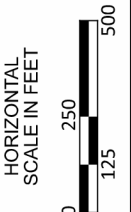


Tuscarawas IR 77 / US 250 / SR 39 Feasibility Study

Appendix A: Conceptual Build Alternatives





FLYOVER

DESIGN AGENCY

DESIGNER
XXX

REVIEWER
XXX MM-DD-YY

PROJECT ID
0

SHEET TOTAL

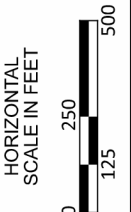


I-77

SR 250

US 39

BLUEBELL DRIVE



TEXAS U

DESIGN AGENCY
DESIGNER XXX
REVIEWER XXX MM-DD-YY
PROJECT ID 0
SHEET TOTAL

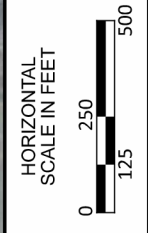


I-77

SR 250

US 39

BLUEBELL DRIVE



LOOP

DESIGN AGENCY

DESIGNER
XXX

REVIEWER
XXX MM-DD-YY

PROJECT ID
0

SHEET TOTAL

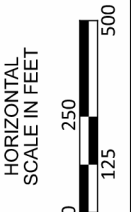


I-77

SR 250

US 39

BLUEBELL DRIVE



NB I-77 TO EB 250

DESIGN AGENCY
DESIGNER XXX
REVIEWER XXX MM-DD-YY
PROJECT ID 0
SHEET TOTAL



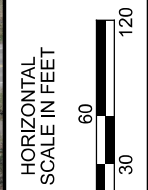
SB I-77 OFF RAMP SR 39 INTERSECTION (SCENARIO 3)
INTERSECTION REALIGNMENT (SB RAMP)

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DESIGNER	XXX
REVIEWER	XXX MM-DD-YY
PROJECT ID	0
SHEET	TOTAL
P:0	0



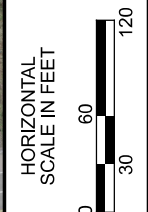
SB I-77 OFF RAMP SR 39 INTERSECTION (SCENARIO 2)
ROUNDBOUT LAYOUT

DESIGN AGENCY	
DESIGNER	XXX
REVIEWER	XXX MM-DD-YY
PROJECT ID	0
SHEET	TOTAL
P.0	0



SB I-77 OFF RAMP SR 39 INTERSECTION (SCENARIO 1)
PEANUT ROUNDABOUT LAYOUT

DESIGN AGENCY	
DESIGNER	XXX
REVIEWER	XXX
PROJECT ID	XXX MM-DD-YY
SHEET	0
TOTAL	0
P.O.	



NB I-77 / WB US 250 / SR 39 INTERSECTION
ROUNDBOUT LAYOUT

DESIGN AGENCY	
DESIGNER	XXX
REVIEWER	XXX MM-DD-YY
PROJECT ID	0
SHEET	TOTAL
P.0	0



HORIZONTAL
SCALE IN FEET

0 50 100 200

BACKAGE ROADS

DESIGN AGENCY

DESIGNER
XXX

REVIEWER
XXX MM-DD-YY

PROJECT ID
0

SHEET	TOTAL
P.0	0



HORIZONTAL
SCALE IN FEET
0 50 100 200

BACKAGE ROADS

DESIGN AGENCY

DESIGNER	XXX
REVIEWER	XXX
PROJECT ID	MM-DD-YY
SHEET	0
P.O.	TOTAL 0



HORIZONTAL
SCALE IN FEET

0 30 60 120

SR 39 & BLUEBELL DRIVE INTERSECTION
LEFT-ONLY LAYOUT

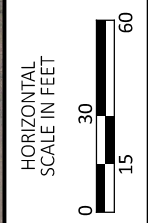
DESIGN AGENCY

DESIGNER
XXX

REVIEWER
XXX MM-DD-YY

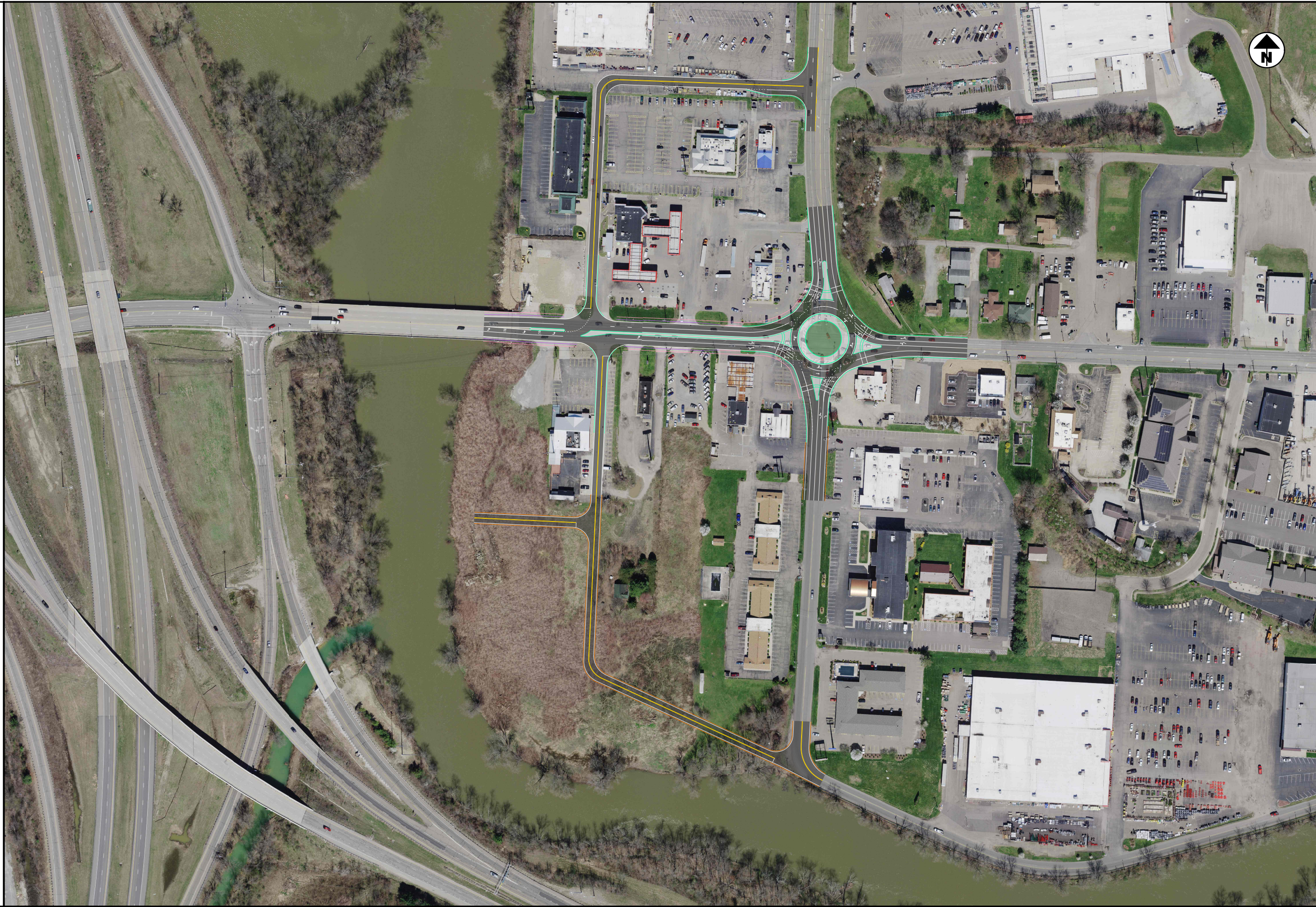
PROJECT ID
0

SHEET	TOTAL
P.0	0



SR 39 & BLUEBELL DRIVE INTERSECTION (SCENARIO 1)
ROUNDBOUT LAYOUT

DESIGN AGENCY	
DESIGNER	XXX
REVIEWER	XXX
PROJECT ID	XXX MM-DD-YY
SHEET	0
TOTAL	0
P.O.	



