0.0%
8	120.0	5.7	0.2	43.3	1.0	0.0%
9	120.0	4.0	0.1	17.4	1.0	0.0%
10	120.0	3.6	0.2	18.1	1.0	0.0%
Average:	**120.0**	**4.4**	**0.2**	**22.8**	**1.0**	**0.0%**
EB R on INNOVATION WAY - Lane ID 156209						
1	120.0	139.8	4.8	326.8	10.0	0.0%

MINK ST NW & INNOVATION WAY — NODE: 15

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
EB R on INNOVATION WAY - Lane ID 156209						
2	120.0	51.7	2.0	131.4	4.0	0.0%
3	120.0	50.4	1.9	151.5	5.0	0.0%
4	120.0	47.4	1.8	142.7	4.0	0.0%
5	120.0	41.4	1.7	128.9	5.0	0.0%
6	120.0	62.9	2.1	211.1	6.0	0.0%
7	120.0	56.6	2.2	235.4	9.0	0.0%
8	120.0	56.3	2.0	180.8	6.0	0.0%
9	120.0	61.1	2.2	165.9	5.0	0.0%
10	120.0	41.9	1.6	108.7	4.0	0.0%
Average:	**120.0**	**61.0**	**2.2**	**178.3**	**5.8**	**0.0%**
NEB L on MINK ST NW - Lane ID 156218						
1	120.0	0.7	0.1	0.0	1.0	0.0%
2	120.0	0.5	0.2	1.0	1.0	0.0%
3	120.0	1.0	0.2	0.7	1.0	0.0%
4	120.0	1.0	0.2	0.0	1.0	0.0%
5	120.0	1.1	0.2	10.7	1.0	0.0%
6	120.0	1.7	0.2	17.2	1.0	0.0%
7	120.0	0.5	0.2	0.0	1.0	0.0%
8	120.0	1.7	0.2	15.4	1.0	0.0%
9	120.0	0.8	0.2	0.4	1.0	0.0%
10	120.0	1.3	0.2	4.9	1.0	0.0%
Average:	**120.0**	**1.0**	**0.2**	**5.0**	**1.0**	**0.0%**
NEB T on MINK ST NW - Lane ID 156193						
1	120.0	7.2	0.3	68.8	3.0	0.0%
2	120.0	7.2	0.3	64.9	2.0	0.0%
3	120.0	9.1	0.3	74.1	2.0	0.0%
4	120.0	7.4	0.3	67.2	2.0	0.0%
5	120.0	8.3	0.3	72.3	3.0	0.0%
6	120.0	9.5	0.3	72.8	2.0	0.0%
7	120.0	9.3	0.4	76.1	3.0	0.0%
8	120.0	10.0	0.4	70.7	3.0	0.0%
9	120.0	9.9	0.4	76.4	2.0	0.0%
10	120.0	8.7	0.3	67.7	3.0	0.0%
Average:	**120.0**	**8.7**	**0.3**	**71.1**	**2.5**	**0.0%**
NEB T on MINK ST NW - Lane ID 156194						
1	120.0	11.7	0.4	73.9	3.0	0.0%
2	120.0	10.4	0.4	92.0	4.0	0.0%
3	120.0	11.9	0.4	90.9	3.0	0.0%
4	120.0	8.7	0.4	68.5	3.0	0.0%
5	120.0	10.0	0.4	84.2	3.0	0.0%

MINK ST NW & INNOVATION WAY — NODE: 15

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NEB T on MINK ST NW - Lane ID 156194						
6	120.0	13.6	0.5	115.7	5.0	0.0%
7	120.0	14.7	0.5	103.6	3.0	0.0%
8	120.0	15.4	0.5	119.2	4.0	0.0%
9	120.0	15.7	0.5	94.5	3.0	0.0%
10	120.0	14.6	0.6	99.1	4.0	0.0%
Average:	**120.0**	**12.7**	**0.5**	**94.2**	**3.5**	**0.0%**
NEB T on MINK ST NW - Lane ID 156383						
1	120.0	9.4	0.4	89.5	3.0	0.0%
2	120.0	9.1	0.3	76.3	2.0	0.0%
3	120.0	10.1	0.4	96.7	3.0	0.0%
4	120.0	8.7	0.4	71.1	3.0	0.0%
5	120.0	11.4	0.4	95.6	3.0	0.0%
6	120.0	10.6	0.4	98.6	3.0	0.0%
7	120.0	14.0	0.5	103.3	4.0	0.0%
8	120.0	14.4	0.6	97.4	4.0	0.0%
9	120.0	14.0	0.6	92.6	4.0	0.0%
10	120.0	7.7	0.3	48.1	2.0	0.0%
Average:	**120.0**	**10.9**	**0.4**	**86.9**	**3.1**	**0.0%**
SWB T on MINK ST NW - Lane ID 156476						
1	120.0	157.2	5.0	836.6	24.0	1.7%
2	120.0	138.6	4.4	791.9	23.1	0.8%
3	120.0	137.3	4.4	926.9	26.1	0.8%
4	120.0	124.5	4.2	702.9	24.0	1.7%
5	120.0	97.2	3.2	701.7	22.0	0.0%
6	120.0	131.7	4.2	824.2	26.1	0.8%
7	120.0	121.9	4.0	668.7	23.2	0.8%
8	120.0	192.6	6.1	938.4	28.1	3.3%
9	120.0	158.4	5.1	840.0	27.0	2.5%
10	120.0	163.9	5.3	954.2	30.0	3.3%
Average:	**120.0**	**142.3**	**4.6**	**818.6**	**25.4**	**1.6%**
SWB T on MINK ST NW - Lane ID 156477						
1	120.0	151.7	5.1	890.4	29.0	3.3%
2	120.0	174.2	5.5	884.9	27.1	0.0%
3	120.0	173.9	5.6	967.0	31.1	3.3%
4	120.0	175.2	5.5	953.5	30.1	0.8%
5	120.0	125.5	3.9	877.4	27.0	1.7%
6	120.0	159.6	5.0	841.1	27.1	0.8%
7	120.0	174.3	5.6	931.9	28.0	1.7%
8	120.0	224.0	7.2	950.4	32.1	1.7%
9	120.0	172.3	5.5	913.7	30.1	0.8%

MINK ST NW & INNOVATION WAY — NODE: 15

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
SWB T on MINK ST NW - Lane ID 156477						
10	120.0	178.1	5.7	944.5	29.1	0.8%
Average:	**120.0**	**170.9**	**5.5**	**915.5**	**29.1**	**1.5%**
SWB TR on MINK ST NW - Lane ID 156478						
1	120.0	80.1	2.6	456.4	15.1	0.0%
2	120.0	76.4	2.5	520.1	15.2	0.0%
3	120.0	83.1	2.8	501.6	16.0	0.0%
4	120.0	66.0	2.2	470.6	18.0	0.0%
5	120.0	102.5	3.1	720.9	22.0	0.8%
6	120.0	86.8	2.9	661.5	19.1	0.0%
7	120.0	101.6	3.4	692.9	25.0	0.0%
8	120.0	117.7	3.9	661.5	23.0	0.0%
9	120.0	102.8	3.3	712.8	21.1	0.0%
10	120.0	99.2	3.4	693.4	24.1	0.0%
Average:	**120.0**	**91.6**	**3.0**	**609.2**	**19.9**	**0.1%**

MINK ST NW & JUG ST — NODE: 33082

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
EB L on JUG ST - Lane ID 156252						
1	120.0	29.4	1.2	100.0	4.0	0.0%
2	120.0	18.3	0.8	76.5	3.0	0.0%
3	120.0	11.3	0.6	44.9	2.0	0.0%
4	120.0	22.2	0.9	96.9	3.0	0.0%
5	120.0	19.4	0.9	50.7	2.0	0.0%
6	120.0	15.9	0.8	56.4	2.0	0.0%
7	120.0	16.3	0.7	49.3	2.0	0.0%
8	120.0	19.1	0.9	67.7	3.0	0.0%
9	120.0	13.5	0.7	47.1	2.0	0.0%
10	120.0	11.5	0.6	47.8	2.0	0.0%
Average:	**120.0**	**17.7**	**0.8**	**63.7**	**2.5**	**0.0%**
EB R on JUG ST - Lane ID 156253						
1	120.0	9.7	0.4	52.6	2.0	0.0%
2	120.0	7.5	0.4	45.0	2.0	0.0%
3	120.0	10.7	0.6	46.7	2.0	0.0%
4	120.0	14.8	0.6	79.1	2.0	0.0%
5	120.0	9.1	0.4	46.3	2.0	0.0%
6	120.0	15.5	0.6	74.4	3.0	0.0%
7	120.0	13.1	0.5	61.1	2.0	0.0%
8	120.0	11.5	0.5	74.0	2.0	0.0%
9	120.0	10.6	0.5	51.1	2.0	0.0%
10	120.0	11.7	0.5	51.5	2.0	0.0%

MINK ST NW & JUG ST — NODE: 33082

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
EB R on JUG ST - Lane ID 156253						
Average:	**120.0**	**11.4**	**0.5**	**58.2**	**2.1**	**0.0%**
SB T on MINK ST NW - Lane ID 153676						
1	120.0	19.5	0.8	132.7	5.0	0.0%
2	120.0	29.3	1.0	191.4	6.0	0.0%
3	120.0	19.5	0.7	118.6	5.0	0.0%
4	120.0	23.7	0.9	155.5	6.0	0.0%
5	120.0	27.8	1.0	176.1	7.0	0.0%
6	120.0	15.6	0.6	110.8	3.0	0.0%
7	120.0	26.3	1.0	186.5	7.0	0.0%
8	120.0	37.7	1.3	208.6	7.0	0.0%
9	120.0	21.4	0.8	125.1	5.0	0.0%
10	120.0	33.5	1.2	208.4	6.1	0.0%
Average:	**120.0**	**25.4**	**0.9**	**161.4**	**5.7**	**0.0%**
SB TR on MINK ST NW - Lane ID 156248						
1	120.0	28.7	1.0	165.0	6.0	0.0%
2	120.0	31.0	1.1	203.4	7.0	0.0%
3	120.0	25.9	0.9	151.5	6.0	0.0%
4	120.0	28.8	1.1	131.7	6.0	0.0%
5	120.0	22.4	0.8	116.1	4.0	0.0%
6	120.0	19.8	0.8	147.4	5.0	0.0%
7	120.0	27.8	1.0	157.7	6.0	0.0%
8	120.0	30.4	1.0	164.6	6.0	0.0%
9	120.0	25.8	0.9	174.2	6.0	0.0%
10	120.0	33.6	1.2	210.0	6.0	0.0%
Average:	**120.0**	**27.4**	**1.0**	**162.2**	**5.8**	**0.0%**

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 34

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NB T on MINK ST NW - Lane ID 156328						
1	120.0	113.5	3.8	341.0	11.0	0.0%
2	120.0	110.0	3.7	324.1	11.0	0.0%
3	120.0	105.3	3.5	309.1	10.0	0.0%
4	120.0	104.9	3.7	335.5	11.0	0.0%
5	120.0	106.0	3.5	282.1	9.0	0.0%
6	120.0	105.9	3.4	274.9	9.0	0.0%
7	120.0	103.9	3.7	296.2	11.0	0.0%
8	120.0	104.4	3.4	313.1	10.0	0.0%
9	120.0	100.3	3.6	279.2	9.0	0.0%
10	120.0	95.7	3.5	313.5	11.0	0.0%
Average:	**120.0**	**105.0**	**3.6**	**306.9**	**10.2**	**0.0%**

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 34

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NB T on MINK ST NW - Lane ID 156328						
NB T on MINK ST NW - Lane ID 156329						
1	120.0	70.3	2.5	236.4	8.0	0.0%
2	120.0	81.7	3.0	202.2	8.0	0.0%
3	120.0	75.2	2.8	222.0	8.0	0.0%
4	120.0	79.8	2.9	244.5	9.0	0.0%
5	120.0	77.7	2.9	222.8	8.0	0.0%
6	120.0	76.3	2.9	238.8	8.0	0.0%
7	120.0	72.0	2.7	201.2	8.0	0.0%
8	120.0	76.7	2.7	258.8	9.0	0.0%
9	120.0	74.3	2.6	205.6	6.0	0.0%
10	120.0	72.6	2.7	209.4	8.0	0.0%
Average:	**120.0**	**75.7**	**2.8**	**224.2**	**8.0**	**0.0%**
NB T on MINK ST NW - Lane ID 156436						
1	120.0	65.2	2.4	212.0	7.0	0.0%
2	120.0	54.2	2.1	167.6	6.0	0.0%
3	120.0	57.3	2.1	200.5	7.0	0.0%
4	120.0	71.8	2.5	221.8	7.0	0.0%
5	120.0	65.2	2.4	206.0	6.0	0.0%
6	120.0	58.8	2.1	211.9	7.0	0.0%
7	120.0	64.8	2.4	203.3	7.0	0.0%
8	120.0	55.0	2.1	192.1	7.0	0.0%
9	120.0	51.3	2.1	150.1	6.0	0.0%
10	120.0	51.6	2.1	180.6	7.0	0.0%
Average:	**120.0**	**59.5**	**2.2**	**194.6**	**6.7**	**0.0%**
NEB T on SR 161 EB EXIT RAMP - Lane ID 156323						
1	120.0	15.9	0.6	76.6	3.0	0.0%
2	120.0	20.0	0.8	115.2	4.0	0.0%
3	120.0	15.8	0.6	93.2	4.0	0.0%
4	120.0	17.4	0.6	80.4	3.0	0.0%
5	120.0	16.1	0.6	103.9	3.0	0.0%
6	120.0	22.4	0.8	105.4	4.0	0.0%
7	120.0	20.4	0.8	107.1	4.0	0.0%
8	120.0	19.0	0.7	103.1	4.0	0.0%
9	120.0	15.3	0.6	100.6	3.0	0.0%
10	120.0	18.8	0.7	98.1	3.0	0.0%
Average:	**120.0**	**18.1**	**0.7**	**98.4**	**3.5**	**0.0%**
NEB T on SR 161 EB EXIT RAMP - Lane ID 156324						
1	120.0	10.4	0.5	48.6	2.0	0.0%
2	120.0	8.8	0.4	44.8	2.0	0.0%

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 34

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NEB T on SR 161 EB EXIT RAMP - Lane ID 156324						
3	120.0	9.6	0.4	67.3	2.0	0.0%
4	120.0	11.9	0.5	74.3	2.0	0.0%
5	120.0	16.8	0.5	101.5	2.0	0.0%
6	120.0	11.0	0.4	66.3	2.0	0.0%
7	120.0	13.0	0.5	78.2	2.0	0.0%
8	120.0	13.4	0.5	84.8	2.0	0.0%
9	120.0	8.0	0.3	47.0	2.0	0.0%
10	120.0	8.2	0.4	45.3	2.0	0.0%
Average:	**120.0**	**11.1**	**0.4**	**65.8**	**2.0**	**0.0%**
NEB T on SR 161 EB EXIT RAMP - Lane ID 156353						
1	120.0	7.3	0.3	42.5	2.0	0.0%
2	120.0	8.4	0.3	47.2	2.0	0.0%
3	120.0	8.2	0.3	48.7	2.0	0.0%
4	120.0	7.4	0.3	43.4	2.0	0.0%
5	120.0	5.6	0.3	20.7	1.0	0.0%
6	120.0	9.8	0.4	58.0	2.0	0.0%
7	120.0	6.2	0.3	37.3	2.0	0.0%
8	120.0	8.9	0.3	58.4	2.0	0.0%
9	120.0	7.1	0.3	44.8	2.0	0.0%
10	120.0	7.8	0.4	46.6	2.0	0.0%
Average:	**120.0**	**7.7**	**0.3**	**44.8**	**1.9**	**0.0%**
SWB T on MINK ST NW - Lane ID 156342						
1	120.0	1.0	0.1	15.8	1.0	0.0%
2	120.0	2.4	0.1	0.7	0.0	0.0%
3	120.0	0.6	0.0	0.0	0.0	0.0%
4	120.0	2.6	0.1	16.5	1.0	0.0%
5	120.0	0.4	0.0	0.0	0.0	0.0%
6	120.0	0.6	0.0	0.0	0.0	0.0%
7	120.0	0.3	0.0	0.0	0.0	0.0%
8	120.0	0.7	0.0	0.0	0.0	0.0%
9	120.0	0.9	0.0	0.0	0.0	0.0%
10	120.0	0.7	0.0	0.0	0.0	0.0%
Average:	**120.0**	**1.0**	**0.0**	**3.3**	**0.2**	**0.0%**
SWB T on MINK ST NW - Lane ID 156343						
1	120.0	4.6	0.1	17.6	1.0	0.0%
2	120.0	0.8	0.1	0.8	0.0	0.0%
3	120.0	0.4	0.0	0.0	0.0	0.0%
4	120.0	4.1	0.1	17.8	1.0	0.0%
5	120.0	2.0	0.1	0.0	0.0	0.0%
6	120.0	1.4	0.1	15.1	1.0	0.0%

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 34

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
SWB T on MINK ST NW - Lane ID 156343						
7	120.0	2.0	0.0	0.0	0.0	0.0%
8	120.0	0.5	0.0	0.0	0.0	0.0%
9	120.0	3.1	0.1	18.1	1.0	0.0%
10	120.0	1.9	0.0	0.0	0.0	0.0%
Average:	**120.0**	**2.1**	**0.1**	**6.9**	**0.4**	**0.0%**
SWB T on MINK ST NW - Lane ID 156449						
1	120.0	0.7	0.0	0.0	0.0	0.0%
2	120.0	0.0	0.0	0.0	0.0	0.0%
3	120.0	0.1	0.0	0.0	0.0	0.0%
4	120.0	1.3	0.0	0.0	0.0	0.0%
5	120.0	0.0	0.0	0.0	0.0	0.0%
6	120.0	2.7	0.1	16.4	1.0	0.0%
7	120.0	0.0	0.0	0.0	0.0	0.0%
8	120.0	0.1	0.0	0.0	0.0	0.0%
9	120.0	0.2	0.0	0.0	0.0	0.0%
10	120.0	1.7	0.0	0.0	0.0	0.0%
Average:	**120.0**	**0.7**	**0.0**	**1.6**	**0.1**	**0.0%**

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 38

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NB R on SR 161 WB EXIT RAMP - Lane ID 156372						
1	120.0	3.2	0.2	17.7	1.0	0.0%
2	120.0	4.0	0.2	18.5	1.0	0.0%
3	120.0	5.6	0.2	36.4	1.0	0.0%
4	120.0	2.8	0.2	19.0	1.0	0.0%
5	120.0	3.1	0.2	17.1	1.0	0.0%
6	120.0	5.2	0.3	36.8	2.0	0.0%
7	120.0	2.8	0.2	16.5	1.0	0.0%
8	120.0	2.4	0.2	16.4	1.0	0.0%
9	120.0	3.9	0.2	16.6	1.0	0.0%
10	120.0	5.8	0.3	22.3	1.0	0.0%
Average:	**120.0**	**3.9**	**0.2**	**21.7**	**1.1**	**0.0%**
NB R on SR 161 WB EXIT RAMP - Lane ID 156373						
1	120.0	3.7	0.2	19.2	1.0	0.0%
2	120.0	2.7	0.1	16.7	1.0	0.0%
3	120.0	3.7	0.2	20.7	1.0	0.0%
4	120.0	4.1	0.2	18.3	1.0	0.0%
5	120.0	4.7	0.2	20.7	1.0	0.0%
6	120.0	3.6	0.2	18.2	1.0	0.0%
7	120.0	2.9	0.2	16.4	1.0	0.0%

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 38

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NB R on SR 161 WB EXIT RAMP - Lane ID 156373						
8	120.0	3.7	0.2	17.2	1.0	0.0%
9	120.0	2.4	0.1	17.7	1.0	0.0%
10	120.0	3.2	0.2	16.8	1.0	0.0%
Average:	**120.0**	**3.5**	**0.2**	**18.2**	**1.0**	**0.0%**
NEB T on MINK ST NW - Lane ID 156364						
1	120.0	136.6	4.5	355.3	12.0	11.7%
2	120.0	120.0	4.1	338.0	12.0	6.7%
3	120.0	127.1	4.2	342.4	11.0	6.7%
4	120.0	130.2	4.3	353.4	12.0	8.3%
5	120.0	131.3	4.4	354.1	12.0	8.3%
6	120.0	118.7	4.1	362.5	12.0	9.2%
7	120.0	132.8	4.5	348.0	12.0	8.3%
8	120.0	120.8	4.1	345.4	12.0	7.5%
9	120.0	135.1	4.6	348.2	12.0	9.2%
10	120.0	111.6	3.8	321.6	11.0	3.3%
Average:	**120.0**	**126.4**	**4.3**	**346.9**	**11.8**	**7.9%**
NEB T on MINK ST NW - Lane ID 156365						
1	120.0	125.6	4.5	357.4	12.0	6.7%
2	120.0	111.2	3.8	322.5	12.0	3.3%
3	120.0	108.2	4.0	296.3	11.0	2.5%
4	120.0	117.7	4.0	356.3	11.0	7.5%
5	120.0	117.0	4.1	322.1	11.0	1.7%
6	120.0	106.1	3.9	306.3	11.0	3.3%
7	120.0	113.4	4.0	310.4	11.0	2.5%
8	120.0	107.3	3.8	310.4	11.0	1.7%
9	120.0	130.9	4.5	336.7	11.0	6.7%
10	120.0	96.4	3.5	283.9	10.0	0.8%
Average:	**120.0**	**113.4**	**4.0**	**320.2**	**11.1**	**3.7%**
NEB T on MINK ST NW - Lane ID 156366						
1	120.0	103.7	3.6	290.3	10.0	0.0%
2	120.0	95.8	3.4	280.4	10.0	0.0%
3	120.0	91.7	3.3	263.0	9.0	0.8%
4	120.0	108.0	3.6	278.6	10.0	3.3%
5	120.0	96.7	3.4	289.3	9.0	0.0%
6	120.0	90.4	3.1	269.0	9.0	0.8%
7	120.0	97.8	3.4	293.1	9.0	1.7%
8	120.0	97.8	3.3	288.8	9.0	1.7%
9	120.0	106.0	3.7	297.9	11.0	2.5%
10	120.0	80.3	2.9	257.2	8.0	0.8%
Average:	**120.0**	**96.8**	**3.4**	**280.8**	**9.4**	**1.2%**

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 38

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NEB T on MINK ST NW - Lane ID 156366						
SB T on MINK ST NW - Lane ID 156369						
1	120.0	168.0	5.9	356.1	14.0	45.0%
2	120.0	164.4	5.6	355.6	14.0	40.8%
3	120.0	169.2	5.9	356.7	13.0	45.0%
4	120.0	167.3	5.9	356.9	13.0	41.7%
5	120.0	173.9	6.2	356.8	14.0	46.7%
6	120.0	181.6	5.9	353.7	13.0	46.7%
7	120.0	167.5	5.8	356.7	13.0	43.3%
8	120.0	177.4	6.0	357.8	14.0	47.5%
9	120.0	156.5	5.4	354.7	13.0	38.3%
10	120.0	173.8	6.0	358.7	14.0	48.3%
Average:	**120.0**	**170.0**	**5.9**	**356.4**	**13.5**	**44.3%**
SB T on MINK ST NW - Lane ID 156370						
1	120.0	167.3	5.8	396.2	13.0	39.2%
2	120.0	167.0	5.7	358.1	13.0	42.5%
3	120.0	167.3	5.8	360.5	13.0	38.3%
4	120.0	163.4	5.6	359.1	13.0	38.3%
5	120.0	171.2	5.8	362.5	13.0	40.8%
6	120.0	170.7	5.8	359.9	13.0	39.2%
7	120.0	166.3	5.9	357.8	14.0	35.8%
8	120.0	169.8	5.7	359.3	13.0	39.2%
9	120.0	152.6	5.2	360.4	13.0	36.7%
10	120.0	178.9	6.0	364.5	13.0	45.8%
Average:	**120.0**	**167.5**	**5.7**	**363.8**	**13.1**	**39.6%**
SB T on MINK ST NW - Lane ID 156451						
1	120.0	162.7	5.4	388.8	13.0	37.5%
2	120.0	159.2	5.2	362.2	13.0	38.3%
3	120.0	160.9	5.5	362.6	13.0	35.0%
4	120.0	163.8	5.3	365.9	13.0	37.5%
5	120.0	168.6	5.9	364.8	13.0	42.5%
6	120.0	177.7	6.0	366.9	14.0	40.8%
7	120.0	161.6	5.5	366.4	14.0	36.7%
8	120.0	168.5	5.7	374.0	14.0	43.3%
9	120.0	149.8	5.1	366.6	13.0	35.0%
10	120.0	172.2	6.0	359.0	14.0	43.3%
Average:	**120.0**	**164.5**	**5.6**	**367.7**	**13.4**	**39.0%**

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
EB L on WORTHINGTON RD - Lane ID 153286						
1	120.0	67.6	2.4	195.8	7.0	0.0%
2	120.0	50.2	2.0	162.8	6.0	0.0%
3	120.0	60.1	2.2	179.6	6.0	0.0%
4	120.0	63.9	2.5	183.1	6.0	0.0%
5	120.0	71.9	2.5	173.6	6.0	0.0%
6	120.0	58.1	2.4	174.6	6.0	0.0%
7	120.0	54.7	2.1	166.7	6.0	0.0%
8	120.0	66.6	2.4	188.2	7.0	0.0%
9	120.0	54.6	2.1	155.4	6.0	0.0%
10	120.0	60.3	2.1	180.0	6.0	0.0%
Average:	**120.0**	**60.8**	**2.3**	**176.0**	**6.2**	**0.0%**
EB TR on WORTHINGTON RD - Lane ID 153287						
1	120.0	50.5	2.0	180.5	6.0	0.0%
2	120.0	53.2	2.0	145.2	5.0	0.0%
3	120.0	55.3	2.0	180.7	6.0	0.0%
4	120.0	52.4	1.9	163.7	5.0	0.0%
5	120.0	44.1	1.7	168.2	5.0	0.0%
6	120.0	51.7	1.9	156.5	5.0	0.0%
7	120.0	49.3	1.9	162.4	5.0	0.0%
8	120.0	44.9	1.8	147.0	5.0	0.0%
9	120.0	41.1	1.6	162.1	5.0	0.0%
10	120.0	44.3	1.8	126.5	4.0	0.0%
Average:	**120.0**	**48.7**	**1.9**	**159.3**	**5.1**	**0.0%**
NEB L on MINK ST SW - Lane ID 156321						
1	120.0	0.6	0.1	0.2	0.0	0.0%
2	120.0	2.1	0.1	11.1	1.0	0.0%
3	120.0	0.9	0.1	6.2	1.0	0.0%
4	120.0	0.7	0.1	6.6	1.0	0.0%
5	120.0	1.3	0.1	7.0	1.0	0.0%
6	120.0	0.9	0.1	6.1	1.0	0.0%
7	120.0	0.7	0.1	5.5	1.0	0.0%
8	120.0	0.9	0.1	6.7	1.0	0.0%
9	120.0	0.9	0.1	7.2	1.0	0.0%
10	120.0	0.6	0.1	5.4	1.0	0.0%
Average:	**120.0**	**1.0**	**0.1**	**6.2**	**0.9**	**0.0%**
NEB T on MINK ST SW - Lane ID 153565						
1	120.0	35.0	1.3	174.5	6.0	0.0%
2	120.0	35.4	1.3	184.7	6.0	0.0%
3	120.0	34.9	1.3	160.5	6.0	0.0%
4	120.0	48.2	1.7	225.0	7.0	0.0%

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NEB T on MINK ST SW - Lane ID 153565						
5	120.0	46.7	1.5	221.2	7.0	0.0%
6	120.0	40.1	1.3	222.3	7.0	0.0%
7	120.0	44.1	1.7	221.5	7.0	0.0%
8	120.0	41.7	1.5	208.2	6.0	0.0%
9	120.0	47.4	1.6	203.1	6.0	0.0%
10	120.0	37.0	1.4	189.6	6.0	0.0%
Average:	**120.0**	**41.1**	**1.5**	**201.1**	**6.4**	**0.0%**
NEB TR on MINK ST SW - Lane ID 156392						
1	120.0	35.1	1.3	165.0	6.0	0.0%
2	120.0	37.8	1.3	193.3	7.0	0.0%
3	120.0	37.7	1.3	185.7	6.0	0.0%
4	120.0	50.9	1.7	230.1	8.0	0.0%
5	120.0	44.0	1.6	223.9	8.0	0.0%
6	120.0	39.5	1.5	213.0	7.0	0.0%
7	120.0	48.7	1.7	219.6	7.0	0.0%
8	120.0	45.0	1.7	207.6	8.0	0.0%
9	120.0	55.3	1.9	241.5	8.0	0.0%
10	120.0	41.2	1.5	204.0	6.0	0.0%
Average:	**120.0**	**43.5**	**1.6**	**208.4**	**7.1**	**0.0%**
SWB L on MINK ST NW - Lane ID 156270						
1	120.0	4.6	0.3	40.1	2.0	0.0%
2	120.0	3.6	0.2	30.8	1.0	0.0%
3	120.0	3.3	0.2	17.5	1.0	0.0%
4	120.0	3.8	0.3	35.3	2.0	0.0%
5	120.0	4.1	0.3	19.4	1.0	0.0%
6	120.0	2.3	0.2	7.5	1.0	0.0%
7	120.0	3.4	0.2	18.6	1.0	0.0%
8	120.0	5.0	0.3	26.0	2.0	0.0%
9	120.0	4.0	0.3	28.6	1.0	0.0%
10	120.0	2.2	0.2	7.2	1.0	0.0%
Average:	**120.0**	**3.6**	**0.3**	**23.1**	**1.3**	**0.0%**
SWB R on MINK ST NW - Lane ID 156445						
1	120.0	1.0	0.0	0.0	0.0	0.0%
2	120.0	1.3	0.1	0.0	0.0	0.0%
3	120.0	1.0	0.1	0.8	0.0	0.0%
4	120.0	1.2	0.1	0.0	0.0	0.0%
5	120.0	2.0	0.1	0.0	0.0	0.0%
6	120.0	3.4	0.1	0.0	0.0	0.0%
7	120.0	0.9	0.1	0.0	0.0	0.0%
8	120.0	1.9	0.1	0.0	0.0	0.0%

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
SWB R on MINK ST NW - Lane ID 156445						
9	120.0	1.2	0.1	0.0	0.0	0.0%
10	120.0	1.2	0.0	0.0	0.0	0.0%
Average:	**120.0**	**1.5**	**0.1**	**0.1**	**0.0**	**0.0%**
SWB T on MINK ST NW - Lane ID 156258						
1	120.0	5.7	0.3	22.3	1.0	0.0%
2	120.0	4.7	0.1	14.7	1.0	0.0%
3	120.0	3.3	0.2	19.1	1.0	0.0%
4	120.0	5.8	0.2	17.4	1.0	0.0%
5	120.0	4.1	0.2	42.1	2.0	0.0%
6	120.0	2.6	0.1	17.4	1.0	0.0%
7	120.0	5.6	0.2	27.0	1.0	0.0%
8	120.0	4.7	0.2	25.5	1.0	0.0%
9	120.0	4.7	0.2	16.8	1.0	0.0%
10	120.0	4.2	0.2	15.4	1.0	0.0%
Average:	**120.0**	**4.5**	**0.2**	**21.8**	**1.1**	**0.0%**
SWB T on MINK ST NW - Lane ID 156393						
1	120.0	7.7	0.3	73.0	3.0	0.0%
2	120.0	8.5	0.3	46.5	1.0	0.0%
3	120.0	7.5	0.3	69.7	2.0	0.0%
4	120.0	9.2	0.3	23.0	1.0	0.0%
5	120.0	8.2	0.3	49.1	2.1	0.0%
6	120.0	4.6	0.2	16.5	1.0	0.0%
7	120.0	8.9	0.3	70.1	2.0	0.0%
8	120.0	7.9	0.3	47.8	2.0	0.0%
9	120.0	9.7	0.4	39.1	2.0	0.0%
10	120.0	7.2	0.3	50.6	1.0	0.0%
Average:	**120.0**	**7.9**	**0.3**	**48.5**	**1.7**	**0.0%**
WB L on WORTHINGTON RD - Lane ID 153562						
1	120.0	2.9	0.1	16.3	1.0	0.0%
2	120.0	2.1	0.1	16.0	1.0	0.0%
3	120.0	2.3	0.1	16.8	1.0	0.0%
4	120.0	1.6	0.1	15.8	1.0	0.0%
5	120.0	2.6	0.2	17.2	1.0	0.0%
6	120.0	2.3	0.1	15.9	1.0	0.0%
7	120.0	2.3	0.2	16.1	1.0	0.0%
8	120.0	4.0	0.2	19.8	1.0	0.0%
9	120.0	2.6	0.1	15.6	1.0	0.0%
10	120.0	2.4	0.1	16.4	1.0	0.0%
Average:	**120.0**	**2.5**	**0.1**	**16.6**	**1.0**	**0.0%**

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
WB TR on WORTHINGTON RD - Lane ID 153563						
1	120.0	50.6	2.1	150.9	5.0	0.0%
2	120.0	31.5	1.3	107.9	4.0	0.0%
3	120.0	37.1	1.4	126.1	4.0	0.0%
4	120.0	40.5	1.6	137.6	4.0	0.0%
5	120.0	32.2	1.3	105.7	3.0	0.0%
6	120.0	34.9	1.3	135.0	4.0	0.0%
7	120.0	57.6	2.0	184.7	7.0	0.0%
8	120.0	36.8	1.5	119.5	4.0	0.0%
9	120.0	29.5	1.2	104.1	4.0	0.0%
10	120.0	25.9	1.2	74.9	3.0	0.0%
Average:	**120.0**	**37.7**	**1.5**	**124.6**	**4.2**	**0.0%**

Project: Mink Corridor Proposed DDI w North
Scenario: PM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 16:00:00 - 17:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Lane Queue by Intersection - Avg Queue

MINK ST NW & BEAVER RD — NODE: 18

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NWB L	156456	BEAVER RD	342.1	91.1	186.4	509.9	10
NWB LR	156457	BEAVER RD	294.3	66.9	170.7	392.8	10

MINK ST NW & BEAVER RD — NODE: 18

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB L	156233	MINK ST NW	0.6	0.4	0.2	1.4	10
SWB T	156234	MINK ST NW	152.0	16.4	115.5	167.2	10
SWB T	156235	MINK ST NW	81.6	12.7	64.4	103.8	10
NEB T	156469	MINK ST NW	13.3	2.3	9.8	17.2	10
NEB T	156470	MINK ST NW	16.0	1.8	13.1	18.5	10
NEB R	156492	MINK ST NW	0.4	0.3	0.0	0.8	10
SWB T	156499	MINK ST NW	71.6	9.3	55.4	80.9	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SEB L	156228	CLOVER VALLEY EXT	5.3	1.3	2.5	6.9	10
SEB R	156229	CLOVER VALLEY EXT	93.7	8.2	81.3	106.3	10
SEB R	156411	CLOVER VALLEY EXT	91.5	7.4	83.4	101.7	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB T	153566	MINK ST NW	5.7	2.1	1.3	8.2	10
NB T	156220	MINK ST NW	6.2	1.9	2.3	8.9	10
NEB L	156226	MINK ST NW	6.1	2.2	3.5	10.3	10
NEB T	156227	MINK ST NW	1.6	1.0	0.4	4.0	10
NB L	156247	MINK ST NW	16.9	3.9	10.0	22.4	10
SWB T	156417	MINK ST NW	511.2	57.3	448.0	632.2	10
SWB TR	156418	MINK ST NW	460.7	53.6	386.7	546.1	10
NEB T	156482	MINK ST NW	2.1	0.8	0.9	3.3	10
NEB L	156498	MINK ST NW	5.8	1.6	3.6	9.1	10

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156208	INNOVATION WAY	4.4	1.0	3.1	5.9	10
EB R	156209	INNOVATION WAY	61.0	28.6	41.4	139.8	10

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156193	MINK ST NW	8.7	1.1	7.2	10.0	10
NEB T	156194	MINK ST NW	12.7	2.5	8.7	15.7	10
NEB L	156218	MINK ST NW	1.0	0.4	0.5	1.7	10
NEB T	156383	MINK ST NW	10.9	2.4	7.7	14.4	10
SWB T	156476	MINK ST NW	142.3	26.7	97.2	192.6	10
SWB T	156477	MINK ST NW	170.9	24.7	125.5	224.0	10
SWB TR	156478	MINK ST NW	91.6	15.6	66.0	117.7	10

MINK ST NW & JUG ST — NODE: 33082

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156252	JUG ST	17.7	5.4	11.3	29.4	10
EB R	156253	JUG ST	11.4	2.5	7.5	15.5	10

MINK ST NW & JUG ST — NODE: 33082

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SB T	153676	MINK ST NW	25.4	6.9	15.6	37.7	10
SB TR	156248	MINK ST NW	27.4	4.1	19.8	33.6	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 34

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB T	156328	MINK ST NW	105.0	4.8	95.7	113.5	10
NB T	156329	MINK ST NW	75.7	3.5	70.3	81.7	10
SWB T	156342	MINK ST NW	1.0	0.8	0.3	2.6	10
SWB T	156343	MINK ST NW	2.1	1.5	0.4	4.6	10
NB T	156436	MINK ST NW	59.5	6.9	51.3	71.8	10
SWB T	156449	MINK ST NW	0.7	0.9	0.0	2.7	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 34

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156323	SR 161 EB EXIT RAMP	18.1	2.4	15.3	22.4	10
NEB T	156324	SR 161 EB EXIT RAMP	11.1	2.8	8.0	16.8	10
NEB T	156353	SR 161 EB EXIT RAMP	7.7	1.2	5.6	9.8	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 38

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156364	MINK ST NW	126.4	8.2	111.6	136.6	10
NEB T	156365	MINK ST NW	113.4	10.0	96.4	130.9	10
NEB T	156366	MINK ST NW	96.8	8.2	80.3	108.0	10
SB T	156369	MINK ST NW	170.0	7.1	156.5	181.6	10
SB T	156370	MINK ST NW	167.5	6.7	152.6	178.9	10
SB T	156451	MINK ST NW	164.5	7.7	149.8	177.7	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 38

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB R	156372	SR 161 WB EXIT RAMP	3.9	1.2	2.4	5.8	10
NB R	156373	SR 161 WB EXIT RAMP	3.5	0.7	2.4	4.7	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB T	156258	MINK ST NW	4.5	1.0	2.6	5.8	10
SWB L	156270	MINK ST NW	3.6	0.9	2.2	5.0	10
SWB T	156393	MINK ST NW	7.9	1.4	4.6	9.7	10
SWB R	156445	MINK ST NW	1.5	0.8	0.9	3.4	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	153565	MINK ST SW	41.1	5.3	34.9	48.2	10
NEB L	156321	MINK ST SW	1.0	0.5	0.6	2.1	10
NEB TR	156392	MINK ST SW	43.5	6.5	35.1	55.3	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	153286	WORTHINGTON RD	60.8	6.7	50.2	71.9	10
EB TR	153287	WORTHINGTON RD	48.7	4.7	41.1	55.3	10
WB L	153562	WORTHINGTON RD	2.5	0.6	1.6	4.0	10
WB TR	153563	WORTHINGTON RD	37.7	9.7	25.9	57.6	10

Project: Mink Corridor Proposed DDI w North
Scenario: PM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 16:00:00 - 17:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Lane Queue by Intersection - Avg Num Queued

MINK ST NW & BEAVER RD — NODE: 18

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NWB L	156456	BEAVER RD	11.2	2.7	6.2	16.2	10
NWB LR	156457	BEAVER RD	9.7	2.1	5.8	12.9	10

MINK ST NW & BEAVER RD — NODE: 18

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB L	156233	MINK ST NW	0.1	0.0	0.0	0.1	10
SWB T	156234	MINK ST NW	5.0	0.6	3.7	5.6	10
SWB T	156235	MINK ST NW	2.8	0.4	2.2	3.5	10
NEB T	156469	MINK ST NW	0.6	0.1	0.4	0.7	10
NEB T	156470	MINK ST NW	0.6	0.1	0.5	0.7	10
NEB R	156492	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB T	156499	MINK ST NW	2.5	0.3	1.9	2.8	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SEB L	156228	CLOVER VALLEY EXT	0.3	0.1	0.2	0.4	10
SEB R	156229	CLOVER VALLEY EXT	3.2	0.2	2.8	3.4	10
SEB R	156411	CLOVER VALLEY EXT	3.2	0.3	2.8	3.5	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB T	153566	MINK ST NW	0.2	0.1	0.1	0.3	10
NB T	156220	MINK ST NW	0.2	0.1	0.1	0.3	10
NEB L	156226	MINK ST NW	0.3	0.1	0.2	0.4	10
NEB T	156227	MINK ST NW	0.1	0.1	0.0	0.2	10
NB L	156247	MINK ST NW	0.8	0.1	0.6	1.0	10
SWB T	156417	MINK ST NW	17.0	1.9	15.0	21.2	10
SWB TR	156418	MINK ST NW	15.2	1.6	13.0	17.7	10
NEB T	156482	MINK ST NW	0.1	0.0	0.1	0.2	10
NEB L	156498	MINK ST NW	0.3	0.1	0.2	0.4	10

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156208	INNOVATION WAY	0.2	0.1	0.1	0.3	10
EB R	156209	INNOVATION WAY	2.2	0.9	1.6	4.8	10

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156193	MINK ST NW	0.3	0.0	0.3	0.4	10
NEB T	156194	MINK ST NW	0.5	0.1	0.4	0.6	10
NEB L	156218	MINK ST NW	0.2	0.0	0.1	0.2	10
NEB T	156383	MINK ST NW	0.4	0.1	0.3	0.6	10
SWB T	156476	MINK ST NW	4.6	0.8	3.2	6.1	10
SWB T	156477	MINK ST NW	5.5	0.8	3.9	7.2	10
SWB TR	156478	MINK ST NW	3.0	0.5	2.2	3.9	10

MINK ST NW & JUG ST — NODE: 33082

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156252	JUG ST	0.8	0.2	0.6	1.2	10
EB R	156253	JUG ST	0.5	0.1	0.4	0.6	10

MINK ST NW & JUG ST — NODE: 33082

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SB T	153676	MINK ST NW	0.9	0.2	0.6	1.3	10
SB TR	156248	MINK ST NW	1.0	0.1	0.8	1.2	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 34

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB T	156328	MINK ST NW	3.6	0.1	3.4	3.8	10
NB T	156329	MINK ST NW	2.8	0.2	2.5	3.0	10
SWB T	156342	MINK ST NW	0.0	0.0	0.0	0.1	10
SWB T	156343	MINK ST NW	0.1	0.1	0.0	0.1	10
NB T	156436	MINK ST NW	2.2	0.2	2.1	2.5	10
SWB T	156449	MINK ST NW	0.0	0.0	0.0	0.1	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 34

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156323	SR 161 EB EXIT RAMP	0.7	0.1	0.6	0.8	10
NEB T	156324	SR 161 EB EXIT RAMP	0.4	0.1	0.3	0.5	10
NEB T	156353	SR 161 EB EXIT RAMP	0.3	0.0	0.3	0.4	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 38

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156364	MINK ST NW	4.3	0.2	3.8	4.6	10
NEB T	156365	MINK ST NW	4.0	0.3	3.5	4.5	10
NEB T	156366	MINK ST NW	3.4	0.2	2.9	3.7	10
SB T	156369	MINK ST NW	5.9	0.2	5.4	6.2	10
SB T	156370	MINK ST NW	5.7	0.2	5.2	6.0	10
SB T	156451	MINK ST NW	5.6	0.3	5.1	6.0	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 38

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB R	156372	SR 161 WB EXIT RAMP	0.2	0.0	0.2	0.3	10
NB R	156373	SR 161 WB EXIT RAMP	0.2	0.0	0.1	0.2	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB T	156258	MINK ST NW	0.2	0.1	0.1	0.3	10
SWB L	156270	MINK ST NW	0.3	0.1	0.2	0.3	10
SWB T	156393	MINK ST NW	0.3	0.0	0.2	0.4	10
SWB R	156445	MINK ST NW	0.1	0.0	0.0	0.1	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	153565	MINK ST SW	1.5	0.2	1.3	1.7	10
NEB L	156321	MINK ST SW	0.1	0.0	0.1	0.1	10
NEB TR	156392	MINK ST SW	1.6	0.2	1.3	1.9	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	153286	WORTHINGTON RD	2.3	0.2	2.0	2.5	10
EB TR	153287	WORTHINGTON RD	1.9	0.1	1.6	2.0	10
WB L	153562	WORTHINGTON RD	0.1	0.0	0.1	0.2	10
WB TR	153563	WORTHINGTON RD	1.5	0.3	1.2	2.1	10

Project: Mink Corridor Proposed DDI w North
Scenario: PM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 16:00:00 - 17:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Lane Queue by Intersection - Percentile Queue

MINK ST NW & BEAVER RD — NODE: 18

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NWB L	156456	BEAVER RD	1,000.7	234.3	481.9	1,344.9	10
NWB LR	156457	BEAVER RD	964.3	208.2	507.1	1,166.7	10

MINK ST NW & BEAVER RD — NODE: 18

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB L	156233	MINK ST NW	1.0	3.3	0.0	10.4	10
SWB T	156234	MINK ST NW	675.3	33.3	618.3	713.1	10
SWB T	156235	MINK ST NW	351.3	79.4	255.7	505.5	10
NEB T	156469	MINK ST NW	78.4	16.0	45.8	96.8	10
NEB T	156470	MINK ST NW	91.8	8.1	76.9	102.8	10
NEB R	156492	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB T	156499	MINK ST NW	301.1	32.8	260.0	367.5	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SEB L	156228	CLOVER VALLEY EXT	24.7	13.1	16.7	54.0	10
SEB R	156229	CLOVER VALLEY EXT	308.7	23.0	275.8	342.5	10
SEB R	156411	CLOVER VALLEY EXT	312.1	14.2	286.4	329.2	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB T	153566	MINK ST NW	42.1	20.4	0.7	74.5	10
NB T	156220	MINK ST NW	45.1	25.1	0.0	70.2	10
NEB L	156226	MINK ST NW	33.8	17.1	17.9	62.3	10
NEB T	156227	MINK ST NW	2.6	7.0	0.0	22.4	10
NB L	156247	MINK ST NW	88.5	24.6	61.9	146.6	10
SWB T	156417	MINK ST NW	2,008.6	218.2	1,727.6	2,565.3	10
SWB TR	156418	MINK ST NW	1,826.8	157.0	1,580.4	2,046.0	10
NEB T	156482	MINK ST NW	12.6	6.8	0.0	18.4	10
NEB L	156498	MINK ST NW	32.4	11.8	17.7	43.9	10

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156208	INNOVATION WAY	22.8	11.3	16.4	44.8	10
EB R	156209	INNOVATION WAY	178.3	65.0	108.7	326.8	10

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156193	MINK ST NW	71.1	3.9	64.9	76.4	10
NEB T	156194	MINK ST NW	94.2	16.3	68.5	119.2	10
NEB L	156218	MINK ST NW	5.0	6.8	0.0	17.2	10
NEB T	156383	MINK ST NW	86.9	17.0	48.1	103.3	10
SWB T	156476	MINK ST NW	818.6	103.0	668.7	954.2	10
SWB T	156477	MINK ST NW	915.5	40.8	841.1	967.0	10
SWB TR	156478	MINK ST NW	609.2	107.9	456.4	720.9	10

MINK ST NW & JUG ST — NODE: 33082

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156252	JUG ST	63.7	20.8	44.9	100.0	10
EB R	156253	JUG ST	58.2	13.0	45.0	79.1	10

MINK ST NW & JUG ST — NODE: 33082

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SB T	153676	MINK ST NW	161.4	37.6	110.8	208.6	10
SB TR	156248	MINK ST NW	162.2	29.0	116.1	210.0	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 34

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB T	156328	MINK ST NW	306.9	23.3	274.9	341.0	10
NB T	156329	MINK ST NW	224.2	19.9	201.2	258.8	10
SWB T	156342	MINK ST NW	3.3	6.8	0.0	16.5	10
SWB T	156343	MINK ST NW	6.9	8.8	0.0	18.1	10
NB T	156436	MINK ST NW	194.6	22.3	150.1	221.8	10
SWB T	156449	MINK ST NW	1.6	5.2	0.0	16.4	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 34

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156323	SR 161 EB EXIT RAMP	98.4	12.0	76.6	115.2	10
NEB T	156324	SR 161 EB EXIT RAMP	65.8	19.4	44.8	101.5	10
NEB T	156353	SR 161 EB EXIT RAMP	44.8	10.7	20.7	58.4	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 38

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156364	MINK ST NW	346.9	11.3	321.6	362.5	10
NEB T	156365	MINK ST NW	320.2	24.1	283.9	357.4	10
NEB T	156366	MINK ST NW	280.8	13.7	257.2	297.9	10
SB T	156369	MINK ST NW	356.4	1.4	353.7	358.7	10
SB T	156370	MINK ST NW	363.8	11.5	357.8	396.2	10
SB T	156451	MINK ST NW	367.7	8.4	359.0	388.8	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 38

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB R	156372	SR 161 WB EXIT RAMP	21.7	8.0	16.4	36.8	10
NB R	156373	SR 161 WB EXIT RAMP	18.2	1.6	16.4	20.7	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB T	156258	MINK ST NW	21.8	8.3	14.7	42.1	10
SWB L	156270	MINK ST NW	23.1	11.0	7.2	40.1	10
SWB T	156393	MINK ST NW	48.5	19.1	16.5	73.0	10
SWB R	156445	MINK ST NW	0.1	0.3	0.0	0.8	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	153565	MINK ST SW	201.1	22.7	160.5	225.0	10
NEB L	156321	MINK ST SW	6.2	2.6	0.2	11.1	10
NEB TR	156392	MINK ST SW	208.4	22.6	165.0	241.5	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	153286	WORTHINGTON RD	176.0	12.1	155.4	195.8	10
EB TR	153287	WORTHINGTON RD	159.3	16.5	126.5	180.7	10
WB L	153562	WORTHINGTON RD	16.6	1.2	15.6	19.8	10
WB TR	153563	WORTHINGTON RD	124.6	30.1	74.9	184.7	10

Project: Mink Corridor Proposed DDI w North
Scenario: PM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 16:00:00 - 17:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Lane Queue by Intersection - Percentile Num Queued

MINK ST NW & BEAVER RD — NODE: 18

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NWB L	156456	BEAVER RD	33.5	7.5	16.0	42.1	10
NWB LR	156457	BEAVER RD	32.1	6.4	18.0	39.0	10

MINK ST NW & BEAVER RD — NODE: 18

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB L	156233	MINK ST NW	0.5	0.5	0.0	1.0	10
SWB T	156234	MINK ST NW	21.6	0.9	20.0	23.0	10
SWB T	156235	MINK ST NW	11.5	1.8	10.0	14.1	10
NEB T	156469	MINK ST NW	2.7	0.5	2.0	3.0	10
NEB T	156470	MINK ST NW	3.3	0.5	3.0	4.0	10
NEB R	156492	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB T	156499	MINK ST NW	10.3	1.6	8.0	13.0	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SEB L	156228	CLOVER VALLEY EXT	1.1	0.3	1.0	2.0	10
SEB R	156229	CLOVER VALLEY EXT	10.7	0.7	10.0	12.0	10
SEB R	156411	CLOVER VALLEY EXT	10.7	0.5	10.0	11.0	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB T	153566	MINK ST NW	1.6	0.7	0.0	2.0	10
NB T	156220	MINK ST NW	1.9	1.0	0.0	3.0	10
NEB L	156226	MINK ST NW	1.2	0.4	1.0	2.0	10
NEB T	156227	MINK ST NW	0.1	0.3	0.0	1.0	10
NB L	156247	MINK ST NW	3.4	0.7	3.0	5.0	10
SWB T	156417	MINK ST NW	66.5	6.9	59.1	84.1	10
SWB TR	156418	MINK ST NW	59.8	5.7	51.1	68.2	10
NEB T	156482	MINK ST NW	0.8	0.4	0.0	1.0	10
NEB L	156498	MINK ST NW	1.2	0.4	1.0	2.0	10

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156208	INNOVATION WAY	1.0	0.0	1.0	1.0	10
EB R	156209	INNOVATION WAY	5.8	2.1	4.0	10.0	10

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156193	MINK ST NW	2.5	0.5	2.0	3.0	10
NEB T	156194	MINK ST NW	3.5	0.7	3.0	5.0	10
NEB L	156218	MINK ST NW	1.0	0.0	1.0	1.0	10
NEB T	156383	MINK ST NW	3.1	0.7	2.0	4.0	10
SWB T	156476	MINK ST NW	25.4	2.5	22.0	30.0	10
SWB T	156477	MINK ST NW	29.1	1.8	27.0	32.1	10
SWB TR	156478	MINK ST NW	19.9	3.7	15.1	25.0	10

MINK ST NW & JUG ST — NODE: 33082

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156252	JUG ST	2.5	0.7	2.0	4.0	10
EB R	156253	JUG ST	2.1	0.3	2.0	3.0	10

MINK ST NW & JUG ST — NODE: 33082

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SB T	153676	MINK ST NW	5.7	1.3	3.0	7.0	10
SB TR	156248	MINK ST NW	5.8	0.8	4.0	7.0	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 34

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB T	156328	MINK ST NW	10.2	0.9	9.0	11.0	10
NB T	156329	MINK ST NW	8.0	0.8	6.0	9.0	10
SWB T	156342	MINK ST NW	0.2	0.4	0.0	1.0	10
SWB T	156343	MINK ST NW	0.4	0.5	0.0	1.0	10
NB T	156436	MINK ST NW	6.7	0.5	6.0	7.0	10
SWB T	156449	MINK ST NW	0.1	0.3	0.0	1.0	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 34

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156323	SR 161 EB EXIT RAMP	3.5	0.5	3.0	4.0	10
NEB T	156324	SR 161 EB EXIT RAMP	2.0	0.0	2.0	2.0	10
NEB T	156353	SR 161 EB EXIT RAMP	1.9	0.3	1.0	2.0	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 38

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156364	MINK ST NW	11.8	0.4	11.0	12.0	10
NEB T	156365	MINK ST NW	11.1	0.6	10.0	12.0	10
NEB T	156366	MINK ST NW	9.4	0.8	8.0	11.0	10
SB T	156369	MINK ST NW	13.5	0.5	13.0	14.0	10
SB T	156370	MINK ST NW	13.1	0.3	13.0	14.0	10
SB T	156451	MINK ST NW	13.4	0.5	13.0	14.0	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 38

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB R	156372	SR 161 WB EXIT RAMP	1.1	0.3	1.0	2.0	10
NB R	156373	SR 161 WB EXIT RAMP	1.0	0.0	1.0	1.0	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB T	156258	MINK ST NW	1.1	0.3	1.0	2.0	10
SWB L	156270	MINK ST NW	1.3	0.5	1.0	2.0	10
SWB T	156393	MINK ST NW	1.7	0.7	1.0	3.0	10
SWB R	156445	MINK ST NW	0.0	0.0	0.0	0.0	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	153565	MINK ST SW	6.4	0.5	6.0	7.0	10
NEB L	156321	MINK ST SW	0.9	0.3	0.0	1.0	10
NEB TR	156392	MINK ST SW	7.1	0.9	6.0	8.0	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	153286	WORTHINGTON RD	6.2	0.4	6.0	7.0	10
EB TR	153287	WORTHINGTON RD	5.1	0.6	4.0	6.0	10
WB L	153562	WORTHINGTON RD	1.0	0.0	1.0	1.0	10
WB TR	153563	WORTHINGTON RD	4.2	1.1	3.0	7.0	10

Project: Mink Corridor Proposed DDI w North
Scenario: PM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 16:00:00 - 17:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Lane Queue by Intersection - Spillback Rate

MINK ST NW & BEAVER RD — NODE: 18

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NWB L	156456	BEAVER RD	0.0	0.0	0.0	0.0	10
NWB LR	156457	BEAVER RD	0.0	0.0	0.0	0.0	10

MINK ST NW & BEAVER RD — NODE: 18

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB L	156233	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB T	156234	MINK ST NW	0.0	0.0	0.0	0.1	10
SWB T	156235	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB T	156469	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB T	156470	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB R	156492	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB T	156499	MINK ST NW	0.0	0.0	0.0	0.0	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SEB L	156228	CLOVER VALLEY EXT	0.0	0.0	0.0	0.0	10
SEB R	156229	CLOVER VALLEY EXT	0.0	0.0	0.0	0.0	10
SEB R	156411	CLOVER VALLEY EXT	0.0	0.0	0.0	0.0	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB T	153566	MINK ST NW	0.0	0.0	0.0	0.0	10
NB T	156220	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB L	156226	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB T	156227	MINK ST NW	0.0	0.0	0.0	0.0	10
NB L	156247	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB T	156417	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB TR	156418	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB T	156482	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB L	156498	MINK ST NW	0.0	0.0	0.0	0.0	10

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156208	INNOVATION WAY	0.0	0.0	0.0	0.0	10
EB R	156209	INNOVATION WAY	0.0	0.0	0.0	0.0	10

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156193	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB T	156194	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB L	156218	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB T	156383	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB T	156476	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB T	156477	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB TR	156478	MINK ST NW	0.0	0.0	0.0	0.0	10

MINK ST NW & JUG ST — NODE: 33082

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156252	JUG ST	0.0	0.0	0.0	0.0	10
EB R	156253	JUG ST	0.0	0.0	0.0	0.0	10

MINK ST NW & JUG ST — NODE: 33082

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SB T	153676	MINK ST NW	0.0	0.0	0.0	0.0	10
SB TR	156248	MINK ST NW	0.0	0.0	0.0	0.0	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 34

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB T	156328	MINK ST NW	0.0	0.0	0.0	0.0	10
NB T	156329	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB T	156342	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB T	156343	MINK ST NW	0.0	0.0	0.0	0.0	10
NB T	156436	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB T	156449	MINK ST NW	0.0	0.0	0.0	0.0	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 34

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156323	SR 161 EB EXIT RAMP	0.0	0.0	0.0	0.0	10
NEB T	156324	SR 161 EB EXIT RAMP	0.0	0.0	0.0	0.0	10
NEB T	156353	SR 161 EB EXIT RAMP	0.0	0.0	0.0	0.0	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 38

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156364	MINK ST NW	0.1	0.0	0.0	0.1	10
NEB T	156365	MINK ST NW	0.0	0.0	0.0	0.1	10
NEB T	156366	MINK ST NW	0.0	0.0	0.0	0.0	10
SB T	156369	MINK ST NW	0.4	0.0	0.4	0.5	10
SB T	156370	MINK ST NW	0.4	0.0	0.4	0.5	10
SB T	156451	MINK ST NW	0.4	0.0	0.4	0.4	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 38

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB R	156372	SR 161 WB EXIT RAMP	0.0	0.0	0.0	0.0	10
NB R	156373	SR 161 WB EXIT RAMP	0.0	0.0	0.0	0.0	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB T	156258	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB L	156270	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB T	156393	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB R	156445	MINK ST NW	0.0	0.0	0.0	0.0	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	153565	MINK ST SW	0.0	0.0	0.0	0.0	10
NEB L	156321	MINK ST SW	0.0	0.0	0.0	0.0	10
NEB TR	156392	MINK ST SW	0.0	0.0	0.0	0.0	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	153286	WORTHINGTON RD	0.0	0.0	0.0	0.0	10
EB TR	153287	WORTHINGTON RD	0.0	0.0	0.0	0.0	10
WB L	153562	WORTHINGTON RD	0.0	0.0	0.0	0.0	10
WB TR	153563	WORTHINGTON RD	0.0	0.0	0.0	0.0	10

Project: Mink Corridor Proposed DDI w North
Scenario: PM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 16:00:00 - 17:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Spillback Queue by Intersection - Overview

MINK ST NW & BEAVER RD — NODE: 18

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
NEB on MINK ST NW							
1	60.0	15.4	1.0	103.4	8.0	1.0	8.0
2	60.0	21.9	1.5	120.0	7.0	1.5	7.0
3	60.0	21.8	1.2	155.3	7.0	1.2	7.0
4	60.0	23.7	1.2	158.3	9.0	1.2	9.0
5	60.0	21.1	1.1	136.4	8.0	1.1	8.0
6	60.0	19.0	1.2	131.2	8.0	1.2	8.0
7	60.0	25.7	1.5	183.1	8.0	1.5	8.0
8	60.0	27.1	1.5	169.3	9.0	1.5	9.0
9	60.0	31.0	1.9	168.3	10.0	1.9	10.0
10	60.0	29.4	1.7	184.2	8.0	1.7	8.0
Average:	**60.0**	**23.6**	**1.4**	**151.0**	**8.2**	**1.4**	**8.2**
NWB on BEAVER RD							
1	60.0	473.4	26.3	1,494.2	89.0	26.3	89.0
2	60.0	679.9	32.9	1,885.0	88.0	32.9	88.0
3	60.0	414.1	22.4	1,263.0	76.0	22.4	76.0
4	60.0	556.1	28.3	1,872.1	82.0	28.3	82.0
5	60.0	644.7	32.5	1,745.5	83.0	32.5	83.0
6	60.0	796.4	39.0	2,123.3	98.0	39.0	98.0
7	60.0	290.1	15.1	616.9	35.0	15.1	35.0
8	60.0	616.3	31.9	2,218.4	107.0	31.9	107.0
9	60.0	644.8	31.1	2,254.2	92.0	31.1	92.0
10	60.0	457.5	23.4	1,106.4	66.0	23.4	66.0
Average:	**60.0**	**557.3**	**28.3**	**1,657.9**	**81.6**	**28.3**	**81.6**
SWB on MINK ST NW							
1	60.0	296.2	15.6	1,512.6	88.0	16.8	100.0
2	60.0	311.7	16.2	2,700.0	103.0	17.7	122.0
3	60.0	270.9	13.7	3,284.3	131.0	14.9	147.0
4	60.0	291.2	15.5	2,585.5	107.0	16.9	121.0
5	60.0	309.1	16.1	3,362.0	185.0	17.8	204.0
6	60.0	252.5	13.1	1,237.1	69.0	13.6	80.0
7	60.0	291.0	15.3	2,583.6	128.0	16.6	148.0
8	60.0	268.2	13.8	3,013.8	150.0	14.5	169.0

MINK ST NW & BEAVER RD — NODE: 18

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
9	60.0	344.0	18.5	1,708.3	90.0	20.5	109.0
10	60.0	455.8	23.8	3,474.0	157.0	26.6	175.0
Average:	**60.0**	**309.1**	**16.2**	**2,546.1**	**120.8**	**17.6**	**137.5**

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
NEB on MINK ST NW							
1	60.0	14.4	1.0	118.7	8.0	1.0	8.0
2	60.0	10.2	0.7	105.1	7.0	0.7	7.0
3	60.0	6.7	0.5	65.1	4.0	0.5	4.0
4	60.0	16.1	0.9	114.4	5.0	0.9	5.0
5	60.0	12.7	0.7	75.4	6.0	0.7	6.0
6	60.0	7.2	0.5	60.3	6.0	0.5	6.0
7	60.0	14.4	1.0	115.9	8.0	1.0	8.0
8	60.0	11.2	0.7	112.4	5.0	0.7	5.0
9	60.0	9.7	0.6	56.3	5.0	0.6	5.0
10	60.0	15.3	1.0	122.9	9.0	1.0	9.0
Average:	**60.0**	**11.8**	**0.8**	**94.7**	**6.3**	**0.8**	**6.3**
SEB on CLOVER VALLEY EXT							
1	60.0	165.0	9.4	422.5	23.0	9.4	23.0
2	60.0	170.0	9.4	422.5	22.0	9.4	22.0
3	60.0	145.2	7.8	425.3	24.0	7.8	24.0
4	60.0	168.2	9.2	430.6	25.0	9.2	25.0
5	60.0	153.3	8.5	457.4	26.0	8.5	26.0
6	60.0	152.7	8.2	430.4	22.0	8.2	22.0
7	60.0	174.9	9.9	491.0	27.0	9.9	27.0
8	60.0	161.1	8.8	451.6	22.0	8.8	22.0
9	60.0	182.8	10.5	432.0	26.0	10.5	26.0
10	60.0	168.5	10.2	435.6	26.0	10.2	26.0
Average:	**60.0**	**164.2**	**9.2**	**439.9**	**24.3**	**9.2**	**24.3**
SWB on MINK ST NW							
1	60.0	829.4	47.8	2,607.5	166.0	47.8	166.0
2	60.0	870.6	50.0	2,656.2	156.0	50.0	156.0
3	60.0	741.3	41.7	2,452.7	149.0	41.7	149.0
4	60.0	735.1	44.2	2,947.4	187.0	44.3	195.0
5	60.0	846.6	48.9	3,043.0	181.0	49.0	183.0
6	60.0	679.9	41.7	2,377.5	156.0	41.7	156.0
7	60.0	626.8	35.0	2,959.2	171.0	35.1	171.0
8	60.0	993.1	57.3	2,806.7	185.0	57.4	186.0

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
9	60.0	737.7	41.8	3,046.4	168.0	41.9	169.0
10	60.0	791.9	44.2	3,322.6	187.0	44.3	188.0
Average:	**60.0**	**785.2**	**45.3**	**2,821.9**	**170.6**	**45.3**	**171.9**

MINK ST NW & INNOVATION WAY — NODE: 15

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
EB on INNOVATION WAY							
1	60.0	154.1	5.3	329.2	10.0	5.3	10.0
2	60.0	56.9	2.4	154.0	6.0	2.4	6.0
3	60.0	54.7	2.2	239.1	7.0	2.2	7.0
4	60.0	50.2	2.0	182.9	5.0	2.0	5.0
5	60.0	48.0	2.0	157.3	6.0	2.0	6.0
6	60.0	66.7	2.3	308.3	10.0	2.3	10.0
7	60.0	71.8	2.9	296.1	12.0	2.9	12.0
8	60.0	59.6	2.2	281.9	7.0	2.2	7.0
9	60.0	75.5	2.7	236.5	8.0	2.7	8.0
10	60.0	45.6	1.9	153.8	6.0	1.9	6.0
Average:	**60.0**	**68.3**	**2.6**	**233.9**	**7.7**	**2.6**	**7.7**
NEB on MINK ST NW							
1	60.0	14.0	1.2	128.5	10.0	1.2	10.0
2	60.0	11.9	0.9	149.1	11.0	0.9	11.0
3	60.0	24.1	1.5	174.8	13.0	1.5	13.0
4	60.0	14.9	1.2	139.1	12.0	1.2	12.0
5	60.0	32.0	1.9	234.3	12.0	1.9	12.0
6	60.0	23.3	1.7	136.1	10.0	1.7	10.0
7	60.0	21.2	1.6	165.6	14.0	1.6	14.0
8	60.0	18.3	1.4	159.1	12.0	1.4	12.0
9	60.0	13.2	1.0	132.2	10.0	1.0	10.0
10	60.0	17.4	1.3	148.8	12.0	1.3	12.0
Average:	**60.0**	**19.0**	**1.4**	**156.8**	**11.6**	**1.4**	**11.6**
SWB on MINK ST NW							
1	60.0	765.8	40.7	2,646.3	183.0	42.5	192.0
2	60.0	875.0	40.9	2,607.6	135.0	42.1	147.0
3	60.0	697.4	35.5	2,269.9	143.0	36.2	148.0
4	60.0	748.8	37.7	2,074.3	150.0	39.1	156.0
5	60.0	802.9	40.8	2,791.5	157.0	42.5	163.0
6	60.0	725.0	36.0	2,977.1	155.0	37.4	158.0
7	60.0	712.9	34.4	1,709.7	117.0	35.4	122.0
8	60.0	811.1	40.3	2,664.4	153.0	40.9	154.0

MINK ST NW & INNOVATION WAY — NODE: 15

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
9	60.0	773.4	36.3	3,295.0	174.0	37.7	183.0
10	60.0	664.8	30.1	2,061.2	138.0	30.5	140.0
Average:	**60.0**	**757.7**	**37.3**	**2,509.7**	**150.5**	**38.4**	**156.3**

MINK ST NW & JUG ST — NODE: 33082

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
EB on JUG ST							
1	60.0	30.7	1.4	174.4	7.0	1.4	7.0
2	60.0	21.8	1.1	129.4	6.0	1.1	6.0
3	60.0	15.8	1.0	107.0	5.0	1.0	5.0
4	60.0	31.6	1.5	168.8	8.0	1.5	8.0
5	60.0	20.4	1.2	91.9	4.0	1.2	4.0
6	60.0	28.0	1.7	96.5	5.0	1.7	5.0
7	60.0	24.4	1.4	134.6	5.0	1.4	5.0
8	60.0	26.7	1.5	125.2	6.0	1.5	6.0
9	60.0	18.6	1.0	125.7	6.0	1.0	6.0
10	60.0	19.0	1.1	127.0	7.0	1.1	7.0
Average:	**60.0**	**23.7**	**1.3**	**128.1**	**5.9**	**1.3**	**5.9**
NB on MINK ST NW							
1	60.0	19.3	1.1	193.2	11.0	1.1	11.0
2	60.0	34.1	1.9	191.0	13.0	1.9	13.0
3	60.0	25.7	1.4	164.9	9.0	1.4	9.0
4	60.0	23.2	1.4	165.5	8.0	1.4	8.0
5	60.0	21.4	1.5	176.3	12.0	1.5	12.0
6	60.0	28.9	1.2	122.5	7.0	1.2	7.0
7	60.0	25.9	1.3	211.5	10.0	1.3	10.0
8	60.0	25.7	1.4	199.8	14.0	1.4	14.0
9	60.0	25.7	1.6	238.7	14.0	1.6	14.0
10	60.0	36.1	2.2	207.5	13.0	2.2	13.0
Average:	**60.0**	**26.6**	**1.5**	**187.1**	**11.1**	**1.5**	**11.1**
SB on MINK ST NW							
1	60.0	54.3	2.5	319.3	13.0	2.5	13.0
2	60.0	37.9	1.9	236.2	13.0	1.9	13.0
3	60.0	48.3	2.7	343.5	17.0	2.7	17.0
4	60.0	42.8	2.3	351.4	24.0	2.3	24.0
5	60.0	38.1	2.0	397.9	18.0	2.0	18.0
6	60.0	24.2	1.3	304.5	18.0	1.3	18.0
7	60.0	55.1	3.1	306.2	17.0	3.1	17.0
8	60.0	62.4	3.1	493.1	26.0	3.1	26.0

MINK ST NW & JUG ST — NODE: 33082

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
9	60.0	55.0	3.0	257.0	17.0	3.0	17.0
10	60.0	69.3	4.0	564.5	37.0	4.0	37.0
Average:	**60.0**	**48.7**	**2.6**	**357.4**	**20.0**	**2.6**	**20.0**

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 34

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
NB on MINK ST NW							
1	60.0	134.9	10.0	406.2	32.0	10.0	32.0
2	60.0	112.0	8.5	366.8	30.0	8.5	30.0
3	60.0	110.9	7.7	524.6	31.0	7.7	31.0
4	60.0	126.4	9.5	430.8	34.0	9.5	34.0
5	60.0	137.2	9.9	464.2	32.0	9.9	32.0
6	60.0	126.6	9.0	431.8	36.0	9.0	36.0
7	60.0	102.1	7.4	398.3	29.0	7.4	29.0
8	60.0	115.5	8.0	428.9	30.0	8.0	30.0
9	60.0	122.4	8.7	469.3	32.0	8.7	32.0
10	60.0	134.5	10.1	421.0	30.0	10.1	30.0
Average:	**60.0**	**122.3**	**8.9**	**434.2**	**31.6**	**8.9**	**31.6**
NEB on SR 161 EB EXIT RAMP							
1	60.0	22.3	1.5	109.7	9.0	1.5	9.0
2	60.0	33.2	1.9	159.2	9.0	1.9	9.0
3	60.0	29.5	1.7	126.8	10.0	1.7	10.0
4	60.0	34.7	2.1	208.8	9.0	2.1	9.0
5	60.0	31.0	1.9	162.6	10.0	1.9	10.0
6	60.0	25.5	1.5	197.6	9.0	1.5	9.0
7	60.0	35.9	2.3	172.0	12.0	2.3	12.0
8	60.0	26.5	1.7	151.5	10.0	1.7	10.0
9	60.0	29.7	2.0	155.1	9.0	2.0	9.0
10	60.0	23.1	1.5	183.6	9.0	1.5	9.0
Average:	**60.0**	**29.1**	**1.8**	**162.7**	**9.6**	**1.8**	**9.6**
SWB on MINK ST NW							
1	60.0	4.1	0.3	56.1	3.0	0.3	3.0
2	60.0	7.3	0.3	169.6	7.0	0.3	7.0
3	60.0	4.1	0.2	129.8	2.0	0.2	2.0
4	60.0	9.0	0.2	159.6	2.0	0.2	2.0
5	60.0	1.5	0.1	17.0	1.0	0.1	1.0
6	60.0	4.6	0.2	84.2	3.0	0.2	3.0
7	60.0	1.4	0.1	23.0	1.0	0.1	1.0
8	60.0	3.6	0.1	136.2	2.0	0.1	2.0

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 34

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
9	60.0	7.8	0.3	245.8	8.0	0.3	8.0
10	60.0	8.1	0.3	141.3	5.0	0.3	5.0
Average:	**60.0**	**5.2**	**0.2**	**116.3**	**3.4**	**0.2**	**3.4**

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 38

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
NB on SR 161 WB EXIT RAMP							
1	60.0	8.2	0.4	98.2	3.0	0.4	3.0
2	60.0	6.6	0.4	71.2	3.0	0.4	3.0
3	60.0	7.2	0.5	80.1	4.0	0.5	4.0
4	60.0	5.6	0.3	39.5	3.0	0.3	3.0
5	60.0	8.2	0.4	72.2	2.0	0.4	2.0
6	60.0	6.2	0.4	92.5	3.0	0.4	3.0
7	60.0	7.6	0.6	59.2	3.0	0.6	3.0
8	60.0	4.0	0.3	45.9	3.0	0.3	3.0
9	60.0	8.2	0.5	156.1	5.0	0.5	5.0
10	60.0	8.5	0.4	75.4	3.0	0.4	3.0
Average:	**60.0**	**7.0**	**0.4**	**79.0**	**3.2**	**0.4**	**3.2**
NEB on MINK ST NW							
1	60.0	157.7	11.8	691.3	46.0	11.8	46.0
2	60.0	179.5	12.4	741.5	47.0	12.5	47.0
3	60.0	165.2	12.5	674.9	46.0	12.6	50.0
4	60.0	216.4	14.8	904.6	46.0	15.0	50.0
5	60.0	160.7	12.6	699.9	46.0	12.7	46.0
6	60.0	232.0	17.5	734.2	47.0	17.7	50.0
7	60.0	170.2	12.3	711.4	42.0	12.4	43.0
8	60.0	170.6	12.7	722.9	44.0	12.7	44.0
9	60.0	158.1	11.5	683.4	47.0	11.6	47.0
10	60.0	140.1	10.1	679.0	43.0	10.1	43.0
Average:	**60.0**	**175.1**	**12.8**	**724.3**	**45.4**	**12.9**	**46.6**
SB on MINK ST NW							
1	60.0	505.3	37.7	2,990.5	157.0	38.6	173.0
2	60.0	561.9	39.9	3,158.8	195.0	40.3	198.0
3	60.0	472.1	36.0	2,701.7	162.0	36.4	166.0
4	60.0	564.9	40.7	3,064.2	176.0	41.3	182.0
5	60.0	468.0	36.5	1,951.1	125.0	36.7	128.0
6	60.0	358.5	25.1	1,981.1	121.0	25.4	127.0
7	60.0	531.6	38.6	1,982.7	105.0	38.8	107.0
8	60.0	497.1	35.6	3,654.3	218.0	35.9	221.0

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 38

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
9	60.0	683.5	47.0	3,328.2	204.0	47.8	209.0
10	60.0	558.9	39.1	2,467.5	124.0	39.6	132.0
Average:	**60.0**	**520.2**	**37.6**	**2,728.0**	**158.7**	**38.1**	**164.3**

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
EB on WORTHINGTON RD							
1	60.0	93.0	4.6	367.2	15.0	4.6	15.0
2	60.0	77.5	4.4	204.1	11.0	4.4	11.0
3	60.0	92.8	4.7	353.4	13.0	4.7	13.0
4	60.0	84.7	4.6	224.2	12.0	4.6	12.0
5	60.0	92.6	4.5	268.8	12.0	4.5	12.0
6	60.0	68.2	3.8	248.7	12.0	3.8	12.0
7	60.0	86.8	4.8	244.8	12.0	4.8	12.0
8	60.0	80.6	4.5	235.2	12.0	4.5	12.0
9	60.0	88.0	4.9	227.5	13.0	4.9	13.0
10	60.0	79.9	4.4	246.1	10.0	4.4	10.0
Average:	**60.0**	**84.4**	**4.5**	**262.0**	**12.2**	**4.5**	**12.2**
NEB on MINK ST SW							
1	60.0	59.8	3.6	315.5	17.0	3.6	17.0
2	60.0	40.7	2.6	221.9	14.0	2.6	14.0
3	60.0	53.5	3.2	352.7	18.0	3.2	18.0
4	60.0	63.2	3.3	340.8	18.0	3.3	18.0
5	60.0	57.6	3.5	318.6	17.0	3.5	17.0
6	60.0	70.5	4.2	359.8	23.0	4.2	23.0
7	60.0	59.5	3.2	371.6	18.0	3.2	18.0
8	60.0	59.4	3.5	328.4	18.0	3.5	18.0
9	60.0	41.8	2.3	298.2	15.0	2.3	15.0
10	60.0	51.1	3.1	336.0	17.0	3.1	17.0
Average:	**60.0**	**55.7**	**3.3**	**324.4**	**17.5**	**3.3**	**17.5**
SWB on MINK ST NW							
1	60.0	15.0	0.9	253.8	16.0	0.9	16.0
2	60.0	23.7	1.2	351.7	17.0	1.2	17.0
3	60.0	13.2	0.9	218.1	13.0	0.9	13.0
4	60.0	7.6	0.6	127.4	8.0	0.6	8.0
5	60.0	10.7	0.8	132.7	10.0	0.8	10.0
6	60.0	13.8	0.9	149.5	10.0	0.9	10.0
7	60.0	11.5	0.6	178.6	8.0	0.6	8.0
8	60.0	13.1	0.9	148.5	11.0	0.9	11.0

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
9	60.0	12.8	0.7	94.5	4.0	0.7	4.0
10	60.0	17.2	1.2	243.4	15.0	1.2	15.0
Average:	**60.0**	**13.9**	**0.9**	**189.8**	**11.2**	**0.9**	**11.2**
WB on WORTHINGTON RD							
1	60.0	52.2	2.2	206.1	7.0	2.2	7.0
2	60.0	29.7	1.4	157.4	6.0	1.4	6.0
3	60.0	36.2	1.5	166.2	5.0	1.5	5.0
4	60.0	38.5	1.6	168.8	6.0	1.6	6.0
5	60.0	30.8	1.4	155.5	5.0	1.4	5.0
6	60.0	41.2	1.6	215.8	6.0	1.6	6.0
7	60.0	71.1	2.6	272.1	10.0	2.6	10.0
8	60.0	39.0	1.6	159.2	5.0	1.6	5.0
9	60.0	37.1	1.6	136.1	6.0	1.6	6.0
10	60.0	32.6	1.5	127.3	5.0	1.5	5.0
Average:	**60.0**	**40.8**	**1.7**	**176.5**	**6.1**	**1.7**	**6.1**

ABOUT SPILLBACK QUEUES

Spillback queues begin at the front bumper of the first vehicle in queue on a link. From there, the queue can branch as a tree in different directions as it spills upstream through intersections. The various branches of the spillback queue will extend beyond the originating link and superlink boundaries until the back of the queue is reached on every branch in the tree.

- Average/Maximum Queue Length: Distance from the front bumper of the first queued vehicle to the back bumper of the last queued vehicle for the longest branch
- Average/Maximum Vehicles Queued: Number of vehicles queued in all lanes for the longest branch

Project: Mink Corridor Proposed DDI w North
Scenario: PM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 16:00:00 - 17:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Spillback Queue by Intersection - Avg Queue

MINK ST NW & BEAVER RD — NODE: 18

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	23.6	4.8	15.4	31.0	10
NWB	BEAVER RD	557.3	149.0	290.1	796.4	10
SWB	MINK ST NW	309.1	57.6	252.5	455.8	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	11.8	3.3	6.7	16.1	10
SEB	CLOVER VALLEY EXT	164.2	11.3	145.2	182.8	10
SWB	MINK ST NW	785.2	105.0	626.8	993.1	10

MINK ST NW & INNOVATION WAY — NODE: 15

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	INNOVATION WAY	68.3	31.8	45.6	154.1	10
NEB	MINK ST NW	19.0	6.2	11.9	32.0	10
SWB	MINK ST NW	757.7	61.8	664.8	875.0	10

MINK ST NW & JUG ST — NODE: 33082

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	JUG ST	23.7	5.4	15.8	31.6	10
NB	MINK ST NW	26.6	5.2	19.3	36.1	10
SB	MINK ST NW	48.7	13.3	24.2	69.3	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 34

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB	MINK ST NW	122.3	11.8	102.1	137.2	10
NEB	SR 161 EB EXIT RAMP	29.1	4.7	22.3	35.9	10
SWB	MINK ST NW	5.2	2.7	1.4	9.0	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 38

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB	SR 161 WB EXIT RAMP	7.0	1.4	4.0	8.5	10
NEB	MINK ST NW	175.1	28.1	140.1	232.0	10
SB	MINK ST NW	520.2	84.3	358.5	683.5	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	WORTHINGTON RD	84.4	8.0	68.2	93.0	10
NEB	MINK ST SW	55.7	9.2	40.7	70.5	10
SWB	MINK ST NW	13.9	4.3	7.6	23.7	10
WB	WORTHINGTON RD	40.8	12.4	29.7	71.1	10

Project: Mink Corridor Proposed DDI w North
Scenario: PM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 16:00:00 - 17:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Spillback Queue by Intersection - Avg Num Queued

MINK ST NW & BEAVER RD — NODE: 18

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	1.4	0.3	1.0	1.9	10
NWB	BEAVER RD	28.3	6.8	15.1	39.0	10
SWB	MINK ST NW	16.2	3.1	13.1	23.8	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	0.8	0.2	0.5	1.0	10
SEB	CLOVER VALLEY EXT	9.2	0.9	7.8	10.5	10
SWB	MINK ST NW	45.3	6.1	35.0	57.3	10

MINK ST NW & INNOVATION WAY — NODE: 15

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	INNOVATION WAY	2.6	1.0	1.9	5.3	10
NEB	MINK ST NW	1.4	0.3	0.9	1.9	10
SWB	MINK ST NW	37.3	3.5	30.1	40.9	10

MINK ST NW & JUG ST — NODE: 33082

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	JUG ST	1.3	0.2	1.0	1.7	10
NB	MINK ST NW	1.5	0.3	1.1	2.2	10
SB	MINK ST NW	2.6	0.8	1.3	4.0	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 34

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB	MINK ST NW	8.9	1.0	7.4	10.1	10
NEB	SR 161 EB EXIT RAMP	1.8	0.3	1.5	2.3	10
SWB	MINK ST NW	0.2	0.1	0.1	0.3	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 38

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB	SR 161 WB EXIT RAMP	0.4	0.1	0.3	0.6	10
NEB	MINK ST NW	12.8	2.0	10.1	17.5	10
SB	MINK ST NW	37.6	5.5	25.1	47.0	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	WORTHINGTON RD	4.5	0.3	3.8	4.9	10
NEB	MINK ST SW	3.3	0.5	2.3	4.2	10
SWB	MINK ST NW	0.9	0.2	0.6	1.2	10
WB	WORTHINGTON RD	1.7	0.4	1.4	2.6	10

Project: Mink Corridor Proposed DDI w North
Scenario: PM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 16:00:00 - 17:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Spillback Queue by Intersection - Avg Total Queued

MINK ST NW & BEAVER RD — NODE: 18

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	1.4	0.3	1.0	1.9	10
NWB	BEAVER RD	28.3	6.8	15.1	39.0	10
SWB	MINK ST NW	17.6	3.7	13.6	26.6	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	0.8	0.2	0.5	1.0	10
SEB	CLOVER VALLEY EXT	9.2	0.9	7.8	10.5	10
SWB	MINK ST NW	45.3	6.1	35.1	57.4	10

MINK ST NW & INNOVATION WAY — NODE: 15

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	INNOVATION WAY	2.6	1.0	1.9	5.3	10
NEB	MINK ST NW	1.4	0.3	0.9	1.9	10
SWB	MINK ST NW	38.4	3.8	30.5	42.5	10

MINK ST NW & JUG ST — NODE: 33082

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	JUG ST	1.3	0.2	1.0	1.7	10
NB	MINK ST NW	1.5	0.3	1.1	2.2	10
SB	MINK ST NW	2.6	0.8	1.3	4.0	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 34

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB	MINK ST NW	8.9	1.0	7.4	10.1	10
NEB	SR 161 EB EXIT RAMP	1.8	0.3	1.5	2.3	10
SWB	MINK ST NW	0.2	0.1	0.1	0.3	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 38

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB	SR 161 WB EXIT RAMP	0.4	0.1	0.3	0.6	10
NEB	MINK ST NW	12.9	2.1	10.1	17.7	10
SB	MINK ST NW	38.1	5.6	25.4	47.8	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	WORTHINGTON RD	4.5	0.3	3.8	4.9	10
NEB	MINK ST SW	3.3	0.5	2.3	4.2	10
SWB	MINK ST NW	0.9	0.2	0.6	1.2	10
WB	WORTHINGTON RD	1.7	0.4	1.4	2.6	10

Project: Mink Corridor Proposed DDI w North
Scenario: PM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 16:00:00 - 17:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Spillback Queue by Intersection - Max Queue

MINK ST NW & BEAVER RD — NODE: 18

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	151.0	27.2	103.4	184.2	10
NWB	BEAVER RD	1,657.9	533.5	616.9	2,254.2	10
SWB	MINK ST NW	2,546.1	802.8	1,237.1	3,474.0	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	94.7	27.0	56.3	122.9	10
SEB	CLOVER VALLEY EXT	439.9	21.4	422.5	491.0	10
SWB	MINK ST NW	2,821.9	296.7	2,377.5	3,322.6	10

MINK ST NW & INNOVATION WAY — NODE: 15

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	INNOVATION WAY	233.9	68.4	153.8	329.2	10
NEB	MINK ST NW	156.8	31.1	128.5	234.3	10
SWB	MINK ST NW	2,509.7	477.8	1,709.7	3,295.0	10

MINK ST NW & JUG ST — NODE: 33082

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	JUG ST	128.1	27.1	91.9	174.4	10
NB	MINK ST NW	187.1	31.9	122.5	238.7	10
SB	MINK ST NW	357.4	102.6	236.2	564.5	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 34

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB	MINK ST NW	434.2	43.6	366.8	524.6	10
NEB	SR 161 EB EXIT RAMP	162.7	30.1	109.7	208.8	10
SWB	MINK ST NW	116.3	71.4	17.0	245.8	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 38

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB	SR 161 WB EXIT RAMP	79.0	32.8	39.5	156.1	10
NEB	MINK ST NW	724.3	67.4	674.9	904.6	10
SB	MINK ST NW	2,728.0	612.0	1,951.1	3,654.3	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	WORTHINGTON RD	262.0	54.7	204.1	367.2	10
NEB	MINK ST SW	324.4	42.2	221.9	371.6	10
SWB	MINK ST NW	189.8	77.2	94.5	351.7	10
WB	WORTHINGTON RD	176.5	43.3	127.3	272.1	10

Project: Mink Corridor Proposed DDI w North
Scenario: PM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 16:00:00 - 17:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Spillback Queue by Intersection - Max Num Queued

MINK ST NW & BEAVER RD — NODE: 18

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	8.2	0.9	7.0	10.0	10
NWB	BEAVER RD	81.6	19.9	35.0	107.0	10
SWB	MINK ST NW	120.8	36.0	69.0	185.0	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	6.3	1.6	4.0	9.0	10
SEB	CLOVER VALLEY EXT	24.3	1.9	22.0	27.0	10
SWB	MINK ST NW	170.6	14.0	149.0	187.0	10

MINK ST NW & INNOVATION WAY — NODE: 15

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	INNOVATION WAY	7.7	2.3	5.0	12.0	10
NEB	MINK ST NW	11.6	1.3	10.0	14.0	10
SWB	MINK ST NW	150.5	19.0	117.0	183.0	10

MINK ST NW & JUG ST — NODE: 33082

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	JUG ST	5.9	1.2	4.0	8.0	10
NB	MINK ST NW	11.1	2.5	7.0	14.0	10
SB	MINK ST NW	20.0	7.3	13.0	37.0	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 34

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB	MINK ST NW	31.6	2.1	29.0	36.0	10
NEB	SR 161 EB EXIT RAMP	9.6	1.0	9.0	12.0	10
SWB	MINK ST NW	3.4	2.5	1.0	8.0	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 38

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB	SR 161 WB EXIT RAMP	3.2	0.8	2.0	5.0	10
NEB	MINK ST NW	45.4	1.8	42.0	47.0	10
SB	MINK ST NW	158.7	39.2	105.0	218.0	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	WORTHINGTON RD	12.2	1.3	10.0	15.0	10
NEB	MINK ST SW	17.5	2.4	14.0	23.0	10
SWB	MINK ST NW	11.2	4.1	4.0	17.0	10
WB	WORTHINGTON RD	6.1	1.5	5.0	10.0	10

Project: Mink Corridor Proposed DDI w North
Scenario: PM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 16:00:00 - 17:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Spillback Queue by Intersection - Max Total Queued

MINK ST NW & BEAVER RD — NODE: 18

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	8.2	0.9	7.0	10.0	10
NWB	BEAVER RD	81.6	19.9	35.0	107.0	10
SWB	MINK ST NW	137.5	38.1	80.0	204.0	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	6.3	1.6	4.0	9.0	10
SEB	CLOVER VALLEY EXT	24.3	1.9	22.0	27.0	10
SWB	MINK ST NW	171.9	15.6	149.0	195.0	10

MINK ST NW & INNOVATION WAY — NODE: 15

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	INNOVATION WAY	7.7	2.3	5.0	12.0	10
NEB	MINK ST NW	11.6	1.3	10.0	14.0	10
SWB	MINK ST NW	156.3	20.1	122.0	192.0	10

MINK ST NW & JUG ST — NODE: 33082

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	JUG ST	5.9	1.2	4.0	8.0	10
NB	MINK ST NW	11.1	2.5	7.0	14.0	10
SB	MINK ST NW	20.0	7.3	13.0	37.0	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 34

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB	MINK ST NW	31.6	2.1	29.0	36.0	10
NEB	SR 161 EB EXIT RAMP	9.6	1.0	9.0	12.0	10
SWB	MINK ST NW	3.4	2.5	1.0	8.0	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 38

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB	SR 161 WB EXIT RAMP	3.2	0.8	2.0	5.0	10
NEB	MINK ST NW	46.6	2.8	43.0	50.0	10
SB	MINK ST NW	164.3	39.1	107.0	221.0	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	WORTHINGTON RD	12.2	1.3	10.0	15.0	10
NEB	MINK ST SW	17.5	2.4	14.0	23.0	10
SWB	MINK ST NW	11.2	4.1	4.0	17.0	10
WB	WORTHINGTON RD	6.1	1.5	5.0	10.0	10

Mink Street (PARCLO Interchange) - AM

Project: Mink Corridor Optimized Parclo w North
Scenario: AM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 08:00:00 - 09:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Intersection Level of Service - Overview

MINK ST NW & BEAVER RD -- SIGNALIZED — NODE: 18

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
1	2,813.0	7.50	9.6	A
2	2,799.0	7.70	10.0	A
3	2,796.0	7.80	10.0	B
4	2,783.0	7.40	9.6	A
5	2,788.0	7.70	9.9	A
6	2,801.0	7.70	9.9	A
7	2,782.0	7.80	10.1	B
8	2,825.0	7.70	9.8	A
9	2,780.0	8.10	10.5	B
10	2,800.0	7.90	10.2	B
Average:	**2,796.7**	**7.73**	**10.0**	**A**

MINK ST NW & CLOVER VALLEY EXT -- SIGNALIZED — NODE: 7

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
1	1,917.0	10.30	19.3	B
2	1,898.0	9.80	18.5	B
3	1,880.0	9.70	18.5	B
4	1,883.0	9.70	18.5	B
5	1,899.0	9.40	17.8	B
6	1,906.0	9.60	18.0	B
7	1,899.0	9.80	18.6	B
8	1,911.0	10.40	19.6	B
9	1,884.0	9.50	18.2	B
10	1,902.0	9.60	18.2	B
Average:	**1,897.9**	**9.78**	**18.5**	**B**

MINK ST NW & INNOVATION WAY -- SIGNALIZED — NODE: 15

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
1	4,691.0	6.90	5.3	A
2	4,653.0	7.60	5.9	A
3	4,647.0	8.20	6.3	A
4	4,628.0	6.60	5.2	A
5	4,617.0	7.00	5.4	A
6	4,675.0	6.90	5.3	A
7	4,624.0	8.10	6.3	A
8	4,662.0	7.10	5.5	A

9	4,630.0	7.60	5.9	A
10	4,647.0	7.40	5.7	A
Average:	**4,647.4**	**7.34**	**5.7**	**A**

MINK ST NW & JUG ST -- SIGNALIZED — NODE: 33082

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
1	1,010.0	1.10	4.1	A
2	991.0	1.00	3.7	A
3	997.0	1.00	3.8	A
4	1,001.0	1.20	4.3	A
5	1,006.0	1.00	3.6	A
6	995.0	1.00	3.7	A
7	999.0	1.10	4.0	A
8	1,015.0	1.00	3.6	A
9	987.0	1.00	3.8	A
10	1,017.0	1.10	3.8	A
Average:	**1,001.8**	**1.05**	**3.8**	**A**

MINK ST NW & SR 161 EB EXIT RAMP -- SIGNALIZED — NODE: 10

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
1	3,463.0	9.80	10.2	B
2	3,446.0	9.90	10.3	B
3	3,435.0	9.70	10.2	B
4	3,438.0	9.60	10.1	B
5	3,445.0	10.10	10.5	B
6	3,447.0	10.00	10.5	B
7	3,457.0	10.10	10.5	B
8	3,447.0	10.00	10.4	B
9	3,425.0	10.20	10.8	B
10	3,467.0	9.90	10.2	B
Average:	**3,447.0**	**9.93**	**10.4**	**B**

MINK ST NW & SR 161 WB EXIT RAMP -- SIGNALIZED — NODE: 5

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
1	3,489.0	9.60	9.9	A
2	3,449.0	9.10	9.5	A
3	3,437.0	8.60	9.1	A
4	3,437.0	9.40	9.9	A
5	3,448.0	9.00	9.4	A
6	3,448.0	9.30	9.7	A
7	3,456.0	9.60	10.0	A
8	3,465.0	9.30	9.7	A
9	3,436.0	9.50	9.9	A
10	3,476.0	9.30	9.6	A
Average:	**3,454.1**	**9.27**	**9.7**	**A**

WORTHINGTON RD, MINK ST NW & MINK ST SW -- SIGNALIZED NODE: 32764

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
1	2,141.0	16.40	27.6	C
2	2,136.0	16.60	28.0	C
3	2,121.0	20.00	34.0	C
4	2,136.0	18.20	30.7	C
5	2,115.0	16.00	27.2	C
6	2,135.0	18.50	31.2	C
7	2,112.0	16.40	27.9	C
8	2,106.0	21.10	36.1	D
9	2,112.0	16.00	27.2	C
10	2,140.0	19.70	33.1	C
Average:	**2,125.4**	**17.89**	**30.3**	**C**

Project: Mink Corridor Optimized Parclo w North
Scenario: AM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 08:00:00 - 09:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Intersection Level of Service - Total Control Delay

Node ID	Intersection	Control Type	Average	Std Dev	Minimum	Maximum	# Samples
18	MINK ST NW & BEAVER RD	Actuated	7.7	0.2	7.4	8.1	10
7	MINK ST NW & CLOVER VALLEY EXT	Actuated	9.8	0.3	9.4	10.4	10
15	MINK ST NW & INNOVATION WAY	Actuated	7.3	0.5	6.6	8.2	10
33082	MINK ST NW & JUG ST	Actuated	1.1	0.1	1.0	1.2	10
10	MINK ST NW & SR 161 EB EXIT RAMP	Actuated	9.9	0.2	9.6	10.2	10
5	MINK ST NW & SR 161 WB EXIT RAMP	Actuated	9.3	0.3	8.6	9.6	10
32764	WORTHINGTON RD, MINK ST NW & MINK ST SW	Actuated	17.9	1.9	16.0	21.1	10

Project: Mink Corridor Optimized Parclo w North
Scenario: AM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 08:00:00 - 09:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Intersection Level of Service - Avg Control Delay

Node ID	Intersection	Control Type	Average	Std Dev	Minimum	Maximum	# Samples
18	MINK ST NW & BEAVER RD	Actuated	10.0	0.3	9.6	10.5	10
7	MINK ST NW & CLOVER VALLEY EXT	Actuated	18.5	0.5	17.8	19.6	10
15	MINK ST NW & INNOVATION WAY	Actuated	5.7	0.4	5.2	6.3	10
33082	MINK ST NW & JUG ST	Actuated	3.8	0.2	3.6	4.3	10
10	MINK ST NW & SR 161 EB EXIT RAMP	Actuated	10.4	0.2	10.1	10.8	10
5	MINK ST NW & SR 161 WB EXIT RAMP	Actuated	9.7	0.3	9.1	10.0	10
32764	WORTHINGTON RD, MINK ST NW & MINK ST SW	Actuated	30.3	3.2	27.2	36.1	10

Project: Mink Corridor Optimized Parclo w North
Scenario: AM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 08:00:00 - 09:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Intersection Level of Service by Approach - Overview

MINK ST NW & BEAVER RD -- SIGNALIZED — NODE: 18

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
NEB on MINK ST NW: Superlink ID 61211				
1	2,017.0	4.10	7.4	A
2	2,006.0	4.40	7.9	A
3	2,002.0	4.50	8.1	A
4	1,990.0	4.00	7.2	A
5	1,997.0	4.20	7.6	A
6	2,005.0	4.10	7.3	A
7	2,000.0	4.40	7.8	A
8	2,013.0	4.00	7.1	A
9	1,993.0	4.50	8.1	A
10	2,004.0	4.20	7.5	A
Average:	**2,002.7**	**4.24**	**7.6**	**A**
NWB on BEAVER RD: Superlink ID 61210				
1	232.0	2.70	41.4	D
2	226.0	2.70	42.3	D
3	228.0	2.60	40.4	D
4	223.0	2.70	43.0	D
5	222.0	2.80	44.9	D
6	223.0	2.70	44.2	D
7	223.0	2.80	44.6	D
8	225.0	3.00	48.7	D
9	226.0	2.70	43.0	D
10	233.0	3.00	46.0	D
Average:	**226.1**	**2.77**	**43.8**	**D**
SWB on MINK ST NW: Superlink ID 61216				
1	564.0	0.70	4.8	A
2	567.0	0.70	4.5	A
3	566.0	0.70	4.4	A
4	570.0	0.80	5.0	A
5	569.0	0.70	4.6	A
6	573.0	0.90	5.7	A
7	559.0	0.70	4.6	A
8	587.0	0.70	4.1	A
9	561.0	0.90	5.9	A

MINK ST NW & BEAVER RD -- SIGNALIZED — NODE: 18

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
10	563.0	0.80	5.0	A
Average:	**567.9**	**0.76**	**4.8**	**A**

MINK ST NW & CLOVER VALLEY EXT -- SIGNALIZED — NODE: 7

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
NEB on MINK ST NW: Superlink ID 61216				
1	1,333.0	5.90	15.9	B
2	1,318.0	5.40	14.8	B
3	1,309.0	5.50	15.1	B
4	1,296.0	5.40	15.1	B
5	1,317.0	5.00	13.8	B
6	1,320.0	5.70	15.5	B
7	1,330.0	5.90	16.1	B
8	1,320.0	6.00	16.4	B
9	1,303.0	5.10	14.0	B
10	1,324.0	5.70	15.5	B
Average:	**1,317.0**	**5.56**	**15.2**	**B**
SEB on CLOVER VALLEY EXT: Superlink ID 61212				
1	182.0	0.50	9.7	A
2	171.0	0.50	10.0	B
3	170.0	0.60	12.0	B
4	173.0	0.50	10.4	B
5	173.0	0.60	12.5	B
6	174.0	0.50	9.8	A
7	177.0	0.50	9.8	A
8	188.0	0.60	12.0	B
9	164.0	0.60	13.7	B
10	177.0	0.60	13.2	B
Average:	**174.9**	**0.55**	**11.3**	**B**
SWB on MINK ST NW: Superlink ID 29573				
1	402.0	3.90	34.8	C
2	409.0	3.90	34.0	C
3	401.0	3.60	32.5	C
4	414.0	3.80	32.7	C
5	409.0	3.70	32.9	C
6	412.0	3.40	29.8	C
7	392.0	3.40	31.2	C
8	403.0	3.80	33.7	C
9	417.0	3.90	33.3	C
10	401.0	3.30	29.5	C
Average:	**406.0**	**3.67**	**32.4**	**C**

MINK ST NW & INNOVATION WAY -- SIGNALIZED — NODE: 15

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
EB on INNOVATION WAY: Superlink ID 61207				
1	76.0	0.70	34.3	C
2	77.0	0.60	27.1	C
3	87.0	0.70	27.5	C
4	82.0	0.70	32.1	C
5	83.0	0.90	38.9	D
6	84.0	0.80	33.2	C
7	79.0	0.60	27.8	C
8	83.0	0.60	27.9	C
9	82.0	0.70	29.3	C
10	78.0	0.70	34.3	C
Average:	**81.1**	**0.70**	**31.2**	**C**
NEB on MINK ST NW: Superlink ID 61228				
1	3,650.0	3.90	3.9	A
2	3,629.0	4.20	4.2	A
3	3,622.0	4.50	4.5	A
4	3,606.0	3.90	3.9	A
5	3,600.0	3.90	3.9	A
6	3,631.0	3.70	3.7	A
7	3,609.0	4.60	4.6	A
8	3,617.0	3.80	3.8	A
9	3,617.0	4.40	4.4	A
10	3,627.0	4.20	4.1	A
Average:	**3,620.8**	**4.11**	**4.1**	**A**
SWB on MINK ST NW: Superlink ID 61211				
1	965.0	2.30	8.5	A
2	947.0	2.80	10.7	B
3	938.0	3.00	11.5	B
4	940.0	2.00	7.6	A
5	934.0	2.20	8.4	A
6	960.0	2.50	9.3	A
7	936.0	2.90	11.1	B
8	962.0	2.70	10.1	B
9	931.0	2.50	9.6	A
10	942.0	2.40	9.3	A
Average:	**945.5**	**2.53**	**9.6**	**A**

MINK ST NW & JUG ST -- SIGNALIZED — NODE: 33082

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
EB on JUG ST: Superlink ID 29977				
1	77.0	0.80	35.7	D
2	73.0	0.60	28.1	C

MINK ST NW & JUG ST -- SIGNALIZED — NODE: 33082

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
3	70.0	0.60	33.0	C
4	83.0	0.80	35.7	D
5	78.0	0.70	31.5	C
6	76.0	0.70	31.3	C
7	72.0	0.70	34.3	C
8	77.0	0.70	32.6	C
9	72.0	0.70	34.3	C
10	76.0	0.60	26.7	C
Average:	**75.4**	**0.69**	**32.3**	**C**
NB on MINK ST NW: Superlink ID 29573				
1	561.0	0.30	1.7	A
2	550.0	0.30	1.6	A
3	557.0	0.20	1.5	A
4	546.0	0.20	1.3	A
5	557.0	0.20	1.2	A
6	548.0	0.20	1.3	A
7	558.0	0.30	1.7	A
8	567.0	0.20	1.3	A
9	543.0	0.30	1.7	A
10	568.0	0.30	1.9	A
Average:	**555.5**	**0.25**	**1.5**	**A**
SB on MINK ST NW: Superlink ID 29606				
1	372.0	0.10	1.1	A
2	368.0	0.20	2.0	A
3	370.0	0.20	1.6	A
4	372.0	0.20	1.7	A
5	371.0	0.10	1.3	A
6	371.0	0.20	1.6	A
7	369.0	0.20	1.7	A
8	371.0	0.10	1.1	A
9	372.0	0.10	1.0	A
10	373.0	0.20	2.0	A
Average:	**370.9**	**0.16**	**1.5**	**A**

MINK ST NW & SR 161 EB EXIT RAMP -- SIGNALIZED — NODE: 10

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
EB on SR 161 EB EXIT RAMP: Superlink ID 61221				
1	1,552.0	6.60	15.4	B
2	1,530.0	6.60	15.6	B
3	1,534.0	6.40	15.0	B
4	1,530.0	6.40	15.1	B
5	1,534.0	6.80	15.9	B

MINK ST NW & SR 161 EB EXIT RAMP -- SIGNALIZED — NODE: 10

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
6	1,545.0	6.80	15.8	B
7	1,541.0	6.70	15.6	B
8	1,537.0	6.60	15.4	B
9	1,541.0	6.90	16.1	B
10	1,533.0	6.60	15.4	B
Average:	**1,537.7**	**6.64**	**15.5**	**B**
NEB on MINK ST NW: Superlink ID 61219				
1	1,508.0	2.10	5.1	A
2	1,514.0	2.00	4.9	A
3	1,505.0	2.20	5.2	A
4	1,506.0	2.20	5.2	A
5	1,513.0	2.10	5.1	A
6	1,506.0	2.10	5.0	A
7	1,516.0	2.20	5.2	A
8	1,514.0	2.20	5.2	A
9	1,487.0	2.20	5.3	A
10	1,535.0	2.10	4.9	A
Average:	**1,510.4**	**2.14**	**5.1**	**A**
SWB on MINK ST NW: Superlink ID 61231				
1	403.0	1.00	9.1	A
2	402.0	1.20	11.0	B
3	396.0	1.10	10.1	B
4	402.0	1.00	8.9	A
5	398.0	1.20	10.4	B
6	396.0	1.10	10.3	B
7	400.0	1.20	11.2	B
8	396.0	1.20	10.9	B
9	397.0	1.20	10.5	B
10	399.0	1.20	11.0	B
Average:	**398.9**	**1.14**	**10.3**	**B**

MINK ST NW & SR 161 WB EXIT RAMP -- SIGNALIZED — NODE: 5

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
NEB on MINK ST NW: Superlink ID 61198				
1	2,940.0	8.60	10.5	B
2	2,911.0	7.90	9.8	A
3	2,905.0	7.50	9.3	A
4	2,897.0	8.30	10.3	B
5	2,910.0	7.90	9.7	A
6	2,910.0	8.10	10.1	B
7	2,924.0	8.40	10.4	B
8	2,927.0	8.10	10.0	A

MINK ST NW & SR 161 WB EXIT RAMP -- SIGNALIZED — NODE: 5

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
9	2,904.0	8.30	10.3	B
10	2,935.0	8.20	10.1	B
Average:	**2,916.3**	**8.13**	**10.0**	**B**
SWB on MINK ST NW: Superlink ID 61225				
1	463.0	0.50	3.6	A
2	448.0	0.60	4.8	A
3	445.0	0.50	4.2	A
4	451.0	0.50	4.3	A
5	450.0	0.50	4.0	A
6	448.0	0.50	3.8	A
7	447.0	0.60	4.5	A
8	451.0	0.60	4.7	A
9	444.0	0.60	4.5	A
10	455.0	0.60	4.5	A
Average:	**450.2**	**0.55**	**4.3**	**A**
WB on SR 161 WB EXIT RAMP: Superlink ID 61227				
1	86.0	0.50	22.4	C
2	90.0	0.50	21.2	C
3	87.0	0.60	25.5	C
4	89.0	0.60	24.2	C
5	88.0	0.60	26.1	C
6	90.0	0.70	27.2	C
7	85.0	0.60	26.0	C
8	87.0	0.60	25.2	C
9	88.0	0.60	24.7	C
10	86.0	0.50	21.8	C
Average:	**87.6**	**0.58**	**24.4**	**C**

WORTHINGTON RD, MINK ST NW & MINK ST SW -- SIGNALIZED — NODE: 32764

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
EB on WORTHINGTON RD: Superlink ID 29557				
1	199.0	4.40	79.1	E
2	187.0	4.10	79.5	E
3	193.0	4.40	81.5	F
4	192.0	4.30	81.3	F
5	184.0	3.10	60.8	E
6	196.0	5.20	95.8	F
7	193.0	3.80	70.2	E
8	181.0	8.00	158.9	F
9	194.0	3.60	66.3	E

WORTHINGTON RD, MINK ST NW & MINK ST SW -- SIGNALIZED NODE: 32764

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
10	191.0	5.80	109.8	F
Average:	**191.0**	**4.67**	**88.3**	**F**
NEB on MINK ST SW: Superlink ID 24528				
1	1,105.0	6.40	20.8	C
2	1,108.0	6.30	20.5	C
3	1,104.0	8.80	28.6	C
4	1,100.0	7.20	23.6	C
5	1,099.0	6.70	22.1	C
6	1,108.0	7.00	22.6	C
7	1,098.0	6.40	20.9	C
8	1,097.0	6.50	21.5	C
9	1,098.0	6.50	21.3	C
10	1,118.0	6.60	21.2	C
Average:	**1,103.5**	**6.84**	**22.3**	**C**
SWB on MINK ST NW: Superlink ID 61222				
1	559.0	2.80	17.8	B
2	562.0	3.10	19.7	B
3	549.0	3.20	20.9	C
4	569.0	2.90	18.7	B
5	560.0	3.00	19.6	B
6	558.0	3.10	19.8	B
7	552.0	3.20	21.2	C
8	553.0	3.40	22.3	C
9	550.0	3.00	19.7	B
10	559.0	3.00	19.5	B
Average:	**557.1**	**3.07**	**19.9**	**B**
WB on WORTHINGTON RD: Superlink ID 29572				
1	278.0	2.90	37.7	D
2	279.0	3.10	40.4	D
3	275.0	3.70	48.1	D
4	275.0	3.70	48.8	D
5	272.0	3.10	40.6	D
6	273.0	3.30	43.3	D
7	269.0	3.00	40.0	D
8	275.0	3.20	41.4	D
9	270.0	2.90	38.3	D
10	272.0	4.30	56.3	E
Average:	**273.8**	**3.32**	**43.5**	**D**

Project: Mink Corridor Optimized Parclo w North
Scenario: AM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 08:00:00 - 09:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Intersection Level of Service by Approach - Total Control Delay

MINK ST NW & BEAVER RD — NODE: 18

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
NEB	MINK ST NW	61211	4.2	0.2	4.0	4.5	10
NWB	BEAVER RD	61210	2.8	0.1	2.6	3.0	10
SWB	MINK ST NW	61216	0.8	0.1	0.7	0.9	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
NEB	MINK ST NW	61216	5.6	0.3	5.0	6.0	10
SEB	CLOVER VALLEY EXT	61212	0.6	0.1	0.5	0.6	10
SWB	MINK ST NW	29573	3.7	0.2	3.3	3.9	10

MINK ST NW & INNOVATION WAY — NODE: 15

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
EB	INNOVATION WAY	61207	0.7	0.1	0.6	0.9	10
NEB	MINK ST NW	61228	4.1	0.3	3.7	4.6	10
SWB	MINK ST NW	61211	2.5	0.3	2.0	3.0	10

MINK ST NW & JUG ST — NODE: 33082

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
EB	JUG ST	29977	0.7	0.1	0.6	0.8	10
NB	MINK ST NW	29573	0.3	0.1	0.2	0.3	10
SB	MINK ST NW	29606	0.2	0.1	0.1	0.2	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 10

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
EB	SR 161 EB EXIT RAMP	61221	6.6	0.2	6.4	6.9	10
NEB	MINK ST NW	61219	2.1	0.1	2.0	2.2	10
SWB	MINK ST NW	61231	1.1	0.1	1.0	1.2	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 5

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
NEB	MINK ST NW	61198	8.1	0.3	7.5	8.6	10
SWB	MINK ST NW	61225	0.6	0.1	0.5	0.6	10
WB	SR 161 WB EXIT RAMP	61227	0.6	0.1	0.5	0.7	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
EB	WORTHINGTON RD	29557	4.7	1.4	3.1	8.0	10
NEB	MINK ST SW	24528	6.8	0.7	6.3	8.8	10
SWB	MINK ST NW	61222	3.1	0.2	2.8	3.4	10
WB	WORTHINGTON RD	29572	3.3	0.4	2.9	4.3	10

Project: Mink Corridor Optimized Parclo w North
Scenario: AM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 08:00:00 - 09:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Intersection Level of Service by Approach - Avg Control Delay

MINK ST NW & BEAVER RD — NODE: 18

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
NEB	MINK ST NW	61211	7.6	0.4	7.1	8.1	10
NWB	BEAVER RD	61210	43.8	2.4	40.4	48.7	10
SWB	MINK ST NW	61216	4.8	0.6	4.1	5.9	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
NEB	MINK ST NW	61216	15.2	0.8	13.8	16.4	10
SEB	CLOVER VALLEY EXT	61212	11.3	1.5	9.7	13.7	10
SWB	MINK ST NW	29573	32.4	1.8	29.5	34.8	10

MINK ST NW & INNOVATION WAY — NODE: 15

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
EB	INNOVATION WAY	61207	31.2	3.9	27.1	38.9	10
NEB	MINK ST NW	61228	4.1	0.3	3.7	4.6	10
SWB	MINK ST NW	61211	9.6	1.2	7.6	11.5	10

MINK ST NW & JUG ST — NODE: 33082

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
EB	JUG ST	29977	32.3	3.0	26.7	35.7	10
NB	MINK ST NW	29573	1.5	0.2	1.2	1.9	10
SB	MINK ST NW	29606	1.5	0.4	1.0	2.0	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 10

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
EB	SR 161 EB EXIT RAMP	61221	15.5	0.3	15.0	16.1	10
NEB	MINK ST NW	61219	5.1	0.2	4.9	5.3	10
SWB	MINK ST NW	61231	10.3	0.8	8.9	11.2	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 5

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
NEB	MINK ST NW	61198	10.0	0.4	9.3	10.5	10
SWB	MINK ST NW	61225	4.3	0.4	3.6	4.8	10
WB	SR 161 WB EXIT RAMP	61227	24.4	2.0	21.2	27.2	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
EB	WORTHINGTON RD	29557	88.3	28.5	60.8	158.9	10
NEB	MINK ST SW	24528	22.3	2.4	20.5	28.6	10
SWB	MINK ST NW	61222	19.9	1.3	17.8	22.3	10
WB	WORTHINGTON RD	29572	43.5	5.9	37.7	56.3	10

Project: Mink Corridor Optimized Parclo w North
Scenario: AM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 08:00:00 - 09:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Lane Queue by Intersection - Overview

MINK ST NW & BEAVER RD — NODE: 18

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NEB R on MINK ST NW - Lane ID 156404						
1	120.0	7.1	0.3	46.5	2.0	0.0%
2	120.0	5.4	0.2	22.2	1.0	0.0%
3	120.0	6.7	0.2	74.8	2.0	0.0%
4	120.0	5.2	0.2	22.1	1.0	0.0%
5	120.0	5.9	0.2	31.8	2.0	0.0%
6	120.0	7.6	0.3	54.4	2.0	0.0%
7	120.0	6.1	0.2	68.8	2.0	0.0%
8	120.0	7.8	0.3	65.2	2.0	0.0%
9	120.0	9.9	0.4	63.2	2.0	0.0%
10	120.0	5.5	0.2	19.9	1.0	0.0%
Average:	**120.0**	**6.7**	**0.3**	**46.9**	**1.7**	**0.0%**
NEB T on MINK ST NW - Lane ID 156206						
1	120.0	34.9	1.2	211.8	7.0	0.0%
2	120.0	28.0	1.0	194.2	7.0	0.0%
3	120.0	49.6	1.6	283.8	8.0	0.0%
4	120.0	28.9	1.1	185.0	7.0	0.0%
5	120.0	34.4	1.2	205.5	7.0	0.0%
6	120.0	28.8	1.0	193.0	7.0	0.0%
7	120.0	37.2	1.2	248.0	8.0	0.0%
8	120.0	27.1	1.0	178.6	6.0	0.0%
9	120.0	43.2	1.4	233.3	8.0	0.0%
10	120.0	27.1	1.0	165.9	6.0	0.0%
Average:	**120.0**	**33.9**	**1.2**	**209.9**	**7.1**	**0.0%**
NEB T on MINK ST NW - Lane ID 156207						
1	120.0	19.3	0.7	132.4	5.0	0.0%
2	120.0	16.7	0.6	123.1	4.0	0.0%
3	120.0	21.9	0.8	117.1	4.0	0.0%
4	120.0	15.7	0.6	104.9	4.0	0.0%
5	120.0	18.7	0.6	131.9	5.0	0.0%
6	120.0	14.4	0.5	97.5	3.0	0.0%
7	120.0	19.6	0.7	150.7	5.0	0.0%
8	120.0	13.0	0.4	95.2	3.0	0.0%
9	120.0	23.2	0.9	159.9	6.0	0.0%

MINK ST NW & BEAVER RD — NODE: 18

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NEB T on MINK ST NW - Lane ID 156207						
10	120.0	15.9	0.6	105.3	4.0	0.0%
Average:	**120.0**	**17.8**	**0.6**	**121.8**	**4.3**	**0.0%**
NWB L on BEAVER RD - Lane ID 156427						
1	120.0	29.7	1.2	110.6	4.0	0.0%
2	120.0	26.8	1.1	78.4	3.0	0.0%
3	120.0	28.1	1.1	119.3	4.0	0.0%
4	120.0	31.9	1.3	118.5	3.0	0.0%
5	120.0	34.4	1.3	124.9	4.0	0.0%
6	120.0	32.2	1.3	112.4	4.0	0.0%
7	120.0	34.8	1.3	106.5	4.0	0.0%
8	120.0	33.7	1.4	97.0	4.0	0.0%
9	120.0	34.7	1.2	116.2	4.0	0.0%
10	120.0	36.1	1.3	105.6	3.0	0.0%
Average:	**120.0**	**32.2**	**1.3**	**108.9**	**3.7**	**0.0%**
NWB LR on BEAVER RD - Lane ID 156428						
1	120.0	31.3	1.3	118.2	4.0	0.0%
2	120.0	35.7	1.4	136.4	5.0	0.0%
3	120.0	34.6	1.4	115.2	4.0	0.0%
4	120.0	32.4	1.3	120.8	4.0	0.0%
5	120.0	30.2	1.3	100.7	4.0	0.0%
6	120.0	37.6	1.4	129.3	4.0	0.0%
7	120.0	36.7	1.4	132.3	4.0	0.0%
8	120.0	36.5	1.4	120.2	4.0	0.0%
9	120.0	34.5	1.4	123.8	5.0	0.0%
10	120.0	35.8	1.4	116.7	4.0	0.0%
Average:	**120.0**	**34.5**	**1.4**	**121.4**	**4.2**	**0.0%**
SWB L on MINK ST NW - Lane ID 156233						
1	120.0	6.1	0.3	40.2	2.0	0.0%
2	120.0	8.5	0.4	40.3	2.0	0.0%
3	120.0	7.1	0.3	47.0	2.0	0.0%
4	120.0	15.7	0.5	74.2	2.0	0.0%
5	120.0	8.7	0.5	43.3	2.0	0.0%
6	120.0	10.0	0.4	54.0	2.0	0.0%
7	120.0	6.0	0.3	19.5	1.0	0.0%
8	120.0	5.6	0.3	23.4	1.0	0.0%
9	120.0	13.6	0.6	64.9	2.0	0.0%
10	120.0	6.4	0.4	17.0	1.0	0.0%
Average:	**120.0**	**8.8**	**0.4**	**42.4**	**1.7**	**0.0%**

MINK ST NW & BEAVER RD — NODE: 18

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
SWB T on MINK ST NW - Lane ID 156234						
1	120.0	2.9	0.1	16.9	1.0	0.0%
2	120.0	2.1	0.1	17.0	1.0	0.0%
3	120.0	3.6	0.1	15.3	1.0	0.0%
4	120.0	3.5	0.2	17.2	1.0	0.0%
5	120.0	3.9	0.1	16.5	1.0	0.0%
6	120.0	4.2	0.1	18.4	1.0	0.0%
7	120.0	4.2	0.1	0.7	0.0	0.0%
8	120.0	2.8	0.1	16.2	1.0	0.0%
9	120.0	1.3	0.1	0.7	0.0	0.0%
10	120.0	2.6	0.1	17.4	1.0	0.0%
Average:	**120.0**	**3.1**	**0.1**	**13.6**	**0.8**	**0.0%**
SWB T on MINK ST NW - Lane ID 156235						
1	120.0	0.7	0.0	0.0	0.0	0.0%
2	120.0	1.6	0.1	0.0	0.0	0.0%
3	120.0	1.9	0.1	15.8	1.0	0.0%
4	120.0	2.1	0.1	15.1	1.0	0.0%
5	120.0	0.1	0.0	0.0	0.0	0.0%
6	120.0	1.9	0.1	16.4	1.0	0.0%
7	120.0	0.9	0.1	0.0	0.0	0.0%
8	120.0	1.1	0.0	0.0	0.0	0.0%
9	120.0	0.8	0.0	0.0	0.0	0.0%
10	120.0	1.0	0.1	0.8	0.0	0.0%
Average:	**120.0**	**1.2**	**0.1**	**4.8**	**0.3**	**0.0%**
SWB T on MINK ST NW - Lane ID 156422						
1	120.0	2.3	0.1	0.8	0.0	0.0%
2	120.0	2.1	0.1	0.8	0.0	0.0%
3	120.0	1.1	0.1	0.7	0.0	0.0%
4	120.0	2.0	0.1	16.4	1.0	0.0%
5	120.0	2.0	0.1	0.0	0.0	0.0%
6	120.0	0.8	0.0	0.0	0.0	0.0%
7	120.0	2.1	0.1	0.0	0.0	0.0%
8	120.0	0.6	0.0	0.0	0.0	0.0%
9	120.0	0.7	0.0	0.0	0.0	0.0%
10	120.0	0.6	0.0	0.0	0.0	0.0%
Average:	**120.0**	**1.4**	**0.1**	**1.9**	**0.1**	**0.0%**

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NEB L on MINK ST NW - Lane ID 156441						
1	120.0	53.1	1.8	231.3	8.0	0.0%

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NEB L on MINK ST NW - Lane ID 156441						
2	120.0	43.4	1.5	197.4	6.0	0.0%
3	120.0	44.2	1.6	208.7	8.0	0.0%
4	120.0	56.1	1.9	235.3	8.0	0.0%
5	120.0	44.7	1.7	215.2	8.0	0.0%
6	120.0	53.3	1.9	197.6	8.0	0.0%
7	120.0	55.5	1.9	215.3	8.0	0.0%
8	120.0	46.9	1.7	197.3	8.0	0.0%
9	120.0	44.8	1.6	217.3	7.0	0.0%
10	120.0	45.6	1.7	189.8	6.0	0.0%
Average:	**120.0**	**48.8**	**1.7**	**210.5**	**7.5**	**0.0%**
NEB L on MINK ST NW - Lane ID 156442						
1	120.0	47.1	1.7	223.3	7.0	0.0%
2	120.0	55.2	1.9	214.2	8.0	0.0%
3	120.0	43.7	1.6	228.2	8.0	0.0%
4	120.0	47.1	1.8	205.1	8.0	0.0%
5	120.0	45.8	1.6	206.1	7.0	0.0%
6	120.0	52.9	1.9	208.1	8.0	0.0%
7	120.0	51.6	1.9	205.5	7.0	0.0%
8	120.0	52.1	1.8	232.9	8.0	0.0%
9	120.0	41.5	1.5	186.0	6.0	0.0%
10	120.0	50.3	1.9	242.0	9.0	0.0%
Average:	**120.0**	**48.7**	**1.8**	**215.1**	**7.6**	**0.0%**
NEB T on MINK ST NW - Lane ID 156443						
1	120.0	1.8	0.1	13.8	1.0	0.0%
2	120.0	2.3	0.1	15.9	1.0	0.0%
3	120.0	3.6	0.1	15.2	1.0	0.0%
4	120.0	1.4	0.1	0.6	0.0	0.0%
5	120.0	3.5	0.2	17.7	1.0	0.0%
6	120.0	0.8	0.1	0.6	0.0	0.0%
7	120.0	2.2	0.1	0.8	0.0	0.0%
8	120.0	3.2	0.1	22.4	1.0	0.0%
9	120.0	4.4	0.2	21.9	1.0	0.0%
10	120.0	2.9	0.1	17.2	1.0	0.0%
Average:	**120.0**	**2.6**	**0.1**	**12.6**	**0.7**	**0.0%**
NEB T on MINK ST NW - Lane ID 156444						
1	120.0	3.6	0.1	16.3	1.0	0.0%
2	120.0	5.4	0.2	43.2	2.0	0.0%
3	120.0	5.3	0.2	44.0	2.0	0.0%
4	120.0	3.0	0.1	16.5	1.0	0.0%
5	120.0	5.4	0.2	45.1	2.0	0.0%

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NEB T on MINK ST NW - Lane ID 156444						
6	120.0	1.8	0.1	0.0	0.0	0.0%
7	120.0	2.9	0.1	18.2	1.0	0.0%
8	120.0	3.7	0.2	17.9	1.0	0.0%
9	120.0	2.8	0.1	14.5	1.0	0.0%
10	120.0	4.4	0.2	18.2	1.0	0.0%
Average:	**120.0**	**3.8**	**0.2**	**23.4**	**1.2**	**0.0%**
SEB L on CLOVER VALLEY EXT - Lane ID 156450						
1	120.0	2.8	0.2	15.5	1.0	0.0%
2	120.0	6.0	0.3	17.4	1.0	0.0%
3	120.0	4.4	0.3	17.0	1.0	0.0%
4	120.0	5.3	0.3	18.8	1.0	0.0%
5	120.0	5.2	0.3	19.8	1.0	0.0%
6	120.0	4.9	0.3	18.6	1.0	0.0%
7	120.0	3.1	0.2	15.9	1.0	0.0%
8	120.0	8.9	0.4	46.7	1.0	0.0%
9	120.0	8.3	0.4	39.9	1.0	0.0%
10	120.0	8.6	0.4	43.2	1.0	0.0%
Average:	**120.0**	**5.8**	**0.3**	**25.3**	**1.0**	**0.0%**
SEB R on CLOVER VALLEY EXT - Lane ID 156411						
1	120.0	5.5	0.2	44.8	1.0	0.0%
2	120.0	3.4	0.1	16.8	1.0	0.0%
3	120.0	5.4	0.3	38.8	1.0	0.0%
4	120.0	3.0	0.2	16.9	1.0	0.0%
5	120.0	5.0	0.2	45.3	1.0	0.0%
6	120.0	5.8	0.2	43.6	1.0	0.0%
7	120.0	2.7	0.1	17.5	1.0	0.0%
8	120.0	3.9	0.2	19.8	1.0	0.0%
9	120.0	3.4	0.2	17.6	1.0	0.0%
10	120.0	5.0	0.2	20.5	1.0	0.0%
Average:	**120.0**	**4.3**	**0.2**	**28.2**	**1.0**	**0.0%**
SEB R on CLOVER VALLEY EXT - Lane ID 156445						
1	120.0	1.2	0.1	15.5	1.0	0.0%
2	120.0	1.6	0.1	15.4	1.0	0.0%
3	120.0	1.5	0.1	0.7	0.0	0.0%
4	120.0	0.9	0.1	0.0	0.0	0.0%
5	120.0	2.9	0.1	20.9	1.0	0.0%
6	120.0	2.2	0.1	17.0	1.0	0.0%
7	120.0	1.1	0.1	0.7	0.0	0.0%
8	120.0	1.9	0.1	15.8	1.0	0.0%
9	120.0	1.3	0.1	0.0	0.0	0.0%

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
SEB R on CLOVER VALLEY EXT - Lane ID 156445						
10	120.0	1.9	0.1	15.3	1.0	0.0%
Average:	**120.0**	**1.7**	**0.1**	**10.1**	**0.6**	**0.0%**
SWB T on MINK ST NW - Lane ID 156454						
1	120.0	44.1	1.6	139.1	5.0	0.0%
2	120.0	50.1	1.8	178.7	5.0	0.0%
3	120.0	47.9	1.8	154.4	5.0	0.0%
4	120.0	41.9	1.6	150.8	6.0	0.0%
5	120.0	46.1	1.7	150.5	5.0	0.0%
6	120.0	32.1	1.3	136.5	4.0	0.0%
7	120.0	42.6	1.5	162.4	5.0	0.0%
8	120.0	48.8	1.7	148.8	5.0	0.0%
9	120.0	43.4	1.6	155.9	6.0	0.0%
10	120.0	36.3	1.4	105.6	4.0	0.0%
Average:	**120.0**	**43.3**	**1.6**	**148.3**	**5.0**	**0.0%**
SWB TR on MINK ST NW - Lane ID 156455						
1	120.0	41.5	1.7	133.9	5.0	0.0%
2	120.0	50.8	1.8	166.6	5.0	0.0%
3	120.0	44.1	1.7	163.3	5.0	0.0%
4	120.0	38.4	1.4	182.7	5.0	0.0%
5	120.0	35.8	1.3	124.1	5.0	0.0%
6	120.0	35.3	1.4	134.6	4.0	0.0%
7	120.0	36.2	1.5	131.5	4.0	0.0%
8	120.0	51.2	1.8	149.1	5.0	0.0%
9	120.0	43.5	1.7	137.5	5.0	0.0%
10	120.0	36.8	1.5	116.4	5.0	0.0%
Average:	**120.0**	**41.4**	**1.6**	**144.0**	**4.8**	**0.0%**

MINK ST NW & INNOVATION WAY — NODE: 15

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
EB L on INNOVATION WAY - Lane ID 156208						
1	120.0	13.0	0.5	72.8	2.0	0.0%
2	120.0	10.7	0.5	65.3	2.0	0.0%
3	120.0	11.4	0.5	47.5	2.0	0.0%
4	120.0	14.5	0.6	74.7	2.0	0.0%
5	120.0	16.2	0.8	63.7	2.0	0.0%
6	120.0	18.8	0.7	79.6	3.0	0.0%
7	120.0	10.4	0.5	41.3	2.0	0.0%
8	120.0	14.6	0.6	70.0	2.0	0.0%
9	120.0	10.3	0.5	46.0	2.0	0.0%
10	120.0	15.1	0.6	68.8	2.0	0.0%

MINK ST NW & INNOVATION WAY — NODE: 15

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
EB L on INNOVATION WAY - Lane ID 156208						
Average:	**120.0**	**13.5**	**0.6**	**63.0**	**2.1**	**0.0%**
EB R on INNOVATION WAY - Lane ID 156209						
1	120.0	3.3	0.2	19.5	1.0	0.0%
2	120.0	4.2	0.2	21.2	1.0	0.0%
3	120.0	2.5	0.1	17.2	1.0	0.0%
4	120.0	2.1	0.1	17.6	1.0	0.0%
5	120.0	3.9	0.2	17.2	1.0	0.0%
6	120.0	4.8	0.2	44.8	1.0	0.0%
7	120.0	5.0	0.2	20.4	1.0	0.0%
8	120.0	3.2	0.2	17.7	1.0	0.0%
9	120.0	3.4	0.1	17.3	1.0	0.0%
10	120.0	2.0	0.1	16.8	1.0	0.0%
Average:	**120.0**	**3.4**	**0.2**	**21.0**	**1.0**	**0.0%**
NEB L on MINK ST NW - Lane ID 156357						
1	120.0	11.0	0.6	63.0	3.0	0.0%
2	120.0	13.5	0.7	72.5	3.0	0.0%
3	120.0	12.8	0.7	79.4	2.0	0.0%
4	120.0	10.3	0.6	64.6	3.0	0.0%
5	120.0	6.8	0.4	46.5	2.0	0.0%
6	120.0	13.2	0.7	70.3	2.0	0.0%
7	120.0	13.0	0.8	61.0	3.0	0.0%
8	120.0	16.1	0.8	67.4	3.0	0.0%
9	120.0	11.1	0.6	56.6	2.0	0.0%
10	120.0	8.3	0.5	41.4	2.0	0.0%
Average:	**120.0**	**11.6**	**0.6**	**62.3**	**2.5**	**0.0%**
NEB T on MINK ST NW - Lane ID 156358						
1	120.0	9.0	0.3	74.2	3.0	0.0%
2	120.0	7.8	0.3	86.3	3.0	0.0%
3	120.0	11.5	0.4	121.0	4.0	0.0%
4	120.0	4.7	0.2	14.9	1.0	0.0%
5	120.0	6.2	0.3	53.4	2.0	0.0%
6	120.0	5.0	0.2	16.1	1.0	0.0%
7	120.0	8.1	0.3	97.4	3.0	0.0%
8	120.0	8.8	0.3	107.4	4.0	0.0%
9	120.0	13.2	0.4	121.4	4.0	0.0%
10	120.0	6.6	0.3	63.0	3.0	0.0%
Average:	**120.0**	**8.1**	**0.3**	**75.5**	**2.8**	**0.0%**
NEB T on MINK ST NW - Lane ID 156359						
1	120.0	14.6	0.5	130.4	5.0	0.0%

MINK ST NW & INNOVATION WAY — NODE: 15

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NEB T on MINK ST NW - Lane ID 156359						
2	120.0	10.0	0.4	77.5	3.0	0.0%
3	120.0	15.1	0.5	132.7	4.0	0.0%
4	120.0	8.2	0.3	71.7	2.0	0.0%
5	120.0	9.0	0.3	76.4	3.0	0.0%
6	120.0	3.7	0.1	0.7	0.0	0.0%
7	120.0	9.6	0.4	98.6	3.0	0.0%
8	120.0	9.1	0.3	71.5	3.0	0.0%
9	120.0	15.5	0.5	120.1	3.0	0.0%
10	120.0	11.5	0.4	101.2	4.0	0.0%
Average:	**120.0**	**10.6**	**0.4**	**88.1**	**3.0**	**0.0%**
NEB T on MINK ST NW - Lane ID 156360						
1	120.0	12.4	0.5	121.4	5.0	0.0%
2	120.0	9.4	0.3	103.7	4.0	0.0%
3	120.0	13.0	0.4	111.3	4.0	0.0%
4	120.0	9.9	0.3	86.3	3.0	0.0%
5	120.0	8.5	0.3	71.3	3.0	0.0%
6	120.0	5.7	0.2	45.5	2.0	0.0%
7	120.0	10.9	0.4	71.7	3.0	0.0%
8	120.0	9.5	0.4	112.5	5.0	0.0%
9	120.0	12.8	0.5	101.2	4.0	0.0%
10	120.0	11.0	0.4	97.2	4.0	0.0%
Average:	**120.0**	**10.3**	**0.4**	**92.2**	**3.7**	**0.0%**
SWB T on MINK ST NW - Lane ID 156451						
1	120.0	5.4	0.2	39.8	2.0	0.0%
2	120.0	9.1	0.4	77.4	3.0	0.0%
3	120.0	11.2	0.4	78.4	3.0	0.0%
4	120.0	6.4	0.2	51.0	2.0	0.0%
5	120.0	7.6	0.3	56.7	2.0	0.0%
6	120.0	9.7	0.4	67.3	3.0	0.0%
7	120.0	10.1	0.4	99.4	4.0	0.0%
8	120.0	6.0	0.3	46.6	2.0	0.0%
9	120.0	4.4	0.2	19.7	1.0	0.0%
10	120.0	6.5	0.3	51.9	2.0	0.0%
Average:	**120.0**	**7.6**	**0.3**	**58.8**	**2.4**	**0.0%**
SWB T on MINK ST NW - Lane ID 156452						
1	120.0	13.0	0.5	96.3	3.0	0.0%
2	120.0	13.9	0.5	109.2	3.0	0.0%
3	120.0	17.2	0.7	128.6	5.0	0.0%
4	120.0	9.5	0.3	90.6	2.0	0.0%
5	120.0	13.5	0.4	103.1	3.0	0.0%

MINK ST NW & INNOVATION WAY — NODE: 15

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
SWB T on MINK ST NW - Lane ID 156452						
6	120.0	16.8	0.6	110.9	4.0	0.0%
7	120.0	13.5	0.5	122.5	4.0	0.0%
8	120.0	9.2	0.3	68.8	3.0	0.0%
9	120.0	8.9	0.4	98.7	3.0	0.0%
10	120.0	7.1	0.3	48.1	2.0	0.0%
Average:	**120.0**	**12.3**	**0.5**	**97.7**	**3.2**	**0.0%**
SWB TR on MINK ST NW - Lane ID 156453						
1	120.0	17.3	0.6	137.6	5.0	0.0%
2	120.0	20.9	0.7	166.8	5.0	0.0%
3	120.0	31.8	1.1	206.2	7.0	0.0%
4	120.0	17.0	0.7	168.4	6.0	0.0%
5	120.0	15.4	0.6	98.6	4.0	0.0%
6	120.0	20.2	0.7	192.2	5.0	0.0%
7	120.0	23.4	0.8	215.4	7.0	0.0%
8	120.0	21.1	0.7	172.1	5.0	0.0%
9	120.0	19.0	0.7	178.7	5.0	0.0%
10	120.0	15.7	0.6	126.7	4.0	0.0%
Average:	**120.0**	**20.2**	**0.7**	**166.3**	**5.3**	**0.0%**

MINK ST NW & JUG ST — NODE: 33082

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
EB L on JUG ST - Lane ID 156252						
1	120.0	15.1	0.7	66.4	2.0	0.0%
2	120.0	9.7	0.5	45.4	2.0	0.0%
3	120.0	12.0	0.6	39.9	1.0	0.0%
4	120.0	18.2	0.7	75.3	3.0	0.0%
5	120.0	11.2	0.6	48.1	2.0	0.0%
6	120.0	14.7	0.6	66.9	2.0	0.0%
7	120.0	12.9	0.6	47.4	2.0	0.0%
8	120.0	18.7	0.7	97.3	2.0	0.0%
9	120.0	12.0	0.6	43.5	2.0	0.0%
10	120.0	9.9	0.5	46.9	2.0	0.0%
Average:	**120.0**	**13.4**	**0.6**	**57.7**	**2.0**	**0.0%**
EB R on JUG ST - Lane ID 156253						
1	120.0	0.8	0.0	0.0	0.0	0.0%
2	120.0	1.6	0.1	15.5	1.0	0.0%
3	120.0	1.0	0.1	0.5	0.0	0.0%
4	120.0	1.4	0.1	9.7	1.0	0.0%
5	120.0	1.2	0.1	0.7	0.0	0.0%
6	120.0	0.8	0.1	0.6	0.0	0.0%

MINK ST NW & JUG ST — NODE: 33082

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
EB R on JUG ST - Lane ID 156253						
7	120.0	1.2	0.1	0.2	0.0	0.0%
8	120.0	0.7	0.1	0.4	0.0	0.0%
9	120.0	0.6	0.0	0.0	0.0	0.0%
10	120.0	0.5	0.0	0.0	0.0	0.0%
Average:	**120.0**	**1.0**	**0.1**	**2.8**	**0.2**	**0.0%**
NB L on MINK ST NW - Lane ID 156247						
1	120.0	0.1	0.0	0.0	0.0	0.0%
2	120.0	0.7	0.0	0.0	0.0	0.0%
3	120.0	1.5	0.0	0.0	0.0	0.0%
4	120.0	0.5	0.0	0.0	0.0	0.0%
5	120.0	0.0	0.0	0.0	0.0	0.0%
6	120.0	0.0	0.0	0.0	0.0	0.0%
7	120.0	0.7	0.0	0.0	0.0	0.0%
8	120.0	0.6	0.0	0.0	0.0	0.0%
9	120.0	0.5	0.0	0.0	0.0	0.0%
10	120.0	0.6	0.0	0.0	0.0	0.0%
Average:	**120.0**	**0.5**	**0.0**	**0.0**	**0.0**	**0.0%**
NB T on MINK ST NW - Lane ID 153566						
1	120.0	1.3	0.1	0.5	0.0	0.0%
2	120.0	1.6	0.1	0.0	0.0	0.0%
3	120.0	0.6	0.0	0.0	0.0	0.0%
4	120.0	0.6	0.0	0.0	0.0	0.0%
5	120.0	3.7	0.1	15.4	1.0	0.0%
6	120.0	0.7	0.0	0.0	0.0	0.0%
7	120.0	0.9	0.0	0.0	0.0	0.0%
8	120.0	0.3	0.0	0.0	0.0	0.0%
9	120.0	0.9	0.1	0.0	0.0	0.0%
10	120.0	2.8	0.1	14.5	1.0	0.0%
Average:	**120.0**	**1.3**	**0.1**	**3.0**	**0.2**	**0.0%**
NB T on MINK ST NW - Lane ID 156220						
1	120.0	2.3	0.1	16.3	1.0	0.0%
2	120.0	1.4	0.1	13.8	1.0	0.0%
3	120.0	1.6	0.1	0.0	0.0	0.0%
4	120.0	1.4	0.1	0.0	0.0	0.0%
5	120.0	1.8	0.1	13.9	1.0	0.0%
6	120.0	1.3	0.1	0.0	0.0	0.0%
7	120.0	1.4	0.1	0.0	0.0	0.0%
8	120.0	0.6	0.0	0.0	0.0	0.0%
9	120.0	1.5	0.1	0.0	0.0	0.0%
10	120.0	2.2	0.1	0.8	0.0	0.0%

MINK ST NW & JUG ST — NODE: 33082

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NB T on MINK ST NW - Lane ID 156220						
Average:	**120.0**	**1.6**	**0.1**	**4.5**	**0.3**	**0.0%**
SB T on MINK ST NW - Lane ID 153676						
1	120.0	1.5	0.1	0.0	0.0	0.0%
2	120.0	1.6	0.1	14.5	1.0	0.0%
3	120.0	2.5	0.1	18.1	1.0	0.0%
4	120.0	1.5	0.1	14.0	1.0	0.0%
5	120.0	1.1	0.1	14.3	1.0	0.0%
6	120.0	0.2	0.0	0.0	0.0	0.0%
7	120.0	0.8	0.0	0.0	0.0	0.0%
8	120.0	0.5	0.0	0.0	0.0	0.0%
9	120.0	1.8	0.1	0.0	0.0	0.0%
10	120.0	1.0	0.0	0.0	0.0	0.0%
Average:	**120.0**	**1.3**	**0.1**	**6.1**	**0.4**	**0.0%**
SB TR on MINK ST NW - Lane ID 156248						
1	120.0	0.6	0.0	0.0	0.0	0.0%
2	120.0	1.1	0.1	0.0	0.0	0.0%
3	120.0	1.2	0.1	0.5	0.0	0.0%
4	120.0	0.8	0.0	0.0	0.0	0.0%
5	120.0	0.3	0.0	0.0	0.0	0.0%
6	120.0	1.2	0.1	0.0	0.0	0.0%
7	120.0	1.6	0.1	0.0	0.0	0.0%
8	120.0	1.9	0.1	0.0	0.0	0.0%
9	120.0	1.1	0.0	0.0	0.0	0.0%
10	120.0	1.2	0.1	0.0	0.0	0.0%
Average:	**120.0**	**1.1**	**0.1**	**0.1**	**0.0**	**0.0%**

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 10

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
EB L on SR 161 EB EXIT RAMP - Lane ID 156331						
1	120.0	40.3	1.4	109.4	4.0	37.5%
2	120.0	51.1	2.0	106.3	4.0	47.5%
3	120.0	51.0	1.8	112.8	4.0	45.0%
4	120.0	44.3	1.7	107.2	4.0	40.8%
5	120.0	51.5	1.9	113.4	4.0	50.0%
6	120.0	48.1	1.7	117.7	4.0	45.8%
7	120.0	47.0	1.7	102.6	4.0	45.8%
8	120.0	51.2	1.7	144.8	4.0	50.0%
9	120.0	54.5	2.0	115.0	4.0	50.8%
10	120.0	55.9	2.0	112.0	4.0	54.2%
Average:	**120.0**	**49.5**	**1.8**	**114.1**	**4.0**	**46.7%**

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 10

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
EB L on SR 161 EB EXIT RAMP - Lane ID 156331						
EB L on SR 161 EB EXIT RAMP - Lane ID 156332						
1	120.0	37.7	1.5	101.8	4.0	34.2%
2	120.0	45.1	1.7	106.7	4.0	41.7%
3	120.0	46.2	1.9	104.1	4.0	42.5%
4	120.0	39.5	1.6	105.9	4.0	34.2%
5	120.0	45.2	1.7	104.9	4.0	42.5%
6	120.0	38.6	1.5	104.9	4.0	35.0%
7	120.0	37.4	1.4	104.9	4.0	35.8%
8	120.0	40.1	1.6	101.0	4.0	36.7%
9	120.0	44.4	1.8	103.7	4.0	41.7%
10	120.0	42.4	1.8	101.1	4.0	36.7%
Average:	**120.0**	**41.7**	**1.7**	**103.9**	**4.0**	**38.1%**
EB L on SR 161 EB EXIT RAMP - Lane ID 156333						
1	120.0	30.0	1.2	103.6	4.0	27.5%
2	120.0	42.5	1.6	107.2	4.0	39.2%
3	120.0	35.9	1.4	101.5	4.0	31.7%
4	120.0	31.9	1.2	103.7	4.0	29.2%
5	120.0	37.6	1.6	100.3	4.0	37.5%
6	120.0	32.2	1.3	110.5	4.0	27.5%
7	120.0	29.3	1.2	103.0	4.0	25.0%
8	120.0	32.7	1.3	102.3	4.0	29.2%
9	120.0	36.7	1.4	103.6	4.0	30.8%
10	120.0	39.5	1.5	118.0	4.0	32.5%
Average:	**120.0**	**34.8**	**1.4**	**105.4**	**4.0**	**31.0%**
NEB T on MINK ST NW - Lane ID 156322						
1	120.0	28.4	1.1	85.4	3.0	39.2%
2	120.0	22.2	0.9	73.4	3.0	31.7%
3	120.0	24.6	1.0	76.4	3.0	35.0%
4	120.0	28.7	1.2	78.3	3.0	41.7%
5	120.0	23.4	1.0	76.6	3.0	34.2%
6	120.0	29.5	1.2	74.7	3.0	42.5%
7	120.0	29.7	1.2	75.8	3.0	44.2%
8	120.0	27.2	1.0	86.9	3.0	35.0%
9	120.0	25.4	0.9	97.2	3.0	36.7%
10	120.0	24.6	0.9	73.9	3.0	35.8%
Average:	**120.0**	**26.4**	**1.0**	**79.9**	**3.0**	**37.6%**
NEB T on MINK ST NW - Lane ID 156323						
1	120.0	30.6	1.1	100.2	3.0	41.7%
2	120.0	21.7	0.9	74.4	3.0	29.2%

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 10

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NEB T on MINK ST NW - Lane ID 156323						
3	120.0	23.2	1.0	74.7	3.0	34.2%
4	120.0	29.8	1.0	96.6	3.0	42.5%
5	120.0	23.9	0.9	75.3	3.0	34.2%
6	120.0	27.2	1.1	76.5	3.0	39.2%
7	120.0	26.2	1.1	75.5	3.0	39.2%
8	120.0	30.3	1.2	82.2	3.0	42.5%
9	120.0	22.1	1.0	74.9	3.0	32.5%
10	120.0	25.5	1.0	75.0	3.0	36.7%
Average:	**120.0**	**26.1**	**1.0**	**80.5**	**3.0**	**37.2%**
SWB T on MINK ST NW - Lane ID 156377						
1	120.0	11.6	0.5	62.2	2.0	0.0%
2	120.0	14.2	0.5	90.8	3.0	0.0%
3	120.0	14.6	0.5	100.6	3.0	0.0%
4	120.0	14.4	0.5	80.0	3.0	0.0%
5	120.0	12.5	0.4	98.8	3.0	0.0%
6	120.0	13.6	0.5	98.8	3.0	0.0%
7	120.0	12.5	0.5	98.8	3.0	0.0%
8	120.0	11.5	0.5	69.2	3.0	0.0%
9	120.0	9.0	0.4	46.2	2.0	0.0%
10	120.0	11.8	0.4	71.6	2.0	0.0%
Average:	**120.0**	**12.6**	**0.5**	**81.7**	**2.7**	**0.0%**
SWB T on MINK ST NW - Lane ID 156378						
1	120.0	16.8	0.6	98.7	3.0	0.0%
2	120.0	16.4	0.6	99.6	3.0	0.0%
3	120.0	14.3	0.5	98.7	3.0	0.0%
4	120.0	14.2	0.6	98.8	3.0	0.0%
5	120.0	19.4	0.6	106.2	3.0	0.0%
6	120.0	14.8	0.6	71.2	3.0	0.0%
7	120.0	18.1	0.6	122.0	4.0	0.0%
8	120.0	12.5	0.5	69.6	3.0	0.0%
9	120.0	13.9	0.5	98.8	3.0	0.0%
10	120.0	13.2	0.6	98.9	4.0	0.0%
Average:	**120.0**	**15.4**	**0.6**	**96.3**	**3.2**	**0.0%**

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 5

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NEB T on MINK ST NW - Lane ID 156390						
1	120.0	21.1	0.8	160.8	6.0	0.0%
2	120.0	28.9	1.0	189.8	6.0	0.0%
3	120.0	23.9	0.8	154.9	5.0	0.0%

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 5

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NEB T on MINK ST NW - Lane ID 156390						
4	120.0	17.4	0.7	140.5	5.0	0.0%
5	120.0	24.1	0.8	156.1	6.0	0.0%
6	120.0	21.1	0.8	166.1	5.0	0.0%
7	120.0	29.1	1.1	197.8	7.0	0.0%
8	120.0	21.2	0.7	179.2	5.0	0.0%
9	120.0	34.1	1.2	208.9	7.0	0.0%
10	120.0	20.0	0.7	157.5	6.0	0.0%
Average:	**120.0**	**24.1**	**0.9**	**171.2**	**5.8**	**0.0%**
NEB T on MINK ST NW - Lane ID 156391						
1	120.0	23.2	0.9	129.2	5.0	0.0%
2	120.0	24.5	0.9	154.6	5.0	0.0%
3	120.0	17.7	0.7	132.6	5.0	0.0%
4	120.0	27.3	1.0	189.0	6.0	0.0%
5	120.0	21.4	0.8	161.9	5.0	0.0%
6	120.0	29.5	1.0	172.4	6.0	0.0%
7	120.0	31.4	1.1	194.1	7.0	0.0%
8	120.0	20.9	0.8	136.7	5.0	0.0%
9	120.0	30.5	1.1	230.1	7.0	0.0%
10	120.0	26.0	0.9	187.8	6.0	0.0%
Average:	**120.0**	**25.2**	**0.9**	**168.8**	**5.7**	**0.0%**
NEB T on MINK ST NW - Lane ID 156392						
1	120.0	32.2	1.2	202.7	6.0	0.0%
2	120.0	24.5	0.9	173.8	6.0	0.0%
3	120.0	21.5	0.7	155.2	5.0	0.0%
4	120.0	23.2	0.9	155.2	6.0	0.0%
5	120.0	24.8	0.8	155.4	5.0	0.0%
6	120.0	28.9	1.1	180.5	7.0	0.0%
7	120.0	28.6	1.0	202.8	6.0	0.0%
8	120.0	30.4	1.0	158.6	5.0	0.0%
9	120.0	33.5	1.1	206.8	7.0	0.0%
10	120.0	24.5	0.9	185.5	6.0	0.0%
Average:	**120.0**	**27.2**	**1.0**	**177.7**	**5.9**	**0.0%**
SWB T on MINK ST NW - Lane ID 156361						
1	120.0	4.1	0.2	40.7	2.0	13.3%
2	120.0	5.2	0.2	45.0	2.0	10.8%
3	120.0	3.9	0.2	42.9	2.0	9.2%
4	120.0	3.4	0.2	18.5	1.0	10.0%
5	120.0	4.7	0.2	42.7	2.0	10.8%
6	120.0	3.7	0.2	21.9	1.0	6.7%
7	120.0	3.9	0.2	38.2	2.0	9.2%

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 5

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
SWB T on MINK ST NW - Lane ID 156361						
8	120.0	5.8	0.3	46.4	2.0	12.5%
9	120.0	5.8	0.2	57.1	2.0	9.2%
10	120.0	4.8	0.2	42.5	2.0	11.7%
Average:	**120.0**	**4.5**	**0.2**	**39.6**	**1.8**	**10.3%**
SWB T on MINK ST NW - Lane ID 156362						
1	120.0	5.2	0.2	44.8	2.0	12.5%
2	120.0	7.4	0.3	58.5	3.0	13.3%
3	120.0	5.3	0.2	42.5	2.0	10.8%
4	120.0	7.0	0.3	50.3	2.0	13.3%
5	120.0	6.5	0.3	49.3	2.0	14.2%
6	120.0	5.1	0.2	44.1	2.0	11.7%
7	120.0	5.0	0.2	38.1	1.0	10.8%
8	120.0	8.0	0.3	51.4	2.0	15.8%
9	120.0	7.1	0.3	48.0	2.0	16.7%
10	120.0	6.3	0.2	47.9	2.0	12.5%
Average:	**120.0**	**6.3**	**0.3**	**47.5**	**2.0**	**13.2%**
WB L on SR 161 WB EXIT RAMP - Lane ID 156365						
1	120.0	9.4	0.4	43.3	2.0	0.0%
2	120.0	8.5	0.4	41.4	2.0	0.0%
3	120.0	9.8	0.5	45.7	2.0	0.0%
4	120.0	10.6	0.5	46.2	2.0	0.0%
5	120.0	10.6	0.5	48.7	2.0	0.0%
6	120.0	10.7	0.5	45.4	2.0	0.0%
7	120.0	11.3	0.5	63.3	2.0	0.0%
8	120.0	11.2	0.5	53.1	2.0	0.0%
9	120.0	10.3	0.5	47.4	2.0	0.0%
10	120.0	8.2	0.4	41.2	2.0	0.0%
Average:	**120.0**	**10.1**	**0.5**	**47.6**	**2.0**	**0.0%**

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
EB L on WORTHINGTON RD - Lane ID 153286						
1	120.0	106.2	3.7	278.7	9.0	0.0%
2	120.0	97.3	3.6	226.6	8.0	0.0%
3	120.0	103.9	3.7	270.1	10.0	0.0%
4	120.0	103.2	3.8	286.5	9.0	0.0%
5	120.0	68.7	2.5	184.4	6.0	0.0%
6	120.0	130.7	4.7	321.3	11.0	0.0%
7	120.0	83.1	3.0	221.7	7.0	0.0%
8	120.0	205.7	7.2	604.1	22.0	0.0%

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
EB L on WORTHINGTON RD - Lane ID 153286						
9	120.0	83.8	3.0	234.6	7.0	0.0%
10	120.0	143.3	5.0	368.9	13.0	0.0%
Average:	**120.0**	**112.6**	**4.0**	**299.7**	**10.2**	**0.0%**
EB TR on WORTHINGTON RD - Lane ID 153287						
1	120.0	2.8	0.2	16.9	1.0	0.0%
2	120.0	4.4	0.2	19.7	1.0	0.0%
3	120.0	4.0	0.2	18.4	1.0	0.0%
4	120.0	2.4	0.1	17.7	1.0	0.0%
5	120.0	3.3	0.2	16.6	1.0	0.0%
6	120.0	2.8	0.1	16.2	1.0	0.0%
7	120.0	4.1	0.2	19.1	1.0	0.0%
8	120.0	2.7	0.1	20.5	1.0	0.0%
9	120.0	5.2	0.3	41.1	2.0	0.0%
10	120.0	3.7	0.2	20.4	1.0	0.0%
Average:	**120.0**	**3.5**	**0.2**	**20.7**	**1.1**	**0.0%**
NEB L on MINK ST SW - Lane ID 156321						
1	120.0	3.4	0.2	17.3	1.0	0.0%
2	120.0	5.5	0.3	18.5	1.0	0.0%
3	120.0	3.5	0.2	16.9	1.0	0.0%
4	120.0	3.1	0.2	16.6	1.0	0.0%
5	120.0	4.2	0.3	18.1	1.0	0.0%
6	120.0	4.4	0.2	17.3	1.0	0.0%
7	120.0	5.5	0.3	39.9	1.0	0.0%
8	120.0	5.7	0.3	34.9	1.0	0.0%
9	120.0	6.2	0.3	42.7	1.0	0.0%
10	120.0	4.4	0.2	20.6	1.0	0.0%
Average:	**120.0**	**4.6**	**0.3**	**24.3**	**1.0**	**0.0%**
NEB T on MINK ST SW - Lane ID 153565						
1	120.0	64.6	2.4	285.7	9.0	0.0%
2	120.0	64.8	2.4	294.8	10.0	0.0%
3	120.0	68.1	2.4	290.8	9.0	0.0%
4	120.0	75.9	2.7	315.2	10.0	0.0%
5	120.0	65.9	2.3	226.2	9.0	0.0%
6	120.0	70.1	2.4	246.5	9.0	0.0%
7	120.0	55.3	1.9	242.0	8.0	0.0%
8	120.0	61.2	2.2	246.6	9.0	0.0%
9	120.0	63.9	2.2	235.1	8.0	0.0%
10	120.0	65.6	2.3	246.1	8.0	0.0%
Average:	**120.0**	**65.5**	**2.3**	**262.9**	**8.9**	**0.0%**

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NEB TR on MINK ST SW - Lane ID 156348						
1	120.0	62.5	2.1	276.6	8.0	0.0%
2	120.0	63.6	2.2	268.2	9.0	0.0%
3	120.0	67.4	2.5	285.0	10.0	0.0%
4	120.0	84.1	2.7	302.2	10.0	0.0%
5	120.0	63.6	2.2	276.1	8.0	0.0%
6	120.0	74.7	2.7	287.8	11.0	0.0%
7	120.0	68.3	2.4	315.3	10.0	0.0%
8	120.0	68.6	2.6	256.4	10.0	0.0%
9	120.0	65.0	2.4	244.0	9.0	0.0%
10	120.0	61.9	2.3	260.4	8.0	0.0%
Average:	**120.0**	**68.0**	**2.4**	**277.2**	**9.3**	**0.0%**
SWB L on MINK ST NW - Lane ID 156350						
1	120.0	11.9	0.6	57.6	2.0	0.0%
2	120.0	7.0	0.4	46.2	2.0	0.0%
3	120.0	11.4	0.6	68.7	3.0	0.0%
4	120.0	10.1	0.5	71.1	2.0	0.0%
5	120.0	8.1	0.5	48.3	2.0	0.0%
6	120.0	14.0	0.6	89.8	3.0	0.0%
7	120.0	6.5	0.4	41.8	2.0	0.0%
8	120.0	15.9	0.8	73.6	3.0	0.0%
9	120.0	8.9	0.5	51.7	2.0	0.0%
10	120.0	15.3	0.7	72.8	3.0	0.0%
Average:	**120.0**	**10.9**	**0.6**	**62.2**	**2.4**	**0.0%**
SWB R on MINK ST NW - Lane ID 156356						
1	120.0	24.4	0.9	104.4	4.0	0.0%
2	120.0	22.8	0.9	113.8	4.0	0.0%
3	120.0	25.1	0.9	127.1	4.0	0.0%
4	120.0	23.3	0.9	120.7	4.0	0.0%
5	120.0	24.6	0.8	151.7	4.0	0.0%
6	120.0	21.9	0.9	111.9	4.0	0.0%
7	120.0	22.2	0.8	134.4	5.0	0.0%
8	120.0	26.0	1.0	107.7	4.0	0.0%
9	120.0	27.3	1.0	136.2	5.0	0.0%
10	120.0	21.6	0.9	105.7	4.0	0.0%
Average:	**120.0**	**23.9**	**0.9**	**121.4**	**4.2**	**0.0%**
SWB T on MINK ST NW - Lane ID 156351						
1	120.0	13.6	0.6	71.5	3.0	0.0%
2	120.0	14.7	0.6	73.1	3.0	0.0%
3	120.0	18.4	0.7	91.3	3.0	0.0%
4	120.0	17.6	0.7	103.2	3.0	0.0%

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
SWB T on MINK ST NW - Lane ID 156351						
5	120.0	16.0	0.7	95.7	4.0	0.0%
6	120.0	19.4	0.7	77.0	3.0	0.0%
7	120.0	17.4	0.6	96.0	3.0	0.0%
8	120.0	17.7	0.7	79.4	3.0	0.0%
9	120.0	17.8	0.6	103.6	3.0	0.0%
10	120.0	15.8	0.6	80.8	3.0	0.0%
Average:	**120.0**	**16.8**	**0.7**	**87.2**	**3.1**	**0.0%**
SWB T on MINK ST NW - Lane ID 156352						
1	120.0	13.2	0.6	65.7	2.0	0.0%
2	120.0	16.2	0.6	81.8	3.0	0.0%
3	120.0	17.3	0.7	88.4	3.0	0.0%
4	120.0	17.3	0.7	100.0	4.0	0.0%
5	120.0	10.4	0.5	46.9	2.0	0.0%
6	120.0	15.5	0.6	93.8	3.0	0.0%
7	120.0	16.5	0.7	78.7	3.0	0.0%
8	120.0	14.3	0.6	73.5	3.0	0.0%
9	120.0	17.9	0.7	94.1	3.0	0.0%
10	120.0	14.9	0.5	89.2	3.0	0.0%
Average:	**120.0**	**15.4**	**0.6**	**81.2**	**2.9**	**0.0%**
WB L on WORTHINGTON RD - Lane ID 153562						
1	120.0	0.2	0.0	0.0	0.0	0.0%
2	120.0	2.2	0.1	17.3	1.0	0.0%
3	120.0	1.7	0.1	15.6	1.0	0.0%
4	120.0	1.5	0.1	16.2	1.0	0.0%
5	120.0	2.2	0.1	14.9	1.0	0.0%
6	120.0	1.6	0.1	14.9	1.0	0.0%
7	120.0	1.7	0.1	17.1	1.0	0.0%
8	120.0	1.3	0.1	15.6	1.0	0.0%
9	120.0	1.8	0.1	16.5	1.0	0.0%
10	120.0	1.8	0.1	18.5	1.0	0.0%
Average:	**120.0**	**1.6**	**0.1**	**14.7**	**0.9**	**0.0%**
WB TR on WORTHINGTON RD - Lane ID 153563						
1	120.0	59.3	2.2	203.7	6.0	0.0%
2	120.0	69.2	2.7	180.2	7.0	0.0%
3	120.0	79.8	2.9	262.1	8.0	0.0%
4	120.0	80.2	3.0	245.2	8.0	0.0%
5	120.0	67.6	2.6	197.7	7.0	0.0%
6	120.0	68.1	2.6	229.9	8.0	0.0%
7	120.0	63.5	2.4	197.2	7.0	0.0%
8	120.0	65.7	2.4	198.7	7.0	0.0%

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
WB TR on WORTHINGTON RD - Lane ID 153563						
9	120.0	58.8	2.3	189.1	7.0	0.0%
10	120.0	103.6	3.4	330.9	9.0	0.0%
Average:	**120.0**	**71.6**	**2.7**	**223.5**	**7.4**	**0.0%**

Project: Mink Corridor Optimized Parclo w North
Scenario: AM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 08:00:00 - 09:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Lane Queue by Intersection - Avg Queue

MINK ST NW & BEAVER RD — NODE: 18

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NWB L	156427	BEAVER RD	32.2	3.1	26.8	36.1	10
NWB LR	156428	BEAVER RD	34.5	2.5	30.2	37.6	10

MINK ST NW & BEAVER RD — NODE: 18

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156206	MINK ST NW	33.9	7.6	27.1	49.6	10
NEB T	156207	MINK ST NW	17.8	3.3	13.0	23.2	10
SWB L	156233	MINK ST NW	8.8	3.4	5.6	15.7	10
SWB T	156234	MINK ST NW	3.1	0.9	1.3	4.2	10
SWB T	156235	MINK ST NW	1.2	0.6	0.1	2.1	10
NEB R	156404	MINK ST NW	6.7	1.4	5.2	9.9	10
SWB T	156422	MINK ST NW	1.4	0.7	0.6	2.3	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SEB R	156411	CLOVER VALLEY EXT	4.3	1.2	2.7	5.8	10
SEB R	156445	CLOVER VALLEY EXT	1.7	0.6	0.9	2.9	10
SEB L	156450	CLOVER VALLEY EXT	5.8	2.2	2.8	8.9	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB L	156441	MINK ST NW	48.8	5.1	43.4	56.1	10
NEB L	156442	MINK ST NW	48.7	4.4	41.5	55.2	10
NEB T	156443	MINK ST NW	2.6	1.1	0.8	4.4	10
NEB T	156444	MINK ST NW	3.8	1.3	1.8	5.4	10
SWB T	156454	MINK ST NW	43.3	5.6	32.1	50.1	10
SWB TR	156455	MINK ST NW	41.4	6.0	35.3	51.2	10

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156208	INNOVATION WAY	13.5	2.8	10.3	18.8	10
EB R	156209	INNOVATION WAY	3.4	1.0	2.0	5.0	10

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB L	156357	MINK ST NW	11.6	2.7	6.8	16.1	10
NEB T	156358	MINK ST NW	8.1	2.7	4.7	13.2	10
NEB T	156359	MINK ST NW	10.6	3.7	3.7	15.5	10
NEB T	156360	MINK ST NW	10.3	2.2	5.7	13.0	10
SWB T	156451	MINK ST NW	7.6	2.3	4.4	11.2	10
SWB T	156452	MINK ST NW	12.3	3.4	7.1	17.2	10
SWB TR	156453	MINK ST NW	20.2	4.8	15.4	31.8	10

MINK ST NW & JUG ST — NODE: 33082

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156252	JUG ST	13.4	3.2	9.7	18.7	10
EB R	156253	JUG ST	1.0	0.4	0.5	1.6	10

MINK ST NW & JUG ST — NODE: 33082

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB T	153566	MINK ST NW	1.3	1.1	0.3	3.7	10
SB T	153676	MINK ST NW	1.3	0.7	0.2	2.5	10
NB T	156220	MINK ST NW	1.6	0.5	0.6	2.3	10
NB L	156247	MINK ST NW	0.5	0.4	0.0	1.5	10
SB TR	156248	MINK ST NW	1.1	0.5	0.3	1.9	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 10

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156322	MINK ST NW	26.4	2.7	22.2	29.7	10
NEB T	156323	MINK ST NW	26.1	3.4	21.7	30.6	10
SWB T	156377	MINK ST NW	12.6	1.7	9.0	14.6	10
SWB T	156378	MINK ST NW	15.4	2.2	12.5	19.4	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 10

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156331	SR 161 EB EXIT RAMP	49.5	4.7	40.3	55.9	10
EB L	156332	SR 161 EB EXIT RAMP	41.7	3.4	37.4	46.2	10
EB L	156333	SR 161 EB EXIT RAMP	34.8	4.3	29.3	42.5	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB T	156361	MINK ST NW	4.5	0.9	3.4	5.8	10
SWB T	156362	MINK ST NW	6.3	1.1	5.0	8.0	10
NEB T	156390	MINK ST NW	24.1	5.1	17.4	34.1	10
NEB T	156391	MINK ST NW	25.2	4.5	17.7	31.4	10
NEB T	156392	MINK ST NW	27.2	4.1	21.5	33.5	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
WB L	156365	SR 161 WB EXIT RAMP	10.1	1.1	8.2	11.3	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB L	156350	MINK ST NW	10.9	3.4	6.5	15.9	10
SWB T	156351	MINK ST NW	16.8	1.8	13.6	19.4	10
SWB T	156352	MINK ST NW	15.4	2.3	10.4	17.9	10
SWB R	156356	MINK ST NW	23.9	1.9	21.6	27.3	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	153565	MINK ST SW	65.5	5.4	55.3	75.9	10
NEB L	156321	MINK ST SW	4.6	1.1	3.1	6.2	10
NEB TR	156348	MINK ST SW	68.0	6.8	61.9	84.1	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	153286	WORTHINGTON RD	112.6	39.4	68.7	205.7	10
EB TR	153287	WORTHINGTON RD	3.5	0.9	2.4	5.2	10
WB L	153562	WORTHINGTON RD	1.6	0.6	0.2	2.2	10
WB TR	153563	WORTHINGTON RD	71.6	13.4	58.8	103.6	10

Project: Mink Corridor Optimized Parclo w North
Scenario: AM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 08:00:00 - 09:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Lane Queue by Intersection - Avg Num Queued

MINK ST NW & BEAVER RD — NODE: 18

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NWB L	156427	BEAVER RD	1.3	0.1	1.1	1.4	10
NWB LR	156428	BEAVER RD	1.4	0.0	1.3	1.4	10

MINK ST NW & BEAVER RD — NODE: 18

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156206	MINK ST NW	1.2	0.2	1.0	1.6	10
NEB T	156207	MINK ST NW	0.6	0.1	0.4	0.9	10
SWB L	156233	MINK ST NW	0.4	0.1	0.3	0.6	10
SWB T	156234	MINK ST NW	0.1	0.0	0.1	0.2	10
SWB T	156235	MINK ST NW	0.1	0.1	0.0	0.1	10
NEB R	156404	MINK ST NW	0.3	0.1	0.2	0.4	10
SWB T	156422	MINK ST NW	0.1	0.1	0.0	0.1	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SEB R	156411	CLOVER VALLEY EXT	0.2	0.1	0.1	0.3	10
SEB R	156445	CLOVER VALLEY EXT	0.1	0.0	0.1	0.1	10
SEB L	156450	CLOVER VALLEY EXT	0.3	0.1	0.2	0.4	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB L	156441	MINK ST NW	1.7	0.1	1.5	1.9	10
NEB L	156442	MINK ST NW	1.8	0.2	1.5	1.9	10
NEB T	156443	MINK ST NW	0.1	0.0	0.1	0.2	10
NEB T	156444	MINK ST NW	0.2	0.1	0.1	0.2	10
SWB T	156454	MINK ST NW	1.6	0.2	1.3	1.8	10
SWB TR	156455	MINK ST NW	1.6	0.2	1.3	1.8	10

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156208	INNOVATION WAY	0.6	0.1	0.5	0.8	10
EB R	156209	INNOVATION WAY	0.2	0.1	0.1	0.2	10

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB L	156357	MINK ST NW	0.6	0.1	0.4	0.8	10
NEB T	156358	MINK ST NW	0.3	0.1	0.2	0.4	10
NEB T	156359	MINK ST NW	0.4	0.1	0.1	0.5	10
NEB T	156360	MINK ST NW	0.4	0.1	0.2	0.5	10
SWB T	156451	MINK ST NW	0.3	0.1	0.2	0.4	10
SWB T	156452	MINK ST NW	0.5	0.1	0.3	0.7	10
SWB TR	156453	MINK ST NW	0.7	0.1	0.6	1.1	10

MINK ST NW & JUG ST — NODE: 33082

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156252	JUG ST	0.6	0.1	0.5	0.7	10
EB R	156253	JUG ST	0.1	0.0	0.0	0.1	10

MINK ST NW & JUG ST — NODE: 33082

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB T	153566	MINK ST NW	0.1	0.1	0.0	0.1	10
SB T	153676	MINK ST NW	0.1	0.1	0.0	0.1	10
NB T	156220	MINK ST NW	0.1	0.0	0.0	0.1	10
NB L	156247	MINK ST NW	0.0	0.0	0.0	0.0	10
SB TR	156248	MINK ST NW	0.1	0.1	0.0	0.1	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 10

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156322	MINK ST NW	1.0	0.1	0.9	1.2	10
NEB T	156323	MINK ST NW	1.0	0.1	0.9	1.2	10
SWB T	156377	MINK ST NW	0.5	0.0	0.4	0.5	10
SWB T	156378	MINK ST NW	0.6	0.0	0.5	0.6	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 10

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156331	SR 161 EB EXIT RAMP	1.8	0.2	1.4	2.0	10
EB L	156332	SR 161 EB EXIT RAMP	1.7	0.2	1.4	1.9	10
EB L	156333	SR 161 EB EXIT RAMP	1.4	0.2	1.2	1.6	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB T	156361	MINK ST NW	0.2	0.0	0.2	0.3	10
SWB T	156362	MINK ST NW	0.3	0.1	0.2	0.3	10
NEB T	156390	MINK ST NW	0.9	0.2	0.7	1.2	10
NEB T	156391	MINK ST NW	0.9	0.1	0.7	1.1	10
NEB T	156392	MINK ST NW	1.0	0.2	0.7	1.2	10

MINK ST NW & SR 161 WB EXIT RAMP NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
WB L	156365	SR 161 WB EXIT RAMP	0.5	0.0	0.4	0.5	10

WORTHINGTON RD, MINK ST NW & MINK ST SW NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB L	156350	MINK ST NW	0.6	0.1	0.4	0.8	10
SWB T	156351	MINK ST NW	0.7	0.1	0.6	0.7	10
SWB T	156352	MINK ST NW	0.6	0.1	0.5	0.7	10
SWB R	156356	MINK ST NW	0.9	0.1	0.8	1.0	10

WORTHINGTON RD, MINK ST NW & MINK ST SW NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	153565	MINK ST SW	2.3	0.2	1.9	2.7	10
NEB L	156321	MINK ST SW	0.3	0.1	0.2	0.3	10
NEB TR	156348	MINK ST SW	2.4	0.2	2.1	2.7	10

WORTHINGTON RD, MINK ST NW & MINK ST SW NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	153286	WORTHINGTON RD	4.0	1.3	2.5	7.2	10
EB TR	153287	WORTHINGTON RD	0.2	0.1	0.1	0.3	10
WB L	153562	WORTHINGTON RD	0.1	0.0	0.0	0.1	10
WB TR	153563	WORTHINGTON RD	2.7	0.4	2.2	3.4	10

Project: Mink Corridor Optimized Parclo w North
Scenario: AM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 08:00:00 - 09:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Lane Queue by Intersection - Percentile Queue

MINK ST NW & BEAVER RD — NODE: 18

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NWB L	156427	BEAVER RD	108.9	13.4	78.4	124.9	10
NWB LR	156428	BEAVER RD	121.4	10.1	100.7	136.4	10

MINK ST NW & BEAVER RD — NODE: 18

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156206	MINK ST NW	209.9	35.8	165.9	283.8	10
NEB T	156207	MINK ST NW	121.8	22.1	95.2	159.9	10
SWB L	156233	MINK ST NW	42.4	18.9	17.0	74.2	10
SWB T	156234	MINK ST NW	13.6	6.9	0.7	18.4	10
SWB T	156235	MINK ST NW	4.8	7.6	0.0	16.4	10
NEB R	156404	MINK ST NW	46.9	21.3	19.9	74.8	10
SWB T	156422	MINK ST NW	1.9	5.1	0.0	16.4	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SEB R	156411	CLOVER VALLEY EXT	28.2	13.0	16.8	45.3	10
SEB R	156445	CLOVER VALLEY EXT	10.1	8.6	0.0	20.9	10
SEB L	156450	CLOVER VALLEY EXT	25.3	12.6	15.5	46.7	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB L	156441	MINK ST NW	210.5	15.2	189.8	235.3	10
NEB L	156442	MINK ST NW	215.1	16.5	186.0	242.0	10
NEB T	156443	MINK ST NW	12.6	8.7	0.6	22.4	10
NEB T	156444	MINK ST NW	23.4	15.3	0.0	45.1	10
SWB T	156454	MINK ST NW	148.3	19.1	105.6	178.7	10
SWB TR	156455	MINK ST NW	144.0	21.0	116.4	182.7	10

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156208	INNOVATION WAY	63.0	13.3	41.3	79.6	10
EB R	156209	INNOVATION WAY	21.0	8.5	16.8	44.8	10

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB L	156357	MINK ST NW	62.3	11.6	41.4	79.4	10
NEB T	156358	MINK ST NW	75.5	38.9	14.9	121.4	10
NEB T	156359	MINK ST NW	88.1	38.8	0.7	132.7	10
NEB T	156360	MINK ST NW	92.2	23.4	45.5	121.4	10
SWB T	156451	MINK ST NW	58.8	22.6	19.7	99.4	10
SWB T	156452	MINK ST NW	97.7	24.2	48.1	128.6	10
SWB TR	156453	MINK ST NW	166.3	36.3	98.6	215.4	10

MINK ST NW & JUG ST — NODE: 33082

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156252	JUG ST	57.7	18.3	39.9	97.3	10
EB R	156253	JUG ST	2.8	5.4	0.0	15.5	10

MINK ST NW & JUG ST — NODE: 33082

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB T	153566	MINK ST NW	3.0	6.3	0.0	15.4	10
SB T	153676	MINK ST NW	6.1	7.9	0.0	18.1	10
NB T	156220	MINK ST NW	4.5	7.1	0.0	16.3	10
NB L	156247	MINK ST NW	0.0	0.0	0.0	0.0	10
SB TR	156248	MINK ST NW	0.1	0.2	0.0	0.5	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 10

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156322	MINK ST NW	79.9	7.6	73.4	97.2	10
NEB T	156323	MINK ST NW	80.5	9.7	74.4	100.2	10
SWB T	156377	MINK ST NW	81.7	18.9	46.2	100.6	10
SWB T	156378	MINK ST NW	96.3	15.4	69.6	122.0	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 10

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156331	SR 161 EB EXIT RAMP	114.1	11.7	102.6	144.8	10
EB L	156332	SR 161 EB EXIT RAMP	103.9	2.0	101.0	106.7	10
EB L	156333	SR 161 EB EXIT RAMP	105.4	5.3	100.3	118.0	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB T	156361	MINK ST NW	39.6	11.4	18.5	57.1	10
SWB T	156362	MINK ST NW	47.5	5.6	38.1	58.5	10
NEB T	156390	MINK ST NW	171.2	21.9	140.5	208.9	10
NEB T	156391	MINK ST NW	168.8	32.2	129.2	230.1	10
NEB T	156392	MINK ST NW	177.7	21.2	155.2	206.8	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
WB L	156365	SR 161 WB EXIT RAMP	47.6	6.6	41.2	63.3	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB L	156350	MINK ST NW	62.2	15.4	41.8	89.8	10
SWB T	156351	MINK ST NW	87.2	12.2	71.5	103.6	10
SWB T	156352	MINK ST NW	81.2	15.9	46.9	100.0	10
SWB R	156356	MINK ST NW	121.4	15.7	104.4	151.7	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	153565	MINK ST SW	262.9	30.6	226.2	315.2	10
NEB L	156321	MINK ST SW	24.3	10.5	16.6	42.7	10
NEB TR	156348	MINK ST SW	277.2	21.5	244.0	315.3	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	153286	WORTHINGTON RD	299.7	119.4	184.4	604.1	10
EB TR	153287	WORTHINGTON RD	20.7	7.3	16.2	41.1	10
WB L	153562	WORTHINGTON RD	14.7	5.3	0.0	18.5	10
WB TR	153563	WORTHINGTON RD	223.5	45.9	180.2	330.9	10

Project: Mink Corridor Optimized Parclo w North
Scenario: AM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 08:00:00 - 09:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Lane Queue by Intersection - Percentile Num Queued

MINK ST NW & BEAVER RD — NODE: 18

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NWB L	156427	BEAVER RD	3.7	0.5	3.0	4.0	10
NWB LR	156428	BEAVER RD	4.2	0.4	4.0	5.0	10

MINK ST NW & BEAVER RD — NODE: 18

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156206	MINK ST NW	7.1	0.7	6.0	8.0	10
NEB T	156207	MINK ST NW	4.3	0.9	3.0	6.0	10
SWB L	156233	MINK ST NW	1.7	0.5	1.0	2.0	10
SWB T	156234	MINK ST NW	0.8	0.4	0.0	1.0	10
SWB T	156235	MINK ST NW	0.3	0.5	0.0	1.0	10
NEB R	156404	MINK ST NW	1.7	0.5	1.0	2.0	10
SWB T	156422	MINK ST NW	0.1	0.3	0.0	1.0	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SEB R	156411	CLOVER VALLEY EXT	1.0	0.0	1.0	1.0	10
SEB R	156445	CLOVER VALLEY EXT	0.6	0.5	0.0	1.0	10
SEB L	156450	CLOVER VALLEY EXT	1.0	0.0	1.0	1.0	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB L	156441	MINK ST NW	7.5	0.8	6.0	8.0	10
NEB L	156442	MINK ST NW	7.6	0.8	6.0	9.0	10
NEB T	156443	MINK ST NW	0.7	0.5	0.0	1.0	10
NEB T	156444	MINK ST NW	1.2	0.6	0.0	2.0	10
SWB T	156454	MINK ST NW	5.0	0.7	4.0	6.0	10
SWB TR	156455	MINK ST NW	4.8	0.4	4.0	5.0	10

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156208	INNOVATION WAY	2.1	0.3	2.0	3.0	10
EB R	156209	INNOVATION WAY	1.0	0.0	1.0	1.0	10

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB L	156357	MINK ST NW	2.5	0.5	2.0	3.0	10
NEB T	156358	MINK ST NW	2.8	1.1	1.0	4.0	10
NEB T	156359	MINK ST NW	3.0	1.3	0.0	5.0	10
NEB T	156360	MINK ST NW	3.7	0.9	2.0	5.0	10
SWB T	156451	MINK ST NW	2.4	0.8	1.0	4.0	10
SWB T	156452	MINK ST NW	3.2	0.9	2.0	5.0	10
SWB TR	156453	MINK ST NW	5.3	1.1	4.0	7.0	10

MINK ST NW & JUG ST — NODE: 33082

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156252	JUG ST	2.0	0.5	1.0	3.0	10
EB R	156253	JUG ST	0.2	0.4	0.0	1.0	10

MINK ST NW & JUG ST — NODE: 33082

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB T	153566	MINK ST NW	0.2	0.4	0.0	1.0	10
SB T	153676	MINK ST NW	0.4	0.5	0.0	1.0	10
NB T	156220	MINK ST NW	0.3	0.5	0.0	1.0	10
NB L	156247	MINK ST NW	0.0	0.0	0.0	0.0	10
SB TR	156248	MINK ST NW	0.0	0.0	0.0	0.0	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 10

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156322	MINK ST NW	3.0	0.0	3.0	3.0	10
NEB T	156323	MINK ST NW	3.0	0.0	3.0	3.0	10
SWB T	156377	MINK ST NW	2.7	0.5	2.0	3.0	10
SWB T	156378	MINK ST NW	3.2	0.4	3.0	4.0	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 10

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156331	SR 161 EB EXIT RAMP	4.0	0.0	4.0	4.0	10
EB L	156332	SR 161 EB EXIT RAMP	4.0	0.0	4.0	4.0	10
EB L	156333	SR 161 EB EXIT RAMP	4.0	0.0	4.0	4.0	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB T	156361	MINK ST NW	1.8	0.4	1.0	2.0	10
SWB T	156362	MINK ST NW	2.0	0.5	1.0	3.0	10
NEB T	156390	MINK ST NW	5.8	0.8	5.0	7.0	10
NEB T	156391	MINK ST NW	5.7	0.8	5.0	7.0	10
NEB T	156392	MINK ST NW	5.9	0.7	5.0	7.0	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
WB L	156365	SR 161 WB EXIT RAMP	2.0	0.0	2.0	2.0	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB L	156350	MINK ST NW	2.4	0.5	2.0	3.0	10
SWB T	156351	MINK ST NW	3.1	0.3	3.0	4.0	10
SWB T	156352	MINK ST NW	2.9	0.6	2.0	4.0	10
SWB R	156356	MINK ST NW	4.2	0.4	4.0	5.0	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	153565	MINK ST SW	8.9	0.7	8.0	10.0	10
NEB L	156321	MINK ST SW	1.0	0.0	1.0	1.0	10
NEB TR	156348	MINK ST SW	9.3	1.1	8.0	11.0	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	153286	WORTHINGTON RD	10.2	4.6	6.0	22.0	10
EB TR	153287	WORTHINGTON RD	1.1	0.3	1.0	2.0	10
WB L	153562	WORTHINGTON RD	0.9	0.3	0.0	1.0	10
WB TR	153563	WORTHINGTON RD	7.4	0.8	6.0	9.0	10

Project: Mink Corridor Optimized Parclo w North
Scenario: AM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 08:00:00 - 09:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Lane Queue by Intersection - Spillback Rate

MINK ST NW & BEAVER RD — NODE: 18

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NWB L	156427	BEAVER RD	0.0	0.0	0.0	0.0	10
NWB LR	156428	BEAVER RD	0.0	0.0	0.0	0.0	10

MINK ST NW & BEAVER RD — NODE: 18

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156206	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB T	156207	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB L	156233	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB T	156234	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB T	156235	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB R	156404	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB T	156422	MINK ST NW	0.0	0.0	0.0	0.0	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SEB R	156411	CLOVER VALLEY EXT	0.0	0.0	0.0	0.0	10
SEB R	156445	CLOVER VALLEY EXT	0.0	0.0	0.0	0.0	10
SEB L	156450	CLOVER VALLEY EXT	0.0	0.0	0.0	0.0	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB L	156441	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB L	156442	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB T	156443	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB T	156444	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB T	156454	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB TR	156455	MINK ST NW	0.0	0.0	0.0	0.0	10

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156208	INNOVATION WAY	0.0	0.0	0.0	0.0	10
EB R	156209	INNOVATION WAY	0.0	0.0	0.0	0.0	10

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB L	156357	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB T	156358	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB T	156359	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB T	156360	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB T	156451	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB T	156452	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB TR	156453	MINK ST NW	0.0	0.0	0.0	0.0	10

MINK ST NW & JUG ST — NODE: 33082

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156252	JUG ST	0.0	0.0	0.0	0.0	10
EB R	156253	JUG ST	0.0	0.0	0.0	0.0	10

MINK ST NW & JUG ST — NODE: 33082

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB T	153566	MINK ST NW	0.0	0.0	0.0	0.0	10
SB T	153676	MINK ST NW	0.0	0.0	0.0	0.0	10
NB T	156220	MINK ST NW	0.0	0.0	0.0	0.0	10
NB L	156247	MINK ST NW	0.0	0.0	0.0	0.0	10
SB TR	156248	MINK ST NW	0.0	0.0	0.0	0.0	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 10

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156322	MINK ST NW	0.4	0.0	0.3	0.4	10
NEB T	156323	MINK ST NW	0.4	0.0	0.3	0.4	10
SWB T	156377	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB T	156378	MINK ST NW	0.0	0.0	0.0	0.0	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 10

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156331	SR 161 EB EXIT RAMP	0.5	0.0	0.4	0.5	10
EB L	156332	SR 161 EB EXIT RAMP	0.4	0.0	0.3	0.4	10
EB L	156333	SR 161 EB EXIT RAMP	0.3	0.0	0.3	0.4	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB T	156361	MINK ST NW	0.1	0.0	0.1	0.1	10
SWB T	156362	MINK ST NW	0.1	0.0	0.1	0.2	10
NEB T	156390	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB T	156391	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB T	156392	MINK ST NW	0.0	0.0	0.0	0.0	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
WB L	156365	SR 161 WB EXIT RAMP	0.0	0.0	0.0	0.0	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB L	156350	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB T	156351	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB T	156352	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB R	156356	MINK ST NW	0.0	0.0	0.0	0.0	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	153565	MINK ST SW	0.0	0.0	0.0	0.0	10
NEB L	156321	MINK ST SW	0.0	0.0	0.0	0.0	10
NEB TR	156348	MINK ST SW	0.0	0.0	0.0	0.0	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	153286	WORTHINGTON RD	0.0	0.0	0.0	0.0	10
EB TR	153287	WORTHINGTON RD	0.0	0.0	0.0	0.0	10
WB L	153562	WORTHINGTON RD	0.0	0.0	0.0	0.0	10
WB TR	153563	WORTHINGTON RD	0.0	0.0	0.0	0.0	10

Project: Mink Corridor Optimized Parclo w North
Scenario: AM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 08:00:00 - 09:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Spillback Queue by Intersection - Overview

MINK ST NW & BEAVER RD — NODE: 18

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
NEB on MINK ST NW							
1	60.0	64.9	3.6	504.0	29.0	3.6	29.0
2	60.0	53.3	3.3	331.0	23.0	3.3	23.0
3	60.0	88.4	3.5	1,203.6	24.0	3.5	24.0
4	60.0	47.4	2.9	253.6	19.0	2.9	19.0
5	60.0	59.0	2.8	1,205.8	25.0	2.8	26.0
6	60.0	49.6	2.7	321.7	20.0	2.7	20.0
7	60.0	59.8	3.3	357.2	24.0	3.3	24.0
8	60.0	80.2	3.8	952.5	22.0	3.8	22.0
9	60.0	76.9	4.0	344.1	20.0	4.0	20.0
10	60.0	51.4	3.0	356.0	23.0	3.0	23.0
Average:	**60.0**	**63.1**	**3.3**	**583.0**	**22.9**	**3.3**	**23.0**
NWB on BEAVER RD							
1	60.0	37.7	2.2	158.2	9.0	2.2	9.0
2	60.0	45.8	2.6	185.6	9.0	2.6	9.0
3	60.0	45.1	2.4	189.1	9.0	2.4	9.0
4	60.0	45.6	2.4	205.9	9.0	2.4	9.0
5	60.0	59.6	3.3	153.5	9.0	3.3	9.0
6	60.0	54.1	2.7	210.4	9.0	2.7	9.0
7	60.0	56.4	3.0	199.9	10.0	3.0	10.0
8	60.0	55.1	3.0	271.1	12.0	3.0	12.0
9	60.0	40.2	2.3	156.7	10.0	2.3	10.0
10	60.0	50.9	2.7	223.7	10.0	2.7	10.0
Average:	**60.0**	**49.1**	**2.7**	**195.4**	**9.6**	**2.7**	**9.6**
SWB on MINK ST NW							
1	60.0	11.3	1.0	115.8	13.0	1.0	13.0
2	60.0	12.0	0.8	97.9	7.0	0.8	7.0
3	60.0	13.0	0.9	178.6	13.0	0.9	13.0
4	60.0	21.0	0.8	154.4	6.0	0.8	6.0
5	60.0	7.7	0.4	71.7	3.0	0.4	3.0
6	60.0	11.2	0.6	101.9	11.0	0.6	11.0
7	60.0	10.4	0.6	207.6	10.0	0.6	10.0
8	60.0	11.2	0.6	208.7	7.0	0.6	7.0

MINK ST NW & BEAVER RD — NODE: 18

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
9	60.0	13.0	0.8	108.5	9.0	0.8	9.0
10	60.0	10.9	0.7	92.7	7.0	0.7	7.0
Average:	**60.0**	**12.2**	**0.7**	**133.8**	**8.6**	**0.7**	**8.6**

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
NEB on MINK ST NW							
1	60.0	87.4	4.3	574.4	21.0	4.3	21.0
2	60.0	89.8	4.9	423.7	23.0	4.9	23.0
3	60.0	90.1	5.1	558.2	26.0	5.1	26.0
4	60.0	84.5	4.9	504.8	28.0	4.9	28.0
5	60.0	75.9	4.5	466.2	24.0	4.5	24.0
6	60.0	71.7	4.5	423.6	26.0	4.5	26.0
7	60.0	99.7	5.5	691.4	25.0	5.5	25.0
8	60.0	90.4	5.2	487.0	25.0	5.2	25.0
9	60.0	56.2	3.7	371.5	23.0	3.7	23.0
10	60.0	71.9	3.9	502.0	27.0	3.9	27.0
Average:	**60.0**	**81.8**	**4.7**	**500.3**	**24.8**	**4.7**	**24.8**
SEB on CLOVER VALLEY EXT							
1	60.0	6.7	0.6	52.6	4.0	0.6	4.0
2	60.0	10.6	0.4	83.0	2.0	0.4	2.0
3	60.0	11.1	0.5	133.2	3.0	0.5	3.0
4	60.0	7.7	0.5	78.7	4.0	0.5	4.0
5	60.0	11.6	0.6	93.4	5.0	0.6	5.0
6	60.0	5.3	0.4	46.3	3.0	0.4	3.0
7	60.0	6.1	0.5	56.2	3.0	0.5	3.0
8	60.0	8.7	0.4	74.6	3.0	0.4	3.0
9	60.0	9.9	0.5	98.8	4.0	0.5	4.0
10	60.0	13.6	0.7	105.6	2.0	0.7	2.0
Average:	**60.0**	**9.1**	**0.5**	**82.2**	**3.3**	**0.5**	**3.3**
SWB on MINK ST NW							
1	60.0	58.7	3.6	171.5	11.0	3.6	11.0
2	60.0	72.4	4.0	258.7	14.0	4.0	14.0
3	60.0	57.4	3.4	244.0	14.0	3.4	14.0
4	60.0	54.7	3.2	203.9	12.0	3.2	12.0
5	60.0	56.4	3.3	218.2	11.0	3.3	11.0
6	60.0	56.7	3.4	169.3	10.0	3.4	10.0
7	60.0	60.1	3.3	224.2	13.0	3.3	13.0
8	60.0	64.2	3.6	193.0	12.0	3.6	12.0

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
9	60.0	57.4	3.6	215.0	14.0	3.6	14.0
10	60.0	54.3	3.5	219.9	13.0	3.5	13.0
Average:	**60.0**	**59.2**	**3.5**	**211.8**	**12.4**	**3.5**	**12.4**

MINK ST NW & INNOVATION WAY — NODE: 15

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
EB on INNOVATION WAY							
1	60.0	17.6	0.8	95.4	3.0	0.8	3.0
2	60.0	11.0	0.6	101.1	5.0	0.6	5.0
3	60.0	13.4	0.6	95.5	4.0	0.6	4.0
4	60.0	13.5	0.7	89.3	3.0	0.7	3.0
5	60.0	18.1	0.9	110.6	4.0	0.9	4.0
6	60.0	20.7	0.9	157.0	6.0	0.9	6.0
7	60.0	11.1	0.6	93.7	4.0	0.6	4.0
8	60.0	12.2	0.5	70.2	3.0	0.5	3.0
9	60.0	13.7	0.6	134.4	3.0	0.6	3.0
10	60.0	21.5	0.9	122.8	3.0	0.9	3.0
Average:	**60.0**	**15.3**	**0.7**	**107.0**	**3.8**	**0.7**	**3.8**
NEB on MINK ST NW							
1	60.0	18.4	1.3	309.8	18.0	1.3	18.0
2	60.0	51.2	3.2	593.2	27.0	3.2	27.0
3	60.0	42.5	2.6	307.1	18.0	2.6	18.0
4	60.0	31.1	2.2	274.6	17.0	2.2	17.0
5	60.0	34.4	2.1	290.6	18.0	2.1	18.0
6	60.0	29.5	1.8	208.1	18.0	1.8	18.0
7	60.0	43.0	3.1	268.5	18.0	3.1	18.0
8	60.0	41.0	2.8	170.7	17.0	2.8	17.0
9	60.0	31.7	2.4	277.1	16.0	2.4	16.0
10	60.0	32.1	1.9	286.4	19.0	1.9	19.0
Average:	**60.0**	**35.5**	**2.3**	**298.6**	**18.6**	**2.3**	**18.6**
SWB on MINK ST NW							
1	60.0	26.7	1.7	252.4	17.0	1.7	17.0
2	60.0	57.5	3.6	271.2	18.0	3.6	18.0
3	60.0	51.9	3.0	303.8	17.0	3.0	17.0
4	60.0	32.2	1.7	330.2	16.0	1.7	16.0
5	60.0	40.5	2.2	319.8	20.0	2.2	20.0
6	60.0	40.0	2.3	331.3	23.0	2.3	23.0
7	60.0	43.7	2.5	320.5	24.0	2.5	24.0
8	60.0	44.4	2.6	302.7	19.0	2.6	19.0

MINK ST NW & INNOVATION WAY — NODE: 15

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
9	60.0	42.9	2.6	426.0	25.0	2.6	25.0
10	60.0	27.0	1.4	294.0	17.0	1.4	17.0
Average:	**60.0**	**40.7**	**2.4**	**315.2**	**19.6**	**2.4**	**19.6**

MINK ST NW & JUG ST — NODE: 33082

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
EB on JUG ST							
1	60.0	17.0	0.8	97.3	3.0	0.8	3.0
2	60.0	9.4	0.5	75.9	3.0	0.5	3.0
3	60.0	13.4	0.6	116.7	3.0	0.6	3.0
4	60.0	20.1	0.8	147.2	4.0	0.8	4.0
5	60.0	10.6	0.6	80.1	3.0	0.6	3.0
6	60.0	12.9	0.6	71.8	3.0	0.6	3.0
7	60.0	13.5	0.7	103.4	4.0	0.7	4.0
8	60.0	20.2	0.7	128.3	3.0	0.7	3.0
9	60.0	11.0	0.6	48.9	3.0	0.6	3.0
10	60.0	11.6	0.5	100.9	2.0	0.5	2.0
Average:	**60.0**	**14.0**	**0.6**	**97.1**	**3.1**	**0.6**	**3.1**
NB on MINK ST NW							
1	60.0	1.9	0.1	66.4	5.0	0.1	5.0
2	60.0	2.1	0.1	43.1	2.0	0.1	2.0
3	60.0	4.1	0.3	70.6	4.0	0.3	4.0
4	60.0	3.3	0.1	108.7	3.0	0.1	3.0
5	60.0	2.4	0.2	42.9	3.0	0.2	3.0
6	60.0	3.5	0.2	66.1	3.0	0.2	3.0
7	60.0	4.9	0.2	138.7	8.0	0.2	8.0
8	60.0	5.9	0.2	102.8	4.0	0.2	4.0
9	60.0	3.5	0.2	104.5	6.0	0.2	6.0
10	60.0	1.9	0.2	65.0	5.0	0.2	5.0
Average:	**60.0**	**3.4**	**0.2**	**80.9**	**4.3**	**0.2**	**4.3**
SB on MINK ST NW							
1	60.0	1.3	0.1	80.0	4.0	0.1	4.0
2	60.0	5.3	0.2	124.3	6.0	0.2	6.0
3	60.0	5.2	0.3	76.7	5.0	0.3	5.0
4	60.0	5.0	0.3	102.2	4.0	0.3	4.0
5	60.0	1.3	0.1	24.8	1.0	0.1	1.0
6	60.0	4.1	0.2	78.9	3.0	0.2	3.0
7	60.0	1.7	0.1	26.2	2.0	0.1	2.0
8	60.0	1.1	0.1	16.9	1.0	0.1	1.0

MINK ST NW & JUG ST — NODE: 33082

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
9	60.0	4.2	0.1	97.5	3.0	0.1	3.0
10	60.0	1.3	0.1	24.7	1.0	0.1	1.0
Average:	**60.0**	**3.1**	**0.2**	**65.2**	**3.0**	**0.2**	**3.0**

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 10

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
EB on SR 161 EB EXIT RAMP							
1	60.0	90.9	6.7	325.4	24.0	6.7	24.0
2	60.0	117.6	8.6	345.4	22.0	8.6	22.0
3	60.0	90.8	6.4	248.2	18.0	6.4	18.0
4	60.0	89.8	6.1	322.5	20.0	6.1	20.0
5	60.0	90.3	6.8	279.6	21.0	6.8	21.0
6	60.0	97.7	7.4	377.2	25.0	7.4	25.0
7	60.0	94.3	6.6	312.2	20.0	6.6	20.0
8	60.0	106.1	7.4	384.8	21.0	7.4	21.0
9	60.0	90.4	7.2	302.7	22.0	7.2	22.0
10	60.0	91.9	6.6	282.0	23.0	6.6	23.0
Average:	**60.0**	**96.0**	**7.0**	**318.0**	**21.6**	**7.0**	**21.6**
NEB on MINK ST NW							
1	60.0	92.0	5.1	461.9	30.0	5.1	30.0
2	60.0	61.2	3.3	418.1	24.0	3.3	24.0
3	60.0	70.1	3.5	888.7	37.0	3.6	42.0
4	60.0	83.3	4.5	444.3	23.0	4.5	23.0
5	60.0	74.1	4.0	458.5	27.0	4.0	27.0
6	60.0	70.0	4.1	458.7	28.0	4.1	28.0
7	60.0	71.9	4.0	334.3	23.0	4.0	23.0
8	60.0	65.4	3.4	468.7	22.0	3.4	22.0
9	60.0	64.6	3.5	342.8	18.0	3.5	18.0
10	60.0	96.2	5.1	910.9	34.0	5.2	38.0
Average:	**60.0**	**74.9**	**4.1**	**518.7**	**26.6**	**4.1**	**27.5**
SWB on MINK ST NW							
1	60.0	20.2	1.2	121.8	7.0	1.2	7.0
2	60.0	19.3	1.0	183.8	9.0	1.0	9.0
3	60.0	12.4	0.7	143.5	7.0	0.7	7.0
4	60.0	21.7	1.0	221.0	9.0	1.0	9.0
5	60.0	21.8	1.0	190.5	11.0	1.0	11.0
6	60.0	16.4	0.9	137.8	7.0	0.9	7.0
7	60.0	21.0	1.1	192.2	8.0	1.1	8.0
8	60.0	16.9	1.1	121.3	7.0	1.1	7.0

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 10

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
9	60.0	19.0	1.1	122.8	6.0	1.1	6.0
10	60.0	19.9	1.1	145.6	6.0	1.1	6.0
Average:	**60.0**	**18.9**	**1.0**	**158.0**	**7.7**	**1.0**	**7.7**

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 5

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
NEB on MINK ST NW							
1	60.0	66.4	4.4	385.4	30.0	4.4	30.0
2	60.0	51.3	3.7	345.9	27.0	3.7	27.0
3	60.0	59.7	4.0	352.1	23.0	4.0	23.0
4	60.0	45.4	2.9	332.7	24.0	2.9	24.0
5	60.0	48.8	2.9	333.7	21.0	2.9	21.0
6	60.0	64.2	4.1	360.1	28.0	4.1	28.0
7	60.0	74.6	4.8	350.1	29.0	4.8	29.0
8	60.0	80.4	5.1	405.9	25.0	5.1	25.0
9	60.0	59.6	4.0	339.8	24.0	4.0	24.0
10	60.0	71.1	4.5	363.0	29.0	4.5	29.0
Average:	**60.0**	**62.2**	**4.0**	**356.9**	**26.0**	**4.0**	**26.0**
SWB on MINK ST NW							
1	60.0	10.1	0.7	216.3	14.0	0.7	14.0
2	60.0	7.7	0.5	147.0	11.0	0.5	11.0
3	60.0	18.1	1.1	198.2	10.0	1.1	10.0
4	60.0	14.4	0.6	198.8	8.0	0.6	8.0
5	60.0	12.5	0.7	154.8	9.0	0.7	9.0
6	60.0	15.3	0.9	181.9	12.0	0.9	12.0
7	60.0	15.0	0.9	176.8	11.0	0.9	11.0
8	60.0	13.4	0.7	187.0	10.0	0.7	10.0
9	60.0	14.9	0.8	196.7	11.0	0.8	11.0
10	60.0	16.6	0.8	164.1	7.0	0.8	7.0
Average:	**60.0**	**13.8**	**0.8**	**182.2**	**10.3**	**0.8**	**10.3**
WB on SR 161 WB EXIT RAMP							
1	60.0	8.4	0.4	65.4	2.0	0.4	2.0
2	60.0	9.6	0.5	95.1	2.0	0.5	2.0
3	60.0	11.5	0.5	135.8	3.0	0.5	3.0
4	60.0	10.9	0.5	80.7	3.0	0.5	3.0
5	60.0	14.0	0.7	103.5	4.0	0.7	4.0
6	60.0	10.6	0.6	69.9	3.0	0.6	3.0
7	60.0	9.1	0.4	95.7	3.0	0.4	3.0
8	60.0	10.2	0.4	79.5	3.0	0.4	3.0

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 5

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
9	60.0	9.1	0.5	68.6	3.0	0.5	3.0
10	60.0	10.3	0.5	66.7	3.0	0.5	3.0
Average:	**60.0**	**10.4**	**0.5**	**86.1**	**2.9**	**0.5**	**2.9**

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
EB on WORTHINGTON RD							
1	60.0	113.2	4.2	340.4	10.0	4.2	10.0
2	60.0	107.5	3.9	305.1	11.0	3.9	11.0
3	60.0	119.5	4.4	355.5	13.0	4.4	13.0
4	60.0	108.0	4.0	397.8	11.0	4.0	11.0
5	60.0	78.4	3.2	235.2	7.0	3.2	7.0
6	60.0	136.7	4.9	371.4	12.0	4.9	12.0
7	60.0	97.3	3.6	309.4	10.0	3.6	10.0
8	60.0	235.0	8.4	701.3	24.0	8.4	24.0
9	60.0	93.3	3.3	348.9	10.0	3.3	10.0
10	60.0	152.3	5.5	553.8	17.0	5.5	17.0
Average:	**60.0**	**124.1**	**4.5**	**391.9**	**12.5**	**4.5**	**12.5**
NEB on MINK ST SW							
1	60.0	92.6	5.5	421.6	22.0	5.5	22.0
2	60.0	96.7	6.4	358.6	22.0	6.4	22.0
3	60.0	99.3	6.2	371.5	20.0	6.2	20.0
4	60.0	116.4	6.9	405.2	23.0	6.9	23.0
5	60.0	100.3	6.2	361.9	20.0	6.2	20.0
6	60.0	117.7	7.3	387.7	24.0	7.3	24.0
7	60.0	74.2	4.7	300.9	22.0	4.7	22.0
8	60.0	100.4	6.4	432.4	22.0	6.4	22.0
9	60.0	103.4	6.6	425.6	23.0	6.6	23.0
10	60.0	94.8	5.8	390.8	22.0	5.8	22.0
Average:	**60.0**	**99.6**	**6.2**	**385.6**	**22.0**	**6.2**	**22.0**
SWB on MINK ST NW							
1	60.0	30.5	2.3	197.8	13.0	2.3	13.0
2	60.0	49.9	3.5	217.9	12.0	3.5	12.0
3	60.0	42.2	3.2	175.8	14.0	3.2	14.0
4	60.0	41.1	3.1	193.2	12.0	3.1	12.0
5	60.0	50.6	3.4	230.2	17.0	3.4	17.0
6	60.0	46.2	3.5	185.3	18.0	3.5	18.0
7	60.0	32.5	2.6	213.9	14.0	2.6	14.0
8	60.0	44.6	3.6	242.4	15.0	3.6	15.0

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
9	60.0	43.7	3.0	225.2	13.0	3.0	13.0
10	60.0	35.8	2.8	163.3	13.0	2.8	13.0
Average:	**60.0**	**41.7**	**3.1**	**204.5**	**14.1**	**3.1**	**14.1**
WB on WORTHINGTON RD							
1	60.0	76.7	2.8	287.1	10.0	2.8	10.0
2	60.0	66.2	2.6	294.4	8.0	2.6	8.0
3	60.0	88.7	3.2	341.6	10.0	3.2	10.0
4	60.0	99.0	3.7	346.7	11.0	3.7	11.0
5	60.0	73.3	2.7	311.3	10.0	2.7	10.0
6	60.0	74.5	2.9	378.0	14.0	2.9	14.0
7	60.0	79.8	3.1	316.0	11.0	3.1	11.0
8	60.0	90.0	3.1	252.0	9.0	3.1	9.0
9	60.0	67.2	2.5	232.7	9.0	2.5	9.0
10	60.0	109.5	3.8	416.7	12.0	3.8	12.0
Average:	**60.0**	**82.5**	**3.0**	**317.7**	**10.4**	**3.0**	**10.4**

ABOUT SPILLBACK QUEUES

Spillback queues begin at the front bumper of the first vehicle in queue on a link. From there, the queue can branch as a tree in different directions as it spills upstream through intersections. The various branches of the spillback queue will extend beyond the originating link and superlink boundaries until the back of the queue is reached on every branch in the tree.