HORIZONTAL
SCALE IN FEET
0 50 100 200

SR 39 & BLUEBELL DRIVE INTERSECTION

DESIGN AGENCY

DESIGNER
XXX

REVIEWER
XXX MM-DD-YY

PROJECT ID
0

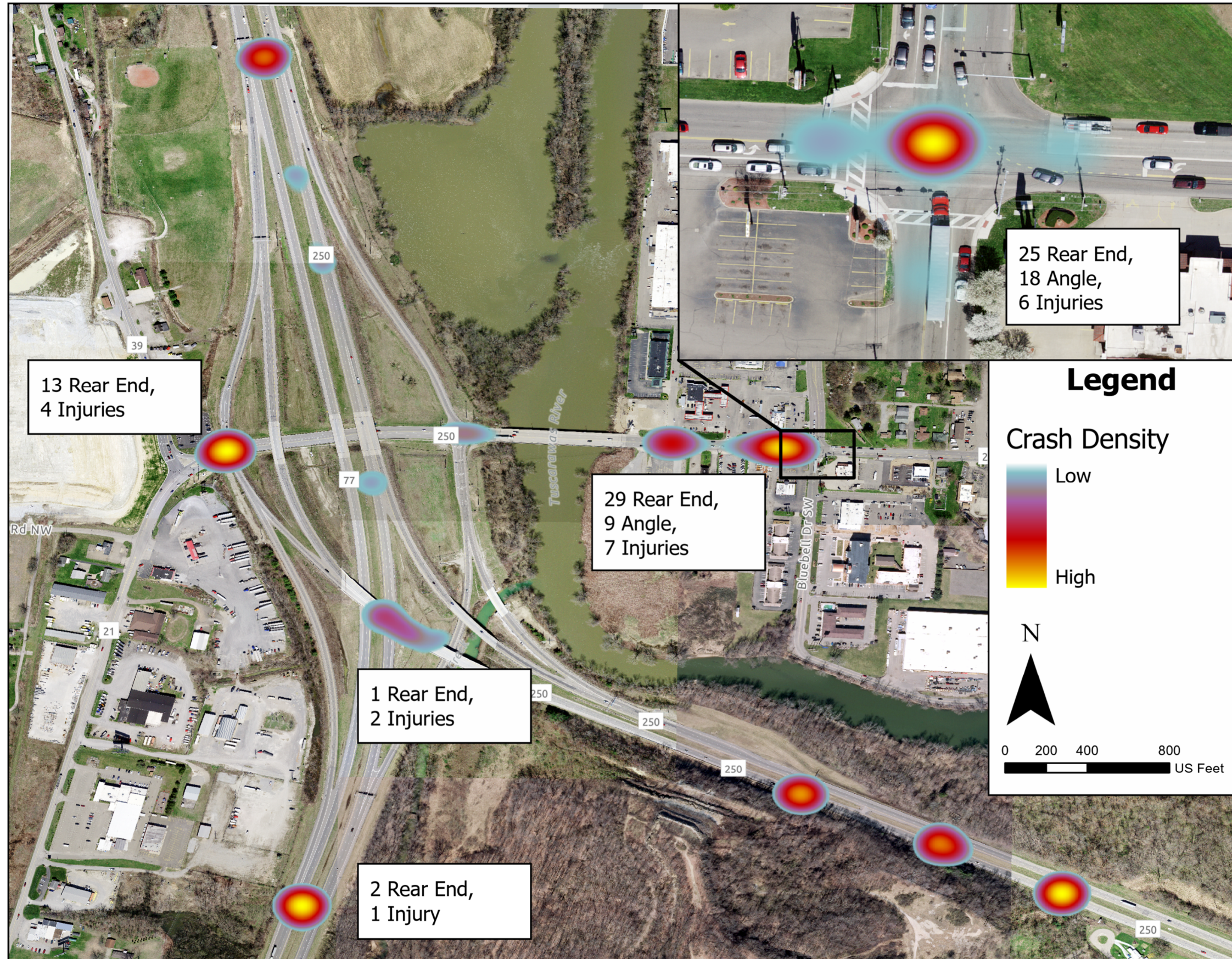
SHEET TOTAL
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Tuscarawas I-77 / US 250 / SR 39 Feasibility Study

Appendix B: Safety Analysis

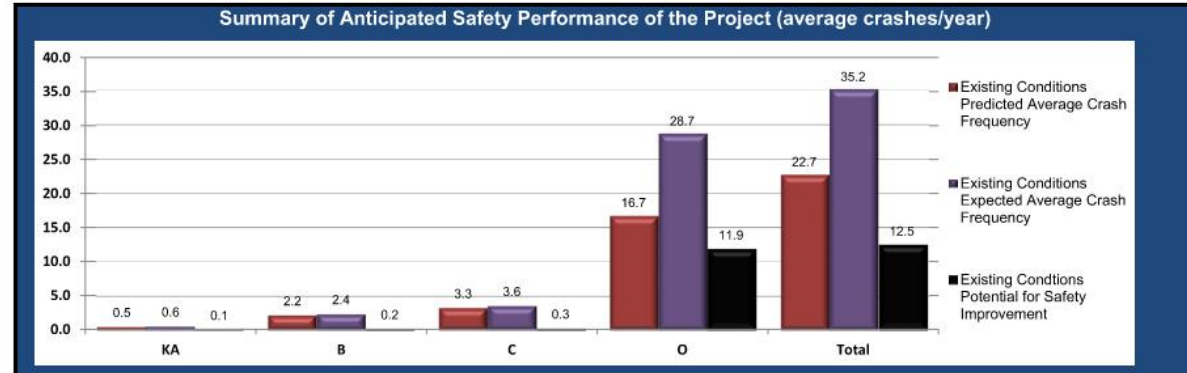


Crash Heat Map



SR 39 and Ramp Terminal Intersections

Project Safety Performance Report			
General Information			
Project Name	Tuscarawus EDC-I-77/US 250/SR 39	Contact Email	jimmy_masters@burgessniple.com
Project Description	Tuscarawus County Safety Study for SR 39/I-77/US 250 Interchange	Contact Phone	614.459.2050 x1261
Reference Number	PR61524	Date Performed	9/1/2023
Analyst	Jimmy Masters	Analysis Year	2023
Agency/Company	Burgess & Niple		



Project Summary Results (Without Animal Crashes)					
	KA	B	C	O	Total
$N_{\text{predicted}} - \text{Existing Conditions}$	0.4974	2.2046	3.2939	16.7109	22.7068
$N_{\text{expected}} - \text{Existing Conditions}$	0.5562	2.4179	3.6022	28.6508	35.2271
$N_{\text{potential for improvement}} - \text{Existing Conditions}$	0.0588	0.2133	0.3083	11.9399	12.5203

Project Safety Performance Report			
General Information			
Project Name	Tuscarawus EDC-I-77/US 250/SR 39	Contact Email	jimmy_masters@burgessniple.com
Project Description	Tuscarawus County Safety Study for SR 39/I-77/US 250 Interchange	Contact Phone	614.459.2050 x1261
Reference Number	PR61524	Date Performed	9/1/2023
Analyst	Jimmy Masters	Analysis Year	2023
Agency/Company	Burgess & Niple		

Existing Conditions Project Element Predicted Crash Summary (Without Animal Crashes)						
Project Element ID	Common Name	Crash Severity Level				Total
		KA	B	C	O	
Stonecreek and SR39	Stonecreek & SR39	0.0531	0.2659	0.3812	1.9203	2.6205
Stonecreek to SB I-77	Stonecreek to SB I-77 Ramps	0.0019	0.0116	0.0094	0.0587	0.0816
SB I-77 Off Ramp	SB I-77 Ramps	0.0468	0.1928	0.2978	1.9366	2.474
Between Ramps	SB I-77 Off Ramp to NB I-77 Ramps	0.0213	0.0529	0.0497	0.3414	0.4653
NB I-77 On Ramp	NB I-77 Ramps	0.1742	0.7176	1.1087	5.5729	7.5734
NB I-77 On Ramp to B	NB I-77 Ramps to Bluebell	0.0374	0.0956	0.0917	0.6392	0.8639
Bluebell and SR39	Bluebell & SR39	0.1627	0.8682	1.3554	6.2418	8.8281

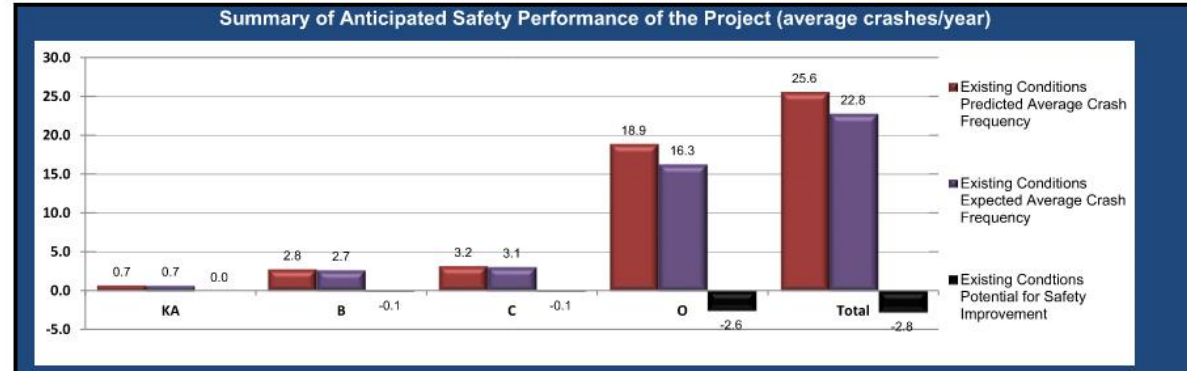
Existing Conditions Project Element Expected Crash Summary (Without Animal Crashes)						
Project Element ID	Common Name	Crash Severity Level				Total
		KA	B	C	O	
Stonecreek and SR39	Stonecreek & SR39	0.0513	0.2555	0.3633	1.8859	2.550
Stonecreek to SB I-77	Stonecreek to SB I-77 Ramps	0.0019	0.0114	0.0093	0.0728	0.0954
SB I-77 Off Ramp	SB I-77 Ramps	0.0526	0.2163	0.334	2.9383	3.5412
Between Ramps	SB I-77 Off Ramp to NB I-77 Ramps	0.0197	0.0488	0.0458	0.5139	0.6282
NB I-77 On Ramp	NB I-77 Ramps	0.1656	0.6821	1.0538	5.9045	7.808
NB I-77 On Ramp to B	NB I-77 Ramps to Bluebell	0.0791	0.2002	0.193	5.0235	5.4958
Bluebell and SR39	Bluebell & SR39	0.186	1.0036	1.603	12.3119	15.1045

Existing Conditions Project Element Potential for Safety Improvement Summary (Without Animal Crashes)						
Project Element ID	Common Name	Crash Severity Level				Total
		KA	B	C	O	
Stonecreek and SR39	Stonecreek & SR39	-0.0018	-0.0104	-0.0179	-0.0344	-0.0645
Stonecreek to SB I-77	Stonecreek to SB I-77 Ramps	0	-0.0002	-0.0001	0.0141	0.0138
SB I-77 Off Ramp	SB I-77 Ramps	0.0058	0.0235	0.0382	1.0017	1.0672
Between Ramps	SB I-77 Off Ramp to NB I-77 Ramps	-0.0016	-0.0041	-0.0039	0.1725	0.1625
NB I-77 On Ramp	NB I-77 Ramps	-0.0086	-0.0355	-0.0549	0.3316	0.2326
NB I-77 On Ramp to B	NB I-77 Ramps to Bluebell	0.0417	0.1046	0.1013	4.3643	4.6319
Bluebell and SR39	Bluebell & SR39	0.0233	0.1354	0.2476	6.0781	6.4784

Summary by Crash Type				
Crash Type	Existing		PSI	Proposed Expected Crash Frequency
	Predicted Crash Frequency	Expected Crash Frequency		
Unknown	0.0239	0.0252	0.0013	
Head On	0.2299	0.3450	0.1151	
Rear End	10.3698	16.5656	6.1958	
Backing	0.5082	0.9312	0.4230	
Sideswipe - Meeting	0.1835	0.6043	0.4208	
Sideswipe - Passing	2.7706	4.8267	2.0561	
Angle	4.1255	6.1405	2.0150	
Parked Vehicle	0.2973	0.3229	0.0256	
Pedestrian	0.1020	0.1027	0.0007	
Animal	0.1272	0.1194	-0.0077	
Train	0.0011	0.0011	0.0000	
Pedalcycles	0.4522	0.4536	0.0014	
Other Non-Vehicle	0.0002	0.0002	0.0000	
Fixed Object	0.9921	1.0696	0.0774	
Other Object	0.0390	0.0418	0.0028	
Overtaking	0.0683	0.0727	0.0045	
Other Non-Collision	0.1040	0.1145	0.0105	
Left Turn	1.8933	2.6780	0.7847	
Right Turn	0.5486	0.9315	0.3829	

Interstate 77 and US 250 - Freeway and Ramps

Project Safety Performance Report			
General Information			
Project Name	Tuscarawas EDC-I-77/US 250/SR 39	Contact Email	jimmy_masters@burgessniple.com
Project Description	Feasibility Study for I-77, US250 and SR39 corridors in Tuscarawas County	Contact Phone	614.459.2050 x1261
Reference Number	PR61524	Date Performed	10/1/2023
Analyst	Jimmy Masters	Analysis Year	2023
Agency/Company	Burgess & Niple		



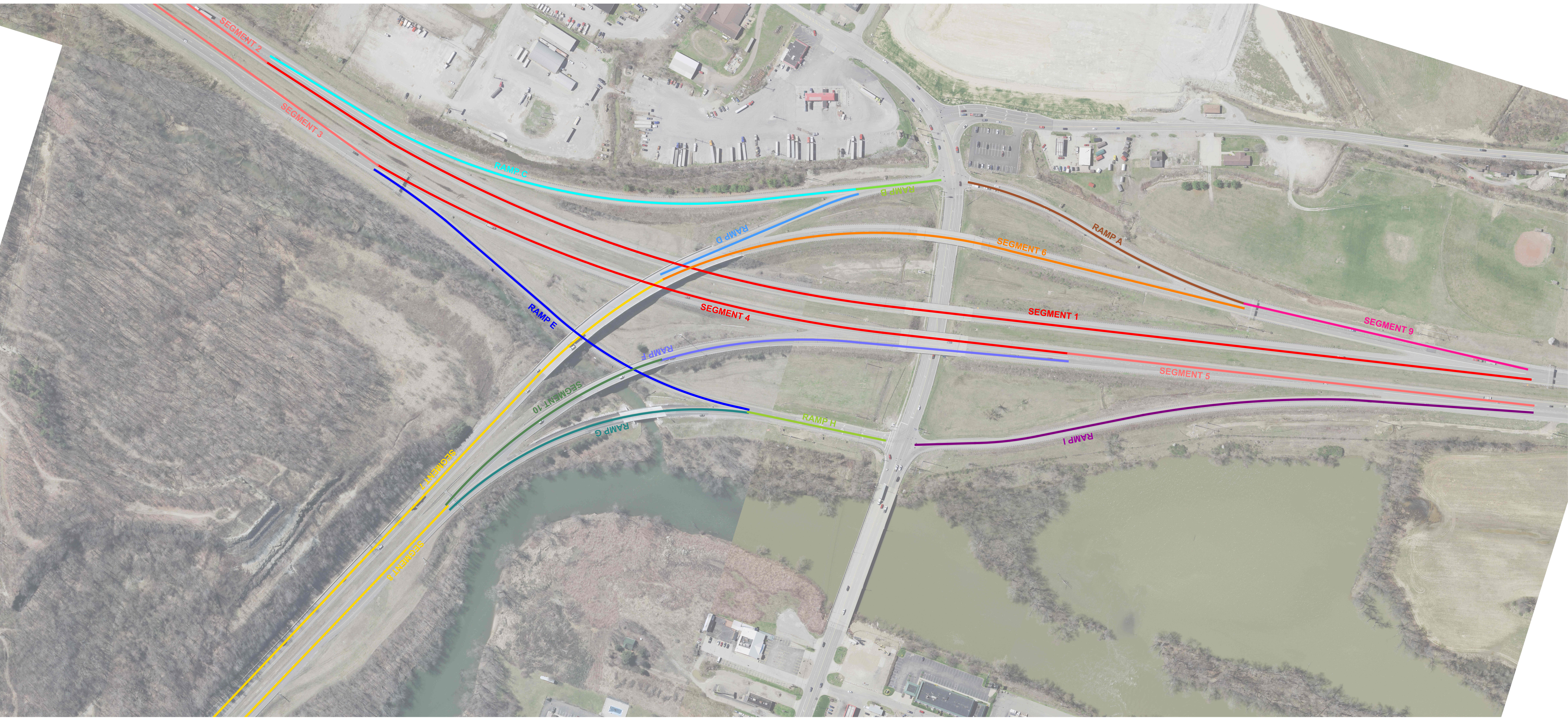
Project Summary Results (Without Animal Crashes)					
	KA	B	C	O	Total
$N_{predicted} - Existing Conditions$	0.6975	2.7934	3.1749	18.9333	25.5991
$N_{expected} - Existing Conditions$	0.6879	2.7359	3.0971	16.2937	22.8146
$N_{potential for improvement} - Existing Conditions$	-0.0096	-0.0575	-0.0778	-2.6396	-2.7845

Project Safety Performance Report			
General Information			
Project Name	Tuscarawas EDC-I-77/US 250/SR 39	Contact Email	jimmy_masters@burgessniple.com
Project Description	Feasibility Study for I-77, US250 and SR39 corridors in Tuscarawas County	Contact Phone	614.459.2050 x1261
Reference Number	PR61524	Date Performed	10/1/2023
Analyst	Jimmy Masters	Analysis Year	2023
Agency/Company	Burgess & Niple		

Existing Conditions Project Element Predicted Crash Summary (Without Animal Crashes)						
Project Element ID	Common Name	Crash Severity Level				Total
		KA	B	C	O	
Ramp A	To SR39 from SB I-77	0.0343	0.1139	0.1824	0.9773	1.3079
Ramp B	To SB I-77 & EB US-250 from SR39	0.0093	0.0663	0.0798	0.3807	0.5361
Ramp C	To SB I-77 from SR39	0.0277	0.1864	0.2237	0.8128	1.2506
Ramp D	To EB US-250 from SR39	0.0156	0.1059	0.1272	0.4989	0.7476
Ramp E	To SR39 from NB I-77	0.0218	0.072	0.1211	0.5618	0.7767
Ramp F	To NB I-77 from WB US-250	0.0126	0.0638	0.0876	0.2303	0.3943
Ramp G	To SR39 from WB US-250	0.0211	0.0704	0.109	0.7036	0.9041
Ramp H	To SR39 from WB US-250 and NB I-77	0.0071	0.0307	0.0398	0.0846	0.1622
Ramp I	To NB I-77 from SR39	0.0524	0.3531	0.4235	1.8336	2.6626
Segment 1	SB I-77 to Ramp C	0.0535	0.1826	0.1697	1.5404	1.9462
Segment 2	SB I-77 from Ramp C to End	0.0581	0.216	0.19	1.2751	1.7392
Segment 3	NB I-77 from Beginning to Ramp E	0.047	0.1434	0.1248	1.0993	1.4145
Segment 4	NB I-77 from Ramp E to Ramp F	0.0322	0.106	0.0955	0.9208	1.1545
Segment 5	NB I-77 from Ramp F to End	0.0771	0.3346	0.3198	1.589	2.3205
Segment 6	EB US-250 from Ramp A to Ramp D	0.0217	0.088	0.1128	0.8978	1.1203
Segment 7	EB US-250 from Ramp D to End	0.1166	0.3345	0.4598	2.945	3.8559
Segment 8	WB US-250 from Beginning to Segment 10	0.0592	0.1998	0.1843	1.4322	1.8755
Segment 9	SB I-77 from Beginning to Ramp A	0.0196	0.0712	0.0712	0.5615	0.7235
Segment 10	WB US-250 from Ramp G to Ramp F	0.0106	0.0548	0.0529	0.5886	0.7069