- Average/Maximum Queue Length: Distance from the front bumper of the first queued vehicle to the back bumper of the last queued vehicle for the longest branch
- Average/Maximum Vehicles Queued: Number of vehicles queued in all lanes for the longest branch

Project: Mink Corridor Optimized Parclo w North
Scenario: AM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 08:00:00 - 09:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Spillback Queue by Intersection - Avg Queue

MINK ST NW & BEAVER RD — NODE: 18

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	63.1	14.2	47.4	88.4	10
NWB	BEAVER RD	49.1	7.3	37.7	59.6	10
SWB	MINK ST NW	12.2	3.4	7.7	21.0	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	81.8	12.7	56.2	99.7	10
SEB	CLOVER VALLEY EXT	9.1	2.7	5.3	13.6	10
SWB	MINK ST NW	59.2	5.4	54.3	72.4	10

MINK ST NW & INNOVATION WAY — NODE: 15

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	INNOVATION WAY	15.3	3.9	11.0	21.5	10
NEB	MINK ST NW	35.5	9.2	18.4	51.2	10
SWB	MINK ST NW	40.7	10.0	26.7	57.5	10

MINK ST NW & JUG ST — NODE: 33082

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	JUG ST	14.0	3.9	9.4	20.2	10
NB	MINK ST NW	3.4	1.3	1.9	5.9	10
SB	MINK ST NW	3.1	1.8	1.1	5.3	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 10

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	SR 161 EB EXIT RAMP	96.0	9.1	89.8	117.6	10
NEB	MINK ST NW	74.9	11.8	61.2	96.2	10
SWB	MINK ST NW	18.9	2.9	12.4	21.8	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 5

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	62.2	11.4	45.4	80.4	10
SWB	MINK ST NW	13.8	3.1	7.7	18.1	10
WB	SR 161 WB EXIT RAMP	10.4	1.6	8.4	14.0	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	WORTHINGTON RD	124.1	44.3	78.4	235.0	10
NEB	MINK ST SW	99.6	12.3	74.2	117.7	10
SWB	MINK ST NW	41.7	6.9	30.5	50.6	10
WB	WORTHINGTON RD	82.5	14.1	66.2	109.5	10

Project: Mink Corridor Optimized Parclo w North
Scenario: AM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 08:00:00 - 09:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Spillback Queue by Intersection - Avg Num Queued

MINK ST NW & BEAVER RD — NODE: 18

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	3.3	0.4	2.7	4.0	10
NWB	BEAVER RD	2.7	0.4	2.2	3.3	10
SWB	MINK ST NW	0.7	0.2	0.4	1.0	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	4.7	0.6	3.7	5.5	10
SEB	CLOVER VALLEY EXT	0.5	0.1	0.4	0.7	10
SWB	MINK ST NW	3.5	0.2	3.2	4.0	10

MINK ST NW & INNOVATION WAY — NODE: 15

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	INNOVATION WAY	0.7	0.2	0.5	0.9	10
NEB	MINK ST NW	2.3	0.6	1.3	3.2	10
SWB	MINK ST NW	2.4	0.7	1.4	3.6	10

MINK ST NW & JUG ST — NODE: 33082

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	JUG ST	0.6	0.1	0.5	0.8	10
NB	MINK ST NW	0.2	0.1	0.1	0.3	10
SB	MINK ST NW	0.2	0.1	0.1	0.3	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 10

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	SR 161 EB EXIT RAMP	7.0	0.7	6.1	8.6	10
NEB	MINK ST NW	4.1	0.7	3.3	5.1	10
SWB	MINK ST NW	1.0	0.1	0.7	1.2	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 5

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	4.0	0.7	2.9	5.1	10
SWB	MINK ST NW	0.8	0.2	0.5	1.1	10
WB	SR 161 WB EXIT RAMP	0.5	0.1	0.4	0.7	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	WORTHINGTON RD	4.5	1.5	3.2	8.4	10
NEB	MINK ST SW	6.2	0.7	4.7	7.3	10
SWB	MINK ST NW	3.1	0.4	2.3	3.6	10
WB	WORTHINGTON RD	3.0	0.4	2.5	3.8	10

Project: Mink Corridor Optimized Parclo w North
Scenario: AM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 08:00:00 - 09:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Spillback Queue by Intersection - Avg Total Queued

MINK ST NW & BEAVER RD — NODE: 18

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	3.3	0.4	2.7	4.0	10
NWB	BEAVER RD	2.7	0.4	2.2	3.3	10
SWB	MINK ST NW	0.7	0.2	0.4	1.0	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	4.7	0.6	3.7	5.5	10
SEB	CLOVER VALLEY EXT	0.5	0.1	0.4	0.7	10
SWB	MINK ST NW	3.5	0.2	3.2	4.0	10

MINK ST NW & INNOVATION WAY — NODE: 15

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	INNOVATION WAY	0.7	0.2	0.5	0.9	10
NEB	MINK ST NW	2.3	0.6	1.3	3.2	10
SWB	MINK ST NW	2.4	0.7	1.4	3.6	10

MINK ST NW & JUG ST — NODE: 33082

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	JUG ST	0.6	0.1	0.5	0.8	10
NB	MINK ST NW	0.2	0.1	0.1	0.3	10
SB	MINK ST NW	0.2	0.1	0.1	0.3	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 10

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	SR 161 EB EXIT RAMP	7.0	0.7	6.1	8.6	10
NEB	MINK ST NW	4.1	0.7	3.3	5.2	10
SWB	MINK ST NW	1.0	0.1	0.7	1.2	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 5

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	4.0	0.7	2.9	5.1	10
SWB	MINK ST NW	0.8	0.2	0.5	1.1	10
WB	SR 161 WB EXIT RAMP	0.5	0.1	0.4	0.7	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	WORTHINGTON RD	4.5	1.5	3.2	8.4	10
NEB	MINK ST SW	6.2	0.7	4.7	7.3	10
SWB	MINK ST NW	3.1	0.4	2.3	3.6	10
WB	WORTHINGTON RD	3.0	0.4	2.5	3.8	10

Project: Mink Corridor Optimized Parclo w North
Scenario: AM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 08:00:00 - 09:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Spillback Queue by Intersection - Max Queue

MINK ST NW & BEAVER RD — NODE: 18

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	583.0	382.3	253.6	1,205.8	10
NWB	BEAVER RD	195.4	36.0	153.5	271.1	10
SWB	MINK ST NW	133.8	49.8	71.7	208.7	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	500.3	91.3	371.5	691.4	10
SEB	CLOVER VALLEY EXT	82.2	26.8	46.3	133.2	10
SWB	MINK ST NW	211.8	28.6	169.3	258.7	10

MINK ST NW & INNOVATION WAY — NODE: 15

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	INNOVATION WAY	107.0	25.1	70.2	157.0	10
NEB	MINK ST NW	298.6	112.4	170.7	593.2	10
SWB	MINK ST NW	315.2	46.5	252.4	426.0	10

MINK ST NW & JUG ST — NODE: 33082

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	JUG ST	97.1	29.1	48.9	147.2	10
NB	MINK ST NW	80.9	31.3	42.9	138.7	10
SB	MINK ST NW	65.2	38.8	16.9	124.3	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 10

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	SR 161 EB EXIT RAMP	318.0	43.1	248.2	384.8	10
NEB	MINK ST NW	518.7	206.6	334.3	910.9	10
SWB	MINK ST NW	158.0	35.8	121.3	221.0	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 5

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	356.9	23.3	332.7	405.9	10
SWB	MINK ST NW	182.2	21.8	147.0	216.3	10
WB	SR 161 WB EXIT RAMP	86.1	22.1	65.4	135.8	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	WORTHINGTON RD	391.9	136.3	235.2	701.3	10
NEB	MINK ST SW	385.6	39.7	300.9	432.4	10
SWB	MINK ST NW	204.5	25.5	163.3	242.4	10
WB	WORTHINGTON RD	317.7	55.7	232.7	416.7	10

Project: Mink Corridor Optimized Parclo w North
Scenario: AM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 08:00:00 - 09:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Spillback Queue by Intersection - Max Num Queued

MINK ST NW & BEAVER RD — NODE: 18

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	22.9	2.9	19.0	29.0	10
NWB	BEAVER RD	9.6	1.0	9.0	12.0	10
SWB	MINK ST NW	8.6	3.2	3.0	13.0	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	24.8	2.1	21.0	28.0	10
SEB	CLOVER VALLEY EXT	3.3	0.9	2.0	5.0	10
SWB	MINK ST NW	12.4	1.4	10.0	14.0	10

MINK ST NW & INNOVATION WAY — NODE: 15

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	INNOVATION WAY	3.8	1.0	3.0	6.0	10
NEB	MINK ST NW	18.6	3.1	16.0	27.0	10
SWB	MINK ST NW	19.6	3.3	16.0	25.0	10

MINK ST NW & JUG ST — NODE: 33082

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	JUG ST	3.1	0.6	2.0	4.0	10
NB	MINK ST NW	4.3	1.8	2.0	8.0	10
SB	MINK ST NW	3.0	1.8	1.0	6.0	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 10

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	SR 161 EB EXIT RAMP	21.6	2.1	18.0	25.0	10
NEB	MINK ST NW	26.6	5.8	18.0	37.0	10
SWB	MINK ST NW	7.7	1.6	6.0	11.0	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 5

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	26.0	3.0	21.0	30.0	10
SWB	MINK ST NW	10.3	2.0	7.0	14.0	10
WB	SR 161 WB EXIT RAMP	2.9	0.6	2.0	4.0	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	WORTHINGTON RD	12.5	4.8	7.0	24.0	10
NEB	MINK ST SW	22.0	1.2	20.0	24.0	10
SWB	MINK ST NW	14.1	2.0	12.0	18.0	10
WB	WORTHINGTON RD	10.4	1.7	8.0	14.0	10

Project: Mink Corridor Optimized Parclo w North
Scenario: AM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 08:00:00 - 09:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Spillback Queue by Intersection - Max Total Queued

MINK ST NW & BEAVER RD — NODE: 18

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	23.0	3.0	19.0	29.0	10
NWB	BEAVER RD	9.6	1.0	9.0	12.0	10
SWB	MINK ST NW	8.6	3.2	3.0	13.0	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	24.8	2.1	21.0	28.0	10
SEB	CLOVER VALLEY EXT	3.3	0.9	2.0	5.0	10
SWB	MINK ST NW	12.4	1.4	10.0	14.0	10

MINK ST NW & INNOVATION WAY — NODE: 15

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	INNOVATION WAY	3.8	1.0	3.0	6.0	10
NEB	MINK ST NW	18.6	3.1	16.0	27.0	10
SWB	MINK ST NW	19.6	3.3	16.0	25.0	10

MINK ST NW & JUG ST — NODE: 33082

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	JUG ST	3.1	0.6	2.0	4.0	10
NB	MINK ST NW	4.3	1.8	2.0	8.0	10
SB	MINK ST NW	3.0	1.8	1.0	6.0	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 10

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	SR 161 EB EXIT RAMP	21.6	2.1	18.0	25.0	10
NEB	MINK ST NW	27.5	7.5	18.0	42.0	10
SWB	MINK ST NW	7.7	1.6	6.0	11.0	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 5

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	26.0	3.0	21.0	30.0	10
SWB	MINK ST NW	10.3	2.0	7.0	14.0	10
WB	SR 161 WB EXIT RAMP	2.9	0.6	2.0	4.0	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	WORTHINGTON RD	12.5	4.8	7.0	24.0	10
NEB	MINK ST SW	22.0	1.2	20.0	24.0	10
SWB	MINK ST NW	14.1	2.0	12.0	18.0	10
WB	WORTHINGTON RD	10.4	1.7	8.0	14.0	10

Mink Street (PARCLO Interchange) - PM

Project: Mink Corridor Optimized Parclo w North
Scenario: PM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 16:00:00 - 17:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Intersection Level of Service - Overview

MINK ST NW & BEAVER RD -- SIGNALIZED — NODE: 18

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
1	4,105.0	26.40	23.1	C
2	4,116.0	28.50	24.9	C
3	4,149.0	28.40	24.7	C
4	4,163.0	26.50	22.9	C
5	4,069.0	28.20	24.9	C
6	4,055.0	29.40	26.1	C
7	4,089.0	28.20	24.8	C
8	4,081.0	28.50	25.1	C
9	4,128.0	28.00	24.4	C
10	4,074.0	27.40	24.2	C
Average:	**4,102.9**	**27.95**	**24.5**	**C**

MINK ST NW & CLOVER VALLEY EXT -- SIGNALIZED — NODE: 7

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
1	3,203.0	70.10	78.8	E
2	3,198.0	96.70	108.9	F
3	3,246.0	87.20	96.7	F
4	3,235.0	66.50	74.0	E
5	3,159.0	92.90	105.8	F
6	3,143.0	84.30	96.6	F
7	3,159.0	89.70	102.2	F
8	3,179.0	90.30	102.3	F
9	3,221.0	80.10	89.6	F
10	3,167.0	107.50	122.2	F
Average:	**3,191.0**	**86.53**	**97.7**	**F**

MINK ST NW & INNOVATION WAY -- SIGNALIZED — NODE: 15

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
1	5,041.0	11.30	8.0	A
2	5,011.0	11.20	8.0	A
3	5,086.0	12.80	9.0	A
4	5,072.0	10.80	7.7	A
5	5,012.0	13.20	9.5	A
6	4,986.0	13.00	9.4	A
7	5,002.0	10.00	7.2	A
8	5,036.0	12.00	8.6	A

9	5,027.0	10.30	7.4	A
10	5,004.0	16.40	11.8	B
Average:	**5,027.7**	**12.10**	**8.7**	**A**

MINK ST NW & JUG ST -- SIGNALIZED — NODE: 33082

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
1	2,127.0	4.40	7.5	A
2	2,111.0	4.80	8.2	A
3	2,146.0	4.60	7.7	A
4	2,128.0	4.70	7.9	A
5	2,127.0	5.40	9.1	A
6	2,125.0	4.60	7.7	A
7	2,103.0	3.80	6.5	A
8	2,135.0	5.50	9.3	A
9	2,140.0	5.40	9.1	A
10	2,103.0	4.90	8.5	A
Average:	**2,124.5**	**4.81**	**8.1**	**A**

MINK ST NW & SR 161 EB EXIT RAMP -- SIGNALIZED — NODE: 10

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
1	3,379.0	11.30	12.0	B
2	3,335.0	10.70	11.5	B
3	3,386.0	12.20	12.9	B
4	3,397.0	10.40	11.1	B
5	3,360.0	11.20	12.0	B
6	3,334.0	10.50	11.3	B
7	3,351.0	10.40	11.2	B
8	3,356.0	10.90	11.7	B
9	3,352.0	11.30	12.1	B
10	3,363.0	12.30	13.2	B
Average:	**3,361.3**	**11.12**	**11.9**	**B**

MINK ST NW & SR 161 WB EXIT RAMP -- SIGNALIZED — NODE: 5

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
1	3,846.0	9.30	8.7	A
2	3,776.0	4.70	4.4	A
3	3,846.0	4.70	4.4	A
4	3,826.0	4.70	4.5	A
5	3,769.0	4.60	4.4	A
6	3,795.0	4.50	4.2	A
7	3,770.0	4.20	4.1	A
8	3,806.0	5.00	4.7	A
9	3,783.0	4.50	4.3	A
10	3,805.0	4.60	4.3	A
Average:	**3,802.2**	**5.08**	**4.8**	**A**

WORTHINGTON RD, MINK ST NW & MINK ST SW -- SIGNALIZED NODE: 32764

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
1	3,234.0	15.60	17.4	B
2	3,190.0	14.80	16.7	B
3	3,240.0	13.40	14.9	B
4	3,242.0	13.60	15.1	B
5	3,215.0	15.20	17.1	B
6	3,197.0	15.00	16.8	B
7	3,213.0	16.10	18.1	B
8	3,244.0	15.60	17.3	B
9	3,222.0	14.90	16.7	B
10	3,214.0	15.90	17.8	B
Average:	**3,221.1**	**15.01**	**16.8**	**B**

Project: Mink Corridor Optimized Parclo w North
Scenario: PM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 16:00:00 - 17:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Intersection Level of Service - Total Control Delay

Node ID	Intersection	Control Type	Average	Std Dev	Minimum	Maximum	# Samples
18	MINK ST NW & BEAVER RD	Actuated	28.0	0.9	26.4	29.4	10
7	MINK ST NW & CLOVER VALLEY EXT	Actuated	86.5	12.1	66.5	107.5	10
15	MINK ST NW & INNOVATION WAY	Actuated	12.1	1.9	10.0	16.4	10
33082	MINK ST NW & JUG ST	Actuated	4.8	0.5	3.8	5.5	10
10	MINK ST NW & SR 161 EB EXIT RAMP	Actuated	11.1	0.7	10.4	12.3	10
5	MINK ST NW & SR 161 WB EXIT RAMP	Actuated	5.1	1.5	4.2	9.3	10
32764	WORTHINGTON RD, MINK ST NW & MINK ST SW	Actuated	15.0	0.9	13.4	16.1	10

Project: Mink Corridor Optimized Parclo w North
Scenario: PM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 16:00:00 - 17:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Intersection Level of Service - Avg Control Delay

Node ID	Intersection	Control Type	Average	Std Dev	Minimum	Maximum	# Samples
18	MINK ST NW & BEAVER RD	Actuated	24.5	0.9	22.9	26.1	10
7	MINK ST NW & CLOVER VALLEY EXT	Actuated	97.7	14.2	74.0	122.2	10
15	MINK ST NW & INNOVATION WAY	Actuated	8.7	1.4	7.2	11.8	10
33082	MINK ST NW & JUG ST	Actuated	8.1	0.9	6.5	9.3	10
10	MINK ST NW & SR 161 EB EXIT RAMP	Actuated	11.9	0.7	11.1	13.2	10
5	MINK ST NW & SR 161 WB EXIT RAMP	Actuated	4.8	1.4	4.1	8.7	10
32764	WORTHINGTON RD, MINK ST NW & MINK ST SW	Actuated	16.8	1.1	14.9	18.1	10

Project: Mink Corridor Optimized Parclo w North
Scenario: PM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 16:00:00 - 17:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Intersection Level of Service by Approach - Overview

MINK ST NW & BEAVER RD -- SIGNALIZED — NODE: 18

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
NEB on MINK ST NW: Superlink ID 61211				
1	1,028.0	3.90	13.6	B
2	1,050.0	3.80	13.2	B
3	1,037.0	4.10	14.2	B
4	1,045.0	3.50	12.1	B
5	1,039.0	4.00	13.8	B
6	1,037.0	4.00	13.8	B
7	1,031.0	3.80	13.1	B
8	1,029.0	4.10	14.2	B
9	1,035.0	3.40	11.9	B
10	1,038.0	3.90	13.5	B
Average:	**1,036.9**	**3.85**	**13.3**	**B**
NWB on BEAVER RD: Superlink ID 61210				
1	802.0	6.90	30.9	C
2	806.0	6.80	30.2	C
3	808.0	6.80	30.3	C
4	809.0	7.30	32.6	C
5	812.0	6.80	30.0	C
6	818.0	6.50	28.8	C
7	807.0	6.20	27.6	C
8	822.0	6.90	30.1	C
9	816.0	6.60	29.0	C
10	809.0	6.60	29.3	C
Average:	**810.9**	**6.74**	**29.9**	**C**
SWB on MINK ST NW: Superlink ID 61216				
1	2,275.0	15.60	24.7	C
2	2,260.0	17.90	28.5	C
3	2,304.0	17.50	27.4	C
4	2,309.0	15.70	24.5	C
5	2,218.0	17.40	28.3	C
6	2,200.0	18.90	31.0	C
7	2,251.0	18.30	29.2	C
8	2,230.0	17.50	28.3	C
9	2,277.0	18.00	28.4	C

MINK ST NW & BEAVER RD -- SIGNALIZED — NODE: 18

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
10	2,227.0	17.00	27.4	C
Average:	**2,255.1**	**17.38**	**27.8**	**C**

MINK ST NW & CLOVER VALLEY EXT -- SIGNALIZED — NODE: 7

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
NEB on MINK ST NW: Superlink ID 61216				
1	871.0	6.00	24.7	C
2	889.0	6.60	26.7	C
3	890.0	6.10	24.7	C
4	873.0	6.70	27.8	C
5	882.0	6.50	26.4	C
6	867.0	6.60	27.2	C
7	872.0	6.40	26.3	C
8	876.0	6.20	25.3	C
9	888.0	6.10	24.8	C
10	868.0	6.80	28.2	C
Average:	**877.6**	**6.40**	**26.2**	**C**
SEB on CLOVER VALLEY EXT: Superlink ID 61212				
1	1,135.0	13.60	43.0	D
2	1,089.0	43.50	143.7	F
3	1,132.0	39.60	125.9	F
4	1,157.0	13.30	41.3	D
5	1,135.0	13.80	43.7	D
6	1,119.0	20.50	66.0	E
7	1,116.0	23.40	75.4	E
8	1,129.0	25.90	82.6	F
9	1,121.0	25.80	82.9	F
10	1,137.0	26.60	84.2	F
Average:	**1,127.0**	**24.60**	**78.9**	**E**
SWB on MINK ST NW: Superlink ID 29573				
1	1,197.0	50.50	152.0	F
2	1,220.0	46.60	137.6	F
3	1,224.0	41.50	122.1	F
4	1,205.0	46.50	138.9	F
5	1,142.0	72.60	229.0	F
6	1,157.0	57.20	178.1	F
7	1,171.0	60.00	184.3	F
8	1,174.0	58.30	178.6	F
9	1,212.0	48.20	143.2	F
10	1,162.0	74.10	229.6	F
Average:	**1,186.4**	**55.55**	**169.3**	**F**

MINK ST NW & INNOVATION WAY -- SIGNALIZED — NODE: 15

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
EB on INNOVATION WAY: Superlink ID 61207				
1	126.0	1.60	46.9	D
2	120.0	1.50	44.0	D
3	139.0	1.80	47.3	D
4	130.0	1.60	44.3	D
5	128.0	1.50	43.3	D
6	129.0	1.90	54.4	D
7	125.0	1.50	42.9	D
8	129.0	1.70	47.5	D
9	132.0	1.70	45.1	D
10	130.0	1.40	40.0	D
Average:	**128.8**	**1.62**	**45.6**	**D**
NEB on MINK ST NW: Superlink ID 61228				
1	1,867.0	1.00	1.9	A
2	1,879.0	1.10	2.1	A
3	1,866.0	1.00	2.0	A
4	1,854.0	1.00	2.0	A
5	1,877.0	1.00	1.9	A
6	1,871.0	1.00	2.0	A
7	1,854.0	1.00	2.0	A
8	1,866.0	1.00	1.8	A
9	1,857.0	1.10	2.2	A
10	1,875.0	0.90	1.7	A
Average:	**1,866.6**	**1.01**	**1.9**	**A**
SWB on MINK ST NW: Superlink ID 61211				
1	3,048.0	8.60	10.2	B
2	3,012.0	8.70	10.3	B
3	3,081.0	9.90	11.6	B
4	3,088.0	8.20	9.5	A
5	3,007.0	10.70	12.8	B
6	2,986.0	10.00	12.1	B
7	3,023.0	7.50	8.9	A
8	3,041.0	9.40	11.1	B
9	3,038.0	7.50	8.9	A
10	2,999.0	14.10	16.9	B
Average:	**3,032.3**	**9.46**	**11.2**	**B**

MINK ST NW & JUG ST -- SIGNALIZED — NODE: 33082

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
EB on JUG ST: Superlink ID 29977				
1	92.0	1.30	51.8	D
2	94.0	1.10	40.5	D

MINK ST NW & JUG ST -- SIGNALIZED — NODE: 33082

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
3	89.0	1.00	42.0	D
4	89.0	1.20	46.9	D
5	90.0	1.20	48.3	D
6	94.0	1.10	42.0	D
7	85.0	0.90	39.4	D
8	92.0	1.30	52.0	D
9	89.0	1.10	44.6	D
10	89.0	0.90	34.8	C
Average:	**90.3**	**1.11**	**44.2**	**D**
NB on MINK ST NW: Superlink ID 29573				
1	815.0	1.40	6.3	A
2	809.0	1.60	7.2	A
3	838.0	1.80	7.6	A
4	820.0	1.40	6.1	A
5	827.0	1.80	7.7	A
6	820.0	1.50	6.7	A
7	807.0	1.40	6.0	A
8	820.0	1.80	8.1	A
9	841.0	2.00	8.4	A
10	803.0	1.60	7.2	A
Average:	**820.0**	**1.63**	**7.1**	**A**
SB on MINK ST NW: Superlink ID 29606				
1	1,220.0	1.70	5.0	A
2	1,208.0	2.10	6.4	A
3	1,219.0	1.80	5.2	A
4	1,219.0	2.10	6.3	A
5	1,210.0	2.40	7.2	A
6	1,211.0	1.90	5.8	A
7	1,211.0	1.50	4.5	A
8	1,223.0	2.30	6.9	A
9	1,210.0	2.30	7.0	A
10	1,211.0	2.50	7.4	A
Average:	**1,214.2**	**2.06**	**6.1**	**A**

MINK ST NW & SR 161 EB EXIT RAMP -- SIGNALIZED — NODE: 10

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
EB on SR 161 EB EXIT RAMP: Superlink ID 61221				
1	723.0	3.90	19.4	B
2	730.0	4.00	19.6	B
3	726.0	3.90	19.5	B
4	728.0	3.90	19.2	B
5	730.0	3.80	18.8	B

MINK ST NW & SR 161 EB EXIT RAMP -- SIGNALIZED — NODE: 10

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
6	723.0	3.80	19.0	B
7	709.0	3.70	18.8	B
8	717.0	3.90	19.7	B
9	716.0	3.70	18.8	B
10	712.0	3.80	19.3	B
Average:	**721.4**	**3.84**	**19.2**	**B**
NEB on MINK ST NW: Superlink ID 61219				
1	1,154.0	1.30	3.9	A
2	1,137.0	1.30	4.1	A
3	1,151.0	2.50	7.9	A
4	1,152.0	1.20	3.7	A
5	1,152.0	1.30	4.1	A
6	1,149.0	1.40	4.3	A
7	1,149.0	1.20	3.7	A
8	1,155.0	1.20	3.6	A
9	1,144.0	1.30	4.1	A
10	1,168.0	1.30	4.1	A
Average:	**1,151.1**	**1.40**	**4.3**	**A**
SWB on MINK ST NW: Superlink ID 61231				
1	1,502.0	6.10	14.6	B
2	1,468.0	5.40	13.3	B
3	1,509.0	5.70	13.6	B
4	1,517.0	5.40	12.8	B
5	1,478.0	6.10	14.8	B
6	1,462.0	5.30	13.0	B
7	1,493.0	5.50	13.3	B
8	1,484.0	5.80	14.1	B
9	1,492.0	6.20	14.9	B
10	1,483.0	7.10	17.3	B
Average:	**1,488.8**	**5.86**	**14.2**	**B**

MINK ST NW & SR 161 WB EXIT RAMP -- SIGNALIZED — NODE: 5

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
NEB on MINK ST NW: Superlink ID 61198				
1	1,803.0	7.60	15.2	B
2	1,780.0	3.20	6.5	A
3	1,788.0	3.20	6.4	A
4	1,774.0	3.30	6.6	A
5	1,783.0	3.10	6.3	A
6	1,794.0	2.90	5.8	A
7	1,761.0	2.80	5.8	A
8	1,787.0	3.40	6.9	A

MINK ST NW & SR 161 WB EXIT RAMP -- SIGNALIZED — NODE: 5

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
9	1,766.0	3.00	6.1	A
10	1,799.0	3.00	6.0	A
Average:	**1,783.5**	**3.55**	**7.2**	**A**
SWB on MINK ST NW: Superlink ID 61225				
1	2,017.0	1.50	2.6	A
2	1,969.0	1.20	2.3	A
3	2,032.0	1.40	2.5	A
4	2,026.0	1.30	2.3	A
5	1,962.0	1.30	2.3	A
6	1,979.0	1.30	2.5	A
7	1,986.0	1.30	2.3	A
8	1,991.0	1.40	2.5	A
9	1,990.0	1.30	2.3	A
10	1,981.0	1.40	2.5	A
Average:	**1,993.3**	**1.34**	**2.4**	**A**
WB on SR 161 WB EXIT RAMP: Superlink ID 61227				
1	26.0	0.20	32.4	C
2	27.0	0.20	28.1	C
3	26.0	0.20	26.8	C
4	26.0	0.20	29.8	C
5	24.0	0.20	25.1	C
6	22.0	0.20	31.9	C
7	23.0	0.20	25.7	C
8	28.0	0.20	24.6	C
9	27.0	0.20	28.5	C
10	25.0	0.20	27.6	C
Average:	**25.4**	**0.20**	**28.1**	**C**

WORTHINGTON RD, MINK ST NW & MINK ST SW -- SIGNALIZED — NODE: 32764

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
EB on WORTHINGTON RD: Superlink ID 29557				
1	334.0	4.50	49.0	D
2	336.0	4.20	44.9	D
3	327.0	3.90	42.9	D
4	328.0	3.90	42.7	D
5	333.0	4.30	46.3	D
6	332.0	4.00	43.7	D
7	338.0	4.50	48.3	D
8	334.0	4.10	44.5	D
9	329.0	4.30	47.1	D

WORTHINGTON RD, MINK ST NW & MINK ST SW -- SIGNALIZED NODE: 32764

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
10	324.0	3.80	41.7	D
Average:	**331.5**	**4.15**	**45.1**	**D**
NEB on MINK ST SW: Superlink ID 24528				
1	1,038.0	4.20	14.5	B
2	1,030.0	3.80	13.4	B
3	1,056.0	3.60	12.3	B
4	1,047.0	3.60	12.4	B
5	1,045.0	4.30	14.7	B
6	1,047.0	4.10	14.2	B
7	1,036.0	3.80	13.3	B
8	1,052.0	4.50	15.2	B
9	1,045.0	3.70	12.9	B
10	1,049.0	4.80	16.5	B
Average:	**1,044.5**	**4.04**	**13.9**	**B**
SWB on MINK ST NW: Superlink ID 61222				
1	1,727.0	5.20	10.8	B
2	1,693.0	5.00	10.6	B
3	1,728.0	4.50	9.5	A
4	1,732.0	4.40	9.1	A
5	1,697.0	5.00	10.6	B
6	1,686.0	4.60	9.8	A
7	1,703.0	5.20	11.1	B
8	1,722.0	5.40	11.3	B
9	1,713.0	5.00	10.5	B
10	1,704.0	5.60	11.9	B
Average:	**1,710.5**	**4.99**	**10.5**	**B**
WB on WORTHINGTON RD: Superlink ID 29572				
1	135.0	1.70	44.8	D
2	131.0	1.90	51.0	D
3	129.0	1.40	38.6	D
4	135.0	1.70	44.8	D
5	140.0	1.70	44.0	D
6	132.0	2.20	60.7	E
7	136.0	2.50	67.1	E
8	136.0	1.60	42.1	D
9	135.0	1.90	50.2	D
10	137.0	1.70	45.4	D
Average:	**134.6**	**1.83**	**48.9**	**D**

Project: Mink Corridor Optimized Parclo w North
Scenario: PM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 16:00:00 - 17:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Intersection Level of Service by Approach - Total Control Delay

MINK ST NW & BEAVER RD — NODE: 18

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
NEB	MINK ST NW	61211	3.9	0.2	3.4	4.1	10
NWB	BEAVER RD	61210	6.7	0.3	6.2	7.3	10
SWB	MINK ST NW	61216	17.4	1.1	15.6	18.9	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
NEB	MINK ST NW	61216	6.4	0.3	6.0	6.8	10
SEB	CLOVER VALLEY EXT	61212	24.6	10.4	13.3	43.5	10
SWB	MINK ST NW	29573	55.6	11.1	41.5	74.1	10

MINK ST NW & INNOVATION WAY — NODE: 15

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
EB	INNOVATION WAY	61207	1.6	0.2	1.4	1.9	10
NEB	MINK ST NW	61228	1.0	0.1	0.9	1.1	10
SWB	MINK ST NW	61211	9.5	1.9	7.5	14.1	10

MINK ST NW & JUG ST — NODE: 33082

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
EB	JUG ST	29977	1.1	0.1	0.9	1.3	10
NB	MINK ST NW	29573	1.6	0.2	1.4	2.0	10
SB	MINK ST NW	29606	2.1	0.3	1.5	2.5	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 10

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
EB	SR 161 EB EXIT RAMP	61221	3.8	0.1	3.7	4.0	10
NEB	MINK ST NW	61219	1.4	0.4	1.2	2.5	10
SWB	MINK ST NW	61231	5.9	0.5	5.3	7.1	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 5

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
NEB	MINK ST NW	61198	3.6	1.4	2.8	7.6	10
SWB	MINK ST NW	61225	1.3	0.1	1.2	1.5	10
WB	SR 161 WB EXIT RAMP	61227	0.2	0.0	0.2	0.2	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
EB	WORTHINGTON RD	29557	4.2	0.3	3.8	4.5	10
NEB	MINK ST SW	24528	4.0	0.4	3.6	4.8	10
SWB	MINK ST NW	61222	5.0	0.4	4.4	5.6	10
WB	WORTHINGTON RD	29572	1.8	0.3	1.4	2.5	10

Project: Mink Corridor Optimized Parclo w North
Scenario: PM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 16:00:00 - 17:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Intersection Level of Service by Approach - Avg Control Delay

MINK ST NW & BEAVER RD — NODE: 18

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
NEB	MINK ST NW	61211	13.3	0.8	11.9	14.2	10
NWB	BEAVER RD	61210	29.9	1.4	27.6	32.6	10
SWB	MINK ST NW	61216	27.8	2.0	24.5	31.0	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
NEB	MINK ST NW	61216	26.2	1.3	24.7	28.2	10
SEB	CLOVER VALLEY EXT	61212	78.9	34.3	41.3	143.7	10
SWB	MINK ST NW	29573	169.3	37.6	122.1	229.6	10

MINK ST NW & INNOVATION WAY — NODE: 15

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
EB	INNOVATION WAY	61207	45.6	3.9	40.0	54.4	10
NEB	MINK ST NW	61228	1.9	0.1	1.7	2.2	10
SWB	MINK ST NW	61211	11.2	2.4	8.9	16.9	10

MINK ST NW & JUG ST — NODE: 33082

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
EB	JUG ST	29977	44.2	5.5	34.8	52.0	10
NB	MINK ST NW	29573	7.1	0.8	6.0	8.4	10
SB	MINK ST NW	29606	6.1	1.0	4.5	7.4	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 10

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
EB	SR 161 EB EXIT RAMP	61221	19.2	0.4	18.8	19.7	10
NEB	MINK ST NW	61219	4.3	1.3	3.6	7.9	10
SWB	MINK ST NW	61231	14.2	1.3	12.8	17.3	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 5

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
NEB	MINK ST NW	61198	7.2	2.9	5.8	15.2	10
SWB	MINK ST NW	61225	2.4	0.1	2.3	2.6	10
WB	SR 161 WB EXIT RAMP	61227	28.1	2.7	24.6	32.4	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
EB	WORTHINGTON RD	29557	45.1	2.5	41.7	49.0	10
NEB	MINK ST SW	24528	13.9	1.3	12.3	16.5	10
SWB	MINK ST NW	61222	10.5	0.9	9.1	11.9	10
WB	WORTHINGTON RD	29572	48.9	8.8	38.6	67.1	10

Project: Mink Corridor Optimized Parclo w North
Scenario: PM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 16:00:00 - 17:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Lane Queue by Intersection - Overview

MINK ST NW & BEAVER RD — NODE: 18

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NEB R on MINK ST NW - Lane ID 156404						
1	120.0	0.9	0.1	0.0	0.0	0.0%
2	120.0	0.0	0.0	0.0	0.0	0.0%
3	120.0	1.2	0.1	0.0	0.0	0.0%
4	120.0	0.9	0.0	0.0	0.0	0.0%
5	120.0	0.3	0.0	0.0	0.0	0.0%
6	120.0	0.6	0.0	0.0	0.0	0.0%
7	120.0	0.0	0.0	0.0	0.0	0.0%
8	120.0	0.5	0.0	0.0	0.0	0.0%
9	120.0	0.1	0.0	0.0	0.0	0.0%
10	120.0	1.5	0.0	0.0	0.0	0.0%
Average:	**120.0**	**0.6**	**0.0**	**0.0**	**0.0**	**0.0%**
NEB T on MINK ST NW - Lane ID 156206						
1	120.0	41.4	1.5	232.1	7.0	0.0%
2	120.0	35.4	1.3	166.6	6.0	0.0%
3	120.0	33.1	1.2	178.7	6.0	0.0%
4	120.0	29.8	1.1	156.5	5.0	0.0%
5	120.0	40.6	1.5	184.6	6.0	0.0%
6	120.0	43.8	1.6	229.3	7.0	0.0%
7	120.0	35.2	1.4	158.0	6.0	0.0%
8	120.0	38.9	1.4	173.1	7.0	0.0%
9	120.0	30.3	1.2	159.3	6.0	0.0%
10	120.0	43.2	1.5	208.1	7.0	0.0%
Average:	**120.0**	**37.2**	**1.4**	**184.6**	**6.3**	**0.0%**
NEB T on MINK ST NW - Lane ID 156207						
1	120.0	39.8	1.4	221.9	7.0	0.0%
2	120.0	38.1	1.4	203.7	7.0	0.0%
3	120.0	35.7	1.4	161.7	6.0	0.0%
4	120.0	33.0	1.2	176.2	6.0	0.0%
5	120.0	39.4	1.5	201.1	6.0	0.0%
6	120.0	43.9	1.5	202.9	7.0	0.0%
7	120.0	40.9	1.4	207.9	7.0	0.0%
8	120.0	50.7	1.9	217.1	7.0	0.0%
9	120.0	33.3	1.3	181.6	6.0	0.0%

MINK ST NW & BEAVER RD — NODE: 18

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NEB T on MINK ST NW - Lane ID 156207						
10	120.0	43.0	1.5	198.6	7.0	0.0%
Average:	**120.0**	**39.8**	**1.5**	**197.3**	**6.6**	**0.0%**
NWB L on BEAVER RD - Lane ID 156427						
1	120.0	71.9	2.7	256.1	9.0	0.0%
2	120.0	58.4	2.1	213.2	7.0	0.0%
3	120.0	68.9	2.6	255.9	10.0	0.0%
4	120.0	82.9	2.9	269.7	9.0	0.0%
5	120.0	75.3	2.7	260.8	9.0	0.0%
6	120.0	74.5	2.7	226.3	8.0	0.0%
7	120.0	66.0	2.4	264.6	9.0	0.0%
8	120.0	68.3	2.3	255.9	8.0	0.0%
9	120.0	76.1	2.6	244.2	9.0	0.0%
10	120.0	65.8	2.4	242.2	8.0	0.0%
Average:	**120.0**	**70.8**	**2.5**	**248.9**	**8.6**	**0.0%**
NWB LR on BEAVER RD - Lane ID 156428						
1	120.0	61.8	2.4	236.5	8.0	0.0%
2	120.0	60.5	2.2	208.7	7.0	0.0%
3	120.0	70.7	2.5	249.1	8.0	0.0%
4	120.0	83.6	3.0	269.4	9.0	0.0%
5	120.0	73.3	2.6	276.4	9.0	0.0%
6	120.0	72.6	2.5	231.1	8.0	0.0%
7	120.0	63.7	2.2	249.3	8.0	0.0%
8	120.0	68.2	2.5	215.9	8.0	0.0%
9	120.0	73.7	2.5	247.2	9.0	0.0%
10	120.0	75.3	2.6	272.4	8.0	0.0%
Average:	**120.0**	**70.3**	**2.5**	**245.6**	**8.2**	**0.0%**
SWB L on MINK ST NW - Lane ID 156233						
1	120.0	5.5	0.3	28.7	1.0	0.0%
2	120.0	4.5	0.2	17.2	1.0	0.0%
3	120.0	3.2	0.2	16.5	1.0	0.0%
4	120.0	3.3	0.2	18.4	1.0	0.0%
5	120.0	4.2	0.2	18.4	1.0	0.0%
6	120.0	3.4	0.2	17.8	1.0	0.0%
7	120.0	5.5	0.2	18.9	1.0	0.0%
8	120.0	4.1	0.2	35.6	1.0	0.0%
9	120.0	3.1	0.2	17.2	1.0	0.0%
10	120.0	3.4	0.1	17.1	1.0	0.0%
Average:	**120.0**	**4.0**	**0.2**	**20.6**	**1.0**	**0.0%**

MINK ST NW & BEAVER RD — NODE: 18

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
SWB T on MINK ST NW - Lane ID 156234						
1	120.0	136.6	4.6	580.4	18.1	0.8%
2	120.0	175.4	5.5	688.7	22.0	3.3%
3	120.0	134.5	4.4	499.7	16.0	1.7%
4	120.0	126.8	4.2	493.5	17.0	1.7%
5	120.0	141.3	4.7	559.3	18.0	0.8%
6	120.0	157.3	5.3	595.7	21.0	2.5%
7	120.0	168.9	5.7	604.1	20.1	1.7%
8	120.0	148.7	4.9	586.2	18.0	1.7%
9	120.0	127.6	4.3	523.9	19.0	0.0%
10	120.0	130.2	4.2	560.2	17.0	3.3%
Average:	**120.0**	**144.7**	**4.8**	**569.2**	**18.6**	**1.8%**
SWB T on MINK ST NW - Lane ID 156235						
1	120.0	79.9	2.7	380.9	14.0	0.8%
2	120.0	97.3	3.3	481.9	16.0	1.7%
3	120.0	95.3	3.3	457.6	15.0	0.8%
4	120.0	62.2	2.2	248.2	9.0	0.0%
5	120.0	64.1	2.2	276.4	9.0	0.0%
6	120.0	94.1	3.4	454.2	16.0	0.8%
7	120.0	100.3	3.4	458.8	15.1	0.8%
8	120.0	88.8	3.2	418.3	15.0	0.0%
9	120.0	73.3	2.6	321.8	12.1	0.0%
10	120.0	74.1	2.6	348.6	11.0	0.0%
Average:	**120.0**	**82.9**	**2.9**	**384.7**	**13.2**	**0.5%**
SWB T on MINK ST NW - Lane ID 156422						
1	120.0	73.1	2.5	280.4	10.0	0.0%
2	120.0	80.8	2.9	445.5	15.0	1.7%
3	120.0	59.5	2.2	227.2	8.0	0.0%
4	120.0	62.6	2.2	263.4	9.0	0.0%
5	120.0	79.6	2.7	393.8	14.0	0.0%
6	120.0	79.2	2.8	346.9	12.0	1.7%
7	120.0	62.1	2.1	232.3	8.0	0.0%
8	120.0	78.0	2.8	362.1	12.1	0.0%
9	120.0	61.6	2.3	245.9	9.0	0.0%
10	120.0	53.2	1.9	291.8	10.0	0.0%
Average:	**120.0**	**69.0**	**2.4**	**308.9**	**10.7**	**0.3%**

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NEB L on MINK ST NW - Lane ID 156441						
1	120.0	21.1	0.9	71.4	3.0	0.0%

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NEB L on MINK ST NW - Lane ID 156441						
2	120.0	24.9	1.0	71.4	3.0	0.0%
3	120.0	26.1	1.2	66.8	3.0	0.0%
4	120.0	25.2	1.0	101.2	3.0	0.0%
5	120.0	21.9	0.9	81.3	3.0	0.0%
6	120.0	23.1	0.9	70.4	3.0	0.0%
7	120.0	26.0	1.1	78.7	3.0	0.0%
8	120.0	24.7	1.0	67.0	2.0	0.0%
9	120.0	27.2	0.9	98.0	3.0	0.0%
10	120.0	21.0	0.9	82.1	3.0	0.0%
Average:	**120.0**	**24.1**	**1.0**	**78.8**	**2.9**	**0.0%**
NEB L on MINK ST NW - Lane ID 156442						
1	120.0	20.7	0.9	66.3	3.0	0.0%
2	120.0	21.0	1.0	77.2	3.0	0.0%
3	120.0	26.5	1.1	91.9	3.0	0.0%
4	120.0	25.6	1.0	101.8	3.0	0.0%
5	120.0	22.0	1.1	72.0	3.0	0.0%
6	120.0	21.4	0.9	81.1	3.0	0.0%
7	120.0	24.7	1.0	96.6	3.0	0.0%
8	120.0	20.8	0.9	90.6	3.0	0.0%
9	120.0	26.2	1.1	97.1	4.0	0.0%
10	120.0	29.2	1.0	97.8	3.0	0.0%
Average:	**120.0**	**23.8**	**1.0**	**87.2**	**3.1**	**0.0%**
NEB T on MINK ST NW - Lane ID 156443						
1	120.0	45.2	1.6	265.0	9.0	0.0%
2	120.0	41.6	1.5	240.1	8.0	0.0%
3	120.0	46.9	1.7	246.4	7.0	0.0%
4	120.0	50.7	1.8	257.3	10.0	0.0%
5	120.0	41.6	1.5	243.3	8.0	0.0%
6	120.0	48.7	1.7	284.9	9.0	0.0%
7	120.0	45.4	1.7	245.0	9.0	0.0%
8	120.0	50.1	1.8	304.3	10.0	0.0%
9	120.0	43.4	1.7	251.3	10.0	0.0%
10	120.0	46.0	1.7	267.6	8.0	0.0%
Average:	**120.0**	**46.0**	**1.7**	**260.5**	**8.8**	**0.0%**
NEB T on MINK ST NW - Lane ID 156444						
1	120.0	51.8	1.7	308.6	10.0	0.0%
2	120.0	44.4	1.7	258.4	9.0	0.0%
3	120.0	44.3	1.6	253.0	8.0	0.0%
4	120.0	55.6	2.0	290.8	11.0	0.0%
5	120.0	44.7	1.7	231.5	9.0	0.0%

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NEB T on MINK ST NW - Lane ID 156444						
6	120.0	58.7	2.0	303.6	10.0	0.0%
7	120.0	52.4	1.8	289.9	10.0	0.0%
8	120.0	55.6	2.0	316.3	10.0	0.0%
9	120.0	46.4	1.6	243.5	9.0	0.0%
10	120.0	56.0	1.9	314.8	10.0	0.0%
Average:	**120.0**	**51.0**	**1.8**	**281.0**	**9.6**	**0.0%**
SEB L on CLOVER VALLEY EXT - Lane ID 156450						
1	120.0	2.0	0.1	16.2	1.0	0.0%
2	120.0	4.4	0.2	21.7	1.0	0.0%
3	120.0	3.4	0.1	16.1	1.0	0.0%
4	120.0	2.9	0.1	16.7	1.0	0.0%
5	120.0	3.7	0.2	17.6	1.0	0.0%
6	120.0	2.3	0.1	15.7	1.0	0.0%
7	120.0	2.3	0.1	16.0	1.0	0.0%
8	120.0	2.5	0.1	15.7	1.0	0.0%
9	120.0	1.9	0.1	16.4	1.0	0.0%
10	120.0	3.4	0.2	17.9	1.0	0.0%
Average:	**120.0**	**2.9**	**0.1**	**17.0**	**1.0**	**0.0%**
SEB R on CLOVER VALLEY EXT - Lane ID 156411						
1	120.0	121.2	4.1	437.9	15.0	0.0%
2	120.0	380.8	12.2	1,168.2	39.0	0.0%
3	120.0	301.8	10.3	941.7	34.0	0.0%
4	120.0	90.3	3.2	347.9	13.0	0.0%
5	120.0	105.6	3.7	380.3	14.0	0.0%
6	120.0	191.9	6.4	583.7	20.0	0.0%
7	120.0	197.1	6.4	725.7	24.0	0.0%
8	120.0	215.6	7.1	648.2	21.0	0.0%
9	120.0	251.2	8.1	853.3	27.0	0.0%
10	120.0	244.6	7.9	695.8	22.0	0.0%
Average:	**120.0**	**210.0**	**6.9**	**678.3**	**22.9**	**0.0%**
SEB R on CLOVER VALLEY EXT - Lane ID 156445						
1	120.0	113.8	3.9	408.5	13.0	0.0%
2	120.0	354.8	11.9	1,228.8	40.1	0.0%
3	120.0	296.2	9.3	961.6	30.0	0.0%
4	120.0	98.2	3.4	363.6	12.0	0.0%
5	120.0	105.6	3.3	370.9	12.0	0.0%
6	120.0	166.0	5.5	539.5	18.0	0.0%
7	120.0	169.1	5.7	696.4	24.0	0.0%
8	120.0	216.0	7.0	673.9	21.0	0.0%
9	120.0	223.4	7.5	833.2	26.1	0.0%

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
SEB R on CLOVER VALLEY EXT - Lane ID 156445						
10	120.0	205.9	7.1	695.3	24.0	0.0%
Average:	**120.0**	**194.9**	**6.5**	**677.2**	**22.0**	**0.0%**
SWB T on MINK ST NW - Lane ID 156454						
1	120.0	471.6	15.5	1,565.5	51.0	0.0%
2	120.0	426.2	14.1	1,239.0	42.0	0.0%
3	120.0	406.3	13.6	1,278.8	43.1	0.0%
4	120.0	461.4	15.4	1,303.6	43.0	0.0%
5	120.0	611.7	19.4	1,868.4	58.1	0.0%
6	120.0	551.0	18.0	1,919.7	58.1	0.0%
7	120.0	530.7	17.6	1,665.9	55.0	0.0%
8	120.0	557.4	17.5	1,650.1	52.0	0.0%
9	120.0	442.4	14.6	1,284.1	43.1	0.0%
10	120.0	585.4	19.5	2,039.2	67.1	0.0%
Average:	**120.0**	**504.4**	**16.5**	**1,581.4**	**51.3**	**0.0%**
SWB TR on MINK ST NW - Lane ID 156455						
1	120.0	442.6	13.9	1,540.0	49.0	0.0%
2	120.0	418.7	13.9	1,209.8	41.0	0.0%
3	120.0	421.7	14.1	1,273.9	41.0	0.0%
4	120.0	467.4	15.3	1,291.0	41.1	0.0%
5	120.0	582.7	18.9	1,906.5	61.2	0.0%
6	120.0	528.2	17.6	1,880.3	62.1	0.0%
7	120.0	568.5	18.4	1,752.5	54.1	0.0%
8	120.0	539.6	18.0	1,654.5	53.1	0.0%
9	120.0	436.2	14.6	1,267.6	44.0	0.0%
10	120.0	583.3	18.1	2,050.9	60.1	0.0%
Average:	**120.0**	**498.9**	**16.3**	**1,582.7**	**50.7**	**0.0%**

MINK ST NW & INNOVATION WAY — NODE: 15

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
EB L on INNOVATION WAY - Lane ID 156208						
1	120.0	2.1	0.1	17.0	1.0	0.0%
2	120.0	2.6	0.1	16.6	1.0	0.0%
3	120.0	4.7	0.2	18.4	1.0	0.0%
4	120.0	3.6	0.2	16.7	1.0	0.0%
5	120.0	5.4	0.3	22.6	1.0	0.0%
6	120.0	3.4	0.2	17.0	1.0	0.0%
7	120.0	4.9	0.2	22.1	1.0	0.0%
8	120.0	4.2	0.2	19.6	1.0	0.0%
9	120.0	5.6	0.3	19.0	1.0	0.0%
10	120.0	4.5	0.2	22.0	1.0	0.0%

MINK ST NW & INNOVATION WAY — NODE: 15

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
EB L on INNOVATION WAY - Lane ID 156208						
Average:	**120.0**	**4.1**	**0.2**	**19.1**	**1.0**	**0.0%**
EB R on INNOVATION WAY - Lane ID 156209						
1	120.0	39.8	1.5	156.3	4.0	0.0%
2	120.0	34.9	1.4	122.0	5.0	0.0%
3	120.0	40.8	1.6	160.3	4.0	0.0%
4	120.0	27.3	1.2	101.4	4.0	0.0%
5	120.0	31.1	1.2	120.1	4.0	0.0%
6	120.0	46.3	1.7	149.4	4.0	0.0%
7	120.0	33.4	1.4	109.2	4.0	0.0%
8	120.0	34.7	1.5	118.3	4.0	0.0%
9	120.0	32.4	1.3	118.8	4.0	0.0%
10	120.0	26.1	1.1	86.7	3.0	0.0%
Average:	**120.0**	**34.7**	**1.4**	**124.3**	**4.0**	**0.0%**
NEB L on MINK ST NW - Lane ID 156357						
1	120.0	3.0	0.3	7.7	1.0	0.0%
2	120.0	2.7	0.3	11.3	1.0	0.0%
3	120.0	6.4	0.4	40.6	2.0	0.0%
4	120.0	1.7	0.2	6.9	1.0	0.0%
5	120.0	3.9	0.3	24.8	1.0	0.0%
6	120.0	6.1	0.3	35.3	2.0	0.0%
7	120.0	3.3	0.3	8.1	1.0	0.0%
8	120.0	3.7	0.3	28.2	2.0	0.0%
9	120.0	5.8	0.4	36.9	2.0	0.0%
10	120.0	2.4	0.3	9.7	1.0	0.0%
Average:	**120.0**	**3.9**	**0.3**	**21.0**	**1.4**	**0.0%**
NEB T on MINK ST NW - Lane ID 156358						
1	120.0	3.6	0.1	17.9	1.0	0.0%
2	120.0	4.1	0.1	18.3	1.0	0.0%
3	120.0	3.4	0.1	16.5	1.0	0.0%
4	120.0	1.7	0.1	0.0	0.0	0.0%
5	120.0	5.8	0.2	40.3	2.0	0.0%
6	120.0	2.5	0.1	0.9	0.0	0.0%
7	120.0	1.8	0.1	0.0	0.0	0.0%
8	120.0	4.5	0.2	17.4	1.0	0.0%
9	120.0	2.7	0.1	20.4	1.0	0.0%
10	120.0	3.2	0.1	20.3	1.0	0.0%
Average:	**120.0**	**3.3**	**0.1**	**15.2**	**0.8**	**0.0%**
NEB T on MINK ST NW - Lane ID 156359						
1	120.0	4.1	0.2	18.0	1.0	0.0%

MINK ST NW & INNOVATION WAY — NODE: 15

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NEB T on MINK ST NW - Lane ID 156359						
2	120.0	3.4	0.1	35.3	1.0	0.0%
3	120.0	3.9	0.2	17.3	1.0	0.0%
4	120.0	4.4	0.2	52.5	2.0	0.0%
5	120.0	4.6	0.2	20.7	1.0	0.0%
6	120.0	4.2	0.2	21.3	1.0	0.0%
7	120.0	2.2	0.1	17.0	1.0	0.0%
8	120.0	4.9	0.2	18.8	1.0	0.0%
9	120.0	4.0	0.2	20.9	1.0	0.0%
10	120.0	3.9	0.1	21.4	1.0	0.0%
Average:	**120.0**	**4.0**	**0.2**	**24.3**	**1.1**	**0.0%**
NEB T on MINK ST NW - Lane ID 156360						
1	120.0	4.7	0.2	13.9	1.0	0.0%
2	120.0	3.4	0.1	16.7	1.0	0.0%
3	120.0	2.6	0.1	0.8	0.0	0.0%
4	120.0	3.9	0.2	18.1	1.0	0.0%
5	120.0	2.9	0.1	15.4	1.0	0.0%
6	120.0	4.0	0.1	0.9	0.0	0.0%
7	120.0	1.1	0.1	0.0	0.0	0.0%
8	120.0	4.1	0.1	16.2	1.0	0.0%
9	120.0	2.2	0.1	16.3	1.0	0.0%
10	120.0	3.0	0.1	21.5	1.0	0.0%
Average:	**120.0**	**3.2**	**0.1**	**12.0**	**0.7**	**0.0%**
SWB T on MINK ST NW - Lane ID 156451						
1	120.0	14.4	0.5	128.4	4.0	0.0%
2	120.0	23.3	0.8	221.9	7.1	0.0%
3	120.0	26.5	1.0	157.8	6.0	0.0%
4	120.0	20.1	0.7	127.2	5.0	0.0%
5	120.0	19.9	0.7	150.8	5.0	0.0%
6	120.0	22.0	0.7	159.6	4.1	0.0%
7	120.0	13.7	0.5	101.0	4.0	0.0%
8	120.0	26.2	0.9	189.3	6.0	0.0%
9	120.0	17.6	0.6	109.7	4.0	0.0%
10	120.0	37.1	1.2	285.4	9.0	0.0%
Average:	**120.0**	**22.1**	**0.8**	**163.1**	**5.4**	**0.0%**
SWB T on MINK ST NW - Lane ID 156452						
1	120.0	14.2	0.5	105.5	3.0	0.0%
2	120.0	22.7	0.8	180.2	6.0	0.0%
3	120.0	38.4	1.3	278.0	7.2	0.0%
4	120.0	27.6	0.9	205.3	7.0	0.0%
5	120.0	37.1	1.2	233.4	8.0	0.0%

MINK ST NW & INNOVATION WAY — NODE: 15

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
SWB T on MINK ST NW - Lane ID 156452						
6	120.0	28.5	1.0	254.5	9.0	0.0%
7	120.0	17.9	0.6	121.5	4.0	0.0%
8	120.0	26.5	0.9	183.9	7.0	0.0%
9	120.0	24.7	0.8	194.1	6.0	0.0%
10	120.0	41.9	1.5	264.9	8.1	0.0%
Average:	**120.0**	**28.0**	**1.0**	**202.1**	**6.5**	**0.0%**
SWB TR on MINK ST NW - Lane ID 156453						
1	120.0	19.5	0.6	185.7	5.0	0.0%
2	120.0	22.6	0.8	172.6	7.0	0.0%
3	120.0	34.8	1.1	200.9	6.0	0.0%
4	120.0	35.2	1.2	229.0	7.0	0.0%
5	120.0	29.4	1.0	188.8	6.0	0.0%
6	120.0	25.7	0.9	158.4	6.0	0.0%
7	120.0	15.9	0.6	151.8	5.0	0.0%
8	120.0	38.1	1.3	263.5	9.0	0.0%
9	120.0	21.7	0.7	127.1	5.0	0.0%
10	120.0	43.5	1.4	322.0	10.0	0.0%
Average:	**120.0**	**28.6**	**1.0**	**200.0**	**6.6**	**0.0%**

MINK ST NW & JUG ST — NODE: 33082

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
EB L on JUG ST - Lane ID 156252						
1	120.0	27.4	1.1	95.4	3.0	0.0%
2	120.0	16.2	0.7	67.9	2.0	0.0%
3	120.0	16.3	0.8	51.3	2.0	0.0%
4	120.0	22.1	0.9	99.8	3.0	0.0%
5	120.0	20.1	0.9	75.9	3.0	0.0%
6	120.0	19.7	0.9	77.6	3.0	0.0%
7	120.0	16.1	0.7	74.5	3.0	0.0%
8	120.0	21.2	0.9	67.8	2.0	0.0%
9	120.0	19.1	0.8	69.3	2.0	0.0%
10	120.0	12.4	0.7	46.2	2.0	0.0%
Average:	**120.0**	**19.1**	**0.8**	**72.6**	**2.5**	**0.0%**
EB R on JUG ST - Lane ID 156253						
1	120.0	1.9	0.1	17.4	1.0	0.0%
2	120.0	4.2	0.2	20.0	1.0	0.0%
3	120.0	5.9	0.3	37.2	1.0	0.0%
4	120.0	4.4	0.2	18.2	1.0	0.0%
5	120.0	3.4	0.2	17.9	1.0	0.0%
6	120.0	5.1	0.2	38.8	1.0	0.0%

MINK ST NW & JUG ST — NODE: 33082

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
EB R on JUG ST - Lane ID 156253						
7	120.0	3.8	0.2	17.8	1.0	0.0%
8	120.0	4.3	0.2	18.6	1.0	0.0%
9	120.0	4.8	0.2	18.7	1.0	0.0%
10	120.0	4.6	0.2	26.8	1.0	0.0%
Average:	**120.0**	**4.2**	**0.2**	**23.1**	**1.0**	**0.0%**
NB L on MINK ST NW - Lane ID 156247						
1	120.0	27.2	1.1	135.1	5.0	0.0%
2	120.0	41.3	1.6	186.3	7.0	0.0%
3	120.0	39.1	1.7	165.0	6.0	0.0%
4	120.0	32.0	1.3	124.2	5.0	0.0%
5	120.0	46.0	1.7	171.5	5.0	0.0%
6	120.0	31.4	1.3	137.6	5.0	0.0%
7	120.0	26.6	1.1	112.4	4.0	0.0%
8	120.0	37.8	1.5	181.2	5.0	0.0%
9	120.0	43.4	1.9	168.8	6.0	0.0%
10	120.0	32.7	1.4	125.3	5.0	0.0%
Average:	**120.0**	**35.8**	**1.5**	**150.7**	**5.3**	**0.0%**
NB T on MINK ST NW - Lane ID 153566						
1	120.0	0.1	0.0	0.0	0.0	0.0%
2	120.0	0.1	0.0	0.0	0.0	0.0%
3	120.0	0.1	0.0	0.0	0.0	0.0%
4	120.0	0.4	0.0	0.0	0.0	0.0%
5	120.0	0.4	0.0	0.0	0.0	0.0%
6	120.0	0.7	0.0	0.0	0.0	0.0%
7	120.0	0.3	0.0	0.0	0.0	0.0%
8	120.0	0.1	0.0	0.0	0.0	0.0%
9	120.0	0.1	0.0	0.0	0.0	0.0%
10	120.0	0.0	0.0	0.0	0.0	0.0%
Average:	**120.0**	**0.2**	**0.0**	**0.0**	**0.0**	**0.0%**
NB T on MINK ST NW - Lane ID 156220						
1	120.0	0.0	0.0	0.0	0.0	0.0%
2	120.0	0.2	0.0	0.0	0.0	0.0%
3	120.0	0.1	0.0	0.0	0.0	0.0%
4	120.0	0.1	0.0	0.0	0.0	0.0%
5	120.0	0.4	0.0	0.0	0.0	0.0%
6	120.0	0.2	0.0	0.0	0.0	0.0%
7	120.0	0.6	0.0	0.0	0.0	0.0%
8	120.0	0.4	0.0	0.0	0.0	0.0%
9	120.0	0.2	0.0	0.0	0.0	0.0%
10	120.0	0.0	0.0	0.0	0.0	0.0%

MINK ST NW & JUG ST — NODE: 33082

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NB T on MINK ST NW - Lane ID 156220						
Average:	**120.0**	**0.2**	**0.0**	**0.0**	**0.0**	**0.0%**
SB T on MINK ST NW - Lane ID 153676						
1	120.0	13.6	0.5	98.4	4.0	0.0%
2	120.0	22.4	0.9	131.2	5.0	0.0%
3	120.0	15.1	0.5	98.8	4.0	0.0%
4	120.0	21.1	0.8	135.0	5.0	0.0%
5	120.0	25.8	0.9	159.7	6.0	0.0%
6	120.0	13.6	0.5	100.7	4.0	0.0%
7	120.0	10.5	0.4	78.1	3.0	0.0%
8	120.0	26.1	0.9	158.0	5.0	0.0%
9	120.0	20.5	0.8	132.6	5.0	0.0%
10	120.0	29.6	1.0	185.7	6.0	0.0%
Average:	**120.0**	**19.8**	**0.7**	**127.8**	**4.7**	**0.0%**
SB TR on MINK ST NW - Lane ID 156248						
1	120.0	21.5	0.7	136.3	5.0	0.0%
2	120.0	20.2	0.7	132.0	5.0	0.0%
3	120.0	16.3	0.6	114.8	4.0	0.0%
4	120.0	21.1	0.8	133.3	5.0	0.0%
5	120.0	20.8	0.7	128.0	4.0	0.0%
6	120.0	18.0	0.7	136.7	4.0	0.0%
7	120.0	14.0	0.5	98.7	4.0	0.0%
8	120.0	25.0	0.9	139.0	5.0	0.0%
9	120.0	17.4	0.7	97.6	4.0	0.0%
10	120.0	26.4	0.9	154.3	5.0	0.0%
Average:	**120.0**	**20.1**	**0.7**	**127.1**	**4.5**	**0.0%**

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 10

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
EB L on SR 161 EB EXIT RAMP - Lane ID 156331						
1	120.0	32.2	1.3	100.9	4.0	24.2%
2	120.0	30.1	1.2	100.3	4.0	22.5%
3	120.0	38.0	1.4	117.2	4.0	33.3%
4	120.0	34.6	1.3	102.7	4.0	30.8%
5	120.0	32.1	1.3	99.0	4.0	25.8%
6	120.0	28.1	1.2	100.6	4.0	22.5%
7	120.0	29.4	1.2	94.0	4.0	25.0%
8	120.0	38.6	1.5	101.5	4.0	30.0%
9	120.0	31.8	1.2	101.7	4.0	23.3%
10	120.0	34.4	1.4	100.1	4.0	28.3%
Average:	**120.0**	**32.9**	**1.3**	**101.8**	**4.0**	**26.6%**

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 10

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
EB L on SR 161 EB EXIT RAMP - Lane ID 156331						
EB L on SR 161 EB EXIT RAMP - Lane ID 156332						
1	120.0	26.4	1.1	97.4	3.0	19.2%
2	120.0	24.3	1.1	87.1	4.0	20.8%
3	120.0	25.3	1.1	90.9	3.0	18.3%
4	120.0	26.0	1.1	84.3	3.0	15.0%
5	120.0	23.9	1.0	87.4	3.0	13.3%
6	120.0	23.6	1.0	99.1	3.0	17.5%
7	120.0	23.8	1.0	97.7	4.0	15.8%
8	120.0	25.3	1.1	93.5	3.0	14.2%
9	120.0	26.4	1.1	92.6	3.0	19.2%
10	120.0	25.7	1.1	76.7	3.0	16.7%
Average:	**120.0**	**25.1**	**1.1**	**90.7**	**3.2**	**17.0%**
EB L on SR 161 EB EXIT RAMP - Lane ID 156333						
1	120.0	21.8	0.9	92.4	3.0	15.0%
2	120.0	17.5	0.8	72.4	3.0	7.5%
3	120.0	17.9	0.8	78.0	2.0	7.5%
4	120.0	17.4	0.8	73.8	3.0	10.0%
5	120.0	16.2	0.7	58.0	2.0	5.0%
6	120.0	15.7	0.7	70.4	2.0	7.5%
7	120.0	14.0	0.7	65.1	3.0	7.5%
8	120.0	18.3	0.8	68.9	2.0	9.2%
9	120.0	22.6	0.9	93.4	3.0	13.3%
10	120.0	17.5	0.7	75.8	2.0	13.3%
Average:	**120.0**	**17.9**	**0.8**	**74.8**	**2.5**	**9.6%**
NEB T on MINK ST NW - Lane ID 156322						
1	120.0	15.7	0.6	73.8	3.0	22.5%
2	120.0	15.4	0.6	74.6	3.0	19.2%
3	120.0	15.9	0.6	73.6	3.0	21.7%
4	120.0	13.8	0.6	69.4	3.0	21.7%
5	120.0	13.2	0.6	70.2	3.0	20.0%
6	120.0	17.3	0.7	73.5	3.0	25.8%
7	120.0	12.6	0.6	71.5	3.0	16.7%
8	120.0	9.8	0.4	70.2	3.0	12.5%
9	120.0	12.5	0.5	71.8	3.0	17.5%
10	120.0	12.7	0.5	72.1	3.0	17.5%
Average:	**120.0**	**13.9**	**0.6**	**72.1**	**3.0**	**19.5%**
NEB T on MINK ST NW - Lane ID 156323						
1	120.0	16.0	0.6	74.7	3.0	20.0%
2	120.0	15.0	0.7	70.2	3.0	23.3%

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 10

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NEB T on MINK ST NW - Lane ID 156323						
3	120.0	16.0	0.6	86.1	3.0	20.0%
4	120.0	15.2	0.5	78.6	3.0	20.8%
5	120.0	11.9	0.5	70.6	3.0	17.5%
6	120.0	16.7	0.7	72.2	3.0	22.5%
7	120.0	13.2	0.5	70.7	3.0	19.2%
8	120.0	9.8	0.4	71.6	3.0	11.7%
9	120.0	11.5	0.5	71.3	3.0	15.8%
10	120.0	11.6	0.5	71.7	3.0	15.0%
Average:	**120.0**	**13.7**	**0.6**	**73.8**	**3.0**	**18.6%**
SWB T on MINK ST NW - Lane ID 156377						
1	120.0	38.3	1.3	211.4	7.0	0.0%
2	120.0	40.9	1.5	196.8	7.0	0.0%
3	120.0	38.4	1.5	213.2	8.0	0.0%
4	120.0	41.3	1.4	234.3	8.0	0.0%
5	120.0	35.6	1.4	205.3	8.0	0.0%
6	120.0	45.5	1.6	227.9	7.0	0.0%
7	120.0	38.4	1.3	204.1	7.0	0.0%
8	120.0	20.3	0.7	103.5	4.0	0.0%
9	120.0	33.4	1.1	196.3	7.0	0.0%
10	120.0	44.5	1.5	254.7	8.0	0.0%
Average:	**120.0**	**37.7**	**1.3**	**204.8**	**7.1**	**0.0%**
SWB T on MINK ST NW - Lane ID 156378						
1	120.0	36.1	1.3	199.7	7.0	0.0%
2	120.0	34.3	1.3	223.5	8.0	0.0%
3	120.0	39.1	1.4	192.0	7.0	0.0%
4	120.0	38.1	1.2	211.6	6.0	0.0%
5	120.0	42.4	1.4	249.2	7.0	0.0%
6	120.0	36.0	1.3	193.7	7.0	0.0%
7	120.0	31.7	1.2	161.6	6.0	0.0%
8	120.0	18.6	0.7	99.5	4.0	0.0%
9	120.0	39.1	1.4	240.4	7.0	0.0%
10	120.0	37.2	1.3	224.9	7.0	0.0%
Average:	**120.0**	**35.3**	**1.3**	**199.6**	**6.6**	**0.0%**

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 5

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NEB T on MINK ST NW - Lane ID 156390						
1	120.0	13.3	0.5	106.8	4.0	0.0%
2	120.0	18.3	0.6	131.2	5.0	0.0%
3	120.0	12.8	0.4	121.5	3.0	0.0%

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 5

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NEB T on MINK ST NW - Lane ID 156390						
4	120.0	17.5	0.6	102.1	4.0	0.0%
5	120.0	19.5	0.7	115.1	4.0	0.0%
6	120.0	15.6	0.6	120.0	4.0	0.0%
7	120.0	8.3	0.3	64.1	2.1	0.0%
8	120.0	20.1	0.7	134.9	5.0	0.0%
9	120.0	14.0	0.5	118.0	4.0	0.0%
10	120.0	19.3	0.7	117.5	4.0	0.0%
Average:	**120.0**	**15.9**	**0.6**	**113.1**	**3.9**	**0.0%**
NEB T on MINK ST NW - Lane ID 156391						
1	120.0	14.4	0.5	96.3	4.0	0.0%
2	120.0	16.1	0.7	112.9	5.0	0.0%
3	120.0	13.2	0.5	102.6	4.0	0.0%
4	120.0	23.1	0.8	137.1	5.0	0.0%
5	120.0	19.8	0.8	110.4	4.0	0.0%
6	120.0	12.7	0.4	106.8	4.0	0.0%
7	120.0	8.2	0.3	76.6	3.0	0.0%
8	120.0	17.2	0.6	107.4	3.0	0.0%
9	120.0	13.6	0.5	100.6	4.0	0.0%
10	120.0	18.1	0.7	124.5	5.0	0.0%
Average:	**120.0**	**15.6**	**0.6**	**107.5**	**4.1**	**0.0%**
NEB T on MINK ST NW - Lane ID 156392						
1	120.0	13.2	0.5	74.1	3.0	0.0%
2	120.0	11.5	0.5	78.0	3.0	0.0%
3	120.0	9.4	0.4	73.5	3.0	0.0%
4	120.0	16.1	0.6	104.6	4.0	0.0%
5	120.0	15.4	0.6	110.9	3.0	0.0%
6	120.0	9.7	0.4	75.4	3.0	0.0%
7	120.0	8.8	0.3	55.7	2.0	0.0%
8	120.0	17.8	0.7	103.6	4.0	0.0%
9	120.0	9.2	0.4	98.0	4.0	0.0%
10	120.0	13.2	0.5	92.9	4.0	0.0%
Average:	**120.0**	**12.4**	**0.5**	**86.7**	**3.3**	**0.0%**
SWB T on MINK ST NW - Lane ID 156361						
1	120.0	11.1	0.4	68.4	3.0	20.0%
2	120.0	11.3	0.5	64.7	3.0	20.0%
3	120.0	9.8	0.4	66.1	3.0	16.7%
4	120.0	11.9	0.5	65.1	2.0	22.5%
5	120.0	15.4	0.5	68.7	3.0	24.2%
6	120.0	9.5	0.4	59.7	2.0	20.0%
7	120.0	7.7	0.3	49.4	2.0	15.0%

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 5

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
SWB T on MINK ST NW - Lane ID 156361						
8	120.0	14.7	0.6	65.2	3.0	27.5%
9	120.0	11.5	0.5	62.4	3.0	21.7%
10	120.0	15.6	0.6	69.5	3.0	25.8%
Average:	**120.0**	**11.9**	**0.5**	**63.9**	**2.7**	**21.3%**
SWB T on MINK ST NW - Lane ID 156362						
1	120.0	12.9	0.5	66.8	3.0	22.5%
2	120.0	13.2	0.5	68.0	2.0	22.5%
3	120.0	11.8	0.5	64.5	3.0	20.8%
4	120.0	13.9	0.5	70.0	3.0	22.5%
5	120.0	14.9	0.5	71.0	2.0	25.0%
6	120.0	12.2	0.5	66.6	3.0	21.7%
7	120.0	10.1	0.4	63.6	2.0	17.5%
8	120.0	16.4	0.7	69.5	3.0	28.3%
9	120.0	13.6	0.5	68.8	3.0	20.0%
10	120.0	18.3	0.8	69.7	3.0	29.2%
Average:	**120.0**	**13.7**	**0.5**	**67.9**	**2.7**	**23.0%**
WB L on SR 161 WB EXIT RAMP - Lane ID 156365						
1	120.0	4.5	0.2	18.7	1.0	0.0%
2	120.0	3.0	0.2	17.0	1.0	0.0%
3	120.0	2.8	0.2	17.3	1.0	0.0%
4	120.0	3.8	0.2	17.8	1.0	0.0%
5	120.0	3.4	0.2	19.0	1.0	0.0%
6	120.0	2.9	0.2	16.5	1.0	0.0%
7	120.0	3.8	0.2	17.0	1.0	0.0%
8	120.0	3.4	0.2	17.0	1.0	0.0%
9	120.0	3.9	0.2	17.2	1.0	0.0%
10	120.0	2.5	0.1	16.7	1.0	0.0%
Average:	**120.0**	**3.4**	**0.2**	**17.4**	**1.0**	**0.0%**

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
EB L on WORTHINGTON RD - Lane ID 153286						
1	120.0	61.8	2.3	199.0	6.0	0.0%
2	120.0	48.8	1.9	158.8	5.0	0.0%
3	120.0	44.3	1.9	125.1	5.0	0.0%
4	120.0	42.4	1.6	174.2	5.0	0.0%
5	120.0	62.3	2.2	185.3	6.0	0.0%
6	120.0	44.5	1.8	132.3	5.0	0.0%
7	120.0	53.0	1.9	156.2	5.0	0.0%
8	120.0	40.5	1.7	133.3	5.0	0.0%

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
EB L on WORTHINGTON RD - Lane ID 153286						
9	120.0	43.0	1.7	146.4	5.0	0.0%
10	120.0	49.4	1.8	155.9	5.0	0.0%
Average:	**120.0**	**49.0**	**1.9**	**156.7**	**5.2**	**0.0%**
EB TR on WORTHINGTON RD - Lane ID 153287						
1	120.0	40.5	1.5	130.0	4.0	0.0%
2	120.0	35.3	1.4	122.1	4.0	0.0%
3	120.0	43.0	1.6	144.0	5.0	0.0%
4	120.0	38.4	1.5	122.9	5.0	0.0%
5	120.0	41.4	1.7	126.4	4.0	0.0%
6	120.0	39.4	1.5	124.7	4.0	0.0%
7	120.0	38.6	1.5	129.9	5.0	0.0%
8	120.0	41.9	1.6	124.3	5.0	0.0%
9	120.0	49.5	1.9	156.9	5.0	0.0%
10	120.0	35.7	1.4	116.9	4.0	0.0%
Average:	**120.0**	**40.4**	**1.6**	**129.8**	**4.5**	**0.0%**
NEB L on MINK ST SW - Lane ID 156321						
1	120.0	0.8	0.1	7.6	1.0	0.0%
2	120.0	0.7	0.1	5.2	1.0	0.0%
3	120.0	0.6	0.1	0.3	0.0	0.0%
4	120.0	0.4	0.1	0.3	0.0	0.0%
5	120.0	1.1	0.1	5.9	1.0	0.0%
6	120.0	1.9	0.1	6.2	1.0	0.0%
7	120.0	0.7	0.1	5.2	1.0	0.0%
8	120.0	0.8	0.1	5.6	1.0	0.0%
9	120.0	0.7	0.1	7.1	1.0	0.0%
10	120.0	1.9	0.1	8.0	1.0	0.0%
Average:	**120.0**	**1.0**	**0.1**	**5.1**	**0.8**	**0.0%**
NEB T on MINK ST SW - Lane ID 153565						
1	120.0	45.7	1.6	206.2	7.0	0.0%
2	120.0	37.4	1.3	168.5	6.0	0.0%
3	120.0	27.7	1.0	135.4	5.0	0.0%
4	120.0	38.3	1.4	195.1	7.0	0.0%
5	120.0	45.6	1.6	185.2	7.0	0.0%
6	120.0	33.0	1.2	195.0	7.0	0.0%
7	120.0	38.8	1.4	207.1	7.0	0.0%
8	120.0	45.5	1.6	195.2	7.0	0.0%
9	120.0	32.2	1.2	134.2	5.0	0.0%
10	120.0	56.8	2.1	237.1	8.0	0.0%
Average:	**120.0**	**40.1**	**1.4**	**185.9**	**6.6**	**0.0%**

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NEB TR on MINK ST SW - Lane ID 156348						
1	120.0	48.9	1.6	239.2	7.0	0.0%
2	120.0	44.5	1.6	208.2	7.0	0.0%
3	120.0	32.1	1.1	177.7	6.0	0.0%
4	120.0	40.1	1.4	203.4	6.0	0.0%
5	120.0	44.0	1.6	220.0	8.0	0.0%
6	120.0	38.9	1.4	205.3	7.0	0.0%
7	120.0	34.0	1.3	154.2	6.0	0.0%
8	120.0	56.9	2.1	239.9	9.0	0.0%
9	120.0	35.8	1.3	179.8	6.0	0.0%
10	120.0	60.4	2.1	265.3	8.0	0.0%
Average:	**120.0**	**43.6**	**1.6**	**209.3**	**7.0**	**0.0%**
SWB L on MINK ST NW - Lane ID 156350						
1	120.0	5.1	0.3	33.1	1.0	0.0%
2	120.0	5.9	0.4	34.7	2.0	0.0%
3	120.0	3.1	0.3	16.4	1.0	0.0%
4	120.0	3.7	0.3	17.8	1.0	0.0%
5	120.0	5.0	0.3	36.8	2.0	0.0%
6	120.0	6.1	0.4	41.1	1.0	0.0%
7	120.0	9.3	0.5	45.1	2.0	0.0%
8	120.0	6.1	0.4	29.2	2.0	0.0%
9	120.0	8.2	0.4	46.3	2.0	0.0%
10	120.0	6.9	0.5	34.6	2.0	0.0%
Average:	**120.0**	**5.9**	**0.4**	**33.5**	**1.6**	**0.0%**
SWB R on MINK ST NW - Lane ID 156356						
1	120.0	3.2	0.1	18.8	1.0	0.0%
2	120.0	1.3	0.1	16.3	1.0	0.0%
3	120.0	1.9	0.1	16.9	1.0	0.0%
4	120.0	1.5	0.1	0.7	0.0	0.0%
5	120.0	2.4	0.1	16.6	1.0	0.0%
6	120.0	1.4	0.1	15.6	1.0	0.0%
7	120.0	2.4	0.1	15.9	1.0	0.0%
8	120.0	2.8	0.1	18.2	1.0	0.0%
9	120.0	2.8	0.1	17.5	1.0	0.0%
10	120.0	2.6	0.1	17.5	1.0	0.0%
Average:	**120.0**	**2.2**	**0.1**	**15.4**	**0.9**	**0.0%**
SWB T on MINK ST NW - Lane ID 156351						
1	120.0	53.9	2.0	259.9	9.0	1.7%
2	120.0	49.9	1.8	242.2	9.0	0.0%
3	120.0	48.7	1.7	209.7	7.0	1.7%
4	120.0	44.1	1.6	222.6	7.0	0.8%

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
SWB T on MINK ST NW - Lane ID 156351						
5	120.0	47.6	1.7	241.9	9.0	1.7%
6	120.0	47.1	1.7	228.4	9.0	0.8%
7	120.0	66.6	2.4	304.4	10.0	6.7%
8	120.0	48.1	1.6	263.9	8.0	2.5%
9	120.0	57.7	2.1	286.6	9.0	4.2%
10	120.0	57.5	2.1	275.9	10.0	4.2%
Average:	**120.0**	**52.1**	**1.9**	**253.6**	**8.7**	**2.4%**
SWB T on MINK ST NW - Lane ID 156352						
1	120.0	56.4	1.9	248.8	8.0	1.7%
2	120.0	44.0	1.5	209.7	8.0	0.0%
3	120.0	41.0	1.5	200.7	7.0	0.8%
4	120.0	41.2	1.4	191.8	8.0	0.8%
5	120.0	46.1	1.5	234.3	8.0	3.3%
6	120.0	42.6	1.6	207.1	8.0	0.0%
7	120.0	59.6	2.1	270.1	9.0	5.0%
8	120.0	48.6	1.7	251.4	8.0	1.7%
9	120.0	52.8	2.0	273.3	9.0	3.3%
10	120.0	48.3	1.7	219.7	8.0	1.7%
Average:	**120.0**	**48.1**	**1.7**	**230.7**	**8.1**	**1.8%**
WB L on WORTHINGTON RD - Lane ID 153562						
1	120.0	1.9	0.1	15.9	1.0	0.0%
2	120.0	1.9	0.1	15.4	1.0	0.0%
3	120.0	2.0	0.1	15.6	1.0	0.0%
4	120.0	2.5	0.1	20.0	1.0	0.0%
5	120.0	1.9	0.1	16.7	1.0	0.0%
6	120.0	3.8	0.2	17.6	1.0	0.0%
7	120.0	2.5	0.1	17.0	1.0	0.0%
8	120.0	3.2	0.2	16.3	1.0	0.0%
9	120.0	1.7	0.1	16.2	1.0	0.0%
10	120.0	1.1	0.1	15.2	1.0	0.0%
Average:	**120.0**	**2.3**	**0.1**	**16.6**	**1.0**	**0.0%**
WB TR on WORTHINGTON RD - Lane ID 153563						
1	120.0	31.4	1.4	99.2	4.0	0.0%
2	120.0	41.1	1.6	151.1	5.0	0.0%
3	120.0	29.2	1.1	126.2	4.0	0.0%
4	120.0	35.9	1.4	102.2	4.0	0.0%
5	120.0	31.2	1.3	105.9	4.0	0.0%
6	120.0	48.0	1.8	156.7	5.0	0.0%
7	120.0	59.4	2.2	216.9	7.0	0.0%
8	120.0	31.6	1.1	140.7	4.0	0.0%

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
WB TR on WORTHINGTON RD - Lane ID 153563						
9	120.0	41.8	1.5	124.8	4.0	0.0%
10	120.0	39.3	1.4	142.0	4.0	0.0%
Average:	**120.0**	**38.9**	**1.5**	**136.6**	**4.5**	**0.0%**

Project: Mink Corridor Optimized Parclo w North
Scenario: PM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 16:00:00 - 17:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Lane Queue by Intersection - Avg Queue

MINK ST NW & BEAVER RD — NODE: 18

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NWB L	156427	BEAVER RD	70.8	6.8	58.4	82.9	10
NWB LR	156428	BEAVER RD	70.3	7.0	60.5	83.6	10

MINK ST NW & BEAVER RD — NODE: 18

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156206	MINK ST NW	37.2	5.1	29.8	43.8	10
NEB T	156207	MINK ST NW	39.8	5.3	33.0	50.7	10
SWB L	156233	MINK ST NW	4.0	0.9	3.1	5.5	10
SWB T	156234	MINK ST NW	144.7	17.3	126.8	175.4	10
SWB T	156235	MINK ST NW	82.9	14.1	62.2	100.3	10
NEB R	156404	MINK ST NW	0.6	0.5	0.0	1.5	10
SWB T	156422	MINK ST NW	69.0	10.2	53.2	80.8	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SEB R	156411	CLOVER VALLEY EXT	210.0	90.8	90.3	380.8	10
SEB R	156445	CLOVER VALLEY EXT	194.9	83.4	98.2	354.8	10
SEB L	156450	CLOVER VALLEY EXT	2.9	0.8	1.9	4.4	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB L	156441	MINK ST NW	24.1	2.2	21.0	27.2	10
NEB L	156442	MINK ST NW	23.8	3.0	20.7	29.2	10
NEB T	156443	MINK ST NW	46.0	3.2	41.6	50.7	10
NEB T	156444	MINK ST NW	51.0	5.6	44.3	58.7	10
SWB T	156454	MINK ST NW	504.4	71.7	406.3	611.7	10
SWB TR	156455	MINK ST NW	498.9	68.3	418.7	583.3	10

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156208	INNOVATION WAY	4.1	1.2	2.1	5.6	10
EB R	156209	INNOVATION WAY	34.7	6.2	26.1	46.3	10

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB L	156357	MINK ST NW	3.9	1.6	1.7	6.4	10
NEB T	156358	MINK ST NW	3.3	1.3	1.7	5.8	10
NEB T	156359	MINK ST NW	4.0	0.7	2.2	4.9	10
NEB T	156360	MINK ST NW	3.2	1.1	1.1	4.7	10
SWB T	156451	MINK ST NW	22.1	6.8	13.7	37.1	10
SWB T	156452	MINK ST NW	28.0	8.9	14.2	41.9	10
SWB TR	156453	MINK ST NW	28.6	9.0	15.9	43.5	10

MINK ST NW & JUG ST — NODE: 33082

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156252	JUG ST	19.1	4.1	12.4	27.4	10
EB R	156253	JUG ST	4.2	1.1	1.9	5.9	10

MINK ST NW & JUG ST — NODE: 33082

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB T	153566	MINK ST NW	0.2	0.2	0.0	0.7	10
SB T	153676	MINK ST NW	19.8	6.4	10.5	29.6	10
NB T	156220	MINK ST NW	0.2	0.2	0.0	0.6	10
NB L	156247	MINK ST NW	35.8	6.7	26.6	46.0	10
SB TR	156248	MINK ST NW	20.1	3.8	14.0	26.4	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 10

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156322	MINK ST NW	13.9	2.2	9.8	17.3	10
NEB T	156323	MINK ST NW	13.7	2.4	9.8	16.7	10
SWB T	156377	MINK ST NW	37.7	7.1	20.3	45.5	10
SWB T	156378	MINK ST NW	35.3	6.5	18.6	42.4	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 10

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156331	SR 161 EB EXIT RAMP	32.9	3.5	28.1	38.6	10
EB L	156332	SR 161 EB EXIT RAMP	25.1	1.1	23.6	26.4	10
EB L	156333	SR 161 EB EXIT RAMP	17.9	2.6	14.0	22.6	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB T	156361	MINK ST NW	11.9	2.6	7.7	15.6	10
SWB T	156362	MINK ST NW	13.7	2.3	10.1	18.3	10
NEB T	156390	MINK ST NW	15.9	3.8	8.3	20.1	10
NEB T	156391	MINK ST NW	15.6	4.2	8.2	23.1	10
NEB T	156392	MINK ST NW	12.4	3.2	8.8	17.8	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
WB L	156365	SR 161 WB EXIT RAMP	3.4	0.6	2.5	4.5	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB L	156350	MINK ST NW	5.9	1.9	3.1	9.3	10
SWB T	156351	MINK ST NW	52.1	6.8	44.1	66.6	10
SWB T	156352	MINK ST NW	48.1	6.4	41.0	59.6	10
SWB R	156356	MINK ST NW	2.2	0.7	1.3	3.2	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	153565	MINK ST SW	40.1	8.5	27.7	56.8	10
NEB L	156321	MINK ST SW	1.0	0.5	0.4	1.9	10
NEB TR	156348	MINK ST SW	43.6	9.5	32.1	60.4	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	153286	WORTHINGTON RD	49.0	7.8	40.5	62.3	10
EB TR	153287	WORTHINGTON RD	40.4	4.1	35.3	49.5	10
WB L	153562	WORTHINGTON RD	2.3	0.8	1.1	3.8	10
WB TR	153563	WORTHINGTON RD	38.9	9.4	29.2	59.4	10

Project: Mink Corridor Optimized Parclo w North
Scenario: PM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 16:00:00 - 17:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Lane Queue by Intersection - Avg Num Queued

MINK ST NW & BEAVER RD — NODE: 18

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NWB L	156427	BEAVER RD	2.5	0.2	2.1	2.9	10
NWB LR	156428	BEAVER RD	2.5	0.2	2.2	3.0	10

MINK ST NW & BEAVER RD — NODE: 18

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156206	MINK ST NW	1.4	0.2	1.1	1.6	10
NEB T	156207	MINK ST NW	1.5	0.2	1.2	1.9	10
SWB L	156233	MINK ST NW	0.2	0.0	0.1	0.3	10
SWB T	156234	MINK ST NW	4.8	0.6	4.2	5.7	10
SWB T	156235	MINK ST NW	2.9	0.5	2.2	3.4	10
NEB R	156404	MINK ST NW	0.0	0.0	0.0	0.1	10
SWB T	156422	MINK ST NW	2.4	0.3	1.9	2.9	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SEB R	156411	CLOVER VALLEY EXT	6.9	2.9	3.2	12.2	10
SEB R	156445	CLOVER VALLEY EXT	6.5	2.7	3.3	11.9	10
SEB L	156450	CLOVER VALLEY EXT	0.1	0.0	0.1	0.2	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB L	156441	MINK ST NW	1.0	0.1	0.9	1.2	10
NEB L	156442	MINK ST NW	1.0	0.1	0.9	1.1	10
NEB T	156443	MINK ST NW	1.7	0.1	1.5	1.8	10
NEB T	156444	MINK ST NW	1.8	0.2	1.6	2.0	10
SWB T	156454	MINK ST NW	16.5	2.2	13.6	19.5	10
SWB TR	156455	MINK ST NW	16.3	2.1	13.9	18.9	10

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156208	INNOVATION WAY	0.2	0.1	0.1	0.3	10
EB R	156209	INNOVATION WAY	1.4	0.2	1.1	1.7	10

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB L	156357	MINK ST NW	0.3	0.1	0.2	0.4	10
NEB T	156358	MINK ST NW	0.1	0.0	0.1	0.2	10
NEB T	156359	MINK ST NW	0.2	0.0	0.1	0.2	10
NEB T	156360	MINK ST NW	0.1	0.0	0.1	0.2	10
SWB T	156451	MINK ST NW	0.8	0.2	0.5	1.2	10
SWB T	156452	MINK ST NW	1.0	0.3	0.5	1.5	10
SWB TR	156453	MINK ST NW	1.0	0.3	0.6	1.4	10

MINK ST NW & JUG ST — NODE: 33082

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156252	JUG ST	0.8	0.1	0.7	1.1	10
EB R	156253	JUG ST	0.2	0.0	0.1	0.3	10

MINK ST NW & JUG ST — NODE: 33082

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB T	153566	MINK ST NW	0.0	0.0	0.0	0.0	10
SB T	153676	MINK ST NW	0.7	0.2	0.4	1.0	10
NB T	156220	MINK ST NW	0.0	0.0	0.0	0.0	10
NB L	156247	MINK ST NW	1.5	0.3	1.1	1.9	10
SB TR	156248	MINK ST NW	0.7	0.1	0.5	0.9	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 10

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156322	MINK ST NW	0.6	0.1	0.4	0.7	10
NEB T	156323	MINK ST NW	0.6	0.1	0.4	0.7	10
SWB T	156377	MINK ST NW	1.3	0.3	0.7	1.6	10
SWB T	156378	MINK ST NW	1.3	0.2	0.7	1.4	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 10

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156331	SR 161 EB EXIT RAMP	1.3	0.1	1.2	1.5	10
EB L	156332	SR 161 EB EXIT RAMP	1.1	0.0	1.0	1.1	10
EB L	156333	SR 161 EB EXIT RAMP	0.8	0.1	0.7	0.9	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB T	156361	MINK ST NW	0.5	0.1	0.3	0.6	10
SWB T	156362	MINK ST NW	0.5	0.1	0.4	0.8	10
NEB T	156390	MINK ST NW	0.6	0.1	0.3	0.7	10
NEB T	156391	MINK ST NW	0.6	0.2	0.3	0.8	10
NEB T	156392	MINK ST NW	0.5	0.1	0.3	0.7	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
WB L	156365	SR 161 WB EXIT RAMP	0.2	0.0	0.1	0.2	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB L	156350	MINK ST NW	0.4	0.1	0.3	0.5	10
SWB T	156351	MINK ST NW	1.9	0.3	1.6	2.4	10
SWB T	156352	MINK ST NW	1.7	0.2	1.4	2.1	10
SWB R	156356	MINK ST NW	0.1	0.0	0.1	0.1	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	153565	MINK ST SW	1.4	0.3	1.0	2.1	10
NEB L	156321	MINK ST SW	0.1	0.0	0.1	0.1	10
NEB TR	156348	MINK ST SW	1.6	0.3	1.1	2.1	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	153286	WORTHINGTON RD	1.9	0.2	1.6	2.3	10
EB TR	153287	WORTHINGTON RD	1.6	0.2	1.4	1.9	10
WB L	153562	WORTHINGTON RD	0.1	0.0	0.1	0.2	10
WB TR	153563	WORTHINGTON RD	1.5	0.3	1.1	2.2	10

Project: Mink Corridor Optimized Parclo w North
Scenario: PM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 16:00:00 - 17:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Lane Queue by Intersection - Percentile Queue

MINK ST NW & BEAVER RD — NODE: 18

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NWB L	156427	BEAVER RD	248.9	17.7	213.2	269.7	10
NWB LR	156428	BEAVER RD	245.6	23.1	208.7	276.4	10

MINK ST NW & BEAVER RD — NODE: 18

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156206	MINK ST NW	184.6	28.7	156.5	232.1	10
NEB T	156207	MINK ST NW	197.3	18.7	161.7	221.9	10
SWB L	156233	MINK ST NW	20.6	6.4	16.5	35.6	10
SWB T	156234	MINK ST NW	569.2	57.2	493.5	688.7	10
SWB T	156235	MINK ST NW	384.7	82.9	248.2	481.9	10
NEB R	156404	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB T	156422	MINK ST NW	308.9	74.4	227.2	445.5	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SEB R	156411	CLOVER VALLEY EXT	678.3	260.0	347.9	1,168.2	10
SEB R	156445	CLOVER VALLEY EXT	677.2	277.6	363.6	1,228.8	10
SEB L	156450	CLOVER VALLEY EXT	17.0	1.8	15.7	21.7	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB L	156441	MINK ST NW	78.8	12.3	66.8	101.2	10
NEB L	156442	MINK ST NW	87.2	12.3	66.3	101.8	10
NEB T	156443	MINK ST NW	260.5	20.6	240.1	304.3	10
NEB T	156444	MINK ST NW	281.0	31.6	231.5	316.3	10
SWB T	156454	MINK ST NW	1,581.4	296.8	1,239.0	2,039.2	10
SWB TR	156455	MINK ST NW	1,582.7	310.4	1,209.8	2,050.9	10

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156208	INNOVATION WAY	19.1	2.4	16.6	22.6	10
EB R	156209	INNOVATION WAY	124.3	24.0	86.7	160.3	10

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB L	156357	MINK ST NW	21.0	13.6	6.9	40.6	10
NEB T	156358	MINK ST NW	15.2	12.4	0.0	40.3	10
NEB T	156359	MINK ST NW	24.3	11.2	17.0	52.5	10
NEB T	156360	MINK ST NW	12.0	8.1	0.0	21.5	10
SWB T	156451	MINK ST NW	163.1	56.3	101.0	285.4	10
SWB T	156452	MINK ST NW	202.1	57.9	105.5	278.0	10
SWB TR	156453	MINK ST NW	200.0	57.9	127.1	322.0	10

MINK ST NW & JUG ST — NODE: 33082

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156252	JUG ST	72.6	16.7	46.2	99.8	10
EB R	156253	JUG ST	23.1	8.3	17.4	38.8	10

MINK ST NW & JUG ST — NODE: 33082

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB T	153566	MINK ST NW	0.0	0.0	0.0	0.0	10
SB T	153676	MINK ST NW	127.8	33.8	78.1	185.7	10
NB T	156220	MINK ST NW	0.0	0.0	0.0	0.0	10
NB L	156247	MINK ST NW	150.7	26.6	112.4	186.3	10
SB TR	156248	MINK ST NW	127.1	18.1	97.6	154.3	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 10

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156322	MINK ST NW	72.1	1.8	69.4	74.6	10
NEB T	156323	MINK ST NW	73.8	5.0	70.2	86.1	10
SWB T	156377	MINK ST NW	204.8	40.0	103.5	254.7	10
SWB T	156378	MINK ST NW	199.6	43.5	99.5	249.2	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 10

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156331	SR 161 EB EXIT RAMP	101.8	5.9	94.0	117.2	10
EB L	156332	SR 161 EB EXIT RAMP	90.7	7.0	76.7	99.1	10
EB L	156333	SR 161 EB EXIT RAMP	74.8	11.1	58.0	93.4	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB T	156361	MINK ST NW	63.9	5.9	49.4	69.5	10
SWB T	156362	MINK ST NW	67.9	2.4	63.6	71.0	10
NEB T	156390	MINK ST NW	113.1	19.8	64.1	134.9	10
NEB T	156391	MINK ST NW	107.5	16.2	76.6	137.1	10
NEB T	156392	MINK ST NW	86.7	17.8	55.7	110.9	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
WB L	156365	SR 161 WB EXIT RAMP	17.4	0.8	16.5	19.0	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB L	156350	MINK ST NW	33.5	10.2	16.4	46.3	10
SWB T	156351	MINK ST NW	253.6	30.0	209.7	304.4	10
SWB T	156352	MINK ST NW	230.7	29.2	191.8	273.3	10
SWB R	156356	MINK ST NW	15.4	5.3	0.7	18.8	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	153565	MINK ST SW	185.9	32.1	134.2	237.1	10
NEB L	156321	MINK ST SW	5.1	2.7	0.3	8.0	10
NEB TR	156348	MINK ST SW	209.3	33.4	154.2	265.3	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	153286	WORTHINGTON RD	156.7	24.0	125.1	199.0	10
EB TR	153287	WORTHINGTON RD	129.8	11.9	116.9	156.9	10
WB L	153562	WORTHINGTON RD	16.6	1.4	15.2	20.0	10
WB TR	153563	WORTHINGTON RD	136.6	34.8	99.2	216.9	10

Project: Mink Corridor Optimized Parclo w North
Scenario: PM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 16:00:00 - 17:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Lane Queue by Intersection - Percentile Num Queued

MINK ST NW & BEAVER RD — NODE: 18

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NWB L	156427	BEAVER RD	8.6	0.8	7.0	10.0	10
NWB LR	156428	BEAVER RD	8.2	0.6	7.0	9.0	10

MINK ST NW & BEAVER RD — NODE: 18

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156206	MINK ST NW	6.3	0.7	5.0	7.0	10
NEB T	156207	MINK ST NW	6.6	0.5	6.0	7.0	10
SWB L	156233	MINK ST NW	1.0	0.0	1.0	1.0	10
SWB T	156234	MINK ST NW	18.6	1.9	16.0	22.0	10
SWB T	156235	MINK ST NW	13.2	2.7	9.0	16.0	10
NEB R	156404	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB T	156422	MINK ST NW	10.7	2.5	8.0	15.0	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SEB R	156411	CLOVER VALLEY EXT	22.9	8.5	13.0	39.0	10
SEB R	156445	CLOVER VALLEY EXT	22.0	8.9	12.0	40.1	10
SEB L	156450	CLOVER VALLEY EXT	1.0	0.0	1.0	1.0	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB L	156441	MINK ST NW	2.9	0.3	2.0	3.0	10
NEB L	156442	MINK ST NW	3.1	0.3	3.0	4.0	10
NEB T	156443	MINK ST NW	8.8	1.0	7.0	10.0	10
NEB T	156444	MINK ST NW	9.6	0.8	8.0	11.0	10
SWB T	156454	MINK ST NW	51.3	8.5	42.0	67.1	10
SWB TR	156455	MINK ST NW	50.7	8.7	41.0	62.1	10

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156208	INNOVATION WAY	1.0	0.0	1.0	1.0	10
EB R	156209	INNOVATION WAY	4.0	0.5	3.0	5.0	10

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB L	156357	MINK ST NW	1.4	0.5	1.0	2.0	10
NEB T	156358	MINK ST NW	0.8	0.6	0.0	2.0	10
NEB T	156359	MINK ST NW	1.1	0.3	1.0	2.0	10
NEB T	156360	MINK ST NW	0.7	0.5	0.0	1.0	10
SWB T	156451	MINK ST NW	5.4	1.6	4.0	9.0	10
SWB T	156452	MINK ST NW	6.5	1.9	3.0	9.0	10
SWB TR	156453	MINK ST NW	6.6	1.7	5.0	10.0	10

MINK ST NW & JUG ST — NODE: 33082

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156252	JUG ST	2.5	0.5	2.0	3.0	10
EB R	156253	JUG ST	1.0	0.0	1.0	1.0	10

MINK ST NW & JUG ST — NODE: 33082

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB T	153566	MINK ST NW	0.0	0.0	0.0	0.0	10
SB T	153676	MINK ST NW	4.7	0.9	3.0	6.0	10
NB T	156220	MINK ST NW	0.0	0.0	0.0	0.0	10
NB L	156247	MINK ST NW	5.3	0.8	4.0	7.0	10
SB TR	156248	MINK ST NW	4.5	0.5	4.0	5.0	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 10

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156322	MINK ST NW	3.0	0.0	3.0	3.0	10
NEB T	156323	MINK ST NW	3.0	0.0	3.0	3.0	10
SWB T	156377	MINK ST NW	7.1	1.2	4.0	8.0	10
SWB T	156378	MINK ST NW	6.6	1.1	4.0	8.0	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 10

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156331	SR 161 EB EXIT RAMP	4.0	0.0	4.0	4.0	10
EB L	156332	SR 161 EB EXIT RAMP	3.2	0.4	3.0	4.0	10
EB L	156333	SR 161 EB EXIT RAMP	2.5	0.5	2.0	3.0	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB T	156361	MINK ST NW	2.7	0.5	2.0	3.0	10
SWB T	156362	MINK ST NW	2.7	0.5	2.0	3.0	10
NEB T	156390	MINK ST NW	3.9	0.9	2.1	5.0	10
NEB T	156391	MINK ST NW	4.1	0.7	3.0	5.0	10
NEB T	156392	MINK ST NW	3.3	0.7	2.0	4.0	10

MINK ST NW & SR 161 WB EXIT RAMP NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
WB L	156365	SR 161 WB EXIT RAMP	1.0	0.0	1.0	1.0	10

WORTHINGTON RD, MINK ST NW & MINK ST SW NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB L	156350	MINK ST NW	1.6	0.5	1.0	2.0	10
SWB T	156351	MINK ST NW	8.7	1.1	7.0	10.0	10
SWB T	156352	MINK ST NW	8.1	0.6	7.0	9.0	10
SWB R	156356	MINK ST NW	0.9	0.3	0.0	1.0	10

WORTHINGTON RD, MINK ST NW & MINK ST SW NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	153565	MINK ST SW	6.6	1.0	5.0	8.0	10
NEB L	156321	MINK ST SW	0.8	0.4	0.0	1.0	10
NEB TR	156348	MINK ST SW	7.0	1.1	6.0	9.0	10

WORTHINGTON RD, MINK ST NW & MINK ST SW NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	153286	WORTHINGTON RD	5.2	0.4	5.0	6.0	10
EB TR	153287	WORTHINGTON RD	4.5	0.5	4.0	5.0	10
WB L	153562	WORTHINGTON RD	1.0	0.0	1.0	1.0	10
WB TR	153563	WORTHINGTON RD	4.5	1.0	4.0	7.0	10

Project: Mink Corridor Optimized Parclo w North
Scenario: PM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 16:00:00 - 17:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Lane Queue by Intersection - Spillback Rate

MINK ST NW & BEAVER RD — NODE: 18

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NWB L	156427	BEAVER RD	0.0	0.0	0.0	0.0	10
NWB LR	156428	BEAVER RD	0.0	0.0	0.0	0.0	10

MINK ST NW & BEAVER RD — NODE: 18

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156206	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB T	156207	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB L	156233	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB T	156234	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB T	156235	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB R	156404	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB T	156422	MINK ST NW	0.0	0.0	0.0	0.0	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SEB R	156411	CLOVER VALLEY EXT	0.0	0.0	0.0	0.0	10
SEB R	156445	CLOVER VALLEY EXT	0.0	0.0	0.0	0.0	10
SEB L	156450	CLOVER VALLEY EXT	0.0	0.0	0.0	0.0	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB L	156441	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB L	156442	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB T	156443	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB T	156444	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB T	156454	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB TR	156455	MINK ST NW	0.0	0.0	0.0	0.0	10

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156208	INNOVATION WAY	0.0	0.0	0.0	0.0	10
EB R	156209	INNOVATION WAY	0.0	0.0	0.0	0.0	10

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples

MINK ST NW & INNOVATION WAY — NODE: 15

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB L	156357	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB T	156358	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB T	156359	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB T	156360	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB T	156451	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB T	156452	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB TR	156453	MINK ST NW	0.0	0.0	0.0	0.0	10

MINK ST NW & JUG ST — NODE: 33082

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156252	JUG ST	0.0	0.0	0.0	0.0	10
EB R	156253	JUG ST	0.0	0.0	0.0	0.0	10

MINK ST NW & JUG ST — NODE: 33082

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB T	153566	MINK ST NW	0.0	0.0	0.0	0.0	10
SB T	153676	MINK ST NW	0.0	0.0	0.0	0.0	10
NB T	156220	MINK ST NW	0.0	0.0	0.0	0.0	10
NB L	156247	MINK ST NW	0.0	0.0	0.0	0.0	10
SB TR	156248	MINK ST NW	0.0	0.0	0.0	0.0	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 10

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	156322	MINK ST NW	0.2	0.0	0.1	0.3	10
NEB T	156323	MINK ST NW	0.2	0.0	0.1	0.2	10
SWB T	156377	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB T	156378	MINK ST NW	0.0	0.0	0.0	0.0	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 10

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	156331	SR 161 EB EXIT RAMP	0.3	0.0	0.2	0.3	10
EB L	156332	SR 161 EB EXIT RAMP	0.2	0.0	0.1	0.2	10
EB L	156333	SR 161 EB EXIT RAMP	0.1	0.0	0.1	0.2	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB T	156361	MINK ST NW	0.2	0.0	0.2	0.3	10
SWB T	156362	MINK ST NW	0.2	0.0	0.2	0.3	10
NEB T	156390	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB T	156391	MINK ST NW	0.0	0.0	0.0	0.0	10
NEB T	156392	MINK ST NW	0.0	0.0	0.0	0.0	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
WB L	156365	SR 161 WB EXIT RAMP	0.0	0.0	0.0	0.0	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB L	156350	MINK ST NW	0.0	0.0	0.0	0.0	10
SWB T	156351	MINK ST NW	0.0	0.0	0.0	0.1	10
SWB T	156352	MINK ST NW	0.0	0.0	0.0	0.1	10
SWB R	156356	MINK ST NW	0.0	0.0	0.0	0.0	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	153565	MINK ST SW	0.0	0.0	0.0	0.0	10
NEB L	156321	MINK ST SW	0.0	0.0	0.0	0.0	10
NEB TR	156348	MINK ST SW	0.0	0.0	0.0	0.0	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB L	153286	WORTHINGTON RD	0.0	0.0	0.0	0.0	10
EB TR	153287	WORTHINGTON RD	0.0	0.0	0.0	0.0	10
WB L	153562	WORTHINGTON RD	0.0	0.0	0.0	0.0	10
WB TR	153563	WORTHINGTON RD	0.0	0.0	0.0	0.0	10

Project: Mink Corridor Optimized Parclo w North
Scenario: PM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 16:00:00 - 17:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Spillback Queue by Intersection - Overview

MINK ST NW & BEAVER RD — NODE: 18

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
NEB on MINK ST NW							
1	60.0	59.5	3.4	403.1	26.0	3.4	26.0
2	60.0	61.2	3.6	296.4	20.0	3.6	20.0
3	60.0	52.8	3.1	242.3	17.0	3.1	17.0
4	60.0	56.2	3.2	259.9	17.0	3.2	17.0
5	60.0	64.2	3.4	346.9	20.0	3.4	20.0
6	60.0	62.8	3.3	293.0	15.0	3.3	15.0
7	60.0	45.8	2.7	287.8	18.0	2.7	18.0
8	60.0	63.8	3.8	321.1	20.0	3.8	20.0
9	60.0	74.5	4.3	355.7	20.0	4.3	20.0
10	60.0	57.4	3.2	368.5	21.0	3.2	21.0
Average:	**60.0**	**59.8**	**3.4**	**317.5**	**19.4**	**3.4**	**19.4**
NWB on BEAVER RD							
1	60.0	108.7	6.2	381.6	23.0	6.2	23.0
2	60.0	102.5	5.3	459.5	22.0	5.3	22.0
3	60.0	114.5	6.3	359.4	22.0	6.3	22.0
4	60.0	109.7	6.1	401.7	27.0	6.1	27.0
5	60.0	132.9	7.5	382.5	19.0	7.5	19.0
6	60.0	81.3	4.5	373.0	20.0	4.5	20.0
7	60.0	109.2	5.9	429.0	23.0	5.9	23.0
8	60.0	106.0	6.0	323.9	20.0	6.0	20.0
9	60.0	90.1	4.9	358.5	16.0	4.9	16.0
10	60.0	114.0	6.0	398.9	21.0	6.0	21.0
Average:	**60.0**	**106.9**	**5.9**	**386.8**	**21.3**	**5.9**	**21.3**
SWB on MINK ST NW							
1	60.0	241.7	14.7	2,243.5	120.0	15.6	143.0
2	60.0	268.8	15.4	2,155.5	123.0	17.9	183.0
3	60.0	141.8	9.2	1,207.6	72.0	9.2	77.0
4	60.0	182.1	11.5	1,227.9	76.0	12.1	95.0
5	60.0	140.6	8.3	1,236.4	72.0	8.7	91.0
6	60.0	290.8	18.0	3,177.5	173.0	19.0	206.0
7	60.0	285.0	16.7	2,845.1	150.0	18.3	197.0
8	60.0	241.7	14.5	2,619.3	124.0	16.1	176.0

MINK ST NW & BEAVER RD — NODE: 18

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
9	60.0	267.5	17.1	2,107.7	135.0	18.3	173.0
10	60.0	293.2	16.7	3,184.6	172.0	18.9	209.0
Average:	**60.0**	**235.3**	**14.2**	**2,200.5**	**121.7**	**15.4**	**155.0**

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
NEB on MINK ST NW							
1	60.0	66.8	4.8	358.5	24.0	4.8	24.0
2	60.0	75.8	5.8	379.2	29.0	5.8	29.0
3	60.0	81.1	6.4	350.1	23.0	6.4	23.0
4	60.0	87.0	5.9	414.3	32.0	5.9	32.0
5	60.0	93.3	6.7	373.5	27.0	6.7	27.0
6	60.0	70.7	4.4	465.8	24.0	4.4	24.0
7	60.0	104.2	7.4	380.4	26.0	7.4	26.0
8	60.0	99.4	6.8	461.5	26.0	6.8	26.0
9	60.0	51.9	3.1	379.3	18.0	3.1	18.0
10	60.0	101.4	7.3	433.7	31.0	7.3	31.0
Average:	**60.0**	**83.2**	**5.9**	**399.6**	**26.0**	**5.9**	**26.0**
SEB on CLOVER VALLEY EXT							
1	60.0	254.4	13.1	603.5	32.0	13.1	32.0
2	60.0	680.2	37.8	1,497.2	96.0	37.8	96.0
3	60.0	586.5	31.8	1,235.9	67.0	31.8	67.0
4	60.0	201.3	11.5	528.6	34.0	11.5	34.0
5	60.0	230.5	12.3	617.5	39.0	12.3	39.0
6	60.0	375.8	19.5	924.3	50.0	19.5	50.0
7	60.0	394.6	20.4	1,015.2	60.0	20.4	60.0
8	60.0	447.6	23.7	912.8	55.0	23.7	55.0
9	60.0	453.7	24.0	1,131.8	61.0	24.0	61.0
10	60.0	455.9	23.8	900.5	52.0	23.8	52.0
Average:	**60.0**	**408.1**	**21.8**	**936.7**	**54.6**	**21.8**	**54.6**
SWB on MINK ST NW							
1	60.0	706.9	38.1	1,855.1	109.0	38.1	109.0
2	60.0	647.2	36.9	1,498.0	96.0	36.9	96.0
3	60.0	587.0	35.2	1,551.6	98.0	35.2	98.0
4	60.0	635.1	36.4	1,973.0	121.0	36.4	121.0
5	60.0	1,106.0	63.6	2,536.4	152.0	63.6	152.0
6	60.0	885.0	52.0	2,590.6	146.0	52.0	146.0
7	60.0	820.7	48.2	2,013.9	126.0	48.2	126.0
8	60.0	930.6	52.3	2,107.0	132.0	52.3	132.0

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
9	60.0	717.1	42.1	1,473.6	96.0	42.1	96.0
10	60.0	1,071.2	60.4	2,583.8	149.0	60.4	149.0
Average:	**60.0**	**810.7**	**46.5**	**2,018.3**	**122.5**	**46.5**	**122.5**

MINK ST NW & INNOVATION WAY — NODE: 15

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
EB on INNOVATION WAY							
1	60.0	51.2	1.8	201.4	7.0	1.8	7.0
2	60.0	45.9	1.8	165.7	6.0	1.8	6.0
3	60.0	48.9	1.9	228.7	6.0	1.9	6.0
4	60.0	34.7	1.7	131.6	6.0	1.7	6.0
5	60.0	37.2	1.7	149.9	5.0	1.7	5.0
6	60.0	50.0	2.0	220.5	6.0	2.0	6.0
7	60.0	36.1	1.5	169.5	5.0	1.5	5.0
8	60.0	37.8	1.7	202.5	9.0	1.7	9.0
9	60.0	39.3	1.7	160.4	6.0	1.7	6.0
10	60.0	34.2	1.5	165.6	5.0	1.5	5.0
Average:	**60.0**	**41.5**	**1.7**	**179.6**	**6.1**	**1.7**	**6.1**
NEB on MINK ST NW							
1	60.0	14.6	1.1	238.6	19.0	1.1	19.0
2	60.0	12.6	0.9	196.2	11.0	0.9	11.0
3	60.0	19.4	1.4	140.7	12.0	1.4	12.0
4	60.0	11.1	1.1	159.6	17.0	1.1	17.0
5	60.0	14.5	1.0	157.1	11.0	1.0	11.0
6	60.0	16.3	1.0	131.1	9.0	1.0	9.0
7	60.0	12.9	1.0	138.7	12.0	1.0	12.0
8	60.0	13.8	1.1	173.4	14.0	1.1	14.0
9	60.0	11.6	0.9	121.3	8.0	0.9	8.0
10	60.0	4.6	0.5	56.1	6.0	0.5	6.0
Average:	**60.0**	**13.1**	**1.0**	**151.3**	**11.9**	**1.0**	**11.9**
SWB on MINK ST NW							
1	60.0	86.1	4.2	563.5	25.0	4.2	25.0
2	60.0	92.4	4.6	557.4	31.0	4.6	31.0
3	60.0	138.9	7.5	679.3	47.0	7.5	47.0
4	60.0	119.1	6.5	659.2	50.0	6.5	50.0
5	60.0	142.1	6.9	705.3	39.0	6.9	39.0
6	60.0	127.5	6.0	642.0	31.0	6.0	31.0
7	60.0	100.1	6.0	508.2	35.0	6.0	35.0
8	60.0	109.8	6.3	578.6	35.0	6.3	35.0

MINK ST NW & INNOVATION WAY — NODE: 15

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
9	60.0	66.8	2.7	732.8	33.0	2.7	33.0
10	60.0	173.5	10.7	742.8	55.0	10.7	55.0
Average:	**60.0**	**115.6**	**6.1**	**636.9**	**38.1**	**6.1**	**38.1**

MINK ST NW & JUG ST — NODE: 33082

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
EB on JUG ST							
1	60.0	29.4	1.3	168.2	6.0	1.3	6.0
2	60.0	21.7	1.0	127.0	4.0	1.0	4.0
3	60.0	20.3	1.1	88.5	3.0	1.1	3.0
4	60.0	23.5	1.0	143.0	3.0	1.0	3.0
5	60.0	29.2	1.3	107.2	5.0	1.3	5.0
6	60.0	21.2	1.0	127.4	6.0	1.0	6.0
7	60.0	18.2	1.0	94.9	4.0	1.0	4.0
8	60.0	29.2	1.4	112.9	4.0	1.4	4.0
9	60.0	23.4	1.1	122.2	4.0	1.1	4.0
10	60.0	16.2	0.9	65.4	3.0	0.9	3.0
Average:	**60.0**	**23.2**	**1.1**	**115.7**	**4.2**	**1.1**	**4.2**
NB on MINK ST NW							
1	60.0	31.9	1.4	227.4	9.0	1.4	9.0
2	60.0	45.7	1.8	267.9	7.0	1.8	7.0
3	60.0	42.9	1.9	170.3	7.0	1.9	7.0
4	60.0	28.9	1.2	244.7	7.0	1.2	7.0
5	60.0	51.6	2.0	356.9	12.0	2.0	12.0
6	60.0	36.8	1.6	253.8	9.0	1.6	9.0
7	60.0	31.6	1.4	142.5	6.0	1.4	6.0
8	60.0	51.7	2.1	233.8	8.0	2.1	8.0
9	60.0	38.4	1.6	228.1	7.0	1.6	7.0
10	60.0	38.8	1.7	161.0	6.0	1.7	6.0
Average:	**60.0**	**39.8**	**1.7**	**228.6**	**7.8**	**1.7**	**7.8**
SB on MINK ST NW							
1	60.0	36.1	1.9	425.5	17.0	1.9	17.0
2	60.0	31.5	1.7	223.5	11.0	1.7	11.0
3	60.0	31.9	1.4	434.9	12.0	1.4	12.0
4	60.0	33.8	1.8	228.4	13.0	1.8	13.0
5	60.0	16.6	0.9	220.2	13.0	0.9	13.0
6	60.0	33.0	1.8	269.6	12.0	1.8	12.0
7	60.0	19.2	0.9	271.4	12.0	0.9	12.0
8	60.0	8.4	0.5	121.5	7.0	0.5	7.0

MINK ST NW & JUG ST — NODE: 33082

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
9	60.0	36.0	2.0	236.2	13.0	2.0	13.0
10	60.0	31.5	1.6	217.5	10.0	1.6	10.0
Average:	**60.0**	**27.8**	**1.5**	**264.9**	**12.0**	**1.5**	**12.0**

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 10

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
EB on SR 161 EB EXIT RAMP							
1	60.0	42.1	3.3	167.1	10.0	3.3	10.0
2	60.0	39.3	3.0	173.1	13.0	3.0	13.0
3	60.0	53.1	4.0	177.2	11.0	4.0	11.0
4	60.0	40.6	2.8	141.3	9.0	2.8	9.0
5	60.0	44.3	3.3	231.7	16.0	3.3	16.0
6	60.0	33.2	2.4	122.1	11.0	2.4	11.0
7	60.0	52.4	3.9	204.5	13.0	3.9	13.0
8	60.0	60.7	4.4	201.7	11.0	4.4	11.0
9	60.0	42.8	2.8	230.7	12.0	2.8	12.0
10	60.0	53.2	3.9	152.6	11.0	3.9	11.0
Average:	**60.0**	**46.2**	**3.4**	**180.2**	**11.7**	**3.4**	**11.7**
NEB on MINK ST NW							
1	60.0	51.3	2.5	693.9	23.0	2.6	25.0
2	60.0	44.4	2.5	384.4	23.0	2.5	23.0
3	60.0	36.2	2.1	331.2	22.0	2.1	22.0
4	60.0	36.4	2.1	405.5	19.0	2.1	19.0
5	60.0	61.9	2.9	754.1	21.0	3.0	23.0
6	60.0	44.9	2.4	394.0	20.0	2.4	20.0
7	60.0	40.5	2.0	341.2	21.0	2.0	21.0
8	60.0	38.0	2.1	412.2	23.0	2.1	23.0
9	60.0	34.2	2.0	346.2	20.0	2.0	20.0
10	60.0	40.0	2.1	467.1	22.0	2.1	22.0
Average:	**60.0**	**42.8**	**2.3**	**453.0**	**21.4**	**2.3**	**21.8**
SWB on MINK ST NW							
1	60.0	67.1	3.5	410.4	21.0	3.5	21.0
2	60.0	57.3	3.1	337.3	18.0	3.1	18.0
3	60.0	53.7	2.6	504.8	19.0	2.6	19.0
4	60.0	49.4	2.7	332.5	15.0	2.7	15.0
5	60.0	77.7	4.0	464.7	24.0	4.0	24.0
6	60.0	57.6	2.9	331.5	17.0	2.9	17.0
7	60.0	53.6	2.6	410.9	20.0	2.6	20.0
8	60.0	58.2	2.8	365.4	17.0	2.8	17.0

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 10

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
9	60.0	83.7	4.1	487.9	19.0	4.1	19.0
10	60.0	69.1	3.2	569.6	26.0	3.2	26.0
Average:	**60.0**	**62.7**	**3.2**	**421.5**	**19.6**	**3.2**	**19.6**

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 5

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
NEB on MINK ST NW							
1	60.0	27.8	2.1	200.3	14.0	2.1	14.0
2	60.0	27.4	2.2	195.1	13.0	2.2	13.0
3	60.0	37.4	2.4	286.2	19.0	2.4	19.0
4	60.0	26.3	1.6	224.0	14.0	1.6	14.0
5	60.0	22.4	1.7	178.3	12.0	1.7	12.0
6	60.0	26.1	2.0	197.1	13.0	2.0	13.0
7	60.0	23.5	1.6	215.4	15.0	1.6	15.0
8	60.0	22.1	1.5	199.9	13.0	1.5	13.0
9	60.0	25.9	1.8	205.9	14.0	1.8	14.0
10	60.0	34.0	2.5	203.9	17.0	2.5	17.0
Average:	**60.0**	**27.3**	**1.9**	**210.6**	**14.4**	**1.9**	**14.4**
SWB on MINK ST NW							
1	60.0	67.6	3.6	386.0	24.0	3.6	24.0
2	60.0	73.6	4.1	467.5	42.0	4.1	42.0
3	60.0	84.2	4.3	628.2	24.0	4.3	24.0
4	60.0	50.7	2.8	386.7	24.0	2.8	24.0
5	60.0	50.7	2.6	586.3	31.0	2.6	31.0
6	60.0	59.7	3.1	391.6	20.0	3.1	20.0
7	60.0	73.4	4.2	825.1	46.0	4.2	46.0
8	60.0	70.5	3.7	559.5	32.0	3.7	32.0
9	60.0	49.9	2.9	384.6	23.0	2.9	23.0
10	60.0	84.5	4.5	475.1	23.0	4.5	23.0
Average:	**60.0**	**66.5**	**3.6**	**509.1**	**28.9**	**3.6**	**28.9**
WB on SR 161 WB EXIT RAMP							
1	60.0	2.4	0.2	21.5	1.0	0.2	1.0
2	60.0	3.6	0.2	19.9	1.0	0.2	1.0
3	60.0	2.4	0.1	40.0	2.0	0.1	2.0
4	60.0	2.9	0.1	60.7	1.0	0.1	1.0
5	60.0	2.4	0.1	60.1	1.0	0.1	1.0
6	60.0	2.2	0.1	18.7	1.0	0.1	1.0
7	60.0	4.7	0.2	96.6	2.0	0.2	2.0
8	60.0	3.6	0.2	70.5	1.0	0.2	1.0

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 5

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
9	60.0	4.6	0.2	55.1	2.0	0.2	2.0
10	60.0	2.3	0.1	68.5	1.0	0.1	1.0
Average:	**60.0**	**3.1**	**0.2**	**51.2**	**1.3**	**0.2**	**1.3**

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
EB on WORTHINGTON RD							
1	60.0	79.5	4.2	259.4	11.0	4.2	11.0
2	60.0	71.5	3.6	240.9	11.0	3.6	11.0
3	60.0	68.9	4.0	170.8	9.0	4.0	9.0
4	60.0	67.3	3.5	295.3	11.0	3.5	11.0
5	60.0	73.8	4.2	185.2	12.0	4.2	12.0
6	60.0	56.2	3.1	155.1	9.0	3.1	9.0
7	60.0	79.4	4.3	306.6	12.0	4.3	12.0
8	60.0	74.7	4.4	211.2	12.0	4.4	12.0
9	60.0	62.2	3.2	355.6	12.0	3.2	12.0
10	60.0	66.3	3.6	231.9	10.0	3.6	10.0
Average:	**60.0**	**70.0**	**3.8**	**241.2**	**10.9**	**3.8**	**10.9**
NEB on MINK ST SW							
1	60.0	76.1	4.4	337.4	21.0	4.4	21.0
2	60.0	53.6	3.1	289.5	16.0	3.1	16.0
3	60.0	37.4	2.4	258.7	19.0	2.4	19.0
4	60.0	62.1	3.4	267.1	18.0	3.4	18.0
5	60.0	43.6	2.5	296.4	15.0	2.5	15.0
6	60.0	71.7	4.3	299.1	18.0	4.3	18.0
7	60.0	44.1	2.7	291.6	18.0	2.7	18.0
8	60.0	51.5	2.9	332.2	17.0	2.9	17.0
9	60.0	59.7	3.6	277.9	17.0	3.6	17.0
10	60.0	81.1	4.5	376.8	20.0	4.5	20.0
Average:	**60.0**	**58.1**	**3.4**	**302.7**	**17.9**	**3.4**	**17.9**
SWB on MINK ST NW							
1	60.0	74.5	4.7	303.2	22.0	4.7	22.0
2	60.0	88.3	5.1	661.3	21.0	5.1	21.0
3	60.0	37.7	2.6	268.8	17.0	2.6	17.0
4	60.0	56.6	3.7	264.3	20.0	3.7	20.0
5	60.0	53.4	3.1	488.8	21.0	3.2	23.0
6	60.0	87.5	5.2	887.7	27.0	5.3	30.0
7	60.0	61.8	3.8	489.2	22.0	3.8	23.0
8	60.0	57.7	3.3	407.7	23.0	3.3	23.0

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

		LONGEST BRANCH				ALL BRANCHES	
Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	Max Queue Length (ft)	Max Vehicles Queued	Avg Total Queued	Max Total Queued
9	60.0	96.7	5.8	452.9	23.0	5.9	23.0
10	60.0	110.4	5.7	711.4	28.0	5.9	32.0
Average:	**60.0**	**72.5**	**4.3**	**493.5**	**22.4**	**4.4**	**23.4**
WB on WORTHINGTON RD							
1	60.0	30.9	1.4	121.2	5.0	1.4	5.0
2	60.0	47.5	1.9	193.1	7.0	1.9	7.0
3	60.0	31.4	1.3	239.2	7.0	1.3	7.0
4	60.0	37.3	1.5	128.5	6.0	1.5	6.0
5	60.0	35.9	1.6	170.4	5.0	1.6	5.0
6	60.0	45.9	1.9	192.2	9.0	1.9	9.0
7	60.0	62.3	2.3	292.7	9.0	2.3	9.0
8	60.0	45.0	1.8	182.4	7.0	1.8	7.0
9	60.0	45.7	1.7	243.9	9.0	1.7	9.0
10	60.0	54.5	1.9	256.1	6.0	1.9	6.0
Average:	**60.0**	**43.6**	**1.7**	**202.0**	**7.0**	**1.7**	**7.0**

ABOUT SPILLBACK QUEUES

Spillback queues begin at the front bumper of the first vehicle in queue on a link. From there, the queue can branch as a tree in different directions as it spills upstream through intersections. The various branches of the spillback queue will extend beyond the originating link and superlink boundaries until the back of the queue is reached on every branch in the tree.

- Average/Maximum Queue Length: Distance from the front bumper of the first queued vehicle to the back bumper of the last queued vehicle for the longest branch
- Average/Maximum Vehicles Queued: Number of vehicles queued in all lanes for the longest branch

Project: Mink Corridor Optimized Parclo w North
Scenario: PM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 16:00:00 - 17:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Spillback Queue by Intersection - Avg Queue

MINK ST NW & BEAVER RD — NODE: 18

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	59.8	7.6	45.8	74.5	10
NWB	BEAVER RD	106.9	14.0	81.3	132.9	10
SWB	MINK ST NW	235.3	59.3	140.6	293.2	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	83.2	17.0	51.9	104.2	10
SEB	CLOVER VALLEY EXT	408.1	153.1	201.3	680.2	10
SWB	MINK ST NW	810.7	183.2	587.0	1,106.0	10

MINK ST NW & INNOVATION WAY — NODE: 15

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	INNOVATION WAY	41.5	6.7	34.2	51.2	10
NEB	MINK ST NW	13.1	3.9	4.6	19.4	10
SWB	MINK ST NW	115.6	31.3	66.8	173.5	10

MINK ST NW & JUG ST — NODE: 33082

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	JUG ST	23.2	4.7	16.2	29.4	10
NB	MINK ST NW	39.8	8.1	28.9	51.7	10
SB	MINK ST NW	27.8	9.5	8.4	36.1	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 10

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	SR 161 EB EXIT RAMP	46.2	8.3	33.2	60.7	10
NEB	MINK ST NW	42.8	8.4	34.2	61.9	10
SWB	MINK ST NW	62.7	11.3	49.4	83.7	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 5

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	27.3	4.9	22.1	37.4	10
SWB	MINK ST NW	66.5	13.2	49.9	84.5	10
WB	SR 161 WB EXIT RAMP	3.1	1.0	2.2	4.7	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	WORTHINGTON RD	70.0	7.4	56.2	79.5	10
NEB	MINK ST SW	58.1	14.7	37.4	81.1	10
SWB	MINK ST NW	72.5	22.8	37.7	110.4	10
WB	WORTHINGTON RD	43.6	10.0	30.9	62.3	10

Project: Mink Corridor Optimized Parclo w North
Scenario: PM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 16:00:00 - 17:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Spillback Queue by Intersection - Avg Num Queued

MINK ST NW & BEAVER RD — NODE: 18

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	3.4	0.4	2.7	4.3	10
NWB	BEAVER RD	5.9	0.8	4.5	7.5	10
SWB	MINK ST NW	14.2	3.4	8.3	18.0	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	5.9	1.4	3.1	7.4	10
SEB	CLOVER VALLEY EXT	21.8	8.5	11.5	37.8	10
SWB	MINK ST NW	46.5	10.4	35.2	63.6	10

MINK ST NW & INNOVATION WAY — NODE: 15

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	INNOVATION WAY	1.7	0.2	1.5	2.0	10
NEB	MINK ST NW	1.0	0.2	0.5	1.4	10
SWB	MINK ST NW	6.1	2.1	2.7	10.7	10

MINK ST NW & JUG ST — NODE: 33082

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	JUG ST	1.1	0.2	0.9	1.4	10
NB	MINK ST NW	1.7	0.3	1.2	2.1	10
SB	MINK ST NW	1.5	0.5	0.5	2.0	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 10

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	SR 161 EB EXIT RAMP	3.4	0.6	2.4	4.4	10
NEB	MINK ST NW	2.3	0.3	2.0	2.9	10
SWB	MINK ST NW	3.2	0.6	2.6	4.1	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 5

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	1.9	0.4	1.5	2.5	10
SWB	MINK ST NW	3.6	0.7	2.6	4.5	10
WB	SR 161 WB EXIT RAMP	0.2	0.1	0.1	0.2	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	WORTHINGTON RD	3.8	0.5	3.1	4.4	10
NEB	MINK ST SW	3.4	0.8	2.4	4.5	10
SWB	MINK ST NW	4.3	1.1	2.6	5.8	10
WB	WORTHINGTON RD	1.7	0.3	1.3	2.3	10

Project: Mink Corridor Optimized Parclo w North
Scenario: PM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 16:00:00 - 17:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Spillback Queue by Intersection - Avg Total Queued

MINK ST NW & BEAVER RD — NODE: 18

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	3.4	0.4	2.7	4.3	10
NWB	BEAVER RD	5.9	0.8	4.5	7.5	10
SWB	MINK ST NW	15.4	4.0	8.7	19.0	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	5.9	1.4	3.1	7.4	10
SEB	CLOVER VALLEY EXT	21.8	8.5	11.5	37.8	10
SWB	MINK ST NW	46.5	10.4	35.2	63.6	10

MINK ST NW & INNOVATION WAY — NODE: 15

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	INNOVATION WAY	1.7	0.2	1.5	2.0	10
NEB	MINK ST NW	1.0	0.2	0.5	1.4	10
SWB	MINK ST NW	6.1	2.1	2.7	10.7	10

MINK ST NW & JUG ST — NODE: 33082

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	JUG ST	1.1	0.2	0.9	1.4	10
NB	MINK ST NW	1.7	0.3	1.2	2.1	10
SB	MINK ST NW	1.5	0.5	0.5	2.0	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 10

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	SR 161 EB EXIT RAMP	3.4	0.6	2.4	4.4	10
NEB	MINK ST NW	2.3	0.3	2.0	3.0	10
SWB	MINK ST NW	3.2	0.6	2.6	4.1	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 5

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	1.9	0.4	1.5	2.5	10
SWB	MINK ST NW	3.6	0.7	2.6	4.5	10
WB	SR 161 WB EXIT RAMP	0.2	0.1	0.1	0.2	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	WORTHINGTON RD	3.8	0.5	3.1	4.4	10
NEB	MINK ST SW	3.4	0.8	2.4	4.5	10
SWB	MINK ST NW	4.4	1.2	2.6	5.9	10
WB	WORTHINGTON RD	1.7	0.3	1.3	2.3	10

Project: Mink Corridor Optimized Parclo w North
Scenario: PM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 16:00:00 - 17:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Spillback Queue by Intersection - Max Queue

MINK ST NW & BEAVER RD — NODE: 18

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	317.5	50.7	242.3	403.1	10
NWB	BEAVER RD	386.8	38.3	323.9	459.5	10
SWB	MINK ST NW	2,200.5	773.7	1,207.6	3,184.6	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	399.6	41.6	350.1	465.8	10
SEB	CLOVER VALLEY EXT	936.7	303.6	528.6	1,497.2	10
SWB	MINK ST NW	2,018.3	439.4	1,473.6	2,590.6	10

MINK ST NW & INNOVATION WAY — NODE: 15

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	INNOVATION WAY	179.6	31.8	131.6	228.7	10
NEB	MINK ST NW	151.3	48.2	56.1	238.6	10
SWB	MINK ST NW	636.9	81.0	508.2	742.8	10

MINK ST NW & JUG ST — NODE: 33082

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	JUG ST	115.7	29.0	65.4	168.2	10
NB	MINK ST NW	228.6	61.7	142.5	356.9	10
SB	MINK ST NW	264.9	96.3	121.5	434.9	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 10

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	SR 161 EB EXIT RAMP	180.2	36.7	122.1	231.7	10
NEB	MINK ST NW	453.0	149.0	331.2	754.1	10
SWB	MINK ST NW	421.5	82.8	331.5	569.6	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 5

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	210.6	29.2	178.3	286.2	10
SWB	MINK ST NW	509.1	143.3	384.6	825.1	10
WB	SR 161 WB EXIT RAMP	51.2	25.7	18.7	96.6	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	WORTHINGTON RD	241.2	64.2	155.1	355.6	10
NEB	MINK ST SW	302.7	36.1	258.7	376.8	10
SWB	MINK ST NW	493.5	205.3	264.3	887.7	10
WB	WORTHINGTON RD	202.0	55.6	121.2	292.7	10

Project: Mink Corridor Optimized Parclo w North
Scenario: PM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 16:00:00 - 17:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Spillback Queue by Intersection - Max Num Queued

MINK ST NW & BEAVER RD — NODE: 18

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	19.4	3.0	15.0	26.0	10
NWB	BEAVER RD	21.3	2.9	16.0	27.0	10
SWB	MINK ST NW	121.7	38.3	72.0	173.0	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	26.0	4.1	18.0	32.0	10
SEB	CLOVER VALLEY EXT	54.6	18.7	32.0	96.0	10
SWB	MINK ST NW	122.5	22.2	96.0	152.0	10

MINK ST NW & INNOVATION WAY — NODE: 15

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	INNOVATION WAY	6.1	1.2	5.0	9.0	10
NEB	MINK ST NW	11.9	4.0	6.0	19.0	10
SWB	MINK ST NW	38.1	9.6	25.0	55.0	10

MINK ST NW & JUG ST — NODE: 33082

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	JUG ST	4.2	1.1	3.0	6.0	10
NB	MINK ST NW	7.8	1.8	6.0	12.0	10
SB	MINK ST NW	12.0	2.5	7.0	17.0	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 10

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	SR 161 EB EXIT RAMP	11.7	1.9	9.0	16.0	10
NEB	MINK ST NW	21.4	1.4	19.0	23.0	10
SWB	MINK ST NW	19.6	3.3	15.0	26.0	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 5

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	14.4	2.1	12.0	19.0	10
SWB	MINK ST NW	28.9	8.8	20.0	46.0	10
WB	SR 161 WB EXIT RAMP	1.3	0.5	1.0	2.0	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	WORTHINGTON RD	10.9	1.2	9.0	12.0	10
NEB	MINK ST SW	17.9	1.8	15.0	21.0	10
SWB	MINK ST NW	22.4	3.2	17.0	28.0	10
WB	WORTHINGTON RD	7.0	1.6	5.0	9.0	10

Project: Mink Corridor Optimized Parclo w North
Scenario: PM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 16:00:00 - 17:00:00
Interval: Summary
Selection: Mink Corridor Intersections

Spillback Queue by Intersection - Max Total Queued

MINK ST NW & BEAVER RD — NODE: 18

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	19.4	3.0	15.0	26.0	10
NWB	BEAVER RD	21.3	2.9	16.0	27.0	10
SWB	MINK ST NW	155.0	50.3	77.0	209.0	10

MINK ST NW & CLOVER VALLEY EXT — NODE: 7

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	26.0	4.1	18.0	32.0	10
SEB	CLOVER VALLEY EXT	54.6	18.7	32.0	96.0	10
SWB	MINK ST NW	122.5	22.2	96.0	152.0	10

MINK ST NW & INNOVATION WAY — NODE: 15

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	INNOVATION WAY	6.1	1.2	5.0	9.0	10
NEB	MINK ST NW	11.9	4.0	6.0	19.0	10
SWB	MINK ST NW	38.1	9.6	25.0	55.0	10

MINK ST NW & JUG ST — NODE: 33082

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	JUG ST	4.2	1.1	3.0	6.0	10
NB	MINK ST NW	7.8	1.8	6.0	12.0	10
SB	MINK ST NW	12.0	2.5	7.0	17.0	10

MINK ST NW & SR 161 EB EXIT RAMP — NODE: 10

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	SR 161 EB EXIT RAMP	11.7	1.9	9.0	16.0	10
NEB	MINK ST NW	21.8	1.8	19.0	25.0	10
SWB	MINK ST NW	19.6	3.3	15.0	26.0	10

MINK ST NW & SR 161 WB EXIT RAMP — NODE: 5

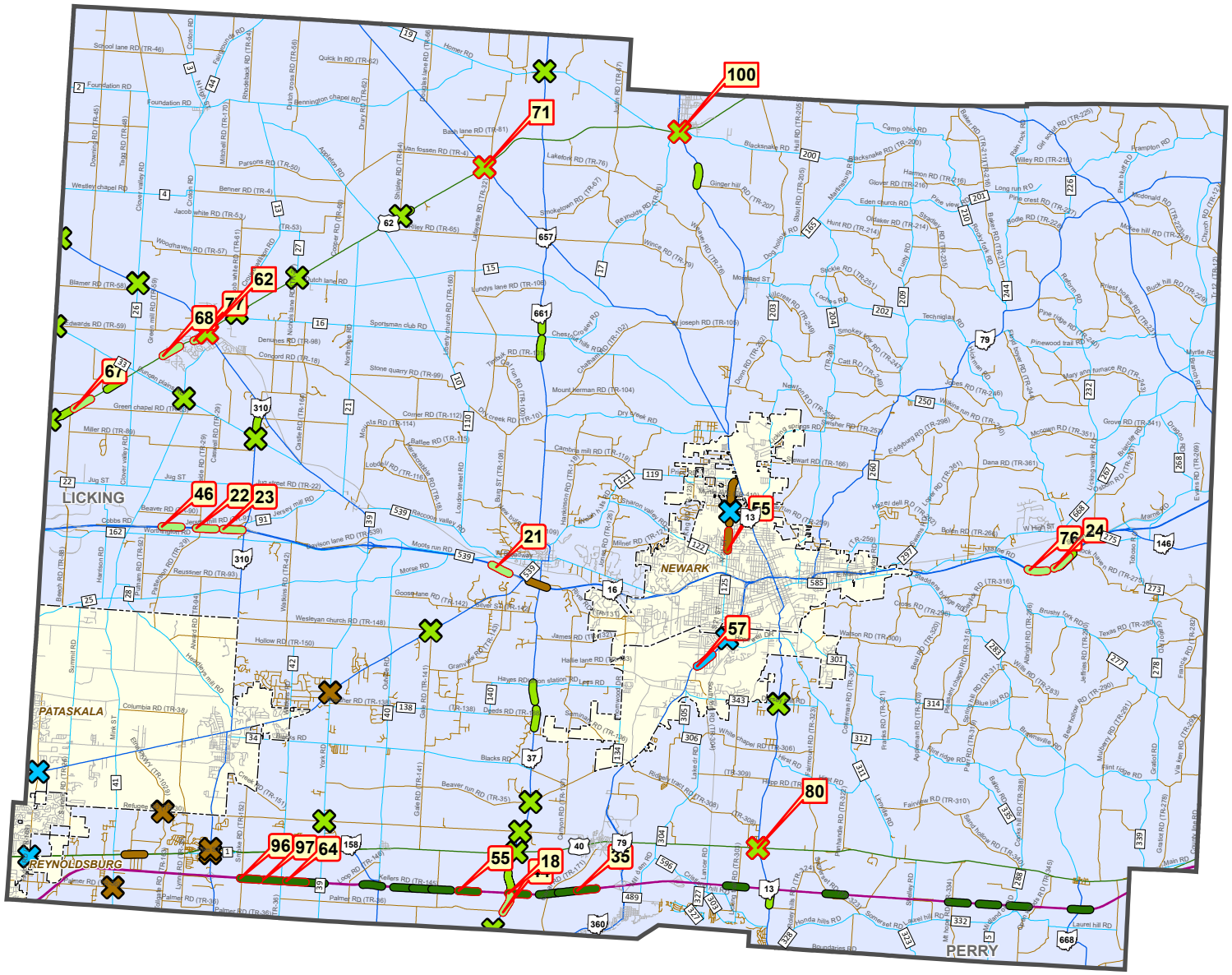
Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB	MINK ST NW	14.4	2.1	12.0	19.0	10
SWB	MINK ST NW	28.9	8.8	20.0	46.0	10
WB	SR 161 WB EXIT RAMP	1.3	0.5	1.0	2.0	10

WORTHINGTON RD, MINK ST NW & MINK ST SW — NODE: 32764

Direction	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB	WORTHINGTON RD	10.9	1.2	9.0	12.0	10
NEB	MINK ST SW	17.9	1.8	15.0	21.0	10
SWB	MINK ST NW	23.4	4.5	17.0	32.0	10
WB	WORTHINGTON RD	7.0	1.6	5.0	9.0	10

Appendix G: Safety Information

2024 Highway Safety Improvement Program (HSIP) Priority Locations - LICKING



City Boundary

Other Routes

Roads by Type

- Interstate Route
- United States Route
- State Route
- County Road
- Township Road

Safety Priority Category

- Rural Intersections
- Suburban Intersections
- Urban Intersections

Safety Priority Category

- Rural Freeway
- Rural Non-Freeway
- Rural Ramp
- Suburban Non-Freeway
- Urban Freeway
- Urban Non-Freeway
- Urban Ramp

Date: 7/3/2024

0 1.25 2.5 5 7.5

Miles

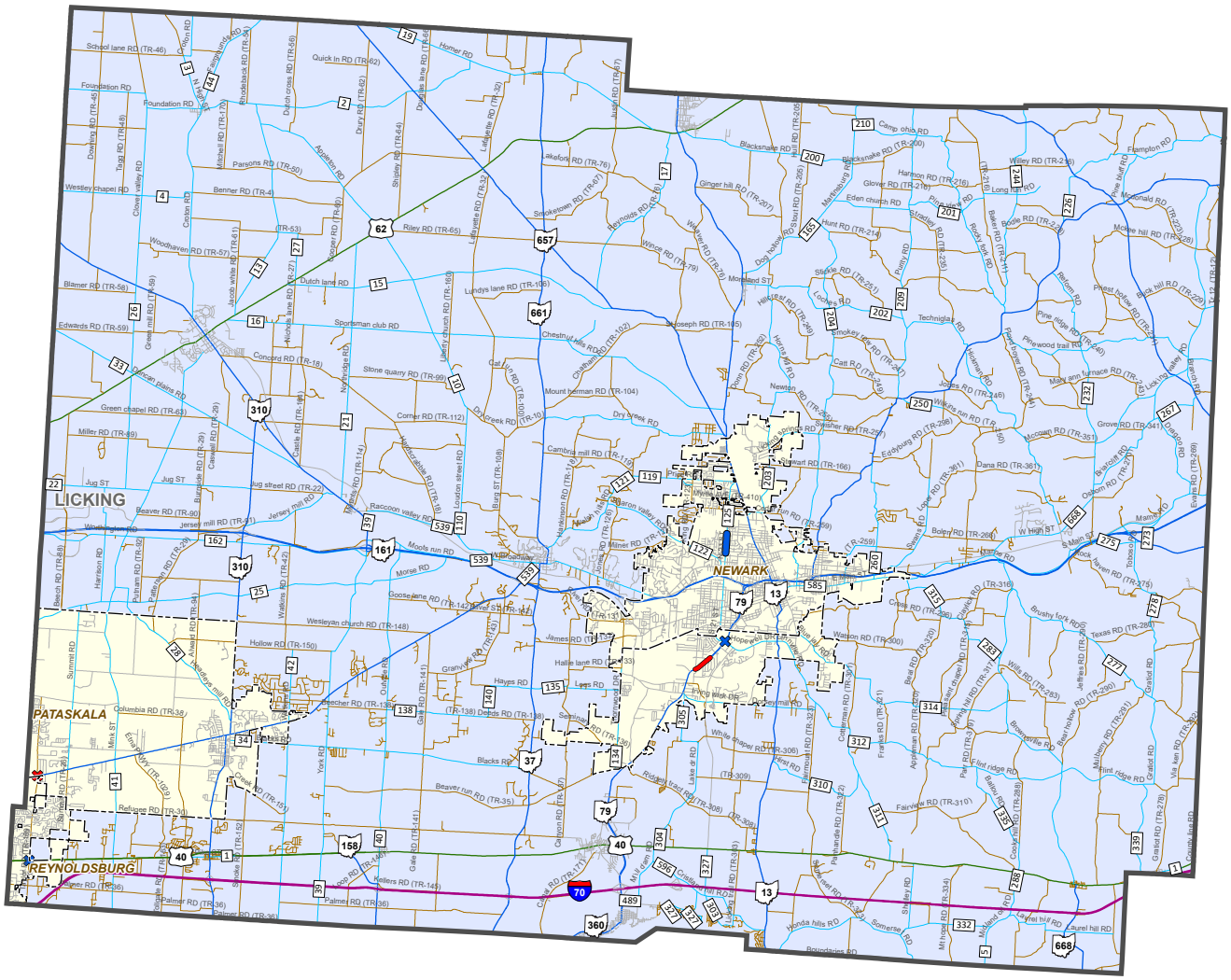
N

odot

Division of Planning

Transportation and Economic Development

2024 Safety Integrated Project Maps
LICKING



City Boundary

High Priority

- Intersections/Interchanges
- Segments

Low Cost Improvements

- Intersections/Interchanges
- Segments

Roads by Type

- Interstate Route
- United States Route
- State Route
- County Road
- Township Road
- Other Routes

0 2 4 8 12

Miles

Date: 7/3/2024

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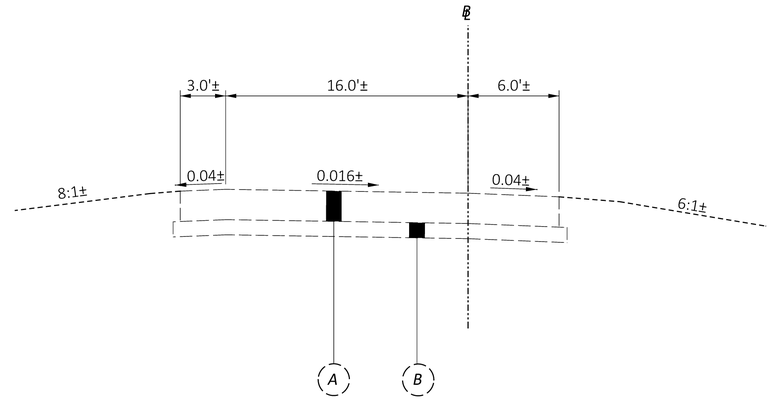
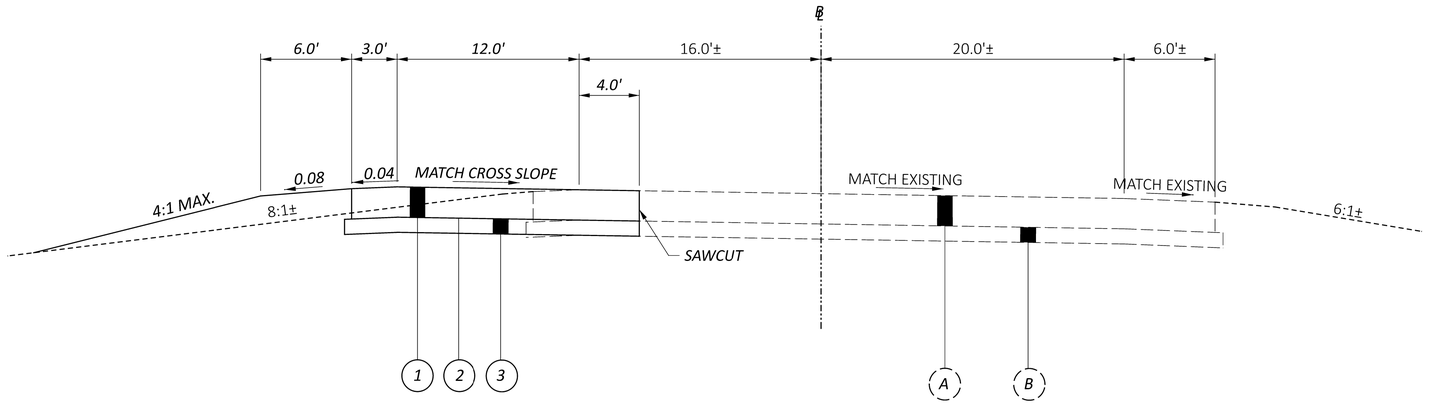
Division of Planning
Transportation and
Economic Development

Appendix H: Beech Road Interchange Proposed Alternative Plans



EXISTING NORMAL SECTION - ONE-LANE EXIT RAMP



WIDENED NORMAL SECTION - FOUR-LANE RAMP

LEGEND

- (A) *EX. CONCRETE PAVEMENT*
- (B) *EX. AGGREGATE BASE*
- (1) *ITEM 452 - 12" NON-REINFORCED CONCRETE PAVEMENT, CLASS QC 1P*
- (2) *ITEM 304 - 6" AGGREGATE BASE*
- (3) *ITEM 204 - SUBGRADE COMPACTION*

TYPICAL SECTIONS
RAMP C - EB SR-161 TO BEECH RD

DESIGN AGENCY

DESIGNER XXX

REVIEWER XXX MM-DD-YY

PROJECT ID 0

SHEET P.0 | TOTAL 0

CTY-RTE-SECTION

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CTY-RTE-SECTION

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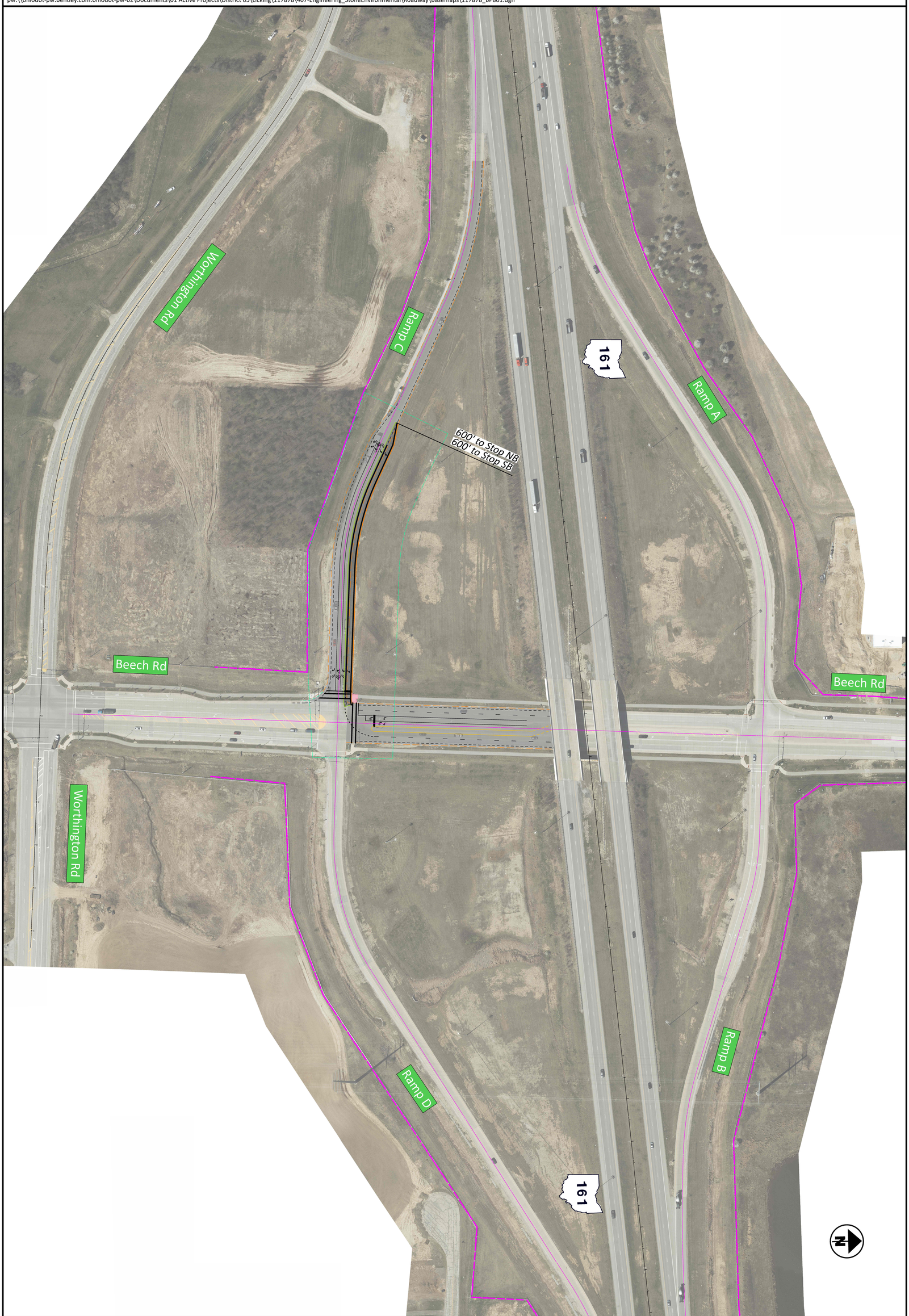


SHEET P.0 | TOTAL 0

PROJECT ID 0

REVIEWER XXX MM-DD-YY

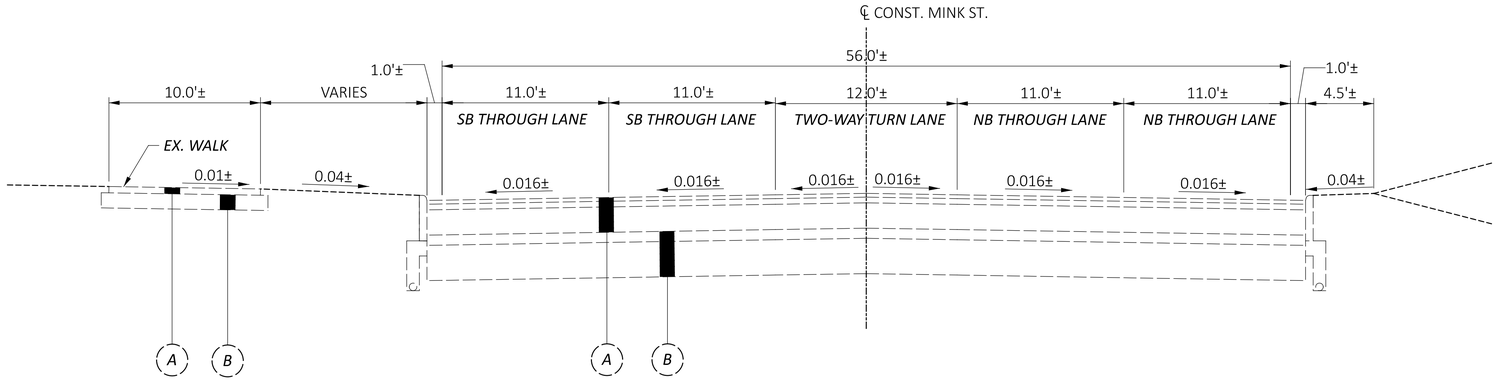
DESIGNER XXX

DESIGN AGENCY

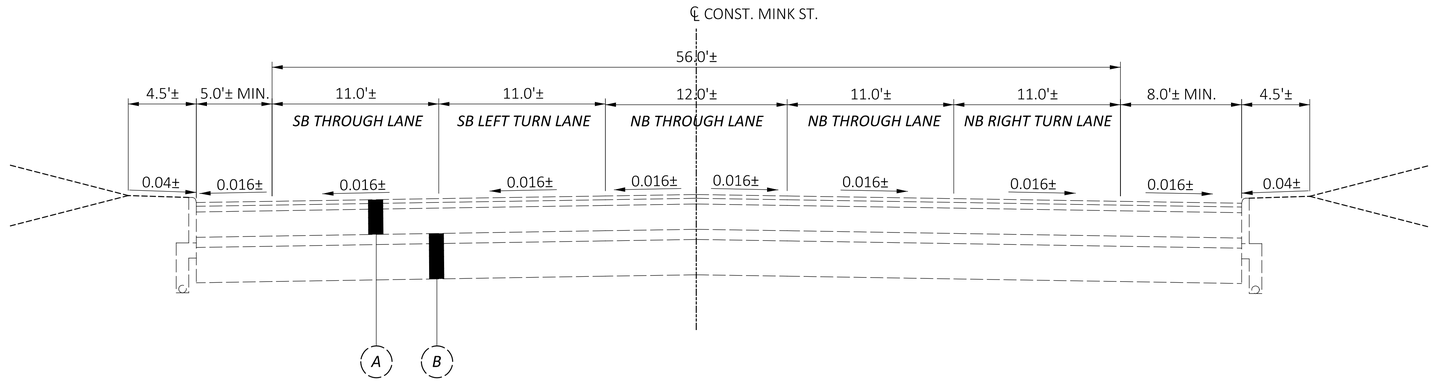
SR-161 AND BEECH RD INTERCHANGE
EXIT RAMP - EB SR-161 TO BEECH RD

HORIZONTAL SCALE IN FEET
0 100
50 200

Appendix I1: Mink Street Tight Diamond Interchange Proposed Alternative Plans



ADJOINING SECTION - EXISTING MINK ST. NORTH OF INTERCHANGE

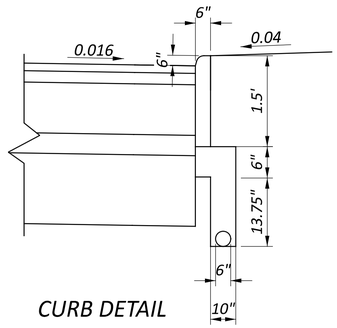


ADJOINING SECTION - EXISTING MINK ST. SOUTH OF INTERCHANGE

LEGEND

(A) *EX. ASPHALT PAVEMENT*

(B) *EX. AGGREGATE BASE*



CURB DETAIL

TYPICAL SECTIONS
EXISTING

CTY-RTE-SECTION

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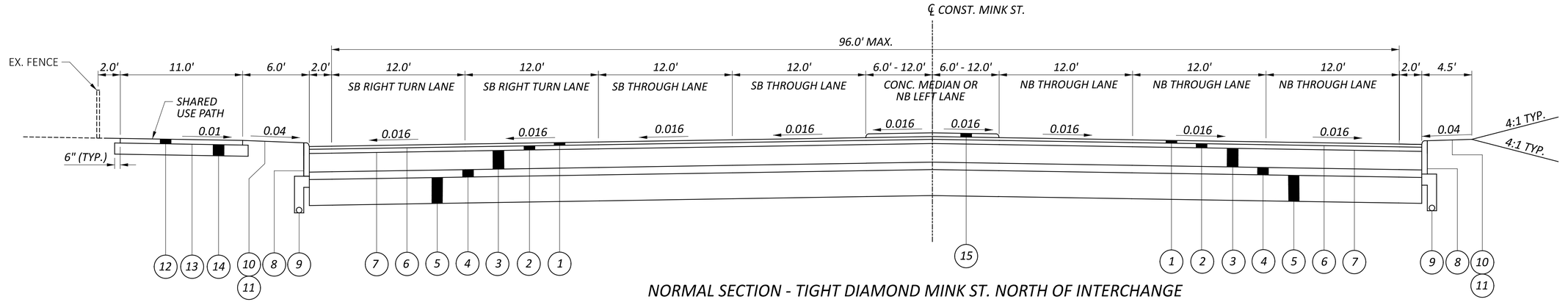
DESIGN AGENCY
WOOLPERT

DESIGNER
XXX

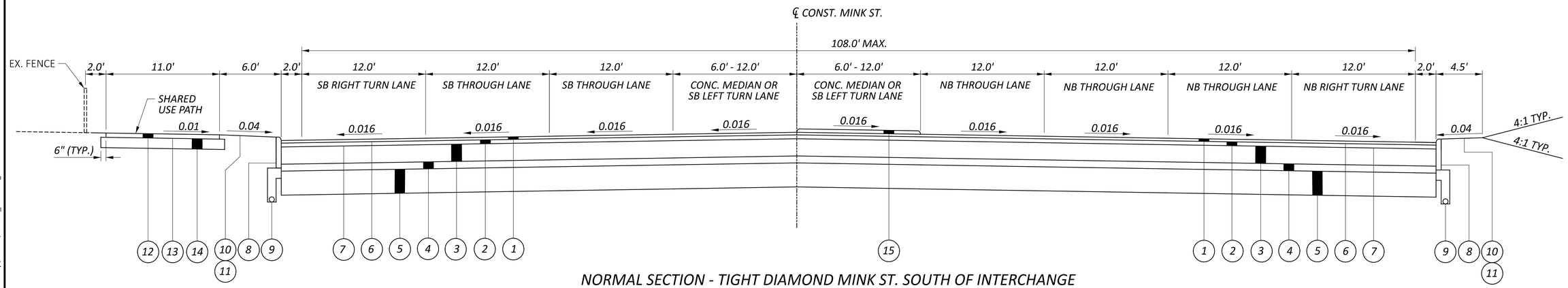
REVIEWER
XXX MM-DD-YY

PROJECT ID
0

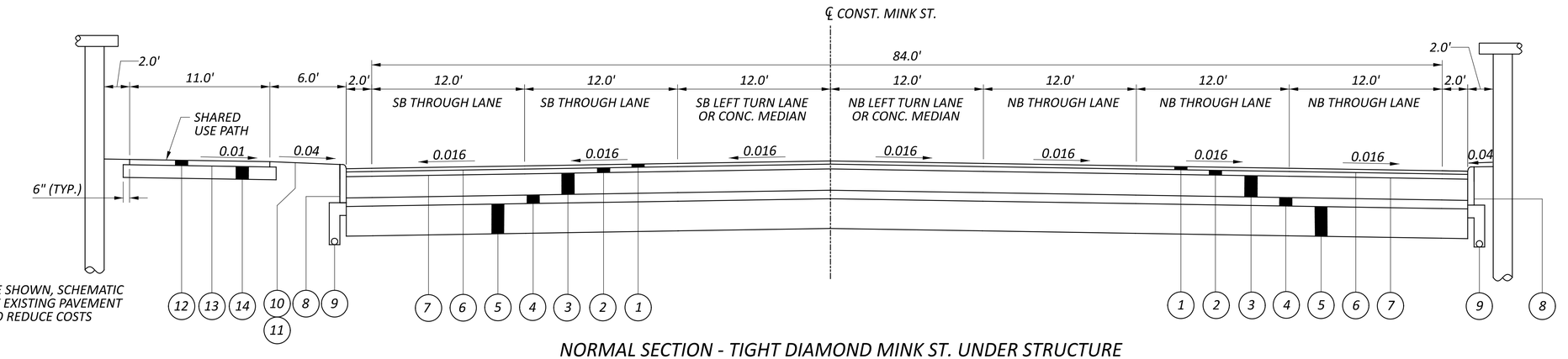
SHEET P.0 | TOTAL 0



NORMAL SECTION - TIGHT DIAMOND MINK ST. NORTH OF INTERCHANGE



NORMAL SECTION - TIGHT DIAMOND MINK ST. SOUTH OF INTERCHANGE



NORMAL SECTION - TIGHT DIAMOND MINK ST. UNDER STRUCTURE

*FULL DEPTH PAVEMENT SECTIONS ARE SHOWN, SCHEMATIC AND ESTIMATE INCLUDE SALVAGING OF EXISTING PAVEMENT ALONG MINK ST WHERE APPLICABLE TO REDUCE COSTS

LEGEND

1. ITEM 442 - 1.5" ASPHALT CONCRETE SURFACE COURSE, 12.5 MM, TYPE A (448)
2. ITEM 442 - 2.25" ASPHALT CONCRETE INTERMEDIATE COURSE, 19 MM, TYPE A (448)
3. ITEM 305 - 10" CONCRETE BASE, CLASS QC 1P
4. ITEM 304 - 4" AGGREGATE BASE
5. ITEM 206 - CEMENT STABILIZED SUBGRADE, 14" DEEP
6. ITEM 407 - NON-TRACKING TACK COAT (0.06 GAL/SY)
7. ITEM 407 - NON-TRACKING TACK COAT (0.06 GAL/SY)
8. ITEM 609 - CURB, TYPE 6
9. ITEM 605 - 6" PIPE UNDERDRAIN (WITH #57 AGGREGATE INCLUDED IN COST OF UNDERDRAIN)
10. ITEM 659 - SEEDING AND MULCHING, CLASS 1
11. ITEM 659 - TOPSOIL (T=4")
12. ITEM 441 - ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (448), PG64-22 (T=2.5")
13. ITEM 204 - SUBGRADE COMPACTION
14. ITEM 304 - 6" AGGREGATE BASE
15. ITEM 609 - CONCRETE MEDIAN

NOTE:

PAVEMENT BUILDUP FOR SR-161, MINK STREET, AND ALL RAMPS WILL BE DETERMINED AT A LATER TIME.

TYPICAL SECTIONS
TIGHT DIAMOND ALTERNATIVE

CTY-RTE-SECTION

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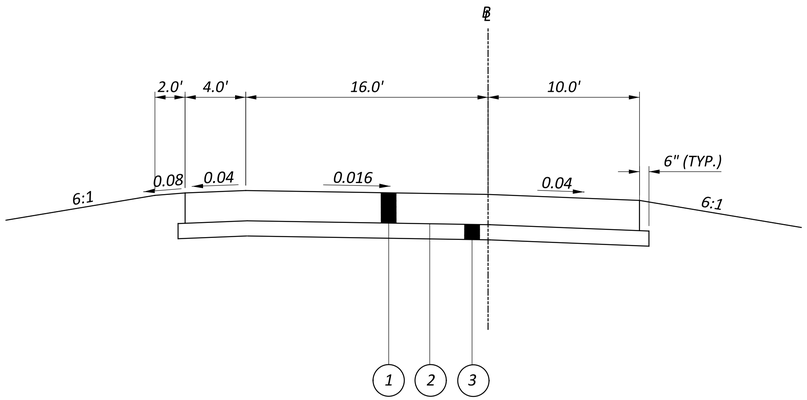
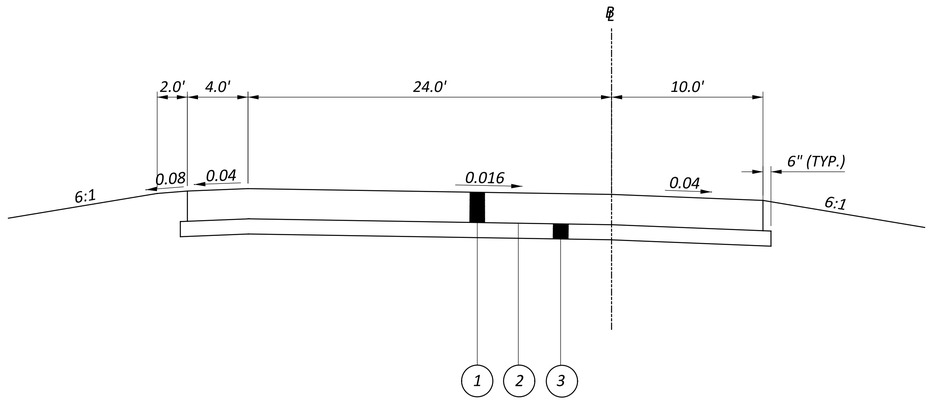
DESIGN AGENCY
WOOLPERT

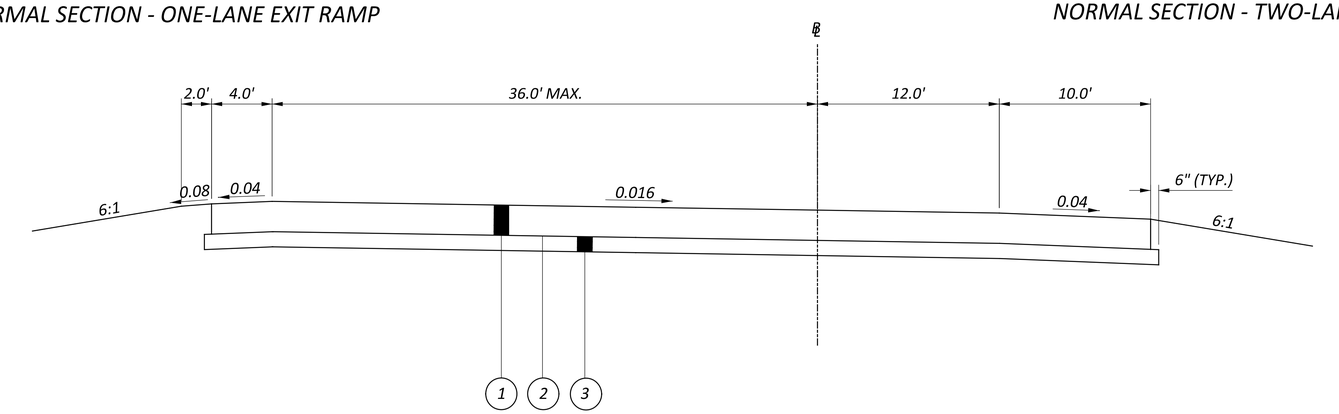
DESIGNER XXX
REVIEWER XXX MM-DD-YY
PROJECT ID 117878
SHEET P.0 TOTAL 0



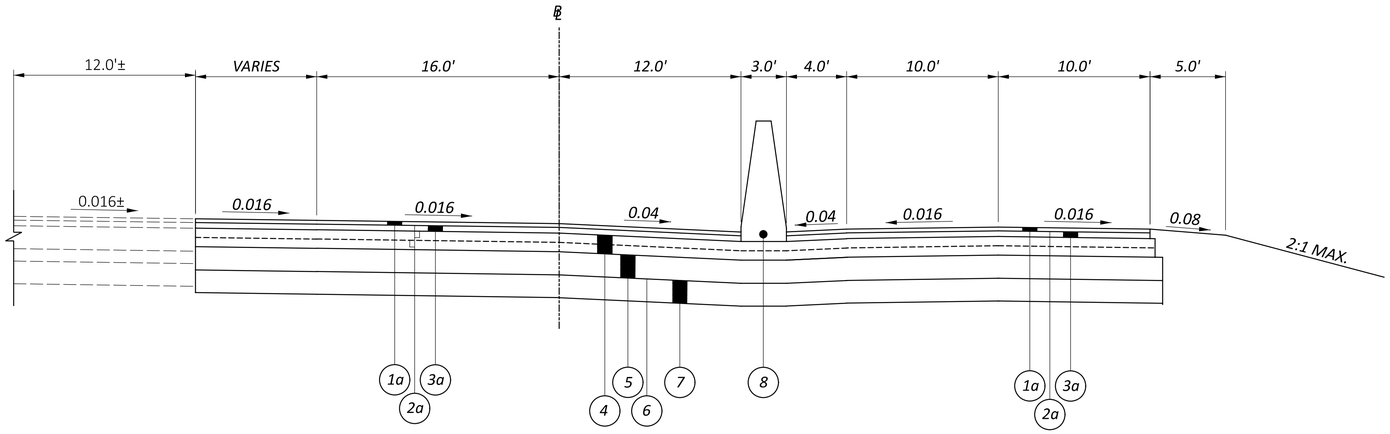
NORMAL SECTION - ONE-LANE EXIT RAMP



NORMAL SECTION - TWO-LANE EXIT RAMP



NORMAL SECTION: MULTI-LANE RAMP



NORMAL SECTION
WB ENTRANCE RAMP AND COBBS RD

NOTE:

PAVEMENT BUILDUP FOR SR-161, MINK STREET, AND ALL RAMPS WILL BE DETERMINED AT A LATER TIME.

LEGEND

1. ITEM 452 - 12" NON-REINFORCED CONCRETE PAVEMENT, CLASS QC 1P
2. ITEM 304 - 6" AGGREGATE BASE
3. ITEM 204 - SUBGRADE COMPACTION
- 1a. ITEM 442 - 1.5" ASPHALT CONCRETE SURFACE COURSE, 12.5 MM, TYPE A (447)
- 2a. ITEM 407 - NON-TRACKING TACK COAT
- 3a. ITEM 442 - 1.5" ASPHALT CONCRETE INTERMEDIATE COURSE, 12.5 MM, TYPE A (446)
4. ITEM 302 - 8" ASPHALT CONCRETE BASE, PG64-22 (449)
5. ITEM 304 - 10" AGGREGATE BASE
6. ITEM 204 - PROOF ROLLING
7. ITEM 206 - CEMENT STABILIZED SUBGRADE, 12 INCHES DEEP
8. ITEM 622 - CONCRETE BARRIER, SINGLE SLOPE, TYPE C

TYPICAL SECTIONS RAMPS

DESIGN AGENCY
WOOLPERT

DESIGNER
XXX

REVIEWER
XXX MM-DD-YY

PROJECT ID
0

SHEET P.0 | TOTAL 0

CTY-RTE-SECTION

MODEL: Ramps PAPERSIZE: 34x22 (in.) DATE: 2/14/2025 TIME: 3:13:33 PM USER: keathingm
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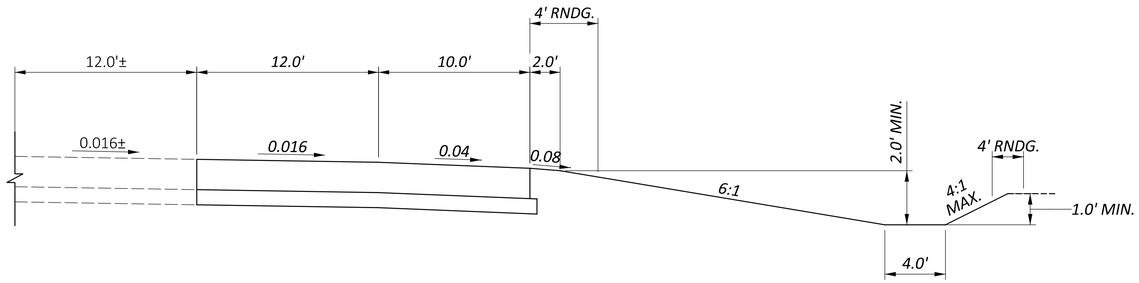
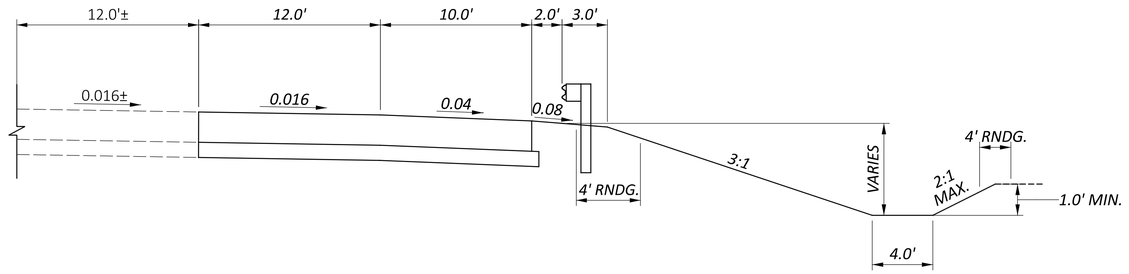


DITCH SECTION GRADING
WB EXIT RAMP TO MINK ST SHOWN



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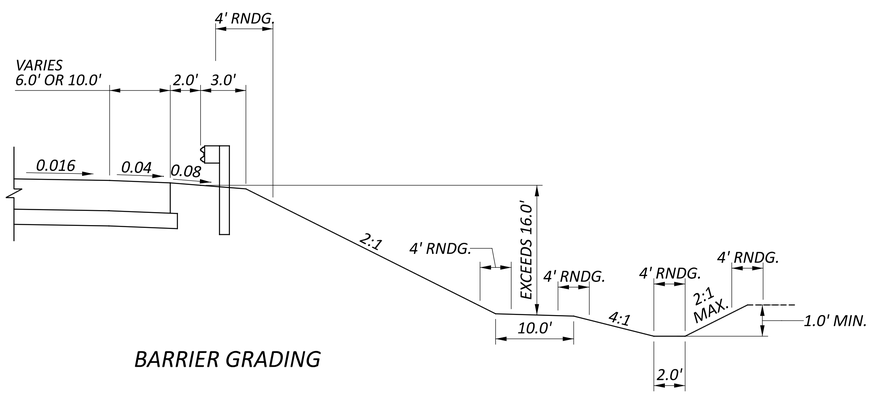
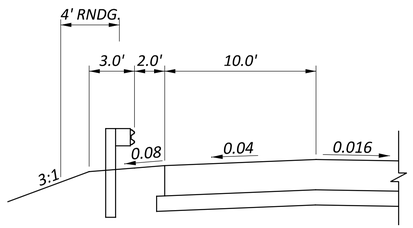


BARRIER GRADING



BARRIER GRADING

LEGEND

1. *ITEM 452 - 12" NON-REINFORCED CONCRETE PAVEMENT, CLASS QC 1P*
2. *ITEM 304 - 6" AGGREGATE BASE*
3. *ITEM 204 - SUBGRADE COMPACTION*

NOTE:

PAVEMENT BUILDUP FOR SR-161, MINK STREET, AND ALL RAMPS WILL BE DETERMINED AT A LATER TIME.

CTY-RTE-SECTION

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TYPICAL SECTIONS
GRADING SECTIONS

DESIGN AGENCY
WOOLPERT

DESIGNER
XXX

REVIEWER
XXX MM-DD-YY

PROJECT ID
0

SHEET P.0 | TOTAL 0

SR-161 AND MINK ST INTERCHANGE ALTERNATIVES
TIGHT DIAMOND LAYOUT

HORIZONTAL SCALE IN FEET
0 — 75 — 150 — 300

NOTE: FOR FULL BUILD OPTION NORTH OF INNOVATION CAMPUS WAY, SEE APPENDIX I5. FOR LOW COST OPTION, SEE INSET.

NOTE: FOR FULL BUILD OPTION SOUTH OF WORTHINGTON RD, SEE APPENDIX I5. FOR LOW COST OPTION, SEE INSET.