Existing Conditions Project Element Expected Crash Summary (Without Animal Crashes)						
Project Element ID	Common Name	Crash Severity Level				Total
		KA	B	C	O	
Ramp A	To SR39 from SB I-77	0.0307	0.1016	0.1679	0.6336	0.9338
Ramp B	To SB I-77 & EB US-250 from SR39	0.0076	0.0569	0.0687	0.245	0.3782
Ramp C	To SB I-77 from SR39	0.0253	0.175	0.2103	0.7201	1.1307
Ramp D	To EB US-250 from SR39	0.0136	0.1166	0.1417	0.375	0.6469
Ramp E	To SR39 from NB I-77	0.0207	0.0685	0.1165	0.4482	0.6539
Ramp F	To NB I-77 from WB US-250	0.0124	0.0616	0.0849	0.2361	0.395
Ramp G	To SR39 from WB US-250	0.0226	0.0756	0.1053	0.5442	0.7477
Ramp H	To SR39 from WB US-250 and NB I-77	0.0067	0.0293	0.0378	0.077	0.1508
Ramp I	To NB I-77 from SR39	0.0545	0.3421	0.4084	1.3549	2.1599
Segment 1	SB I-77 to Ramp C	0.0534	0.1821	0.1692	1.4135	1.8182
Segment 2	SB I-77 from Ramp C to End	0.058	0.2135	0.188	1.1926	1.6521
Segment 3	NB I-77 from Beginning to Ramp E	0.0469	0.1429	0.1244	1.0371	1.3513
Segment 4	NB I-77 from Ramp E to Ramp F	0.0322	0.1057	0.0952	0.8546	1.0877
Segment 5	NB I-77 from Ramp F to End	0.0766	0.324	0.3102	1.4052	2.116
Segment 6	EB US-250 from Ramp A to Ramp D	0.0216	0.0877	0.1123	0.8331	1.0547
Segment 7	EB US-250 from Ramp D to End	0.1158	0.3289	0.4494	2.511	3.4051
Segment 8	WB US-250 from Beginning to Segment 10	0.0591	0.1987	0.1834	1.3391	1.7803
Segment 9	SB I-77 from Beginning to Ramp A	0.0196	0.0707	0.0708	0.5318	0.6929
Segment 10	WB US-250 from Ramp G to Ramp F	0.0106	0.0545	0.0527	0.5416	0.6594

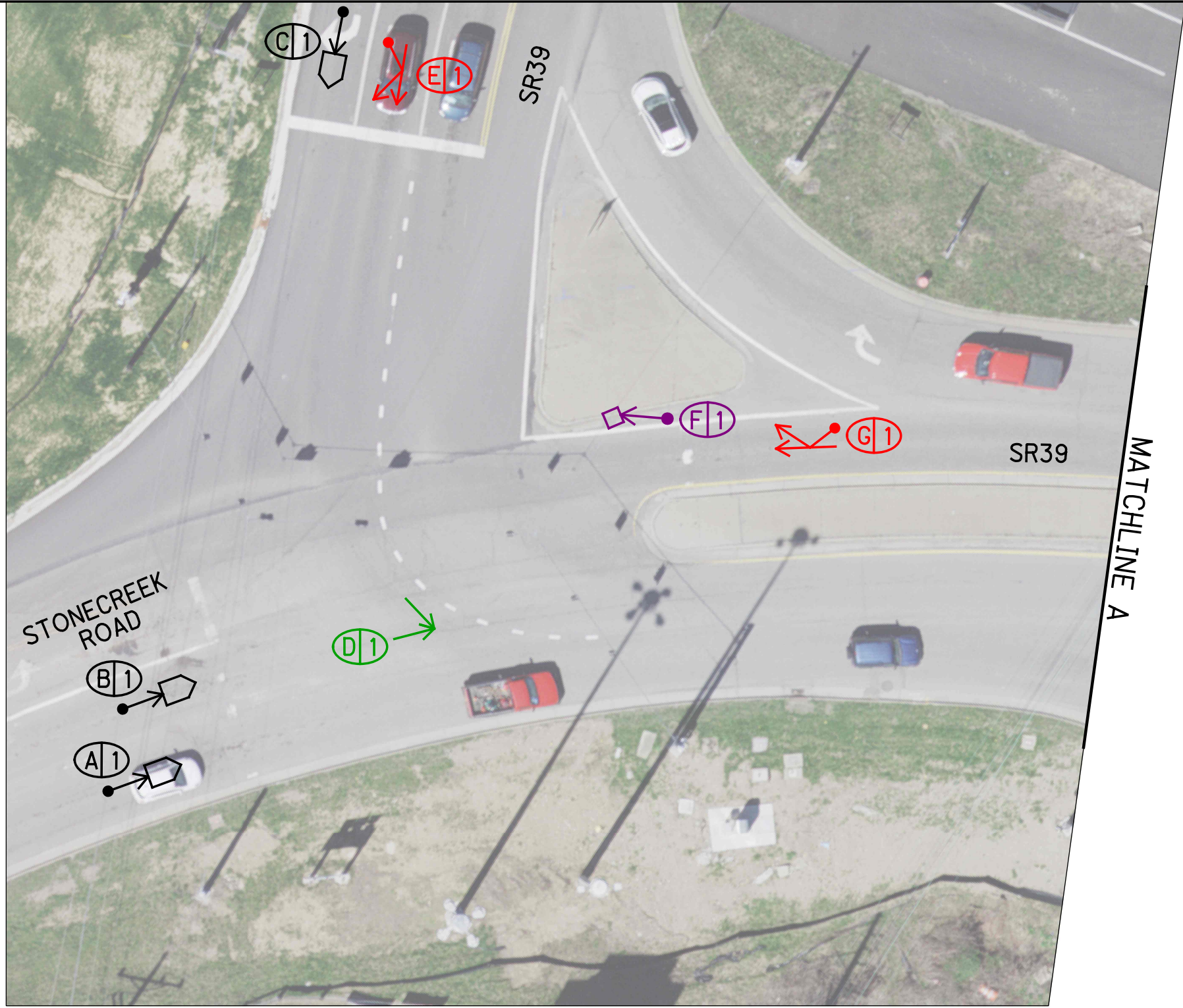
Existing Conditions Project Element Potential for Safety Improvement Summary (Without Animal Crashes)						
Project Element ID	Common Name	Crash Severity Level				Total
		KA	B	C	O	
Ramp A	To SR39 from SB I-77	-0.0036	-0.0123	-0.0145	-0.3437	-0.3741
Ramp B	To SB I-77 & EB US-250 from SR39	-0.0017	-0.0094	-0.0111	-0.1357	-0.1579
Ramp C	To SB I-77 from SR39	-0.0024	-0.0114	-0.0134	-0.0927	-0.1199
Ramp D	To EB US-250 from SR39	-0.002	-0.0107	-0.0145	-0.1239	-0.1007
Ramp E	To SR39 from NB I-77	-0.0011	-0.0035	-0.0046	-0.1136	-0.1228
Ramp F	To NB I-77 from WB US-250	-0.0002	-0.0022	-0.0027	-0.0033	-0.0083
Ramp G	To SR39 from WB US-250	-0.0004	-0.0014	-0.0037	-0.1594	-0.1564
Ramp H	To SR39 from WB US-250 and NB I-77	-0.0004	-0.0014	-0.002	-0.0076	-0.0114
Ramp I	To NB I-77 from SR39	-0.0023	-0.011	-0.0151	-0.4787	-0.5027
Segment 1	SB I-77 to Ramp C	-1E-04	-0.0005	-0.0005	-0.1269	-0.128
Segment 2	SB I-77 from Ramp C to End	-1E-04	-0.0025	-0.002	-0.0825	-0.0871
Segment 3	NB I-77 from Beginning to Ramp E	-0.0001	-0.0005	-0.0004	-0.0622	-0.0632
Segment 4	NB I-77 from Ramp E to Ramp F	0	-0.0003	-0.0003	-0.0662	-0.0668
Segment 5	NB I-77 from Ramp F to End	-0.0005	-0.0106	-0.0096	-0.1838	-0.2045
Segment 6	EB US-250 from Ramp A to Ramp D	-1E-04	-0.0003	-0.0005	-0.0647	-0.0656
Segment 7	EB US-250 from Ramp D to End	-0.0008	-0.0056	-0.0104	-0.434	-0.4508
Segment 8	WB US-250 from Beginning to Segment 10	-0.0001	-0.0011	-0.0009	-0.0931	-0.0952
Segment 9	SB I-77 from Beginning to Ramp A	0	-0.0005	-0.0004	-0.0297	-0.0306
Segment 10	WB US-250 from Ramp G to Ramp F	0	-0.0003	-0.0002	-0.047	-0.0475