Innovation Campus Way
Mink St
Cobbs Rd
Worthington Rd
Ramp I
Ramp J
Ramp K
Ramp L
161

1250' Taper
1500' Exit Lane
MATCHLINE - SEE ABOVE
MATCHLINE - SEE BELOW
600' to Stop SB
400' to Stop NB
160' NB & SB 6' Shift Taper
600' 2 Lanes to 1 Lane
CROSS SECTION @ STA. 6+50.00
CROSS SECTION @ STA. 3+00.00
CROSS SECTION @ STA. 40+00.00
CROSS SECTION @ STA. 32+00.00
CROSS SECTION @ STA. 26+00.00
CROSS SECTION @ STA. 106+00.00
CROSS SECTION @ STA. 112+00.00
CROSS SECTION @ STA. 100+00.00
CROSS SECTION @ STA. 35+00.00
CROSS SECTION @ STA. 41+00.00
CROSS SECTION @ STA. 25+00.00
CROSS SECTION @ STA. 13+00.00
CROSS SECTION @ STA. 22+00.00
CROSS SECTION @ STA. 137+00.00
716' R 35 MPH
2292' R 60 MPH
11459' R Exit Diverge Curve
PC Diverge Curve
Max. 600' to Stop SB
Max. 600' to Stop NB
Rec. 300' to Stop SB
515 to Stop SB
511'
300' to Stop SB
300' to Stop NB
625' to Stop NB
305' to Stop NB
521' R 40 MPH
2546' R 60 MPH
ST

1. 2546' R 60 MPH
2. 75° Intersection
3. 70° Intersection

DESIGN AGENCY

DESIGNER	XXX
REVIEWER	XXX MM-DD-YY
PROJECT ID	0
SHEET	P.0
TOTAL	0

CTY-RTE-SECTION

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℄ CONST. SR 161

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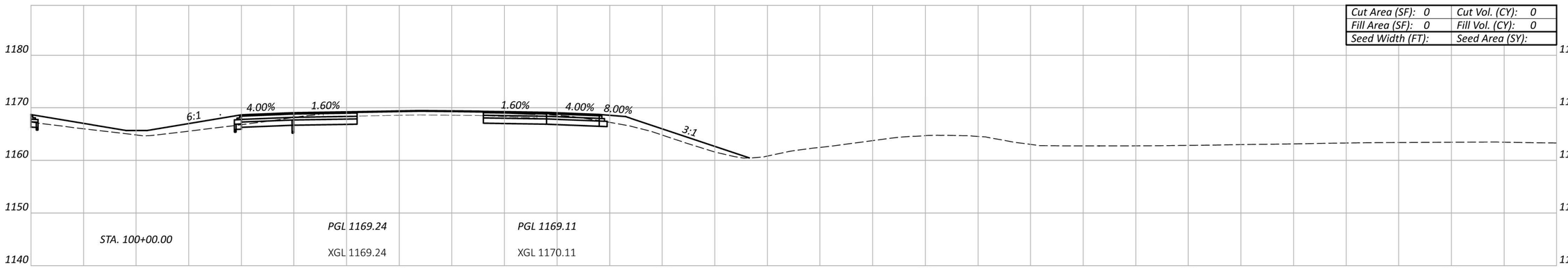

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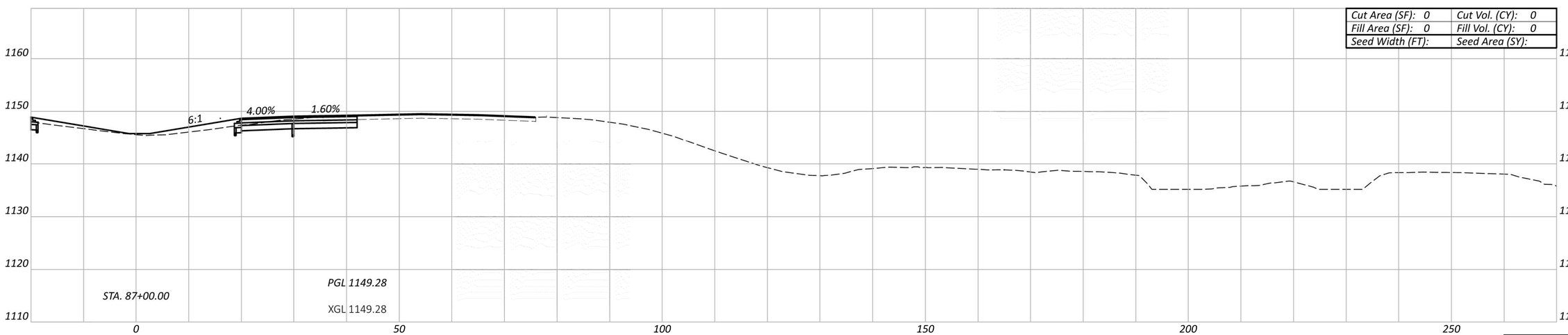

Sheet Totals		
Seeding	Cut	Fill

MINK STREET TIGHT DIAMOND INTERCHANGE
EASTBOUND

DESIGN AGENCY

DESIGNER

REVIEWER

PROJECT ID
117878

SHEET TOTAL

FRA/LIC-161-22.1/0.00

MODEL: EB Left Side 1 [Sheet] PAPERSIZE: 34x22 (in.) DATE: 2/11/2025 TIME: 11:33:23 AM USER: keatingm
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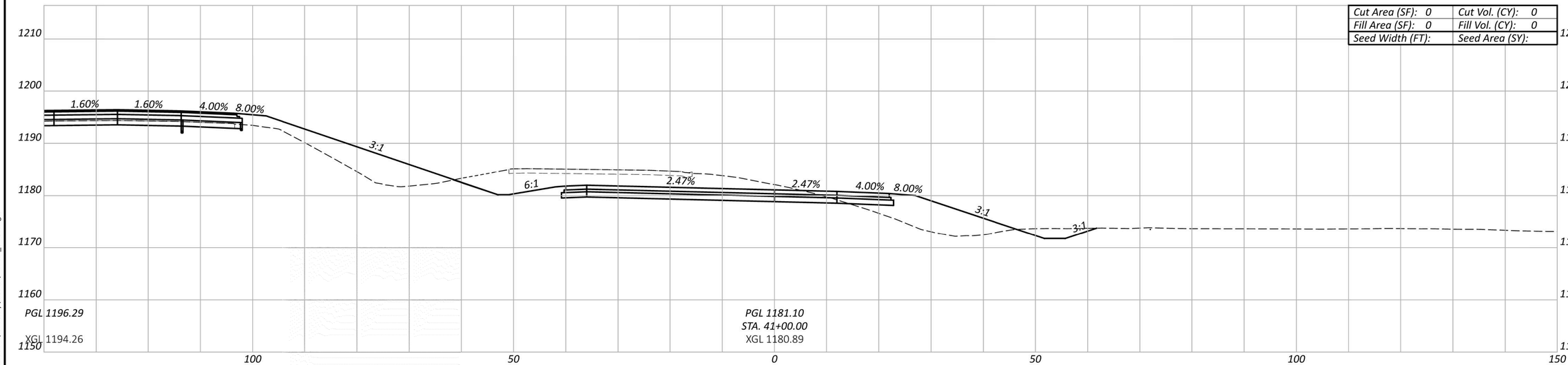
℄ CONST. RAMP K



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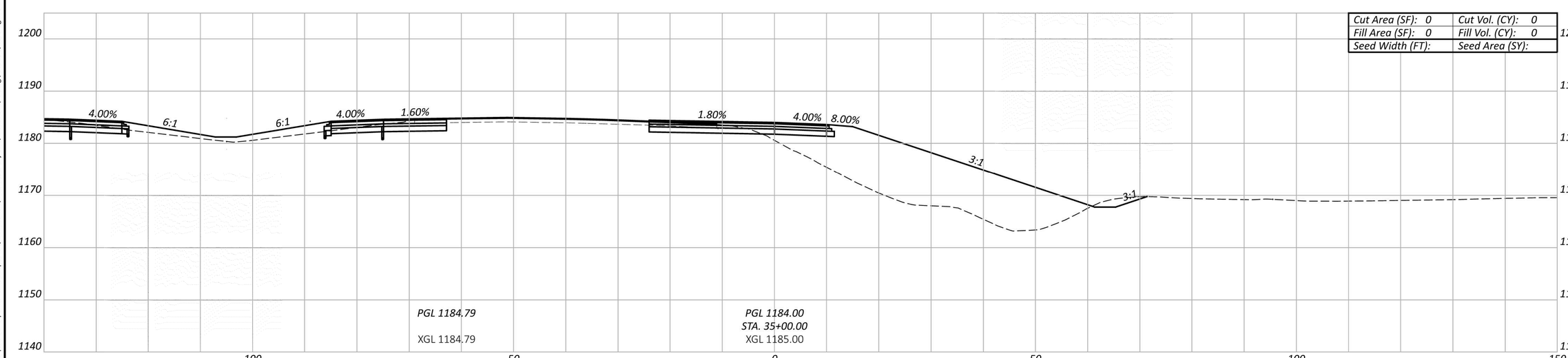

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Sheet Totals		
Seeding	Cut	Fill

FRA/LIC-161-22.1/0.00

MINK STREET TIGHT DIAMOND INTERCHANGE
RAMP K

DESIGN AGENCY

DESIGNER

REVIEWER

PROJECT ID
117878

SHEET TOTAL

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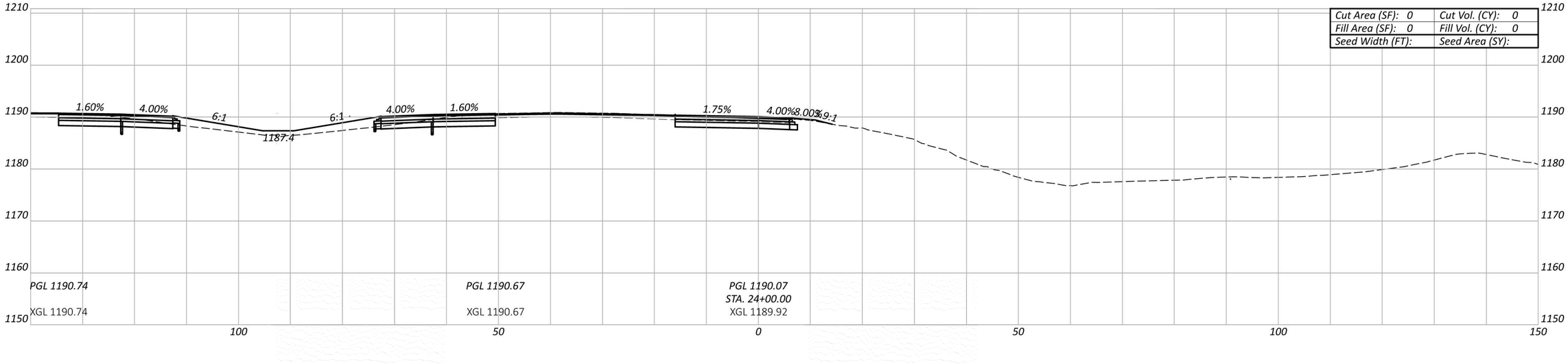
℄ CONST. RAMP L



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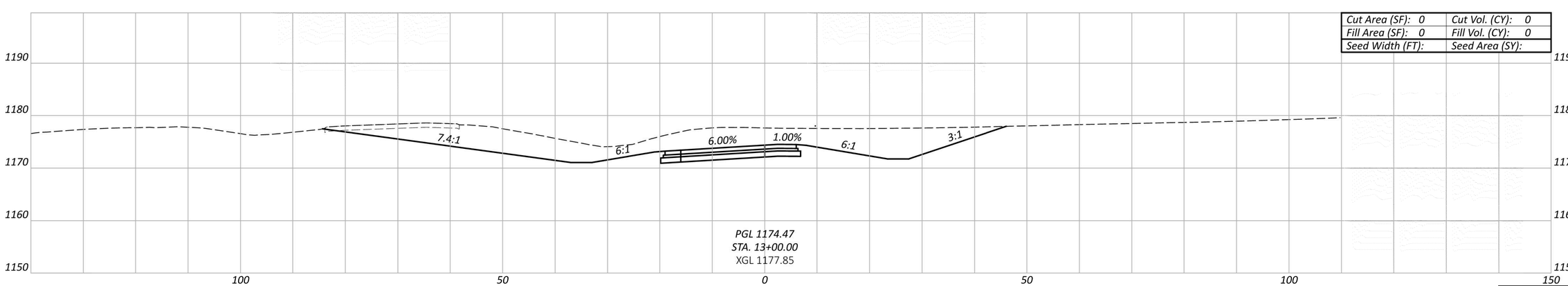

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MINK STREET TIGHT DIAMOND INTERCHANGE
RAMP L

DESIGN AGENCY

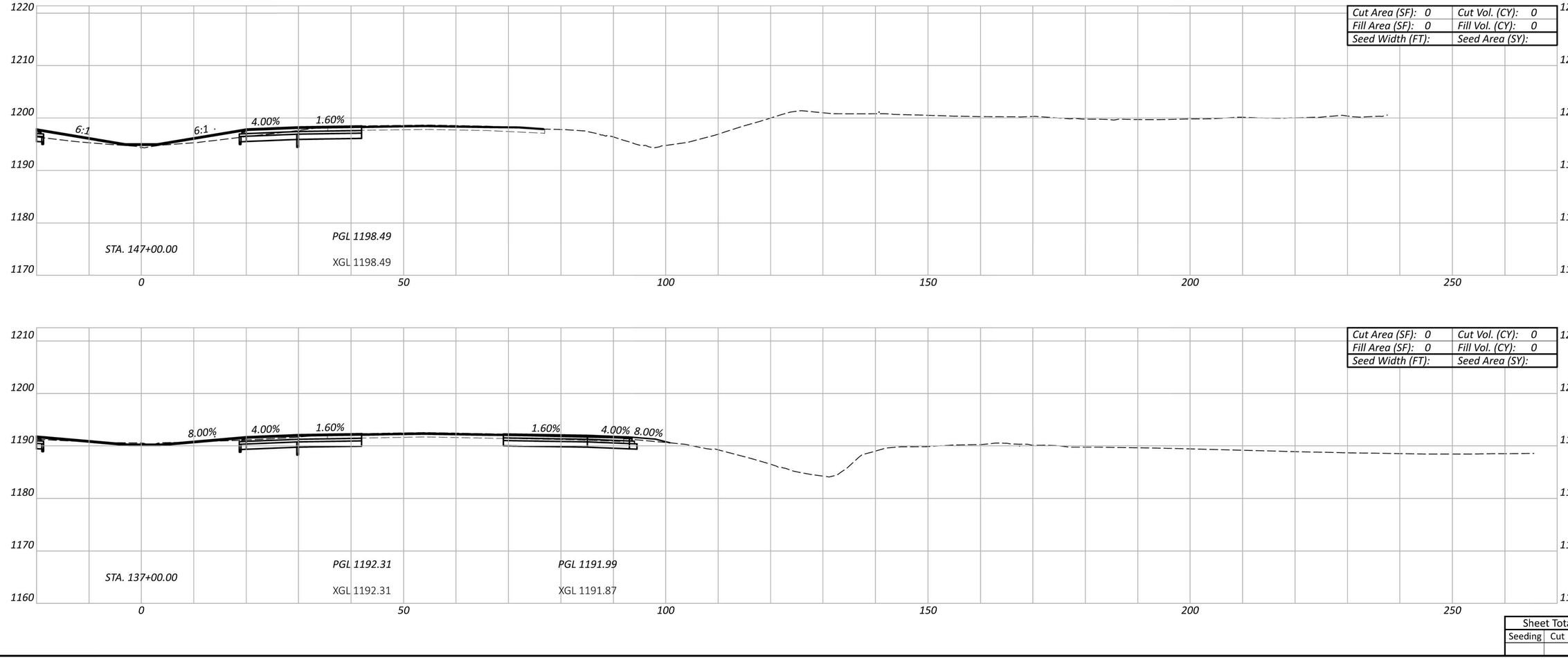
DESIGNER

REVIEWER

PROJECT ID
117878

SHEET TOTAL

℄ CONST. SR 161



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Sheet Totals		
Seeding	Cut	Fill

MINK STREET TIGHT DIAMOND INTERCHANGE EASTBOUND

DESIGN AGENCY

DESIGNER

REVIEWER

PROJECT ID
117878

SHEET | TOTAL

FRA/LIC-161-22.1/0.00

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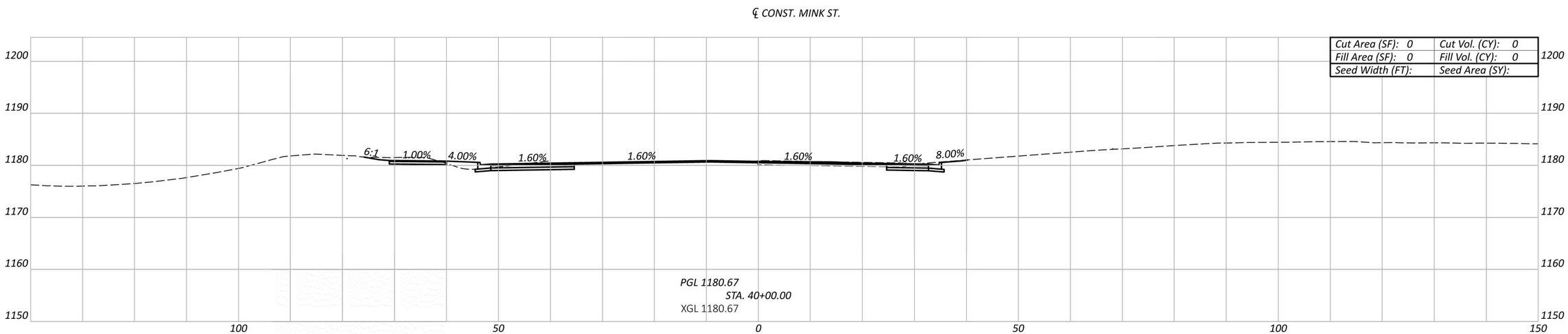

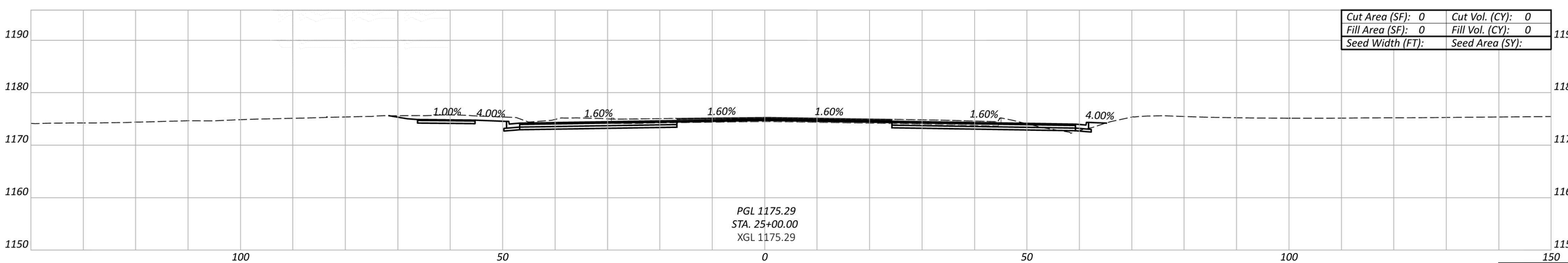

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MINK STREET TIGHT DIAMOND INTERCHANGE
MINK STREET

DESIGN AGENCY

DESIGNER

REVIEWER

PROJECT ID
117878

SHEET TOTAL

FRA/LIC-161-22.1/0.00

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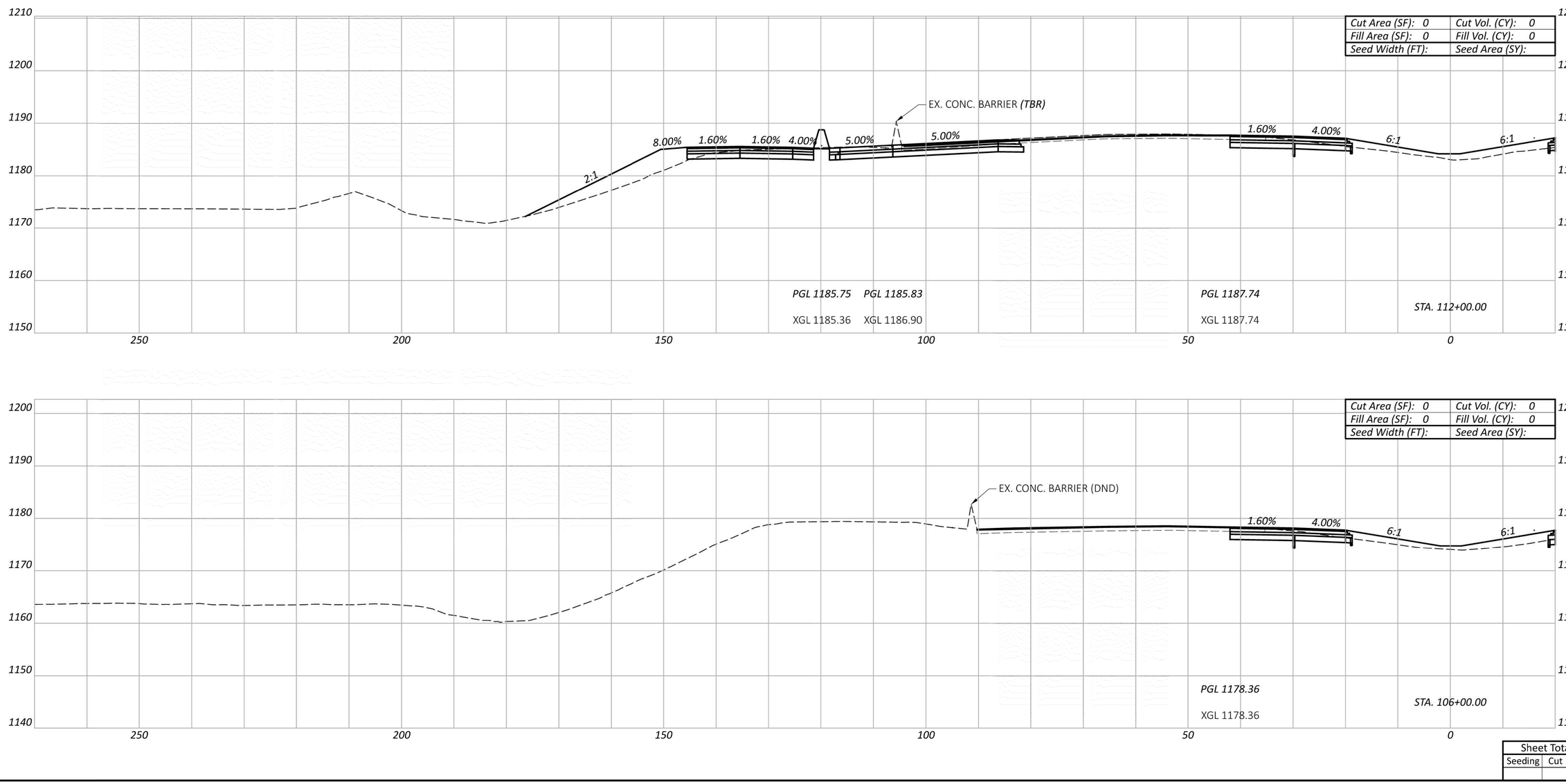

Sheet Totals

Seeding	Cut	Fill

MINK STREET TIGHT DIAMOND INTERCHANGE
WESTBOUND

DESIGN AGENCY

DESIGNER

REVIEWER

PROJECT ID
117878

SHEET TOTAL

FRA/LIC-161-22.1/0.00

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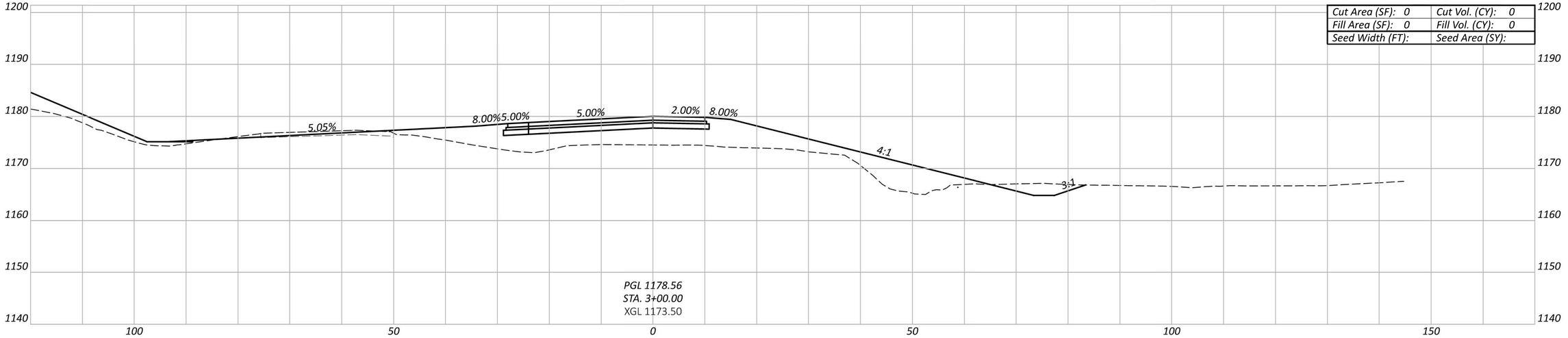
℄ CONST. RAMP I



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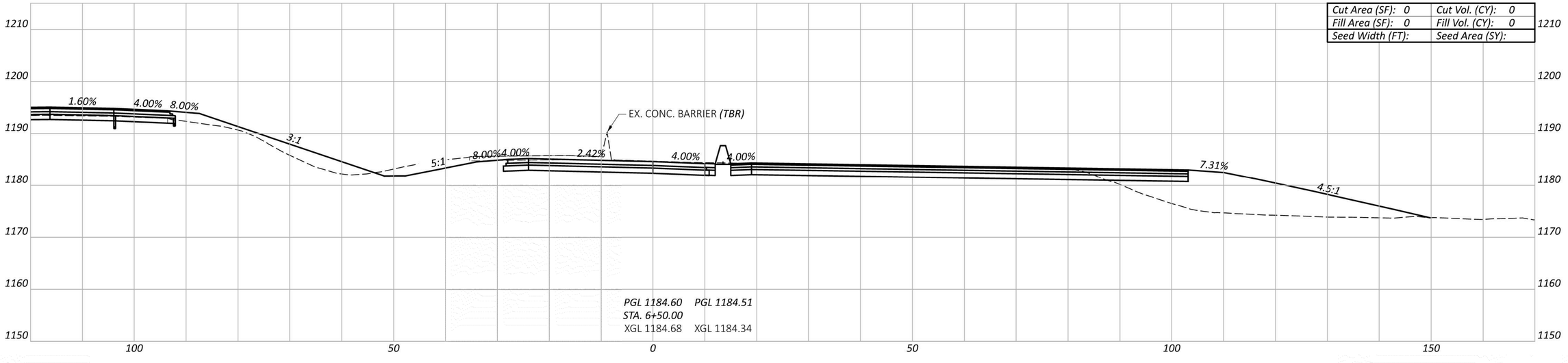

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Sheet Totals		
Seeding	Cut	Fill

FRA/LIC-161-22.1/0.00

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MINK STREET TIGHT DIAMOND INTERCHANGE
RAMP I

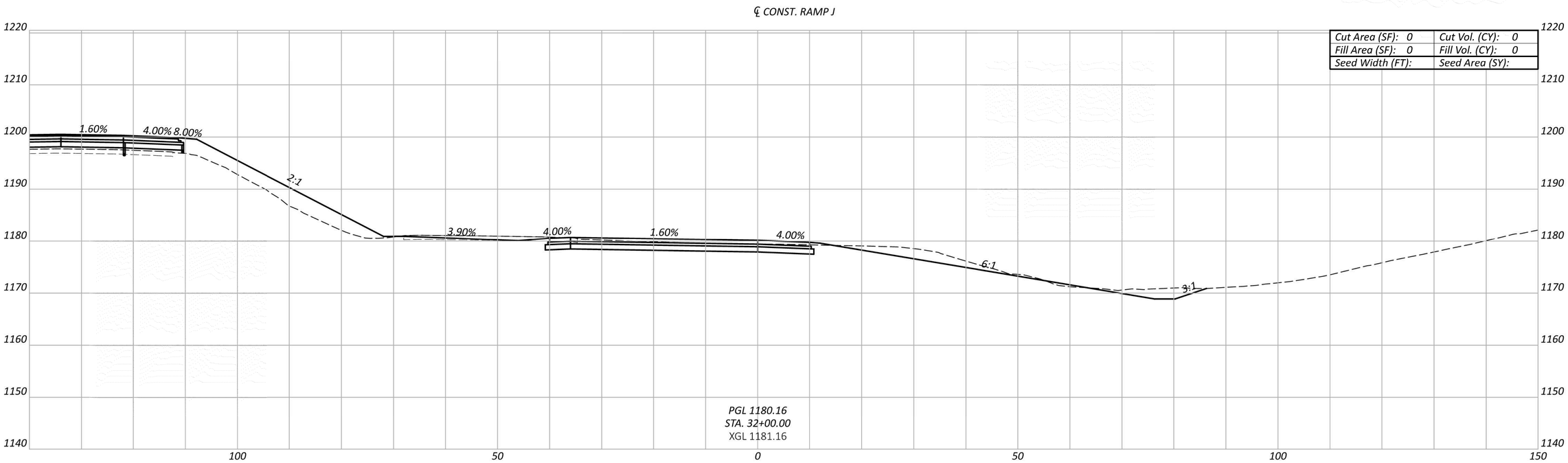
DESIGN AGENCY

DESIGNER

REVIEWER

PROJECT ID
117878

SHEET TOTAL



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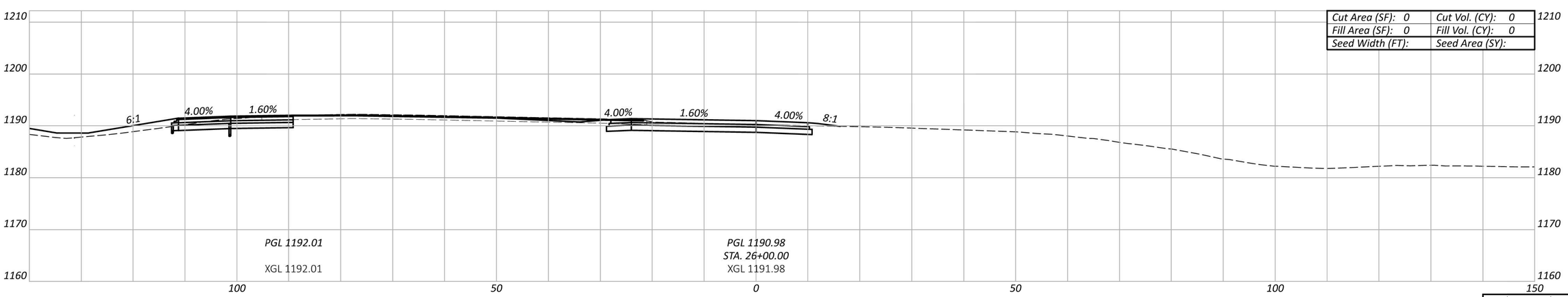

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Sheet Totals		
Seeding	Cut	Fill

MINK STREET TIGHT DIAMOND INTERCHANGE
RAMP J

DESIGN AGENCY

DESIGNER

REVIEWER

PROJECT ID
117878

SHEET TOTAL

FRA/LIC-161-22.1/0.00

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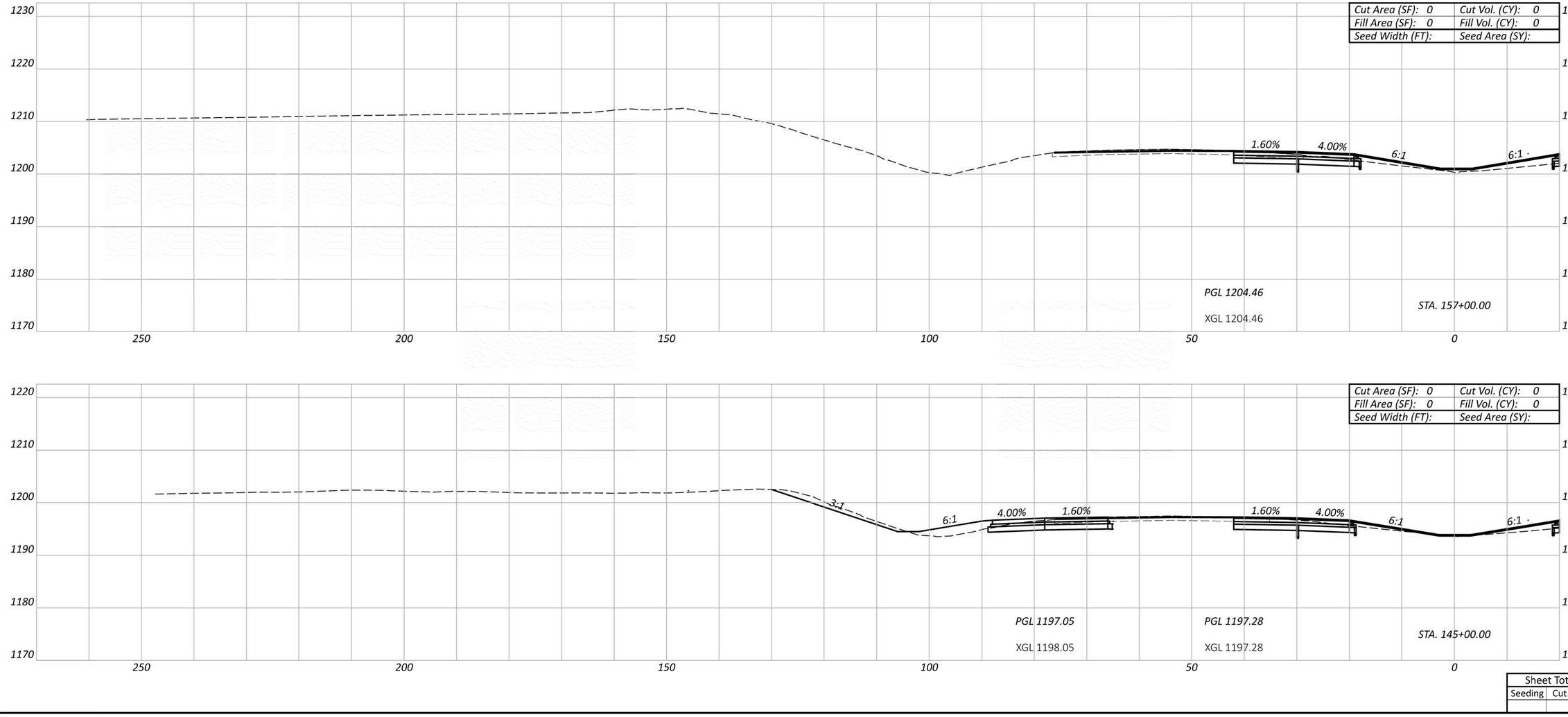
℄ CONST. SR 161



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MINK STREET TIGHT DIAMOND INTERCHANGE
WESTBOUND

DESIGN AGENCY

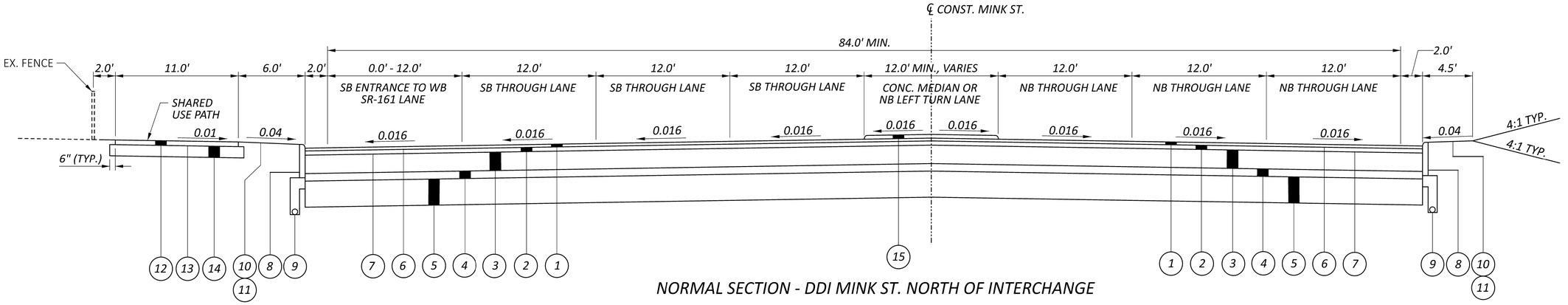
DESIGNER

REVIEWER

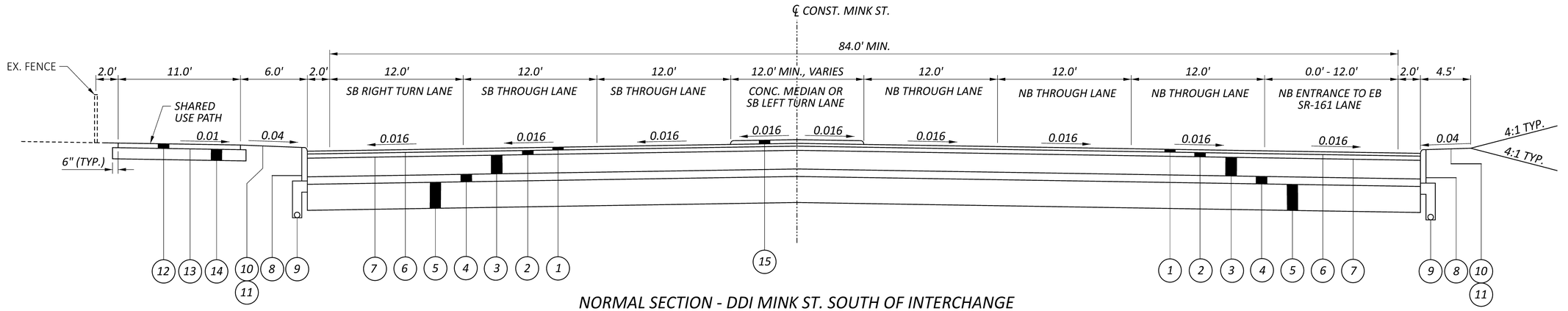
PROJECT ID
117878

SHEET TOTAL

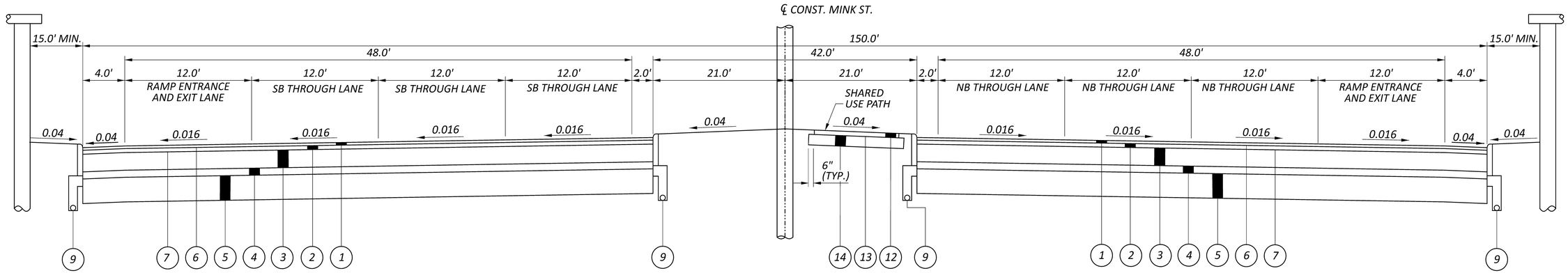
Appendix I2: Mink Street Diverging Diamond Interchange Proposed Alternative Plans



NORMAL SECTION - DDI MINK ST. NORTH OF INTERCHANGE



NORMAL SECTION - DDI MINK ST. SOUTH OF INTERCHANGE



NORMAL SECTION - DDI MINK ST. UNDER STRUCTURE

*FULL DEPTH PAVEMENT SECTIONS ARE SHOWN, SCHEMATIC AND ESTIMATE INCLUDE SALVAGING OF EXISTING PAVEMENT ALONG MINK ST WHERE APPLICABLE TO REDUCE COSTS

LEGEND

1. ITEM 442 - 1.5" ASPHALT CONCRETE SURFACE COURSE, 12.5 MM, TYPE A (448)
2. ITEM 442 - 2.25" ASPHALT CONCRETE INTERMEDIATE COURSE, 19 MM, TYPE A (448)
3. ITEM 305 - 10" CONCRETE BASE, CLASS QC 1P
4. ITEM 304 - 4" AGGREGATE BASE
5. ITEM 206 - CEMENT STABILIZED SUBGRADE, 14" DEEP
6. ITEM 407 - NON-TRACKING TACK COAT (0.06 GAL/SY)
7. ITEM 407 - NON-TRACKING TACK COAT (0.06 GAL/SY)
8. ITEM 609 - CURB, TYPE 6
9. ITEM 605 - 6" PIPE UNDERDRAIN (WITH #57 AGGREGATE INCLUDED IN COST OF UNDERDRAIN)
10. ITEM 659 - SEEDING AND MULCHING, CLASS 1
11. ITEM 659 - TOPSOIL (T=4")
12. ITEM 441 - ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (448), PG64-22 (T=2.5")
13. ITEM 204 - SUBGRADE COMPACTION
14. ITEM 304 - 6" AGGREGATE BASE
15. ITEM 609 - CONCRETE MEDIAN

NOTE:

PAVEMENT BUILDUP FOR SR-161, MINK STREET, AND ALL RAMPS WILL BE DETERMINED AT A LATER TIME.

TYPICAL SECTIONS
DDI ALTERNATIVE

CTY-RTE-SECTION

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DESIGN AGENCY
WOOLPERT

DESIGNER	XXX
REVIEWER	XXX MM-DD-YY
PROJECT ID	0
SHEET	P.0
TOTAL	0

SR-161 AND MINK ST INTERCHANGE ALTERNATIVES
DDI LAYOUT

HORIZONTAL SCALE IN FEET
0 75 150 300

NOTE: FOR FULL BUILD OPTION NORTH OF INNOVATION CAMPUS WAY, SEE APPENDIX I5. FOR LOW COST OPTION, SEE INSET.

NOTE: FOR FULL BUILD OPTION SOUTH OF WORTHINGTON RD, SEE APPENDIX I5. FOR LOW COST OPTION, SEE INSET.

Innovation Campus Way
Mink St
Cobbs Rd
Worthington Rd
Ramp I
Ramp J
Ramp K
Ramp L
161

MATCHLINE - SEE BELOW
MATCHLINE - SEE ABOVE

1500' Exit Lane
PC Diverge Curve
13751' R Exit Diverge Curve
PC Exit Curve
13751' R Exit Curve
600' - 2 to 1 Lane
849'
368'
200'
790' to Stop SB
570' to Stop NB
305' to Stop NB

Horizontal Sight Distance
Min. = 23' - Lane Width/2 for 25 mph

W-1 OPTIONAL: Placement of Retaining Wall to Reduce Right of Way Impacts to Parcel.

1 116' R WB to NB 20 MPH
2 205' R WB to SB 25 MPH
3 116' R SB to EB 20 MPH
4 205' R NB to EB 25 MPH
5 100' R EB to SB 20 MPH
6 205' R EB to NB 25 MPH
7 135' R NB to WB 20 MPH
8 205' R SB to WB 25 MPH
9 521' R SB 35 MPH

CROSS SECTION @ STA. 0+00.00
CROSS SECTION @ STA. 1+00.00
CROSS SECTION @ STA. 3+00.00
CROSS SECTION @ STA. 4+00.00
CROSS SECTION @ STA. 6+00.00
CROSS SECTION @ STA. 7+00.00
CROSS SECTION @ STA. 8+00.00
CROSS SECTION @ STA. 26+00.00
CROSS SECTION @ STA. 38+00.00

Max. 800' to Stop NB
Max. 810' to Stop SB
Max. 660' to Stop NB
Rec. 550' to Stop NB
Rec. 380' to Stop SB
Rec. 400' to Stop NB
Rec. 350' to Stop SB

1012' NB 45 MPH
1012' R NB 45 MPH
298' NB 35 MPH
298' R NB 25 MPH
298' R SB 25 MPH
298'R SB 25 MPH
2865' R 60 MPH
7639' R 60 MPH
1432' R
716' R
424'
521' R SB 35 MPH

DESIGN AGENCY

DESIGNER XXX
REVIEWER XXX MM-DD-YY
PROJECT ID 0
SHEET P.0 TOTAL 0

CTY-RTE-SECTION

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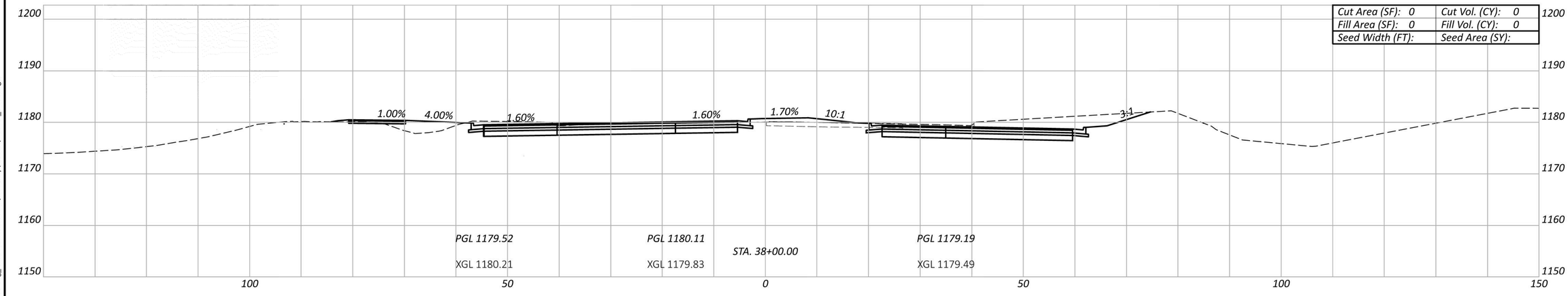
℄ CONST. MINK ST.



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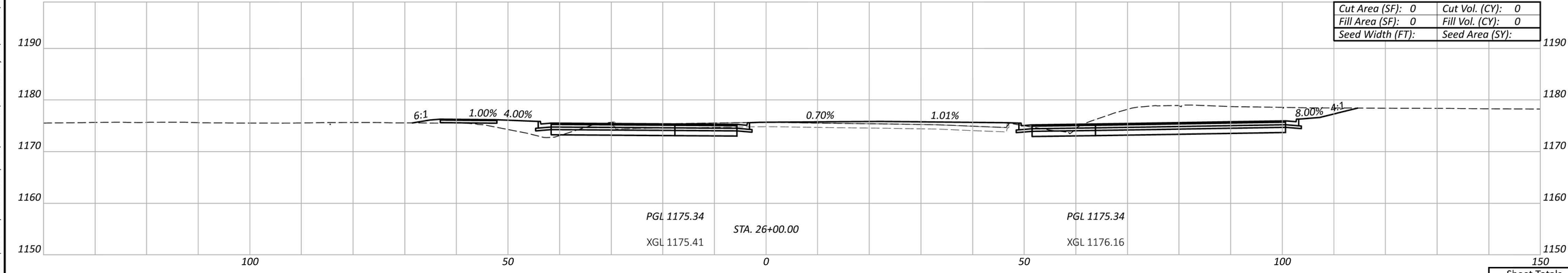

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MINK STREET DDI INTERCHANGE
MINK STREET

DESIGN AGENCY

DESIGNER

REVIEWER

PROJECT ID
117878

SHEET TOTAL

FRA/LIC-161-22.1/0.00

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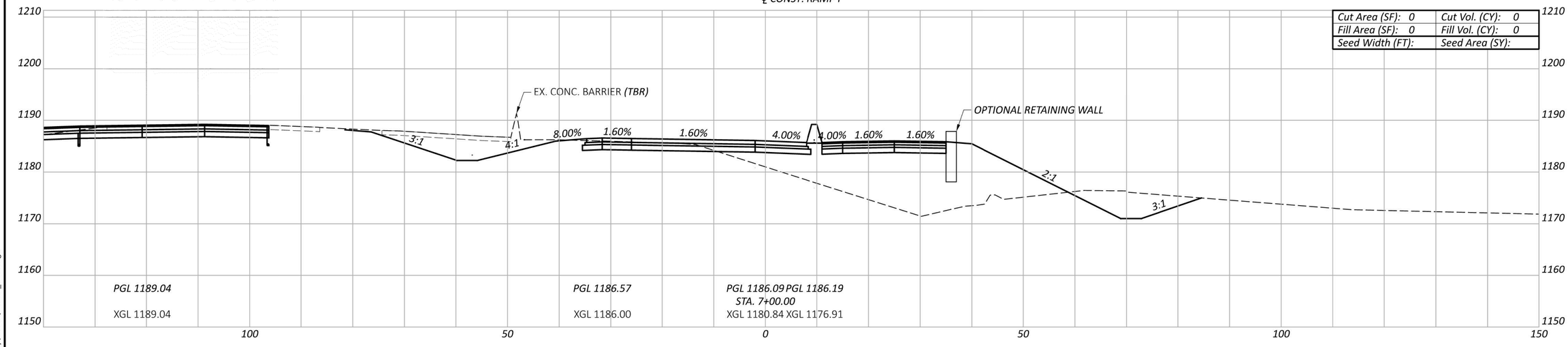

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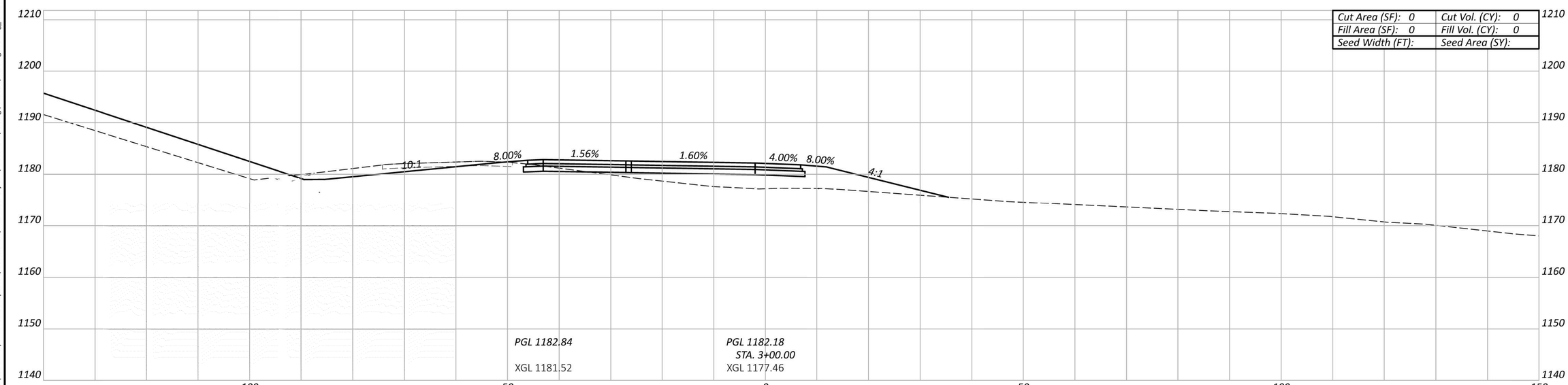

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MINK STREET DDI INTERCHANGE
RAMP I

DESIGN AGENCY

DESIGNER

REVIEWER

PROJECT ID
117878

SHEET TOTAL

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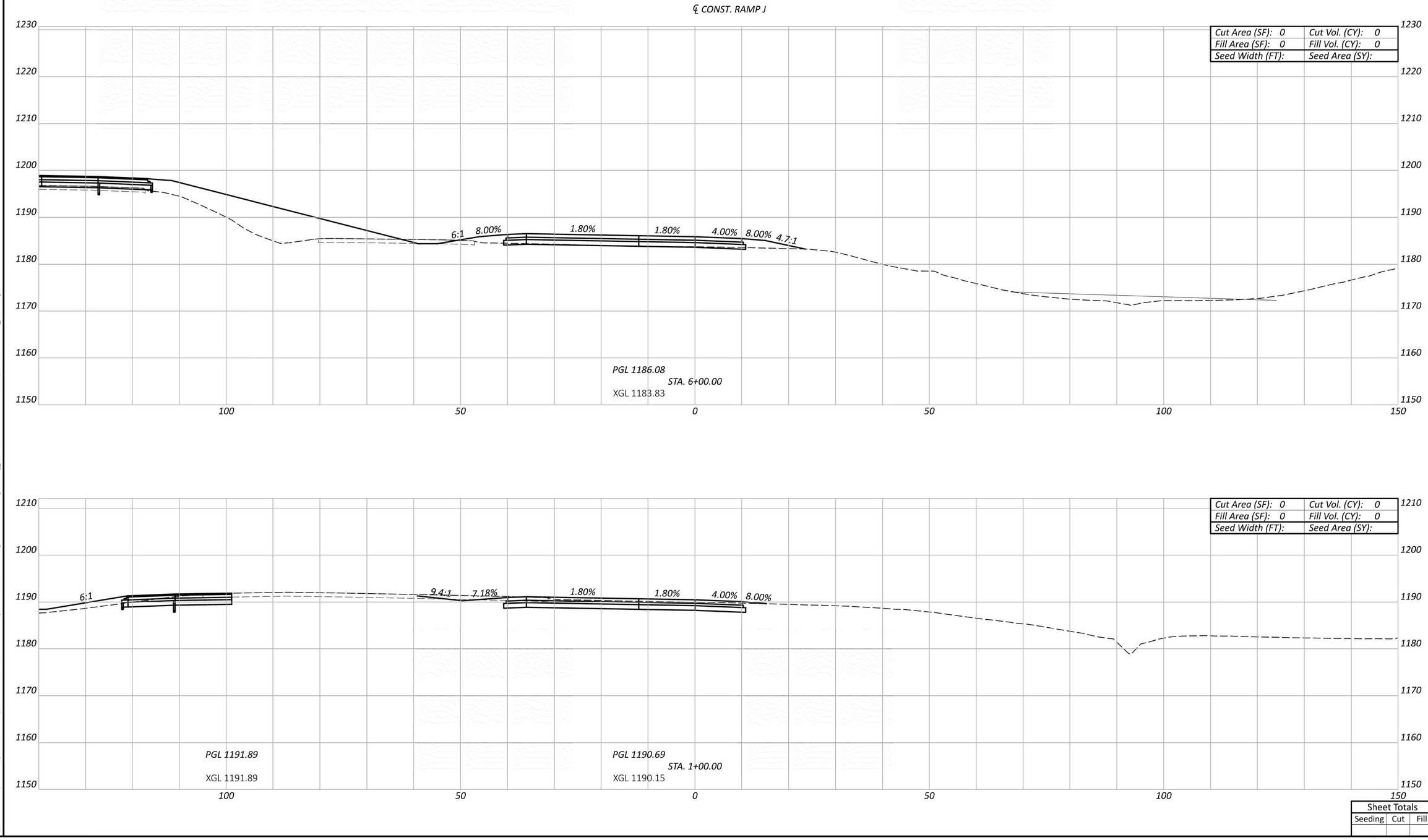

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MINK STREET DDI INTERCHANGE
RAMP J

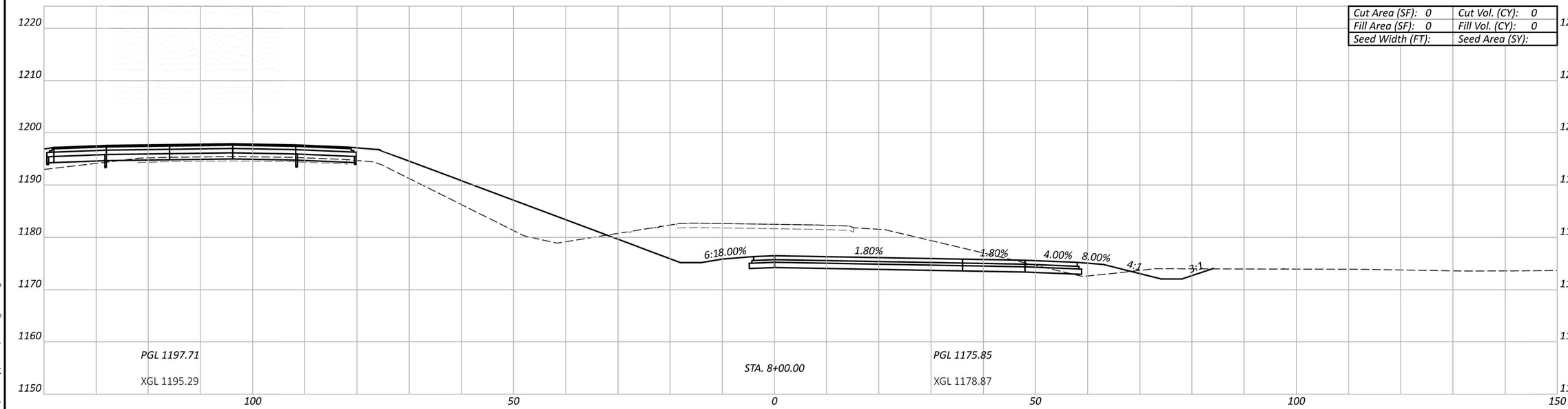
DESIGN AGENCY

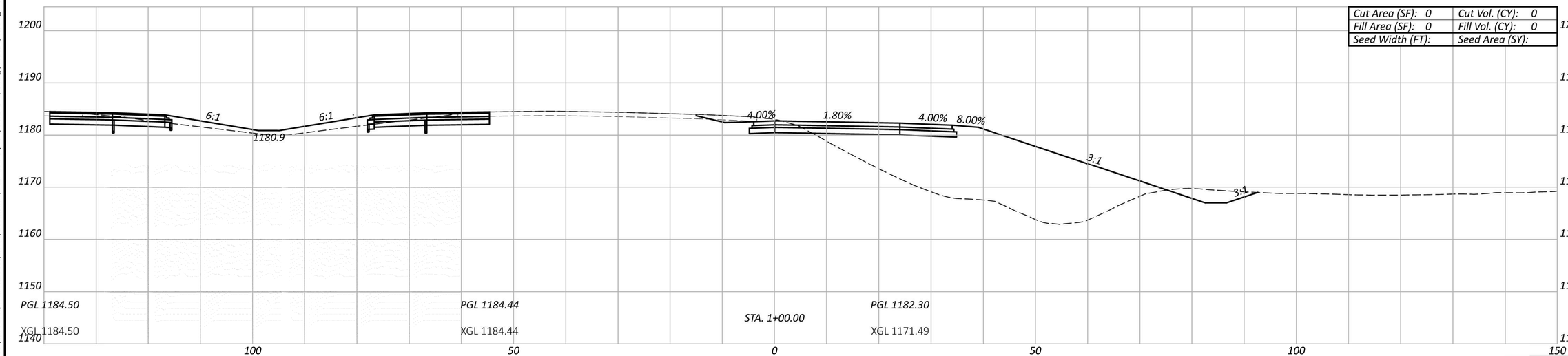
DESIGNER

REVIEWER

PROJECT ID
117878

SHEET TOTAL





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DESIGN AGENCY

DESIGNER

REVIEWER

PROJECT ID
117878

SHEET TOTAL

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℄ CONST. RAMP L

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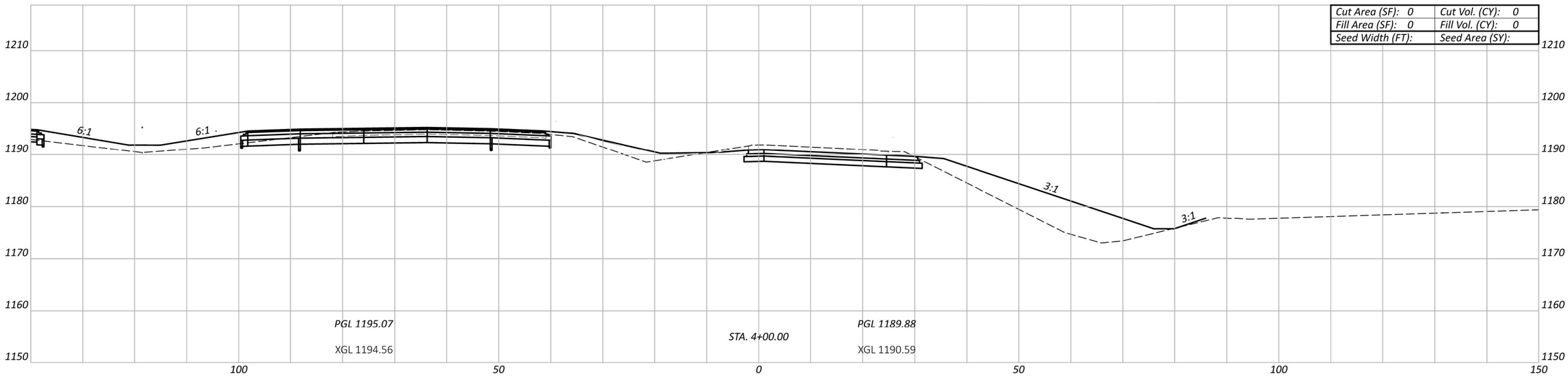

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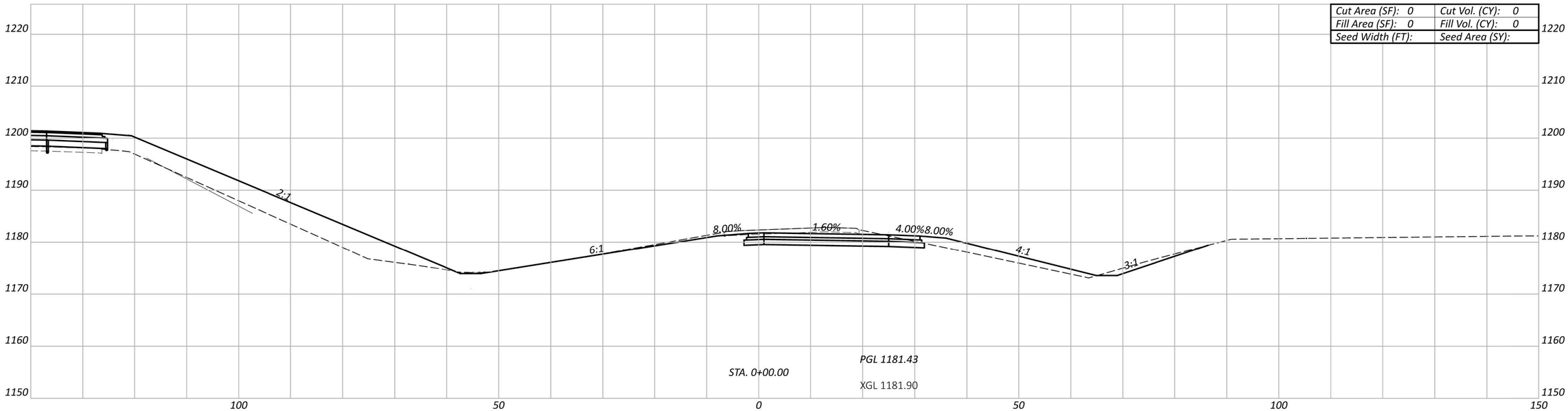

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MINK STREET DDI INTERCHANGE
RAMP L

DESIGN AGENCY

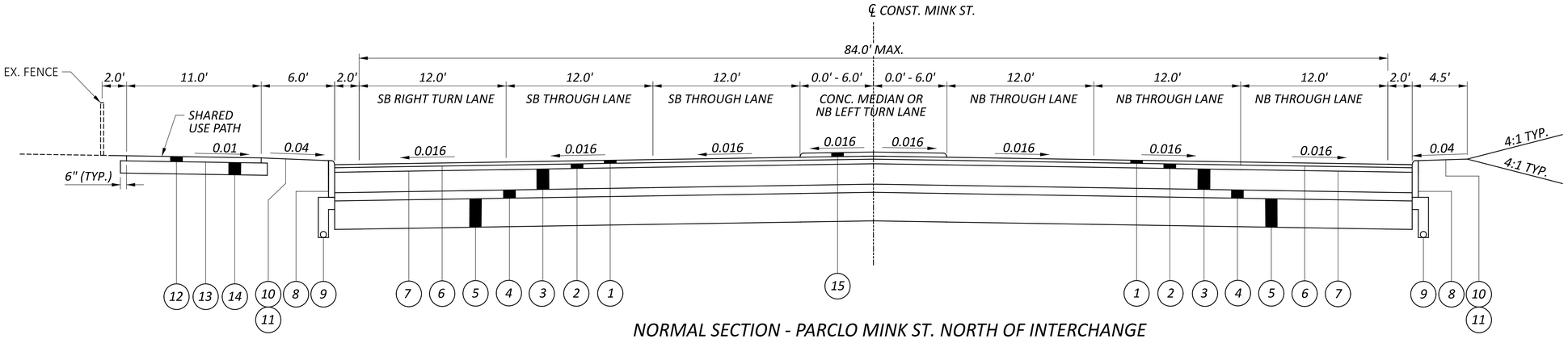
DESIGNER

REVIEWER

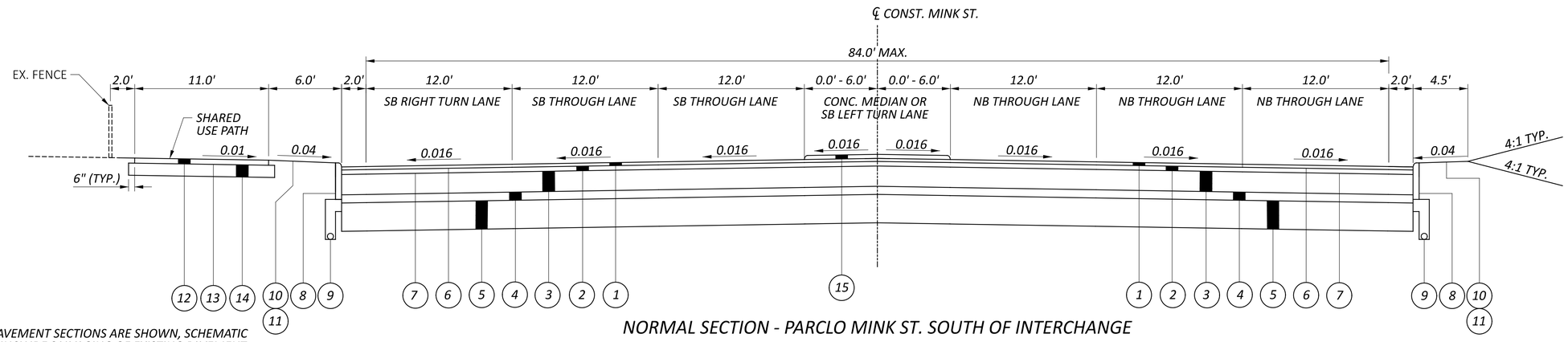
PROJECT ID
117878

SHEET TOTAL

Appendix I3: Mink Street PARCLO Interchange Proposed Alternative Plans

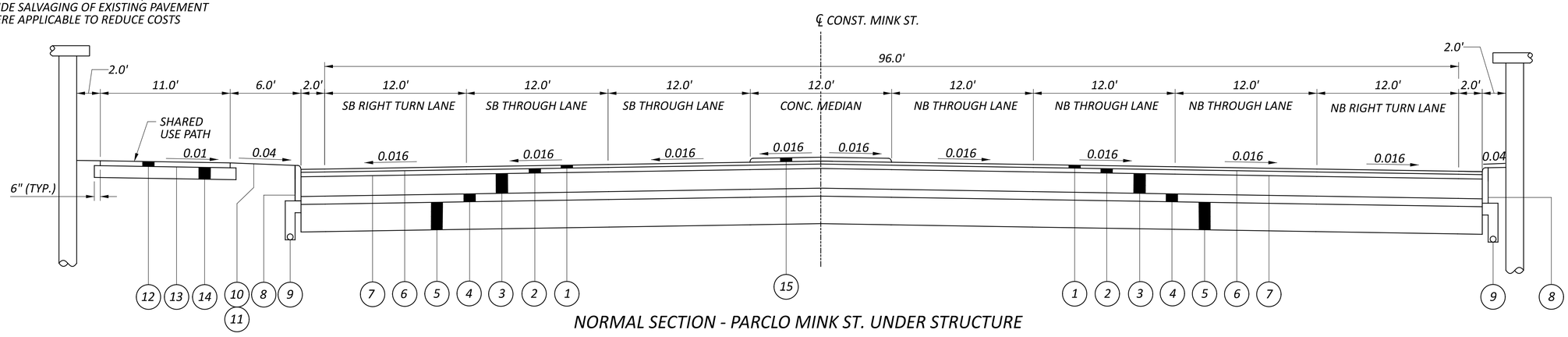


NORMAL SECTION - PARCLO MINK ST. NORTH OF INTERCHANGE



NORMAL SECTION - PARCLO MINK ST. SOUTH OF INTERCHANGE

*FULL DEPTH PAVEMENT SECTIONS ARE SHOWN, SCHEMATIC AND ESTIMATE INCLUDE SALVAGING OF EXISTING PAVEMENT ALONG MINK ST WHERE APPLICABLE TO REDUCE COSTS



NORMAL SECTION - PARCLO MINK ST. UNDER STRUCTURE

LEGEND

1. ITEM 442 - 1.5" ASPHALT CONCRETE SURFACE COURSE, 12.5 MM, TYPE A (448)
2. ITEM 442 - 2.25" ASPHALT CONCRETE INTERMEDIATE COURSE, 19 MM, TYPE A (448)
3. ITEM 305 - 10" CONCRETE BASE, CLASS QC 1P
4. ITEM 304 - 4" AGGREGATE BASE
5. ITEM 206 - CEMENT STABILIZED SUBGRADE, 14" DEEP
6. ITEM 407 - NON-TRACKING TACK COAT (0.06 GAL/SY)
7. ITEM 407 - NON-TRACKING TACK COAT (0.06 GAL/SY)
8. ITEM 609 - CURB, TYPE 6
9. ITEM 605 - 6" PIPE UNDERDRAIN (WITH #57 AGGREGATE INCLUDED IN COST OF UNDERDRAIN)
10. ITEM 659 - SEEDING AND MULCHING, CLASS 1
11. ITEM 659 - TOPSOIL (T=4")
12. ITEM 441 - ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (448), PG64-22 (T=2.5")
13. ITEM 204 - SUBGRADE COMPACTION
14. ITEM 304 - 6" AGGREGATE BASE
15. ITEM 609 - CONCRETE MEDIAN

NOTE:

PAVEMENT BUILDUP FOR SR-161, MINK STREET, AND ALL RAMPS WILL BE DETERMINED AT A LATER TIME.

TYPICAL SECTIONS
PARCLO ALTERNATIVE

CTY-RTE-SECTION

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DESIGN AGENCY
WOOLPERT

DESIGNER XXX
REVIEWER XXX MM-DD-YY
PROJECT ID 0
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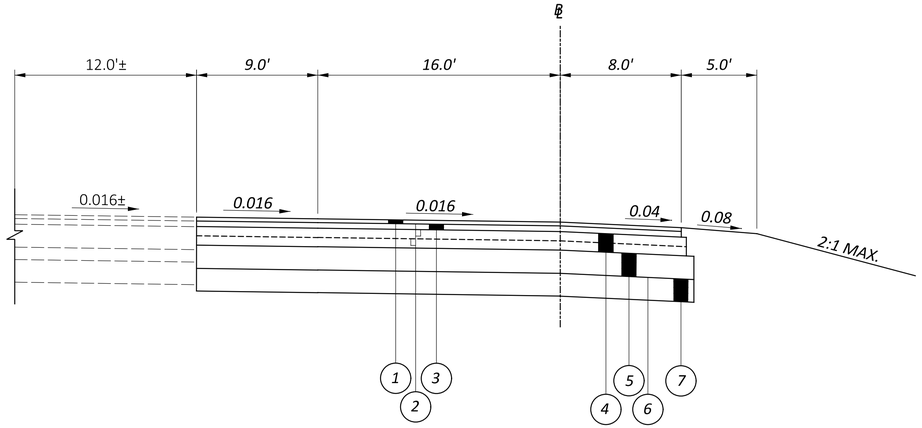
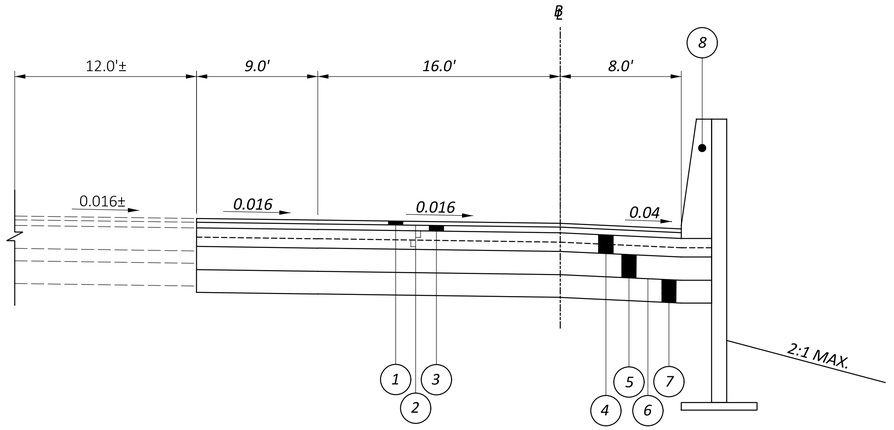


NORMAL SECTION
LOOP RAMP AND SR-161



NORMAL SECTION
LOOP RAMP AND SR-161 W/ RETAINING WALL

LEGEND

1. *ITEM 442 - 1.5" ASPHALT CONCRETE SURFACE COURSE, 12.5 MM, TYPE A (447)*
2. *ITEM 407 - NON-TRACKING TACK COAT*
3. *ITEM 442 - 1.5" ASPHALT CONCRETE INTERMEDIATE COURSE, 12.5 MM, TYPE A (446)*
4. *ITEM 302 - 8" ASPHALT CONCRETE BASE, PG64-22 (449)*
5. *ITEM 304 - 10" AGGREGATE BASE*
6. *ITEM 204 - PROOF ROLLING*
7. *ITEM 206 - CEMENT STABILIZED SUBGRADE, 12 INCHES DEEP*
8. *ITEM 622 - CONCRETE BARRIER, SINGLE SLOPE, TYPE D*

NOTE:

PAVEMENT BUILDUP FOR SR-161, MINK STREET, AND ALL RAMPS WILL BE DETERMINED AT A LATER TIME.

TYPICAL SECTIONS
PARCLO ALTERNATIVE - RAMPS

DESIGN AGENCY
WOOLPERT

DESIGNER: XXX
REVIEWER: XXX MM-DD-YY
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SHEET: P.0 | TOTAL: 0

CTY-RTE-SECTION

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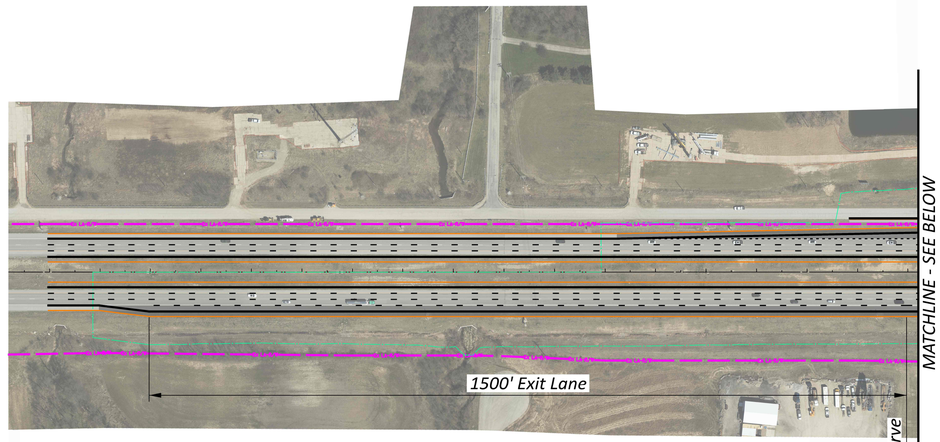

NOTE: FOR FULL BUILD OPTION, SEE "MINK ST FULL BUILD TRAFFIC LAYOUT - NORTH OF INNOVATION CAMPUS WAY" SHEET. FOR LOW COST OPTION, SEE INSET.

1. 716' R EXIT CURVE
2. 80° Intersection
3. 85° Intersection

NOTE: FOR FULL BUILD OPTION SOUTH OF WORTHINGTON RD, SEE APPENDIX I5. FOR LOW COST OPTION, SEE INSET.

HORIZONTAL SCALE IN FEET
0 75 150 300

SR-161 AND MINK ST INTERCHANGE ALTERNATIVES
PARCLO A LAYOUT

DESIGN AGENCY

DESIGNER XXX
REVIEWER XXX MM-DD-YY
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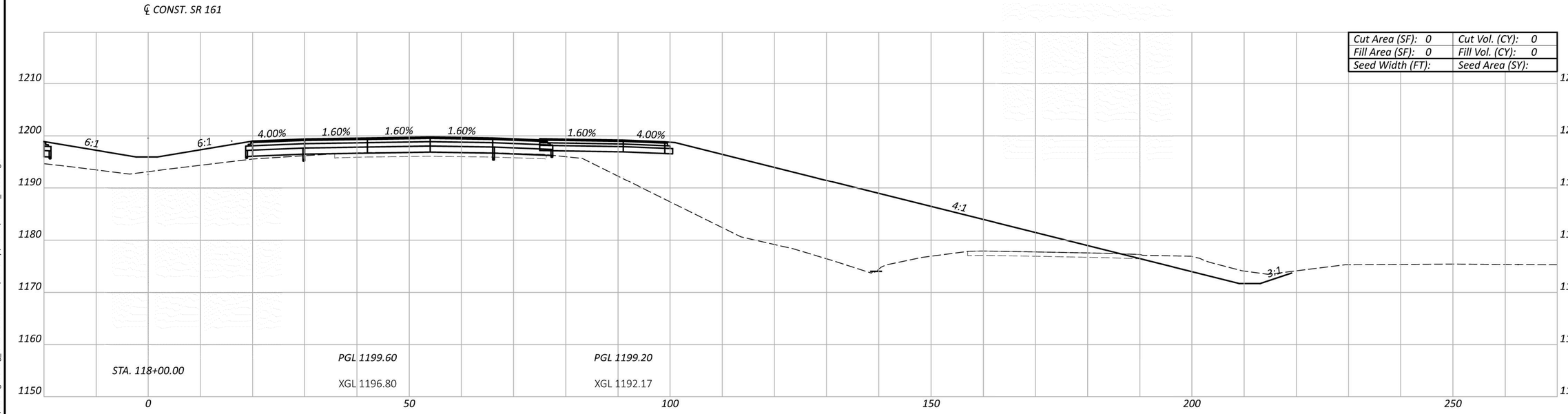
℄ CONST. SR 161



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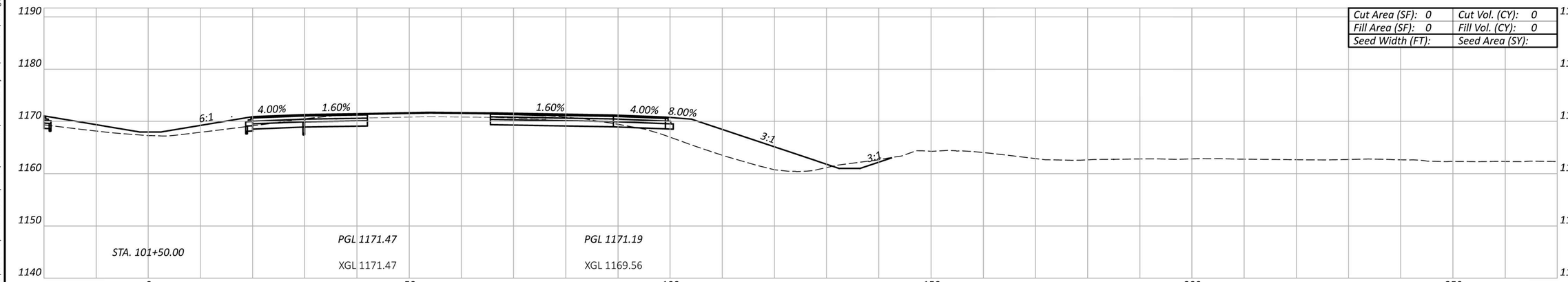

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MINK STREET PARCLO INTERCHANGE
EASTBOUND

DESIGN AGENCY

DESIGNER

REVIEWER

PROJECT ID
117878

SHEET TOTAL

FRA/LIC-161-22.1/0.00

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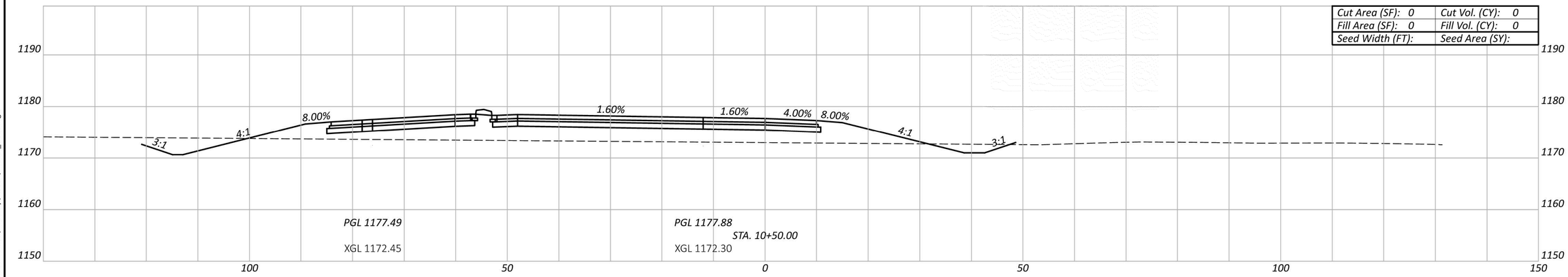

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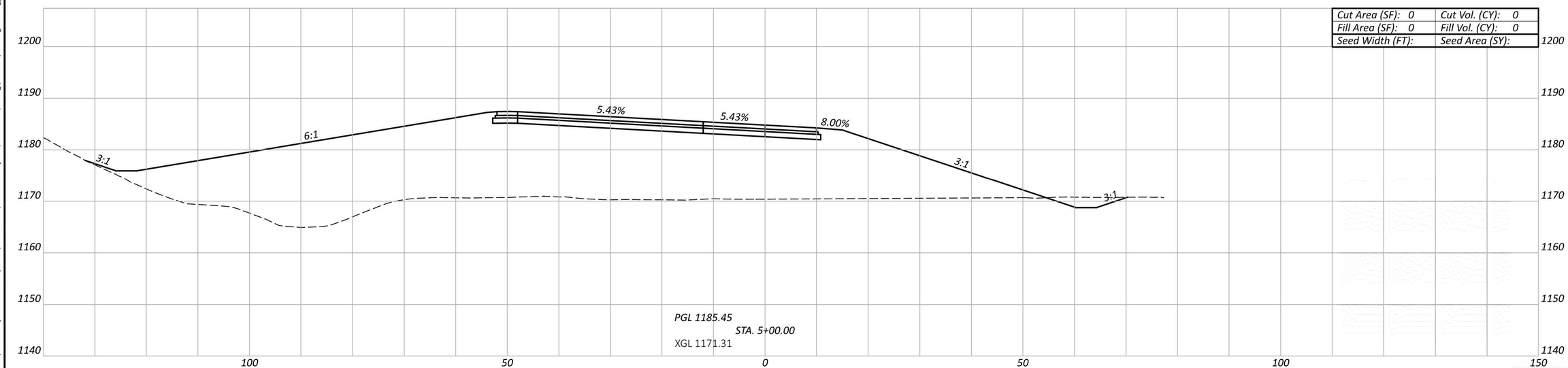

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MINK STREET PARCLO INTERCHANGE
EASTBOUND

DESIGN AGENCY

DESIGNER

REVIEWER

PROJECT ID
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SHEET TOTAL

FRA/LIC-161-22.1/0.00

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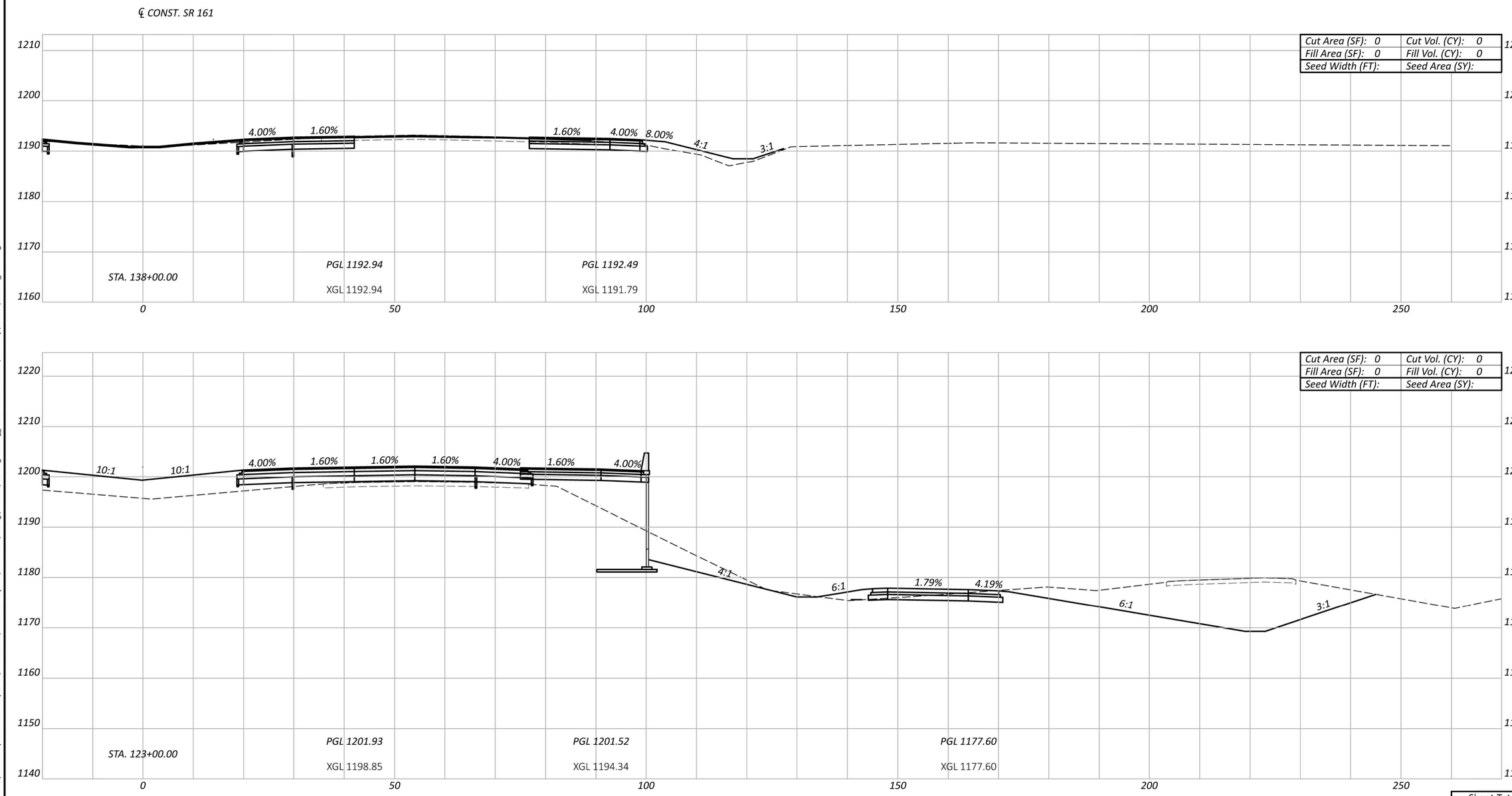

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MINK STREET PARCLO INTERCHANGE
EASTBOUND

Sheet Totals		
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DESIGN AGENCY

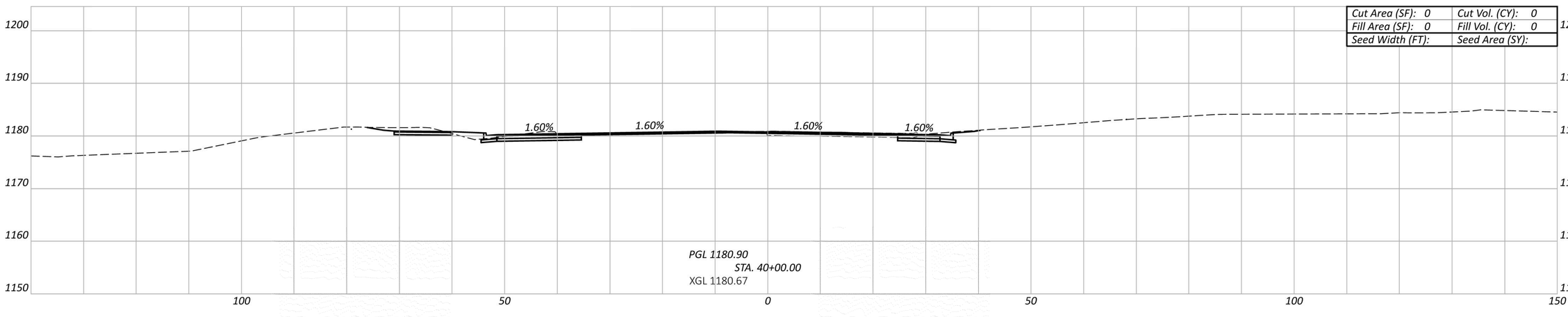
DESIGNER

REVIEWER

PROJECT ID
117878

SHEET TOTAL

℄ CONST. MINK ST.



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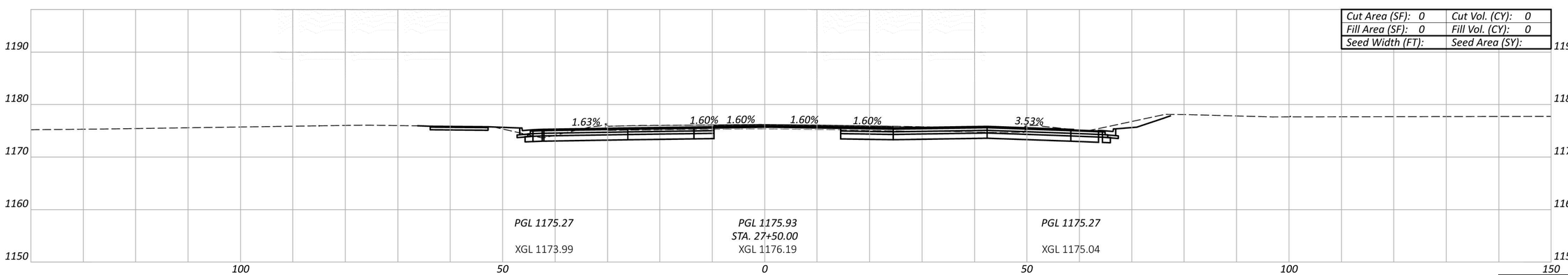

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MINK STREET PARCLO INTERCHANGE
MINK STREET

DESIGN AGENCY

DESIGNER

REVIEWER

PROJECT ID
117878

SHEET TOTAL

℄ CONST. SR 161

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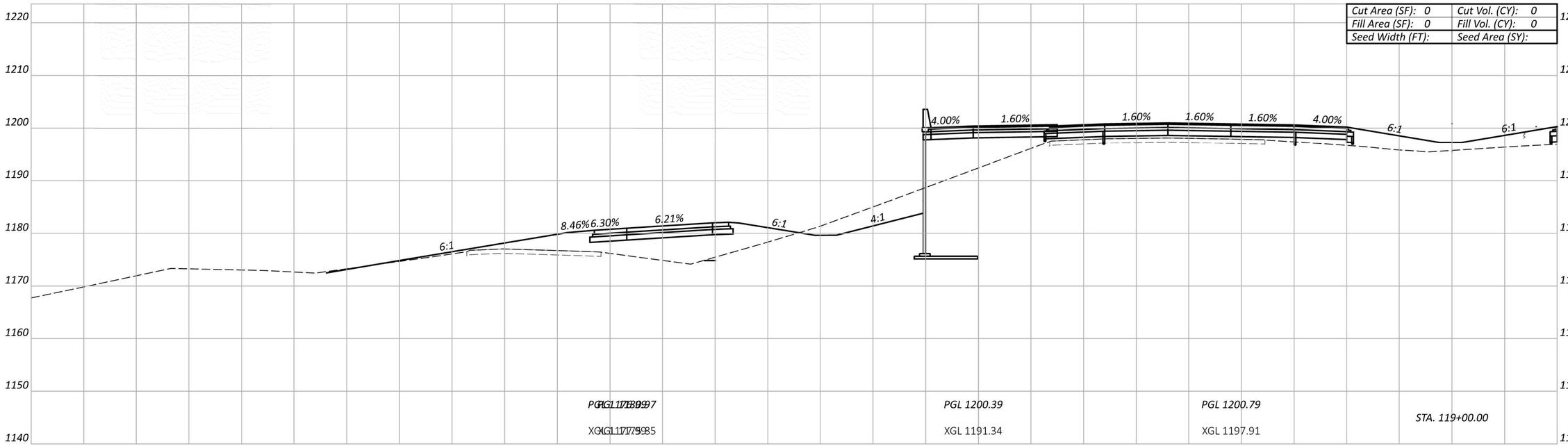

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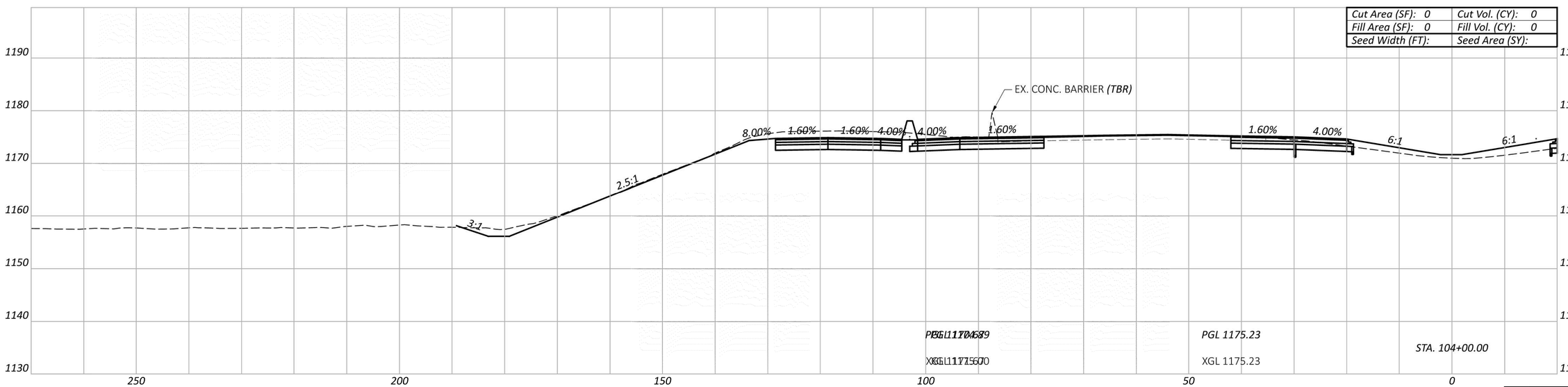

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MINK STREET PARCLO INTERCHANGE
WESTBOUND

DESIGN AGENCY

DESIGNER

REVIEWER

PROJECT ID
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SHEET TOTAL

FRA/LIC-161-22.1/0.00

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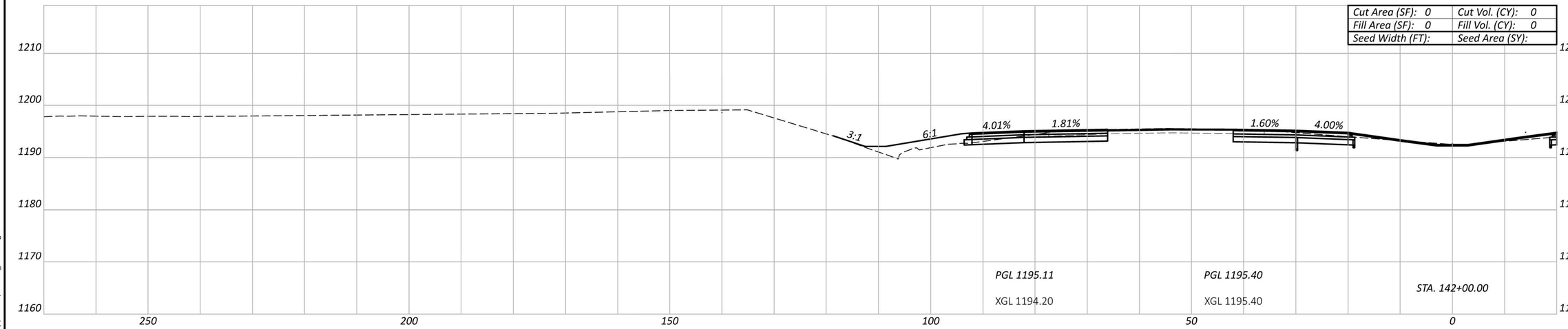

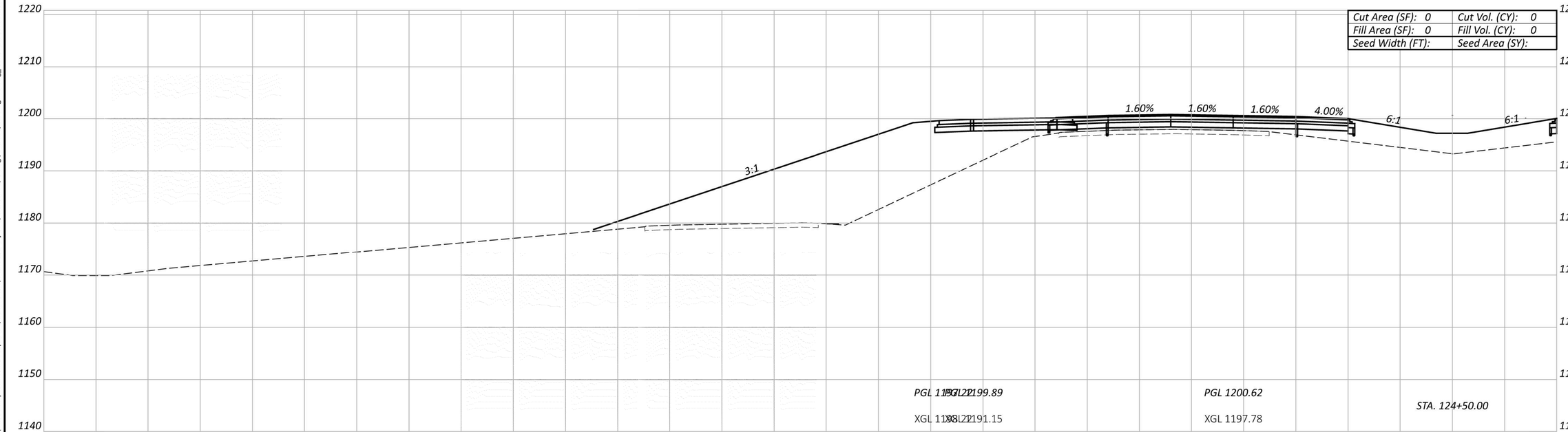

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MINK STREET PARCLO INTERCHANGE
WESTBOUND

DESIGN AGENCY

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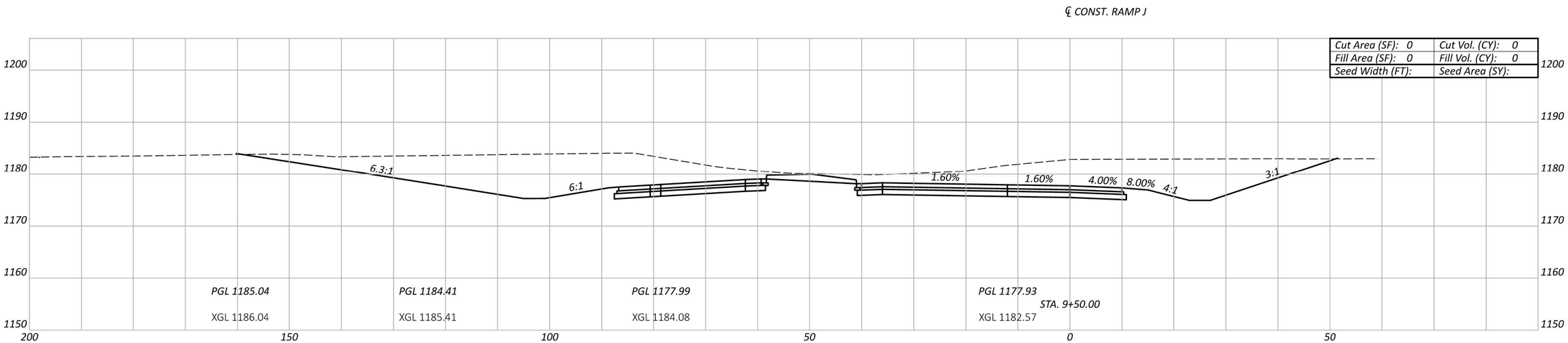

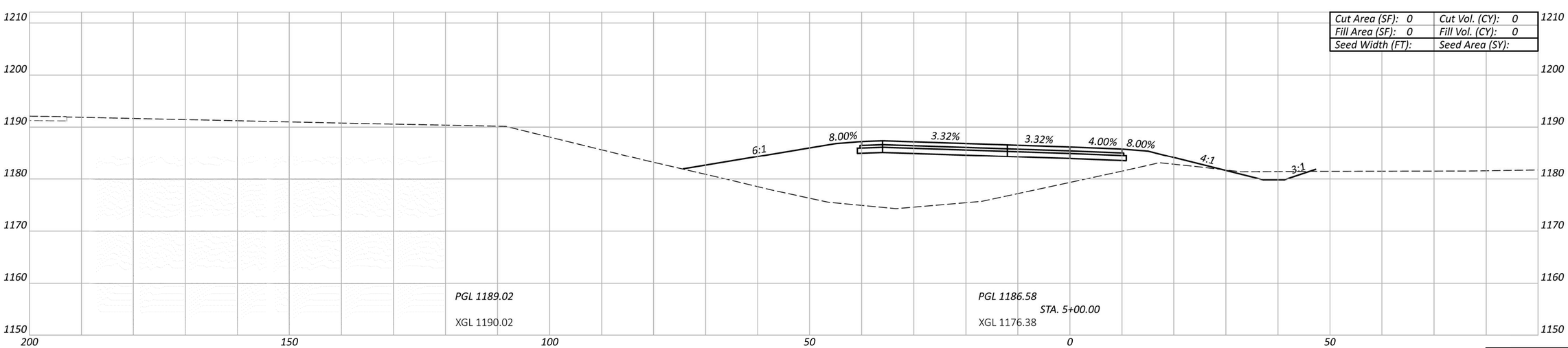

Sheet Totals		
Seeding	Cut	Fill

MINK STREET PARCLO INTERCHANGE
RAMP J

DESIGN AGENCY

DESIGNER

REVIEWER

PROJECT ID
117878

SHEET TOTAL

FRA/LIC-161-22.1/0.00

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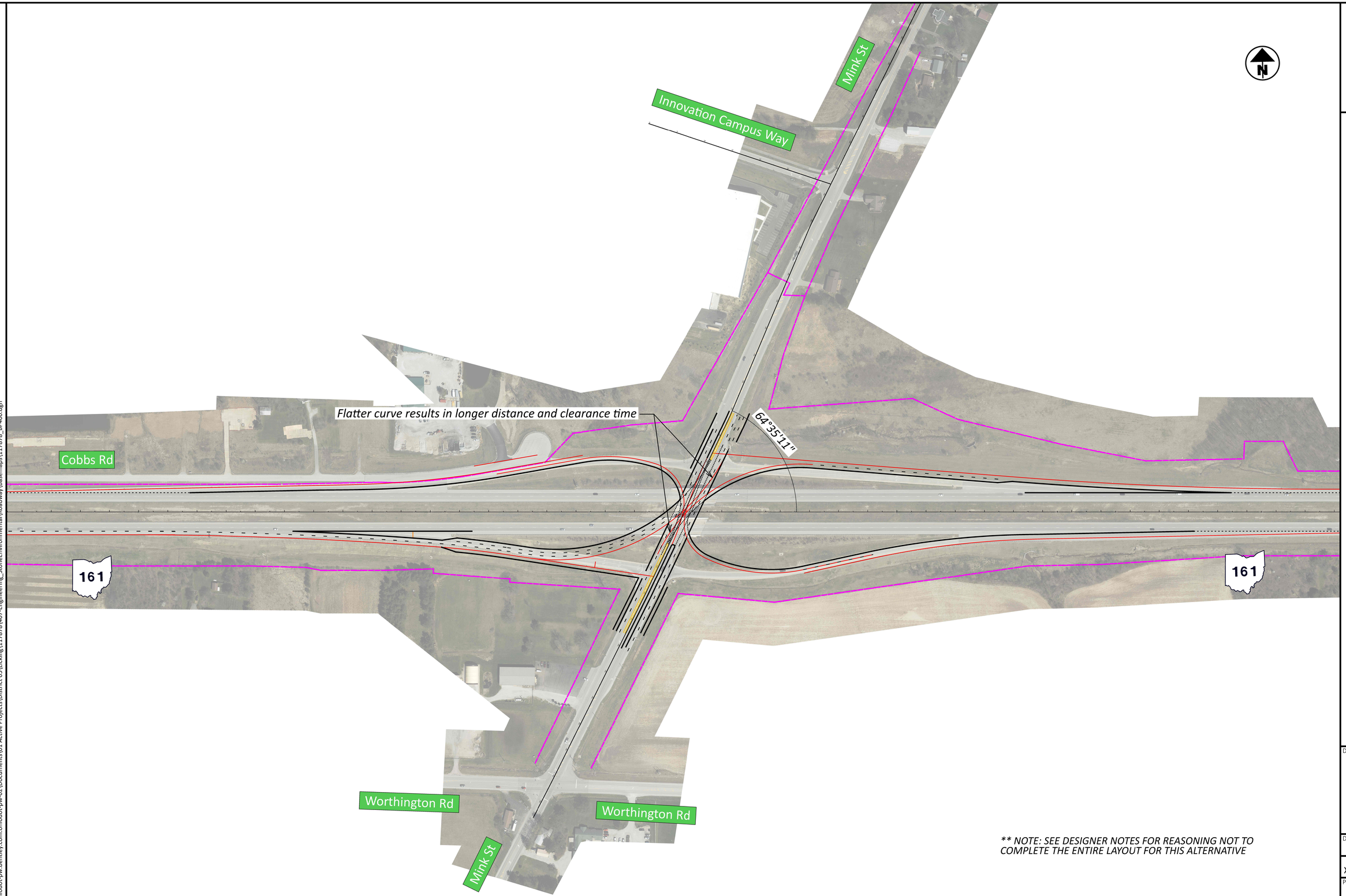
Appendix I4 - Mink Street SPUI Interchange Proposed Alternative Plans



*** NOTE: SEE DESIGNER NOTES FOR REASONING NOT TO COMPLETE THE ENTIRE LAYOUT FOR THIS ALTERNATIVE*

HORIZONTAL SCALE IN FEET
0 75 150 300

SR-161 AND MINK ST INTERCHANGE ALTERNATIVES
SPUI LAYOUT - EXISTING MINK ST ALIGNMENT

DESIGN AGENCY

DESIGNER: XXX
REVIEWER: XXX MM-DD-YY
PROJECT ID: 0
SHEET: P.0 TOTAL: 0

CTY-RTE-SECTION

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HORIZONTAL SCALE IN FEET
0 75 150 300

SR-161 AND MINK ST INTERCHANGE ALTERNATIVES
SPUI LAYOUT - REALGINED 35 MPH MINK ST

DESIGN AGENCY

DESIGNER XXX

REVIEWER XXX MM-DD-YY

PROJECT ID 0

SHEET P.0 TOTAL 0

CTY-RTE-SECTION

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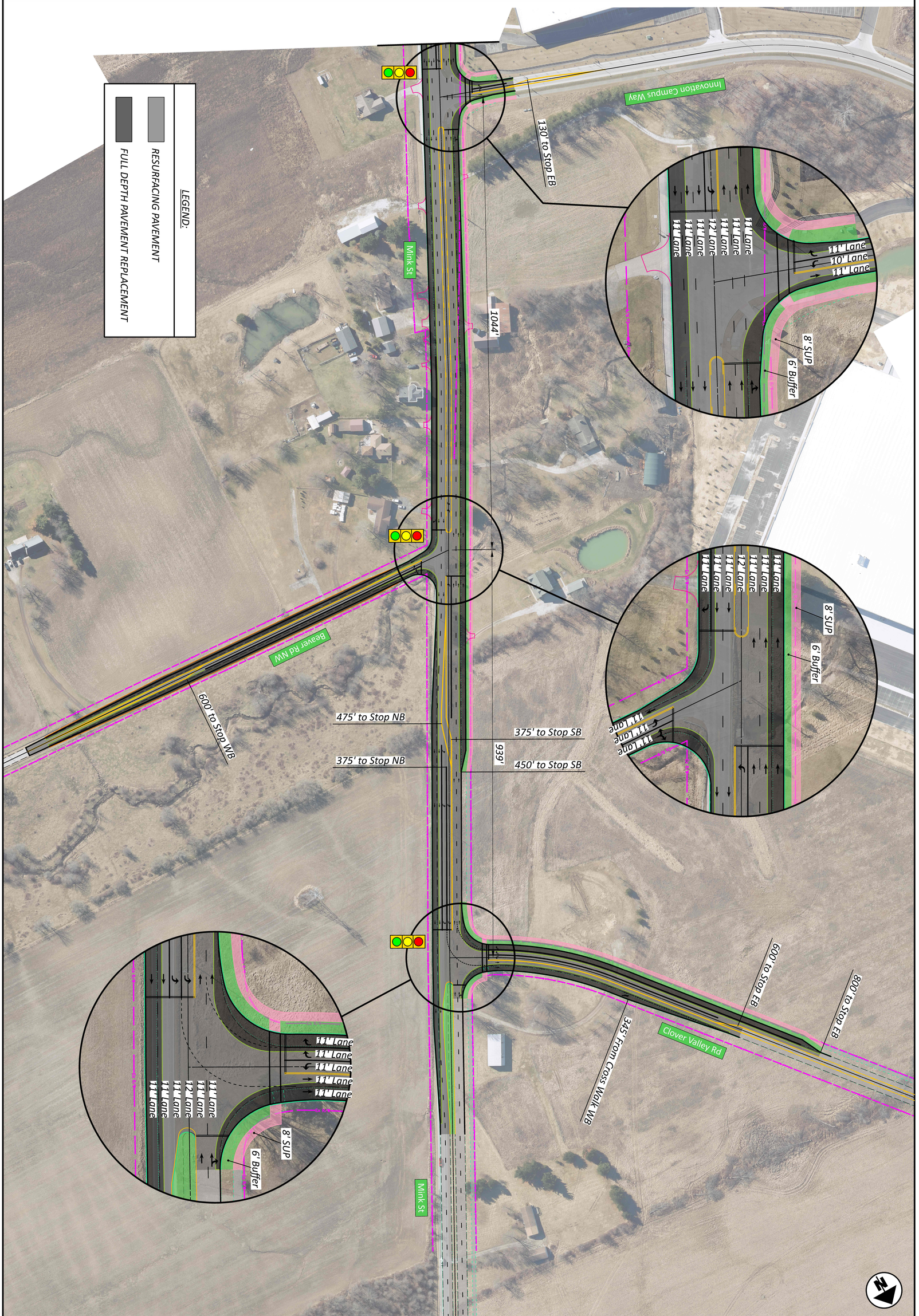
Appendix I5 - Mink Street Full Build Option Plans



DESIGNER: XXX
REVIEWER: XXX
PROJECT ID: MM-DD-YY
SUBSET: 0 TOTAL: 0
SHEET: P.0 TOTAL: 0
DESIGN AGENCY: WOOLPERT

MINK ST - NORTH OF INNOVATION CAMPUS WAY
FULL BUILD TRAFFIC LAYOUT

HORIZONTAL SCALE IN FEET
0 100
50 200

Proposed lane shift taper fits within existing pavement limits

WB 660' Lane Shift Taper (55 mph)

Worthington Rd

WB 660' Lane Shift Taper (55 mph)

Worthington Rd

375' to Stop SB

350' to Stop EB

380' From Crosswalk SB

Mink St

SB 605' Lane Drop Taper (55 mph)

600' to Stop NB

755' to Stop SB

NB and SB 302.5' Lane Shift Taper (55 mph)

LEGEND:

- RESURFACING PAVEMENT
- FULL DEPTH PAVEMENT REPLACEMENT

HORIZONTAL SCALE IN FEET

0 50 100 200

MINK ST - WORTHINGTON RD AND SOUTH
FULL BUILD TRAFFIC LAYOUT

DESIGN AGENCY

WOOLPERT

DESIGNER: XXX

REVIEWER: XXX MM-DD-YY

PROJECT ID: 0

SUBSET: 0 TOTAL: 0

SHEET: P.0 TOTAL: 0

CTY-RTE-SECTION

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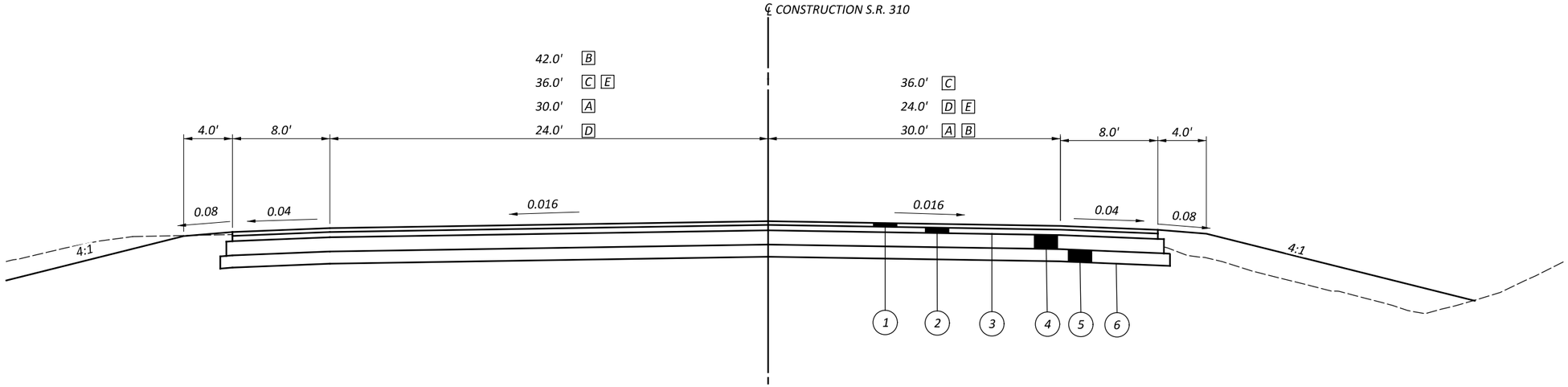
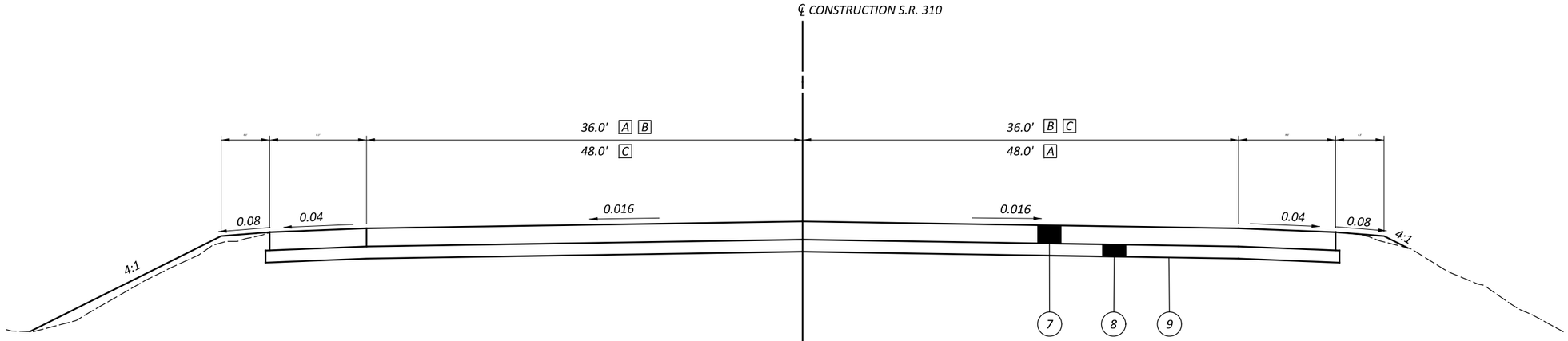
Appendix J1: SR-310 Interchange Traffic Signal Proposed Alternative Plans



NORMAL SECTION - ASPHALT

A SOUTH OF WORTHINGTON ROAD
B NORTH OF WORTHINGTON ROAD
C SOUTH TO NORTH OF JERSEY MILL ROAD
D SOUTH OF JUG STREET
E NORTH OF JUG STREET



NORMAL SECTION - CONCRETE

A SOUTH OF E.B. RAMPS
B BETWEEN E.B. AND W.B. RAMPS
C NORTH OF W.B. RAMPS

LEGEND

1. ITEM 441 - 1 1/4" ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (449), PG70-22
2. ITEM 441 - 1 3/4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, (449)
3. ITEM 407 - NON-TRACKING TACK COAT
4. ITEM 301 - 6" ASPHALT CONCRETE BASE, (449), PG64-22
5. ITEM 304 - 6" AGGREGATE BASE
6. ITEM 204 - SUBGRADE COMPACTION
7. ITEM 452 - 9" NON-REINFORCED CONCRETE PAVEMENT
8. ITEM 304 - 6" AGGREGATE BASE
9. ITEM 204 - SUBGRADE COMPACTION

TYPICAL SECTIONS - S.R. 310 SIGNAL ALTERNATIVE

DESIGN AGENCY
STONE ENVIRONMENTAL ENGINEERING & SCIENCE

DESIGNER BAV
REVIEWER FRR MM-DD-YY
PROJECT ID 0
SUBSET 0 | TOTAL 0
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FRA/LIC-161-22.1/0.00

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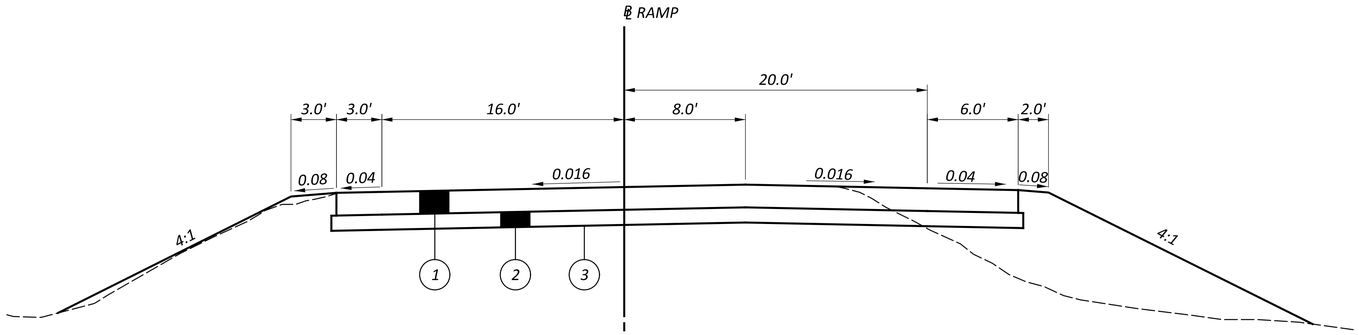
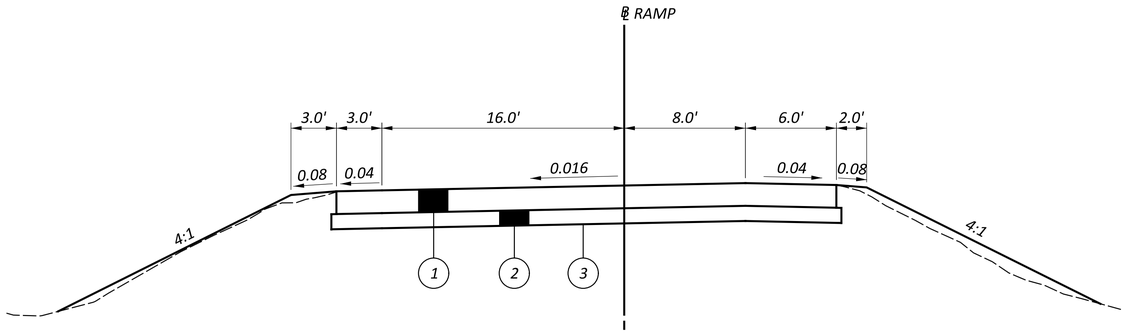


NORMAL SECTION - CONCRETE
EASTBOUND EXIT RAMP
WESTBOUND EXIT RAMP



NORMAL SECTION - CONCRETE
WESTBOUND ENTRANCE RAMP

LEGEND

1. *ITEM 452 - 9" NON-REINFORCED CONCRETE PAVEMENT*
2. *ITEM 304 - 6" AGGREGATE BASE*
3. *ITEM 204 - SUBGRADE COMPACTION*

TYPICAL SECTIONS - S.R. 310 SIGNAL ALTERNATIVE

FRA/LIC-161-22.1/0.00

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DESIGN AGENCY
STONE ENVIRONMENTAL ENGINEERING & SCIENCE

DESIGNER
BAV

REVIEWER
FRR MM-DD-YY

PROJECT ID
117878

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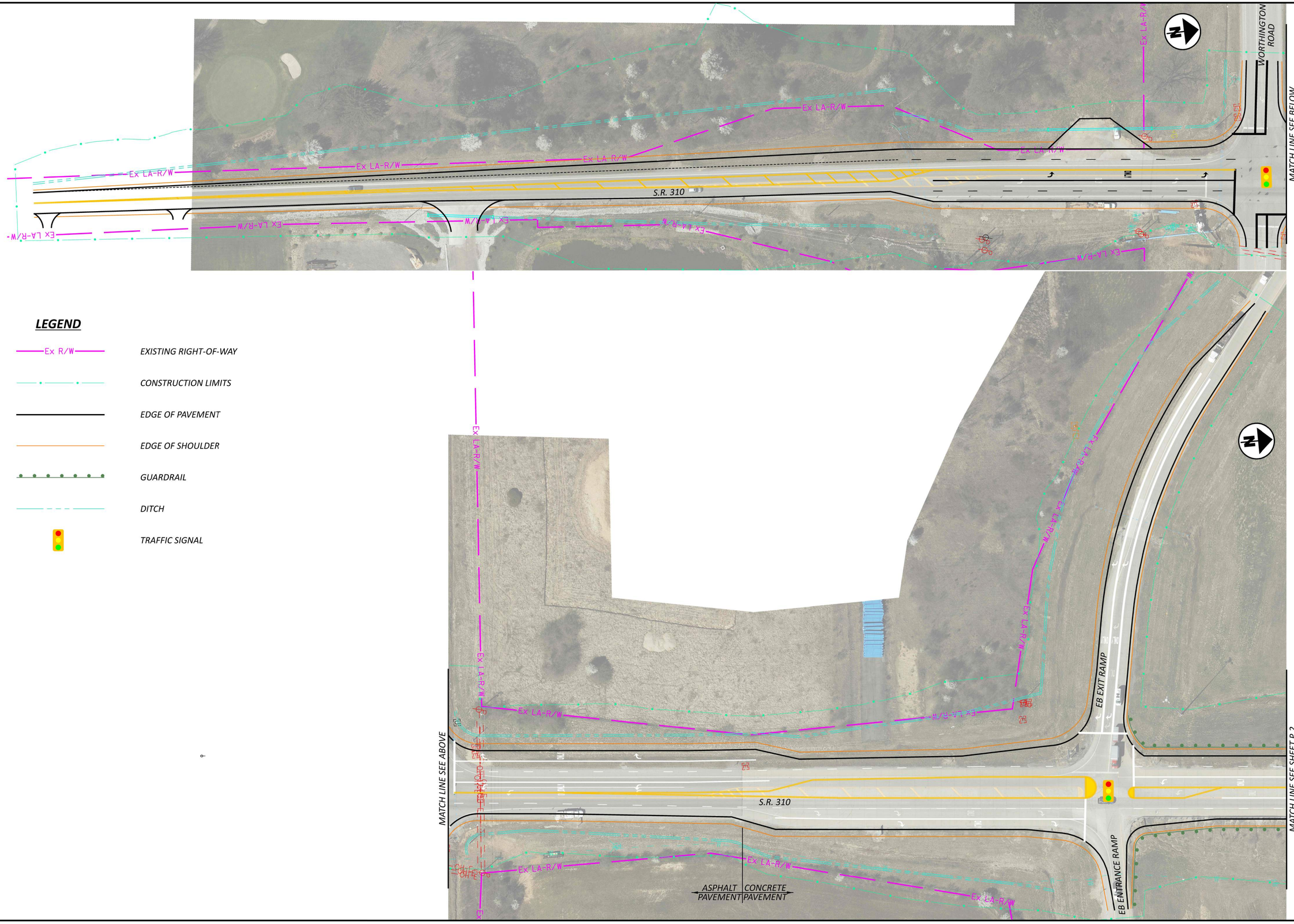
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Ex LA-R/W
Ex LA-R/W

MATCH LINE SEE SHEET P.5

MATCH LINE SEE SHEET P.1

S.R. 310

S.R. 161 EB

S.R. 161 WB

WB ENTRANCE RAMP

WB EXIT RAMP

Ex LA-R/W

Ex R/W

ASPHALT PAVEMENT

CONCRETE PAVEMENT

JERSEY MILL ROAD

MATCH LINE SEE BELOW

MATCH LINE SEE ABOVE

MATCH LINE SEE SHEET P.3

LEGEND

- Ex R/W — EXISTING RIGHT-OF-WAY
- CONSTRUCTION LIMITS
- EDGE OF PAVEMENT
- EDGE OF SHOULDER
- GUARDRAIL
- DITCH
- TRAFFIC SIGNAL

HORIZONTAL SCALE IN FEET
0 25 50 100

S.R. 310 - ALTERNATIVE 1 (SIGNALS)

FRA/LIC-161-22.1/0.00

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DESIGN AGENCY
STONE ENVIRONMENTAL ENGINEERING & SCIENCE

DESIGNER	FRR
REVIEWER	XXX MM-DD-YY
PROJECT ID	117878
SHEET	P.2
TOTAL	0

LEGEND

- EXISTING RIGHT-OF-WAY
- CONSTRUCTION LIMITS
- EDGE OF PAVEMENT
- EDGE OF SHOULDER
- GUARDRAIL
- DITCH
- TRAFFIC SIGNAL





HORIZONTAL SCALE IN FEET
0 25 50 100

S.R. 310 - ALTERNATIVE 1 (SIGNALS)

DESIGN AGENCY
STONE ENVIRONMENTAL, ENGINEERING & SCIENCE

DESIGNER FRR
REVIEWER XXX MM-DD-YY
PROJECT ID 117878
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FRA/LIC-161-22.1/0.00

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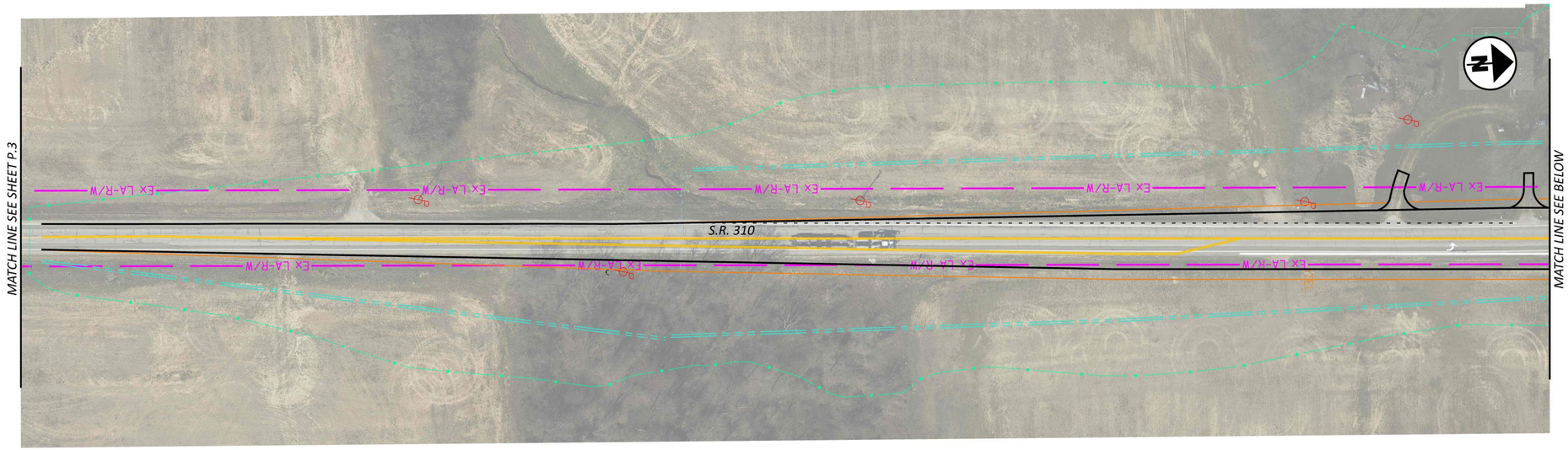
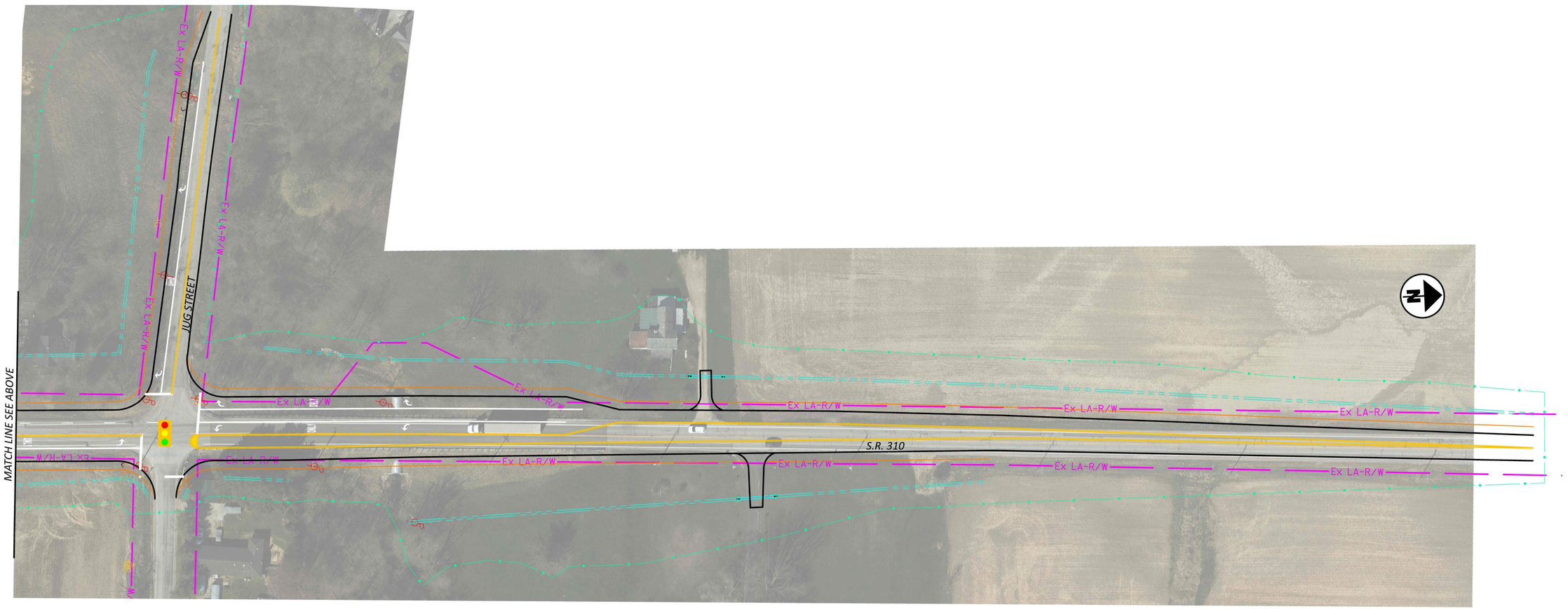
LEGEND

- Ex R/W — EXISTING RIGHT-OF-WAY
- CONSTRUCTION LIMITS
- EDGE OF PAVEMENT
- EDGE OF SHOULDER
- GUARDRAIL
- DITCH
- TRAFFIC SIGNAL





HORIZONTAL SCALE IN FEET
0 25 50 100

S.R. 310 - ALTERNATIVE 1 (SIGNALS)

DESIGN AGENCY
STONE ENVIRONMENTAL ENGINEERING & SCIENCE

DESIGNER: FRR
REVIEWER: XXX MM-DD-YY
PROJECT ID: 117878
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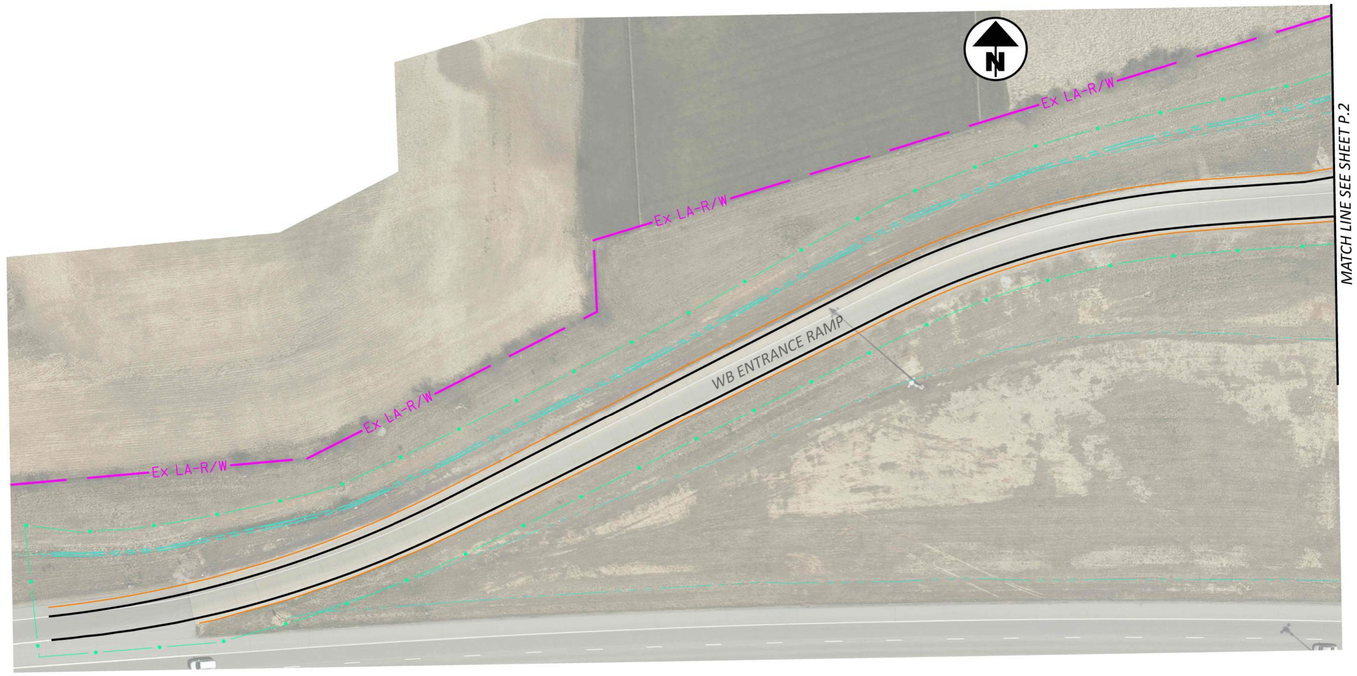
LEGEND

- EXISTING RIGHT-OF-WAY (Ex R/W)
- CONSTRUCTION LIMITS
- EDGE OF PAVEMENT
- EDGE OF SHOULDER
- GUARDRAIL
- DITCH
- TRAFFIC SIGNAL



HORIZONTAL SCALE IN FEET
0 50 100
25

S.R. 310 - ALTERNATIVE 1 (SIGNALS)

DESIGN AGENCY
STONE ENVIRONMENTAL, ENGINEERING & SCIENCE

DESIGNER FRR
REVIEWER XXX MM-DD-YY
PROJECT ID 117878
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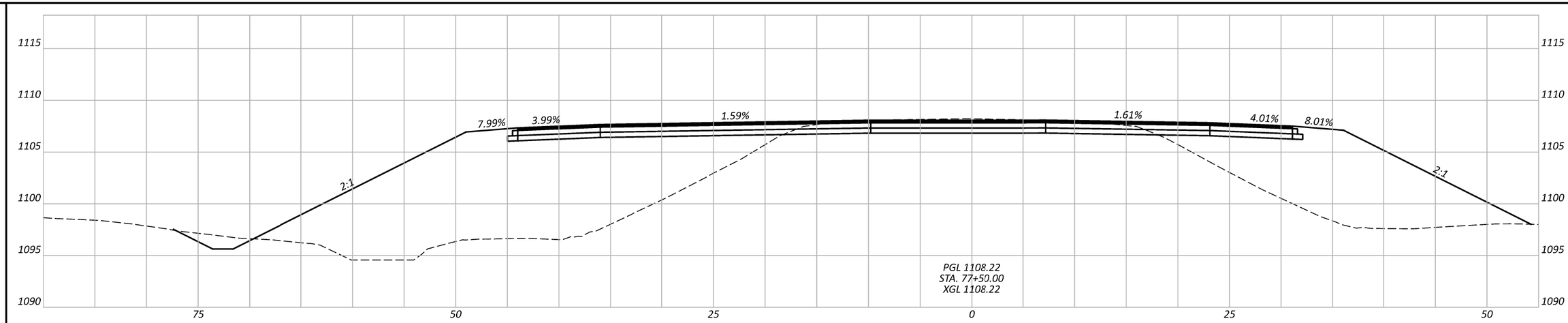

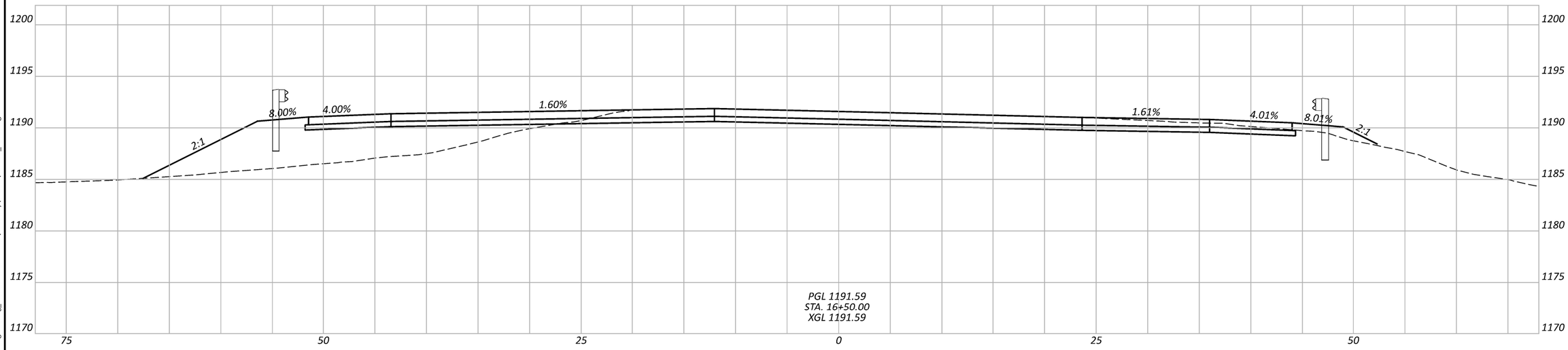

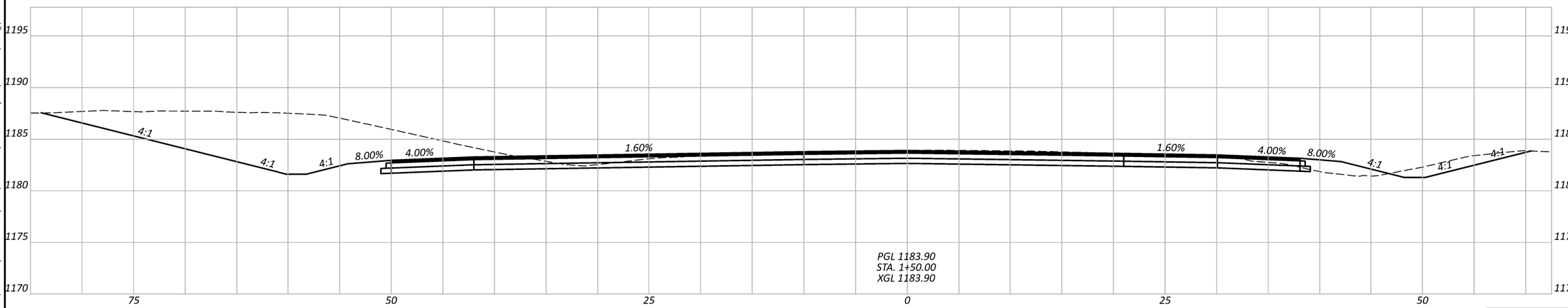

S.R. 310 SIGNAL
S.R. 310

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DESIGN AGENCY
STONE ENVIRONMENTAL ENGINEERING & SCIENCE

DESIGNER
XXX

REVIEWER
XXX MM-DD-YY

PROJECT ID
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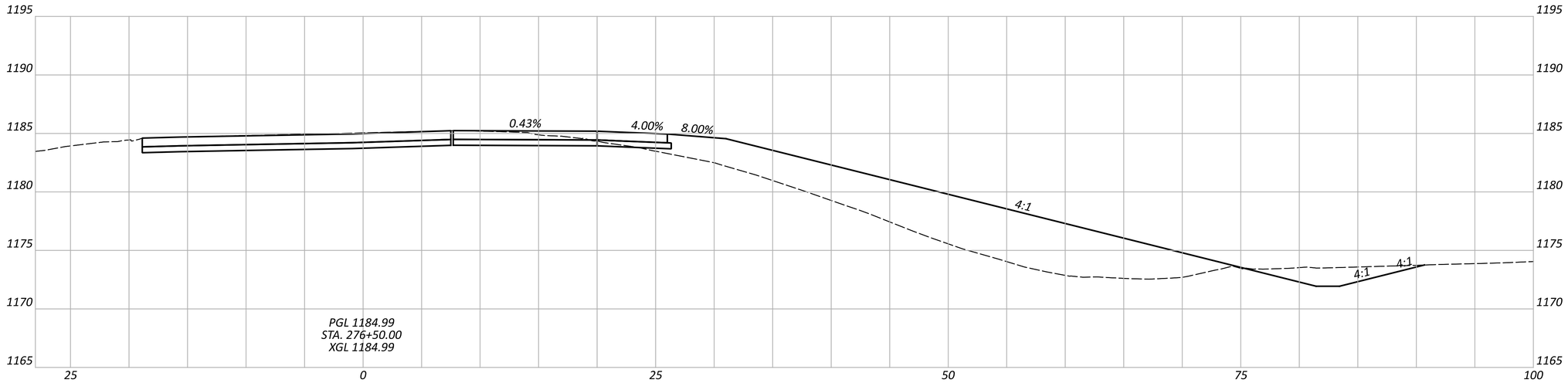

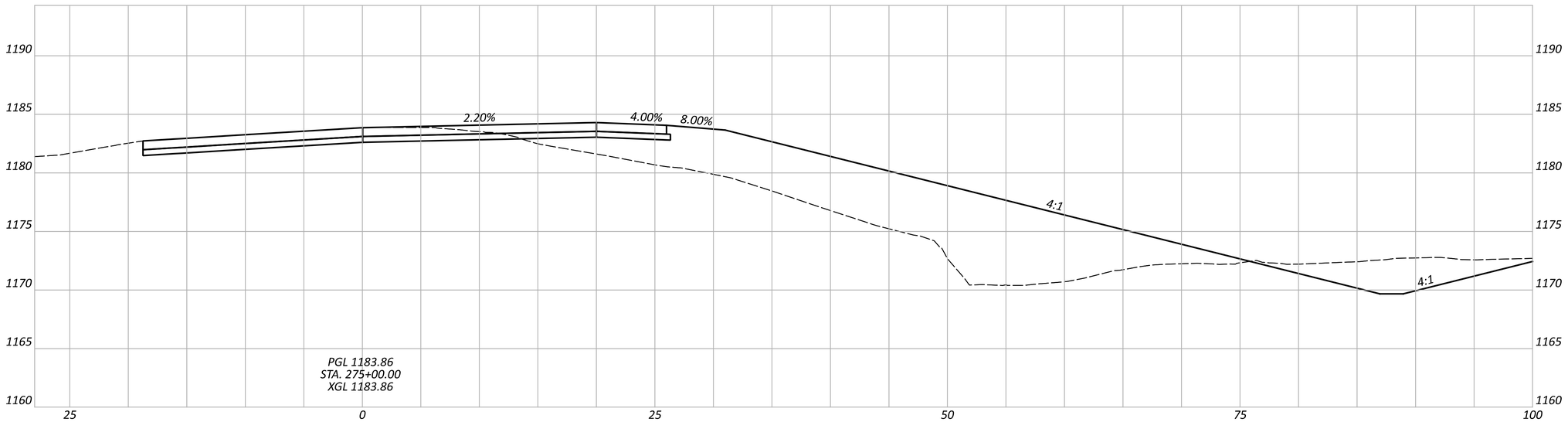

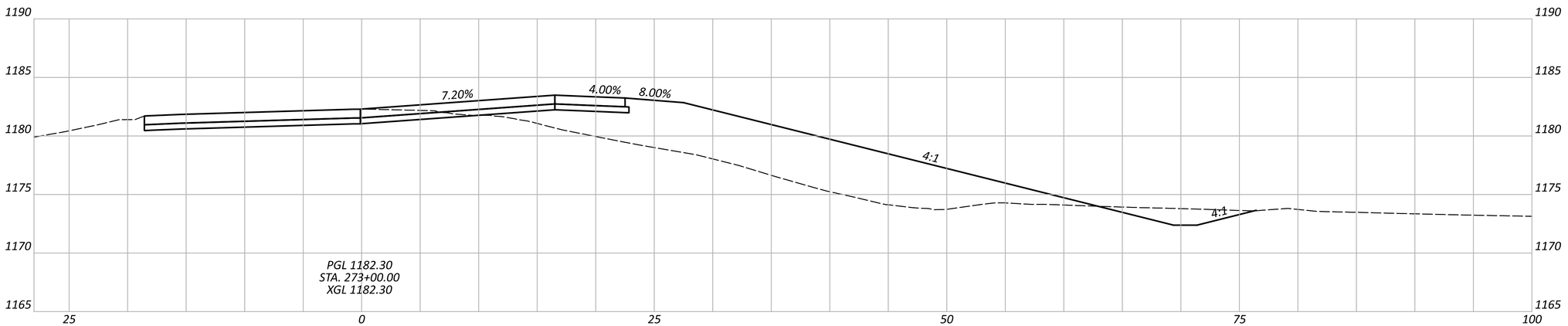

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S.R. 310 SIGNAL
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DESIGN AGENCY
STONE ENVIRONMENTAL, ENGINEERING & SCIENCE

DESIGNER
XXX

REVIEWER
XXX MM-DD-YY

PROJECT ID
117878

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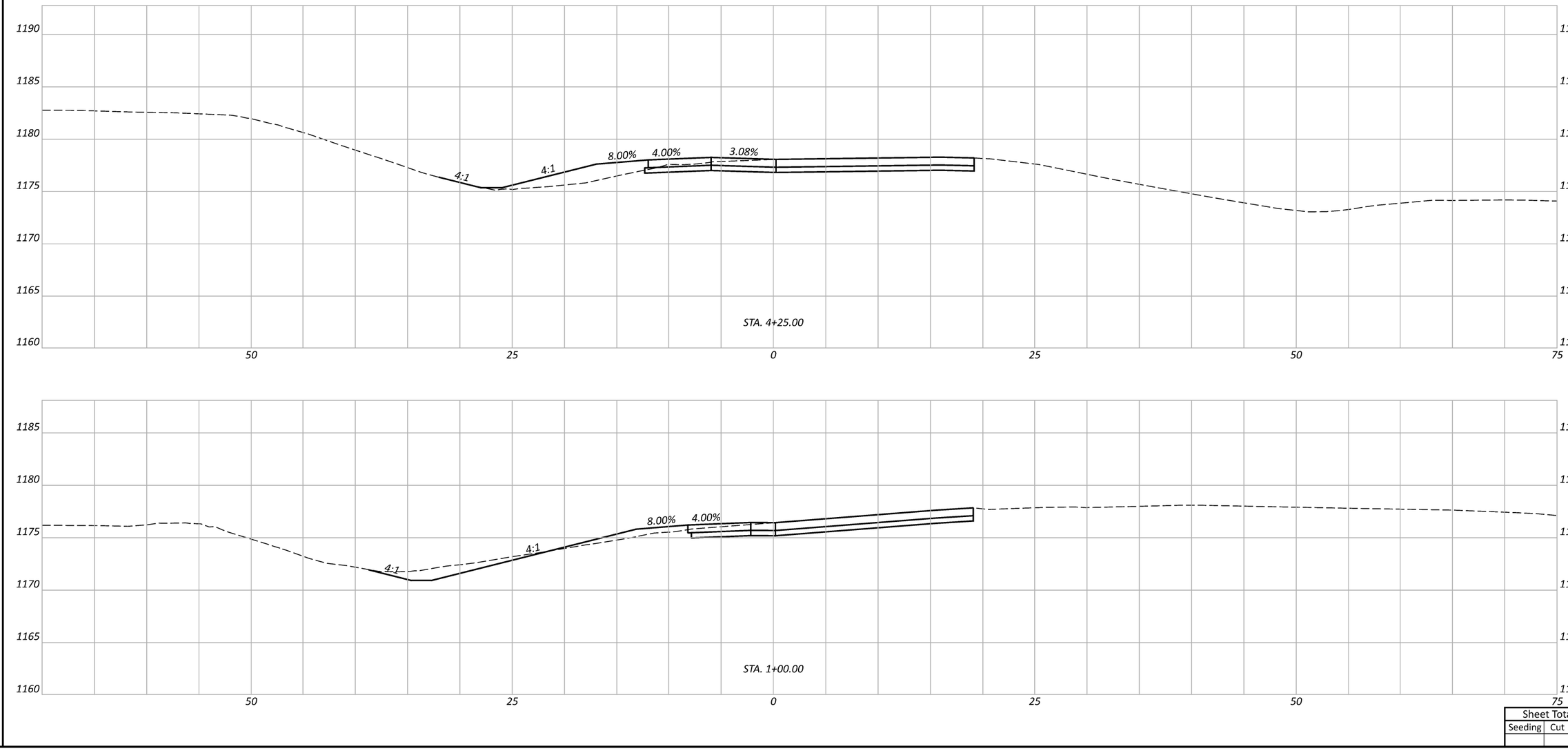

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S.R. 310 SIGNAL
WESTBOUND ENTRANCE RAMP

Sheet Totals		
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DESIGN AGENCY
STONE ENVIRONMENTAL ENGINEERING & SCIENCE

DESIGNER
XXX

REVIEWER
XXX MM-DD-YY

PROJECT ID
117878

SHEET	TOTAL
P.0	0

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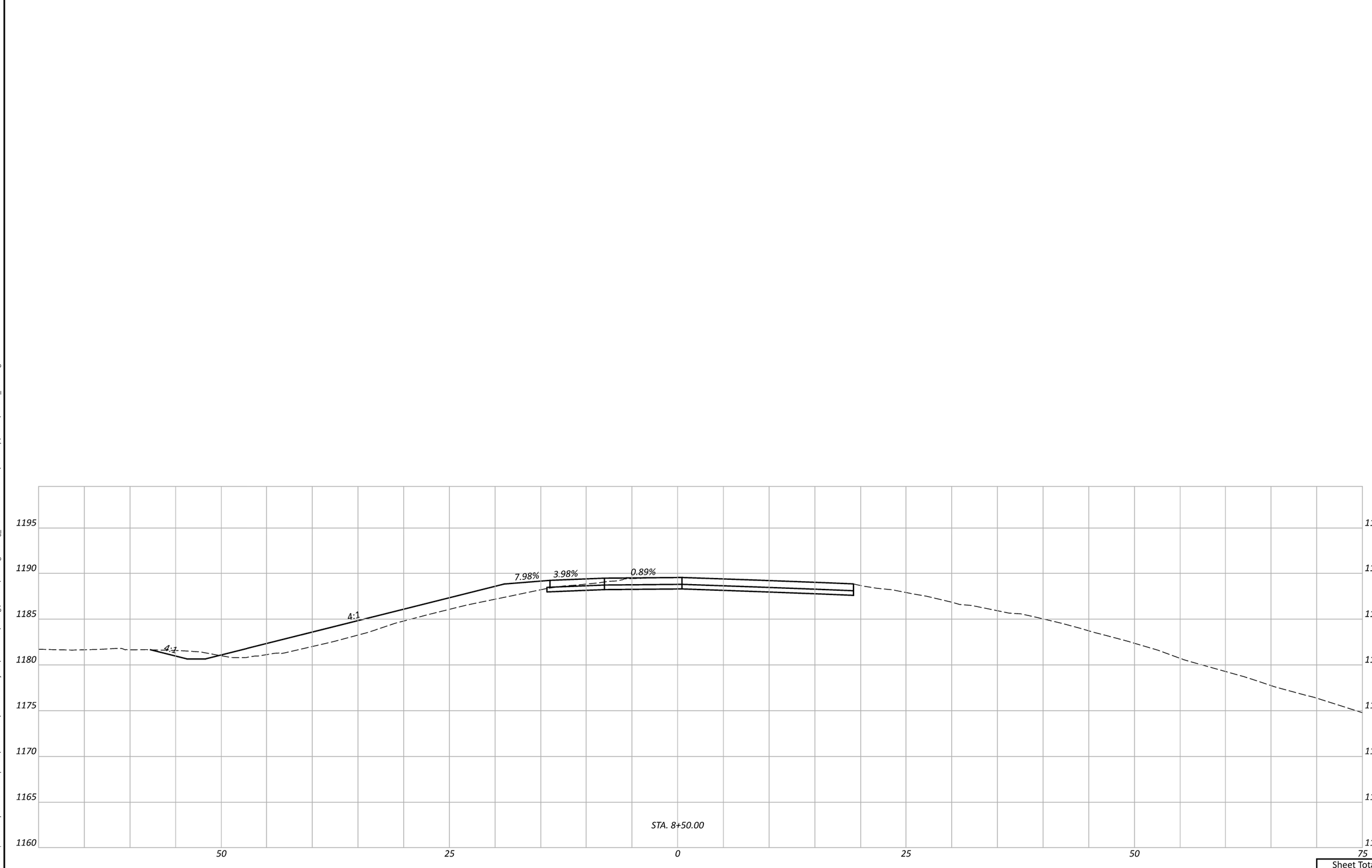

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STONE ENVIRONMENTAL ENGINEERING & SCIENCE

DESIGNER
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REVIEWER
XXX MM-DD-YY

PROJECT ID
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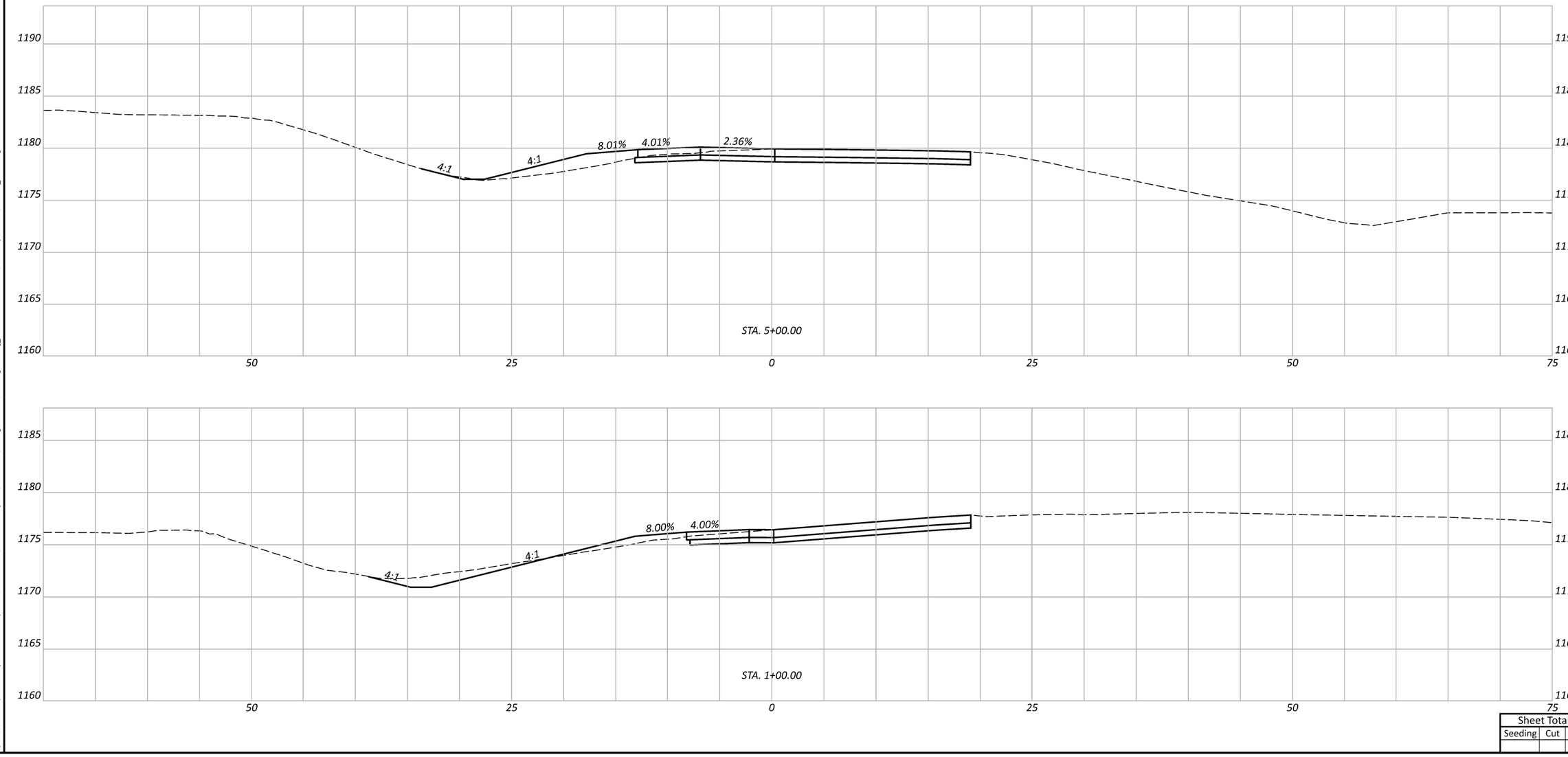

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S.R. 310 SIGNAL
WESTBOUND EXIT RAMP

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STONE ENVIRONMENTAL ENGINEERING & SCIENCE

DESIGNER
XXX

REVIEWER
XXX MM-DD-YY

PROJECT ID
117878

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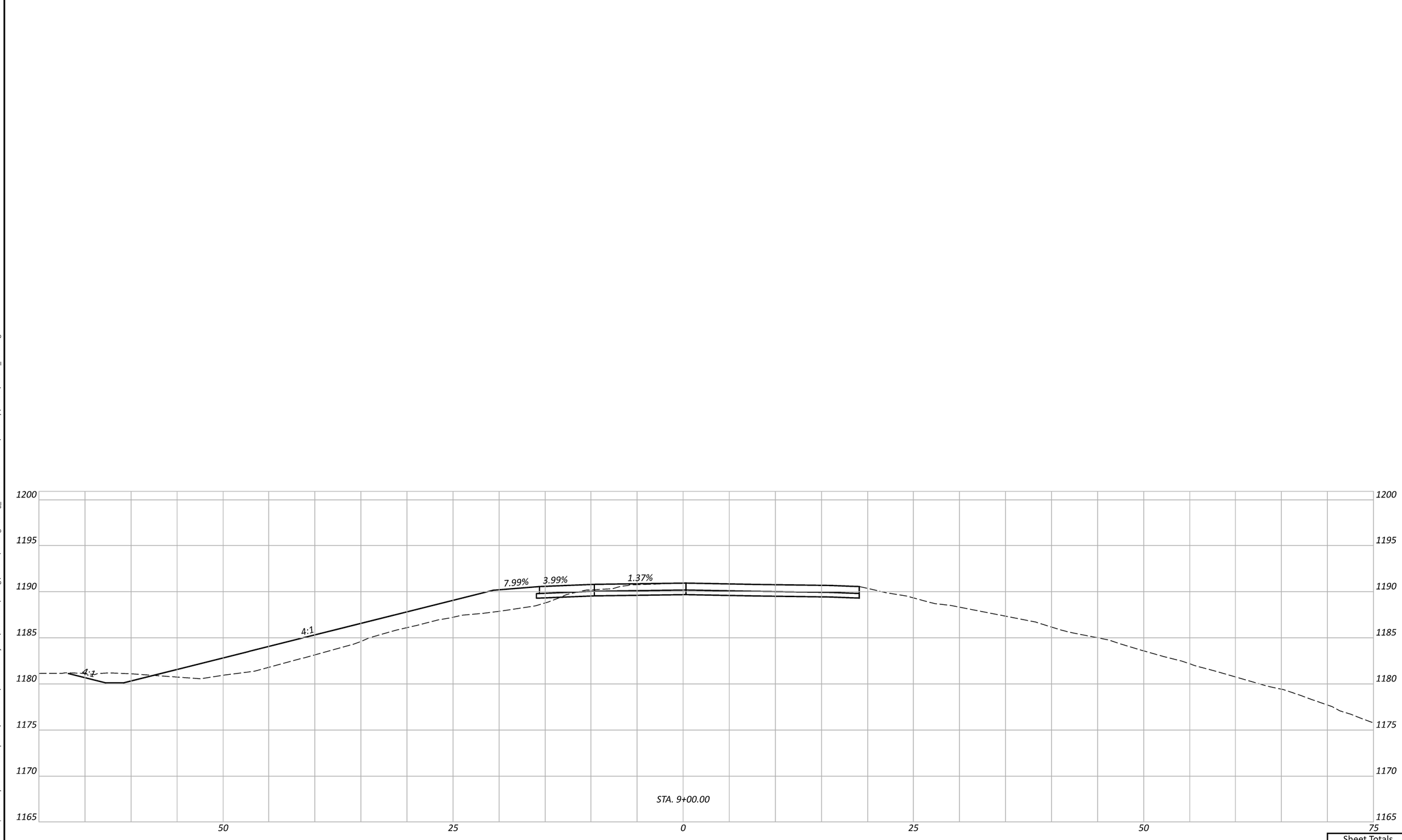

S.R. 310 SIGNAL
WESTBOUND EXIT RAMP

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DESIGN AGENCY
STONE ENVIRONMENTAL ENGINEERING & SCIENCE

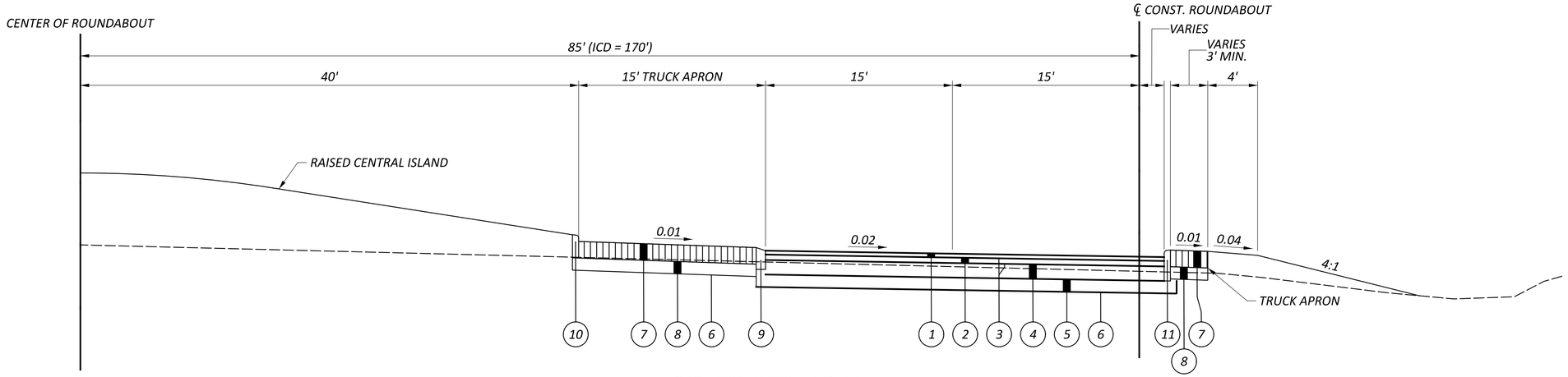
DESIGNER
XXX

REVIEWER
XXX MM-DD-YY

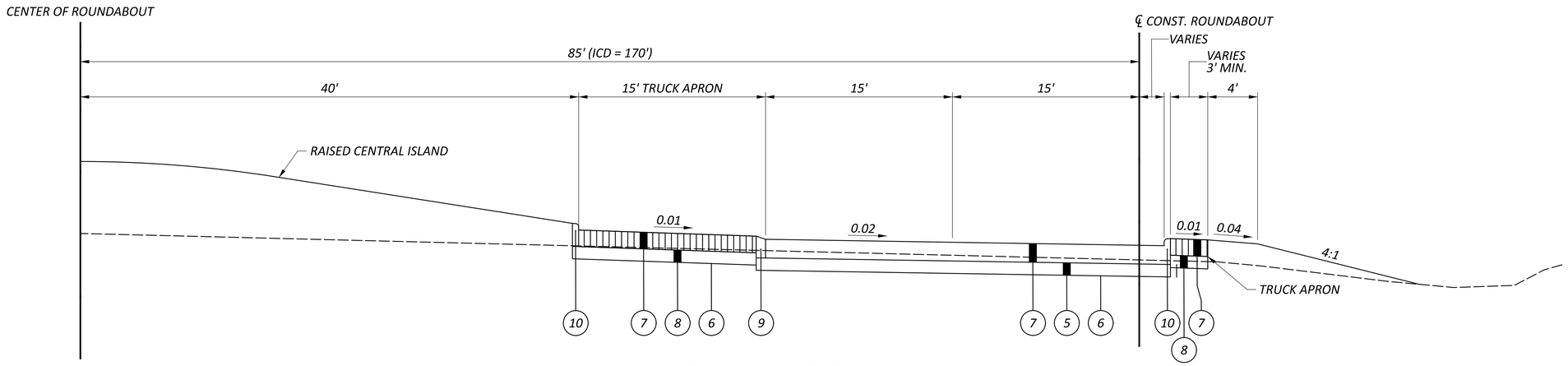
PROJECT ID
117878

SHEET P.0 | TOTAL 0

Appendix J2: SR-310 Interchange Roundabouts Proposed Alternative Plans



CIRCULATORY SECTION - ASPHALT
JERSEY MILL ROAD



CIRCULATORY SECTION - CONCRETE
EB RAMPS
WB RAMPS

LEGEND

1. ITEM 441 - 1 1/4" ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (449), PG70-22
2. ITEM 441 - 1 3/4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, (449)
3. ITEM 407 - NON-TRACKING TACK COAT
4. ITEM 301 - 6" ASPHALT CONCRETE BASE, (449), PG64-22
5. ITEM 304 - 6" AGGREGATE BASE
6. ITEM 204 - SUBGRADE COMPACTION
7. ITEM 452 - 9" NON-REINFORCED CONCRETE PAVEMENT
8. ITEM 304 - 8" AGGREGATE BASE
9. ITEM 609 - CURB, TYPE 10
10. ITEM 609 - CURB, TYPE 2-A
11. ITEM 609 - CURB, TYPE 6
12. ITEM 609 - CURB, TYPE 2
13. ITEM 608 - GUARDRAIL, TYPE MGS
14. ITEM 609 - 9" CONCRETE TRAFFIC ISLAND

HORIZONTAL SCALE IN FEET
0 0 0 0

TYPICAL SECTIONS - S.R. 310 ROUNDABOUT ALTERNATIVE

CTY-RTE-SECTION

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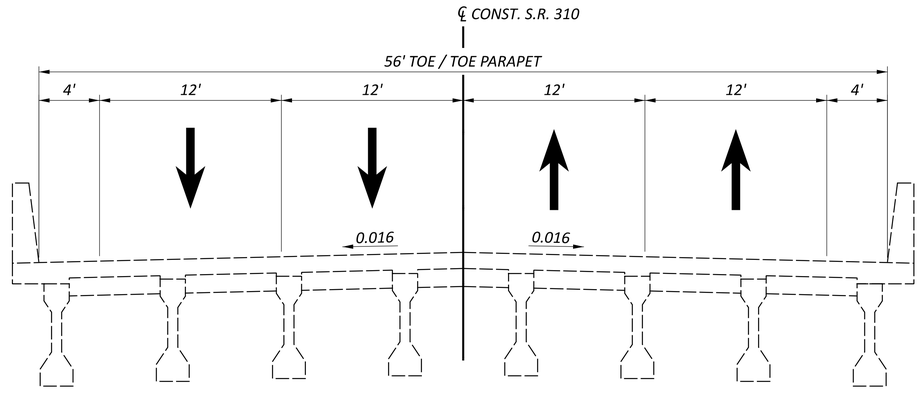
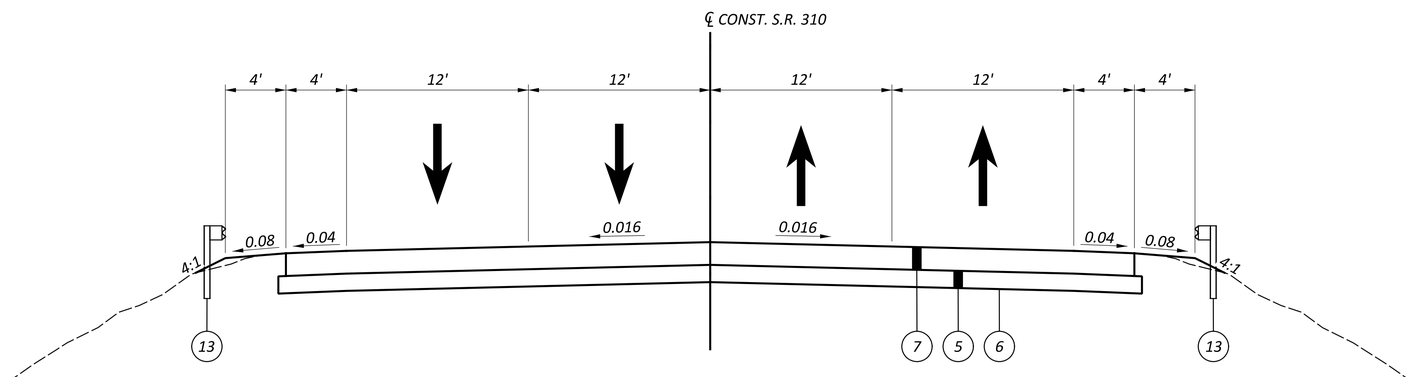
DESIGN AGENCY
Michael Baker INTERNATIONAL

DESIGNER XXX
REVIEWER XXX MM-DD-YY
PROJECT ID 0
SHEET P.1 TOTAL 3



BRIDGE SECTION
S.R. 310 OVER S.R. 161



NORMAL SECTION - CONCRETE
BETWEEN EB AND WB RAMPS

LEGEND

1. ITEM 441 - 1 1/4" ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (449), PG70-22
2. ITEM 441 - 1 3/4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, (449)
3. ITEM 407 - NON-TRACKING TACK COAT
4. ITEM 301 - 6" ASPHALT CONCRETE BASE, (449), PG64-22
5. ITEM 304 - 6" AGGREGATE BASE
6. ITEM 204 - SUBGRADE COMPACTION
7. ITEM 452 - 9" NON-REINFORCED CONCRETE PAVEMENT
8. ITEM 304 - 8" AGGREGATE BASE
9. ITEM 609 - CURB, TYPE 10
10. ITEM 609 - CURB, TYPE 2-A
11. ITEM 609 - CURB, TYPE 6
12. ITEM 609 - CURB, TYPE 2
13. ITEM 608 - GUARDRAIL, TYPE MGS
14. ITEM 609 - 9" CONCRETE TRAFFIC ISLAND

HORIZONTAL SCALE IN FEET
0 0 0 0

TYPICAL SECTIONS - S.R. 310 ROUNDABOUT ALTERNATIVE

DESIGN AGENCY
Michael Baker INTERNATIONAL

DESIGNER: XXX
REVIEWER: XXX MM-DD-YY
PROJECT ID: 0
SHEET: P.2 TOTAL: 3

CTY-RTE-SECTION

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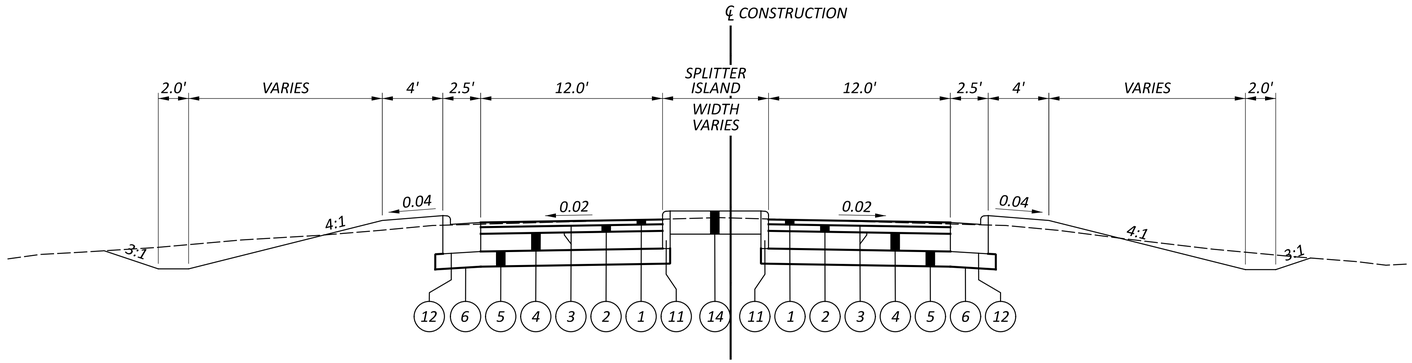
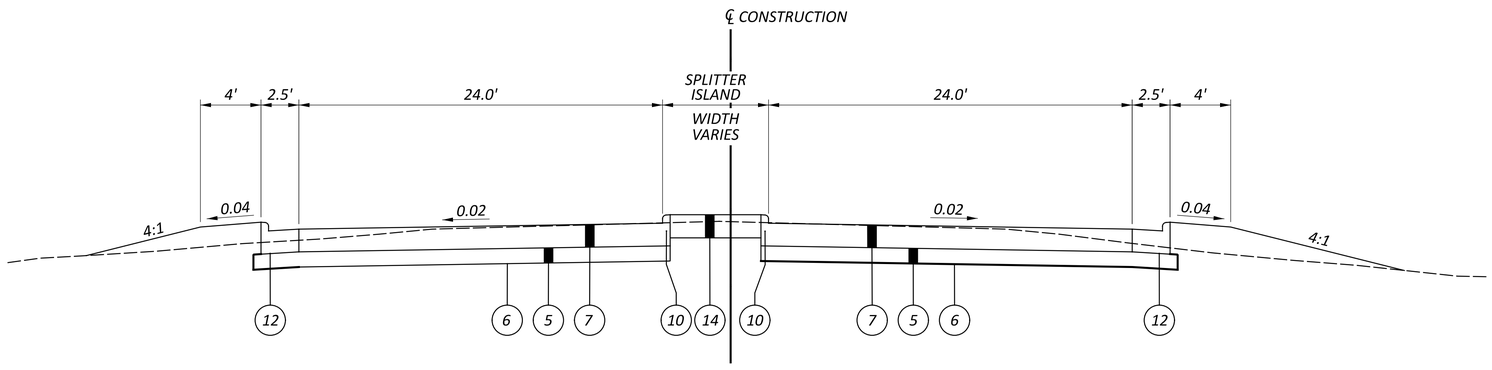


APPROACH SECTION WITH SPLITTER ISLAND - ASPHALT
JERSEY MILL ROAD



APPROACH SECTION WITH SPLITTER ISLAND - CONCRETE
EB RAMPS AND WB RAMPS

LEGEND

1. *ITEM 441 - 1 1/4" ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (449), PG70-22*
2. *ITEM 441 - 1 3/4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, (449)*
3. *ITEM 407 - NON-TRACKING TACK COAT*
4. *ITEM 301 - 6" ASPHALT CONCRETE BASE, (449), PG64-22*
5. *ITEM 304 - 6" AGGREGATE BASE*
6. *ITEM 204 - SUBGRADE COMPACTION*
7. *ITEM 452 - 9" NON-REINFORCED CONCRETE PAVEMENT*
8. *ITEM 304 - 8" AGGREGATE BASE*
9. *ITEM 609 - CURB, TYPE 10*
10. *ITEM 609 - CURB, TYPE 2-A*
11. *ITEM 609 - CURB, TYPE 6*
12. *ITEM 609 - CURB, TYPE 2*
13. *ITEM 608 - GUARDRAIL, TYPE MGS*
14. *ITEM 609 - 9" CONCRETE TRAFFIC ISLAND*

HORIZONTAL SCALE IN FEET
0 0 0 0

TYPICAL SECTIONS - S.R. 310 ROUNDABOUT ALTERNATIVE

CTY-RTE-SECTION

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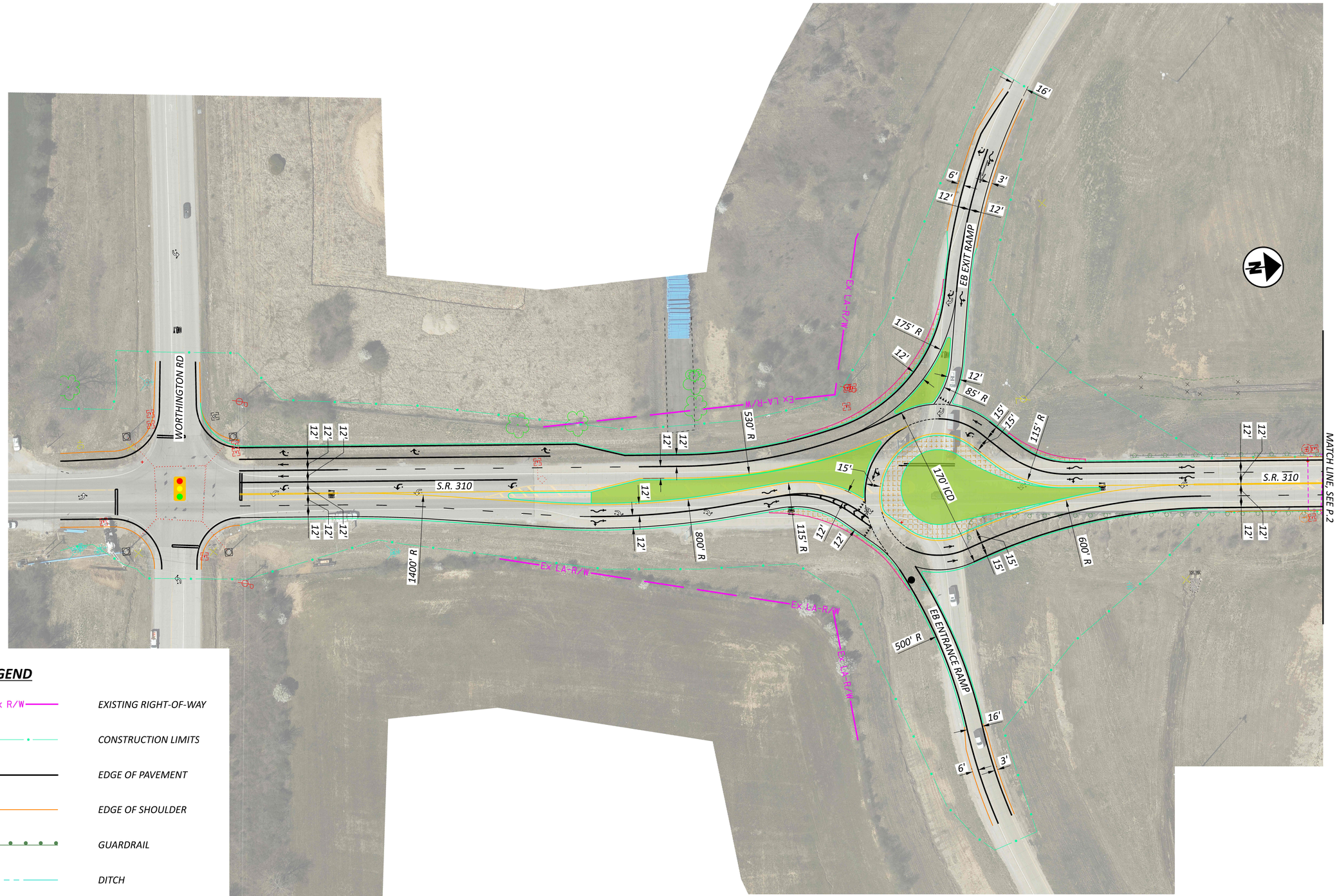
DESIGN AGENCY
Michael Baker INTERNATIONAL

DESIGNER XXX
REVIEWER XXX MM-DD-YY
PROJECT ID 0
SHEET P.3 TOTAL 3



LEGEND

- Ex R/W — EXISTING RIGHT-OF-WAY
- CONSTRUCTION LIMITS
- EDGE OF PAVEMENT
- EDGE OF SHOULDER
- GUARDRAIL
- DITCH
- TRAFFIC SIGNAL
- CONCRETE ISLAND
- CONCRETE TRUCK APRON

NOTE:

CURB LOCATIONS MAY ADJUST UPON FURTHER EVALUATION OF TRUCK CIRCULATION.

DESIGN BASED ON GENERAL RULES OF THUMB AND ENGINEER'S EXPERIENCE TO ACHIEVED DESIRABLE OPERATING SPEED. DESIGN MAY BE SLIGHTLY MODIFIED BASED ON FINAL FASTEST PATH CALCULATIONS.

HORIZONTAL SCALE IN FEET
0 50 100

S.R. 310 - ALTERNATIVE 2 (ROUNDABOUTS)
SR-310 AT EASTBOUND RAMPS

DESIGN AGENCY
Michael Baker INTERNATIONAL

DESIGNER: JTS
REVIEWER: XXX MM-DD-YY
PROJECT ID: 117878
SHEET: P.1 TOTAL: 3

FRA/LIC-161-22.10/0.00

MODEL: EB Ramps RAB PAPERSIZE: 34x22 (in.) DATE: 2/21/2025 TIME: 9:48:12 AM USER: Jonathan.Shurilla
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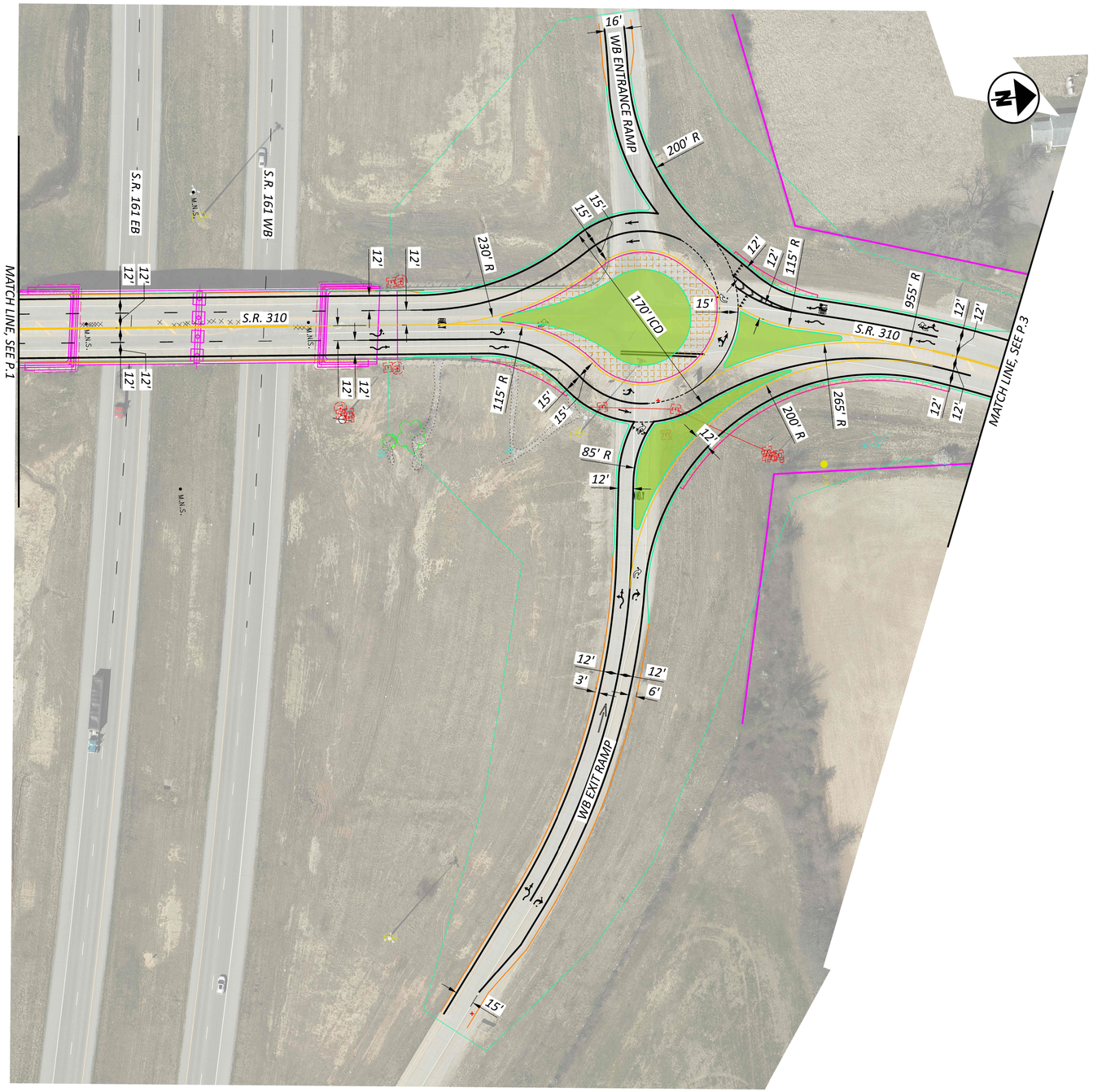

LEGEND

- Ex R/W — EXISTING RIGHT-OF-WAY
- CONSTRUCTION LIMITS
- EDGE OF PAVEMENT
- EDGE OF SHOULDER
- GUARDRAIL
- DITCH
- TRAFFIC SIGNAL
- CONCRETE ISLAND
- CONCRETE TRUCK APRON

NOTE:

CURB LOCATIONS MAY ADJUST UPON FURTHER EVALUATION OF TRUCK CIRCULATION.

DESIGN BASED ON GENERAL RULES OF THUMB AND ENGINEER'S EXPERIENCE TO ACHIEVED DESIRABLE OPERATING SPEED. DESIGN MAY BE SLIGHTLY MODIFIED BASED ON FINAL FASTEST PATH CALCULATIONS.

HORIZONTAL SCALE IN FEET
0 50 100

S.R. 310 - ALTERNATIVE 2 (ROUNDABOUTS)
SR-310 AT WESTBOUND RAMPS

DESIGN AGENCY
Michael Baker INTERNATIONAL

DESIGNER: JTS
REVIEWER: XXX MM-DD-YY
PROJECT ID: 117878
SHEET: P.2 TOTAL: 3

FRA/LIC-161-22.10/0.00

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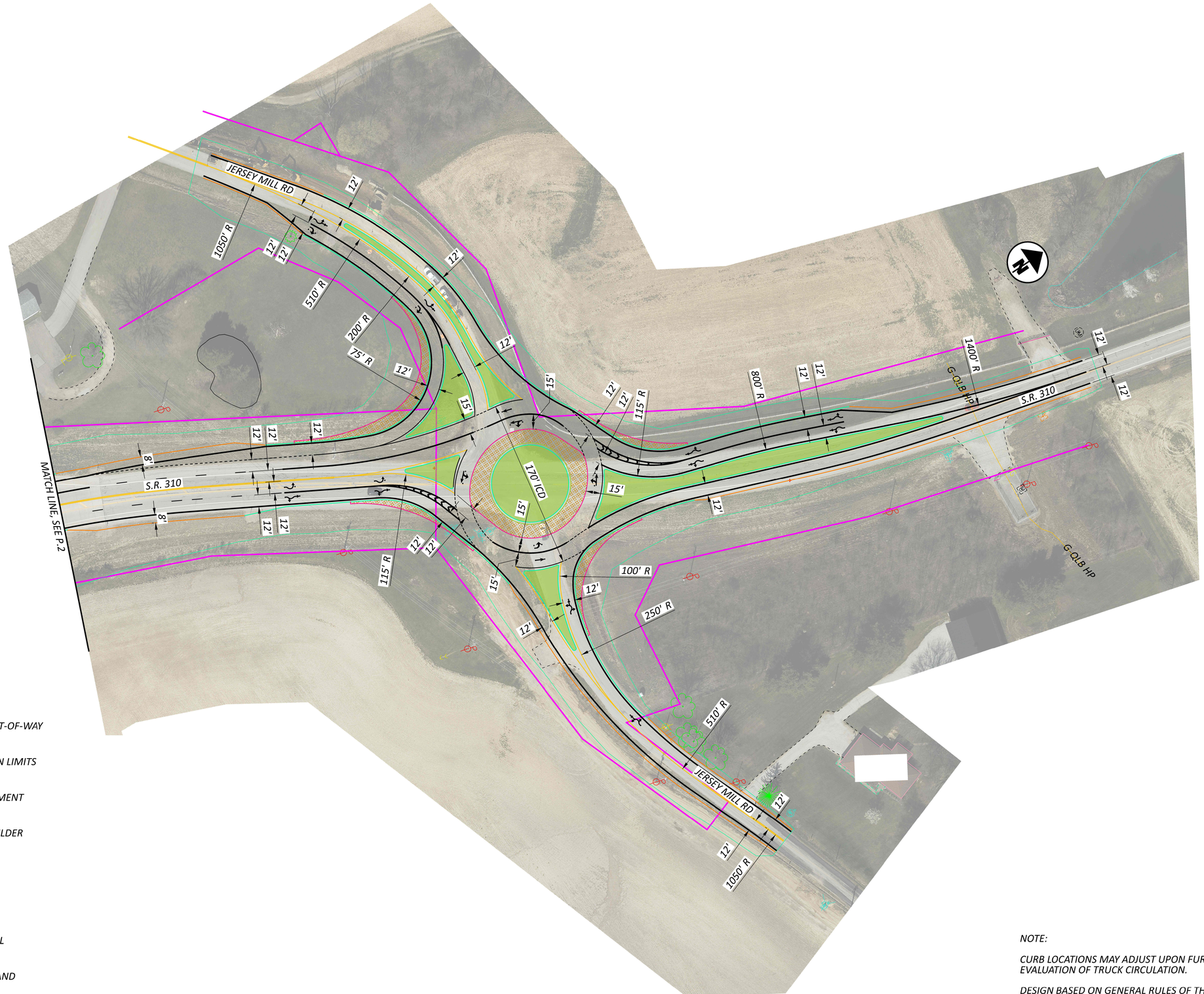

LEGEND

- Ex R/W — EXISTING RIGHT-OF-WAY
- CONSTRUCTION LIMITS
- EDGE OF PAVEMENT
- EDGE OF SHOULDER
- GUARDRAIL
- DITCH
- TRAFFIC SIGNAL
- CONCRETE ISLAND
- CONCRETE TRUCK APRON

NOTE:

CURB LOCATIONS MAY ADJUST UPON FURTHER EVALUATION OF TRUCK CIRCULATION.

DESIGN BASED ON GENERAL RULES OF THUMB AND ENGINEER'S EXPERIENCE TO ACHIEVED DESIRABLE OPERATING SPEED. DESIGN MAY BE SLIGHTLY MODIFIED BASED ON FINAL FASTEST PATH CALCULATIONS.

HORIZONTAL SCALE IN FEET
0 50 100

S.R. 310 - ALTERNATIVE 2 (ROUNDABOUTS)
SR-310 AT JERSEY MILL ROAD

DESIGN AGENCY
Michael Baker INTERNATIONAL

DESIGNER JTS
REVIEWER XXX MM-DD-YY
PROJECT ID 117878
SHEET P.3 TOTAL 3

FRA/LIC-161-22.10/0.00

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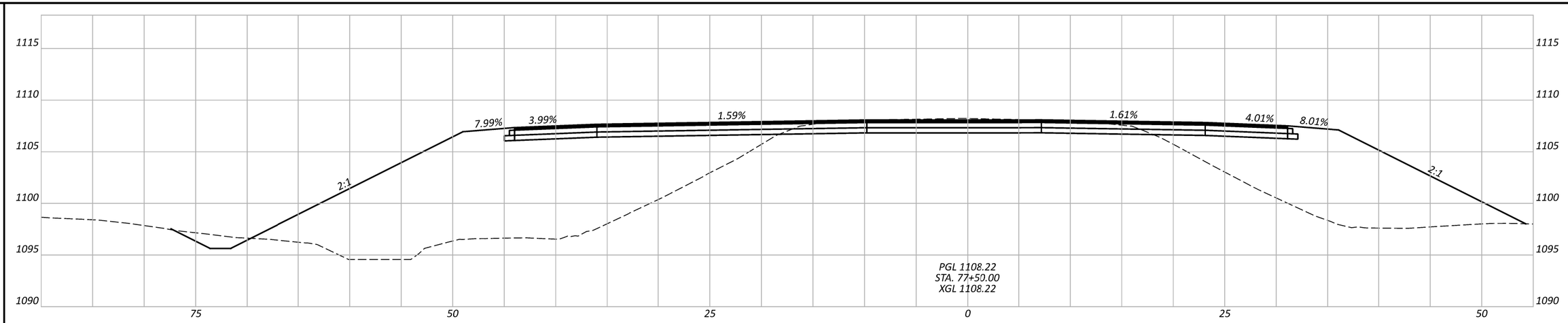

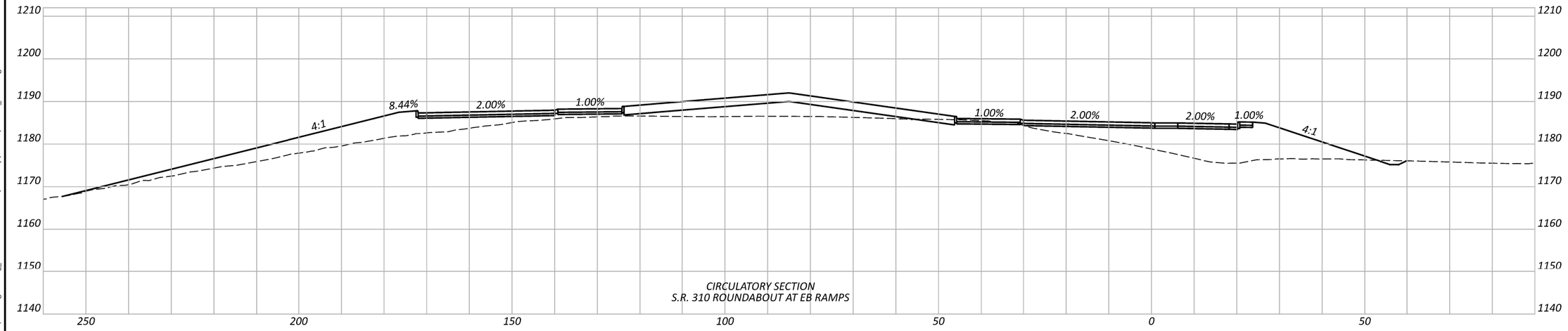

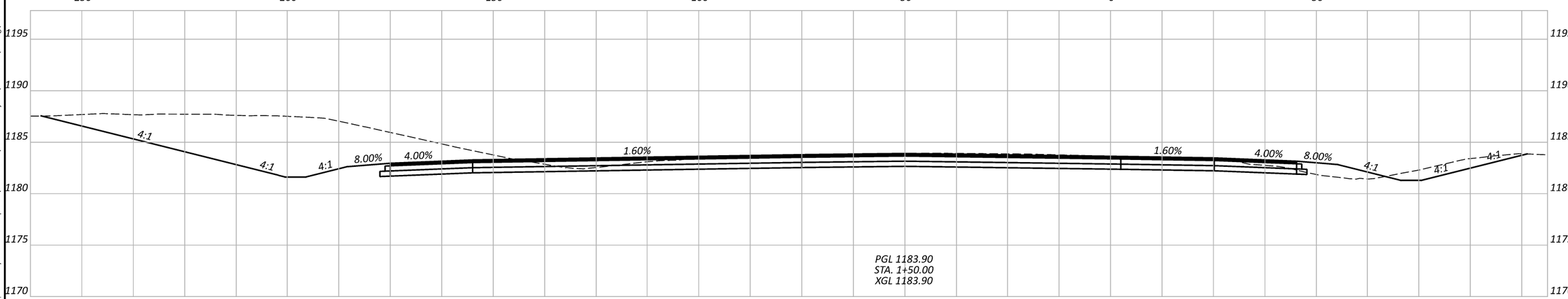

S.R. 310 SIGNAL
S.R. 310

Sheet Totals		
Seeding	Cut	Fill

DESIGN AGENCY
STONE ENVIRONMENTAL ENGINEERING & SCIENCE

DESIGNER
XXX

REVIEWER
XXX MM-DD-YY

PROJECT ID
0

SHEET P.0 | TOTAL 0

FRA/LIC-161-22.1/0.00

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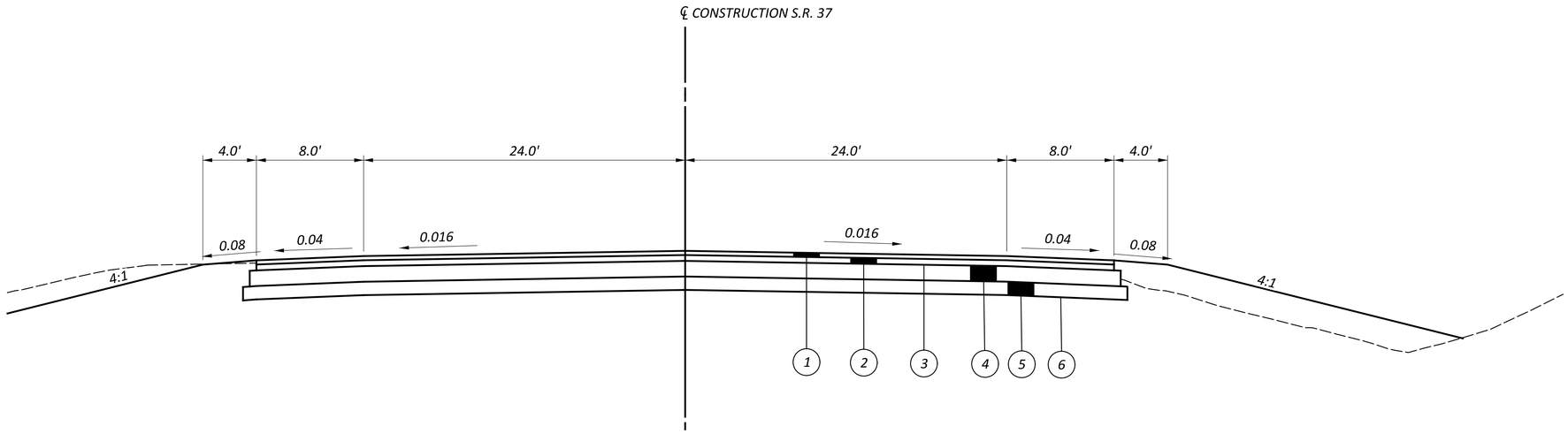
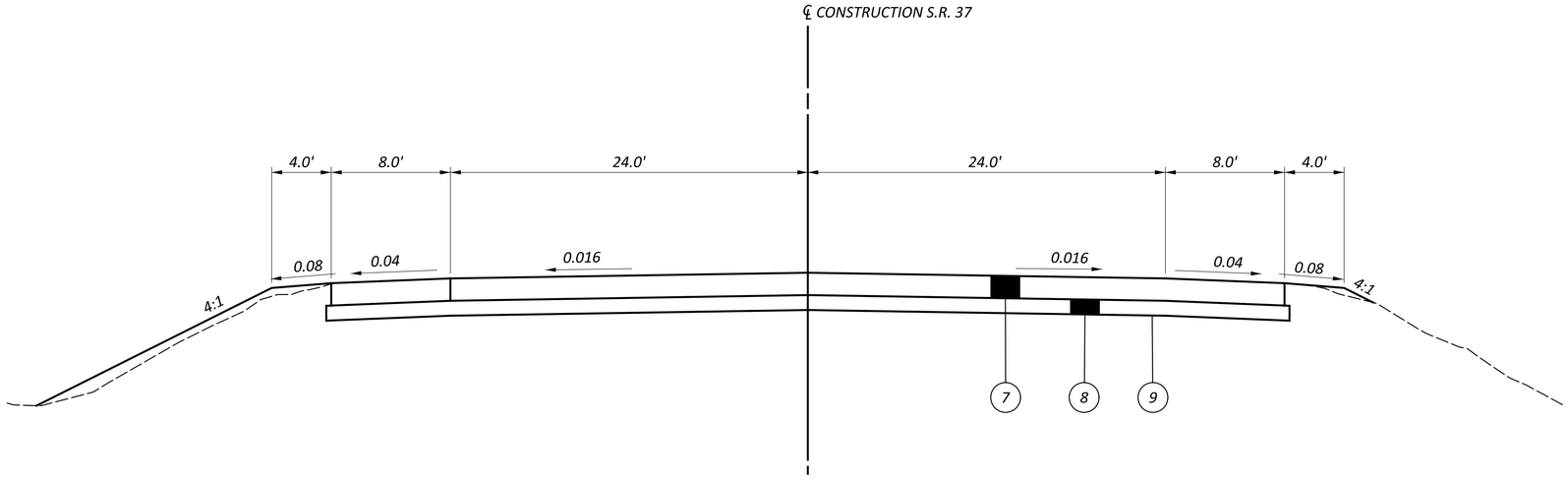
Appendix K1: SR-37 Interchange Traffic Signal Proposed Alternative Plans



NORMAL SECTION - ASPHALT
NORTH OF WESTBOUND RAMPS TO NORTH OF MOOTS ROAD
SOUTH OF WESTBOUND RAMPS TO WORTHINGTON ROAD



NORMAL SECTION - CONCRETE
NORTH OF WESTBOUND RAMPS TO BRIDGE
BRIDGE TO SOUTH OF EASTBOUND RAMPS

A

LEGEND

1. *ITEM 441 - 1 1/4" ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (449), PG70-22*
2. *ITEM 441 - 1 3/4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, (449)*
3. *ITEM 407 - NON-TRACKING TACK COAT*
4. *ITEM 301 - 6" ASPHALT CONCRETE BASE, (449), PG64-22*
5. *ITEM 304 - 6" AGGREGATE BASE*
6. *ITEM 204 - SUBGRADE COMPACTION*
7. *ITEM 452 - 9" NON-REINFORCED CONCRETE PAVEMENT*
8. *ITEM 304 - 6" AGGREGATE BASE*
9. *ITEM 204 - SUBGRADE COMPACTION*

TYPICAL SECTIONS - S.R. 37
SIGNAL ALTERNATIVE

FRA/LIC-161-22.1/0.00

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DESIGN AGENCY
STONE ENVIRONMENTAL, ENGINEERING & SCIENCE

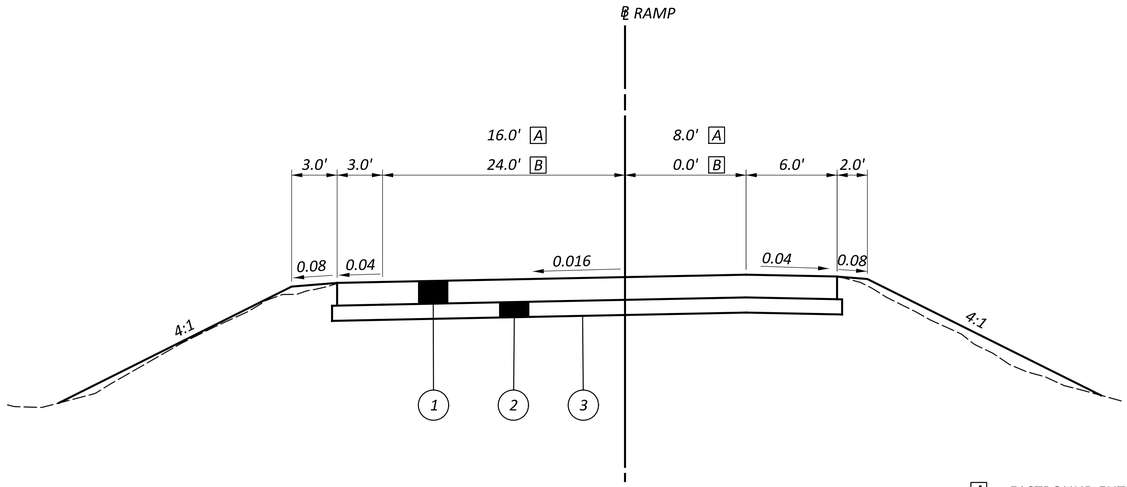
DESIGNER
BAV

REVIEWER
FRR MM-DD-YY

PROJECT ID
0

SUBSET 0 | TOTAL 0

SHEET P.0 | TOTAL 0



NORMAL SECTION - CONCRETE
EASTBOUND ENTRANCE RAMP
WESTBOUND EXIT RAMP

A *EASTBOUND ENTRANCE RAMP*

B *WESTBOUND EXIT RAMP*

LEGEND

1. *ITEM 452 - 9" NON-REINFORCED CONCRETE PAVEMENT*
2. *ITEM 304 - 6" AGGREGATE BASE*
3. *ITEM 204 - SUBGRADE COMPACTION*

TYPICAL SECTIONS - S.R. 37 SIGNAL ALTERNATIVE

FRA/LIC-161-22.1/0.00

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DESIGN AGENCY
STONE ENVIRONMENTAL ENGINEERING & PLANNING

DESIGNER
BAV

REVIEWER
FRR MM-DD-YY

PROJECT ID
117878

SUBSET 0 | TOTAL 0

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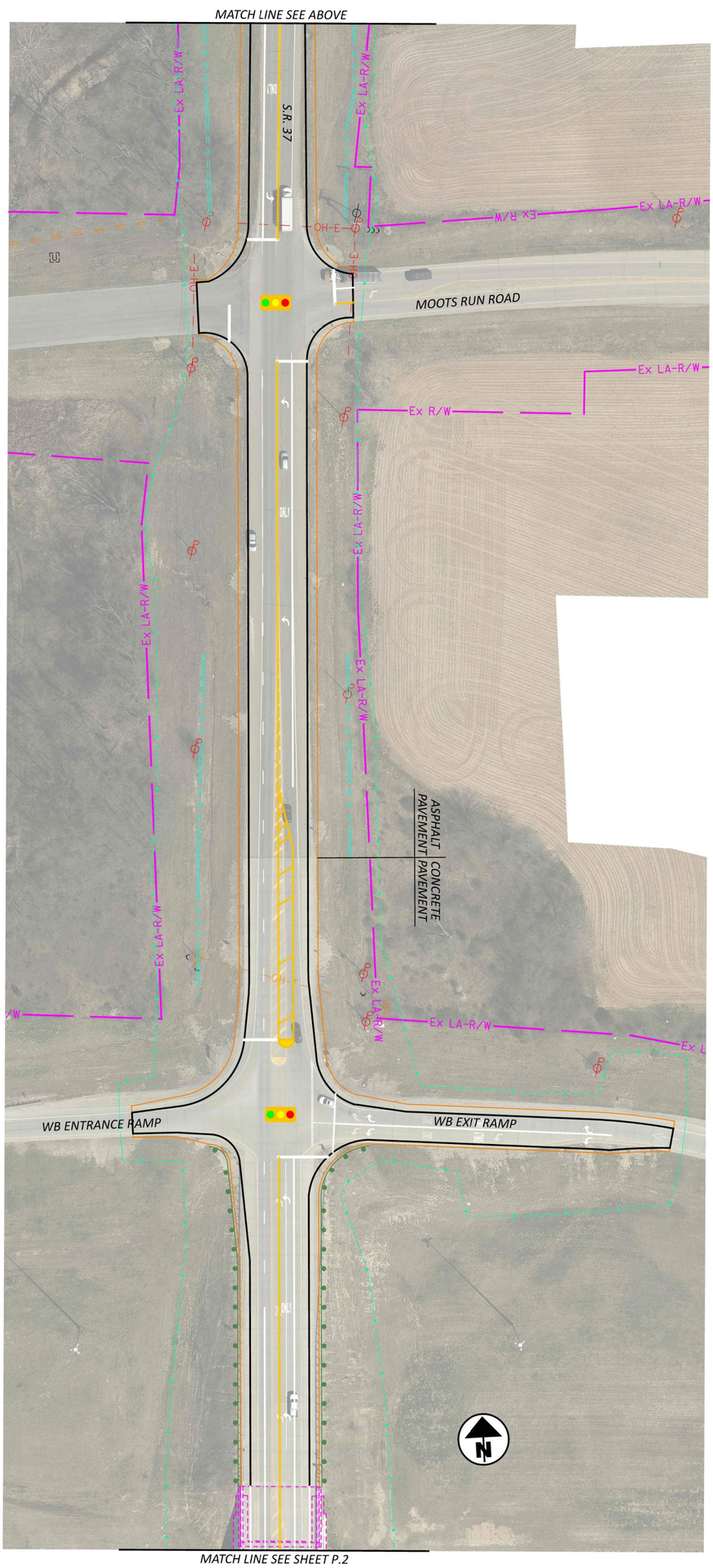
LEGEND

- EXISTING RIGHT-OF-WAY
- CONSTRUCTION LIMITS
- EDGE OF PAVEMENT
- EDGE OF SHOULDER
- GUARDRAIL
- DITCH
- TRAFFIC SIGNAL





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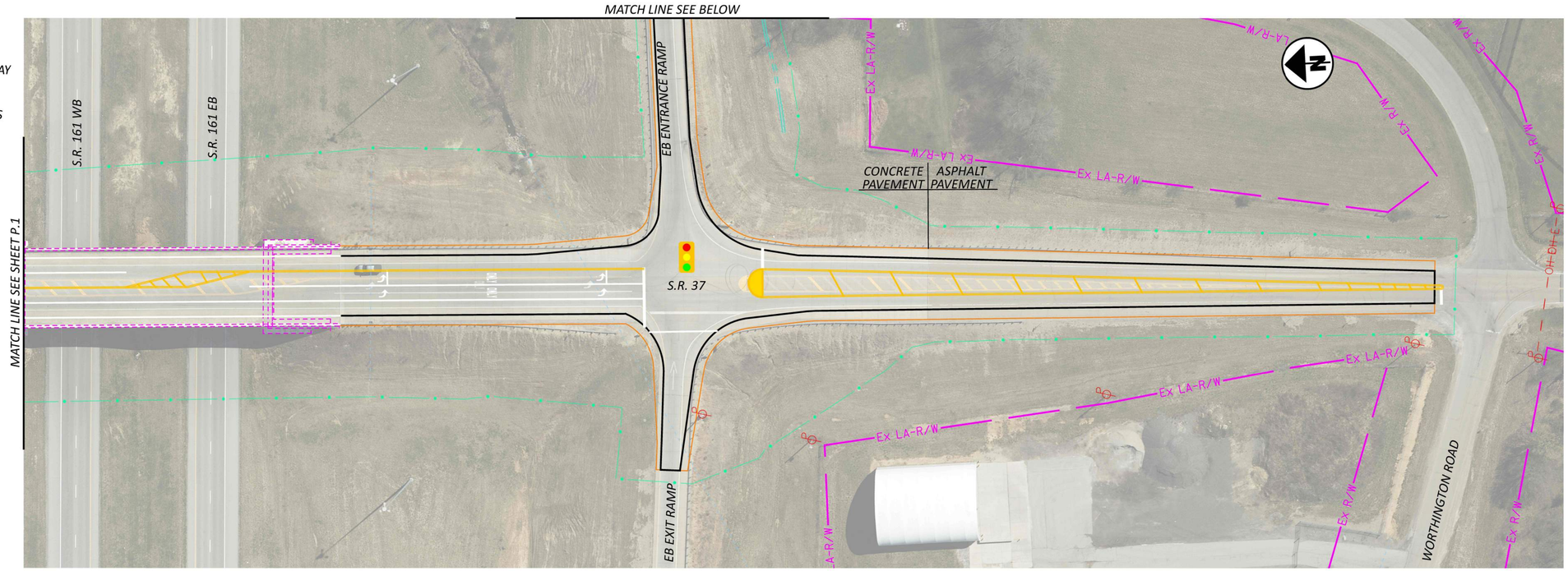
P.1	0	117878	XXX MM-DD-YY	FRR	STONE ENVIRONMENTAL, ENGINEERING & SCIENCE

S.R. 37 - ALTERNATIVE 1 (SIGNALS)

HORIZONTAL SCALE IN FEET
0 50
25 100

LEGEND

- Ex R/W — EXISTING RIGHT-OF-WAY
- CONSTRUCTION LIMITS
- EDGE OF PAVEMENT
- EDGE OF SHOULDER
- GUARDRAIL
- DITCH
- TRAFFIC SIGNAL



HORIZONTAL SCALE IN FEET
0 25 50 100

S.R. 37 - ALTERNATIVE 1 (SIGNALS)

DESIGN AGENCY
STONE ENVIRONMENTAL ENGINEERING & SCIENCE

DESIGNER	FRR
REVIEWER	XXX MM-DD-YY
PROJECT ID	117878
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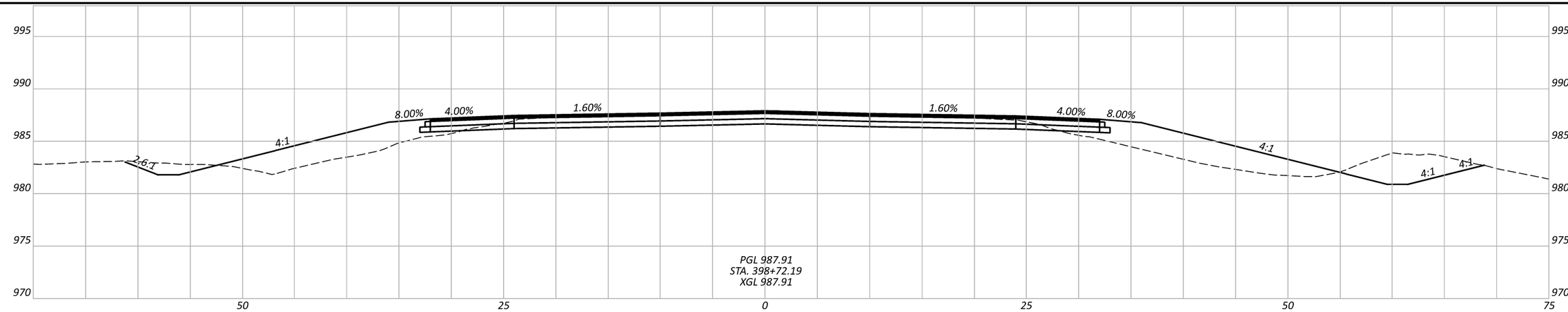

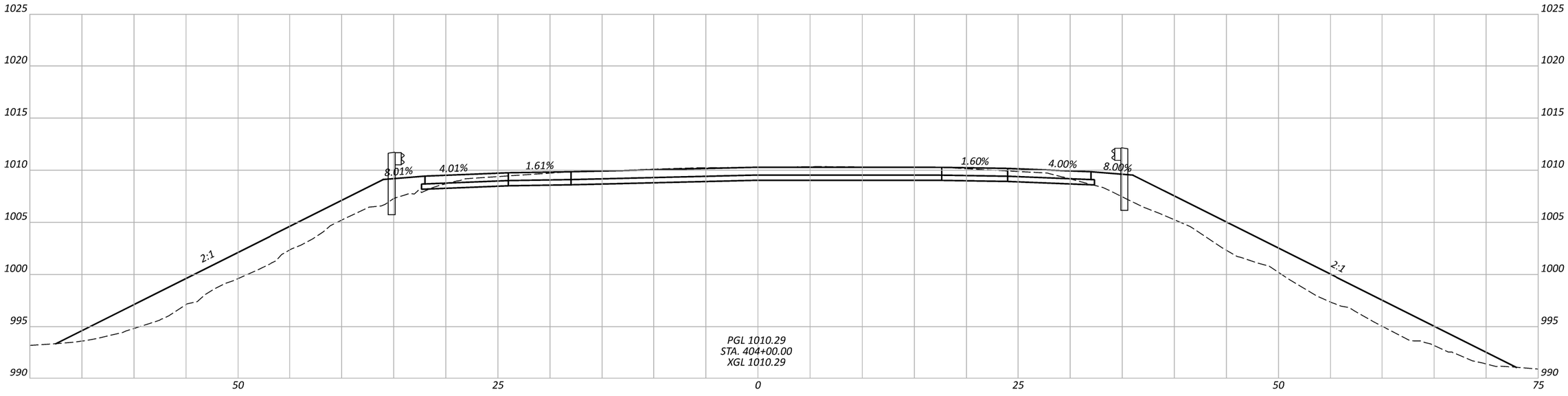

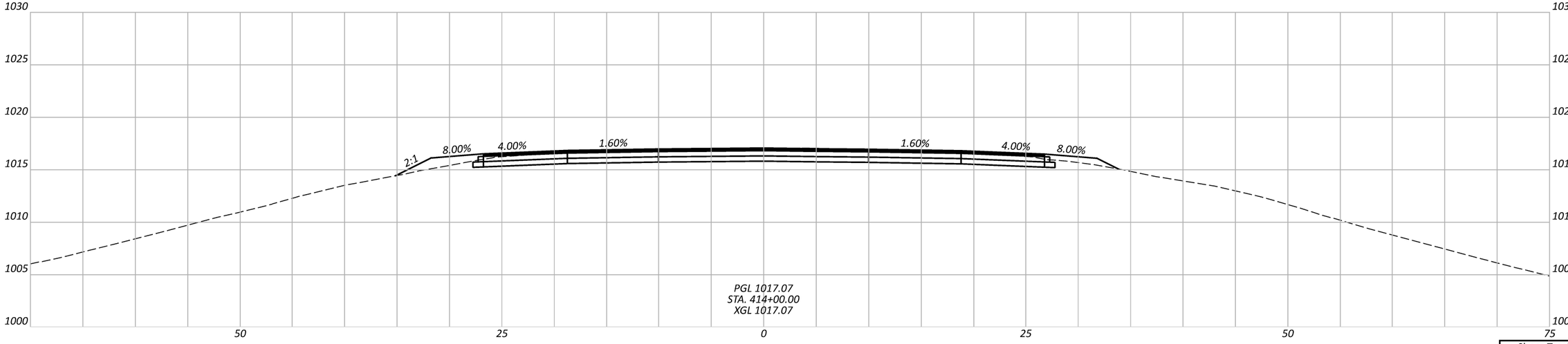

S.R. 37 SIGNAL
S.R. 37

FRA/LIC-161-22.1/0.00

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DESIGN AGENCY
STONE
ENVIRONMENTAL ENGINEERING & SCIENCE

DESIGNER	XXX
REVIEWER	XXX MM-DD-YY
PROJECT ID	117878
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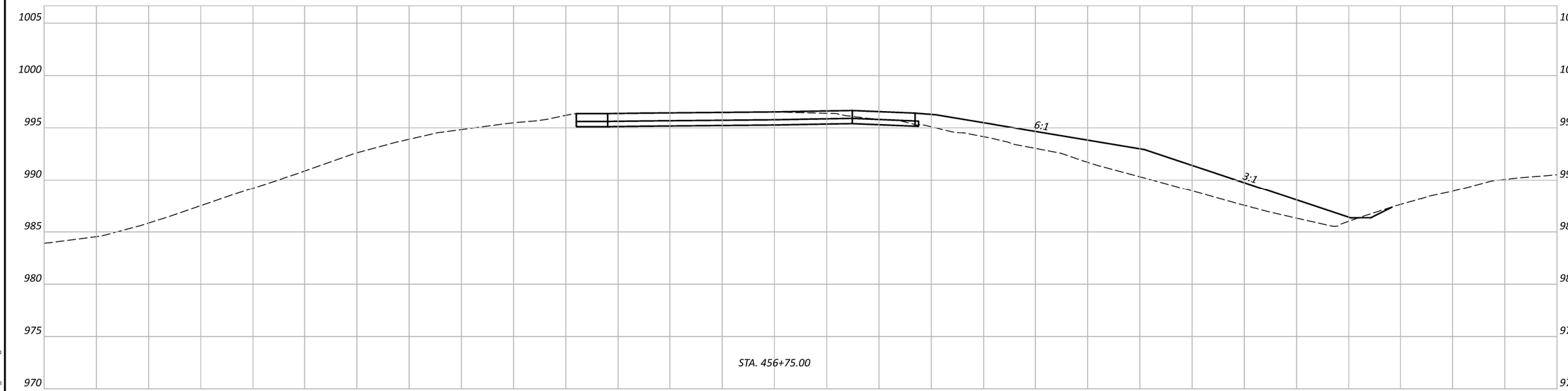

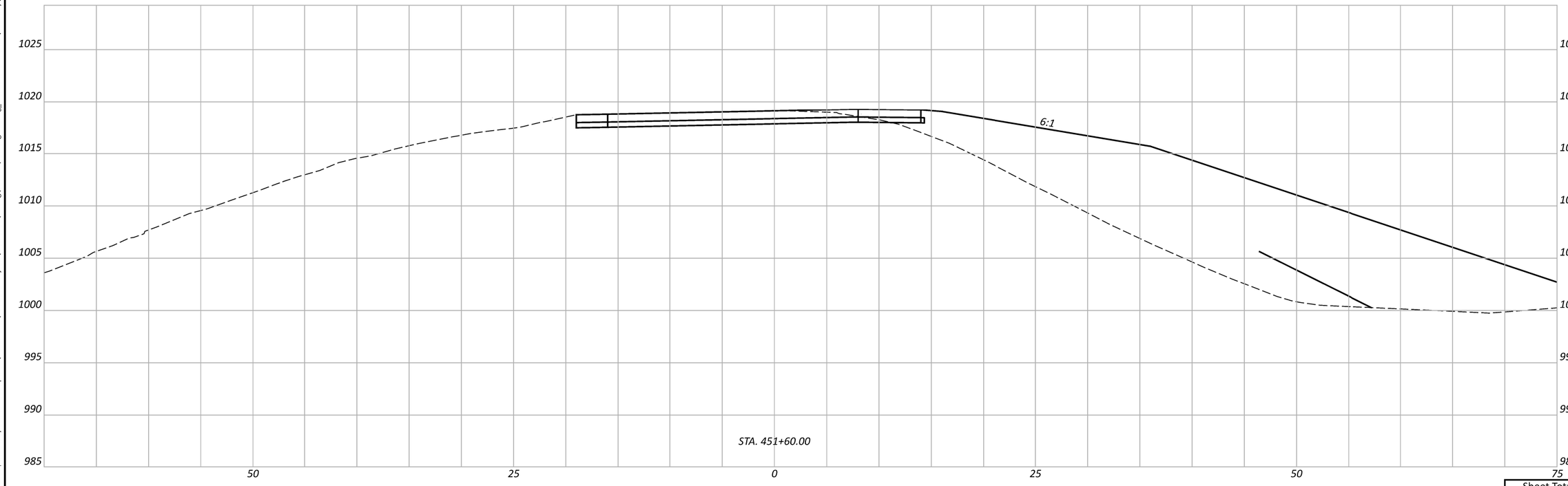

S.R. 37 SIGNAL
EASTBOUND ENTRANCE RAMP

FRA/LIC-161-22.1/0.00

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Sheet Totals		
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DESIGN AGENCY
STONE ENVIRONMENTAL ENGINEERING & SCIENCE

DESIGNER	XXX
REVIEWER	XXX MM-DD-YY
PROJECT ID	117878
SHEET	P.0
TOTAL	0

FRA/LIC-161-22.1/0.00

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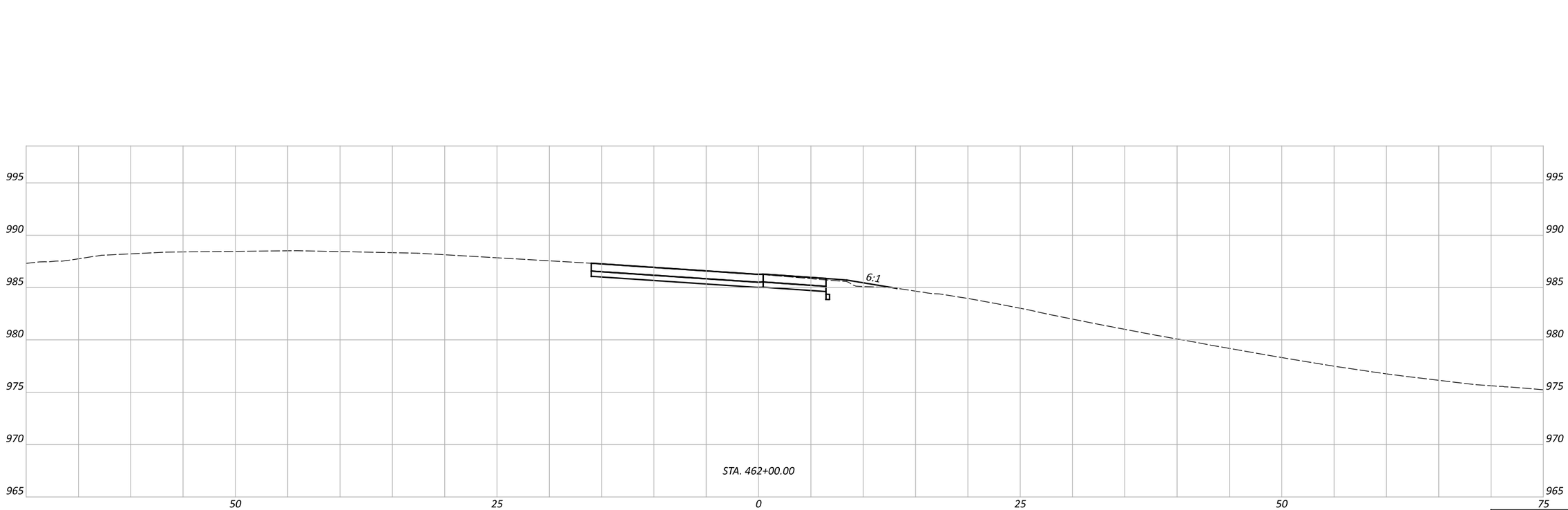


S.R. 37 - SIGNAL
EASTBOUND ENTRANCE RAMP

Sheet Totals		
Seeding	Cut	Fill

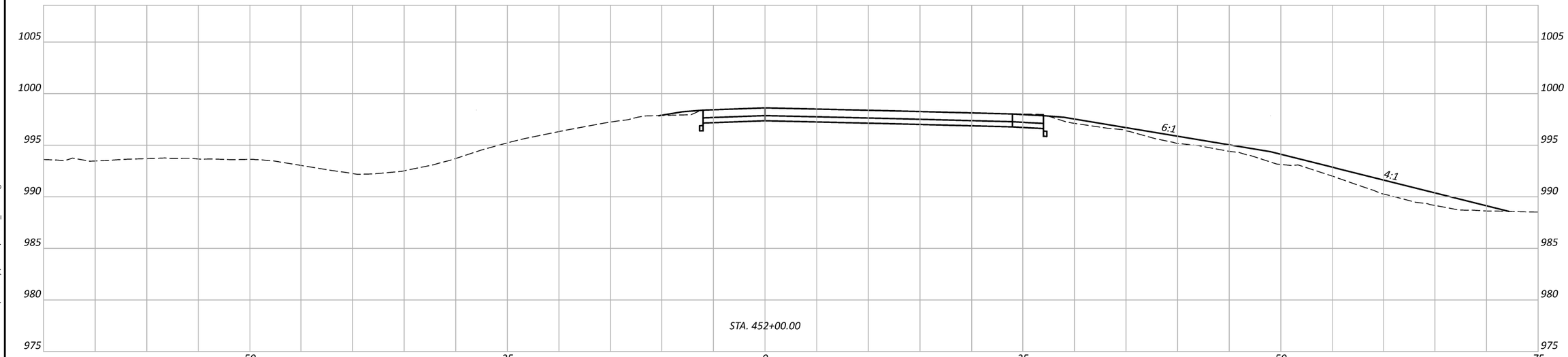
DESIGN AGENCY
STONE ENVIRONMENTAL ENGINEERING & SCIENCE

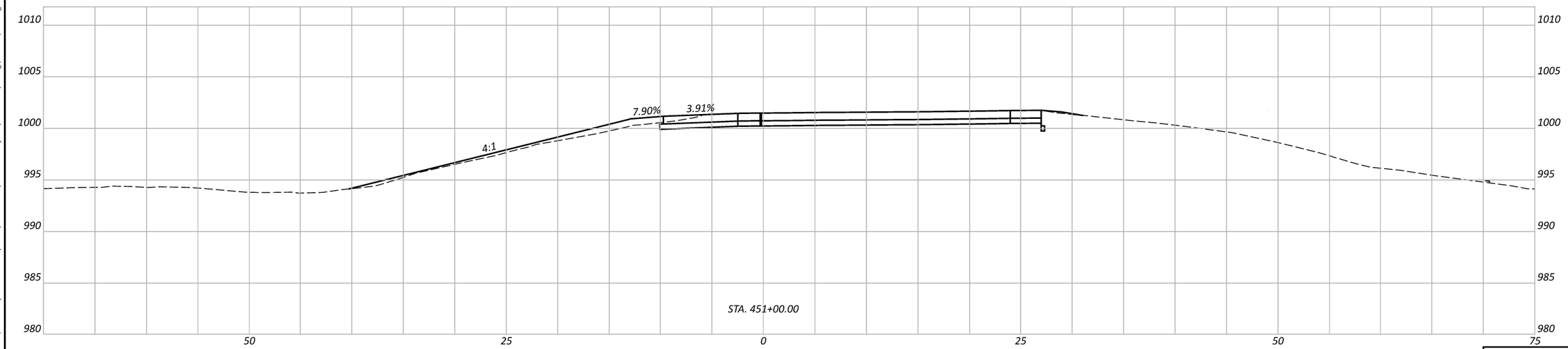
DESIGNER
XXX

REVIEWER
XXX MM-DD-YY

PROJECT ID
117878

SHEET P.0 | TOTAL 0





S.R.37 SIGNAL
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DESIGN AGENCY
STONE ENVIRONMENTAL ENGINEERING & SCIENCE

DESIGNER
XXX

REVIEWER
XXX MM-DD-YY

PROJECT ID
117878

Sheet Totals		
Seeding	Cut	Fill

SHEET	TOTAL
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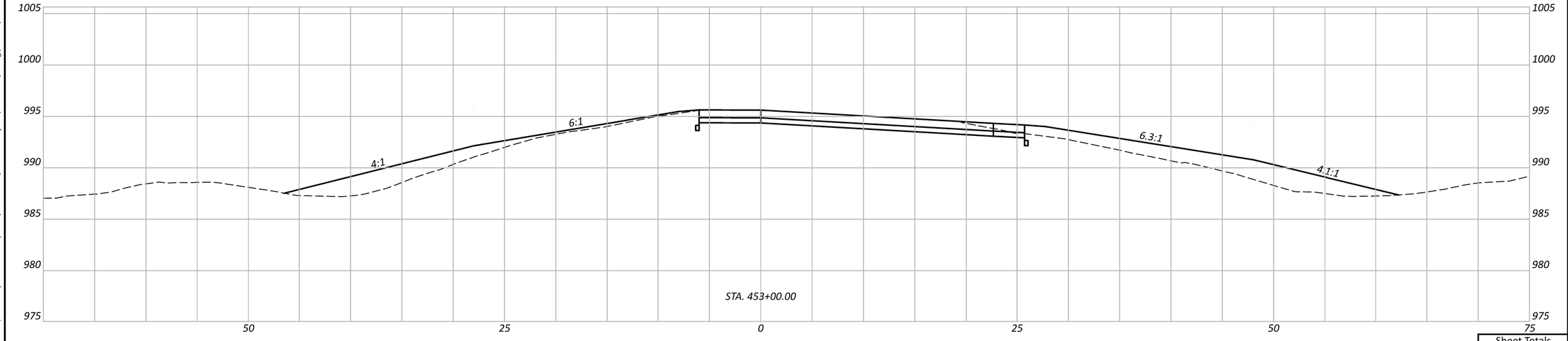

S.R. 37 SIGNAL
WESTBOUND EXIT RAMP

Sheet Totals		
Seeding	Cut	Fill

DESIGN AGENCY
STONE ENVIRONMENTAL ENGINEERING & SCIENCE

DESIGNER
XXX

REVIEWER
XXX MM-DD-YY

PROJECT ID
117878

SHEET	TOTAL
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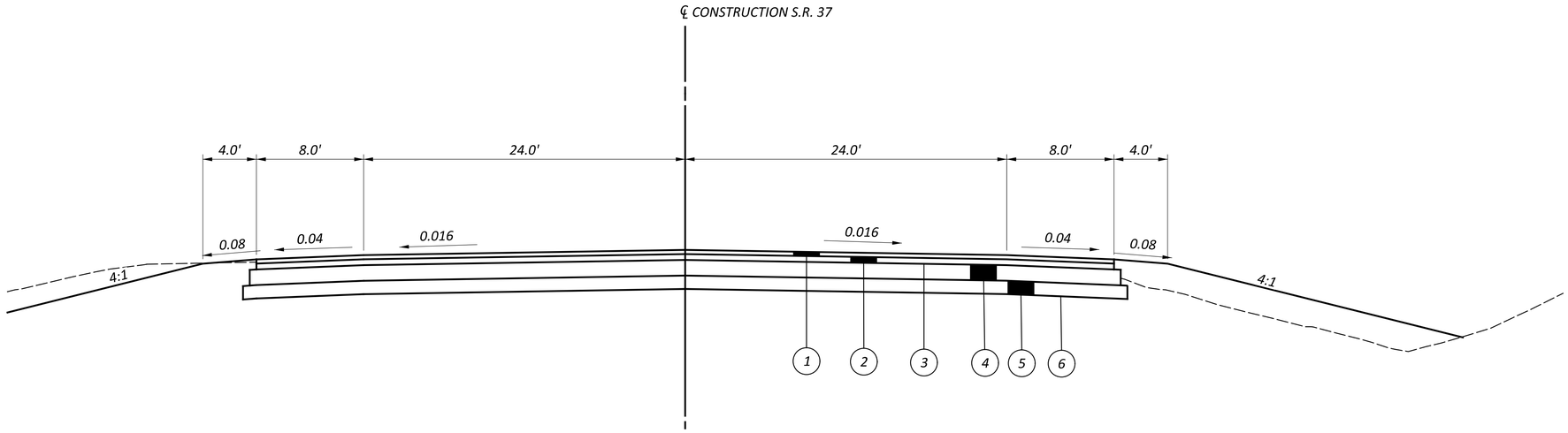
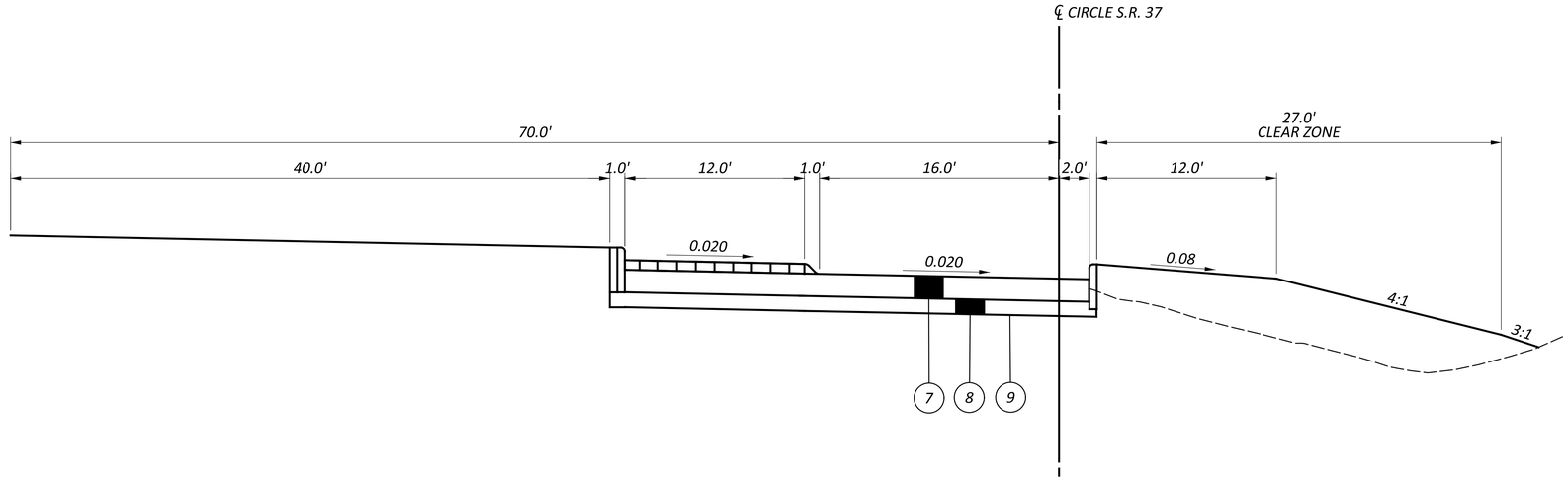
Appendix K2: SR-37 Interchange Roundabouts Proposed Alternative Plans



NORMAL SECTION - ASPHALT
NORTH OF WESTBOUND RAMPS TO NORTH OF MOOTS ROAD
SOUTH OF WESTBOUND RAMPS TO WORTHINGTON ROAD



ROUNDABOUT SECTION - CONCRETE
NORTH OF WESTBOUND RAMPS TO BRIDGE
BRIDGE TO SOUTH OF EASTBOUND RAMPS

LEGEND

1. *ITEM 441 - 1 1/4" ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (449), PG70-22*
2. *ITEM 441 - 1 3/4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, (449)*
3. *ITEM 407 - NON-TRACKING TACK COAT*
4. *ITEM 301 - 6" ASPHALT CONCRETE BASE, (449), PG64-22*
5. *ITEM 304 - 6" AGGREGATE BASE*
6. *ITEM 204 - SUBGRADE COMPACTION*
7. *ITEM 452 - 9" NON-REINFORCED CONCRETE PAVEMENT*
8. *ITEM 304 - 6" AGGREGATE BASE*
9. *ITEM 204 - SUBGRADE COMPACTION*

TYPICAL SECTIONS - S.R. 37
ROUNDABOUT ALTERNATIVE

DESIGN AGENCY
STONE ENVIRONMENTAL ENGINEERING & DESIGN

DESIGNER
BAV

REVIEWER
FRR MM-DD-YY

PROJECT ID
0

SUBSET 0 | TOTAL 0

SHEET P.0 | TOTAL 0

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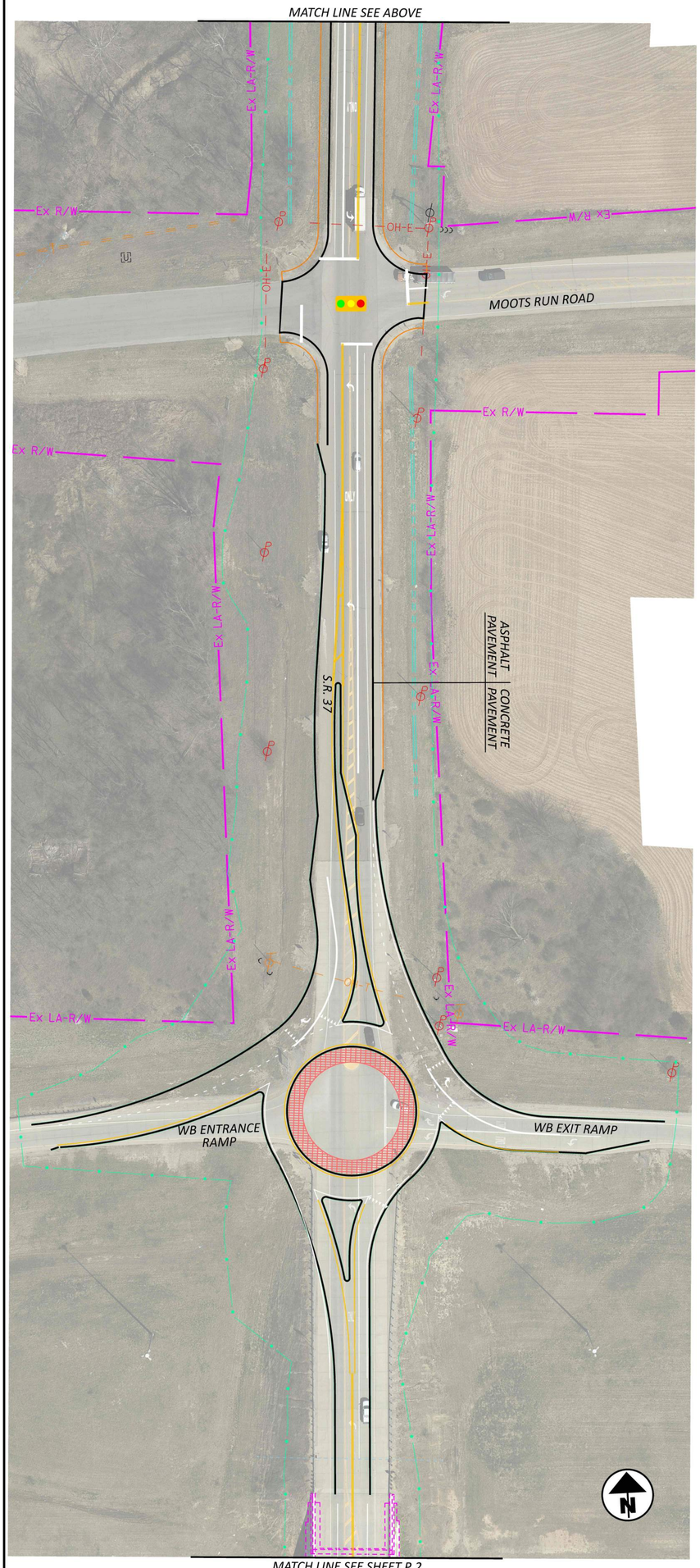
LEGEND

- EXISTING RIGHT-OF-WAY (Ex R/W)
- CONSTRUCTION LIMITS
- EDGE OF PAVEMENT
- EDGE OF SHOULDER
- CURB
- GUARDRAIL
- DITCH
- TRAFFIC SIGNAL





SHEET	TOTAL
P-1	0

PROJECT ID: 117878

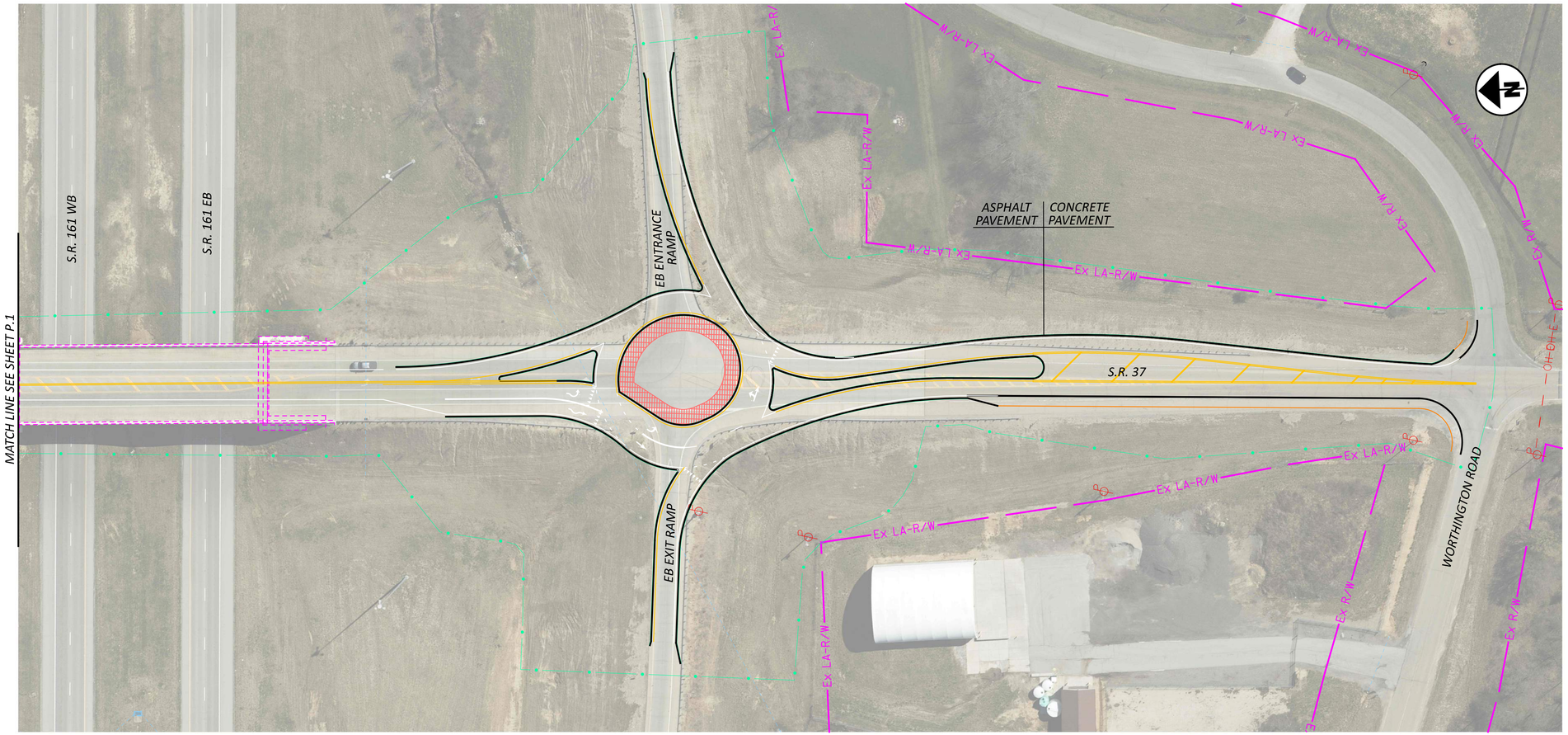
REVIEWER: XXX MM-DD-YY

DESIGNER: FRR

DESIGN AGENCY: STONE ENVIRONMENTAL, ENGINEERING & SCIENCE

S.R. 37 - ALTERNATIVE 2 (ROUNDABOUTS)

HORIZONTAL SCALE IN FEET
0 50
25 100



LEGEND

- Ex R/W — *EXISTING RIGHT-OF-WAY*
- *CONSTRUCTION LIMITS*
- *EDGE OF PAVEMENT*
- *EDGE OF SHOULDER*
- *CURB*
- *GUARDRAIL*
- *DITCH*
- *TRAFFIC SIGNAL*

HORIZONTAL SCALE IN FEET
0 25 50 100

S.R. 37 - ALTERNATIVE 2 (ROUNDABOUTS)

DESIGN AGENCY
STONE ENVIRONMENTAL, ENGINEERING & SCIENCE

DESIGNER FRR
REVIEWER XXX MM-DD-YY
PROJECT ID 117878
SHEET P:2 TOTAL 0

FRA/LIC-161-22.1/0.00

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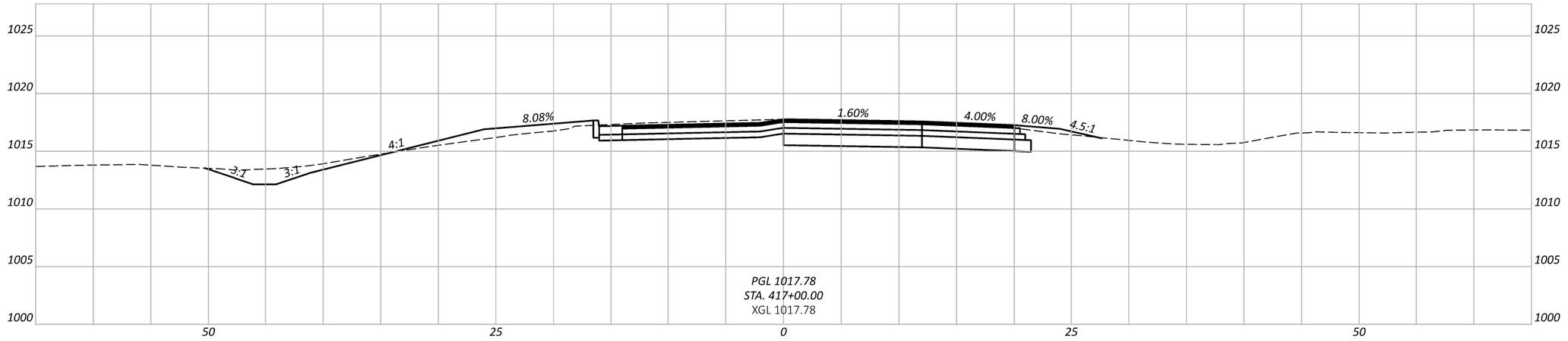

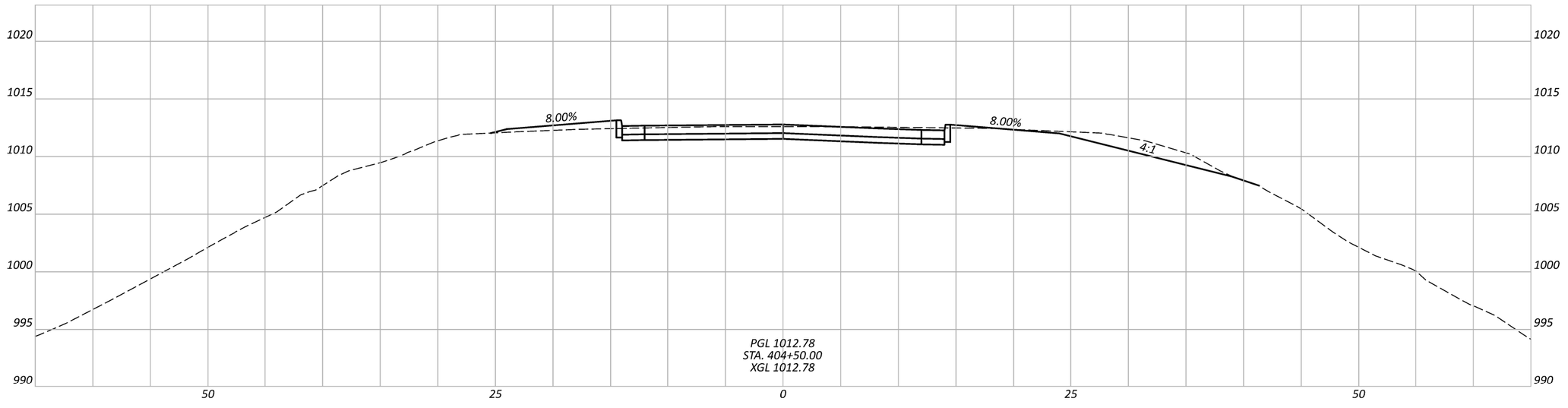

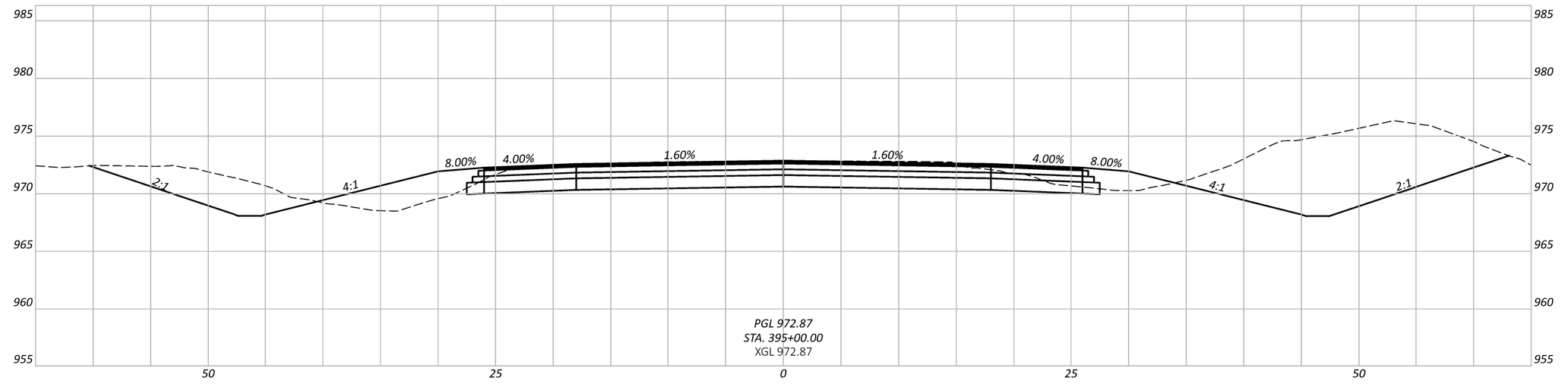

S.R. 37 ROUNDABOUT
S.R. 37

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DESIGN AGENCY
STONE ENVIRONMENTAL ENGINEERING & SCIENCE

DESIGNER
XXX

REVIEWER
XXX MM-DD-YY

PROJECT ID
117878

Sheet Totals		
Seeding	Cut	Fill

SHEET	TOTAL
P.0	0

Appendix L: SR-16 Interchange Proposed Alternative Plans

CTY-RTE-SECTION

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SHEET	TOTAL
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PROJECT ID: 117878

REVIEWER: XXX MM-DD-YY

DESIGNER: XXX

DESIGN AGENCY

SR-16 AND SR-37 INTERCHANGE ALTERNATIVES
TRAFFIC SIGNAL EXHIBIT

HORIZONTAL SCALE IN FEET

0 150
75 300

Appendix M: Cost Estimates

Preliminary Construction Estimate
Licking County: SR-161
Interchange of SR-161 and Beech Rd
Interchange Improvements: Additional Turn Lane
PID: 117878
Roadway Segments

Item	Feature		Measurement	Project Incidental Costs			Ramp C EB SR-161 to Beech Rd		
				Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost
1	Roadway Pavement	Concrete Pavement	Sq. Yds.				1,400	$110.00	$154,000
2		Asphalt Surface	Cu. Yds.				0	$204.50	$0
		Asphalt Intermediate	Cu. Yds.				0	$185.00	$0
		Asphalt Base	Cu. Yds.				0	$170.00	$0
		Aggregate Base	Cu. Yds.				0	$78.00	$0
		Tack Coat	Gal.				0	$5.00	$0
3		Planing	Sq. Yds.				0	$5.00	$0
4		Subgrade Compaction	Sq. Yds.				1,500	$2.00	$3,000
5		Stabilized Subgrade	Sq. Yds.				1,500	$4.75	$7,125
6	Non-Reinforced Concrete - Truck Apron		Sq. Yds.				0	$110.00	$0
7	Asphalt Concrete for Drives (All Courses)		Cu. Yds.				0	$350.00	$0
8	Pavement Removed		Sq. Yds.				600	$5.00	$3,000
9	Earthwork	Excavation	Cu. Yds.				1,600	$15.00	$24,000
10		Embankment	Cu. Yds.				500	$18.75	$9,375
11	Seeding and Mulching		Sq. Yds.				2,200	$5.00	$11,000
12	Curb Removed		Ft.				0	$10.00	$0
13	Curb and Gutter		Ft.				0	$50.00	$0
14	Walk		Sq. Ft.				0	$25.00	$0
15	Shared Use Path	Asphalt Surface	Cu. Yds.				100	$204.50	$20,450
16		Aggregate Base	Cu. Yds.				100	$78.00	$7,800
17		Concrete Pavement	Sq. Yds.				0	$110.00	$0
18	Concrete Barrier / Median Barrier		Ft.				0	$175.00	$0
19	Concrete Median		Sq. Yds.				0	$75.00	$0
20	Clearing and Grubbing		Lump Sum	1	$25,000.00	$25,000			
21	SWPPP		Lump Sum	1	$18,000.00	$18,000			
22	Erosion Control		Lump Sum	1	$60,000.00	$60,000			
23	Traffic Signal		Each	0	$250,000.00	$0			
24	Remove Traffic Signal		Each	0	$2,500.00	$0			
25	Lighting		Lump Sum	1	$500,000.00	$500,000			
26	Landscaping		Lump Sum	1	$10,000.00	$10,000			
27	Field Office		Months	24	$1,350.00	$32,400			
28	Construction Layout Stakes		Lump Sum	1	$200,000.00	$200,000			
29	Performance and Payment Bond (2%)		Lump Sum	1	$4,800.00	$4,800			
30	Mobilization		Lump Sum	1	$1,600,000.00	$1,600,000			
	SUBTOTAL					$2,450,200			$239,750
31	Drainage		% of Items 1-19			$0	10.0%		$24,000
32	Incidentals		% of Items 1-19			$0	5.0%		$12,000
33	Maintenance of Traffic		% of Items 1-19			$0	15.0%		$36,000
34	Traffic Control		% of Items 1-19			$0	5.0%		$12,000
35	Utilities		% of Items 1-19			$0	5.0%		$12,000
36	Misc.		% of Items 1-19			$0	10.0%		$24,000
	SUBTOTAL					$0			$120,000
	TOTAL ROADWAY COSTS (Items 1-36)					$2,450,200			$359,750
37	Bridge Removal		Sq. Ft.	0	$35.00	$0	0	$35.00	$0
38	Approach Slab Removal		Sq. Ft.	0	$45.00	$0	0	$45.00	$0
39	New Bridge	Level 1 (standard)	Lump Sum	0	$0.00	$0	0	$0	$0
40	Retaining Wall	Height > 4'	Sq. Ft.	0	$155.00	$0	0	$155.00	$0
41	Structure Incidentals		% of Items 37-41	10.0%		$0	10.0%		$0
	TOTAL STRUCTURE COSTS (Items 37-41)					$0			$0
42	Contingency		% of Items 1-41	30.0%		$735,000	30.0%		$108,000
43	Inflation from Business Calculator		2030 Mid-Point Construction Year	26.3%		$838,000	26.3%		$123,000
				$4,023,200			**$590,750**		
	ROAD SECTION RIGHT OF WAY COST			**$0**			**$0**		
	TOTAL SEGMENT COST			**$4,023,200**			**$590,750**		

TOTAL PROJECT COST	**$4,613,950**

Date: February 26, 2025

Preliminary Construction Estimate
Licking County: SR-161
Interchange of SR-161 and Mink St
Interchange Improvements: Diamond
PID: 117878
Roadway Segments

Item	Feature		Measurement	Project Incidental Costs			Mink St			Ramp I Mink St to WB SR-161			Ramp J WB SR-161 to Mink St			Ramp K EB SR-161 to Mink St			Ramp L Mink St to EB SR-161			Cobbs Rd		
				Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost
1	Roadway Pavement	Concrete Pavement	Sq. Yds.				0	$110.00	$0	4,200	$110.00	$462,000	5,600	$110.00	$616,000	5,300	$110.00	$583,000	3,300	$110.00	$363,000	0	$110.00	$0
2		Asphalt Surface	Cu. Yds.				900	$204.50	$184,050	300	$204.50	$61,350	400	$204.50	$81,800	400	$204.50	$81,800	200	$204.50	$40,900	200	$204.50	$40,900
		Asphalt Intermediate	Cu. Yds.				1,300	$185.00	$240,500	300	$185.00	$55,500	400	$185.00	$74,000	400	$185.00	$74,000	200	$185.00	$37,000	200	$185.00	$37,000
		Asphalt Base	Cu. Yds.				3,100	$170.00	$527,000	1,100	$170.00	$187,000	1,600	$170.00	$272,000	1,600	$170.00	$272,000	900	$170.00	$153,000	700	$170.00	$119,000
		Aggregate Base	Cu. Yds.				1,300	$78.00	$101,400	900	$78.00	$70,200	1,300	$78.00	$101,400	1,300	$78.00	$101,400	700	$78.00	$54,600	600	$78.00	$46,800
		Tack Coat	Gal.				2,100	$5.00	$10,500	700	$5.00	$3,500	900	$5.00	$4,500	900	$5.00	$4,500	500	$5.00	$2,500	400	$5.00	$2,000
3		Planing	Sq. Yds.				12,400	$5.00	$62,000	0	$5.00	$0	0	$5.00	$0	0	$5.00	$0	0	$5.00	$0	0	$5.00	$0
4		Subgrade Compaction	Sq. Yds.				11,300	$2.00	$22,600	9,700	$2.00	$19,400	13,500	$2.00	$27,000	13,200	$2.00	$26,400	7,500	$2.00	$15,000	3,400	$2.00	$6,800
5		Stabilized Subgrade	Sq. Yds.				11,300	$4.75	$53,675	9,700	$4.75	$46,075	13,500	$4.75	$64,125	13,200	$4.75	$62,700	7,500	$4.75	$35,625	3,400	$4.75	$16,150
6	Non-Reinforced Concrete - Truck Apron		Sq. Yds.				0	$110.00	$0	0	$110.00	$0	0	$110.00	$0	0	$110.00	$0	0	$110.00	$0	0	$110.00	$0
7	Asphalt Concrete for Drives (All Courses)		Cu. Yds.				200	$350.00	$70,000	0	$350.00	$0	0	$350.00	$0	0	$350.00	$0	0	$350.00	$0	100	$350.00	$35,000
8	Pavement Removed		Sq. Yds.				5,600	$5.00	$28,000	6,500	$5.00	$32,500	8,000	$5.00	$40,000	6,700	$5.00	$33,500	7,000	$5.00	$35,000	3,500	$5.00	$17,500
9	Earthwork	Excavation	Cu. Yds.				21,000	$15.00	$315,000	3,200	$15.00	$48,000	9,200	$15.00	$138,000	8,300	$15.00	$124,500	12,400	$15.00	$186,000	1,300	$15.00	$19,500
10		Embankment	Cu. Yds.				2,900	$18.75	$54,375	5,400	$18.75	$101,250	2,300	$18.75	$43,125	18,900	$18.75	$354,375	5,600	$18.75	$105,000	2,000	$18.75	$37,500
11	Seeding and Mulching		Sq. Yds.				5,000	$5.00	$25,000	5,500	$5.00	$27,500	16,400	$5.00	$82,000	17,700	$5.00	$88,500	12,300	$5.00	$61,500	2,900	$5.00	$14,500
12	Curb Removed		Ft.				3,800	$10.00	$38,000	0	$10.00	$0	0	$10.00	$0	0	$10.00	$0	0	$10.00	$0	0	$10.00	$0
13	Curb and Gutter		Ft.				5,000	$50.00	$250,000	0	$50.00	$0	0	$50.00	$0	0	$50.00	$0	0	$50.00	$0	0	$50.00	$0
14	Walk		Sq. Ft.				0	$25.00	$0	0	$25.00	$0	0	$25.00	$0	0	$25.00	$0	0	$25.00	$0	0	$25.00	$0
15	Shared Use Path	Asphalt Surface	Cu. Yds.				200	$204.50	$40,900	0	$204.50	$0	0	$204.50	$0	0	$204.50	$0	0	$204.50	$0	0	$204.50	$0
16		Aggregate Base	Cu. Yds.				500	$78.00	$39,000	0	$78.00	$0	0	$78.00	$0	0	$78.00	$0	0	$78.00	$0	0	$78.00	$0
17		Concrete Pavement	Sq. Yds.				0	$110.00	$0	0	$110.00	$0	0	$110.00	$0	0	$110.00	$0	0	$110.00	$0	0	$110.00	$0
18	Concrete Barrier / Median Barrier		Ft.				0	$175.00	$0	1,700	$175.00	$297,500	0	$175.00	$0	0	$175.00	$0	0	$175.00	$0	0	$175.00	$0
19	Concrete Median		Sq. Yds.				0	$75.00	$0	0	$75.00	$0	0	$75.00	$0	0	$75.00	$0	0	$75.00	$0	0	$75.00	$0
20	Clearing and Grubbing		Lump Sum	1	$25,000.00	$25,000																		
21	SWPPP		Lump Sum	1	$18,000.00	$18,000																		
22	Erosion Control		Lump Sum	1	$60,000.00	$60,000																		
23	Traffic Signal		Each	2	$250,000.00	$500,000																		
24	Remove Traffic Signal		Each	2	$2,500.00	$5,000																		
25	Lighting		Lump Sum	1	$500,000.00	$500,000																		
26	Landscaping		Lump Sum	1	$10,000.00	$10,000																		
27	Field Office		Months	24	$1,350.00	$32,400																		
28	Construction Layout Stakes		Lump Sum	1	$200,000.00	$200,000																		
29	Performance and Payment Bond (2%)		Lump Sum	1	$41,300.00	$41,300																		
30	Mobilization		Lump Sum	1	$1,600,000.00	$1,600,000																		
	SUBTOTAL					$2,991,700			$2,062,000			$1,411,775			$1,543,950			$1,806,675			$1,089,125			$392,650
31	Drainage		% of Items 1-19			$0	10.0%		$206,200	10.0%		$141,200	10.0%		$154,400	10.0%		$180,700	10.0%		$109,000	10.0%		$109,000
32	Incidentals		% of Items 1-19			$0	5.0%		$103,100	5.0%		$70,600	5.0%		$77,200	5.0%		$90,400	5.0%		$54,500	5.0%		$54,500
33	Maintenance of Traffic		% of Items 1-19			$0	15.0%		$309,300	15.0%		$211,800	15.0%		$231,600	15.0%		$271,100	15.0%		$163,400	15.0%		$163,400
34	Traffic Control		% of Items 1-19			$0	5.0%		$103,100	5.0%		$70,600	5.0%		$77,200	5.0%		$90,400	5.0%		$54,500	5.0%		$54,500
35	Utilities		% of Items 1-19			$0	5.0%		$103,100	1.0%		$14,200	1.0%		$15,500	1.0%		$18,100	1.0%		$10,900	1.0%		$10,900
36	Misc.		% of Items 1-19			$0	10.0%		$206,200	10.0%		$141,200	10.0%		$154,400	10.0%		$180,700	10.0%		$109,000	10.0%		$109,000
	SUBTOTAL					$0			$1,031,000			$649,600			$710,300			$831,400			$501,300			$501,300
	TOTAL ROADWAY COSTS (Items 1-36)					$2,991,700			$3,093,000			$2,061,375			$2,254,250			$2,638,075			$1,590,425			$893,950
37	Bridge Removal		Sq. Ft.	0	$35.00	$0	10,400	$35.00	$364,000	0	$35.00	$0	0	$35.00	$0	0	$35.00	$0	0	$35.00	$0	0	$35.00	$0
38	Approach Slab Removal		Sq. Ft.	0	$45.00	$0	600	$45.00	$27,000	0	$45.00	$0	0	$45.00	$0	0	$45.00	$0	0	$45.00	$0	0	$45.00	$0
39	New Bridge	Level 1 (standard)	Lump Sum	0	$0.00	$0	1	$4,954,000	$4,954,000	0	$0.00	$0	0	$0.00	$0	0	$0.00	$0	0	$0.00	$0	0	$0.00	$0
40	Retaining Wall	Height > 4'	Sq. Ft.	0	$155.00	$0	5,600	$155.00	$868,000	0	$155.00	$0	0	$155.00	$0	0	$155.00	$0	0	$155.00	$0	0	$155.00	$0
41	Structure Incidentals		% of Items 37-41	10.0%		$0	10.0%		$621,300	10.0%		$0	10.0%		$0	10.0%		$0	10.0%		$0	10.0%		$0
	TOTAL STRUCTURE COSTS (Items 37-41)					$0			$6,834,300			$0			$0			$0			$0			$0
42	Contingency		% of Items 1-41	30.0%		$898,000	30.0%		$2,978,000	30.0%		$618,000	30.0%		$676,000	30.0%		$791,000	30.0%		$477,000	30.0%		$268,000
43	Inflation from Business Calculator		2030 Mid-Point Construction Year	26.3%		$1,023,000	26.3%		$3,394,000	26.3%		$705,000	26.3%		$771,000	26.3%		$902,000	26.3%		$544,000	26.3%		$306,000
				$4,912,700			**$16,299,300**			**$3,384,375**			**$3,701,250**			**$4,331,075**			**$2,611,425**			**$1,467,950**	
	ROAD SECTION RIGHT OF WAY COST			**$0**			**$0**			**$0**			**$0**			**$0**			**$0**			**$0**	
	TOTAL SEGMENT COST			**$4,912,700**			**$16,299,300**			**$3,384,375**			**$3,701,250**			**$4,331,075**			**$2,611,425**			**$1,467,950**	

TOTAL PROJECT COST	**$36,708,075**

Preliminary Construction Estimate
Licking County: SR-161
Interchange of SR-161 and Mink St
Interchange Improvements: DDI
PID: 117878
Roadway Segments

Item	Feature		Measurement	Project Incidental Costs			Mink St			Ramp I SB Mink St to WB SR-161			Ramp J WB SR-161 to Mink St			Ramp K EB SR-161 to Mink St			Ramp L NB Mink St to EB SR-161			Cobbs Rd		
				Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost
1	Roadway Pavement	Concrete Pavement	Sq. Yds.				0	$110.00	$0	6,500	$110.00	$715,000	6,700	$110.00	$737,000	7,000	$110.00	$770,000	4,300	$110.00	$473,000	0	$110.00	$0
2		Asphalt Surface	Cu. Yds.				900	$204.50	$184,050	300	$204.50	$61,350	200	$204.50	$40,900	400	$204.50	$81,800	200	$204.50	$40,900	300	$204.50	$61,350
		Asphalt Intermediate	Cu. Yds.				1,400	$185.00	$259,000	300	$185.00	$55,500	200	$185.00	$37,000	400	$185.00	$74,000	200	$185.00	$37,000	300	$185.00	$55,500
		Asphalt Base	Cu. Yds.				4,800	$170.00	$816,000	1,200	$170.00	$204,000	800	$170.00	$136,000	1,600	$170.00	$272,000	900	$170.00	$153,000	1,100	$170.00	$187,000
		Aggregate Base	Cu. Yds.				2,000	$78.00	$156,000	1,000	$78.00	$78,000	700	$78.00	$54,600	1,300	$78.00	$101,400	800	$78.00	$62,400	900	$78.00	$70,200
		Tack Coat	Gal.				2,400	$5.00	$12,000	700	$5.00	$3,500	500	$5.00	$2,500	1,000	$5.00	$5,000	600	$5.00	$3,000	600	$5.00	$3,000
3		Planing	Sq. Yds.				4,800	$5.00	$24,000	0	$5.00	$0	0	$5.00	$0	0	$5.00	$0	0	$5.00	$0	0	$5.00	$0
4		Subgrade Compaction	Sq. Yds.				17,800	$2.00	$35,600	12,600	$2.00	$25,200	10,800	$2.00	$21,600	15,300	$2.00	$30,600	8,900	$2.00	$17,800	5,300	$2.00	$10,600
5		Stabilized Subgrade	Sq. Yds.				17,800	$4.75	$84,550	12,600	$4.75	$59,850	10,800	$4.75	$51,300	15,300	$4.75	$72,675	8,900	$4.75	$42,275	5,300	$4.75	$25,175
6	Non-Reinforced Concrete - Truck Apron		Sq. Yds.				0	$110.00	$0	0	$110.00	$0	0	$110.00	$0	0	$110.00	$0	0	$110.00	$0	0	$110.00	$0
7	Asphalt Concrete for Drives (All Courses)		Cu. Yds.				140	$350.00	$49,000	0	$350.00	$0	0	$350.00	$0	0	$350.00	$0	0	$350.00	$0	70	$350.00	$24,500
8	Pavement Removed		Sq. Yds.				13,200	$5.00	$66,000	6,600	$5.00	$33,000	6,500	$5.00	$32,500	6,800	$5.00	$34,000	7,000	$5.00	$35,000	4,800	$5.00	$24,000
9	Earthwork	Excavation	Cu. Yds.				35,800	$15.00	$537,000	10,100	$15.00	$151,500	5,700	$15.00	$85,500	14,000	$15.00	$210,000	10,600	$15.00	$159,000	2,500	$15.00	$37,500
10		Embankment	Cu. Yds.				3,900	$18.75	$73,125	19,300	$18.75	$361,875	18,700	$18.75	$350,625	27,500	$18.75	$515,625	9,800	$18.75	$183,750	12,800	$18.75	$240,000
11	Seeding and Mulching		Sq. Yds.				11,500	$5.00	$57,500	15,500	$5.00	$77,500	13,400	$5.00	$67,000	22,500	$5.00	$112,500	20,500	$5.00	$102,500	7,100	$5.00	$35,500
12	Curb Removed		Ft.				3,800	$10.00	$38,000	0	$10.00	$0	0	$10.00	$0	0	$10.00	$0	0	$10.00	$0	0	$10.00	$0
13	Curb and Gutter		Ft.				9,300	$50.00	$465,000	0	$50.00	$0	0	$50.00	$0	0	$50.00	$0	0	$50.00	$0	0	$50.00	$0
14	Walk		Sq. Ft.				0	$25.00	$0	0	$25.00	$0	0	$25.00	$0	0	$25.00	$0	0	$25.00	$0	0	$25.00	$0
15	Shared Use Path	Asphalt Surface	Cu. Yds.				200	$204.50	$40,900	0	$204.50	$0	0	$204.50	$0	0	$204.50	$0	0	$204.50	$0	0	$204.50	$0
16		Aggregate Base	Cu. Yds.				500	$78.00	$39,000	0	$78.00	$0	0	$78.00	$0	0	$78.00	$0	0	$78.00	$0	0	$78.00	$0
17		Concrete Pavement	Sq. Yds.				0	$110.00	$0	0	$110.00	$0	0	$110.00	$0	0	$110.00	$0	0	$110.00	$0	0	$110.00	$0
18	Concrete Barrier / Median Barrier		Ft.				0	$175.00	$0	2,200	$175.00	$385,000	0	$175.00	$0	0	$175.00	$0	0	$175.00	$0	0	$175.00	$0
19	Concrete Median		Sq. Yds.				1,000	$75.00	$75,000	0	$75.00	$0	0	$75.00	$0	0	$75.00	$0	0	$75.00	$0	0	$75.00	$0
20	Clearing and Grubbing		Lump Sum	1	$25,000.00	$25,000																		
21	SWPPP		Lump Sum	1	$18,000.00	$18,000																		
22	Erosion Control		Lump Sum	1	$60,000.00	$60,000																		
23	Traffic Signal		Each	2	$250,000.00	$500,000																		
24	Remove Traffic Signal		Each	2	$2,500.00	$5,000																		
25	Lighting		Lump Sum	1	$500,000.00	$500,000																		
26	Landscaping		Lump Sum	1	$10,000.00	$10,000																		
27	Field Office		Months	24	$1,350.00	$32,400																		
28	Construction Layout Stakes		Lump Sum	1	$200,000.00	$200,000																		
29	Performance and Payment Bond (2%)		Lump Sum	1	$60,300.00	$60,300																		
30	Mobilization		Lump Sum	1	$1,600,000.00	$1,600,000																		
	SUBTOTAL					$3,010,700			$3,011,725			$2,211,275			$1,616,525			$2,279,600			$1,309,625			$774,325
31	Drainage		% of Items 1-19			$0	10.0%		$301,200	10.0%		$221,200	10.0%		$161,700	10.0%		$228,000	10.0%		$131,000	10.0%		$77,500
32	Incidentals		% of Items 1-19			$0	5.0%		$150,600	5.0%		$110,600	5.0%		$80,900	5.0%		$114,000	5.0%		$65,500	5.0%		$38,800
33	Maintenance of Traffic		% of Items 1-19			$0	15.0%		$451,800	15.0%		$331,700	15.0%		$242,500	15.0%		$342,000	15.0%		$196,500	15.0%		$116,200
34	Traffic Control		% of Items 1-19			$0	5.0%		$150,600	5.0%		$110,600	5.0%		$80,900	5.0%		$114,000	5.0%		$65,500	5.0%		$38,800
35	Utilities		% of Items 1-19			$0	5.0%		$150,600	1.0%		$22,200	1.0%		$16,200	1.0%		$22,800	1.0%		$13,100	1.0%		$7,800
36	Misc.		% of Items 1-19			$0	10.0%		$301,200	10.0%		$221,200	10.0%		$161,700	10.0%		$228,000	10.0%		$131,000	10.0%		$77,500
	SUBTOTAL					$0			$1,506,000			$1,017,500			$743,900			$1,048,800			$602,600			$356,600
	TOTAL ROADWAY COSTS (Items 1-36)					$3,010,700			$4,517,725			$3,228,775			$2,360,425			$3,328,400			$1,912,225			$1,130,925
37	Bridge Removal		Sq. Ft.	0	$35.00	$0	10,400	$35.00	$364,000	0	$35.00	$0	0	$35.00	$0	0	$35.00	$0	0	$35.00	$0	0	$35.00	$0
38	Approach Slab Removal		Sq. Ft.	0	$45.00	$0	600	$45.00	$27,000	0	$45.00	$0	0	$45.00	$0	0	$45.00	$0	0	$45.00	$0	0	$45.00	$0
39	New Bridge	Level 1 (standard)	Lump Sum	0	$0.00	$0	1	$5,671,000	$5,671,000	0	$0.00	$0	0	$0.00	$0	0	$0.00	$0	0	$0.00	$0	0	$0.00	$0
40	Retaining Wall	Height > 4'	Sq. Ft.	0	$155.00	$0	4,400	$155.00	$682,000	0	$155.00	$0	0	$155.00	$0	0	$155.00	$0	0	$155.00	$0	0	$155.00	$0
41	Structure Incidentals		% of Items 37-41	10.0%		$0	10.0%		$674,400	10.0%		$0	10.0%		$0	10.0%		$0	10.0%		$0	10.0%		$0
	TOTAL STRUCTURE COSTS (Items 37-41)					$0			$7,418,400			$0			$0			$0			$0			$0
42	Contingency		% of Items 1-41	30.0%		$903,000	30.0%		$3,581,000	30.0%		$969,000	30.0%		$708,000	30.0%		$999,000	30.0%		$574,000	30.0%		$339,000
43	Inflation from Business Calculator		2030 Mid-Point Construction Year	26.3%		$1,029,000	26.3%		$4,081,000	26.3%		$1,104,000	26.3%		$807,000	26.3%		$1,138,000	26.3%		$654,000	26.3%		$387,000
				$4,942,700			**$19,598,125**			**$5,301,775**			**$3,875,425**			**$5,465,400**			**$3,140,225**			**$1,856,925**	
	ROAD SECTION RIGHT OF WAY COST			**$0**			**$0**			**$0**			**$0**			**$0**			**$0**			**$0**	
	TOTAL SEGMENT COST			**$4,942,700**			**$19,598,125**			**$5,301,775**			**$3,875,425**			**$5,465,400**			**$3,140,225**			**$1,856,925**	

TOTAL PROJECT COST	**$44,180,575**

Preliminary Construction Estimate
Licking County: SR-161
Interchange of SR-161 and Mink St
Interchange Improvements: Parclo A
PID: 117878
Roadway Segments

Item	Feature		Measurement	Project Incidental Costs			Mink St			Ramp I SB Mink St to WB SR-161			Ramp I Loop NB Mink St to WB SR-161			Ramp J WB SR-161 to Mink St			Ramp K EB SR-161 to Mink St			Ramp L NB Mink St to EB SR-161			Ramp L Loop SB Mink St to EB SR-161			Cobbs Rd		
				Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost
1		Concrete Pavement	Sq. Yds.				0	$110.00	$0	5,000	$110.00	$550,000	2,600	$110.00	$286,000	7,400	$110.00	$814,000	8,500	$110.00	$935,000	4,900	$110.00	$539,000	2,600	$110.00	$286,000	0	$110.00	$0
2		Asphalt Surface	Cu. Yds.				800	$204.50	$163,600	200	$204.50	$40,900	300	$204.50	$61,350	200	$204.50	$40,900	400	$204.50	$81,800	200	$204.50	$40,900	300	$204.50	$61,350	200	$204.50	$40,900
		Asphalt Intermediate	Cu. Yds.				1,200	$185.00	$222,000	200	$185.00	$37,000	300	$185.00	$55,500	200	$185.00	$37,000	400	$185.00	$74,000	200	$185.00	$37,000	300	$185.00	$55,500	200	$185.00	$37,000
	Roadway Pavement	Asphalt Base	Cu. Yds.				2,500	$170.00	$425,000	1,000	$170.00	$170,000	1,200	$170.00	$204,000	1,000	$170.00	$170,000	1,600	$170.00	$272,000	1,000	$170.00	$170,000	1,200	$170.00	$204,000	1,000	$170.00	$170,000
		Aggregate Base	Cu. Yds.				1,000	$78.00	$78,000	800	$78.00	$62,400	1,000	$78.00	$78,000	800	$78.00	$62,400	1,300	$78.00	$101,400	800	$78.00	$62,400	1,000	$78.00	$78,000	800	$78.00	$62,400
		Tack Coat	Gal.				1,800	$5.00	$9,000	600	$5.00	$3,000	700	$5.00	$3,500	600	$5.00	$3,000	900	$5.00	$4,500	600	$5.00	$3,000	700	$5.00	$3,500	600	$5.00	$3,000
3		Planing	Sq. Yds.				12,100	$5.00	$60,500	0	$5.00	$0	0	$5.00	$0	0	$5.00	$0	0	$5.00	$0	0	$5.00	$0	0	$5.00	$0	0	$5.00	$0
4		Subgrade Compaction	Sq. Yds.				9,000	$2.00	$18,000	9,800	$2.00	$19,600	8,500	$2.00	$17,000	12,400	$2.00	$24,800	16,500	$2.00	$33,000	9,700	$2.00	$19,400	8,500	$2.00	$17,000	4,800	$2.00	$9,600
5		Stabilized Subgrade	Sq. Yds.				9,000	$4.75	$42,750	9,800	$4.75	$46,550	8,500	$4.75	$40,375	12,400	$4.75	$58,900	16,500	$4.75	$78,375	9,700	$4.75	$46,075	8,500	$4.75	$40,375	4,800	$4.75	$22,800
6	Non-Reinforced Concrete - Truck Apron		Sq. Yds.				0	$110.00	$0	0	$110.00	$0	0	$110.00	$0	0	$110.00	$0	0	$110.00	$0	0	$110.00	$0	0	$110.00	$0	0	$110.00	$0
7	Asphalt Concrete for Drives (All Courses)		Cu. Yds.				30	$350.00	$10,500	0	$350.00	$0	0	$350.00	$0	0	$350.00	$0	0	$350.00	$0	0	$350.00	$0	0	$350.00	$0	70	$350.00	$24,500
8	Pavement Removed		Sq. Yds.				5,900	$5.00	$29,500	8,600	$5.00	$43,000	0	$5.00	$0	6,800	$5.00	$34,000	6,800	$5.00	$34,000	9,300	$5.00	$46,500	0	$5.00	$0	4,200	$5.00	$21,000
9	Earthwork	Excavation	Cu. Yds.				21,800	$15.00	$327,000	5,400	$15.00	$81,000	9,600	$15.00	$144,000	9,200	$15.00	$138,000	5,000	$15.00	$75,000	12,800	$15.00	$192,000	3,800	$15.00	$57,000	2,500	$15.00	$37,500
10		Embankment	Cu. Yds.				1,100	$18.75	$20,625	7,000	$18.75	$131,250	26,300	$18.75	$493,125	8,100	$18.75	$151,875	63,600	$18.75	$1,192,500	8,800	$18.75	$165,000	37,500	$18.75	$703,125	4,500	$18.75	$84,375
11	Seeding and Mulching		Sq. Yds.				3,100	$5.00	$15,500	4,700	$5.00	$23,500	12,200	$5.00	$61,000	10,800	$5.00	$54,000	26,000	$5.00	$130,000	17,400	$5.00	$87,000	14,900	$5.00	$74,500	8,600	$5.00	$43,000
12	Curb Removed		Ft.				3,800	$10.00	$38,000	0	$10.00	$0	0	$10.00	$0	0	$10.00	$0	0	$10.00	$0	0	$10.00	$0	0	$10.00	$0	0	$10.00	$0
13	Curb and Gutter		Ft.				5,000	$50.00	$250,000	0	$50.00	$0	0	$50.00	$0	800	$50.00	$40,000	800	$50.00	$40,000	0	$50.00	$0	0	$50.00	$0	0	$50.00	$0
14	Walk		Sq. Ft.				0	$25.00	$0	0	$25.00	$0	0	$25.00	$0	0	$25.00	$0	0	$25.00	$0	0	$25.00	$0	0	$25.00	$0	0	$25.00	$0
15	Shared Use Path	Asphalt Surface	Cu. Yds.				200	$204.50	$40,900	0	$204.50	$0	0	$204.50	$0	0	$204.50	$0	0	$204.50	$0	0	$204.50	$0	0	$204.50	$0	0	$204.50	$0
16		Aggregate Base	Cu. Yds.				500	$78.00	$39,000	0	$78.00	$0	0	$78.00	$0	0	$78.00	$0	0	$78.00	$0	0	$78.00	$0	0	$78.00	$0	0	$78.00	$0
17		Concrete Pavement	Sq. Yds.				0	$110.00	$0	0	$110.00	$0	0	$110.00	$0	0	$110.00	$0	0	$110.00	$0	0	$110.00	$0	0	$110.00	$0	0	$110.00	$0
18	Concrete Barrier / Median Barrier		Ft.				0	$175.00	$0	2,200	$175.00	$385,000	700	$175.00	$122,500	0	$175.00	$0	0	$175.00	$0	0	$175.00	$0	1,000	$175.00	$175,000	0	$175.00	$0
19	Concrete Median		Sq. Yds.				0	$75.00	$0	0	$75.00	$0	100	$75.00	$7,500	0	$75.00	$0	0	$75.00	$0	0	$75.00	$0	500	$75.00	$37,500	0	$75.00	$0
20	Clearing and Grubbing		Lump Sum	1	$25,000.00	$25,000																								
21	SWPPP		Lump Sum	1	$18,000.00	$18,000																								
22	Erosion Control		Lump Sum	1	$60,000.00	$60,000																								
23	Traffic Signal		Each	2	$250,000.00	$500,000																								
24	Remove Traffic Signal		Each	2	$2,500.00	$5,000																								
25	Lighting		Lump Sum	1	$500,000.00	$500,000																								
26	Landscaping		Lump Sum	1	$10,000.00	$10,000																								
27	Field Office		Months	24	$1,350.00	$32,400																								
28	Construction Layout Stakes		Lump Sum	1	$200,000.00	$200,000																								
29	Performance and Payment Bond (2%)		Lump Sum	1	$35,800.00	$35,800																								
30	Mobilization		Lump Sum	1	$1,600,000.00	$1,600,000																								
	SUBTOTAL					$2,986,200			$1,789,875			$1,593,200			$1,573,850			$1,628,875			$3,051,575			$1,408,275			$1,792,850			$556,075
31	Drainage		% of Items 1-19			$0	10.0%		$179,000	10.0%		$159,400	10.0%		$157,400	10.0%		$162,900	10.0%		$305,200	10.0%		$140,900	10.0%		$179,300	10.0%		$55,700
32	Incidentals		% of Items 1-19			$0	5.0%		$89,500	5.0%		$79,700	5.0%		$78,700	5.0%		$81,500	5.0%		$152,600	5.0%		$70,500	5.0%		$89,700	5.0%		$27,900
33	Maintenance of Traffic		% of Items 1-19			$0	15.0%		$268,500	15.0%		$239,000	15.0%		$236,100	15.0%		$244,400	15.0%		$457,800	15.0%		$211,300	15.0%		$269,000	15.0%		$83,500
34	Traffic Control		% of Items 1-19			$0	5.0%		$89,500	5.0%		$79,700	5.0%		$78,700	5.0%		$81,500	5.0%		$152,600	5.0%		$70,500	5.0%		$89,700	5.0%		$27,900
35	Utilities		% of Items 1-19			$0	5.0%		$89,500	1.0%		$16,000	1.0%		$15,800	1.0%		$16,300	1.0%		$30,600	1.0%		$14,100	1.0%		$18,000	1.0%		$5,600
36	Misc.		% of Items 1-19			$0	10.0%		$179,000	10.0%		$159,400	10.0%		$157,400	10.0%		$162,900	10.0%		$305,200	10.0%		$140,900	10.0%		$179,300	10.0%		$55,700
	SUBTOTAL					$0			$895,000			$733,200			$724,100			$749,500			$1,404,000			$648,200			$825,000			$256,300
	TOTAL ROADWAY COSTS (Items 1-36)					$2,986,200			$2,684,875			$2,326,400			$2,297,950			$2,378,375			$4,455,575			$2,056,475			$2,617,850			$812,375
37	Bridge Removal		Sq. Ft.	0	$35.00	$0	10,400	$35.00	$364,000	0	$35.00	$0	0	$35.00	$0	0	$35.00	$0	0	$35.00	$0	0	$35.00	$0	0	$35.00	$0	0	$35.00	$0
38	Approach Slab Removal		Sq. Ft.	0	$45.00	$0	600	$45.00	$27,000	0	$45.00	$0	0	$45.00	$0	0	$45.00	$0	0	$45.00	$0	0	$45.00	$0	0	$45.00	$0	0	$45.00	$0
39	New Bridge	Level 1 (standard)	Lump Sum	0	$0.00	$0	1	$6,452,000	$6,452,000	0	$0.00	$0	0	$0.00	$0	0	$0.00	$0	0	$0.00	$0	0	$0.00	$0	0	$0.00	$0	0	$0.00	$0
40	Retaining Wall	Height > 4'	Sq. Ft.	0	$155.00	$0	5,400	$155.00	$837,000	0	$155.00	$0	9,700	$155.00	$1,503,500	0	$155.00	$0	0	$155.00	$0	0	$155.00	$0	10,300	$155.00	$1,596,500	0	$155.00	$0
41	Structure Incidentals		% of Items 37-41	10.0%		$0	10.0%		$768,000	10.0%		$0	10.0%		$150,400	10.0%		$0	10.0%		$0	10.0%		$0	10.0%		$159,700	10.0%		$0
	TOTAL STRUCTURE COSTS (Items 37-41)					$0			$8,448,000			$0			$1,653,900			$0			$0			$0			$1,756,200			$0
42	Contingency		% of Items 1-41	30.0%		$896,000	30.0%		$3,340,000	30.0%		$698,000	30.0%		$1,186,000	30.0%		$714,000	30.0%		$1,337,000	30.0%		$617,000	30.0%		$1,312,000	30.0%		$244,000
43	Inflation from Business Calculator		2030 Mid-Point Construction Year	26.3%		$1,021,000	26.3%		$3,806,000	26.3%		$795,000	26.3%		$1,351,000	26.3%		$813,000	26.3%		$1,523,000	26.3%		$703,000	26.3%		$1,495,000	26.3%		$278,000
				$4,903,200			**$18,278,875**			**$3,819,400**			**$6,488,850**			**$3,905,375**			**$7,315,575**			**$3,376,475**			**$7,181,050**			**$1,334,375**		
	ROAD SECTION RIGHT OF WAY COST			**$0**			**$0**			**$0**			**$0**			**$0**			**$0**			**$0**			**$0**			**$0**		
	TOTAL SEGMENT COST			**$4,903,200**			**$18,278,875**			**$3,819,400**			**$6,488,850**			**$3,905,375**			**$7,315,575**			**$3,376,475**			**$7,181,050**			**$1,334,375**		

TOTAL PROJECT COST	**$56,603,175**

Preliminary Construction Estimate
Licking County: SR-161
Mink St North of Innovation Campus Way
Traffic Improvements and Tie to Existing
PID: 117878
Roadway Segments

Item	Feature		Measurement	Project Incidental Costs			Mink St North of Innovation Campus Way Full Build Traffic Layout			Mink St North of Innovation Campus Way Tie to Existing Layout		
				Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost
1	Roadway Pavement	Concrete Pavement	Sq. Yds.				0	$110.00	$0	0	$110.00	$0
2		Asphalt Surface	Cu. Yds.				1,100	$204.50	$224,950	300	$204.50	$61,350
		Asphalt Intermediate	Cu. Yds.				1,600	$185.00	$296,000	300	$185.00	$55,500
		Asphalt Base	Cu. Yds.				3,300	$170.00	$561,000	300	$170.00	$51,000
		Aggregate Base	Cu. Yds.				1,400	$78.00	$109,200	200	$78.00	$15,600
		Tack Coat	Gal.				2,400	$5.00	$12,000	500	$5.00	$2,500
3		Planing	Sq. Yds.				16,400	$5.00	$82,000	4,700	$5.00	$23,500
4		Subgrade Compaction	Sq. Yds.				12,400	$2.00	$24,800	1,100	$2.00	$2,200
5		Stabilized Subgrade	Sq. Yds.				12,400	$4.75	$58,900	1,100	$4.75	$5,225
6	Non-Reinforced Concrete - Truck Apron		Sq. Yds.				0	$110.00	$0	0	$110.00	$0
7	Asphalt Concrete for Drives (All Courses)		Cu. Yds.				90	$350.00	$31,500	50	$350.00	$17,500
8	Pavement Removed		Sq. Yds.				3,700	$5.00	$18,500	400	$5.00	$2,000
9	Earthwork	Excavation	Cu. Yds.				4,600	$15.00	$69,000	1,400	$15.00	$21,000
10		Embankment	Cu. Yds.				5,800	$18.75	$108,750	700	$18.75	$13,125
11	Seeding and Mulching		Sq. Yds.				17,800	$5.00	$89,000	3,000	$5.00	$15,000
12	Curb Removed		Ft.				6,600	$10.00	$66,000	1,100	$10.00	$11,000
13	Curb and Gutter		Ft.				6,300	$50.00	$315,000	1,100	$50.00	$55,000
14	Walk		Sq. Ft.				0	$25.00	$0	0	$25.00	$0
15	Shared Use Path	Asphalt Surface	Cu. Yds.				200	$204.50	$40,900	0	$204.50	$0
16		Aggregate Base	Cu. Yds.				400	$78.00	$31,200	0	$78.00	$0
17		Concrete Pavement	Sq. Yds.				0	$110.00	$0	0	$110.00	$0
18	Concrete Barrier / Median Barrier		Ft.				0	$175.00	$0	0	$175.00	$0
19	Concrete Median		Sq. Yds.				0	$75.00	$0	0	$75.00	$0
20	Clearing and Grubbing		Lump Sum	1	$25,000.00	$25,000						
21	SWPPP		Lump Sum	1	$18,000.00	$18,000						
22	Erosion Control		Lump Sum	1	$60,000.00	$60,000						
23	Traffic Signal		Each	3	$250,000.00	$750,000						
24	Remove Traffic Signal		Each	0	$2,500.00	$0						
25	Lighting		Lump Sum	1	$500,000.00	$500,000						
26	Landscaping		Lump Sum	1	$10,000.00	$10,000						
27	Field Office		Months	24	$1,350.00	$32,400						
28	Construction Layout Stakes		Lump Sum	1	$200,000.00	$200,000						
29	Performance and Payment Bond (2%)		Lump Sum	1	$42,800.00	$42,800						
30	Mobilization		Lump Sum	1	$1,600,000.00	$1,600,000						
	SUBTOTAL					$3,238,200			$2,138,700			$351,500
31	Drainage		% of Items 1-19			$0	10.0%		$213,900	10.0%		$35,200
32	Incidentals		% of Items 1-19			$0	5.0%		$107,000	5.0%		$17,600
33	Maintenance of Traffic		% of Items 1-19			$0	15.0%		$320,900	15.0%		$52,800
34	Traffic Control		% of Items 1-19			$0	5.0%		$107,000	5.0%		$17,600
35	Utilities		% of Items 1-19			$0	5.0%		$107,000	1.0%		$3,600
36	Misc.		% of Items 1-19			$0	10.0%		$213,900	10.0%		$35,200
	SUBTOTAL					$0			$1,069,700			$162,000
	TOTAL ROADWAY COSTS (Items 1-36)					$3,238,200			$3,208,400			$513,500
37	Bridge Removal		Sq. Ft.	0	$35.00	$0	0	$35.00	$0	0	$35.00	$0
38	Approach Slab Removal		Sq. Ft.	0	$45.00	$0	0	$45.00	$0	0	$45.00	$0
39	New Bridge	Level 1 (standard)	Lump Sum	0	$0.00	$0	0	$0	$0	0	$0.00	$0
40	Retaining Wall	Height > 4'	Sq. Ft.	0	$155.00	$0	0	$155.00	$0	0	$155.00	$0
41	Structure Incidentals		% of Items 37-41	10.0%		$0	10.0%		$0	10.0%		$0
	TOTAL STRUCTURE COSTS (Items 37-41)					$0			$0			$0
42	Contingency		% of Items 1-41	30.0%		$971,000	30.0%		$963,000	30.0%		$154,000
43	Inflation from Business Calculator		2030 Mid-Point Construction Year	26.3%		$1,107,000	26.3%		$1,097,000	26.3%		$176,000
				$5,316,200			**$5,268,400**			**$843,500**		
	ROAD SECTION RIGHT OF WAY COST			**$0**			**$0**			**$0**		
	TOTAL SEGMENT COST			**$5,316,200**			**$5,268,400**			**$843,500**		

TOTAL PROJECT COST	**-**	**$10,584,600**	**$6,159,700**

Date: February 26, 2025

Preliminary Construction Estimate
Licking County: SR-161
Mink St South of Worthington Rd
Traffic Improvements and Tie to Existing

PID: 117878

Roadway Segments

Item	Feature		Measurement	Project Incidental Costs			Mink St South of Worthington Rd Full Build Traffic Layout			Mink St South of Worthington Rd Tie to Existing Layout		
				Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost
1		Concrete Pavement	Sq. Yds.				0	$110.00	$0	0	$110.00	$0
2	Roadway Pavement	Asphalt Surface	Cu. Yds.				600	$204.50	$122,700	200	$204.50	$40,900
		Asphalt Intermediate	Cu. Yds.				800	$185.00	$148,000	300	$185.00	$55,500
		Asphalt Base	Cu. Yds.				1,500	$170.00	$255,000	300	$170.00	$51,000
		Aggregate Base	Cu. Yds.				600	$78.00	$46,800	100	$78.00	$7,800
		Tack Coat	Gal.				1,200	$5.00	$6,000	400	$5.00	$2,000
3		Planing	Sq. Yds.				8,900	$5.00	$44,500	3,600	$5.00	$18,000
4		Subgrade Compaction	Sq. Yds.				5,400	$2.00	$10,800	900	$2.00	$1,800
5		Stabilized Subgrade	Sq. Yds.				5,400	$4.75	$25,650	900	$4.75	$4,275
6	Non-Reinforced Concrete - Truck Apron		Sq. Yds.				0	$110.00	$0	0	$110.00	$0
7	Asphalt Concrete for Drives (All Courses)		Cu. Yds.				150	$350.00	$52,500	80	$350.00	$28,000
8	Pavement Removed		Sq. Yds.				3,400	$5.00	$17,000	600	$5.00	$3,000
9	Earthwork	Excavation	Cu. Yds.				3,800	$15.00	$57,000	2,400	$15.00	$36,000
10		Embankment	Cu. Yds.				1,700	$18.75	$31,875	800	$18.75	$15,000
11	Seeding and Mulching		Sq. Yds.				13,700	$5.00	$68,500	5,700	$5.00	$28,500
12	Curb Removed		Ft.				1,000	$10.00	$10,000	1,000	$10.00	$10,000
13	Curb and Gutter		Ft.				2,900	$50.00	$145,000	700	$50.00	$35,000
14	Walk		Sq. Ft.				0	$25.00	$0	0	$25.00	$0
15	Shared Use Path	Asphalt Surface	Cu. Yds.				100	$204.50	$20,450	100	$204.50	$20,450
16		Aggregate Base	Cu. Yds.				100	$78.00	$7,800	100	$78.00	$7,800
17		Concrete Pavement	Sq. Yds.				0	$110.00	$0	0	$110.00	$0
18	Concrete Barrier / Median Barrier		Ft.				0	$175.00	$0	0	$175.00	$0
19	Concrete Median		Sq. Yds.				0	$75.00	$0	0	$75.00	$0
20	Clearing and Grubbing		Lump Sum	1	$25,000.00	$25,000						
21	SWPPP		Lump Sum	1	$18,000.00	$18,000						
22	Erosion Control		Lump Sum	1	$60,000.00	$60,000						
23	Traffic Signal		Each	1	$250,000.00	$250,000						
24	Remove Traffic Signal		Each	1	$2,500.00	$2,500						
25	Lighting		Lump Sum	1	$500,000.00	$500,000						
26	Landscaping		Lump Sum	1	$10,000.00	$10,000						
27	Field Office		Months	24	$1,350.00	$32,400						
28	Construction Layout Stakes		Lump Sum	1	$200,000.00	$200,000						
29	Performance and Payment Bond (2%)		Lump Sum	1	$21,400.00	$21,400						
30	Mobilization		Lump Sum	1	$1,600,000.00	$1,600,000						
	SUBTOTAL					$2,719,300			$1,069,575			$365,025
31	Drainage		% of Items 1-19			$0	10.0%		$107,000	10.0%		$36,600
32	Incidentals		% of Items 1-19			$0	5.0%		$53,500	5.0%		$18,300
33	Maintenance of Traffic		% of Items 1-19			$0	15.0%		$160,500	15.0%		$54,800
34	Traffic Control		% of Items 1-19			$0	5.0%		$53,500	5.0%		$18,300
35	Utilities		% of Items 1-19			$0	5.0%		$53,500	1.0%		$3,700
36	Misc.		% of Items 1-19			$0	10.0%		$107,000	10.0%		$36,600
	SUBTOTAL					$0			$535,000			$168,300
	TOTAL ROADWAY COSTS (Items 1-36)					$2,719,300			$1,604,575			$533,325
37	Bridge Removal		Sq. Ft.	0	$35.00	$0	0	$35.00	$0	0	$35.00	$0
38	Approach Slab Removal		Sq. Ft.	0	$45.00	$0	0	$45.00	$0	0	$45.00	$0
39	New Bridge	Level 1 (standard)	Lump Sum	0	$0.00	$0	0	$0	$0	0	$0.00	$0
40	Retaining Wall	Height > 4'	Sq. Ft.	0	$155.00	$0	0	$155.00	$0	0	$155.00	$0
41	Structure Incidentals		% of Items 37-41	10.0%		$0	10.0%		$0	10.0%		$0
	TOTAL STRUCTURE COSTS (Items 37-41)					$0			$0			$0
42	Contingency		% of Items 1-41	30.0%		$816,000	30.0%		$481,000	30.0%		$160,000
43	Inflation from Business Calculator		2050 Mid-Point Construction Year	26.3%		$930,000	26.3%		$549,000	26.3%		$182,000
					$4,465,300			**$2,634,575**			**$875,325**	
	ROAD SECTION RIGHT OF WAY COST				**$0**			**$0**			**$0**	
	TOTAL SEGMENT COST				**$4,465,300**			**$2,634,575**			**$875,325**	

TOTAL PROJECT COST	**-**	**$7,099,875**	**$5,340,625**

Date: February 26, 2025

Preliminary Construction Estimate
Licking County: SR-161
Interchange of SR-161 and SR-310
Interchange Improvements: Signalized Intersections
PID: 117878
Roadway Segments

Item	Feature		Measurement	Project Incidental Costs			SR-310			EB Exit Ramp			WB Entrance Ramp			WB Exit Ramp		
				Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost
1	Roadway Pavement	Concrete Pavement	Sq. Yds.				15,800	$110.00	$1,738,000	2,500	$110.00	$275,000	2,900	$110.00	$319,000	2,600	$110.00	$286,000
2		Asphalt Surface	Cu. Yds.				1,700	$204.50	$347,650	0	$204.50	$0	0	$204.50	$0	0	$204.50	$0
		Asphalt Intermediate	Cu. Yds.				2,400	$185.00	$444,000	0	$185.00	$0	0	$185.00	$0	0	$185.00	$0
		Asphalt Base	Cu. Yds.				8,100	$170.00	$1,377,000	0	$170.00	$0	0	$170.00	$0	0	$170.00	$0
		Aggregate Base	Cu. Yds.				8,000	$78.00	$624,000	0	$78.00	$0	0	$78.00	$0	0	$78.00	$0
3		Subgrade Compaction	Sq. Yds.				63,300	$2.00	$126,600	2,500	$2.00	$5,000	2,900	$2.00	$5,800	2,600	$2.00	$5,200
4	Pavement Removed		Sq. Yds.				47,000	$5.00	$235,000	1,600	$5.00	$8,000	2,300	$5.00	$11,500	1,700	$5.00	$8,500
5	Earthwork	Excavation	Cu. Yds.				33,800	$15.00	$507,000	15,100	$15.00	$226,500	49,600	$15.00	$744,000	49,600	$15.00	$744,000
6		Embankment	Cu. Yds.				14,700	$18.75	$275,625	12,200	$18.75	$228,750	7,000	$18.75	$131,250	7,000	$18.75	$131,250
7	Seeding and Mulching		Sq. Yds.				114,500	$5.00	$572,500	45,900	$5.00	$229,500	49,000	$5.00	$245,000	27,100	$5.00	$135,500
8	Clearing and Grubbing		Lump Sum	1	$25,000.00	$25,000												
9	SWPPP		Lump Sum	1	$18,000.00	$18,000												
10	Erosion Control		Lump Sum	1	$60,000.00	$60,000												
11	Traffic Signal		Each	3	$250,000.00	$750,000												
12	Remove Traffic Signal		Each	0	$2,500.00	$0												
13	Lighting		Lump Sum	1	$500,000.00	$500,000												
14	Landscaping		Lump Sum	1	$10,000.00	$10,000												
15	Field Office		Months	24	$1,350.00	$32,400												
16	Construction Layout Stakes		Lump Sum	1	$200,000.00	$200,000												
17	Performance and Payment Bond (2%)		Lump Sum	1	$125,000.00	$125,000												
18	Mobilization		Lump Sum	1	$1,600,000.00	$1,600,000												
	SUBTOTAL					$3,320,400			$6,247,375			$972,750			$1,456,550			$1,310,450
19	Drainage		% of Items 1-7			$0	10.0%		$624,800	10.0%		$97,300	10.0%		$145,700	10.0%		$145,700
20	Incidentals		% of Items 1-7			$0	5.0%		$312,400	5.0%		$48,700	5.0%		$72,900	5.0%		$72,900
21	Maintenance of Traffic		% of Items 1-7			$0	15.0%		$937,200	15.0%		$146,000	15.0%		$218,500	15.0%		$218,500
22	Traffic Control		% of Items 1-7			$0	5.0%		$312,400	5.0%		$48,700	5.0%		$72,900	5.0%		$72,900
23	Utilities		% of Items 1-7			$0	5.0%		$312,400	1.0%		$9,800	1.0%		$14,600	1.0%		$14,600
24	Misc.		% of Items 1-7			$0	10.0%		$624,800	10.0%		$97,300	10.0%		$145,700	10.0%		$145,700
	SUBTOTAL					$0			$3,124,000			$447,800			$670,300			$670,300
	TOTAL ROADWAY COSTS (Items 1-24)					$3,320,400			$9,371,375			$1,420,550			$2,126,850			$1,980,750
25	Bridge Widening		Lump Sum	1	$2,000,000.00	$2,000,000	0	$0.00	$0	0	$0.00	$0	0	$0.00	$0	0	$0.00	$0
26	Approach Slab		Sq. Yds.	0	$425.00	$0	0	$425.00	$0	0	$425.00	$0	0	$425.00	$0	0	$425.00	$0
27	New Bridge	Level 1 (standard)	Sq. Ft.	0	$225.00	$0	0	$225.00	$0	0	$225.00	$0	0	$225.00	$0	0	$225.00	$0
28		Level 2 (curved, flared)	Sq. Ft.	0	$325.00	$0	0	$325.00	$0	0	$325.00	$0	0	$325.00	$0	0	$325.00	$0
29	Retaining Wall	Height < 10'	Sq. Ft.	0	$125.00	$0	0	$125.00	$0	0	$125.00	$0	0	$125.00	$0	0	$125.00	$0
30		Height > 10'	Sq. Ft.	0	$165.00	$0	0	$165.00	$0	0	$165.00	$0	0	$165.00	$0	0	$165.00	$0
31	Structure Incidentals		% of Items 25-30	3.0%		$60,000	3.0%		$0	3.0%		$0	3.0%		$0	3.0%		$0
	TOTAL STRUCTURE COSTS (Items 25-31)					$2,060,000			$0			$0			$0			$0
32	Contingency		% of Items 1-31	30.0%		$1,614,000	30.0%		$2,811,000	30.0%		$426,000	30.0%		$638,000	30.0%		$594,000
33	Inflation from Business Calculator		2030 Mid-Point Construction Year	26.3%		$1,840,000	26.3%		$3,204,000	26.3%		$486,000	26.3%		$727,000	26.3%		$677,000
				$8,834,400			**$15,386,375**			**$2,332,550**			**$3,491,850**			**$3,251,750**		
	ROAD SECTION RIGHT OF WAY COST			**$0**			**$0**			**$0.00**			**$0**			**$0**		
	TOTAL SEGMENT COST			**$8,834,400**			**$15,659,975**			**$2,332,550**			**$3,491,850**			**$3,251,750**		

TOTAL PROJECT COST	**$30,321,975**

Preliminary Construction Estimate
Licking County: SR-161
Interchange of SR-161 and SR-310
Interchange Improvements: Roundabouts
PID: 117878
Roadway Segments

Item	Feature		Measurement	Project Incidental Costs			SR-310 at EB Ramps Roundabout Worthington to Bridge			SR-310 at WB Ramps Roundabout Bridge to Sta. 20+00			SR-310 at Jersey Mill RAB Sta. 20+00 to End			Worthington			Jug Street		
				Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost
	Roadway	9" Concrete	Sq. Yds.				0	$110.00	$0	0	$110.00	$0	0	$110.00	$0	0	$110.00	$0	0	$110.00	$0
1		Asphalt Surface	Cu. Yds.				500	$204.50	$102,250	300	$204.50	$61,350	500	$204.50	$102,250	400	$204.50	$81,800	600	$204.50	$122,700
		Asphalt Intermediate	Cu. Yds.				800	$185.00	$148,000	400	$185.00	$74,000	700	$185.00	$129,500	600	$185.00	$111,000	900	$185.00	$166,500
		Asphalt Base	Cu. Yds.				3,100	$170.00	$527,000	1,700	$170.00	$289,000	2,900	$170.00	$493,000	1,800	$170.00	$306,000	2,800	$170.00	$476,000
		Aggregate Base	Cu. Yds.				1,300	$78.00	$101,400	700	$78.00	$54,600	1,200	$78.00	$93,600	1,800	$78.00	$140,400	2,800	$78.00	$218,400
2		Planing	Sq. Yds.					$5.00	$0		$5.00	$0		$5.00	$0	0	$5.00	$0	0	$5.00	$0
3		Subgrade Compaction	Sq. Yds.				10,900	$2.00	$21,800	5,900	$2.00	$11,800	10,000	$2.00	$20,000	10,300	$2.00	$20,600	16,400	$2.00	$32,800
4		Stabilized Subgrade	Sq. Yds.				0	$4.75	$0	0	$4.75	$0	0	$4.75	$0	0	$4.75	$0	0	$4.75	$0
5	Non-Reinforced Concrete - Truck Apron		Sq. Yds.				698	$110.00	$76,780	660	$110.00	$72,637	946	$110.00	$104,023	0	$110.00	$0	0	$110.00	$0
6	Asphalt Concrete for Drives (All Courses)		Cu. Yds.										10	$0.00	$0	0	$0.00	$0	0	$0.00	$0
7	Pavement Removed		Sq. Yds.				9,600	$5.00	$48,000	5,900	$5.00	$29,500	7,200	$5.00	$36,000	9,079	$5.00	$45,394	8,173	$5.00	$40,866
8	Earthwork	Excavation	Cu. Yds.				1,100	$15.00	$16,500	3,630	$15.00	$54,450	2,970	$15.00	$44,550	27,391	$15.00	$410,870	46,902	$15.00	$703,532
9		Embankment	Cu. Yds.				8,600	$18.75	$161,250	10,505	$18.75	$196,969	8,595	$18.75	$161,156	1,350	$18.75	$25,313	6,056	$18.75	$113,544
10	Seeding and Mulching		Sq. Yds.				8,400	$5.00	$42,000	8,000	$5.00	$40,000	7,400	$5.00	$37,000	19,700	$5.00	$98,500	39,534	$5.00	$197,671
11	Curb		Ft.				1,501	$35.00	$52,535	1,002	$35.00	$35,070	2,165	$35.00	$75,775	0	$35.00	$0	0	$35.00	$0
12	Curb and Gutter		Ft.				2,703	$50.00	$135,150	1,404	$50.00	$70,200	1,643	$50.00	$82,150	0	$50.00	$0	0	$50.00	$0
13	Concrete Median		Sq. Yds.				1,220	$75.00	$91,517	649	$75.00	$48,650	1,276	$75.00	$95,692	0	$75.00	$0	0	$75.00	$0
14	Clearing and Grubbing		Lump Sum	1	$25,000.00	$25,000															
15	SWPPP		Lump Sum	1	$18,000.00	$18,000															
16	Erosion Control		Lump Sum	1	$60,000.00	$60,000															
17	Traffic Signal		Each	1	$250,000.00	$250,000															
18	Lighting		Lump Sum	1	$500,000.00	$500,000															
19	Landscaping		Lump Sum	1	$10,000.00	$10,000															
20	Field Office		Months	24	$1,350.00	$32,400															
21	Construction Layout Stakes		Lump Sum	1	$200,000.00	$200,000															
22	Performance and Payment Bond (2%)		Lump Sum	1	$30,500.00	$30,500															
23	Mobilization		Lump Sum	1	$1,600,000.00	$1,600,000															
	SUBTOTAL					$2,725,900			$1,524,182			$1,038,225			$1,474,696			$1,239,876			$2,072,013
24	Drainage		% of Items 1-13			$0	10.0%		$152,500	10.0%		$103,900	10.0%		$147,500	10.0%		$147,500	10.0%		$147,500
25	Incidentals		'% of Items 1-13			$0	5.0%		$76,300	5.0%		$52,000	5.0%		$73,800	5.0%		$73,800	5.0%		$73,800
26	Maintenance of Traffic		'% of Items 1-13			$0	15.0%		$228,700	15.0%		$155,800	15.0%		$221,300	15.0%		$221,300	15.0%		$221,300
27	Traffic Control		'% of Items 1-13			$0	5.0%		$76,300	5.0%		$52,000	5.0%		$73,800	5.0%		$73,800	5.0%		$73,800
28	Utilities		'% of Items 1-13			$0	5.0%		$76,300	1.0%		$10,400	1.0%		$14,800	1.0%		$14,800	1.0%		$14,800
29	Misc.		'% of Items 1-13			$0	10.0%		$152,500	10.0%		$103,900	10.0%		$147,500	10.0%		$147,500	10.0%		$147,500
	SUBTOTAL					$0			$762,600			$478,000			$678,700			$678,700			$678,700
	TOTAL ROADWAY COSTS (Items 1-29)					$2,725,900			$2,286,782			$1,516,225			$2,153,396			$1,918,576			$2,750,713
30	Bridge Removal		Sq. Ft.	0	$0.00	$0	0	$0.00	$0	0	$0.00	$0	0	$0.00	$0	0	$0.00	$0	0	$0.00	$0
31	Approach Slab		Sq. Yds.	0	$425.00	$0	0	$425.00	$0	0	$425.00	$0	0	$425.00	$0	0	$425.00	$0	0	$425.00	$0
32	New Bridge	Level 1 (standard)	Sq. Ft.	0	$225.00	$0	0	$225.00	$0	0	$225.00	$0	0	$225.00	$0	0	$225.00	$0	0	$225.00	$0
33		Level 2 (curved, flared)	Sq. Ft.	0	$325.00	$0	0	$325.00	$0	0	$325.00	$0	0	$325.00	$0	0	$325.00	$0	0	$325.00	$0
34	Retaining Wall	Height < 10'	Sq. Ft.	0	$125.00	$0	0	$125.00	$0	0	$125.00	$0	0	$125.00	$0	0	$125.00	$0	0	$125.00	$0
35		Height > 10'	Sq. Ft.	0	$165.00	$0	0	$165.00	$0	0	$165.00	$0	0	$165.00	$0	0	$165.00	$0	0	$165.00	$0
36	Structure Incidentals		% of Items 30-35	3.0%		$0	3.0%		$0	3.0%		$0	3.0%		$0	3.0%		$0	3.0%		$0
	TOTAL STRUCTURE COSTS (Items 30-36)					$0			$0			$0			$0			$0			$0
37	Contingency		'% of Items 1-13	30.0%		$818,000	30.0%		$686,000	30.0%		$455,000	30.0%		$646,000	30.0%		$576,000	30.0%		$825,000
38	Inflation from Business Calculator		2030 Mid-Point Construction Year	26.3%		$932,000	26.3%		$782,000	26.3%		$518,000	26.3%		$736,000	26.3%		$656,000	26.3%		$940,000
				$4,475,900			**$3,754,782**			**$2,489,225**			**$3,535,396**			**$3,150,576**			**$4,515,713**		
	ROAD SECTION RIGHT OF WAY COST			**$0**			**$3,453,475**			**$0**			**$0**			**$0**			**$0**		
	TOTAL SEGMENT COST			**$4,475,900**			**$7,208,256**			**$2,489,225**			**$3,535,396**			**$3,150,576**			**$4,515,713**		

TOTAL PROJECT COST	**$17,708,778**

Preliminary Construction Estimate
Licking County: SR-161
Interchange of SR-161 and SR-37
Interchange Improvements: Signalized Intersections
PID: 117878
Roadway Segments

Item	Feature		Measurement	Project Incidental Costs			SR-37			WB Exit Ramp			EB Entrance Ramp			EB Exit Ramp		
				Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost
1	Roadway Pavement	Concrete Pavement	Sq. Yds.				7,200	$110.00	$792,000	1,200	$110.00	$132,000	4,100	$110.00	$451,000	600	$110.00	$66,000
2		Asphalt Surface	Cu. Yds.				500	$204.50	$102,250	0	$204.50	$0	0	$204.50	$0	0	$204.50	$0
		Asphalt Intermediate	Cu. Yds.				700	$185.00	$129,500	0	$185.00	$0	0	$185.00	$0	0	$185.00	$0
		Asphalt Base	Cu. Yds.				2,200	$170.00	$374,000	0	$170.00	$0	0	$170.00	$0	0	$170.00	$0
		Aggregate Base	Cu. Yds.				2,200	$78.00	$171,600	0	$78.00	$0	0	$78.00	$0	0	$78.00	$0
3		Subgrade Compaction	Sq. Yds.				20,200	$2.00	$40,400	1,200	$2.00	$2,400	4,100	$2.00	$8,200	600	$2.00	$1,200
4	Pavement Removed		Sq. Yds.				15,100	$5.00	$75,500	3,800	$5.00	$19,000	3,300	$5.00	$16,500	400	$5.00	$2,000
5	Earthwork	Excavation	Cu. Yds.				9,200	$15.00	$138,000	100	$15.00	$1,500	100	$15.00	$1,500	100	$15.00	$1,500
6		Embankment	Cu. Yds.				7,000	$18.75	$131,250	300	$18.75	$5,625	4,400	$18.75	$82,500	200	$18.75	$3,750
7	Seeding and Mulching		Sq. Yds.				38,800	$5.00	$194,000	0	$5.00	$0	0	$5.00	$0	0	$5.00	$0
8	Clearing and Grubbing		Lump Sum	1	$25,000.00	$25,000												
9	SWPPP		Lump Sum	1	$18,000.00	$18,000												
10	Erosion Control		Lump Sum	1	$60,000.00	$60,000												
11	Traffic Signal		Each	3	$250,000.00	$750,000												
12	Remove Traffic Signal		Each	0	$2,500.00	$0												
13	Lighting		Lump Sum	1	$500,000.00	$500,000												
14	Landscaping		Lump Sum	1	$10,000.00	$10,000												
15	Field Office		Months	24	$1,350.00	$32,400												
16	Construction Layout Stakes		Lump Sum	1	$200,000.00	$200,000												
17	Performance and Payment Bond (2%)		Lump Sum	1	$43,000.00	$43,000												
18	Mobilization		Lump Sum	1	$1,600,000.00	$1,600,000												
	SUBTOTAL					$3,238,400			$2,148,500			$160,525			$559,700			$74,450
19	Drainage		% of Items 1-7			$0	10.0%		$214,900	10.0%		$16,100	10.0%		$56,000	10.0%		$7,500
20	Incidentals		% of Items 1-7			$0	5.0%		$107,500	5.0%		$8,100	5.0%		$28,000	5.0%		$3,800
21	Maintenance of Traffic		% of Items 1-7			$0	15.0%		$322,300	15.0%		$24,100	15.0%		$84,000	15.0%		$11,200
22	Traffic Control		% of Items 1-7			$0	5.0%		$107,500	5.0%		$8,100	5.0%		$28,000	5.0%		$3,800
23	Utilities		% of Items 1-7			$0	5.0%		$107,500	1.0%		$1,700	1.0%		$5,600	1.0%		$800
24	Misc.		% of Items 1-7			$0	10.0%		$214,900	10.0%		$16,100	10.0%		$56,000	10.0%		$7,500
	SUBTOTAL					$0			$1,074,600			$74,200			$257,600			$34,600
	TOTAL ROADWAY COSTS (Items 1-24)					$3,238,400			$3,223,100			$234,725			$817,300			$109,050
25	Bridge Removal		Sq. Ft.	0	$0.00	$0	0	$0.00	$0	0	$0.00	$0	0	$0.00	$0	0	$0.00	$0
26	Approach Slab		Sq. Yds.	0	$425.00	$0	0	$425.00	$0	0	$425.00	$0	0	$425.00	$0	0	$425.00	$0
27	New Bridge	Level 1 (standard)	Sq. Ft.	0	$225.00	$0	0	$225.00	$0	0	$225.00	$0	0	$225.00	$0	0	$225.00	$0
28		Level 2 (curved, flared)	Sq. Ft.	0	$325.00	$0	0	$325.00	$0	0	$325.00	$0	0	$325.00	$0	0	$325.00	$0
29	Retaining Wall	Height < 10'	Sq. Ft.	0	$125.00	$0	0	$125.00	$0	0	$125.00	$0	0	$125.00	$0	0	$125.00	$0
30		Height > 10'	Sq. Ft.	0	$165.00	$0	0	$165.00	$0	0	$165.00	$0	0	$165.00	$0	0	$165.00	$0
31	Structure Incidentals		% of Items 25-30	3.0%		$0	3.0%		$0	3.0%		$0	3.0%		$0	3.0%		$0
	TOTAL STRUCTURE COSTS (Items 25-31)					$0			$0			$0			$0			$0
32	Contingency		% of Items 1-31	30.0%		$972,000	30.0%		$967,000	30.0%		$70,000	30.0%		$245,000	30.0%		$33,000
33	Inflation from Business Calculator		2030 Mid-Point Construction Year	26.3%		$1,107,000	26.3%		$1,102,000	26.3%		$80,000	26.3%		$279,000	26.3%		$37,000
				$5,317,400			**$5,292,100**			**$384,725**			**$1,341,300**			**$179,050**		
	ROAD SECTION RIGHT OF WAY COST			**$0**			**$165,655**			**$0**			**$0**			**$0**		
	TOTAL SEGMENT COST			**$5,317,400**			**$5,457,755**			**$384,725**			**$1,341,300**			**$179,050**		

TOTAL PROJECT COST	**$12,680,230**

Preliminary Construction Estimate
Licking County: SR-161
Interchange of SR-161 and SR-37
Interchange Improvements: Roundabout
PID: 117878
Roadway Segments

Item	Feature		Measurement	Project Incidental Costs			SR-37			WB Entrance Ramp			WB Exit Ramp			EB Entrance Ramp			EB Exit Ramp		
				Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost	Quantity	Unit Cost	Total Cost
1	Roadway Pavement	Concrete Pavement	Sq. Yds.				8,900	$110.00	$979,000	700	$110.00	$77,000	700	$110.00	$77,000	500	$110.00	$55,000	400	$110.00	$44,000
2		Asphalt Surface	Cu. Yds.				500	$204.50	$102,250	0	$204.50	$0	0	$204.50	$0	0	$204.50	$0	0	$204.50	$0
		Asphalt Intermediate	Cu. Yds.				500	$185.00	$92,500	0	$185.00	$0	0	$185.00	$0	0	$185.00	$0	0	$185.00	$0
		Asphalt Base	Cu. Yds.				1,500	$170.00	$255,000	0	$170.00	$0	0	$170.00	$0	0	$170.00	$0	0	$170.00	$0
		Aggregate Base	Cu. Yds.				1,500	$78.00	$117,000	0	$78.00	$0	0	$78.00	$0	0	$78.00	$0	0	$78.00	$0
3		Planing	Sq. Yds.				0	$5.00	$0	0	$5.00	$0	0	$5.00	$0	0	$5.00	$0	0	$5.00	$0
4		Subgrade Compaction	Sq. Yds.				17,700	$2.00	$35,400	700	$2.00	$1,400	700	$2.00	$1,400	500	$2.00	$1,000	400	$2.00	$800
5		Stabilized Subgrade	Sq. Yds.				0	$4.75	$0	0	$4.75	$0	0	$4.75	$0	0	$4.75	$0	0	$4.75	$0
6	Non-Reinforced Concrete - Truck Apron		Sq. Yds.				0	$110.00	$0	0	$110.00	$0	0	$110.00	$0	0	$110.00	$0	0	$110.00	$0
7	Asphalt Concrete for Drives (All Courses)		Cu. Yds.				0	$350.00	$0	0	$350.00	$0	0	$350.00	$0	0	$350.00	$0	0	$350.00	$0
8	Pavement Removed		Sq. Yds.				0	$5.00	$0	0	$5.00	$0	0	$5.00	$0	0	$5.00	$0	0	$5.00	$0
9	Earthwork	Excavation	Cu. Yds.				9,400	$15.00	$141,000	0	$15.00	$0	0	$15.00	$0	0	$15.00	$0	0	$15.00	$0
10		Embankment	Cu. Yds.				28,300	$18.75	$530,625	0	$18.75	$0	0	$18.75	$0	0	$18.75	$0	0	$18.75	$0
11	Seeding and Mulching		Sq. Yds.				37,000	$5.00	$185,000	0	$5.00	$0	0	$5.00	$0	0	$5.00	$0	0	$5.00	$0
12	Curb		Ft.				0	$35.00	$0	0	$35.00	$0	0	$35.00	$0	0	$35.00	$0	0	$35.00	$0
13	Curb and Gutter		Ft.				0	$50.00	$0	0	$50.00	$0	0	$50.00	$0	0	$50.00	$0	0	$50.00	$0
14	Walk		Sq. Ft.				0	$0.00	$0	0	$0.00	$0	0	$0.00	$0	0	$0.00	$0	0	$0.00	$0
15	Concrete Barrier / Median Barrier		Ft.				0	$175.00	$0	0	$175.00	$0	0	$175.00	$0	0	$175.00	$0	0	$175.00	$0
16	Concrete Median		Sq. Yds.				0	$75.00	$0	0	$75.00	$0	0	$75.00	$0	0	$75.00	$0	0	$75.00	$0
17	Clearing and Grubbing		Lump Sum	1	$25,000.00	$25,000															
18	SWPPP		Lump Sum	1	$18,000.00	$18,000															
19	Erosion Control		Lump Sum	1	$60,000.00	$60,000															
20	Traffic Signal		Each	0	$250,000.00	$0															
21	Remove Traffic Signal		Each	0	$2,500.00	$0															
22	Lighting		Lump Sum	1	$500,000.00	$500,000															
23	Landscaping		Lump Sum	1	$10,000.00	$10,000															
24	Field Office		Months	24	$1,350.00	$32,400															
25	Construction Layout Stakes		Lump Sum	1	$200,000.00	$200,000															
26	Performance and Payment Bond (2%)		Lump Sum	1	$48,800.00	$48,800															
27	Mobilization		Lump Sum	1	$1,600,000.00	$1,600,000															
	SUBTOTAL					$2,494,200			$2,437,775			$78,400			$78,400			$56,000			$44,800
28	Drainage		% of Items 1-16			$0	3.0%		$73,200	3.0%		$2,400	3.0%		$2,400	3.0%		$1,700	3.0%		$1,400
29	Incidentals		% of Items 1-16			$0	3.0%		$73,200	3.0%		$2,400	3.0%		$2,400	3.0%		$1,700	3.0%		$1,400
30	Maintenance of Traffic		% of Items 1-16			$0	3.0%		$73,200	3.0%		$2,400	3.0%		$2,400	3.0%		$1,700	3.0%		$1,400
31	Traffic Control		% of Items 1-16			$0	3.0%		$73,200	3.0%		$2,400	3.0%		$2,400	3.0%		$1,700	3.0%		$1,400
32	Utilities		% of Items 1-16			$0	1.0%		$24,400	1.0%		$800	1.0%		$800	1.0%		$600	1.0%		$500
33	Misc.		% of Items 1-16			$0	5.0%		$121,900	5.0%		$4,000	5.0%		$4,000	5.0%		$2,800	5.0%		$2,300
	SUBTOTAL					$0			$439,100			$14,400			$14,400			$10,200			$8,400
	TOTAL ROADWAY COSTS (Items 1-33)					$2,494,200			$2,876,875			$92,800			$92,800			$66,200			$53,200
34	Bridge Removal		Sq. Ft.	0	$0.00	$0	0	$0.00	$0	0	$0.00	$0	0	$0.00	$0	0	$0.00	$0	0	$0.00	$0
35	Approach Slab		Sq. Yds.	0	$425.00	$0	0	$425.00	$0	0	$425.00	$0	0	$425.00	$0	0	$425.00	$0	0	$425.00	$0
36	New Bridge	Level 1 (standard)	Sq. Ft.	0	$225.00	$0	0	$225.00	$0	0	$225.00	$0	0	$225.00	$0	0	$225.00	$0	0	$225.00	$0
37		Level 2 (curved, flared)	Sq. Ft.	0	$325.00	$0	0	$325.00	$0	0	$325.00	$0	0	$325.00	$0	0	$325.00	$0	0	$325.00	$0
38	Retaining Wall	Height < 10'	Sq. Ft.	0	$125.00	$0	0	$125.00	$0	0	$125.00	$0	0	$125.00	$0	0	$125.00	$0	0	$125.00	$0
39		Height > 10'	Sq. Ft.	0	$165.00	$0	0	$165.00	$0	0	$165.00	$0	0	$165.00	$0	0	$165.00	$0	0	$165.00	$0
40	Structure Incidentals		% of Items 34-39	3.0%		$0	3.0%		$0	3.0%		$0	3.0%		$0	3.0%		$0	3.0%		$0
	TOTAL STRUCTURE COSTS (Items 34-40)					$0			$0			$0			$0			$0			$0
41	Contingency		% of Items 1-40	20.0%		$499,000	20.0%		$575,000	20.0%		$19,000	20.0%		$19,000	20.0%		$13,000	20.0%		$11,000
42	Inflation from Year : 2024	to Construction: 2024		4%		$0	4%		$0	4%		$0	4%		$0	4%		$0	4%		$0
				$2,993,200			**$3,451,875**			**$111,800**			**$111,800**			**$79,200**			**$64,200**		
	ROAD SECTION RIGHT OF WAY COST			**$0**			**$127,909**			**$0**			**$0**			**$0**			**$0**		
	TOTAL SEGMENT COST			**$2,993,200**			**$3,579,784**			**$111,800**			**$111,800**			**$79,200**			**$64,200**		

TOTAL PROJECT COST	**$6,939,984**

Preliminary Construction Estimate
Licking County: SR-161
Interchange of SR-16 and SR-37
Interchange Improvements: Traffic Signals
PID: 117878
Roadway Segments

Item	Feature	Measurement	SR-16		
			Quantity	Unit Cost	Total Cost
1	Traffic Signal	Each	2	$250,000.00	$500,000
SUBTOTAL					$500,000
2	Contingency	% of Item 1	30.0%		$150,000
3	Inflation from Business Calculator	2030 Mid-Point Construction Year	26.3%		$170,950
TOTAL PROJECT COST			**$820,950**		

Appendix N: Environmental Analysis

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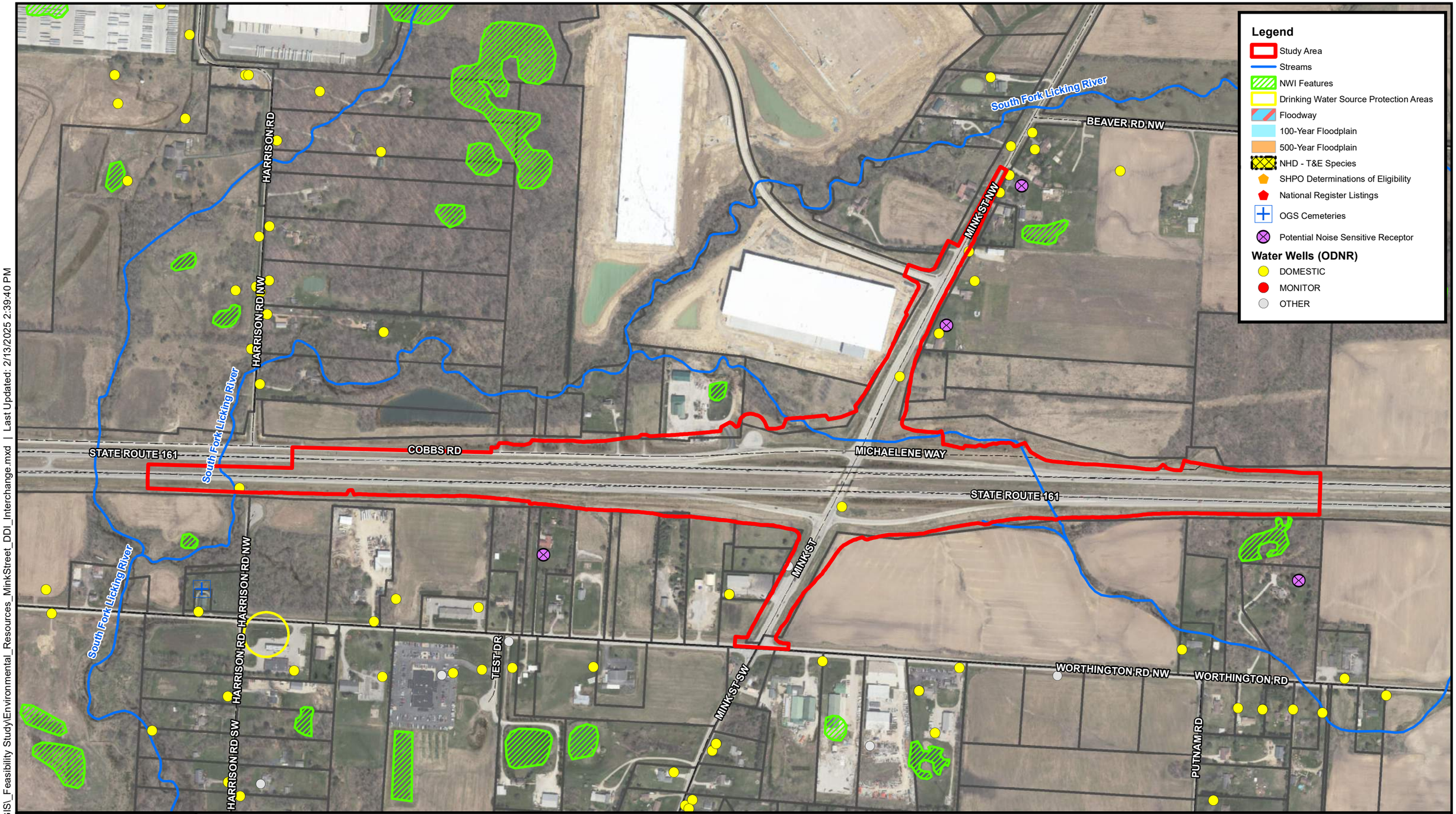

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SCALE: 1" = 500'

0 250 500 1,000 Feet

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FRA/LIC-161-22.10/0.00 (PID 117878)
Environmental Resources
Mink Street DDI Interchange

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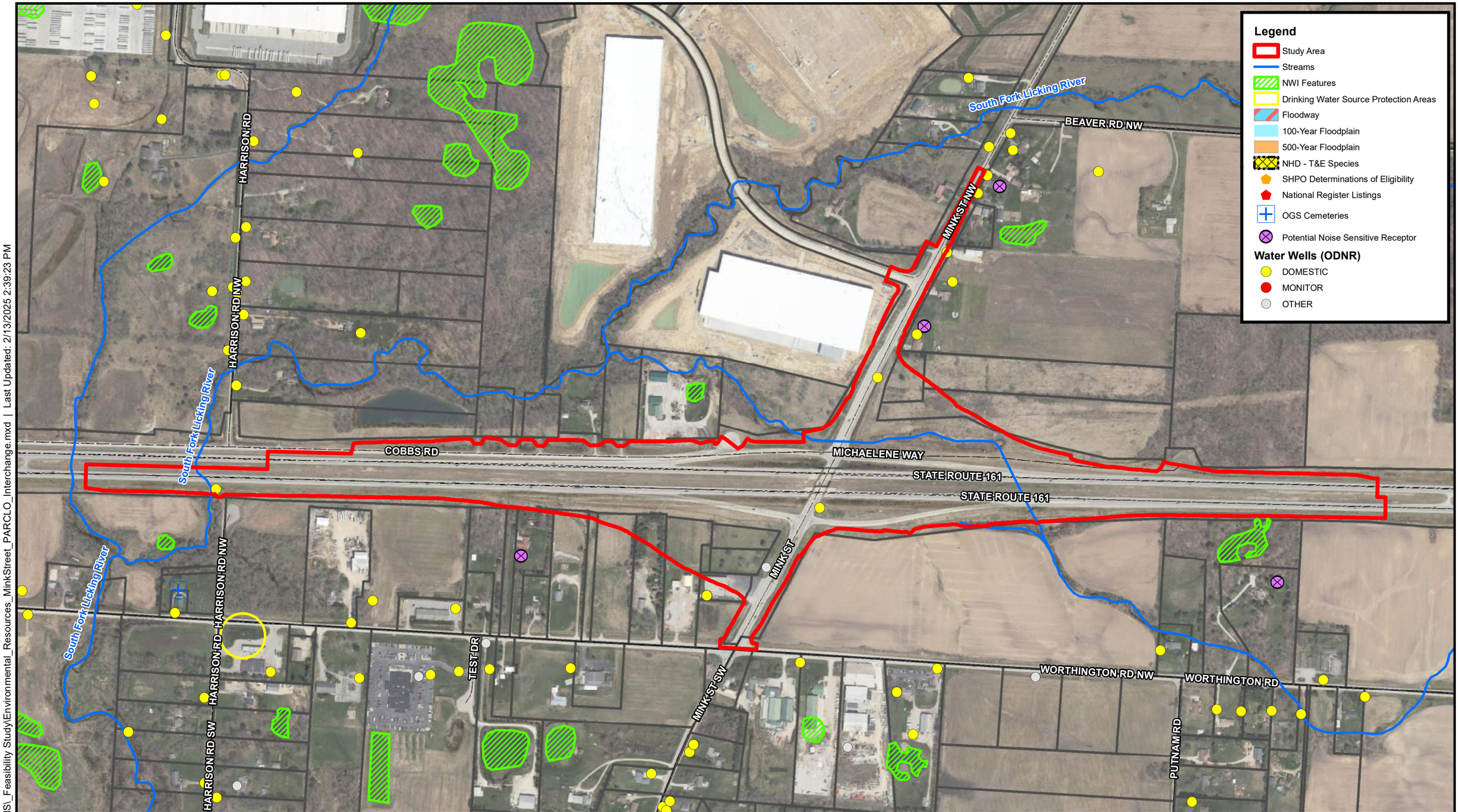

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0 250 500 1,000 Feet

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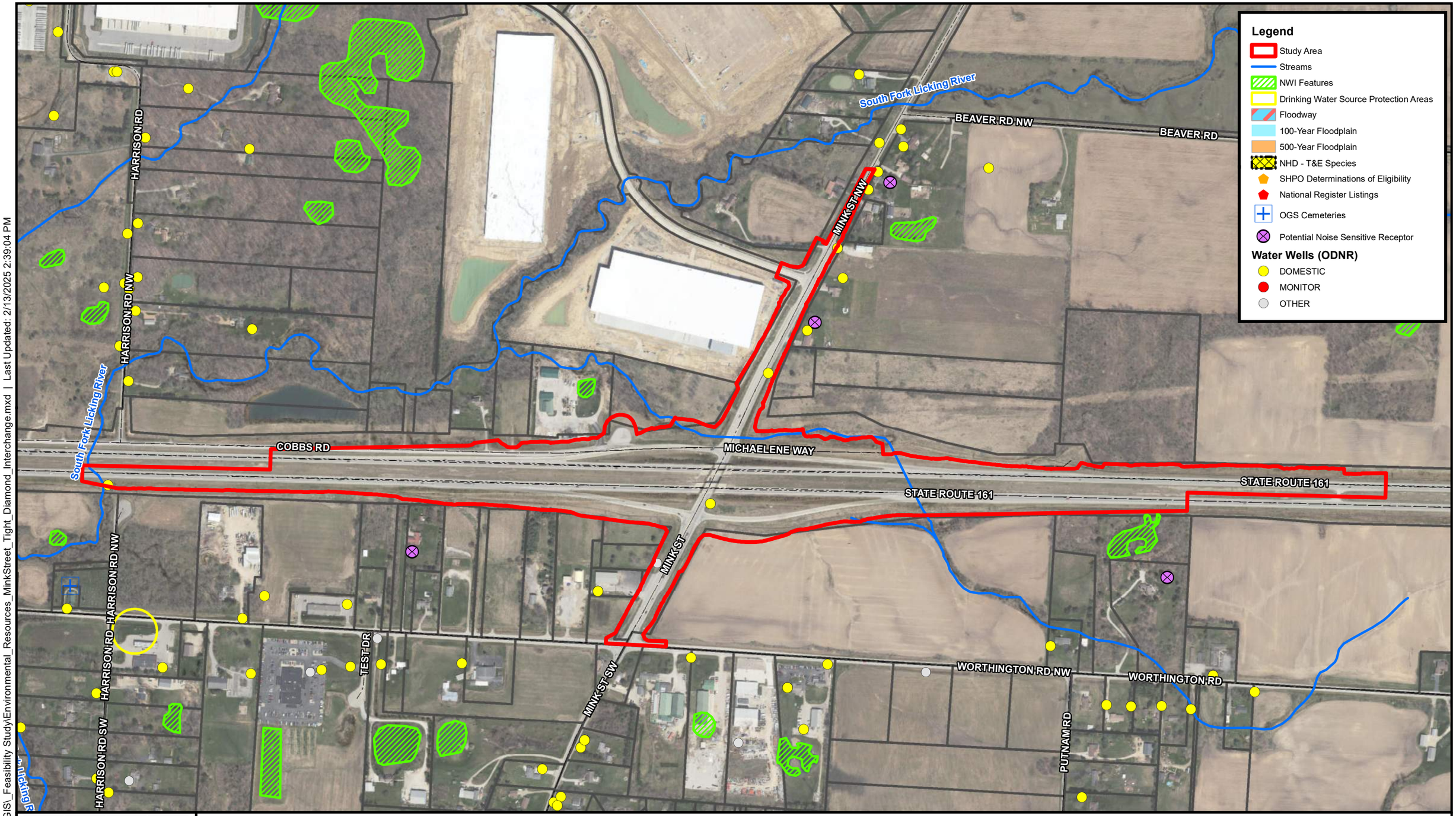
Environmental Resources
Mink Street PARCLO Interchange

N



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0 250 500 1,000 Feet

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Environmental Resources
Mink Street Tight Diamond Interchange

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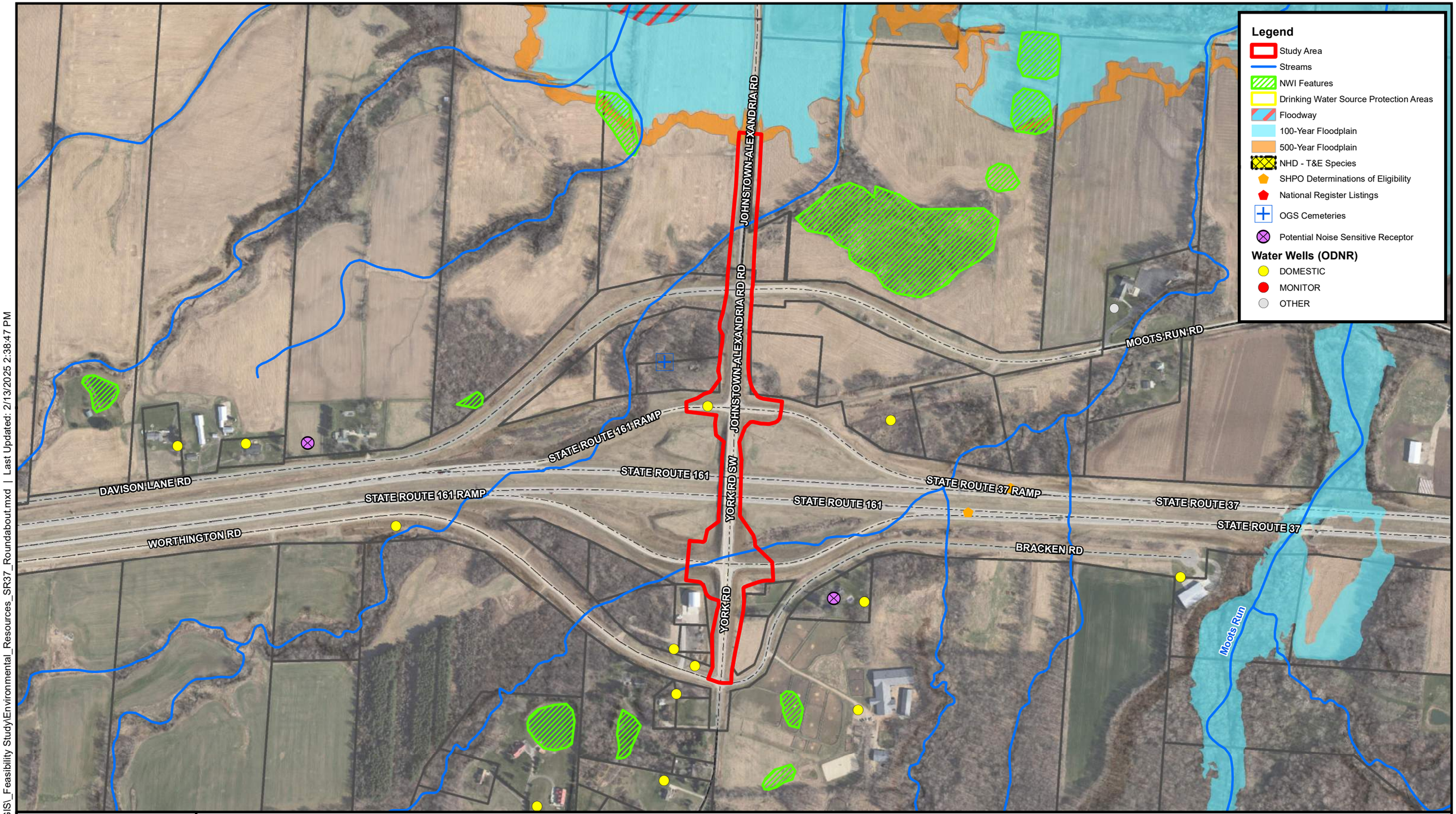

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0 250 500 1,000 Feet

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FRA/LIC-161-22.10/0.00 (PID 117878)
Environmental Resources
State Route 37 - Roundabout

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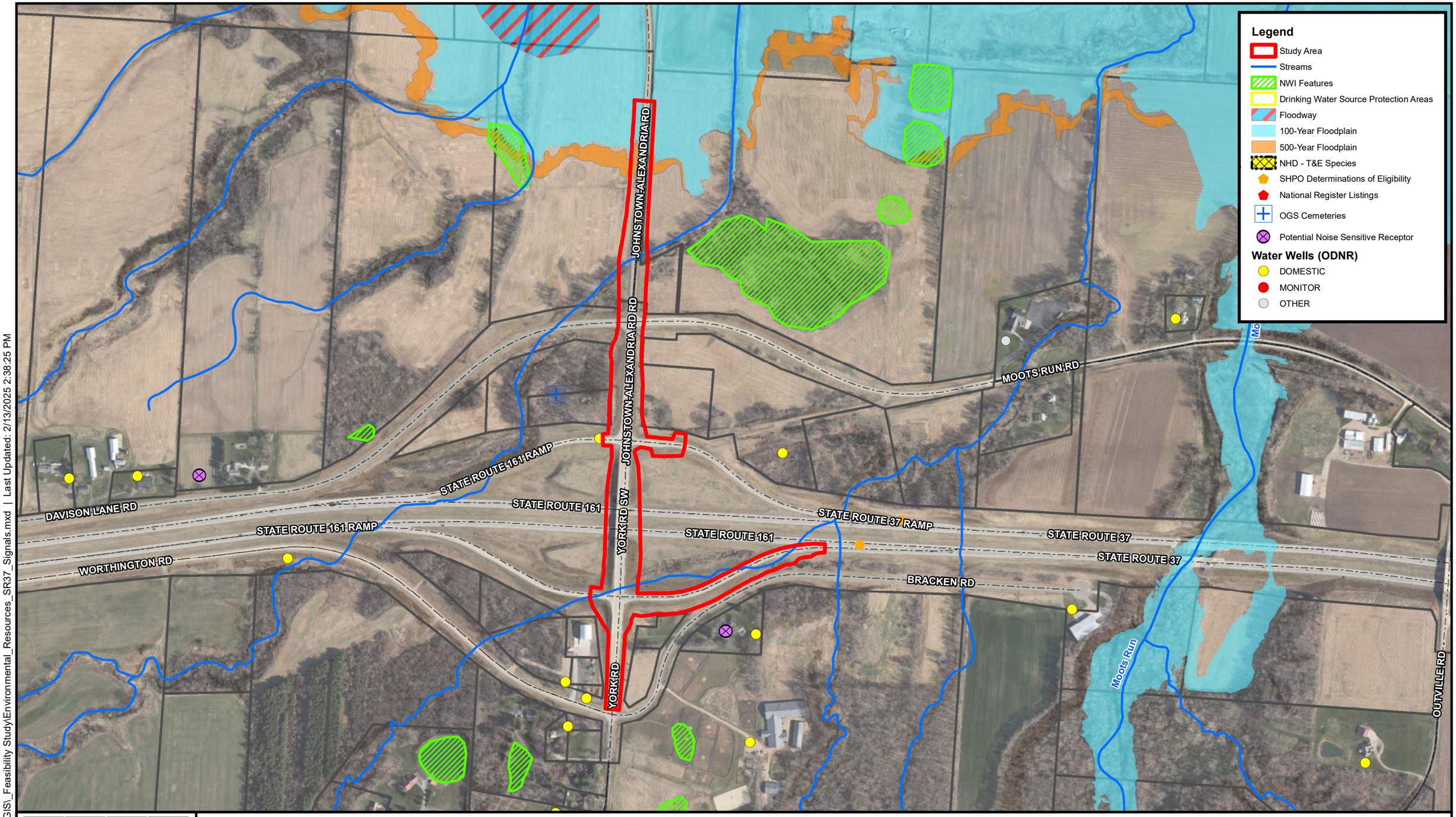

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SCALE: 1" = 500'

0 250 500 1,000 Feet

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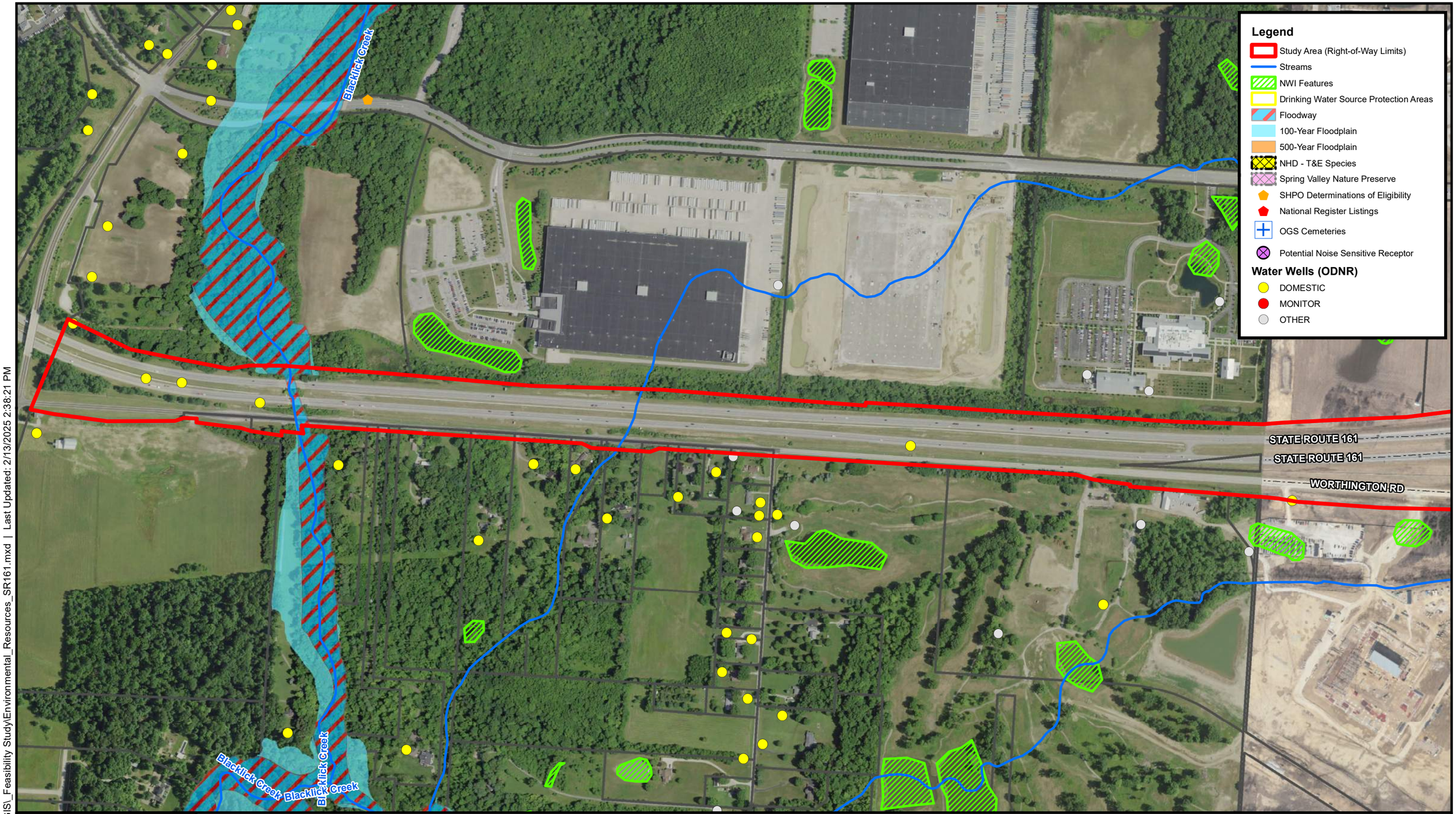
FRA/LIC-161-22.10/0.00 (PID 117878)
Environmental Resources
State Route 37 - Signals



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0 250 500 1,000 Feet

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FRA/LIC-161-22.10/0.00 (PID 117878)
Environmental Resources
State Route 161 - Exhibit A

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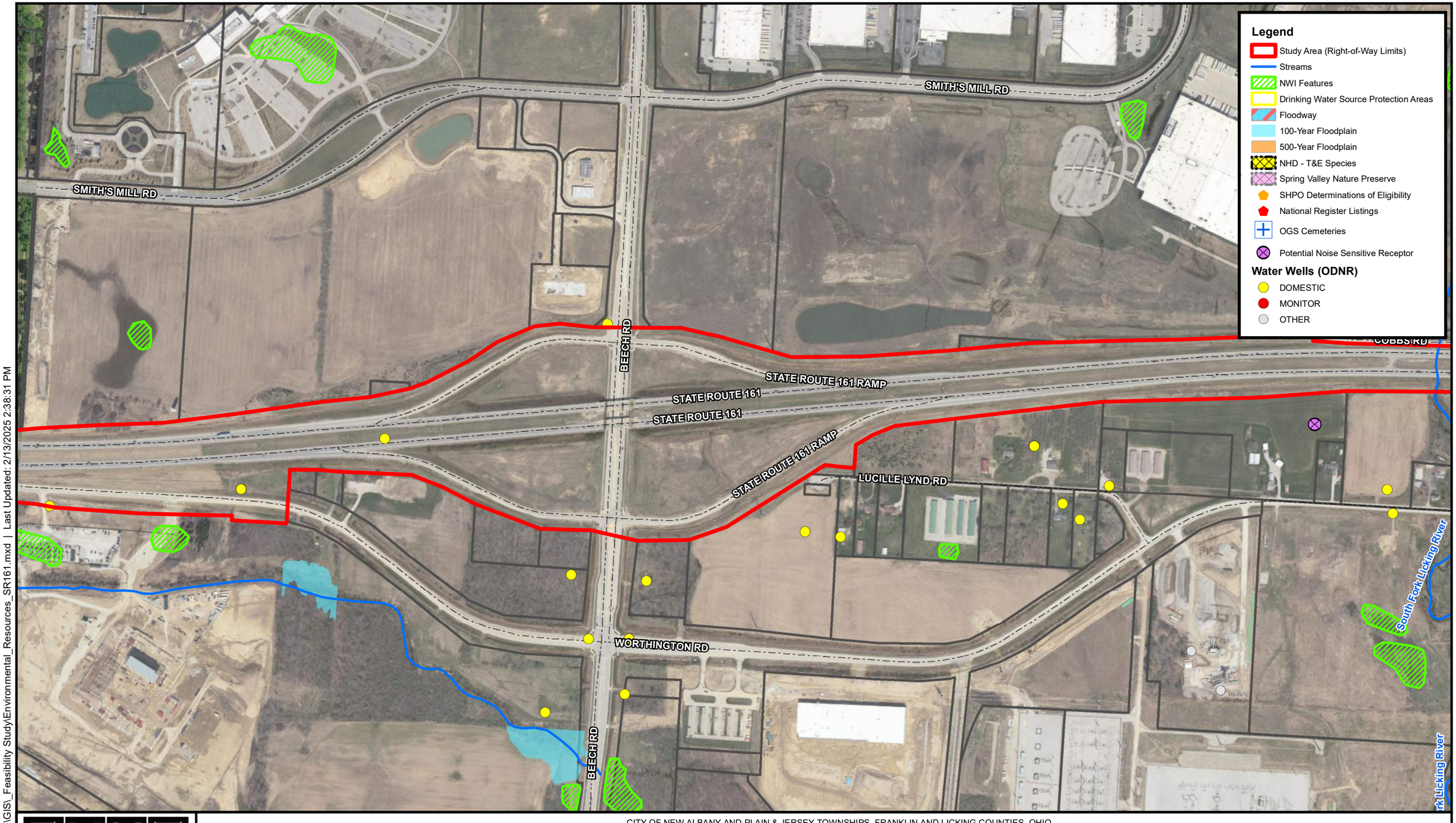

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SCALE: 1" = 500'

0 250 500 1,000 Feet

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State Route 161 - Exhibit B

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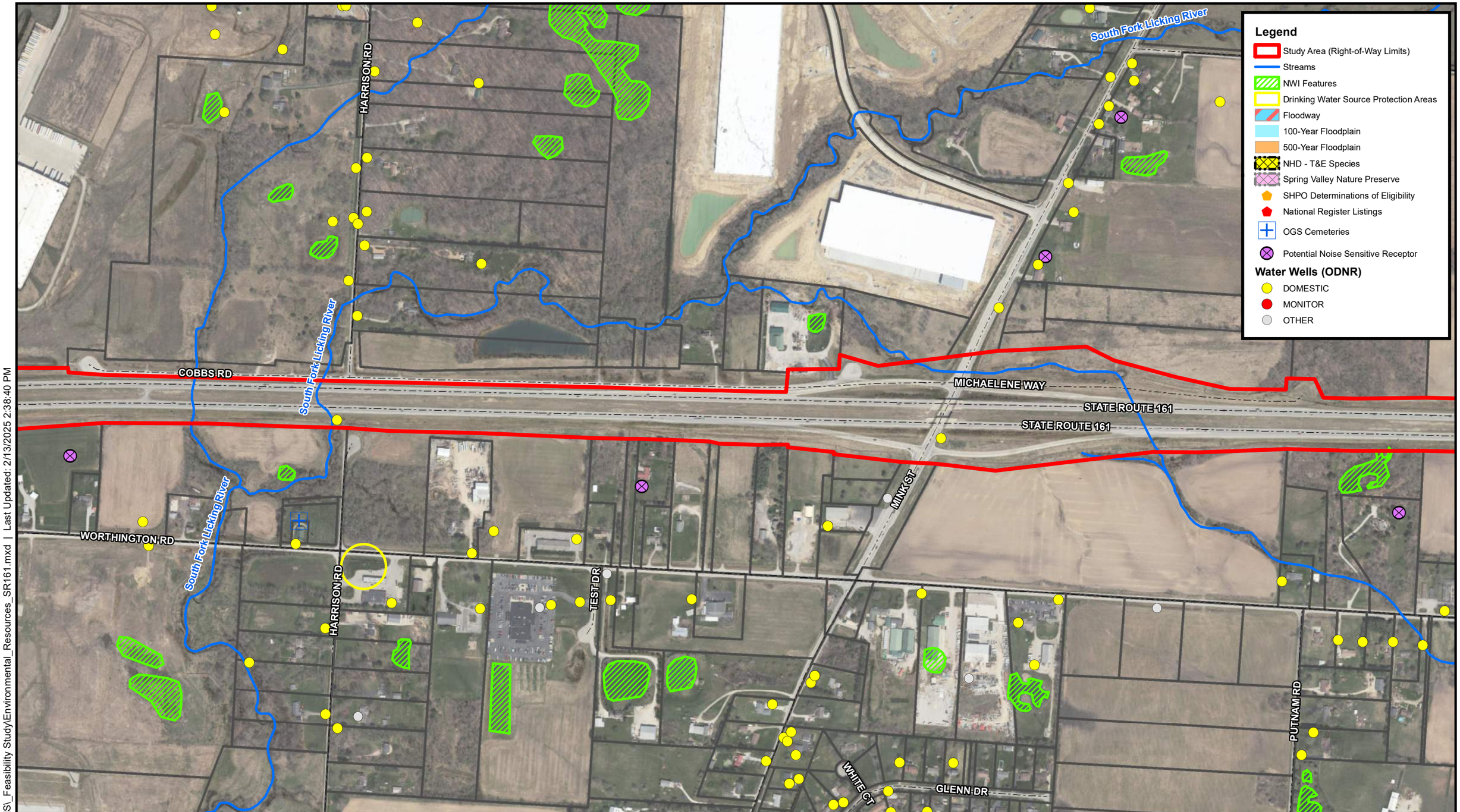

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SCALE: 1" = 500'

0 250 500 1,000 Feet

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Environmental Resources
State Route 161 - Exhibit C

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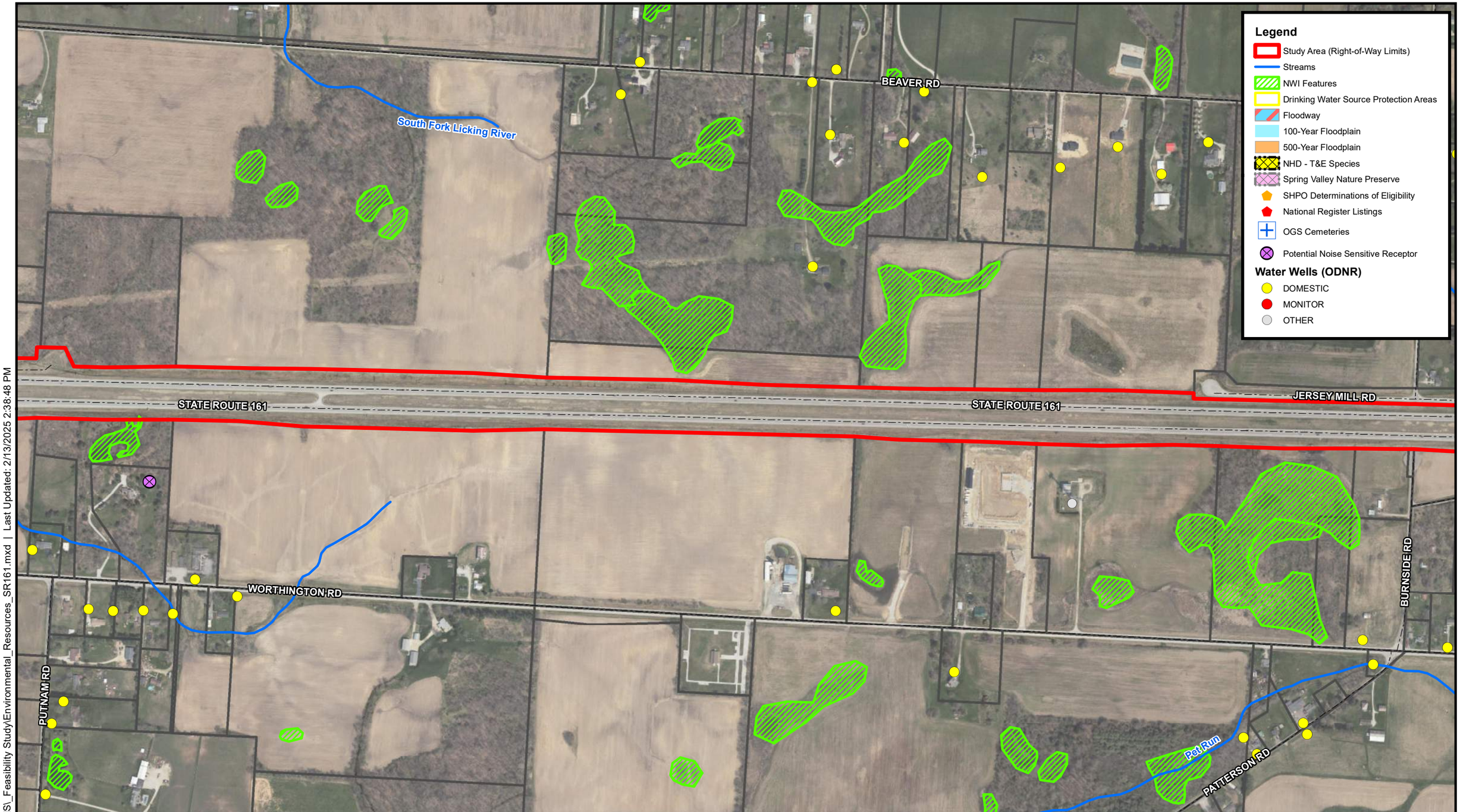

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SCALE: 1" = 500'

0 250 500 1,000 Feet

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Environmental Resources
State Route 161 - Exhibit D

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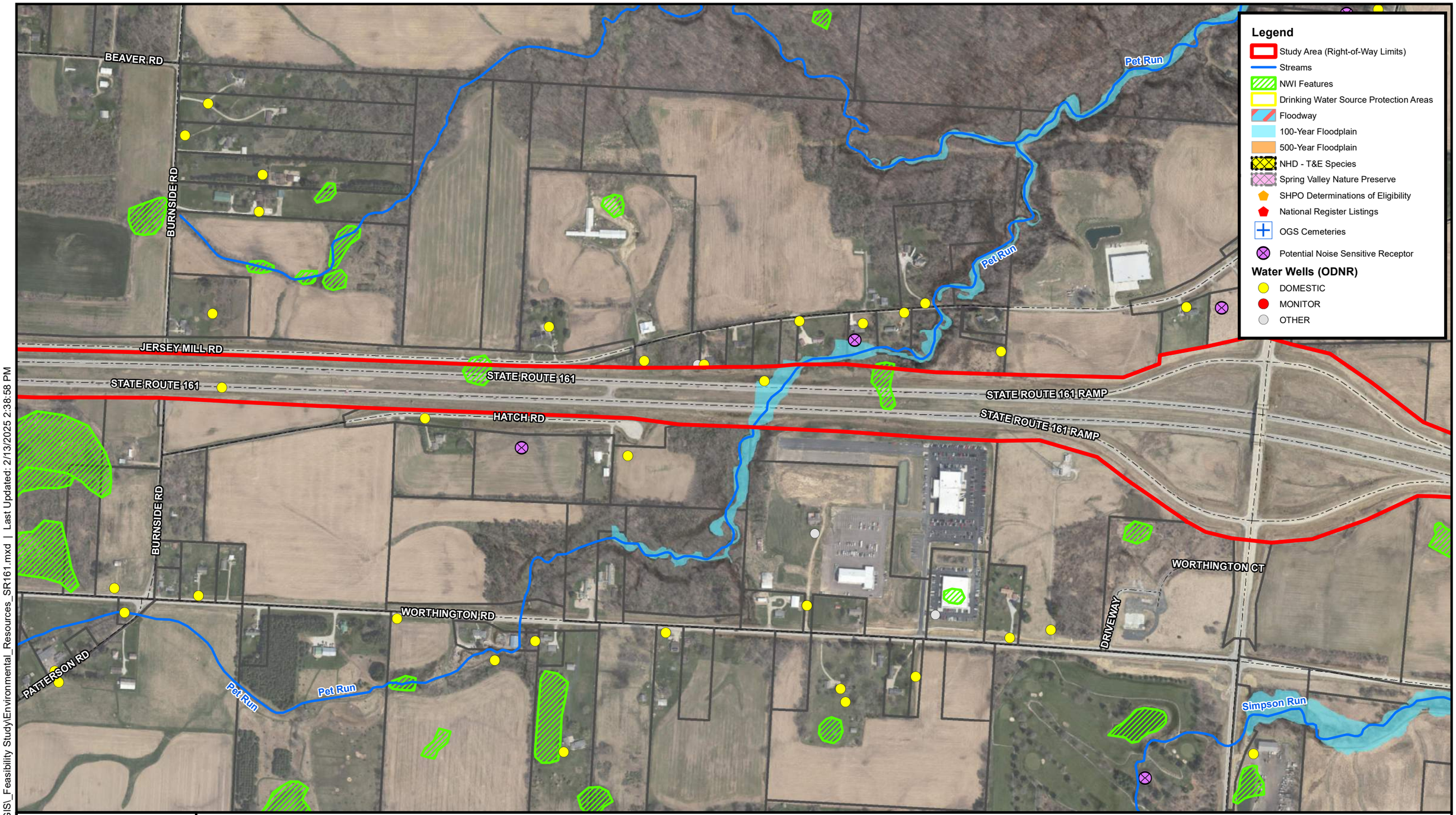

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0 250 500 1,000 Feet

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State Route 161 - Exhibit E

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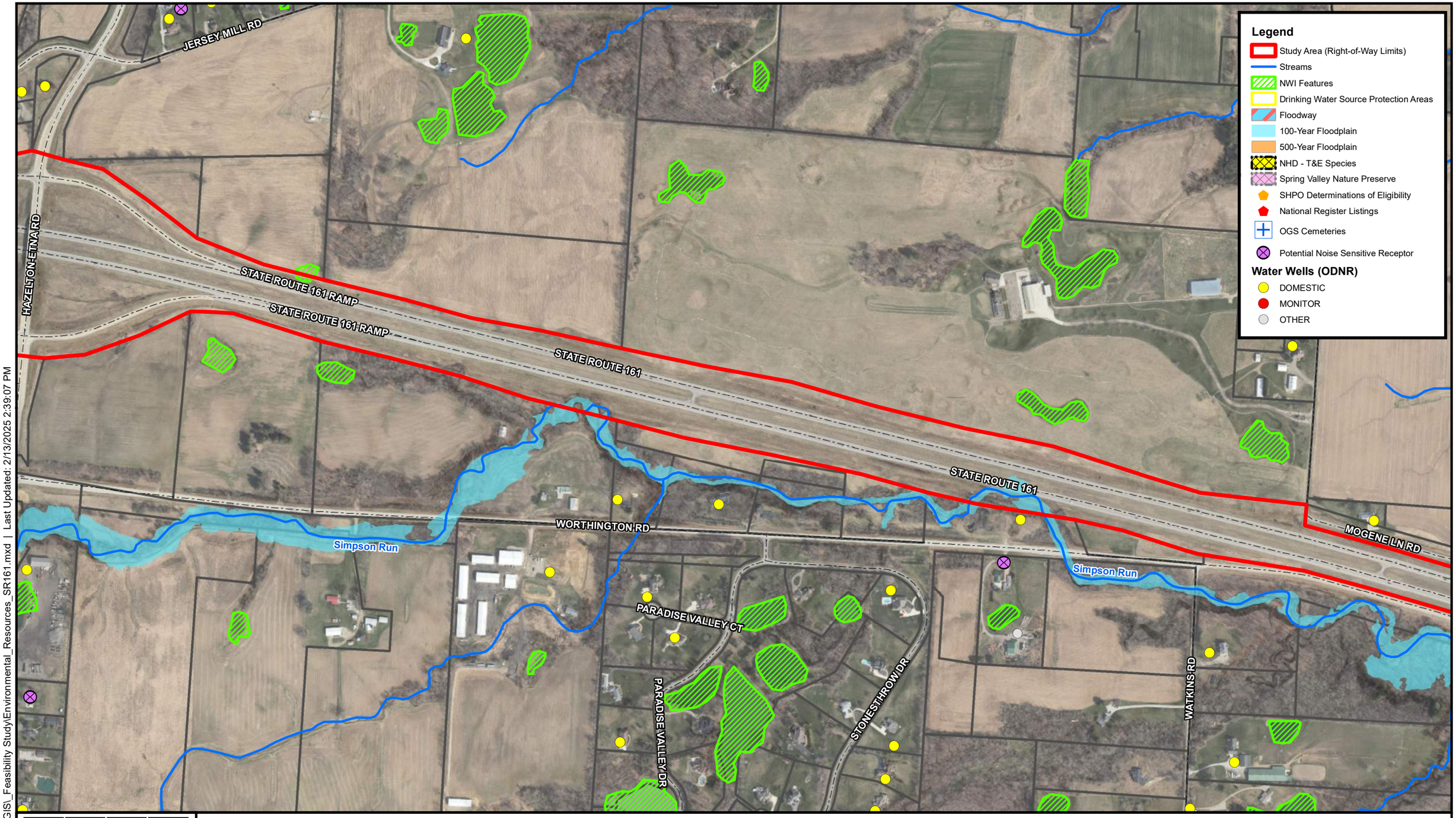

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Environmental Resources
State Route 161 - Exhibit F

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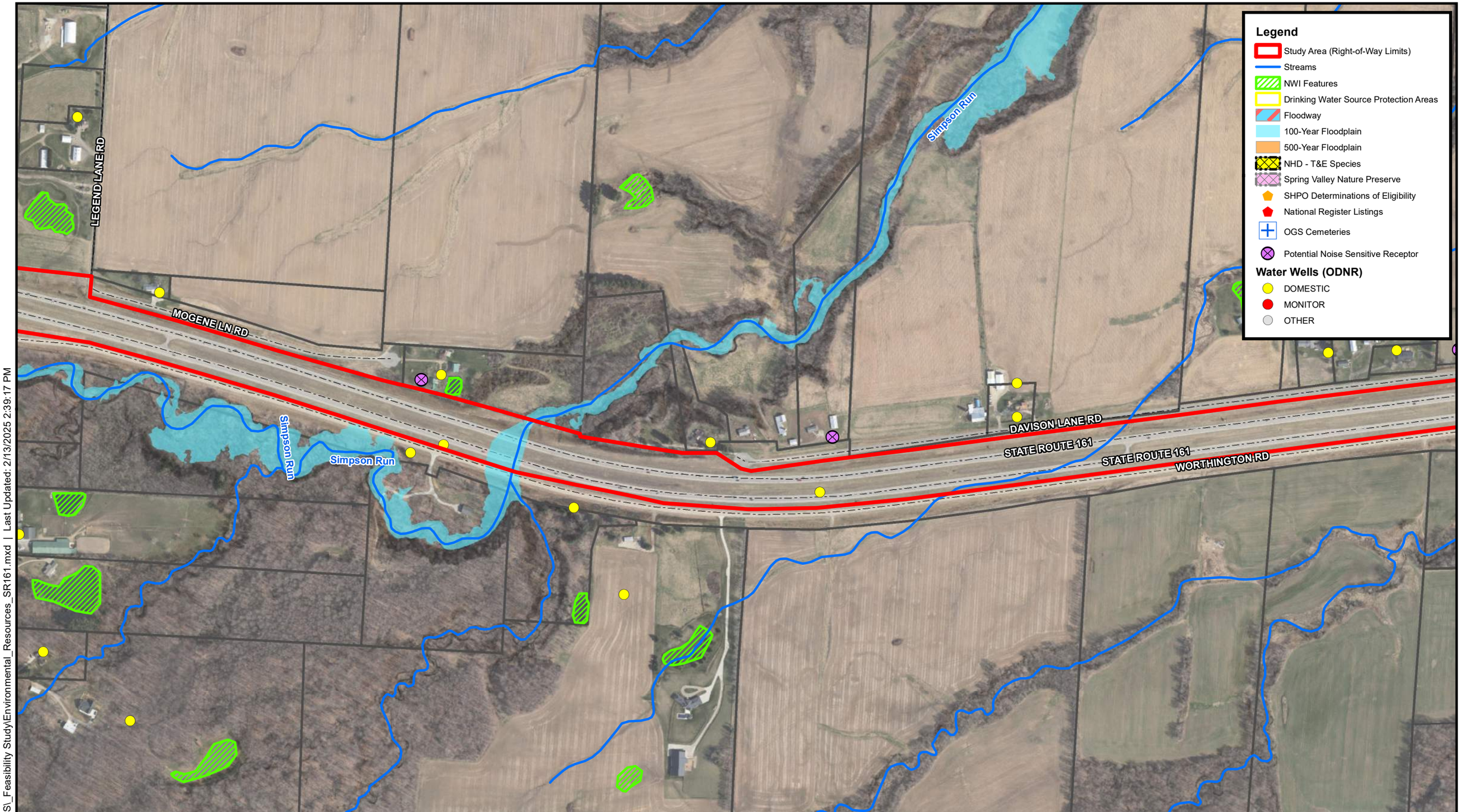

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Environmental Resources
State Route 161 - Exhibit G

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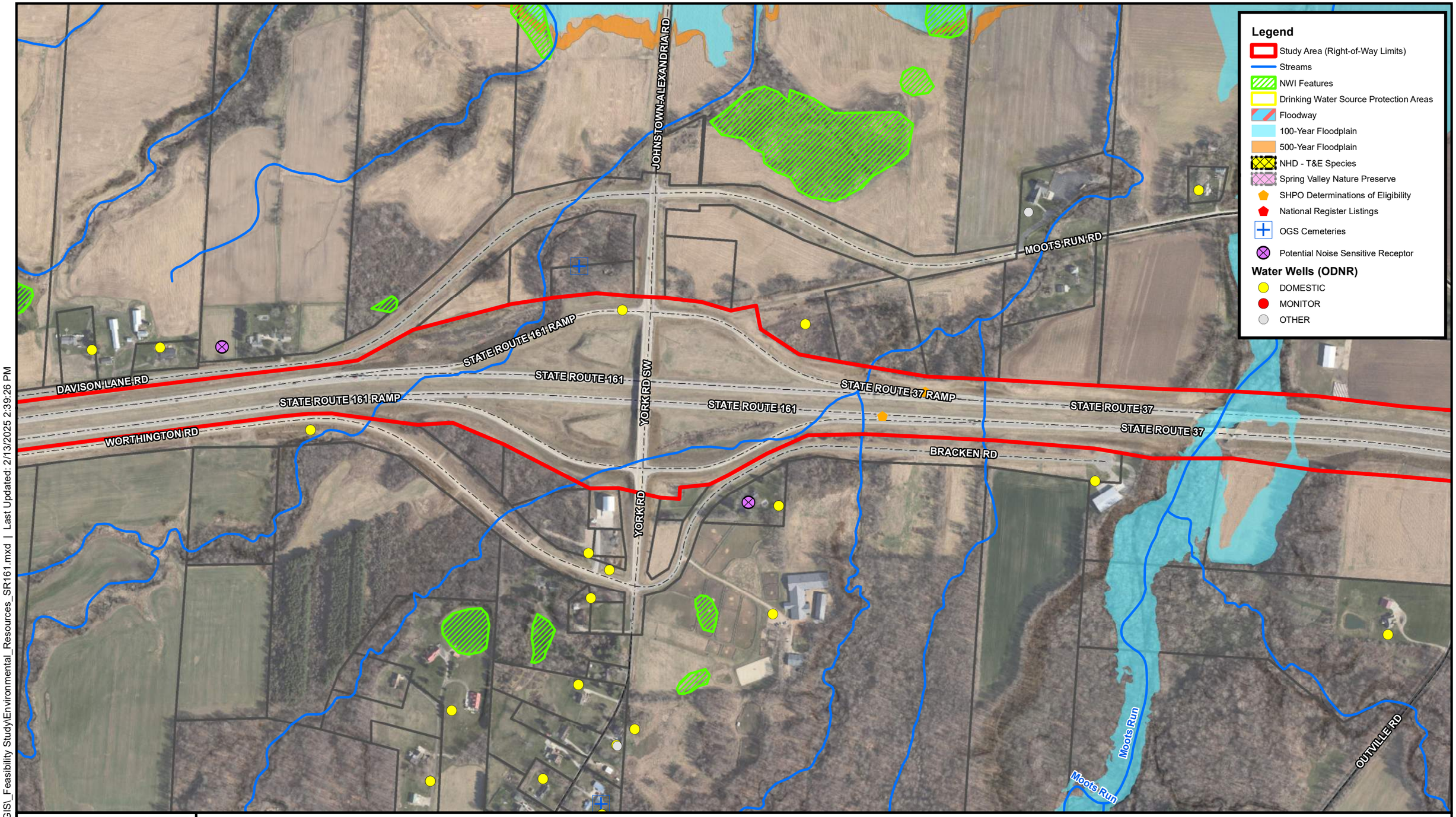

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Environmental Resources
State Route 161 - Exhibit H

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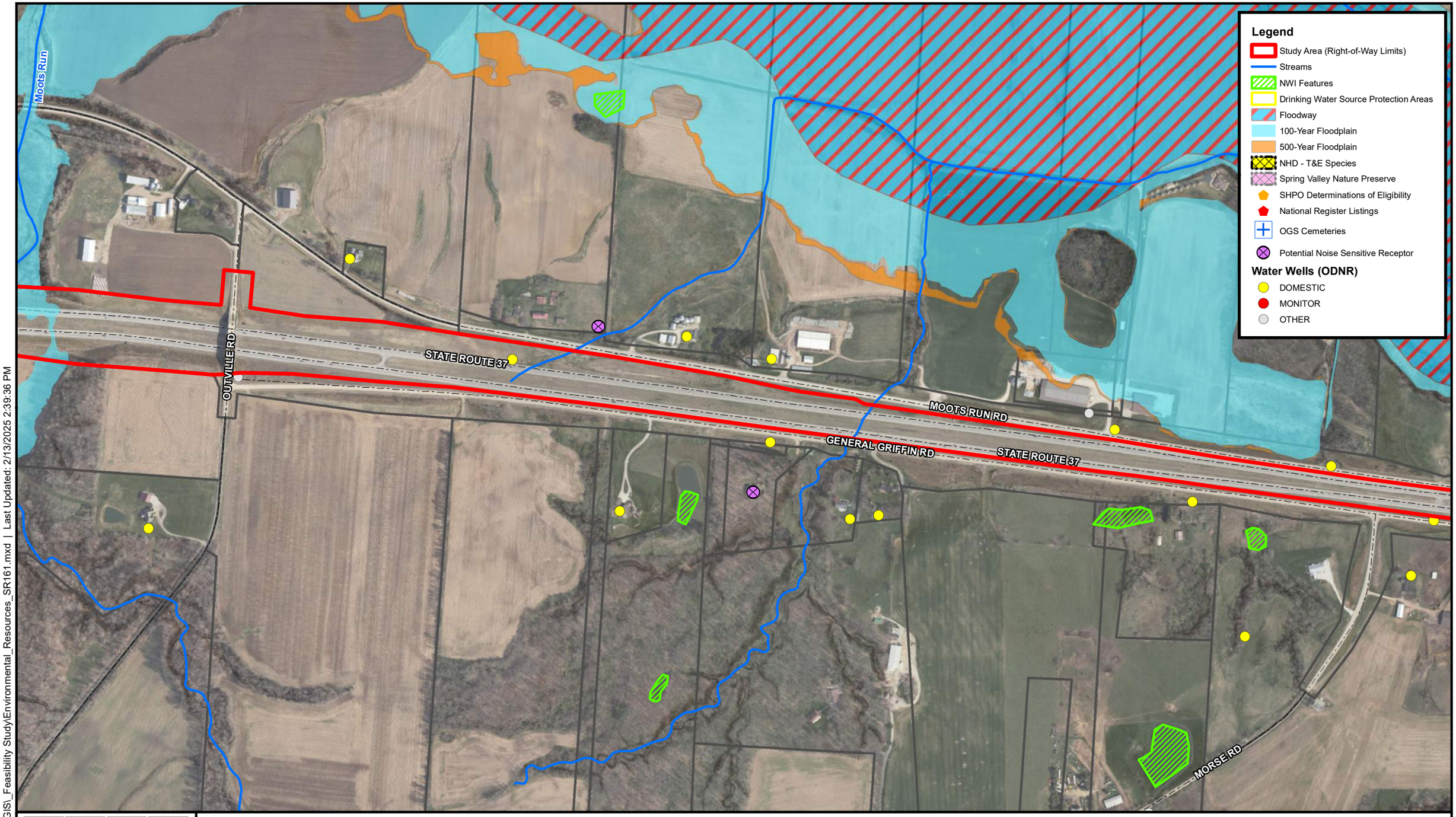

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SCALE: 1" = 500'

0 250 500 1,000 Feet

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FRA/LIC-161-22.10/0.00 (PID 117878)
Environmental Resources
State Route 161 - Exhibit I

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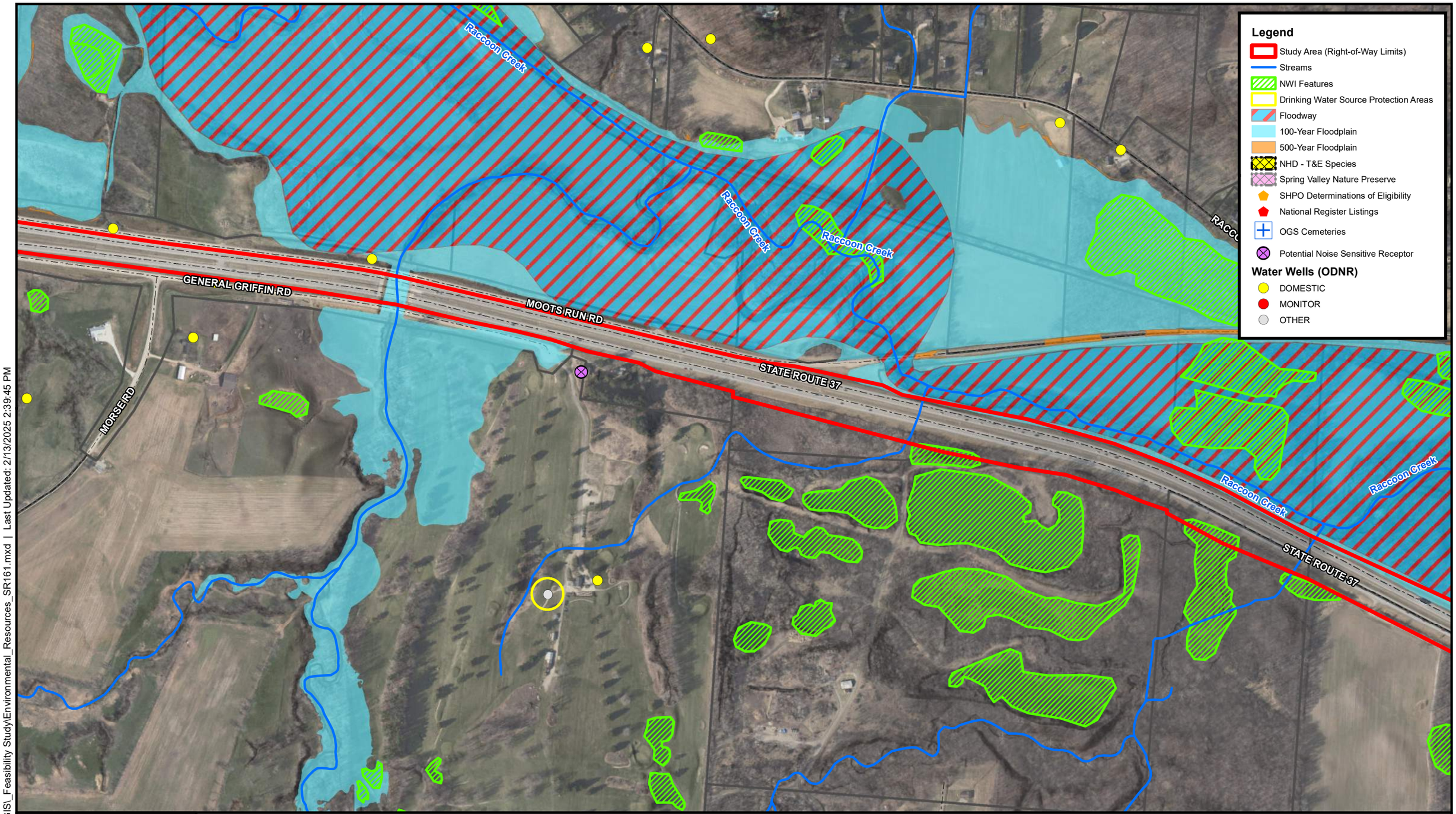

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SCALE: 1" = 500'

0 250 500 1,000 Feet

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FRA/LIC-161-22.10/0.00 (PID 117878)
Environmental Resources
State Route 161 - Exhibit J

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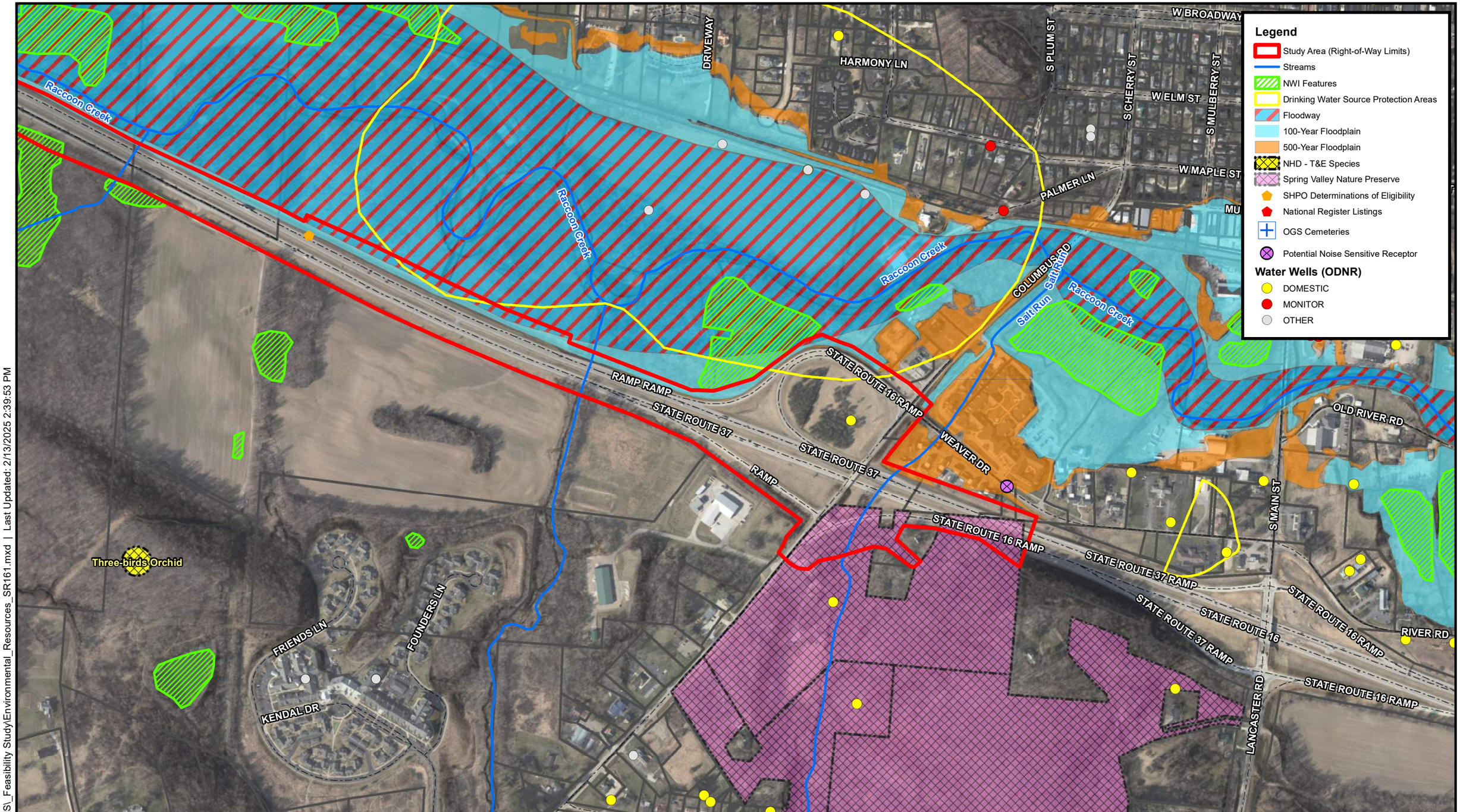

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SCALE: 1" = 500'

0 250 500 1,000 Feet

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FRA/LIC-161-22.10/0.00 (PID 117878)
Environmental Resources
State Route 161 - Exhibit K

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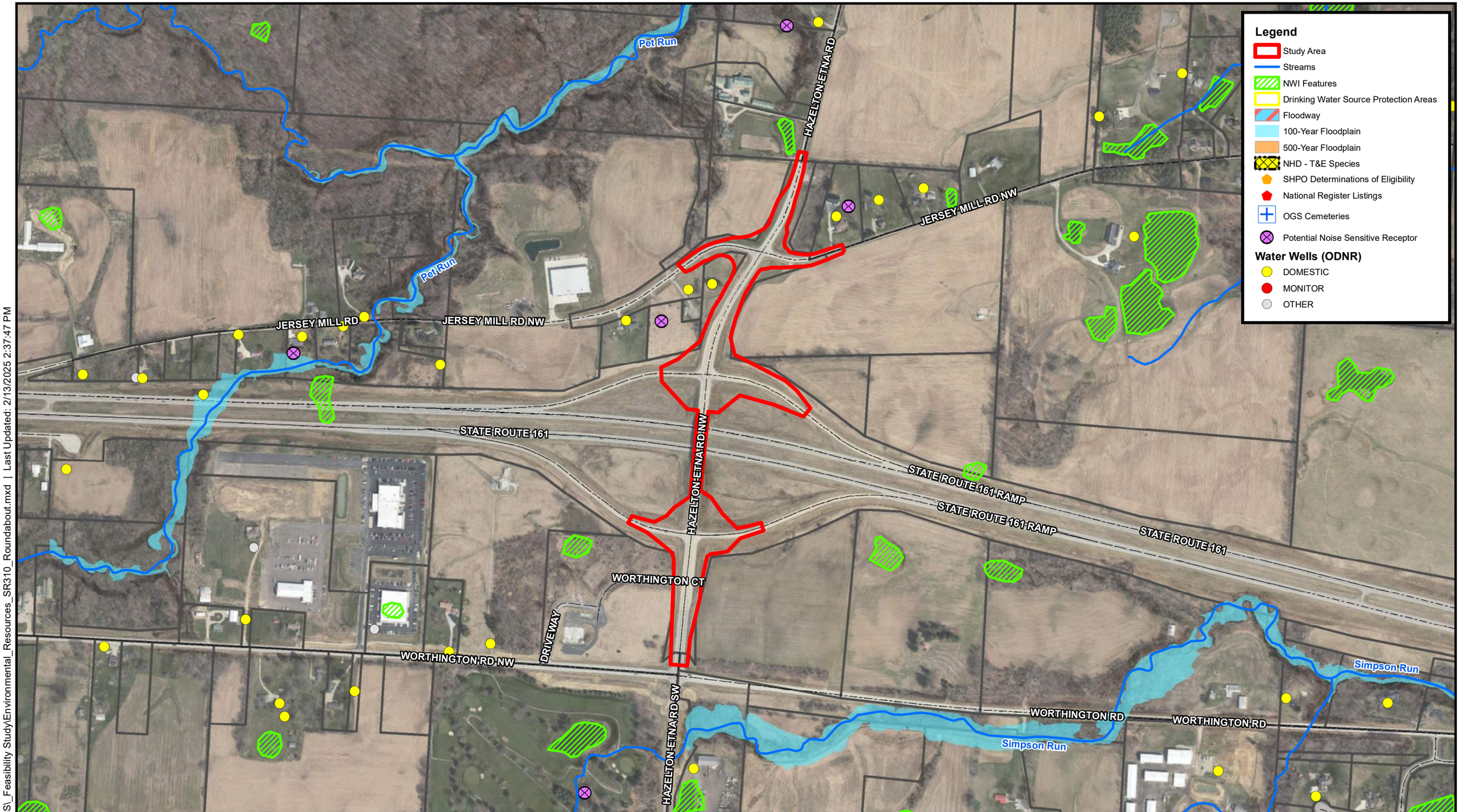

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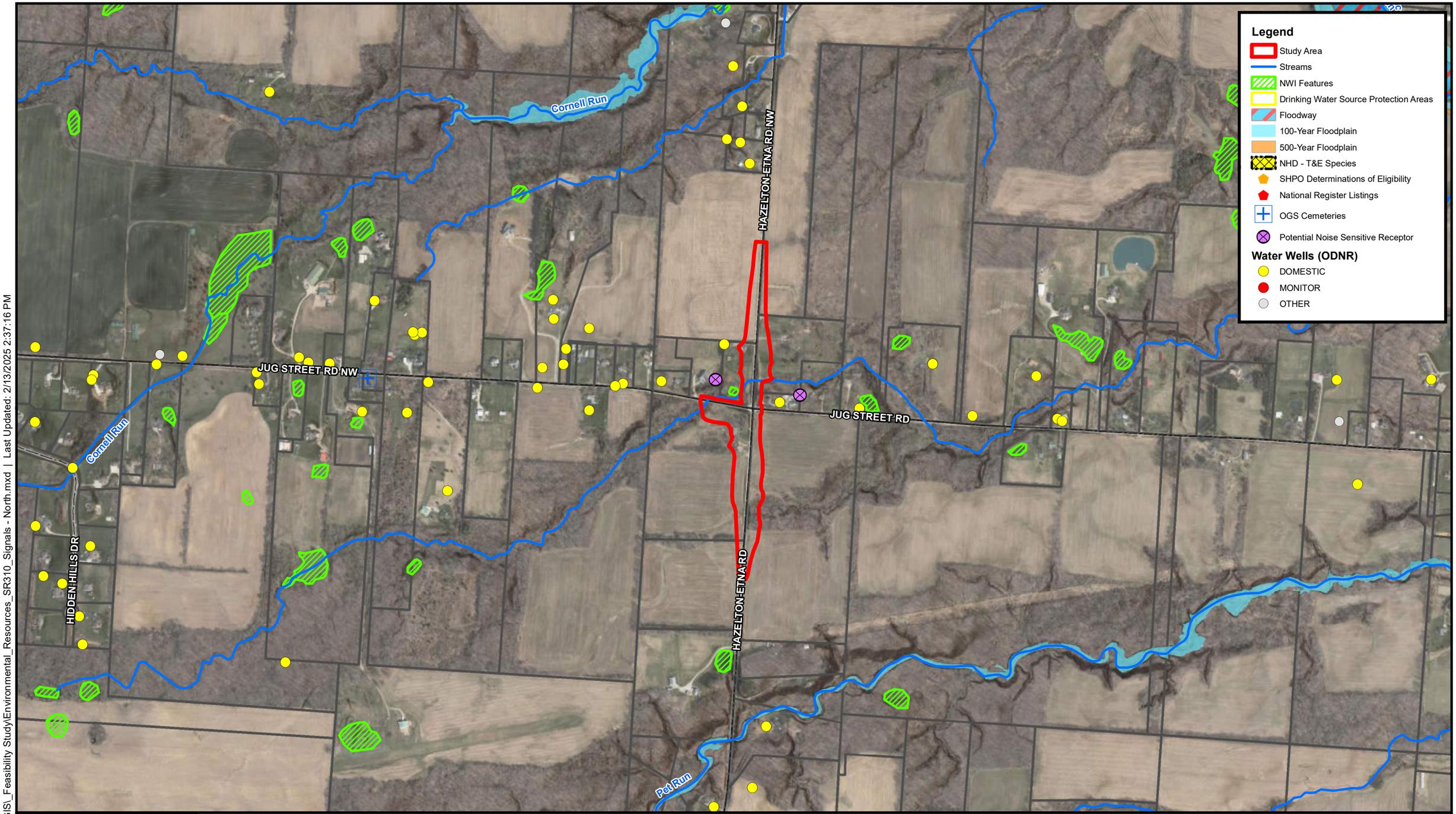
SCALE: 1" = 500'

0 250 500 1,000 Feet

JERSEY TOWNSHIP, LICKING COUNTY, OHIO

FRA/LIC-161-22.10/0.00 (PID 117878)
Environmental Resources
State Route 310 - Roundabout

N



Path: J:\20230271\GIS_Feasibility Study\Environmental_Resources_SR310_Signals - North.mxd | Last Updated: 2/13/2025 2:37:16 PM

EMH&T
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Phone: 614.775.4500 Toll Free: 888.775.3648
emht.com

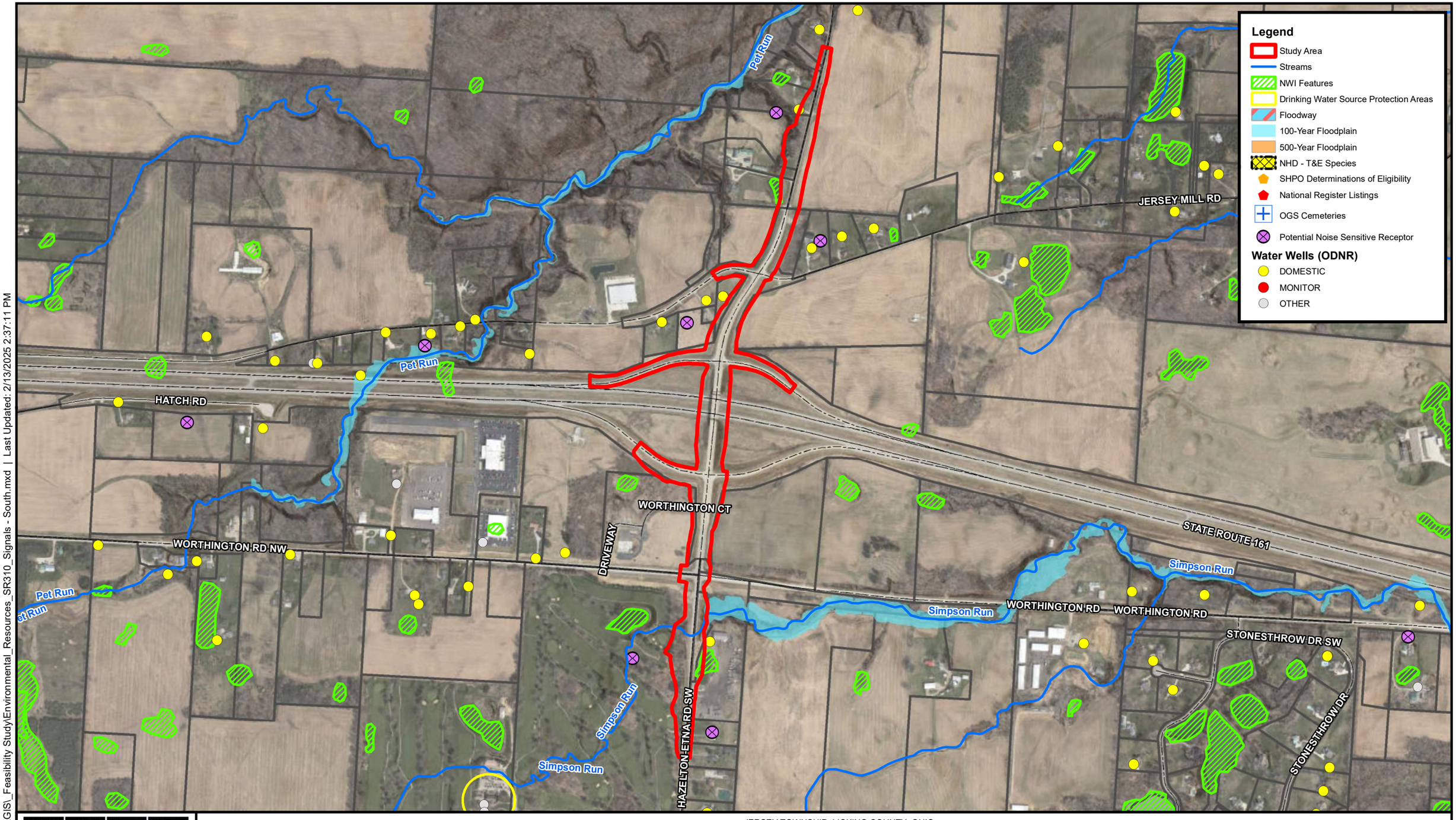
SCALE: 1" = 700'

0 350 700 1,400 Feet

JERSEY TOWNSHIP, LICKING COUNTY, OHIO

FRA/LIC-161-22.10/0.00 (PID 117878)
Environmental Resources
State Route 310 - Signals - Exhibit B

N



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SCALE: 1" = 700'

0 350 700 1,400 Feet

JERSEY TOWNSHIP, LICKING COUNTY, OHIO

FRA/LIC-161-22.10/0.00 (PID 117878)
Environmental Resources
State Route 310 - Signals - Exhibit A

N

Summary of Findings

Based on the environmental resources assessed during this preliminary review, potential environmental obligations have been identified which may need to be addressed during the NEPA clearance phase of the project. Table 1 provides a summary of the environmental resources reviewed for each concept.