Tuscarawas I-77 / US 250 / SR 39 Feasibility Study

Appendix C: Crash Diagrams

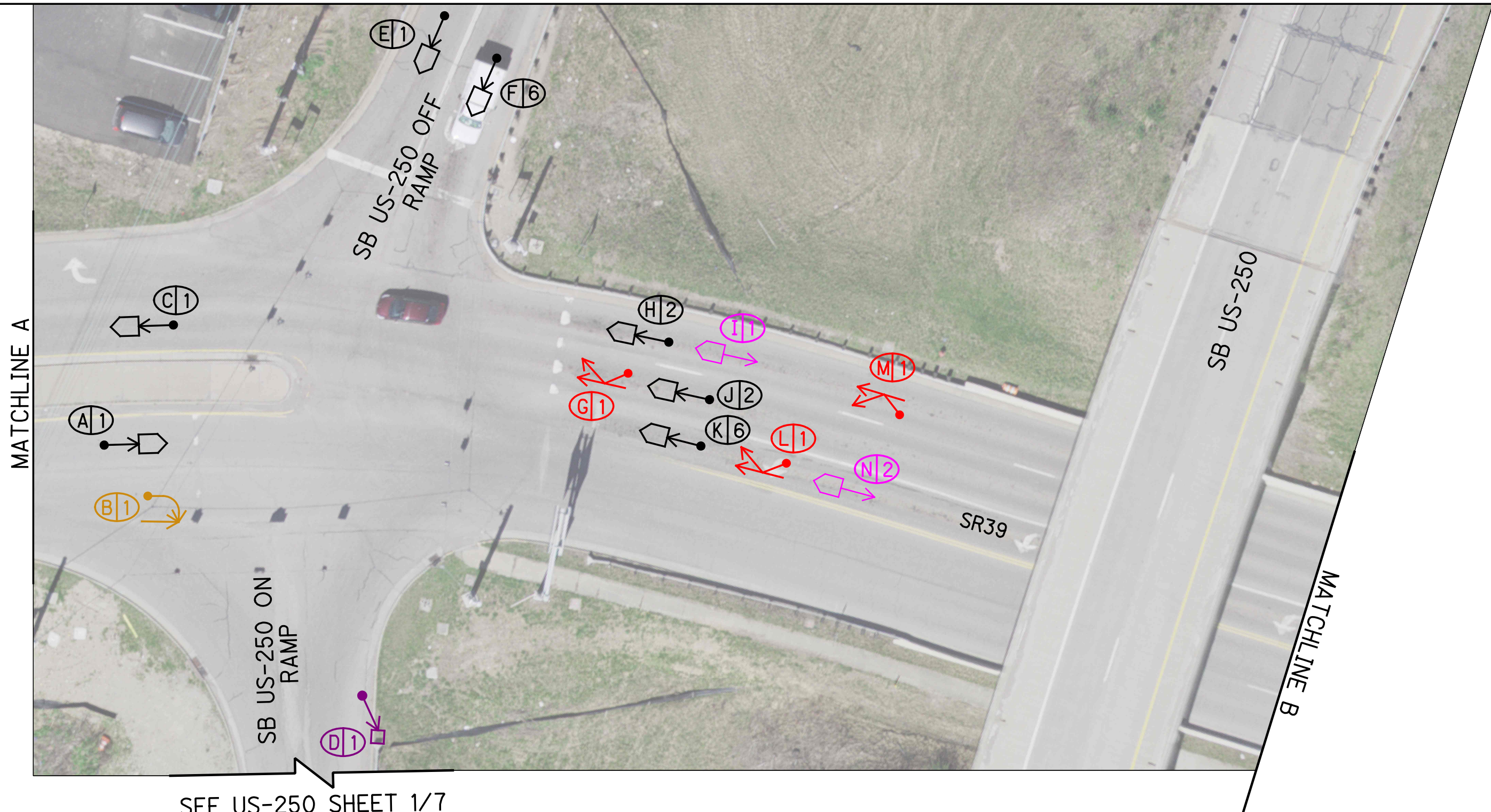




LEGEND

<ul style="list-style-type: none"> ★ CRASHES → DIRECTION OF TRAVEL ● INJURY REPORTED → AT FAULT VEHICLE + FATALITY → REAR END ↻ RIGHT-TURN ↻ ANGLE ↻ SIDESWIPE PASSING ↻ LEFT-TURN 	<ul style="list-style-type: none"> ↻ BACKING ↻ PEDALCYCLE ↻ FIXED OBJECT ↻ HEAD-ON ↻ OTHER 	<p>XX/XX/XXXX - DATE OF COLLISION 11/D/C/D</p> <p>ROAD CONDITION D - DRY S - SNOW U - UNKNOWN</p> <p>WEATHER CONDITION C - CLEAR R - RAIN U - UNKNOWN</p> <p>LIGHT CONDITION D - DAYLIGHT L - DARK, LIGHTED N - DARK, NOT LIGHTED R - DARK, LIGHT UNKNOWN U - DUSK A - DAWN</p> <p>W - WET I - ICE O - OTHER O - CLOUDY S - SNOW F - FOG H - SLUSH</p>
--	---	--

<ul style="list-style-type: none"> Ⓐ 8/17/2020 - 16/D/O/W Ⓑ 2/12/2020 - 15/D/O/D Ⓒ 5/21/2020 - 14/D/O/D* Ⓓ 11/13/2020 - 18/L/C/D Ⓔ 5/13/2020 - 15/D/C/D 	<ul style="list-style-type: none"> Ⓕ 11/21/2022 - 22/L/C/D Ⓖ 1/14/2020 - 13/D/O/D
--	---



SEE US-250 SHEET 1/7

LEGEND	
* CRASHES	XX/XX/XXXX - DATE OF COLLISION
- DIRECTION OF TRAVEL	11/D/C/D
- INJURY REPORTED	
- AT FAULT VEHICLE	
+ - FATALITY	
REAR END	ROAD CONDITION
RIGHT-TURN	D - DRY
ANGLE	S - SNOW
SIDESWIPE PASSING	U - UNKNOWN
LEFT-TURN	W - WET
BACKING	I - ICE
PEDALCYCLE	O - OTHER
FIXED OBJECT	WEATHER CONDITION
HEAD-ON	C - CLEAR
OTHER	R - RAIN
	U - UNKNOWN
	S - SNOW
	F - FOG
	H - SLUSH
	LIGHT CONDITION
	D - DAYLIGHT
	L - DARK, LIGHTED
	N - DARK, NOT LIGHTED
	R - DARK, LIGHT UNKNOWN
	U - DUSK
	A - DAWN
	HOUR OF COLLISION

(A) 12/11/2020 - 13/D/C/D*	(F) 9/16/2020 - 12/D/O/D* 9/17/2020 - 20/L/C/D 2/23/2021 - 9/D/C/D 6/11/2021 - 14/D/R/W 8/27/2021 - 13/D/C/D* 8/2/2022 - 10/D/C/D*	(I) 2/21/2022 - 13/D/C/D	(L) 7/21/2020 - 19/D/C/D*
(B) 11/9/2022 - 16/D/C/D	(G) 5/19/2022 - 13/D/O/D	(J) 6/26/2020 - 9/D/C/D* 7/15/2021 - 17/D/C/D	(M) 3/12/2021 - 11/D/C/D
(C) 7/22/2022 - 17/D/C/D	(H) 4/13/2020 - 13/D/O/D 12/3/2022 - 10/D/C/W	(K) 8/13/2020 - 16/D/C/D 6/6/2021 - 15/D/C/D 10/4/2021 - 16/D/C/D 9/28/2021 - 13/D/C/D 5/4/2022 - 16/D/O/D 7/29/2022 - 14/D/O/D	(N) 8/31/2020 - 20/L/C/D 1/25/2022 - 17/L/C/D
(D) 9/21/2022 - 19/N/C/D			
(E) 12/18/2020 - 14/D/O/D			

MATCHLINE B



MATCHLINE C

LEGEND	
* CRASHES	XX/XX/XXXX - DATE OF COLLISION
- DIRECTION OF TRAVEL	11/D/C/D
- INJURY REPORTED	ROAD CONDITION
- AT FAULT VEHICLE	D - DRY
- FATALITY	S - SNOW
REAR END	U - UNKNOWN
RIGHT-TURN	WEATHER CONDITION
ANGLE	C - CLEAR
SIDESWIPE PASSING	R - RAIN
LEFT-TURN	U - UNKNOWN
BACKING	O - CLOUDY
PEDALCYCLE	S - SNOW
FIXED OBJECT	F - FOG
HEAD-ON	H - SLUSH
OTHER	LIGHT CONDITION
	D - DAYLIGHT
	L - DARK, LIGHTED
	N - DARK, NOT LIGHTED
	R - DARK, LIGHT UNKNOWN
	U - DUSK
	A - DAWN

A 6/16/2021 - 16/D/C/D
 10/30/2021 - 14/D/O/D

CALCULATED	JZM
CHECKED	KMS

SR39 - STONECREEK ROAD TO BLUEBELL DRIVE
 COLLISION DIAGRAM (2020-2022)