Environmental Resource	Potential Impact									
	SR 161 Widening	Beech Rd	Mink St DDI	Mink St Tight Diamond	Mink St PARCLO	SR 310 Signals	SR 310 Roundabout	SR 37 Signals	SR 37 Roundabout	SR 16
Right of Way and Displacements	No/No	No/No	Yes/No	Yes/No	Yes/Yes	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
Aquatic Resources	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Floodplains	Yes	No	No	No	No	Yes	No	Yes	Yes	Yes
Threatened and Endangered Species	Possible	No	Possible	Possible	Possible	Possible	Possible	Possible	Possible	Possible
Cultural Resources	No	No	Possible	Possible	Possible	Possible	Possible	Possible	Possible	Possible
Regulated Materials	Possible	No	Possible	Possible	Yes	Possible	No	No	No	Possible
Section 4(f) / Section 6(f)	No	No	No	No	No	No	No	No	No	Yes
Air Quality	No	No	No	No	No	No	No	No	No	No
Noise	Possible	Possible	Possible	Possible	Possible	Possible	Possible	Possible	Possible	Possible
Farmlands	No	No	No	No	Yes	Possible	No	Possible	Possible	No
Water Wells and Drinking Water Resources	Possible	No	Possible	Possible	Possible	Possible	No	No	No	Possible
Community Impacts	Possible	No	Possible	Possible	Possible	Possible	Possible	Possible	Possible	Possible
RELATIVE RATING (Environmental Impacts)	AVERAGE	EXCELLENT	GOOD	GOOD	AVERAGE	AVERAGE	GOOD	GOOD	GOOD	AVERAGE

Yes = Resource may be potentially affected; will likely require agency coordination;
No = Resource is not likely to be affected;
Possible = Further evaluation is required to determine applicability

Appendix O: Geotechnical Design Memorandum

DLZ
ARCHITECTURE • ENGINEERING • PLANNING
SURVEYING • CONSTRUCTION SERVICES

INNOVATIVE IDEAS
EXCEPTIONAL DESIGN
UNMATCHED CLIENT SERVICE

GEOTECHNICAL DESIGN MEMORANDUM – PRELIMINARY GEOTECHNICAL EXPLORATION

DATE: November 30, 2023

PREPARED FOR: Ohio Department of Transportation (ODOT), District 5

FROM: H. Jason Hughes, P.E. (DLZ Ohio, Inc.)

SUBJECT: FRA-161-22.10/LIC-161-0.00, PID No. 117878 (Part 1)
Subgrade Exploration

INTRODUCTION

This Geotechnical Design Memorandum – Preliminary Geotechnical Exploration (Memo) presents preliminary findings, analysis, and recommendations for the pavement subgrade (3rd lane widening) and retaining wall justification study for the embankment slopes/culvert headwalls near Simpson's Run as well for Part 1 of the Project. The current exploration was performed for the 3rd-lane widening into the existing median along approximately 13.3 miles of State Route 161 (SR161) in Franklin and Licking Counties between New Albany and Granville. See the vicinity map included in Appendix I for reference. DLZ Ohio, Inc. (DLZ) is providing geotechnical services for the project in accordance with our agreement with Woolpert, Inc. (Woolpert) dated June 26, 2023. The exploration was performed in general accordance with the Ohio Department of Transportation's (ODOT's) Specifications for Geotechnical Explorations (SGE) dated July 2023. Plan and profile and proposed pavement sections are not available yet and therefore the recommendations provided herein are considered preliminary.

The geotechnical engineer has planned and supervised the performance of the geotechnical engineering services, considered the findings, and prepared this report in accordance with generally accepted geotechnical engineering practices. No other warranties, either expressed or implied, are made as to the professional advice included in this Memo.

GEOLOGY AND OBSERVATIONS OF THE PROJECT

FIELD RECONNAISSANCE - GENERAL

Field reconnaissance was performed by personnel from DLZ between June and July 2023. Site conditions were generally sunny and dry during reconnaissance. The reconnaissance included the roadway, the median, and the outside shoulders. The median and shoulders had been recently mowed, and the grass length was not excessive. Near-surface soils were exposed in a few locations where the grass was not thriving. Visible near-surface soils appeared to be silty and clayey and contained sand, gravel, and stone chips. The local terrain was

gently rolling, and soils within the highway appear to have been modified from the surrounding terrain by cutting and filling related to highway construction. Due to vegetative cover, rock and soil were typically not visible in the cut areas. Bedrock was exposed in the Simpson's Run stream valley north of 161 and Moots Run near the Village of Alexandria.

The soft/wet areas were noted, generally along or near the center ditchline, within the median near the following borings (for simplicity, the offset and year designation are excluded from the ID): B-025, B-030, B-031, B-035*, B-096, B-104*, B-105*, B-112*, B-147, B-150, B-166, and B-172* [standing water was observed at locations designated with an asterisk]. In addition, a sinkhole was observed near boring B-064 near the center of the median as shown in Figure 1.

Figure 1: Sinkhole observed near boring B-064



FIELD RECONNAISSANCE - CULVERT HEADWALLS AND EMBANKMENT SLOPES AT SIMPSON'S RUN

Field reconnaissance for the culvert headwalls and embankment slopes near Simpson's Run was performed by personnel from DLZ on March 28 and July 14-28, 2023. Significant erosion was noted in several locations along the embankments of Worthington Road and SR161, particularly along the embankment on the north side of SR161 (near the shoulder, undermining of concrete lined ditch at bottom of slope, undermining of slope protection downstream of culvert outlet). Erosion and wet areas were observed along the slope adjacent the culvert and below underdrain outlets and several of the outlets have separated from the pipe (along left and right embankment slopes). Signs of distress (tilting, cracking, etc.) of the full height headwall/retaining wall at the inlet side of culvert for Simpson's Run were not noted; however, it appears that the guardrail immediately

upslope of the headwall is translating slightly (on the order of several inches) towards the culvert and away from the pavement. Site observations indicate possible creep of near surface soils above and adjacent to the culvert at Simpson's Run inlet and outlet. The pavement along SR161 and Worthington Road in this area did not reveal signs of distress from potential movements/creep of the adjacent slopes. Several slope repairs (dumped rock) were observed along the cut slopes south of Worthington Road due east of this area. See the photographs on pages I-2 through I-4 in Appendix I for reference.

GEOLOGY

According to the physiographic information published by the Ohio Department of Natural Resources, the project alignment lies within the Galion Glaciated Low Plateau of the Central Lowland Till Plains. The area is characterized by the rolling terrain of the transition between the till plains sections and the glaciated Allegheny Plateau. The moderate relief developed within the overburden consists of thin to thick glacially deposited soils comprised of ground and end moraines, kames, outwash terraces, and alluvial deposits.

The overburden thickness varies across the alignment, and the underlying bedrock consists of several different formations. The bedrock in the area has been dissected by preglacial streams and ancestral drainage systems that were covered by the glacial till. The deepest overburden occurs between the SR 310 interchange to the east to the US 62 interchange. These two interchanges mark the edge of a deep buried valley that has been infilled with glacial till. The overburden may be up to 400 feet thick before rock is encountered. Bedrock in the buried valley includes the Ohio Shale, Bedford Shale, Sunbury Shale, and Berea Sandstone. Typically, these formations are over 100 feet below the ground surface along the alignment. Shallow bedrock along the alignment is associated with the interbedded shale, siltstone, and sandstone of the Mississippian age Cuyahoga Formation.

Instances of shallow bedrock were identified in the vicinity of the Simpson's Run Culvert, Moots Run Bridge, SR 37 interchange, and just east of Outville Road. Rock is visible in the Simpson's Run and Moots Run stream beds. Rock is at or very near the surface east of Outville Road and near the Alexandria Johnstown Road/York Road SW and SR-161 interchange.

The alignment is located near the boundary of the Wisconsin age ice sheet, which is located near the town of Newark to the east. The glacial soils within the alignment are a mix of end moraines and ground moraines that left behind a flat to hummocky terrain. Generally, these soils tend to be fine-grained cohesive soils silt and clay (A-6a), silty clay (A-6b), clay (A-7-6), and sandy silt (A-4a) containing various amounts of silt, sand, gravel, cobbles, and boulders that were created, and deposited by the glacier. Interspersed within the glacial till are water-borne granular deposits of glacial or more recent origin. The granular soils tend to be (A-1-b) gravel with sand, (A-3a) or mixed fine and granular soils that include coarse and fine sand, (A-2-4) gravel with sand and silt, and (A-2-6) gravel with sand, silt, and clay. Less prevalent deposits include (A-4b) silt and peat.

Borings from the previous work indicate that cohesive soils comprise the bulk of the near-surface soil. These near-surface soils also filled valleys and swales to smooth the new roadway and build the ramps and overpasses.

DRAINAGE AND GROUNDWATER

The alignment from approximately the Franklin County/ Licking County Line east is part of the Muskingum River Watershed; the main tributaries include Raccoon Creek and the Licking River named tributaries of Raccoon Creek that cross the highway include Pet Run, Simpson's Run, and Moots Run. The Racoon Creek tributaries tend to flow north-northeast towards the Raccoon Creek. Just east of the Franklin County line is the south fork of the Licking River. Generally, these streams flow west-southwest.

The streams within the alignment west of the drainage divide are part of the Scioto River watershed, and most are small tributaries of the black lick creek. Generally, drainage in the area is to the south-southwest.

Significant groundwater sources are generally poor due to the low soil permeability and underlying poor rock water resources. The primary groundwater source is from sands and gravels interbedded in the thick silts and clays of the glacial deposits. Prospects for water in the underlying bedrock are generally very poor. At the east end of the alignment, prospects for water improve near the of Village of Alexandria, where water-bearing sand and gravel may be encountered. However, water from this area's shallower bedrock is essentially unavailable.

HISTORIC BORING INFORMATION

State Route 161 has undergone realignment and several stages of improvements from a two-lane road to a limited access freeway between New Albany and Granville. During the original construction of the two-lane road, subsequent realignments, and construction of the new limited-access highway, the existing terrain was smoothed by cutting hills and filling valleys within the alignment. DLZ and other geotechnical consultants worked on the project between 2001 and 2006.

DLZ reviewed the available historic boring information in the vicinity of the project obtained from TIMS and provided by the District which included the following:

- 1956 LIC-161-5.12 (Bridge No LIC161-0708 over Simpson's Run)
- 1991 FRA-161-16.78(16.75?)/LIC-161-0.00, PID 06842 (New Albany Bypass);
- 2003-2004 exploration FRA-161-23.20/LIC-161-0.00, PID 24486;
- 2005 exploration for LIC-161-6.65, PID 77221 (which included the culvert at Simpson's Run);

Based on the historic soil profile sheets, five feet or more of cuts and fills (earthwork) were performed subsequent to the historic borings as well as changes in drainage with roadway improvements and site development along much of the alignment. Therefore, the historic explorations were not incorporated into

this subgrade exploration and analysis. Where applicable, the historic information appeared to be relatively consistent with the current exploration findings (e.g. structure borings for bridge at Blacklick Creek and culvert/retaining wall at Simpson's Run).

EXPLORATION

A total of one hundred seventy-nine (179) borings, designated as B-001-0-23 (B-001) through B-178-0-23 (B-178) and B-110-5-23 as well as four hand sampled explorations, designated as H-110-5-23 through H-110-9-23, were performed between July 5 and August 3, 2023 for the field exploration. Six (6) additional pavement cores, designated X-001-0-23 (X-001) through X-006-0-23 (X-006), were obtained at widely spaced locations along the inside shoulders for use in maintenance of traffic design by others. Boring B-176 was offset in the field due to reported high pressure transmission gas lines in the vicinity of the planned location. Borings were drilled with a truck-mounted drill rig with an automatic hammer that was last calibrated on July 27, 2023 with a resulting hammer energy ratio of 72.5 percent. As-drilled boring and pavement core locations and ground surface elevations were surveyed by Woolpert and provided to DLZ. The boring/pavement core locations and ground surface elevations are listed on the individual boring logs and pavement core reports in Appendix I and the approximate boring and pavement core locations are shown on the boring location plans included in Appendix I.

The laboratory testing program consisted of performing visual classifications using the AASHTO classification system as modified by ODOT (ref. ODOT SGE section 600), general index (soil classification) tests, and sulfate content testing. The general index tests consisted of grain-size analyses, moisture content, and plasticity determinations. Unconfined compressive strength (qu) testing was performed on one Shelby Tube (soil) sample and qu and slake durability index (SDI) testing were performed on intact portions of the recovered bedrock core samples. Laboratory testing was performed in accordance with ODOT SGE Section 600 and ODOT GDM Section 600 for pavement subgrade analysis as well as testing required for bridge and retaining wall borings B-001 and B-110-5-23. Laboratory test results are presented on the individual boring logs in Appendix I and test reports in Appendix II.

FINDINGS

Following is a generalized summary of the conditions encountered by the borings and pavement cores. Conditions may vary between and beyond the individual explorations. For more detailed information see the individual boring logs and pavement core reports as well as the exploration summaries and laboratory test reports included in Appendices I and II.

In general, the borings encountered topsoil thicknesses of 10 inches or less at the ground surface. The field geologist noted that topsoil thicknesses were highly variable over short distances, including many bare spots without topsoil adjacent to thicker topsoil areas. The pavement cores located in the paved shoulder generally encountered 9 to 14 inches of asphalt or asphalt and concrete over 0 to 5 inches of aggregate base.

Beneath the pavement materials or topsoil, the borings encountered predominantly stiff to hard existing fill/possible fill and natural cohesive soils (A-4a, A-4b, A-6a, A-6b, and A-7-6) with lesser amounts of granular soils, non-plastic silt/sandy silt, and weaker cohesive soils and fill. Slightly to moderately organic soils were encountered in various borings as noted on the boring logs. Auger chatter/difficult drilling/possible cobbles/bouldery zones were noted in various borings within the overburden.

Bedrock was encountered in five (5) borings (B-110-5-23, B-126, B-142, B-143, and B-144), with top of rock noted at depths ranging from 0.2 to 26.0 feet. Three of the four hand sampled explorations (H-110-6-23, H-110-8-23 , and H-110-9-23) encountered hand auger refusal on the apparent top of bedrock at depths ranging from 1.0 to 3.5 feet (elevations 1020.3 to 1021.8). The bedrock was predominantly described as shale and interbedded siltstone and shale and shale The historic borings near Simpson's run noted shale, siltstone, and shale with sandstone layers. Auger refusal was encountered in five borings within the bedrock at depths ranging from 3.1 to 4.6 feet and sampler refusal was encountered within the bedrock in those borings and several others.

Gypsum crystals were not identified within the subgrade samples during laboratory visual classifications and laboratory test results for sulfate content were less than 3000 parts per million (ppm) for more than one half of the borings. However, sulfate content test results from three different borings (B-098, B-165, and B-169) exceeded 5000 parts per million (ppm) and two other borings (B-037 and B-041) had sulfate contents of 4900 ppm.

Free groundwater was observed in fourteen (14) of the borings during drilling and upon completion of drilling/prior to backfilling seven (7) borings were observed to have accumulated groundwater in the borehole. Free groundwater during drilling was first observed at depths ranging from 2.5 to 21 feet and upon completion of drilling was noted at depths ranging from 5.4 to 8.5 feet, where observed.

PRELIMINARY ANALYSIS AND DESIGN RECOMMENDATIONS

PAVEMENT SUBGRADE – 3RD LANE WIDENING

Preliminary pavement subgrade analysis for the 3rd lane widening into the median was performed in accordance with ODOT Geotechnical Design Manual (GDM) Section 600. Following is a brief summary of the

preliminary analysis and recommendations. For more specific details, see the subgrade analysis included in the Appendix. For purposes of the pavement subgrade analysis and preliminary recommendations, we have assumed the proposed pavement subgrade elevation for the widening is 1.0 foot below the ground surface at boring locations.

Table 1 is a summary of the preliminary subgrade analysis results along the entire project length (all subgrade borings). Upon review of the logs and analysis, the soils encountered in the borings west of Mink Street appeared to be slightly more plastic than those encountered east of Mink Street. Therefore, a separate analysis is included in Appendix III for borings west of Mink Street (see Table 2) and east of Mink Street (see Table 3). For pavement subgrade preliminary design purposes, we recommend using the separate analyses east and west of Mink Street.

Table 1 Preliminary Subgrade Analysis Results Summary - Average N_{60L}, PI, and Design CBR (Entire Project)

Average N_{60L} (bpf)	Average PI	Average Design CBR
14	12	7

Table 2 Preliminary Subgrade Analysis Results Summary - Average $N60_L$, PI, and Design CBR (West of Mink St)

Average N_{60L} (bpf)	Average PI	Average Design CBR
12	14	6

Table 2 *Notes: considers Borings B-001 through B-046*

Table 3 Preliminary Subgrade Analysis Results Summary - Average $N60_L$, PI, and Design CBR (East of Mink St)

Average N_{60L} (bpf)	Average PI	Average Design CBR
15	11	7

Table 3 *Notes: considers Borings B-047 through B-178*

UNSUITABLE SUBGRADE

Top of bedrock was encountered in a total of three (3) borings within 24 inches of the [assumed] proposed bottom of asphalt or concrete pavement. Furthermore, each of these borings (B-142, B-143, and B-144) encountered bedrock immediately beneath the topsoil (i.e. within 2 to 5 inches below the ground surface). Therefore, Item 204 Excavation of shallow bedrock and replacement with Item 204 Granular Embankment will be necessary according to CMS 204.05 and GDM 610.5 at the following locations:

- Excavation and Replacement for Unsuitable Rock Subgrade, 24” Depth – Vicinity of borings B-142 through B-144; i.e. approximately LIC-161 Centerline Stations 498+79 through 510+69.

It was reported by the Office of Geotechnical Engineering (OGE) at the 2023 Geotechnical Consultant Workshop that ODOT is evaluating the requirements of CMS 204.05 and GDM 610.5. Therefore, consider getting OGE evaluation for "design exception" for this project to reduce the required undercuts for unsuitable rock subgrade.

Unsuitable silt (A-4b) subgrade was encountered in two (2) borings within 3 feet of the [assumed] proposed subgrade. Therefore, Item 204 Excavation of unsuitable silt subgrade and replacement with Item 204 Granular Material Type B with Item 204 Geotextile at the bottom will be necessary, unless this material is chemically stabilized, at the following locations (and estimated depths based upon assumed subgrade):

- Excavation and Replacement for Unsuitable Silt (A-4b) Subgrade – Vicinity of borings B-120 (36" Depth) and B-135 (18" Depth); i.e. approximately LIC-161 Centerline Stations 412+49 to 416+42 and 471+81 to 475+68, respectively.

UNSTABLE SUBGRADE - GLOBAL STABILIZATION

Excluding locations with unsuitable subgrade discussed in the preceding section, unstable subgrade [ref. "Recommendation" column of the subgrade analysis in Appendix III] was identified in 43% of all subgrade borings, 65% of all subgrade borings west of Mink Street, and 36% of all subgrade borings east of Mink Street. ODOT GDM Section 605 requires global (chemical) stabilization for divided highways with four or more lanes and project length more than 1-mile and other projects where it is determined that 30 percent or more of the subgrade must be stabilized. ***However, sulfate contents from multiple borings exceeded 5,000 ppm which indicates high risk of risk of pavement heave due to expansion of chemically stabilized subgrade and therefore discussion with the District Geotechnical Engineer regarding options and risk is required prior to utilizing chemical stabilization.*** Furthermore, section 605 of the ODOT GDM discourages attempts to delineate high sulfate content areas.

The results of the subgrade analysis indicate that Excavate and Replace methods of stabilization would generally require depths on the order of 12 to 15 inches with Item 204 Geogrid utilized in roughly 20 percent of the overall area to reduce depth of excavations adjacent to the existing pavement and Item 204 Geotextile elsewhere. Deeper undercuts of 36 inches were indicated in two of the borings east of Mink Street, one utilizing Geogrid and the other Geotextile. Global geotextile, 12" Depth is calculated by the analysis both east and west of Mink Street based on average N60L; however, geogrid and/or deeper replacement are indicated at over 33% of all unstable subgrade locations from the analysis (also 37% of unstable locations west of Mink Street and 30% of unstable locations east of Mink Street) and 14% of all subgrade areas which could result in a very high rate of spot repairs (i.e. increased risk for higher construction cost and schedule delays). For additional consideration, although Global Geogrid, 12" Depth is not calculated as an option by the spreadsheet for any of

the analysis (all borings or individual sections east and west of Mink Street); approximately 9% of all unstable subgrade areas (3% of unstable areas west of Mink Street and 13% of unstable areas east of Mink Street) in the analysis and 4% of all subgrade areas warrant replacement greater than 12" depth using Geogrid. According to the analysis only 6% of unstable areas east of Mink Street warrant replacement greater than 15" depth using Geogrid. Selection of Excavate and Replacement as an option as well as Depths and Geotextile vs Geogrid should be determined based upon coordination with the District considering acceptable levels of risk for the project. See Table 4 for a comparison of estimated percentages of spot repairs indicated for global stabilization using excavation and replacement methods.

Table 4: Percentage of Subsequent Spot Repairs Indicated* for Various Excavate and Replacement Methods

Excavate and Replacement, Method	Percentage of Unstable Subgrade Boring Locations (Percentage of All Subgrade Borings)		
	All	West of Mink Street	East of Mink Street**
Geotextile, 12"	33% (14%)	37% (24%)	30% (14%)
Geogrid, 12"	9% (4%)	3% (2%)	13% (5%)

*Based upon number of boring locations with more robust stabilization method recommended
**Increasing Geogrid depth to 15" reduces value to 6% (2%) for borings east of Mink Street.

Excluding consideration of pavement heave, the subgrade analysis indicated that Item 206 Cement Stabilized Subgrade, 12" Depth would otherwise be applicable for the entire project (borings east and west of Mink Street). There is a small risk of cement stabilization being ineffective in areas with moderately organic soils. In which case, higher cement rate or Item 204 excavate and replace method, may be necessary for subgrade stabilization in these areas (where treatment is ineffective due to moderately organic soils). It should be noted that excavation of shallow bedrock at the approximate locations described above will need to be performed prior to cement stabilization, if utilized.

Note that auger chatter, difficult drilling, and bouldery zones/possible cobbles were encountered within the fill and natural overburden soils. In addition, cobbles and boulders are common in the soil overburden and fill derived from glacial till in the region. Cobbles and boulders in the subgrade, pose a risk to the construction schedule and cost associated with chemical stabilization, due to potential wear/damage to the equipment (cutter-head of the reclaimer) and/or "excessive" time and/or materials required for sorting/replacing the

cobbles and boulders. Consider including pay items and quantities for subgrade exploration and subgrade rock removal as a risk mitigation measure for cobbles and boulders in the subgrade.

SLOPE STABILITY NEAR SIMPSON'S RUN CULVERT (NEAR LIC-161 STA 375+00)

Based on observations of erosion and sloughing along portions of the embankment slopes near the culvert at Simpson's Run (approximately LIC-161 Station 375+00) during project scoping, the stability of the existing embankment slopes was evaluated for possible retaining wall improvements, if necessary. As discussed in the field reconnaissance section, site observations indicated underdrain outlets and a small culvert outlet separated from the pipes and wet areas, erosion, and sloughing below in addition to apparent outward translation of the guardrail along Worthington Road above and slightly west of the culvert inlet. However, no signs of pavement distress along Worthington Road or SR161 or culvert inlet headwall/retaining wall distress were noted in the vicinity of the areas of slope distress. Historic boring information from two separate explorations (total of six borings) was available in the immediate vicinity of the culvert and revealed conditions similar to the current exploration – the existing embankment material and natural foundation soils are predominantly comprised of low plasticity fine-grained soils: loose to medium dense/medium stiff to very stiff sandy silt (A-4a) with lesser amounts of silt (A-4b) and silt and clay (A-6a) overlying relatively shallow siltstone and shale bedrock near the toe of slope [exposed along the stream channel]. With the exception of free water observed during drilling at a depth of 8.3 feet (elevation 1037.6) in current boring B-110-0-23; in general other historic and current borings in the area either did not observe groundwater or it was within a couple feet above top of bedrock. Review of cross sections provided by Woolpert revealed the existing slopes in the area of observed slope distress generally range from 2 Horizontal to 1 Vertical (2:1) to 3:1.

Based upon review of the boring information, site observations, and cross sections provided by Woolpert slope stability analysis was performed considering the geotechnical parameters in Table 5 in conjunction with slopes of 2.0:1, 2.3:1, and 3.0:1 and groundwater levels near the top of bedrock [slopes of 2.5:1 were also considered for cases using fill with the median friction angle]. Based upon the observed site conditions and soils, it is anticipated that long term or "drained strength" soil parameters control and that the near surface soils are

likely softened by freeze/thaw (reducing or eliminating potential "effective cohesion") and that the observed slope movements are relatively shallow.

Table 5: Geotechnical Parameters for Slope Stability Analysis

Layer Description	Total Unit Weight (pcf)	Effective Friction Angle, ϕ' (degrees)	Effective Cohesion, c' (psf)
Fill	130	28, 30, 32	0
Natural Soil	120	30	0
Soil/Bedrock Interface	140	29	0
Shale/Siltstone Bedrock	140	30	2000

Variation in the friction angle of the fill was considered based upon variation estimated from the borings using correlations with the blow counts from the ODOT GDM for A-4a material as well as index property correlations to fully softened shear strength by Dr. Timothy Stark. In the opinion of the author of this Memo, the shear strength parameters used for the embankment fill ("Fill") materials in the analysis are similar to fully softened shear strength values and relevant to the near surface fill (roughly the upper 3 to 6 feet perpendicular to the ground surface, where soil are exposed to weathering and isolated areas of seepage/surface water/freeze-thaw and subsequent loosening/softening) but conservative for the deeper fill materials. Note the median friction angle (30 degrees) for the fill is anticipated to be the most representative value of the near surface fill as a whole (higher probability of occurrence), whereas the other values have lower probability of occurrence (more likely to occur in localized areas).

Slope stability analysis was performed using limit equilibrium methodology with the software SLIDE by Rocscience. The GLE-Morgenstern Price method and Spencer's method were utilized for analysis. In general, the analysis results revealed relatively shallow critical failure surfaces similar to "infinite slope" or sloughing type failure. A summary of the slope stability results for cases without seepage in the embankment are

presented in Table 6 and graphical results for cases using Fill with 30 degree friction angle are included in Appendix III.

Table 6: Summary of Slope Stability Analysis Results – No Seepage

Slope Ratio (Horizontal:Vertical)	Effective Friction Angle, ϕ' (degrees), of Fill	Critical Factor of Safety (FOS)	Depth (ft) of Failure Surface with FOS<1.3
2.0:1	28	***1.07***	7
	30	***1.16***	5
	32	***1.26***	3
2.3:1	28	***1.23***	5
	30	1.34*	NA
	32	1.45*	NA
3.0:1	28	1.60*	NA
	30	1.74*	NA
	32	1.88*	NA

*Infinite slope type failure at surface (Depth<<1 ft)

Table 7: Summary of Slope Stability Analysis Results – Isolated Seepage

Slope Ratio (Horizontal:Vertical)	Effective Friction Angle, ϕ' (degrees), of Fill	Critical Factor of Safety[1,2] (FOS)	Depth (ft) of Failure Surface with FOS<1.3
2.0:1	28	***0.95***	***8***
	30	***1.03***	***6***
	32	***1.12***	***4***
2.3:1	28	***1.10***	***6***
	30	***1.19***	***4***
	32	***1.29***	1 ***(3)***
3.0:1	28	1.46	NA ***(4)***
	30	1.52	NA ***(3)***
	32	1.59	NA ***(2)***

[1]Exluding localized, shallow failures (minor sloughing) at face of seepage. ***Localized failures with FOS≤1 resulted at face of slope near seepage zone for <u>all</u> cases with seepage.*** Failure surfaces represented by the Critical Factor of Safety column extend to crest of slope or beyond (towards shoulder).

[2]Depths listed in parentheses represent depth of localized failure surfaces at seepage zone described in note 1 in excess of depth of non-localized failure surfaces (values not in parentheses are non-localized failure surfaces).

In order to evaluate the case of seepage within the embankment and seeping out the face (similar to observed in Boring B-110-0-23 and observed near the underdrain outlets), additional analysis were performed with a 3-foot thick seepage zone incorporated mid-slope and the results are summarized in Table 7 graphical results for cases using Fill with 30 degree friction angle are included in Appendix III.

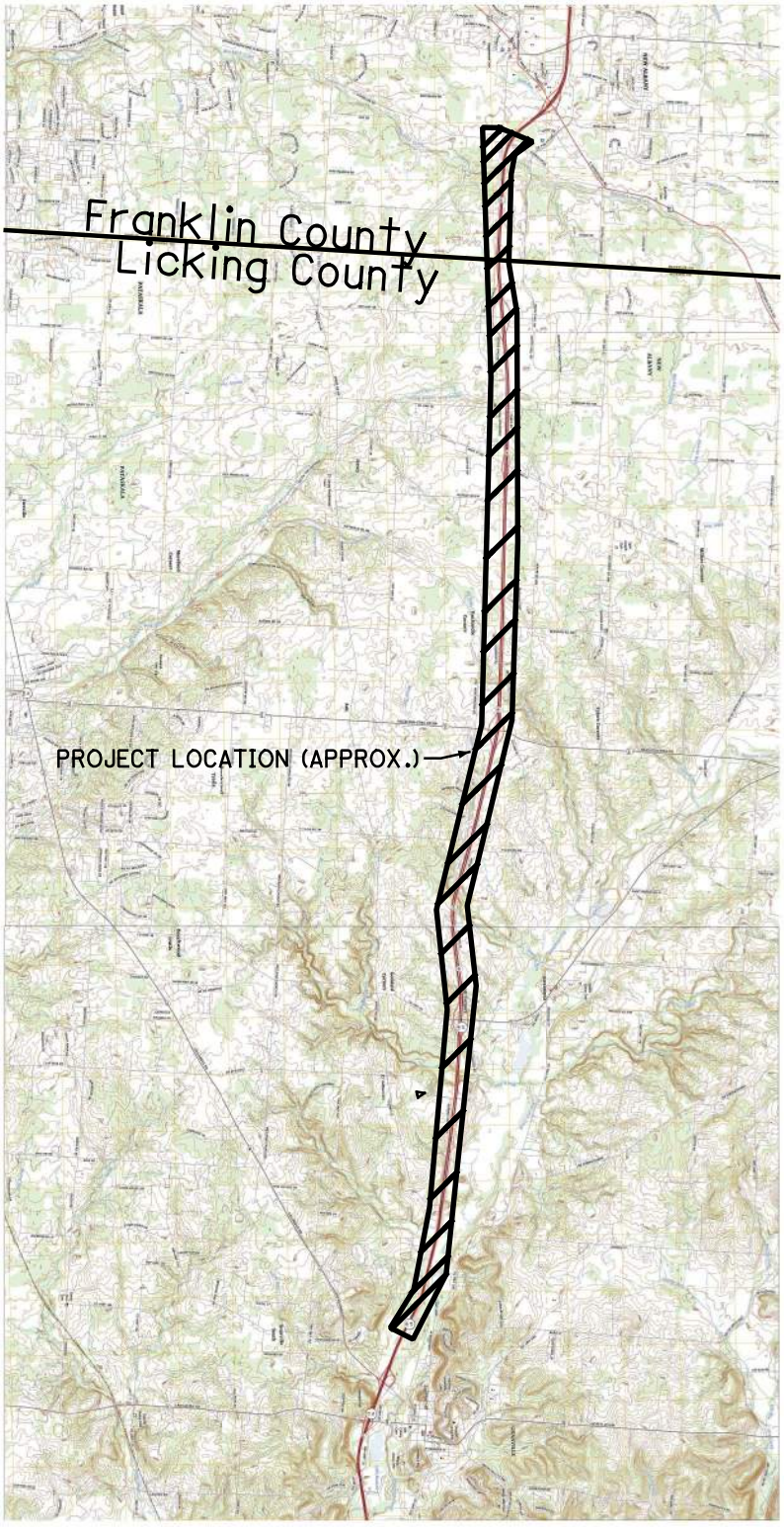
Preliminary conclusions based on the analysis and site observations is that the existing slopes are exhibiting shallow slope failures in localized areas of seepage and that slopes steeper than roughly 2.3:1 to 2.5:1 do not meet the minimum factor of safety (FOS) requirements of ODOT GDM 503 of 1.3 for the long term (drained) condition making them more susceptible to deformation, erosion, and strength loss. Note that the analysis results indicated failure surfaces with FOS<1.3 are relatively shallow (predominantly 6 feet or less) which corroborates site observations, including no observed distress of the pavement and retaining wall. Based on observations and slope stability analysis, the existing headwall/retaining wall at the culvert inlet appears to be functioning as designed (i.e. is stable). Consider addressing the marginal slope stability and erosion by maintenance, repairs (including slope repairs, as needed), and drainage improvements as a more cost effective approach than retaining wall improvements or additional retaining walls. Slope repair alternatives include techniques for improving shallow instability such as the Geopier SRT system, the Geoweb Slope Protection System, and excavation and replacement with dumped rock (method used for existing slope repairs nearby). Consider drainage improvements to capture and convey surface water and reduce seepage within the embankment and along the face of the slopes and repair/replace drainage outlets (note that if the slope stability is not addressed the outlets will continue to separate from the pipes leading to further erosion and slope instability).

Analysis and recommendations for retaining walls can be provided upon further request, if deemed applicable.

Consider surface improvements to mitigate erosion and repair/replacement of existing site features, as necessary. The soils and fill in vicinity of the culvert (i.e. the valley along Simpson's Run) are silty and near surface materials may be loose and highly susceptible to erosion. Note that significant erosion was observed in the area, particularly on north side of SR161 including undermining of the concrete lined ditch west of the culvert outlet, undermining of the channel protection at the outlet, and severe erosion in front of the foundation of the headwall.

APPENDIX I Exploration

a. Vicinity Map (Page I-1)
b. Site Observations @ Simpson Run Culvert (Pages I-2 through I-4)
c. Boring Location Plans (Pages I-5 through I-43)
d. General Information and Legend for Boring Logs (Pages I-44 through I-46)
e. Boring Logs (Pages I-47 through I-232)
f. Rock Core Photograph (Page I-233)
g. Exploration ID & Location Summary (Pages I-234 through I-239)
h. Pavement Core Reports (Pages I-240 through I-241)
i. Historic Boring Information – Simpson's Run (Pages I-242 through I-258)





USGS TOPOGRAPHIC MAP:
7.5-MINUTE MAP FOR BRINKHAVEN, JERSEY, AND NEW ALBANY, OHIO 2023

SCALE (FEET)

0 10600
5300 21200

DLZ OHIO, INC.
6121 HUNTLEY RD
COLUMBUS, OH 43229
OFFICE: (614) 888-0040
WWW.DLZ.COM

VICINITY MAP

FRA/LIC-161-22.10/0.00 PID 117878
FRANKLIN AND LICKING COUNTY, OHIO

DLZ PROJECT NUMBER	2321-3033.00
DRAWN BY (DATE)	JC (11/17/2023)
CHECKED BY (DATE)	HJH (11/17/2023)
SCALE	GRAPHIC



Photo #: 1 **Date:** 03/28/2023 **By:** BM
Location: Eastbound culvert inlet (looking west)
Description: Erosion of slope east of the inlet



Photo #: 2 **Date:** 07/14/2023 **By:** AM
Location: Eastbound culvert inlet (looking east)
Description: UD outlet west of inlet



Photo #: 3 **Date:** 07/14/2023 **By:** AM
Location: Eastbound inlet (looking west)
Description: Guardrail west of inlet



Photo #: 4 **Date:** 07/14/2023 **By:** AM
Location: Eastbound inlet (looking east)
Description: Guardrail east of inlet



Photo #: 1 **Date:** 03/28/2023 **By:** BM
Location: Westbound culvert outlet (looking east)
Description: Erosion of slope at outlet



Photo #: 2 **Date:** 07/28/2023 **By:** JC
Location: Westbound culvert outlet (looking west)
Description: Erosion of slope at outlet



Photo #: 3 **Date:** 03/28/2023 **By:** BM
Location: Westbound slope at outlet (looking east)
Description: CIP Channel west of outlet



Photo #: 4 **Date:** 03/28/2023 **By:** BM
Location: Westbound slope at outlet (looking east)
Description: Standing water in CIP channel west of outlet



Photo #: 5 **Date:** 03/28/2023 **By:** BM
Location: Westbound slope at outlet (looking east)
Description: Erosion along CIP channel west of outlet



Photo #: 6 **Date:** 03/28/2023 **By:** BM
Location: Westbound slope at outlet (east of outlet)
Description: Wet area at UD culvert



Photo #: 7 **Date:** 03/28/2023 **By:** BM
Location: Westbound slope at outlet (east of outlet)
Description: Detachment of concrete from UD outlet



Photo #: 8 **Date:** 03/28/2023 **By:** BM
Location: Westbound slope at outlet (west of outlet)
Description: UD outlet with sinkhole

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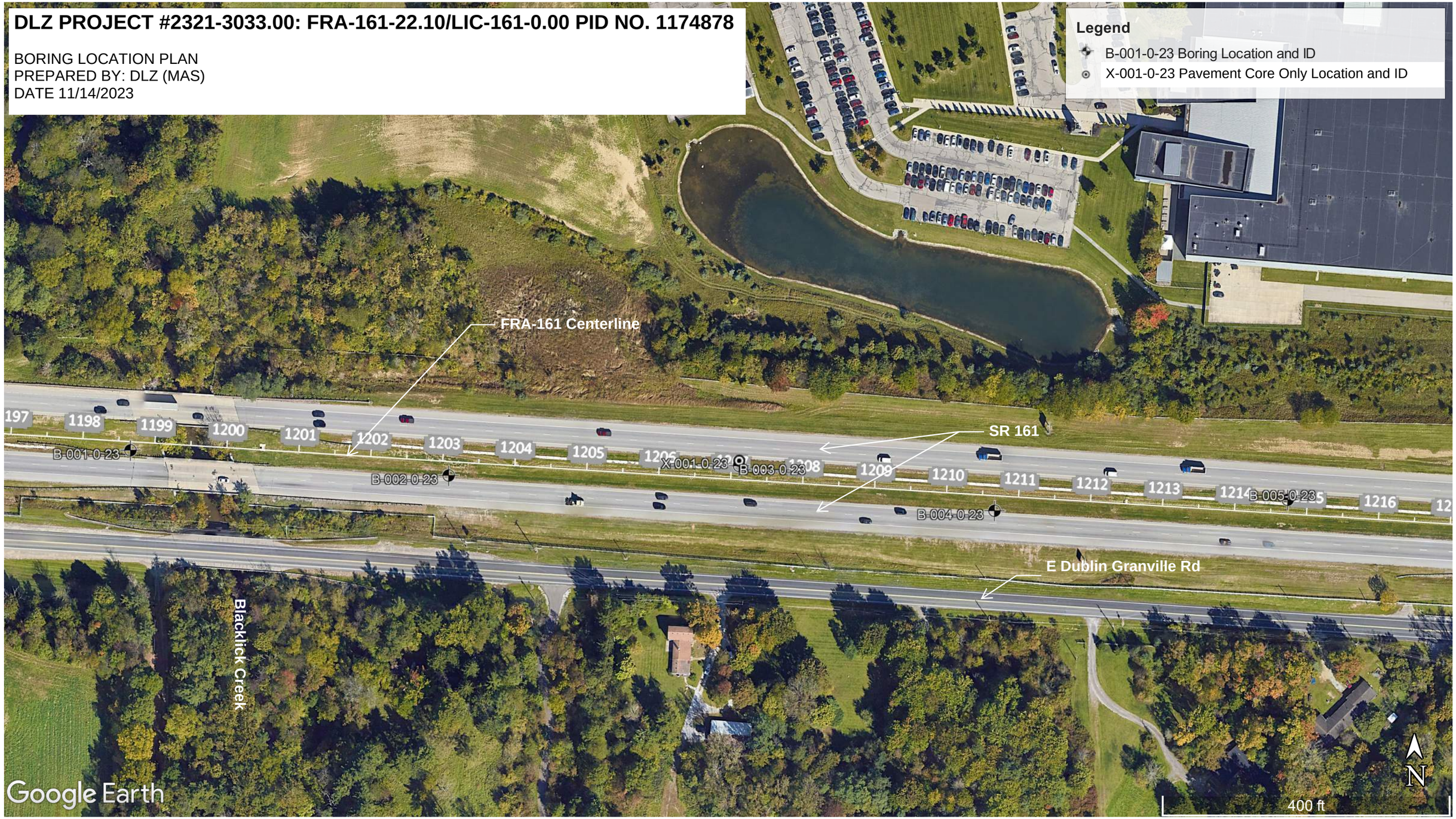

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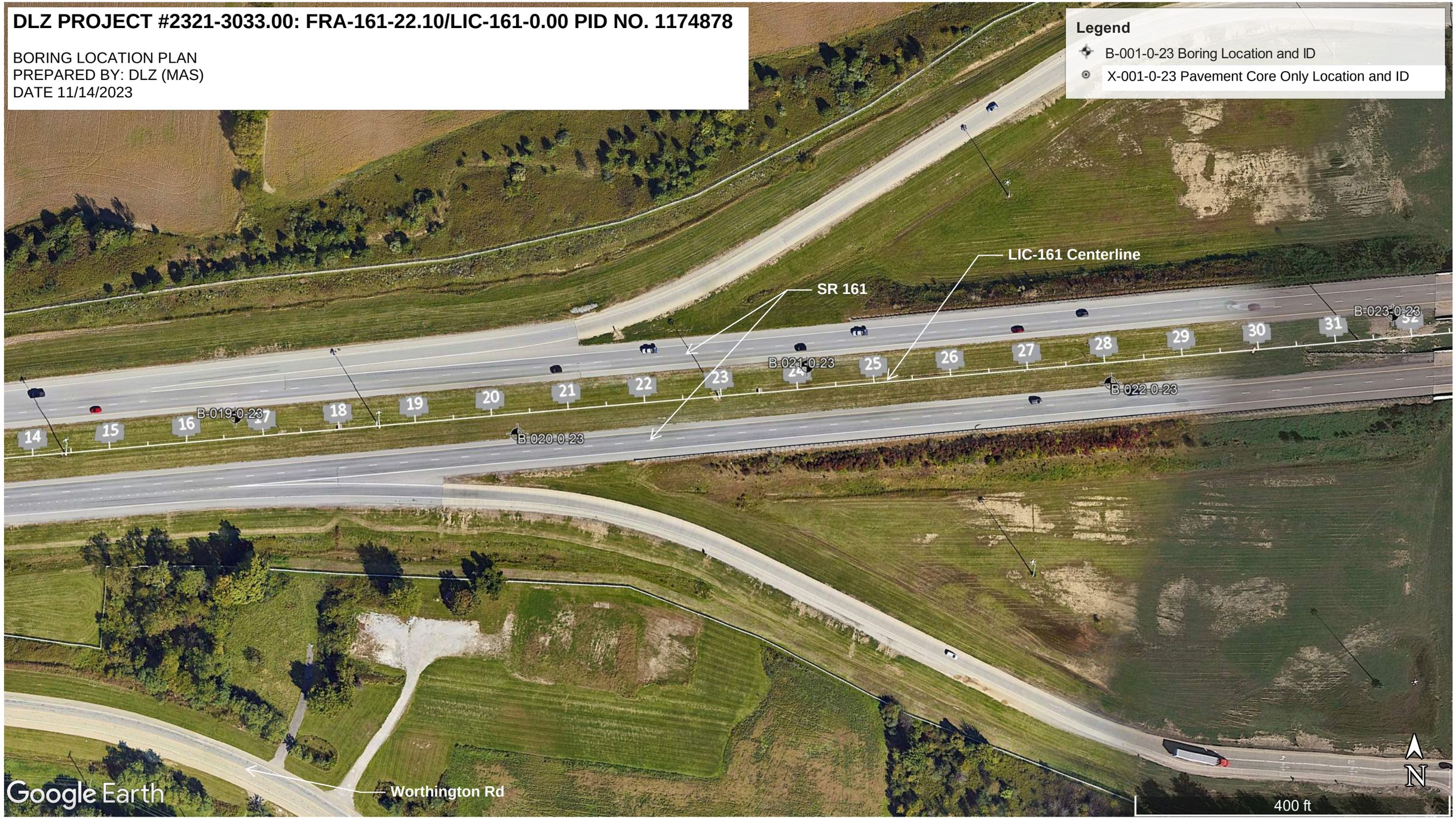

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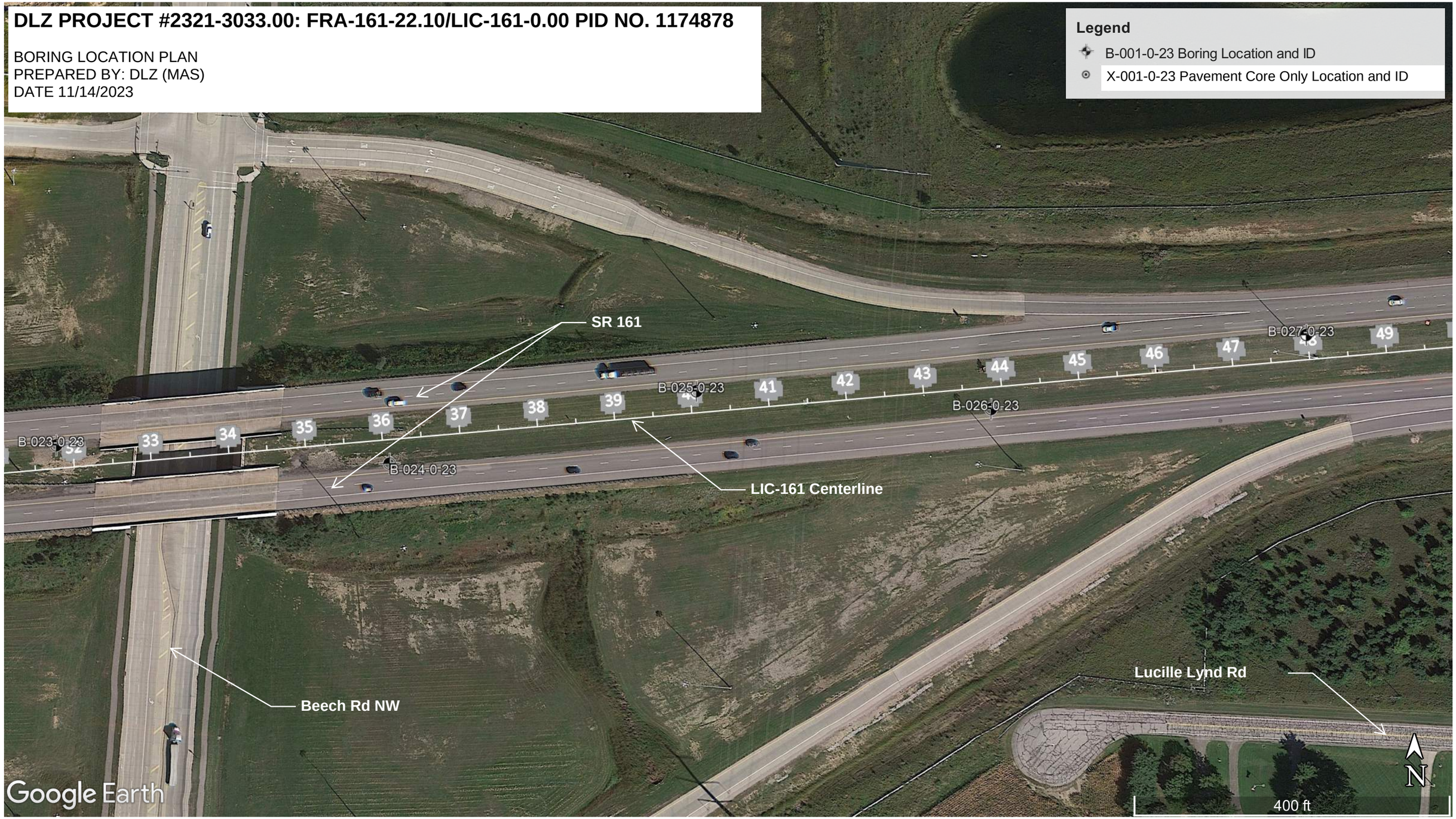

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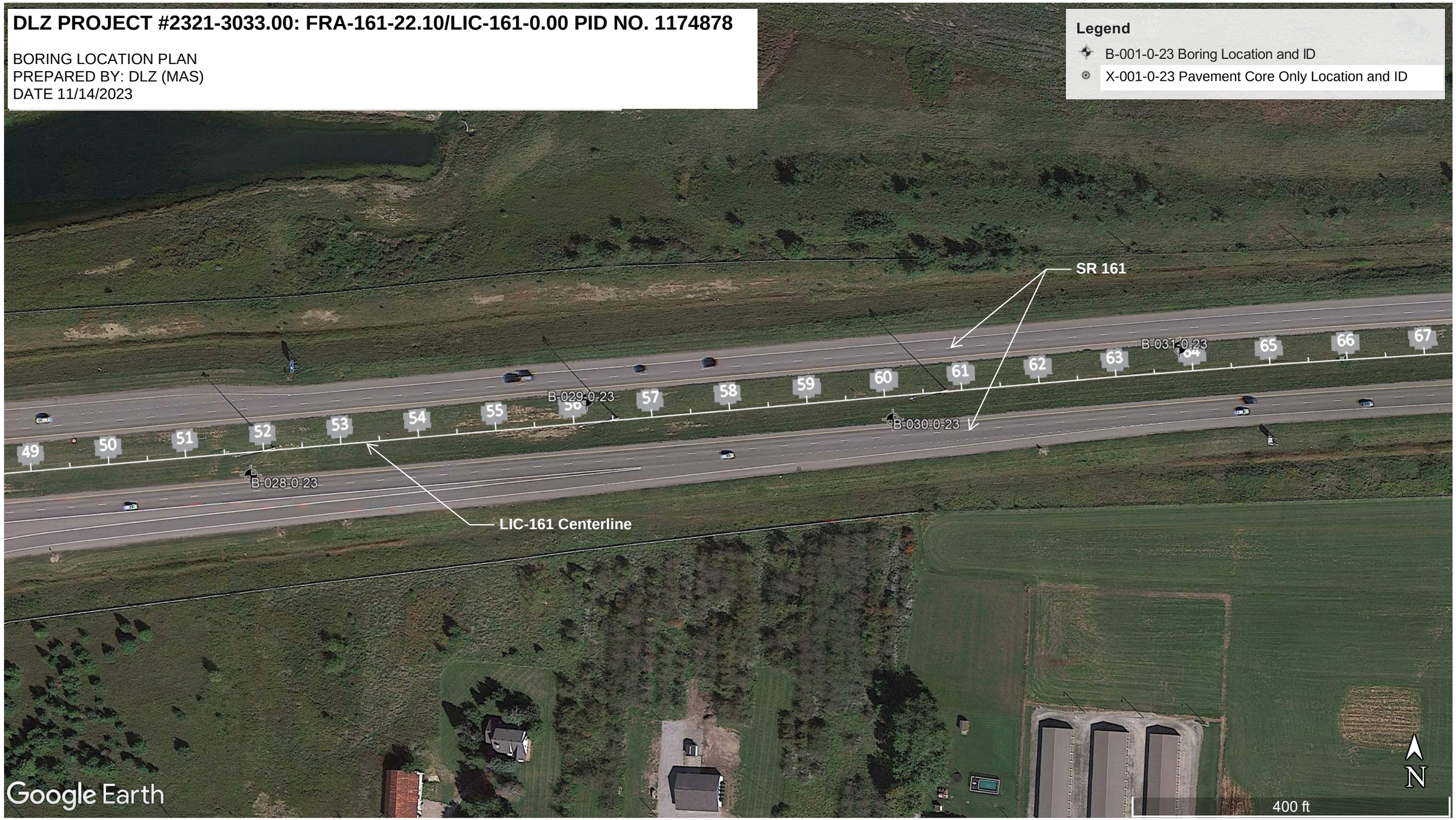

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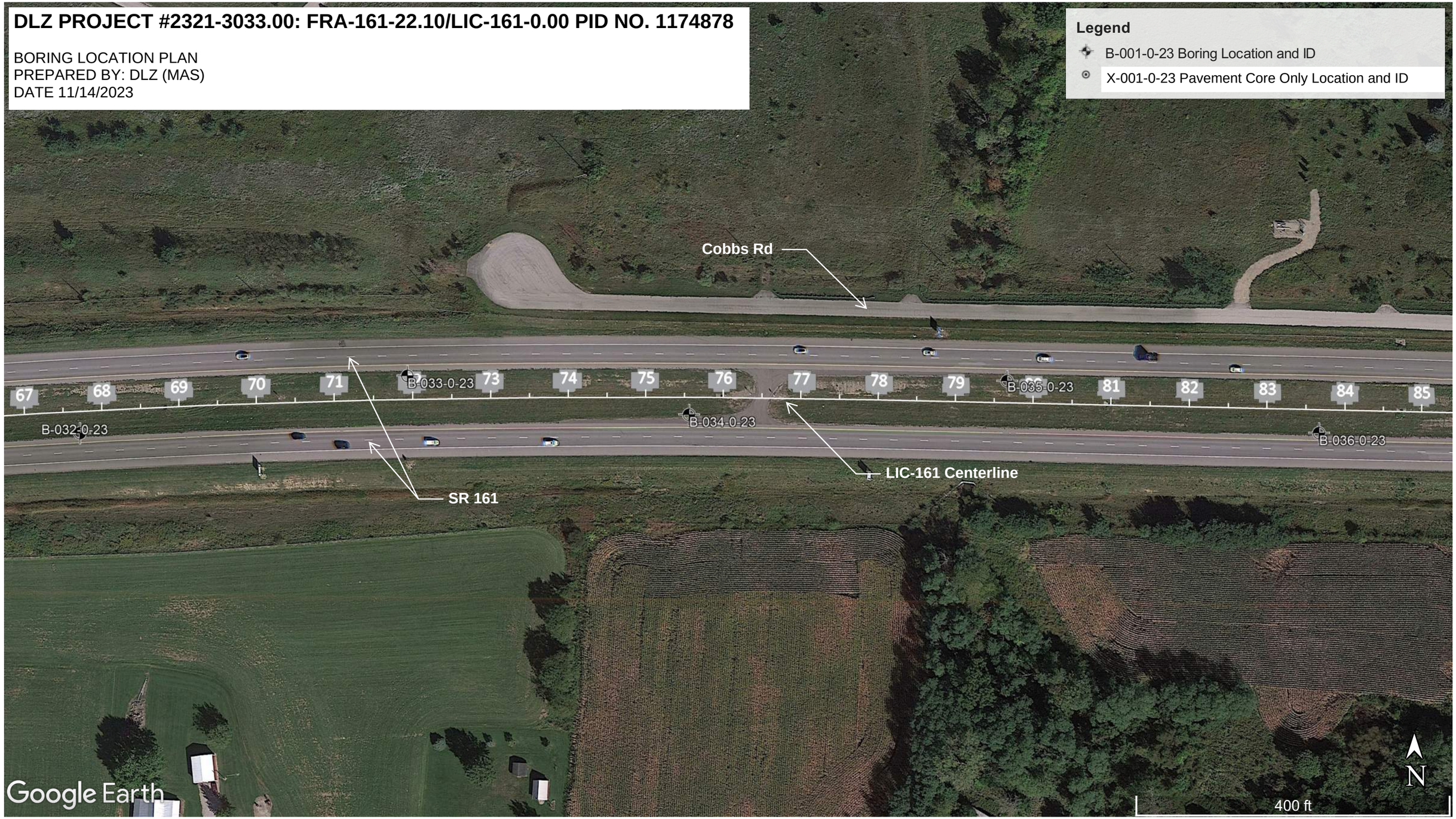

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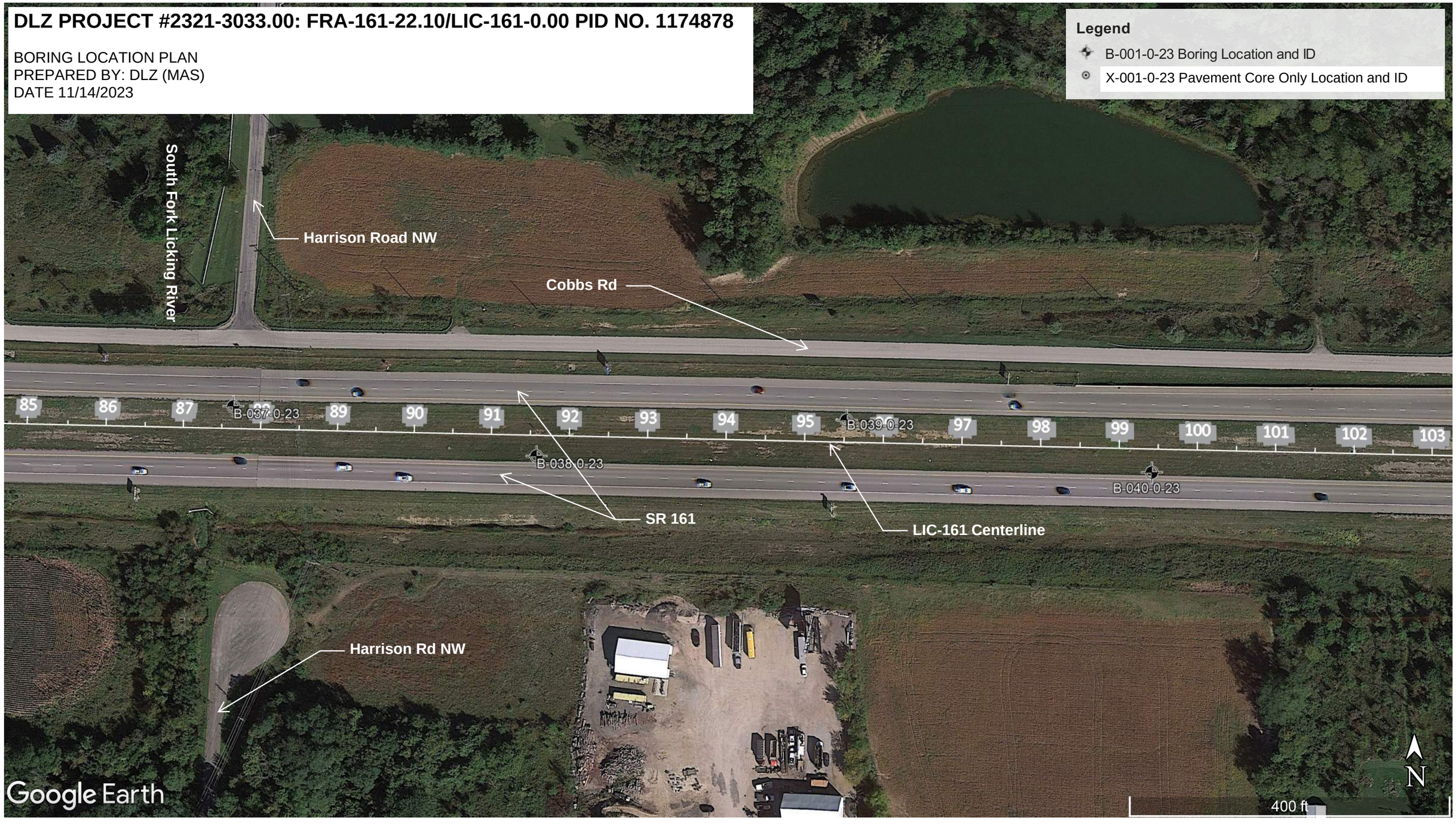

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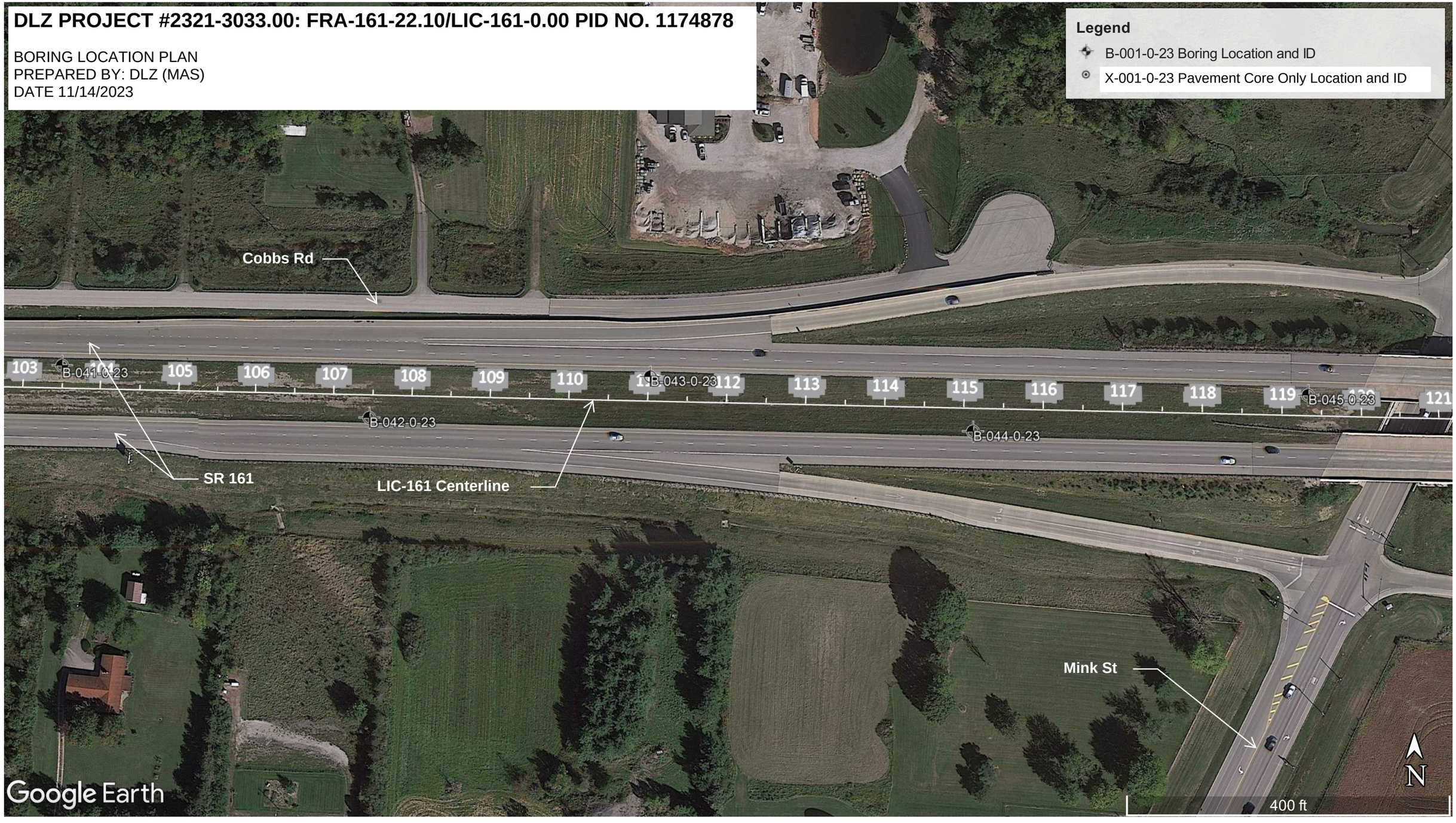

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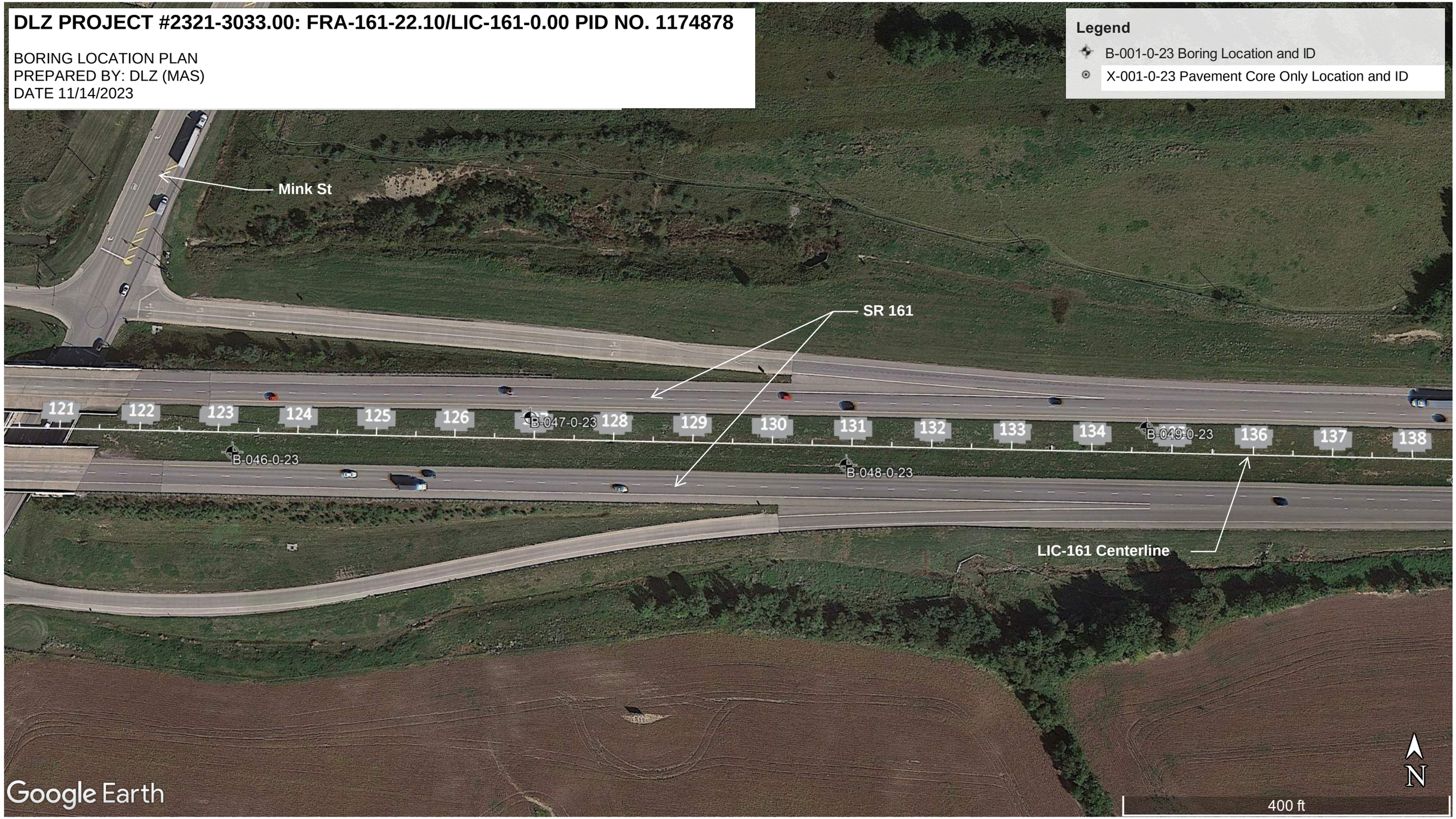

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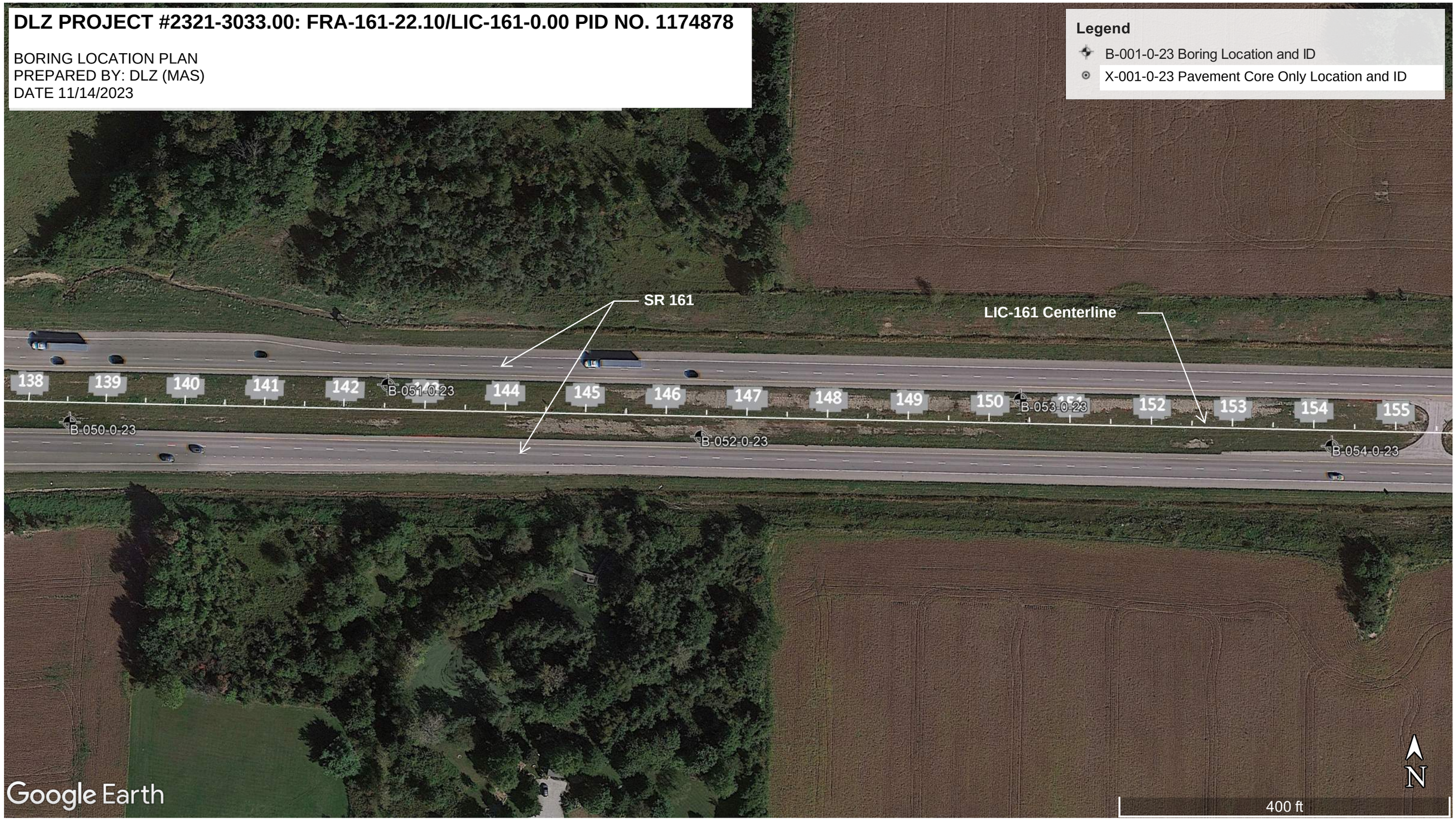

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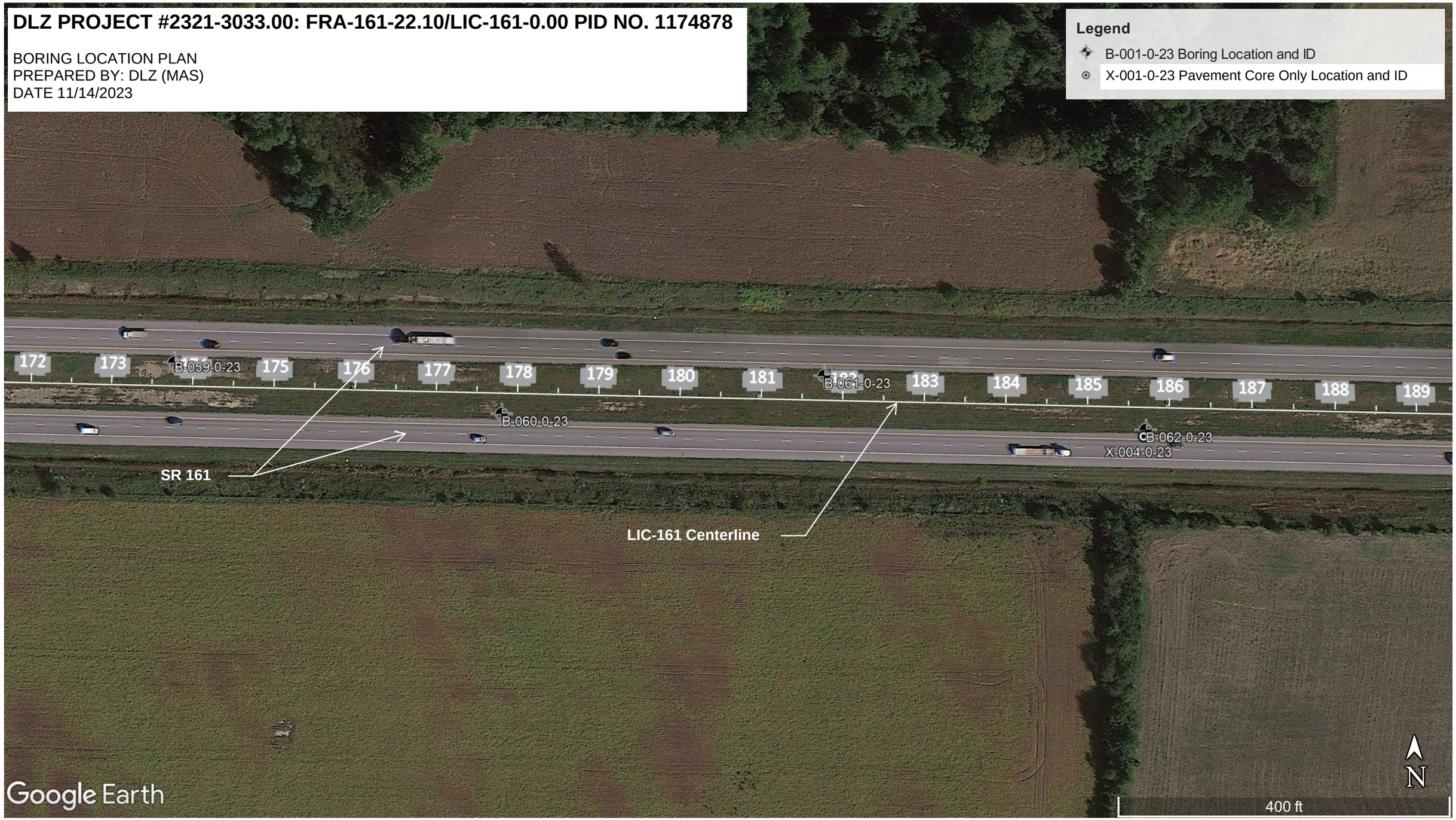

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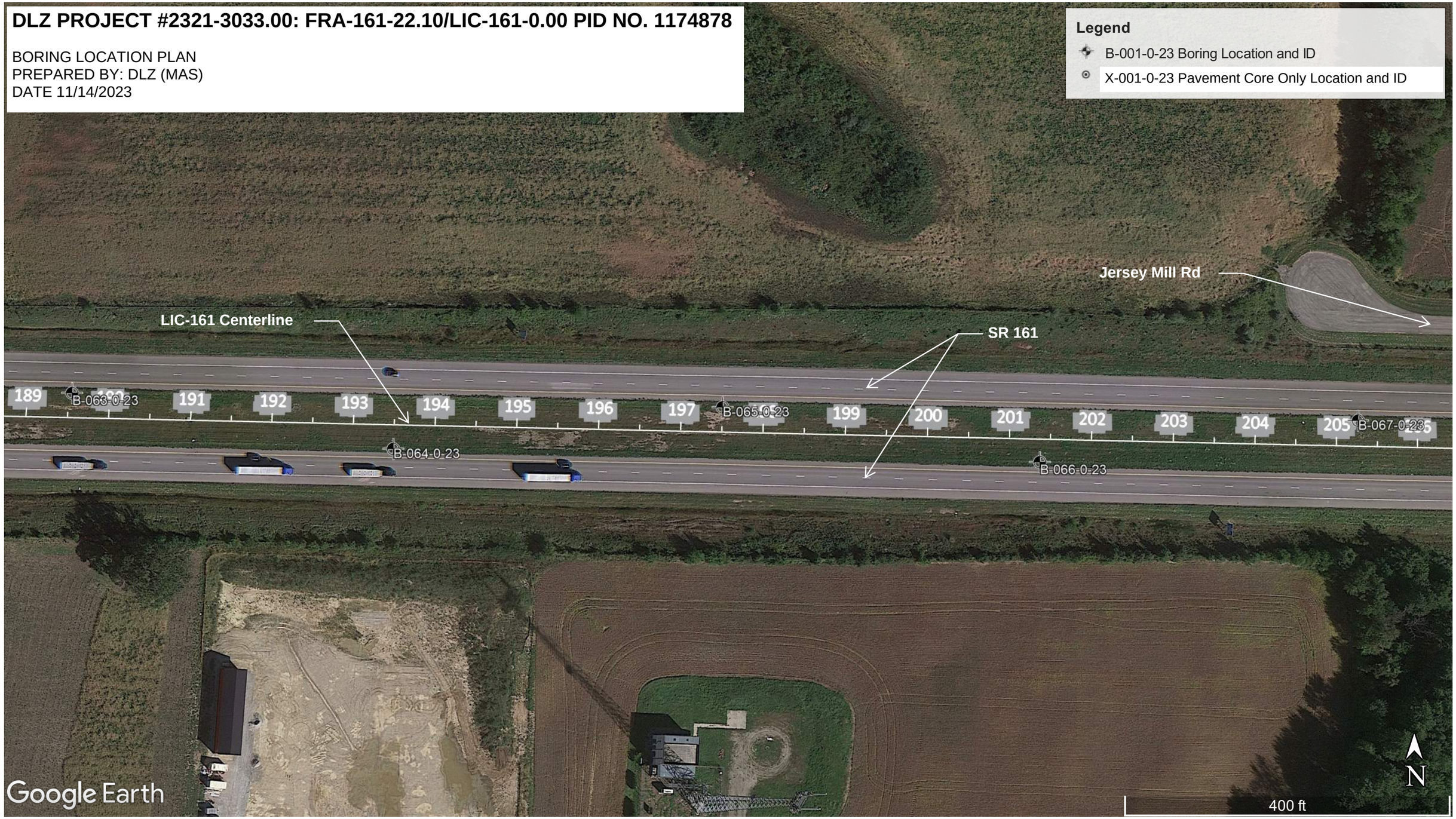

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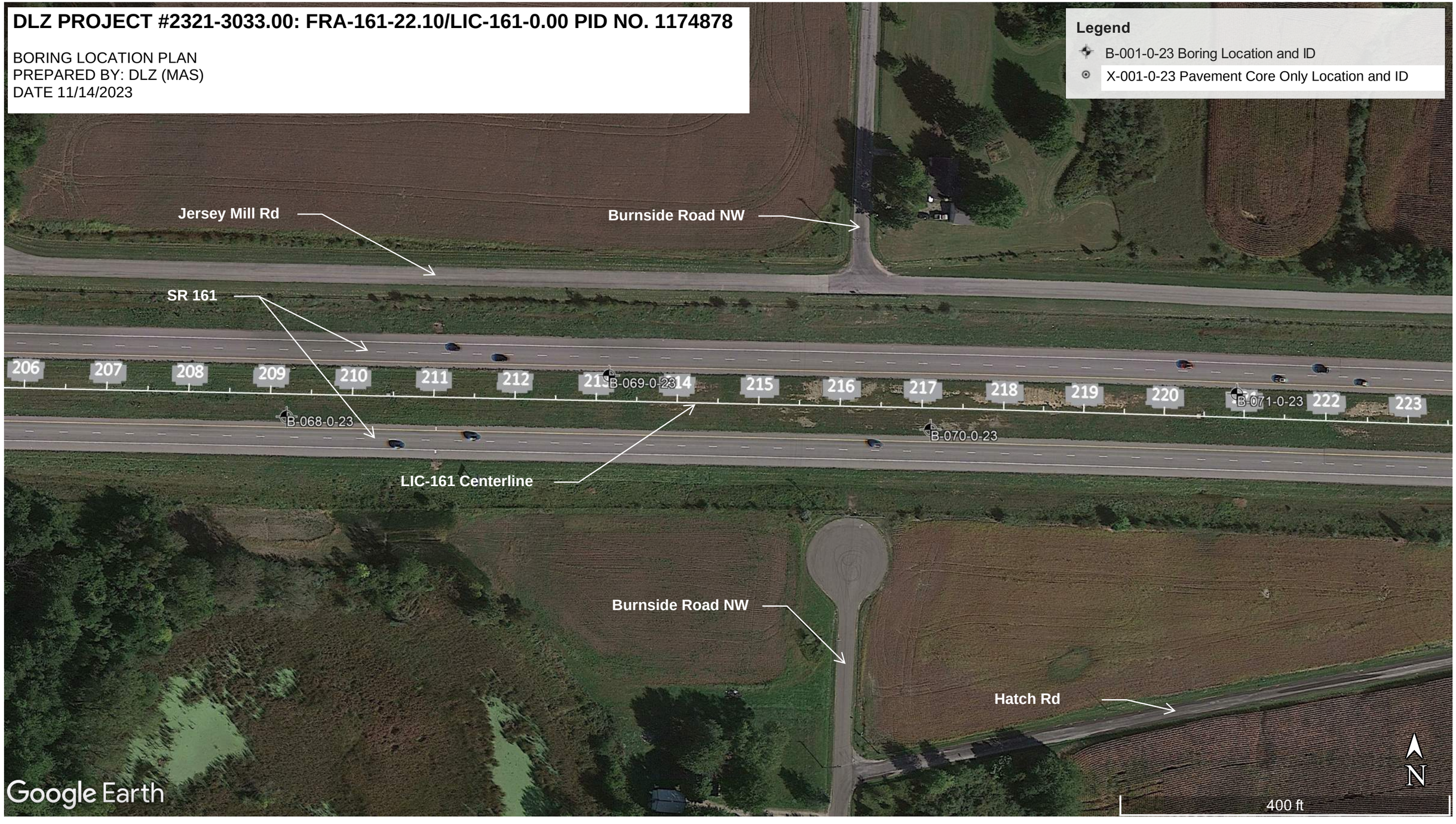

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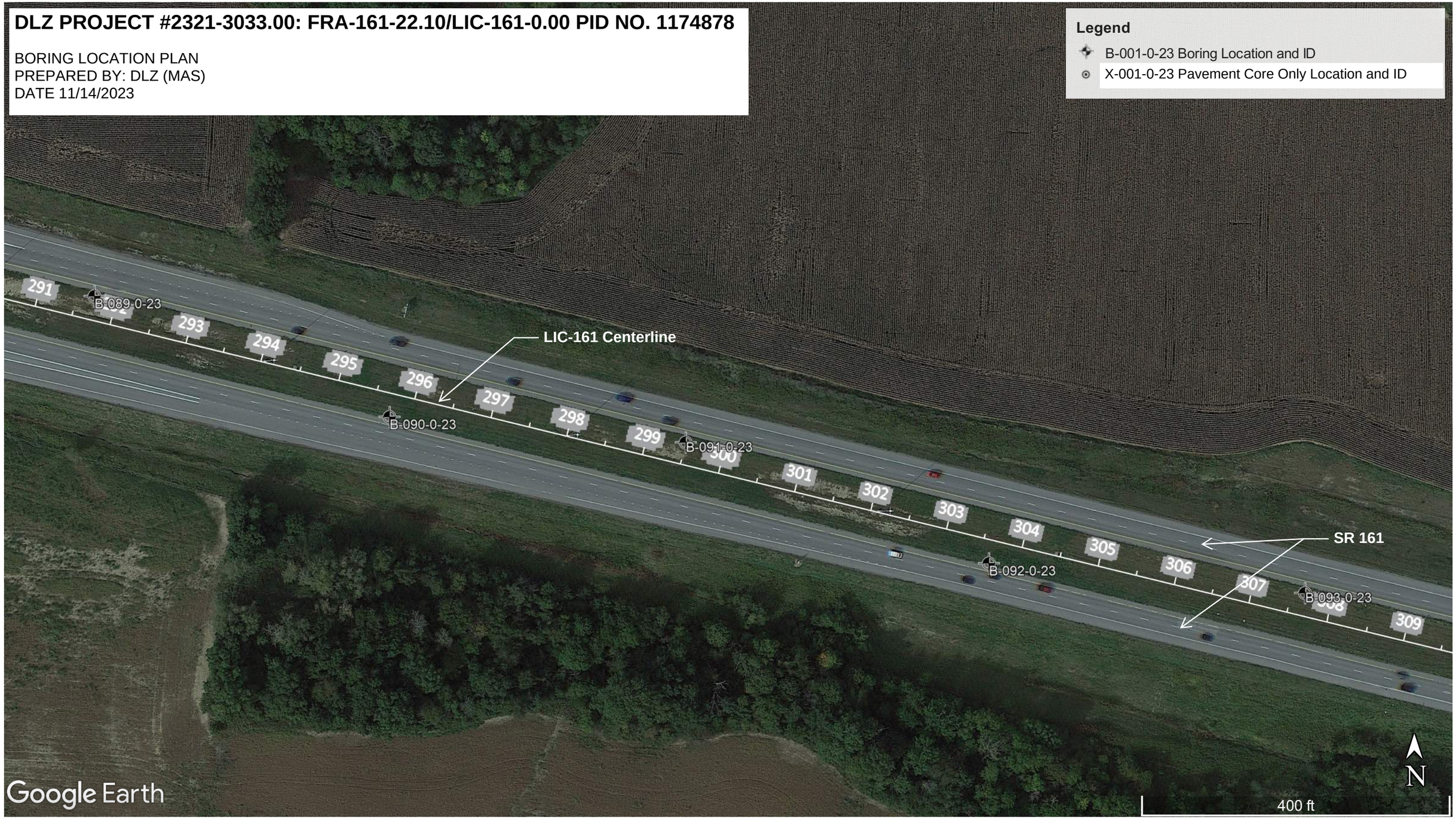

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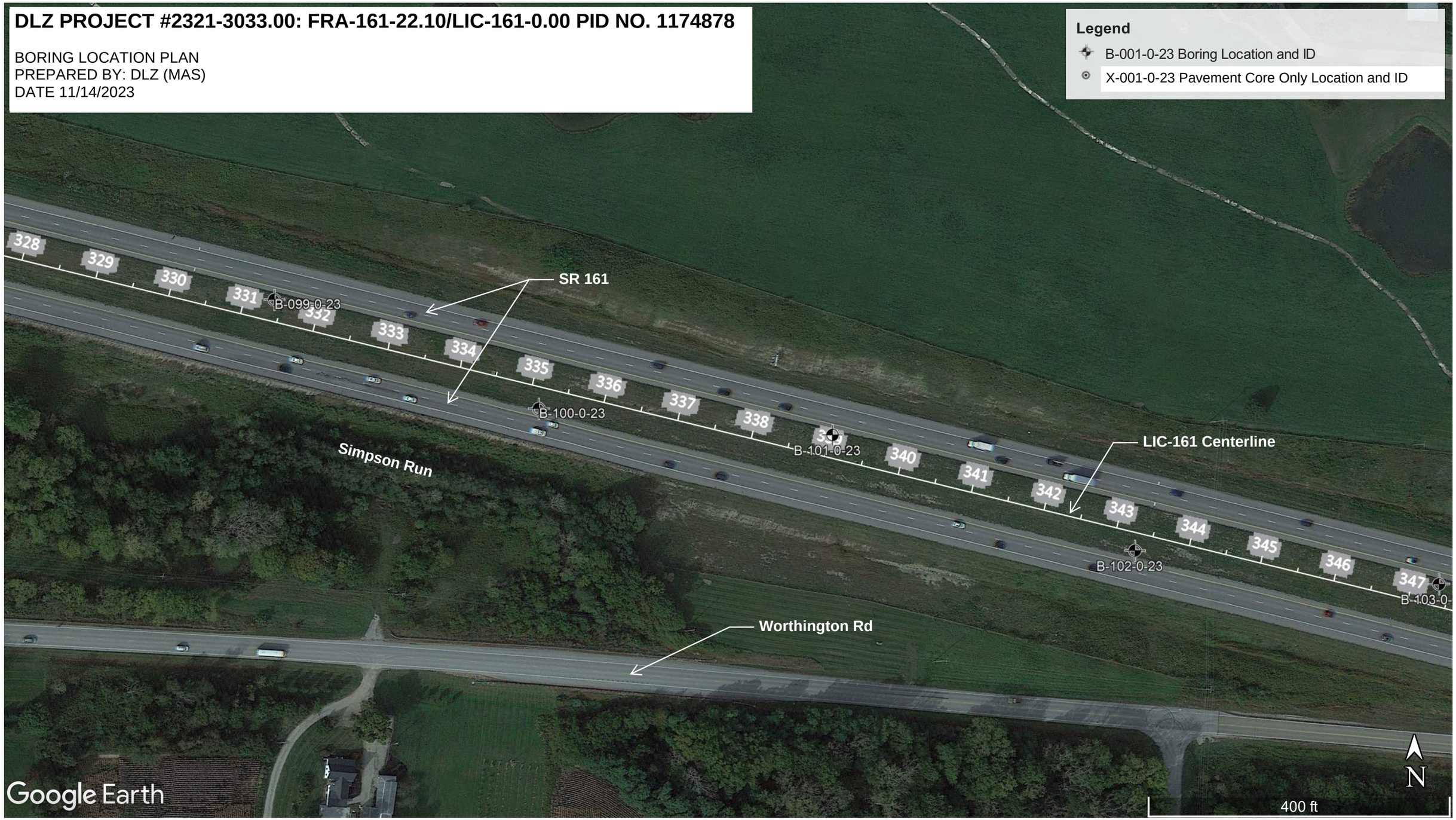

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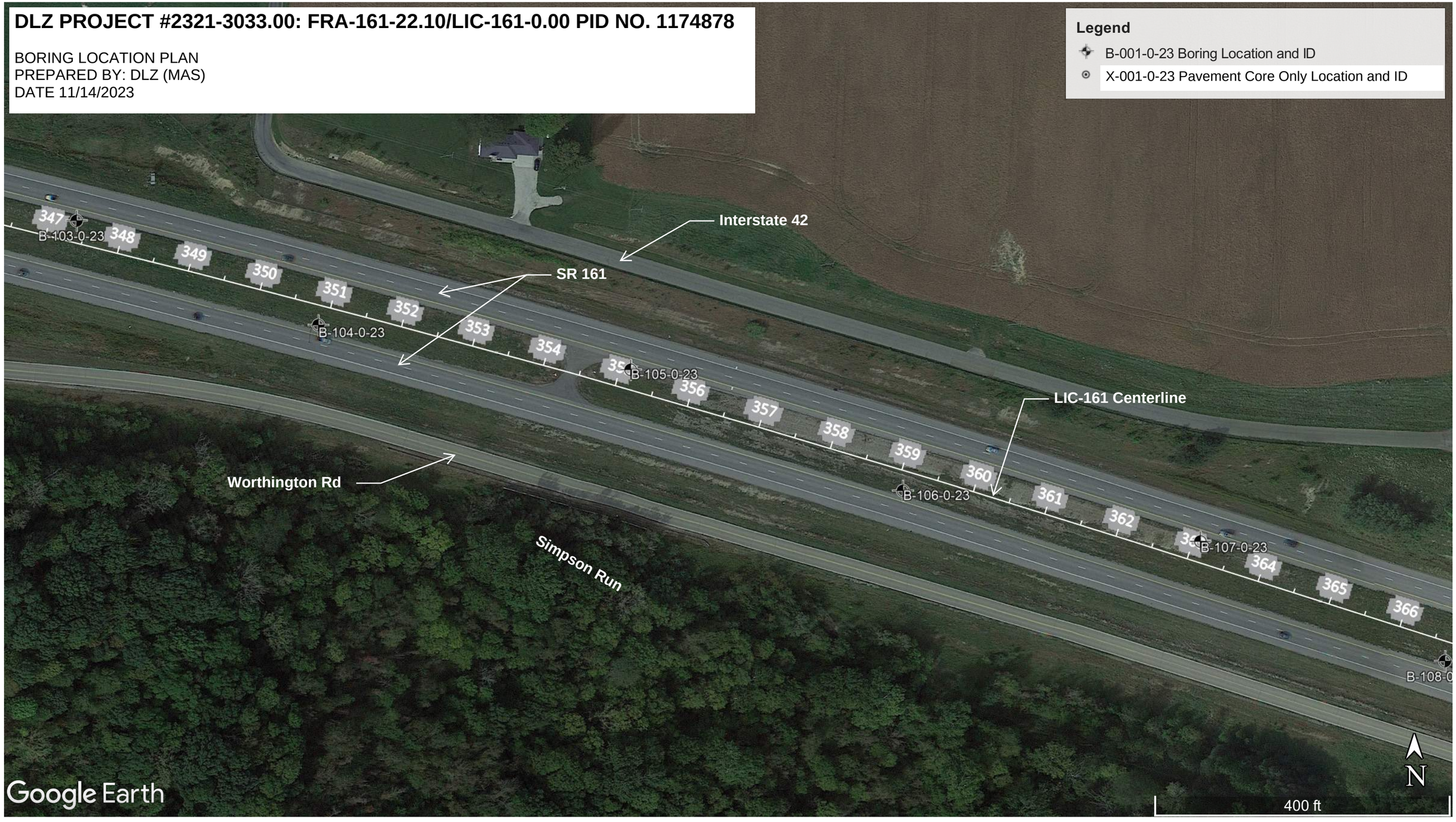

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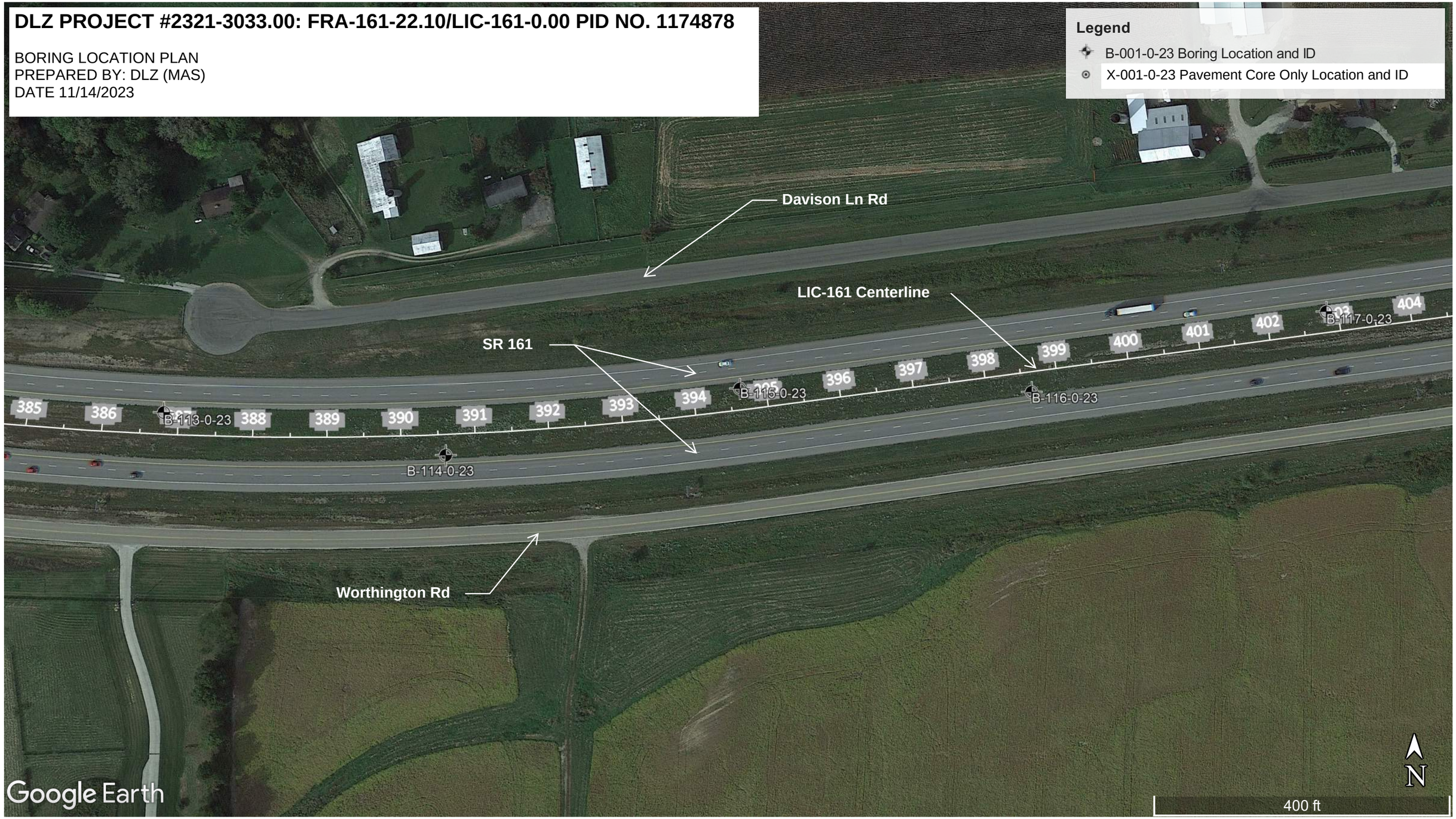

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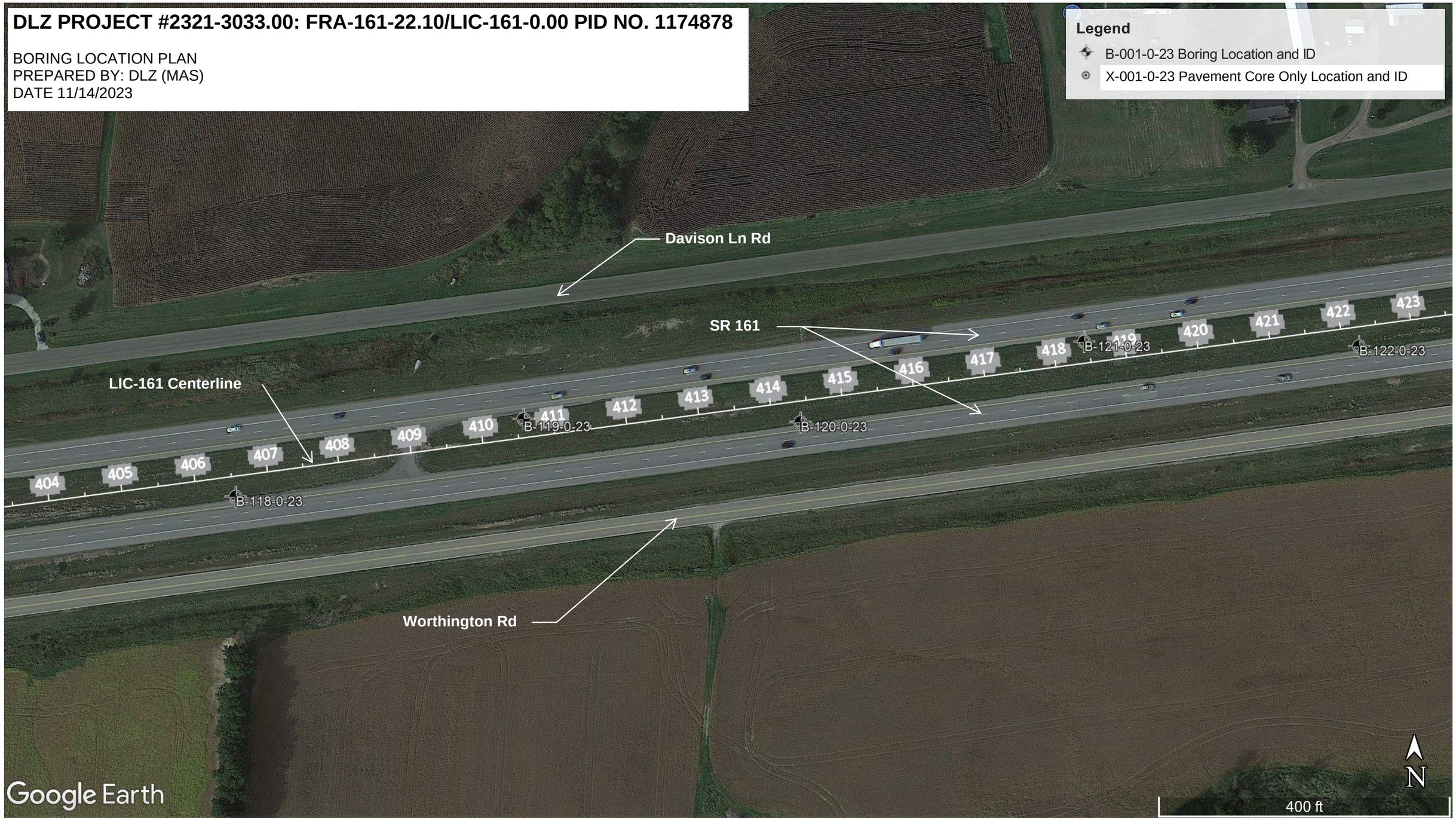

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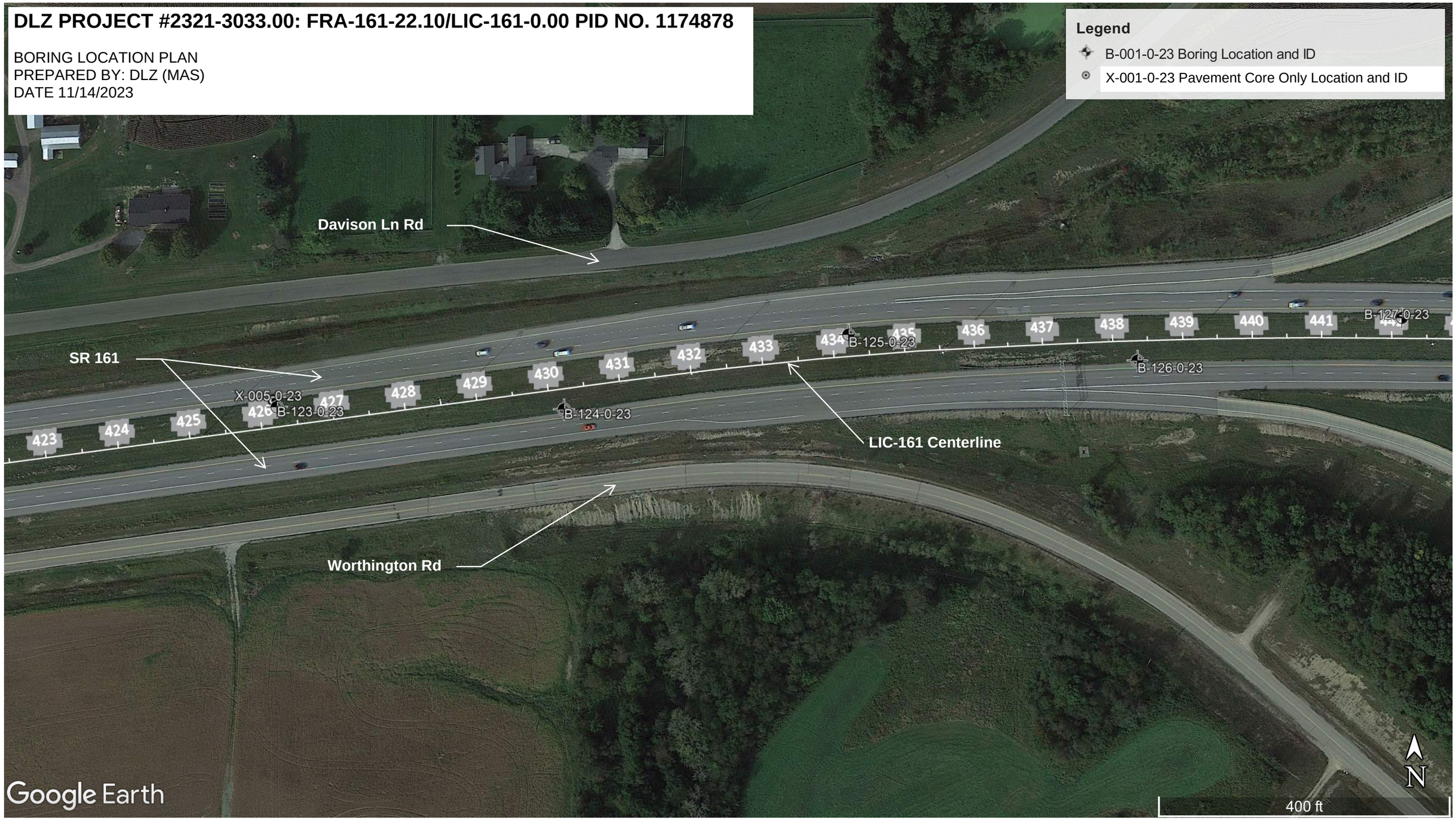

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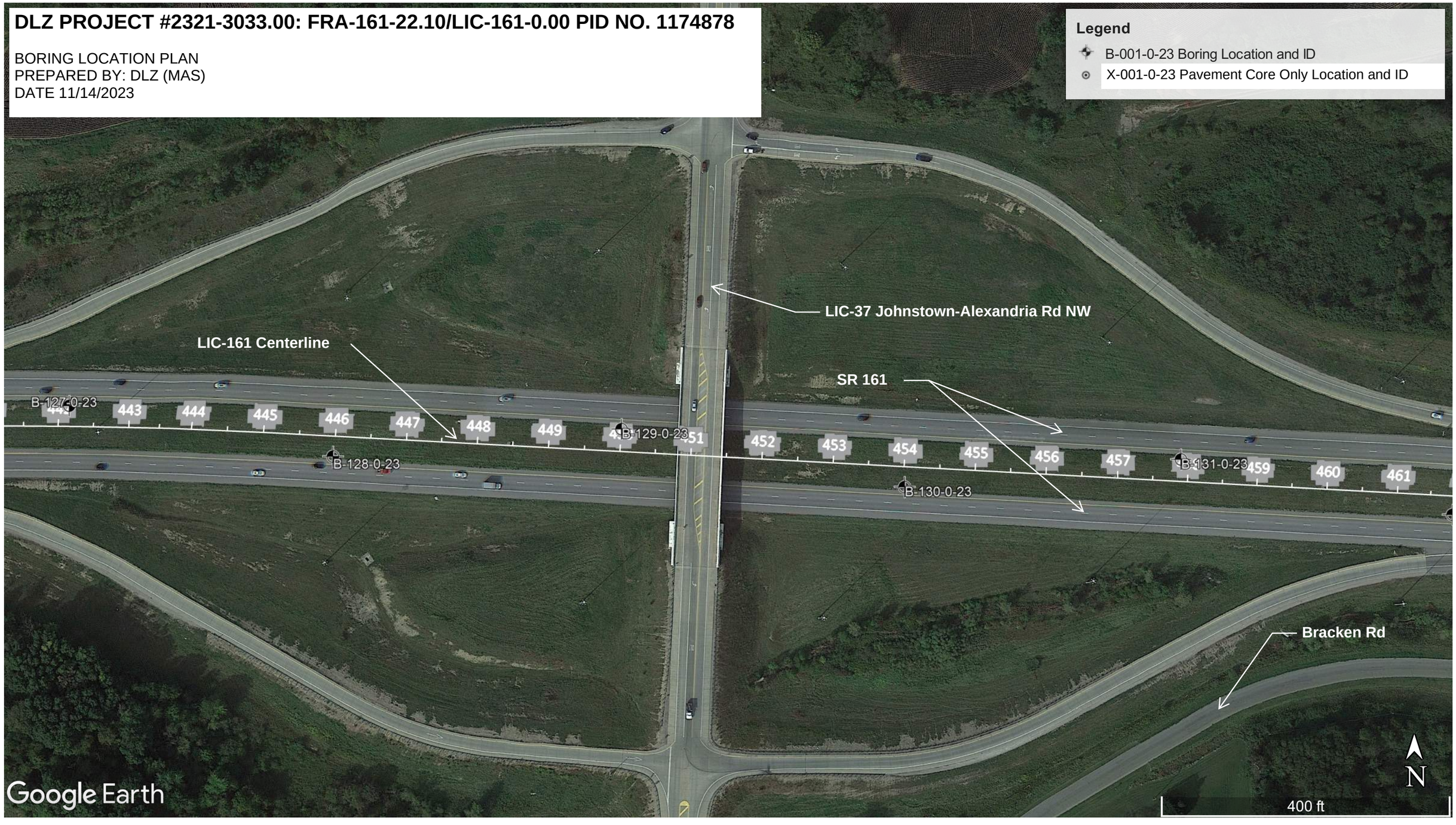

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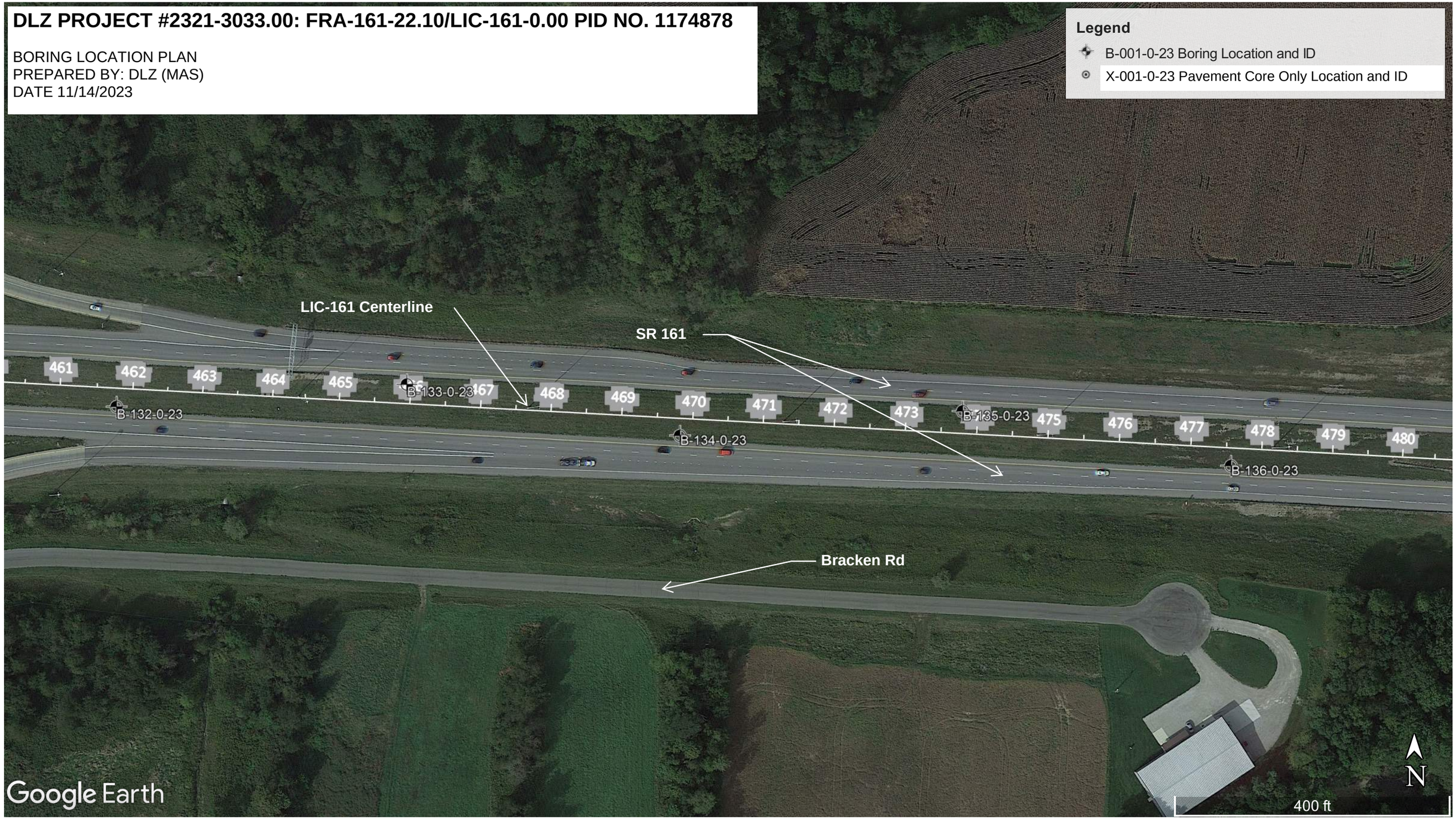

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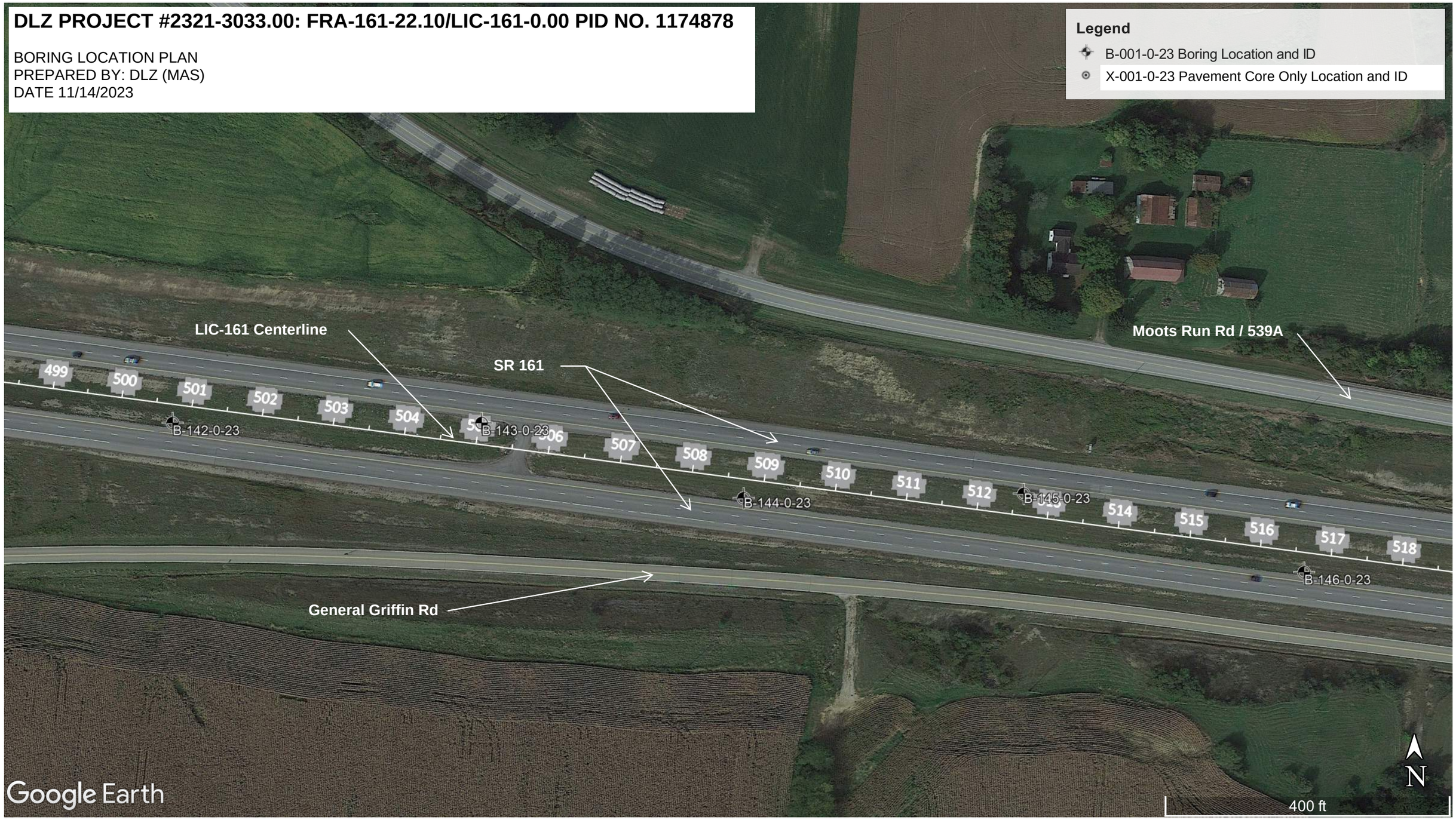

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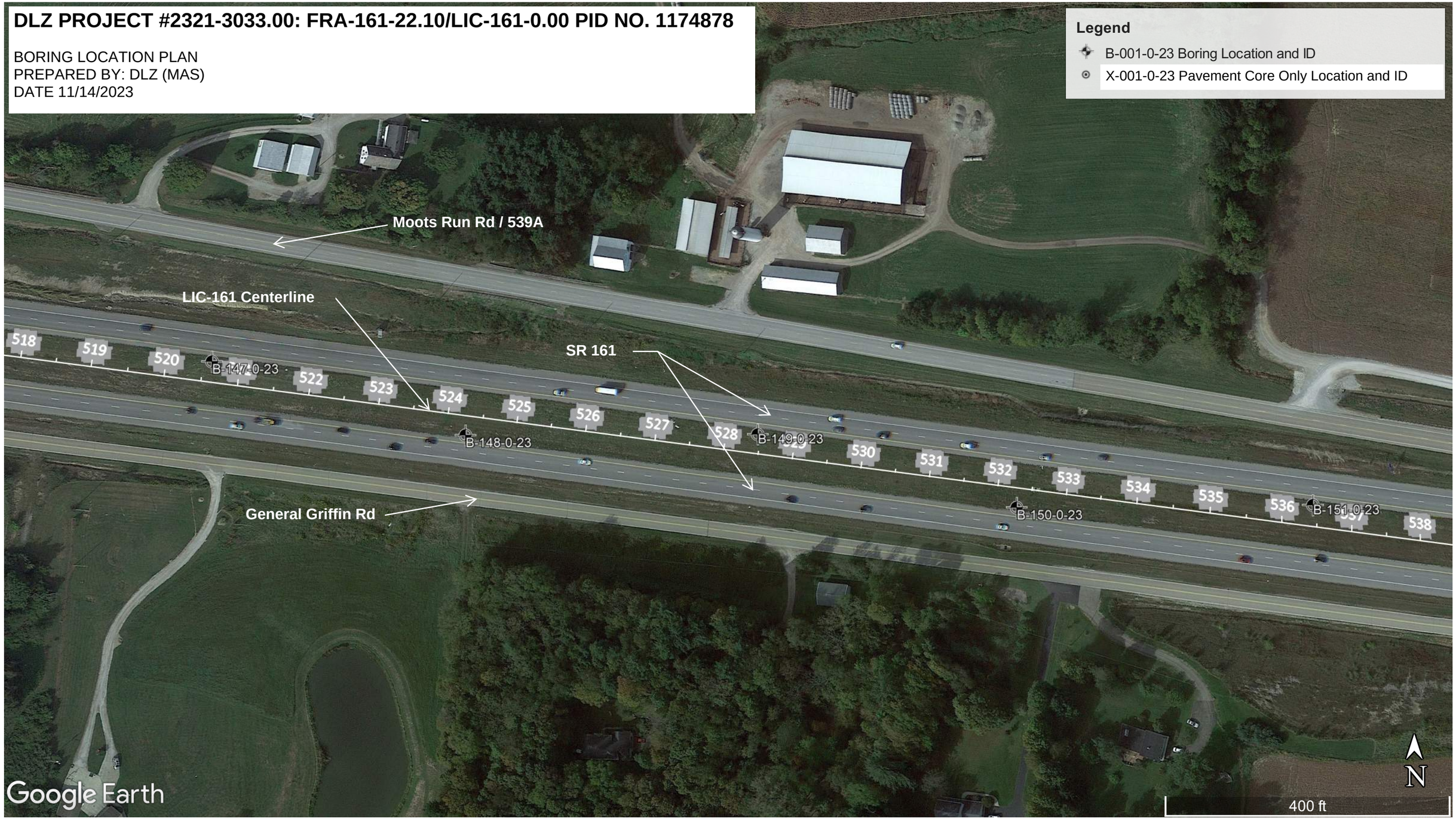

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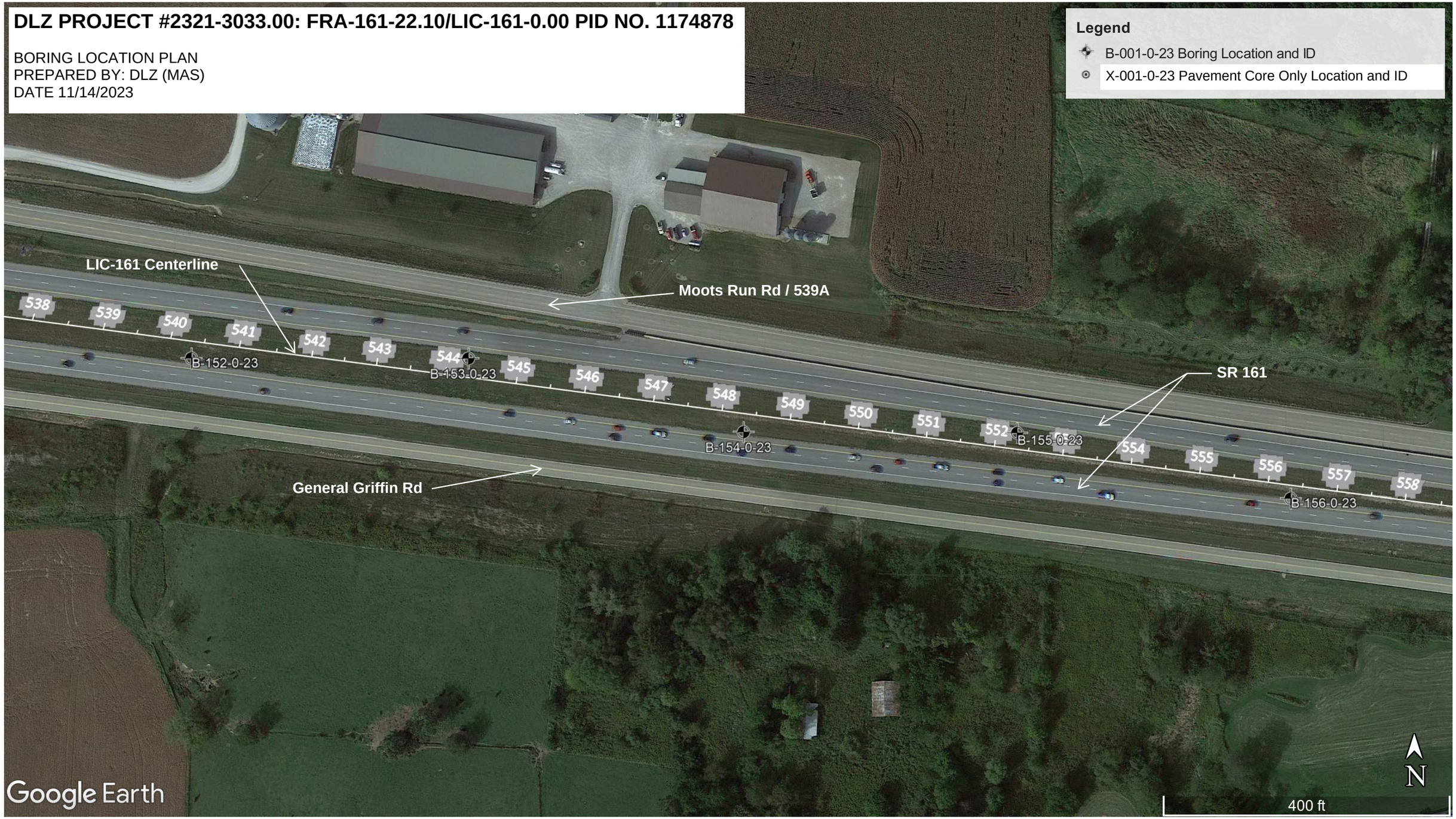

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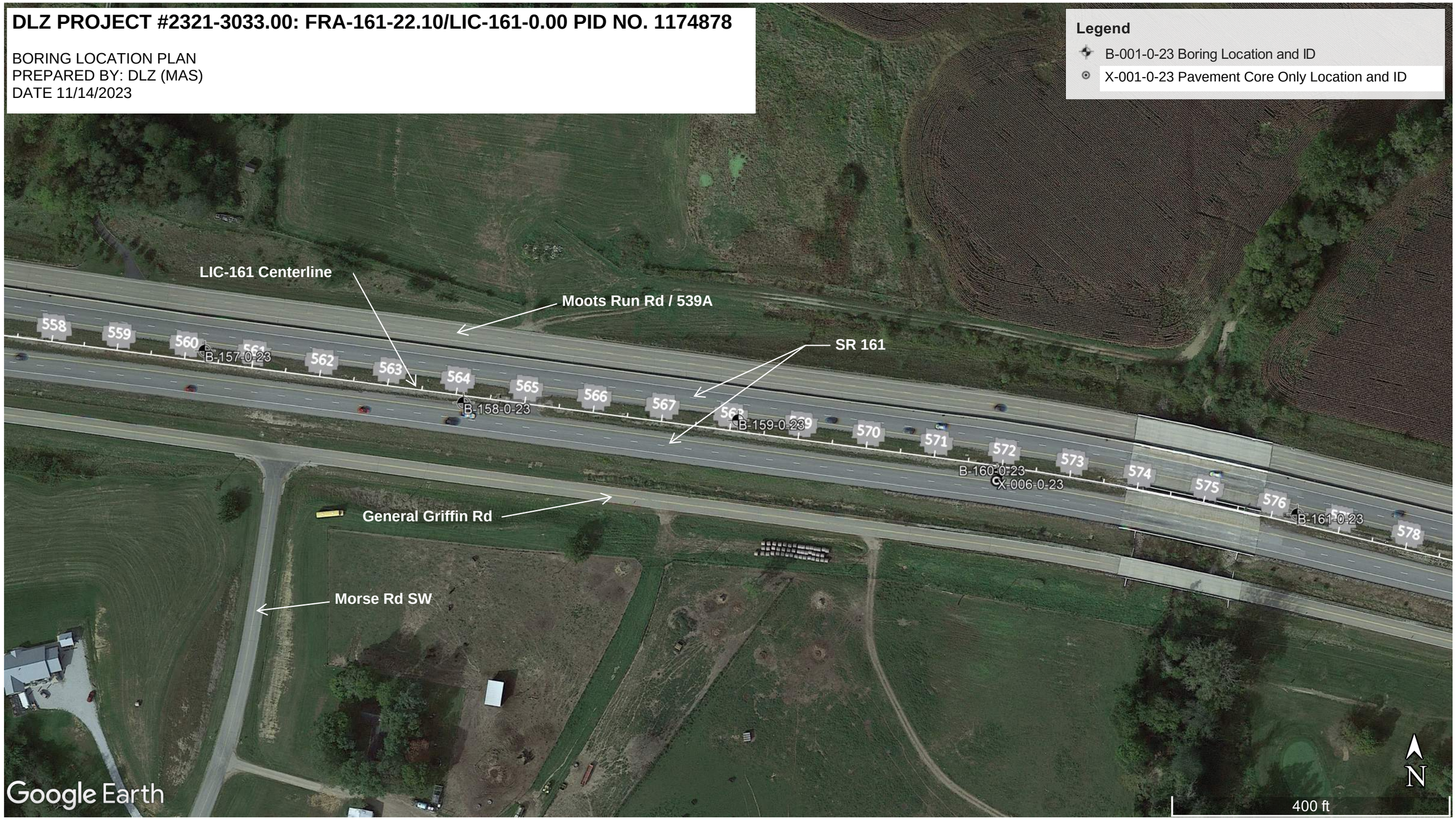

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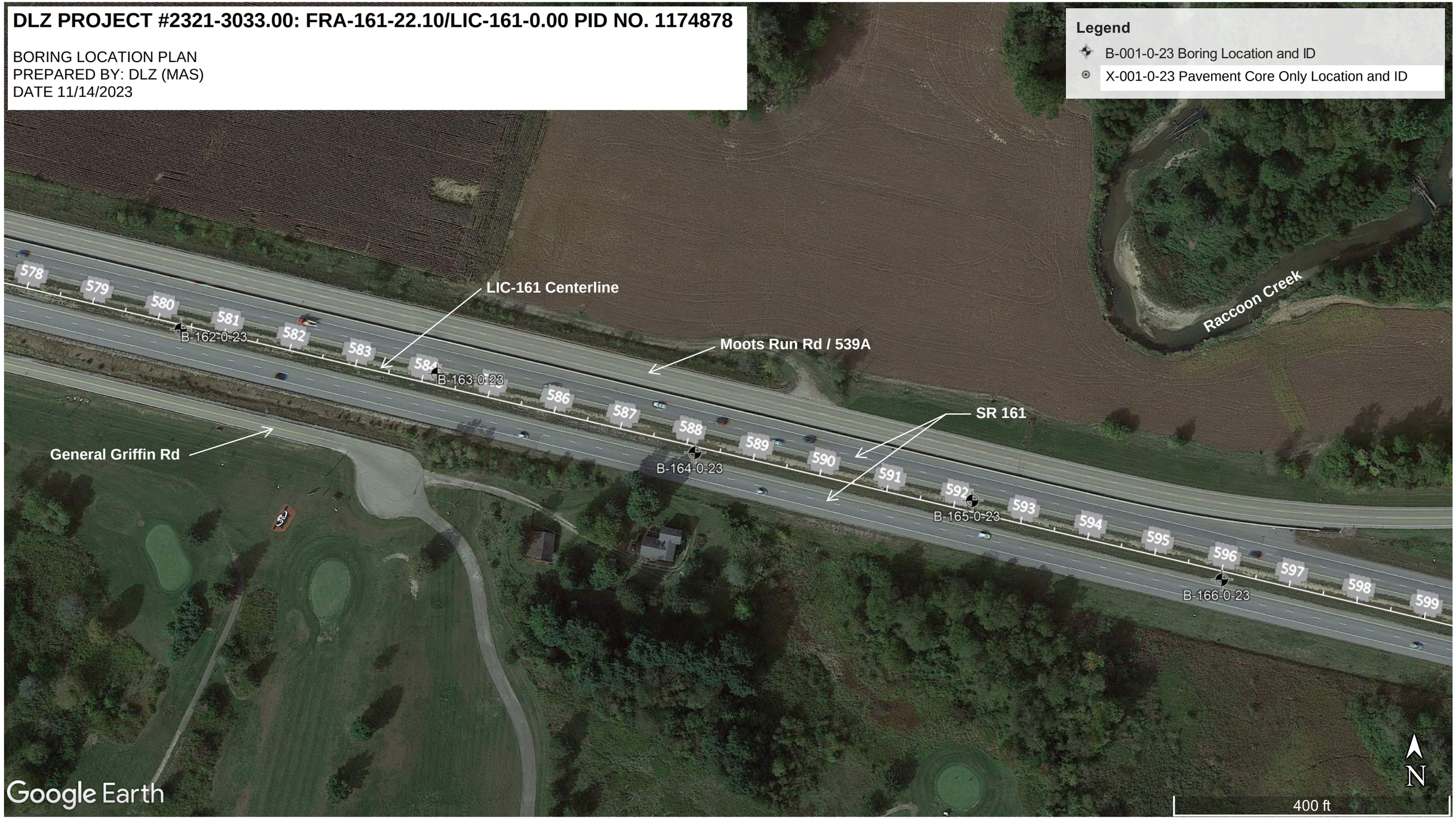

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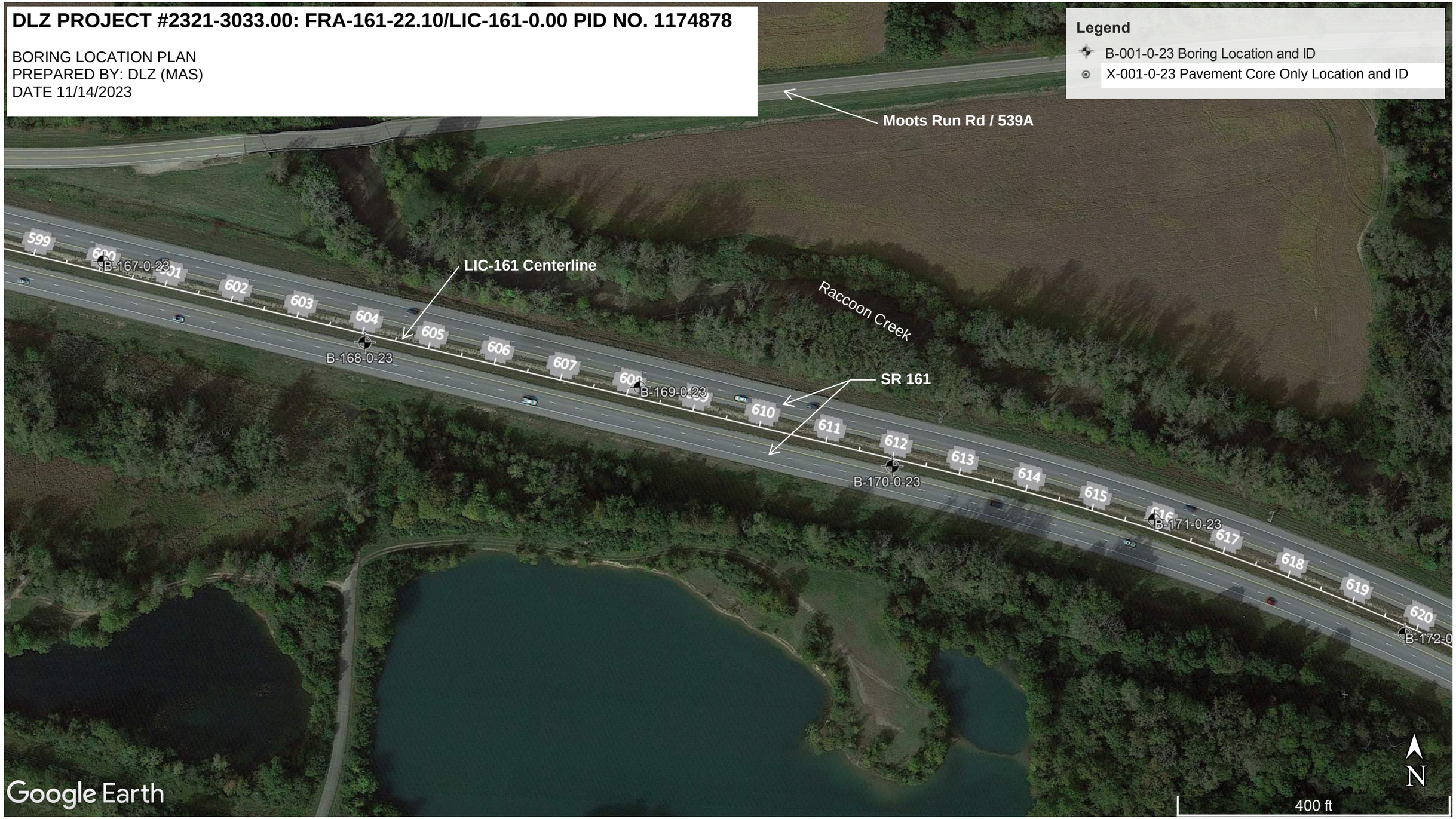
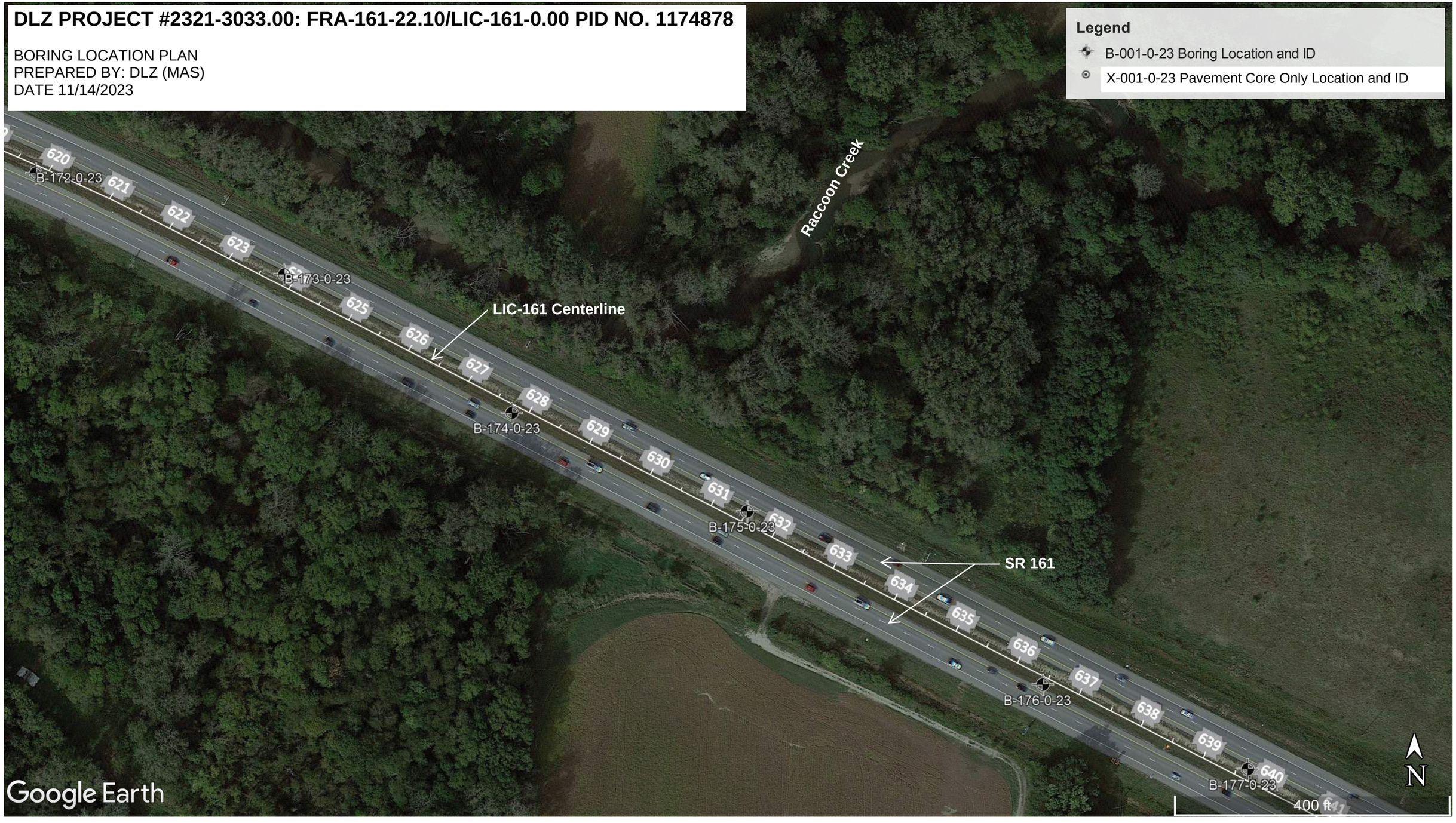
PREPARED BY: DLZ (MAS)
DATE 11/14/2023



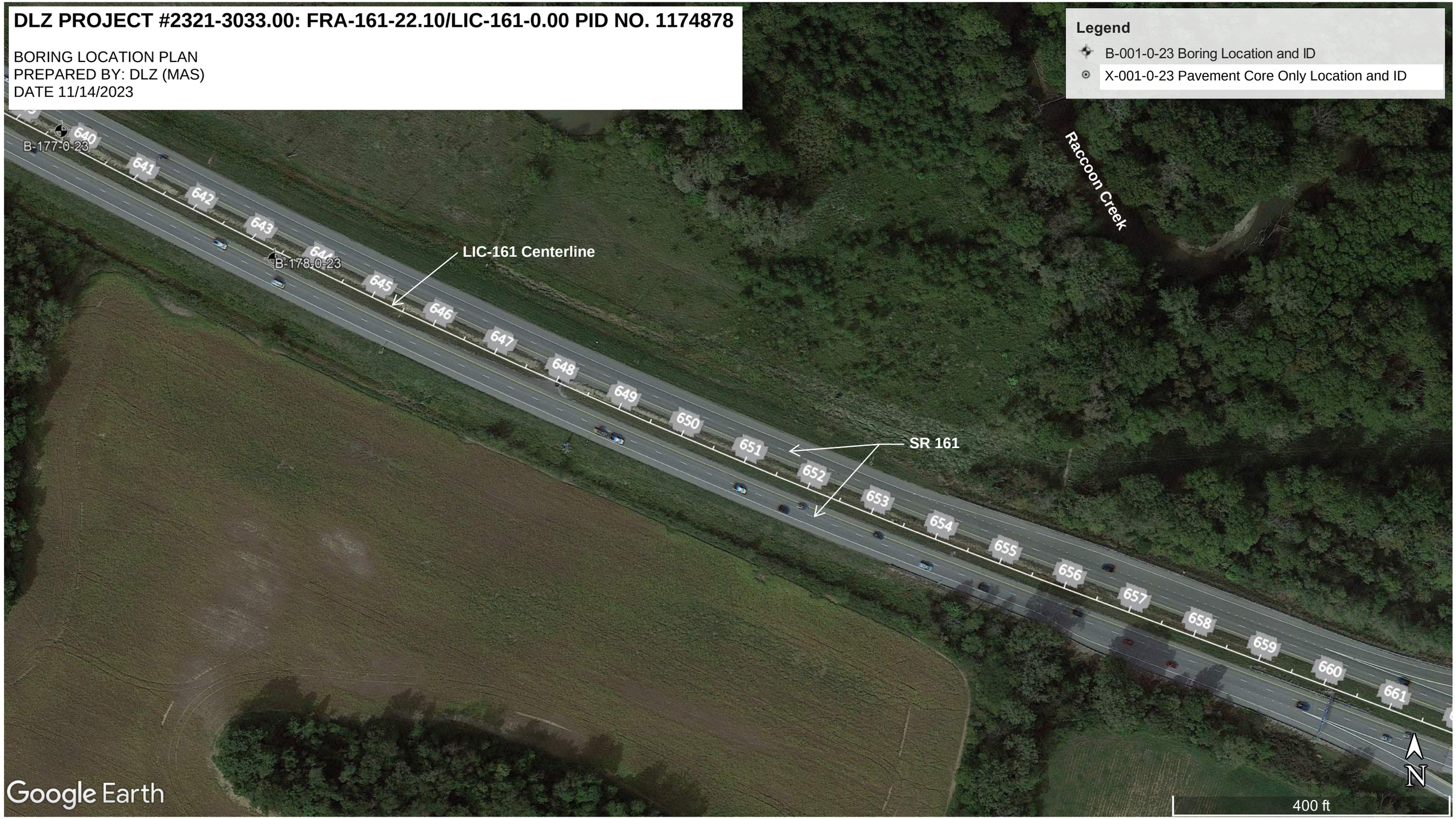
DLZ PROJECT #2321-3033.00: FRA-161-22.10/LIC-161-0.00 PID NO. 1174878

BORING LOCATION PLAN
PREPARED BY: DLZ (MAS)
DATE 11/14/2023



DLZ PROJECT #2321-3033.00: FRA-161-22.10/LIC-161-0.00 PID NO. 1174878

BORING LOCATION PLAN
PREPARED BY: DLZ (MAS)
DATE 11/14/2023



GENERAL INFORMATION
DRILLING PROCEDURES AND LOGS OF BORINGS

Drilling and sampling were conducted in accordance with the Ohio Department of Transporation (ODOT) Specifications for Geotechnical Exploration (SGE) dated November 22, 2023 . Borings were drilled with either a truck-mounted or ATV-mounted drill rig.

Drive split-barrelsamplingwas performed in1.5footincrements atintervalsnotexceeding 5 feet. In the event the sampler encountered resistance to penetration of 6 inches or less after 50 blows of the drop hammer, the sampling increment was discontinued. Standard penetration data were recorded and one or more representative samples were preserved from each sampling increment.

In borings where rock was cored, NXM or NQ size diamond coring tools were used.

In the laboratory allsamples were visually classified by ageotechnicalengineer. Moisture contents ofallsoilsampleswereddetermined. Alimitednumberof samples,basedonSGE requirements, were selected for performance of grain-size analyses and plasticity characteristics tests. The results of these tests are shown on the boring logs.

The boring logs included in the Appendix have been prepared on the basis of the field recordof drilling and sampling,andthe resultsof the laboratoryexaminationandtestingof samples. Stratification lines on the boring logs indicating changes in soil stratigraphy represent depths of changes approximated by the driller, by sampling effort and recovery, and by laboratory test results. Actual depths to changes may differ somewhat from the estimated depths, or transitions may occur gradually and not be sharply defined. The boring logs presented in this report therefore contain both factual and interpretative information and are not an exact copy of the field log.

Although it is considered that the borings have disclosed information generally representative of site conditions, it should be expected that between borings conditions may occur which are not precisely represented by any one of the borings. Soil deposition processesand naturalgeologicforcesare suchthatsoilandrocktypesandconditionsmay change in short vertical intervals and horizontal distances.

Soil/rock samples will be stored at our laboratory for a period as dictated by the requirement of the SGE. After this period of time, they will be discarded, unless notified to the contrary by the client.

S:\Dept\Geotechnical\Forms\Borings\General Info English_ODOT November 2023.doc

LEGEND – BORING LOG TERMINOLOGY

Explanation of each column, progressing from left to right

1. Depth (in feet) – refers to distance below the ground surface.

2. Elevation (in feet) – is referenced to mean sea level, unless otherwise noted.

3. Standard Penetration (N) – the number of blows required to drive a 2-inch O.D., 1-3/8 inch I.D., split-barrel sampler, using a 140-pound hammer with a 30-inch free fall. The blows are recorded in 6-inch drive increments. Standard penetration resistance is determined from the total number of blows required for one foot of penetration by summing the second and third 6-inch increments of an 18-inch drive.

   50/n – indicates number of blows (50) to drive a split-barrel sampler a certain number of inches (n) other than the normal 6-inch increment.

4. The length of the sampler drive is indicated graphically by horizontal lines across the "Standard Penetration" and "Recovery" columns.

5. Sample recovery from each drive is indicated numerically in the column headed "Recovery".

6. The drive sample location is designated by the heavy vertical bar in the "Sample No., Drive" column.

7. The length of hydraulically pressed "Undisturbed" samples is indicated graphically by horizontal lines across the "Press" column.

8. Sample numbers are designated consecutively, increasing in depth.

9. Soil Description

   a. The following terms are used to describe the relative compactness and consistency of soils:

   Granular Soils – Compactness

Term	Blows/Foot Standard Penetration
Very Loose	less than 5
Loose	5 – 10
Medium Dense	11 – 30
Dense	31 – 50
Very Dense	over 50

   Cohesive Soils – Consistency

Term	Unconfined Compression tons/sq.ft.	Blows/Foot Standard Penetration	Hand Manipulation
Very Soft	less than 0.25	less than 2	Easily penetrated 2-in. by fist
Soft	0.25 – 0.50	2 – 4	Easily penetrated 2-in. by thumb
Medium Stiff	0.50 – 1.0	5 – 8	Penetrated by thumb with moderate effort
Stiff	1.0 – 2.0	9 – 15	Readily indented by thumb but not penetrated
Very Stiff	2.0 – 4.0	16 – 30	Readily indented by thumbnail
Hard	over 4.0	over 30	Indented with difficulty by thumbnail

   b. Color – If a soil is a uniform color throughout, the term is single, modified by such adjective as light and dark. If the predominant color is shaded by a secondary color, the secondary color precedes the primary color. If two major and distinct colors are swirled throughout the soil, the colors are modified by the term "mottled".

   c. Texture is based on the Ohio Department of Transportation Classification System. Soil particle size definitions are as follows:

Description	Size	Description	Size
Boulders	Larger than 12"	Sand – Coarse	2.0 mm to 0.42 mm
Cobbles	12" to 3"	– Fine	0.42 mm to 0.074 mm
Gravel – Coarse –	3" to ¾"	Silt	0.074 mm to 0.005 mm
Fine	¾" to 2.0 mm	Clay	smaller than 0.005 mm

d. The main soil component is listed first. The minor components are listed in order of decreasing percentage of particle size.

e. Modifiers to main soil descriptions are indicated as a percentage by weight of particle sizes.

trace	0 to 10%
little	10 to 20%
some	20 to 35%
"and"	35 to 50%

f. Moisture content of **cohesionless soils** (sands and gravels) is described as follows:

Term	Relative Moisture or Appearance
Dry	Soil leaves no moisture when pressed between fingers
Damp	Soil leaves very little moisture when pressed between fingers.
Moist	Soil leaves small amount of moisture when pressed between fingers.
Wet	The pore space is filled with water and water can be poured from sample with ease.

g. The moisture content of **cohesive soils** (silts and clays) is expressed relative to plastic properties.

Term	Relative Moisture or Appearance
Dry	Brittle to powdery; Moisture content well below plastic limit
Damp	Moisture content below plastic limit
Moist	Moisture content above plastic limit to -3% liquid limit
Wet	Moisture content near or above liquid limit

10. Rock Hardness and Rock Quality Designation

a. The following terms are used to describe the relative strength of the **bedrock**.

Term	Description
Very Weak	Core can be carved with a knife and scratched by fingernail. Can be excavated readily with a point of a pick. Pieces 1-inch or more in thickness can be broken by finger pressure.
Weak	Core can be grooved or gouged readily by a knife or pick. Can be excavated in small fragments by moderate blows of a pick point. Small, thin pieces can be broken by finger pressure.
Slightly Strong	Core can be grooved or gouged 0.05 inch deep by firm pressure of a knife or pick point. Can be excavated in small chips to pieces about 1-inch maximum size by hard blows of the point of a geologist's pick.
Moderately Strong	Core can be scratched with a knife or pick. Grooves or gouges to ¼" deep can be excavated by hand blows of a geologist's pick. Requires moderate hammer blows to detach hand specimen.
Strong	Core can be scratched with a knife or pick only with difficulty. Requires hard hammer blows to detach hand specimen. Sharp and resistant edges are present on hand specimen.
Very Strong	Core cannot be scratched by a knife or sharp pick. Breaking of hand specimens requires hard repeated blows of the geologist hammer.
Extremely Strong	Core cannot be scratched by a knife or sharp pick. Chipping of hand specimens requires hard repeated blows of the geologist hammer.

b. Rock Quality Designation, RQD – This value is expressed in percent and is an indirect measure of rock soundness. It is obtained by summing the total length of all core pieces which are at least four inches long, and then dividing this sum by the total length of the core run.

11. Gradation – when tests are performed, the percentage of each particle size is listed in the appropriate column (defined in Item 9c).

12. When a test is performed to determine the natural moisture content, liquid limit moisture content, or plastic limit moisture content, the moisture content is indicated in tabular form.

13. The corrected standard penetration (N_{60}) value in blows per foot is indicated in tabular form.

PROJECT: FRA-161-22.10/LIC-161-0.00 | DRILLING FIRM / OPERATOR: DLZ / K. CONRAD | DRILL RIG: '23 CME 75-KC-777 | STATION / OFFSET: 1198+67, 12' RT. | EXPLORATION ID B-001-0-23

TYPE: BRIDGE | SAMPLING FIRM / LOGGER: DLZ / J. CONLEY | HAMMER: CME AUTOMATIC | ALIGNMENT: FRA-161

PID: 117878 SFN: | DRILLING METHOD: 3.25" HSA | CALIBRATION DATE: 7/27/23 | ELEVATION: 1071.1 (MSL) EOB: 80.0 ft. | PAGE 1 OF 3

START: 7/31/23 END: 8/1/23 | SAMPLING METHOD: SPT | ENERGY RATIO (%): 72.5 | LAT / LONG: 40.080301, -82.784828

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	HOLE SEALED
TOPSOIL - 4"	1071.1 / 1070.8																		
STIFF TO VERY STIFF, LIGHT BROWNISH GRAY, **SILT AND CLAY**, DAMP TO MOIST (FILL)			4 5 4	11	67	SS-1	4.5+	15	8	11	29	37	33	18	15	14	A-6a (8)	250	
			3 2 5	8	83	SS-2	2.75	-	-	-	-	-	-	-	-	19	A-6a (V)	-	
	1065.6		3 4 3	8	78	SS-3	1.50	22	6	8	29	35	33	20	13	16	A-6a (7)	-	
VERY STIFF, BROWN AND LIGHT GRAY MOTTLED, **SILT AND CLAY**, LITTLE SAND, MOIST (FILL)			1 2 6	10	78	SS-4	4.5+	-	-	-	-	-	-	-	-	19	A-6a (V)	-	
			3 5 6	13	100	SS-5	4.5+	-	-	-	-	-	-	-	-	15	A-6a (V)	-	
			2 3 6	11	67	SS-6	3.50	9	7	7	33	44	36	23	13	17	A-6a (9)	-	
	1059.6		3 3 6	11	89	SS-7	3.00	12	8	13	30	37	34	20	14	16	A-6a (8)	-	
VERY STIFF, BROWN AND LIGHT GRAY, **SILTY CLAY**, CONTAINS GRAY AND BLACK SHALE FRAGMENTS, DAMP (FILL)	1058.1		4 2 3	6	83	SS-8	3.00	32	6	6	24	32	38	22	16	20	A-6b (7)	-	
VERY STIFF, BROWN AND LIGHT GRAY, **CLAY**, DAMP (FILL)			4 3 5	10	89	SS-9	1.50	6	5	7	34	48	41	22	19	20	A-7-6 (12)	-	
	1055.1																		
STIFF, GRAY TO DARK GRAY, **SILT AND CLAY**, MOIST			3 4 5	11	100	SS-10	3.00	-	-	-	-	-	-	-	-	18	A-6a (V)	-	
			1 2 3	6	100	SS-11	1.50	15	17	18	29	21	36	21	15	26	A-6a (5)	-	
	1050.1	W 1050.1																	
VERY DENSE, GRAY, **GRAVEL AND STONE FRAGMENTS WITH SAND AND SILT**, WET			40 39 16	66	67	SS-12	-	46	15	13	15	11	24	16	8	16	A-2-4 (0)	-	
@22.5'-23.5', light chatter.																			
@23.5', medium dense.			2 6 13	23	39	SS-13	-	68	6	2	- 24 -		-	-	-	13	A-2-4 (V)	-	
	1045.1																		
STIFF, GRAY, **SILTY CLAY**, DAMP TO MOIST @26.0', sand heave (<1 foot), slight auger chatter.			3 5 5	12	67	SS-14	3.50	-	-	-	-	-	-	-	-	15	A-6b (V)	-	
@28.5'-30.5', qu=1.399 TSF					75	ST-1	-	7	8	22	45	18	38	15	23	14	A-6b (11)	-	

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:30 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PID: 117878	SFN:	PROJECT: FRA-161-22.10/LIC-161-0.00	STATION / OFFSET: 1198+67, 12' RT.	START: 7/31/23	END: 8/1/23	PG 2 OF 3	B-001-0-23

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	HOLE SEALED
STIFF, GRAY, **SILTY CLAY**, DAMP TO MOIST *(continued)*	1041.1	31																	
		32																	
		33																	
		34	4 4 5	11	-	SS-15	3.50	-	-	-	-	-	-	-	-	21	A-6b (V)	-	
		35																	
	1035.1	36																	
VERY DENSE, BROWN, **COARSE AND FINE SAND**, CONTAINS HEAVE MATERIAL, WET @36.0', 3' of heave encountered, hole washed out. @36.0'-38.0', shelby tube attempted, gray fine sand, wet, sample fell out of tube and lost. Assumed loose to medium dense.		37			0	ST-2	-	-	-	-	-	-	-	-	-	-	A-3a (V)	-	
		38																	
		39	6 18 24	51	89	SS-16	-	-	-	-	-	-	-	-	-	12	A-3a (V)	-	
		40																	
		41																	
		42																	
		43																	
	1027.6	44																	
VERY DENSE, BROWN, **GRAVEL AND STONE FRAGMENTS WITH SAND**, MOIST		45	23 21 27	58	100	SS-17	-	42	27	17	9	5	NP	NP	NP	12	A-1-b (0)	-	
		46																	
		47																	
		48																	
	1022.6	49																	
HARD, GRAY, **SANDY SILT**, DAMP TO MOIST		50	24 28 22	60	100	SS-18	4.5+	-	-	-	-	-	-	-	-	9	A-4a (V)	-	
		51																	
		52																	
		53																	
		54	22 23 26	59	100	SS-19	4.5+	11	11	21	34	23	22	13	9	10	A-4a (4)	-	
		55																	
		56																	
		57																	
		58																	
		59	15 26 31	69	100	SS-20	4.5+	-	-	-	-	-	-	-	-	8	A-4a (V)	-	
		60																	
		61																	

DRAFT

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:30 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PID: 117878	SFN:	PROJECT: FRA-161-22.10/LIC-161-0.00	STATION / OFFSET: 1198+67, 12' RT.	START: 7/31/23	END: 8/1/23	PG 3 OF 3	B-001-0-23

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	HOLE SEALED
HARD, GRAY, **SANDY SILT**, DAMP TO MOIST *(continued)*	1009.0	63																	
		64	17 32 49	98	67	SS-21	4.5+	-	-	-	-	-	-	-	-	9	A-4a (V)	-	
		65																	
		66																	
		67																	
		68																	
	1002.6	69																	
HARD, GRAY, **SILT AND CLAY**, MOIST		70	20 31 43	89	100	SS-22	4.5+	9	11	22	34	24	27	14	13	9	A-6a (6)	-	
		71																	
		72																	
		73																	
	997.6	74																	
HARD, GRAY, **SANDY SILT**, DAMP		75	25 26 33	71	100	SS-23	4.5+	-	-	-	-	-	-	-	-	11	A-4a (V)	-	
▽ 995.1		76																	
		77																	
		78																	
		79	29 27 28	66	100	SS-24	4.5+	17	11	26	32	14	18	14	4	10	A-4a (2)	-	
	991.1	EOB 80																	

DRAFT

NOTES: WATER DEPTH 21.70' PRIOR TO ADDING WATER FOR DRILLING PURPOSES

ABANDONMENT METHODS, MATERIALS, QUANTITIES: TREMIED 6 BAGS BENTONITE GROUT

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:30 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:30 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 1203+10, 20' RT.	EXPLORATION ID B-002-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / J. CONLEY	HAMMER: CME AUTOMATIC	ALIGNMENT: FRA-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1073.9 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 8/1/23 END: 8/1/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.080207, -82.783251	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 5"	1073.5																		
VERY STIFF, BROWN, **SANDY SILT**, DAMP	1071.4	1	4 10 7	21	67	SS-1	3.50	8	5	15	40	32	27	17	10	13	A-4a (7)	240	
VERY STIFF TO HARD, BROWN TO GRAYISH BROWN, **CLAY**, DAMP		2																	
		3	15 12 16	34	100	SS-2	3.50	23	3	4	27	43	41	22	19	14	A-7-6 (11)	-	
		4	20 17 11	34	89	SS-3	4.5+	-	-	-	-	-	-	-	-	9	A-7-6 (V)	-	
		5																	
		6	12 9 3	15	100	SS-4	4.5+	-	-	-	-	-	-	-	-	14	A-7-6 (V)	-	
	1066.9	EOB 7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 1207+11, 19' LT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / J. CONLEY	HAMMER: CME AUTOMATIC	ALIGNMENT: FRA-161
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1076.7 (MSL) EOB: 7.0 ft.
START: 8/2/23 END: 8/2/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.080245, -82.781812

EXPLORATION ID B-003-0-23

PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 1076.7	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 5"	1076.3																		
HARD, BROWN, **SILT AND CLAY**, DAMP (FILL)	1074.2	1	6 5 10	18	56	SS-1	4.5+	16	7	13	30	34	29	17	12	13	A-6a (7)	-	
HARD, MOTTLED BROWN AND GRAY, **CLAY**, MOIST	1071.2	2 3 4 5	12 8 13	25	100	SS-2	4.5+	1	2	7	32	58	47	21	26	26	A-7-6 (16)	180	
			14 10 6	19	100	SS-3	4.5+	-	-	-	-	-	-	-	-	17	A-7-6 (V)	-	
VERY STIFF, GRAY, **CLAY**, CONTAINS WOOD, MOIST	1069.7	6 EOB 7	10 7 6	16	100	SS-4	3.50	-	-	-	-	-	-	-	-	62	A-7-6 (V)	-	

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NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:30 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:30 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 1210+68, 21' RT.	EXPLORATION ID B-004-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / J. CONLEY	HAMMER: CME AUTOMATIC	ALIGNMENT: FRA-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1078.9 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 8/1/23 END: 8/1/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.080076, -82.780546	

MATERIAL DESCRIPTION AND NOTES	ELEV. 1078.9	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 5.5"	1078.4																		
HARD, BROWN, **SILTY CLAY**, CONTAINS REDDISH GRAY BEDFORD SHALE FRAGMENTS, DAMP (FILL)	1074.9	1	7 10 8	22	78	SS-1	4.5+	12	4	6	34	44	35	12	23	14	A-6b (13)	260	
		2																	
		3	8 8 6	17	78	SS-2	4.5+	-	-	-	-	-	-	-	-	12	A-6b (V)	-	
VERY STIFF, BROWN AND GRAY MOTTLED, **SILTY CLAY**, MOIST		4																	
		5	11 7 7	17	100	SS-3	2.75	5	5	11	34	45	38	20	18	23	A-6b (11)	-	
	1071.9	6	8 7 6	16	100	SS-4	3.00	-	-	-	-	-	-	-	-	12	A-6b (V)	-	
		EOB 7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:30 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 1214+73, 19' LT.	EXPLORATION ID B-005-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / J. CONLEY	HAMMER: CME AUTOMATIC	ALIGNMENT: FRA-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1081.2 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 8/2/23 END: 8/2/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.080119, -82.779093	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 3"	1081.0																		
HARD, BROWN, **SANDY SILT**, LITTLE FINE TO COARSE SAND, DRY	1078.7	1	6 10 10	24	78	SS-1	4.5+	8	10	16	36	30	25	16	9	13	A-4a (6)	240	
HARD, BROWN TO GRAY, **SILT AND CLAY**, DAMP		2																	
@ 4.0'-5.5', Contains Sandstone cobble fragments.		3	16 11 14	30	100	SS-2	4.5+	22	5	16	29	28	31	19	12	15	A-6a (5)	-	
		4																	
		5	37 27 12	47	100	SS-3	4.5+	-	-	-	-	-	-	-	-	13	A-6a (V)	-	
		6	16 20 11	37	100	SS-4	4.5+	-	-	-	-	-	-	-	-	15	A-6a (V)	-	
	1074.2	EOB 7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:30 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 1218+73, 20' RT.	EXPLORATION ID B-006-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / J. CONLEY	HAMMER: CME AUTOMATIC	ALIGNMENT: FRA-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1084.0 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 8/1/23 END: 8/1/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.079944, -82.777674	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 4"	1084.0																		
HARD, BROWN, **SILT AND CLAY**, DAMP TO MOIST (FILL)	1083.7	1	9 9 6	18	78	SS-1	4.5+	14	5	15	34	32	29	18	11	14	A-6a (7)	270	
		2	5 7 4	13	100	SS-2	4.5+	34	4	13	25	24	31	18	13	14	A-6a (4)	-	
VERY STIFF TO HARD, GRAY AND BROWN MOTTLED, **CLAY**, MOIST (FILL)	1080.0	3	9 7 4	13	100	SS-3	4.5+	-	-	-	-	-	-	-	-	16	A-7-6 (V)	-	
	1077.0	4	8 6 5	13	100	SS-4	3.00	-	-	-	-	-	-	-	-	17	A-7-6 (V)	-	
		EOB 5																	
		6																	
		7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:30 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 1222+57, 20' LT.	EXPLORATION ID B-007-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / J. CONLEY	HAMMER: CME AUTOMATIC	ALIGNMENT: FRA-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1087.6 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 8/2/23 END: 8/2/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.079990, -82.776298	

MATERIAL DESCRIPTION AND NOTES	ELEV. 1087.6	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 5"	1087.2																		
HARD, BROWN, **SANDY SILT**, DAMP TO MOIST (FILL)		1	3 5 5	12	100	SS-1	4.5+	8	5	12	38	37	30	24	6	17	A-4a (8)	180	
	1083.6	2	7 9 8	21	100	SS-2	4.5+	-	-	-	-	-	-	-	-	20	A-4a (V)	-	
VERY STIFF, BROWN, **SILTY CLAY**, MOIST (FILL)	1082.1	3	10 8 6	17	100	SS-3	3.00	10	5	12	35	38	36	18	18	18	A-6b (11)	-	
VERY STIFF, GRAY, **SANDY SILT**, CONTAINS WOOD, MOIST (FILL)	1081.1	4	11 8 10	22	100	SS-4	3.75	-	-	-	-	-	-	-	-	20	A-4a (V)	-	
@6.5', grades to A-4b.	1080.6	5 EOB 6 7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:31 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 1226+59, 19' RT.	EXPLORATION ID B-008-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / J. CONLEY	HAMMER: CME AUTOMATIC	ALIGNMENT: FRA-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1092.6 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 8/1/23 END: 8/1/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.079817, -82.774872	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 7"	1092.6																		
VERY STIFF TO HARD, GRAYISH BROWN AND LIGHT GRAY, **SILTY CLAY**, MOIST	1092.0	1	5 4 6	12	56	SS-1	4.5+	13	5	14	35	33	35	18	17	16	A-6b (9)	220	
		2	2 6 7	16	67	SS-2	2.75	2	3	10	36	49	39	19	20	24	A-6b (12)	-	
		3	7 7 5	15	100	SS-3	2.50	-	-	-	-	-	-	-	-	20	A-6b (V)	-	
		4	7 5 9	17	100	SS-4	2.00	-	-	-	-	-	-	-	-	16	A-6b (V)	-	
	1085.6	EOB 7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:31 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 1230+47, 24' LT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / J. CONLEY	HAMMER: CME AUTOMATIC	ALIGNMENT: FRA-161
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1096.7 (MSL) EOB: 7.0 ft.
START: 8/2/23 END: 8/2/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.079869, -82.773477

EXPLORATION ID B-009-0-23

PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 1096.7	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 5"	1096.3																		
HARD, BROWN AND DARK GRAYISH BROWN, **SILTY CLAY**, SOME FINE TO COARSE SAND, DAMP	1094.2	1 2	3 5 8	16	89	SS-1	4.5+	32	7	9	28	24	36	19	17	16	A-6b (6)	230	
VERY STIFF TO HARD, MOTTLED BROWN AND GRAY, **CLAY**, MOIST	1091.2	3 4 5	8 6 6	15	100	SS-2	4.5+	3	5	9	39	44	44	19	25	21	A-7-6 (15)	-	
			6 6 6	15	100	SS-3	3.50	-	-	-	-	-	-	-	-	22	A-7-6 (V)	-	
STIFF, BROWN, **SILTY CLAY**, LITTLE FINE TO COARSE SAND, MOIST	1089.7	6 EOB 7	7 5 3	10	100	SS-4	1.75	-	-	-	-	-	-	-	-	22	A-6b (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:31 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 1234+64, 28' RT.	EXPLORATION ID B-010-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / J. CONLEY	HAMMER: CME AUTOMATIC	ALIGNMENT: FRA-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1100.3 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 8/1/23 END: 8/1/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.079659, -82.772002	

MATERIAL DESCRIPTION AND NOTES	ELEV. 1100.3	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 6"	1099.8																		
HARD, BROWN, **SANDY SILT**, DAMP		1	5 7 9	19	100	SS-1	4.5+	15	7	17	31	30	25	16	9	13	A-4a (5)	210	
		2																	
		3	20 15 14	35	100	SS-2	4.5+	-	-	-	-	-	-	-	-	13	A-4a (V)	-	
		4																	
	1094.8	5	17 10 8	22	100	SS-3	4.5+	-	-	-	-	-	-	-	-	13	A-4a (V)	-	
MEDIUM DENSE, BROWN, **SANDY SILT**, MOIST		6	7 5 6	13	100	SS-4	-	13	12	36	23	16	NP	NP	NP	16	A-4a (1)	-	
	1093.3	EOB 7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:31 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 1237+51, 31' LT.	EXPLORATION ID B-011-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / J. CONLEY	HAMMER: CME AUTOMATIC	ALIGNMENT: FRA-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1104.3 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 8/2/23 END: 8/2/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.079772, -82.770965	

MATERIAL DESCRIPTION AND NOTES	ELEV. 1104.3	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 5"	1103.9																		
MEDIUM STIFF TO STIFF, BROWN, **SANDY SILT**, MOIST	1101.8	1	WOH 2 4	7	67	SS-1	1.00	8	6	14	36	36	33	23	10	21	A-4a (7)	210	
VERY STIFF, MOTTLED BROWN AND GRAY, **CLAY**, MOIST	1098.8	2 3 4 5	8 8 7	18	100	SS-2	3.75	2	2	8	37	51	43	19	24	24	A-7-6 (14)	-	
HARD, BROWN AND GRAY, **SILTY CLAY**, MOIST	1097.3	6	5 6 4	12	100	SS-3	3.75	-	-	-	-	-	-	-	-	25	A-7-6 (V)	-	
		EOB 7	10 8 7	18	100	SS-4	4.5+	-	-	-	-	-	-	-	-	14	A-6b (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:31 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 1242+57, 28' RT.	EXPLORATION ID B-012-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / J. CONLEY	HAMMER: CME AUTOMATIC	ALIGNMENT: FRA-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1108.3 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 8/1/23 END: 8/1/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.079524, -82.769172	

MATERIAL DESCRIPTION AND NOTES	ELEV. 1108.3	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 5"	1107.8																		
HARD, BROWN, **SILTY CLAY**, DAMP		1	3 4 3	8	67	SS-1	4.5+	10	3	10	39	38	33	17	16	16	A-6b (10)	150	
	1105.8	2																	
VERY STIFF TO HARD, BROWN, **SANDY SILT**, DAMP		3	5 7 6	16	100	SS-2	4.5+	10	9	14	37	30	26	16	10	15	A-4a (6)	-	
		4	7 7 4	13	89	SS-3	3.50	-	-	-	-	-	-	-	-	14	A-4a (V)	-	
		5																	
		6	11 11 10	25	67	SS-4	2.00	-	-	-	-	-	-	-	-	16	A-4a (V)	-	
	1101.3	EOB 7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:31 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 1246+38, 32' LT.	EXPLORATION ID B-013-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / J. CONLEY	HAMMER: CME AUTOMATIC	ALIGNMENT: FRA-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1112.1 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 8/2/23 END: 8/2/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.079629, -82.767801	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 6"	1112.1																		
STIFF TO HARD, BROWN AND GRAY, **SILTY CLAY**, DAMP	1111.6																		
@1.5'-4.0', gray to dark gray.		1	5 3 4	8	67	SS-1	4.5+	5	5	9	39	42	35	19	16	18	A-6b (10)	190	
		2																	
		3	12 10 8	22	100	SS-2	4.5+	-	-	-	-	-	-	-	-	18	A-6b (V)	-	
@4.0'-5.5', moist.		4																	
		5	8 6 7	16	100	SS-3	4.5+	5	20	18	14	43	39	19	20	21	A-6b (8)	-	
		6																	
	1105.1	EOB 7	12 10 10	24	100	SS-4	4.5+	-	-	-	-	-	-	-	-	14	A-6b (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:31 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 1250+24, 30' RT.	EXPLORATION ID B-014-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / J. CONLEY	HAMMER: CME AUTOMATIC	ALIGNMENT: FRA-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1115.2 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 8/1/23 END: 8/1/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.079419, -82.766432	

MATERIAL DESCRIPTION AND NOTES	ELEV. 1115.2	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 7"	1114.7																		
VERY STIFF, DARK BROWN TO BROWN, **SILT AND CLAY**, MOIST (FILL)	1112.7	1	2 4 3	8	56	SS-1	3.75	7	5	13	39	36	30	18	12	18	A-6a (9)	210	
LOOSE TO MEDIUM DENSE, BROWN, **GRAVEL AND/OR STONE FRAGMENTS WITH SAND AND SILT**, CONTAINS LANDSCAPE FABRIC AND LARGE GRAVEL, MOIST (FILL)	1109.7	2 3 4 5	4 2 3	6	83	SS-2	-	48	10	8	18	16	NP	NP	NP	12	A-2-4 (0)	-	
			4 6 5	13	100	SS-3	-	-	-	-	-	-	-	-	-	17	A-2-4 (V)	-	
DENSE, GRAY, **GRAVEL AND STONE FRAGMENTS WITH SAND**, WET (POSSIBLE FILL)	1108.2	6	21 27 10	45	67	SS-4	-	-	-	-	-	-	-	-	-	16	A-1-b (V)	-	
		EOB 7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:31 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 0+79, 29' LT.	EXPLORATION ID B-015-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / J. CONLEY	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1118.4 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 8/2/23 END: 8/2/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.079569, -82.764966	

MATERIAL DESCRIPTION AND NOTES	ELEV. 1118.4	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 6"	1117.9																		
STIFF TO VERY STIFF, BROWN, **SILT AND CLAY**, MOIST		1	2 3 2	6	44	SS-1	2.00	5	5	13	40	37	31	19	12	23	A-6a (9)	380	
	1114.4	2 3	2 3 7	12	100	SS-2	3.00	-	-	-	-	-	-	-	-	23	A-6a (V)	-	
VERY STIFF TO HARD, BROWN, **CLAY**, LITTLE FINE TO COARSE SAND, MOIST		4 5	22 5 7	15	100	SS-3	3.75	24	14	16	28	18	43	16	27	19	A-7-6 (8)	-	
	1111.4	6	13 9 9	22	100	SS-4	4.5+	-	-	-	-	-	-	-	-	14	A-7-6 (V)	-	
		EOB 7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:31 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 4+61, 28' RT.	EXPLORATION ID B-016-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / J. CONLEY	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1121.5 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 8/1/23 END: 8/1/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.079435, -82.763599	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 5"	1121.5																		
VERY STIFF TO HARD, BROWN TO GRAY, **SILT AND CLAY**, MOIST	1121.1	1	4 5 4	11	100	SS-1	3.00	6	6	14	40	34	30	18	12	16	A-6a (9)	640	
		2																	
		3	6 4 6	12	100	SS-2	4.00	9	4	10	40	37	36	21	15	24	A-6a (10)	-	
		4																	
		5	10 8 17	30	78	SS-3	3.50	-	-	-	-	-	-	-	-	14	A-6a (V)	-	
		6																	
	1114.5	EOB 7	16 35 31	80	100	SS-4	4.5+	-	-	-	-	-	-	-	-	11	A-6a (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:31 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 8+26, 25' LT.	EXPLORATION ID B-017-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / J. CONLEY	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1124.2 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 8/2/23 END: 8/2/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.079628, -82.762303	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 4"	1124.2																		
VERY STIFF, BROWN, **SILTY CLAY**, LITTLE FINE TO COARSE SAND, DAMP	1123.8	1	6 4 7	13	28	SS-1	3.50	7	6	14	38	35	36	18	18	13	A-6b (11)	220	
VERY STIFF, GRAY, **SILTY CLAY**, CONTAINS BROKEN/FRAGMENTED GRAVELS AND SAND, DAMP TO MOIST	1121.7	2 3	7 3 9	15	78	SS-2	2.75	19	6	12	32	31	34	17	17	16	A-6b (8)	-	
		4 5	11 8 9	21	100	SS-3	3.25	-	-	-	-	-	-	-	-	21	A-6b (V)	-	
@5.5', hard.	1117.2	6 EOB 7	10 33 12	54	100	SS-4	4.5+	-	-	-	-	-	-	-	-	22	A-6b (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:31 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 12+26, 30' RT.	EXPLORATION ID B-018-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / J. CONLEY	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1127.9 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 8/1/23 END: 8/1/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.079561, -82.760863	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 4"	1127.9																		
STIFF TO HARD, BROWN, **SANDY SILT**, DAMP	1127.5	1	6 8 3	13	100	SS-1	4.5+	22	10	18	28	22	25	15	10	13	A-4a (3)	310	
	1124.6	2																	
STIFF, GRAY, **SILT AND CLAY**, MOIST		3	3 6 5	13	100	SS-2	1.75	-	-	-	-	-	-	-	-	14	A-4a (V)	-	
		4																	
		5	5 3 3	7	100	SS-3	1.50	17	5	10	35	33	32	21	11	27	A-6a (7)	-	
	1120.9	6	3 5 4	11	100	SS-4	1.25	-	-	-	-	-	-	-	-	21	A-6a (V)	-	
	EOB	7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 16+66, 27' LT.	EXPLORATION ID B-019-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / J. CONLEY	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1133.5 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 8/2/23 END: 8/2/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.079819, -82.759317	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 4"	1133.5																		
	1133.2																		
VERY STIFF, DARK BROWN TO GRAY, **SILTY CLAY**, MOIST @1.0'-2.5', contains organics and wood.		1	3 3 5	10	89	SS-1	3.50	4	4	11	38	43	38	21	17	26	A-6b (11)	360	
@2.5'-4.0', contains organics and wood.		2 3 4	8 4 8	15	100	SS-2	4.00	-	-	-	-	-	-	-	-	17	A-6b (V)	-	
@4'-5.5', little gravel; contains shale and stone fragments.		5	11 5 7	15	100	SS-3	3.00	18	9	15	32	26	25	9	16	14	A-6b (7)	-	
	1126.5	EOB 6 7	13 11 9	24	100	SS-4	4.5+	-	-	-	-	-	-	-	-	14	A-6b (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:31 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:31 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 20+32, 28' RT.	EXPLORATION ID B-020-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / J. CONLEY	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1141.3 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 8/1/23 END: 8/1/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.079756, -82.757996	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 6"	1141.3																		
VERY STIFF TO HARD, BROWN TO GRAY, **SILT AND CLAY**, DAMP TO MOIST	1140.8	1	3 3 4	8	72	SS-1	3.00	11	8	15	33	33	28	17	11	17	A-6a (7)	180	
		2	2 2 2	5	100	SS-2	2.75	7	7	14	37	35	28	16	12	19	A-6a (8)	-	
		3	3 3 4	8	100	SS-3	3.00	-	-	-	-	-	-	-	-	16	A-6a (V)	-	
		4	15 15 7	27	67	SS-4	4.5+	-	-	-	-	-	-	-	-	9	A-6a (V)	-	
	1134.3	5 EOB																	
		6																	
		7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:31 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 24+15, 28' LT.	EXPLORATION ID B-021-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / J. CONLEY	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1149.7 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 8/2/23 END: 8/2/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.079998, -82.756650	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 3"	1149.7																		
	1149.5																		
MEDIUM STIFF TO STIFF, BROWN, **SILTY CLAY**, MOIST		1	3	6	56	SS-1	1.00	8	6	13	36	37	36	18	18	19	A-6b (11)	420	
	1147.2	2	2 3																
STIFF, GRAY, **SILT AND CLAY**, MOIST		3	2	11	89	SS-2	1.75	10	7	14	37	32	30	16	14	19	A-6a (8)	-	
		4	2 7																
		5	2	6	-	SS-3	1.75	-	-	-	-	-	-	-	-	25	A-6a (V)	-	
			3																
	1142.7		5 7 6	16	56	SS-4	3.50	-	-	-	-	-	-	-	-	19	A-6a (V)	-	
		EOB 7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:31 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 28+05, 29' RT.	EXPLORATION ID B-022-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / J. CONLEY	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1158.2 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 8/1/23 END: 8/1/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.079936, -82.755243	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 5"	1158.2 / 1157.7																		
VERY STIFF, BROWN, **SILT AND CLAY**, DAMP TO MOIST		1	2 3 2	6	100	SS-1	2.00	12	6	13	36	33	30	18	12	17	A-6a (8)	200	
	1154.2	2	2 3 6	11	89	SS-2	2.50	-	-	-	-	-	-	-	-	20	A-6a (V)	-	
VERY STIFF TO HARD, BROWN AND GRAY, **SANDY SILT**, DAMP TO MOIST		3	10 5 3	10	78	SS-3	4.5+	10	8	16	35	31	26	16	10	14	A-4a (6)	-	
	1151.2	4	10 8 7	18	100	SS-4	3.00	-	-	-	-	-	-	-	-	15	A-4a (V)	-	
		EOB 5																	
		6																	
		7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:31 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 31+78, 28' LT.	EXPLORATION ID B-023-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / J. CONLEY	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1162.5 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 8/2/23 END: 8/2/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.080180, -82.753931	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
MEDIUM DENSE TO DENSE, BROWN, **COARSE AND FINE SAND**, NO TOPSOIL, DRY NO TOPSOIL - Gravel base	1162.5	1	6 10 11	25	56	SS-1	-	53	15	14	12	6	18	17	1	5	A-1-b (0)	180	
		2																	
		3	15 5 16	25	61	SS-2	-	52	15	12	14	7	NP	NP	NP	6	A-1-b (0)	-	
		4																	
		5	40 17 15	39	67	SS-3	-	-	-	-	-	-	-	-	-	3	A-1-b (V)	-	
		6																	
	1155.5	EOB 7	77 22 16	46	100	SS-4	-	-	-	-	-	-	-	-	-	7	A-1-b (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:31 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 36+07, 32' RT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1162.0 (MSL) EOB: 7.0 ft.
START: 7/17/23 END: 7/17/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.080115, -82.752386

EXPLORATION ID B-024-0-23

PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
	1162.0																		
TOPSOIL - 6"	1161.5																		
HARD, BROWN, **SANDY SILT**, DAMP	1159.5	1	3 5 5	12	78	SS-1	4.5+	9	7	14	40	30	27	18	9	14	A-4a (7)	<100	
STIFF, BROWN AND GRAY MOTTLED, **SILT AND CLAY**, MOIST	1158.0	3	6 5 6	13	72	SS-2	1.50	4	4	12	38	42	30	19	11	20	A-6a (8)	-	
STIFF TO VERY STIFF, BROWN, **SILT AND CLAY**, MOIST	1155.0	5	6 6 8	17	89	SS-3	2.00	-	-	-	-	-	-	-	-	20	A-6a (V)	-	
		6	9 9 8	21	100	SS-4	2.50	-	-	-	-	-	-	-	-	14	A-6a (V)	-	
		EOB 7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:31 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 40+08, 26' LT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1155.5 (MSL) EOB: 7.0 ft.
START: 7/14/23 END: 7/14/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.080370, -82.750976

EXPLORATION ID B-025-0-23

MATERIAL DESCRIPTION AND NOTES	ELEV. 1155.5	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 5"	1155.1																		
HARD, BROWN, **SILTY CLAY**, MOIST	1153.0	1	6 5 5	12	72	SS-1	4.25	6	5	12	41	36	39	18	21	19	A-6b (12)	1000	
VERY STIFF, BROWN, **SILTY CLAY**, MOIST	1151.5	3	6 7 7	17	89	SS-2	2.50	-	-	-	-	-	-	-	-	18	A-6b (V)	-	
STIFF, BROWN AND GRAY MOTTLED, **CLAY**, MOIST	1150.0	4	6 6 8	17	100	SS-3	1.50	1	4	11	37	47	43	20	23	23	A-7-6 (14)	-	
HARD, GRAYISH BROWN, **SILTY CLAY**, LITTLE SAND, MOIST	1148.5	6	5 8 8	19	100	SS-4	4.25	-	-	-	-	-	-	-	-	12	A-6b (V)	-	
		EOB 7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:31 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00
TYPE: SUBGRADE
PID: 117878 SFN:
START: 7/17/23 END: 7/17/23

DRILLING FIRM / OPERATOR: DLZ / K. CONRAD
SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON
DRILLING METHOD: 2.25" CFA
SAMPLING METHOD: SPT

DRILL RIG: '23 CME 75-KC-777
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 43+84, 30' RT.
ALIGNMENT: LIC-161
ELEVATION: 1149.5 (MSL) EOB: 7.0 ft.
LAT / LONG: 40.080306, -82.749622

EXPLORATION ID B-026-0-23

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
	1149.5																		
TOPSOIL - 4"	1149.2																		
HARD, BROWN TO BROWNISH GRAY, **SILTY CLAY**, MOIST	1147.0	1	3 2 5	8	67	SS-1	4.5+	3	4	12	40	41	34	18	16	21	A-6b (10)	110	
HARD, BROWN TO BROWNISH GRAY, **SILT AND CLAY**, DAMP		2	8 12 13	30	89	SS-2	4.5+	5	4	13	41	37	31	19	12	17	A-6a (9)	-	
@ 4.0', light brown to brown.		3	6 5 8	16	100	SS-3	4.5+	-	-	-	-	-	-	-	-	16	A-6a (V)	-	
@5.5', little sand.	1142.5	4	6 8 12	24	78	SS-4	4.5+	-	-	-	-	-	-	-	-	12	A-6a (V)	-	
EOB		5																	
		6																	
		7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:31 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 47+99, 30' LT.	EXPLORATION ID B-027-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1148.7 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/14/23 END: 7/14/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.080568, -82.748162	

MATERIAL DESCRIPTION AND NOTES	ELEV. 1148.7	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 4"	1148.3																		
HARD, BROWN, **SILTY CLAY**, DAMP TO MOIST	1146.2	1	3 5 9	17	83	SS-1	4.5+	4	5	12	38	41	35	19	16	18	A-6b (10)	270	
HARD, BROWN AND GRAY MOTTLED, **SILTY CLAY**, MOIST	1144.7	2 3 4	8 6 11	21	94	SS-2	4.50	-	-	-	-	-	-	-	-	15	A-6b (V)	-	
VERY STIFF, GRAYISH BROWN TO BROWN, **SILTY CLAY**, LITTLE SAND, DAMP TO MOIST	1141.7	5 6	5 7 8	18	100	SS-3	2.75	3	4	11	39	43	37	18	19	20	A-6b (12)	-	
		EOB 7	5 7 8	18	78	SS-4	3.00	-	-	-	-	-	-	-	-	8	A-6b (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:31 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 51+82, 31' RT.	EXPLORATION ID B-028-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1151.8 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/17/23 END: 7/17/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.080489, -82.746782	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 4"	1151.5																		
HARD, BROWN, **SILT AND CLAY**, LITTLE SAND, DAMP		1	4 3 6	11	78	SS-1	4.5+	12	6	14	32	36	29	18	11	14	A-6a (7)	620	
@3.0', auger chatter.	1147.8	2 3 4	11 8 9	21	83	SS-2	4.5+	5	5	14	38	38	31	17	14	15	A-6a (10)	-	
HARD, LIGHT GRAY TO GRAY MOTTLED, **SILT AND CLAY**, MOIST	1146.3	5	4 5 5	12	72	SS-3	4.50	-	-	-	-	-	-	-	-	21	A-6a (V)	-	
VERY STIFF, GRAY TO BROWN AND GRAY MOTTLED, **SILT AND CLAY**, MOIST	1144.8	6 EOB 7	5 5 6	13	94	SS-4	3.25	-	-	-	-	-	-	-	-	11	A-6a (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:31 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00
TYPE: SUBGRADE
PID: 117878 SFN:
START: 7/14/23 END: 7/14/23

DRILLING FIRM / OPERATOR: DLZ / K. CONRAD
SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON
DRILLING METHOD: 2.25" CFA
SAMPLING METHOD: SPT

DRILL RIG: '23 CME 75-KC-777
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 56+18, 27' LT.
ALIGNMENT: LIC-161
ELEVATION: 1153.7 (MSL) EOB: 7.0 ft.
LAT / LONG: 40.080752, -82.745245

EXPLORATION ID B-029-0-23

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 4"	1153.4																		
VERY STIFF, BROWN, **SILTY CLAY**, LITTLE SAND, DAMP TO MOIST	1151.2	1	3 5 9	17	83	SS-1	3.00	6	4	12	34	44	37	19	18	18	A-6b (11)	110	
VERY STIFF, BROWN, **SILT AND CLAY**, DAMP	1149.7	2 3 4	7 7 7	17	56	SS-2	3.25	4	3	10	46	37	34	19	15	18	A-6a (10)	-	
HARD, BROWN, **SILT AND CLAY**, LITTLE SAND, DAMP @ 5.5', brown and gray mottled.	1146.7	5 6	8 6 12	22	100	SS-3	4.50	-	-	-	-	-	-	-	-	14	A-6a (V)	-	
		EOB 7	8 10 9	23	78	SS-4	4.00	-	-	-	-	-	-	-	-	13	A-6a (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:31 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 60+08, 31' RT.	EXPLORATION ID B-030-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1153.3 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/17/23 END: 7/17/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.080684, -82.743840	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 6"	1153.3																		
	1152.8																		
HARD, BROWN, **SANDY SILT**, DAMP TO MOIST		1	2 2 4	7	33	SS-1	4.50	-	-	-	-	-	-	-	-	13	A-4a (V)	<100	
		2																	
		3	4 10 11	25	100	SS-2	4.5+	0	7	16	77	-	26	16	10	14	A-4a (V)	-	
		4																	
		5	10 10 11	25	100	SS-3	4.5+	-	-	-	-	-	-	-	-	17	A-4a (V)	-	
	1147.8																		
HARD, GRAY, **SILT**, SLIGHTLY ORGANIC, DAMP		6	8 7 7	17	100	SS-4	4.00	2	3	13	50	32	28	19	9	17	A-4b (8)	-	
	1146.3	EOB 7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:31 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 63+86, 30' LT.	EXPLORATION ID B-031-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1152.5 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/14/23 END: 7/14/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.080939, -82.742512	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 5"	1152.5																		
VERY STIFF, BROWN, **SILT AND CLAY**, MOIST	1152.1	1	3 3 5	10	56	SS-1	2.25	3	5	14	37	41	33	18	15	19	A-6a (10)	1100	
HARD, LIGHT BROWN TO BROWN MOTTLED, **SILTY CLAY**, LITTLE SAND, DAMP @ 2.5', light brown to brown mottled.	1150.0	2 3 4	5 7 9	19	100	SS-2	2.50	2	5	13	36	44	35	18	17	14	A-6b (11)	-	
@ 5.5', brown and gray mottled.		5	6 7 10	21	100	SS-3	4.5+	-	-	-	-	-	-	-	-	14	A-6b (V)	-	
	1145.5	6 EOB 7	5 7 9	19	100	SS-4	4.5+	-	-	-	-	-	-	-	-	-	A-6b (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:31 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00
TYPE: SUBGRADE
PID: 117878 SFN:
START: 7/17/23 END: 7/17/23

DRILLING FIRM / OPERATOR: DLZ / K. CONRAD
SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON
DRILLING METHOD: 2.25" CFA
SAMPLING METHOD: SPT

DRILL RIG: '23 CME 75-KC-777
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 67+72, 29' RT.
ALIGNMENT: LIC-161
ELEVATION: 1151.3 (MSL) EOB: 7.0 ft.
LAT / LONG: 40.080847, -82.741123

EXPLORATION ID B-032-0-23

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 2"	1151.0																		
VERY STIFF TO HARD, BROWN, **SILT AND CLAY**, DAMP TO MOIST	1148.8	1 – 2	4 4 6	12	61	SS-1	4.5+	11	5	12	37	35	33	20	13	18	A-6a (9)	260	
HARD, BROWN, **SILT AND CLAY**, LITTLE SAND, DAMP	1145.8	3 – 4 – 5	12 15 13	34	89	SS-2	4.5+	4	5	15	38	38	32	17	15	14	A-6a (10)	-	
			10 10 11	25	89	SS-3	4.00	-	-	-	-	-	-	-	-	18	A-6a (V)	-	
VERY STIFF TO HARD, GRAY, **SILT AND CLAY**, SLIGHTLY ORGANIC, MOIST	1144.3	6 – EOB – 7	5 7 9	19	100	SS-4	4.50	-	-	-	-	-	-	-	-	19	A-6a (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:31 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 71+94, 29' LT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1150.4 (MSL) EOB: 7.0 ft.
START: 7/14/23 END: 7/14/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.081049, -82.739624

EXPLORATION ID B-033-0-23

MATERIAL DESCRIPTION AND NOTES	ELEV. 1150.4	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 6"	1149.9																		
HARD, BROWN, **SILT AND CLAY**, LITTLE SAND, DAMP	1147.9	1	5 4 9	16	67	SS-1	4.50	8	6	14	39	33	31	16	15	15	A-6a (9)	510	
STIFF TO VERY STIFF, GRAY, **SILT AND CLAY**, CONTAINS BROKEN GRAVELS, DAMP TO MOIST	1144.9	2 3 4	15 12 10	27	100	SS-2	4.5+	-	-	-	-	-	-	-	-	12	A-6a (V)	-	
		5	5 7 7	17	50	SS-3	3.75	-	-	-	-	-	-	-	-	20	A-6a (V)	-	
VERY STIFF, BROWN AND GRAY MOTTLED, **SILT AND CLAY**, MOIST	1143.4	6	5 7 8	18	100	SS-4	2.50	4	5	19	39	33	30	18	12	20	A-6a (8)	-	
		EOB 7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

PROJECT: FRA-161-22.10/LIC-161-0.00
TYPE: SUBGRADE
PID: 117878 SFN:
START: 7/17/23 END: 7/17/23

DRILLING FIRM / OPERATOR: DLZ / K. CONRAD
SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON
DRILLING METHOD: 2.25" CFA
SAMPLING METHOD: SPT

DRILL RIG: '23 CME 75-KC-777
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 75+56, 24' RT.
ALIGNMENT: LIC-161
ELEVATION: 1149.2 (MSL) EOB: 7.0 ft.
LAT / LONG: 40.080912, -82.738326

EXPLORATION ID B-034-0-23

MATERIAL DESCRIPTION AND NOTES	ELEV. 1149.2	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 2"	1148.5																		
HARD, BROWN, **SILT AND CLAY**, LITTLE SAND, DAMP	1146.7	1	2 6 6	15	56	SS-1	4.5+	16	6	17	33	28	31	19	12	16	A-6a (6)	310	
STIFF, BROWN, **CLAY**, DAMP @ 2.5', brown and gray mottled	1145.2	3	8 5 9	17	100	SS-2	1.75	2	2	8	38	50	41	23	18	23	A-7-6 (11)	-	
VERY STIFF, BROWN, **SILTY CLAY**, MOIST	1143.7	5	7 8 9	21	100	SS-3	2.75	-	-	-	-	-	-	-	-	17	A-6b (V)	-	
HARD, BROWNISH GRAY TO GRAY, **SILTY CLAY**, LITTLE SAND, MOIST	1142.2	6	8 9 6	18	100	SS-4	4.25	-	-	-	-	-	-	-	-	14	A-6b (V)	-	
EOB		7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:31 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:31 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 79+67, 27' LT.	EXPLORATION ID B-035-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1148.1 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/14/23 END: 7/14/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.081031, -82.736857	

MATERIAL DESCRIPTION AND NOTES	ELEV. 1148.1	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 6"	1147.7																		
HARD, BROWN, **SILT AND CLAY**, LITTLE SAND, DAMP TO MOIST (FILL)	1144.1	1 2 3 4	4 5 6	13	50	SS-1	4.25	4	5	12	43	36	31	16	15	18	A-6a (10)	920	
			5 8 7	18	56	SS-2	4.5+	-	-	-	-	-	-	-	-	13	A-6a (V)	-	
HARD, GRAY, **SANDY SILT**, MOIST	1141.1	5 6	7 4 5	11	100	SS-3	2.50	32	8	13	26	21	26	16	10	15	A-4a (2)	-	
		EOB 7	2 2 4	7	100	SS-4	1.25	-	-	-	-	-	-	-	-	17	A-4a (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:31 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 83+67, 31' RT.	EXPLORATION ID B-036-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1147.5 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/17/23 END: 7/17/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.080846, -82.735430	

MATERIAL DESCRIPTION AND NOTES	ELEV. 1147.5	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 2"	1147.1																		
VERY STIFF TO HARD, BROWN, **SILT AND CLAY**, MOIST (FILL)	1145.0	1	3 2 3	6	50	SS-1	4.00	6	6	14	37	37	29	17	12	17	A-6a (9)	460	
VERY STIFF, BROWNISH GRAY, **SILT AND CLAY**, MOIST (FILL)	1143.5	3	4 4 5	11	61	SS-2	2.50	-	-	-	-	-	-	-	-	19	A-6a (V)	-	
STIFF TO VERY STIFF, GRAY, **SILT AND CLAY**, MOIST (FILL)	1140.5	5	5 5 7	15	67	SS-3	2.00	10	8	17	36	29	34	21	13	20	A-6a (7)	-	
	EOB	7	4 4 4	10	89	SS-4	1.25	-	-	-	-	-	-	-	-	17	A-6a (V)	-	

DRAFT

NOTES: AUGER PHOTOS OF AREA WITH POSSIBLE STANDING WATER

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:31 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 87+64, 28' LT.	EXPLORATION ID B-037-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1148.9 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/13/23 END: 7/13/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.080982, -82.734009	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 6"	1148.5																		
VERY STIFF TO HARD, BROWN TO LIGHT BROWN MOTTLED, **SANDY SILT**, DAMP TO MOIST (FILL)		1	6 6 7	16	22	SS-1	4.00	2	3	8	46	41	24	15	9	17	A-4a (8)	4900	
	1144.9	2	5 6 9	18	78	SS-2	4.5+	8	9	16	43	24	23	16	7	11	A-4a (6)	-	
HARD, GRAY, **SANDY SILT**, DAMP (FILL)		3	5 7 9	19	100	SS-3	4.5+	-	-	-	-	-	-	-	-	12	A-4a (V)	-	
	1141.9	4	5 7 9	19	83	SS-4	4.50	-	-	-	-	-	-	-	-	13	A-4a (V)	-	
		EOB 5																	
		6																	
		7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:31 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00
TYPE: SUBGRADE
PID: 117878 SFN:
START: 7/17/23 END: 7/17/23

DRILLING FIRM / OPERATOR: DLZ / K. CONRAD
SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON
DRILLING METHOD: 2.25" CFA
SAMPLING METHOD: SPT

DRILL RIG: '23 CME 75-KC-777
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 91+59, 28' RT.
ALIGNMENT: LIC-161
ELEVATION: 1155.1 (MSL) EOB: 7.0 ft.
LAT / LONG: 40.080805, -82.732602

EXPLORATION ID B-038-0-23

PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 2"	1155.1																		
HARD, BROWN, **SANDY SILT**, DAMP	1154.8	1	4 7 7	17	89	SS-1	4.5+	10	8	17	35	30	27	17	10	13	A-4a (6)	290	
		2																	
		3	8 8 10	22	100	SS-2	4.5+	9	8	16	37	30	24	16	8	14	A-4a (6)	-	
	1151.1	4																	
HARD, BROWN, **SILTY CLAY**, MOIST			4 5 6	13	100	SS-3	4.5+	-	-	-	-	-	-	-	-	13	A-6b (V)	-	
		5																	
		6	10 8 9	21	100	SS-4	4.5+	-	-	-	-	-	-	-	-	14	A-6b (V)	-	
	1148.1	EOB 7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:31 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00
TYPE: SUBGRADE
PID: 117878 SFN:
START: 7/13/23 END: 7/13/23

DRILLING FIRM / OPERATOR: DLZ / K. CONRAD
SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON
DRILLING METHOD: 2.25" CFA
SAMPLING METHOD: SPT

DRILL RIG: '23 CME 75-KC-777
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 95+53, 26' LT.
ALIGNMENT: LIC-161
ELEVATION: 1160.9 (MSL) EOB: 7.0 ft.
LAT / LONG: 40.080929, -82.731190

EXPLORATION ID B-039-0-23

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 5"	1160.5																		
VERY STIFF TO HARD, BROWN, **SANDY SILT**, MOIST TO WET		W 1158.4	4 4 6	12	78	SS-1	4.5+	9	8	18	40	25	24	15	9	12	A-4a (6)	170	
	1157.6		5 6 7	16	100	SS-2A	4.5+	10	9	28	32	21	23	14	9	19	A-4a (4)	-	
VERY STIFF, BROWN, **SILTY CLAY**, LITTLE SAND, MOIST						SS-2B	3.50	-	-	-	-	-	-	-	-	-	A-6b (V)	-	
	1155.4		3 4 9	16	100	SS-3	3.50	-	-	-	-	-	-	-	-	13	A-6b (V)	-	
VERY STIFF TO HARD, BROWN TO DARK BROWN, **SILTY CLAY**, MOIST	1153.9	EOB	7 10 11	25	100	SS-4	4.00	-	-	-	-	-	-	-	-	10	A-6b (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:31 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00
TYPE: SUBGRADE
PID: 117878 SFN:
START: 7/17/23 END: 7/17/23

DRILLING FIRM / OPERATOR: DLZ / K. CONRAD
SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON
DRILLING METHOD: 2.25" CFA
SAMPLING METHOD: SPT

DRILL RIG: '23 CME 75-KC-777
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 99+42, 31' RT.
ALIGNMENT: LIC-161
ELEVATION: 1167.6 (MSL) EOB: 7.0 ft.
LAT / LONG: 40.080747, -82.729805

EXPLORATION ID B-040-0-23

MATERIAL DESCRIPTION AND NOTES	ELEV. 1167.6	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 2"	1167.4																		
VERY STIFF, GRAYISH BROWN, **SILT AND CLAY**, DAMP (FILL)	1165.1	1	2 3 3	7	56	SS-1	3.00	21	4	12	36	27	29	18	11	15	A-6a (6)	120	
HARD, GRAYISH BROWN, **SILTY CLAY**, LITTLE SAND, DAMP (FILL)	1163.6	2	3 4 3	8	72	SS-2	4.5+	11	7	16	34	32	34	18	16	13	A-6b (9)	-	
STIFF TO HARD, DARK BROWNISH GRAY TO DARK GRAY, **SILTY CLAY**, DAMP (FILL)		3	5 6 7	16	83	SS-3	2.00	-	-	-	-	-	-	-	-	14	A-6b (V)	-	
	1160.6	4	5 7 7	17	100	SS-4	4.50	-	-	-	-	-	-	-	-	14	A-6b (V)	-	
		EOB 5																	
		6																	
		7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:31 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 103+48, 28' LT.	EXPLORATION ID B-041-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1173.3 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/13/23 END: 7/13/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.080883, -82.728348	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 4"	1173.3																		
VERY STIFF TO HARD, GRAY, **SANDY SILT**, LITTLE GRAVEL, CONTAINS BROKEN GRAVELS, DAMP (FILL)	1172.9	1	5 10 9	23	72	SS-1	4.5+	12	7	14	41	26	24	16	8	10	A-4a (6)	4900	
@ 3.5', brown to grayish brown. (FILL)		2 3 4	3 6 7	16	83	SS-2	4.5+	18	9	16	35	22	21	15	6	11	A-4a (4)	-	
@5.5', brown.		5	6 7 10	21	100	SS-3	4.5+	-	-	-	-	-	-	-	-	10	A-4a (V)	-	
	1166.3	6 EOB 7	6 8 11	23	89	SS-4	3.50	-	-	-	-	-	-	-	-	14	A-4a (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:31 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00
TYPE: SUBGRADE
PID: 117878 SFN:
START: 7/17/23 END: 7/17/23

DRILLING FIRM / OPERATOR: DLZ / K. CONRAD
SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON
DRILLING METHOD: 2.25" CFA
SAMPLING METHOD: SPT

DRILL RIG: '23 CME 75-KC-777
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 107+46, 31' RT.
ALIGNMENT: LIC-161
ELEVATION: 1179.8 (MSL) EOB: 7.0 ft.
LAT / LONG: 40.080698, -82.726931

EXPLORATION ID B-042-0-23

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 5"	1179.4																		
HARD, BROWN, **SANDY SILT**, DAMP (FILL)	1177.3	1	6 7 8	18	61	SS-1	4.5+	13	8	16	37	26	24	15	9	11	A-4a (6)	400	
HARD, GRAY, **SANDY SILT**, DAMP (FILL)		2 3 4	8 10 10	24	100	SS-2	4.5+	35	14	11	23	17	22	14	8	8	A-4a (1)	-	
		5	6 7 10	21	100	SS-3	4.5+	-	-	-	-	-	-	-	-	11	A-4a (V)	-	
	1172.8	6 EOB 7	6 9 11	24	100	SS-4	4.5+	-	-	-	-	-	-	-	-	11	A-4a (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:32 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00
TYPE: SUBGRADE
PID: 117878 SFN:
START: 7/13/23 END: 7/13/23

DRILLING FIRM / OPERATOR: DLZ / K. CONRAD
SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON
DRILLING METHOD: 2.25" CFA
SAMPLING METHOD: SPT

DRILL RIG: '23 CME 75-KC-777
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 111+03, 29' LT.
ALIGNMENT: LIC-161
ELEVATION: 1184.8 (MSL) EOB: 7.0 ft.
LAT / LONG: 40.080839, -82.725653

EXPLORATION ID B-043-0-23
PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 1184.8	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 5"	1184.4																		
STIFF TO VERY STIFF, BROWN TO DARK GRAY MOTTLED, **SILT AND CLAY**, CONTAINS WOOD FRAGMENTS, MOIST (FILL)		1	4 4 5	11	61	SS-1	1.50	4	5	13	42	36	31	19	12	19	A-6a (9)	190	
		2																	
		3	4 6 4	12	78	SS-2	1.00	4	4	13	43	36	32	18	14	22	A-6a (10)	-	
		4																	
		5	5 7 10	21	67	SS-3	4.50	-	-	-	-	-	-	-	-	13	A-6a (V)	-	
@ 5.5', gray.		6	7 7 5	15	100	SS-4	4.5+	-	-	-	-	-	-	-	-	11	A-6a (V)	-	
	1177.8	EOB 7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:32 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 115+12, 32' RT.	EXPLORATION ID B-044-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1191.7 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/18/23 END: 7/18/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.080648, -82.724196	

MATERIAL DESCRIPTION AND NOTES	ELEV. 1191.7	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 5"	1191.3																		
VERY STIFF, BROWN TO GRAYISH BROWN, **SILT AND CLAY**, MOIST TO DAMP (FILL)	1189.2	1 2	3 4 5	11	89	SS-1	3.00	11	9	17	37	26	27	16	11	15	A-6a (6)	190	
HARD, BROWN, **SILTY CLAY**, MOIST (FILL)	1187.7	3 4	9 10 8	22	83	SS-2	4.25	7	6	13	38	36	30	14	16	16	A-6b (10)	-	
STIFF, BROWN TO DARK BROWN, **SILTY CLAY**, MOIST (FILL)	1186.2	5	8 7 5	15	28	SS-3	1.50	-	-	-	-	-	-	-	-	16	A-6b (V)	-	
VERY STIFF, BROWN TO DARK BROWN, **SILTY CLAY**, DROVE LARGE GRAVEL, MOIST (FILL)	1184.7	6 EOB 7	4 7 7	17	-	SS-4	3.50	-	-	-	-	-	-	-	-	9	A-6b (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:32 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 119+33, 23' LT.	EXPLORATION ID B-045-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1197.4 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/13/23 END: 7/13/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.080772, -82.722687	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 2"	1197.4																		
VERY DENSE, BROWNISH GRAY, **GRAVEL AND STONE FRAGMENTS WITH SAND**, DAMP (FILL)	1197.2	1	14 21 20	50	67	SS-1	-	38	24	15	4	19	18	17	1	6	A-1-b (0)	440	
		2																	
		3	25 21 24	54	83	SS-2	-	53	17	11	10	9	NP	NP	NP	5	A-1-b (0)	-	
		4																	
		5	27 28 28	68	100	SS-3	-	-	-	-	-	-	-	-	-	6	A-1-b (V)	-	
		6																	
@6.0', slight auger chatter.	1190.4	EOB 7	27 32 40	87	100	SS-4	-	-	-	-	-	-	-	-	-	7	A-1-b (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:32 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 123+19, 27' RT.	EXPLORATION ID B-046-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1197.6 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/18/23 END: 7/18/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.080611, -82.721311	

MATERIAL DESCRIPTION AND NOTES	ELEV. 1197.6	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 8"	1197.0																		
STIFF TO VERY STIFF, BROWN TO DARK BROWN MOTTLED, **SILTY CLAY**, DAMP TO MOIST (FILL)	1195.1	1 2	3 3 3	7	78	SS-1	2.75	4	5	11	42	38	35	19	16	19	A-6b (10)	-	
VERY STIFF, BROWNISH GRAY TO BROWN, **SILTY CLAY**, MOIST (FILL)	1193.6	3 4	5 5 7	15	100	SS-2	2.75	11	4	14	37	34	35	17	18	18	A-6b (10)	190	
VERY STIFF TO HARD, BROWN, **SILTY CLAY**, MOIST (FILL)	1190.6	5 6	6 7 6	16	100	SS-3	2.50	-	-	-	-	-	-	-	-	18	A-6b (V)	-	
		EOB 7	5 8 10	22	78	SS-4	4.50	-	-	-	-	-	-	-	-	13	A-6b (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:32 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 126+95, 25' LT.	EXPLORATION ID B-047-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1194.3 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/13/23 END: 7/13/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.080729, -82.719966	

MATERIAL DESCRIPTION AND NOTES	ELEV. 1194.3	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 5"	1193.9																		
HARD, BROWN, **SANDY SILT**, CONTAINS COBBLES, DAMP (FILL)	1191.8	1	4 6 5	13	67	SS-1	4.5+	18	7	14	32	29	26	16	10	11	A-4a (5)	1600	
VERY STIFF TO HARD, BROWN AND GRAY MOTTLED, **SILT AND CLAY**, CONTAINS COBBLES, DAMP (FILL)		2 3 4	12 10 9	23	94	SS-2	4.5+	5	3	9	47	36	30	16	14	13	A-6a (10)	-	
		5	8 10 11	25	83	SS-3	4.00	-	-	-	-	-	-	-	-	14	A-6a (V)	-	
	1187.3	6 EOB 7	9 10 10	24	100	SS-4	4.5+	-	-	-	-	-	-	-	-	13	A-6a (V)	-	

DRAFT

NOTES: COBBLES OBSERVED IN CUTTINGS

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:32 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00
TYPE: SUBGRADE
PID: 117878 SFN:
START: 7/18/23 END: 7/18/23

DRILLING FIRM / OPERATOR: DLZ / K. CONRAD
SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON
DRILLING METHOD: 2.25" CFA
SAMPLING METHOD: SPT

DRILL RIG: '23 CME 75-KC-777
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 130+93, 26' RT.
ALIGNMENT: LIC-161
ELEVATION: 1190.4 (MSL) EOB: 7.0 ft.
LAT / LONG: 40.080565, -82.718546

EXPLORATION ID B-048-0-23
PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 5"	1190.4 / 1190.1																		
HARD, BROWN TO DARK BROWN, **SILT AND CLAY**, LITTLE SAND, DAMP (FILL)	1187.9	1 2	5 8 7	18	100	SS-1	4.5+	12	7	14	37	30	27	16	11	11	A-6a (7)	1600	
VERY STIFF TO HARD, BROWN TO DARK BROWN MOTTLED, **SILT AND CLAY**, DAMP (FILL)		3	8 7 9	19	100	SS-2	4.5+	19	9	15	28	29	31	16	15	15	A-6a (6)	-	
@4.5', drove large gravel.	1184.9	4 5	14 28 9	45	100	SS-3	3.00	-	-	-	-	-	-	-	-	12	A-6a (V)	-	
HARD, GRAYISH BROWN, **SILT AND CLAY**, DAMP (FILL)	1183.4	6	5 9 12	25	78	SS-4	4.5+	-	-	-	-	-	-	-	-	14	A-6a (V)	-	
		EOB 7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:32 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 134+68, 29' LT.	EXPLORATION ID B-049-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1190.1 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/13/23 END: 7/13/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.080691, -82.717202	

MATERIAL DESCRIPTION AND NOTES	ELEV. 1190.1	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 4"	1189.8																		
VERY STIFF, BROWN, **SILT AND CLAY**, LITTLE SAND, DAMP	1186.1	1	5 7 7	17	89	SS-1	1.75	15	5	14	33	33	31	16	15	14	A-6a (8)	<100	
		2																	
		3	7 5 7	15	100	SS-2	3.00	-	-	-	-	-	-	-	-	15	A-6a (V)	-	
		4																	
VERY STIFF, GRAY, **SILTY CLAY**, STRONG ORGANIC ODOR, MOIST	1184.6	5	5 6 6	15	56	SS-3	3.25	-	-	-	-	-	-	-	-	21	A-6b (V)	-	
STIFF, LIGHT BROWN TO GRAY MOTTLED, **SILTY CLAY**, MOIST	1183.1	6	4 4 7	13	100	SS-4	1.50	0	1	4	34	61	40	21	19	29	A-6b (12)	-	
		EOB 7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:32 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 138+54, 27' RT.	EXPLORATION ID B-050-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1192.4 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/18/23 END: 7/18/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.080512, -82.715827	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 3"	1192.4 / 1192.1																		
STIFF TO HARD, BROWN, **SILT AND CLAY**, LITTLE SAND, DAMP TO MOIST S-1 material insufficient for water content testing.	1188.4	1 – 3	7 7 7	17	22	SS-1	4.00	-	-	-	-	-	-	-	-	-	A-6a (V)	560	
		3 – 4	7 11 9	24	100	SS-2	4.5+	9	7	16	35	33	29	16	13	13	A-6a (8)	-	
VERY STIFF, BROWN, **SILTY CLAY**, MOIST	1186.9	4 – 5	4 6 5	13	100	SS-3	3.00	4	4	15	33	44	34	18	16	16	A-6b (10)	-	
VERY STIFF, BROWN TO GRAY MOTTLED, **SILTY CLAY**, MOIST	1185.4	6 – EOB 7	5 6 8	17	100	SS-4	3.00	-	-	-	-	-	-	-	-	14	A-6b (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:32 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 142+53, 28' LT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1194.4 (MSL) EOB: 7.0 ft.
START: 7/13/23 END: 7/13/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.080638, -82.714400

EXPLORATION ID B-051-0-23

PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 1194.4	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 5"	1193.9																		
HARD, BROWN, **SILT AND CLAY**, DAMP	1191.9	1	3 6 8	17	94	SS-1	4.50	10	6	15	37	32	27	16	11	12	A-6a (7)	<100	
HARD, BROWNISH GRAY, **SANDY SILT**, DAMP	1190.4	2 3 4	10 8 11	23	100	SS-2	4.50	11	8	16	35	30	25	16	9	13	A-4a (6)	-	
VERY STIFF TO HARD, BROWN AND GRAY MOTTLED, **SANDY SILT**, MOIST		5	10 8 9	21	100	SS-3	4.00	-	-	-	-	-	-	-	-	12	A-4a (V)	-	
	1187.4	6 EOB 7	7 8 10	22	100	SS-4	4.25	-	-	-	-	-	-	-	-	12	A-4a (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:32 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 146+44, 28' RT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1196.7 (MSL) EOB: 7.0 ft.
START: 7/18/23 END: 7/18/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.080460, -82.713007

EXPLORATION ID B-052-0-23

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 5"	1196.7																		
HARD, GRAY, **SANDY SILT**, DAMP	1196.3	1	2 5 5	12	61	SS-1	-	11	7	15	39	28	23	15	8	12	A-4a (6)	1200	
@ 2.5'-4.0' no recovery assume drove gravel.	1192.7	2 3	6 5 4	11	0	SS-2	-	-	-	-	-	-	-	-	-	-	A-4a (V)	-	
STIFF TO VERY STIFF, GRAY, **SANDY SILT**, SLIGHTLY ORGANIC, MOIST	1189.7	4 5 6 EOB 7	2 3 4	8	100	SS-3	1.25	14	8	16	38	24	21	11	10	12	A-4a (5)	-	
			4 5 8	16	100	SS-4	2.25	-	-	-	-	-	-	-	-	12	A-4a (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:32 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00
TYPE: SUBGRADE
PID: 117878 SFN:
START: 7/13/23 END: 7/13/23

DRILLING FIRM / OPERATOR: DLZ / K. CONRAD
SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON
DRILLING METHOD: 2.25" CFA
SAMPLING METHOD: SPT

DRILL RIG: '23 CME 75-KC-777
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 150+39, 26' LT.
ALIGNMENT: LIC-161
ELEVATION: 1198.5 (MSL) EOB: 7.0 ft.
LAT / LONG: 40.080586, -82.711592

EXPLORATION ID B-053-0-23
PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 1198.5	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 6"	1198.0																		
HARD, BROWNISH GRAY, **SILT AND CLAY**, MOIST	1196.0	1 2	3 7 10	21	61	SS-1	4.5+	13	8	22	28	29	26	15	11	11	A-6a (5)	460	
HARD, BROWNISH GRAY, **SANDY SILT**, DAMP	1194.5	3 4	12 11 12	28	100	SS-2	4.5+	7	6	14	41	32	25	17	8	13	A-4a (8)	-	
VERY STIFF, GRAY, **SILT AND CLAY**, MOIST	1193.0	5 6	5 6 6	15	100	SS-3	3.50	-	-	-	-	-	-	-	-	14	A-6a (V)	-	
VERY STIFF, DARK BROWN, **SANDY SILT**, DAMP	1191.5	6 7 EOB	6 6 6	15	39	SS-4	3.50	-	-	-	-	-	-	-	-	10	A-4a (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:32 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 154+22, 23' RT.	EXPLORATION ID B-054-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1201.5 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/18/23 END: 7/18/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.080426, -82.710226	

MATERIAL DESCRIPTION AND NOTES	ELEV. 1201.5	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 5"	1201.1																		
HARD, BROWN, **SANDY SILT**, DAMP	1199.0	1	5 6 7	16	100	SS-1	4.5+	10	8	14	42	26	23	16	7	12	A-4a (7)	590	
STIFF TO VERY STIFF, GRAY, **SANDY SILT**, DAMP		2 3	5 6 9	18	100	SS-2	3.50	9	6	14	40	31	17	16	1	12	A-4a (7)	-	
		4 5	5 6 5	13	100	SS-3	2.50	-	-	-	-	-	-	-	-	13	A-4a (V)	-	
	1194.5	EOB 6 7	3 5 5	12	100	SS-4	2.00	-	-	-	-	-	-	-	-	13	A-4a (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:32 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 158+28, 27' LT.	EXPLORATION ID B-055-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1204.0 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/13/23 END: 7/13/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.080538, -82.708771	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 7"	1204.0																		
HARD, GRAY, **SANDY SILT**, DAMP	1203.4	1	3 8 16	29	83	SS-1	4.5+	5	5	14	45	31	23	13	10	10	A-4a (8)	3200	
		2																	
		3	14 13 11	29	100	SS-2	4.5+	6	6	12	44	32	22	14	8	13	A-4a (8)	-	
		4																	
		5	10 8 9	21	89	SS-3	4.5+	-	-	-	-	-	-	-	-	4	A-4a (V)	-	
		6																	
	1197.0	EOB 7	5 9 10	23	100	SS-4	4.5+	-	-	-	-	-	-	-	-	11	A-4a (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:32 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 162+18, 28' RT.	EXPLORATION ID B-056-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1206.4 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/18/23 END: 7/18/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.080362, -82.707382	

MATERIAL DESCRIPTION AND NOTES	ELEV. 1206.4	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 5"	1205.9																		
HARD, BROWN, **SANDY SILT**, DAMP		1	5 9 8	21	67	SS-1	4.5+	6	8	15	41	30	20	15	5	9	A-4a (7)	650	
	1203.9	2																	
STIFF TO HARD, GRAY, **SANDY SILT**, DAMP TO MOIST		3	11 9 9	22	100	SS-2	4.5+	-	-	-	-	-	-	-	-	10	A-4a (V)	-	
		4	6 7 5	15	100	SS-3	3.00	-	-	-	-	-	-	-	-	13	A-4a (V)	-	
		5																	
		6	6 6 3	11	100	SS-4	2.50	9	7	17	41	26	23	16	7	14	A-4a (6)	-	
	1199.4	EOB 7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:32 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 166+16, 22' LT.	EXPLORATION ID B-057-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1208.1 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/12/23 END: 7/12/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.080473, -82.705957	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 3"	1208.1																		
HARD, BROWN TO GRAY, **SANDY SILT**, DAMP	1207.8	1	5 7 10	21	83	SS-1	4.5+	7	7	14	41	31	26	17	9	11	A-4a (7)	300	
		2																	
		3	9 10 8	22	89	SS-2	4.5+	11	9	15	38	27	23	16	7	12	A-4a (6)	-	
		4																	
		5	7 8 9	21	100	SS-3	4.5+	-	-	-	-	-	-	-	-	12	A-4a (V)	-	
		6																	
	1201.1	EOB 7	7 9 9	22	89	SS-4	4.00	-	-	-	-	-	-	-	-	13	A-4a (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:32 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00
TYPE: SUBGRADE
PID: 117878 SFN:
START: 7/18/23 END: 7/18/23

DRILLING FIRM / OPERATOR: DLZ / K. CONRAD
SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON
DRILLING METHOD: 2.25" CFA
SAMPLING METHOD: SPT

DRILL RIG: '23 CME 75-KC-777
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 170+18, 27' RT.
ALIGNMENT: LIC-161
ELEVATION: 1211.4 (MSL) EOB: 7.0 ft.
LAT / LONG: 40.080313, -82.704526

EXPLORATION ID B-058-0-23
PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 1211.4	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 6"	1210.9																		
HARD, BROWN, **SANDY SILT**, DAMP		1	4 6 8	17	94	SS-1	4.5+	11	5	16	39	29	23	14	9	11	A-4a (7)	150	
	1207.4	2 3 4	9 9 12	25	89	SS-2	4.5+	-	-	-	-	-	-	-	-	12	A-4a (V)	-	
HARD, GRAYISH BROWN, **SANDY SILT**, DAMP TO MOIST			11 12 11	28	100	SS-3	4.5+	6	9	18	38	29	24	15	9	13	A-4a (6)	-	
	1204.4	5 6 EOB 7	4 8 8	19	100	SS-4	4.5+	-	-	-	-	-	-	-	-	11	A-4a (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:32 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 173+76, 26' LT.	EXPLORATION ID B-059-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1213.2 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/12/23 END: 7/12/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.080436, -82.703241	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 2"	1213.2																		
HARD, BROWN TO GRAY, **SANDY SILT**, DAMP	1213.1	1	3 7 8	18	72	SS-1	4.5+	26	7	12	31	24	25	16	9	11	A-4a (4)	110	
		2																	
		3	5 8 9	21	100	SS-2	4.5+	9	7	15	41	28	26	16	10	14	A-4a (7)	-	
	1209.2	4																	
VERY STIFF, GRAY, **SANDY SILT**, CONTAINS IRON STAINING, DAMP		5	5 7 7	17	100	SS-3	3.75	-	-	-	-	-	-	-	-	14	A-4a (V)	-	
	1206.2	6	5 6 8	17	100	SS-4	4.25	-	-	-	-	-	-	-	-	14	A-4a (V)	-	
		EOB 7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:32 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 177+82, 28' RT.	EXPLORATION ID B-060-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1215.9 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/18/23 END: 7/18/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.080262, -82.701798	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 5"	1215.5																		
HARD, BROWN, **SANDY SILT**, DAMP TO MOIST		1	4 6 8	17	83	SS-1	4.5+	3	8	24	37	28	25	15	10	15	A-4a (6)	490	
	1211.9	2 3	6 8 5	16	100	SS-2	4.5+	14	9	17	35	25	23	15	8	11	A-4a (5)	-	
VERY STIFF TO HARD, BROWN TO GRAYISH BROWN, **SANDY SILT**, MOIST		4	8 7 9	19	100	SS-3	4.25	-	-	-	-	-	-	-	-	14	A-4a (V)	-	
	1208.9	EOB 5 6 7	5 6 8	17	100	SS-4	3.25	-	-	-	-	-	-	-	-	13	A-4a (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:32 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 181+77, 27' LT.	EXPLORATION ID B-061-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1218.3 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/12/23 END: 7/12/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.080389, -82.700382	

MATERIAL DESCRIPTION AND NOTES	ELEV. 1218.3	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 6"	1217.8																		
VERY DENSE, BROWN AND GRAY MOTTLED, **CLAY**, MOIST	1215.8	1	2 4 4	10	67	SS-1	2.25	2	1	4	45	48	46	20	26	24	A-7-6 (16)	<100	
STIFF TO VERY STIFF, GRAY TO GRAYISH BROWN, **CLAY**, MOIST		2	6 5 4	11	100	SS-2	3.00	2	1	4	44	49	41	18	23	24	A-7-6 (13)	-	
		3	3 3 2	6	100	SS-3	1.50	-	-	-	-	-	-	-	-	27	A-7-6 (V)	-	
	1211.3	4	1 2 6	10	100	SS-4	2.00	-	-	-	-	-	-	-	-	15	A-7-6 (V)	-	
	EOB	5																	
		6																	
		7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:32 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 185+71, 30' RT.	EXPLORATION ID B-062-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1221.3 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/18/23 END: 7/18/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.080206, -82.698977	

MATERIAL DESCRIPTION AND NOTES	ELEV. 1221.3	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 5"	1220.8																		
HARD, BROWN, **SILT AND CLAY**, LITTLE SAND, DAMP	1218.8	1	2 4 8	15	83	SS-1	4.5+	11	7	13	37	32	29	16	13	13	A-6a (8)	<100	
VERY STIFF TO HARD, BROWN, **SANDY SILT**, DAMP TO MOIST		2	8 8 8	19	100	SS-2	4.5+	11	11	21	37	20	21	14	7	11	A-4a (4)	-	
		3	12 8 10	22	100	SS-3	2.75	-	-	-	-	-	-	-	-	14	A-4a (V)	-	
	1214.3	4	7 8 10	22	100	SS-4	3.50	-	-	-	-	-	-	-	-	14	A-4a (V)	-	
		EOB 5																	
		6																	
		7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:32 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 189+54, 28' LT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1223.3 (MSL) EOB: 7.0 ft.
START: 7/12/23 END: 7/12/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.080342, -82.697604

EXPLORATION ID B-063-0-23

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 7"	1223.3 / 1222.7																		
VERY STIFF TO HARD, BROWN AND GRAY MOTTLED, **SILT AND CLAY**, MOIST	1220.8	1 2 3 4 5 6 7	2 4 6	12	72	SS-1	4.00	5	6	15	40	34	31	17	14	18	A-6a (9)	<100	
HARD, BROWN, **SANDY SILT**, DAMP	1219.3		6 7 8	18	100	SS-2	4.5+	12	9	20	37	22	22	15	7	12	A-4a (5)	-	
VERY STIFF TO HARD, GRAY, **SANDY SILT**, MOIST			6 7 7	17	39	SS-3	4.5+	-	-	-	-	-	-	-	-	13	A-4a (V)	-	
	1216.3	EOB	7 8 10	22	56	SS-4	4.00	-	-	-	-	-	-	-	-	13	A-4a (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:32 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00
TYPE: SUBGRADE
PID: 117878 SFN:
START: 7/19/23 END: 7/19/23

DRILLING FIRM / OPERATOR: DLZ / K. CONRAD
SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON
DRILLING METHOD: 2.25" CFA
SAMPLING METHOD: SPT

DRILL RIG: '23 CME 75-KC-777
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 193+50, 31' RT.
ALIGNMENT: LIC-161
ELEVATION: 1225.9 (MSL) EOB: 7.0 ft.
LAT / LONG: 40.080154, -82.696195

EXPLORATION ID B-064-0-23

MATERIAL DESCRIPTION AND NOTES	ELEV. 1225.9	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 7"	1225.3																		
HARD, BROWN TO BROWNISH GRAY, **SILTY CLAY**, DAMP	1223.4	1	4 4 4	10	67	SS-1	4.50	0	2	13	46	39	37	18	19	20	A-6b (12)	220	
VERY STIFF, LIGHT BROWN AND GRAY MOTTLED, **SILTY CLAY**, MOIST	1221.9	2 3 4	5 6 5	13	67	SS-2	2.50	2	2	14	47	35	36	20	16	22	A-6b (10)	-	
MEDIUM DENSE, LIGHT BROWN TO BROWN, **SILT**, WET	1220.4	5 6	4 5 4	11	100	SS-3	-	-	-	-	-	-	-	-	-	21	A-4b (V)	-	
MEDIUM DENSE, BROWN, **SANDY SILT**, MOIST TO WET	1218.9	EOB 7	4 5 6	13	100	SS-4	-	-	-	-	-	-	-	-	-	23	A-4a (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:32 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 197+50, 28' LT.	EXPLORATION ID B-065-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1228.0 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/12/23 END: 7/12/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.080291, -82.694760	

MATERIAL DESCRIPTION AND NOTES	ELEV. 1228.0	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL No top soil listed on log	1227.9																		
HARD, BROWN, **SANDY SILT**, DAMP		1	8 6 8	17	67	SS-1	4.5+	23	14	20	27	16	23	16	7	9	A-4a (2)	370	
		2																	
		3	9 9 8	21	78	SS-2	4.50	18	13	22	31	16	22	15	7	10	A-4a (2)	-	
		4 W 1224.0																	
@4.0'-7.0', wet.		5	7 6 6	15	56	SS-3	-	-	-	-	-	-	-	-	-	16	A-4a (V)	-	
		6																	
	1221.0	EOB 7	5 7 7	17	72	SS-4	-	-	-	-	-	-	-	-	-	20	A-4a (V)	-	

DRAFT

NOTES: HOLD COLLAPSED TO 4.5'

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:32 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 201+38, 30' RT.	EXPLORATION ID B-066-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1229.8 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/19/23 END: 7/19/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.080108, -82.693382	

MATERIAL DESCRIPTION AND NOTES	ELEV. 1229.8	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 4"	1229.4																		
VERY STIFF TO HARD, BROWN TO DARK BROWN, **SILTY CLAY**, MOIST	1227.3	1	5 4 4	10	100	SS-1	4.00	2	4	9	39	46	39	22	17	24	A-6b (11)	360	
VERY STIFF, LIGHT BROWN AND BROWN MOTTLED, **CLAY**, MOIST		2																	
MOIST @ 4.0'-5.5', contains fine sand seam.		3	5 6 6	15	100	SS-2	2.25	5	6	13	40	36	45	19	26	21	A-7-6 (15)	-	
		4																	
@ 5.5', gray.		5	4 5 5	12	100	SS-3	2.25	-	-	-	-	-	-	-	-	19	A-7-6 (V)	-	
	1222.8	6	3 5 6	13	100	SS-4	4.50	-	-	-	-	-	-	-	-	14	A-7-6 (V)	-	
EOB		7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:32 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00
TYPE: SUBGRADE
PID: 117878 SFN:
START: 7/12/23 END: 7/12/23

DRILLING FIRM / OPERATOR: DLZ / K. CONRAD
SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON
DRILLING METHOD: 2.25" CFA
SAMPLING METHOD: SPT

DRILL RIG: '23 CME 75-KC-777
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 205+27, 29' LT.
ALIGNMENT: LIC-161
ELEVATION: 1227.0 (MSL) EOB: 7.0 ft.
LAT / LONG: 40.080246, -82.691986

EXPLORATION ID B-067-0-23

MATERIAL DESCRIPTION AND NOTES	ELEV. 1227.0	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 8"	1226.3																		
HARD, DARK GRAY, **CLAY**, SLIGHTLY ORGANIC, DAMP	1224.5	1	4 4 5	11	50	SS-1	4.5+	2	4	12	46	36	41	23	18	22	A-7-6 (11)	200	
STIFF, GRAY TO DARK GRAY MOTTLED, **CLAY**, MOIST	1223.0	2 3	7 8 9	21	89	SS-2	1.75	1	4	14	41	40	41	20	21	25	A-7-6 (13)	-	
STIFF, BROWN TO BROWNISH GRAY MOTTLED, **CLAY**, LITTLE SAND, MOIST	1221.5	W 1221.5 4 5	4 4 5	11	78	SS-3	1.25	-	-	-	-	-	-	-	-	17	A-7-6 (V)	-	
MEDIUM DENSE, BROWN, **GRAVEL WITH SAND AND SILT**, WET	1220.0	6	4 7 8	18	61	SS-4	-	-	-	-	-	-	-	-	-	14	A-2-4 (V)	-	
		EOB 7																	

DRAFT

NOTES: HOLE COLLAPSED TO 5'

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:32 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 209+21, 29' RT.	EXPLORATION ID B-068-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1223.9 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/19/23 END: 7/19/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.080060, -82.690583	

MATERIAL DESCRIPTION AND NOTES	ELEV. 1223.9	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 6"	1223.4																		
HARD, BROWN, **SILTY CLAY**, DAMP	1221.4	1	5 7 14	25	61	SS-1	4.5+	7	6	15	43	29	33	18	15	15	A-6a (9)	300	
HARD, BROWN, **SILT AND CLAY**, DAMP	1220.9	2				SS-2A	4.5+	14	14	18	32	22	28	13	15	14	A-6a (6)	-	
STIFF TO VERY STIFF, BROWNISH GRAY TO BLACK, **SILT AND CLAY**, SLIGHTLY ORGANIC, MOIST		3	9 7 7	17	100	SS-2B	1.50	-	-	-	-	-	-	-	-	-	A-6a (V)	-	
@3.0', becoming brownish gray.		4				SS-3A	1.25	-	-	-	-	-	-	-	-	22	A-6a (V)	-	
@4.5', slightly organic, brownish gray and black.		5	10 5 6	13	100	SS-3B	1.25	-	-	-	-	-	-	-	-	-	A-6a (V)	-	
	1216.9	6	5 6 7	16	100	SS-4	2.75	-	-	-	-	-	-	-	-	25	A-6a (V)	-	
		EOB 7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:32 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 213+15, 30' LT.	EXPLORATION ID B-069-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1220.9 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/12/23 END: 7/12/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.080198, -82.689169	

MATERIAL DESCRIPTION AND NOTES	ELEV. 1220.9	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 7"	1220.4																		
VERY STIFF TO HARD, BROWN, **SANDY SILT**, DAMP	1218.4	1 2 3	2 3 7	12	78	SS-1	4.00	-	-	-	-	-	-	-	-	16	A-4a (V)	-	
MEDIUM STIFF, BROWN AND GRAY MOTTLED, **SANDY SILT**, SLIGHTLY ORGANIC, MOIST	1217.5	3	4 4 3	8	100	SS-2A	0.75	7	4	16	42	31	29	19	10	22	A-4a (8)	120	
	1216.9					SS-2B	0.75	-	-	-	-	-	-	-	-	-	A-4a (V)	-	
MEDIUM STIFF, GRAY TO BLUISH GRAY, **SANDY SILT**, MOIST	1215.4	4 5	3 4 5	11	100	SS-3	1.25	0	3	17	47	33	23	18	5	21	A-4a (8)	-	
VERY STIFF, GRAYISH BROWN, **SANDY SILT**, WET HARD, BROWN, **SANDY SILT**, MOIST	1213.9	6 7	4 6 10	19	100	SS-4	4.5+	-	-	-	-	-	-	-	-	18	A-4a (V)	-	
		EOB																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:32 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 217+11, 28' RT.	EXPLORATION ID B-070-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1217.3 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/19/23 END: 7/19/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.080014, -82.687761	

MATERIAL DESCRIPTION AND NOTES	ELEV. 1217.3	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 8"	1216.6																		
HARD, BROWN, **SILT AND CLAY**, DAMP		1	5 9 8	21	89	SS-1	4.5+	9	7	16	39	29	27	16	11	13	A-6a (7)	360	
	1213.3	2	5 7 9	19	100	SS-2	4.5+	13	7	15	37	28	29	16	13	12	A-6a (7)	-	
HARD, BROWN AND GRAY MOTTLED, **SILT AND CLAY**, DAMP		3	5 7 9	19	100	SS-3	4.5+	-	-	-	-	-	-	-	-	14	A-6a (V)	-	
	1210.3	4	5 7 9	19	100	SS-4	4.5+	-	-	-	-	-	-	-	-	14	A-6a (V)	-	
		EOB 5																	
		6																	
		7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

PROJECT: FRA-161-22.10/LIC-161-0.00
TYPE: SUBGRADE
PID: 117878 SFN:
START: 7/12/23 END: 7/12/23

DRILLING FIRM / OPERATOR: DLZ / K. CONRAD
SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON
DRILLING METHOD: 2.25" CFA
SAMPLING METHOD: SPT

DRILL RIG: '23 CME 75-KC-777
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 220+91, 28' LT.
ALIGNMENT: LIC-161
ELEVATION: 1214.2 (MSL) EOB: 7.0 ft.
LAT / LONG: 40.080136, -82.686398

EXPLORATION ID B-071-0-23

MATERIAL DESCRIPTION AND NOTES	ELEV. 1214.2	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 6"	1213.7																		
STIFF TO VERY STIFF, BROWN, **SILTY CLAY**, MOIST		1	2	8	56	SS-1	2.75	3	4	14	40	39	33	17	16	18	A-6b (10)	<100	
		2	3 4																
	1210.2	3	6	13	83	SS-2	1.75	-	-	-	-	-	-	-	-	19	A-6b (V)	-	
		4	5 6																
VERY STIFF, BROWN AND GRAY MOTTLED, **SILTY CLAY**, MOIST	1209.7		4	16	100	SS-3A	2.25	0	1	4	54	41	37	21	16	28	A-6b (10)	-	
		5	6 7			SS-3B	1.25	-	-	-	-	-	-	-	-	-	A-6b (V)	-	
STIFF, BROWN, **SILTY CLAY**, MOIST	1207.2	6	3 6	15	78	SS-4	1.25	-	-	-	-	-	-	-	-	24	A-6b (V)	-	
		EOB 7	6																

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:32 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:32 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\23321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 224+79, 28' RT.	EXPLORATION ID B-072-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1211.5 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/19/23 END: 7/19/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.079943, -82.685018	

MATERIAL DESCRIPTION AND NOTES	ELEV. 1211.5	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 6"	1211.0																		
HARD, BROWN, **SILT AND CLAY**, LITTLE SAND, DAMP		1	5 9 11	24	89	SS-1	4.5+	4	9	17	36	34	28	16	12	13	A-6a (8)	600	
		2																	
		3	11 12 10	27	100	SS-2	4.5+	7	7	16	40	30	28	16	12	14	A-6a (8)	-	
		4	4 5 7	15	100	SS-3	4.5+	-	-	-	-	-	-	-	-	14	A-6a (V)	-	
@ 5.5', moist.		5																	
		6	5 5 6	13	100	SS-4	4.5+	-	-	-	-	-	-	-	-	12	A-6a (V)	-	
	1204.5	EOB 7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 228+82, 28' LT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1208.5 (MSL) EOB: 7.0 ft.
START: 7/12/23 END: 7/12/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.080056, -82.683574

EXPLORATION ID B-073-0-23

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 4"	1208.5																		
HARD, BROWN, **SANDY SILT**, MOIST	1208.1	1	4 5 9	17	89	SS-1	4.5+	26	8	18	29	19	27	17	10	11	A-4a (3)	1100	
VERY STIFF TO HARD, BROWN TO GRAYISH BROWN, **SANDY SILT**, DAMP	1206.0	2 3	8 10 11	25	100	SS-2	4.00	8	7	16	40	29	24	15	9	13	A-4a (7)	-	
VERY STIFF, GRAY, **SANDY SILT**, MOIST @ 4.0'-5.5', slightly organic.	1204.5	4 5	5 8 7	18	100	SS-3	3.75	-	-	-	-	-	-	-	-	12	A-4a (V)	-	
	1201.5	6 EOB 7	5 6 7	16	100	SS-4	3.50	-	-	-	-	-	-	-	-	12	A-4a (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:32 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:32 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 232+81, 27' RT.	EXPLORATION ID B-074-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1204.6 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/19/23 END: 7/19/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.079865, -82.682156	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 5"	1204.6																		
VERY STIFF TO HARD, GRAY, **SANDY SILT**, DAMP TO MOIST	1204.2	1	10 12 9	25	100	SS-1	4.5+	7	7	16	43	27	23	16	7	10	A-4a (7)	1400	
		2																	
		3	5 6 6	15	100	SS-2	4.25	8	8	14	42	28	23	13	10	12	A-4a (7)	-	
		4																	
		5	6 6 5	13	100	SS-3	3.50	-	-	-	-	-	-	-	-	14	A-4a (V)	-	
		6																	
	1197.6	EOB 7	5 4 5	11	78	SS-4	2.50	-	-	-	-	-	-	-	-	12	A-4a (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:32 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 236+62, 27' LT.	EXPLORATION ID B-075-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1201.7 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/12/23 END: 7/12/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.079974, -82.680786	

MATERIAL DESCRIPTION AND NOTES	ELEV. 1201.7	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 4"	1201.4																		
HARD, BROWN, **SANDY SILT**, DAMP	1199.2	1	6 13 15	34	61	SS-1	4.5+	10	7	17	35	31	25	15	10	11	A-4a (6)	<100	
HARD, BROWN, **SILT AND CLAY**, DAMP		2 3 4	8 14 11	30	83	SS-2	4.5+	24	7	14	30	25	28	16	12	12	A-6a (5)	-	
		5	8 10 13	28	100	SS-3	4.5+	-	-	-	-	-	-	-	-	13	A-6a (V)	-	
@5.5', gray to dark gray	1194.7	6 EOB 7	7 11 13	29	100	SS-4	4.5+	-	-	-	-	-	-	-	-	13	A-6a (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:32 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 240+63, 23' RT.	EXPLORATION ID B-076-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1198.7 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/19/23 END: 7/19/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.079797, -82.679362	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
UNCONTROLLED FILL LOOSE SAND - 3"	1198.7																		
	1198.5																		
VERY STIFF, LIGHT BROWN AND DARK BROWN MOTTLED, **SILTY CLAY**, MOIST		1	2 3 4	8	50	SS-1	3.50	9	8	14	38	31	34	17	17	18	A-6b (10)	210	
	1196.2	2																	
STIFF TO VERY STIFF, LIGHT BROWN AND GRAY MOTTLED, **CLAY**, MOIST		3	4 4 5	11	61	SS-2	2.75	6	7	13	34	40	41	19	22	21	A-7-6 (13)	-	
		4	4 3 3	7	100	SS-3	3.50	-	-	-	-	-	-	-	-	20	A-7-6 (V)	-	
		5																	
		6	3 6 4	12	100	SS-4	2.00	-	-	-	-	-	-	-	-	20	A-7-6 (V)	-	
	1191.7	EOB 7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:32 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\23321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 244+68, 28' LT.	EXPLORATION ID B-077-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1195.6 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/12/23 END: 7/12/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.079895, -82.677910	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 4"	1195.6																		
VERY STIFF, BROWN, **SILT AND CLAY**, DAMP	1195.3	1	7 4 4	10	72	SS-1	2.75	9	4	14	40	33	31	19	12	17	A-6a (8)	610	
		2																	
		3	5 6 7	16	89	SS-2	3.50	2	5	13	35	45	30	18	12	18	A-6a (9)	-	
@ 4.0'-7.0', contains gray mottling.		4																	
		5	5 6 7	16	100	SS-3	2.50	-	-	-	-	-	-	-	-	16	A-6a (V)	-	
@ 5.5', hard.		6																	
	1188.6	EOB 7	6 12 11	28	100	SS-4	4.5+	-	-	-	-	-	-	-	-	12	A-6a (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:33 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 248+70, 30' RT.	EXPLORATION ID B-078-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1192.6 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/19/23 END: 7/19/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.079696, -82.676480	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 4"	1192.6																		
HARD, BROWN, **SILTY CLAY**, DAMP (FILL)	1192.3	1	3 6 7	16	100	SS-1	4.5+	4	4	13	41	38	34	16	18	16	A-6b (11)	140	
VERY STIFF TO HARD, BROWN AND GRAY MOTTLED, **SILT AND CLAY**, MOIST (FILL)	1190.1	2 3	6 9 13	27	100	SS-2	4.00	10	9	16	38	27	26	15	11	11	A-6a (6)	-	
		4 5	6 5 11	19	100	SS-3A	1.50	-	-	-	-	-	-	-	-	16	A-6a (V)	-	
						SS-3B	2.50	-	-	-	-	-	-	-	-	-	A-6a (V)	-	
	1185.6	6 EOB 7	10 12 9	25	100	SS-4	4.5+	-	-	-	-	-	-	-	-	13	A-6a (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:33 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 252+40, 29' LT.	EXPLORATION ID B-079-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1189.2 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/12/23 END: 7/12/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.079819, -82.675151	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 8"	1189.2 / 1188.5																		
VERY STIFF, BROWN, **SILTY CLAY**, DAMP TO MOIST (FILL)	1186.7	1	3 6 6	15	78	SS-1	2.75	17	8	15	34	26	28	12	16	17	A-6b (7)	240	
VERY STIFF TO HARD, BROWN, **SILT AND CLAY**, DAMP TO MOIST (FILL)		2	5 7 9	19	100	SS-2	2.50	8	11	20	32	29	26	15	11	16	A-6a (6)	-	
		3	5	19	100	SS-3A	4.00	-	-	-	-	-	-	-	-	13	A-6a (V)	-	
		4	8 8			SS-3B	4.00	-	-	-	-	-	-	-	-	-	A-6a (V)	-	
		5	7 8 10	22	89	SS-4	4.00	-	-	-	-	-	-	-	-	14	A-6a (V)	-	
	1182.2	6 EOB 7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:33 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 256+19, 30' RT.	EXPLORATION ID B-080-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1186.6 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/19/23 END: 7/19/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.079621, -82.673807	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 3"	1186.6 / 1186.4																		
VERY STIFF, BROWN, **SILT AND CLAY**, CONTAINS SAND SEAM OR CAVE-IN FROM THE SURFACE, DAMP (FILL)		1	5 4 5	11	56	SS-1	3.50	5	13	24	33	25	27	15	12	12	A-6a (5)	260	
@3.5'-7.0', LOI=2.74%.	1182.6	2 3 4	5 6 7	16	100	SS-2	3.75	-	-	-	-	-	-	-	-	13	A-6a (V)	-	
HARD, BROWN, **SILT AND CLAY**, LITTLE SAND, MOIST (FILL)	1181.1	5	6 7 8	18	100	SS-3	4.5+	-	-	-	-	-	-	-	-	13	A-6a (V)	-	
VERY STIFF, GRAY, **SILT AND CLAY**, CONTAINS STRONG ORGANIC ODOR; CONTAINS SILT SEAM, MOIST (FILL)	1179.6	6 EOB 7	6 7 7	17	89	SS-4	3.00	10	6	15	43	26	35	24	11	23	A-6a (7)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 260+14, 29' LT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1183.4 (MSL) EOB: 7.0 ft.
START: 7/11/23 END: 7/11/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.079740, -82.672387

EXPLORATION ID B-081-0-23

PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 1183.4	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 5"	1182.9																		
VERY STIFF TO HARD, BROWN, **SANDY SILT**, DAMP (FILL)		1	3 5 7	15	61	SS-1	4.00	14	7	14	38	27	25	16	9	13	A-4a (6)	<100	
	1179.4	2 3 4	5 8 10	22	89	SS-2	4.5+	-	-	-	-	-	-	-	-	12	A-4a (V)	-	
VERY STIFF TO HARD, BROWN TO GRAY, **SANDY SILT**, DAMP		5	9 10 10	24	100	SS-3	4.5+	9	7	17	36	31	28	18	10	15	A-4a (6)	-	
	1176.4	6 7	6 9 10	23	94	SS-4	2.25	-	-	-	-	-	-	-	-	15	A-4a (V)	-	
		EOB																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:33 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:33 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 264+09, 29' RT.	EXPLORATION ID B-082-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1180.1 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/20/23 END: 7/20/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.079542, -82.670985	

MATERIAL DESCRIPTION AND NOTES	ELEV. 1180.1	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 4"	1179.7																		
HARD, BROWN, **SILT AND CLAY**, DAMP (FILL)	1177.6	1	5 6 5	13	61	SS-1	4.5+	22	12	11	28	27	29	17	12	11	A-6a (5)	1600	
VERY STIFF TO HARD, LIGHT BROWN AND BROWN MOTTLED, **SILTY CLAY**, CONTAINS PLANT MATERIALS AND BLACK STREAKS, MOIST (FILL) @2.5'-4.0', moderately organic, LOI=7.62%.	1175.5	2 3 4	6 5 6	13	100	SS-2	4.00	3	6	20	37	34	36	19	17	21	A-6b (10)	-	
VERY STIFF TO HARD, GRAY, **SILTY CLAY**, MOIST	1173.1	5 6 7	5 6 7	16	100	SS-3A	4.5+	-	-	-	-	-	-	-	-	14	A-6b (V)	-	
						SS-3B	2.00	-	-	-	-	-	-	-	-	-	A-6b (V)	-	
		EOB	5 6 5	13	100	SS-4	4.50	-	-	-	-	-	-	-	-	13	A-6b (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:33 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00
TYPE: SUBGRADE
PID: 117878 SFN:
START: 7/11/23 END: 7/11/23

DRILLING FIRM / OPERATOR: DLZ / K. CONRAD
SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON
DRILLING METHOD: 2.25" CFA
SAMPLING METHOD: SPT

DRILL RIG: '23 CME 75-KC-777
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 267+81, 29' LT.
ALIGNMENT: LIC-161
ELEVATION: 1177.5 (MSL) EOB: 7.0 ft.
LAT / LONG: 40.079663, -82.669648

EXPLORATION ID B-083-0-23
PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 1177.5	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 5"	1177.1																		
VERY STIFF, BROWN, **SILTY CLAY**, MOIST (FILL)		1	2 3 5	10	61	SS-1	2.50	2	3	12	34	49	36	18	18	22	A-6b (11)	140	
	1173.5	2 3 4	5 6 5	13	39	SS-2	2.25	-	-	-	-	-	-	-	-	13	A-6b (V)	-	
STIFF, BROWN AND ORANGISH BROWN MOTTLED, **SILTY CLAY**, MOIST	1172.0	5 6 7	5 5 4	11	78	SS-3	1.75	8	5	14	32	41	37	18	19	22	A-6b (11)	-	
MEDIUM STIFF, BROWN, **SILTY CLAY**, MOIST	1170.5	EOB	3 4 4	10	100	SS-4	0.75	-	-	-	-	-	-	-	-	24	A-6b (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:33 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 272+10, 30' RT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1173.7 (MSL) EOB: 7.0 ft.
START: 7/20/23 END: 7/20/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.079439, -82.668132

EXPLORATION ID B-084-0-23

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 6"	1173.2																		
HARD, BROWN, **SILTY CLAY**, MOIST	1171.2	1	4 3 3	7	100	SS-1	4.50	1	2	10	48	39	39	18	21	22	A-6b (12)	160	
STIFF, LIGHT BROWN AND BROWN MOTTLED, **CLAY**, MOIST	1169.7	2 3	4 7 10	21	100	SS-2	1.50	3	3	11	45	38	41	19	22	23	A-7-6 (13)	-	
SOFT, LIGHT BROWN, **SILTY CLAY**, SOME FINE SAND, MOIST	1168.2	W 1169.7 4	1 1 2	4	100	SS-3	0.25	-	-	-	-	-	-	-	-	25	A-6b (V)	-	
SOFT, BROWN, **CLAY**, MOIST	1167.7	5	2 4 4	10	100	SS-4A	0.25	-	-	-	-	-	-	-	-	24	A-7-6 (V)	-	
VERY STIFF, BROWN, **SILTY CLAY**, MOIST	1166.7	6				SS-4B	2.75	-	-	-	-	-	-	-	-	-	A-6b (V)	-	
		EOB 7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:33 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 275+86, 29' LT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1171.0 (MSL) EOB: 7.0 ft.
START: 7/11/23 END: 7/11/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.079492, -82.666773

EXPLORATION ID B-085-0-23

MATERIAL DESCRIPTION AND NOTES	ELEV. 1171.0	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 5"	1170.5																		
HARD, BROWN, **SILTY CLAY**, MOIST	1168.5	1 2	5 7 11	22	50	SS-1	4.5+	9	6	17	40	28	35	17	18	12	A-6b (10)	420	
HARD, BROWN, **SANDY SILT**, DAMP	1167.0	3 4	12 10 11	25	100	SS-2	4.5+	8	8	17	40	27	25	16	9	12	A-4a (6)	-	
STIFF TO VERY STIFF, BROWN AND GRAY, **SILTY CLAY**, DAMP	1164.0	5 6 EOB 7	7 8 12	24	56	SS-3	1.50	-	-	-	-	-	-	-	-	11	A-6b (V)	-	
			7 10 10	24	100	SS-4	3.50	-	-	-	-	-	-	-	-	12	A-6b (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:33 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 279+68, 29' RT.	EXPLORATION ID B-086-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1168.2 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/20/23 END: 7/20/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.079172, -82.665457	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 3"	1168.2																		
HARD, BROWN, **SILT AND CLAY**, LITTLE SAND, DAMP	1167.9	1	6 8 9	21	78	SS-1	4.5+	9	8	16	41	26	28	15	13	13	A-6a (8)	180	
HARD, BROWN, **SANDY SILT**, DAMP	1165.7	2																	
		3	5 6 11	21	100	SS-2	4.5+	10	9	17	40	24	22	14	8	11	A-4a (6)	-	
		4	7			SS-3A	4.50	-	-	-	-	-	-	-	-	9	A-4a (V)	-	
DAMP @4.7'-6.0', gray		5	9 12	25	100	SS-3B	4.50	-	-	-	-	-	-	-	-	-	A-4a (V)	-	
	1161.2	6 EOB	9 11 11	27	100	SS-4	4.50	-	-	-	-	-	-	-	-	11	A-4a (V)	-	
		7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:33 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00
TYPE: SUBGRADE
PID: 117878 SFN:
START: 7/11/23 END: 7/11/23

DRILLING FIRM / OPERATOR: DLZ / K. CONRAD
SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON
DRILLING METHOD: 2.25" CFA
SAMPLING METHOD: SPT

DRILL RIG: '23 CME 75-KC-777
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 283+68, 28' LT.
ALIGNMENT: LIC-161
ELEVATION: 1164.5 (MSL) EOB: 7.0 ft.
LAT / LONG: 40.079102, -82.664016

EXPLORATION ID B-087-0-23
PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 1164.5	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 4"	1164.2																		
VERY STIFF TO HARD, BROWN, **SILTY CLAY**, MOIST	1162.0	1	3 5 7	15	56	SS-1	4.00	14	5	14	36	31	31	11	20	14	A-6b (10)	160	
HARD, BROWN, **SILT AND CLAY**, DAMP	1160.5	3	12 8 10	22	100	SS-2	4.5+	7	3	14	42	34	31	18	13	15	A-6a (9)	-	
HARD, GRAY, **SILT AND CLAY**, DAMP TO MOIST	1159.0	5	7 8 7	18	100	SS-3	4.5+	-	-	-	-	-	-	-	-	15	A-6a (V)	-	
VERY STIFF, BROWN TO DARK BROWN MOTTLED, **SILT AND CLAY**, LITTLE SAND, MOIST	1157.5	6	5 7 7	17	100	SS-4	3.00	-	-	-	-	-	-	-	-	17	A-6a (V)	-	
		EOB 7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:33 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 287+65, 30' RT.	EXPLORATION ID B-088-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1161.4 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/20/23 END: 7/20/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.078690, -82.662687	

MATERIAL DESCRIPTION AND NOTES	ELEV. 1161.4	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 5"	1161.0																		
HARD, BROWN, **SANDY SILT**, DAMP	1158.9	1	1 3 4	8	83	SS-1	4.5+	7	5	14	42	32	29	16	13	15	A-6a (9)	460	
HARD, BROWN, **SILTY CLAY**, LITTLE SAND, DAMP		2 3 4 5	6 8 11	23	83	SS-2	4.5+	12	4	12	41	31	34	16	18	15	A-6b (11)	-	
			13 12 8	24	100	SS-3	4.5+	-	-	-	-	-	-	-	-	18	A-6b (V)	-	
	1154.4	EOB 6 7	9 12 13	30	100	SS-4	4.5+	-	-	-	-	-	-	-	-	16	A-6b (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:33 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00
TYPE: SUBGRADE
PID: 117878 SFN:
START: 7/11/23 END: 7/11/23

DRILLING FIRM / OPERATOR: DLZ / K. CONRAD
SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON
DRILLING METHOD: 2.25" CFA
SAMPLING METHOD: SPT

DRILL RIG: '23 CME 75-KC-777
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 291+72, 29' LT.
ALIGNMENT: LIC-161
ELEVATION: 1158.2 (MSL) EOB: 7.0 ft.
LAT / LONG: 40.078582, -82.661223

EXPLORATION ID B-089-0-23

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 3"	1158.2																		
HARD, LIGHT BROWN, **SANDY SILT**, DAMP	1158.0	1	4 7 7	17	89	SS-1	4.5+	9	7	16	37	31	23	17	6	14	A-4a (7)	2000	
HARD, LIGHT BROWN TO GRAY MOTTLED, **SANDY SILT**, DAMP	1155.7	2																	
	1154.2	3	12 10 9	23	94	SS-2	4.5+	-	-	-	-	-	-	-	-	12	A-4a (V)	-	
MEDIUM DENSE, BROWN, **GRAVEL AND/OR STONE FRAGMENTS WITH SAND AND SILT**, CONTAINS WET SAND SEAM, MOIST	1152.7	W 1154.2 4	6 6 8	17	61	SS-3	-	44	12	14	20	10	22	18	4	13	A-2-4 (0)	-	
STIFF TO VERY STIFF, BROWN AND GRAY MOTTLED, **SANDY SILT**, MOIST	1151.2	5	4 4 5	11	78	SS-4	2.00	-	-	-	-	-	-	-	-	14	A-4a (V)	-	
		EOB 6 7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:33 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 295+74, 31' RT.	EXPLORATION ID B-090-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1155.1 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/20/23 END: 7/20/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.078160, -82.659880	

MATERIAL DESCRIPTION AND NOTES	ELEV. 1155.1	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 5"	1154.6																		
HARD, BROWN, **SILTY CLAY**, MOIST	1152.6	1 2 3	2 5 6	13	61	SS-1	4.5+	3	5	15	41	36	33	17	16	17	A-6b (10)	410	
VERY STIFF, BROWN, **SILTY CLAY**, LITTLE SAND, DAMP	1151.1	3 4	10 9 11	24	100	SS-2	2.50	6	5	13	41	35	34	18	16	16	A-6b (10)	-	
HARD, BROWN AND GRAY MOTTLED, **SILTY CLAY**, LITTLE SAND, MOIST	1149.6	4 5	9 10 11	25	100	SS-3	4.50	-	-	-	-	-	-	-	-	19	A-6b (V)	-	
STIFF, BROWN, **SILTY CLAY**, MOIST	1148.1	6	5 5 6	13	100	SS-4	1.25	-	-	-	-	-	-	-	-	20	A-6b (V)	-	
EOB		7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:33 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00
TYPE: SUBGRADE
PID: 117878 SFN:
START: 7/11/23 END: 7/11/23

DRILLING FIRM / OPERATOR: DLZ / K. CONRAD
SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON
DRILLING METHOD: 2.25" CFA
SAMPLING METHOD: SPT

DRILL RIG: '23 CME 75-KC-777
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 299+50, 27' LT.
ALIGNMENT: LIC-161
ELEVATION: 1151.7 (MSL) EOB: 7.0 ft.
LAT / LONG: 40.078069, -82.658523

EXPLORATION ID B-091-0-23
PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 4"	1151.4																		
VERY STIFF, BROWN, **SILT AND CLAY**, MOIST	1149.2	1	3 5 6	13	61	SS-1	2.75	10	3	14	35	38	28	15	13	18	A-6a (9)	390	
HARD, BROWN, **SANDY SILT**, DAMP		2 3	12 11 11	27	100	SS-2	4.5+	9	5	15	41	30	24	14	10	13	A-4a (7)	-	
		4 5	12 12 11	28	100	SS-3	4.5+	-	-	-	-	-	-	-	-	14	A-4a (V)	-	
@ 5.5', drove large gravel.	1144.7	6 EOB 7	6 15 11	31	67	SS-4	4.5+	-	-	-	-	-	-	-	-	11	A-4a (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:33 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 303+64, 31' RT.	EXPLORATION ID B-092-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1149.0 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/20/23 END: 7/20/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.077646, -82.657138	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 5"	1149.0																		
HARD, BROWN, **SANDY SILT**, DAMP	1148.6	1	3 4 4	10	61	SS-1	4.25	7	7	16	41	29	25	16	9	15	A-4a (7)	230	
		2																	
		3	6 6 9	18	100	SS-2	4.5+	13	10	16	37	24	27	18	9	11	A-4a (5)	-	
		4																	
		5	6 10 9	23	100	SS-3	4.5+	-	-	-	-	-	-	-	-	11	A-4a (V)	-	
		6																	
	1142.0	EOB 7	5 7 5	15	100	SS-4	4.5+	-	-	-	-	-	-	-	-	16	A-4a (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:33 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 307+67, 28' LT.	EXPLORATION ID B-093-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1145.3 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/11/23 END: 7/11/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.077540, -82.655688	

MATERIAL DESCRIPTION AND NOTES	ELEV. 1145.3	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 6"	1144.8																		
VERY STIFF, BROWN, **SILT AND CLAY**, DAMP TO MOIST (FILL)		1	2 4 7	13	83	SS-1	3.50	19	7	13	30	31	31	18	13	16	A-6a (6)	250	
	1141.3	2 3 4	5 4 3	8	83	SS-2	2.50	9	5	15	38	33	28	15	13	16	A-6a (8)	-	
VERY STIFF, GRAY TO BROWNISH GRAY, **SILT AND CLAY**, MOIST (FILL)		5 6	4 3 6	11	100	SS-3	3.00	-	-	-	-	-	-	-	-	19	A-6a (V)	-	
	1138.3	EOB 7	4 6 9	18	100	SS-4	4.25	-	-	-	-	-	-	-	-	14	A-6a (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:33 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00
TYPE: SUBGRADE
PID: 117878 SFN:
START: 7/20/23 END: 7/20/23

DRILLING FIRM / OPERATOR: DLZ / K. CONRAD
SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON
DRILLING METHOD: 2.25" CFA
SAMPLING METHOD: SPT

DRILL RIG: '23 CME 75-KC-777
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 311+43, 28' RT.
ALIGNMENT: LIC-161
ELEVATION: 1141.1 (MSL) EOB: 7.0 ft.
LAT / LONG: 40.077144, -82.654429

EXPLORATION ID B-094-0-23
PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 1141.1	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 4"	1140.7																		
STIFF TO VERY STIFF, BROWN AND BROWN AND GRAY MOTTLED, **SILT AND CLAY**, DAMP TO MOIST (FILL)		1	3 2 2	5	61	SS-1	3.00	3	6	16	40	35	32	17	15	17	A-6a (10)	360	
	1137.1	2 3	4 2 4	7	100	SS-2	1.50	5	5	14	38	38	34	19	15	20	A-6a (10)	-	
VERY STIFF TO HARD, BROWN, **SILT AND CLAY**, MOIST (FILL)		4 5	4 6 4	12	100	SS-3	4.00	-	-	-	-	-	-	-	-	20	A-6a (V)	-	
	1134.1	EOB 6 7	7 9 11	24	100	SS-4	4.50	-	-	-	-	-	-	-	-	13	A-6a (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:33 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 315+47, 20' LT.	EXPLORATION ID B-095-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1133.9 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/11/23 END: 7/11/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.077011, -82.652988	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 4"	1133.6																		
STIFF TO VERY STIFF, BROWNISH GRAY TO GRAY, **SANDY SILT**, DAMP TO MOIST (FILL)		1	2 4 6	12	83	SS-1	2.75	12	11	19	35	23	22	15	7	13	A-4a (5)	130	
		2																	
		3	5 4 7	13	83	SS-2	1.75	-	-	-	-	-	-	-	-	20	A-4a (V)	-	
		4																	
	1128.4	5	6 5 9	17	100	SS-3	2.50	15	9	16	36	24	23	14	9	12	A-4a (5)	-	
VERY STIFF, BROWN, **SANDY SILT**, DAMP (FILL)		6	4 6 7	16	100	SS-4	3.50	-	-	-	-	-	-	-	-	14	A-4a (V)	-	
	1126.9	EOB 7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:33 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 319+57, 30' RT.	EXPLORATION ID B-096-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1127.0 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/20/23 END: 7/20/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.076610, -82.651607	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 4"	1127.0																		
HARD, BROWN, **SILT AND CLAY**, DAMP (FILL)	1126.7	1	2 4 4	10	61	SS-1	4.5+	5	13	20	35	27	29	18	11	15	A-6a (6)	390	
		2																	
		3	8 6 7	16	100	SS-2	4.50	6	5	16	40	33	29	17	12	15	A-6a (8)	-	
		4																	
	1121.5	5	10 16 11	33	-	SS-3	4.5+	-	-	-	-	-	-	-	-	14	A-6a (V)	-	
HARD, GRAY TO DARK GRAY, **SILT AND CLAY**, CONTAINS ORGANICS AND BLACK STREAKS; SLIGHTLY ORGANIC, MOIST (FILL) @5.5'-7.0', LOI=3.60%	1120.0	6	8 10 12	27	83	SS-4	4.50	-	-	-	-	-	-	-	-	17	A-6a (V)	-	
	EOB	7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:33 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00
TYPE: SUBGRADE
PID: 117878 SFN:
START: 7/11/23 END: 7/11/23

DRILLING FIRM / OPERATOR: DLZ / K. CONRAD
SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON
DRILLING METHOD: 2.25" CFA
SAMPLING METHOD: SPT

DRILL RIG: '23 CME 75-KC-777
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 323+38, 26' LT.
ALIGNMENT: LIC-161
ELEVATION: 1119.7 (MSL) EOB: 7.0 ft.
LAT / LONG: 40.076511, -82.650236

EXPLORATION ID B-097-0-23
PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 1119.7	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 5"	1119.3																		
MEDIUM STIFF TO STIFF, BROWN, **SILT AND CLAY**, DAMP (FILL)	1117.2	1	3 3 3	7	56	SS-1	1.00	7	7	16	38	32	27	16	11	15	A-6a (7)	180	
VERY STIFF TO HARD, BROWN, **SANDY SILT**, DAMP (FILL) @ 2.5'-4.0', sample contains a single large broken gravel.	1114.2	2 3 4	10 14 10	29	89	SS-2	4.00	26	7	14	29	24	25	16	9	12	A-4a (4)	-	
		5	6 8 5	16	100	SS-3	4.50	-	-	-	-	-	-	-	-	13	A-4a (V)	-	
HARD, GRAY, **SANDY SILT**, DAMP (FILL)	1112.7	6	13 8 6	17	100	SS-4	4.5+	-	-	-	-	-	-	-	-	10	A-4a (V)	-	
		EOB 7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:33 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 327+20, 30' RT.	EXPLORATION ID B-098-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1113.4 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/20/23 END: 7/20/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.076113, -82.648956	

MATERIAL DESCRIPTION AND NOTES	ELEV. 1113.4	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 4"	1113.1																		
HARD, BROWN TO BROWNISH GRAY, **SANDY SILT**, DAMP (FILL)		1	6 11 12	28	83	SS-1	4.5+	9	12	17	38	24	23	16	7	10	A-4a (5)	-	
	1109.4	2	8 10 11	25	100	SS-2	4.5+	5	10	23	34	28	25	15	10	12	A-4a (5)	5700	
HARD, GRAY, **SANDY SILT**, CONTAINS GRAVEL AND GRAVEL FRAGMENTS, DAMP (FILL)		3 4 5	11 15 24	47	100	SS-3	4.5+	-	-	-	-	-	-	-	-	10	A-4a (V)	-	
	1106.4	6 EOB 7	12 15 20	42	100	SS-4	4.5+	-	-	-	-	-	-	-	-	10	A-4a (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:33 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00
TYPE: SUBGRADE
PID: 117878 SFN:
START: 7/11/23 END: 7/11/23

DRILLING FIRM / OPERATOR: DLZ / K. CONRAD
SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON
DRILLING METHOD: 2.25" CFA
SAMPLING METHOD: SPT

DRILL RIG: '23 CME 75-KC-777
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 331+40, 28' LT.
ALIGNMENT: LIC-161
ELEVATION: 1105.8 (MSL) EOB: 7.0 ft.
LAT / LONG: 40.075992, -82.647452

EXPLORATION ID B-099-0-23

MATERIAL DESCRIPTION AND NOTES	ELEV. 1105.8	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL Topsoil - 8"	1105.1																		
HARD, BROWN, **SANDY SILT**, DAMP (FILL)	1103.3	1 2 3 4 5 6 7	2 4 7	13	83	SS-1	4.5+	7	7	17	38	31	24	15	9	11	A-4a (7)	240	
HARD, BROWN, **SILT AND CLAY**, DAMP (FILL)	1101.8		10 10 8	22	78	SS-2	4.5+	9	7	16	34	34	26	15	11	12	A-6a (7)	-	
VERY STIFF TO HARD, GRAY, **SILT AND CLAY**, MOIST TO DAMP (FILL)			5 9 7	19	100	SS-3	4.5+	-	-	-	-	-	-	-	-	11	A-6a (V)	-	
	1098.8	EOB	7 10 8	22	100	SS-4	4.00	-	-	-	-	-	-	-	-	11	A-6a (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:33 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 335+16, 29' RT.	EXPLORATION ID B-100-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1099.4 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/20/23 END: 7/20/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.075595, -82.646196	

MATERIAL DESCRIPTION AND NOTES	ELEV. 1099.4	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 3"	1099.1																		
HARD, BROWN, **SILTY CLAY**, LITTLE SAND, DAMP (FILL)	1096.9	1	8 6 11	21	100	SS-1	4.50	7	7	14	38	34	33	17	16	13	A-6b (10)	340	
HARD, BROWN, **SILT AND CLAY**, LITTLE SAND, DAMP (FILL)	1093.9	2 3 4 5	6 7 8	18	100	SS-2	4.5+	6	5	13	42	34	31	17	14	17	A-6a (10)	-	
			10 15 19	41	100	SS-3	4.50	-	-	-	-	-	-	-	-	12	A-6a (V)	-	
HARD, GRAY, **SILT AND CLAY**, DAMP (FILL)	1092.4	EOB 6 7	7 8 9	21	56	SS-4	4.5+	-	-	-	-	-	-	-	-	19	A-6a (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:33 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 339+04, 28' LT.	EXPLORATION ID B-101-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1092.6 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/11/23 END: 7/11/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.075496, -82.644800	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 6"	1092.6 / 1092.1																		
MEDIUM DENSE, LIGHT BROWN TO BROWN, **SANDY SILT**, LITTLE TO SOME GRAVEL, MOIST TO DAMP		1	3 7 8	18	78	SS-1	-	29	9	20	26	16	21	16	5	7	A-4a (1)	270	
		2																	
		3	11 9 8	21	94	SS-2	-	13	11	30	19	27	NP	NP	NP	14	A-4a (2)	-	
	1088.6	4																	
MEDIUM DENSE, GRAY TO GRAYISH BROWN, **SANDY SILT**, LITTLE TO SOME GRAVEL, MOIST		5	8 7 6	16	100	SS-3	-	-	-	-	-	-	-	-	-	15	A-4a (V)	-	
		6	8 7 8	18	100	SS-4	-	-	-	-	-	-	-	-	-	16	A-4a (V)	-	
	1085.6	EOB 7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:33 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 343+31, 25' RT.	EXPLORATION ID B-102-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1085.3 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/21/23 END: 7/21/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.075076, -82.643362	

MATERIAL DESCRIPTION AND NOTES	ELEV. 1085.3	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 3"	1085.0																		
HARD, GRAYISH BROWN, **SILTY CLAY**, DAMP	1082.8	1	5 4 6	12	78	SS-1	4.5+	11	8	14	37	30	30	14	16	13	A-6b (9)	170	
HARD, GRAYISH BROWN, **SILT AND CLAY**, DAMP		2																	
		3	9 11 11	27	100	SS-2	4.5+	3	6	13	47	31	27	16	11	12	A-6a (8)	-	
		4																	
		5	12 19 13	39	67	SS-3	4.5+	-	-	-	-	-	-	-	-	10	A-6a (V)	-	
	1078.3	6	12 11 14	30	100	SS-4	4.5+	-	-	-	-	-	-	-	-	13	A-6a (V)	-	
		EOB 7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:33 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 347+36, 28' LT.	EXPLORATION ID B-103-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1077.7 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/10/23 END: 7/10/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.074952, -82.641911	

MATERIAL DESCRIPTION AND NOTES	ELEV. 1077.7	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 10"	1076.9																		
HARD, BROWN, **SANDY SILT**, DAMP	1075.2	1	4 5 9	17	89	SS-1	4.5+	10	8	17	36	29	26	16	10	12	A-4a (6)	420	
VERY STIFF TO HARD, GRAY, **SILT AND CLAY**, DAMP TO MOIST		2																	
@4.0', contains organic odor.	1072.2	3 4 5	9 9 14	28	100	SS-2	4.5+	12	5	15	37	31	30	17	13	13	A-6a (8)	-	
			8 7 7	17	78	SS-3	3.25	-	-	-	-	-	-	-	-	22	A-6a (V)	-	
STIFF TO VERY STIFF, BROWN AND GRAY MOTTLED, **SILT AND CLAY**, MOIST	1070.7	6	3 7 6	16	100	SS-4	2.00	-	-	-	-	-	-	-	-	24	A-6a (V)	-	
		EOB 7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:33 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 350+90, 28' RT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1072.1 (MSL) EOB: 8.5 ft.
START: 7/21/23 END: 7/21/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.074563, -82.640736

EXPLORATION ID B-104-0-23

PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 1072.1	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 5"	1071.6																		
VERY STIFF, GRAY, **GRAVEL AND STONE FRAGMENTS WITH SAND**, DAMP		1	4 8 15	28	72	SS-1	3.00	44	20	15	17	4	NP	NP	NP	26	A-1-b (0)	470	
		2																	
		3	38 14 6	24	100	SS-2	3.50	-	-	-	-	-	-	-	-	29	A-1-b (V)	-	
	1067.7	4				SS-3A	-	-	-	-	-	-	-	-	-	24	A-1-b (V)	-	
SOFT, BROWN, **SILT AND CLAY**, LITTLE SAND, MOIST		5	3 1 2	4	33	SS-3B	0.25	-	-	-	-	-	-	-	-	-	A-6a (V)	-	
		6	2 2 2	5	6	SS-4	-	-	-	-	-	-	-	-	-	6	A-6a (V)	-	
		7	3 4 4	10	100	SS-5	0.25	21	9	19	29	22	33	22	11	25	A-6a (4)	-	
	1063.6	8 EOB																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:33 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00
TYPE: SUBGRADE
PID: 117878 SFN:
START: 7/10/23 END: 7/10/23

DRILLING FIRM / OPERATOR: DLZ / K. CONRAD
SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON
DRILLING METHOD: 2.25" CFA
SAMPLING METHOD: SPT

DRILL RIG: '23 CME 75-KC-777
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 355+15, 25' LT.
ALIGNMENT: LIC-161
ELEVATION: 1067.5 (MSL) EOB: 7.0 ft.
LAT / LONG: 40.074392, -82.639223

EXPLORATION ID B-105-0-23
PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 1067.5	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 5"	1067.1																		
HARD, GRAY, **SANDY SILT**, CONTAINS GRAVELS IN THE SOIL MATRIX, DAMP		1	4 7 9	19	61	SS-1	4.5+	7	11	20	39	23	20	13	7	10	A-4a (5)	940	
		2																	
		3	16 13 8	25	50	SS-2	4.5+	-	-	-	-	-	-	-	-	9	A-4a (V)	-	
		4																	
@4.5', augers scraping.	1062.0	5	13 23 11	41	28	SS-3	4.5+	-	-	-	-	-	-	-	-	10	A-4a (V)	-	
DENSE, GRAY, **SANDY SILT**, WET		W 1061.0 6	9 13 15	34	100	SS-4	-	1	0	60	34	5	NP	NP	NP	21	A-4a (1)	-	
	1060.5	EOB 7																	

DRAFT

NOTES: HOLE COLLAPSED TO 5.5'

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:33 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00
TYPE: SUBGRADE
PID: 117878 SFN:
START: 7/21/23 END: 7/21/23

DRILLING FIRM / OPERATOR: DLZ / K. CONRAD
SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON
DRILLING METHOD: 2.25" CFA
SAMPLING METHOD: SPT

DRILL RIG: '23 CME 75-KC-777
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 359+10, 27' RT.
ALIGNMENT: LIC-161
ELEVATION: 1063.3 (MSL) EOB: 7.0 ft.
LAT / LONG: 40.073949, -82.637921

EXPLORATION ID B-106-0-23

MATERIAL DESCRIPTION AND NOTES	ELEV. 1063.3	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 5"	1062.9																		
HARD, BROWN, **SANDY SILT**, DAMP		1	5																
		2	6 8	17	89	SS-1	4.5+	8	10	18	39	25	24	15	9	11	A-4a (6)	1300	
	1060.8	3	8																
HARD, GRAYISH BROWN, **SANDY SILT**, DAMP			10 14	29	67	SS-2	4.5+	11	11	16	38	24	25	17	8	12	A-4a (5)	-	
		4	9																
		5	11 12	28	56	SS-3	4.5+	-	-	-	-	-	-	-	-	12	A-4a (V)	-	
		6	8																
	1056.3	EOB 7	8 9	21	44	SS-4	4.50	-	-	-	-	-	-	-	-	10	A-4a (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:33 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00
TYPE: SUBGRADE
PID: 117878 SFN:
START: 7/10/23 END: 7/10/23

DRILLING FIRM / OPERATOR: DLZ / K. CONRAD
SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON
DRILLING METHOD: 2.25" CFA
SAMPLING METHOD: SPT

DRILL RIG: '23 CME 75-KC-777
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 363+11, 26' LT.
ALIGNMENT: LIC-161
ELEVATION: 1058.3 (MSL) EOB: 7.0 ft.
LAT / LONG: 40.073762, -82.636497

EXPLORATION ID B-107-0-23
PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
	1058.3																		
TOPSOIL - 2"	1058.2																		
MEDIUM DENSE, BROWN, **GRAVEL AND STONE FRAGMENTS WITH SAND, SILT, AND CLAY**, DAMP	1055.8	1	5 7 11	22	78	SS-1	-	34	18	19	19	10	18	15	3	10	A-2-4 (0)	-	
VERY STIFF TO HARD, BROWN AND GRAY, **SANDY SILT**, DAMP		2 3 4	12 19 15	41	100	SS-2	4.25	19	11	17	31	22	23	15	8	11	A-4a (4)	1700	
		5	13 14 13	33	100	SS-3	4.5+	-	-	-	-	-	-	-	-	11	A-4a (V)	-	
	1051.3	EOB 6 7	10 11 12	28	100	SS-4	4.5+	-	-	-	-	-	-	-	-	11	A-4a (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:33 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 366+71, 27' RT.	EXPLORATION ID B-108-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1054.1 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/21/23 END: 7/21/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.073323, -82.635327	

MATERIAL DESCRIPTION AND NOTES	ELEV. 1054.1	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 5"	1053.7																		
HARD, BROWN, **SILTY CLAY**, LITTLE SAND, DAMP		1	4 8 8	19	100	SS-1	4.50	6	7	22	36	29	28	16	12	13	A-6a (7)	420	
	1051.6	2																	
VERY STIFF, GRAY, **SANDY SILT**, DAMP		3	4 4 4	10	61	SS-2	3.75	14	8	16	35	27	27	17	10	13	A-4a (5)	-	
		4	4 4 5	11	100	SS-3	4.25	-	-	-	-	-	-	-	-	15	A-4a (V)	-	
		5																	
	1047.1	6	4 5 6	13	100	SS-4	3.75	-	-	-	-	-	-	-	-	11	A-4a (V)	-	
		EOB 7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:33 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 370+86, 23' LT.	EXPLORATION ID B-109-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1048.9 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/10/23 END: 7/10/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.073108, -82.633861	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 3"	1048.9																		
	1048.7																		
VERY STIFF TO HARD, BROWN AND GRAY MOTTLED, **SANDY SILT**, DAMP		1	4 6 9	18	100	SS-1	3.25	19	8	15	31	27	25	16	9	12	A-4a (5)	330	
		2																	
		3	10 14 10	29	100	SS-2	4.5+	11	9	17	37	26	22	14	8	12	A-4a (6)	-	
	1044.9	4																	
HARD, GRAY, **SANDY SILT**, MOIST		5	7 6 7	16	100	SS-3	4.5+	-	-	-	-	-	-	-	-	12	A-4a (V)	-	
		6	5 5 7	15	100	SS-4	4.5+	-	-	-	-	-	-	-	-	12	A-4a (V)	-	
	1041.9	EOB 7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:33 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 374+82, 28' RT.	EXPLORATION ID B-110-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1045.9 (MSL) EOB: 8.5 ft.	PAGE 1 OF 1
START: 7/21/23 END: 7/21/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.072644, -82.632566	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 4"	1045.9																		
	1045.5																		
MEDIUM STIFF TO STIFF, BROWN TO DARK BROWN, **SILT AND CLAY**, SOME SAND, MOIST		1	2 2 3	6	78	SS-1	1.00	11	12	17	32	28	29	15	14	14	A-6a (7)	<100	
@2.5'-4.0', contains sand seams.		2 3	2 4 5	11	100	SS-2	1.00	20	10	12	35	23	29	16	13	17	A-6a (6)	-	
	1041.9	4																	
STIFF TO VERY STIFF, GRAY, **SILT AND CLAY**, MOIST		5	4 3 3	7	83	SS-3	2.00	-	-	-	-	-	-	-	-	13	A-6a (V)	-	
MOIST @5.5'-7.0', contains gray shale fragments.		6	4 2 2	5	89	SS-4	3.00	-	-	-	-	-	-	-	-	12	A-6a (V)	-	
	1038.9	7																	
MEDIUM STIFF, GRAYISH BROWN, **SILT AND CLAY**, MOIST	1037.4	W 1037.6 8 EOB	2 1 2	4	50	SS-5	1.00	-	-	-	-	-	-	-	-	19	A-6a (V)	-	

DRAFT

NOTES: HOLE COLLAPSED TO 4.7'

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:34 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00
TYPE: RETAINING WALL
PID: 117878 SFN:
START: 7/27/23 END: 7/27/23

DRILLING FIRM / OPERATOR: DLZ / K. CONRAD
SAMPLING FIRM / LOGGER: DLZ / J. CONLEY
DRILLING METHOD: 3.25" HSA / NQ2
SAMPLING METHOD: SPT

DRILL RIG: '23 CME 75-KC-777
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 375+59, 149' RT.
ALIGNMENT: LIC-161
ELEVATION: 1048.1 (MSL) EOB: 38.5 ft.
LAT / LONG: 40.072263, -82.632424

EXPLORATION ID B-110-5-23
PAGE 1 OF 2

MATERIAL DESCRIPTION AND NOTES	ELEV. 1048.1	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	HOLE SEALED
PAVEMENT AND BASE asphalt concrete - 6" aggregate base - 7"	1047.0																		
VERY STIFF TO HARD, BROWN AND GRAY, **SANDY SILT**, DAMP		▽ 1045.3	5 5 5	12	50	SS-1	4.5+	10	11	19	35	25	23	14	9	11	A-4a (5)	-	
			4 5 4	11	67	SS-2	4.5+	-	-	-	-	-	-	-	-	13	A-4a (V)	-	
			5 6 8	17	56	SS-3	4.5+	-	-	-	-	-	-	-	-	16	A-4a (V)	-	
			4 5 5	12	39	SS-4	4.5+	-	-	-	-	-	-	-	-	13	A-4a (V)	-	
			10 7 8	18	83	SS-5	4.5+	-	-	-	-	-	-	-	-	10	A-4a (V)	-	
@13.5'-20.0', moist.			5 4 7	13	67	SS-6	4.5+	-	-	-	-	-	-	-	-	15	A-4a (V)	-	
			3 7 8	18	72	SS-7	3.50	-	-	-	-	-	-	-	-	15	A-4a (V)	-	
@18.5'-20.0' ,contains wood fragments and one large gravel.			4 11 23	41	83	SS-8	4.5+	-	-	-	-	-	-	-	-	10	A-4a (V)	-	
	1027.1																		
VERY STIFF, BROWN, **SILT AND CLAY**, MOIST			6 5 6	13	50	SS-9	3.50	12	7	19	31	31	27	14	13	15	A-6a (7)	-	
	1024.6																		
MEDIUM DENSE, BROWN, **GRAVEL WITH SAND AND SILT**, DAMP			9 8 7	18	89	SS-10	-	51	13	10	12	14	25	18	7	13	A-2-4 (0)	-	
	1022.1	TR																	
SILTSTONE, BROWN, HIGHLY WEATHERED, VERY WEAK, VERY FINE GRAINED.			22 50/3"	-	100	SS-11	-	-	-	-	-	-	-	-	-	-	Rock (V)	-	
	1019.5																		
@28.5'-29.5', SDI=64.52%.			50/2"	-	100	SS-12	-	-	-	-	-	-	-	-	-	-	Rock (V)	-	

PID: 117878	SFN:	PROJECT: FRA-161-22.10/LIC-161-0.00	STATION / OFFSET: 375+59, 149' RT.	START: 7/27/23	END: 7/27/23	PG 2 OF 2	B-110-5-23

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	HOLE SEALED
INTERBEDDED SILTSTONE (60%) AND SHALE (40%), RQD 83%, REC. 100%; **SILTSTONE**, GRAY, SLIGHTLY WEATHERED, SLIGHTLY TO MODERATELY STRONG, VERY FINE GRAINED, THIN TO MEDIUM BEDDED; **SHALE**, GRAY, MODERATELY TO SLIGHTLY WEATHERED, VERY WEAK TO WEAK, VERY FINE GRAINED, LAMINATED, FRIABLE. *(continued)* @31.2'-31.8', qu=107 PSI.	1018.1	31	97		100	NQ2-R-1											CORE		
		32																	
		33																	
		34																	
		35																	
		36	70		100	NQ2-R-2											CORE		
		37																	
	1009.6	38 EOB																	

DRAFT

NOTES: WATER ADDED DURING DRILLING

ABANDONMENT METHODS, MATERIALS, QUANTITIES: TREMIED 6 BAGS BENTONITE GROUT

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:34 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:34 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 379+06, 26' LT.	EXPLORATION ID B-111-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1050.8 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/10/23 END: 7/10/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.072489, -82.631055	

MATERIAL DESCRIPTION AND NOTES	ELEV. 1050.8	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 1"	1050.7																		
VERY STIFF TO HARD, GRAY, **SANDY SILT**, DAMP		1	5 5 8	16	100	SS-1	4.5+	10	8	14	42	26	25	15	10	12	A-4a (7)	1600	
		2																	
		3	5 6 7	16	100	SS-2	2.75	8	8	18	35	31	22	15	7	13	A-4a (6)	-	
	1046.8	4																	
VERY STIFF, GRAY, **SANDY SILT**, DAMP		5	5 7 7	17	33	SS-3	3.25	-	-	-	-	-	-	-	-	11	A-4a (V)	-	
		6	5 5 6	13	100	SS-4	3.00	-	-	-	-	-	-	-	-	12	A-4a (V)	-	
	1043.8	EOB 7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:34 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00
TYPE: SUBGRADE
PID: 117878 SFN:
START: 7/21/23 END: 7/21/23

DRILLING FIRM / OPERATOR: DLZ / K. CONRAD
SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON
DRILLING METHOD: 2.25" CFA
SAMPLING METHOD: SPT

DRILL RIG: '23 CME 75-KC-777
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 382+70, 30' RT.
ALIGNMENT: LIC-161
ELEVATION: 1056.1 (MSL) EOB: 7.0 ft.
LAT / LONG: 40.072168, -82.629806

EXPLORATION ID B-112-0-23
PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
	1056.1																		
TOPSOIL UNKNOWN	1055.6																		
VERY STIFF TO HARD, GRAY, **SANDY SILT**, DAMP		1	7 8 6	17	78	SS-1	4.5+	9	5	13	44	29	21	15	6	10	A-4a (8)	1500	
		2																	
		3	6 4 6	12	100	SS-2	4.5+	14	13	18	34	21	21	14	7	10	A-4a (4)	-	
		4																	
		5	4 4 4	10	61	SS-3	3.00	-	-	-	-	-	-	-	-	10	A-4a (V)	-	
		6																	
	1049.1	EOB 7	8 7 7	17	22	SS-4	3.00	-	-	-	-	-	-	-	-	11	A-4a (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:34 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 386+80, 28' LT.	EXPLORATION ID B-113-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1062.3 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/10/23 END: 7/10/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.072227, -82.628328	

MATERIAL DESCRIPTION AND NOTES	ELEV. 1062.3	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 1"	1062.2																		
HARD, LIGHT BROWN, **SILT AND CLAY**, DAMP		1	3 8 12	24	100	SS-1	4.5+	2	3	11	39	45	32	19	13	14	A-6a (9)	390	
	1059.8	2																	
HARD, LIGHT BROWN, **SANDY SILT**, DAMP		3	10 10 13	28	100	SS-2	4.5+	6	6	13	41	34	26	17	9	13	A-4a (8)	-	
		4	5 11 11	27	100	SS-3	4.5+	-	-	-	-	-	-	-	-	12	A-4a (V)	-	
		5	6 10 11	25	100	SS-4	4.5+	-	-	-	-	-	-	-	-	12	A-4a (V)	-	
	1055.3	EOB 6 7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:34 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00
TYPE: SUBGRADE
PID: 117878 SFN:
START: 7/21/23 END: 7/21/23

DRILLING FIRM / OPERATOR: DLZ / K. CONRAD
SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON
DRILLING METHOD: 2.25" CFA
SAMPLING METHOD: SPT

DRILL RIG: '23 CME 75-KC-777
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 390+60, 29' RT.
ALIGNMENT: LIC-161
ELEVATION: 1063.0 (MSL) EOB: 7.0 ft.
LAT / LONG: 40.072068, -82.626973

EXPLORATION ID B-114-0-23

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 5"	1063.0																		
HARD, BROWN AND GRAY, **SANDY SILT**, DAMP (FILL)	1062.5	1	3 5 9	17	72	SS-1	4.5+	8	10	17	36	29	23	15	8	10	A-4a (6)	1700	
HARD, GRAYISH BROWN TO BROWN, **SILT AND CLAY**, DAMP TO MOIST (FILL)	1060.5	2																	
		3	12 15 13	34	100	SS-2	4.5+	10	5	11	46	28	36	21	15	18	A-6a (10)	-	
		4																	
		5	13 8 7	18	100	SS-3	4.25	-	-	-	-	-	-	-	-	14	A-6a (V)	-	
		6																	
	1056.0	EOB 7	5 6 5	13	100	SS-4	4.5+	-	-	-	-	-	-	-	-	21	A-6a (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:34 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 394+64, 28' LT.	EXPLORATION ID B-115-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1056.8 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/10/23 END: 7/10/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.072317, -82.625549	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 6"	1056.8																		
HARD, BROWN, **SILT AND CLAY**, DAMP (FILL)	1056.3	1	5 7 7	17	100	SS-1	4.5+	10	7	15	34	34	31	17	14	14	A-6a (8)	670	
@3.5'-5.5', augers scraping, bouldery.		2																	
@ 4.0'-5.5', stone fragments recovered.		3	7 7 50/2"	-	100	SS-2	4.5+	17	7	13	34	29	29	18	11	14	A-6a (6)	-	
		4	50/2"	-	50	SS-3	-	-	-	-	-	-	-	-	-	6	A-6a (V)	-	
@5.5', gray.		5																	
	W 1050.3	6	7 9 13	27	89	SS-4	4.5+	-	-	-	-	-	-	-	-	7	A-6a (V)	-	
	1049.8	EOB 7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:34 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 398+62, 29' RT.	EXPLORATION ID B-116-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1048.8 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/21/23 END: 7/21/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.072304, -82.624114	

MATERIAL DESCRIPTION AND NOTES	ELEV. 1048.8	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 3"	1048.4																		
HARD, BROWN, **SILTY CLAY**, DAMP (FILL)	1046.3	1	3 5 38	52	100	SS-1	4.5+	12	7	14	37	30	33	16	17	14	A-6b (9)	350	
HARD, BROWN, **SILTY CLAY**, DAMP (FILL)	1044.8	2 3	8 11 13	29	100	SS-2	4.5+	10	7	14	35	34	35	15	20	14	A-6b (11)	-	
HARD, GRAY, **SILTY CLAY**, DAMP (FILL)		4 5	10 11 15	31	100	SS-3	4.5+	-	-	-	-	-	-	-	-	10	A-6b (V)	-	
	1041.8	6 EOB 7	10 13 20	40	100	SS-4	4.5+	-	-	-	-	-	-	-	-	9	A-6b (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:34 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\23321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 402+84, 27' LT.	EXPLORATION ID B-117-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1039.7 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/10/23 END: 7/10/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.072608, -82.622646	

MATERIAL DESCRIPTION AND NOTES	ELEV. 1039.7	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 5"	1039.3																		
HARD, GRAY, **SANDY SILT**, DAMP (FILL)		1	6 14 16	36	89	SS-1	4.5+	23	7	14	30	26	24	15	9	8	A-4a (4)	1700	
		2																	
		3	15 16 19	42	100	SS-2	4.5+	29	6	12	31	22	25	15	10	8	A-4a (4)	-	
		4																	
	1034.2	5	7 12 11	28	78	SS-3	4.5+	-	-	-	-	-	-	-	-	10	A-4a (V)	-	
VERY STIFF, BROWNISH GRAY, **SANDY SILT**, DAMP TO MOIST (FILL)	1032.7	6	11 9 13	27	100	SS-4	3.50	-	-	-	-	-	-	-	-	12	A-4a (V)	-	
		EOB 7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:34 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 406+53, 29' RT.	EXPLORATION ID B-118-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1033.6 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/21/23 END: 7/21/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.072588, -82.621311	

MATERIAL DESCRIPTION AND NOTES	ELEV. 1033.6	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 3"	1033.2																		
HARD, BROWNISH GRAY, **SILT AND CLAY**, DAMP (FILL)	1031.1	1	5 5 5	12	89	SS-1	4.5+	9	9	16	38	28	26	15	11	10	A-6a (7)	3200	
VERY STIFF TO HARD, BROWN TO GRAY, **SILT AND CLAY**, DAMP (FILL)		2 3	5 6 6	15	-	SS-2	3.50	5	5	11	42	37	35	23	12	18	A-6a (9)	-	
		4 5	6 7 8	18	-	SS-3	4.5+	-	-	-	-	-	-	-	-	14	A-6a (V)	-	
	1026.6	6 EOB 7	6 6 7	16	100	SS-4	3.75	-	-	-	-	-	-	-	-	14	A-6a (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:34 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 410+60, 25' LT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1030.6 (MSL) EOB: 7.0 ft.
START: 7/10/23 END: 7/10/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.072878, -82.619896

EXPLORATION ID B-119-0-23

MATERIAL DESCRIPTION AND NOTES	ELEV. 1030.6	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 6"	1030.1																		
STIFF, BROWN TO DARK BROWN, **SILT AND CLAY**, DAMP TO MOIST	1028.1	1	3 3 4	8	83	SS-1	1.25	13	5	13	43	26	36	25	11	20	A-6a (7)	280	
MEDIUM STIFF TO STIFF, BROWN, **SILTY CLAY**, MOIST	1025.1	2 3 4 5	4 4 7	13	100	SS-2	2.00	9	4	16	29	42	36	19	17	21	A-6b (10)	-	
			6 8 9	21	100	SS-3	3.50	-	-	-	-	-	-	-	-	13	A-6b (V)	-	
HARD, GRAYISH BROWN, **SILTY CLAY**, MOIST @ 5.5'-7.0', sample contains large broken gravel.	1023.6	6 EOB 7	21 8 8	19	100	SS-4	4.5+	-	-	-	-	-	-	-	-	17	A-6b (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:34 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 414+38, 30' RT.	EXPLORATION ID B-120-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1029.5 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/24/23 END: 7/24/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.072865, -82.618531	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL -3"	1029.5																		
	1029.2																		
VERY STIFF, BROWN TO DARK BROWN, **SILT AND CLAY**, DAMP TO MOIST (FILL)		1	6 7 5	15	78	SS-1	2.75	5	6	15	42	32	28	16	12	12	A-6a (9)	1700	
	1027.0	2																	
HARD, GRAY TO GRAYISH BROWN, **SILT**, MOIST (FILL)		3	5 6 6	15	100	SS-2	4.50	2	3	10	56	29	31	21	10	22	A-4b (8)	-	
		4	6 6 7	16	100	SS-3	3.00	-	-	-	-	-	-	-	-	25	A-4b (V)	-	
		5																	
		6	6 7 8	18	100	SS-4	4.50	-	-	-	-	-	-	-	-	14	A-4b (V)	-	
	1022.5	EOB 7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:34 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 418+45, 29' LT.	EXPLORATION ID B-121-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1027.3 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/10/23 END: 7/10/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.073170, -82.617118	

MATERIAL DESCRIPTION AND NOTES	ELEV. 1027.3	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 4"	1027.0																		
VERY STIFF, BROWN, **SANDY SILT**, DAMP (FILL)	1024.8	1	2 2 4	7	56	SS-1	2.50	7	6	16	39	32	27	18	9	14	A-4a (7)	1700	
VERY STIFF TO HARD, GRAY, **SILT AND CLAY**, DAMP TO MOIST (FILL)		2	6 7 9	19	100	SS-2	3.75	6	8	16	38	32	27	16	11	14	A-6a (7)	-	
		3	7 12 13	30	100	SS-3	4.50	-	-	-	-	-	-	-	-	15	A-6a (V)	-	
	1020.3	4	5 6 8	17	100	SS-4	3.75	-	-	-	-	-	-	-	-	20	A-6a (V)	-	
		EOB 5																	
		6																	
		7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:34 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 422+22, 28' RT.	EXPLORATION ID B-122-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1025.1 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/24/23 END: 7/24/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.073151, -82.615754	

MATERIAL DESCRIPTION AND NOTES	ELEV. 1025.1	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 4"	1024.7																		
HARD, BROWN, **SILT AND CLAY**, DAMP (FILL)	1022.6	1	9 10 10	24	61	SS-1	4.5+	22	9	14	30	25	27	16	11	10	A-6a (4)	-	
HARD, GRAY, **SILT AND CLAY**, DAMP (FILL)	1021.1	2 3 4	10 8 7	18	100	SS-2	4.5+	11	3	14	40	32	32	17	15	17	A-6a (9)	120	
VERY STIFF TO HARD, BROWN AND GRAY MOTTLED, **SILT AND CLAY**, MOIST	1018.1	5	8 8 8	19	100	SS-3	3.25	-	-	-	-	-	-	-	-	18	A-6a (V)	-	
	EOB	6 7	9 8 9	21	100	SS-4	2.25	-	-	-	-	-	-	-	-	23	A-6a (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:34 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00
TYPE: SUBGRADE
PID: 117878 SFN:
START: 7/7/23 END: 7/7/23

DRILLING FIRM / OPERATOR: DLZ / K. CONRAD
SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON
DRILLING METHOD: 2.25" CFA
SAMPLING METHOD: SPT

DRILL RIG: '23 CME 75-KC-777
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 426+24, 26' LT.
ALIGNMENT: LIC-161
ELEVATION: 1022.8 (MSL) EOB: 8.5 ft.
LAT / LONG: 40.073442, -82.614356

EXPLORATION ID B-123-0-23

PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 1022.8	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 8"	1022.2																		
HARD, BROWNISH GRAY, **SILT AND CLAY**, TRACE TO LITTLE GRAVEL, CONTAINS AGGREGATE BASE, DAMP (FILL)	1020.3	1	5 10 13	28	100	SS-1	4.5+	10	7	13	37	33	27	16	11	9	A-6a (7)	880	
VERY STIFF, GRAYISH BROWN, **SILT AND CLAY**, SOME SAND, TRACE GRAVEL, CONTAINS TRACE ROOTS, SLIGHT ORGANIC ODOR, DAMP (FILL)	1017.3	2 3	11 10 10	24	100	SS-2	3.50	4	3	13	40	40	32	18	14	19	A-6a (10)	-	
		4 5	4 4 5	11	100	SS-3	3.25	-	-	-	-	-	-	-	-	17	A-6a (V)	-	
STIFF, BROWN AND GRAY MOTTLED, **SILTY CLAY**, LITTLE SAND, TRACE GRAVEL, MOIST		6	3 3 3	7	100	SS-4	1.00	-	-	-	-	-	-	-	-	24	A-6b (V)	-	
	W 1015.8	7																	
@7.0'-8.5', GRAYISH BROWN	1014.3	8 EOB	4 8 7	18	83	SS-5	1.00	-	-	-	-	-	-	-	-	17	A-6b (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:34 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 430+19, 29' RT.	EXPLORATION ID B-124-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1019.7 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/24/23 END: 7/24/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.073431, -82.612932	

MATERIAL DESCRIPTION AND NOTES	ELEV. 1019.7	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 3"	1019.4																		
HARD, BROWN, **SILTY CLAY**, DAMP	1017.2	1	3 6 7	16	72	SS-1	4.5+	3	7	12	37	41	35	19	16	17	A-6b (10)	2400	
HARD, BROWN, **SILT AND CLAY**, DAMP		2																	
		3	12 10 10	24	100	SS-2	4.5+	10	9	15	38	28	28	17	11	12	A-6a (7)	-	
		4																	
		5	8 10 11	25	100	SS-3	4.5+	-	-	-	-	-	-	-	-	14	A-6a (V)	-	
		6																	
	1012.7	EOB 7	7 6 11	21	100	SS-4	4.5+	-	-	-	-	-	-	-	-	14	A-6a (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:34 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 434+23, 28' LT.	EXPLORATION ID B-125-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1014.8 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/7/23 END: 7/7/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.073714, -82.611519	

MATERIAL DESCRIPTION AND NOTES	ELEV. 1014.8	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL 7"	1014.3																		
VERY STIFF TO HARD, BROWN, **SILT AND CLAY**, TRACE TO LITTLE GRAVEL, CONTAINS AGGREGATE BASE, DAMP @1.0'-2.5', DARK BROWN, CONTAINS TRACE ROOTS, SLIGHT ORGANIC ODOR	1010.8	1 2 3	5 10 14 13 15 13	29 34	56 100	SS-1 SS-2	3.50 4.5+	8 -	7 -	16 -	38 -	31 -	26 -	15 -	11 -	5 11	A-6a (7) A-6a (V)	620 -	
HARD, BROWN, **SANDY SILT**, SOME SAND, TRACE GRAVEL, DAMP	1007.8	4 5 6 EOB 7	10 13 11 9 15 14	29 35	100 100	SS-3 SS-4	4.5+ 4.5+	7 -	7 -	14 -	38 -	34 -	25 -	15 -	10 -	14 11	A-4a (7) A-4a (V)	- -	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:34 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 438+34, 30' RT.	EXPLORATION ID B-126-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1008.9 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/24/23 END: 7/24/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.073623, -82.610042	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 3"	1008.9																		
HARD, BROWN, **SANDY SILT**, DAMP (FILL)	1008.7	1	4 5 11	19	100	SS-1	4.5+	11	6	14	40	29	21	15	6	10	A-4a (7)	2300	
HARD, BROWN, **SILT AND CLAY**, DAMP (FILL)	1006.4	2 3 4	6 7 10	21	100	SS-2	4.5+	10	6	14	40	30	27	15	12	12	A-6a (8)	-	
	1003.4	TR 5	7 8 11	23	100	SS-3	4.5+	-	-	-	-	-	-	-	-	19	A-6a (V)	-	
SHALE, GRAY, DECOMPOSED TO SEVERELY WEATHERED, VERY WEAK TO WEAK, FINE GRAINED, LAMINATED.	1001.9	6 EOB 7	14 10 12	27	56	SS-4	-	-	-	-	-	-	-	-	-	23	Rock (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:34 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00
TYPE: SUBGRADE
PID: 117878 SFN:
START: 7/7/23 END: 7/7/23

DRILLING FIRM / OPERATOR: DLZ / K. CONRAD
SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON
DRILLING METHOD: 2.25" CFA
SAMPLING METHOD: SPT

DRILL RIG: '23 CME 75-KC-777
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 442+15, 28' LT.
ALIGNMENT: LIC-161
ELEVATION: 1004.4 (MSL) EOB: 7.0 ft.
LAT / LONG: 40.073790, -82.608682

EXPLORATION ID B-127-0-23

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL -3"	1004.2																		
HARD, BROWN AND GRAY MOTTLED, **SILT AND CLAY**, CONTAINS ROOT HAIRS AND AGGREGATE BASE, DAMP (FILL)	1001.9	1	4 5 6	13	100	SS-1	4.5+	-	-	-	-	-	-	-	-	11	A-6a (V)	-	
HARD, GRAYISH BROWN, **SILT AND CLAY**, TRACE TO LITTLE GRAVEL, CONTAINS AGGREGATE BASE, DAMP (FILL)	1000.4	2 3 4	8 10 9	23	67	SS-2	4.5+	15	8	14	36	27	27	15	12	9	A-6a (6)	320	
HARD, BROWN, **SANDY SILT**, SOME SAND, TRACE GRAVEL, DAMP (FILL)		5	7 10 12	27	100	SS-3	4.5+	38	13	13	23	13	22	16	6	9	A-4a (0)	-	
	997.4	6 EOB 7	4 7 9	19	100	SS-4	4.5+	-	-	-	-	-	-	-	-	12	A-4a (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:34 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 445+99, 30' RT.	EXPLORATION ID B-128-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 998.8 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/24/23 END: 7/24/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.073590, -82.607318	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
	998.8																		
TOPSOIL - 2"	998.6																		
HARD, BROWN, **SILT AND CLAY**, DAMP	996.3	1	3 5 7	15	100	SS-1	4.00	6	7	16	43	28	30	17	13	14	A-6a (8)	220	
STIFF TO VERY STIFF, GRAY, **SANDY SILT**, MOIST @2.5'-4.0', slightly organic, contains rotting wood fragments.		2																	
		3	7 6 4	12	100	SS-2	1.75	14	9	17	36	24	31	22	9	24	A-4a (5)	-	
@4.0'-7.0', brown and gray.		4																	
		5	7 6 5	13	100	SS-3	1.50	-	-	-	-	-	-	-	-	14	A-4a (V)	-	
		6																	
	991.8	EOB 7	7 6 7	16	100	SS-4	3.50	-	-	-	-	-	-	-	-	16	A-4a (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:34 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 450+00, 31' LT.	EXPLORATION ID B-129-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 993.8 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/7/23 END: 7/7/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.073694, -82.605874	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 4" (FILL)	993.4																		
HARD, BROWN, **SANDY SILT**, SOME SAND, TRACE TO LITTLE GRAVEL, CONTAINS TRACE AGGREGATE BASE, DAMP	991.3	1	4 7 9	19	94	SS-1	4.50	-	-	-	-	-	-	-	-	15	A-4a (V)	-	
VERY STIFF, GRAYISH BROWN, **SANDY SILT**, SOME SAND, TRACE GRAVEL, DAMP	989.8	2 3 4	9 7 13	24	100	SS-2	3.25	9	5	19	39	28	27	17	10	14	A-4a (6)	160	
STIFF, DARK GRAY TO BLACK, **SILT**, LITTLE SAND, CONTAINS TRACE ROOTS, SLIGHT ORGANIC ODOR, WET		5	6 6 4	12	100	SS-3	1.00	0	1	7	60	32	29	20	9	27	A-4b (8)	-	
VERY STIFF, DARK GRAY TO BLACK, **SILT AND CLAY**, CONTAINS ROOTS, CONTAINS ORGANICS, ORGANIC ODOR, DAMP @5.5'-7.0', LOI=2.68%.	986.8	6 EOB 7	2 3 4	8	89	SS-4	2.00	-	-	-	-	-	-	-	-	26	A-4b (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:34 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 454+02, 29' RT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 991.2 (MSL) EOB: 7.0 ft.
START: 7/24/23 END: 7/24/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.073469, -82.604453

EXPLORATION ID B-130-0-23

PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 991.2	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 5"	990.7																		
STIFF, BROWN, **SILT AND CLAY**, MOIST	988.7	1	4 4 4	10	94	SS-1	1.25	7	8	46	17	22	24	13	11	17	A-6a (1)	-	
VERY STIFF, BROWN, **SILT AND CLAY**, MOIST		2 3 4 5	4 5 4	11	100	SS-2	1.50	9	6	21	35	29	28	15	13	17	A-6a (7)	170	
			4 4 4	10	100	SS-3	2.75	-	-	-	-	-	-	-	-	15	A-6a (V)	-	
	984.8	W 984.7 6	6 4 7	13	100	SS-4A	3.75	-	-	-	-	-	-	-	-	18	A-6a (V)	-	
MEDIUM DENSE, BROWN, **GRAVEL WITH SAND, SILT, AND CLAY**, WET	984.2	EOB 7				SS-4B	-	-	-	-	-	-	-	-	-	-	A-2-6 (V)	-	

DRAFT

NOTES: HOLE COLLAPSED AT 4.7'

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:34 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 457+89, 29' LT.	EXPLORATION ID B-131-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 989.6 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/7/23 END: 7/7/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.073573, -82.603059	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL -5"	989.2																		
STIFF, BROWN, **SILT AND CLAY**, CONTAINS TRACE ROOT FIBERS, DAMP TO MOIST	985.6	1	3 3 4	8	78	SS-1	1.00	8	4	9	50	29	33	18	15	14	A-6a (10)	180	
		2																	
		3	6 5 7	15	100	SS-2	2.00	-	-	-	-	-	-	-	-	19	A-6a (V)	-	
MEDIUM STIFF, BROWN, **SANDY SILT**, CONTAINS TRACE IRON OXIDE STAINING, MOIST		4																	
		5	3 3 5	10	100	SS-3	0.50	10	6	25	37	22	21	15	6	18	A-4a (5)	-	
@5.5'-7.0', very stiff.	982.6	6	5 6 7	16	100	SS-4	3.00	-	-	-	-	-	-	-	-	15	A-4a (V)	-	
		EOB 7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:34 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00
TYPE: SUBGRADE
PID: 117878 SFN:
START: 7/24/23 END: 7/24/23

DRILLING FIRM / OPERATOR: DLZ / K. CONRAD
SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON
DRILLING METHOD: 2.25" CFA
SAMPLING METHOD: SPT

DRILL RIG: '23 CME 75-KC-777
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 461+81, 27' RT.
ALIGNMENT: LIC-161
ELEVATION: 987.2 (MSL) EOB: 7.0 ft.
LAT / LONG: 40.073358, -82.601675

EXPLORATION ID B-132-0-23
PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 987.2	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 5"	986.8																		
HARD, BROWN, **SANDY SILT**, DAMP (FILL)	984.7	1	8 10 14	29	89	SS-1	4.5+	35	11	14	22	18	24	15	9	9	A-4a (1)	400	
MEDIUM DENSE, BROWN, **GRAVEL WITH SAND, SILT, AND CLAY**, DAMP (FILL)	983.2	2 3	21 15 10	30	100	SS-2	-	35	15	16	18	16	27	14	13	11	A-2-6 (1)	-	
HARD, BROWN, **SANDY SILT**, DAMP TO MOIST (FILL)		4	16 9 10	23	100	SS-3	4.5+	-	-	-	-	-	-	-	-	17	A-4a (V)	-	
	980.2	5 6	7 7 6	16	100	SS-4	4.5+	-	-	-	-	-	-	-	-	22	A-4a (V)	-	
		EOB 7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:34 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 465+94, 25' LT.	EXPLORATION ID B-133-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 987.5 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/7/23 END: 7/7/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.073440, -82.600189	

MATERIAL DESCRIPTION AND NOTES	ELEV. 987.5	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 5"	987.1																		
HARD, DARK BROWN, **SANDY SILT**, LITTLE GRAVEL, CONTAINS ROOT FIBERS, CONTAINS TRACE AGGREGATE BASE, RUBBER/TIRE ODOR, DAMP (FILL)	983.5	1–3	13 13 11	29	83	SS-1	4.50	20	10	16	32	22	18	15	3	8	A-4a (4)	3000	
		3–4	7 10 8	22	100	SS-2	4.5+	-	-	-	-	-	-	-	-	15	A-4a (V)	-	
VERY STIFF, GRAYISH BROWN, **SANDY SILT**, LITTLE TO SOME SAND, CONTAINS TRACE ROOT FIBERS, SLIGHT ORGANIC ODOR, DAMP TO MOIST (FILL)	982.0	4–5	6 5 4	11	100	SS-3	3.50	7	5	16	47	25	25	20	5	19	A-4a (7)	-	
VERY STIFF, BROWN, **SANDY SILT**, SOME SAND, TRACE GRAVEL, DAMP (FILL)	980.5	5–7 EOB	5 6 6	15	100	SS-4	3.25	-	-	-	-	-	-	-	-	14	A-4a (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:34 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 469+83, 26' RT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 991.4 (MSL) EOB: 7.0 ft.
START: 7/24/23 END: 7/24/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.073241, -82.598811

EXPLORATION ID B-134-0-23

MATERIAL DESCRIPTION AND NOTES	ELEV. 991.4	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 3"	991.0																		
HARD, BROWN, **SILTY CLAY**, LITTLE SAND, DAMP		1	3 6 6	15	-	SS-1	4.5+	26	8	13	30	23	30	14	16	12	A-6b (6)	730	
@2.5'-4.0', drove large gravel , low recovery	987.4	2 3 4	36 15 17	39	-	SS-2	4.5+	-	-	-	-	-	-	-	-	16	A-6b (V)	-	
HARD, BROWN, **SILT AND CLAY**, SOME SAND, DAMP @4.0'-5.5', contains gray seam		5	18 12 11	28	-	SS-3	4.5+	24	6	9	37	24	29	17	12	11	A-6a (6)	-	
	984.4	6 EOB 7	5 10 11	25	100	SS-4	4.5+	-	-	-	-	-	-	-	-	15	A-6a (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:34 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 473+79, 29' LT.	EXPLORATION ID B-135-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 989.9 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/7/23 END: 7/7/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.073331, -82.597388	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 3"	989.7																		
MEDIUM DENSE, BROWN, **SILT**, SOME SAND, DAMP (FILL)	987.4	1	3 7 8	18	56	SS-1	-	0	0	34	54	12	NP	NP	NP	17	A-4b (6)	<100	
MEDIUM DENSE, BROWN, **GRAVEL AND STONE FRAGMENTS WITH SAND**, CONTAINS TRACE CONCRETE FRAGMENTS, DAMP (FILL) @4.0'-5.5' contains shale fragments (FILL)	984.4	2 3 4	9 9 10	23	100	SS-2	-	51	14	20	10	5	NP	NP	NP	10	A-1-b (0)	-	
		5	10 6 8	17	100	SS-3	-	-	-	-	-	-	-	-	-	9	A-1-b (V)	-	
VERY STIFF, BROWN, **SILT AND CLAY**, TRACE GRAVEL, MOIST	982.9	6	8 6 5	13	89	SS-4	4.00	-	-	-	-	-	-	-	-	32	A-6a (V)	-	
		EOB 7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:34 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00
TYPE: SUBGRADE
PID: 117878 SFN:
START: 7/25/23 END: 7/25/23

DRILLING FIRM / OPERATOR: DLZ / K. CONRAD
SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON
DRILLING METHOD: 2.25" CFA
SAMPLING METHOD: SPT

DRILL RIG: '23 CME 75-KC-777
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 477+57, 28' RT.
ALIGNMENT: LIC-161
ELEVATION: 983.6 (MSL) EOB: 7.0 ft.
LAT / LONG: 40.073119, -82.596051

EXPLORATION ID B-136-0-23

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 2"	983.6																		
HARD, BROWN, **SANDY SILT**, DAMP	983.5	1	5 8 12	24	89	SS-1	4.5+	12	11	20	34	23	24	14	10	11	A-4a (4)	380	
HARD, GRAY, **SANDY SILT**, DAMP	981.1	2 3 4	10 5 9	17	100	SS-2	4.5+	13	10	19	36	22	20	15	5	11	A-4a (5)	-	
HARD, BROWN TO GRAY, **SANDY SILT**, DAMP	979.6	4 5	8 8 5	16	100	SS-3	4.5+	-	-	-	-	-	-	-	-	9	A-4a (V)	-	
MEDIUM DENSE, BROWN, **GRAVEL WITH SAND AND SILT**, DAMP	978.1	6	12 6 9	18	50	SS-4	-	-	-	-	-	-	-	-	-	3	A-2-4 (V)	-	
	976.6 EOB	7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:34 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 481+39, 24' LT.	EXPLORATION ID B-137-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 977.7 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/7/23 END: 7/7/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.073203, -82.594678	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL less than 1"	977.7																		
VERY STIFF, BROWN, **SILTY CLAY**, SOME SAND, TRACE GRAVEL, CONTAINS AGGREGATE BASE FRAGMENTS, DAMP (FILL)	975.2	1	3 7 8	18	61	SS-1	3.50	15	6	8	42	29	36	17	19	13	A-6b (11)	1200	
MEDIUM DENSE TO DENSE, BROWN, **SANDY SILT**, CONTAINS TRACE AGGREGATE BASE FRAGMENTS, DAMP (FILL) @2.5'-7.0', auger chatter, scraping, difficult drilling.		2 3	19 25 15	48	100	SS-2	-	30	15	16	24	15	NP	NP	NP	11	A-4a (1)	-	
		4 5	22 11 10	25	100	SS-3	-	-	-	-	-	-	-	-	-	9	A-4a (V)	-	
	970.7	6 EOB 7	10 13 11	29	100	SS-4	-	-	-	-	-	-	-	-	-	12	A-4a (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:34 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 485+21, 25' RT.	EXPLORATION ID B-138-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 975.4 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/25/23 END: 7/25/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.073012, -82.593326	

MATERIAL DESCRIPTION AND NOTES	ELEV. 975.4	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 3"	975.2																		
HARD, BROWN, **SILT AND CLAY**, LITTLE SAND, DAMP (FILL)		1	3 5 8	16	100	SS-1	4.50	9	7	17	36	31	29	16	13	13	A-6a (8)	420	
		2																	
		3	8 8 10	22	100	SS-2	4.50	5	6	16	41	32	28	16	12	13	A-6a (8)	-	
@3.5'-7.0', gray.		4																	
		5	3 5 7	15	100	SS-3	4.5+	-	-	-	-	-	-	-	-	8	A-6a (V)	-	
		6																	
	968.4	EOB 7	4 5 7	15	100	SS-4	4.5+	-	-	-	-	-	-	-	-	10	A-6a (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:34 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00
TYPE: SUBGRADE
PID: 117878 SFN:
START: 7/7/23 END: 7/7/23

DRILLING FIRM / OPERATOR: DLZ / K. CONRAD
SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON
DRILLING METHOD: 2.25" CFA
SAMPLING METHOD: SPT

DRILL RIG: '23 CME 75-KC-777
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 489+21, 27' LT.
ALIGNMENT: LIC-161
ELEVATION: 977.5 (MSL) EOB: 7.0 ft.
LAT / LONG: 40.073093, -82.591886

EXPLORATION ID B-139-0-23
PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 977.5	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL -4"	977.1																		
VERY STIFF TO HARD, GRAYISH BROWN, **SANDY SILT**, TRACE GRAVEL, DAMP		1	2 3 10	16	83	SS-1	2.50	18	7	15	34	26	24	15	9	10	A-4a (5)	530	
@2.5' large gravel piece.		2 3	11 15 12	33	100	SS-2	4.5+	-	-	-	-	-	-	-	-	15	A-4a (V)	-	
@4.0' gray shale fragments.	972.0	4 5	17 13 8	25	100	SS-3	4.50	-	-	-	-	-	-	-	-	11	A-4a (V)	-	
STIFF, GRAY, **SILT AND CLAY**, LITTLE TO SOME SAND, TRACE GRAVEL, CONTAINS GRAY SHALE FRAGMENTS, MOIST	970.5	EOB 6 7	8 9 6	18	100	SS-4	1.25	16	8	15	37	24	25	14	11	14	A-6a (6)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:34 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 493+18, 28' RT.	EXPLORATION ID B-140-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 984.9 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/25/23 END: 7/25/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.072846, -82.590490	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 3"	984.6																		
HARD, YELLOWISH GRAY, **SANDY SILT**, DAMP	982.4	1	2 10 10	24	94	SS-1	4.50	14	9	18	38	21	23	14	9	10	A-4a (5)	240	
HARD, BROWNISH GRAY, **SILTY CLAY**, DAMP	980.9	3	8 7 8	18	100	SS-2	4.50	-	-	-	-	-	-	-	-	11	A-6b (V)	-	
VERY STIFF TO HARD, GRAY AND LIGHT BROWN MOTTLED, **SILTY CLAY**, DAMP	977.9	5	7 7 8	18	100	SS-3	4.00	18	10	26	27	19	26	10	16	13	A-6b (4)	-	
	EOB	6 7	7 9 10	23	100	SS-4	4.50	-	-	-	-	-	-	-	-	11	A-6b (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 496+82, 27' LT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 992.0 (MSL) EOB: 7.0 ft.
START: 7/7/23 END: 7/7/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.072868, -82.589176

EXPLORATION ID B-141-0-23

PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 992.0	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 3"	991.8																		
MEDIUM DENSE, BROWN AND GRAY, **COARSE AND FINE SAND**, TRACE TO LITTLE SILT OR CLAY, TRACE GRAVEL, DAMP	989.5	1	4 8 9	21	72	SS-1	-	13	5	58	16	8	NP	NP	NP	8	A-3a (0)	-	
MEDIUM DENSE, DARK GRAY, **COARSE AND FINE SAND**, LITTLE SILT AND CLAY, TRACE GRAVEL, DAMP TO MOIST	988.0	2 3 4	8 7 3	12	100	SS-2	-	-	-	-	-	-	-	-	-	8	A-3a (V)	1400	
MEDIUM DENSE, DARK GRAY, **COARSE AND FINE SAND**, TRACE SILT, TRACE GRAVEL, WET	986.5	W 987.0 5	3 5 3	10	33	SS-3	-	-	-	-	-	-	-	-	-	17	A-3a (V)	-	
STIFF, GRAY, **SANDY SILT**, TRACE GRAVEL, DAMP	985.0	▽ 985.6 6 EOB 7	4 5 4	11	94	SS-4	2.00	18	5	12	38	27	22	15	7	14	A-4a (6)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:34 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:34 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 500+77, 27' RT.	EXPLORATION ID B-142-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1001.4 (MSL) EOB: 5.8 ft.	PAGE 1 OF 1
START: 7/25/23 END: 7/25/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.072579, -82.587804	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 2"	1001.4	TR																	
SHALE, GRAY, SEVERELY TO HIGHLY WEATHERED, WEAK TO SLIGHTLY STRONG, VERY FINE GRAINED, LAMINATED.	1001.2	1	4 5 12	21	100	SS-1	-	-	-	-	-	-	-	-	-	10	Rock (V)	-	
		2																	
		3	24 50/4"	-	80	SS-2	-	-	-	-	-	-	-	-	-	8	Rock (V)	-	
		4	50/5"	-	100	SS-3	-	-	-	-	-	-	-	-	-	7	Rock (V)	-	
	995.6	5 EOB	50/4"	-	100	SS-4	-	-	-	-	-	-	-	-	-	7	Rock (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:34 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 505+04, 28' LT.	EXPLORATION ID B-143-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1006.5 (MSL) EOB: 5.8 ft.	PAGE 1 OF 1
START: 7/6/23 END: 7/6/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.072575, -82.586267	

MATERIAL DESCRIPTION AND NOTES	ELEV. 1006.5	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 5", sandy	1006.1	TR																	
SHALE, DARK GRAY TO GRAY, SEVERELY TO HIGHLY WEATHERED, VERY WEAK TO WEAK.		1	7																
		2	20 44	77	100	SS-1	-	-	-	-	-	-	-	-	-	5	Rock (V)	-	
		3	50/5"	-	100	SS-2	-	-	-	-	-	-	-	-	-	5	Rock (V)	-	
		4	50/5"	-	100	SS-3	-	-	-	-	-	-	-	-	-	4	Rock (V)	-	
	1000.7	5 EOB	50/3"	-	100	SS-4	-	-	-	-	-	-	-	-	-	4	Rock (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:34 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 508+75, 27' RT.	EXPLORATION ID B-144-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 1004.5 (MSL) EOB: 5.8 ft.	PAGE 1 OF 1
START: 7/25/23 END: 7/25/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.072290, -82.584978	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 2"	1004.5	TR																	
SHALE, GRAY, SEVERELY TO HIGHLY WEATHERED, WEAK TO SLIGHTLY STRONG, VERY FINE GRAINED, LAMINATED.	1004.3	1	15 21 27	58	83	SS-1	-	-	-	-	-	-	-	-	-	6	Rock (V)	-	
		2																	
		3	45 50/5"	-	91	SS-2	-	-	-	-	-	-	-	-	-	11	Rock (V)	-	
		4	50/5"	-	100	SS-3	-	-	-	-	-	-	-	-	-	6	Rock (V)	-	
		5																	
		EOB	50/4"	-	100														
	997.5					SS-4	-	-	-	-	-	-	-	-	-	6	Rock (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:35 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00
TYPE: SUBGRADE
PID: 117878 SFN:
START: 7/6/23 END: 7/6/23

DRILLING FIRM / OPERATOR: DLZ / K. CONRAD
SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON
DRILLING METHOD: 2.25" CFA
SAMPLING METHOD: SPT

DRILL RIG: '23 CME 75-KC-777
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 512+63, 29' LT.
ALIGNMENT: LIC-161
ELEVATION: 996.8 (MSL) EOB: 7.0 ft.
LAT / LONG: 40.072304, -82.583577

EXPLORATION ID B-145-0-23
PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 996.8	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 5"	996.4																		
VERY STIFF TO HARD, BROWN, **SANDY SILT**, TRACE GRAVEL, DAMP	992.8	1	3 5 8	16	78	SS-1	4.5+	4	5	14	44	33	25	16	9	9	A-4a (8)	100	
		2																	
		3	8 10 8	22	100	SS-2	2.75	-	-	-	-	-	-	-	-	16	A-4a (V)	-	
		4																	
HARD, BROWN, **SANDY SILT**, LITTLE GRAVEL, CONTAINS TRACE SHALE FRAGMENTS, DAMP	989.8	5	7 11 10	25	100	SS-3	4.5+	19	12	19	30	20	22	15	7	11	A-4a (3)	-	
		6																	
		EOB 7	8 8 9	21	100	SS-4	4.50	-	-	-	-	-	-	-	-	9	A-4a (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:35 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00
TYPE: SUBGRADE
PID: 117878 SFN:
START: 7/25/23 END: 7/25/23

DRILLING FIRM / OPERATOR: DLZ / K. CONRAD
SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON
DRILLING METHOD: 2.25" CFA
SAMPLING METHOD: SPT

DRILL RIG: '23 CME 75-KC-777
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 516+63, 29' RT.
ALIGNMENT: LIC-161
ELEVATION: 985.1 (MSL) EOB: 7.0 ft.
LAT / LONG: 40.072003, -82.582186

EXPLORATION ID B-146-0-23

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 3"	985.1																		
HARD, GRAY, **SANDY SILT**, DAMP	984.9	1	6 11 12	28	78	SS-1	4.5+	8	6	15	39	32	24	15	9	11	A-4a (7)	1300	
	982.6	2																	
VERY STIFF TO HARD, GRAY, **SILT AND CLAY**, DAMP TO MOIST		3	16 9 10	23	100	SS-2	4.5+	7	7	15	40	31	27	13	14	11	A-6a (9)	-	
@ 4.0', moist.		4	6 7 6	16	100	SS-3	4.5+	-	-	-	-	-	-	-	-	11	A-6a (V)	-	
@ 5.5', very stiff.		5																	
	978.1	6	6 5 5	12	100	SS-4	2.25	-	-	-	-	-	-	-	-	12	A-6a (V)	-	
		EOB 7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:35 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 520+62, 29' LT.	EXPLORATION ID B-147-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 972.7 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/6/23 END: 7/6/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.072015, -82.580747	

MATERIAL DESCRIPTION AND NOTES	ELEV. 972.7	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 10"	971.9																		
HARD, BROWN, **SANDY SILT**, TRACE GRAVEL, DAMP		1	6 7 9	19	100	SS-1	4.5+	7	6	14	41	32	24	15	9	11	A-4a (8)	220	
		2																	
		3	12 11 10	25	100	SS-2	4.5+	10	6	15	39	30	24	16	8	13	A-4a (7)	-	
@4.0' large pieces of gravel.		4																	
		5	10 15 12	33	100	SS-3	4.5+	-	-	-	-	-	-	-	-	12	A-4a (V)	-	
@5.5' trace amounts of iron oxide staining.		6	9 10 12	27	100	SS-4	4.5+	-	-	-	-	-	-	-	-	14	A-4a (V)	-	
	965.7	EOB 7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:35 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 524+29, 28' RT.	EXPLORATION ID B-148-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 961.7 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/25/23 END: 7/25/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.071729, -82.579475	

MATERIAL DESCRIPTION AND NOTES	ELEV. 961.7	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 2"	961.5																		
VERY STIFF, BROWN, **SILTY CLAY**, DAMP (FILL)	959.2	1	3 5 11	19	72	SS-1	3.50	11	7	14	36	32	32	15	17	14	A-6b (9)	1400	
HARD, BROWN, **SILT AND CLAY**, DAMP TO MOIST (FILL)		2 3 4	14 13 14	33	100	SS-2	4.50	12	5	14	36	33	27	16	11	17	A-6a (7)	-	
@ 5.5', brown and gray mottled.	954.7	5 6	7 12 10	27	100	SS-3	4.5+	-	-	-	-	-	-	-	-	11	A-6a (V)	-	
		EOB 7	10 7 8	18	100	SS-4	4.5+	-	-	-	-	-	-	-	-	13	A-6a (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:35 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00
TYPE: SUBGRADE
PID: 117878 SFN:
START: 7/6/23 END: 7/6/23

DRILLING FIRM / OPERATOR: DLZ / K. CONRAD
SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON
DRILLING METHOD: 2.25" CFA
SAMPLING METHOD: SPT

DRILL RIG: '23 CME 75-KC-777
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 528+46, 28' RT.
ALIGNMENT: LIC-161
ELEVATION: 950.7 (MSL) EOB: 7.0 ft.
LAT / LONG: 40.071731, -82.577970

EXPLORATION ID B-149-0-23

MATERIAL DESCRIPTION AND NOTES	ELEV. 950.7	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 6"	950.2																		
VERY STIFF TO HARD, GRAYISH BROWN, **SILT AND CLAY**, SOME SAND, TRACE GRAVEL, TRACE AGGREGATE BASE, DAMP (FILL)	946.7	1	5 8 9	21	89	SS-1	4.5+	7	2	3	56	32	27	15	12	10	A-6a (9)	3800	
		2																	
		3	10 7 7	17	100	SS-2	2.00	-	-	-	-	-	-	-	-	14	A-6a (V)	-	
MEDIUM STIFF, GRAYISH BROWN, **SILTY CLAY**, LITTLE TO SOME SAND, TRACE GRAVEL, DAMP		4																	
		5	6 8 5	16	100	SS-3	1.00	9	8	17	39	27	31	15	16	13	A-6b (9)	-	
@5.5'-7.0', contains iron oxide staining.		6																	
	943.7	EOB 7	3 3 6	11	83	SS-4	0.75	-	-	-	-	-	-	-	-	15	A-6b (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:35 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 532+30, 28' LT.	EXPLORATION ID B-150-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 946.5 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/25/23 END: 7/25/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.071440, -82.576635	

MATERIAL DESCRIPTION AND NOTES	ELEV. 946.5	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 2"	946.3																		
HARD, BROWN, **SILT AND CLAY**, DAMP (FILL)	944.0	1	5 5 4	11	78	SS-1	4.5+	3	5	15	38	39	33	18	15	17	A-6a (10)	440	
HARD, DARK BROWN TO DARK GRAY MOTTLED, **SANDY SILT**, DAMP (FILL)		2																	
@ 4.0', brown.		3	6 7 11	22	100	SS-2	4.5+	6	8	17	38	31	27	25	2	13	A-4a (7)	-	
@ 5.5', brown and dark brown mottled.		4	14 11 9	24	100	SS-3	4.5+	-	-	-	-	-	-	-	-	15	A-4a (V)	-	
		5																	
		6	5 8 10	22	100	SS-4	4.00	-	-	-	-	-	-	-	-	16	A-4a (V)	-	
	939.5	EOB 7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:35 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 536+44, 30' RT.	EXPLORATION ID B-151-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 948.4 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/6/23 END: 7/6/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.071448, -82.575143	

MATERIAL DESCRIPTION AND NOTES	ELEV. 948.4	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 6"	947.9																		
MEDIUM DENSE, BROWN, **GRAVEL AND STONE FRAGMENTS WITH SAND**, CONTAINS AGGREGATE BASE AND STONE FRAGMENTS, DAMP (FILL)		W 945.9	10 12 10	27	67	SS-1	-	65	12	9	9	5	NP	NP	NP	5	A-1-a (0)	190	
	944.4		10 6 6	15	83	SS-2	-	-	-	-	-	-	-	-	-	11	A-1-a (V)	-	
MEDIUM DENSE, GRAYISH BROWN, **SILTY SAND**, SOME SAND, TRACE GRAVEL, WET			6 7 5	15	89	SS-3	-	16	6	34	38	6	NP	NP	NP	19	A-4a (2)	-	
	941.4	EOB	3 4 4	10	89	SS-4	-	-	-	-	-	-	-	-	-	23	A-4a (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:35 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 540+38, 26' LT.	EXPLORATION ID B-152-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 949.8 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/25/23 END: 7/25/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.071154, -82.573775	

MATERIAL DESCRIPTION AND NOTES	ELEV. 949.8	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 4"	949.5																		
HARD, GRAY, **SANDY SILT**, DAMP		1	10 13 20	40	100	SS-1	4.50	19	13	19	32	17	24	14	10	7	A-4a (3)	860	
@3.0', auger chatter.	945.8	2 3 4	24 18 12	36	100	SS-2	4.50	-	-	-	-	-	-	-	-	7	A-4a (V)	-	
VERY STIFF, GRAY, **SANDY SILT**, MOIST		5	5 5 6	13	100	SS-3	4.25	6	9	17	40	28	20	10	10	12	A-4a (7)	-	
	942.8	6 EOB 7	5 5 6	13	100	SS-4	4.00	-	-	-	-	-	-	-	-	11	A-4a (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE GROUT

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:35 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 544+29, 26' RT.	EXPLORATION ID B-153-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 950.7 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/6/23 END: 7/6/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.071154, -82.572366	

MATERIAL DESCRIPTION AND NOTES	ELEV. 950.7	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 8"	950.0																		
HARD, BROWN, **SANDY SILT**, LITTLE TO SOME SAND, TRACE GRAVEL, CONTAINS TRACE AGGREGATE BASE, DAMP (FILL)	948.2	1	5 6 8	17	67	SS-1	4.5+	9	6	14	39	32	26	17	9	11	A-4a (7)	240	
HARD, BROWN, **SANDY SILT**, LITTLE TO SOME SAND, TRACE GRAVEL, CONTAINS TRACE IRON OXIDE STAINING, DAMP	945.2	2 3 4 5	12 9 10	23	100	SS-2	4.50	5	6	16	41	32	25	18	7	14	A-4a (8)	-	
			9 10 11	25	100	SS-3	4.5+	-	-	-	-	-	-	-	-	14	A-4a (V)	-	
MEDIUM DENSE, BROWN, **COARSE AND FINE SAND**, LITTLE TO SOME GRAVEL, TRACE SILT, DAMP	943.7	EOB 6 7	9 10 10	24	56	SS-4	-	-	-	-	-	-	-	-	-	7	A-3a (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:35 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 548+35, 28' LT.	EXPLORATION ID B-154-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 948.6 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/25/23 END: 7/25/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.070863, -82.570951	

MATERIAL DESCRIPTION AND NOTES	ELEV. 948.6	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 3"	948.4																		
HARD, BROWN, **SANDY SILT**, DAMP		1	8 11 14	30	100	SS-1	4.5+	6	6	17	40	31	25	15	10	10	A-4a (7)	<100	
		2																	
		3	27 19 25	53	100	SS-2	4.50	-	-	-	-	-	-	-	-	10	A-4a (V)	-	
		4																	
	943.1	5	15 12 11	28	100	SS-3	4.5+	-	-	-	-	-	-	-	-	9	A-4a (V)	-	
VERY STIFF, LIGHT BROWN, **SILTY CLAY**, MOIST		6	5 5 12	21	100	SS-4	2.75	6	2	11	34	47	39	17	22	18	A-6b (13)	-	
	941.6	EOB 7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

PROJECT: FRA-161-22.10/LIC-161-0.00
TYPE: SUBGRADE
PID: 117878 SFN:
START: 7/6/23 END: 7/6/23

DRILLING FIRM / OPERATOR: DLZ / K. CONRAD
SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON
DRILLING METHOD: 2.25" CFA
SAMPLING METHOD: SPT

DRILL RIG: '23 CME 75-KC-777
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 552+31, 24' RT.
ALIGNMENT: LIC-161
ELEVATION: 946.5 (MSL) EOB: 7.0 ft.
LAT / LONG: 40.070859, -82.569526

EXPLORATION ID B-155-0-23

MATERIAL DESCRIPTION AND NOTES	ELEV. 946.5	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 3"	946.3																		
HARD, BROWN, **SILT AND CLAY**, DAMP		1	3 4 4	10	61	SS-1	4.5+	16	5	14	38	27	28	17	11	13	A-6a (6)	<100	
	942.5	2																	
STIFF TO VERY STIFF, BROWN, **SANDY SILT**, DAMP		3	4 6 8	17	89	SS-2	4.50	-	-	-	-	-	-	-	-	13	A-6a (V)	-	
		4	9 9 8	21	100	SS-3	-	15	12	17	31	25	24	15	9	12	A-4a (4)	-	
	939.5	5	5 4 4	10	89	SS-4	1.75	-	-	-	-	-	-	-	-	16	A-4a (V)	-	
		EOB 6 7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:35 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 556+35, 19' LT.
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 944.5 (MSL) EOB: 7.0 ft.
START: 7/25/23 END: 7/25/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.070596, -82.568114

EXPLORATION ID B-156-0-23

PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 944.5	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 3"	944.3																		
HARD, BROWN, **SANDY SILT**, DAMP		1	15 15 13	34	39	SS-1	4.5+	31	6	16	31	16	22	16	6	9	A-4a (2)	-	
	940.5	2																	
		3	8 12 14	31	28	SS-2	4.5+	-	-	-	-	-	-	-	-	10	A-4a (V)	220	
HARD, BROWN, **SILT AND CLAY**, LITTLE TO SOME SAND, DAMP		4	9 10 11	25	100	SS-3	4.50	9	5	13	38	35	27	16	11	14	A-6a (8)	-	
	937.5	5																	
		6	12 9 11	24	100	SS-4	4.50	-	-	-	-	-	-	-	-	11	A-6a (V)	-	
		EOB 7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:35 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:35 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00
TYPE: SUBGRADE
PID: 117878 SFN:
START: 7/6/23 END: 7/6/23

DRILLING FIRM / OPERATOR: DLZ / K. CONRAD
SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON
DRILLING METHOD: 2.25" CFA
SAMPLING METHOD: SPT

DRILL RIG: '23 CME 75-KC-777
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 560+28, 14' RT.
ALIGNMENT: LIC-161
ELEVATION: 943.0 (MSL) EOB: 7.0 ft.
LAT / LONG: 40.070546, -82.566705

EXPLORATION ID B-157-0-23

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 3"	943.0																		
HARD, BROWN, **SANDY SILT**, DAMP	942.8	1	5 6 6	15	0	SS-1	4.5+	-	-	-	-	-	-	-	-	-	A-4a (V)	-	
		2																	
		3	7 6 17	28	100	SS-2	4.5+	9	8	19	42	22	22	17	5	14	A-4a (6)	200	
		4																	
@4.5', gravel.	937.5	5	13 20 15	42	78	SS-3	4.5+	21	11	19	31	18	20	15	5	9	A-4a (3)	-	
HARD, ORANGISH BROWN, **SANDY SILT**, SOME GRAVEL, DAMP	936.0	6	12 10 10	24	72	SS-4	4.5+	-	-	-	-	-	-	-	-	7	A-4a (V)	-	
EOB		7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:35 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 564+14, 12' LT.	EXPLORATION ID B-158-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 940.8 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/26/23 END: 7/26/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.070335, -82.565353	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 8"	940.1																		
MEDIUM DENSE, BROWN, **GRAVEL WITH SAND**, DAMP		1	6 9 10	23	33	SS-1	-	-	-	-	-	-	-	-	-	4	A-1-b (V)	-	
		2	10 6 5	13	67	SS-2	-	54	2	6	33	5	-	-	-	7	A-1-b (V)	190	
		3	5 6 7	16	78	SS-3	-	56	16	9	13	6	-	-	-	6	A-1-b (V)	-	
		4	7 7 7	17	72	SS-4	-	-	-	-	-	-	-	-	-	6	A-1-b (V)	-	
	933.8	EOB 5																	
		6																	
		7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:35 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 568+11, 15' RT.	EXPLORATION ID B-159-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 938.8 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/6/23 END: 7/6/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.070265, -82.563934	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 8"	938.2																		
DENSE TO VERY DENSE, BROWN TO GRAY, **GRAVEL AND STONE FRAGMENTS WITH SAND AND SILT**, DAMP		1	5 12 15	33	83	SS-1	-	49	20	11	13	7	-	-	-	7	A-2-4 (V)	-	
@3.0'-6.0', slight chatter.		2 3 4	13 31 30	74	100	SS-2	-	-	-	-	-	-	-	-	-	4	A-2-4 (V)	<100	
@5.5', medium dense.		5	29 31 16	57	100	SS-3	-	-	-	-	-	-	-	-	-	7	A-2-4 (V)	-	
	931.8	6 EOB 7	10 13 10	28	100	SS-4	-	50	16	11	14	9	23	15	8	9	A-2-4 (0)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:35 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 571+94, 14' LT.	EXPLORATION ID B-160-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 936.8 (MSL) EOB: 5.8 ft.	PAGE 1 OF 1
START: 7/26/23 END: 7/26/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.070049, -82.562589	

MATERIAL DESCRIPTION AND NOTES	ELEV. 936.8	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 3"	936.6																		
HARD, GRAY AND BROWN, **SILTY CLAY**, DAMP	934.3	1	5 6 7	16	67	SS-1	4.5+	25	12	15	27	21	35	11	24	12	A-6b (7)	1100	
@ 2.5-4.0', drove shale boulder. sample contained gray shale fragments.	932.8	2 3	5 9 12	25	100	SS-2	4.5+	-	-	-	-	-	-	-	-	5	A-6b (V)	-	
HARD, GRAY, **SILT AND CLAY**, DAMP	931.0	4 5	8 7 9	19	89	SS-3	4.5+	25	6	9	36	24	29	17	12	12	A-6a (6)	-	
@5.8', sampler refusal on buried obstruction.	EOB		50/3"	-	133	SS-4	4.5+	-	-	-	-	-	-	-	-	10	A-6a (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

PROJECT: FRA-161-22.10/LIC-161-0.00
TYPE: SUBGRADE
PID: 117878 SFN:
START: 7/6/23 END: 7/6/23

DRILLING FIRM / OPERATOR: DLZ / K. CONRAD
SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON
DRILLING METHOD: 2.25" CFA
SAMPLING METHOD: SPT

DRILL RIG: '23 CME 75-KC-777
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 576+37, 12' RT.
ALIGNMENT: LIC-161
ELEVATION: 934.9 (MSL) EOB: 7.0 ft.
LAT / LONG: 40.069886, -82.561020

EXPLORATION ID B-161-0-23

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
HARD, BROWN, **SILT AND CLAY**, SOME SAND, TRACE GRAVEL, DAMP Less than 1" of topsoil.	934.9																		
	932.4	1	10 6 5	13	83	SS-1	4.5+	8	6	17	40	29	26	15	11	12	A-6a (7)	210	
HARD, BROWN, **SANDY SILT**, SOME GRAVEL, CONTAINS STONE FRAGMENTS, DAMP (POSSIBLE FILL)	930.9	2 3 4	6 12 13	30	67	SS-2	4.5+	31	13	14	25	17	26	16	10	12	A-4a (1)	-	
HARD, BROWN, **SANDY SILT**, CONTAINS IRON OXIDE STAINS (POSSIBLE FILL) @5.5', grayish brown.	927.9	5 6	8 9 9	22	89	SS-3	4.5+	-	-	-	-	-	-	-	-	14	A-4a (V)	-	
		EOB 7	10 13 9	27	100	SS-4	4.5+	-	-	-	-	-	-	-	-	17	A-4a (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:35 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:35 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 580+37, 8' LT.	EXPLORATION ID B-162-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 932.1 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/26/23 END: 7/26/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.069578, -82.559647	

MATERIAL DESCRIPTION AND NOTES	ELEV. 932.1	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 4"	931.7																		
HARD, BROWN, **SANDY SILT**, DAMP (POSSIBLE FILL)	929.6	1	6 9 11	24	78	SS-1	4.5+	10	9	17	38	26	23	16	7	10	A-4a (6)	1600	
HARD, GRAY, **SANDY SILT**, DAMP (POSSIBLE FILL)	928.1	3	7 6 20	31	100	SS-2	4.5+	28	6	11	32	23	27	17	10	10	A-4a (4)	-	
HARD, BROWN, **SANDY SILT**, CONTAINS GRAVELS, DAMP (POSSIBLE FILL)		5	13 16 14	36	100	SS-3	4.5+	-	-	-	-	-	-	-	-	10	A-4a (V)	-	
	925.1	6	13 9 11	24	100	SS-4	4.50	-	-	-	-	-	-	-	-	12	A-4a (V)	-	
		EOB 7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:35 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00
TYPE: SUBGRADE
PID: 117878 SFN:
START: 7/5/23 END: 7/5/23

DRILLING FIRM / OPERATOR: DLZ / K. CONRAD
SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON
DRILLING METHOD: 2.25" CFA
SAMPLING METHOD: SPT

DRILL RIG: '23 CME 75-KC-777
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 584+20, 16' RT.
ALIGNMENT: LIC-161
ELEVATION: 929.9 (MSL) EOB: 7.0 ft.
LAT / LONG: 40.069397, -82.558296

EXPLORATION ID B-163-0-23
PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 929.9	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL -4" (FILL)	929.5																		
MEDIUM STIFF, BROWN, **SILT AND CLAY**, DAMP (FILL)	927.4	1	6 2 2	5	83	SS-1	0.75	31	14	14	24	17	26	15	11	10	A-6a (1)	140	
MEDIUM DENSE, GRAYISH BROWN, **GRAVEL AND STONE FRAGMENTS WITH SAND AND SILT**, DAMP (POSSIBLE FILL)	925.9	2 3 4	5 6 10	19	100	SS-2	-	35	16	14	23	12	20	15	5	9	A-2-4 (0)	-	
HARD, GRAY, **SILT AND CLAY**, DAMP	922.9	5 6	9 7 6	16	100	SS-3	4.5+	-	-	-	-	-	-	-	-	14	A-6a (V)	-	
		EOB 7	8 11 10	25	83	SS-4	4.5+	-	-	-	-	-	-	-	-	14	A-6a (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.5 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:35 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 588+15, 10' LT.	EXPLORATION ID B-164-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 927.8 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/26/23 END: 7/26/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.069077, -82.556944	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 2"	927.8																		
HARD, GRAY AND BROWN, **SILT AND CLAY**, LITTLE SAND, DAMP	927.6	1	5 11 10	25	89	SS-1	4.5+	13	10	17	35	25	26	15	11	10	A-6a (5)	1100	
VERY STIFF TO HARD, BROWN, **SANDY SILT**, CONTAINS GRAVELS, DAMP	925.3	2																	
		3	12 16 15	37	100	SS-2	4.5+	26	11	17	28	18	26	17	9	11	A-4a (2)	-	
		4	11 12 10	27	100	SS-3	3.00	-	-	-	-	-	-	-	-	15	A-4a (V)	-	
	920.8	5	10 5 8	16	100	SS-4	2.50	-	-	-	-	-	-	-	-	12	A-4a (V)	-	
		EOB 7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:35 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 592+25, 15' RT.	EXPLORATION ID B-165-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 926.9 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/5/23 END: 7/5/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.068883, -82.555498	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 1"	926.9																		
STIFF TO HARD, BROWN, **SILT AND CLAY**, DAMP FILL TO 2.5'.		1	4 5 8	16	83	SS-1	3.25	10	9	16	36	29	30	16	14	11	A-6a (8)	5000	
		2																	
		3	7 9 12	25	100	SS-2	4.5+	6	5	13	45	31	27	16	11	13	A-6a (8)	-	
		4																	
		5	6 5 5	12	100	SS-3	1.50	-	-	-	-	-	-	-	-	15	A-6a (V)	-	
		6																	
	919.9	EOB 7	9 16 12	34	78	SS-4	2.00	-	-	-	-	-	-	-	-	8	A-6a (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.5 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:35 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 596+03, 13' LT.	EXPLORATION ID B-166-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 926.0 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/26/23 END: 7/26/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.068568, -82.554210	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 3"	926.0																		
HARD, BROWN, **SANDY SILT**, DAMP (POSSIBLE FILL)	925.8	1	4 4 6	12	89	SS-1	4.5+	2	4	39	37	18	18	17	1	11	A-4a (4)	240	
	923.5	2																	
HARD, BROWN, **SILT AND CLAY**, LITTLE SAND, CONTAINS GRAVELS, DAMP (POSSIBLE FILL)		3	6 12 14	31	100	SS-2	4.5+	7	7	16	37	33	30	15	15	15	A-6a (9)	-	
		4	11 12 12	29	100	SS-3	4.5+	-	-	-	-	-	-	-	-	9	A-6a (V)	-	
		5																	
		6	12 11 12	28	100	SS-4	4.5+	-	-	-	-	-	-	-	-	13	A-6a (V)	-	
	919.0	EOB 7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:35 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00
TYPE: SUBGRADE
PID: 117878 SFN:
START: 7/5/23 END: 7/5/23

DRILLING FIRM / OPERATOR: DLZ / K. CONRAD
SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON
DRILLING METHOD: 2.25" CFA
SAMPLING METHOD: SPT

DRILL RIG: '23 CME 75-KC-777
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 600+03, 14' RT.
ALIGNMENT: LIC-161
ELEVATION: 924.8 (MSL) EOB: 7.0 ft.
LAT / LONG: 40.068386, -82.552796

EXPLORATION ID B-167-0-23
PAGE 1 OF 1

MATERIAL DESCRIPTION AND NOTES	ELEV. 924.8	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 6"	924.3																		
HARD, BROWNISH GRAY, **SILT AND CLAY**, LITTLE GRAVEL, DAMP (FILL)	922.3		4 5 6	13	61	SS-1	4.5+	19	9	15	34	23	26	15	11	9	A-6a (5)	1800	
MEDIUM DENSE TO DENSE, BROWNISH GRAY, **GRAVEL AND STONE FRAGMENTS WITH SAND**, DAMP (FILL)			10 14 10	29	100	SS-2	-	45	17	13	13	12	19	14	5	8	A-1-b (0)	-	
		W 919.8	10 11 5	19	89	SS-3	-	-	-	-	-	-	-	-	-	11	A-1-b (V)	-	
@5.5'-7.0', contains asphalt and brick fragments.	917.8	EOB	4 6 3	11	72	SS-4	-	-	-	-	-	-	-	-	-	9	A-1-b (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.5 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:35 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00
TYPE: SUBGRADE
PID: 117878 SFN:
START: 7/26/23 END: 7/26/23

DRILLING FIRM / OPERATOR: DLZ / K. CONRAD
SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON
DRILLING METHOD: 2.25" CFA
SAMPLING METHOD: SPT

DRILL RIG: '23 CME 75-KC-777
HAMMER: CME AUTOMATIC
CALIBRATION DATE: 7/27/23
ENERGY RATIO (%): 72.5

STATION / OFFSET: 604+08, 14' LT.
ALIGNMENT: LIC-161
ELEVATION: 923.7 (MSL) EOB: 5.9 ft.
LAT / LONG: 40.068055, -82.551412

EXPLORATION ID B-168-0-23

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 3"	923.4																		
VERY STIFF TO HARD, BROWN TO DARK BROWN, **SANDY SILT**, DAMP (FILL)		1	5 6 6	15	78	SS-1	4.00	8	8	32	32	20	21	13	8	11	A-4a (3)	500	
@3.0', slight auger chatter.	920.2	2 3	15 17 8	30	100	SS-2A	4.50	25	18	16	25	16	22	16	6	9	A-4a (1)	-	
VERY DENSE, GRAYISH BROWN, **GRAVEL WITH SAND**, CONTAINS POSSIBLE COBBLES, DAMP (FILL)		4				SS-2B	-	-	-	-	-	-	-	-	-	-	A-1-b (V)	-	
@4.0'-5.5', auger chatter.		5	25 42 50/4"	-	94	SS-3	-	-	-	-	-	-	-	-	-	4	A-1-b (V)	-	
	917.8	EOB	50/5"	-	100	SS-4	-	-	-	-	-	-	-	-	-	4	A-1-b (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:35 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 608+17, 16' RT.	EXPLORATION ID B-169-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 922.6 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/5/23 END: 7/5/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.067872, -82.549967	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 4"	922.6																		
VERY STIFF, GRAYISH BROWN, **GRAVEL AND STONE FRAGMENTS WITH SAND**, CONTAINS AGGREGATE BASE, DAMP	922.3	1	5 9 13	27	67	SS-1	-	71	5	6	10	8	22	15	7	6	A-2-4 (0)	5500	
SOFT, GRAYISH BROWN, **SILT AND CLAY**, CONTAINS SLIGHT ORGANIC ODOR, TRACE ROOT FIBERS, MOIST	920.1	2																	
HARD, GRAYISH BROWN, **SILT AND CLAY**, CONTAINS SLIGHT ORGANIC ODOR, TRACE GRAVEL, DAMP TO MOIST	918.6	3	9 5 5	12	100	SS-2	0.25	11	8	16	37	28	25	14	11	17	A-6a (6)	-	
@4.0', augers scraping.		4	6 10 7	21	100	SS-3	2.00	-	-	-	-	-	-	-	-	16	A-6a (V)	-	
	915.6	5	11 11 10	25	100	SS-4	4.5+	-	-	-	-	-	-	-	-	11	A-6a (V)	-	
		EOB 6 7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.5 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:35 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 612+03, 12' LT.	EXPLORATION ID B-170-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 921.9 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/26/23 END: 7/26/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.067553, -82.548648	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 3"	921.7																		
HARD, BROWN, **SILT AND CLAY**, LITTLE SAND, DAMP	917.9	1	5 14 9	28	100	SS-1	4.50	8	7	19	38	28	29	17	12	12	A-6a (7)	1800	
		2																	
		3	6 11 12	28	100	SS-2	4.5+	12	6	15	39	28	28	17	11	14	A-6a (7)	-	
		4																	
HARD, GRAY TO BROWN, **SILT AND CLAY**, DAMP	914.9	5	6 10 13	28	100	SS-3	4.5+	-	-	-	-	-	-	-	-	15	A-6a (V)	-	
		6	10 12 12	29	83	SS-4	4.5+	-	-	-	-	-	-	-	-	12	A-6a (V)	-	
		EOB 7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:35 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 615+92, 14' RT.	EXPLORATION ID B-171-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 920.7 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/5/23 END: 7/5/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.067338, -82.547282	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 7"	920.5																		
MEDIUM DENSE, BROWN, **SILT AND CLAY**, SOME SAND, TRACE GRAVEL, CONTAINS AGGREGATE BASE AND STONE FRAGMENTS, DAMP TO MOIST (FILL)	918.2	1–2	3 4 4	10	44	SS-1	4.5+	7	6	17	39	31	30	17	13	15	A-6a (8)	310	
MEDIUM DENSE, BROWN, **SANDY SILT**, CONTAINS AGGREGATE BASE AND STONE FRAGMENTS, DAMP (FILL)	916.7	3–4	8 10 8	22	100	SS-2	-	24	8	16	31	21	25	15	10	12	A-4a (3)	-	
VERY STIFF TO HARD, BROWN, **SILT AND CLAY**, SOME SAND, CONTAINS STONE FRAGMENTS, DAMP (POSSIBLE FILL)	913.7	5–6	4 7 8	18	78	SS-3	-	-	-	-	-	-	-	-	-	12	A-6a (V)	-	
EOB		7	6 7 9	19	100	SS-4	4.50	-	-	-	-	-	-	-	-	13	A-6a (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.5 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:35 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 619+86, 12' LT.	EXPLORATION ID B-172-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 919.8 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/26/23 END: 7/26/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.066884, -82.546002	

MATERIAL DESCRIPTION AND NOTES	ELEV. 919.8	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 5"	919.4																		
VERY STIFF TO HARD, BROWN TO BROWN AND GRAY, **SILT AND CLAY**, LITTLE SAND, DAMP	917.3	1	5 6 8	17	100	SS-1	4.5+	36	7	12	27	18	29	14	15	9	A-6a (4)	3000	
VERY STIFF TO HARD, BROWN TO BROWN AND GRAY, **SANDY SILT**, DAMP		2 3 4	9 10 12	27	100	SS-2	4.5+	11	8	17	38	26	25	15	10	12	A-4a (6)	-	
		5	5 10 13	28	100	SS-3	4.50	-	-	-	-	-	-	-	-	12	A-4a (V)	-	
	912.8	6 EOB 7	8 8 8	19	100	SS-4	3.00	-	-	-	-	-	-	-	-	15	A-4a (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:35 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 623+83, 15' RT.	EXPLORATION ID B-173-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 918.8 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/5/23 END: 7/5/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.066471, -82.544685	

MATERIAL DESCRIPTION AND NOTES	ELEV. 918.8	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 3"	918.5																		
MEDIUM DENSE, BROWN, **SANDY SILT**, CONTAINS TRACE ROOTS, DAMP	916.3	1	6 8 13	25	22	SS-1	-	-	-	-	-	-	-	-	-	13	A-4a (V)	-	
HARD, BROWN, **SILT AND CLAY**, CONTAINS STONE AND SHALE FRAGMENTS, TRACE ROOTS, DAMP	914.8	2 3 4	14 10 11	25	94	SS-2	4.5+	44	6	10	24	16	32	17	15	10	A-6a (2)	140	
STIFF TO HARD, GRAYISH BROWN TO BROWN, **SANDY SILT**, TRACE GRAVEL, CONTAINS SLIGHT ORGANIC ODOR, DAMP TO MOIST	911.8	5 6	7 5 5	12	100	SS-3	1.50	9	5	25	49	12	25	17	8	18	A-4a (5)	-	
		EOB 7	7 7 11	22	100	SS-4	4.5+	-	-	-	-	-	-	-	-	17	A-4a (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.5 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:35 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 627+79, 13' LT.	EXPLORATION ID B-174-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 918.2 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/26/23 END: 7/26/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.065907, -82.543473	

MATERIAL DESCRIPTION AND NOTES	ELEV. 918.2	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 5"	917.8																		
HARD, BROWN, **SANDY SILT**, DAMP	915.7	1	4 4 5	11	33	SS-1	4.5+	11	9	19	37	24	23	16	7	12	A-4a (5)	190	
HARD, BROWN TO GRAY, **SANDY SILT**, DAMP	912.7 ▼	2 3 4 5	15 19 12	37	100	SS-2	4.50	10	8	23	36	23	24	15	9	11	A-4a (5)	-	
			11 5 9	17	100	SS-3	4.50	-	-	-	-	-	-	-	-	10	A-4a (V)	-	
VERY STIFF, BROWN, **SANDY SILT**, DAMP	911.2	6 EOB 7	9 10 13	28	100	SS-4	4.00	-	-	-	-	-	-	-	-	19	A-4a (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:35 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 631+52, 16' RT.	EXPLORATION ID B-175-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 917.1 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/5/23 END: 7/5/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.065510, -82.542242	

MATERIAL DESCRIPTION AND NOTES	ELEV. 917.1	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 2"	916.9																		
HARD, BROWNISH GRAY, **SANDY SILT**, TRACE GRAVEL, CONTAINS AGGREGATE BASE, DAMP		1	7 10 11	25	78	SS-1	4.5+	9	9	17	39	26	22	14	8	7	A-4a (6)	3600	
	913.1	2	7 13 11	29	100	SS-2	4.5+	-	-	-	-	-	-	-	-	10	A-4a (V)	-	
VERY STIFF TO HARD, GRAY TO DARK GRAY, **SANDY SILT**, TRACE GRAVEL, CONTAINS SLIGHT ORGANIC ODOR, DAMP		3	8 8 12	24	100	SS-3	4.5+	6	7	14	41	32	23	14	9	12	A-4a (8)	-	
	910.1	4	9 12 13	30	100	SS-4	3.75	-	-	-	-	-	-	-	-	14	A-4a (V)	-	
		EOB 5																	
		6																	
		7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.5 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:35 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 636+46, 12' LT.	EXPLORATION ID B-176-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 917.8 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/26/23 END: 7/26/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.064823, -82.540715	

MATERIAL DESCRIPTION AND NOTES	ELEV. 917.8	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 5"	917.3																		
MEDIUM DENSE, BROWN, **STONE FRAGMENTS WITH SAND, SILT, AND CLAY**, SOME SAND, DAMP TO MOIST		1	9 11 11	27	61	SS-1	-	36	18	13	18	15	26	15	11	8	A-2-6 (0)	260	
		2																	
		3	12 7 8	18	100	SS-2	-	-	-	-	-	-	-	-	-	15	A-2-6 (V)	-	
		4																	
	912.3	5	12 7 8	18	100	SS-3	-	-	-	-	-	-	-	-	-	8	A-2-6 (V)	-	
VERY STIFF, GRAY, **SILTY CLAY**, LITTLE SAND, MOIST		6	7 7 8	18	100	SS-4	2.50	6	3	7	42	42	38	20	18	23	A-6b (11)	-	
	910.8	EOB 7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:35 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 639+67, 14' RT.	EXPLORATION ID B-177-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 918.0 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/5/23 END: 7/5/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.064486, -82.539653	

MATERIAL DESCRIPTION AND NOTES	ELEV. 918.0	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 1"	917.9																		
HARD, BROWN, **SILT AND CLAY**, SOME SAND, TRACE GRAVEL, DAMP	915.5	1	6 7 9	19	72	SS-1	4.5+	8	7	15	40	30	28	15	13	14	A-6a (8)	520	
HARD, BROWN, **SANDY SILT**, TRACE GRAVEL, DAMP		2 3 4	6 9 8	21	83	SS-2	4.25	3	5	16	45	31	26	16	10	13	A-4a (8)	-	
		5	6 8 8	19	100	SS-3	4.5+	-	-	-	-	-	-	-	-	14	A-4a (V)	-	
@5.5', gray, trace shale fragments.	911.0	6 EOB 7	3 8 8	19	67	SS-4	4.5+	-	-	-	-	-	-	-	-	11	A-4a (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.5 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:35 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / K. CONRAD	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 643+46, 12' LT.	EXPLORATION ID B-178-0-23
TYPE: SUBGRADE	SAMPLING FIRM / LOGGER: DLZ / A. MIDDLETON	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: 2.25" CFA	CALIBRATION DATE: 7/27/23	ELEVATION: 919.7 (MSL) EOB: 7.0 ft.	PAGE 1 OF 1
START: 7/26/23 END: 7/26/23	SAMPLING METHOD: SPT	ENERGY RATIO (%): 72.5	LAT / LONG: 40.063951, -82.538487	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 5"	919.3																		
HARD, BROWN, **SANDY SILT**, DAMP	917.2	1	3 6 6	15	78	SS-1	4.50	24	9	8	38	21	24	15	9	10	A-4a (5)	280	
VERY DENSE, GRAY, **GRAVEL WITH SAND**, DAMP @2.5'-5.5', auger chatter.	915.7	2 3	50/5"	-	100	SS-2	-	-	-	-	-	-	-	-	-	5	A-1-b (V)	-	
VERY DENSE, BROWN, **GRAVEL WITH SAND AND SILT**, CONTAINS CLAY LAYER, DAMP	914.2	4 5	30 24 20	53	100	SS-3	-	40	13	13	21	13	20	15	5	9	A-2-4 (0)	-	
HARD, BROWN, **SANDY SILT**, DAMP	912.7	6	18 9 9	22	100	SS-4	4.50	-	-	-	-	-	-	-	-	8	A-4a (V)	-	
EOB		7																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:35 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / J. CONLEY	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 375+13, 196' RT.	EXPLORATION ID H-110-06-23
TYPE: RETAINING WALL	SAMPLING FIRM / LOGGER: DLZ / J. CONLEY	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: HAND AUGER	CALIBRATION DATE: 7/27/23	ELEVATION: 1025.3 (MSL) EOB: 3.5 ft.	PAGE 1 OF 1
START: 7/28/23 END: 7/28/23	SAMPLING METHOD: HAND AUGER	ENERGY RATIO (%): 72.5	LAT / LONG: 40.072178, -82.632635	

MATERIAL DESCRIPTION AND NOTES	ELEV. 1025.3	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 10"	1024.4																		
BROWN, **SANDY SILT**, DAMP		1				S-1	-	-	-	-	-	-	-	-	-	13	A-4a (V)	-	
		2				S-2	-	27	10	21	30	12	27	23	4	9	A-4a (1)	-	
	1021.8	EOB 3				S-3	-	-	-	-	-	-	-	-	-	7	A-4a (V)	-	

@ 3.5', hand auger refusal.

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: AUGER CUTTINGS MIXED WITH 0.25 BAG BENTONITE CHIPS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:35 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / J. CONLEY	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 375+84, 204' RT.
TYPE: RETAINING WALL	SAMPLING FIRM / LOGGER: DLZ / J. CONLEY	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161
PID: 117878 SFN:	DRILLING METHOD: HAND AUGER	CALIBRATION DATE: 7/27/23	ELEVATION: 1029.3 (MSL) EOB: 5.0 ft.
START: 7/28/23 END: 7/28/23	SAMPLING METHOD: HAND AUGER	ENERGY RATIO (%): 72.5	LAT / LONG: 40.072098, -82.632393

EXPLORATION ID H-110-07-23

MATERIAL DESCRIPTION AND NOTES	ELEV. 1029.3	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 9"	1028.6					S-1	-	-	-	-	-	-	-	-	-	12	A-6a (V)	-	
BROWN AND GRAY MOTTLED, **SILT AND CLAY**, DAMP TO MOIST		1				S-2	-	-	-	-	-	-	-	-	-	12	A-6a (V)	-	
		2				S-3	-	11	10	21	32	26	28	17	11	16	A-6a (5)	-	
	1024.8	3																	
GRAY, **SILT AND CLAY**, MOIST	1024.3	4				S-4	-	-	-	-	-	-	-	-	-	23	A-6a (V)	-	
		EOB 5																	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED WITH AUGER CUTTINGS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:36 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / J. CONLEY	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 374+49, 143' LT.	EXPLORATION ID H-110-08-23
TYPE: RETAINING WALL	SAMPLING FIRM / LOGGER: DLZ / J. CONLEY	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161	
PID: 117878 SFN:	DRILLING METHOD: HAND AUGER	CALIBRATION DATE: 7/27/23	ELEVATION: 1023.8 (MSL) EOB: 3.5 ft.	PAGE 1 OF 1
START: 7/28/23 END: 7/28/23	SAMPLING METHOD: HAND AUGER	ENERGY RATIO (%): 72.5	LAT / LONG: 40.073118, -82.632496	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 8"	1023.8																		
BROWN AND GRAY MOTTLED, **SANDY SILT**, MOIST TO WET - 8"	1023.2	1				S-1	-	-	-	-	-	-	-	-	-	17	A-4a (V)	-	
GRAYISH BROWN, **SANDY SILT**, SOME FINE TO COARSE SAND, MOIST	1022.3	2				S-2	-	11	13	18	31	27	26	17	9	18	A-4a (5)	-	
@ 3.5', hand auger refusal.	1020.3	EOB 3				S-3	-	-	-	-	-	-	-	-	-	23	A-4a (V)	-	

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED WITH AUGER CUTTINGS

PROJECT: FRA-161-22.10/LIC-161-0.00	DRILLING FIRM / OPERATOR: DLZ / J. CONLEY	DRILL RIG: '23 CME 75-KC-777	STATION / OFFSET: 375+33, 153' LT.
TYPE: RETAINING WALL	SAMPLING FIRM / LOGGER: DLZ / J. CONLEY	HAMMER: CME AUTOMATIC	ALIGNMENT: LIC-161
PID: 117878 SFN:	DRILLING METHOD: HAND AUGER	CALIBRATION DATE: 7/27/23	ELEVATION: 1022.4 (MSL) EOB: 1.0 ft.
START: 7/28/23 END: 7/28/23	SAMPLING METHOD: HAND AUGER	ENERGY RATIO (%): 72.5	LAT / LONG: 40.073079, -82.632204

EXPLORATION ID H-110-09-23

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	SO4 ppm	ABAN-DONED
TOPSOIL - 9"	1022.4 / 1021.7																		
BROWN, **SANDY SILT**, SOME FINE TO COARSE SAND, DAMP	1021.4	EOB 1				1	-	6	9	18	37	30	28	19	9	12	A-4a (6)	-	
@1.0', hand auger refusal.																			

DRAFT

NOTES: NONE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BACKFILLED WITH AUGER CUTTINGS

STANDARD ODOT LOG W/ SULFATES (8.5 X 11) - OH DOT.GDT - 11/29/23 11:36 - X:\SHARED\DISCIPLINE\GEOTECH\GINT_COLUMBUS\PROJECTS\2321-3033.00 WOOLPERT LIC-161.GPJ

B-110-5-23



Run #:	Depth		Recovery		RQD	
NQ2-1	28.5'	33.5'	60/60	100%	58/60	97%
NQ2-2	33.5'	38.5'	60/60	100%	42/60	70%

ROCK CORE PHOTOGRAPH
PROJECT: FRA/LIC-161-22.1/0.00 PID 117878

Boring/Core ID	Alignment	Station	Offset	Latitude (N)	Longitude (E)	Elevation	Topsoil Thickness (in)	Top of Rock, Depth (ft)	Water During Drilling (ft)	Water at Completion (ft)	Total Boring Depth (ft)
B-001-0-23	FRA-161 CL	1198+67	12 Rt	N40.080301	W82.784828	1071.1	4	NA	21.0	NA*	80.0
B-002-0-23	FRA-161 CL	1203+10	20 Rt	N40.080207	W82.783251	1073.9	5	NA	N/A	N/A	7.0
B-003-0-23	FRA-161 CL	1207+11	19 Lt	N40.080245	W82.781812	1076.7	5	NA	N/A	N/A	7.0
B-004-0-23	FRA-161 CL	1210+68	21 Rt	N40.080076	W82.780546	1078.9	5.5	NA	N/A	N/A	7.0
B-005-0-23	FRA-161 CL	1214+73	19 Lt	N40.080119	W82.779093	1081.2	3	NA	N/A	N/A	7.0
B-006-0-23	FRA-161 CL	1218+73	20 Rt	N40.079944	W82.777674	1084	4	NA	N/A	N/A	7.0
B-007-0-23	FRA-161 CL	1222+57	20 Lt	N40.079990	W82.776298	1087.6	5	NA	N/A	N/A	7.0
B-008-0-23	FRA-161 CL	1226+59	19 Rt	N40.079817	W82.774872	1092.6	7	NA	N/A	N/A	7.0
B-009-0-23	FRA-161 CL	1230+47	24 Lt	N40.079869	W82.773477	1096.7	5	NA	N/A	N/A	7.0
B-010-0-23	FRA-161 CL	1234+64	28 Rt	N40.079659	W82.772002	1100.3	6	NA	N/A	N/A	7.0
B-011-0-23	FRA-161 CL	1237+51	31 Lt	N40.079772	W82.770965	1104.3	5	NA	N/A	N/A	7.0
B-012-0-23	FRA-161 CL	1242+57	28 Rt	N40.079524	W82.769172	1108.3	5	NA	N/A	N/A	7.0
B-013-0-23	FRA-161 CL	1246+38	32 Lt	N40.079629	W82.767801	1112.1	6	NA	N/A	N/A	7.0
B-014-0-23	FRA-161 CL	1250+24	30 Rt	N40.079419	W82.766432	1115.2	7	NA	N/A	N/A	7.0
B-015-0-23	LIC-161 CL	0+79	29 Lt	N40.079569	W82.764966	1118.4	6	NA	N/A	N/A	7.0
B-016-0-23	LIC-161 CL	4+61	28 Rt	N40.079435	W82.763599	1121.5	5	NA	N/A	N/A	7.0
B-017-0-23	LIC-161 CL	8+26	25 Lt	N40.079628	W82.762303	1124.2	4	NA	N/A	N/A	7.0
B-018-0-23	LIC-161 CL	12+26	30 Rt	N40.079561	W82.760863	1127.9	4	NA	N/A	N/A	7.0
B-019-0-23	LIC-161 CL	16+66	27 Lt	N40.079819	W82.759317	1133.5	4	NA	N/A	N/A	7.0
B-020-0-23	LIC-161 CL	20+32	28 Rt	N40.079756	W82.757996	1141.3	6	NA	N/A	N/A	7.0
B-021-0-23	LIC-161 CL	24+15	28 Lt	N40.079998	W82.756650	1149.7	3	NA	N/A	N/A	7.0
B-022-0-23	LIC-161 CL	28+05	29 Rt	N40.079936	W82.755243	1158.2	5	NA	N/A	N/A	7.0
B-023-0-23	LIC-161 CL	31+78	28 Lt	N40.080180	W82.753931	1162.5	0	NA	N/A	N/A	7.0
B-024-0-23	LIC-161 CL	36+07	32 Rt	N40.080115	W82.752386	1162	6	NA	N/A	N/A	7.0
B-025-0-23	LIC-161 CL	40+08	26 Lt	N40.080370	W82.750976	1155.5	5	NA	N/A	N/A	7.0
B-026-0-23	LIC-161 CL	43+84	30 Rt	N40.080306	W82.749622	1149.5	4	NA	N/A	N/A	7.0
B-027-0-23	LIC-161 CL	47+99	30 Lt	N40.080568	W82.748162	1148.7	4	NA	N/A	N/A	7.0
B-028-0-23	LIC-161 CL	51+82	31 Rt	N40.080489	W82.746782	1151.8	4	NA	N/A	N/A	7.0
B-029-0-23	LIC-161 CL	56+18	27 Lt	N40.080752	W82.745245	1153.7	4	NA	N/A	N/A	7.0
B-030-0-23	LIC-161 CL	60+08	31 Rt	N40.080684	W82.743840	1153.3	6	NA	N/A	N/A	7.0
B-031-0-23	LIC-161 CL	63+86	30 Lt	N40.080939	W82.742512	1152.5	5	NA	N/A	N/A	7.0
B-032-0-23	LIC-161 CL	67+72	29 Rt	N40.080847	W82.741123	1151.3	2	NA	N/A	N/A	7.0
B-033-0-23	LIC-161 CL	71+94	29 Lt	N40.081049	W82.739624	1150.4	6	NA	N/A	N/A	7.0
B-034-0-23	LIC-161 CL	75+56	24 Rt	N40.080912	W82.738326	1149.2	2	NA	N/A	N/A	7.0
B-035-0-23	LIC-161 CL	79+67	27 Lt	N40.081031	W82.736857	1148.1	6	NA	N/A	N/A	7.0
B-036-0-23	LIC-161 CL	83+67	31 Rt	N40.080846	W82.735430	1147.5	2	NA	N/A	N/A	7.0

Boring/Core ID	Alignment	Station , Offset	Latitude (N)	Longitude (E)	Elevation	Topsoil Thickness (in)	Top of Rock, Depth (ft)	Water During Drilling (ft)	Water at Completion (ft)	Total Boring Depth (ft)
B-037-0-23	LIC-161 CL	87+64 , 28 Lt	N40.080982	W82.734009	1148.9	6	NA	N/A	N/A	7.0
B-038-0-23	LIC-161 CL	91+59 , 28 Rt	N40.080805	W82.732602	1155.1	2	NA	N/A	N/A	7.0
B-039-0-23	LIC-161 CL	95+53 , 26 Lt	N40.080929	W82.731190	1160.9	5	NA	2.5	N/A	7.0
B-040-0-23	LIC-161 CL	99+42 , 31 Rt	N40.080747	W82.729805	1167.6	2	NA	N/A	N/A	7.0
B-041-0-23	LIC-161 CL	103+48 , 28 Lt	N40.080883	W82.728348	1173.3	4	NA	N/A	N/A	7.0
B-042-0-23	LIC-161 CL	107+46 , 31 Rt	N40.080698	W82.726931	1179.8	5	NA	N/A	N/A	7.0
B-043-0-23	LIC-161 CL	111+03 , 29 Lt	N40.080839	W82.725653	1184.8	5	NA	N/A	N/A	7.0
B-044-0-23	LIC-161 CL	115+12 , 32 Rt	N40.080648	W82.724196	1191.7	5	NA	N/A	N/A	7.0
B-045-0-23	LIC-161 CL	119+33 , 23 Lt	N40.080772	W82.722687	1197.4	2	NA	N/A	N/A	7.0
B-046-0-23	LIC-161 CL	123+19 , 27 Rt	N40.080611	W82.721311	1197.6	8	NA	N/A	N/A	7.0
B-047-0-23	LIC-161 CL	126+95 , 25 Lt	N40.080729	W82.719966	1194.3	5	NA	N/A	N/A	7.0
B-048-0-23	LIC-161 CL	130+93 , 26 Rt	N40.080565	W82.718546	1190.4	5	NA	N/A	N/A	7.0
B-049-0-23	LIC-161 CL	134+68 , 29 Lt	N40.080691	W82.717202	1190.1	4	NA	N/A	N/A	7.0
B-050-0-23	LIC-161 CL	138+54 , 27 Rt	N40.080512	W82.715827	1192.4	3	NA	N/A	N/A	7.0
B-051-0-23	LIC-161 CL	142+53 , 28 Lt	N40.080638	W82.714400	1194.4	5	NA	N/A	N/A	7.0
B-052-0-23	LIC-161 CL	146+44 , 28 Rt	N40.080460	W82.713007	1196.7	5	NA	N/A	N/A	7.0
B-053-0-23	LIC-161 CL	150+39 , 26 Lt	N40.080586	W82.711592	1198.5	6	NA	N/A	N/A	7.0
B-054-0-23	LIC-161 CL	154+22 , 23 Rt	N40.080426	W82.710226	1201.5	5	NA	N/A	N/A	7.0
B-055-0-23	LIC-161 CL	158+28 , 27 Lt	N40.080538	W82.708771	1204	7	NA	N/A	N/A	7.0
B-056-0-23	LIC-161 CL	162+18 , 28 Rt	N40.080362	W82.707382	1206.4	5	NA	N/A	N/A	7.0
B-057-0-23	LIC-161 CL	166+16 , 22 Lt	N40.080473	W82.705957	1208.1	3	NA	N/A	N/A	7.0
B-058-0-23	LIC-161 CL	170+18 , 27 Rt	N40.080313	W82.704526	1211.4	6	NA	N/A	N/A	7.0
B-059-0-23	LIC-161 CL	173+76 , 26 Lt	N40.080436	W82.703241	1213.2	2	NA	N/A	N/A	7.0
B-060-0-23	LIC-161 CL	177+82 , 28 Rt	N40.080262	W82.701798	1215.9	5	NA	N/A	N/A	7.0
B-061-0-23	LIC-161 CL	181+77 , 27 Lt	N40.080389	W82.700382	1218.3	6	NA	N/A	N/A	7.0
B-062-0-23	LIC-161 CL	185+71 , 30 Rt	N40.080206	W82.698977	1221.3	5	NA	N/A	N/A	7.0
B-063-0-23	LIC-161 CL	189+54 , 28 Lt	N40.080342	W82.697604	1223.3	7	NA	N/A	N/A	7.0
B-064-0-23	LIC-161 CL	193+50 , 31 Rt	N40.080154	W82.696195	1225.9	7	NA	N/A	N/A	7.0
B-065-0-23	LIC-161 CL	197+50 , 28 Lt	N40.080291	W82.694760	1228	0	NA	4.0	N/A	7.0
B-066-0-23	LIC-161 CL	201+38 , 30 Rt	N40.080108	W82.693382	1229.8	4	NA	N/A	N/A	7.0
B-067-0-23	LIC-161 CL	205+27 , 29 Lt	N40.080246	W82.691986	1227	8	NA	5.5	N/A	7.0
B-068-0-23	LIC-161 CL	209+21 , 29 Rt	N40.080060	W82.690583	1223.9	6	NA	N/A	N/A	7.0
B-069-0-23	LIC-161 CL	213+15 , 30 Lt	N40.080198	W82.689169	1220.9	7	NA	N/A	N/A	7.0
B-070-0-23	LIC-161 CL	217+11 , 28 Rt	N40.080014	W82.687761	1217.3	8	NA	N/A	N/A	7.0
B-071-0-23	LIC-161 CL	220+91 , 28 Lt	N40.080136	W82.686398	1214.2	6	NA	N/A	N/A	7.0
B-072-0-23	LIC-161 CL	224+79 , 28 Rt	N40.079943	W82.685018	1211.5	6	NA	N/A	N/A	7.0

Boring/Core ID	Alignment	Station , Offset	Latitude (N)	Longitude (E)	Elevation	Topsoil Thickness (in)	Top of Rock, Depth (ft)	Water During Drilling (ft)	Water at Completion (ft)	Total Boring Depth (ft)
B-073-0-23	LIC-161 CL	228+82 , 28 Lt	N40.080056	W82.683574	1208.5	4	NA	N/A	N/A	7.0
B-074-0-23	LIC-161 CL	232+81 , 27 Rt	N40.079865	W82.682156	1204.6	5	NA	N/A	N/A	7.0
B-075-0-23	LIC-161 CL	236+62 , 27 Lt	N40.079974	W82.680786	1201.7	4	NA	N/A	N/A	7.0
B-076-0-23	LIC-161 CL	240+63 , 23 Rt	N40.079797	W82.679362	1198.7	0	NA	N/A	N/A	7.0
B-077-0-23	LIC-161 CL	244+68 , 28 Lt	N40.079895	W82.677910	1195.6	4	NA	N/A	N/A	7.0
B-078-0-23	LIC-161 CL	248+70 , 30 Rt	N40.079696	W82.676480	1192.6	4	NA	N/A	N/A	7.0
B-079-0-23	LIC-161 CL	252+40 , 29 Lt	N40.079819	W82.675151	1189.2	8	NA	N/A	N/A	7.0
B-080-0-23	LIC-161 CL	256+19 , 30 Rt	N40.079621	W82.673807	1186.6	3	NA	N/A	N/A	7.0
B-081-0-23	LIC-161 CL	260+14 , 29 Lt	N40.079740	W82.672387	1183.4	5	NA	N/A	N/A	7.0
B-082-0-23	LIC-161 CL	264+09 , 29 Rt	N40.079542	W82.670985	1180.1	4	NA	N/A	N/A	7.0
B-083-0-23	LIC-161 CL	267+81 , 29 Lt	N40.079663	W82.669648	1177.5	5	NA	N/A	N/A	7.0
B-084-0-23	LIC-161 CL	272+10 , 30 Rt	N40.079439	W82.668132	1173.7	6	NA	4.0	N/A	7.0
B-085-0-23	LIC-161 CL	275+86 , 29 Lt	N40.079492	W82.666773	1171	5	NA	N/A	N/A	7.0
B-086-0-23	LIC-161 CL	279+68 , 29 Rt	N40.079172	W82.665457	1168.2	3	NA	N/A	N/A	7.0
B-087-0-23	LIC-161 CL	283+68 , 28 Lt	N40.079102	W82.664016	1164.5	4	NA	N/A	N/A	7.0
B-088-0-23	LIC-161 CL	287+65 , 30 Rt	N40.078690	W82.662687	1161.4	5	NA	N/A	N/A	7.0
B-089-0-23	LIC-161 CL	291+72 , 29 Lt	N40.078582	W82.661223	1158.2	3	NA	4.0	5.4	7.0
B-090-0-23	LIC-161 CL	295+74 , 31 Rt	N40.078160	W82.659880	1155.1	5	NA	N/A	N/A	7.0
B-091-0-23	LIC-161 CL	299+50 , 27 Lt	N40.078069	W82.658523	1151.7	4	NA	N/A	N/A	7.0
B-092-0-23	LIC-161 CL	303+64 , 31 Rt	N40.077646	W82.657138	1149	5	NA	N/A	N/A	7.0
B-093-0-23	LIC-161 CL	307+67 , 28 Lt	N40.077540	W82.655688	1145.3	6	NA	N/A	N/A	7.0
B-094-0-23	LIC-161 CL	311+43 , 28 Rt	N40.077144	W82.654429	1141.1	4	NA	N/A	N/A	7.0
B-095-0-23	LIC-161 CL	315+47 , 20 Lt	N40.077011	W82.652988	1133.9	4	NA	N/A	N/A	7.0
B-096-0-23	LIC-161 CL	319+57 , 30 Rt	N40.076610	W82.651607	1127	4	NA	N/A	N/A	7.0
B-097-0-23	LIC-161 CL	323+38 , 26 Lt	N40.076511	W82.650236	1119.7	5	NA	N/A	N/A	7.0
B-098-0-23	LIC-161 CL	327+20 , 30 Rt	N40.076113	W82.648956	1113.4	4	NA	N/A	N/A	7.0
B-099-0-23	LIC-161 CL	331+40 , 28 Lt	N40.075992	W82.647452	1105.8	8	NA	N/A	N/A	7.0
B-100-0-23	LIC-161 CL	335+16 , 29 Rt	N40.075595	W82.646196	1099.4	3	NA	N/A	N/A	7.0
B-101-0-23	LIC-161 CL	339+04 , 28 Lt	N40.075496	W82.644800	1092.6	6	NA	N/A	N/A	7.0
B-102-0-23	LIC-161 CL	343+31 , 25 Rt	N40.075076	W82.643362	1085.3	3	NA	N/A	N/A	7.0
B-103-0-23	LIC-161 CL	347+36 , 28 Lt	N40.074952	W82.641911	1077.7	10	NA	N/A	N/A	7.0
B-104-0-23	LIC-161 CL	350+90 , 28 Rt	N40.074563	W82.640736	1072.1	5	NA	N/A	N/A	8.5
B-105-0-23	LIC-161 CL	355+15 , 25 Lt	N40.074392	W82.639223	1067.5	5	NA	6.5	5.5	7.0
B-106-0-23	LIC-161 CL	359+10 , 27 Rt	N40.073949	W82.637921	1063.3	5	NA	N/A	N/A	7.0
B-107-0-23	LIC-161 CL	363+11 , 26 Lt	N40.073762	W82.636497	1058.3	2	NA	N/A	N/A	7.0
B-108-0-23	LIC-161 CL	366+71 , 27 Rt	N40.073323	W82.635327	1054.1	5	NA	N/A	N/A	7.0

Boring/Core ID	Alignment	Station , Offset	Latitude (N)	Longitude (E)	Elevation	Topsoil Thickness (in)	Top of Rock, Depth (ft)	Water During Drilling (ft)	Water at Completion (ft)	Total Boring Depth (ft)
B-109-0-23	LIC-161 CL	370+86 , 23 Lt	N40.073108	W82.633861	1048.9	3	NA	N/A	N/A	7.0
B-110-0-23	LIC-161 CL	374+82 , 28 Rt	N40.072644	W82.632566	1045.9	4	NA	8.3	N/A	8.5
B-110-5-23	LIC-161 CL	375+59 , 149 Rt	N40.072263	W82.632424	1048.1	NA	26	N/A	N/A*	38.5
B-111-0-23	LIC-161 CL	379+06 , 26 Lt	N40.072489	W82.631055	1050.8	1	NA	N/A	N/A	7.0
B-112-0-23	LIC-161 CL	382+70 , 30 Rt	N40.072168	W82.629806	1056.1	Not Recorded	NA	N/A	N/A	7.0
B-113-0-23	LIC-161 CL	386+80 , 28 Lt	N40.072227	W82.628328	1062.3	1	NA	N/A	N/A	7.0
B-114-0-23	LIC-161 CL	390+60 , 29 Rt	N40.072068	W82.626973	1063	5	NA	N/A	N/A	7.0
B-115-0-23	LIC-161 CL	394+64 , 28 Lt	N40.072317	W82.625549	1056.8	6	NA	6.5	N/A	7.0
B-116-0-23	LIC-161 CL	398+62 , 29 Rt	N40.072304	W82.624114	1048.8	3	NA	N/A	N/A	7.0
B-117-0-23	LIC-161 CL	402+84 , 27 Lt	N40.072608	W82.622646	1039.7	5	NA	N/A	N/A	7.0
B-118-0-23	LIC-161 CL	406+53 , 29 Rt	N40.072588	W82.621311	1033.6	3	NA	N/A	N/A	7.0
B-119-0-23	LIC-161 CL	410+60 , 25 Lt	N40.072878	W82.619896	1030.6	6	NA	N/A	N/A	7.0
B-120-0-23	LIC-161 CL	414+38 , 30 Rt	N40.072865	W82.618531	1029.5	3	NA	N/A	N/A	7.0
B-121-0-23	LIC-161 CL	418+45 , 29 Lt	N40.073170	W82.617118	1027.3	4	NA	N/A	N/A	7.0
B-122-0-23	LIC-161 CL	422+22 , 28 Rt	N40.073151	W82.615754	1025.1	4	NA	N/A	N/A	7.0
B-123-0-23	LIC-161 CL	426+24 , 26 Lt	N40.073442	W82.614356	1022.8	8	NA	7.0	8.5	8.5
B-124-0-23	LIC-161 CL	430+19 , 29 Rt	N40.073431	W82.612932	1019.7	3	NA	N/A	N/A	7.0
B-125-0-23	LIC-161 CL	434+23 , 28 Lt	N40.073714	W82.611519	1014.8	7	NA	N/A	N/A	7.0
B-126-0-23	LIC-161 CL	438+34 , 30 Rt	N40.073623	W82.610042	1008.9	3	5.5	N/A	N/A	7.0
B-127-0-23	LIC-161 CL	442+15 , 28 Lt	N40.073790	W82.608682	1004.4	3	NA	N/A	N/A	7.0
B-128-0-23	LIC-161 CL	445+99 , 30 Rt	N40.073590	W82.607318	998.8	2	NA	N/A	N/A	7.0
B-129-0-23	LIC-161 CL	450+00 , 31 Lt	N40.073694	W82.605874	993.8	4	NA	N/A	N/A	7.0
B-130-0-23	LIC-161 CL	454+02 , 29 Rt	N40.073469	W82.604453	991.2	5	NA	6.5	N/A	7.0
B-131-0-23	LIC-161 CL	457+89 , 29 Lt	N40.073573	W82.603059	989.6	5	NA	N/A	N/A	7.0
B-132-0-23	LIC-161 CL	461+81 , 27 Rt	N40.073358	W82.601675	987.2	5	NA	N/A	N/A	7.0
B-133-0-23	LIC-161 CL	465+94 , 25 Lt	N40.073440	W82.600189	987.5	5	NA	N/A	N/A	7.0
B-134-0-23	LIC-161 CL	469+83 , 26 Rt	N40.073241	W82.598811	991.4	3	NA	N/A	N/A	7.0
B-135-0-23	LIC-161 CL	473+79 , 29 Lt	N40.073331	W82.597388	989.9	3	NA	N/A	N/A	7.0
B-136-0-23	LIC-161 CL	477+57 , 28 Rt	N40.073119	W82.596051	983.6	2	NA	N/A	N/A	7.0
B-137-0-23	LIC-161 CL	481+39 , 24 Lt	N40.073203	W82.594678	977.7	<1	NA	N/A	N/A	7.0
B-138-0-23	LIC-161 CL	485+21 , 25 Rt	N40.073012	W82.593326	975.4	3	NA	N/A	N/A	7.0
B-139-0-23	LIC-161 CL	489+21 , 27 Lt	N40.073093	W82.591886	977.5	4	NA	N/A	N/A	7.0
B-140-0-23	LIC-161 CL	493+18 , 28 Rt	N40.072846	W82.590490	984.9	3	NA	N/A	N/A	7.0
B-141-0-23	LIC-161 CL	496+82 , 27 Lt	N40.072868	W82.589176	992	3	NA	5.0	6.4	7.0
B-142-0-23	LIC-161 CL	500+77 , 27 Rt	N40.072579	W82.587804	1001.4	2	0.2	N/A	N/A	5.8

Boring/Core ID	Alignment	Station	Offset	Latitude (N)	Longitude (E)	Elevation	Topsoil Thickness (in)	Top of Rock, Depth (ft)	Water During Drilling (ft)	Water at Completion (ft)	Total Boring Depth (ft)
B-143-0-23	LIC-161 CL	505+04	28 Lt	N40.072575	W82.586267	1006.5	5	0.4	N/A	N/A	5.8
B-144-0-23	LIC-161 CL	508+75	27 Rt	N40.072290	W82.584978	1004.5	2	0.2	N/A	N/A	5.8
B-145-0-23	LIC-161 CL	512+63	29 Lt	N40.072304	W82.583577	996.8	5	NA	N/A	N/A	7.0
B-146-0-23	LIC-161 CL	516+63	29 Rt	N40.072003	W82.582186	985.1	3	NA	N/A	N/A	7.0
B-147-0-23	LIC-161 CL	520+62	29 Lt	N40.072015	W82.580747	972.7	10	NA	N/A	N/A	7.0
B-148-0-23	LIC-161 CL	524+29	28 Rt	N40.071729	W82.579475	961.7	2	NA	N/A	N/A	7.0
B-149-0-23	LIC-161 CL	528+46	28 Rt	N40.071731	W82.577970	950.7	6	NA	N/A	N/A	7.0
B-150-0-23	LIC-161 CL	532+30	28 Lt	N40.071440	W82.576635	946.5	2	NA	N/A	N/A	7.0
B-151-0-23	LIC-161 CL	536+44	30 Rt	N40.071448	W82.575143	948.4	6	NA	2.5	6.3	7.0
B-152-0-23	LIC-161 CL	540+38	26 Lt	N40.071154	W82.573775	949.8	4	NA	N/A	N/A	7.0
B-153-0-23	LIC-161 CL	544+29	26 Rt	N40.071154	W82.572366	950.7	8	NA	N/A	N/A	7.0
B-154-0-23	LIC-161 CL	548+35	28 Lt	N40.070863	W82.570951	948.6	3	NA	N/A	N/A	7.0
B-155-0-23	LIC-161 CL	552+31	24 Rt	N40.070859	W82.569526	946.5	3	NA	N/A	N/A	7.0
B-156-0-23	LIC-161 CL	556+35	19 Lt	N40.070596	W82.568114	944.5	3	NA	N/A	N/A	7.0
B-157-0-23	LIC-161 CL	560+28	14 Rt	N40.070546	W82.566705	943	3	NA	N/A	N/A	7.0
B-158-0-23	LIC-161 CL	564+14	12 Lt	N40.070335	W82.565353	940.8	8	NA	N/A	N/A	7.0
B-159-0-23	LIC-161 CL	568+11	15 Rt	N40.070265	W82.563934	938.8	8	NA	N/A	N/A	7.0
B-160-0-23	LIC-161 CL	571+94	14 Lt	N40.070049	W82.562589	936.8	3	NA	N/A	N/A	5.8
B-161-0-23	LIC-161 CL	576+37	12 Rt	N40.069886	W82.561020	934.9	<1	NA	N/A	N/A	7.0
B-162-0-23	LIC-161 CL	580+37	8 Lt	N40.069578	W82.559647	932.1	4	NA	N/A	N/A	7.0
B-163-0-23	LIC-161 CL	584+20	16 Rt	N40.069397	W82.558296	929.9	4	NA	N/A	N/A	7.0
B-164-0-23	LIC-161 CL	588+15	10 Lt	N40.069077	W82.556944	927.8	2	NA	N/A	N/A	7.0
B-165-0-23	LIC-161 CL	592+25	15 Rt	N40.068883	W82.555498	926.9	1	NA	N/A	N/A	7.0
B-166-0-23	LIC-161 CL	596+03	13 Lt	N40.068568	W82.554210	926	3	NA	N/A	N/A	7.0
B-167-0-23	LIC-161 CL	600+03	14 Rt	N40.068386	W82.552796	924.8	6	NA	5.0	7.0	7.0
B-168-0-23	LIC-161 CL	604+08	14 Lt	N40.068055	W82.551412	923.7	3	NA	N/A	N/A	5.9
B-169-0-23	LIC-161 CL	608+17	16 Rt	N40.067872	W82.549967	922.6	4	NA	N/A	N/A	7.0
B-170-0-23	LIC-161 CL	612+03	12 Lt	N40.067553	W82.548648	921.9	3	NA	N/A	N/A	7.0
B-171-0-23	LIC-161 CL	615+92	14 Rt	N40.067338	W82.547282	920.7	7	NA	N/A	N/A	7.0
B-172-0-23	LIC-161 CL	619+86	12 Lt	N40.066884	W82.546002	919.8	5	NA	N/A	N/A	7.0
B-173-0-23	LIC-161 CL	623+83	15 Rt	N40.066471	W82.544685	918.8	3	NA	N/A	N/A	7.0
B-174-0-23	LIC-161 CL	627+79	13 Lt	N40.065907	W82.543473	918.2	5	NA	N/A	5.5	7.0
B-175-0-23	LIC-161 CL	631+52	16 Rt	N40.065510	W82.542242	917.1	2	NA	N/A	N/A	7.0
B-176-0-23	LIC-161 CL	636+46	12 Lt	N40.064823	W82.540715	917.8	5	NA	N/A	N/A	7.0
B-177-0-23	LIC-161 CL	639+67	14 Rt	N40.064486	W82.539653	918	1	NA	N/A	N/A	7.0
B-178-0-23	LIC-161 CL	643+46	12 Lt	N40.063951	W82.538487	919.7	5	NA	N/A	N/A	7.0

Boring/Core ID	Alignment	Station , Offset	Latitude (N)	Longitude (E)	Elevation	Topsoil Thickness (in)	Top of Rock, Depth (ft)	Water During Drilling (ft)	Water at Completion (ft)	Total Boring Depth (ft)
H-110-6-23	LIC-161 CL	375+13 , 196 Rt	N40.072178	W82.632635	1025.2	10	NA	N/A	N/A	3.5
H-110-7-23	LIC-161 CL	375+84 , 204 Rt	N40.072098	W82.632393	1029.3	9	NA	N/A	N/A	5.0
H-110-8-23	LIC-161 CL	374+49 , 143 Lt	N40.073118	W82.632496	1023.8	8	NA	N/A	N/A	3.5
H-110-9-23	LIC-161 CL	375+33 , 153 Lt	N40.073079	W82.632204	1022.4	9	NA	N/A	N/A	1.0
X-001-0-23	LIC-161 CL	1207+11 , 27 Lt	N40.080268	W82.781808	1077.2	NA	NA	NA	NA	NA
X-002-0-23	LIC-161 CL	1226+59 , 27 Rt	N40.079794	W82.774871	1093.1	NA	NA	NA	NA	NA
X-003-0-23	LIC-161 CL	1246+38 , 38 Lt	N40.079644	W82.767802	1112.5	NA	NA	NA	NA	NA
X-004-0-23	LIC-161 CL	185+70 , 38 Rt	N40.080187	W82.698984	1221.9	NA	NA	NA	NA	NA
X-005-0-23	LIC-161 CL	426+22 , 38 Lt	N40.073471	W82.614370	1024.4	NA	NA	NA	NA	NA
X-006-0-23	LIC-161 CL	571+95 , 21 Rt	N40.070027	W82.562590	937.7	NA	NA	NA	NA	NA

*Water at completion for B-001-0-23 and B-110-5-23 listed as "NA" since water added to augers for drilling

**Boring B-110-5-23 located within pavement of Worthington Road. Pavement cores X-001-0-23 through X-006-0-23 located in paved shoulder of SR161. See individual boring log and core reports for pavement thickness.