BURGESS & NIPLÉ

HORIZONTAL SCALE IN FEET

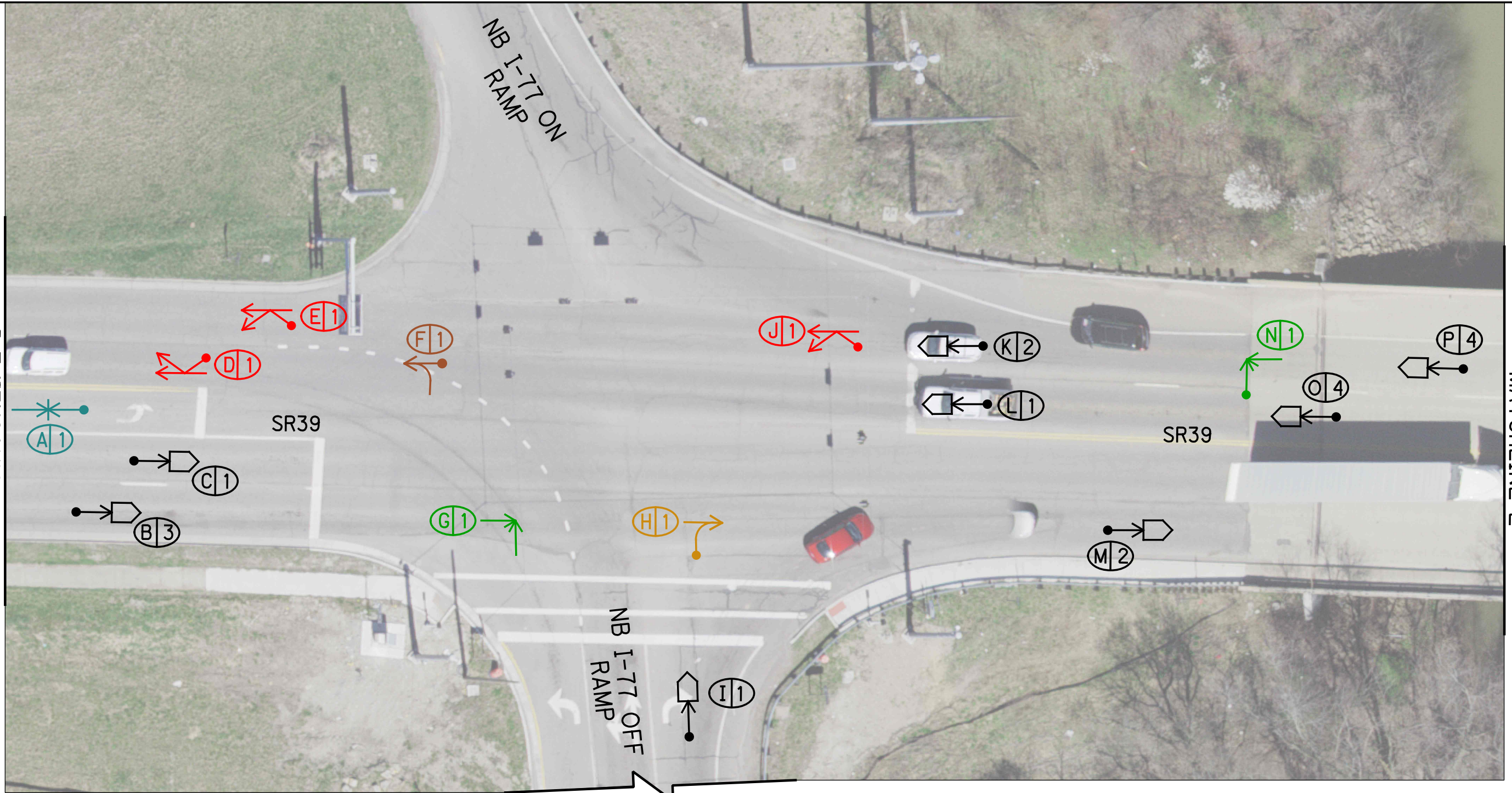
MATCHLINE C



LEGEND

<ul style="list-style-type: none"> AD * CRASHES PATTERN REAR END RIGHT-TURN ANGLE SIDESWIPE PASSING LEFT-TURN 	<ul style="list-style-type: none"> - DIRECTION OF TRAVEL * - INJURY REPORTED - AT FAULT VEHICLE + - FATALITY BACKING PEDALCYCLE FIXED OBJECT HEAD-ON OTHER 	<ul style="list-style-type: none"> XX/XX/XXXX - DATE OF COLLISION 11/D/C/D ROAD CONDITION WEATHER CONDITION LIGHT CONDITION HOUR OF COLLISION 	<ul style="list-style-type: none"> D - DRY S - SNOW U - UNKNOWN C - CLEAR R - RAIN U - UNKNOWN D - DAYLIGHT L - DARK, LIGHTED N - DARK, NOT LIGHTED R - DARK, LIGHT UNKNOWN U - DUSK A - DAWN W - WET I - ICE O - OTHER O - CLOUDY S - SNOW F - FOG H - SLUSH
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MATCHLINE D



MATCHLINE E

SEE US-250 SHEET 1/7

LEGEND	
* CRASHES	XX/XX/XXXX - DATE OF COLLISION
- DIRECTION OF TRAVEL	11/D/C/D
- INJURY REPORTED	
- AT FAULT VEHICLE	
- FATALITY	
REAR END	ROAD CONDITION
RIGHT-TURN	D - DRY
ANGLE	S - SNOW
SIDESWIPE PASSING	U - UNKNOWN
LEFT-TURN	W - WET
BACKING	I - ICE
PEDALCYCLE	O - OTHER
FIXED OBJECT	
HEAD-ON	WEATHER CONDITION
OTHER	C - CLEAR
	R - RAIN
	U - UNKNOWN
	O - CLOUDY
	S - SNOW
	F - FOG
	H - SLUSH
	LIGHT CONDITION
	D - DAYLIGHT
	L - DARK, LIGHTED
	N - DARK, NOT LIGHTED
	R - DARK, LIGHT UNKNOWN
	U - DUSK
	A - DAWN

(A) 7/25/2020 - 13/D/C/D*	(E) 10/11/2020 - 13/D/O/D	(J) 7/3/2020 - 14/D/C/D	(O) 12/18/2020 - 6/L/C/I
(B) 1/5/2021 - 15/D/R/W	(F) 12/22/2022 - 16/L/O/W	(K) 2/10/2020 - 17/D/R/W*	2/7/2020 - 18/L/S/S
3/19/2021 - 17/D/C/D	(G) 2/25/2020 - 14/D/R/W	9/25/2022 - 21/L/R/W	9/26/2021 - 12/D/C/D
8/19/2021 - 18/D/C/D	(H) 10/1/2022 - 15/D/R/W	(L) 1/6/2022 - 16/U/S/S	8/26/2022 - 18/D/C/D
(C) 8/12/2021 - 3/L/C/D	(I) 9/30/2020 - 14/D/O/D	(M) 2/12/2020 - 16/D/S/W	(P) 9/17/2020 - 12/D/O/D*
(D) 8/4/2022 - 18/D/O/D		9/16/2021 - 17/D/C/D	10/11/2020 - 18/U/D/R
		(N) 12/18/2020 - 6/L/C/I	11/15/2020 - 11/D/R/W
			6/22/2021 - 13/D/C/D*



CALCULATED JZM CHECKED KMS
 SR39 - STONECREEK ROAD TO BLUEBELL DRIVE
 COLLISION DIAGRAM (2020-2022)

MATCHLINE E



MATCHLINE F

LEGEND

<ul style="list-style-type: none"> ⬇️ * CRASHES ➔ PATTERN ➔ DIRECTION OF TRAVEL • INJURY REPORTED ➔ AT FAULT VEHICLE + FATALITY ➔ REAR END ➔ RIGHT-TURN ➔ ANGLE ➔ SIDESWIPE PASSING ➔ LEFT-TURN ➔ BACKING ➔ PEDALCYCLE ➔ FIXED OBJECT ➔ HEAD-ON ➔ OTHER 	<ul style="list-style-type: none"> XX/XX/XXXX - DATE OF COLLISION 11/D/C/D ROAD CONDITION <ul style="list-style-type: none"> D - DRY S - SNOW U - UNKNOWN WEATHER CONDITION <ul style="list-style-type: none"> C - CLEAR R - RAIN U - UNKNOWN O - CLOUDY S - SNOW F - FOG H - SLUSH LIGHT CONDITION <ul style="list-style-type: none"> D - DAYLIGHT L - DARK, LIGHTED N - DARK, NOT LIGHTED R - DARK, LIGHT UNKNOWN U - DUSK A - DAWN W - WET I - ICE O - OTHER
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Ⓐ 5/23/2021 - 14/D/C/D