DLZ

PROJECT FRA-161-22.10/LIC-161-0.00; PID No. 117878 PROJECT NO. 2321-3033.00

Pavement Core Report

REMARKS

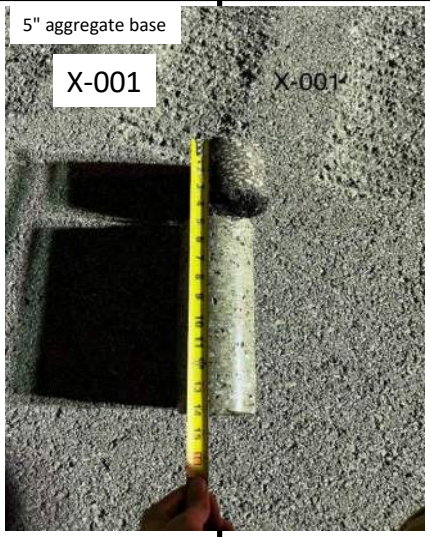
SHEET 1 OF 2

COMP. BY A.M. DATE 8/11/23

EQUIPMENT USED Humboldt HC-2819.12

CHECK BY E.B. DATE 8/15/23

Core ID:	X-001-0-23	Core ID:	X-002-0-23	Core ID:	X-003-0-23
Date Cored:	8/2/2023	Date Cored:	8/1/2023	Date Cored:	8/2/2023
Location:	N40.080268 W82.781808	Location:	N40.079794 W82.774871	Location:	N40.079644 W82.767802
Alignment:	FRA-161 CL	Alignment:	FRA-161 CL	Alignment:	FRA-161 CL
Station:	1207+11	Station:	1226+59	Station:	1246+38
Offset:	27 Lt	Offset:	27 Rt	Offset:	38 Lt
Asphalt	Concrete	Asphalt: 2.56"	Concrete: 8.43"	Asphalt	
Length 1 (inches): 3.87	Length 1 (inches): 10.74	Length 1 (inches):	10.97	Length 1 (inches):	12.03
Length 2 (inches): 3.76	Length 2 (inches): 10.69	Length 2 (inches):	10.82	Length 2 (inches):	11.87
Length 3 (inches): 3.65	Length 3 (inches): 10.23	Length 3 (inches):	11.17	Length 3 (inches):	11.99
Average Length (inches): 3.76	Average Length (inches): 10.55	Average Length (inches):	10.99	Average Length (inches):	11.96
Core Photo	Core Photo	Core Photo		Core Photo	







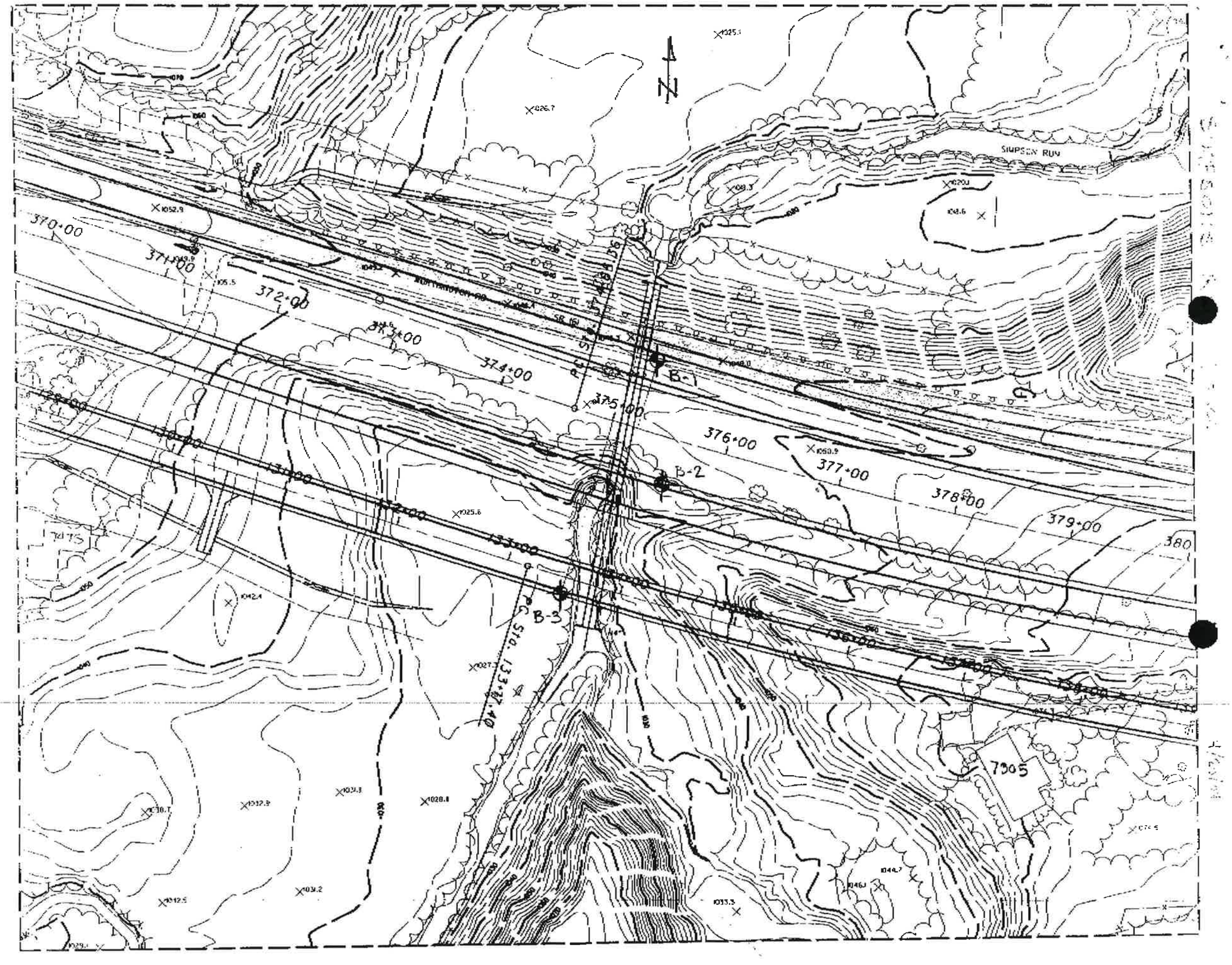
Notes Asphalt and concrete measured separately for pavement core X-001-023. Total length of X-001-0-23 = 14.31"

PROJECT	FRA-161-22.10/LIC-161-0.00; PID No. 117878	PROJECT NO.	2321-3033.00	Pavement Core Report	
REMARKS		PROC SHEET	2	OF	2
		COMP. BY	A.M.	DATE	8/11/23
EQUIPMENT USED	Humboldt HC-2819.12	CHECK BY	E.B.	DATE	8/15/23

Core ID:	X-004-0-23	Core ID:	X-005-0-23	Core ID:	X-006-0-23
Date Cored:	7/18/2023	Date Cored:	7/10/2023	Date Cored:	7/23/2023
Location:	N40.080187	Location:	N40.073471	Location:	N40.070027
	W82.698984		W82.614370		W82.562590
Alignment:	LIC-161 CL	Alignment:	LIC-161 CL	Alignment:	LIC-161 CL
Station:	185+70	Station:	426+22	Station:	571+95
Offset:	38 Rt	Offset:	38 Lt	Offset:	21 Rt
Asphalt		Asphalt		Asphalt	
Length 1 (inches):	10.18	Length 1 (inches):	9.43	Length 1 (inches):	9.86
Length 2 (inches):	10.17	Length 2 (inches):	9.3	Length 2 (inches):	9.46
Length 3 (inches):	9.89	Length 3 (inches):	9.32	Length 3 (inches):	9.75
Average Length (inches):	10.08	Average Length (inches):	9.35	Average Length (inches):	9.69
Core Photo		Core Photo		Core Photo	
					

Notes Phone's camera creates a "fisheye" effect when taking pictures of close objects, making the measuring tape appear not in line with top of core.

Client Sign / Date



SOIL PROFILE - S.R. 161
STA. 370+00 TO STA. 382+50 S.R. 161

LIC-161-6.65
LIC-37-10.25

14 / 82

DRAWN RLS
CHECKED PAN

HORIZONTAL SCALE IN FEET
0 25 50 100

MATCHLINE 370+00 S.R. 161
MATCHLINE 382+50 S.R. 161

SIMPSON RUN
WOODS
SPRINT
WOVEN WIRE FENCE
CONC. DITCH
GRAVEL
TRIPLE 8" COTTONWOOD
CONSTRUCTION LIMITS
6" ASH
8" ASH
3" ASH
1" ASH
2-1" ASH
5" ASH
1" PINE
BUSH
2" REDBUD
SHED
1-1/2 STORY STUCCO ASP.
DECK
SPLIT RAIL FENCE
12" PINE
12" MAPLE
10" CRAB
PICKET
12" SPRUCE
2" CRAB
10" BLUE SPRUCE
12" CUT
WESTBOUND LANES
EASTBOUND LANES
P.C. STA. 372+65.36
B-01
B-02
B-03
B-1
B-2
B-3
R-097
R-096
R-095
CTL P-14
3-5" ASH
4" ASH
TRIPLE TREES
TRIPLE 6" ASH
2-2" LOCUST
AEP & INSIGHT (OVERHEAD)
℄ SURVEY & CONST. S.R. 161
℄ SURVEY & CONST. WATKINS-YORK FRONTAGE ROAD
RS-108
RS-107
STA. 133+17.41
CONSTRUCTION LIMITS
1-1/2 CAR FRAME GARAGE
1-STORY FRAME
1-STORY BRICK
4" CRAB
LAWN
LAWN AREA
2-12" SWEET GUM
5" ASH
2" PINE
4" SPRUCE

Median ~ B-110-0-23 and offsets

Cut

R-097
℄
Topsoil-7"

5/5/13 4/13/18
4/8/7 4/9/10 15
4/4/4 21
2/1/3 20
2/6/8 17
4/12/8 10

B-1
59' Lt.
Asphalt Concrete Pavement-2"
Aggregate Base-4"

4/7/8 15
7/7/8 15
6/7/12 11
5/8/9 14
9/7/12 15
5/10/11 14
7/8/12 15
5/8/8 14
4/4/8 18
4/4/4 14
4/8/22 14
12/8/9 13
60(4) 17 TR
50(2) 9
50(2) 5

B-2
34' Rt.
Topsoil-6"

2/2/2 16
6/12/12 19
6/3/4 13
3/4/5 13
4/5/7 13
2/4/7 12
5/6/12 11
6/9/16 11
6/9/14 9
3/5/11 6 TR
60(4) 5
50(2)

same as existing

R-096
℄
Topsoil-6"

4/5/11 21
4/8/12
6/8/13 8/9/11
4/6/9
8/18/20 9
17/20/50(5) 6
5/16/14 7
5/5/6 9

cut

R-095
℄
Tapsoil-7"

3/4/8 3/6/10
3/5/5 3/5/7 11
4/7/10 10
4/7/3 12
6/7/10 8
3/17/11
6/18/17
5/8/11
11/12/12
17/13/31
28/30/37
50(5)

Black, arenaceous, broken and jointed SHALE with thick clay seams

SILTSTONE, black, firm, carbonaceous, highly jointed; interbedded with thick gray, hard, very fine-grained sandstone seams. Core loss 0%. ROD-14.

Gray, very fine-grained, jointed SANDSTONE

SILTSTONE, black, firm, carbonaceous, with scattered clay seams, mostly broken and jointed; interbedded near the top with a thick gray, hard, broken and jointed limestone seam, near the middle with a black, broken and jointed shale seam and throughout with scattered seams and intervals ranging up to 0.7' thick of dark gray, hard, very fine-grained sandstone. Core loss 0%. ROD-8.

1070 1060 1050 1040 1030 1020 1010

370+00 371+00 372+00 373+00 374+00 375+00 376+00 377+00 378+00 379+00 380+00 381+00 382+00

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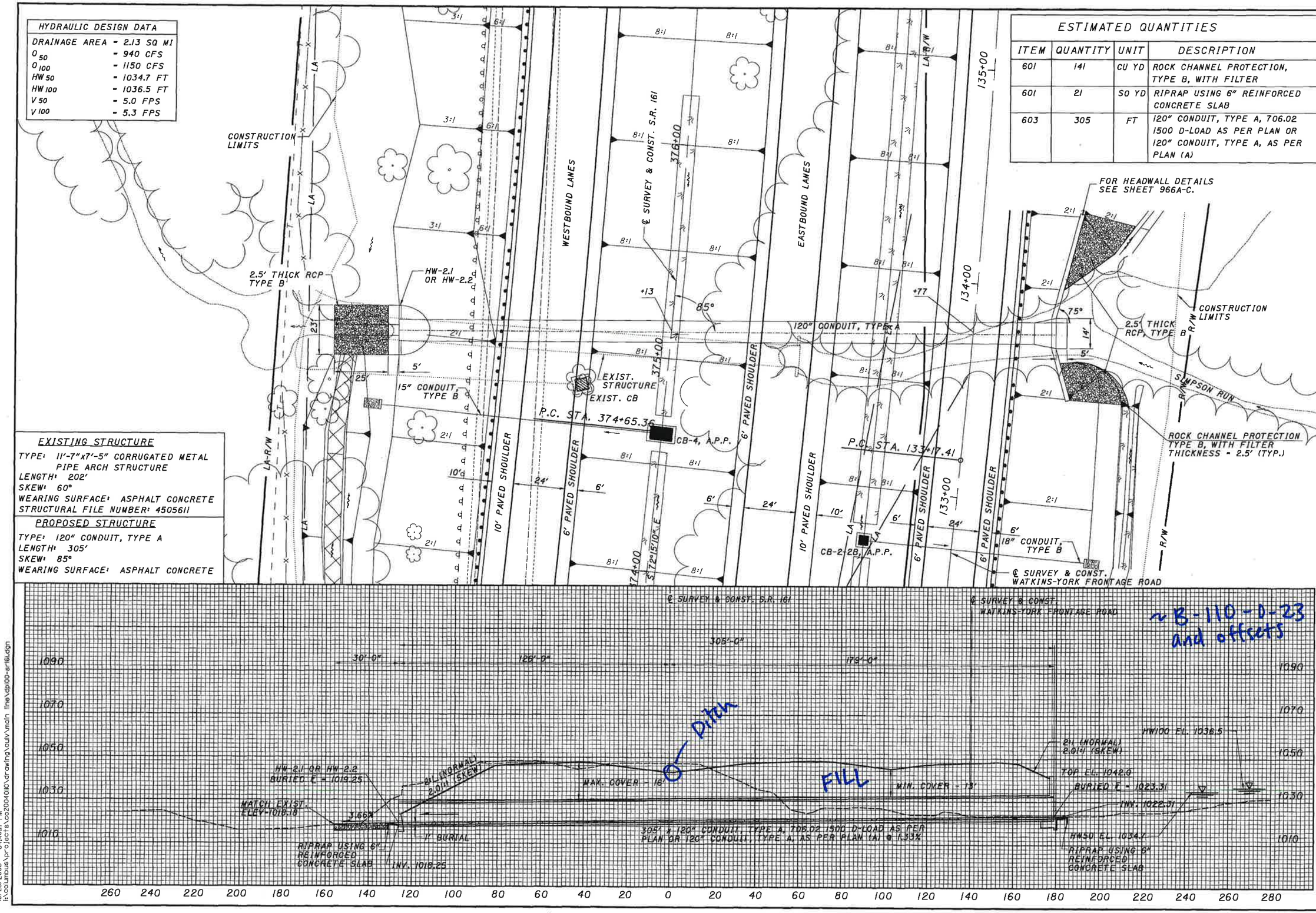

ESTIMATED QUANTITIES

ITEM	QUANTITY	UNIT	DESCRIPTION
601	141	CU YD	ROCK CHANNEL PROTECTION, TYPE B, WITH FILTER
601	21	SQ YD	RIPRAP USING 6" REINFORCED CONCRETE SLAB
603	305	FT	120" CONDUIT, TYPE A, 706.02 1500 D-LOAD AS PER PLAN OR 120" CONDUIT, TYPE A, AS PER PLAN (A)

HORIZONTAL SCALE IN FEET 0 10 20 40

CALCULATED CSR
CHECKED AE

CULVERT NO. 1
S.R. 161- STA. 375+13.00

LIC-161-6.65
LIC-37-10.25

968
1349

tduffney
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GENERAL NOTES

DESIGN SPECIFICATIONS:
CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) 2002, AND THE ODOT SUPPLEMENT TO THESE SPECIFICATIONS.

DESIGN STRESSES:
ALL ALLOWABLE STRESSES ARE IN ACCORDANCE WITH CURRENT AASHTO STANDARD SPECIFICATIONS.

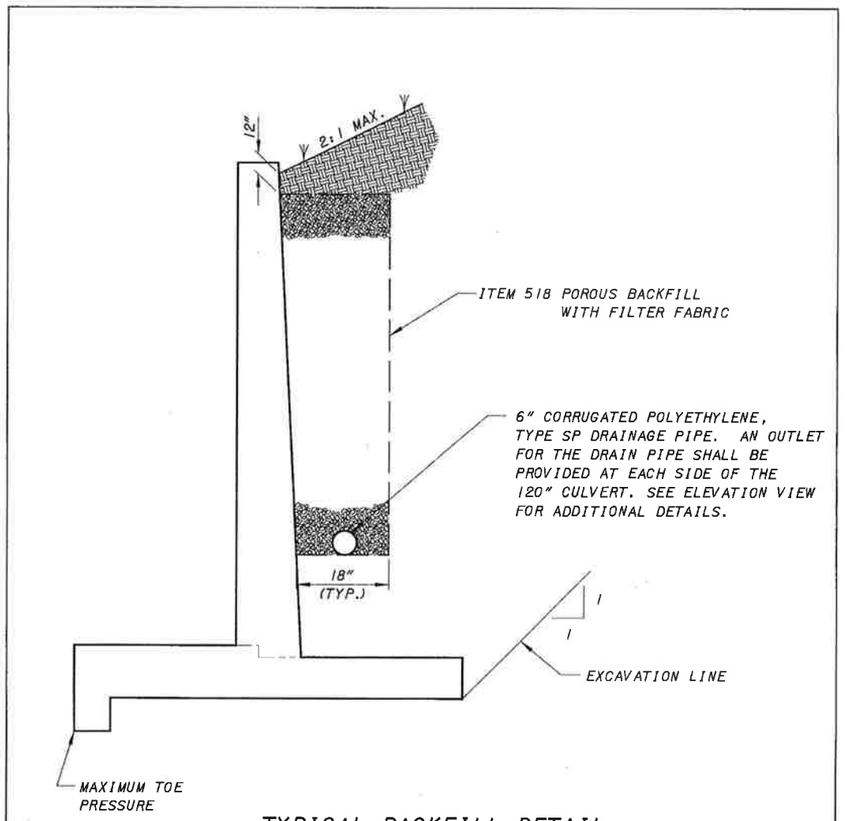
CONCRETE: CLASS C FOR FOOTING AND WALL, (MINIMUM 28 DAY COMPRESSIVE STRENGTH = 4000 psi).

REINFORCING STEEL: ALL REINFORCING STEEL IN ACCORDANCE WITH ASTM A616M, A616M OR A617M, DEFORMED, EPOXY COATED, GRADE 420 (Fy = 60,000 psi)

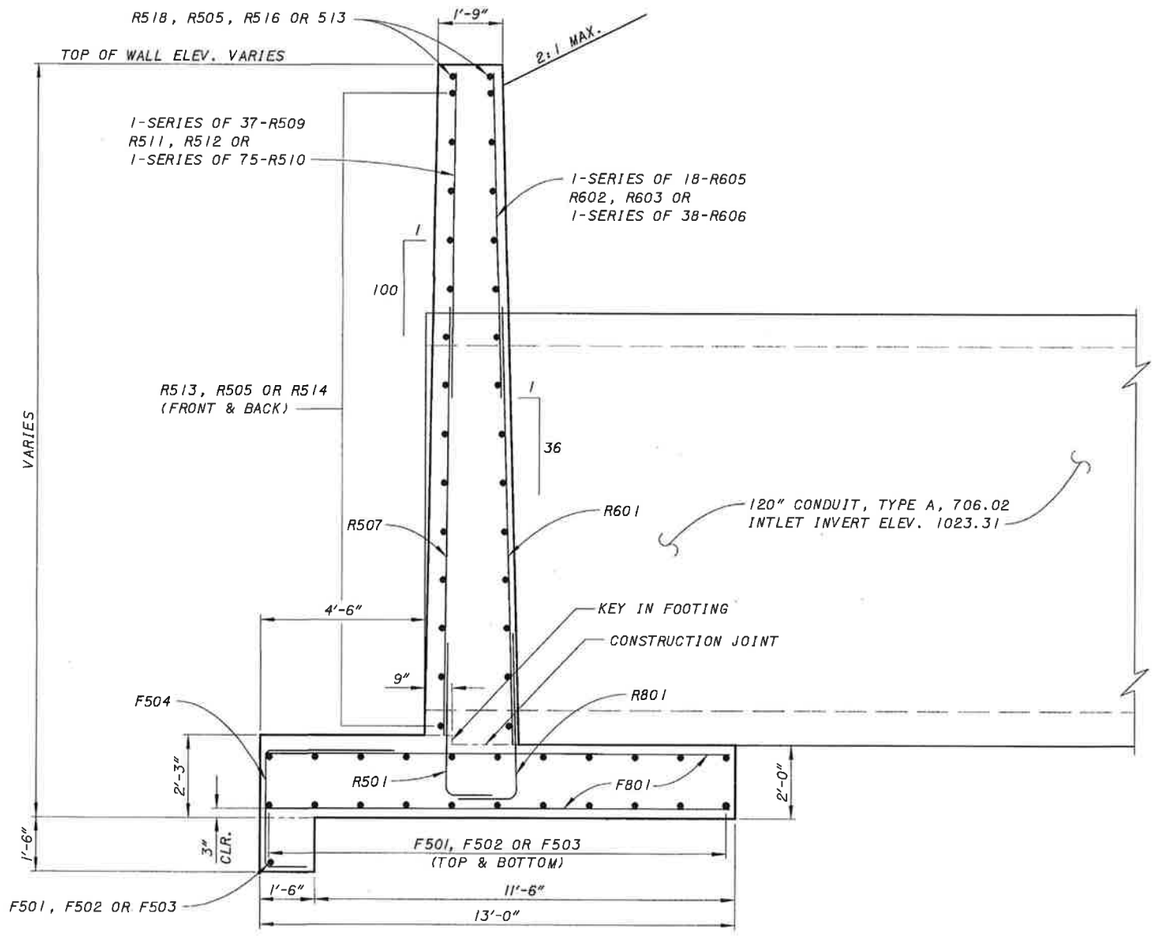
QUANTITIES

ITEM 503 UNCLASSIFIED EXCAVATION	LUMP
ITEM 509 EPOXY COATED REINFORCING STEEL	12,955 POUND
ITEM 512 SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	136 SO.YD.
ITEM 516 1" PREFORMED EXPANSION JOINT FILLER	37 SO.FT.
ITEM 518 POROUS BACKFILL WITH FILTER FABRIC	LUMP
ITEM 518 6" PERFORATED CORRUGATED PLASTIC PIPE	73 FT.
ITEM 518 6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS	8 FT.
ITEM 602 CONCRETE MASONRY	198 CU.YD.

QUANTITIES CARRIED TO DRAINAGE SUBSUMMARY - SHEET 137



TYPICAL BACKFILL DETAIL



CAST-IN-PLACE CANTILEVER RETAINING WALL DETAIL
PROFILE VIEW

(2 ksf ALLOWABLE BEARING PRESSURE)

HORIZONTAL SCALE IN FEET
0 2 4

CALCULATED TAG
CHECKED HAG

CAST-IN-PLACE CANTILEVER RETAINING WALL DETAILS

LIC-161-6.65
LIC-37-10.25

968A
1349

jalford
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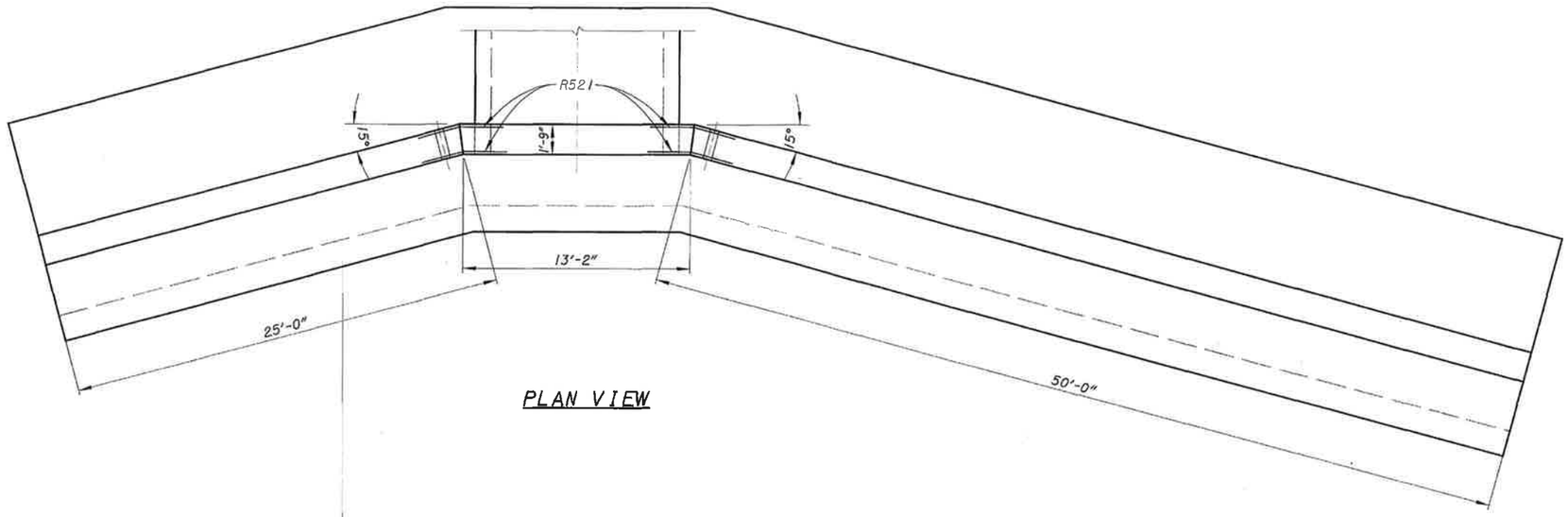
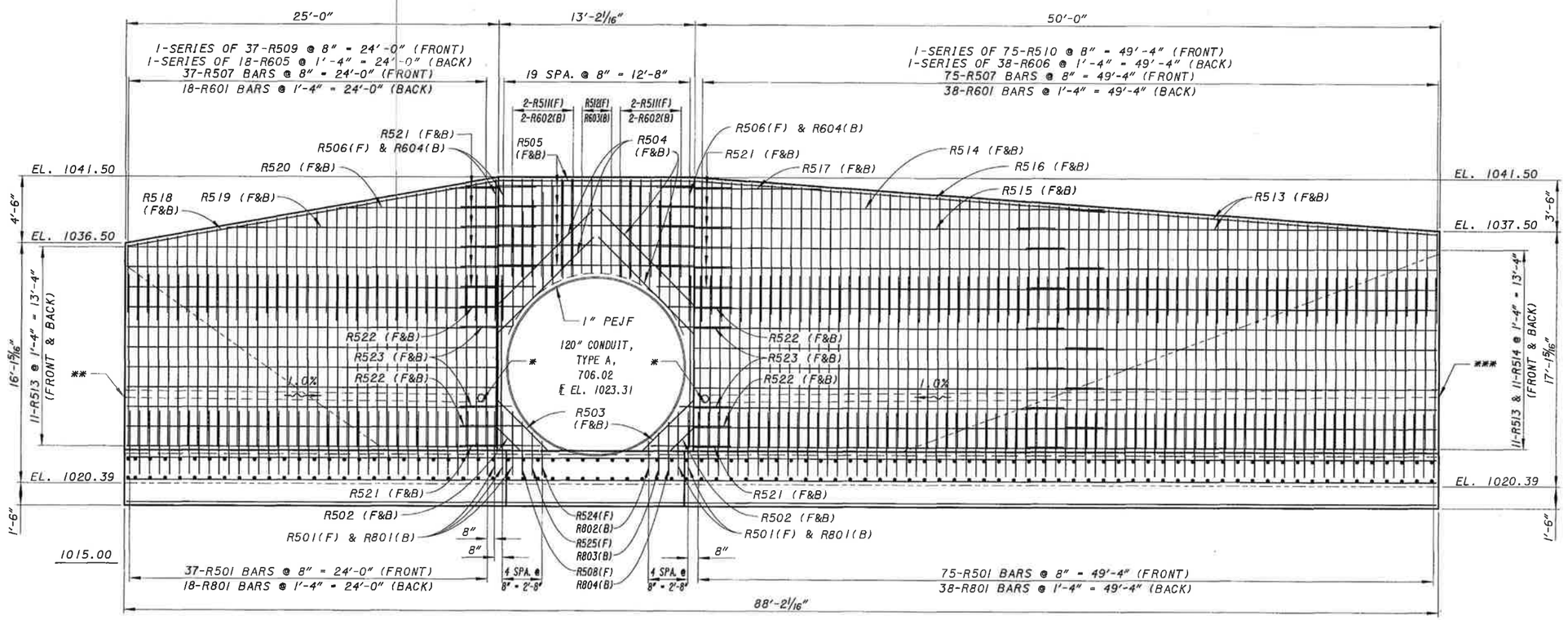


PLAN VIEW



ELEVATION VIEW

NOTE: HEADWALL SHOWN AS IF IT WAS STRIAGHT

* - ℄ EL. 1026.00
** - ℄ EL. 1026.24
*** - ℄ EL. 1026.49

NOTES:
LAP No.5 BARS @ NO LESS THAN 2'-6"
LAP No.6 BARS @ NO LESS THAN 3'-0"

HORIZONTAL SCALE IN FEET

CALCULATED T.A.G
CHECKED H.A.G

CAST-IN-PLACE CANTILEVER RETAINING WALL DETAILS

LIC-161-6.65
LIC-37-10.25

9688
1349

jolford
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Runs under WB

underdrain

12" CONDUIT, TYPE A

P.C. STA. 374+65.38

B-1

B-2

B-3

373+00

374+00

375+00

376+00

377+00

S.R.161

Simpson Run

ELEV. = 1,045.93

1040

1020

1000

1048.88 1048.57 1048.04 1047.91 1047.07 1046.80 1047.89 1048.57 1049.24 1050.09 1052.09

373 374 375 376 377

SCALE IN FEET

0 20 40

REVISED DATE 2/18/05 | DATE 6/25/04

REVIEWED W.R.S. | CHECKED J.B.H. | DRAWN J.B.H.

STRUCTURE FOUNDATION INVESTIGATION

BRIDGE NO.LIC-161-0712 L&R

OVER SIMPSONS RUN

LIC-161-6.65

LIC-37-10.25

2 / 29

03/02

State of Ohio
Department of Transportation
Office of Geotechnical Engineering

LOG OF BORING

Date Started 6/14/04 Sampler: Type SS Dia. ____ Water Elev. 1019.1' Project Identification: LICKING
Date completed 6/14/04 LIC-161-7.08 L & R
Boring No. B-1 Station & Offset 375+22, 59' LT. Surface Elev. 1048.1' OVER SIMPSON RUN

Elev.	Depth	Std. Pen./ R.O.D.	Rec. ft	Loss ft	Description	Sample No.	Physical Characteristics: % Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	ODOT Class
1048.1	0	AUGERED			0.2' ASPHALT & 0.3' SUBBASE										VISUAL
1046.6	2	4/7/8			BROWN AND GRAY GRAVELLY SANDY SILT	1	16	7	14	33	30	29	7	15	A-4a
1044.6	4	7/7/8			BROWN AND GRAY SANDY SILT	2	12	9	13	35	31	29	6	15	A-4a
1042.1	6	6/7/12			BROWN AND GRAY SANOY GRAVELLY SILT	3	26	7	12	32	23	25	6	11	A-4a
1039.6	8	5/8/9			BROWN ANO GRAY GRAVELLY SANDY SILT	4	18	6	14	32	30	NP	NP	14	A-4a
1037.1	10	9/7/12			BROWN ANO GRAY SANOY GRAVELLY SILT	5	20	6	12	33	29	27	4	15	A-4a
1034.6	12	5/10/11			BROWN ANO GRAY GRAVELLY SANDY SILT	6	20	7	14	33	26	25	4	14	A-4a
1032.1	14	7/8/12			BROWN AND GRAY SANOY SILT	7	13	9	17	32	29	25	4	15	A-4a
1029.6	16	5/6/8			BROWN ANO GRAY GRAVELLY SANOY SILT	8	19	6	13	36	26	27	5	14	A-4a
1027.1	18	4/4/8			BROWN ANO GRAY GRAVELLY SANOY SILT	9	17	7	13	37	26	25	3	18	A-4a
1024.6	20	4/4/4			BROWN ANO GRAY SANOY SILT	10	12	6	14	38	30	27	6	14	A-4a
1022.1	22	4/8/22			BROWN ANO GRAY GRAVELLY SANOY SILT W/COBBLES	11	20	13	15	31	21	27	4	14	A-4a
1019.6	24	12/8/9			TOP OF ROCK — BROWN AND GRAY SILTY SANDY GRAVEL W/COBBLES	12	41	15	11	23	10	24	2	13	A-2-4
1017.1	26	60(0.3')			BLACK BROKEN AND JOINTED SHALE W/THICK CLAY SEAMS	13	-	-	-	-	-	-	-	14	VISUAL
1015.6	28	50(0.2')			BLACK ARENACEOUS, BROKEN AND JOINTED SHALE WITH THICK CLAY SEAMS	14	-	-	-	-	-	-	-	9	VISUAL
1013.1	30	50(0.2')			BLACK BROKEN AND JOINTED SILTSTONE	15	-	-	-	-	-	-	-	5	VISUAL
1012.9	32		5.0	0.0											
	34														
	36	14			SILTSTONE, BLACK, FIRM, CARBONACEOUS, HIGHLY JOINTED; INTERBEDDED WITH THICK GRAY, HARD, VERY FINE-GRAINED SANDSTONE SEAMS. NO CORE LOSS. R.Q.D. IS 14										
	38														
	40		5.0	0.0											
	42														
1002.9	44														

BOTTOM OF BORING

Particle Sizes: Agg= >2.00mm, Coarse Sand= 2.00-0.42mm, Fine Sand= 0.42-0.074mm, Silt= 0.074-0.005mm, Clay= <0.005mm
Form TE-151 Revised 3/95

State of Ohio
Department of Transportation
Office of Geotechnical Engineering

LOG OF BORING

Date Started 6/15/04 Sampler: Type SS Dia. ____ Water Elev. - Project Identification: LICKING
Date completed 6/15/04 Approx. LIC-161-7.08 L & R
Boring No. B-2 Station & Offset 375+56, 34' RT. Surface Elev. 1045.5' OVER SIMPSON RUN

Elev.	Depth	Std. Pen./ R.O.D.	Rec. ft	Loss ft	Description	Sample No.	Physical Characteristics: % Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	ODOT Class
1045.5	0	AUGERED			TOPSOIL UNDERLAIN BY SOIL W/ROOTS & ORGANIC										VISUAL
1044.0	2	2/2/2			BROWN GRAVELLY SANDY SILT W/TRACE OF ROOTS	16	18	12	17	34	19	22	3	-	A-4a
1042.0	4	6/12/12			BRDWN GRAVELLY SANDY SILT W/TRACE OF ROOTS & COBBLES	17	23	8	15	35	19	26	7	16	A-4a
1039.5	6	6/3/4			BROWN SANOY GRAVELLY SILT W/TRACE OF ROOTS & COBBLES	18	33	7	14	33	13	25	7	19	A-4a
1037.0	8	3/4/5			BROWN ANO GRAY SANOY SILT	19	10	14	15	40	21	23	6	13	A-4a
1034.5	10	4/5/7			BROWN AND GRAY GRAVELLY SANDY SILT	20	21	9	14	32	24	22	6	13	A-4a
1032.0	12	2/4/7			BROWN ANO GRAY SANOY SILT	21	12	9	15	36	28	24	8	13	A-4a
1029.5	14	5/6/12			BROWN AND GRAY GRAVELLY SANDY SILT	22	17	9	14	34	26	22	3	12	A-4a
1027.0	16	6/9/16			BROWN ANO GRAY SANOY GRAVELLY SILT W/COBBLES	23	25	9	13	28	25	23	6	11	A-4a
1024.5	18	6/9/14			BROWN ANO GRAY GRAVELLY SANOY SILT	24	15	11	15	35	24	NP	NP	11	A-4a
1022.0	20	3/5/11			TOP OF ROCK — BROWN ANO GRAY SANOY GRAVELLY SILT	25	29	15	13	26	17	22	4	9	A-4a
1019.5	22	60(0.3')			GRAY, VERY FINE-GRAINEO, JOINTED SANDSTONE	26	-	-	-	-	-	-	-	6	VISUAL
1017.0	24	50(0.2')			GRAY, VERY FINE-GRAINEO, JOINTED SANOSTONE	27	-	-	-	-	-	-	-	5	VISUAL
1016.5	26														
	28														
	30		5.0	0.0											
	32	8			SILTSTONE, BLACK, FIRM, CARBONACEOUS, WITH SCATTERED CLAY SEAMS, MOSTLY BROKEN AND JOINTED; INTERBEDDED NEAR THE TOP WITH A THICK GRAY, HARD, BROKEN AND JOINTED LIMESTONE SEAM NEAR THE MIDDLE WITH A BLACK BROKEN AND JOINTED SHALE SEAM AND THROUGHOUT WITH SCATTERED SEAMS AND INTERVALS RANGING UP TO 0.7' THICK OF DARK GRAY, VERY FINE-GRAINED SANDSTONE. NO CORE LOSS. R.Q.D.IS 8										
	34														
	36		5.0	0.0											
1006.5	38														

BOTTOM OF BORING

Particle Sizes: Agg= >2.00mm, Coarse Sand= 2.00-0.42mm, Fine Sand= 0.42-0.074mm, Silt= 0.074-0.005mm, Clay= <0.005mm
Form TE-151 Revised 3/95

State of Ohio
Department of Transportation
Office of Geotechnical Engineering

LOG OF BORING

Date Started 6/16/04 Sampler: Type SS Dia. ____ Water Elev. 1021.4' Project Identification: LICKING
Date completed 6/16/04 Approx. LIC-161-7.08 L & R
Boring No. B-3 Station & Offset 375+00, 150' RT. Surface Elev. 1026.4' OVER SIMPSON RUN

Elev.	Depth	Std. Pen./ R.O.D.	Rec. ft	Loss ft	Description	Sample No.	Physical Characteristics: % Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	ODOT Class
1026.4	0														
1024.9	2														
1022.9	4	1/2/2			BROWN SANOY SILT WITH STONE FRAGS.	28	0	1	49	35	15	NP	NP	30	A-4a
		2/50 (0.4')			BROWN SILTY SANDY GRAVEL WITH STONE FRAGS.	29	43	6	20	21	10	NP	NP	18	A-2-4
1020.4	6														
	8	14/10/10			BROWN ANO GRAY SILTY GRAVELLY SANO W/BOULDERS	30	30	45	12	25	6	NP	NP	18	A-2-4
1017.9		50(0.2')			BLACK, FIRM, CARBONACEOUS, JOINTEO SILTSTONE — TOP OF ROCK	31	-	-	-	-	-	-	-	7	VISUAL
1016.4	10														
	12														
	14	9	5.0	0.0	SHALE, BLACK, CARBONACEOUS, ARENACEOUS, WITH THIN CLAY SEAMS, HIGHLY JOINTED; INTERBEDDED WITH THICK BLACK CARBONACEOUS SILTSTONE SEAMS AND WITH GRAY, HARD, FINE-GRAINED SANDSTDNE SEAMS. NO CORE LOSS. R.Q.D. IS 9										
1012.1	16														
	18	6	5.0	0.0	SILTSTONE, BLACK, FIRM, CARBONACEOUS, WITH SCATTEREO THIN CLAY SEAMS, MOSTLY JOINTED; INTERBEOOEO WITH SEAMS AND INTERVALS RANGING UP TO 0.3' THICK DF GRAY, HARD, VERY FINE-GRAINED, JOINTED SANOSTDNE AND IN THE MIDDLE WITH A BLACK SHALE SEAM. ND CORE LDSS. R.D.D. IS 6										
1006.4	20														

BOTTOM DF BORING

Particle Sizes: Agg= >2.00mm, Coarse Sand= 2.00-0.42mm, Fine Sand= 0.42-0.074mm, Silt= 0.074-0.005mm, Clay= <0.005mm
Form TE-151 Revised 3/95

OHIO DEPARTMENT OF TRANSPORTATION
OFFICE OF GEOTECHNICAL ENGINEERING
1600 WEST BROAD ST. COLUMBUS, OH 43223

REVISED DATE 2/18/05 | DATE 6/25/04
REVIEWED M.R.S.
CHECKED J.B.H.
TYPED J.B.H.

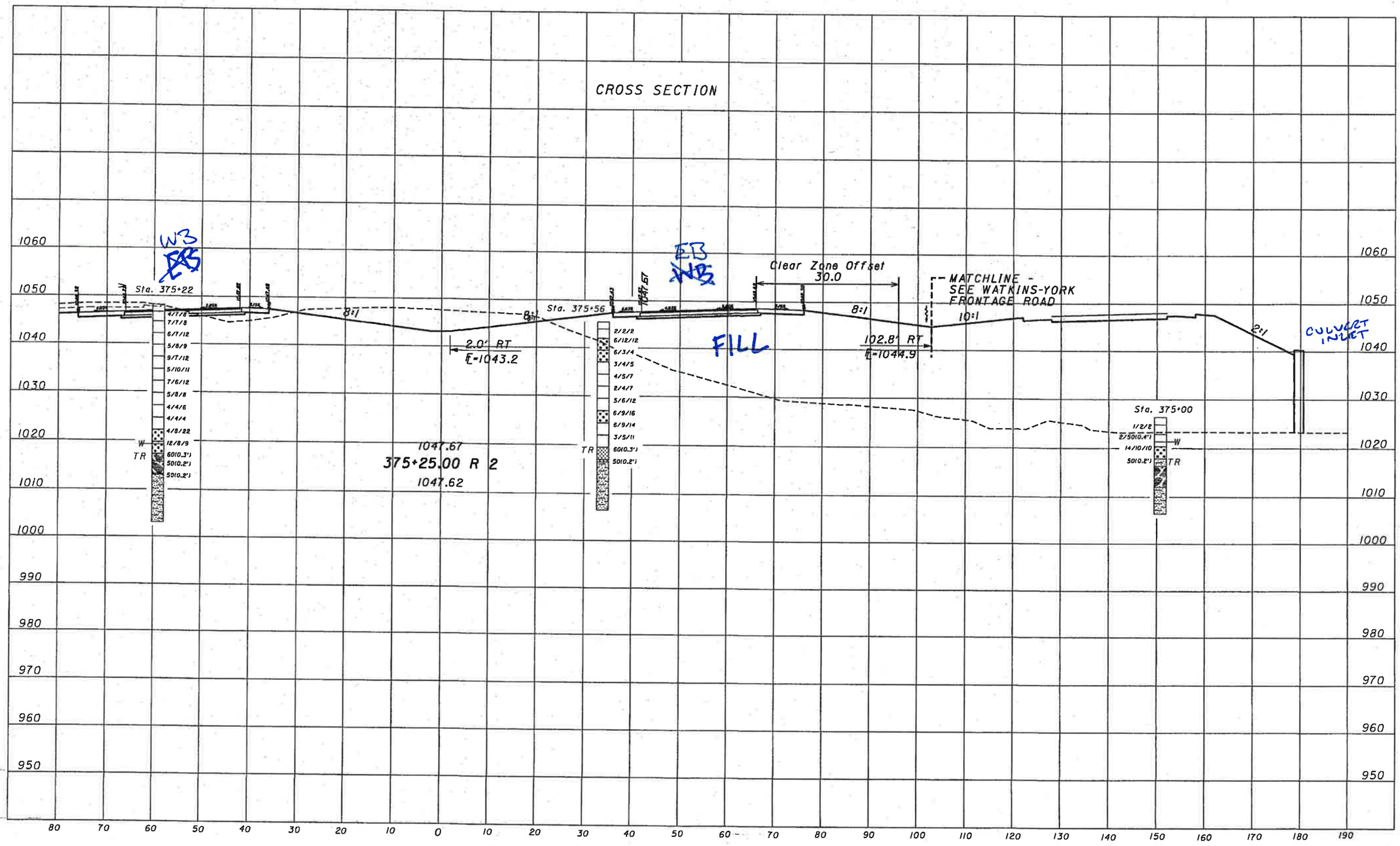
STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO.LIC-161-07.12 L&R
OVER SIMPSONS RUN

LIC-161-6.65
LIC-37-10.25

3/29

03/02

CROSS SECTION



OHIO DEPARTMENT OF TRANSPORTATION
OFFICE OF GEOTECHNICAL ENGINEERING
1600 WEST BROAD ST. COLUMBUS, OH 43223

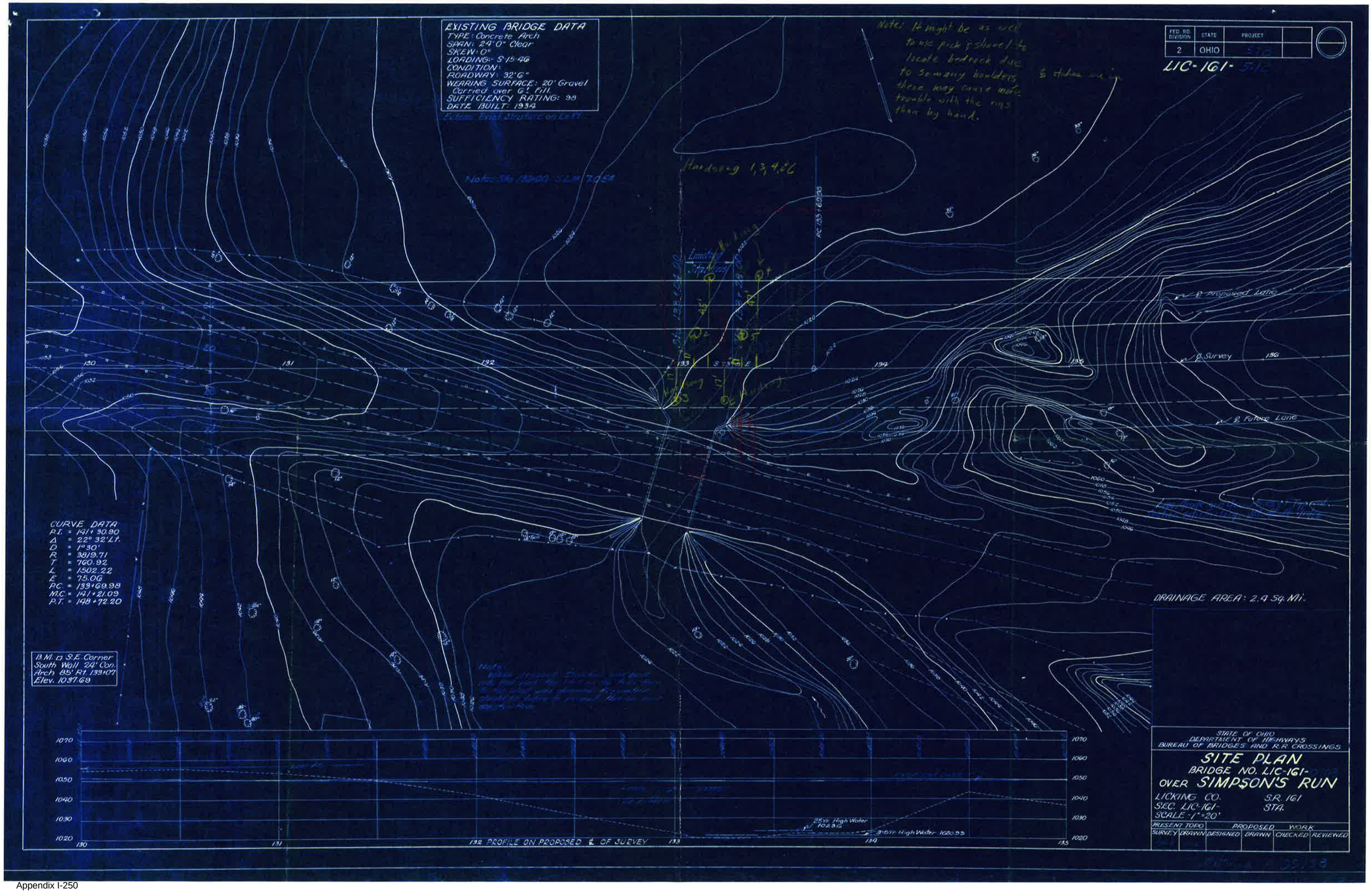
REVISED DATE	DATE
2/18/05	6/25/04

TYPED	CHECKED	REVIEWED
J.B.H.	J.B.H.	M.R.S.

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO.LIC-161-0712 L&R
OVER SIMPSONS RUN

LIC-161-6.65
LIC-37-10.25

4/29


EXISTING BRIDGE DATA
TYPE: Concrete Arch
SPAN: 24'0" Clear
SKEW: 0°
LOADING: S 15 46
CONDITION:
ROADWAY: 32'6"
WEARING SURFACE: 20' Gravel Carried over 6' Fill.
SUFFICIENCY RATING: 98
DATE BUILT: 1934
Extend Exist Structure on Left
Note: It might be as well to use pick & shovel to locate bedrock due to so many boulders these may cause more trouble with the rigs than by hand.
FED. RD. DIVISION 2
STATE OHIO
PROJECT
LIC-161-
Hardsong 1,3,4,&6
Limited Stations
PC 133+69.98
℄ Proposed Lane
℄ Survey
℄ Future Lane
CURVE DATA
P.I. = 141+30.90
Δ = 22° 32' Lt.
D = 1°30'
R = 3819.71
T = 760.92
L = 1502.22
E = 75.06
P.C. = 133+69.98
M.C. = 141+21.09
P.T. = 148+72.20
B.M. □ S.E. Corner South Wall 24' Con. Arch 85' Rt. 133+07 Elev. 1037.69
DRAINAGE AREA: 2.4 Sq. Mi.
25 Yr. High Water 1023.6
3-5 Yr. High Water 1020.55
132 PROFILE ON PROPOSED ℄ OF SURVEY
STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES AND R.R. CROSSINGS
SITE PLAN
BRIDGE NO. LIC-161-
OVER SIMPSON'S RUN
LICKING CO.
S.R. 161
SEC. LIC-161-
STA.
SCALE 1" = 20'
PRESENT TOPO
PROPOSED WORK
SURVEY
DRAWN
DESIGNED
DRAWN
CHECKED
REVIEWED

PILE PENETRATION CURVES

SHEET

REAR Abut. - ~~Pier~~

T.H. 1 Date 4-9-56

Sta. 133+16 Offset 45' Lt.

Water Elev. 1020.0

County LICKING

LIC-161-5.12

Bridge No. LIC-161-0706

OVER SIMPSON'S RUN

Fed. No.

Pilling

Hammer

Formula

Reference

SOIL LOG ELEV. DEPTH

1023.1

Ground Line

3" CONTINUOUS FLIGHT AUGER BOEING OFFSET 45' LT. STA 133+16

BROWN SANDY SILT SAMPLE 1 # NOTE — 1020.8 — 0

2

1016.8 — 4

6

INDICATION OF SANDSTONE SHALE AT EL. 1013.1 — 1012.8 — 8

10

1008.8 — 12

GRAY SHALE

14

1004.8 — 16

18

1000.8 — 20

SAMPLE 2 — 22

REFUSAL

996.8 — 24

26

28

30

32

34

36

38

* INDICATION OF SANDSTONE & SAMPLE

40

42

10 20 30 40 50 60 70 80 90 100 110 120 130

Capacity "R" in Thousands of Pounds

BUREAU OF BRIDGES
DEPT. OF HIGHWAYS
STATE OF OHIO

By

Date

PILE PENETRATION CURVES

SHEET

REAR Abut. ~~Pier~~

T.H. 3 Date 4-9-56

Sta. 133+00 Offset 17' RT.

Water Elev. _____

County LICKING

LIC-161-5.12

Bridge No. LIC-161-0708

OVER SIMPSONS RUN

Fed. No. _____

Piling _____

Hammer _____

Formula _____

Reference _____

SOIL LOG ELEV. DEPTH

Ground Line

1020.3

INDICATION OF LOOSE GRAVEL & BROKEN STONE

1020.1 0

2

1016.1 4

6

GRAY SILTY CLAY

1012.1 8

10

1008.1 12

SAMPLE 3

14

Refusal

1004.1 16

18

20

22

24

26

28

30

32

34

36

38

40

42

TEST ROD

3" CONTINUOUS FLIGHT AUGER BORING STA 133+00 OFFSET 17' RT.

10 20 30 40 50 60 70 80 90 100 110 120 130

Capacity "R" in Thousands of Pounds

BUREAU OF BRIDGES
DEPT. OF HIGHWAYS
STATE OF OHIO

By _____

Date _____

PILE PENETRATION CURVES

SHEET

FORWARD Abut. ~~Pier~~

T.H. 4 Date 4-2-56

Sta. 133+44 Offset 47' LT.

Water Elev. 1020.0

County LICKING

LIC-161-5.12

Bridge No. LIC-161-0708

OVER SIMPSON'S RUN

Fed. No.

Piling

Hammer

Formula

Reference

SOIL LOG ELEV. DEPTH

1020.5

Ground Line

* NOTE SIMILAR TO SAMPLE 1

XX NOTE

1018.5

1014.5

GRAY SHALE

1010.5

SAMPLE 4

SAMPLE 5

1006.5

REFUSAL

3" CONTINUOUS FLIGHT AUGER BORING STA 133+44 OFFSET 47' LT.

* BROWN SANDY SILT

** INDICATION OF SANDSTONE GravEL

0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42

10 20 30 40 50 60 70 80 90 100 110 120 130

Capacity "R" in Thousands of Pounds

BUREAU OF BRIDGES
DEPT. OF HIGHWAYS
STATE OF OHIO

By

Date

PILE PENETRATION CURVES

SHEET

FORWARD Abut. - ~~Pier~~

T.H. 6 Date 4-2-56

Sta. 133+24 Offset 17' RT.

Water Elev. 1020.2

County LICKING

LIC-16L-5.12

Bridge No. LIC-16L-0708

OVER SIMPSON'S RUN

Fed. No.

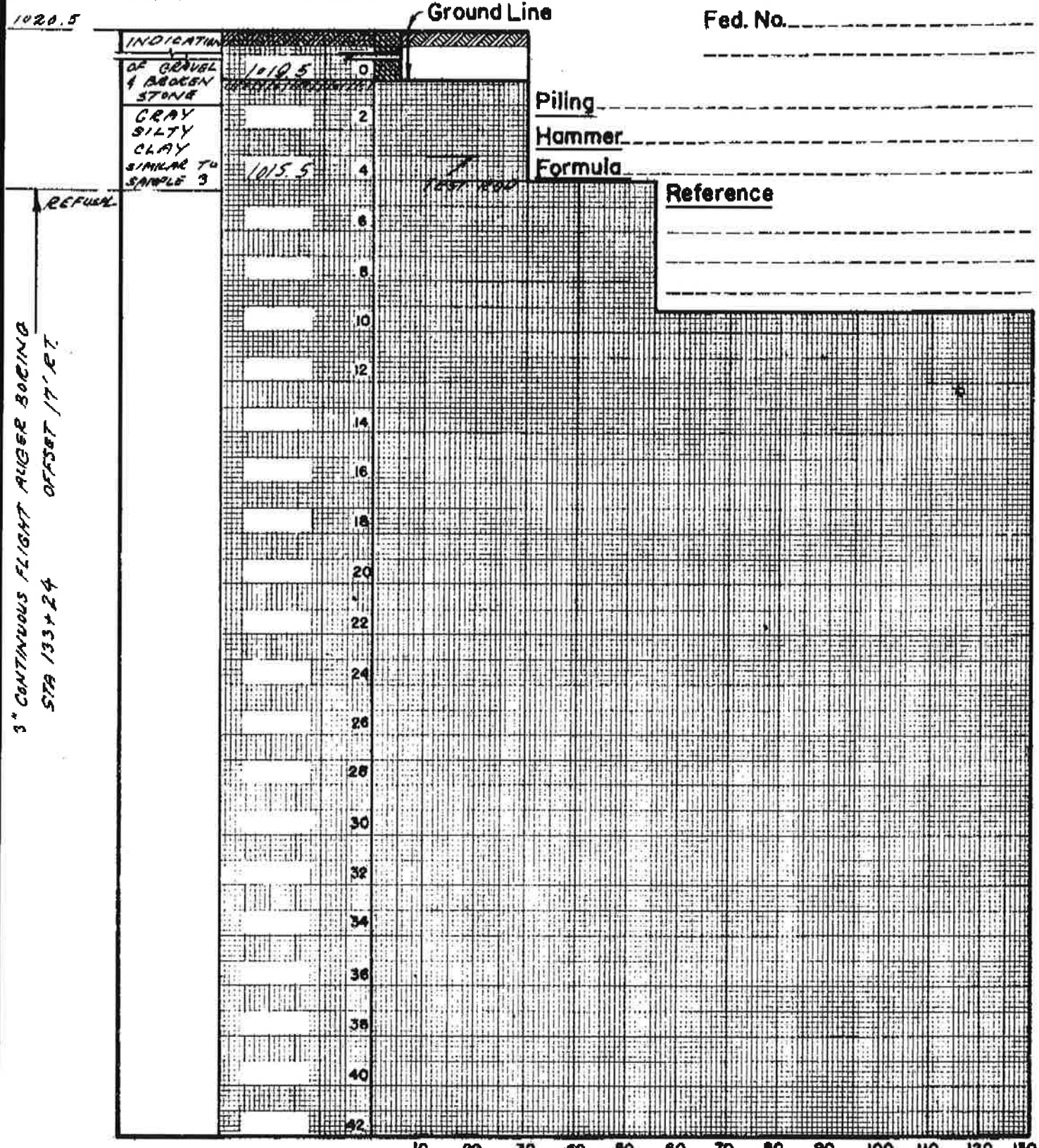
Piling

Hammer

Formula

Reference

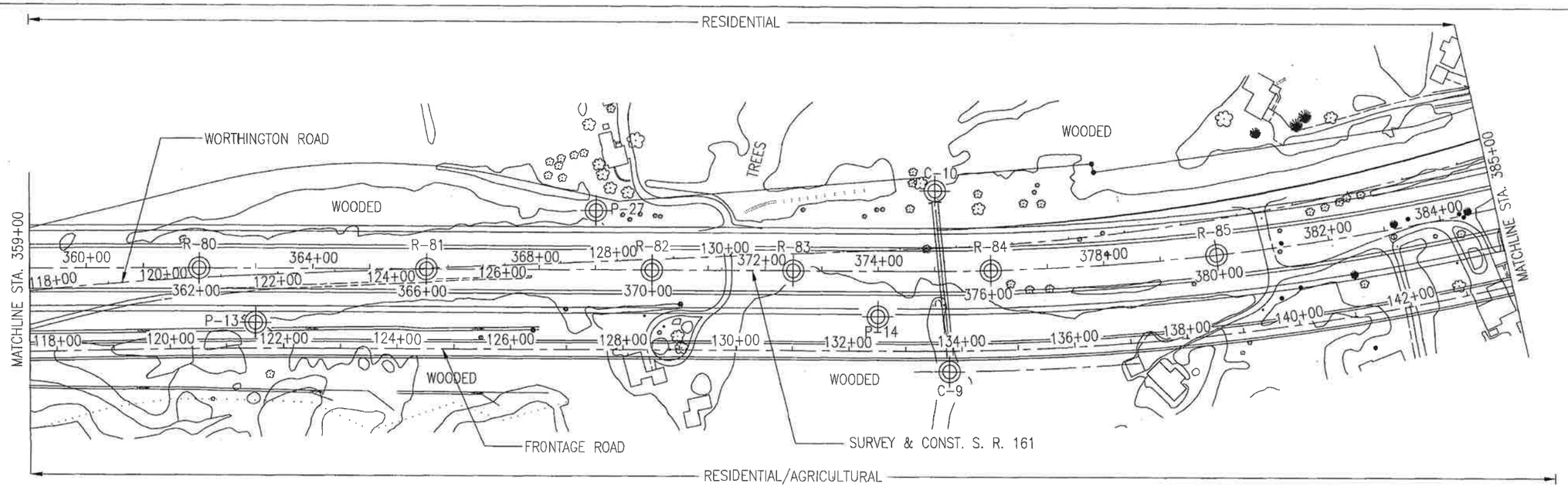
SOIL LOG ELEV. DEPTH

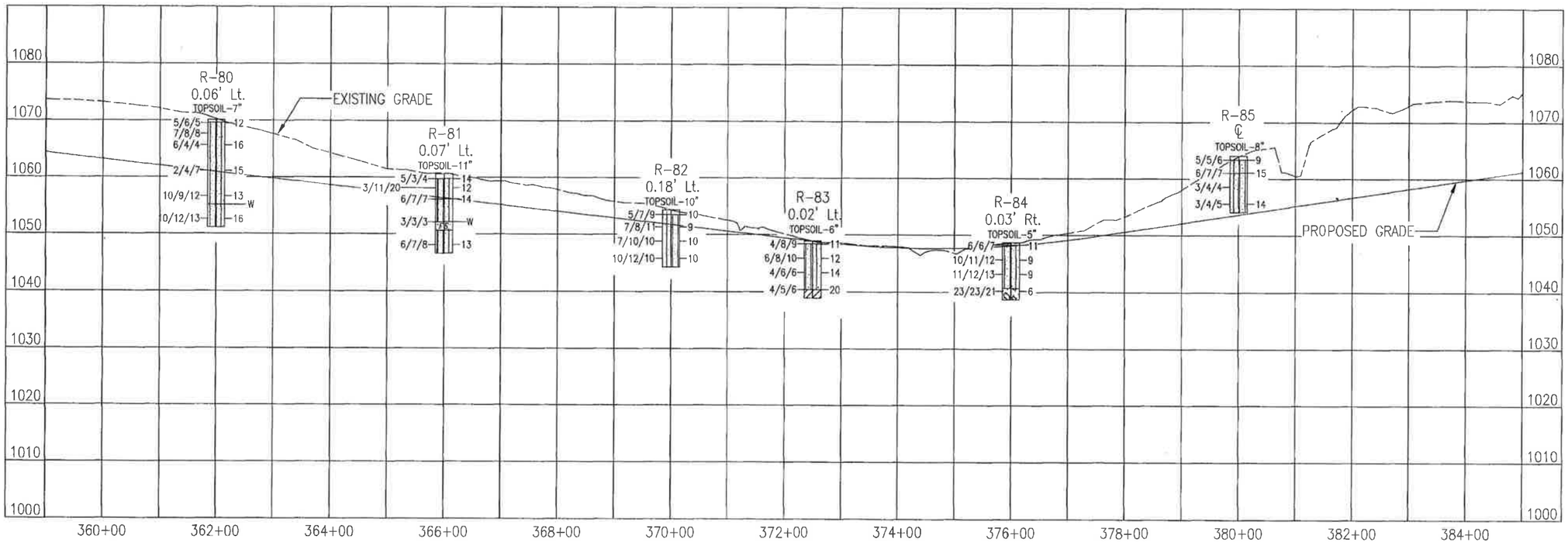


BUREAU OF BRIDGES
DEPT. OF HIGHWAYS
STATE OF OHIO

By

Date





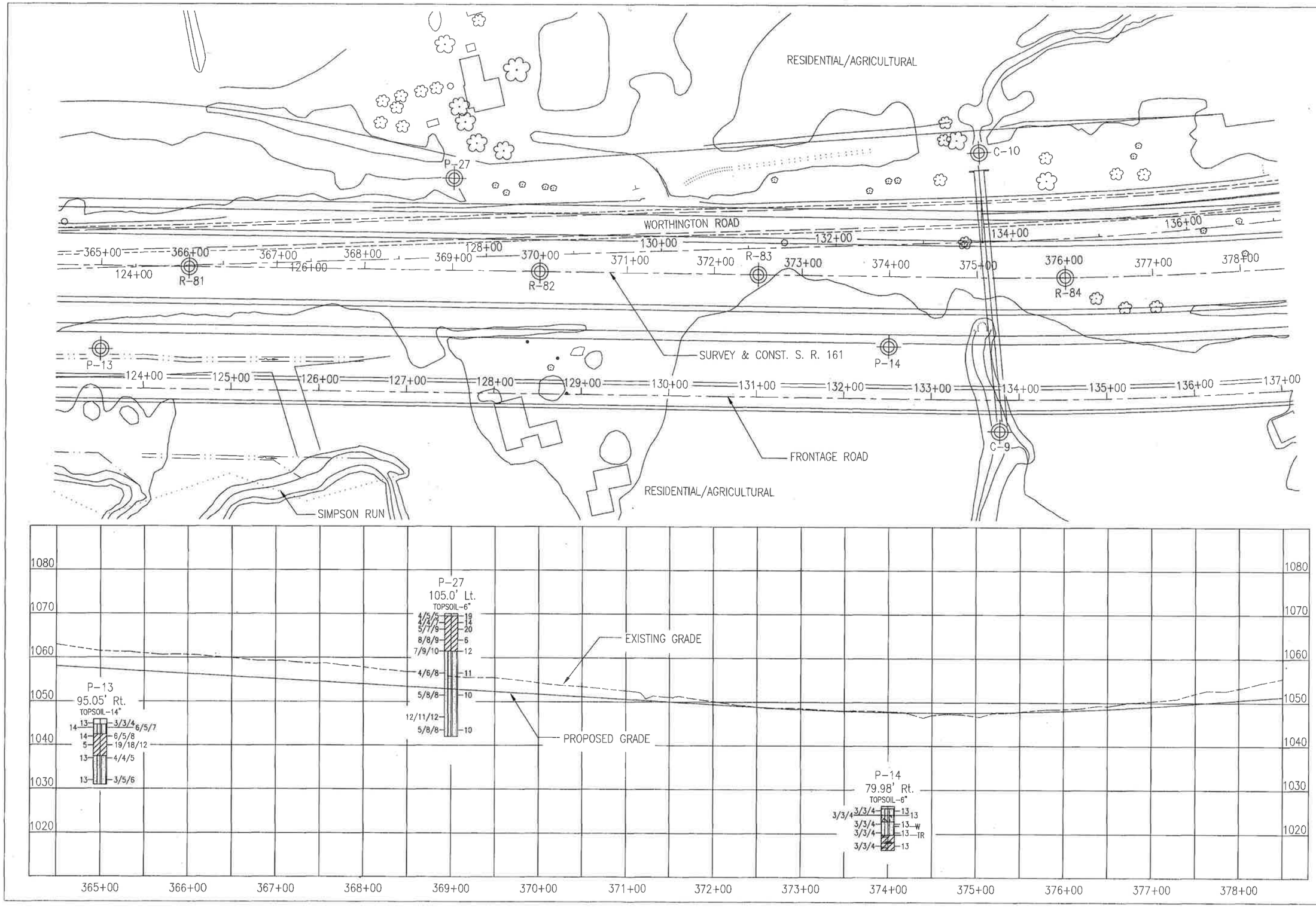
HORIZONTAL SCALE IN FEET
0 100 150 200

DRAWN VIJAY
REVIEWED
DATE 03/17/04
CALCULATED
CHECKED

SOIL PROFILE
STA. 359+00 TO STA. 385+00

FRA/LIC-161-23.20/0.00

30 / 49



HORIZONTAL SCALE IN FEET
0 50 75 100

CALCULATED | CHECKED
DATE 03/05/04
REVIEWED
DRAWN N.K.S.

SOIL PROFILE
STA. 364+50 TO STA. 378+50 (S. R. 161)

FRA/LIC-161-23.20/0.00

49 / 49

LOG OF BORING

Date Started 2/20/04 Sampler: Type SS Dia. 1.375"
Date Completed 2/20/04 Casing: Length 18.0ft Dia. 3.25"

Project Identification: Ohio Department of Transportation Dist. 5
03050555
FRA/LIC-161-23.20/0.00

Water Elev. 1020.7ft
Surface Elev. 1023.7ft

Boring No. C-9 Station & Offset 375+28.16, 176.10' R

Elev. (ft)	Depth (ft)	Std. Pen./ RQD	Rec. (ft)	Loss (ft)	Description	Sample No.	Physical Characteristics % Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	ODOT Class
1023.7	0														
1023.7					**TOPSOIL** (12")										
1022.7					1.0'										
		1/1/1			**BROWN SILT**	1								21	VIS.
1021.7	2														
		0/0/2			**BROWN SILT**	2	0	1	24	63	12	NP	NP	34	A-4b
1020.2					3.5'										
	4	8/8/8			**BROWN SAND AND GRAVEL**	3	27	22	26	13	12	NP	NP	9	A-2-4
1018.7															
		4/10/21			**BROWN SAND AND GRAVEL**	4								13	VIS.
	6														
1017.2															
1016.7		22/50-6"			**BROWN SAND AND GRAVEL** 7.0'	5A								13	VIS.
					GRAY WEATHERED SHALE WITH SANDSTONE LAYERS	5B								13	VIS.
	8														
1015.2															
		50-5"			**GRAY WEATHERED SHALE WITH SANDSTONE LAYERS**	6								12	VIS.
1014.2															
	10	25/50-4"			**GRAY WEATHERED SHALE WITH SANDSTONE LAYERS**	7								13	VIS.
					13.0'										
	12														
1010.7															
		50-1"			**GRAY SANDY SILTSTONE**	8								6	VIS.
1009.9	14				13.8'										
		25%	4.9	0.1	**GRAY SLIGHTLY WEATHERED TO FRESH MEDIUM HARD SILTSTONE**										
	16														
1005.7	18				18.0'										

BOTTOM OF BORING

CTLOH_DOT_PORTRAIT 03050555.GPJ OH_DOT.GDT 4/8/04

Particle Sizes: Agg => 2.00mm, Coarse Sand = 2.00-0.42mm, Fine Sand = 0.42-0.074mm, Silt = 0.074-0.005mm, Clay =< 0.005mm.

LOG OF BORING

Date Started 2/23/04 Sampler: Type SS Dia. 1.375"
Date Completed 2/23/04 Casing: Length 19.0ft Dia. 3.25"

Project Identification: Ohio Department of Transportation Dist. 5
03050555
FRA/LIC-161-23.20/0.00

Water Elev. Dry
Boring No. C-10 Station & Offset 374+99.63, 142.64' L Surface Elev. 1019.1ft

Elev. (ft)	Depth (ft)	Std. Pen./ RQD	Rec. (ft)	Loss (ft)	Description	Sample No.	Physical Characteristics % Agg	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	ODOT Class
1019.1	0														
1019.1					TOPSOIL (12")										
1018.1					1.0'										
		5/4/5			BROWN SAND	1								7	VIS.
1017.1	2				2.0'										
		2/2/3			BROWN TO BROWN AND GRAY SILT	2	2	6	6	51	34	34	14	18	A-6a
1016.1					3.0'										
1015.6															
	4	1/2/7			BROWN TO BROWN AND GRAY SILT	3A	5	14	9	50	22	30	10	22	A-4b
1014.6					4.5'										
1014.1					BROWN AND GRAY WEATHERED SHALE 5.0'	3B								9	VIS.
1013.1	6														
		50-4"			GRAY WEATHERED SHALE	4								6	VIS.
	8														
1010.6															
		50-3"			GRAY WEATHERED SHALE	5								4	VIS.
	10														
	12														
1005.6															
1005.1	14	50-1"			GRAY WEATHERED SHALE 14.0'	6								4	VIS.
		48%	4.8	0.2	GRAY FRESH HARD SILTSTONE WITH SMALL VERTICAL FRACTURE @14.5'										
	16														
	18														
1000.1					19.0'										
					BOTTOM OF BORING										

CTLOH_DOT_PORTRAIT 03050555.GPJ OH_DOT.GDT 4/6/04

Particle Sizes: Agg => 2.00mm, Coarse Sand = 2.00-0.42mm, Fine Sand = 0.42-0.074mm, Silt = 0.074-0.005mm, Clay =< 0.005mm.

APPENDIX II Laboratory Test Results

a. Sulfate Reports (Pages II-1 through II-5)
b. LOI Reports (Pages II-6 through II-9)
c. Soil UCS Report (Page II-10)
d. Bedrock UCS Report (Page II-11)
e. Bedrock Slake Durability Report (Page II-12)

OHIO DEPARTMENT OF TRANSPORTATION

Appendix II-1

PID No.: 117878
Project C-R-S: FRA-161-22.10/LIC-161-0.00
Page: 1 of 5

DETERMINING SULFATE CONTENT IN SOILS
SUPPLEMENT 1122

BORING ID	STATION	OFFSET	LATITUDE	LONGITUDE	ELEV. ft	SAMPLE NUMBER	SOAKING TIME (hrs)	SAMPLE 1 DILUTION RATIO	SAMPLE 1 READING	SAMPLE 2 DILUTION RATIO	SAMPLE 2 READING	SAMPLE 3 DILUTION RATIO	SAMPLE 3 READING	AVERAGE READING	SULFATE CONTENT	
B-001-0-23	1198+67	12' RT.	40.080301	-82.784828	1068.6	SS-1	12	1:20	12	1:20	13	1:20	13	13	250	
B-002-0-23	1203+10	20' RT.	40.080207	-82.783251	1071.4	SS-1	12	1:20	12	1:20	12	1:20	12	12	240	
B-003-0-23	1207+11	19' LT.	40.080245	-82.781812	1072.7	SS-2	12	1:20	9	1:20	9	1:20	9	9	180	
B-004-0-23	1210+68	21' RT.	40.080076	-82.780546	1076.4	SS-1	12	1:80	13	1:80	13	1:80	13	13	260	
B-005-0-23	1214+73	19' LT.	40.080119	-82.779093	1078.7	SS-1	12	1:20	12	1:20	12	1:20	12	12	240	
B-006-0-23	1218+73	20' RT.	40.079944	-82.777674	1081.5	SS-1	12	1:20	13	1:20	13	1:20	14	13	270	
B-007-0-23	1222+57	20' LT.	40.079990	-82.776298	1085.1	SS-1	12	1:20	9	1:20	9	1:20	9	9	180	
B-008-0-23	1226+59	19' RT.	40.079817	-82.774872	1090.1	SS-1	12	1:20	11	1:20	11	1:20	11	11	220	
B-009-0-23	1230+47	24' LT.	40.079869	-82.773477	1094.2	SS-1	12	1:20	11	1:20	12	1:20	12	12	230	
B-010-0-23	1234+64	28' RT.	40.079659	-82.772002	1097.8	SS-1	12	1:20	10	1:20	11	1:20	11	11	210	
B-011-0-23	1237+51	31' LT.	40.079772	-82.770965	1101.8	SS-1	12	1:20	10	1:20	10	1:20	11	10	210	
B-012-0-23	1242+57	28' RT.	40.079524	-82.769172	1105.8	SS-1	12	1:20	7	1:20	7	1:20	8	7	150	
B-013-0-23	1246+38	32' LT.	40.079629	-82.767801	1109.6	SS-1	12	1:20	9	1:20	9	1:20	10	9	190	
B-014-0-23	1250+24	30' RT.	40.079419	-82.766432	1112.7	SS-1	12	1:20	10	1:20	11	1:20	11	11	210	
B-015-0-23	0+79	29' LT.	40.079569	-82.764966	1115.9	SS-1	12	1:20	19	1:20	19	1:20	19	19	380	
B-016-0-23	4+61	28' RT.	40.079435	-82.763599	1119.0	SS-1	12	1:20	32	1:20	32	1:20	32	32	640	
B-017-0-23	8+26	25' LT.	40.079628	-82.762303	1121.7	SS-1	12	1:20	11	1:20	11	1:20	11	11	220	
B-018-0-23	12+26	30' RT.	40.079561	-82.760863	1125.4	SS-1	12	1:20	15	1:20	16	1:20	16	16	310	
B-019-0-23	16+66	27' LT.	40.079819	-82.759317	1131.0	SS-1	12	1:20	18	1:20	18	1:20	18	18	360	
B-020-0-23	20+32	28' RT.	40.079756	-82.757996	1138.8	SS-1	12	1:20	9	1:20	9	1:20	9	9	180	
B-021-0-23	24+15	28' LT.	40.079998	-82.756650	1147.2	SS-1	12	1:20	21	1:20	21	1:20	21	21	420	
B-022-0-23	28+05	29' RT.	40.079936	-82.755243	1155.7	SS-1	12	1:20	10	1:20	10	1:20	10	10	200	
B-023-0-23	31+78	28' LT.	40.080180	-82.753931	1160.0	SS-1	12	1:20	9	1:20	9	1:20	9	9	180	
B-024-0-23	36+07	32' RT.	40.080115	-82.752386	1159.5	SS-1	12	1:20	1	1:20	0	1:20	0	0	0-100	
B-025-0-23	40+08	26' LT.	40.080370	-82.750976	1153.0	SS-1	12	1:40	27	1:40	25	1:40	25	26	1000	
B-026-0-23	43+84	30' RT.	40.080306	-82.749622	1147.0	SS-1	12	1:20	6	1:20	5	1:20	6	6	110	
B-027-0-23	47+99	30' LT.	40.080568	-82.748162	1146.2	SS-1	12	1:20	13	1:20	14	1:20	13	13	270	
B-028-0-23	51+82	31' RT.	40.080489	-82.746782	1149.3	SS-1	12	1:20	31	1:20	31	1:20	31	31	620	
B-029-0-23	56+18	27' LT.	40.080752	-82.745245	1151.2	SS-1	12	1:20	6	1:20	5	1:20	5	5	110	
B-030-0-23	60+08	31' RT.	40.080684	-82.743840	1150.8	SS-1	12	1:20	2	1:20	5	1:20	6	4	0-100	
B-031-0-23	63+86	30' LT.	40.080939	-82.742512	1150.0	SS-1	12	1:20	54	1:20	54	1:20	54	54	1100	
B-032-0-23	67+72	29' RT.	40.080847	-82.741123	1148.8	SS-1	12	1:20	13	1:20	13	1:20	13	13	260	
B-033-0-23	71+94	29' LT.	40.081049	-82.739624	1147.9	SS-1	12	1:20	29	1:20	24	1:20	24	26	510	
B-034-0-23	75+56	24' RT.	40.080912	-82.738326	1146.7	SS-1	12	1:20	17	1:20	15	1:20	15	16	310	
B-035-0-23	79+67	27' LT.	40.081031	-82.736857	1145.6	SS-1	12	1:40	23	1:40	23	1:40	23	23	920	
B-036-0-23	83+67	31' RT.	40.080846	-82.735430	1145.0	SS-1	12	1:20	23	1:20	23	1:20	23	23	460	

OHIO DEPARTMENT OF TRANSPORTATION

DETERMINING SULFATE CONTENT IN SOILS
SUPPLEMENT 1122

PID No.: 117878
Project C-R-S: FRA-161-22.10/LIC-161-0.00

BORING ID	STATION	OFFSET	LATITUDE	LONGITUDE	ELEV. ft	SAMPLE NUMBER	SOAKING TIME (hrs)	SAMPLE 1 DILUTION RATIO	SAMPLE 1 READING	SAMPLE 2 DILUTION RATIO	SAMPLE 2 READING	SAMPLE 3 DILUTION RATIO	SAMPLE 3 READING	AVERAGE READING	SULFATE CONTENT	
B-037-0-23	87+64	28' LT.	40.080982	-82.734009	1146.4	SS-1	12	1:80	61	1:80	62	1:80	62	62	4900	
B-038-0-23	91+59	28' RT.	40.080805	-82.732602	1152.6	SS-1	12	1:40	8	1:40	7	1:40	7	7	290	
B-039-0-23	95+53	26' LT.	40.080929	-82.731190	1158.4	SS-1	12	1:20	9	1:20	8	1:20	8	8	170	
B-040-0-23	99+42	31' RT.	40.080747	-82.729805	1165.1	SS-1	12	1:20	7	1:20	5	1:20	6	6	120	
B-041-0-23	103+48	28' LT.	40.080883	-82.728348	1170.8	SS-1	12	1:20	62	1:20	61	1:20	62	62	4900	
B-042-0-23	107+46	31' RT.	40.080698	-82.726931	1177.3	SS-1	12	1:20	21	1:20	20	1:20	19	20	400	
B-043-0-23	111+03	29' LT.	40.080839	-82.725653	1182.3	SS-1	12	1:20	10	1:20	9	1:20	9	9	190	
B-044-0-23	115+12	32' RT.	40.080648	-82.724196	1189.2	SS-1	12	1:20	9	1:20	10	1:20	9	9	190	
B-045-0-23	119+33	23' LT.	40.080772	-82.722687	1194.9	SS-1	12	1:20	22	1:20	22	1:20	22	22	440	
B-046-0-23	123+19	27' RT.	40.080611	-82.721311	1193.6	SS-2	12	1:20	10	1:20	9	1:20	9	9	190	
B-047-0-23	126+95	25' LT.	40.080729	-82.719966	1191.8	SS-1	12	1:20	81	1:20	82	1:20	81	81	1600	
B-048-0-23	130+93	26' RT.	40.080565	-82.718546	1187.9	SS-1	12	1:20	40	1:20	40	1:20	40	40	1600	
B-049-0-23	134+68	29' LT.	40.080691	-82.717202	1187.6	SS-1	12	1:20	3	1:20	3	1:20	3	3	0-100	
B-050-0-23	138+54	27' RT.	40.080512	-82.715827	1189.9	SS-1	12	1:20	15	1:20	13	1:20	14	14	560	
B-051-0-23	142+53	28' LT.	40.080638	-82.714400	1191.9	SS-1	12	1:20	0	1:20	0	1:20	0	0	0-100	
B-052-0-23	146+44	28' RT.	40.080460	-82.713007	1194.2	SS-1	12	1:20	60	1:20	60	1:20	60	60	1200	
B-053-0-23	150+39	26' LT.	40.080586	-82.711592	1196.0	SS-1	12	1:20	23	1:20	23	1:20	23	23	460	
B-054-0-23	154+22	23' RT.	40.080426	-82.710226	1199.0	SS-1	12	1:20	29	1:20	30	1:20	29	29	590	
B-055-0-23	158+28	27' LT.	40.080538	-82.708771	1201.5	SS-1	12	1:40	79	1:40	79	1:40	79	79	3200	
B-056-0-23	162+18	28' RT.	40.080362	-82.707382	1203.9	SS-1	12	1:20	32	1:20	33	1:20	33	33	650	
B-057-0-23	166+16	22' LT.	40.080473	-82.705957	1205.6	SS-1	12	1:20	15	1:20	15	1:20	15	15	300	
B-058-0-23	170+18	27' RT.	40.080313	-82.704526	1208.9	SS-1	12	1:40	4	1:40	4	1:40	3	4	150	
B-059-0-23	173+76	26' LT.	40.080436	-82.703241	1210.7	SS-1	12	1:20	5	1:20	6	1:20	6	6	110	
B-060-0-23	177+82	28' RT.	40.080262	-82.701798	1213.4	SS-1	12	1:20	23	1:20	25	1:20	25	24	490	
B-061-0-23	181+77	27' LT.	40.080389	-82.700382	1215.8	SS-1	12	1:20	4	1:20	4	1:20	3	4	0-100	
B-062-0-23	185+71	30' RT.	40.080206	-82.698977	1218.8	SS-1	12	1:20	4	1:20	4	1:20	3	4	0-100	
B-063-0-23	189+54	28' LT.	40.080342	-82.697604	1220.8	SS-1	12	1:20	1	1:20	0	1:20	0	0	0-100	
B-064-0-23	193+50	31' RT.	40.080154	-82.696195	1223.4	SS-1	12	1:20	11	1:20	11	1:20	11	11	220	
B-065-0-23	197+50	28' LT.	40.080291	-82.694760	1225.5	SS-1	12	1:20	19	1:20	18	1:20	18	18	370	
B-066-0-23	201+38	30' RT.	40.080108	-82.693382	1227.3	SS-1	12	1:20	18	1:20	18	1:20	18	18	360	
B-067-0-23	205+27	29' LT.	40.080246	-82.691986	1224.5	SS-1	12	1:20	10	1:20	10	1:20	10	10	200	
B-068-0-23	209+21	29' RT.	40.080060	-82.690583	1221.4	SS-1	12	1:20	15	1:20	15	1:20	15	15	300	
B-069-0-23	213+15	30' LT.	40.080198	-82.689169	1217.5	SS-2A	12	1:20	6	1:20	6	1:20	6	6	120	
B-070-0-23	217+11	28' RT.	40.080014	-82.687761	1214.8	SS-1	12	1:20	18	1:20	18	1:20	18	18	360	
B-071-0-23	220+91	28' LT.	40.080136	-82.686398	1211.7	SS-1	12	1:20	3	1:20	0	1:20	0	1	0-100	
B-072-0-23	224+79	28' RT.	40.079943	-82.685018	1209.0	SS-1	12	1:20	30	1:20	30	1:20	30	30	600	

OHIO DEPARTMENT OF TRANSPORTATION

DETERMINING SULFATE CONTENT IN SOILS
SUPPLEMENT 1122

PID No.: 117878
Project C-R-S: FRA-161-22.10/LIC-161-0.00

BORING ID	STATION	OFFSET	LATITUDE	LONGITUDE	ELEV. ft	SAMPLE NUMBER	SOAKING TIME (hrs)	SAMPLE 1 DILUTION RATIO	SAMPLE 1 READING	SAMPLE 2 DILUTION RATIO	SAMPLE 2 READING	SAMPLE 3 DILUTION RATIO	SAMPLE 3 READING	AVERAGE READING	SULFATE CONTENT	
B-073-0-23	228+82	28' LT.	40.080056	-82.683574	1206.0	SS-1	12	1:20	55	1:20	55	1:20	55	55	1100	
B-074-0-23	232+81	27' RT.	40.079865	-82.682156	1202.1	SS-1	12	1:20	69	1:20	69	1:20	69	69	1400	
B-075-0-23	236+62	27' LT.	40.079974	-82.680786	1199.2	SS-1	12	1:20	0	1:20	0	1:20	1	0	0-100	
B-076-0-23	240+63	23' RT.	40.079797	-82.679362	1196.2	SS-1	12	1:20	10	1:20	11	1:20	11	11	210	
B-077-0-23	244+68	28' LT.	40.079895	-82.677910	1193.1	SS-1	12	1:20	31	1:20	30	1:20	30	30	610	
B-078-0-23	248+70	30' RT.	40.079696	-82.676480	1190.1	SS-1	12	1:20	7	1:20	7	1:20	7	7	140	
B-079-0-23	252+40	29' LT.	40.079819	-82.675151	1186.7	SS-1	12	1:20	12	1:20	12	1:20	12	12	240	
B-080-0-23	256+19	30' RT.	40.079621	-82.673807	1184.1	SS-1	12	1:20	13	1:20	12	1:20	13	13	260	
B-081-0-23	260+14	29' LT.	40.079740	-82.672387	1180.9	SS-1	12	1:20	2	1:20	0	1:20	2	1	0-100	
B-082-0-23	264+09	29' RT.	40.079542	-82.670985	1177.6	SS-1	12	1:20	78	1:20	79	1:20	79	79	1600	
B-084-0-23	272+10	30' RT.	40.079439	-82.668132	1171.2	SS-1	12	1:20	8	1:20	8	1:20	8	8	160	
B-085-0-23	275+86	29' LT.	40.079492	-82.666773	1168.5	SS-1	12	1:20	20	1:20	21	1:20	20	21	420	
B-086-0-23	279+68	29' RT.	40.079172	-82.665457	1165.7	SS-1	12	1:20	9	1:20	9	1:20	9	9	180	
B-087-0-23	283+68	28' LT.	40.079102	-82.664016	1162.0	SS-1	12	1:20	8	1:20	8	1:20	8	8	160	
B-088-0-23	287+65	30' RT.	40.078690	-82.662687	1158.9	SS-1	12	1:20	23	1:20	23	1:20	23	23	460	
B-089-0-23	291+72	29' LT.	40.078582	-82.661223	1155.7	SS-1	12	1:20	101	1:20	101	1:20	101	101	2000	
B-090-0-23	295+74	31' RT.	40.078160	-82.659880	1152.6	SS-1	12	1:20	21	1:20	20	1:20	20	20	410	
B-091-0-23	299+50	27' LT.	40.078069	-82.658523	1149.2	SS-1	12	1:20	19	1:20	19	1:20	20	19	390	
B-092-0-23	303+64	31' RT.	40.077646	-82.657138	1146.5	SS-1	12	1:20	10	1:20	11	1:20	11	13	230	
B-093-0-23	307+67	28' LT.	40.077540	-82.655688	1142.8	SS-1	12	1:20	13	1:20	12	1:20	13	13	250	
B-094-0-23	311+43	28' RT.	40.077144	-82.654429	1138.6	SS-1	12	1:20	18	1:20	18	1:20	18	18	360	
B-095-0-23	315+47	20' LT.	40.077011	-82.652988	1131.4	SS-1	12	1:20	7	1:20	6	1:20	7	7	130	
B-096-0-23	319+57	30' RT.	40.076610	-82.651607	1124.5	SS-1	12	1:20	20	1:20	19	1:20	19	19	390	
B-097-0-23	323+38	26' LT.	40.076511	-82.650236	1117.2	SS-1	12	1:20	9	1:20	9	1:20	9	9	180	
B-098-0-23	327+20	30' RT.	40.076113	-82.648956	1109.4	SS-2	12	1:80	71	1:80	71	1:80	71	71	5700	
B-099-0-23	331+40	28' LT.	40.075992	-82.647452	1103.3	SS-1	12	1:20	12	1:20	12	1:20	12	12	240	
B-100-0-23	335+16	29' RT.	40.075595	-82.646196	1096.9	SS-1	12	1:20	17	1:20	17	1:20	17	17	340	
B-101-0-23	339+04	28' LT.	40.075496	-82.644800	1090.1	SS-1	12	1:20	13	1:20	14	1:20	14	14	270	
B-102-0-23	343+31	25' RT.	40.075076	-82.643362	1082.8	SS-1	12	1:20	8	1:20	8	1:20	9	8	170	
B-103-0-23	347+36	28' LT.	40.074952	-82.641911	1075.2	SS-1	12	1:20	21	1:20	21	1:20	21	21	420	
B-104-0-23	350+90	28' RT.	40.074563	-82.640736	1069.6	SS-1	12	1:20	31	1:20	31	1:20	31	24	470	
B-105-0-23	355+15	25' LT.	40.074392	-82.639223	1065.0	SS-1	12	1:20	47	1:20	47	1:20	47	47	940	
B-106-0-23	359+10	27' RT.	40.073949	-82.637921	1060.8	SS-1	12	1:20	64	1:20	64	1:20	64	64	1300	
B-107-0-23	363+11	26' LT.	40.073762	-82.636497	1054.3	SS-2	12	1:20	83	1:20	83	1:20	83	83	1700	
B-108-0-23	366+71	27' RT.	40.073323	-82.635327	1051.6	SS-1	12	1:20	20	1:20	22	1:20	21	21	420	
B-109-0-23	370+86	23' LT.	40.073108	-82.633861	1046.4	SS-1	12	1:20	16	1:20	17	1:20	17	17	330	

OHIO DEPARTMENT OF TRANSPORTATION

DETERMINING SULFATE CONTENT IN SOILS
SUPPLEMENT 1122

PID No.: 117878
Project C-R-S: FRA-161-22.10/LIC-161-0.00

BORING ID	STATION	OFFSET	LATITUDE	LONGITUDE	ELEV. ft	SAMPLE NUMBER	SOAKING TIME (hrs)	SAMPLE 1 DILUTION RATIO	SAMPLE 1 READING	SAMPLE 2 DILUTION RATIO	SAMPLE 2 READING	SAMPLE 3 DILUTION RATIO	SAMPLE 3 READING	AVERAGE READING	SULFATE CONTENT	
B-110-0-23	374+82	28' RT.	40.072644	-82.632566	1043.4	SS-1	12	1:20	4	1:20	5	1:20	5	5	0-100	
B-111-0-23	379+06	26' LT.	40.072489	-82.631055	1048.3	SS-1	12	1:40	39	1:40	39	1:40	39	39	1600	
B-112-0-23	382+70	30' RT.	40.072168	-82.629806	1053.6	SS-1	12	1:20	76	1:20	77	1:20	77	77	1500	
B-113-0-23	386+80	28' LT.	40.072227	-82.628328	1059.8	SS-1	12	1:20	19	1:20	19	1:20	20	19	390	
B-114-0-23	390+60	29' RT.	40.072068	-82.626973	1060.5	SS-1	12	1:40	42	1:40	42	1:40	42	42	1700	
B-115-0-23	394+64	28' LT.	40.072317	-82.625549	1054.3	SS-1	12	1:20	33	1:20	34	1:20	34	34	670	
B-116-0-23	398+62	29' RT.	40.072304	-82.624114	1046.3	SS-1	12	1:20	17	1:20	18	1:20	18	18	350	
B-117-0-23	402+84	27' LT.	40.072608	-82.622646	1037.2	SS-1	12	1:20	83	1:20	83	1:20	83	83	1700	
B-118-0-23	406+53	29' RT.	40.072588	-82.621311	1031.1	SS-1	12	1:80	40	1:80	40	1:80	40	40	3200	
B-119-0-23	410+60	25' LT.	40.072878	-82.619896	1028.1	SS-1	12	1:20	14	1:20	14	1:20	14	14	280	
B-120-0-23	414+38	30' RT.	40.072865	-82.618531	1027.0	SS-1	12	1:20	83	1:20	83	1:20	83	83	1700	
B-121-0-23	418+45	29' LT.	40.073170	-82.617118	1024.8	SS-1	12	1:20	85	1:20	85	1:20	85	85	1700	
B-122-0-23	422+22	28' RT.	40.073151	-82.615754	1021.1	SS-2	12	1:20	6	1:20	6	1:20	6	6	120	
B-123-0-23	426+24	26' LT.	40.073442	-82.614356	1020.3	SS-1	12	1:20	45	1:20	44	1:20	44	44	880	
B-124-0-23	430+19	29' RT.	40.073431	-82.612932	1017.2	SS-1	12	1:80	30	1:80	30	1:80	30	30	2400	
B-125-0-23	434+23	28' LT.	40.073714	-82.611519	1012.3	SS-1	12	1:20	30	1:20	31	1:20	31	31	620	
B-126-0-23	438+34	30' RT.	40.073623	-82.610042	1006.4	SS-1	12	1:40	57	1:40	56	1:40	56	56	2300	
B-127-0-23	442+15	28' LT.	40.073790	-82.608682	1000.4	SS-2	12	1:20	16	1:20	17	1:20	16	16	320	
B-128-0-23	445+99	30' RT.	40.073590	-82.607318	996.3	SS-1	12	1:20	11	1:20	11	1:20	11	11	220	
B-129-0-23	450+00	31' LT.	40.073694	-82.605874	989.8	SS-2	12	1:20	8	1:20	8	1:20	8	8	160	
B-130-0-23	454+02	29' RT.	40.073469	-82.604453	987.2	SS-2	12	1:20	9	1:20	8	1:20	9	9	170	
B-131-0-23	457+89	29' LT.	40.073573	-82.603059	987.1	SS-1	12	1:20	8	1:20	9	1:20	9	9	180	
B-132-0-23	461+81	27' RT.	40.073358	-82.601675	984.7	SS-1	12	1:20	20	1:20	20	1:20	20	20	400	
B-133-0-23	465+94	25' LT.	40.073440	-82.600189	985.0	SS-1	12	1:40	74	1:40	74	1:40	74	74	2960	
B-134-0-23	469+83	26' RT.	40.073241	-82.598811	988.9	SS-1	12	1:20	36	1:20	37	1:20	37	37	730	
B-135-0-23	473+79	29' LT.	40.073331	-82.597388	987.4	SS-1	12	1:20	0	1:20	0	1:20	0	0	0-100	
B-136-0-23	477+57	28' RT.	40.073119	-82.596051	981.1	SS-1	12	1:20	19	1:20	19	1:20	19	19	380	
B-137-0-23	481+39	24' LT.	40.073203	-82.594678	975.2	SS-1	12	1:40	59	1:40	59	1:40	59	59	1200	
B-138-0-23	485+21	25' RT.	40.073012	-82.593326	972.9	SS-1	12	1:20	21	1:20	21	1:20	21	21	420	
B-139-0-23	489+21	27' LT.	40.073093	-82.591886	975.0	SS-1	12	1:20	26	1:20	26	1:20	27	26	530	
B-140-0-23	493+18	28' RT.	40.072846	-82.590490	982.4	SS-1	12	1:20	12	1:20	12	1:20	12	12	240	
B-141-0-23	496+82	27' LT.	40.072868	-82.589176	988.0	SS-2	12	1:20	70	1:20	71	1:20	70	70	1400	
B-145-0-23	512+63	29' LT.	40.072304	-82.583577	994.3	SS-1	12	1:20	5	1:20	5	1:20	5	5	100	
B-146-0-23	516+63	29' RT.	40.072003	-82.582186	982.6	SS-1	12	1:40	32	1:40	32	1:40	32	32	1300	
B-147-0-23	520+62	29' LT.	40.072015	-82.580747	970.2	SS-1	12	1:20	11	1:20	11	1:20	11	11	220	
B-148-0-23	524+29	28' RT.	40.071729	-82.579475	959.2	SS-1	12	1:40	36	1:40	36	1:40	36	36	1440	

OHIO DEPARTMENT OF TRANSPORTATION

DETERMINING SULFATE CONTENT IN SOILS
SUPPLEMENT 1122

PID No.: 117878
Project C-R-S: FRA-161-22.10/LIC-161-0.00

BORING ID	STATION	OFFSET	LATITUDE	LONGITUDE	ELEV. ft	SAMPLE NUMBER	SOAKING TIME (hrs)	SAMPLE 1 DILUTION RATIO	SAMPLE 1 READING	SAMPLE 2 DILUTION RATIO	SAMPLE 2 READING	SAMPLE 3 DILUTION RATIO	SAMPLE 3 READING	AVERAGE READING	SULFATE CONTENT	
B-149-0-23	528+46	28' RT.	40.071731	-82.577970	948.2	SS-1	12	1:40	95	1:40	96	1:40	96	96	3800	
B-150-0-23	532+30	28' LT.	40.071440	-82.576635	944.0	SS-1	12	1:20	22	1:20	22	1:20	22	22	440	
B-151-0-23	536+44	30' RT.	40.071448	-82.575143	945.9	SS-1	12	1:20	10	1:20	9	1:20	9	9	190	
B-152-0-23	540+38	26' LT.	40.071154	-82.573775	947.3	SS-1	12	1:20	43	1:20	43	1:20	43	23	860	
B-153-0-23	544+29	26' RT.		-82.572366	948.2	SS-1	12	1:20	12	1:20	12	1:20	12	12	240	
B-154-0-23	548+35	28' LT.	40.070863	-82.570951	946.1	SS-1	12	1:20	0	1:20	0	1:20	0	0	0-100	
B-155-0-23	552+31	24' RT.	40.070859	-82.569526	944.0	SS-1	12	1:20	0	1:20	0	1:20	0	0	0-100	
B-156-0-23	556+35	19' LT.	40.070596	-82.568114	940.5	SS-2	12	1:20	11	1:20	11	1:20	11	11	220	
B-157-0-23	560+28	14' RT.	40.070546	-82.566705	939.0	SS-2	12	1:20	10	1:20	10	1:20	10	10	200	
B-158-0-23	564+14	12' LT.	40.070335	-82.565353	936.8	SS-2	12	1:20	9	1:20	10	1:20	10	10	190	
B-159-0-23	568+11	15' RT.	40.070265	-82.563934	934.8	SS-2	12	1:20	5	1:20	4	1:20	4	4	0-100	
B-160-0-23	571+94	14' LT.	40.070049	-82.562589	934.3	SS-1	12	1:20	57	1:20	57	1:20	57	57	1100	
B-161-0-23	576+37	12' RT.	40.069886	-82.561020	932.4	SS-1	12	1:20	10	1:20	11	1:20	11	11	210	
B-162-0-23	580+37	8' LT.	40.069578	-82.559647	929.6	SS-1	12	1:40	39	1:40	39	1:40	39	39	1600	
B-163-0-23	584+20	16' RT.	40.069397	-82.558296	927.4	SS-1	12	1:20	7	1:20	7	1:20	7	7	140	
B-164-0-23	588+15	10' LT.	40.069077	-82.556944	925.3	SS-1	12	1:20	57	1:20	56	1:20	57	57	1100	
B-165-0-23	592+25	15' RT.	40.068883	-82.555498	924.4	SS-1	12	1:80	63	1:80	63	1:80	63	63	5000	
B-166-0-23	596+03	13' LT.	40.068568	-82.554210	923.5	SS-1	12	1:20	12	1:20	12	1:20	12	12	240	
B-167-0-23	600+03	14' RT.	40.068386	-82.552796	922.3	SS-1	12	1:20	90	1:20	88	1:20	87	88	1800	
B-168-0-23	604+08	14' LT.	40.068055	-82.551412	921.2	SS-1	12	1:20	25	1:20	25	1:20	25	25	500	
B-169-0-23	608+17	16' RT.	40.067872	-82.549967	920.1	SS-1	12	1:80	69	1:80	69	1:80	70	69	5500	
B-170-0-23	612+03	12' LT.	40.067553	-82.548648	919.4	SS-1	12	1:20	91	1:20	91	1:20	91	91	1800	
B-171-0-23	615+92	14' RT.	40.067338	-82.547282	918.2	SS-1	12	1:20	16	1:20	15	1:20	15	15	310	
B-172-0-23	619+86	12' LT.	40.066884	-82.546002	917.3	SS-1	12	1:40	74	1:40	74	1:40	74	74	3000	
B-173-0-23	623+83	15' RT.	40.066471	-82.544685	914.8	SS-2	12	1:20	7	1:20	7	1:20	7	7	140	
B-174-0-23	627+79	13' LT.	40.065907	-82.543473	915.7	SS-1	12	1:20	9	1:20	9	1:20	10	9	190	
B-175-0-23	631+52	16' RT.	40.065510	-82.542242	914.6	SS-1	12	1:40	91	1:40	91	1:40	91	91	3600	
B-176-0-23	636+46	12' LT.	40.064823	-82.540715	915.3	SS-1	12	1:20	13	1:20	13	1:20	13	13	260	
B-177-0-23	639+67	14' RT.	40.064486	-82.539653	915.5	SS-1	12	1:20	26	1:20	26	1:20	26	26	520	
B-178-0-23	643+46	12' LT.	40.063951	-82.538487	917.2	SS-1	12	1:20	14	1:20	14	1:20	14	14	280	

Report on Loss of Ignition

(AASHTO T-267)

DLZ Project No.:	2321-3033.00	Boring No.	**B-082**
Client:	Woolpert	Sample No.	**S-2**
Project Name:	FRA/LIC-161-22.10/0.00	Depth:	**2.5'-4.0'**
Date:	8/17/2023		

Muffle Furnace Crucible ID: D

Muffle Furnace Temperature	**455 ± 10°C**
Mass of crucible & oven dry soil (A)	89.33
Mass of crucible (B)	54.15
Mass of oven dry soil (C)	35.18
Mass of sample & crucible after ashed in muffle furnace (D)	86.65
Mass of crucible (B)	54.15
Mass of ashed soil sample (E)	32.50
Loss on Ignition = (C - E) / C * 100 =	**7.62**

DLZ

Report on Loss of Ignition

(AASHTO T-267)

DLZ Project No.:	2321-3033.00	Boring No.	**B-080**
Client:	Woolpert	Sample No.	**S-4**
Project Name:	FRA/LIC-161-22.10/0.00	Depth:	**5.5'-7.0'**
Date:	8/17/2023		

Muffle Furnace Crucible ID:	406
Muffle Furnace Temperature	**455 ± 10°C**
Mass of crucible & oven dry soil (A)	131.15
Mass of crucible (B)	107.44
Mass of oven dry soil (C)	23.71
Mass of sample & crucible after ashed in muffle furnace (D)	130.50
Mass of crucible (B)	107.44
Mass of ashed soil sample (E)	23.06
Loss on Ignition = (C - E) / C * 100 =	**2.74**

DLZ

Report on Loss of Ignition

(AASHTO T-267)

DLZ Project No.:	2321-3033.00	Boring No.	**B-129**
Client:	Woolpert	Sample No.	**S-4**
Project Name:	LIC-161	Depth:	**5.5'-7.0'**
Date:	7/14/2023		

Muffle Furnace Crucible ID:	X
Muffle Furnace Temperature	**455 ± 10°C**
Mass of crucible & oven dry soil (A)	117.57
Mass of crucible (B)	78.03
Mass of oven dry soil (C)	39.54
Mass of sample & crucible after ashed in muffle furnace (D)	115.74
Mass of crucible (B)	78.03
Mass of ashed soil sample (E)	37.71
Loss on Ignition = (C - E) / C * 100 =	**4.63**
Fractional Organic Carbon = (Loss on Ignition @ 440°C X 0.58)	**2.68**

Container Number:	526
Wet Wt. + Container	173.21
Dry Wt. + Container	151.58
Wt. of Container	63.22
Dry Wt. of Soil	88.36
Moisture Content (%)	24.5

DLZ

Report on Loss of Ignition

(AASHTO T-267)

DLZ Project No.: 2321-3033.00 Boring No. **B-096**

Client: Woolpert Sample No. **S-4**

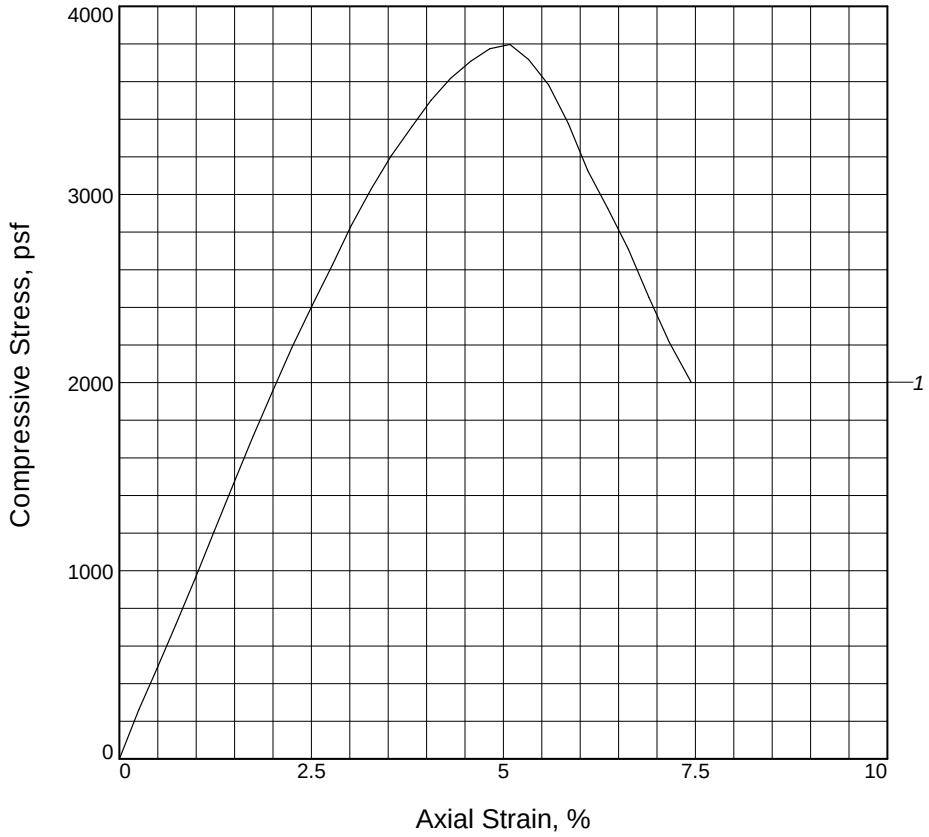
Project Name: FRA/LIC-161-22.10/0.00 Depth: **5.5'-7.0'**

Date: 8/17/2023

Muffle Furnace Crucible ID:	A
Muffle Furnace Temperature	**455 ± 10°C**
Mass of crucible & oven dry soil (A)	80.33
Mass of crucible (B)	50.87
Mass of oven dry soil (C)	29.46
Mass of sample & crucible after ashed in muffle furnace (D)	79.27
Mass of crucible (B)	50.87
Mass of ashed soil sample (E)	28.40
Loss on Ignition = (C - E) / C * 100 =	**3.60**

DLZ

UNCONFINED COMPRESSION TEST



Sample No.	1			
Unconfined strength, psf	3798			
Undrained shear strength, psf	1899			
Failure strain, %	5.1			
Strain rate, in./min.	0.055			
Water content, %	13.4			
Wet density, pcf	142.9			
Dry density, pcf	126.0			
Saturation, %	100.0			
Void ratio	0.3724			
Specimen diameter, in.	2.83			
Specimen height, in.	5.48			
Height/diameter ratio	1.93			

Description:

LL =	**PL =**	**PI =**	**Assumed GS=** 2.77	**Type:** Intact

Project No.: 2321-3033.00

Date Sampled: 8-3-23

Remarks:

Figure _____

Client: Woolpert

Project: FRA/LIC-161-22.10/0.00

Source of Sample: B-001-0-23 **Depth:** 28.5'-30.5'

Sample Number: ST-1

DLZ

Tested By: TM **Checked By:** SR

DLZ

CLIENT: Woolpert (ODOT) | DLZ JOB NUMBER: 2321-3033.00
PROJECT: FRA/LIC-161-22.10/0.00 | SHEET NO. 1 OF 1
SUBJECT: Rock UCS | TEST COMP. BY: TM DATE: 7/31/23
EQUIPMENT: Concrete Load Frame | CHECKED BY: SR DATE: 8/28/23

Unconfined Compressive Strength of Intact Rock Core Specimen (ASTM D7012)

Boring No.: B-110-05-23 | Rock Description:
Run No.: R-1 | Moisture Condition at Test: As Received
Depth: 31.2'-31.8'

	D_1	D_2	D_3	D_4	D_5	D_6	D_{AVG}
Diameter:	2.058	2.059	2.046	2.061	2.038	2.047	**2.052** in

	L_1	L_2	L_3	L_{AVG}	$\frac{L}{D}$
Length:	4.906	4.913	4.903	**4.907** in	= 2.392

Volume: 0.009382776 ft^3 | Mass: 642.75 g | Unit Weight: **151.02** pcf

Failure Load: 355 lbs

Strength: 107 psi

Original Specimen



Fractured Specimen



Remarks:

DLZ

SUBJECT: Slake Durability Index
PROCEDURE: ASTM D 4644
GAGE ID:
REMARKS:
SHEET: 1 OF: 1
COMP. BY: TM DATE: 8/4/23
REV. BY: SR DATE: 8/28/23

Project Name: FRA/LIC-161-22.10/0.00
DLZ Project Number: 2321-3033.00
Client: Woolpert (ODOT)

Sample ID: B-110-05-23, R-1, 28.5'-29.5'
Date Started: 7/31/2023
Date Completed: 8/4/2023

Pan # 508A

Wet Wt. & Pan	664.70
Dry Wt. & Pan	642.47
Pan Wt.	114.05
Dry Wt. of Sample (A)	528.42
% Moisture	4.2

Slake Durability Index to nearest 0.1%

Trial 1

Date: 8/3/2023 Time: From 7:05 AM To 7:15 AM Initials TM

Water Temp Start	23.1
Water Temp Finish	22.7
Dry Wt, & Pan	491.20
Pan Wt.	114.05
Dry Wt. Trial 1	377.15

Trial 2

Date: 8/4/2023 Time: From 8:00 AM To 8:10 AM Initials TM

Water Temp Start	22.5
Water Temp Finish	22
Dry Wt, & Pan	455.04
Pan Wt.	114.05
Final Dry Wt. (B)	340.99

Slake Durability Index = (B)/(A)*100 64.5 **Fragment Type:** II

Test Pictures

Initial | 1st Trial | 2nd Trial







6121 Huntley Road
Columbus, Ohio 43229-1003
(614) 888-0040

APPENDIX III Preliminary Analyses

a. Pavement Subgrade Analysis – Full Length (Pages III-1 through III-27)
b. Pavement Subgrade Analysis – Partial – Borings West of Mink Street (Pages III-28 through III-38)
c. Pavement Subgrade Analysis – Partial – Borings East of Mink Street (Pages III-39 through III-59)
d. Slope Stability Analysis – Slopes Near Simpson's Run – No Seepage (Pages III-60-63)
e. Slope Stability Analysis – Slopes Near Simpson's Run – Isolated Seepage (Pages III-64-67)

OHIO DEPARTMENT OF TRANSPORTATION

OFFICE OF GEOTECHNICAL ENGINEERING

PLAN SUBGRADES
Geotechnical Design Manual Section 600

FRA-161-22.10/LIC-161-0.00
117878

PART 1 - 13.3 miles of pavement subgrade exploration for 3rd Lane widening into median

DLZ Ohio, Inc.

Prepared By: Jeff Chou
Date prepared: Friday, November 17, 2023

Checked by HJH 11/28/2023

H. Jason Hughes, P,E.
DLZ Ohio, Inc.
6121 Huntley Rd
Columbus, OH
614-987-0282
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NO. OF BORINGS: 178

#	Boring ID	Alignment	Station	Offset	Dir	Drill Rig	ER	Boring EL.	Proposed Subgrade EL	Cut Fill
1	B-001-0-23	FRA-161	1198+67	12	Rt	23 CME 75-kc-777	73	1071.1	1070.1	1.0 C
2	B-002-0-23	FRA-161	1203+10	20	Rt	23 CME 75-kc-777	73	1073.9	1072.9	1.0 C
3	B-003-0-23	FRA-161	1207+11	19	Lt	23 CME 75-kc-777	73	1076.7	1075.7	1.0 C
4	B-004-0-23	FRA-161	1210+68	21	Rt	23 CME 75-kc-777	73	1078.9	1077.9	1.0 C
5	B-005-0-23	FRA-161	1214+73	19	Lt	23 CME 75-kc-777	73	1081.2	1080.2	1.0 C
6	B-006-0-23	FRA-161	1218+73	20	Rt	23 CME 75-kc-777	73	1084.0	1083.0	1.0 C
7	B-007-0-23	FRA-161	1222+57	20	Lt	23 CME 75-kc-777	73	1087.6	1086.6	1.0 C
8	B-008-0-23	FRA-161	1226+59	19	Rt	23 CME 75-kc-777	73	1092.6	1091.6	1.0 C
9	B-009-0-23	FRA-161	1230+47	24	Lt	23 CME 75-kc-777	73	1096.7	1095.7	1.0 C
10	B-010-0-23	FRA-161	1234+64	28	Rt	23 CME 75-kc-777	73	1100.3	1099.3	1.0 C
11	B-011-0-23	FRA-161	1237+51	31	Lt	23 CME 75-kc-777	73	1104.3	1103.3	1.0 C
12	B-012-0-23	FRA-161	1242+57	28	Rt	23 CME 75-kc-777	73	1108.3	1107.3	1.0 C
13	B-013-0-23	FRA-161	1246+38	32	Lt	23 CME 75-kc-777	73	1112.1	1111.1	1.0 C
14	B-014-0-23	FRA-161	1250+24	30	Rt	23 CME 75-kc-777	73	1115.2	1114.2	1.0 C
15	B-015-0-23	LIC-161	0+79	29	Lt	23 CME 75-kc-777	73	1118.4	1117.4	1.0 C
16	B-016-0-23	LIC-161	4+61	28	Rt	23 CME 75-kc-777	73	1121.5	1120.5	1.0 C
17	B-017-0-23	LIC-161	8+26	25	Lt	23 CME 75-kc-777	73	1124.2	1123.2	1.0 C
18	B-018-0-23	LIC-161	12+26	30	Rt	23 CME 75-kc-777	73	1127.9	1126.9	1.0 C
19	B-019-0-23	LIC-161	16+66	27	Lt	23 CME 75-kc-777	73	1133.5	1132.5	1.0 C
20	B-020-0-23	LIC-161	20+32	28	Rt	23 CME 75-kc-777	73	1141.3	1140.3	1.0 C
21	B-021-0-23	LIC-161	24+15	28	Lt	23 CME 75-kc-777	73	1149.7	1148.7	1.0 C
22	B-022-0-23	LIC-161	28+05	29	Rt	23 CME 75-kc-777	73	1158.2	1157.2	1.0 C
23	B-023-0-23	LIC-161	31+78	28	Lt	23 CME 75-kc-777	73	1162.5	1161.5	1.0 C
24	B-024-0-23	LIC-161	36+07	32	Rt	23 CME 75-kc-777	73	1162.0	1161.0	1.0 C
25	B-025-0-23	LIC-161	40+08	26	Lt	23 CME 75-kc-777	73	1155.5	1154.5	1.0 C
26	B-026-0-23	LIC-161	43+84	30	Rt	23 CME 75-kc-777	73	1149.5	1148.5	1.0 C
27	B-027-0-23	LIC-161	47+99	30	Lt	23 CME 75-kc-777	73	1148.7	1147.7	1.0 C
28	B-028-0-23	LIC-161	51+82	31	Rt	23 CME 75-kc-777	73	1151.8	1150.8	1.0 C
29	B-029-0-23	LIC-161	56+18	27	Lt	23 CME 75-kc-777	73	1153.7	1152.7	1.0 C
30	B-030-0-23	LIC-161	60+08	31	Rt	23 CME 75-kc-777	73	1153.3	1152.3	1.0 C
31	B-031-0-23	LIC-161	63+86	30	Lt	23 CME 75-kc-777	73	1152.5	1151.5	1.0 C
32	B-032-0-23	LIC-161	67+72	29	Rt	23 CME 75-kc-777	73	1151.3	1150.3	1.0 C
33	B-033-0-23	LIC-161	71+94	29	Lt	23 CME 75-kc-777	73	1150.4	1149.4	1.0 C
34	B-034-0-23	LIC-161	75+56	24	Rt	23 CME 75-kc-777	73	1149.2	1148.2	1.0 C
35	B-035-0-23	LIC-161	79+67	27	Lt	23 CME 75-kc-777	73	1148.1	1147.1	1.0 C
36	B-036-0-23	LIC-161	83+67	31	Rt	23 CME 75-kc-777	73	1147.5	1146.5	1.0 C
37	B-037-0-23	LIC-161	87+64	28	Lt	23 CME 75-kc-777	73	1148.9	1147.9	1.0 C
38	B-038-0-23	LIC-161	91+59	28	Rt	23 CME 75-kc-777	73	1155.1	1154.1	1.0 C
39	B-039-0-23	LIC-161	95+53	26	Lt	23 CME 75-kc-777	73	1160.9	1159.9	1.0 C
40	B-040-0-23	LIC-161	99+42	31	Rt	23 CME 75-kc-777	73	1167.6	1166.6	1.0 C
41	B-041-0-23	LIC-161	103+48	28	Lt	23 CME 75-kc-777	73	1173.3	1172.3	1.0 C
42	B-042-0-23	LIC-161	107+46	31	Rt	23 CME 75-kc-777	73	1179.8	1178.8	1.0 C
43	B-043-0-23	LIC-161	111+03	29	Lt	23 CME 75-kc-777	73	1184.8	1183.8	1.0 C
44	B-044-0-23	LIC-161	115+12	32	Rt	23 CME 75-kc-777	73	1191.7	1190.7	1.0 C
45	B-045-0-23	LIC-161	119+33	23	Lt	23 CME 75-kc-777	73	1197.4	1196.4	1.0 C

#	Boring ID	Alignment	Station	Offset	Dir	Drill Rig	ER	Boring EL.	Proposed Subgrade EL	Cut Fill
46	B-046-0-23	LIC-161	123+19	27	Rt	23 CME 75-kc-777	73	1197.6	1196.6	1.0 C
47	B-047-0-23	LIC-161	126+95	25	Lt	23 CME 75-kc-777	73	1194.3	1193.3	1.0 C
48	B-048-0-23	LIC-161	130+93	26	Rt	23 CME 75-kc-777	73	1190.4	1189.4	1.0 C
49	B-049-0-23	LIC-161	134+68	29	Lt	23 CME 75-kc-777	73	1190.1	1189.1	1.0 C
50	B-050-0-23	LIC-161	138+54	27	Rt	23 CME 75-kc-777	73	1192.4	1191.4	1.0 C
51	B-051-0-23	LIC-161	142+53	28	Lt	23 CME 75-kc-777	73	1194.4	1193.4	1.0 C
52	B-052-0-23	LIC-161	146+44	28	Rt	23 CME 75-kc-777	73	1196.7	1195.7	1.0 C
53	B-053-0-23	LIC-161	150+39	26	Lt	23 CME 75-kc-777	73	1198.5	1197.5	1.0 C
54	B-054-0-23	LIC-161	154+22	23	Rt	23 CME 75-kc-777	73	1201.5	1200.5	1.0 C
55	B-055-0-23	LIC-161	158+28	27	Lt	23 CME 75-kc-777	73	1204.0	1203.0	1.0 C
56	B-056-0-23	LIC-161	162+18	28	Rt	23 CME 75-kc-777	73	1206.4	1205.4	1.0 C
57	B-057-0-23	LIC-161	166+16	22	Lt	23 CME 75-kc-777	73	1208.1	1207.1	1.0 C
58	B-058-0-23	LIC-161	170+18	27	Rt	23 CME 75-kc-777	73	1211.4	1210.4	1.0 C
59	B-059-0-23	LIC-161	173+76	26	Lt	23 CME 75-kc-777	73	1213.2	1212.2	1.0 C
60	B-060-0-23	LIC-161	177+82	28	Rt	23 CME 75-kc-777	73	1215.9	1214.9	1.0 C
61	B-061-0-23	LIC-161	181+77	27	Lt	23 CME 75-kc-777	73	1218.3	1217.3	1.0 C
62	B-062-0-23	LIC-161	185+71	30	Rt	23 CME 75-kc-777	73	1221.3	1220.3	1.0 C
63	B-063-0-23	LIC-161	189+54	28	Lt	23 CME 75-kc-777	73	1223.3	1222.3	1.0 C
64	B-064-0-23	LIC-161	193+50	31	Rt	23 CME 75-kc-777	73	1225.9	1224.9	1.0 C
65	B-065-0-23	LIC-161	197+50	28	Lt	23 CME 75-kc-777	73	1228.0	1227.0	1.0 C
66	B-066-0-23	LIC-161	201+38	30	Rt	23 CME 75-kc-777	73	1229.8	1228.8	1.0 C
67	B-067-0-23	LIC-161	205+27	29	Lt	23 CME 75-kc-777	73	1227.0	1226.0	1.0 C
68	B-068-0-23	LIC-161	209+21	29	Rt	23 CME 75-kc-777	73	1223.9	1222.9	1.0 C
69	B-069-0-23	LIC-161	213+15	30	Lt	23 CME 75-kc-777	73	1220.9	1219.9	1.0 C
70	B-070-0-23	LIC-161	217+11	28	Rt	23 CME 75-kc-777	73	1217.3	1216.3	1.0 C
71	B-071-0-23	LIC-161	220+91	28	Lt	23 CME 75-kc-777	73	1214.2	1213.2	1.0 C
72	B-072-0-23	LIC-161	224+79	28	Rt	23 CME 75-kc-777	73	1211.5	1210.5	1.0 C
73	B-073-0-23	LIC-161	228+82	28	Lt	23 CME 75-kc-777	73	1208.5	1207.5	1.0 C
74	B-074-0-23	LIC-161	232+81	27	Rt	23 CME 75-kc-777	73	1204.6	1203.6	1.0 C
75	B-075-0-23	LIC-161	236+62	27	Lt	23 CME 75-kc-777	73	1201.7	1200.7	1.0 C
76	B-076-0-23	LIC-161	240+63	23	Rt	23 CME 75-kc-777	73	1198.7	1197.7	1.0 C
77	B-077-0-23	LIC-161	244+68	28	Lt	23 CME 75-kc-777	73	1195.6	1194.6	1.0 C
78	B-078-0-23	LIC-161	248+70	30	Rt	23 CME 75-kc-777	73	1192.6	1191.6	1.0 C
79	B-079-0-23	LIC-161	252+40	29	Lt	23 CME 75-kc-777	73	1189.2	1188.2	1.0 C
80	B-080-0-23	LIC-161	256+19	30	Rt	23 CME 75-kc-777	73	1186.6	1185.6	1.0 C
81	B-081-0-23	LIC-161	260+14	29	Lt	23 CME 75-kc-777	73	1183.4	1182.4	1.0 C
82	B-082-0-23	LIC-161	264+09	29	Rt	23 CME 75-kc-777	73	1180.1	1179.1	1.0 C
83	B-083-0-23	LIC-161	267+81	29	Lt	23 CME 75-kc-777	73	1177.5	1176.5	1.0 C
84	B-084-0-23	LIC-161	272+10	30	Rt	23 CME 75-kc-777	73	1173.7	1172.7	1.0 C
85	B-085-0-23	LIC-161	275+86	29	Lt	23 CME 75-kc-777	73	1171.0	1170.0	1.0 C
86	B-086-0-23	LIC-161	279+68	29	Rt	23 CME 75-kc-777	73	1168.2	1167.2	1.0 C
87	B-087-0-23	LIC-161	283+68	28	Lt	23 CME 75-kc-777	73	1164.5	1163.5	1.0 C
88	B-088-0-23	LIC-161	287+65	30	Rt	23 CME 75-kc-777	73	1161.4	1160.4	1.0 C
89	B-089-0-23	LIC-161	291+72	29	Lt	23 CME 75-kc-777	73	1158.2	1157.2	1.0 C
90	B-090-0-23	LIC-161	295+74	31	Rt	23 CME 75-kc-777	73	1155.1	1154.1	1.0 C

#	Boring ID	Alignment	Station	Offset	Dir	Drill Rig	ER	Boring EL.	Proposed Subgrade EL	Cut Fill
91	B-091-0-23	LIC-161	299+50	27	Lt	23 CME 75-kc-777	73	1151.7	1150.7	1.0 C
92	B-092-0-23	LIC-161	303+64	31	Rt	23 CME 75-kc-777	73	1149.0	1148.0	1.0 C
93	B-093-0-23	LIC-161	307+67	28	Lt	23 CME 75-kc-777	73	1145.3	1144.3	1.0 C
94	B-094-0-23	LIC-161	311+43	28	Rt	23 CME 75-kc-777	73	1141.1	1140.1	1.0 C
95	B-095-0-23	LIC-161	315+47	20	Lt	23 CME 75-kc-777	73	1133.9	1132.9	1.0 C
96	B-096-0-23	LIC-161	319+57	30	Rt	23 CME 75-kc-777	73	1127.0	1126.0	1.0 C
97	B-097-0-23	LIC-161	323+38	26	Lt	23 CME 75-kc-777	73	1119.7	1118.7	1.0 C
98	B-098-0-23	LIC-161	327+20	30	Rt	23 CME 75-kc-777	73	1113.4	1112.4	1.0 C
99	B-099-0-23	LIC-161	331+40	28	Lt	23 CME 75-kc-777	73	1105.8	1104.8	1.0 C
100	B-100-0-23	LIC-161	335+16	29	Rt	23 CME 75-kc-777	73	1099.4	1098.4	1.0 C
101	B-101-0-23	LIC-161	339+04	28	Lt	23 CME 75-kc-777	73	1092.6	1091.6	1.0 C
102	B-102-0-23	LIC-161	343+31	25	Rt	23 CME 75-kc-777	73	1085.3	1084.3	1.0 C
103	B-103-0-23	LIC-161	347+36	28	Lt	23 CME 75-kc-777	73	1077.7	1076.7	1.0 C
104	B-104-0-23	LIC-161	350+90	28	Rt	23 CME 75-kc-777	73	1072.1	1071.1	1.0 C
105	B-105-0-23	LIC-161	355+15	25	Lt	23 CME 75-kc-777	73	1067.5	1066.5	1.0 C
106	B-106-0-23	LIC-161	359+10	27	Rt	23 CME 75-kc-777	73	1063.3	1062.3	1.0 C
107	B-107-0-23	LIC-161	363+11	26	Lt	23 CME 75-kc-777	73	1058.3	1057.3	1.0 C
108	B-108-0-23	LIC-161	366+71	27	Rt	23 CME 75-kc-777	73	1054.1	1053.1	1.0 C
109	B-109-0-23	LIC-161	370+86	23	Lt	23 CME 75-kc-777	73	1048.9	1047.9	1.0 C
110	B-110-0-23	LIC-161	374+82	28	Rt	23 CME 75-kc-777	73	1045.9	1044.9	1.0 C
111	B-111-0-23	LIC-161	379+06	26	Lt	23 CME 75-kc-777	73	1050.8	1049.8	1.0 C
112	B-112-0-23	LIC-161	382+70	30	Rt	23 CME 75-kc-777	73	1056.1	1055.1	1.0 C
113	B-113-0-23	LIC-161	386+80	28	Lt	23 CME 75-kc-777	73	1062.3	1061.3	1.0 C
114	B-114-0-23	LIC-161	390+60	29	Rt	23 CME 75-kc-777	73	1063.0	1062.0	1.0 C
115	B-115-0-23	LIC-161	394+64	28	Lt	23 CME 75-kc-777	73	1056.8	1055.8	1.0 C
116	B-116-0-23	LIC-161	398+62	29	Rt	23 CME 75-kc-777	73	1048.8	1047.8	1.0 C
117	B-117-0-23	LIC-161	402+84	27	Lt	23 CME 75-kc-777	73	1039.7	1038.7	1.0 C
118	B-118-0-23	LIC-161	406+53	29	Rt	23 CME 75-kc-777	73	1033.6	1032.6	1.0 C
119	B-119-0-23	LIC-161	410+60	25	Lt	23 CME 75-kc-777	73	1030.6	1029.6	1.0 C
120	B-120-0-23	LIC-161	414+38	30	Rt	23 CME 75-kc-777	73	1029.5	1028.5	1.0 C
121	B-121-0-23	LIC-161	418+45	29	Lt	23 CME 75-kc-777	73	1027.3	1026.3	1.0 C
122	B-122-0-23	LIC-161	422+22	28	Rt	23 CME 75-kc-777	73	1025.1	1024.1	1.0 C
123	B-123-0-23	LIC-161	426+24	26	Lt	23 CME 75-kc-777	73	1022.8	1021.8	1.0 C
124	B-124-0-23	LIC-161	430+19	29	Rt	23 CME 75-kc-777	73	1019.7	1018.7	1.0 C
125	B-125-0-23	LIC-161	434+23	28	Lt	23 CME 75-kc-777	73	1014.8	1013.8	1.0 C
126	B-126-0-23	LIC-161	438+34	30	Rt	23 CME 75-kc-777	73	1008.9	1007.9	1.0 C
127	B-127-0-23	LIC-161	442+15	28	Lt	23 CME 75-kc-777	73	1004.4	1003.4	1.0 C
128	B-128-0-23	LIC-161	445+99	30	Rt	23 CME 75-kc-777	73	998.8	997.8	1.0 C
129	B-129-0-23	LIC-161	450+00	31	Lt	23 CME 75-kc-777	73	993.8	992.8	1.0 C
130	B-130-0-23	LIC-161	454+02	29	Rt	23 CME 75-kc-777	73	991.2	990.2	1.0 C
131	B-131-0-23	LIC-161	457+89	29	Lt	23 CME 75-kc-777	73	989.6	988.6	1.0 C
132	B-132-0-23	LIC-161	461+81	27	Rt	23 CME 75-kc-777	73	987.2	986.2	1.0 C
133	B-133-0-23	LIC-161	465+94	25	Lt	23 CME 75-kc-777	73	987.5	986.5	1.0 C
134	B-134-0-23	LIC-161	469+83	26	Rt	23 CME 75-kc-777	73	991.4	990.4	1.0 C
135	B-135-0-23	LIC-161	473+79	29	Lt	23 CME 75-kc-777	73	989.9	988.9	1.0 C

#	Boring ID	Alignment	Station	Offset	Dir	Drill Rig	ER	Boring EL.	Proposed Subgrade EL	Cut Fill
136	B-136-0-23	LIC-161	477+57	28	Rt	23 CME 75-kc-777	73	983.6	982.6	1.0 C
137	B-137-0-23	LIC-161	481+39	24	Lt	23 CME 75-kc-777	73	977.7	976.7	1.0 C
138	B-138-0-23	LIC-161	485+21	25	Rt	23 CME 75-kc-777	73	975.4	974.4	1.0 C
139	B-139-0-23	LIC-161	489+21	27	Lt	23 CME 75-kc-777	73	977.5	976.5	1.0 C
140	B-140-0-23	LIC-161	493+18	28	Rt	23 CME 75-kc-777	73	984.9	983.9	1.0 C
141	B-141-0-23	LIC-161	496+82	27	Lt	23 CME 75-kc-777	73	992.0	991.0	1.0 C
142	B-142-0-23	LIC-161	500+77	27	Rt	23 CME 75-kc-777	73	1001.4	1000.4	1.0 C
143	B-143-0-23	LIC-161	505+04	28	Lt	23 CME 75-kc-777	73	1006.5	1005.5	1.0 C
144	B-144-0-23	LIC-161	508+75	27	Rt	23 CME 75-kc-777	73	1004.5	1003.5	1.0 C
145	B-145-0-23	LIC-161	512+63	29	Lt	23 CME 75-kc-777	73	996.8	995.8	1.0 C
146	B-146-0-23	LIC-161	516+63	29	Rt	23 CME 75-kc-777	73	985.1	984.1	1.0 C
147	B-147-0-23	LIC-161	520+62	29	Lt	23 CME 75-kc-777	73	972.7	971.7	1.0 C
148	B-148-0-23	LIC-161	524+29	28	Rt	23 CME 75-kc-777	73	961.7	960.7	1.0 C
149	B-149-0-23	LIC-161	528+46	28	Rt	23 CME 75-kc-777	73	950.7	949.7	1.0 C
150	B-150-0-23	LIC-161	532+30	28	Lt	23 CME 75-kc-777	73	946.5	945.5	1.0 C
151	B-151-0-23	LIC-161	536+44	30	Rt	23 CME 75-kc-777	73	948.4	947.4	1.0 C
152	B-152-0-23	LIC-161	540+38	26	Lt	23 CME 75-kc-777	73	949.8	948.8	1.0 C
153	B-153-0-23	LIC-161	544+29	26	Rt	23 CME 75-kc-777	73	950.7	949.7	1.0 C
154	B-154-0-23	LIC-161	548+35	28	Lt	23 CME 75-kc-777	73	948.6	947.6	1.0 C
155	B-155-0-23	LIC-161	552+31	24	Rt	23 CME 75-kc-777	73	946.5	945.5	1.0 C
156	B-156-0-23	LIC-161	556+35	19	Lt	23 CME 75-kc-777	73	944.5	943.5	1.0 C
157	B-157-0-23	LIC-161	560+28	14	Rt	23 CME 75-kc-777	73	943.0	942.0	1.0 C
158	B-158-0-23	LIC-161	564+14	12	Lt	23 CME 75-kc-777	73	940.8	939.8	1.0 C
159	B-159-0-23	LIC-161	568+11	15	Rt	23 CME 75-kc-777	73	938.8	937.8	1.0 C
160	B-160-0-23	LIC-161	571+94	14	Lt	23 CME 75-kc-777	73	936.8	935.8	1.0 C
161	B-161-0-23	LIC-161	576+37	12	Rt	23 CME 75-kc-777	73	934.9	933.9	1.0 C
162	B-162-0-23	LIC-161	580+37	8	Lt	23 CME 75-kc-777	73	932.1	931.1	1.0 C
163	B-163-0-23	LIC-161	584+20	16	Rt	23 CME 75-kc-777	73	929.9	928.9	1.0 C
164	B-164-0-23	LIC-161	588+15	10	Lt	23 CME 75-kc-777	73	927.8	926.8	1.0 C
165	B-165-0-23	LIC-161	592+25	15	Rt	23 CME 75-kc-777	73	926.9	925.9	1.0 C
166	B-166-0-23	LIC-161	596+03	13	Lt	23 CME 75-kc-777	73	926.0	925.0	1.0 C
167	B-167-0-23	LIC-161	600+03	14	Rt	23 CME 75-kc-777	73	924.8	923.8	1.0 C
168	B-168-0-23	LIC-161	604+08	14	Lt	23 CME 75-kc-777	73	923.7	922.7	1.0 C
169	B-169-0-23	LIC-161	608+17	16	Rt	23 CME 75-kc-777	73	922.6	921.6	1.0 C
170	B-170-0-23	LIC-161	612+03	12	Lt	23 CME 75-kc-777	73	921.9	920.9	1.0 C
171	B-171-0-23	LIC-161	615+92	14	Rt	23 CME 75-kc-777	73	920.7	919.7	1.0 C
172	B-172-0-23	LIC-161	619+86	12	Lt	23 CME 75-kc-777	73	919.8	918.8	1.0 C
173	B-173-0-23	LIC-161	623+83	15	Rt	23 CME 75-kc-777	73	918.8	917.8	1.0 C
174	B-174-0-23	LIC-161	627+79	13	Lt	23 CME 75-kc-777	73	918.2	917.2	1.0 C
175	B-175-0-23	LIC-161	631+52	16	Rt	23 CME 75-kc-777	73	917.1	916.1	1.0 C
176	B-176-0-23	LIC-161	636+46	12	Lt	23 CME 75-kc-777	73	917.8	916.8	1.0 C
177	B-177-0-23	LIC-161	639+67	14	Rt	23 CME 75-kc-777	73	918.0	917.0	1.0 C
178	B-178-0-23	LIC-161	643+46	12	Lt	23 CME 75-kc-777	73	919.7	918.7	1.0 C

OHIO DEPARTMENT OF TRANSPORTATION

Subgrade Analysis

V. 14.6 2/11/2022

#	Boring	Sample	Sample Depth		Subgrade Depth		Standard Penetration		HP (tsf)	Physical Characteristics						Moisture		Ohio DOT		Sulfate Content (ppm)	Problem		Excavate and Replace (Item 204)		Recommendation (Enter depth in inches)
			From	To	From	To	N_{60}	N_{60L}		LL	PL	PI	% Silt	% Clay	P200	M_C	M_{OPT}	Class	GI		Unsuitable	Unstable	Unsuitable	Unstable	
1	B	SS-1	1.0	2.5	0.0	1.5	11		4.5	33	18	15	29	37	66	14	14	A-6a	8	250		N_{60}		12"	12"
	001-0	SS-2	2.5	4.0	1.5	3.0	8		2.75							19	14	A-6a	10			N_{60} & Mc			204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	8		1.5	33	20	13	29	35	64	16	15	A-6a	7						
		SS-4	5.5	7.0	4.5	6.0	10	8	4.5							19	14	A-6a	10						
2	B	SS-1	1.0	2.5	0.0	1.5	21		3.5	27	17	10	40	32	72	13	12	A-4a	7	240					
	002-0	SS-2	2.5	4.0	1.5	3.0	34		3.5	41	22	19	27	43	70	14	19	A-7-6	11						
	23	SS-3	4.0	5.5	3.0	4.5	34		4.5							9	18	A-7-6	16						
		SS-4	5.5	7.0	4.5	6.0	15	15	4.5							14	18	A-7-6	16						
3	B	SS-1	1.0	2.5	0.0	1.5	18		4.5	29	17	12	30	34	64	13	14	A-6a	7						12"
	003-0	SS-2	2.5	4.0	1.5	3.0	25		4.5	47	21	26	32	58	90	26	18	A-7-6	16	180		Mc			204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	19		4.5							17	18	A-7-6	16						
		SS-4	5.5	7.0	4.5	6.0	16	16	3.5							62	18	A-7-6	16						
4	B	SS-1	1.0	2.5	0.0	1.5	22		4.5	35	12	23	34	44	78	14	16	A-6b	13	260					
	004-0	SS-2	2.5	4.0	1.5	3.0	17		4.5							12	16	A-6b	16						
	23	SS-3	4.0	5.5	3.0	4.5	17		2.75	38	20	18	34	45	79	23	16	A-6b	11						
		SS-4	5.5	7.0	4.5	6.0	16	16	3							12	16	A-6b	16						
5	B	SS-1	1.0	2.5	0.0	1.5	24		4.5	25	16	9	36	30	66	13	11	A-4a	6	240					
	005-0	SS-2	2.5	4.0	1.5	3.0	30		4.5	31	19	12	29	28	57	15	14	A-6a	5						
	23	SS-3	4.0	5.5	3.0	4.5	47		4.5							13	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	37	24	4.5							15	14	A-6a	10						
6	B	SS-1	1.0	2.5	0.0	1.5	18		4.5	29	18	11	34	32	66	14	14	A-6a	7	270					
	006-0	SS-2	2.5	4.0	1.5	3.0	13		4.5	31	18	13	25	24	49	14	14	A-6a	4						
	23	SS-3	4.0	5.5	3.0	4.5	13		4.5							16	18	A-7-6	16						
		SS-4	5.5	7.0	4.5	6.0	13	13	3							17	18	A-7-6	16						
7	B	SS-1	1.0	2.5	0.0	1.5	12		4.5	30	24	6	38	37	75	17	19	A-4a	8	180					12"
	007-0	SS-2	2.5	4.0	1.5	3.0	21		4.5							20	10	A-4a	8			Mc			204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	17		3	36	18	18	35	38	73	18	16	A-6b	11						
		SS-4	5.5	7.0	4.5	6.0	22	12	3.75							20	10	A-4a	8						
8	B	SS-1	1.0	2.5	0.0	1.5	12		4.5	35	18	17	35	33	68	16	16	A-6b	9	220					12"
	008-0	SS-2	2.5	4.0	1.5	3.0	16		2.75	39	19	20	36	49	85	24	16	A-6b	12			Mc			204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	15		2.5							20	16	A-6b	16						
		SS-4	5.5	7.0	4.5	6.0	17	12	2							16	16	A-6b	16						
9	B	SS-1	1.0	2.5	0.0	1.5	16		4.5	36	19	17	28	24	52	16	16	A-6b	6	230					12"
	009-0	SS-2	2.5	4.0	1.5	3.0	15		4.5	44	19	25	39	44	83	21	18	A-7-6	15			Mc			204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	15		3.5							22	18	A-7-6	16						
		SS-4	5.5	7.0	4.5	6.0	10	10	1.75							22	16	A-6b	16						

OHIO DEPARTMENT OF TRANSPORTATION

Subgrade Analysis

V. 14.6 2/11/2022

#	Boring	Sample	Sample Depth		Subgrade Depth		Standard Penetration		HP (tsf)	Physical Characteristics						Moisture		Ohio DOT		Sulfate Content (ppm)	Problem		Excavate and Replace (Item 204)		Recommendation (Enter depth in inches)
			From	To	From	To	N_{60}	N_{60L}		LL	PL	PI	% Silt	% Clay	P200	M_C	M_{OPT}	Class	GI		Unsuitable	Unstable	Unsuitable	Unstable	
10	B	SS-1	1.0	2.5	0.0	1.5	19		4.5	25	16	9	31	30	61	13	11	A-4a	5	210					
	010-0	SS-2	2.5	4.0	1.5	3.0	35		4.5							13	10	A-4a	8			Mc			
	23	SS-3	4.0	5.5	3.0	4.5	22		4.5							13	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	13	13		NP	NP	NP	23	16	39	16	11	A-4a	1						
11	B	SS-1	1.0	2.5	0.0	1.5	7		1	33	23	10	36	36	72	21	18	A-4a	7	210		HP & Mc		15"	15"
	011-0	SS-2	2.5	4.0	1.5	3.0	18		3.75	43	19	24	37	51	88	24	18	A-7-6	14			Mc			204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	12		3.75							25	18	A-7-6	16						
		SS-4	5.5	7.0	4.5	6.0	18	7	4.5							14	16	A-6b	16						
12	B	SS-1	1.0	2.5	0.0	1.5	8		4.5	33	17	16	39	38	77	16	16	A-6b	10	150		N_{60}		12"	12"
	012-0	SS-2	2.5	4.0	1.5	3.0	16		4.5	26	16	10	37	30	67	15	11	A-4a	6			Mc			204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	13		3.5							14	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	25	8	2							16	10	A-4a	8						
13	B	SS-1	1.0	2.5	0.0	1.5	8		4.5	35	19	16	39	42	81	18	16	A-6b	10	190		N_{60}		12"	12"
	013-0	SS-2	2.5	4.0	1.5	3.0	22		4.5							18	16	A-6b	16						204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	16		4.5	39	19	20	14	43	57	21	16	A-6b	8						
		SS-4	5.5	7.0	4.5	6.0	24	8	4.5							14	16	A-6b	16						
14	B	SS-1	1.0	2.5	0.0	1.5	8		3.75	30	18	12	39	36	75	18	14	A-6a	9	210		N_{60} & Mc		12"	12"
	014-0	SS-2	2.5	4.0	1.5	3.0	6			NP	NP	NP	18	16	34	12	10	A-2-4	0			N_{60}			861 Geogrid
	23	SS-3	4.0	5.5	3.0	4.5	13									17	10	A-2-4	0						
		SS-4	5.5	7.0	4.5	6.0	45	6								16	6	A-1-b	0						
15	B	SS-1	1.0	2.5	0.0	1.5	6		2	31	19	12	40	37	77	23	14	A-6a	9	380		N_{60} & Mc		18"	12"
	015-0	SS-2	2.5	4.0	1.5	3.0	12		3							23	14	A-6a	10			N_{60} & Mc			861 Geogrid
	23	SS-3	4.0	5.5	3.0	4.5	15		3.75	43	16	27	28	18	46	19	18	A-7-6	8						
		SS-4	5.5	7.0	4.5	6.0	22	6	4.5							14	18	A-7-6	16						
16	B	SS-1	1.0	2.5	0.0	1.5	11		3	30	18	12	40	34	74	16	14	A-6a	9	640		N_{60}		12"	12"
	016-0	SS-2	2.5	4.0	1.5	3.0	12		4	36	21	15	40	37	77	24	16	A-6a	10			N_{60} & Mc			204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	30		3.5							14	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	80	11	4.5							11	16	A-6b	16						
17	B	SS-1	1.0	2.5	0.0	1.5	13		3.5	36	18	18	38	35	73	13	16	A-6b	11	220					
	017-0	SS-2	2.5	4.0	1.5	3.0	15		2.75	34	17	17	32	31	63	16	16	A-6b	8						
	23	SS-3	4.0	5.5	3.0	4.5	21		3.25							21	16	A-6b	16						
		SS-4	5.5	7.0	4.5	6.0	54	13	4.5							22	16	A-6b	16						
18	B	SS-1	1.0	2.5	0.0	1.5	13		4.5	25	15	10	28	22	50	13	10	A-4a	3	310		N_{60} & Mc		12"	15"
	018-0	SS-2	2.5	4.0	1.5	3.0	13		1.75							14	10	A-4a	8			HP & Mc			204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	7		1.5	32	21	11	35	33	68	27	16	A-6a	7						
		SS-4	5.5	7.0	4.5	6.0	11	7	1.25							21	14	A-6a	10						

#	Boring	Sample	Sample Depth		Subgrade Depth		Standard Penetration		HP (tsf)	Physical Characteristics						Moisture		Ohio DOT		Sulfate Content (ppm)	Problem		Excavate and Replace (Item 204)		Recommendation (Enter depth in inches)
			From	To	From	To	N_{60}	N_{60L}		LL	PL	PI	% Silt	% Clay	P200	M_C	M_{OPT}	Class	GI		Unsuitable	Unstable	Unsuitable	Unstable	
19	B	SS-1	1.0	2.5	0.0	1.5	10		3.5	38	21	17	38	43	81	26	16	A-6b	11	360		N_{60} & Mc		**12"**	**12"**
	019-0	SS-2	2.5	4.0	1.5	3.0	15		4							17	16	A-6b	16						**204 Geotextile**
	23	SS-3	4.0	5.5	3.0	4.5	15		3	25	9	16	32	26	58	14	16	A-6b	7						
		SS-4	5.5	7.0	4.5	6.0	24	10	4.5							14	16	A-6b	16						
20	B	SS-1	1.0	2.5	0.0	1.5	8		3	28	17	11	33	33	66	17	14	A-6a	7	180		N_{60} & Mc		**12"**	**15"**
	020-0	SS-2	2.5	4.0	1.5	3.0	5		2.75	28	16	12	37	35	72	19	14	A-6a	8			N_{60} & Mc			**861 Geogrid**
	23	SS-3	4.0	5.5	3.0	4.5	8		3							16	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	27	5	4.5							9	14	A-6a	10						
21	B	SS-1	1.0	2.5	0.0	1.5	6		1	36	18	18	36	37	73	19	16	A-6b	11	420		HP & Mc		**18"**	**12"**
	021-0	SS-2	2.5	4.0	1.5	3.0	11		1.75	30	16	14	37	32	69	19	14	A-6a	8			HP & Mc			**861 Geogrid**
	23	SS-3	4.0	5.5	3.0	4.5	6		1.75							25	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	16	6	3.5							19	14	A-6a	10						
22	B	SS-1	1.0	2.5	0.0	1.5	6		2	30	18	12	36	33	69	17	14	A-6a	8	200		N_{60} & Mc		**18"**	**12"**
	022-0	SS-2	2.5	4.0	1.5	3.0	11		2.5							20	14	A-6a	10			N_{60} & Mc			**861 Geogrid**
	23	SS-3	4.0	5.5	3.0	4.5	10		4.5	26	16	10	35	31	66	14	11	A-4a	6						
		SS-4	5.5	7.0	4.5	6.0	18	6	3							15	10	A-4a	8						
23	B	SS-1	1.0	2.5	0.0	1.5	25			18	17	1	12	6	18	5	6	A-1-b	0	180					
	023-0	SS-2	2.5	4.0	1.5	3.0	25			NP	NP	NP	14	7	21	6	6	A-1-b	0						
	23	SS-3	4.0	5.5	3.0	4.5	39									3	6	A-1-b	0						
		SS-4	5.5	7.0	4.5	6.0	46	25								7	6	A-1-b	0						
24	B	SS-1	1.0	2.5	0.0	1.5	12		4.5	27	18	9	40	30	70	14	13	A-4a	7	<100					**12"**
	024-0	SS-2	2.5	4.0	1.5	3.0	13		1.5	30	19	11	38	42	80	20	14	A-6a	8			HP & Mc			**204 Geotextile**
	23	SS-3	4.0	5.5	3.0	4.5	17		2							20	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	21	12	2.5							14	14	A-6a	10						
25	B	SS-1	1.0	2.5	0.0	1.5	12		4.25	39	18	21	41	36	77	19	16	A-6b	12	1000		N_{60} & Mc		**12"**	**12"**
	025-0	SS-2	2.5	4.0	1.5	3.0	17		2.5							18	16	A-6b	16						**204 Geotextile**
	23	SS-3	4.0	5.5	3.0	4.5	17		1.5	43	20	23	37	47	84	23	18	A-7-6	14						
		SS-4	5.5	7.0	4.5	6.0	19	12	4.25							12	16	A-6b	16						
26	B	SS-1	1.0	2.5	0.0	1.5	8		4.5	34	18	16	40	41	81	21	16	A-6b	10	110		N_{60} & Mc		**12"**	**12"**
	026-0	SS-2	2.5	4.0	1.5	3.0	30		4.5	31	19	12	41	37	78	17	14	A-6a	9			Mc			**204 Geotextile**
	23	SS-3	4.0	5.5	3.0	4.5	16		4.5							16	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	24	8	4.5							12	14	A-6a	10						
27	B	SS-1	1.0	2.5	0.0	1.5	17		4.5	35	19	16	38	41	79	18	16	A-6b	10	270					
	027-0	SS-2	2.5	4.0	1.5	3.0	21		4.5							15	16	A-6b	16						
	23	SS-3	4.0	5.5	3.0	4.5	18		2.75	37	18	19	39	43	82	20	16	A-6b	12						
		SS-4	5.5	7.0	4.5	6.0	18	17	3							8	16	A-6b	16						

#	Boring	Sample	Sample Depth		Subgrade Depth		Standard Penetration		HP (tsf)	Physical Characteristics						Moisture		Ohio DOT		Sulfate Content (ppm)	Problem		Excavate and Replace (Item 204)		Recommendation (Enter depth in inches)
			From	To	From	To	N_{60}	N_{60L}		LL	PL	PI	% Silt	% Clay	P200	M_C	M_{OPT}	Class	GI		Unsuitable	Unstable	Unsuitable	Unstable	
28	B	SS-1	1.0	2.5	0.0	1.5	11		4.5	29	18	11	32	36	68	14	14	A-6a	7	620		N_{60}		12"	12"
	028-0	SS-2	2.5	4.0	1.5	3.0	21		4.5	31	17	14	38	38	76	15	14	A-6a	10						204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	12		4.5							21	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	13	11	3.25							11	14	A-6a	10						
29	B	SS-1	1.0	2.5	0.0	1.5	17		3	37	19	18	34	44	78	18	16	A-6b	11	110					
	029-0	SS-2	2.5	4.0	1.5	3.0	17		3.25	34	19	15	46	37	83	18	14	A-6a	10			Mc			
	23	SS-3	4.0	5.5	3.0	4.5	22		4.5							14	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	23	17	4							13	14	A-6a	10						
30	B	SS-1	1.0	2.5	0.0	1.5	7		4.5							13	10	A-4a	8	<100		N_{60} & Mc		15"	15"
	030-0	SS-2	2.5	4.0	1.5	3.0	25		4.5	26	16	10				14	11	A-4a	8			Mc			204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	25		4.5							17	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	17	7	4	28	19	9	50	32	82	17	14	A-4b	8						
31	B	SS-1	1.0	2.5	0.0	1.5	10		2.25	33	18	15	37	41	78	19	14	A-6a	10	1100		N_{60} & Mc		12"	12"
	031-0	SS-2	2.5	4.0	1.5	3.0	19		2.5	35	18	17	36	44	80	14	16	A-6b	11						204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	21		4.5							14	16	A-6b	16						
		SS-4	5.5	7.0	4.5	6.0	19	10	4.5								16	A-6b	16						
32	B	SS-1	1.0	2.5	0.0	1.5	12		4.5	33	20	13	37	35	72	18	15	A-6a	9	260		N_{60} & Mc		12"	12"
	032-0	SS-2	2.5	4.0	1.5	3.0	34		4.5	32	17	15	38	38	76	14	14	A-6a	10						204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	25		4							18	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	19	12	4.5							19	14	A-6a	10						
33	B	SS-1	1.0	2.5	0.0	1.5	16		4.5	31	16	15	39	33	72	15	14	A-6a	9	510					
	033-0	SS-2	2.5	4.0	1.5	3.0	27		4.5							12	14	A-6a	10						
	23	SS-3	4.0	5.5	3.0	4.5	17		3.75							20	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	18	16	2.5	30	18	12	39	33	72	20	14	A-6a	8						
34	B	SS-1	1.0	2.5	0.0	1.5	15		4.5	31	19	12	33	28	61	16	14	A-6a	6	310					
	034-0	SS-2	2.5	4.0	1.5	3.0	17		1.75	41	23	18	38	50	88	23	20	A-7-6	11			HP & Mc			
	23	SS-3	4.0	5.5	3.0	4.5	21		2.75							17	16	A-6b	16						
		SS-4	5.5	7.0	4.5	6.0	18	15	4.25							14	16	A-6b	16						
35	B	SS-1	1.0	2.5	0.0	1.5	13		4.25	31	16	15	43	36	79	18	14	A-6a	10	920		N_{60} & Mc		12"	15"
	035-0	SS-2	2.5	4.0	1.5	3.0	18		4.5							13	14	A-6a	10						204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	11		2.5	26	16	10	26	21	47	15	11	A-4a	2						
		SS-4	5.5	7.0	4.5	6.0	7	7	1.25							17	10	A-4a	8						
36	B	SS-1	1.0	2.5	0.0	1.5	6		4	29	17	12	37	37	74	17	14	A-6a	9	460		N_{60} & Mc		18"	12"
	036-0	SS-2	2.5	4.0	1.5	3.0	11		2.5							19	14	A-6a	10			N_{60} & Mc			861 Geogrid
	23	SS-3	4.0	5.5	3.0	4.5	15		2	34	21	13	36	29	65	20	16	A-6a	7						
		SS-4	5.5	7.0	4.5	6.0	10	6	1.25							17	14	A-6a	10						

#	Boring	Sample	Sample Depth		Subgrade Depth		Standard Penetration		HP (tsf)	Physical Characteristics						Moisture		Ohio DOT		Sulfate Content (ppm)	Problem		Excavate and Replace (Item 204)		Recommendation (Enter depth in inches)
			From	To	From	To	N_{60}	N_{60L}		LL	PL	PI	% Silt	% Clay	P200	M_C	M_{OPT}	Class	GI		Unsuitable	Unstable	Unsuitable	Unstable	
37	B	SS-1	1.0	2.5	0.0	1.5	16		4	24	15	9	46	41	87	17	10	A-4a	8	4900		Mc			
	037-0	SS-2	2.5	4.0	1.5	3.0	18		4.5	23	16	7	43	24	67	11	11	A-4a	6						
	23	SS-3	4.0	5.5	3.0	4.5	19		4.5							12	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	19	16	4.5							13	10	A-4a	8						
38	B	SS-1	1.0	2.5	0.0	1.5	17		4.5	27	17	10	35	30	65	13	12	A-4a	6	290					
	038-0	SS-2	2.5	4.0	1.5	3.0	22		4.5	24	16	8	37	30	67	14	11	A-4a	6			Mc			
	23	SS-3	4.0	5.5	3.0	4.5	13		4.5							13	16	A-6b	16						
		SS-4	5.5	7.0	4.5	6.0	21	13	4.5							14	16	A-6b	16						
39	B	SS-1	1.0	2.5	0.0	1.5	12		4.5	24	15	9	40	25	65	12	10	A-4a	6	170					**12" 204 Geotextile**
	039-0	SS-2A	2.5	3.3	1.5	2.3	16		4.5	23	14	9	32	21	53	19	10	A-4a	4			Mc			
	23	SS-3	4.0	5.5	3.0	4.5	16		3.5							13	16	A-6b	16						
		SS-4	5.5	7.0	4.5	6.0	25	12	4							10	16	A-6b	16						
40	B	SS-1	1.0	2.5	0.0	1.5	7		3	29	18	11	36	27	63	15	14	A-6a	6	120		N_{60}		**15"**	**15" 204 Geotextile**
	040-0	SS-2	2.5	4.0	1.5	3.0	8		4.5	34	18	16	34	32	66	13	16	A-6b	9			N_{60}			
	23	SS-3	4.0	5.5	3.0	4.5	16		2							14	16	A-6b	16						
		SS-4	5.5	7.0	4.5	6.0	17	7	4.5							14	16	A-6b	16						
41	B	SS-1	1.0	2.5	0.0	1.5	23		4.5	24	16	8	41	26	67	10	11	A-4a	6	4900					
	041-0	SS-2	2.5	4.0	1.5	3.0	16		4.5	21	15	6	35	22	57	11	10	A-4a	4						
	23	SS-3	4.0	5.5	3.0	4.5	21		4.5							10	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	23	16	3.5							14	10	A-4a	8						
42	B	SS-1	1.0	2.5	0.0	1.5	18		4.5	24	15	9	37	26	63	11	10	A-4a	6	400					
	042-0	SS-2	2.5	4.0	1.5	3.0	24		4.5	22	14	8	23	17	40	8	10	A-4a	1						
	23	SS-3	4.0	5.5	3.0	4.5	21		4.5							11	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	24	18	4.5							11	10	A-4a	8						
43	B	SS-1	1.0	2.5	0.0	1.5	11		1.5	31	19	12	42	36	78	19	14	A-6a	9	190		HP & Mc		**12"**	**12" 204 Geotextile**
	043-0	SS-2	2.5	4.0	1.5	3.0	12		1	32	18	14	43	36	79	22	14	A-6a	10			HP & Mc			
	23	SS-3	4.0	5.5	3.0	4.5	21		4.5							13	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	15	11	4.5							11	14	A-6a	10						
44	B	SS-1	1.0	2.5	0.0	1.5	11		3	27	16	11	37	26	63	15	14	A-6a	6	190		N_{60}		**12"**	**12" 204 Geotextile**
	044-0	SS-2	2.5	4.0	1.5	3.0	22		4.25	30	14	16	38	36	74	16	16	A-6b	10						
	23	SS-3	4.0	5.5	3.0	4.5	15		1.5							16	16	A-6b	16						
		SS-4	5.5	7.0	4.5	6.0	17	11	3.5							9	16	A-6b	16						
45	B	SS-1	1.0	2.5	0.0	1.5	50			18	17	1	4	19	23	6	6	A-1-b	0	440					
	045-0	SS-2	2.5	4.0	1.5	3.0	54			NP	NP	NP	10	9	19	5	6	A-1-b	0						
	23	SS-3	4.0	5.5	3.0	4.5	68									6	6	A-1-b	0						
		SS-4	5.5	7.0	4.5	6.0	87	30								7	6	A-1-b	0						

#	Boring	Sample	Sample Depth		Subgrade Depth		Standard Penetration		HP (tsf)	Physical Characteristics						Moisture		Ohio DOT		Sulfate Content (ppm)	Problem		Excavate and Replace (Item 204)		Recommendation (Enter depth in inches)
			From	To	From	To	N_{60}	N_{60L}		LL	PL	PI	% Silt	% Clay	P200	M_C	M_{OPT}	Class	GI		Unsuitable	Unstable	Unsuitable	Unstable	
46	B	SS-1	1.0	2.5	0.0	1.5	7		2.75	35	19	16	42	38	80	19	16	A-6b	10	190		N_{60} & Mc		15"	15"
	046-0	SS-2	2.5	4.0	1.5	3.0	15		2.75	35	17	18	37	34	71	18	16	A-6b	10						204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	16		2.5							18	16	A-6b	16						
		SS-4	5.5	7.0	4.5	6.0	22	7	4.5							13	16	A-6b	16						
47	B	SS-1	1.0	2.5	0.0	1.5	13		4.5	26	16	10	32	29	61	11	11	A-4a	5	1600					
	047-0	SS-2	2.5	4.0	1.5	3.0	23		4.5	30	16	14	47	36	83	13	14	A-6a	10						
	23	SS-3	4.0	5.5	3.0	4.5	25		4							14	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	24	13	4.5							13	14	A-6a	10						
48	B	SS-1	1.0	2.5	0.0	1.5	18		4.5	27	16	11	37	30	67	11	14	A-6a	7	1600					
	048-0	SS-2	2.5	4.0	1.5	3.0	19		4.5	31	16	15	28	29	57	15	14	A-6a	6						
	23	SS-3	4.0	5.5	3.0	4.5	45		3							12	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	25	18	4.5							14	14	A-6a	10						
49	B	SS-1	1.0	2.5	0.0	1.5	17		1.75	31	16	15	33	33	66	14	14	A-6a	8	<100					
	049-0	SS-2	2.5	4.0	1.5	3.0	15		3							15	14	A-6a	10						
	23	SS-3	4.0	5.5	3.0	4.5	15		3.25							21	16	A-6b	16						
		SS-4	5.5	7.0	4.5	6.0	13	13	1.5	40	21	19	34	61	95	29	16	A-6b	12						
50	B	SS-1	1.0	2.5	0.0	1.5	17		4								14	A-6a	10	560					
	050-0	SS-2	2.5	4.0	1.5	3.0	24		4.5	29	16	13	35	33	68	13	14	A-6a	8						
	23	SS-3	4.0	5.5	3.0	4.5	13		3	34	18	16	33	44	77	16	16	A-6b	10						
		SS-4	5.5	7.0	4.5	6.0	17	13	3							14	16	A-6b	16						
51	B	SS-1	1.0	2.5	0.0	1.5	17		4.5	27	16	11	37	32	69	12	14	A-6a	7	<100					
	051-0	SS-2	2.5	4.0	1.5	3.0	23		4.5	25	16	9	35	30	65	13	11	A-4a	6						
	23	SS-3	4.0	5.5	3.0	4.5	21		4							12	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	22	17	4.25							12	10	A-4a	8						
52	B	SS-1	1.0	2.5	0.0	1.5	12			23	15	8	39	28	67	12	10	A-4a	6	1200					12"
	052-0	SS-2	2.5	4.0	1.5	3.0	11										10	A-4a	8			N_{60}			204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	8		1.25	21	11	10	38	24	62	12	10	A-4a	5						
		SS-4	5.5	7.0	4.5	6.0	16	8	2.25							12	10	A-4a	8						
53	B	SS-1	1.0	2.5	0.0	1.5	21		4.5	26	15	11	28	29	57	11	14	A-6a	5	460					
	053-0	SS-2	2.5	4.0	1.5	3.0	28		4.5	25	17	8	41	32	73	13	12	A-4a	8						
	23	SS-3	4.0	5.5	3.0	4.5	15		3.5							14	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	15	15	3.5							10	10	A-4a	8						
54	B	SS-1	1.0	2.5	0.0	1.5	16		4.5	23	16	7	42	26	68	12	11	A-4a	7	590					
	054-0	SS-2	2.5	4.0	1.5	3.0	18		3.5	17	16	1	40	31	71	12	11	A-4a	7						
	23	SS-3	4.0	5.5	3.0	4.5	13		2.5							13	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	12	12	2							13	10	A-4a	8						

#	Boring	Sample	Sample Depth		Subgrade Depth		Standard Penetration		HP (tsf)	Physical Characteristics						Moisture		Ohio DOT		Sulfate Content (ppm)	Problem		Excavate and Replace (Item 204)		Recommendation (Enter depth in inches)
			From	To	From	To	N_{60}	N_{60L}		LL	PL	PI	% Silt	% Clay	P200	M_C	M_{OPT}	Class	GI		Unsuitable	Unstable	Unsuitable	Unstable	
55	B	SS-1	1.0	2.5	0.0	1.5	29		4.5	23	13	10	45	31	76	10	10	A-4a	8	3200					
	055-0	SS-2	2.5	4.0	1.5	3.0	29		4.5	22	14	8	44	32	76	13	10	A-4a	8			Mc			
	23	SS-3	4.0	5.5	3.0	4.5	21		4.5							4	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	23	21	4.5							11	10	A-4a	8						
56	B	SS-1	1.0	2.5	0.0	1.5	21		4.5	20	15	5	41	30	71	9	10	A-4a	7	650					
	056-0	SS-2	2.5	4.0	1.5	3.0	22		4.5							10	10	A-4a	8						
	23	SS-3	4.0	5.5	3.0	4.5	15		3							13	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	11	11	2.5	23	16	7	41	26	67	14	11	A-4a	6						
57	B	SS-1	1.0	2.5	0.0	1.5	21		4.5	26	17	9	41	31	72	11	12	A-4a	7	300					
	057-0	SS-2	2.5	4.0	1.5	3.0	22		4.5	23	16	7	38	27	65	12	11	A-4a	6						
	23	SS-3	4.0	5.5	3.0	4.5	21		4.5							12	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	22	21	4							13	10	A-4a	8						
58	B	SS-1	1.0	2.5	0.0	1.5	17		4.5	23	14	9	39	29	68	11	10	A-4a	7	150					
	058-0	SS-2	2.5	4.0	1.5	3.0	25		4.5							12	10	A-4a	8						
	23	SS-3	4.0	5.5	3.0	4.5	28		4.5	24	15	9	38	29	67	13	10	A-4a	6						
		SS-4	5.5	7.0	4.5	6.0	19	17	4.5							11	10	A-4a	8						
59	B	SS-1	1.0	2.5	0.0	1.5	18		4.5	25	16	9	31	24	55	11	11	A-4a	4	110					
	059-0	SS-2	2.5	4.0	1.5	3.0	21		4.5	26	16	10	41	28	69	14	11	A-4a	7			Mc			
	23	SS-3	4.0	5.5	3.0	4.5	17		3.75							14	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	17	17	4.25							14	10	A-4a	8						
60	B	SS-1	1.0	2.5	0.0	1.5	17		4.5	25	15	10	37	28	65	15	10	A-4a	6	490		Mc			
	060-0	SS-2	2.5	4.0	1.5	3.0	16		4.5	23	15	8	35	25	60	11	10	A-4a	5						
	23	SS-3	4.0	5.5	3.0	4.5	19		4.25							14	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	17	16	3.25							13	10	A-4a	8						
61	B	SS-1	1.0	2.5	0.0	1.5	10		2.25	46	20	26	45	48	93	24	18	A-7-6	16	<100		N_{60} & Mc		12"	12" 861 Geogrid
	061-0	SS-2	2.5	4.0	1.5	3.0	11		3	41	18	23	44	49	93	24	18	A-7-6	13			N_{60} & Mc			
	23	SS-3	4.0	5.5	3.0	4.5	6		1.5							27	18	A-7-6	16						
		SS-4	5.5	7.0	4.5	6.0	10	6	2							15	18	A-7-6	16						
62	B	SS-1	1.0	2.5	0.0	1.5	15		4.5	29	16	13	37	32	69	13	14	A-6a	8	<100					
	062-0	SS-2	2.5	4.0	1.5	3.0	19		4.5	21	14	7	37	20	57	11	10	A-4a	4						
	23	SS-3	4.0	5.5	3.0	4.5	22		2.75							14	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	22	15	3.5							14	10	A-4a	8						
63	B	SS-1	1.0	2.5	0.0	1.5	12		4	31	17	14	40	34	74	18	14	A-6a	9	<100		N_{60} & Mc		12"	12" 204 Geotextile
	063-0	SS-2	2.5	4.0	1.5	3.0	18		4.5	22	15	7	37	22	59	12	10	A-4a	5						
	23	SS-3	4.0	5.5	3.0	4.5	17		4.5							13	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	22	12	4							13	10	A-4a	8						

#	Boring	Sample	Sample Depth		Subgrade Depth		Standard Penetration		HP (tsf)	Physical Characteristics						Moisture		Ohio DOT		Sulfate Content (ppm)	Problem		Excavate and Replace (Item 204)		Recommendation (Enter depth in inches)
			From	To	From	To	N_{60}	N_{60L}		LL	PL	PI	% Silt	% Clay	P200	M_C	M_{OPT}	Class	GI		Unsuitable	Unstable	Unsuitable	Unstable	
64	B	SS-1	1.0	2.5	0.0	1.5	10		4.5	37	18	19	46	39	85	20	16	A-6b	12	220		N_{60} & Mc		12"	12"
	064-0	SS-2	2.5	4.0	1.5	3.0	13		2.5	36	20	16	47	35	82	22	16	A-6b	10			N_{60} & Mc			204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	11									21	10	A-4b	8						
		SS-4	5.5	7.0	4.5	6.0	13	10								23	10	A-4a	8						
65	B	SS-1	1.0	2.5	0.0	1.5	17		4.5	23	16	7	27	16	43	9	11	A-4a	2	370					
	065-0	SS-2	2.5	4.0	1.5	3.0	21		4.5	22	15	7	31	16	47	10	10	A-4a	2						
	23	SS-3	4.0	5.5	3.0	4.5	15									16	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	17	15								20	10	A-4a	8						
66	B	SS-1	1.0	2.5	0.0	1.5	10		4	39	22	17	39	46	85	24	17	A-6b	11	360		N_{60} & Mc		12"	12"
	066-0	SS-2	2.5	4.0	1.5	3.0	15		2.25	45	19	26	40	36	76	21	18	A-7-6	15			Mc			204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	12		2.25							19	18	A-7-6	16						
		SS-4	5.5	7.0	4.5	6.0	13	10	4.5							14	18	A-7-6	16						
67	B	SS-1	1.0	2.5	0.0	1.5	11		4.5	41	23	18	46	36	82	22	20	A-7-6	11	200		N_{60}		12"	12"
	067-0	SS-2	2.5	4.0	1.5	3.0	21		1.75	41	20	21	41	40	81	25	18	A-7-6	13			HP & Mc			204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	11		1.25							17	18	A-7-6	16						
		SS-4	5.5	7.0	4.5	6.0	18	11								14	10	A-2-4	0						
68	B	SS-1	1.0	2.5	0.0	1.5	25		4.5	33	18	15	43	29	72	15	14	A-6a	9	300					12"
	068-0	SS-2A	2.5	2.5	1.5	1.5	17		4.5	28	13	15	32	22	54	14	14	A-6a	6						204 Geotextile
	23	SS-3A	3.0	3.0	2.0	2.0	13		1.25							22	14	A-6a	10			HP & Mc			
		SS-4	5.5	5.5	4.5	4.5	16	13	2.75							25	14	A-6a	10						
69	B	SS-1	1.0	2.5	0.0	1.5	12		4							16	10	A-4a	8	120		N_{60} & Mc		12"	12"
	069-0	SS-2A	2.5	3.4	1.5	2.4	8		0.75	29	19	10	42	31	73	22	14	A-4a	8			HP & Mc			861 Geogrid
	23	SS-3	4.0	5.5	3.0	4.5	11		1.25	23	18	5	47	33	80	21	13	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	19	8	4.5							18	10	A-4a	8						
70	B	SS-1	1.0	2.5	0.0	1.5	21		4.5	27	16	11	39	29	68	13	14	A-6a	7	360					
	070-0	SS-2	2.5	4.0	1.5	3.0	19		4.5	29	16	13	37	28	65	12	14	A-6a	7						
	23	SS-3	4.0	5.5	3.0	4.5	19		4.5							14	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	19	19	4.5							14	14	A-6a	10						
71	B	SS-1	1.0	2.5	0.0	1.5	8		2.75	33	17	16	40	39	79	18	16	A-6b	10	<100		N_{60}		12"	12"
	071-0	SS-2	2.5	4.0	1.5	3.0	13		1.75							19	16	A-6b	16			HP & Mc			204 Geotextile
	23	SS-3A	4.0	4.5	3.0	3.5	16		2.25	37	21	16	54	41	95	28	16	A-6b	10			Mc			
		SS-4	5.5	7.0	4.5	6.0	15	8	1.25							24	16	A-6b	16						
72	B	SS-1	1.0	2.5	0.0	1.5	24		4.5	28	16	12	36	34	70	13	14	A-6a	8	600					
	072-0	SS-2	2.5	4.0	1.5	3.0	27		4.5	28	16	12	40	30	70	14	14	A-6a	8						
	23	SS-3	4.0	5.5	3.0	4.5	15		4.5							14	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	13	13	4.5							12	14	A-6a	10						

#	Boring	Sample	Sample Depth		Subgrade Depth		Standard Penetration		HP (tsf)	Physical Characteristics						Moisture		Ohio DOT		Sulfate Content (ppm)	Problem		Excavate and Replace (Item 204)		Recommendation (Enter depth in inches)
			From	To	From	To	N_{60}	N_{60L}		LL	PL	PI	% Silt	% Clay	P200	M_C	M_{OPT}	Class	GI		Unsuitable	Unstable	Unsuitable	Unstable	
73	B	SS-1	1.0	2.5	0.0	1.5	17		4.5	27	17	10	29	19	48	11	12	A-4a	3	1100					
	073-0	SS-2	2.5	4.0	1.5	3.0	25		4	24	15	9	40	29	69	13	10	A-4a	7			Mc			
	23	SS-3	4.0	5.5	3.0	4.5	18		3.75							12	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	16	16	3.5							12	10	A-4a	8						
74	B	SS-1	1.0	2.5	0.0	1.5	25		4.5	23	16	7	43	27	70	10	11	A-4a	7	1400					**12"**
	074-0	SS-2	2.5	4.0	1.5	3.0	15		4.25	23	13	10	42	28	70	12	10	A-4a	7						**204 Geotextile**
	23	SS-3	4.0	5.5	3.0	4.5	13		3.5							14	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	11	11	2.5							12	10	A-4a	8						
75	B	SS-1	1.0	2.5	0.0	1.5	34		4.5	25	15	10	35	31	66	11	10	A-4a	6	<100					
	075-0	SS-2	2.5	4.0	1.5	3.0	30		4.5	28	16	12	30	25	55	12	14	A-6a	5						
	23	SS-3	4.0	5.5	3.0	4.5	28		4.5							13	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	29	28	4.5							13	10	A-4a	8						
76	B	SS-1	1.0	2.5	0.0	1.5	8		3.5	34	17	17	38	31	69	18	16	A-6b	10	210		N_{60}		**12"**	**15"**
	076-0	SS-2	2.5	4.0	1.5	3.0	11		2.75	41	19	22	34	40	74	21	18	A-7-6	13			N_{60} & Mc			**204 Geotextile**
	23	SS-3	4.0	5.5	3.0	4.5	7		3.5							20	18	A-7-6	16						
		SS-4	5.5	7.0	4.5	6.0	12	7	2							20	18	A-7-6	16						
77	B	SS-1	1.0	2.5	0.0	1.5	10		2.75	31	19	12	40	33	73	17	14	A-6a	8	610		N_{60} & Mc		**12"**	**12"**
	077-0	SS-2	2.5	4.0	1.5	3.0	16		3.5	30	18	12	35	45	80	18	14	A-6a	9			Mc			**204 Geotextile**
	23	SS-3	4.0	5.5	3.0	4.5	16		2.5							16	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	28	10	4.5							12	14	A-6a	10						
78	B	SS-1	1.0	2.5	0.0	1.5	16		4.5	34	16	18	41	38	79	16	16	A-6b	11	140					
	078-0	SS-2	2.5	4.0	1.5	3.0	27		4	26	15	11	38	27	65	11	14	A-6a	6						
	23	SS-3A	4.0	5.0	3.0	4.0	19		1.5							16	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	25	16	4.5							13	14	A-6a	10						
79	B	SS-1	1.0	2.5	0.0	1.5	15		2.75	28	12	16	34	26	60	17	16	A-6b	7	240					
	079-0	SS-2	2.5	4.0	1.5	3.0	19		2.5	26	15	11	32	29	61	16	14	A-6a	6						
	23	SS-3A	4.0	5.0	3.0	4.0	19		4							13	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	22	15	4							14	14	A-6a	10						
80	B	SS-1	1.0	2.5	0.0	1.5	11		3.5	27	15	12	33	25	58	12	14	A-6a	5	260		N_{60}		**12"**	**12"**
	080-0	SS-2	2.5	4.0	1.5	3.0	16		3.75							13	14	A-6a	10						**204 Geotextile**
	23	SS-3	4.0	5.5	3.0	4.5	18		4.5							13	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	17	11	3	35	24	11	43	26	69	23	19	A-6a	7						
81	B	SS-1	1.0	2.5	0.0	1.5	15		4	25	16	9	38	27	65	13	11	A-4a	6	<100					
	081-0	SS-2	2.5	4.0	1.5	3.0	22		4.5							12	10	A-4a	8						
	23	SS-3	4.0	5.5	3.0	4.5	24		4.5	28	18	10	36	31	67	15	13	A-4a	6						
		SS-4	5.5	7.0	4.5	6.0	23	15	2.25							15	10	A-4a	8						

#	Boring	Sample	Sample Depth		Subgrade Depth		Standard Penetration		HP (tsf)	Physical Characteristics						Moisture		Ohio DOT		Sulfate Content (ppm)	Problem		Excavate and Replace (Item 204)		Recommendation (Enter depth in inches)
			From	To	From	To	N_{60}	N_{60L}		LL	PL	PI	% Silt	% Clay	P200	M_C	M_{OPT}	Class	GI		Unsuitable	Unstable	Unsuitable	Unstable	
82	B	SS-1	1.0	2.5	0.0	1.5	13		4.5	29	17	12	28	27	55	11	14	A-6a	5	1600					12"
	082-0	SS-2	2.5	4.0	1.5	3.0	13		4	36	19	17	37	34	71	21	16	A-6b	10			N_{60} & Mc			204 Geotextile
	23	SS-3A	4.0	4.6	3.0	3.6	16		4.5							14	16	A-6b	16						
		SS-4	5.5	7.0	4.5	6.0	13	13	4.5							13	16	A-6b	16						
83	B	SS-1	1.0	2.5	0.0	1.5	10		2.5	36	18	18	34	49	83	22	16	A-6b	11	140		N_{60} & Mc		12"	12"
	083-0	SS-2	2.5	4.0	1.5	3.0	13		2.25							13	16	A-6b	16						204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	11		1.75	37	18	19	32	41	73	22	16	A-6b	11						
		SS-4	5.5	7.0	4.5	6.0	10	10	0.75							24	16	A-6b	16						
84	B	SS-1	1.0	2.5	0.0	1.5	7		4.5	39	18	21	48	39	87	22	16	A-6b	12	160		N_{60} & Mc		15"	36"
	084-0	SS-2	2.5	4.0	1.5	3.0	21		1.5	41	19	22	45	38	83	23	18	A-7-6	13			HP & Mc			861 Geogrid
	23	SS-3	4.0	5.5	3.0	4.5	4		0.25							25	16	A-6b	16						
		SS-4A	5.5	7.0	4.5	6.0	10	4	0.25							24	18	A-7-6	16						
85	B	SS-1	1.0	2.5	0.0	1.5	22		4.5	35	17	18	40	28	68	12	16	A-6b	10	420					
	085-0	SS-2	2.5	4.0	1.5	3.0	25		4.5	25	16	9	40	27	67	12	11	A-4a	6						
	23	SS-3	4.0	5.5	3.0	4.5	24		1.5							11	16	A-6b	16						
		SS-4	5.5	7.0	4.5	6.0	24	22	3.5							12	16	A-6b	16						
86	B	SS-1	1.0	2.5	0.0	1.5	21		4.5	28	15	13	41	26	67	13	14	A-6a	8	180					
	086-0	SS-2	2.5	4.0	1.5	3.0	21		4.5	22	14	8	40	24	64	11	10	A-4a	6						
	23	SS-3A	4.0	5.5	3.0	4.5	25		4.5							9	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	27	21	4.5							11	10	A-4a	8						
87	B	SS-1	1.0	2.5	0.0	1.5	15		4	31	11	20	36	31	67	14	16	A-6b	10	160					
	087-0	SS-2	2.5	4.0	1.5	3.0	22		4.5	31	18	13	42	34	76	15	14	A-6a	9						
	23	SS-3	4.0	5.5	3.0	4.5	18		4.5							15	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	17	15	3							17	14	A-6a	10						
88	B	SS-1	1.0	2.5	0.0	1.5	8		4.5	29	16	13	42	32	74	15	14	A-6a	9	460		N_{60}		12"	12"
	088-0	SS-2	2.5	4.0	1.5	3.0	23		4.5	34	16	18	41	31	72	15	16	A-6b	11						204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	24		4.5							18	16	A-6b	16						
		SS-4	5.5	7.0	4.5	6.0	30	8	4.5							16	16	A-6b	16						
89	B	SS-1	1.0	2.5	0.0	1.5	17		4.5	23	17	6	37	31	68	14	12	A-4a	7	2000					12"
	089-0	SS-2	2.5	4.0	1.5	3.0	23		4.5							12	10	A-4a	8						204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	17			22	18	4	20	10	30	13	10	A-2-4	0						
		SS-4	5.5	7.0	4.5	6.0	11	11	2							14	10	A-4a	8						
90	B	SS-1	1.0	2.5	0.0	1.5	13		4.5	33	17	16	41	36	77	17	16	A-6b	10	410					
	090-0	SS-2	2.5	4.0	1.5	3.0	24		2.5	34	18	16	41	35	76	16	16	A-6b	10						
	23	SS-3	4.0	5.5	3.0	4.5	25		4.5							19	16	A-6b	16						
		SS-4	5.5	7.0	4.5	6.0	13	13	1.25							20	16	A-6b	16						

#	Boring	Sample	Sample Depth		Subgrade Depth		Standard Penetration		HP (tsf)	Physical Characteristics						Moisture		Ohio DOT		Sulfate Content (ppm)	Problem		Excavate and Replace (Item 204)		Recommendation (Enter depth in inches)
			From	To	From	To	N_{60}	N_{60L}		LL	PL	PI	% Silt	% Clay	P200	M_C	M_{OPT}	Class	GI		Unsuitable	Unstable	Unsuitable	Unstable	
91	B	SS-1	1.0	2.5	0.0	1.5	13		2.75	28	15	13	35	38	73	18	14	A-6a	9	390		N_{60} & Mc		12"	12"
	091-0	SS-2	2.5	4.0	1.5	3.0	27		4.5	24	14	10	41	30	71	13	10	A-4a	7			Mc			204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	28		4.5							14	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	31	13	4.5							11	10	A-4a	8						
92	B	SS-1	1.0	2.5	0.0	1.5	10		4.25	25	16	9	41	29	70	15	11	A-4a	7	230		N_{60} & Mc		12"	12"
	092-0	SS-2	2.5	4.0	1.5	3.0	18		4.5	27	18	9	37	24	61	11	13	A-4a	5						204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	23		4.5							11	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	15	10	4.5							16	10	A-4a	8						
93	B	SS-1	1.0	2.5	0.0	1.5	13		3.5	31	18	13	30	31	61	16	14	A-6a	6	250					12"
	093-0	SS-2	2.5	4.0	1.5	3.0	8		2.5	28	15	13	38	33	71	16	14	A-6a	8			N_{60}			204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	11		3							19	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	18	8	4.25							14	14	A-6a	10						
94	B	SS-1	1.0	2.5	0.0	1.5	5		3	32	17	15	40	35	75	17	14	A-6a	10	360		N_{60} & Mc		21"	15"
	094-0	SS-2	2.5	4.0	1.5	3.0	7		1.5	34	19	15	38	38	76	20	14	A-6a	10			HP & Mc			861 Geogrid
	23	SS-3	4.0	5.5	3.0	4.5	12		4							20	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	24	5	4.5							13	14	A-6a	10						
95	B	SS-1	1.0	2.5	0.0	1.5	12		2.75	22	15	7	35	23	58	13	10	A-4a	5	130		N_{60} & Mc		12"	12"
	095-0	SS-2	2.5	4.0	1.5	3.0	13		1.75							20	10	A-4a	8			HP & Mc			204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	17		2.5	23	14	9	36	24	60	12	10	A-4a	5						
		SS-4	5.5	7.0	4.5	6.0	16	12	3.5							14	10	A-4a	8						
96	B	SS-1	1.0	2.5	0.0	1.5	10		4.5	29	18	11	35	27	62	15	14	A-6a	6	390		N_{60}		12"	12"
	096-0	SS-2	2.5	4.0	1.5	3.0	16		4.5	29	17	12	40	33	73	15	14	A-6a	8						204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	33		4.5							14	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	27	10	4.5							17	14	A-6a	10						
97	B	SS-1	1.0	2.5	0.0	1.5	7		1	27	16	11	38	32	70	15	14	A-6a	7	180		HP		15"	15"
	097-0	SS-2	2.5	4.0	1.5	3.0	29		4	25	16	9	29	24	53	12	11	A-4a	4						204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	16		4.5							13	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	17	7	4.5							10	10	A-4a	8						
98	B	SS-1	1.0	2.5	0.0	1.5	28		4.5	23	16	7	38	24	62	10	11	A-4a	5	5700					
	098-0	SS-2	2.5	4.0	1.5	3.0	25		4.5	25	15	10	34	28	62	12	10	A-4a	5						
	23	SS-3	4.0	5.5	3.0	4.5	47		4.5							10	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	42	25	4.5							10	10	A-4a	8						
99	B	SS-1	1.0	2.5	0.0	1.5	13		4.5	24	15	9	38	31	69	11	10	A-4a	7	240					
	099-0	SS-2	2.5	4.0	1.5	3.0	22		4.5	26	15	11	34	34	68	12	14	A-6a	7						
	23	SS-3	4.0	5.5	3.0	4.5	19		4.5							11	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	22	13	4							11	14	A-6a	10						

#	Boring	Sample	Sample Depth		Subgrade Depth		Standard Penetration		HP (tsf)	Physical Characteristics						Moisture		Ohio DOT		Sulfate Content (ppm)	Problem		Excavate and Replace (Item 204)		Recommendation (Enter depth in inches)
			From	To	From	To	N_{60}	N_{60L}		LL	PL	PI	% Silt	% Clay	P200	M_C	M_{OPT}	Class	GI		Unsuitable	Unstable	Unsuitable	Unstable	
100	B	SS-1	1.0	2.5	0.0	1.5	21		4.5	33	17	16	38	34	72	13	16	A-6b	10	340					
	100-0	SS-2	2.5	4.0	1.5	3.0	18		4.5	31	17	14	42	34	76	17	14	A-6a	10			Mc			
	23	SS-3	4.0	5.5	3.0	4.5	41		4.5							12	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	21	18	4.5							19	14	A-6a	10						
101	B	SS-1	1.0	2.5	0.0	1.5	18			21	16	5	26	16	42	7	11	A-4a	1	270					
	101-0	SS-2	2.5	4.0	1.5	3.0	21			NP	NP	NP	19	27	46	14	11	A-4a	2			Mc			
	23	SS-3	4.0	5.5	3.0	4.5	16									15	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	18	16								16	10	A-4a	8						
102	B	SS-1	1.0	2.5	0.0	1.5	12		4.5	30	14	16	37	30	67	13	16	A-6b	9	170					
	102-0	SS-2	2.5	4.0	1.5	3.0	27		4.5	27	16	11	47	31	78	12	14	A-6a	8						
	23	SS-3	4.0	5.5	3.0	4.5	39		4.5							10	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	30	12	4.5							13	14	A-6a	10						
103	B	SS-1	1.0	2.5	0.0	1.5	17		4.5	26	16	10	36	29	65	12	11	A-4a	6	420					**12" 204 Geotextile**
	103-0	SS-2	2.5	4.0	1.5	3.0	28		4.5	30	17	13	37	31	68	13	14	A-6a	8						
	23	SS-3	4.0	5.5	3.0	4.5	17		3.25							22	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	16	16	2							24	14	A-6a	10						
104	B	SS-1	1.0	2.5	0.0	1.5	28		3	NP	NP	NP	17	4	21	26	6	A-1-b	0	470					**36" 204 Geotextile**
	104-0	SS-2	2.5	4.0	1.5	3.0	24		3.5							29	6	A-1-b	0						
	23	SS-3A	4.0	5.5	3.0	4.5	4		0.25							24	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	5	4								6	14	A-6a	10						
105	B	SS-1	1.0	2.5	0.0	1.5	19		4.5	20	13	7	39	23	62	10	10	A-4a	5	940					
	105-0	SS-2	2.5	4.0	1.5	3.0	25		4.5							9	10	A-4a	8						
	23	SS-3	4.0	5.5	3.0	4.5	41		4.5							10	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	34	19	4.5	NP	NP	NP	34	5	39	21	11	A-4a	1						
106	B	SS-1	1.0	2.5	0.0	1.5	17		4.5	24	15	9	39	25	64	11	10	A-4a	6	1300					
	106-0	SS-2	2.5	4.0	1.5	3.0	29		4.5	25	17	8	38	24	62	12	12	A-4a	5						
	23	SS-3	4.0	5.5	3.0	4.5	28		4.5							12	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	21	17	4.5							10	10	A-4a	8						
107	B	SS-1	1.0	2.5	0.0	1.5	22			18	15	3	19	10	29	10	10	A-2-4	0	1700					
	107-0	SS-2	2.5	4.0	1.5	3.0	41		4.25	23	15	8	31	22	53	11	10	A-4a	4						
	23	SS-3	4.0	5.5	3.0	4.5	33		4.5							11	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	28	22	4.5							11	10	A-4a	8						
108	B	SS-1	1.0	2.5	0.0	1.5	19		4.5	28	16	12	36	29	65	13	14	A-6a	7	420					**12" 204 Geotextile**
	108-0	SS-2	2.5	4.0	1.5	3.0	10		3.75	27	17	10	35	27	62	13	12	A-4a	5			N_{60}			
	23	SS-3	4.0	5.5	3.0	4.5	11		4.25							15	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	13	10	3.75							11	10	A-4a	8						

#	Boring	Sample	Sample Depth		Subgrade Depth		Standard Penetration		HP (tsf)	Physical Characteristics						Moisture		Ohio DOT		Sulfate Content (ppm)	Problem		Excavate and Replace (Item 204)		Recommendation (Enter depth in inches)
			From	To	From	To	N_{60}	N_{60L}		LL	PL	PI	% Silt	% Clay	P200	M_C	M_{OPT}	Class	GI		Unsuitable	Unstable	Unsuitable	Unstable	
109	B	SS-1	1.0	2.5	0.0	1.5	18		3.25	25	16	9	31	27	58	12	11	A-4a	5	330					
	109-0	SS-2	2.5	4.0	1.5	3.0	29		4.5	22	14	8	37	26	63	12	10	A-4a	6						
	23	SS-3	4.0	5.5	3.0	4.5	16		4.5							12	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	15	15	4.5							12	10	A-4a	8						
110	B	SS-1	1.0	2.5	0.0	1.5	6		1	29	15	14	32	28	60	14	14	A-6a	7	<100		HP		18"	15"
	110-0	SS-2	2.5	4.0	1.5	3.0	11		1	29	16	13	35	23	58	17	14	A-6a	6			HP & Mc			861 Geogrid
	23	SS-3	4.0	5.5	3.0	4.5	7		2							13	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	5	5	3							12	14	A-6a	10						
111	B	SS-1	1.0	2.5	0.0	1.5	16		4.5	25	15	10	42	26	68	12	10	A-4a	7	1600					
	111-0	SS-2	2.5	4.0	1.5	3.0	16		2.75	22	15	7	35	31	66	13	10	A-4a	6			Mc			
	23	SS-3	4.0	5.5	3.0	4.5	17		3.25							11	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	13	13	3							12	10	A-4a	8						
112	B	SS-1	1.0	2.5	0.0	1.5	17		4.5	21	15	6	44	29	73	10	10	A-4a	8	1500					12"
	112-0	SS-2	2.5	4.0	1.5	3.0	12		4.5	21	14	7	34	21	55	10	10	A-4a	4						204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	10		3							10	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	17	10	3							11	10	A-4a	8						
113	B	SS-1	1.0	2.5	0.0	1.5	24		4.5	32	19	13	39	45	84	14	14	A-6a	9	390					
	113-0	SS-2	2.5	4.0	1.5	3.0	28		4.5	26	17	9	41	34	75	13	12	A-4a	8						
	23	SS-3	4.0	5.5	3.0	4.5	27		4.5							12	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	25	24	4.5							12	10	A-4a	8						
114	B	SS-1	1.0	2.5	0.0	1.5	17		4.5	23	15	8	36	29	65	10	10	A-4a	6	1700					
	114-0	SS-2	2.5	4.0	1.5	3.0	34		4.5	36	21	15	46	28	74	18	16	A-6a	10						
	23	SS-3	4.0	5.5	3.0	4.5	18		4.25							14	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	13	13	4.5							21	14	A-6a	10						
115	B	SS-1	1.0	2.5	0.0	1.5	17		4.5	31	17	14	34	34	68	14	14	A-6a	8	670					
	115-0	SS-2	2.5	4.0	1.5	3.0	/7/50/2"		4.5	29	18	11	34	29	63	14	14	A-6a	6						
	23	SS-3	4.0	5.5	3.0	4.5	50/2"									6	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	27	17	4.5							7	14	A-6a	10						
116	B	SS-1	1.0	2.5	0.0	1.5	52		4.5	33	16	17	37	30	67	14	16	A-6b	9	350					
	116-0	SS-2	2.5	4.0	1.5	3.0	29		4.5	35	15	20	35	34	69	14	16	A-6b	11						
	23	SS-3	4.0	5.5	3.0	4.5	31		4.5							10	16	A-6b	16						
		SS-4	5.5	7.0	4.5	6.0	40	29	4.5							9	16	A-6b	16						
117	B	SS-1	1.0	2.5	0.0	1.5	36		4.5	24	15	9	30	26	56	8	10	A-4a	4	1700					
	117-0	SS-2	2.5	4.0	1.5	3.0	42		4.5	25	15	10	31	22	53	8	10	A-4a	4						
	23	SS-3	4.0	5.5	3.0	4.5	28		4.5							10	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	27	27	3.5							12	10	A-4a	8						

#	Boring	Sample	Sample Depth		Subgrade Depth		Standard Penetration		HP (tsf)	Physical Characteristics						Moisture		Ohio DOT		Sulfate Content (ppm)	Problem		Excavate and Replace (Item 204)		Recommendation (Enter depth in inches)
			From	To	From	To	N_{60}	N_{60L}		LL	PL	PI	% Silt	% Clay	P200	M_C	M_{OPT}	Class	GI		Unsuitable	Unstable	Unsuitable	Unstable	
118	B	SS-1	1.0	2.5	0.0	1.5	12		4.5	26	15	11	38	28	66	10	14	A-6a	7	3200					
	118-0	SS-2	2.5	4.0	1.5	3.0	15		3.5	35	23	12	42	37	79	18	18	A-6a	9						
	23	SS-3	4.0	5.5	3.0	4.5	18		4.5							14	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	16	12	3.75							14	14	A-6a	10						
119	B	SS-1	1.0	2.5	0.0	1.5	8		1.25	36	25	11	43	26	69	20	20	A-6a	7	280		HP		12"	12"
	119-0	SS-2	2.5	4.0	1.5	3.0	13		2	36	19	17	29	42	71	21	16	A-6b	10			N_{60} & Mc			204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	21		3.5							13	16	A-6b	16						
		SS-4	5.5	7.0	4.5	6.0	19	8	4.5							17	16	A-6b	16						
120	B	SS-1	1.0	2.5	0.0	1.5	15		2.75	28	16	12	42	32	74	12	14	A-6a	9	1700					36"
	120-0	SS-2	2.5	4.0	1.5	3.0	15		4.5	31	21	10	56	29	85	22	16	A-4b	8		A-4b	Mc			204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	16		3							25	10	A-4b	8						
		SS-4	5.5	7.0	4.5	6.0	18	15	4.5							14	10	A-4b	8						
121	B	SS-1	1.0	2.5	0.0	1.5	7		2.5	27	18	9	39	32	71	14	13	A-4a	7	1700		N_{60}		15"	15"
	121-0	SS-2	2.5	4.0	1.5	3.0	19		3.75	27	16	11	38	32	70	14	14	A-6a	7						204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	30		4.5							15	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	17	7	3.75							20	14	A-6a	10						
122	B	SS-1	1.0	2.5	0.0	1.5	24		4.5	27	16	11	30	25	55	10	14	A-6a	4	120					
	122-0	SS-2	2.5	4.0	1.5	3.0	18		4.5	32	17	15	40	32	72	17	14	A-6a	9			Mc			
	23	SS-3	4.0	5.5	3.0	4.5	19		3.25							18	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	21	18	2.25							23	14	A-6a	10						
123	B	SS-1	1.0	2.5	0.0	1.5	28		4.5	27	16	11	37	33	70	9	14	A-6a	7	880					15"
	123-0	SS-2	2.5	4.0	1.5	3.0	24		3.5	32	18	14	40	40	80	19	14	A-6a	10			Mc			204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	11		3.25							17	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	7	7	1							24	16	A-6b	16						
124	B	SS-1	1.0	2.5	0.0	1.5	16		4.5	35	19	16	37	41	78	17	16	A-6b	10	2400					
	124-0	SS-2	2.5	4.0	1.5	3.0	24		4.5	28	17	11	38	28	66	12	14	A-6a	7						
	23	SS-3	4.0	5.5	3.0	4.5	25		4.5							14	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	21	16	4.5							14	14	A-6a	10						
125	B	SS-1	1.0	2.5	0.0	1.5	29		3.5	26	15	11	38	31	69	5	14	A-6a	7	620					
	125-0	SS-2	2.5	4.0	1.5	3.0	34		4.5							11	14	A-6a	10						
	23	SS-3	4.0	5.5	3.0	4.5	29		4.5	25	15	10	38	34	72	14	10	A-4a	7						
		SS-4	5.5	7.0	4.5	6.0	35	29	4.5							11	10	A-4a	8						
126	B	SS-1	1.0	2.5	0.0	1.5	19		4.5	21	15	6	40	29	69	10	10	A-4a	7	2300					
	126-0	SS-2	2.5	4.0	1.5	3.0	21		4.5	27	15	12	40	30	70	12	14	A-6a	8						
	23	SS-3	4.0	5.5	3.0	4.5	23		4.5							19	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	27	19								23	0	Rock	0						

OHIO DEPARTMENT OF TRANSPORTATION

Subgrade Analysis

V. 14.6 2/11/2022

#	Boring	Sample	Sample Depth		Subgrade Depth		Standard Penetration		HP (tsf)	Physical Characteristics						Moisture		Ohio DOT		Sulfate Content (ppm)	Problem		Excavate and Replace (Item 204)		Recommendation (Enter depth in inches)
			From	To	From	To	N_{60}	N_{60L}		LL	PL	PI	% Silt	% Clay	P200	M_C	M_{OPT}	Class	GI		Unsuitable	Unstable	Unsuitable	Unstable	
127	B	SS-1	1.0	2.5	0.0	1.5	13		4.5							11	14	A-6a	10	320					
	127-0	SS-2	2.5	4.0	1.5	3.0	23		4.5	27	15	12	36	27	63	9	14	A-6a	6						
	23	SS-3	4.0	5.5	3.0	4.5	27		4.5	22	16	6	23	13	36	9	11	A-4a	0						
		SS-4	5.5	7.0	4.5	6.0	19	13	4.5							12	10	A-4a	8						
128	B	SS-1	1.0	2.5	0.0	1.5	15		4.5	30	17	13	43	28	71	14	14	A-6a	8	220					**12"**
	128-0	SS-2	2.5	4.0	1.5	3.0	12		2.5	31	22	9	36	24	60	24	17	A-4a	5			N_{60} & Mc			**204 Geotextile**
	23	SS-3	4.0	5.5	3.0	4.5	13		2.5							14	16	A-6b	16						
		SS-4	5.5	7.0	4.5	6.0	16	12	2							16	16	A-6b	16						
129	B	SS-1	1.0	2.5	0.0	1.5	19		4.5							15	10	A-4a	8	160		Mc			**12"**
	129-0	SS-2	2.5	4.0	1.5	3.0	24		3.25	27	17	10	39	28	67	14	12	A-4a	6						**204 Geotextile**
	23	SS-3	4.0	5.5	3.0	4.5	12		1	29	20	9	60	32	92	27	15	A-4b	8						
		SS-4	5.5	7.0	4.5	6.0	8	8	2							26	10	A-4b	8						
130	B	SS-1	1.0	2.5	0.0	1.5	10		1.25	24	13	11	17	22	39	17	14	A-6a	1	170		HP & Mc		**12"**	**12"**
	130-0	SS-2	2.5	4.0	1.5	3.0	11		1.5	28	15	13	35	29	64	17	14	A-6a	7			HP & Mc			**204 Geotextile**
	23	SS-3	4.0	5.5	3.0	4.5	10		2.75							15	14	A-6a	10						
		SS-4A	5.5	7.0	4.5	6.0	13	10	3.75							18	14	A-6a	10						
131	B	SS-1	1.0	2.5	0.0	1.5	8		1	33	18	15	50	29	79	14	14	A-6a	10	180		HP		**12"**	**18"**
	131-0	SS-2	2.5	4.0	1.5	3.0	15		2							19	14	A-6a	10			Mc			**861 Geogrid**
	23	SS-3	4.0	5.5	3.0	4.5	10		0.5	21	15	6	37	22	59	18	10	A-4a	5						
		SS-4	5.5	7.0	4.5	6.0	16	8	3							15	10	A-4a	8						
132	B	SS-1	1.0	2.5	0.0	1.5	29		4.5	24	15	9	22	18	40	9	10	A-4a	1	400					
	132-0	SS-2	2.5	4.0	1.5	3.0	30		4.5	27	14	13	18	16	34	11	10	A-2-6	1						
	23	SS-3	4.0	5.5	3.0	4.5	23		4.5							17	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	16	16	4.5							22	10	A-4a	8						
133	B	SS-1	1.0	2.5	0.0	1.5	29		4.5	18	15	3	32	22	54	8	10	A-4a	4	3000					**12"**
	133-0	SS-2	2.5	4.0	1.5	3.0	22		4.5							15	10	A-4a	8			Mc			**204 Geotextile**
	23	SS-3	4.0	5.5	3.0	4.5	11		3.5	25	20	5	47	25	72	19	15	A-4a	7						
		SS-4	5.5	7.0	4.5	6.0	15	11	3.25							14	10	A-4a	8						
134	B	SS-1	1.0	2.5	0.0	1.5	15		4.5	30	14	16	30	23	53	12	16	A-6b	6	730					
	134-0	SS-2	2.5	4.0	1.5	3.0	39		4.5							16	16	A-6b	16						
	23	SS-3	4.0	5.5	3.0	4.5	28		4.5	29	17	12	37	24	61	11	14	A-6a	6						
		SS-4	5.5	7.0	4.5	6.0	25	15	4.5							15	14	A-6a	10						
135	B	SS-1	1.0	2.5	0.0	1.5	18			NP	NP	NP	54	12	66	17	11	A-4b	6	<100	A-4b	Mc	**18"**		**18"**
	135-0	SS-2	2.5	4.0	1.5	3.0	23			NP	NP	NP	10	5	15	10	6	A-1-b	0						**204 Geotextile**
	23	SS-3	4.0	5.5	3.0	4.5	17									9	6	A-1-b	0						
		SS-4	5.5	7.0	4.5	6.0	13	13	4							32	10	A-4a	8						

#	Boring	Sample	Sample Depth		Subgrade Depth		Standard Penetration		HP (tsf)	Physical Characteristics						Moisture		Ohio DOT		Sulfate Content (ppm)	Problem		Excavate and Replace (Item 204)		Recommendation (Enter depth in inches)
			From	To	From	To	N_{60}	N_{60L}		LL	PL	PI	% Silt	% Clay	P200	M_C	M_{OPT}	Class	GI		Unsuitable	Unstable	Unsuitable	Unstable	
136	B	SS-1	1.0	2.5	0.0	1.5	24		4.5	24	14	10	34	23	57	11	10	A-4a	4	380					
	136-0	SS-2	2.5	4.0	1.5	3.0	17		4.5	20	15	5	36	22	58	11	10	A-4a	5						
	23	SS-3	4.0	5.5	3.0	4.5	16		4.5							9	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	18	16								3	10	A-2-4	0						
137	B	SS-1	1.0	2.5	0.0	1.5	18		3.5	36	17	19	42	29	71	13	16	A-6b	11	1200					
	137-0	SS-2	2.5	4.0	1.5	3.0	48			NP	NP	NP	24	15	39	11	11	A-4a	1						
	23	SS-3	4.0	5.5	3.0	4.5	25									9	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	29	18								12	10	A-4a	8						
138	B	SS-1	1.0	2.5	0.0	1.5	16		4.5	29	16	13	36	31	67	13	14	A-6a	8	420					
	138-0	SS-2	2.5	4.0	1.5	3.0	22		4.5	28	16	12	41	32	73	13	14	A-6a	8						
	23	SS-3	4.0	5.5	3.0	4.5	15		4.5							8	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	15	15	4.5							10	14	A-6a	10						
139	B	SS-1	1.0	2.5	0.0	1.5	16		2.5	24	15	9	34	26	60	10	10	A-4a	5	530					
	139-0	SS-2	2.5	4.0	1.5	3.0	33		4.5							15	10	A-4a	8			Mc			
	23	SS-3	4.0	5.5	3.0	4.5	25		4.5							11	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	18	16	1.25	25	14	11	37	24	61	14	14	A-6a	6						
140	B	SS-1	1.0	2.5	0.0	1.5	24		4.5	23	14	9	38	21	59	10	10	A-4a	5	240					
	140-0	SS-2	2.5	4.0	1.5	3.0	18		4.5							11	16	A-6b	16						
	23	SS-3	4.0	5.5	3.0	4.5	18		4	26	10	16	27	19	46	13	16	A-6b	4						
		SS-4	5.5	7.0	4.5	6.0	23	18	4.5							11	16	A-6b	16						
141	B	SS-1	1.0	2.5	0.0	1.5	21			NP	NP	NP	16	8	24	8	8	A-3a	0	1400					
	141-0	SS-2	2.5	4.0	1.5	3.0	12									8	8	A-3a	0						
	23	SS-3	4.0	5.5	3.0	4.5	10									17	8	A-3a	0						
		SS-4	5.5	7.0	4.5	6.0	11	10	2	22	15	7	38	27	65	14	10	A-4a	6						
142	B	SS-1	1.0	2.5	0.0	1.5	21									10	0	Rock	0		Rock	Mc			24" 204 Geotextile
	142-0	SS-2	2.5	4.0	1.5	3.0	4/50/4"									8	0	Rock	0		Rock	Mc	36"		
	23	SS-3	4.0	5.5	3.0	4.5	50/5"									7	0	Rock	0						
		SS-4	5.5	7.0	4.5	6.0	50/4"	21								7	0	Rock	0						
143	B	SS-1	1.0	2.5	0.0	1.5	77									5	0	Rock	0		Rock	Mc			24" 204 Geotextile
	143-0	SS-2	2.5	4.0	1.5	3.0	50/5"									5	0	Rock	0		Rock	Mc	36"		
	23	SS-3	4.0	5.5	3.0	4.5	50/5"									4	0	Rock	0						
		SS-4	5.5	7.0	4.5	6.0	50/3"	30								4	0	Rock	0						
144	B	SS-1	1.0	2.5	0.0	1.5	58									6	0	Rock	0		Rock	Mc			24" 204 Geotextile
	144-0	SS-2	2.5	4.0	1.5	3.0	5/50/5"									11	0	Rock	0		Rock	Mc	36"		
	23	SS-3	4.0	5.5	3.0	4.5	50/5"									6	0	Rock	0						
		SS-4	5.5	7.0	4.5	6.0	50/4"	30								6	0	Rock	0						

#	Boring	Sample	Sample Depth		Subgrade Depth		Standard Penetration		HP (tsf)	Physical Characteristics						Moisture		Ohio DOT		Sulfate Content (ppm)	Problem		Excavate and Replace (Item 204)		Recommendation (Enter depth in inches)
			From	To	From	To	N_{60}	N_{60L}		LL	PL	PI	% Silt	% Clay	P200	M_C	M_{OPT}	Class	GI		Unsuitable	Unstable	Unsuitable	Unstable	
145	B	SS-1	1.0	2.5	0.0	1.5	16		4.5	25	16	9	44	33	77	9	11	A-4a	8	100					
	145-0	SS-2	2.5	4.0	1.5	3.0	22		2.75							16	10	A-4a	8			Mc			
	23	SS-3	4.0	5.5	3.0	4.5	25		4.5	22	15	7	30	20	50	11	10	A-4a	3						
		SS-4	5.5	7.0	4.5	6.0	21	16	4.5							9	10	A-4a	8						
146	B	SS-1	1.0	2.5	0.0	1.5	28		4.5	24	15	9	39	32	71	11	10	A-4a	7	1300					
	146-0	SS-2	2.5	4.0	1.5	3.0	23		4.5	27	13	14	40	31	71	11	14	A-6a	9						
	23	SS-3	4.0	5.5	3.0	4.5	16		4.5							11	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	12	12	2.25							12	14	A-6a	10						
147	B	SS-1	1.0	2.5	0.0	1.5	19		4.5	24	15	9	41	32	73	11	10	A-4a	8	220					
	147-0	SS-2	2.5	4.0	1.5	3.0	25		4.5	24	16	8	39	30	69	13	11	A-4a	7						
	23	SS-3	4.0	5.5	3.0	4.5	33		4.5							12	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	27	19	4.5							14	10	A-4a	8						
148	B	SS-1	1.0	2.5	0.0	1.5	19		3.5	32	15	17	36	32	68	14	16	A-6b	9	1400					
	148-0	SS-2	2.5	4.0	1.5	3.0	33		4.5	27	16	11	36	33	69	17	14	A-6a	7			Mc			
	23	SS-3	4.0	5.5	3.0	4.5	27		4.5							11	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	18	18	4.5							13	14	A-6a	10						
149	B	SS-1	1.0	2.5	0.0	1.5	21		4.5	27	15	12	56	32	88	10	14	A-6a	9	3800					**12" 861 Geogrid**
	149-0	SS-2	2.5	4.0	1.5	3.0	17		2							14	14	A-6a	10						
	23	SS-3	4.0	5.5	3.0	4.5	16		1	31	15	16	39	27	66	13	16	A-6b	9						
		SS-4	5.5	7.0	4.5	6.0	11	11	0.75							15	16	A-6b	16						
150	B	SS-1	1.0	2.5	0.0	1.5	11		4.5	33	18	15	38	39	77	17	14	A-6a	10	440		N_{60} & Mc		**12"**	**12" 204 Geotextile**
	150-0	SS-2	2.5	4.0	1.5	3.0	22		4.5	27	25	2	38	31	69	13	20	A-4a	7						
	23	SS-3	4.0	5.5	3.0	4.5	24		4.5							15	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	22	11	4							16	10	A-4a	8						
151	B	SS-1	1.0	2.5	0.0	1.5	27			NP	NP	NP	9	5	14	5	6	A-1-a	0	190					
	151-0	SS-2	2.5	4.0	1.5	3.0	15									11	6	A-1-a	0						
	23	SS-3	4.0	5.5	3.0	4.5	15			NP	NP	NP	38	6	44	19	11	A-4a	2						
		SS-4	5.5	7.0	4.5	6.0	10	10								23	10	A-4a	8						
152	B	SS-1	1.0	2.5	0.0	1.5	40		4.5	24	14	10	32	17	49	7	10	A-4a	3	860					
	152-0	SS-2	2.5	4.0	1.5	3.0	36		4.5							7	10	A-4a	8						
	23	SS-3	4.0	5.5	3.0	4.5	13		4.25	20	10	10	40	28	68	12	10	A-4a	7						
		SS-4	5.5	7.0	4.5	6.0	13	13	4							11	10	A-4a	8						
153	B	SS-1	1.0	2.5	0.0	1.5	17		4.5	26	17	9	39	32	71	11	12	A-4a	7	240					
	153-0	SS-2	2.5	4.0	1.5	3.0	23		4.5	25	18	7	41	32	73	14	13	A-4a	8						
	23	SS-3	4.0	5.5	3.0	4.5	25		4.5							14	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	24	17								7	8	A-3a	0						

#	Boring	Sample	Sample Depth		Subgrade Depth		Standard Penetration		HP (tsf)	Physical Characteristics						Moisture		Ohio DOT		Sulfate Content (ppm)	Problem		Excavate and Replace (Item 204)		Recommendation (Enter depth in inches)
			From	To	From	To	N_{60}	N_{60L}		LL	PL	PI	% Silt	% Clay	P200	M_C	M_{OPT}	Class	GI		Unsuitable	Unstable	Unsuitable	Unstable	
154	B	SS-1	1.0	2.5	0.0	1.5	30		4.5	25	15	10	40	31	71	10	10	A-4a	7	<100					
	154-0	SS-2	2.5	4.0	1.5	3.0	53		4.5							10	10	A-4a	8						
	23	SS-3	4.0	5.5	3.0	4.5	28		4.5							9	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	21	21	2.75	39	17	22	34	47	81	18	16	A-6b	13						
155	B	SS-1	1.0	2.5	0.0	1.5	10		4.5	28	17	11	38	27	65	13	14	A-6a	6	<100		N_{60}		12"	12" 204 Geotextile
	155-0	SS-2	2.5	4.0	1.5	3.0	17		4.5							13	14	A-6a	10						
	23	SS-3	4.0	5.5	3.0	4.5	21			24	15	9	31	25	56	12	10	A-4a	4						
		SS-4	5.5	7.0	4.5	6.0	10	10	1.75							16	10	A-4a	8						
156	B	SS-1	1.0	2.5	0.0	1.5	34		4.5	22	16	6	31	16	47	9	11	A-4a	2	220					
	156-0	SS-2	2.5	4.0	1.5	3.0	31		4.5							10	10	A-4a	8						
	23	SS-3	4.0	5.5	3.0	4.5	25		4.5	27	16	11	38	35	73	14	14	A-6a	8						
		SS-4	5.5	7.0	4.5	6.0	24	24	4.5							11	14	A-6a	10						
157	B	SS-1	1.0	2.5	0.0	1.5	15		4.5								10	A-4a	8	200					
	157-0	SS-2	2.5	4.0	1.5	3.0	28		4.5	22	17	5	42	22	64	14	12	A-4a	6						
	23	SS-3	4.0	5.5	3.0	4.5	42		4.5	20	15	5	31	18	49	9	10	A-4a	3						
		SS-4	5.5	7.0	4.5	6.0	24	15	4.5							7	10	A-4a	8						
158	B	SS-1	1.0	2.5	0.0	1.5	23									4	6	A-1-b	0	190					
	158-0	SS-2	2.5	4.0	1.5	3.0	13						33	5	38	7	6	A-1-b	0						
	23	SS-3	4.0	5.5	3.0	4.5	16						13	6	19	6	6	A-1-b	0						
		SS-4	5.5	7.0	4.5	6.0	17	13								6	6	A-1-b	0						
159	B	SS-1	1.0	2.5	0.0	1.5	33						13	7	20	7	10	A-2-4	0	<100					
	159-0	SS-2	2.5	4.0	1.5	3.0	74									4	10	A-2-4	0						
	23	SS-3	4.0	5.5	3.0	4.5	57									7	10	A-2-4	0						
		SS-4	5.5	7.0	4.5	6.0	28	28		23	15	8	14	9	23	9	10	A-2-4	0						
160	B	SS-1	1.0	2.5	0.0	1.5	16		4.5	35	11	24	27	21	48	12	16	A-6b	7	1100					
	160-0	SS-2	2.5	4.0	1.5	3.0	25		4.5							5	16	A-6b	16						
	23	SS-3	4.0	5.5	3.0	4.5	19		4.5	29	17	12	36	24	60	12	14	A-6a	6						
		SS-4	5.5	7.0	4.5	6.0	50/3"	16	4.5							10	14	A-6a	10						
161	B	SS-1	1.0	2.5	0.0	1.5	13		4.5	26	15	11	40	29	69	12	14	A-6a	7	210					12" 204 Geotextile
	161-0	SS-2	2.5	4.0	1.5	3.0	30		4.5	26	16	10	25	17	42	12	11	A-4a	1						
	23	SS-3	4.0	5.5	3.0	4.5	22		4.5							14	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	27	13	4.5							17	10	A-4a	8						
162	B	SS-1	1.0	2.5	0.0	1.5	24		4.5	23	16	7	38	26	64	10	11	A-4a	6	1600					
	162-0	SS-2	2.5	4.0	1.5	3.0	31		4.5	27	17	10	32	23	55	10	12	A-4a	4						
	23	SS-3	4.0	5.5	3.0	4.5	36		4.5							10	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	24	24	4.5							12	10	A-4a	8						

OHIO DEPARTMENT OF TRANSPORTATION

Subgrade Analysis

V. 14.6 2/11/2022

#	Boring	Sample	Sample Depth		Subgrade Depth		Standard Penetration		HP (tsf)	Physical Characteristics						Moisture		Ohio DOT		Sulfate Content (ppm)	Problem		Excavate and Replace (Item 204)		Recommendation (Enter depth in inches)
			From	To	From	To	N_{60}	N_{60L}		LL	PL	PI	% Silt	% Clay	P200	M_C	M_{OPT}	Class	GI		Unsuitable	Unstable	Unsuitable	Unstable	
163	B	SS-1	1.0	2.5	0.0	1.5	5		0.75	26	15	11	24	17	41	10	14	A-6a	1	140		HP		21"	15"
	163-0	SS-2	2.5	4.0	1.5	3.0	19			20	15	5	23	12	35	9	10	A-2-4	0						861 Geogrid
	23	SS-3	4.0	5.5	3.0	4.5	16		4.5							14	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	25	5	4.5							14	14	A-6a	10						
164	B	SS-1	1.0	2.5	0.0	1.5	25		4.5	26	15	11	35	25	60	10	14	A-6a	5	1100					
	164-0	SS-2	2.5	4.0	1.5	3.0	37		4.5	26	17	9	28	18	46	11	12	A-4a	2						
	23	SS-3	4.0	5.5	3.0	4.5	27		3							15	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	16	16	2.5							12	10	A-4a	8						
165	B	SS-1	1.0	2.5	0.0	1.5	16		3.25	30	16	14	36	29	65	11	14	A-6a	8	5000					
	165-0	SS-2	2.5	4.0	1.5	3.0	25		4.5	27	16	11	45	31	76	13	14	A-6a	8						
	23	SS-3	4.0	5.5	3.0	4.5	12		1.5							15	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	34	12	2							8	14	A-6a	10						
166	B	SS-1	1.0	2.5	0.0	1.5	12		4.5	18	17	1	37	18	55	11	12	A-4a	4	240					
	166-0	SS-2	2.5	4.0	1.5	3.0	31		4.5	30	15	15	37	33	70	15	14	A-6a	9						
	23	SS-3	4.0	5.5	3.0	4.5	29		4.5							9	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	28	12	4.5							13	14	A-6a	10						
167	B	SS-1	1.0	2.5	0.0	1.5	13		4.5	26	15	11	34	23	57	9	14	A-6a	5	1800					
	167-0	SS-2	2.5	4.0	1.5	3.0	29			19	14	5	13	12	25	8	6	A-1-b	0						
	23	SS-3	4.0	5.5	3.0	4.5	19									11	6	A-1-b	0						
		SS-4	5.5	7.0	4.5	6.0	11	11								9	6	A-1-b	0						
168	B	SS-1	1.0	2.5	0.0	1.5	15		4	21	13	8	32	20	52	11	10	A-4a	3	500					
	168-0	SS-2A	2.5	3.5	1.5	2.5	30		4.5	22	16	6	25	16	41	9	11	A-4a	1						
	23	SS-3	4.0	5.5	3.0	4.5	/42/50/4"									4	6	A-1-b	0						
		SS-4	5.5	7.0	4.5	6.0	50/5"	15								4	6	A-1-b	0						
169	B	SS-1	1.0	2.5	0.0	1.5	27			22	15	7	10	8	18	6	10	A-2-4	0	5500					18"
	169-0	SS-2	2.5	4.0	1.5	3.0	12		0.25	25	14	11	37	28	65	17	14	A-6a	6			HP & Mc			861 Geogrid
	23	SS-3	4.0	5.5	3.0	4.5	21		4.5							16	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	25	12	4.5							11	14	A-6a	10						
170	B	SS-1	1.0	2.5	0.0	1.5	28		4.5	29	17	12	38	28	66	12	14	A-6a	7	1800					
	170-0	SS-2	2.5	4.0	1.5	3.0	28		4.5	28	17	11	39	28	67	14	14	A-6a	7						
	23	SS-3	4.0	5.5	3.0	4.5	28		4.5							15	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	29	28	4.5							12	14	A-6a	10						
171	B	SS-1	1.0	2.5	0.0	1.5	10		4.5	30	17	13	39	31	70	15	14	A-6a	8	310		N_{60}		12"	12"
	171-0	SS-2	2.5	4.0	1.5	3.0	22			25	15	10	31	21	52	12	10	A-4a	3						204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	18									12	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	19	10	4.5							13	14	A-6a	10						

#	Boring	Sample	Sample Depth		Subgrade Depth		Standard Penetration		HP (tsf)	Physical Characteristics						Moisture		Ohio DOT		Sulfate Content (ppm)	Problem		Excavate and Replace (Item 204)		Recommendation (Enter depth in inches)
			From	To	From	To	N_{60}	N_{60L}		LL	PL	PI	% Silt	% Clay	P200	M_C	M_{OPT}	Class	GI		Unsuitable	Unstable	Unsuitable	Unstable	
172	B	SS-1	1.0	2.5	0.0	1.5	17		4.5	29	14	15	27	18	45	9	14	A-6a	4	3000					
	172-0	SS-2	2.5	4.0	1.5	3.0	27		4.5	25	15	10	38	26	64	12	10	A-4a	6						
	23	SS-3	4.0	5.5	3.0	4.5	28		4.5							12	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	19	17	3							15	10	A-4a	8						
173	B	SS-1	1.0	2.5	0.0	1.5	25									13	10	A-4a	8	140		Mc			**12"**
	173-0	SS-2	2.5	4.0	1.5	3.0	25		4.5	32	17	15	24	16	40	10	14	A-6a	2						**204 Geotextile**
	23	SS-3	4.0	5.5	3.0	4.5	12		1.5	25	17	8	49	12	61	18	12	A-4a	5						
		SS-4	5.5	7.0	4.5	6.0	22	12	4.5							17	10	A-4a	8						
174	B	SS-1	1.0	2.5	0.0	1.5	11		4.5	23	16	7	37	24	61	12	11	A-4a	5	190		N_{60}		**12"**	**12"**
	174-0	SS-2	2.5	4.0	1.5	3.0	37		4.5	24	15	9	36	23	59	11	10	A-4a	5						**204 Geotextile**
	23	SS-3	4.0	5.5	3.0	4.5	17		4.5							10	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	28	11	4							19	10	A-4a	8						
175	B	SS-1	1.0	2.5	0.0	1.5	25		4.5	22	14	8	39	26	65	7	10	A-4a	6	3600					
	175-0	SS-2	2.5	4.0	1.5	3.0	29		4.5							10	10	A-4a	8						
	23	SS-3	4.0	5.5	3.0	4.5	24		4.5	23	14	9	41	32	73	12	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	30	24	3.75							14	10	A-4a	8						
176	B	SS-1	1.0	2.5	0.0	1.5	27		4.5	26	15	11	18	15	33	8	10	A-2-6	0	260					
	176-0	SS-2	2.5	4.0	1.5	3.0	18		4.5							15	10	A-2-6	4			Mc			
	23	SS-3	4.0	5.5	3.0	4.5	18		4.5							8	10	A-2-6	4						
		SS-4	5.5	7.0	4.5	6.0	18	18	2.5	38	20	18	42	42	84	23	16	A-6b	11						
177	B	SS-1	1.0	2.5	0.0	1.5	19		4.5	28	15	13	40	30	70	14	14	A-6a	8	520					
	177-0	SS-2	2.5	4.0	1.5	3.0	21		4.25	26	16	10	45	31	76	13	11	A-4a	8						
	23	SS-3	4.0	5.5	3.0	4.5	19		4.5							14	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	19	19	4.5							11	10	A-4a	8						
178	B	SS-1	1.0	2.5	0.0	1.5	15		4.5	24	15	9	38	21	59	10	10	A-4a	5	280					
	178-0	SS-2	2.5	4.0	1.5	3.0	50/5"									5	6	A-1-b	0						
	23	SS-3	4.0	5.5	3.0	4.5	53			20	15	5	21	13	34	9	10	A-2-4	0						
		SS-4	5.5	7.0	4.5	6.0	22	15	4.5							8	10	A-4a	8						

PID: 117878

County-Route-Section: FRA-161-22.10/LIC-161-0.00
No. of Borings: 178

Geotechnical Consultant: DLZ Ohio, Inc.
Prepared By: Jeff Chou
Date prepared: 11/17/2023

Chemical Stabilization Options		
320	Rubblize & Roll	Option
206	Cement Stabilization	Option
	Lime Stabilization	No
206	Depth	12"

Excavate and Replace Stabilization Options	
Global Geotextile Average(N60L):	12"
Average(HP):	0"
Global Geogrid Average(N60L):	0"
Average(HP):	0"

Design CBR	7

% Samples within 6 feet of subgrade			
$N_{60} \leq 5$	1%	HP ≤ 0.5	1%
$N_{60} < 12$	15%	0.5 < HP ≤ 1	2%
$12 \leq N_{60} < 15$	11%	1 < HP ≤ 2	8%
$N_{60} \geq 20$	41%	HP > 2	79%
M+	14%		
Rock	2%		
Unsuitable	3%		

Excavate and Replace at Surface	
Average	6"
Maximum	36"
Minimum	0"

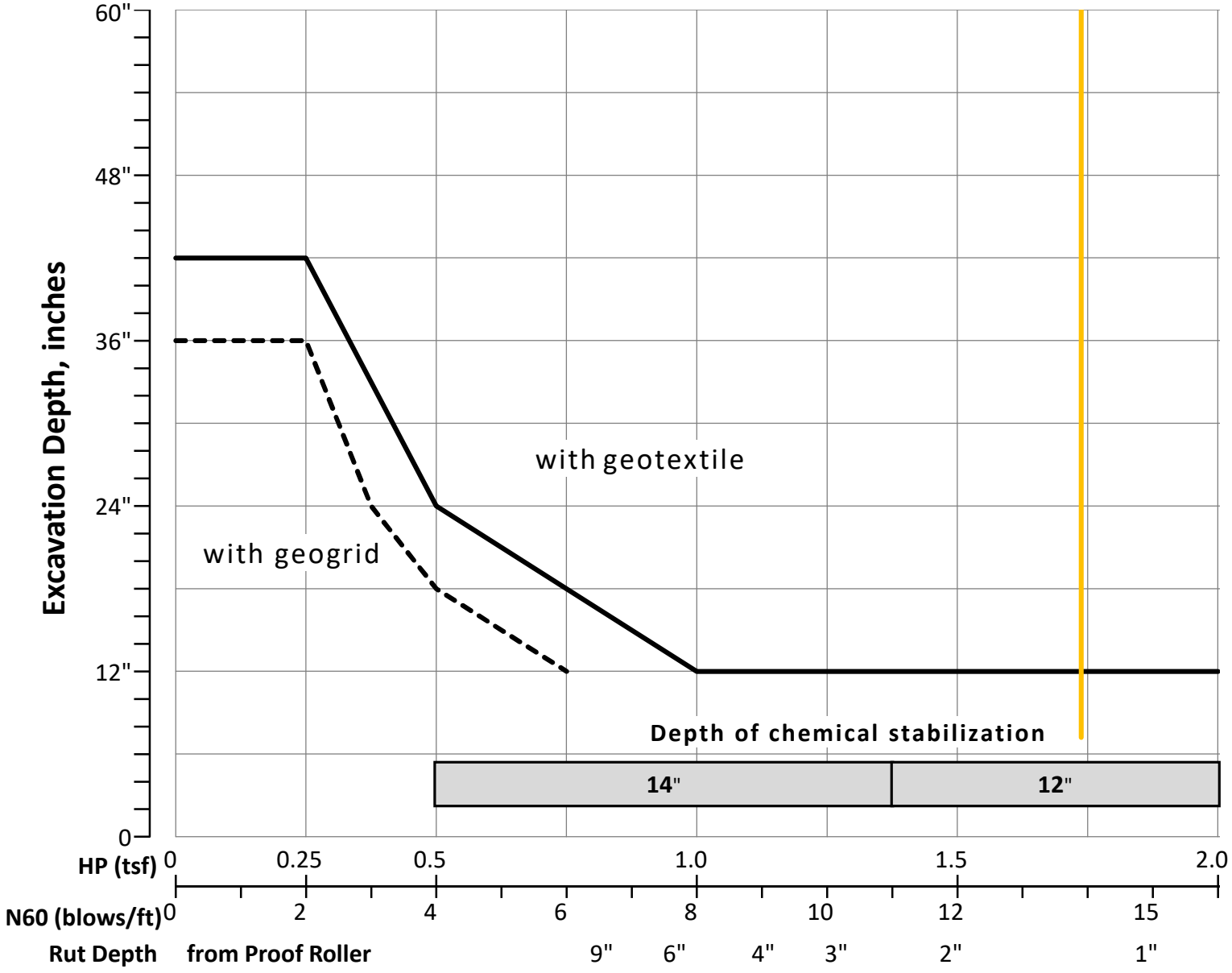
% Proposed Subgrade Surface	
Unstable & Unsuitable	38%
Unstable	36%
Unsuitable	2%

	N_{60}	N_{60L}	HP	LL	PL	PI	Silt	Clay	P 200	M_C	M_{OPT}	GI
Average	20	14	3.75	29	17	12	36	29	65	14	13	8
Maximum	87	30	4.50	47	25	27	60	61	95	62	20	16
Minimum	4	4	0.25	17	9	1	4	4	14	3	0	0

Classification Counts by Sample

ODOT Class	Rock	A-1-a	A-1-b	A-2-4	A-2-5	A-2-6	A-2-7	A-3	A-3a	A-4a	A-4b	A-5	A-6a	A-6b	A-7-5	A-7-6	A-8a	A-8b	Totals
Count	13	2	23	13	0	4	0	0	4	268	8	0	231	115	0	31	0	0	712
Percent	2%	0%	3%	2%	0%	1%	0%	0%	1%	38%	1%	0%	32%	16%	0%	4%	0%	0%	100%
% Rock|Granular|Cohesive	2%	44%									54%								100%
Surface Class Count	6	2	11	6	0	3	0	0	2	133	2	0	126	54	0	12	0	0	357
Surface Class Percent	2%	1%	3%	2%	0%	1%	0%	0%	1%	37%	1%	0%	35%	15%	0%	3%	0%	0%	100%

Fig. 600-1 – Subgrade Stabilization



OVERRIDE TABLE

Calculated Average	New Values	Check to Override
3.75		☐ HP
13.90		☐ N60L

Average HP
Average N_{60L}

OHIO DEPARTMENT OF TRANSPORTATION

OFFICE OF GEOTECHNICAL ENGINEERING

PLAN SUBGRADES
Geotechnical Design Manual Section 600

FRA-161-22.10/LIC-161-0.00
117878

PART 1 - 13.3 miles of pavement subgrade exploration for 3rd Lane widening into median. Analysis for borings east of Mink Street (~3.3 miles)

DLZ Ohio, Inc.

Prepared By: Jeff Chou
Date prepared: Friday, November 17, 2023

Checked by HJH 11/28/2023

H. Jason Hughes, P,E.
DLZ Ohio, Inc.
6121 Huntley Rd
Columbus, OH
614-987-0282
jhughes@dlz.com

NO. OF BORINGS: 46

#	Boring ID	Alignment	Station	Offset	Dir	Drill Rig	ER	Boring EL.	Proposed Subgrade EL	Cut Fill
1	B-001-0-23	FRA-161	1198+67	12	Rt	23 CME 75-kc-777	73	1071.1	1070.1	1.0 C
2	B-002-0-23	FRA-161	1203+10	20	Rt	23 CME 75-kc-777	73	1073.9	1072.9	1.0 C
3	B-003-0-23	FRA-161	1207+11	19	Lt	23 CME 75-kc-777	73	1076.7	1075.7	1.0 C
4	B-004-0-23	FRA-161	1210+68	21	Rt	23 CME 75-kc-777	73	1078.9	1077.9	1.0 C
5	B-005-0-23	FRA-161	1214+73	19	Lt	23 CME 75-kc-777	73	1081.2	1080.2	1.0 C
6	B-006-0-23	FRA-161	1218+73	20	Rt	23 CME 75-kc-777	73	1084.0	1083.0	1.0 C
7	B-007-0-23	FRA-161	1222+57	20	Lt	23 CME 75-kc-777	73	1087.6	1086.6	1.0 C
8	B-008-0-23	FRA-161	1226+59	19	Rt	23 CME 75-kc-777	73	1092.6	1091.6	1.0 C
9	B-009-0-23	FRA-161	1230+47	24	Lt	23 CME 75-kc-777	73	1096.7	1095.7	1.0 C
10	B-010-0-23	FRA-161	1234+64	28	Rt	23 CME 75-kc-777	73	1100.3	1099.3	1.0 C
11	B-011-0-23	FRA-161	1237+51	31	Lt	23 CME 75-kc-777	73	1104.3	1103.3	1.0 C
12	B-012-0-23	FRA-161	1242+57	28	Rt	23 CME 75-kc-777	73	1108.3	1107.3	1.0 C
13	B-013-0-23	FRA-161	1246+38	32	Lt	23 CME 75-kc-777	73	1112.1	1111.1	1.0 C
14	B-014-0-23	FRA-161	1250+24	30	Rt	23 CME 75-kc-777	73	1115.2	1114.2	1.0 C
15	B-015-0-23	LIC-161	0+79	29	Lt	23 CME 75-kc-777	73	1118.4	1117.4	1.0 C
16	B-016-0-23	LIC-161	4+61	28	Rt	23 CME 75-kc-777	73	1121.5	1120.5	1.0 C
17	B-017-0-23	LIC-161	8+26	25	Lt	23 CME 75-kc-777	73	1124.2	1123.2	1.0 C
18	B-018-0-23	LIC-161	12+26	30	Rt	23 CME 75-kc-777	73	1127.9	1126.9	1.0 C
19	B-019-0-23	LIC-161	16+66	27	Lt	23 CME 75-kc-777	73	1133.5	1132.5	1.0 C
20	B-020-0-23	LIC-161	20+32	28	Rt	23 CME 75-kc-777	73	1141.3	1140.3	1.0 C
21	B-021-0-23	LIC-161	24+15	28	Lt	23 CME 75-kc-777	73	1149.7	1148.7	1.0 C
22	B-022-0-23	LIC-161	28+05	29	Rt	23 CME 75-kc-777	73	1158.2	1157.2	1.0 C
23	B-023-0-23	LIC-161	31+78	28	Lt	23 CME 75-kc-777	73	1162.5	1161.5	1.0 C
24	B-024-0-23	LIC-161	36+07	32	Rt	23 CME 75-kc-777	73	1162.0	1161.0	1.0 C
25	B-025-0-23	LIC-161	40+08	26	Lt	23 CME 75-kc-777	73	1155.5	1154.5	1.0 C
26	B-026-0-23	LIC-161	43+84	30	Rt	23 CME 75-kc-777	73	1149.5	1148.5	1.0 C
27	B-027-0-23	LIC-161	47+99	30	Lt	23 CME 75-kc-777	73	1148.7	1147.7	1.0 C
28	B-028-0-23	LIC-161	51+82	31	Rt	23 CME 75-kc-777	73	1151.8	1150.8	1.0 C
29	B-029-0-23	LIC-161	56+18	27	Lt	23 CME 75-kc-777	73	1153.7	1152.7	1.0 C
30	B-030-0-23	LIC-161	60+08	31	Rt	23 CME 75-kc-777	73	1153.3	1152.3	1.0 C
31	B-031-0-23	LIC-161	63+86	30	Lt	23 CME 75-kc-777	73	1152.5	1151.5	1.0 C
32	B-032-0-23	LIC-161	67+72	29	Rt	23 CME 75-kc-777	73	1151.3	1150.3	1.0 C
33	B-033-0-23	LIC-161	71+94	29	Lt	23 CME 75-kc-777	73	1150.4	1149.4	1.0 C
34	B-034-0-23	LIC-161	75+56	24	Rt	23 CME 75-kc-777	73	1149.2	1148.2	1.0 C
35	B-035-0-23	LIC-161	79+67	27	Lt	23 CME 75-kc-777	73	1148.1	1147.1	1.0 C
36	B-036-0-23	LIC-161	83+67	31	Rt	23 CME 75-kc-777	73	1147.5	1146.5	1.0 C
37	B-037-0-23	LIC-161	87+64	28	Lt	23 CME 75-kc-777	73	1148.9	1147.9	1.0 C
38	B-038-0-23	LIC-161	91+59	28	Rt	23 CME 75-kc-777	73	1155.1	1154.1	1.0 C
39	B-039-0-23	LIC-161	95+53	26	Lt	23 CME 75-kc-777	73	1160.9	1159.9	1.0 C
40	B-040-0-23	LIC-161	99+42	31	Rt	23 CME 75-kc-777	73	1167.6	1166.6	1.0 C
41	B-041-0-23	LIC-161	103+48	28	Lt	23 CME 75-kc-777	73	1173.3	1172.3	1.0 C
42	B-042-0-23	LIC-161	107+46	31	Rt	23 CME 75-kc-777	73	1179.8	1178.8	1.0 C
43	B-043-0-23	LIC-161	111+03	29	Lt	23 CME 75-kc-777	73	1184.8	1183.8	1.0 C
44	B-044-0-23	LIC-161	115+12	32	Rt	23 CME 75-kc-777	73	1191.7	1190.7	1.0 C
45	B-045-0-23	LIC-161	119+33	23	Lt	23 CME 75-kc-777	73	1197.4	1196.4	1.0 C

#	Boring ID	Alignment	Station	Offset	Dir	Drill Rig	ER	Boring EL.	Proposed Subgrade EL	Cut Fill
46	B-046-0-23	LIC-161	123+19	27	Rt	23 CME 75-kc-777	73	1197.6	1196.6	1.0 C

OHIO DEPARTMENT OF TRANSPORTATION

Subgrade Analysis

V. 14.6 2/11/2022

#	Boring	Sample	Sample Depth		Subgrade Depth		Standard Penetration		HP (tsf)	Physical Characteristics						Moisture		Ohio DOT		Sulfate Content (ppm)	Problem		Excavate and Replace (Item 204)		Recommendation (Enter depth in inches)
			From	To	From	To	N_{60}	N_{60L}		LL	PL	PI	% Silt	% Clay	P200	M_C	M_{OPT}	Class	GI		Unsuitable	Unstable	Unsuitable	Unstable	
1	B	SS-1	1.0	2.5	0.0	1.5	11		4.5	33	18	15	29	37	66	14	14	A-6a	8	250		N_{60}		12"	12"
	001-0	SS-2	2.5	4.0	1.5	3.0	8		2.75							19	14	A-6a	10			N_{60} & Mc			204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	8		1.5	33	20	13	29	35	64	16	15	A-6a	7						
		SS-4	5.5	7.0	4.5	6.0	10	8	4.5							19	14	A-6a	10						
2	B	SS-1	1.0	2.5	0.0	1.5	21		3.5	27	17	10	40	32	72	13	12	A-4a	7	240					
	002-0	SS-2	2.5	4.0	1.5	3.0	34		3.5	41	22	19	27	43	70	14	19	A-7-6	11						
	23	SS-3	4.0	5.5	3.0	4.5	34		4.5							9	18	A-7-6	16						
		SS-4	5.5	7.0	4.5	6.0	15	15	4.5							14	18	A-7-6	16						
3	B	SS-1	1.0	2.5	0.0	1.5	18		4.5	29	17	12	30	34	64	13	14	A-6a	7						12"
	003-0	SS-2	2.5	4.0	1.5	3.0	25		4.5	47	21	26	32	58	90	26	18	A-7-6	16	180		Mc			204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	19		4.5							17	18	A-7-6	16						
		SS-4	5.5	7.0	4.5	6.0	16	16	3.5							62	18	A-7-6	16						
4	B	SS-1	1.0	2.5	0.0	1.5	22		4.5	35	12	23	34	44	78	14	16	A-6b	13	260					
	004-0	SS-2	2.5	4.0	1.5	3.0	17		4.5							12	16	A-6b	16						
	23	SS-3	4.0	5.5	3.0	4.5	17		2.75	38	20	18	34	45	79	23	16	A-6b	11						
		SS-4	5.5	7.0	4.5	6.0	16	16	3							12	16	A-6b	16						
5	B	SS-1	1.0	2.5	0.0	1.5	24		4.5	25	16	9	36	30	66	13	11	A-4a	6	240					
	005-0	SS-2	2.5	4.0	1.5	3.0	30		4.5	31	19	12	29	28	57	15	14	A-6a	5						
	23	SS-3	4.0	5.5	3.0	4.5	47		4.5							13	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	37	24	4.5							15	14	A-6a	10						
6	B	SS-1	1.0	2.5	0.0	1.5	18		4.5	29	18	11	34	32	66	14	14	A-6a	7	270					
	006-0	SS-2	2.5	4.0	1.5	3.0	13		4.5	31	18	13	25	24	49	14	14	A-6a	4						
	23	SS-3	4.0	5.5	3.0	4.5	13		4.5							16	18	A-7-6	16						
		SS-4	5.5	7.0	4.5	6.0	13	13	3							17	18	A-7-6	16						
7	B	SS-1	1.0	2.5	0.0	1.5	12		4.5	30	24	6	38	37	75	17	19	A-4a	8	180					12"
	007-0	SS-2	2.5	4.0	1.5	3.0	21		4.5							20	10	A-4a	8			Mc			204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	17		3	36	18	18	35	38	73	18	16	A-6b	11						
		SS-4	5.5	7.0	4.5	6.0	22	12	3.75							20	10	A-4a	8						
8	B	SS-1	1.0	2.5	0.0	1.5	12		4.5	35	18	17	35	33	68	16	16	A-6b	9	220					12"
	008-0	SS-2	2.5	4.0	1.5	3.0	16		2.75	39	19	20	36	49	85	24	16	A-6b	12			Mc			204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	15		2.5							20	16	A-6b	16						
		SS-4	5.5	7.0	4.5	6.0	17	12	2							16	16	A-6b	16						
9	B	SS-1	1.0	2.5	0.0	1.5	16		4.5	36	19	17	28	24	52	16	16	A-6b	6	230					12"
	009-0	SS-2	2.5	4.0	1.5	3.0	15		4.5	44	19	25	39	44	83	21	18	A-7-6	15			Mc			204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	15		3.5							22	18	A-7-6	16						
		SS-4	5.5	7.0	4.5	6.0	10	10	1.75							22	16	A-6b	16						

OHIO DEPARTMENT OF TRANSPORTATION

Subgrade Analysis

V. 14.6 2/11/2022

#	Boring	Sample	Sample Depth		Subgrade Depth		Standard Penetration		HP (tsf)	Physical Characteristics						Moisture		Ohio DOT		Sulfate Content (ppm)	Problem		Excavate and Replace (Item 204)		Recommendation (Enter depth in inches)
			From	To	From	To	N_{60}	N_{60L}		LL	PL	PI	% Silt	% Clay	P200	M_C	M_{OPT}	Class	GI		Unsuitable	Unstable	Unsuitable	Unstable	
10	B	SS-1	1.0	2.5	0.0	1.5	19		4.5	25	16	9	31	30	61	13	11	A-4a	5	210					
	010-0	SS-2	2.5	4.0	1.5	3.0	35		4.5							13	10	A-4a	8			Mc			
	23	SS-3	4.0	5.5	3.0	4.5	22		4.5							13	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	13	13		NP	NP	NP	23	16	39	16	11	A-4a	1						
11	B	SS-1	1.0	2.5	0.0	1.5	7		1	33	23	10	36	36	72	21	18	A-4a	7	210		HP & Mc		15"	15"
	011-0	SS-2	2.5	4.0	1.5	3.0	18		3.75	43	19	24	37	51	88	24	18	A-7-6	14			Mc			204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	12		3.75							25	18	A-7-6	16						
		SS-4	5.5	7.0	4.5	6.0	18	7	4.5							14	16	A-6b	16						
12	B	SS-1	1.0	2.5	0.0	1.5	8		4.5	33	17	16	39	38	77	16	16	A-6b	10	150		N_{60}		12"	12"
	012-0	SS-2	2.5	4.0	1.5	3.0	16		4.5	26	16	10	37	30	67	15	11	A-4a	6			Mc			204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	13		3.5							14	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	25	8	2							16	10	A-4a	8						
13	B	SS-1	1.0	2.5	0.0	1.5	8		4.5	35	19	16	39	42	81	18	16	A-6b	10	190		N_{60}		12"	12"
	013-0	SS-2	2.5	4.0	1.5	3.0	22		4.5							18	16	A-6b	16						204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	16		4.5	39	19	20	14	43	57	21	16	A-6b	8						
		SS-4	5.5	7.0	4.5	6.0	24	8	4.5							14	16	A-6b	16						
14	B	SS-1	1.0	2.5	0.0	1.5	8		3.75	30	18	12	39	36	75	18	14	A-6a	9	210		N_{60} & Mc		12"	12"
	014-0	SS-2	2.5	4.0	1.5	3.0	6			NP	NP	NP	18	16	34	12	10	A-2-4	0			N_{60}			861 Geogrid
	23	SS-3	4.0	5.5	3.0	4.5	13									17	10	A-2-4	0						
		SS-4	5.5	7.0	4.5	6.0	45	6								16	6	A-1-b	0						
15	B	SS-1	1.0	2.5	0.0	1.5	6		2	31	19	12	40	37	77	23	14	A-6a	9	380		N_{60} & Mc		18"	12"
	015-0	SS-2	2.5	4.0	1.5	3.0	12		3							23	14	A-6a	10			N_{60} & Mc			861 Geogrid
	23	SS-3	4.0	5.5	3.0	4.5	15		3.75	43	16	27	28	18	46	19	18	A-7-6	8						
		SS-4	5.5	7.0	4.5	6.0	22	6	4.5							14	18	A-7-6	16						
16	B	SS-1	1.0	2.5	0.0	1.5	11		3	30	18	12	40	34	74	16	14	A-6a	9	640		N_{60}		12"	12"
	016-0	SS-2	2.5	4.0	1.5	3.0	12		4	36	21	15	40	37	77	24	16	A-6a	10			N_{60} & Mc			204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	30		3.5							14	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	80	11	4.5							11	16	A-6b	16						
17	B	SS-1	1.0	2.5	0.0	1.5	13		3.5	36	18	18	38	35	73	13	16	A-6b	11	220					
	017-0	SS-2	2.5	4.0	1.5	3.0	15		2.75	34	17	17	32	31	63	16	16	A-6b	8						
	23	SS-3	4.0	5.5	3.0	4.5	21		3.25							21	16	A-6b	16						
		SS-4	5.5	7.0	4.5	6.0	54	13	4.5							22	16	A-6b	16						
18	B	SS-1	1.0	2.5	0.0	1.5	13		4.5	25	15	10	28	22	50	13	10	A-4a	3	310		N_{60} & Mc		12"	15"
	018-0	SS-2	2.5	4.0	1.5	3.0	13		1.75							14	10	A-4a	8			HP & Mc			204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	7		1.5	32	21	11	35	33	68	27	16	A-6a	7						
		SS-4	5.5	7.0	4.5	6.0	11	7	1.25							21	14	A-6a	10						

OHIO DEPARTMENT OF TRANSPORTATION

Subgrade Analysis

V. 14.6 2/11/2022

#	Boring	Sample	Sample Depth		Subgrade Depth		Standard Penetration		HP (tsf)	Physical Characteristics						Moisture		Ohio DOT		Sulfate Content (ppm)	Problem		Excavate and Replace (Item 204)		Recommendation (Enter depth in inches)
			From	To	From	To	N_{60}	N_{60L}		LL	PL	PI	% Silt	% Clay	P200	M_C	M_{OPT}	Class	GI		Unsuitable	Unstable	Unsuitable	Unstable	
19	B	SS-1	1.0	2.5	0.0	1.5	10		3.5	38	21	17	38	43	81	26	16	A-6b	11	360		N_{60} & Mc		**12"**	**12"**
	019-0	SS-2	2.5	4.0	1.5	3.0	15		4							17	16	A-6b	16						**204 Geotextile**
	23	SS-3	4.0	5.5	3.0	4.5	15		3	25	9	16	32	26	58	14	16	A-6b	7						
		SS-4	5.5	7.0	4.5	6.0	24	10	4.5							14	16	A-6b	16						
20	B	SS-1	1.0	2.5	0.0	1.5	8		3	28	17	11	33	33	66	17	14	A-6a	7	180		N_{60} & Mc		**12"**	**15"**
	020-0	SS-2	2.5	4.0	1.5	3.0	5		2.75	28	16	12	37	35	72	19	14	A-6a	8			N_{60} & Mc			**861 Geogrid**
	23	SS-3	4.0	5.5	3.0	4.5	8		3							16	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	27	5	4.5							9	14	A-6a	10						
21	B	SS-1	1.0	2.5	0.0	1.5	6		1	36	18	18	36	37	73	19	16	A-6b	11	420		HP & Mc		**18"**	**12"**
	021-0	SS-2	2.5	4.0	1.5	3.0	11		1.75	30	16	14	37	32	69	19	14	A-6a	8			HP & Mc			**861 Geogrid**
	23	SS-3	4.0	5.5	3.0	4.5	6		1.75							25	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	16	6	3.5							19	14	A-6a	10						
22	B	SS-1	1.0	2.5	0.0	1.5	6		2	30	18	12	36	33	69	17	14	A-6a	8	200		N_{60} & Mc		**18"**	**12"**
	022-0	SS-2	2.5	4.0	1.5	3.0	11		2.5							20	14	A-6a	10			N_{60} & Mc			**861 Geogrid**
	23	SS-3	4.0	5.5	3.0	4.5	10		4.5	26	16	10	35	31	66	14	11	A-4a	6						
		SS-4	5.5	7.0	4.5	6.0	18	6	3							15	10	A-4a	8						
23	B	SS-1	1.0	2.5	0.0	1.5	25			18	17	1	12	6	18	5	6	A-1-b	0	180					
	023-0	SS-2	2.5	4.0	1.5	3.0	25			NP	NP	NP	14	7	21	6	6	A-1-b	0						
	23	SS-3	4.0	5.5	3.0	4.5	39									3	6	A-1-b	0						
		SS-4	5.5	7.0	4.5	6.0	46	25								7	6	A-1-b	0						
24	B	SS-1	1.0	2.5	0.0	1.5	12		4.5	27	18	9	40	30	70	14	13	A-4a	7	<100					**12"**
	024-0	SS-2	2.5	4.0	1.5	3.0	13		1.5	30	19	11	38	42	80	20	14	A-6a	8			HP & Mc			**204 Geotextile**
	23	SS-3	4.0	5.5	3.0	4.5	17		2							20	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	21	12	2.5							14	14	A-6a	10						
25	B	SS-1	1.0	2.5	0.0	1.5	12		4.25	39	18	21	41	36	77	19	16	A-6b	12	1000		N_{60} & Mc		**12"**	**12"**
	025-0	SS-2	2.5	4.0	1.5	3.0	17		2.5							18	16	A-6b	16						**204 Geotextile**
	23	SS-3	4.0	5.5	3.0	4.5	17		1.5	43	20	23	37	47	84	23	18	A-7-6	14						
		SS-4	5.5	7.0	4.5	6.0	19	12	4.25							12	16	A-6b	16						
26	B	SS-1	1.0	2.5	0.0	1.5	8		4.5	34	18	16	40	41	81	21	16	A-6b	10	110		N_{60} & Mc		**12"**	**12"**
	026-0	SS-2	2.5	4.0	1.5	3.0	30		4.5	31	19	12	41	37	78	17	14	A-6a	9			Mc			**204 Geotextile**
	23	SS-3	4.0	5.5	3.0	4.5	16		4.5							16	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	24	8	4.5							12	14	A-6a	10						
27	B	SS-1	1.0	2.5	0.0	1.5	17		4.5	35	19	16	38	41	79	18	16	A-6b	10	270					
	027-0	SS-2	2.5	4.0	1.5	3.0	21		4.5							15	16	A-6b	16						
	23	SS-3	4.0	5.5	3.0	4.5	18		2.75	37	18	19	39	43	82	20	16	A-6b	12						
		SS-4	5.5	7.0	4.5	6.0	18	17	3							8	16	A-6b	16						

#	Boring	Sample	Sample Depth		Subgrade Depth		Standard Penetration		HP (tsf)	Physical Characteristics						Moisture		Ohio DOT		Sulfate Content (ppm)	Problem		Excavate and Replace (Item 204)		Recommendation (Enter depth in inches)
			From	To	From	To	N_{60}	N_{60L}		LL	PL	PI	% Silt	% Clay	P200	M_C	M_{OPT}	Class	GI		Unsuitable	Unstable	Unsuitable	Unstable	
28	B	SS-1	1.0	2.5	0.0	1.5	11		4.5	29	18	11	32	36	68	14	14	A-6a	7	620		N_{60}		12"	12"
	028-0	SS-2	2.5	4.0	1.5	3.0	21		4.5	31	17	14	38	38	76	15	14	A-6a	10						204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	12		4.5							21	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	13	11	3.25							11	14	A-6a	10						
29	B	SS-1	1.0	2.5	0.0	1.5	17		3	37	19	18	34	44	78	18	16	A-6b	11	110					
	029-0	SS-2	2.5	4.0	1.5	3.0	17		3.25	34	19	15	46	37	83	18	14	A-6a	10			Mc			
	23	SS-3	4.0	5.5	3.0	4.5	22		4.5							14	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	23	17	4							13	14	A-6a	10						
30	B	SS-1	1.0	2.5	0.0	1.5	7		4.5							13	10	A-4a	8	<100		N_{60} & Mc		15"	15"
	030-0	SS-2	2.5	4.0	1.5	3.0	25		4.5	26	16	10				14	11	A-4a	8			Mc			204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	25		4.5							17	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	17	7	4	28	19	9	50	32	82	17	14	A-4b	8						
31	B	SS-1	1.0	2.5	0.0	1.5	10		2.25	33	18	15	37	41	78	19	14	A-6a	10	1100		N_{60} & Mc		12"	12"
	031-0	SS-2	2.5	4.0	1.5	3.0	19		2.5	35	18	17	36	44	80	14	16	A-6b	11						204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	21		4.5							14	16	A-6b	16						
		SS-4	5.5	7.0	4.5	6.0	19	10	4.5								16	A-6b	16						
32	B	SS-1	1.0	2.5	0.0	1.5	12		4.5	33	20	13	37	35	72	18	15	A-6a	9	260		N_{60} & Mc		12"	12"
	032-0	SS-2	2.5	4.0	1.5	3.0	34		4.5	32	17	15	38	38	76	14	14	A-6a	10						204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	25		4							18	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	19	12	4.5							19	14	A-6a	10						
33	B	SS-1	1.0	2.5	0.0	1.5	16		4.5	31	16	15	39	33	72	15	14	A-6a	9	510					
	033-0	SS-2	2.5	4.0	1.5	3.0	27		4.5							12	14	A-6a	10						
	23	SS-3	4.0	5.5	3.0	4.5	17		3.75							20	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	18	16	2.5	30	18	12	39	33	72	20	14	A-6a	8						
34	B	SS-1	1.0	2.5	0.0	1.5	15		4.5	31	19	12	33	28	61	16	14	A-6a	6	310					
	034-0	SS-2	2.5	4.0	1.5	3.0	17		1.75	41	23	18	38	50	88	23	20	A-7-6	11			HP & Mc			
	23	SS-3	4.0	5.5	3.0	4.5	21		2.75							17	16	A-6b	16						
		SS-4	5.5	7.0	4.5	6.0	18	15	4.25							14	16	A-6b	16						
35	B	SS-1	1.0	2.5	0.0	1.5	13		4.25	31	16	15	43	36	79	18	14	A-6a	10	920		N_{60} & Mc		12"	15"
	035-0	SS-2	2.5	4.0	1.5	3.0	18		4.5							13	14	A-6a	10						204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	11		2.5	26	16	10	26	21	47	15	11	A-4a	2						
		SS-4	5.5	7.0	4.5	6.0	7	7	1.25							17	10	A-4a	8						
36	B	SS-1	1.0	2.5	0.0	1.5	6		4	29	17	12	37	37	74	17	14	A-6a	9	460		N_{60} & Mc		18"	12"
	036-0	SS-2	2.5	4.0	1.5	3.0	11		2.5							19	14	A-6a	10			N_{60} & Mc			861 Geogrid
	23	SS-3	4.0	5.5	3.0	4.5	15		2	34	21	13	36	29	65	20	16	A-6a	7						
		SS-4	5.5	7.0	4.5	6.0	10	6	1.25							17	14	A-6a	10						

#	Boring	Sample	Sample Depth		Subgrade Depth		Standard Penetration		HP (tsf)	Physical Characteristics						Moisture		Ohio DOT		Sulfate Content (ppm)	Problem		Excavate and Replace (Item 204)		Recommendation (Enter depth in inches)
			From	To	From	To	N_{60}	N_{60L}		LL	PL	PI	% Silt	% Clay	P200	M_C	M_{OPT}	Class	GI		Unsuitable	Unstable	Unsuitable	Unstable	
37	B	SS-1	1.0	2.5	0.0	1.5	16		4	24	15	9	46	41	87	17	10	A-4a	8	4900		Mc			
	037-0	SS-2	2.5	4.0	1.5	3.0	18		4.5	23	16	7	43	24	67	11	11	A-4a	6						
	23	SS-3	4.0	5.5	3.0	4.5	19		4.5							12	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	19	16	4.5							13	10	A-4a	8						
38	B	SS-1	1.0	2.5	0.0	1.5	17		4.5	27	17	10	35	30	65	13	12	A-4a	6	290					
	038-0	SS-2	2.5	4.0	1.5	3.0	22		4.5	24	16	8	37	30	67	14	11	A-4a	6			Mc			
	23	SS-3	4.0	5.5	3.0	4.5	13		4.5							13	16	A-6b	16						
		SS-4	5.5	7.0	4.5	6.0	21	13	4.5							14	16	A-6b	16						
39	B	SS-1	1.0	2.5	0.0	1.5	12		4.5	24	15	9	40	25	65	12	10	A-4a	6	170					**12"**
	039-0	SS-2A	2.5	3.3	1.5	2.3	16		4.5	23	14	9	32	21	53	19	10	A-4a	4			Mc			**204 Geotextile**
	23	SS-3	4.0	5.5	3.0	4.5	16		3.5							13	16	A-6b	16						
		SS-4	5.5	7.0	4.5	6.0	25	12	4							10	16	A-6b	16						
40	B	SS-1	1.0	2.5	0.0	1.5	7		3	29	18	11	36	27	63	15	14	A-6a	6	120		N_{60}		**15"**	**15"**
	040-0	SS-2	2.5	4.0	1.5	3.0	8		4.5	34	18	16	34	32	66	13	16	A-6b	9			N_{60}			**204 Geotextile**
	23	SS-3	4.0	5.5	3.0	4.5	16		2							14	16	A-6b	16						
		SS-4	5.5	7.0	4.5	6.0	17	7	4.5							14	16	A-6b	16						
41	B	SS-1	1.0	2.5	0.0	1.5	23		4.5	24	16	8	41	26	67	10	11	A-4a	6	4900					
	041-0	SS-2	2.5	4.0	1.5	3.0	16		4.5	21	15	6	35	22	57	11	10	A-4a	4						
	23	SS-3	4.0	5.5	3.0	4.5	21		4.5							10	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	23	16	3.5							14	10	A-4a	8						
42	B	SS-1	1.0	2.5	0.0	1.5	18		4.5	24	15	9	37	26	63	11	10	A-4a	6	400					
	042-0	SS-2	2.5	4.0	1.5	3.0	24		4.5	22	14	8	23	17	40	8	10	A-4a	1						
	23	SS-3	4.0	5.5	3.0	4.5	21		4.5							11	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	24	18	4.5							11	10	A-4a	8						
43	B	SS-1	1.0	2.5	0.0	1.5	11		1.5	31	19	12	42	36	78	19	14	A-6a	9	190		HP & Mc		**12"**	**12"**
	043-0	SS-2	2.5	4.0	1.5	3.0	12		1	32	18	14	43	36	79	22	14	A-6a	10			HP & Mc			**204 Geotextile**
	23	SS-3	4.0	5.5	3.0	4.5	21		4.5							13	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	15	11	4.5							11	14	A-6a	10						
44	B	SS-1	1.0	2.5	0.0	1.5	11		3	27	16	11	37	26	63	15	14	A-6a	6	190		N_{60}		**12"**	**12"**
	044-0	SS-2	2.5	4.0	1.5	3.0	22		4.25	30	14	16	38	36	74	16	16	A-6b	10						**204 Geotextile**
	23	SS-3	4.0	5.5	3.0	4.5	15		1.5							16	16	A-6b	16						
		SS-4	5.5	7.0	4.5	6.0	17	11	3.5							9	16	A-6b	16						
45	B	SS-1	1.0	2.5	0.0	1.5	50			18	17	1	4	19	23	6	6	A-1-b	0	440					
	045-0	SS-2	2.5	4.0	1.5	3.0	54			NP	NP	NP	10	9	19	5	6	A-1-b	0						
	23	SS-3	4.0	5.5	3.0	4.5	68									6	6	A-1-b	0						
		SS-4	5.5	7.0	4.5	6.0	87	30								7	6	A-1-b	0						

OHIO DEPARTMENT OF TRANSPORTATION

Subgrade Analysis

V. 14.6 2/11/2022

#	Boring	Sample	Sample Depth		Subgrade Depth		Standard Penetration		HP (tsf)	Physical Characteristics						Moisture		Ohio DOT		Sulfate Content (ppm)	Problem		Excavate and Replace (Item 204)		Recommendation (Enter depth in inches)
			From	To	From	To	N_{60}	N_{60L}		LL	PL	PI	% Silt	% Clay	P200	M_C	M_{OPT}	Class	GI		Unsuitable	Unstable	Unsuitable	Unstable	
46	B	SS-1	1.0	2.5	0.0	1.5	7		2.75	35	19	16	42	38	80	19	16	A-6b	10	190		N_{60} & Mc		15"	15"
	046-0	SS-2	2.5	4.0	1.5	3.0	15		2.75	35	17	18	37	34	71	18	16	A-6b	10						204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	16		2.5							18	16	A-6b	16						
		SS-4	5.5	7.0	4.5	6.0	22	7	4.5							13	16	A-6b	16						

PID: 117878

County-Route-Section: FRA-161-22.10/LIC-161-0.00
No. of Borings: 46

Geotechnical Consultant: DLZ Ohio, Inc.
Prepared By: Jeff Chou
Date prepared: 11/17/2023

Chemical Stabilization Options		
320	Rubblize & Roll	No
206	Cement Stabilization	Option
	Lime Stabilization	No
206	Depth	12"

Excavate and Replace Stabilization Options	
Global Geotextile Average(N60L):	12"
Average(HP):	0"
Global Geogrid Average(N60L):	0"
Average(HP):	0"

Design CBR	6

% Samples within 6 feet of subgrade			
$N_{60} \leq 5$	1%	HP ≤ 0.5	0%
$N_{60} < 12$	21%	0.5 < HP ≤ 1	2%
$12 \leq N_{60} < 15$	13%	1 < HP ≤ 2	11%
$N_{60} \geq 20$	32%	HP > 2	80%
M+	22%		
Rock	0%		
Unsuitable	1%		

Excavate and Replace at Surface	
Average	8"
Maximum	15"
Minimum	0"

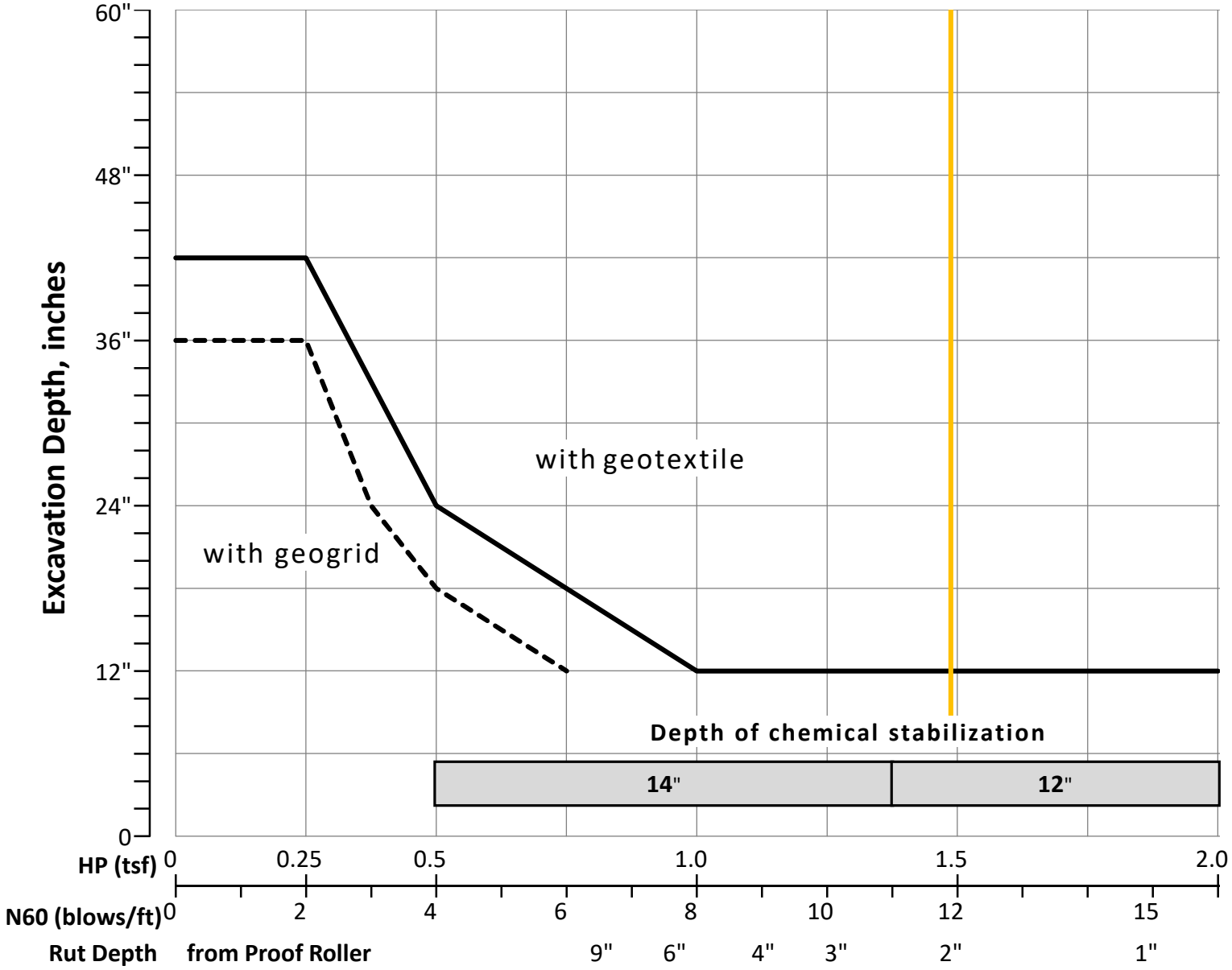
% Proposed Subgrade Surface	
Unstable & Unsuitable	54%
Unstable	54%
Unsuitable	0%

	N_{60}	N_{60L}	HP	LL	PL	PI	Silt	Clay	P 200	M_C	M_{OPT}	GI
Average	19	12	3.63	31	18	14	34	33	68	16	14	10
Maximum	87	30	4.50	47	24	27	50	58	90	62	20	16
Minimum	5	5	1.00	18	9	1	4	6	18	3	6	0

Classification Counts by Sample

ODOT Class	Rock	A-1-a	A-1-b	A-2-4	A-2-5	A-2-6	A-2-7	A-3	A-3a	A-4a	A-4b	A-5	A-6a	A-6b	A-7-5	A-7-6	A-8a	A-8b	Totals
Count	0	0	9	2	0	0	0	0	0	39	1	0	62	55	0	16	0	0	184
Percent	0%	0%	5%	1%	0%	0%	0%	0%	0%	21%	1%	0%	34%	30%	0%	9%	0%	0%	100%
% Rock|Granular|Cohesive	0%	27%									73%								100%
Surface Class Count	0	0	4	1	0	0	0	0	0	23	0	0	35	24	0	5	0	0	92
Surface Class Percent	0%	0%	4%	1%	0%	0%	0%	0%	0%	25%	0%	0%	38%	26%	0%	5%	0%	0%	100%

Fig. 600-1 – Subgrade Stabilization



OVERRIDE TABLE

Calculated Average	New Values	Check to Override
3.63		☐ HP
11.91		☐ N60L

Average HP
Average N_{60L}

OHIO DEPARTMENT OF TRANSPORTATION

OFFICE OF GEOTECHNICAL ENGINEERING

PLAN SUBGRADES
Geotechnical Design Manual Section 600

FRA-161-22.10/LIC-161-0.00
117878

PART 1 - 13.3 miles of pavement subgrade exploration for 3rd Lane widening into median. Analysis for borings east of Mink Street (~10 miles)

DLZ Ohio, Inc.

Prepared By: Jeff Chou
Date prepared: Friday, November 17, 2023

Checked by HJH 11/28/2023

H. Jason Hughes, P,E.
DLZ Ohio, Inc.
6121 Huntley Rd
Columbus, OH
614-987-0282
jhughes@dlz.com

NO. OF BORINGS: 132

#	Boring ID	Alignment	Station	Offset	Dir	Drill Rig	ER	Boring EL.	Proposed Subgrade EL	Cut Fill
1	B-047-0-23	LIC-161	126+95	25	Lt	23 CME 75-kc-777	73	1194.3	1193.3	1.0 C
2	B-048-0-23	LIC-161	130+93	26	Rt	23 CME 75-kc-777	73	1190.4	1189.4	1.0 C
3	B-049-0-23	LIC-161	134+68	29	Lt	23 CME 75-kc-777	73	1190.1	1189.1	1.0 C
4	B-050-0-23	LIC-161	138+54	27	Rt	23 CME 75-kc-777	73	1192.4	1191.4	1.0 C
5	B-051-0-23	LIC-161	142+53	28	Lt	23 CME 75-kc-777	73	1194.4	1193.4	1.0 C
6	B-052-0-23	LIC-161	146+44	28	Rt	23 CME 75-kc-777	73	1196.7	1195.7	1.0 C
7	B-053-0-23	LIC-161	150+39	26	Lt	23 CME 75-kc-777	73	1198.5	1197.5	1.0 C
8	B-054-0-23	LIC-161	154+22	23	Rt	23 CME 75-kc-777	73	1201.5	1200.5	1.0 C
9	B-055-0-23	LIC-161	158+28	27	Lt	23 CME 75-kc-777	73	1204.0	1203.0	1.0 C
10	B-056-0-23	LIC-161	162+18	28	Rt	23 CME 75-kc-777	73	1206.4	1205.4	1.0 C
11	B-057-0-23	LIC-161	166+16	22	Lt	23 CME 75-kc-777	73	1208.1	1207.1	1.0 C
12	B-058-0-23	LIC-161	170+18	27	Rt	23 CME 75-kc-777	73	1211.4	1210.4	1.0 C
13	B-059-0-23	LIC-161	173+76	26	Lt	23 CME 75-kc-777	73	1213.2	1212.2	1.0 C
14	B-060-0-23	LIC-161	177+82	28	Rt	23 CME 75-kc-777	73	1215.9	1214.9	1.0 C
15	B-061-0-23	LIC-161	181+77	27	Lt	23 CME 75-kc-777	73	1218.3	1217.3	1.0 C
16	B-062-0-23	LIC-161	185+71	30	Rt	23 CME 75-kc-777	73	1221.3	1220.3	1.0 C
17	B-063-0-23	LIC-161	189+54	28	Lt	23 CME 75-kc-777	73	1223.3	1222.3	1.0 C
18	B-064-0-23	LIC-161	193+50	31	Rt	23 CME 75-kc-777	73	1225.9	1224.9	1.0 C
19	B-065-0-23	LIC-161	197+50	28	Lt	23 CME 75-kc-777	73	1228.0	1227.0	1.0 C
20	B-066-0-23	LIC-161	201+38	30	Rt	23 CME 75-kc-777	73	1229.8	1228.8	1.0 C
21	B-067-0-23	LIC-161	205+27	29	Lt	23 CME 75-kc-777	73	1227.0	1226.0	1.0 C
22	B-068-0-23	LIC-161	209+21	29	Rt	23 CME 75-kc-777	73	1223.9	1222.9	1.0 C
23	B-069-0-23	LIC-161	213+15	30	Lt	23 CME 75-kc-777	73	1220.9	1219.9	1.0 C
24	B-070-0-23	LIC-161	217+11	28	Rt	23 CME 75-kc-777	73	1217.3	1216.3	1.0 C
25	B-071-0-23	LIC-161	220+91	28	Lt	23 CME 75-kc-777	73	1214.2	1213.2	1.0 C
26	B-072-0-23	LIC-161	224+79	28	Rt	23 CME 75-kc-777	73	1211.5	1210.5	1.0 C
27	B-073-0-23	LIC-161	228+82	28	Lt	23 CME 75-kc-777	73	1208.5	1207.5	1.0 C
28	B-074-0-23	LIC-161	232+81	27	Rt	23 CME 75-kc-777	73	1204.6	1203.6	1.0 C
29	B-075-0-23	LIC-161	236+62	27	Lt	23 CME 75-kc-777	73	1201.7	1200.7	1.0 C
30	B-076-0-23	LIC-161	240+63	23	Rt	23 CME 75-kc-777	73	1198.7	1197.7	1.0 C
31	B-077-0-23	LIC-161	244+68	28	Lt	23 CME 75-kc-777	73	1195.6	1194.6	1.0 C
32	B-078-0-23	LIC-161	248+70	30	Rt	23 CME 75-kc-777	73	1192.6	1191.6	1.0 C
33	B-079-0-23	LIC-161	252+40	29	Lt	23 CME 75-kc-777	73	1189.2	1188.2	1.0 C
34	B-080-0-23	LIC-161	256+19	30	Rt	23 CME 75-kc-777	73	1186.6	1185.6	1.0 C
35	B-081-0-23	LIC-161	260+14	29	Lt	23 CME 75-kc-777	73	1183.4	1182.4	1.0 C
36	B-082-0-23	LIC-161	264+09	29	Rt	23 CME 75-kc-777	73	1180.1	1179.1	1.0 C
37	B-083-0-23	LIC-161	267+81	29	Lt	23 CME 75-kc-777	73	1177.5	1176.5	1.0 C
38	B-084-0-23	LIC-161	272+10	30	Rt	23 CME 75-kc-777	73	1173.7	1172.7	1.0 C
39	B-085-0-23	LIC-161	275+86	29	Lt	23 CME 75-kc-777	73	1171.0	1170.0	1.0 C
40	B-086-0-23	LIC-161	279+68	29	Rt	23 CME 75-kc-777	73	1168.2	1167.2	1.0 C
41	B-087-0-23	LIC-161	283+68	28	Lt	23 CME 75-kc-777	73	1164.5	1163.5	1.0 C
42	B-088-0-23	LIC-161	287+65	30	Rt	23 CME 75-kc-777	73	1161.4	1160.4	1.0 C
43	B-089-0-23	LIC-161	291+72	29	Lt	23 CME 75-kc-777	73	1158.2	1157.2	1.0 C
44	B-090-0-23	LIC-161	295+74	31	Rt	23 CME 75-kc-777	73	1155.1	1154.1	1.0 C
45	B-091-0-23	LIC-161	299+50	27	Lt	23 CME 75-kc-777	73	1151.7	1150.7	1.0 C

#	Boring ID	Alignment	Station	Offset	Dir	Drill Rig	ER	Boring EL.	Proposed Subgrade EL	Cut Fill
46	B-092-0-23	LIC-161	303+64	31	Rt	23 CME 75-kc-777	73	1149.0	1148.0	1.0 C
47	B-093-0-23	LIC-161	307+67	28	Lt	23 CME 75-kc-777	73	1145.3	1144.3	1.0 C
48	B-094-0-23	LIC-161	311+43	28	Rt	23 CME 75-kc-777	73	1141.1	1140.1	1.0 C
49	B-095-0-23	LIC-161	315+47	20	Lt	23 CME 75-kc-777	73	1133.9	1132.9	1.0 C
50	B-096-0-23	LIC-161	319+57	30	Rt	23 CME 75-kc-777	73	1127.0	1126.0	1.0 C
51	B-097-0-23	LIC-161	323+38	26	Lt	23 CME 75-kc-777	73	1119.7	1118.7	1.0 C
52	B-098-0-23	LIC-161	327+20	30	Rt	23 CME 75-kc-777	73	1113.4	1112.4	1.0 C
53	B-099-0-23	LIC-161	331+40	28	Lt	23 CME 75-kc-777	73	1105.8	1104.8	1.0 C
54	B-100-0-23	LIC-161	335+16	29	Rt	23 CME 75-kc-777	73	1099.4	1098.4	1.0 C
55	B-101-0-23	LIC-161	339+04	28	Lt	23 CME 75-kc-777	73	1092.6	1091.6	1.0 C
56	B-102-0-23	LIC-161	343+31	25	Rt	23 CME 75-kc-777	73	1085.3	1084.3	1.0 C
57	B-103-0-23	LIC-161	347+36	28	Lt	23 CME 75-kc-777	73	1077.7	1076.7	1.0 C
58	B-104-0-23	LIC-161	350+90	28	Rt	23 CME 75-kc-777	73	1072.1	1071.1	1.0 C
59	B-105-0-23	LIC-161	355+15	25	Lt	23 CME 75-kc-777	73	1067.5	1066.5	1.0 C
60	B-106-0-23	LIC-161	359+10	27	Rt	23 CME 75-kc-777	73	1063.3	1062.3	1.0 C
61	B-107-0-23	LIC-161	363+11	26	Lt	23 CME 75-kc-777	73	1058.3	1057.3	1.0 C
62	B-108-0-23	LIC-161	366+71	27	Rt	23 CME 75-kc-777	73	1054.1	1053.1	1.0 C
63	B-109-0-23	LIC-161	370+86	23	Lt	23 CME 75-kc-777	73	1048.9	1047.9	1.0 C
64	B-110-0-23	LIC-161	374+82	28	Rt	23 CME 75-kc-777	73	1045.9	1044.9	1.0 C
65	B-111-0-23	LIC-161	379+06	26	Lt	23 CME 75-kc-777	73	1050.8	1049.8	1.0 C
66	B-112-0-23	LIC-161	382+70	30	Rt	23 CME 75-kc-777	73	1056.1	1055.1	1.0 C
67	B-113-0-23	LIC-161	386+80	28	Lt	23 CME 75-kc-777	73	1062.3	1061.3	1.0 C
68	B-114-0-23	LIC-161	390+60	29	Rt	23 CME 75-kc-777	73	1063.0	1062.0	1.0 C
69	B-115-0-23	LIC-161	394+64	28	Lt	23 CME 75-kc-777	73	1056.8	1055.8	1.0 C
70	B-116-0-23	LIC-161	398+62	29	Rt	23 CME 75-kc-777	73	1048.8	1047.8	1.0 C
71	B-117-0-23	LIC-161	402+84	27	Lt	23 CME 75-kc-777	73	1039.7	1038.7	1.0 C
72	B-118-0-23	LIC-161	406+53	29	Rt	23 CME 75-kc-777	73	1033.6	1032.6	1.0 C
73	B-119-0-23	LIC-161	410+60	25	Lt	23 CME 75-kc-777	73	1030.6	1029.6	1.0 C
74	B-120-0-23	LIC-161	414+38	30	Rt	23 CME 75-kc-777	73	1029.5	1028.5	1.0 C
75	B-121-0-23	LIC-161	418+45	29	Lt	23 CME 75-kc-777	73	1027.3	1026.3	1.0 C
76	B-122-0-23	LIC-161	422+22	28	Rt	23 CME 75-kc-777	73	1025.1	1024.1	1.0 C
77	B-123-0-23	LIC-161	426+24	26	Lt	23 CME 75-kc-777	73	1022.8	1021.8	1.0 C
78	B-124-0-23	LIC-161	430+19	29	Rt	23 CME 75-kc-777	73	1019.7	1018.7	1.0 C
79	B-125-0-23	LIC-161	434+23	28	Lt	23 CME 75-kc-777	73	1014.8	1013.8	1.0 C
80	B-126-0-23	LIC-161	438+34	30	Rt	23 CME 75-kc-777	73	1008.9	1007.9	1.0 C
81	B-127-0-23	LIC-161	442+15	28	Lt	23 CME 75-kc-777	73	1004.4	1003.4	1.0 C
82	B-128-0-23	LIC-161	445+99	30	Rt	23 CME 75-kc-777	73	998.8	997.8	1.0 C
83	B-129-0-23	LIC-161	450+00	31	Lt	23 CME 75-kc-777	73	993.8	992.8	1.0 C
84	B-130-0-23	LIC-161	454+02	29	Rt	23 CME 75-kc-777	73	991.2	990.2	1.0 C
85	B-131-0-23	LIC-161	457+89	29	Lt	23 CME 75-kc-777	73	989.6	988.6	1.0 C
86	B-132-0-23	LIC-161	461+81	27	Rt	23 CME 75-kc-777	73	987.2	986.2	1.0 C
87	B-133-0-23	LIC-161	465+94	25	Lt	23 CME 75-kc-777	73	987.5	986.5	1.0 C
88	B-134-0-23	LIC-161	469+83	26	Rt	23 CME 75-kc-777	73	991.4	990.4	1.0 C
89	B-135-0-23	LIC-161	473+79	29	Lt	23 CME 75-kc-777	73	989.9	988.9	1.0 C
90	B-136-0-23	LIC-161	477+57	28	Rt	23 CME 75-kc-777	73	983.6	982.6	1.0 C

#	Boring ID	Alignment	Station	Offset	Dir	Drill Rig	ER	Boring EL.	Proposed Subgrade EL	Cut Fill
91	B-137-0-23	LIC-161	481+39	24	Lt	23 CME 75-kc-777	73	977.7	976.7	1.0 C
92	B-138-0-23	LIC-161	485+21	25	Rt	23 CME 75-kc-777	73	975.4	974.4	1.0 C
93	B-139-0-23	LIC-161	489+21	27	Lt	23 CME 75-kc-777	73	977.5	976.5	1.0 C
94	B-140-0-23	LIC-161	493+18	28	Rt	23 CME 75-kc-777	73	984.9	983.9	1.0 C
95	B-141-0-23	LIC-161	496+82	27	Lt	23 CME 75-kc-777	73	992.0	991.0	1.0 C
96	B-142-0-23	LIC-161	500+77	27	Rt	23 CME 75-kc-777	73	1001.4	1000.4	1.0 C
97	B-143-0-23	LIC-161	505+04	28	Lt	23 CME 75-kc-777	73	1006.5	1005.5	1.0 C
98	B-144-0-23	LIC-161	508+75	27	Rt	23 CME 75-kc-777	73	1004.5	1003.5	1.0 C
99	B-145-0-23	LIC-161	512+63	29	Lt	23 CME 75-kc-777	73	996.8	995.8	1.0 C
100	B-146-0-23	LIC-161	516+63	29	Rt	23 CME 75-kc-777	73	985.1	984.1	1.0 C
101	B-147-0-23	LIC-161	520+62	29	Lt	23 CME 75-kc-777	73	972.7	971.7	1.0 C
102	B-148-0-23	LIC-161	524+29	28	Rt	23 CME 75-kc-777	73	961.7	960.7	1.0 C
103	B-149-0-23	LIC-161	528+46	28	Rt	23 CME 75-kc-777	73	950.7	949.7	1.0 C
104	B-150-0-23	LIC-161	532+30	28	Lt	23 CME 75-kc-777	73	946.5	945.5	1.0 C
105	B-151-0-23	LIC-161	536+44	30	Rt	23 CME 75-kc-777	73	948.4	947.4	1.0 C
106	B-152-0-23	LIC-161	540+38	26	Lt	23 CME 75-kc-777	73	949.8	948.8	1.0 C
107	B-153-0-23	LIC-161	544+29	26	Rt	23 CME 75-kc-777	73	950.7	949.7	1.0 C
108	B-154-0-23	LIC-161	548+35	28	Lt	23 CME 75-kc-777	73	948.6	947.6	1.0 C
109	B-155-0-23	LIC-161	552+31	24	Rt	23 CME 75-kc-777	73	946.5	945.5	1.0 C
110	B-156-0-23	LIC-161	556+35	19	Lt	23 CME 75-kc-777	73	944.5	943.5	1.0 C
111	B-157-0-23	LIC-161	560+28	14	Rt	23 CME 75-kc-777	73	943.0	942.0	1.0 C
112	B-158-0-23	LIC-161	564+14	12	Lt	23 CME 75-kc-777	73	940.8	939.8	1.0 C
113	B-159-0-23	LIC-161	568+11	15	Rt	23 CME 75-kc-777	73	938.8	937.8	1.0 C
114	B-160-0-23	LIC-161	571+94	14	Lt	23 CME 75-kc-777	73	936.8	935.8	1.0 C
115	B-161-0-23	LIC-161	576+37	12	Rt	23 CME 75-kc-777	73	934.9	933.9	1.0 C
116	B-162-0-23	LIC-161	580+37	8	Lt	23 CME 75-kc-777	73	932.1	931.1	1.0 C
117	B-163-0-23	LIC-161	584+20	16	Rt	23 CME 75-kc-777	73	929.9	928.9	1.0 C
118	B-164-0-23	LIC-161	588+15	10	Lt	23 CME 75-kc-777	73	927.8	926.8	1.0 C
119	B-165-0-23	LIC-161	592+25	15	Rt	23 CME 75-kc-777	73	926.9	925.9	1.0 C
120	B-166-0-23	LIC-161	596+03	13	Lt	23 CME 75-kc-777	73	926.0	925.0	1.0 C
121	B-167-0-23	LIC-161	600+03	14	Rt	23 CME 75-kc-777	73	924.8	923.8	1.0 C
122	B-168-0-23	LIC-161	604+08	14	Lt	23 CME 75-kc-777	73	923.7	922.7	1.0 C
123	B-169-0-23	LIC-161	608+17	16	Rt	23 CME 75-kc-777	73	922.6	921.6	1.0 C
124	B-170-0-23	LIC-161	612+03	12	Lt	23 CME 75-kc-777	73	921.9	920.9	1.0 C
125	B-171-0-23	LIC-161	615+92	14	Rt	23 CME 75-kc-777	73	920.7	919.7	1.0 C
126	B-172-0-23	LIC-161	619+86	12	Lt	23 CME 75-kc-777	73	919.8	918.8	1.0 C
127	B-173-0-23	LIC-161	623+83	15	Rt	23 CME 75-kc-777	73	918.8	917.8	1.0 C
128	B-174-0-23	LIC-161	627+79	13	Lt	23 CME 75-kc-777	73	918.2	917.2	1.0 C
129	B-175-0-23	LIC-161	631+52	16	Rt	23 CME 75-kc-777	73	917.1	916.1	1.0 C
130	B-176-0-23	LIC-161	636+46	12	Lt	23 CME 75-kc-777	73	917.8	916.8	1.0 C
131	B-177-0-23	LIC-161	639+67	14	Rt	23 CME 75-kc-777	73	918.0	917.0	1.0 C
132	B-178-0-23	LIC-161	643+46	12	Lt	23 CME 75-kc-777	73	919.7	918.7	1.0 C

#	Boring	Sample	Sample Depth		Subgrade Depth		Standard Penetration		HP (tsf)	Physical Characteristics						Moisture		Ohio DOT		Sulfate Content (ppm)	Problem		Excavate and Replace (Item 204)		Recommendation (Enter depth in inches)
			From	To	From	To	N_{60}	N_{60L}		LL	PL	PI	% Silt	% Clay	P200	M_C	M_{OPT}	Class	GI		Unsuitable	Unstable	Unsuitable	Unstable	
1	B	SS-1	1.0	2.5	0.0	1.5	13		4.5	26	16	10	32	29	61	11	11	A-4a	5	1600					
	047-0	SS-2	2.5	4.0	1.5	3.0	23		4.5	30	16	14	47	36	83	13	14	A-6a	10						
	23	SS-3	4.0	5.5	3.0	4.5	25		4							14	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	24	13	4.5							13	14	A-6a	10						
2	B	SS-1	1.0	2.5	0.0	1.5	18		4.5	27	16	11	37	30	67	11	14	A-6a	7	1600					
	048-0	SS-2	2.5	4.0	1.5	3.0	19		4.5	31	16	15	28	29	57	15	14	A-6a	6						
	23	SS-3	4.0	5.5	3.0	4.5	45		3							12	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	25	18	4.5							14	14	A-6a	10						
3	B	SS-1	1.0	2.5	0.0	1.5	17		1.75	31	16	15	33	33	66	14	14	A-6a	8	<100					
	049-0	SS-2	2.5	4.0	1.5	3.0	15		3							15	14	A-6a	10						
	23	SS-3	4.0	5.5	3.0	4.5	15		3.25							21	16	A-6b	16						
		SS-4	5.5	7.0	4.5	6.0	13	13	1.5	40	21	19	34	61	95	29	16	A-6b	12						
4	B	SS-1	1.0	2.5	0.0	1.5	17		4								14	A-6a	10	560					
	050-0	SS-2	2.5	4.0	1.5	3.0	24		4.5	29	16	13	35	33	68	13	14	A-6a	8						
	23	SS-3	4.0	5.5	3.0	4.5	13		3	34	18	16	33	44	77	16	16	A-6b	10						
		SS-4	5.5	7.0	4.5	6.0	17	13	3							14	16	A-6b	16						
5	B	SS-1	1.0	2.5	0.0	1.5	17		4.5	27	16	11	37	32	69	12	14	A-6a	7	<100					
	051-0	SS-2	2.5	4.0	1.5	3.0	23		4.5	25	16	9	35	30	65	13	11	A-4a	6						
	23	SS-3	4.0	5.5	3.0	4.5	21		4							12	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	22	17	4.25							12	10	A-4a	8						
6	B	SS-1	1.0	2.5	0.0	1.5	12			23	15	8	39	28	67	12	10	A-4a	6	1200					**12" 204 Geotextile**
	052-0	SS-2	2.5	4.0	1.5	3.0	11										10	A-4a	8			N_{60}			
	23	SS-3	4.0	5.5	3.0	4.5	8		1.25	21	11	10	38	24	62	12	10	A-4a	5						
		SS-4	5.5	7.0	4.5	6.0	16	8	2.25							12	10	A-4a	8						
7	B	SS-1	1.0	2.5	0.0	1.5	21		4.5	26	15	11	28	29	57	11	14	A-6a	5	460					
	053-0	SS-2	2.5	4.0	1.5	3.0	28		4.5	25	17	8	41	32	73	13	12	A-4a	8						
	23	SS-3	4.0	5.5	3.0	4.5	15		3.5							14	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	15	15	3.5							10	10	A-4a	8						
8	B	SS-1	1.0	2.5	0.0	1.5	16		4.5	23	16	7	42	26	68	12	11	A-4a	7	590					
	054-0	SS-2	2.5	4.0	1.5	3.0	18		3.5	17	16	1	40	31	71	12	11	A-4a	7						
	23	SS-3	4.0	5.5	3.0	4.5	13		2.5							13	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	12	12	2							13	10	A-4a	8						
9	B	SS-1	1.0	2.5	0.0	1.5	29		4.5	23	13	10	45	31	76	10	10	A-4a	8	3200					
	055-0	SS-2	2.5	4.0	1.5	3.0	29		4.5	22	14	8	44	32	76	13	10	A-4a	8			Mc			
	23	SS-3	4.0	5.5	3.0	4.5	21		4.5							4	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	23	21	4.5							11	10	A-4a	8						

OHIO DEPARTMENT OF TRANSPORTATION

Subgrade Analysis

V. 14.6 2/11/2022

#	Boring	Sample	Sample Depth		Subgrade Depth		Standard Penetration		HP (tsf)	Physical Characteristics						Moisture		Ohio DOT		Sulfate Content (ppm)	Problem		Excavate and Replace (Item 204)		Recommendation (Enter depth in inches)
			From	To	From	To	N_{60}	N_{60L}		LL	PL	PI	% Silt	% Clay	P200	M_C	M_{OPT}	Class	GI		Unsuitable	Unstable	Unsuitable	Unstable	
10	B	SS-1	1.0	2.5	0.0	1.5	21		4.5	20	15	5	41	30	71	9	10	A-4a	7	650					
	056-0	SS-2	2.5	4.0	1.5	3.0	22		4.5							10	10	A-4a	8						
	23	SS-3	4.0	5.5	3.0	4.5	15		3							13	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	11	11	2.5	23	16	7	41	26	67	14	11	A-4a	6						
11	B	SS-1	1.0	2.5	0.0	1.5	21		4.5	26	17	9	41	31	72	11	12	A-4a	7	300					
	057-0	SS-2	2.5	4.0	1.5	3.0	22		4.5	23	16	7	38	27	65	12	11	A-4a	6						
	23	SS-3	4.0	5.5	3.0	4.5	21		4.5							12	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	22	21	4							13	10	A-4a	8						
12	B	SS-1	1.0	2.5	0.0	1.5	17		4.5	23	14	9	39	29	68	11	10	A-4a	7	150					
	058-0	SS-2	2.5	4.0	1.5	3.0	25		4.5							12	10	A-4a	8						
	23	SS-3	4.0	5.5	3.0	4.5	28		4.5	24	15	9	38	29	67	13	10	A-4a	6						
		SS-4	5.5	7.0	4.5	6.0	19	17	4.5							11	10	A-4a	8						
13	B	SS-1	1.0	2.5	0.0	1.5	18		4.5	25	16	9	31	24	55	11	11	A-4a	4	110					
	059-0	SS-2	2.5	4.0	1.5	3.0	21		4.5	26	16	10	41	28	69	14	11	A-4a	7			Mc			
	23	SS-3	4.0	5.5	3.0	4.5	17		3.75							14	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	17	17	4.25							14	10	A-4a	8						
14	B	SS-1	1.0	2.5	0.0	1.5	17		4.5	25	15	10	37	28	65	15	10	A-4a	6	490		Mc			
	060-0	SS-2	2.5	4.0	1.5	3.0	16		4.5	23	15	8	35	25	60	11	10	A-4a	5						
	23	SS-3	4.0	5.5	3.0	4.5	19		4.25							14	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	17	16	3.25							13	10	A-4a	8						
15	B	SS-1	1.0	2.5	0.0	1.5	10		2.25	46	20	26	45	48	93	24	18	A-7-6	16	<100		N_{60} & Mc		12"	12" 861 Geogrid
	061-0	SS-2	2.5	4.0	1.5	3.0	11		3	41	18	23	44	49	93	24	18	A-7-6	13			N_{60} & Mc			
	23	SS-3	4.0	5.5	3.0	4.5	6		1.5							27	18	A-7-6	16						
		SS-4	5.5	7.0	4.5	6.0	10	6	2							15	18	A-7-6	16						
16	B	SS-1	1.0	2.5	0.0	1.5	15		4.5	29	16	13	37	32	69	13	14	A-6a	8	<100					
	062-0	SS-2	2.5	4.0	1.5	3.0	19		4.5	21	14	7	37	20	57	11	10	A-4a	4						
	23	SS-3	4.0	5.5	3.0	4.5	22		2.75							14	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	22	15	3.5							14	10	A-4a	8						
17	B	SS-1	1.0	2.5	0.0	1.5	12		4	31	17	14	40	34	74	18	14	A-6a	9	<100		N_{60} & Mc		12"	12" 204 Geotextile
	063-0	SS-2	2.5	4.0	1.5	3.0	18		4.5	22	15	7	37	22	59	12	10	A-4a	5						
	23	SS-3	4.0	5.5	3.0	4.5	17		4.5							13	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	22	12	4							13	10	A-4a	8						
18	B	SS-1	1.0	2.5	0.0	1.5	10		4.5	37	18	19	46	39	85	20	16	A-6b	12	220		N_{60} & Mc		12"	12" 204 Geotextile
	064-0	SS-2	2.5	4.0	1.5	3.0	13		2.5	36	20	16	47	35	82	22	16	A-6b	10			N_{60} & Mc			
	23	SS-3	4.0	5.5	3.0	4.5	11									21	10	A-4b	8						
		SS-4	5.5	7.0	4.5	6.0	13	10								23	10	A-4a	8						

#	Boring	Sample	Sample Depth		Subgrade Depth		Standard Penetration		HP (tsf)	Physical Characteristics						Moisture		Ohio DOT		Sulfate Content (ppm)	Problem		Excavate and Replace (Item 204)		Recommendation (Enter depth in inches)
			From	To	From	To	N_{60}	N_{60L}		LL	PL	PI	% Silt	% Clay	P200	M_C	M_{OPT}	Class	GI		Unsuitable	Unstable	Unsuitable	Unstable	
19	B	SS-1	1.0	2.5	0.0	1.5	17		4.5	23	16	7	27	16	43	9	11	A-4a	2	370					
	065-0	SS-2	2.5	4.0	1.5	3.0	21		4.5	22	15	7	31	16	47	10	10	A-4a	2						
	23	SS-3	4.0	5.5	3.0	4.5	15									16	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	17	15								20	10	A-4a	8						
20	B	SS-1	1.0	2.5	0.0	1.5	10		4	39	22	17	39	46	85	24	17	A-6b	11	360		N_{60} & Mc		12"	12"
	066-0	SS-2	2.5	4.0	1.5	3.0	15		2.25	45	19	26	40	36	76	21	18	A-7-6	15			Mc			204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	12		2.25							19	18	A-7-6	16						
		SS-4	5.5	7.0	4.5	6.0	13	10	4.5							14	18	A-7-6	16						
21	B	SS-1	1.0	2.5	0.0	1.5	11		4.5	41	23	18	46	36	82	22	20	A-7-6	11	200		N_{60}		12"	12"
	067-0	SS-2	2.5	4.0	1.5	3.0	21		1.75	41	20	21	41	40	81	25	18	A-7-6	13			HP & Mc			204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	11		1.25							17	18	A-7-6	16						
		SS-4	5.5	7.0	4.5	6.0	18	11								14	10	A-2-4	0						
22	B	SS-1	1.0	2.5	0.0	1.5	25		4.5	33	18	15	43	29	72	15	14	A-6a	9	300					12"
	068-0	SS-2A	2.5	2.5	1.5	1.5	17		4.5	28	13	15	32	22	54	14	14	A-6a	6						204 Geotextile
	23	SS-3A	3.0	3.0	2.0	2.0	13		1.25							22	14	A-6a	10			HP & Mc			
		SS-4	5.5	5.5	4.5	4.5	16	13	2.75							25	14	A-6a	10						
23	B	SS-1	1.0	2.5	0.0	1.5	12		4							16	10	A-4a	8	120		N_{60} & Mc		12"	12"
	069-0	SS-2A	2.5	3.4	1.5	2.4	8		0.75	29	19	10	42	31	73	22	14	A-4a	8			HP & Mc			861 Geogrid
	23	SS-3	4.0	5.5	3.0	4.5	11		1.25	23	18	5	47	33	80	21	13	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	19	8	4.5							18	10	A-4a	8						
24	B	SS-1	1.0	2.5	0.0	1.5	21		4.5	27	16	11	39	29	68	13	14	A-6a	7	360					
	070-0	SS-2	2.5	4.0	1.5	3.0	19		4.5	29	16	13	37	28	65	12	14	A-6a	7						
	23	SS-3	4.0	5.5	3.0	4.5	19		4.5							14	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	19	19	4.5							14	14	A-6a	10						
25	B	SS-1	1.0	2.5	0.0	1.5	8		2.75	33	17	16	40	39	79	18	16	A-6b	10	<100		N_{60}		12"	12"
	071-0	SS-2	2.5	4.0	1.5	3.0	13		1.75							19	16	A-6b	16			HP & Mc			204 Geotextile
	23	SS-3A	4.0	4.5	3.0	3.5	16		2.25	37	21	16	54	41	95	28	16	A-6b	10			Mc			
		SS-4	5.5	7.0	4.5	6.0	15	8	1.25							24	16	A-6b	16						
26	B	SS-1	1.0	2.5	0.0	1.5	24		4.5	28	16	12	36	34	70	13	14	A-6a	8	600					
	072-0	SS-2	2.5	4.0	1.5	3.0	27		4.5	28	16	12	40	30	70	14	14	A-6a	8						
	23	SS-3	4.0	5.5	3.0	4.5	15		4.5							14	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	13	13	4.5							12	14	A-6a	10						
27	B	SS-1	1.0	2.5	0.0	1.5	17		4.5	27	17	10	29	19	48	11	12	A-4a	3	1100					
	073-0	SS-2	2.5	4.0	1.5	3.0	25		4	24	15	9	40	29	69	13	10	A-4a	7			Mc			
	23	SS-3	4.0	5.5	3.0	4.5	18		3.75							12	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	16	16	3.5							12	10	A-4a	8						

#	Boring	Sample	Sample Depth		Subgrade Depth		Standard Penetration		HP (tsf)	Physical Characteristics						Moisture		Ohio DOT		Sulfate Content (ppm)	Problem		Excavate and Replace (Item 204)		Recommendation (Enter depth in inches)
			From	To	From	To	N_{60}	N_{60L}		LL	PL	PI	% Silt	% Clay	P200	M_C	M_{OPT}	Class	GI		Unsuitable	Unstable	Unsuitable	Unstable	
28	B	SS-1	1.0	2.5	0.0	1.5	25		4.5	23	16	7	43	27	70	10	11	A-4a	7	1400					12"
	074-0	SS-2	2.5	4.0	1.5	3.0	15		4.25	23	13	10	42	28	70	12	10	A-4a	7						204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	13		3.5							14	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	11	11	2.5							12	10	A-4a	8						
29	B	SS-1	1.0	2.5	0.0	1.5	34		4.5	25	15	10	35	31	66	11	10	A-4a	6	<100					
	075-0	SS-2	2.5	4.0	1.5	3.0	30		4.5	28	16	12	30	25	55	12	14	A-6a	5						
	23	SS-3	4.0	5.5	3.0	4.5	28		4.5							13	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	29	28	4.5							13	10	A-4a	8						
30	B	SS-1	1.0	2.5	0.0	1.5	8		3.5	34	17	17	38	31	69	18	16	A-6b	10	210		N_{60}		12"	15"
	076-0	SS-2	2.5	4.0	1.5	3.0	11		2.75	41	19	22	34	40	74	21	18	A-7-6	13			N_{60} & Mc			204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	7		3.5							20	18	A-7-6	16						
		SS-4	5.5	7.0	4.5	6.0	12	7	2							20	18	A-7-6	16						
31	B	SS-1	1.0	2.5	0.0	1.5	10		2.75	31	19	12	40	33	73	17	14	A-6a	8	610		N_{60} & Mc		12"	12"
	077-0	SS-2	2.5	4.0	1.5	3.0	16		3.5	30	18	12	35	45	80	18	14	A-6a	9			Mc			204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	16		2.5							16	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	28	10	4.5							12	14	A-6a	10						
32	B	SS-1	1.0	2.5	0.0	1.5	16		4.5	34	16	18	41	38	79	16	16	A-6b	11	140					
	078-0	SS-2	2.5	4.0	1.5	3.0	27		4	26	15	11	38	27	65	11	14	A-6a	6						
	23	SS-3A	4.0	5.0	3.0	4.0	19		1.5							16	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	25	16	4.5							13	14	A-6a	10						
33	B	SS-1	1.0	2.5	0.0	1.5	15		2.75	28	12	16	34	26	60	17	16	A-6b	7	240					
	079-0	SS-2	2.5	4.0	1.5	3.0	19		2.5	26	15	11	32	29	61	16	14	A-6a	6						
	23	SS-3A	4.0	5.0	3.0	4.0	19		4							13	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	22	15	4							14	14	A-6a	10						
34	B	SS-1	1.0	2.5	0.0	1.5	11		3.5	27	15	12	33	25	58	12	14	A-6a	5	260		N_{60}		12"	12"
	080-0	SS-2	2.5	4.0	1.5	3.0	16		3.75							13	14	A-6a	10						204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	18		4.5							13	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	17	11	3	35	24	11	43	26	69	23	19	A-6a	7						
35	B	SS-1	1.0	2.5	0.0	1.5	15		4	25	16	9	38	27	65	13	11	A-4a	6	<100					
	081-0	SS-2	2.5	4.0	1.5	3.0	22		4.5							12	10	A-4a	8						
	23	SS-3	4.0	5.5	3.0	4.5	24		4.5	28	18	10	36	31	67	15	13	A-4a	6						
		SS-4	5.5	7.0	4.5	6.0	23	15	2.25							15	10	A-4a	8						
36	B	SS-1	1.0	2.5	0.0	1.5	13		4.5	29	17	12	28	27	55	11	14	A-6a	5	1600					12"
	082-0	SS-2	2.5	4.0	1.5	3.0	13		4	36	19	17	37	34	71	21	16	A-6b	10			N_{60} & Mc			204 Geotextile
	23	SS-3A	4.0	4.6	3.0	3.6	16		4.5							14	16	A-6b	16						
		SS-4	5.5	7.0	4.5	6.0	13	13	4.5							13	16	A-6b	16						

#	Boring	Sample	Sample Depth		Subgrade Depth		Standard Penetration		HP (tsf)	Physical Characteristics						Moisture		Ohio DOT		Sulfate Content (ppm)	Problem		Excavate and Replace (Item 204)		Recommendation (Enter depth in inches)
			From	To	From	To	N_{60}	N_{60L}		LL	PL	PI	% Silt	% Clay	P200	M_C	M_{OPT}	Class	GI		Unsuitable	Unstable	Unsuitable	Unstable	
37	B	SS-1	1.0	2.5	0.0	1.5	10		2.5	36	18	18	34	49	83	22	16	A-6b	11	140		N_{60} & Mc		12"	12"
	083-0	SS-2	2.5	4.0	1.5	3.0	13		2.25							13	16	A-6b	16						204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	11		1.75	37	18	19	32	41	73	22	16	A-6b	11						
		SS-4	5.5	7.0	4.5	6.0	10	10	0.75							24	16	A-6b	16						
38	B	SS-1	1.0	2.5	0.0	1.5	7		4.5	39	18	21	48	39	87	22	16	A-6b	12	160		N_{60} & Mc		15"	36"
	084-0	SS-2	2.5	4.0	1.5	3.0	21		1.5	41	19	22	45	38	83	23	18	A-7-6	13			HP & Mc			861 Geogrid
	23	SS-3	4.0	5.5	3.0	4.5	4		0.25							25	16	A-6b	16						
		SS-4A	5.5	7.0	4.5	6.0	10	4	0.25							24	18	A-7-6	16						
39	B	SS-1	1.0	2.5	0.0	1.5	22		4.5	35	17	18	40	28	68	12	16	A-6b	10	420					
	085-0	SS-2	2.5	4.0	1.5	3.0	25		4.5	25	16	9	40	27	67	12	11	A-4a	6						
	23	SS-3	4.0	5.5	3.0	4.5	24		1.5							11	16	A-6b	16						
		SS-4	5.5	7.0	4.5	6.0	24	22	3.5							12	16	A-6b	16						
40	B	SS-1	1.0	2.5	0.0	1.5	21		4.5	28	15	13	41	26	67	13	14	A-6a	8	180					
	086-0	SS-2	2.5	4.0	1.5	3.0	21		4.5	22	14	8	40	24	64	11	10	A-4a	6						
	23	SS-3A	4.0	5.5	3.0	4.5	25		4.5							9	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	27	21	4.5							11	10	A-4a	8						
41	B	SS-1	1.0	2.5	0.0	1.5	15		4	31	11	20	36	31	67	14	16	A-6b	10	160					
	087-0	SS-2	2.5	4.0	1.5	3.0	22		4.5	31	18	13	42	34	76	15	14	A-6a	9						
	23	SS-3	4.0	5.5	3.0	4.5	18		4.5							15	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	17	15	3							17	14	A-6a	10						
42	B	SS-1	1.0	2.5	0.0	1.5	8		4.5	29	16	13	42	32	74	15	14	A-6a	9	460		N_{60}		12"	12"
	088-0	SS-2	2.5	4.0	1.5	3.0	23		4.5	34	16	18	41	31	72	15	16	A-6b	11						204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	24		4.5							18	16	A-6b	16						
		SS-4	5.5	7.0	4.5	6.0	30	8	4.5							16	16	A-6b	16						
43	B	SS-1	1.0	2.5	0.0	1.5	17		4.5	23	17	6	37	31	68	14	12	A-4a	7	2000					12"
	089-0	SS-2	2.5	4.0	1.5	3.0	23		4.5							12	10	A-4a	8						204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	17			22	18	4	20	10	30	13	10	A-2-4	0						
		SS-4	5.5	7.0	4.5	6.0	11	11	2							14	10	A-4a	8						
44	B	SS-1	1.0	2.5	0.0	1.5	13		4.5	33	17	16	41	36	77	17	16	A-6b	10	410					
	090-0	SS-2	2.5	4.0	1.5	3.0	24		2.5	34	18	16	41	35	76	16	16	A-6b	10						
	23	SS-3	4.0	5.5	3.0	4.5	25		4.5							19	16	A-6b	16						
		SS-4	5.5	7.0	4.5	6.0	13	13	1.25							20	16	A-6b	16						
45	B	SS-1	1.0	2.5	0.0	1.5	13		2.75	28	15	13	35	38	73	18	14	A-6a	9	390		N_{60} & Mc		12"	12"
	091-0	SS-2	2.5	4.0	1.5	3.0	27		4.5	24	14	10	41	30	71	13	10	A-4a	7			Mc			204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	28		4.5							14	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	31	13	4.5							11	10	A-4a	8						

#	Boring	Sample	Sample Depth		Subgrade Depth		Standard Penetration		HP (tsf)	Physical Characteristics						Moisture		Ohio DOT		Sulfate Content (ppm)	Problem		Excavate and Replace (Item 204)		Recommendation (Enter depth in inches)
			From	To	From	To	N_{60}	N_{60L}		LL	PL	PI	% Silt	% Clay	P200	M_C	M_{OPT}	Class	GI		Unsuitable	Unstable	Unsuitable	Unstable	
46	B	SS-1	1.0	2.5	0.0	1.5	10		4.25	25	16	9	41	29	70	15	11	A-4a	7	230		N_{60} & Mc		12"	12"
	092-0	SS-2	2.5	4.0	1.5	3.0	18		4.5	27	18	9	37	24	61	11	13	A-4a	5						204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	23		4.5							11	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	15	10	4.5							16	10	A-4a	8						
47	B	SS-1	1.0	2.5	0.0	1.5	13		3.5	31	18	13	30	31	61	16	14	A-6a	6	250					12"
	093-0	SS-2	2.5	4.0	1.5	3.0	8		2.5	28	15	13	38	33	71	16	14	A-6a	8			N_{60}			204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	11		3							19	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	18	8	4.25							14	14	A-6a	10						
48	B	SS-1	1.0	2.5	0.0	1.5	5		3	32	17	15	40	35	75	17	14	A-6a	10	360		N_{60} & Mc		21"	15"
	094-0	SS-2	2.5	4.0	1.5	3.0	7		1.5	34	19	15	38	38	76	20	14	A-6a	10			HP & Mc			861 Geogrid
	23	SS-3	4.0	5.5	3.0	4.5	12		4							20	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	24	5	4.5							13	14	A-6a	10						
49	B	SS-1	1.0	2.5	0.0	1.5	12		2.75	22	15	7	35	23	58	13	10	A-4a	5	130		N_{60} & Mc		12"	12"
	095-0	SS-2	2.5	4.0	1.5	3.0	13		1.75							20	10	A-4a	8			HP & Mc			204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	17		2.5	23	14	9	36	24	60	12	10	A-4a	5						
		SS-4	5.5	7.0	4.5	6.0	16	12	3.5							14	10	A-4a	8						
50	B	SS-1	1.0	2.5	0.0	1.5	10		4.5	29	18	11	35	27	62	15	14	A-6a	6	390		N_{60}		12"	12"
	096-0	SS-2	2.5	4.0	1.5	3.0	16		4.5	29	17	12	40	33	73	15	14	A-6a	8						204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	33		4.5							14	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	27	10	4.5							17	14	A-6a	10						
51	B	SS-1	1.0	2.5	0.0	1.5	7		1	27	16	11	38	32	70	15	14	A-6a	7	180		HP		15"	15"
	097-0	SS-2	2.5	4.0	1.5	3.0	29		4	25	16	9	29	24	53	12	11	A-4a	4						204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	16		4.5							13	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	17	7	4.5							10	10	A-4a	8						
52	B	SS-1	1.0	2.5	0.0	1.5	28		4.5	23	16	7	38	24	62	10	11	A-4a	5	5700					
	098-0	SS-2	2.5	4.0	1.5	3.0	25		4.5	25	15	10	34	28	62	12	10	A-4a	5						
	23	SS-3	4.0	5.5	3.0	4.5	47		4.5							10	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	42	25	4.5							10	10	A-4a	8						
53	B	SS-1	1.0	2.5	0.0	1.5	13		4.5	24	15	9	38	31	69	11	10	A-4a	7	240					
	099-0	SS-2	2.5	4.0	1.5	3.0	22		4.5	26	15	11	34	34	68	12	14	A-6a	7						
	23	SS-3	4.0	5.5	3.0	4.5	19		4.5							11	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	22	13	4							11	14	A-6a	10						
54	B	SS-1	1.0	2.5	0.0	1.5	21		4.5	33	17	16	38	34	72	13	16	A-6b	10	340					
	100-0	SS-2	2.5	4.0	1.5	3.0	18		4.5	31	17	14	42	34	76	17	14	A-6a	10			Mc			
	23	SS-3	4.0	5.5	3.0	4.5	41		4.5							12	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	21	18	4.5							19	14	A-6a	10						

#	Boring	Sample	Sample Depth		Subgrade Depth		Standard Penetration		HP (tsf)	Physical Characteristics						Moisture		Ohio DOT		Sulfate Content (ppm)	Problem		Excavate and Replace (Item 204)		Recommendation (Enter depth in inches)
			From	To	From	To	N_{60}	N_{60L}		LL	PL	PI	% Silt	% Clay	P200	M_C	M_{OPT}	Class	GI		Unsuitable	Unstable	Unsuitable	Unstable	
55	B	SS-1	1.0	2.5	0.0	1.5	18			21	16	5	26	16	42	7	11	A-4a	1	270					
	101-0	SS-2	2.5	4.0	1.5	3.0	21			NP	NP	NP	19	27	46	14	11	A-4a	2			Mc			
	23	SS-3	4.0	5.5	3.0	4.5	16									15	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	18	16								16	10	A-4a	8						
56	B	SS-1	1.0	2.5	0.0	1.5	12		4.5	30	14	16	37	30	67	13	16	A-6b	9	170					
	102-0	SS-2	2.5	4.0	1.5	3.0	27		4.5	27	16	11	47	31	78	12	14	A-6a	8						
	23	SS-3	4.0	5.5	3.0	4.5	39		4.5							10	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	30	12	4.5							13	14	A-6a	10						
57	B	SS-1	1.0	2.5	0.0	1.5	17		4.5	26	16	10	36	29	65	12	11	A-4a	6	420					**12" 204 Geotextile**
	103-0	SS-2	2.5	4.0	1.5	3.0	28		4.5	30	17	13	37	31	68	13	14	A-6a	8						
	23	SS-3	4.0	5.5	3.0	4.5	17		3.25							22	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	16	16	2							24	14	A-6a	10						
58	B	SS-1	1.0	2.5	0.0	1.5	28		3	NP	NP	NP	17	4	21	26	6	A-1-b	0	470					**36" 204 Geotextile**
	104-0	SS-2	2.5	4.0	1.5	3.0	24		3.5							29	6	A-1-b	0						
	23	SS-3A	4.0	5.5	3.0	4.5	4		0.25							24	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	5	4								6	14	A-6a	10						
59	B	SS-1	1.0	2.5	0.0	1.5	19		4.5	20	13	7	39	23	62	10	10	A-4a	5	940					
	105-0	SS-2	2.5	4.0	1.5	3.0	25		4.5							9	10	A-4a	8						
	23	SS-3	4.0	5.5	3.0	4.5	41		4.5							10	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	34	19	4.5	NP	NP	NP	34	5	39	21	11	A-4a	1						
60	B	SS-1	1.0	2.5	0.0	1.5	17		4.5	24	15	9	39	25	64	11	10	A-4a	6	1300					
	106-0	SS-2	2.5	4.0	1.5	3.0	29		4.5	25	17	8	38	24	62	12	12	A-4a	5						
	23	SS-3	4.0	5.5	3.0	4.5	28		4.5							12	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	21	17	4.5							10	10	A-4a	8						
61	B	SS-1	1.0	2.5	0.0	1.5	22			18	15	3	19	10	29	10	10	A-2-4	0	1700					
	107-0	SS-2	2.5	4.0	1.5	3.0	41		4.25	23	15	8	31	22	53	11	10	A-4a	4						
	23	SS-3	4.0	5.5	3.0	4.5	33		4.5							11	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	28	22	4.5							11	10	A-4a	8						
62	B	SS-1	1.0	2.5	0.0	1.5	19		4.5	28	16	12	36	29	65	13	14	A-6a	7	420					**12" 204 Geotextile**
	108-0	SS-2	2.5	4.0	1.5	3.0	10		3.75	27	17	10	35	27	62	13	12	A-4a	5			N_{60}			
	23	SS-3	4.0	5.5	3.0	4.5	11		4.25							15	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	13	10	3.75							11	10	A-4a	8						
63	B	SS-1	1.0	2.5	0.0	1.5	18		3.25	25	16	9	31	27	58	12	11	A-4a	5	330					
	109-0	SS-2	2.5	4.0	1.5	3.0	29		4.5	22	14	8	37	26	63	12	10	A-4a	6						
	23	SS-3	4.0	5.5	3.0	4.5	16		4.5							12	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	15	15	4.5							12	10	A-4a	8						

#	Boring	Sample	Sample Depth		Subgrade Depth		Standard Penetration		HP (tsf)	Physical Characteristics						Moisture		Ohio DOT		Sulfate Content (ppm)	Problem		Excavate and Replace (Item 204)		Recommendation (Enter depth in inches)
			From	To	From	To	N_{60}	N_{60L}		LL	PL	PI	% Silt	% Clay	P200	M_C	M_{OPT}	Class	GI		Unsuitable	Unstable	Unsuitable	Unstable	
64	B	SS-1	1.0	2.5	0.0	1.5	6		1	29	15	14	32	28	60	14	14	A-6a	7	<100		HP		18"	15"
	110-0	SS-2	2.5	4.0	1.5	3.0	11		1	29	16	13	35	23	58	17	14	A-6a	6			HP & Mc			861 Geogrid
	23	SS-3	4.0	5.5	3.0	4.5	7		2							13	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	5	5	3							12	14	A-6a	10						
65	B	SS-1	1.0	2.5	0.0	1.5	16		4.5	25	15	10	42	26	68	12	10	A-4a	7	1600					
	111-0	SS-2	2.5	4.0	1.5	3.0	16		2.75	22	15	7	35	31	66	13	10	A-4a	6			Mc			
	23	SS-3	4.0	5.5	3.0	4.5	17		3.25							11	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	13	13	3							12	10	A-4a	8						
66	B	SS-1	1.0	2.5	0.0	1.5	17		4.5	21	15	6	44	29	73	10	10	A-4a	8	1500					12"
	112-0	SS-2	2.5	4.0	1.5	3.0	12		4.5	21	14	7	34	21	55	10	10	A-4a	4						204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	10		3							10	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	17	10	3							11	10	A-4a	8						
67	B	SS-1	1.0	2.5	0.0	1.5	24		4.5	32	19	13	39	45	84	14	14	A-6a	9	390					
	113-0	SS-2	2.5	4.0	1.5	3.0	28		4.5	26	17	9	41	34	75	13	12	A-4a	8						
	23	SS-3	4.0	5.5	3.0	4.5	27		4.5							12	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	25	24	4.5							12	10	A-4a	8						
68	B	SS-1	1.0	2.5	0.0	1.5	17		4.5	23	15	8	36	29	65	10	10	A-4a	6	1700					
	114-0	SS-2	2.5	4.0	1.5	3.0	34		4.5	36	21	15	46	28	74	18	16	A-6a	10						
	23	SS-3	4.0	5.5	3.0	4.5	18		4.25							14	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	13	13	4.5							21	14	A-6a	10						
69	B	SS-1	1.0	2.5	0.0	1.5	17		4.5	31	17	14	34	34	68	14	14	A-6a	8	670					
	115-0	SS-2	2.5	4.0	1.5	3.0	/7/50/2"		4.5	29	18	11	34	29	63	14	14	A-6a	6						
	23	SS-3	4.0	5.5	3.0	4.5	50/2"									6	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	27	17	4.5							7	14	A-6a	10						
70	B	SS-1	1.0	2.5	0.0	1.5	52		4.5	33	16	17	37	30	67	14	16	A-6b	9	350					
	116-0	SS-2	2.5	4.0	1.5	3.0	29		4.5	35	15	20	35	34	69	14	16	A-6b	11						
	23	SS-3	4.0	5.5	3.0	4.5	31		4.5							10	16	A-6b	16						
		SS-4	5.5	7.0	4.5	6.0	40	29	4.5							9	16	A-6b	16						
71	B	SS-1	1.0	2.5	0.0	1.5	36		4.5	24	15	9	30	26	56	8	10	A-4a	4	1700					
	117-0	SS-2	2.5	4.0	1.5	3.0	42		4.5	25	15	10	31	22	53	8	10	A-4a	4						
	23	SS-3	4.0	5.5	3.0	4.5	28		4.5							10	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	27	27	3.5							12	10	A-4a	8						
72	B	SS-1	1.0	2.5	0.0	1.5	12		4.5	26	15	11	38	28	66	10	14	A-6a	7	3200					
	118-0	SS-2	2.5	4.0	1.5	3.0	15		3.5	35	23	12	42	37	79	18	18	A-6a	9						
	23	SS-3	4.0	5.5	3.0	4.5	18		4.5							14	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	16	12	3.75							14	14	A-6a	10						

#	Boring	Sample	Sample Depth		Subgrade Depth		Standard Penetration		HP (tsf)	Physical Characteristics						Moisture		Ohio DOT		Sulfate Content (ppm)	Problem		Excavate and Replace (Item 204)		Recommendation (Enter depth in inches)
			From	To	From	To	N_{60}	N_{60L}		LL	PL	PI	% Silt	% Clay	P200	M_C	M_{OPT}	Class	GI		Unsuitable	Unstable	Unsuitable	Unstable	
73	B	SS-1	1.0	2.5	0.0	1.5	8		1.25	36	25	11	43	26	69	20	20	A-6a	7	280		HP		12"	12"
	119-0	SS-2	2.5	4.0	1.5	3.0	13		2	36	19	17	29	42	71	21	16	A-6b	10			N_{60} & Mc			204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	21		3.5							13	16	A-6b	16						
		SS-4	5.5	7.0	4.5	6.0	19	8	4.5							17	16	A-6b	16						
74	B	SS-1	1.0	2.5	0.0	1.5	15		2.75	28	16	12	42	32	74	12	14	A-6a	9	1700					36"
	120-0	SS-2	2.5	4.0	1.5	3.0	15		4.5	31	21	10	56	29	85	22	16	A-4b	8		A-4b	Mc			204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	16		3							25	10	A-4b	8						
		SS-4	5.5	7.0	4.5	6.0	18	15	4.5							14	10	A-4b	8						
75	B	SS-1	1.0	2.5	0.0	1.5	7		2.5	27	18	9	39	32	71	14	13	A-4a	7	1700		N_{60}		15"	15"
	121-0	SS-2	2.5	4.0	1.5	3.0	19		3.75	27	16	11	38	32	70	14	14	A-6a	7						204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	30		4.5							15	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	17	7	3.75							20	14	A-6a	10						
76	B	SS-1	1.0	2.5	0.0	1.5	24		4.5	27	16	11	30	25	55	10	14	A-6a	4	120					
	122-0	SS-2	2.5	4.0	1.5	3.0	18		4.5	32	17	15	40	32	72	17	14	A-6a	9			Mc			
	23	SS-3	4.0	5.5	3.0	4.5	19		3.25							18	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	21	18	2.25							23	14	A-6a	10						
77	B	SS-1	1.0	2.5	0.0	1.5	28		4.5	27	16	11	37	33	70	9	14	A-6a	7	880					15"
	123-0	SS-2	2.5	4.0	1.5	3.0	24		3.5	32	18	14	40	40	80	19	14	A-6a	10			Mc			204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	11		3.25							17	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	7	7	1							24	16	A-6b	16						
78	B	SS-1	1.0	2.5	0.0	1.5	16		4.5	35	19	16	37	41	78	17	16	A-6b	10	2400					
	124-0	SS-2	2.5	4.0	1.5	3.0	24		4.5	28	17	11	38	28	66	12	14	A-6a	7						
	23	SS-3	4.0	5.5	3.0	4.5	25		4.5							14	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	21	16	4.5							14	14	A-6a	10						
79	B	SS-1	1.0	2.5	0.0	1.5	29		3.5	26	15	11	38	31	69	5	14	A-6a	7	620					
	125-0	SS-2	2.5	4.0	1.5	3.0	34		4.5							11	14	A-6a	10						
	23	SS-3	4.0	5.5	3.0	4.5	29		4.5	25	15	10	38	34	72	14	10	A-4a	7						
		SS-4	5.5	7.0	4.5	6.0	35	29	4.5							11	10	A-4a	8						
80	B	SS-1	1.0	2.5	0.0	1.5	19		4.5	21	15	6	40	29	69	10	10	A-4a	7	2300					
	126-0	SS-2	2.5	4.0	1.5	3.0	21		4.5	27	15	12	40	30	70	12	14	A-6a	8						
	23	SS-3	4.0	5.5	3.0	4.5	23		4.5							19	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	27	19								23	0	Rock	0						
81	B	SS-1	1.0	2.5	0.0	1.5	13		4.5							11	14	A-6a	10	320					
	127-0	SS-2	2.5	4.0	1.5	3.0	23		4.5	27	15	12	36	27	63	9	14	A-6a	6						
	23	SS-3	4.0	5.5	3.0	4.5	27		4.5	22	16	6	23	13	36	9	11	A-4a	0						
		SS-4	5.5	7.0	4.5	6.0	19	13	4.5							12	10	A-4a	8						

#	Boring	Sample	Sample Depth		Subgrade Depth		Standard Penetration		HP (tsf)	Physical Characteristics						Moisture		Ohio DOT		Sulfate Content (ppm)	Problem		Excavate and Replace (Item 204)		Recommendation (Enter depth in inches)
			From	To	From	To	N_{60}	N_{60L}		LL	PL	PI	% Silt	% Clay	P200	M_C	M_{OPT}	Class	GI		Unsuitable	Unstable	Unsuitable	Unstable	
82	B	SS-1	1.0	2.5	0.0	1.5	15		4.5	30	17	13	43	28	71	14	14	A-6a	8	220					12"
	128-0	SS-2	2.5	4.0	1.5	3.0	12		2.5	31	22	9	36	24	60	24	17	A-4a	5			N_{60} & Mc			204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	13		2.5							14	16	A-6b	16						
		SS-4	5.5	7.0	4.5	6.0	16	12	2							16	16	A-6b	16						
83	B	SS-1	1.0	2.5	0.0	1.5	19		4.5							15	10	A-4a	8	160		Mc			12"
	129-0	SS-2	2.5	4.0	1.5	3.0	24		3.25	27	17	10	39	28	67	14	12	A-4a	6						204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	12		1	29	20	9	60	32	92	27	15	A-4b	8						
		SS-4	5.5	7.0	4.5	6.0	8	8	2							26	10	A-4b	8						
84	B	SS-1	1.0	2.5	0.0	1.5	10		1.25	24	13	11	17	22	39	17	14	A-6a	1	170		HP & Mc		12"	12"
	130-0	SS-2	2.5	4.0	1.5	3.0	11		1.5	28	15	13	35	29	64	17	14	A-6a	7			HP & Mc			204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	10		2.75							15	14	A-6a	10						
		SS-4A	5.5	7.0	4.5	6.0	13	10	3.75							18	14	A-6a	10						
85	B	SS-1	1.0	2.5	0.0	1.5	8		1	33	18	15	50	29	79	14	14	A-6a	10	180		HP		12"	18"
	131-0	SS-2	2.5	4.0	1.5	3.0	15		2							19	14	A-6a	10			Mc			861 Geogrid
	23	SS-3	4.0	5.5	3.0	4.5	10		0.5	21	15	6	37	22	59	18	10	A-4a	5						
		SS-4	5.5	7.0	4.5	6.0	16	8	3							15	10	A-4a	8						
86	B	SS-1	1.0	2.5	0.0	1.5	29		4.5	24	15	9	22	18	40	9	10	A-4a	1	400					
	132-0	SS-2	2.5	4.0	1.5	3.0	30		4.5	27	14	13	18	16	34	11	10	A-2-6	1						
	23	SS-3	4.0	5.5	3.0	4.5	23		4.5							17	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	16	16	4.5							22	10	A-4a	8						
87	B	SS-1	1.0	2.5	0.0	1.5	29		4.5	18	15	3	32	22	54	8	10	A-4a	4	3000					12"
	133-0	SS-2	2.5	4.0	1.5	3.0	22		4.5							15	10	A-4a	8			Mc			204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	11		3.5	25	20	5	47	25	72	19	15	A-4a	7						
		SS-4	5.5	7.0	4.5	6.0	15	11	3.25							14	10	A-4a	8						
88	B	SS-1	1.0	2.5	0.0	1.5	15		4.5	30	14	16	30	23	53	12	16	A-6b	6	730					
	134-0	SS-2	2.5	4.0	1.5	3.0	39		4.5							16	16	A-6b	16						
	23	SS-3	4.0	5.5	3.0	4.5	28		4.5	29	17	12	37	24	61	11	14	A-6a	6						
		SS-4	5.5	7.0	4.5	6.0	25	15	4.5							15	14	A-6a	10						
89	B	SS-1	1.0	2.5	0.0	1.5	18			NP	NP	NP	54	12	66	17	11	A-4b	6	<100	A-4b	Mc	18"		18"
	135-0	SS-2	2.5	4.0	1.5	3.0	23			NP	NP	NP	10	5	15	10	6	A-1-b	0						204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	17									9	6	A-1-b	0						
		SS-4	5.5	7.0	4.5	6.0	13	13	4							32	10	A-4a	8						
90	B	SS-1	1.0	2.5	0.0	1.5	24		4.5	24	14	10	34	23	57	11	10	A-4a	4	380					
	136-0	SS-2	2.5	4.0	1.5	3.0	17		4.5	20	15	5	36	22	58	11	10	A-4a	5						
	23	SS-3	4.0	5.5	3.0	4.5	16		4.5							9	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	18	16								3	10	A-2-4	0						

#	Boring	Sample	Sample Depth		Subgrade Depth		Standard Penetration		HP (tsf)	Physical Characteristics						Moisture		Ohio DOT		Sulfate Content (ppm)	Problem		Excavate and Replace (Item 204)		Recommendation (Enter depth in inches)
			From	To	From	To	N_{60}	N_{60L}		LL	PL	PI	% Silt	% Clay	P200	M_C	M_{OPT}	Class	GI		Unsuitable	Unstable	Unsuitable	Unstable	
91	B	SS-1	1.0	2.5	0.0	1.5	18		3.5	36	17	19	42	29	71	13	16	A-6b	11	1200					
	137-0	SS-2	2.5	4.0	1.5	3.0	48			NP	NP	NP	24	15	39	11	11	A-4a	1						
	23	SS-3	4.0	5.5	3.0	4.5	25									9	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	29	18								12	10	A-4a	8						
92	B	SS-1	1.0	2.5	0.0	1.5	16		4.5	29	16	13	36	31	67	13	14	A-6a	8	420					
	138-0	SS-2	2.5	4.0	1.5	3.0	22		4.5	28	16	12	41	32	73	13	14	A-6a	8						
	23	SS-3	4.0	5.5	3.0	4.5	15		4.5							8	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	15	15	4.5							10	14	A-6a	10						
93	B	SS-1	1.0	2.5	0.0	1.5	16		2.5	24	15	9	34	26	60	10	10	A-4a	5	530					
	139-0	SS-2	2.5	4.0	1.5	3.0	33		4.5							15	10	A-4a	8			Mc			
	23	SS-3	4.0	5.5	3.0	4.5	25		4.5							11	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	18	16	1.25	25	14	11	37	24	61	14	14	A-6a	6						
94	B	SS-1	1.0	2.5	0.0	1.5	24		4.5	23	14	9	38	21	59	10	10	A-4a	5	240					
	140-0	SS-2	2.5	4.0	1.5	3.0	18		4.5							11	16	A-6b	16						
	23	SS-3	4.0	5.5	3.0	4.5	18		4	26	10	16	27	19	46	13	16	A-6b	4						
		SS-4	5.5	7.0	4.5	6.0	23	18	4.5							11	16	A-6b	16						
95	B	SS-1	1.0	2.5	0.0	1.5	21			NP	NP	NP	16	8	24	8	8	A-3a	0	1400					
	141-0	SS-2	2.5	4.0	1.5	3.0	12									8	8	A-3a	0						
	23	SS-3	4.0	5.5	3.0	4.5	10									17	8	A-3a	0						
		SS-4	5.5	7.0	4.5	6.0	11	10	2	22	15	7	38	27	65	14	10	A-4a	6						
96	B	SS-1	1.0	2.5	0.0	1.5	21									10	0	Rock	0		Rock	Mc			24" 204 Geotextile
	142-0	SS-2	2.5	4.0	1.5	3.0	4/50/4"									8	0	Rock	0		Rock	Mc	36"		
	23	SS-3	4.0	5.5	3.0	4.5	50/5"									7	0	Rock	0						
		SS-4	5.5	7.0	4.5	6.0	50/4"	21								7	0	Rock	0						
97	B	SS-1	1.0	2.5	0.0	1.5	77									5	0	Rock	0		Rock	Mc			24" 204 Geotextile
	143-0	SS-2	2.5	4.0	1.5	3.0	50/5"									5	0	Rock	0		Rock	Mc	36"		
	23	SS-3	4.0	5.5	3.0	4.5	50/5"									4	0	Rock	0						
		SS-4	5.5	7.0	4.5	6.0	50/3"	30								4	0	Rock	0						
98	B	SS-1	1.0	2.5	0.0	1.5	58									6	0	Rock	0		Rock	Mc			24" 204 Geotextile
	144-0	SS-2	2.5	4.0	1.5	3.0	5/50/5"									11	0	Rock	0		Rock	Mc	36"		
	23	SS-3	4.0	5.5	3.0	4.5	50/5"									6	0	Rock	0						
		SS-4	5.5	7.0	4.5	6.0	50/4"	30								6	0	Rock	0						
99	B	SS-1	1.0	2.5	0.0	1.5	16		4.5	25	16	9	44	33	77	9	11	A-4a	8	100					
	145-0	SS-2	2.5	4.0	1.5	3.0	22		2.75							16	10	A-4a	8			Mc			
	23	SS-3	4.0	5.5	3.0	4.5	25		4.5	22	15	7	30	20	50	11	10	A-4a	3						
		SS-4	5.5	7.0	4.5	6.0	21	16	4.5							9	10	A-4a	8						

#	Boring	Sample	Sample Depth		Subgrade Depth		Standard Penetration		HP (tsf)	Physical Characteristics						Moisture		Ohio DOT		Sulfate Content (ppm)	Problem		Excavate and Replace (Item 204)		Recommendation (Enter depth in inches)
			From	To	From	To	N_{60}	N_{60L}		LL	PL	PI	% Silt	% Clay	P200	M_C	M_{OPT}	Class	GI		Unsuitable	Unstable	Unsuitable	Unstable	
100	B	SS-1	1.0	2.5	0.0	1.5	28		4.5	24	15	9	39	32	71	11	10	A-4a	7	1300					
	146-0	SS-2	2.5	4.0	1.5	3.0	23		4.5	27	13	14	40	31	71	11	14	A-6a	9						
	23	SS-3	4.0	5.5	3.0	4.5	16		4.5							11	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	12	12	2.25							12	14	A-6a	10						
101	B	SS-1	1.0	2.5	0.0	1.5	19		4.5	24	15	9	41	32	73	11	10	A-4a	8	220					
	147-0	SS-2	2.5	4.0	1.5	3.0	25		4.5	24	16	8	39	30	69	13	11	A-4a	7						
	23	SS-3	4.0	5.5	3.0	4.5	33		4.5							12	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	27	19	4.5							14	10	A-4a	8						
102	B	SS-1	1.0	2.5	0.0	1.5	19		3.5	32	15	17	36	32	68	14	16	A-6b	9	1400					
	148-0	SS-2	2.5	4.0	1.5	3.0	33		4.5	27	16	11	36	33	69	17	14	A-6a	7			Mc			
	23	SS-3	4.0	5.5	3.0	4.5	27		4.5							11	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	18	18	4.5							13	14	A-6a	10						
103	B	SS-1	1.0	2.5	0.0	1.5	21		4.5	27	15	12	56	32	88	10	14	A-6a	9	3800					**12"**
	149-0	SS-2	2.5	4.0	1.5	3.0	17		2							14	14	A-6a	10						**861 Geogrid**
	23	SS-3	4.0	5.5	3.0	4.5	16		1	31	15	16	39	27	66	13	16	A-6b	9						
		SS-4	5.5	7.0	4.5	6.0	11	11	0.75							15	16	A-6b	16						
104	B	SS-1	1.0	2.5	0.0	1.5	11		4.5	33	18	15	38	39	77	17	14	A-6a	10	440		N_{60} & Mc		**12"**	**12"**
	150-0	SS-2	2.5	4.0	1.5	3.0	22		4.5	27	25	2	38	31	69	13	20	A-4a	7						**204 Geotextile**
	23	SS-3	4.0	5.5	3.0	4.5	24		4.5							15	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	22	11	4							16	10	A-4a	8						
105	B	SS-1	1.0	2.5	0.0	1.5	27			NP	NP	NP	9	5	14	5	6	A-1-a	0	190					
	151-0	SS-2	2.5	4.0	1.5	3.0	15									11	6	A-1-a	0						
	23	SS-3	4.0	5.5	3.0	4.5	15			NP	NP	NP	38	6	44	19	11	A-4a	2						
		SS-4	5.5	7.0	4.5	6.0	10	10								23	10	A-4a	8						
106	B	SS-1	1.0	2.5	0.0	1.5	40		4.5	24	14	10	32	17	49	7	10	A-4a	3	860					
	152-0	SS-2	2.5	4.0	1.5	3.0	36		4.5							7	10	A-4a	8						
	23	SS-3	4.0	5.5	3.0	4.5	13		4.25	20	10	10	40	28	68	12	10	A-4a	7						
		SS-4	5.5	7.0	4.5	6.0	13	13	4							11	10	A-4a	8						
107	B	SS-1	1.0	2.5	0.0	1.5	17		4.5	26	17	9	39	32	71	11	12	A-4a	7	240					
	153-0	SS-2	2.5	4.0	1.5	3.0	23		4.5	25	18	7	41	32	73	14	13	A-4a	8						
	23	SS-3	4.0	5.5	3.0	4.5	25		4.5							14	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	24	17								7	8	A-3a	0						
108	B	SS-1	1.0	2.5	0.0	1.5	30		4.5	25	15	10	40	31	71	10	10	A-4a	7	<100					
	154-0	SS-2	2.5	4.0	1.5	3.0	53		4.5							10	10	A-4a	8						
	23	SS-3	4.0	5.5	3.0	4.5	28		4.5							9	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	21	21	2.75	39	17	22	34	47	81	18	16	A-6b	13						

#	Boring	Sample	Sample Depth		Subgrade Depth		Standard Penetration		HP (tsf)	Physical Characteristics						Moisture		Ohio DOT		Sulfate Content (ppm)	Problem		Excavate and Replace (Item 204)		Recommendation (Enter depth in inches)
			From	To	From	To	N_{60}	N_{60L}		LL	PL	PI	% Silt	% Clay	P200	M_C	M_{OPT}	Class	GI		Unsuitable	Unstable	Unsuitable	Unstable	
109	B	SS-1	1.0	2.5	0.0	1.5	10		4.5	28	17	11	38	27	65	13	14	A-6a	6	<100		N_{60}		12"	12"
	155-0	SS-2	2.5	4.0	1.5	3.0	17		4.5							13	14	A-6a	10						204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	21			24	15	9	31	25	56	12	10	A-4a	4						
		SS-4	5.5	7.0	4.5	6.0	10	10	1.75							16	10	A-4a	8						
110	B	SS-1	1.0	2.5	0.0	1.5	34		4.5	22	16	6	31	16	47	9	11	A-4a	2	220					
	156-0	SS-2	2.5	4.0	1.5	3.0	31		4.5							10	10	A-4a	8						
	23	SS-3	4.0	5.5	3.0	4.5	25		4.5	27	16	11	38	35	73	14	14	A-6a	8						
		SS-4	5.5	7.0	4.5	6.0	24	24	4.5							11	14	A-6a	10						
111	B	SS-1	1.0	2.5	0.0	1.5	15		4.5								10	A-4a	8	200					
	157-0	SS-2	2.5	4.0	1.5	3.0	28		4.5	22	17	5	42	22	64	14	12	A-4a	6						
	23	SS-3	4.0	5.5	3.0	4.5	42		4.5	20	15	5	31	18	49	9	10	A-4a	3						
		SS-4	5.5	7.0	4.5	6.0	24	15	4.5							7	10	A-4a	8						
112	B	SS-1	1.0	2.5	0.0	1.5	23									4	6	A-1-b	0	190					
	158-0	SS-2	2.5	4.0	1.5	3.0	13						33	5	38	7	6	A-1-b	0						
	23	SS-3	4.0	5.5	3.0	4.5	16						13	6	19	6	6	A-1-b	0						
		SS-4	5.5	7.0	4.5	6.0	17	13								6	6	A-1-b	0						
113	B	SS-1	1.0	2.5	0.0	1.5	33						13	7	20	7	10	A-2-4	0	<100					
	159-0	SS-2	2.5	4.0	1.5	3.0	74									4	10	A-2-4	0						
	23	SS-3	4.0	5.5	3.0	4.5	57									7	10	A-2-4	0						
		SS-4	5.5	7.0	4.5	6.0	28	28		23	15	8	14	9	23	9	10	A-2-4	0						
114	B	SS-1	1.0	2.5	0.0	1.5	16		4.5	35	11	24	27	21	48	12	16	A-6b	7	1100					
	160-0	SS-2	2.5	4.0	1.5	3.0	25		4.5							5	16	A-6b	16						
	23	SS-3	4.0	5.5	3.0	4.5	19		4.5	29	17	12	36	24	60	12	14	A-6a	6						
		SS-4	5.5	7.0	4.5	6.0	50/3"	16	4.5							10	14	A-6a	10						
115	B	SS-1	1.0	2.5	0.0	1.5	13		4.5	26	15	11	40	29	69	12	14	A-6a	7	210					12"
	161-0	SS-2	2.5	4.0	1.5	3.0	30		4.5	26	16	10	25	17	42	12	11	A-4a	1						204 Geotextile
	23	SS-3	4.0	5.5	3.0	4.5	22		4.5							14	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	27	13	4.5							17	10	A-4a	8						
116	B	SS-1	1.0	2.5	0.0	1.5	24		4.5	23	16	7	38	26	64	10	11	A-4a	6	1600					
	162-0	SS-2	2.5	4.0	1.5	3.0	31		4.5	27	17	10	32	23	55	10	12	A-4a	4						
	23	SS-3	4.0	5.5	3.0	4.5	36		4.5							10	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	24	24	4.5							12	10	A-4a	8						
117	B	SS-1	1.0	2.5	0.0	1.5	5		0.75	26	15	11	24	17	41	10	14	A-6a	1	140		HP		21"	15"
	163-0	SS-2	2.5	4.0	1.5	3.0	19			20	15	5	23	12	35	9	10	A-2-4	0						861 Geogrid
	23	SS-3	4.0	5.5	3.0	4.5	16		4.5							14	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	25	5	4.5							14	14	A-6a	10						

#	Boring	Sample	Sample Depth		Subgrade Depth		Standard Penetration		HP (tsf)	Physical Characteristics						Moisture		Ohio DOT		Sulfate Content (ppm)	Problem		Excavate and Replace (Item 204)		Recommendation (Enter depth in inches)
			From	To	From	To	N_{60}	N_{60L}		LL	PL	PI	% Silt	% Clay	P200	M_C	M_{OPT}	Class	GI		Unsuitable	Unstable	Unsuitable	Unstable	
118	B	SS-1	1.0	2.5	0.0	1.5	25		4.5	26	15	11	35	25	60	10	14	A-6a	5	1100					
	164-0	SS-2	2.5	4.0	1.5	3.0	37		4.5	26	17	9	28	18	46	11	12	A-4a	2						
	23	SS-3	4.0	5.5	3.0	4.5	27		3							15	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	16	16	2.5							12	10	A-4a	8						
119	B	SS-1	1.0	2.5	0.0	1.5	16		3.25	30	16	14	36	29	65	11	14	A-6a	8	5000					
	165-0	SS-2	2.5	4.0	1.5	3.0	25		4.5	27	16	11	45	31	76	13	14	A-6a	8						
	23	SS-3	4.0	5.5	3.0	4.5	12		1.5							15	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	34	12	2							8	14	A-6a	10						
120	B	SS-1	1.0	2.5	0.0	1.5	12		4.5	18	17	1	37	18	55	11	12	A-4a	4	240					
	166-0	SS-2	2.5	4.0	1.5	3.0	31		4.5	30	15	15	37	33	70	15	14	A-6a	9						
	23	SS-3	4.0	5.5	3.0	4.5	29		4.5							9	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	28	12	4.5							13	14	A-6a	10						
121	B	SS-1	1.0	2.5	0.0	1.5	13		4.5	26	15	11	34	23	57	9	14	A-6a	5	1800					
	167-0	SS-2	2.5	4.0	1.5	3.0	29			19	14	5	13	12	25	8	6	A-1-b	0						
	23	SS-3	4.0	5.5	3.0	4.5	19									11	6	A-1-b	0						
		SS-4	5.5	7.0	4.5	6.0	11	11								9	6	A-1-b	0						
122	B	SS-1	1.0	2.5	0.0	1.5	15		4	21	13	8	32	20	52	11	10	A-4a	3	500					
	168-0	SS-2A	2.5	3.5	1.5	2.5	30		4.5	22	16	6	25	16	41	9	11	A-4a	1						
	23	SS-3	4.0	5.5	3.0	4.5	/42/50/4"									4	6	A-1-b	0						
		SS-4	5.5	7.0	4.5	6.0	50/5"	15								4	6	A-1-b	0						
123	B	SS-1	1.0	2.5	0.0	1.5	27			22	15	7	10	8	18	6	10	A-2-4	0	5500					**18"**
	169-0	SS-2	2.5	4.0	1.5	3.0	12		0.25	25	14	11	37	28	65	17	14	A-6a	6			HP & Mc			**861 Geogrid**
	23	SS-3	4.0	5.5	3.0	4.5	21		4.5							16	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	25	12	4.5							11	14	A-6a	10						
124	B	SS-1	1.0	2.5	0.0	1.5	28		4.5	29	17	12	38	28	66	12	14	A-6a	7	1800					
	170-0	SS-2	2.5	4.0	1.5	3.0	28		4.5	28	17	11	39	28	67	14	14	A-6a	7						
	23	SS-3	4.0	5.5	3.0	4.5	28		4.5							15	14	A-6a	10						
		SS-4	5.5	7.0	4.5	6.0	29	28	4.5							12	14	A-6a	10						
125	B	SS-1	1.0	2.5	0.0	1.5	10		4.5	30	17	13	39	31	70	15	14	A-6a	8	310		N_{60}		**12"**	**12"**
	171-0	SS-2	2.5	4.0	1.5	3.0	22			25	15	10	31	21	52	12	10	A-4a	3						**204 Geotextile**
	23	SS-3	4.0	5.5	3.0	4.5	18									12	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	19	10	4.5							13	14	A-6a	10						
126	B	SS-1	1.0	2.5	0.0	1.5	17		4.5	29	14	15	27	18	45	9	14	A-6a	4	3000					
	172-0	SS-2	2.5	4.0	1.5	3.0	27		4.5	25	15	10	38	26	64	12	10	A-4a	6						
	23	SS-3	4.0	5.5	3.0	4.5	28		4.5							12	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	19	17	3							15	10	A-4a	8						

#	Boring	Sample	Sample Depth		Subgrade Depth		Standard Penetration		HP (tsf)	Physical Characteristics						Moisture		Ohio DOT		Sulfate Content (ppm)	Problem		Excavate and Replace (Item 204)		Recommendation (Enter depth in inches)
			From	To	From	To	N_{60}	N_{60L}		LL	PL	PI	% Silt	% Clay	P200	M_C	M_{OPT}	Class	GI		Unsuitable	Unstable	Unsuitable	Unstable	
127	B	SS-1	1.0	2.5	0.0	1.5	25									13	10	A-4a	8	140		Mc			**12"**
	173-0	SS-2	2.5	4.0	1.5	3.0	25		4.5	32	17	15	24	16	40	10	14	A-6a	2						**204 Geotextile**
	23	SS-3	4.0	5.5	3.0	4.5	12		1.5	25	17	8	49	12	61	18	12	A-4a	5						
		SS-4	5.5	7.0	4.5	6.0	22	12	4.5							17	10	A-4a	8						
128	B	SS-1	1.0	2.5	0.0	1.5	11		4.5	23	16	7	37	24	61	12	11	A-4a	5	190		N_{60}		**12"**	**12"**
	174-0	SS-2	2.5	4.0	1.5	3.0	37		4.5	24	15	9	36	23	59	11	10	A-4a	5						**204 Geotextile**
	23	SS-3	4.0	5.5	3.0	4.5	17		4.5							10	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	28	11	4							19	10	A-4a	8						
129	B	SS-1	1.0	2.5	0.0	1.5	25		4.5	22	14	8	39	26	65	7	10	A-4a	6	3600					
	175-0	SS-2	2.5	4.0	1.5	3.0	29		4.5							10	10	A-4a	8						
	23	SS-3	4.0	5.5	3.0	4.5	24		4.5	23	14	9	41	32	73	12	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	30	24	3.75							14	10	A-4a	8						
130	B	SS-1	1.0	2.5	0.0	1.5	27		4.5	26	15	11	18	15	33	8	10	A-2-6	0	260					
	176-0	SS-2	2.5	4.0	1.5	3.0	18		4.5							15	10	A-2-6	4			Mc			
	23	SS-3	4.0	5.5	3.0	4.5	18		4.5							8	10	A-2-6	4						
		SS-4	5.5	7.0	4.5	6.0	18	18	2.5	38	20	18	42	42	84	23	16	A-6b	11						
131	B	SS-1	1.0	2.5	0.0	1.5	19		4.5	28	15	13	40	30	70	14	14	A-6a	8	520					
	177-0	SS-2	2.5	4.0	1.5	3.0	21		4.25	26	16	10	45	31	76	13	11	A-4a	8						
	23	SS-3	4.0	5.5	3.0	4.5	19		4.5							14	10	A-4a	8						
		SS-4	5.5	7.0	4.5	6.0	19	19	4.5							11	10	A-4a	8						
132	B	SS-1	1.0	2.5	0.0	1.5	15		4.5	24	15	9	38	21	59	10	10	A-4a	5	280					
	178-0	SS-2	2.5	4.0	1.5	3.0	50/5"									5	6	A-1-b	0						
	23	SS-3	4.0	5.5	3.0	4.5	53			20	15	5	21	13	34	9	10	A-2-4	0						
		SS-4	5.5	7.0	4.5	6.0	22	15	4.5							8	10	A-4a	8						

PID: 117878

County-Route-Section: FRA-161-22.10/LIC-161-0.00
No. of Borings: 132

Geotechnical Consultant: DLZ Ohio, Inc.
Prepared By: Jeff Chou
Date prepared: 11/17/2023

Chemical Stabilization Options		
320	Rubblize & Roll	Option
206	Cement Stabilization	Option
	Lime Stabilization	No
206	Depth	12"

Excavate and Replace Stabilization Options	
Global Geotextile Average(N60L):	12"
Average(HP):	0"
Global Geogrid Average(N60L):	0"
Average(HP):	0"

Design CBR	7

% Samples within 6 feet of subgrade			
$N_{60} \leq 5$	1%	HP ≤ 0.5	1%
$N_{60} < 12$	13%	0.5 < HP ≤ 1	2%
$12 \leq N_{60} < 15$	10%	1 < HP ≤ 2	7%
$N_{60} \geq 20$	44%	HP > 2	78%
M+	11%		
Rock	2%		
Unsuitable	4%		

Excavate and Replace at Surface	
Average	6"
Maximum	36"
Minimum	0"

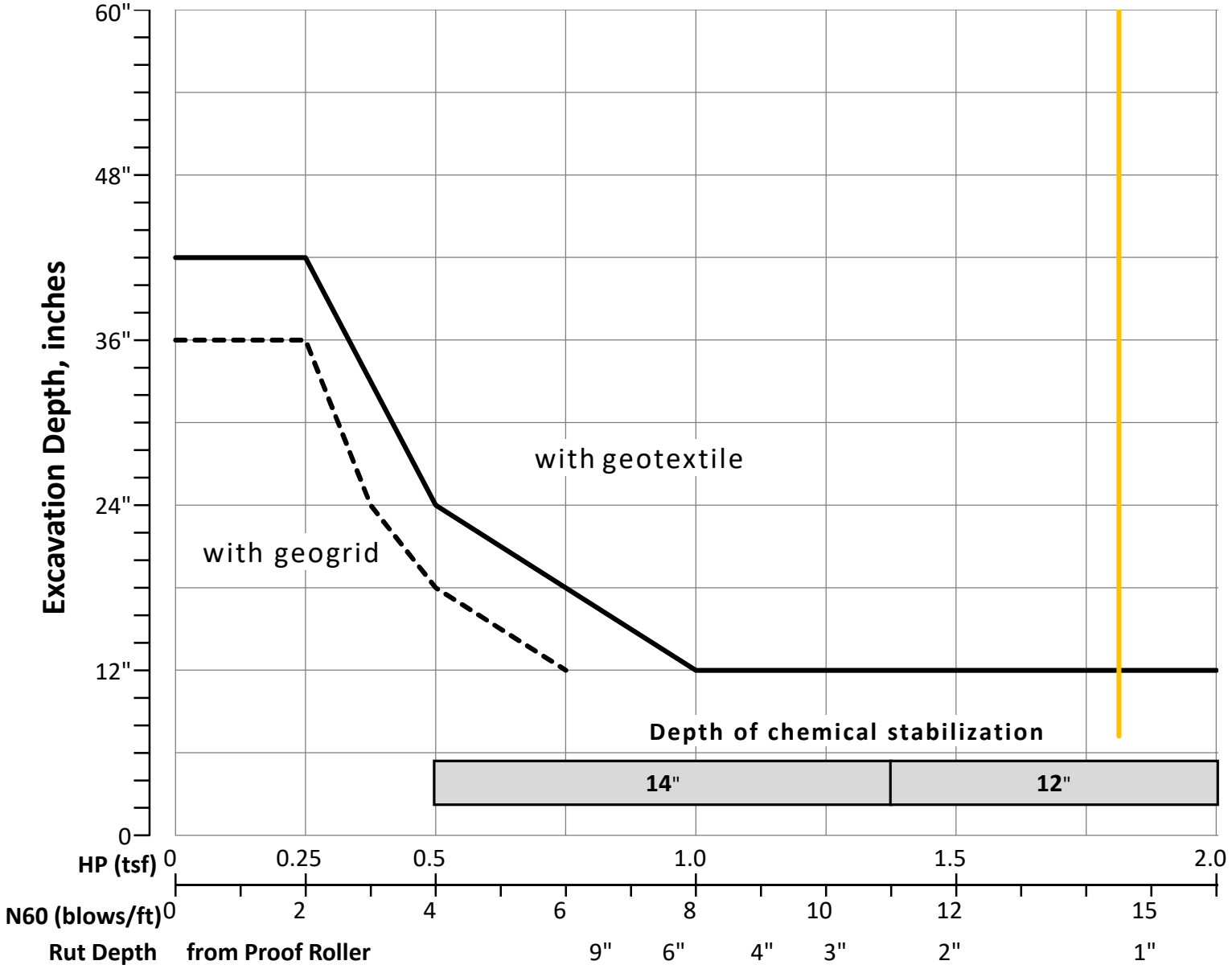
% Proposed Subgrade Surface	
Unstable & Unsuitable	32%
Unstable	29%
Unsuitable	3%

	N_{60}	N_{60L}	HP	LL	PL	PI	Silt	Clay	P 200	M_C	M_{OPT}	GI
Average	20	15	3.80	27	16	11	36	28	64	14	12	8
Maximum	77	30	4.50	46	25	26	60	61	95	32	20	16
Minimum	4	4	0.25	17	10	1	9	4	14	3	0	0

Classification Counts by Sample

ODOT Class	Rock	A-1-a	A-1-b	A-2-4	A-2-5	A-2-6	A-2-7	A-3	A-3a	A-4a	A-4b	A-5	A-6a	A-6b	A-7-5	A-7-6	A-8a	A-8b	Totals
Count	13	2	14	11	0	4	0	0	4	229	7	0	169	60	0	15	0	0	528
Percent	2%	0%	3%	2%	0%	1%	0%	0%	1%	43%	1%	0%	32%	11%	0%	3%	0%	0%	100%
% Rock|Granular|Cohesive	2%	50%									48%								100%
Surface Class Count	6	2	7	5	0	3	0	0	2	110	2	0	91	30	0	7	0	0	265
Surface Class Percent	2%	1%	3%	2%	0%	1%	0%	0%	1%	42%	1%	0%	34%	11%	0%	3%	0%	0%	100%

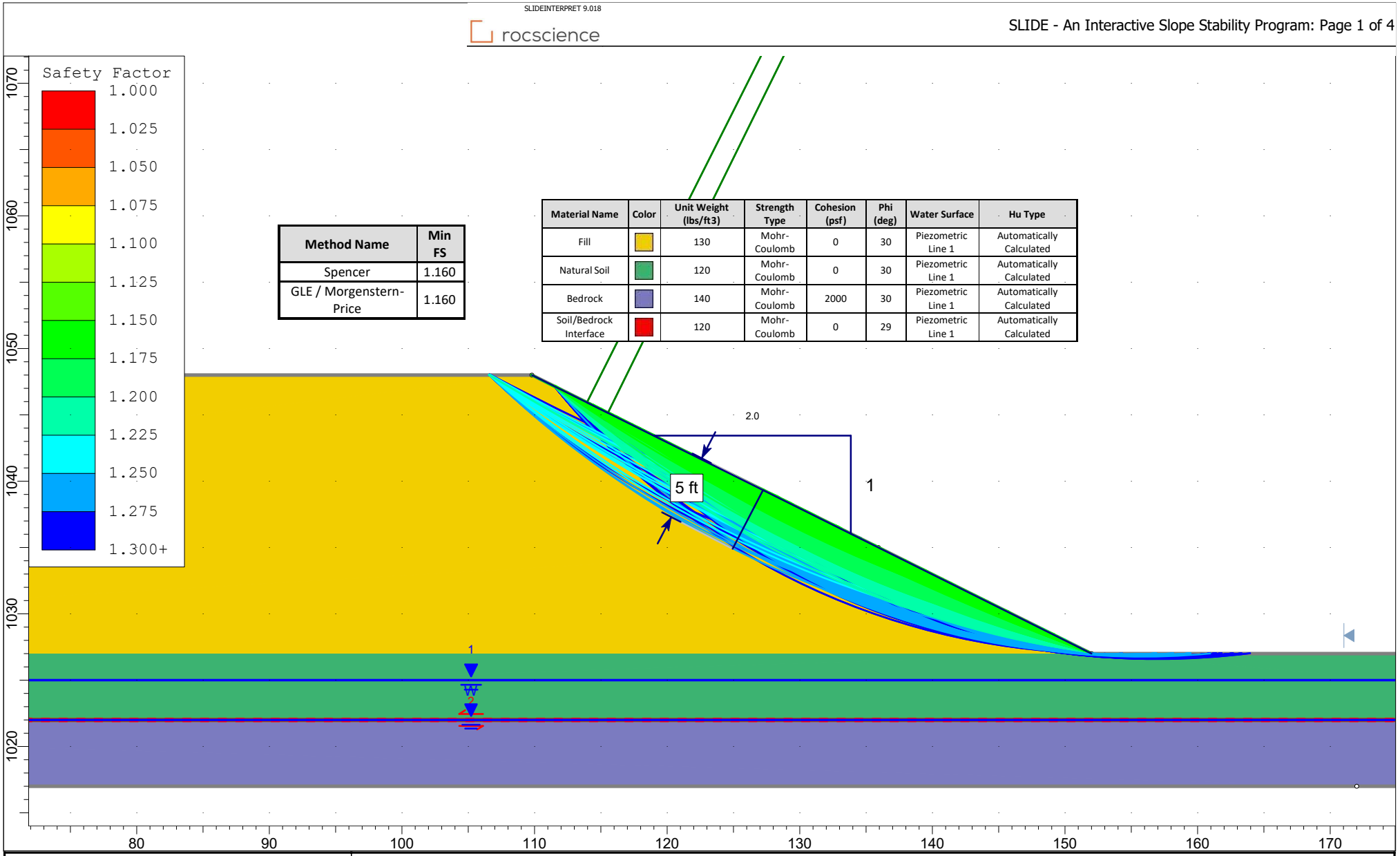
Fig. 600-1 – Subgrade Stabilization



OVERRIDE TABLE

Calculated Average	New Values	Check to Override
3.80		☐ HP
14.60		☐ N60L

Average HP
Average N_{60L}



Method Name	Min FS
Spencer	1.160
GLE / Morgenstern-Price	1.160

Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Hu Type
Fill		130	Mohr-Coulomb	0	30	Piezometric Line 1	Automatically Calculated
Natural Soil		120	Mohr-Coulomb	0	30	Piezometric Line 1	Automatically Calculated
Bedrock		140	Mohr-Coulomb	2000	30	Piezometric Line 1	Automatically Calculated
Soil/Bedrock Interface		120	Mohr-Coulomb	0	29	Piezometric Line 1	Automatically Calculated

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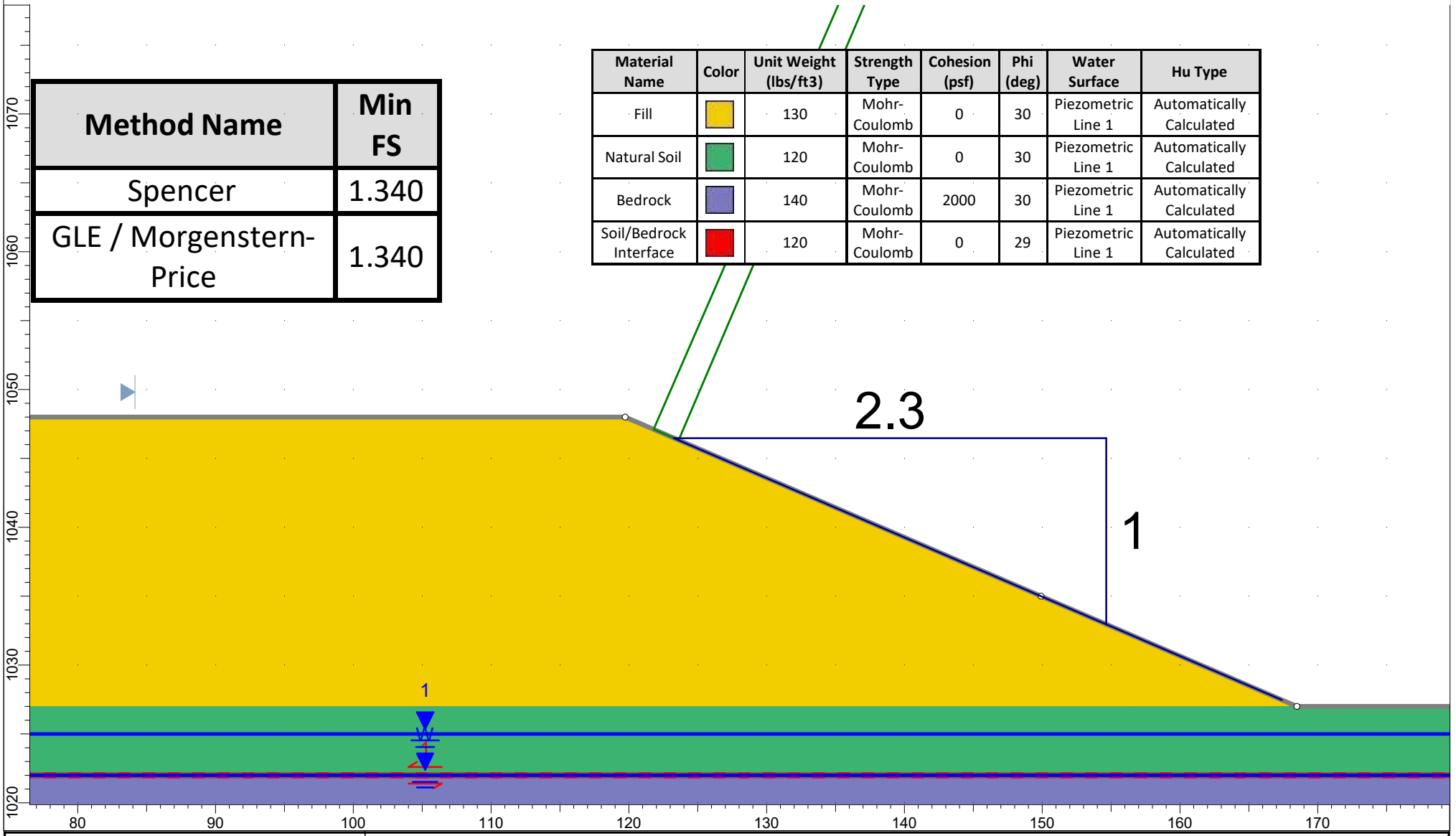
SLIDEINTERPRET 9.018

Project	FRA-161-22.10/LIC-161-0.00 PID 117878	SLIDE - An Interactive Slope Stability Program	
Group	1:2 Slope	Scenario	Master Scenario - *Slopes near Simpson's Run*
Drawn By	Jeff Chou	Check By: HJH 11/30/2023	Company DLZ
Date	11/29/2023, 12:06:15 PM	File Name	Stability Analysis M HWL no limits.slmd

Method Name	Min FS
Spencer	1.340
GLE / Morgenstern-Price	1.340

Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Hu Type
Fill		130	Mohr-Coulomb	0	30	Piezometric Line 1	Automatically Calculated
Natural Soil		120	Mohr-Coulomb	0	30	Piezometric Line 1	Automatically Calculated
Bedrock		140	Mohr-Coulomb	2000	30	Piezometric Line 1	Automatically Calculated
Soil/Bedrock Interface		120	Mohr-Coulomb	0	29	Piezometric Line 1	Automatically Calculated



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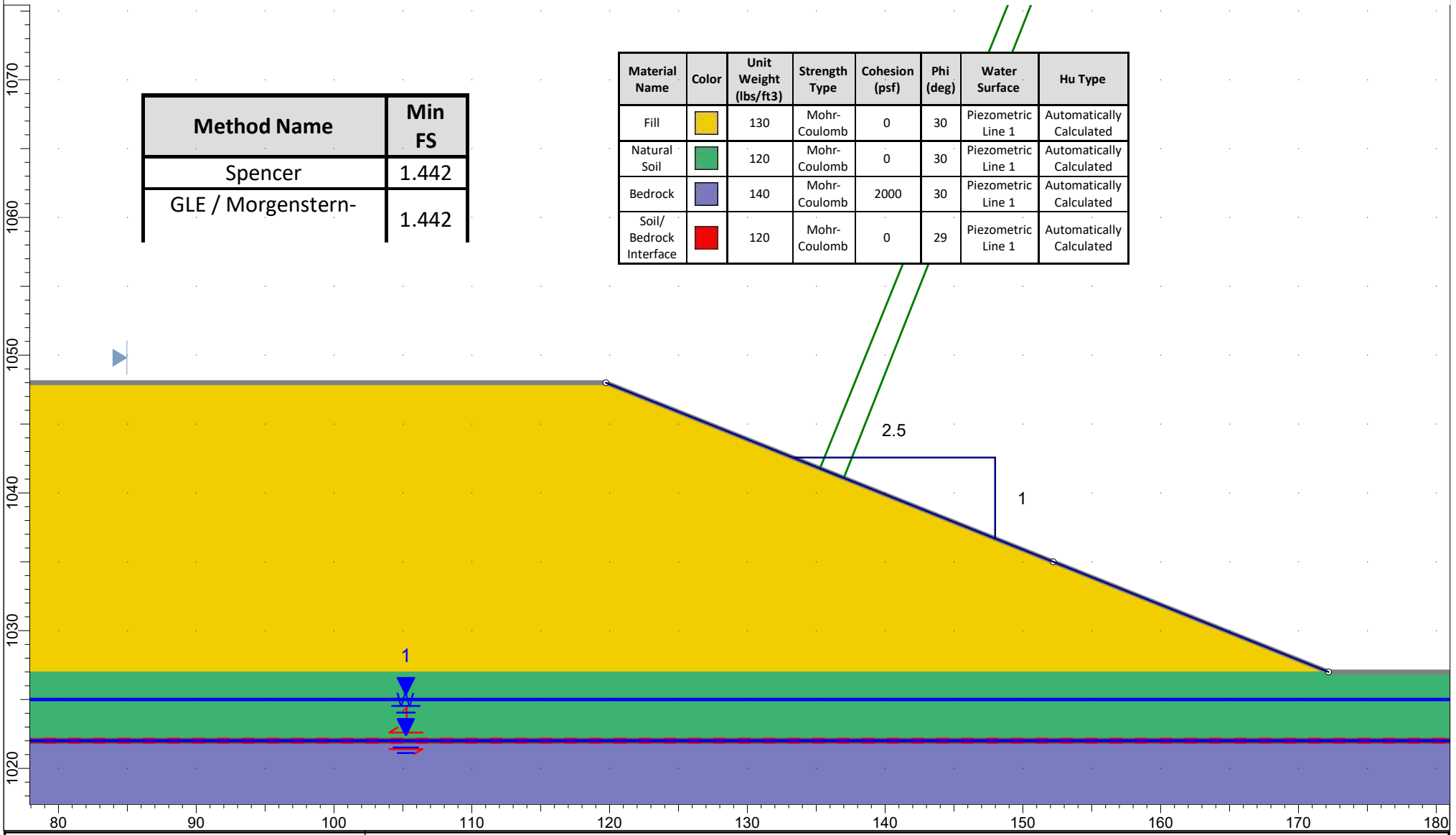
SLIDEINTERPRET 9.018

Project: FRA-161-22.10/LIC-161-0.00 PID 117878	SLIDE - An Interactive Slope Stability Program		
Group: 1:2.3 Slope		Scenario: Master Scenario - *Slopes near Simpson's Run*	
Drawn By: Jeff Chou	Check By: HJH 11/30/2023	Company: DLZ	
Date: 11/29/2023, 12:06:15 PM		File Name: Stability Analysis M HWL no limits.slmd	

Method Name	Min FS
Spencer	1.442
GLE / Morgenstern-	1.442

Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Hu Type
Fill		130	Mohr-Coulomb	0	30	Piezometric Line 1	Automatically Calculated
Natural Soil		120	Mohr-Coulomb	0	30	Piezometric Line 1	Automatically Calculated
Bedrock		140	Mohr-Coulomb	2000	30	Piezometric Line 1	Automatically Calculated
Soil/ Bedrock Interface		120	Mohr-Coulomb	0	29	Piezometric Line 1	Automatically Calculated



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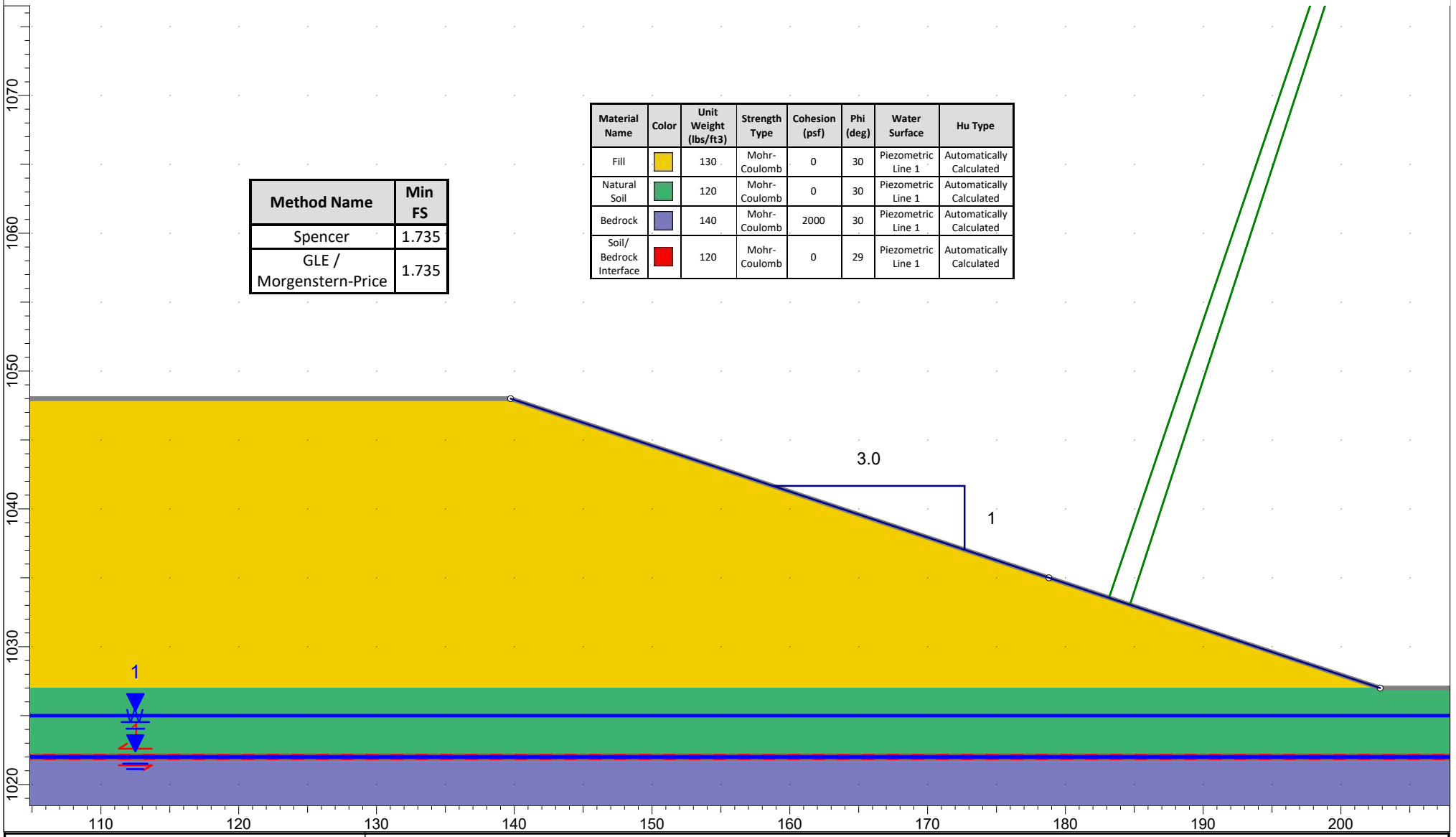
SLIDEINTERPRET 9.018

Project	FRA-161-22.10/LIC-161-0.00 PID 117878	SLIDE - An Interactive Slope Stability Program	
Group	1:2.5 Slope	Scenario	Master Scenario - *Slopes near Simpson's Run*
Drawn By	Jeff Chou	Check By: HJH 11/30/2023	Company DLZ
Date	11/29/2023, 12:06:15 PM	File Name	Stability Analysis M HWL no limits.slmd

Method Name	Min FS
Spencer	1.735
GLE / Morgenstern-Price	1.735

Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Hu Type
Fill		130	Mohr-Coulomb	0	30	Piezometric Line 1	Automatically Calculated
Natural Soil		120	Mohr-Coulomb	0	30	Piezometric Line 1	Automatically Calculated
Bedrock		140	Mohr-Coulomb	2000	30	Piezometric Line 1	Automatically Calculated
Soil/ Bedrock Interface		120	Mohr-Coulomb	0	29	Piezometric Line 1	Automatically Calculated



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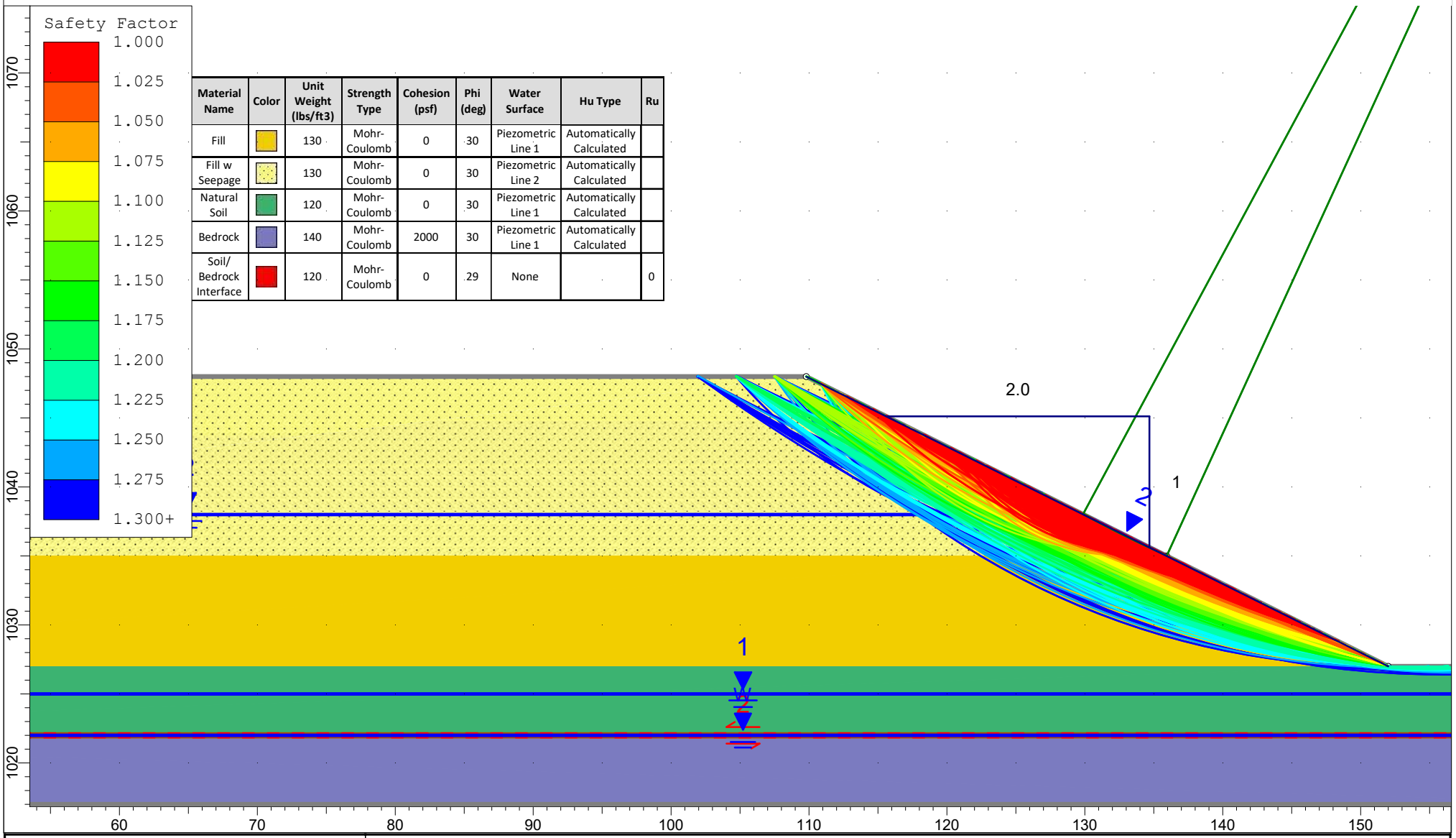
SLIDEINTERPRET 9.018

Project	FRA-161-22.10/LIC-161-0.00 PID 117878	SLIDE - An Interactive Slope Stability Program	
Group	1:3 Slope	Scenario	Master Scenario - *Slopes near Simpson's Run*
Drawn By	Jeff Chou	Check By: HJH 11/30/2023	Company DLZ
Date	11/29/2023, 12:06:15 PM	File Name	Stability Analysis M HWL no limits.slmd



Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Hu Type	Ru
Fill		130	Mohr-Coulomb	0	30	Piezometric Line 1	Automatically Calculated	
Fill w Seepage		130	Mohr-Coulomb	0	30	Piezometric Line 2	Automatically Calculated	
Natural Soil		120	Mohr-Coulomb	0	30	Piezometric Line 1	Automatically Calculated	
Bedrock		140	Mohr-Coulomb	2000	30	Piezometric Line 1	Automatically Calculated	
Soil/ Bedrock Interface		120	Mohr-Coulomb	0	29	None		0

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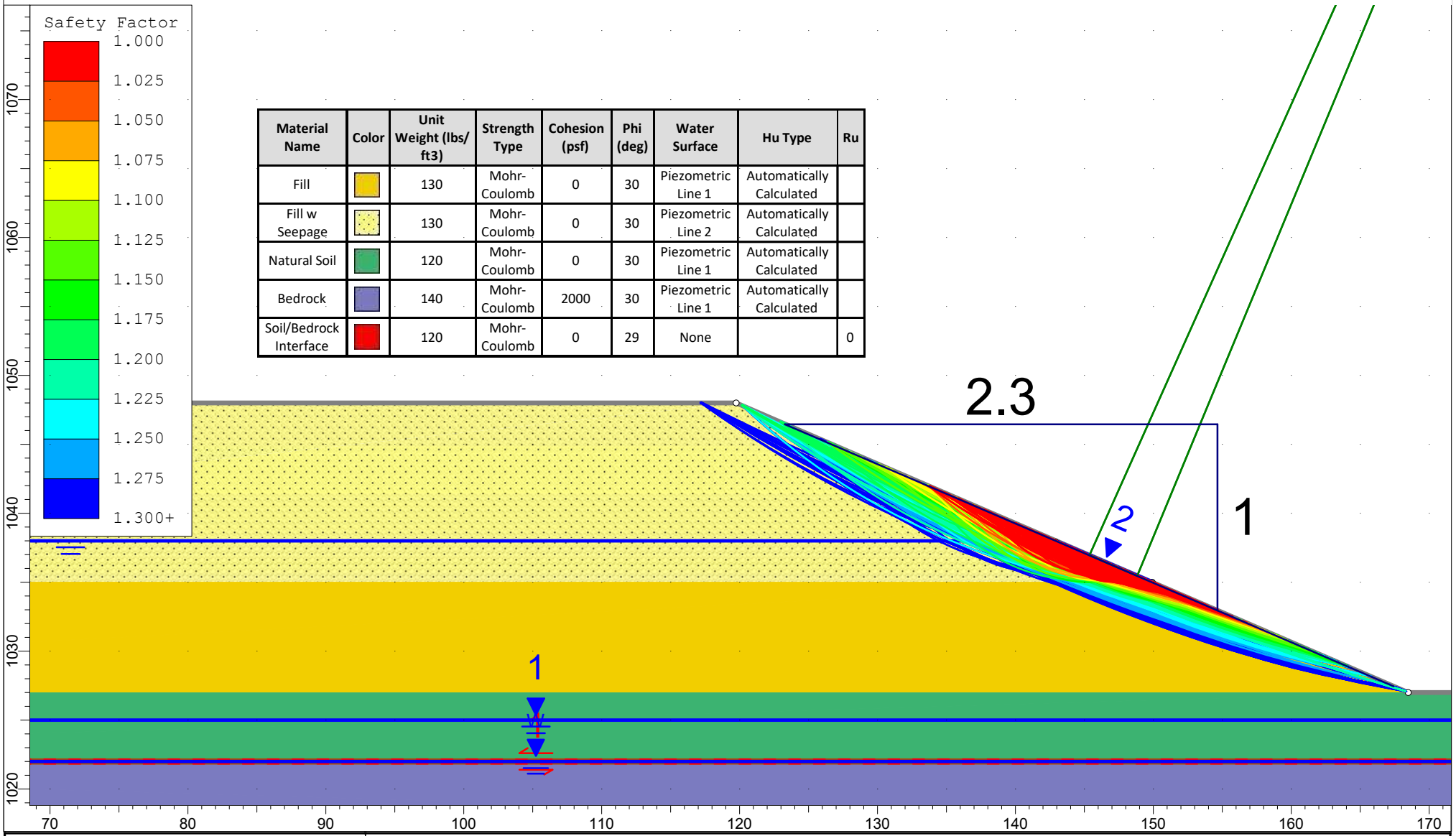
SLIDEINTERPRET 9.018

Project	FRA-161-22.10/LIC-161-0.00 PID 117878	SLIDE - An Interactive Slope Stability Program	
Group	1:2 Slope	Scenario	Master Scenario - *Slopes near Simpson's Run*
Drawn By	Jeff Chou	Check By: HJH 11/30/2023	Company DLZ
Date	11/29/2023, 12:06:15 PM	File Name	Stability Analysis MwS HWL no limits.slmd



Material Name	Color	Unit Weight (lbs/ ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Hu Type	Ru
Fill		130	Mohr-Coulomb	0	30	Piezometric Line 1	Automatically Calculated	
Fill w Seepage		130	Mohr-Coulomb	0	30	Piezometric Line 2	Automatically Calculated	
Natural Soil		120	Mohr-Coulomb	0	30	Piezometric Line 1	Automatically Calculated	
Bedrock		140	Mohr-Coulomb	2000	30	Piezometric Line 1	Automatically Calculated	
Soil/Bedrock Interface		120	Mohr-Coulomb	0	29	None		0

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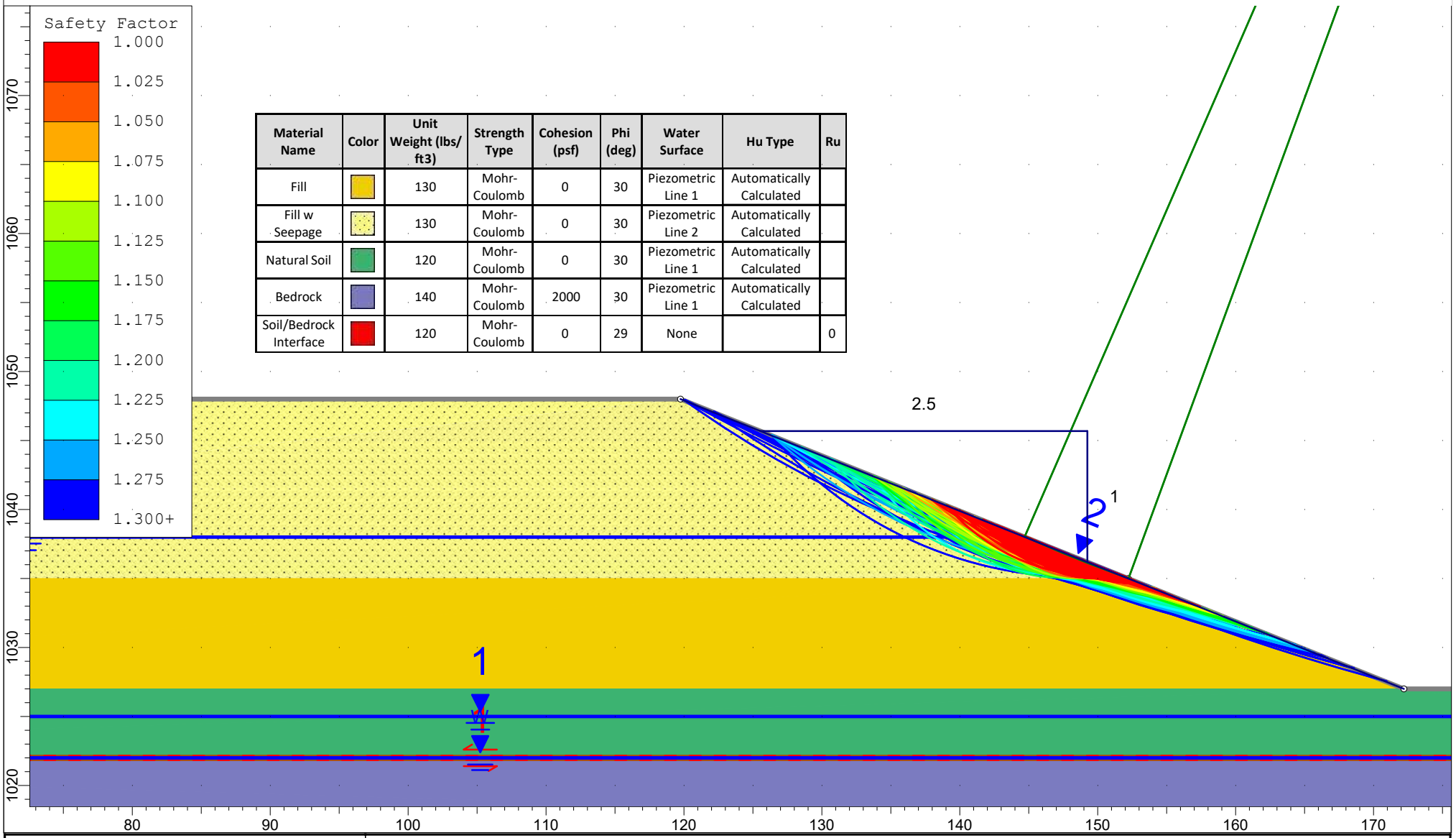
SLIDEINTERPRET 9.018

Project	FRA-161-22.10/LIC-161-0.00 PID 117878	SLIDE - An Interactive Slope Stability Program	
Group	1:2.3 Slope	Scenario	Master Scenario - Slopes near Simpson's Run
Drawn By	Jeff Chou	Check By: HJH 11/30/2023	Company DLZ
Date	11/29/2023, 12:06:15 PM	File Name	Stability Analysis MwS HWL no limits.slmd



Material Name	Color	Unit Weight (lbs/ ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Hu Type	Ru
Fill		130	Mohr-Coulomb	0	30	Piezometric Line 1	Automatically Calculated	
Fill w Seepage		130	Mohr-Coulomb	0	30	Piezometric Line 2	Automatically Calculated	
Natural Soil		120	Mohr-Coulomb	0	30	Piezometric Line 1	Automatically Calculated	
Bedrock		140	Mohr-Coulomb	2000	30	Piezometric Line 1	Automatically Calculated	
Soil/Bedrock Interface		120	Mohr-Coulomb	0	29	None		0

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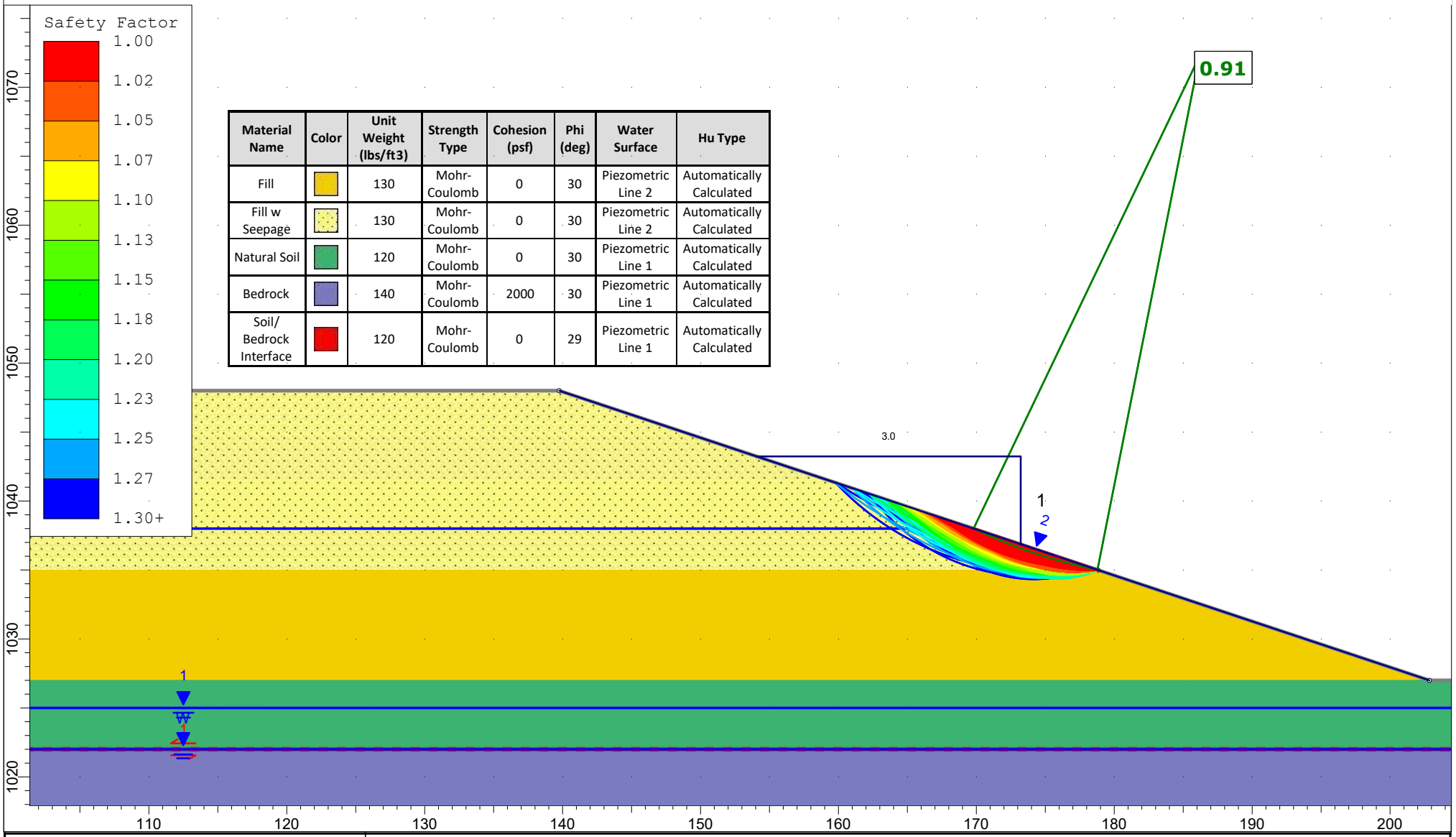
SLIDEINTERPRET 9.018

Project	FRA-161-22.10/LIC-161-0.00 PID 117878	SLIDE - An Interactive Slope Stability Program	
Group	1:2.5 Slope	Scenario	Master Scenario - *Slopes near Simpson's Run*
Drawn By	Jeff Chou	Check By: HJH 11/30/2023	Company DLZ
Date	11/29/2023, 12:06:15 PM	File Name	Stability Analysis MwS HWL no limits.slmd



Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Hu Type
Fill		130	Mohr-Coulomb	0	30	Piezometric Line 2	Automatically Calculated
Fill w Seepage		130	Mohr-Coulomb	0	30	Piezometric Line 2	Automatically Calculated
Natural Soil		120	Mohr-Coulomb	0	30	Piezometric Line 1	Automatically Calculated
Bedrock		140	Mohr-Coulomb	2000	30	Piezometric Line 1	Automatically Calculated
Soil/ Bedrock Interface		120	Mohr-Coulomb	0	29	Piezometric Line 1	Automatically Calculated

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SLIDEINTERPRET 9.018

Project	FRA-161-22.10/LIC-161-0.00 PID 117878	SLIDE - An Interactive Slope Stability Program	
Group	1:3 Slope	Scenario	Master Scenario- *Slopes near Simpson's Run*
Drawn By	Jeff Chou	Check By: HJH 11/30/2023	Company DLZ
Date	11/29/2023, 12:06:15 PM	File Name	Stability Analysis MwS HWL no limits.slmd