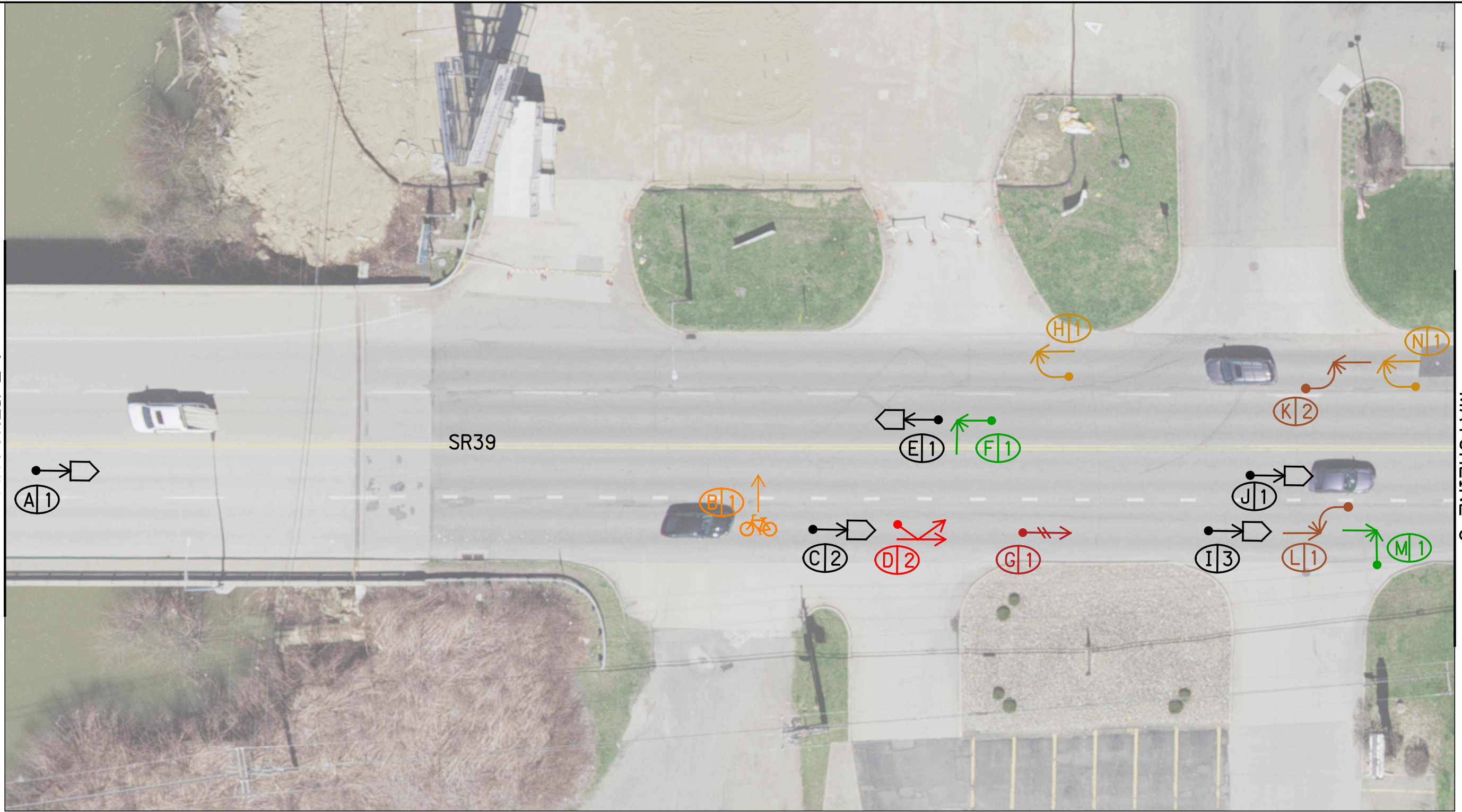
CALCULATED
JZM
CHECKED
KMS

0 25
HORIZONTAL
SCALE IN FEET

SR39 - STONECREEK ROAD TO BLUEBELL DRIVE
COLLISION DIAGRAM (2020-2022)

BURGESS & NIPLÉ

MATCHLINE F



MATCHLINE G

LEGEND

<ul style="list-style-type: none"> AD - * CRASHES PATTERN REAR END RIGHT-TURN ANGLE SIDESWIPE PASSING LEFT-TURN 	<ul style="list-style-type: none"> DIRECTION OF TRAVEL INJURY REPORTED AT FAULT VEHICLE FATALITY BACKING PEDALCYCLE FIXED OBJECT HEAD-ON OTHER 	<p>XX/XX/XXXX - DATE OF COLLISION 11/D/C/D</p> <p>ROAD CONDITION D - DRY S - SNOW U - UNKNOWN</p> <p>WEATHER CONDITION C - CLEAR R - RAIN U - UNKNOWN</p> <p>LIGHT CONDITION D - DAYLIGHT L - DARK, LIGHTED N - DARK, NOT LIGHTED R - DARK, LIGHT UNKNOWN U - DUSK A - DAWN</p> <p>W - WET I - ICE O - OTHER C - CLOUDY S - SNOW F - FOG H - SLUSH</p>
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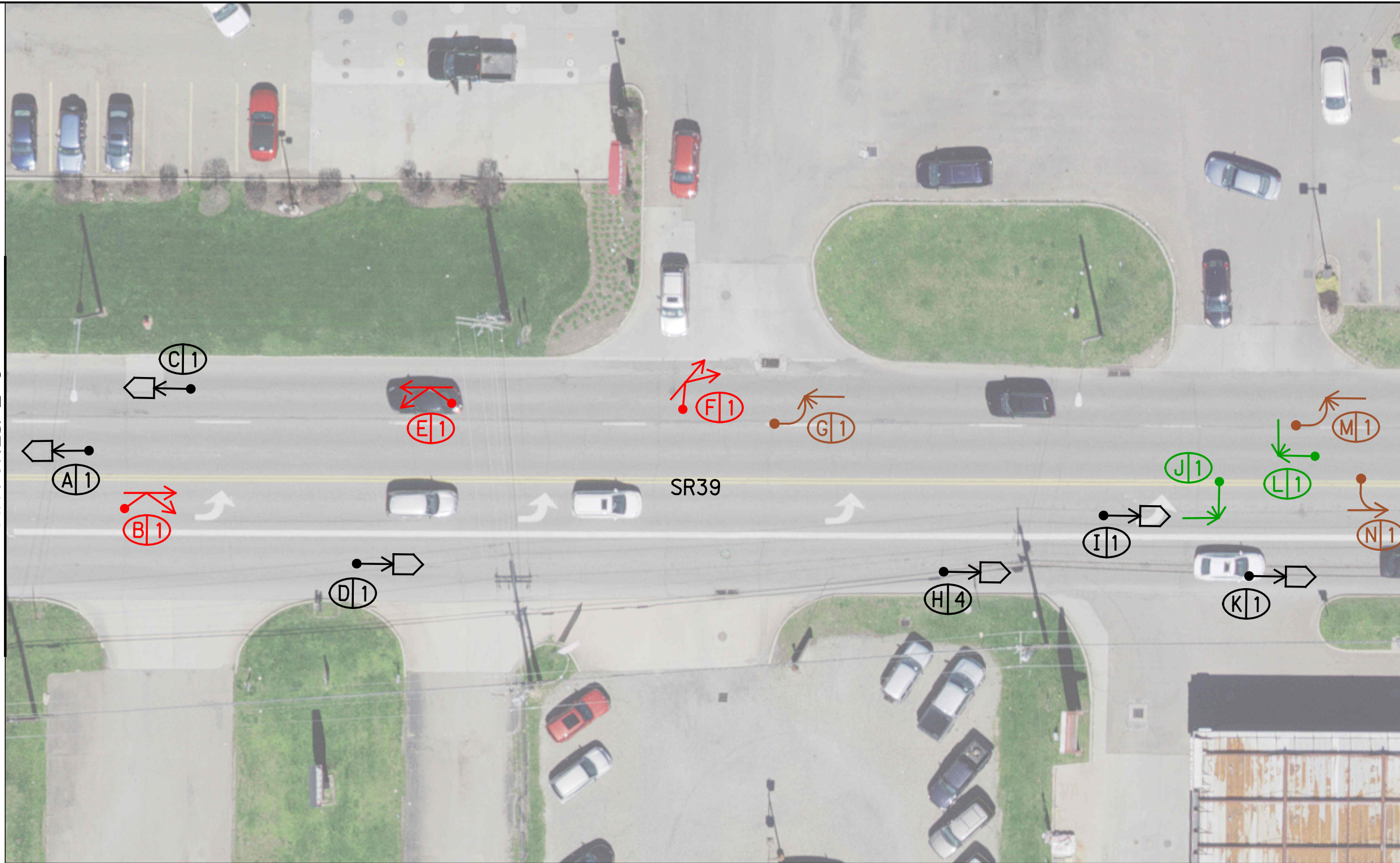
<p>(A) 10/16/2021 - 17/D/C/D</p> <p>(B) 9/20/2022 - 15/D/C/D*</p> <p>(C) 10/23/2020 - 7/A/C/D* 12/3/2021 - 14/D/O/D</p> <p>(D) 5/8/2022 - 12/D/C/D 8/22/2022 - 16/D/C/D</p>	<p>(E) 11/11/2022 - 15/D/R/W</p> <p>(F) 10/11/2020 - 16/D/O/D</p> <p>(G) 5/15/2022 - 15/D/C/D</p> <p>(H) 12/19/2021 - 18/L/C/D</p>	<p>(I) 7/3/2020 - 13/D/C/D 2/7/2022 - 16/D/C/W 9/1/2022 - 15/D/C/D</p> <p>(J) 8/7/2020 - 14/D/C/D</p> <p>(K) 10/16/2021 - 15/D/O/D 10/8/2022 - 18/D/O/D*</p>	<p>(L) 6/26/2021 - 17/D/C/D*</p> <p>(M) 12/15/2022 - 13/D/R/W</p> <p>(N) 10/29/2020 - 19/L/R/W</p>
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CALCULATED JZM
CHECKED KMS

0 25
HORIZONTAL SCALE IN FEET

SR39 - STONECREEK ROAD TO BLUEBELL DRIVE
COLLISION DIAGRAM (2020-2022)

MATCHLINE G



MATCHLINE H

LEGEND

- * CRASHES
- ADP - PATTERN
- - DIRECTION OF TRAVEL
- - INJURY REPORTED
- - AT FAULT VEHICLE
- + - FATALITY
- ↔ - REAR END
- ↘ - RIGHT-TURN
- ↙ - ANGLE
- ↔ - SIDESWIPE PASSING
- ↖ - LEFT-TURN
- ↔ - BACKING
- ↔ - PEDALCYCLE
- ↔ - FIXED OBJECT
- ↔ - HEAD-ON
- ↔ - OTHER

XX/XX/XXXX - DATE OF COLLISION
 11/D/C/D

- ROAD CONDITION
 - D - DRY
 - S - SNOW
 - U - UNKNOWN
- WEATHER CONDITION
 - C - CLEAR
 - R - RAIN
 - U - UNKNOWN
- LIGHT CONDITION
 - D - DAYLIGHT
 - L - DARK, LIGHTED
 - N - DARK, NOT LIGHTED
 - R - DARK, LIGHT UNKNOWN
 - U - DUSK
 - A - DAWN
- W - WET
- I - ICE
- O - OTHER
- CL - CLOUDY
- SN - SNOW
- FG - FOG
- SL - SLUSH

- (A) 10/28/2022 - 19/L/C/D*
- (B) 7/1/2020 - 13/D/C/D
- (C) 2/7/2020 - 14/D/S/S
- (D) 10/8/2021 - 18/U/C/D
- (E) 7/18/2020 - 19/D/C/D
- (F) 10/21/2022 - 6/L/O/D
- (G) 5/25/2021 - 19/D/C/D
- (H) 6/19/2020 - 12/D/C/D
3/29/2021 - 14/D/C/D*
- (I) 1/6/2020 - 6/L/C/D
- (J) 2/12/2022 - 15/D/C/D
- (K) 9/1/2021 - 10/D/O/W
- (L) 1/30/2020 - 13/D/C/D
- (M) 3/6/2021 - 19/L/C/D
- (N) 12/15/2021 - 21/L/C/D

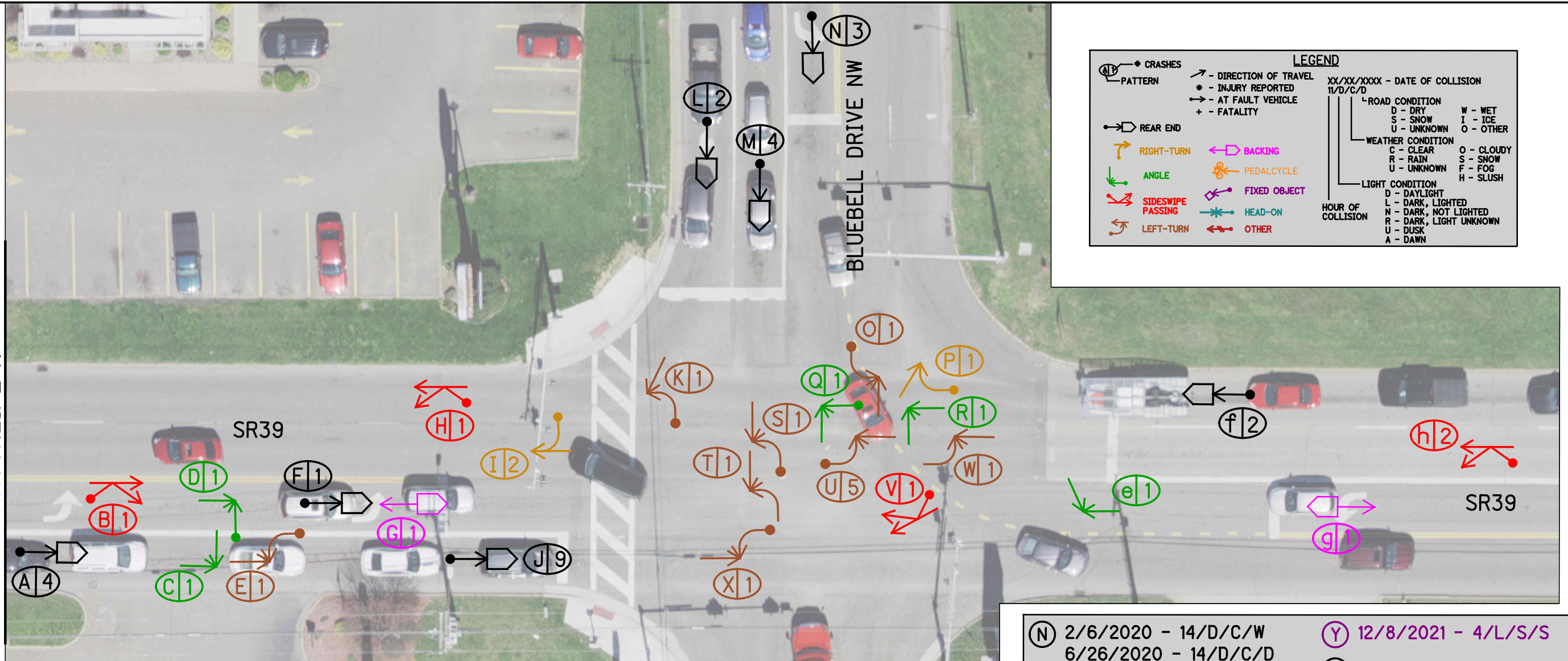
CALCULATED
JZM
CHECKED
KMS

SR39 - STONECREEK ROAD TO BLUEBELL DRIVE
COLLISION DIAGRAM (2020-2022)



HORIZONTAL SCALE IN FEET

MATCHLINE H



LEGEND

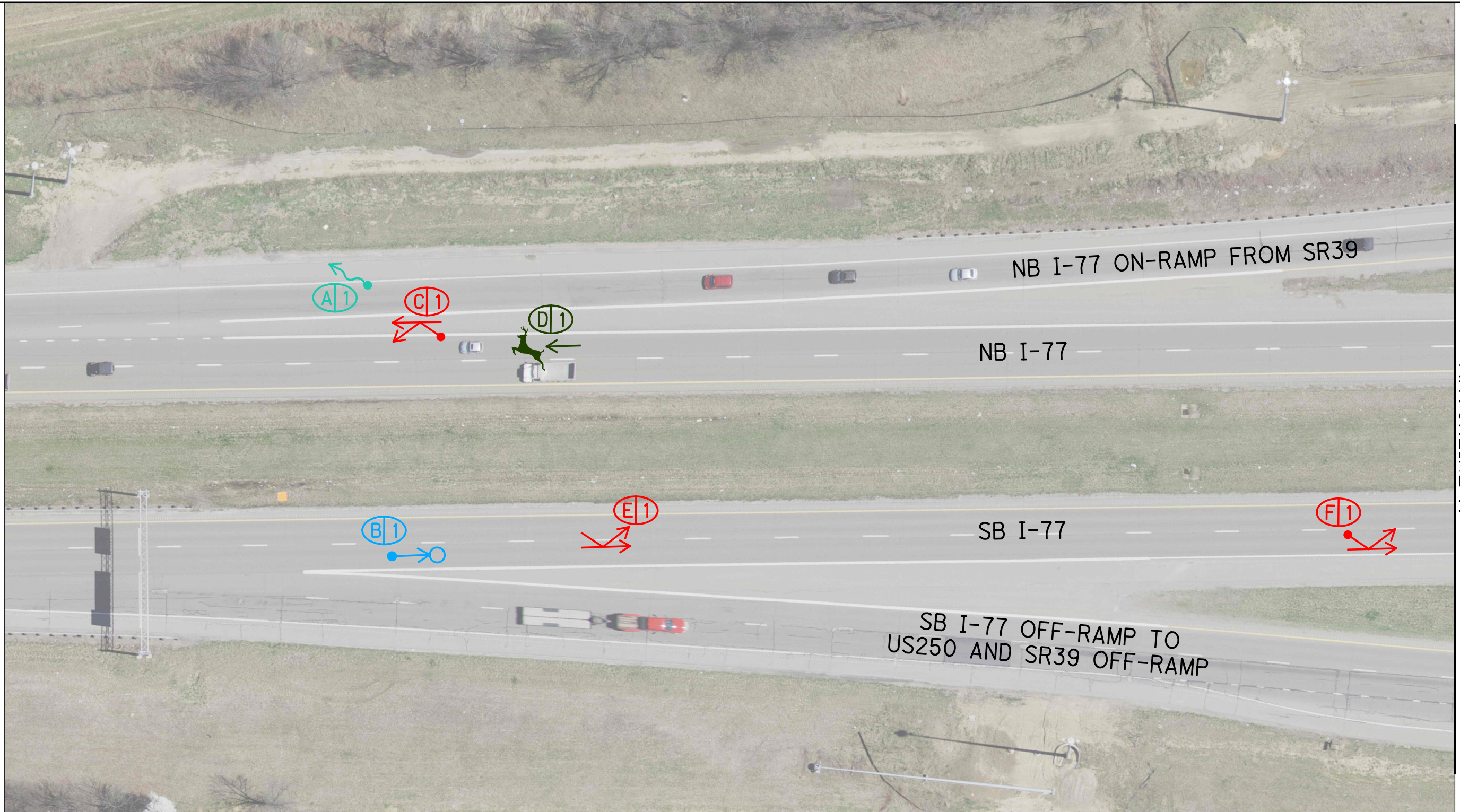
- * CRASHES
- * - INJURY REPORTED
- * - AT FAULT VEHICLE
- + - FATALITY
- REAR END
- ↘ RIGHT-TURN
- ↙ ANGLE
- ↔ SIDESWIPE PASSING
- ↶ LEFT-TURN
- ← BACKING
- ↻ PEDALCYCLE
- ⊠ FIXED OBJECT
- ↔ HEAD-ON
- ↔ OTHER

XX/XX/XXXX - DATE OF COLLISION
11/D/C/D

ROAD CONDITION		W - WET
D - DRY	S - SNOW	I - ICE
U - UNKNOWN		O - OTHER
WEATHER CONDITION		O - CLOUDY
C - CLEAR	R - RAIN	S - SNOW
U - UNKNOWN		F - FOG
		H - SLUSH
LIGHT CONDITION		D - DAYLIGHT
L - DARK, LIGHTED	N - DARK, NOT LIGHTED	R - DARK, LIGHT UNKNOWN
U - DUSK	A - DAWN	

(A) 10/19/2021 - 13/D/C/D 6/18/2022 - 12/D/C/D 7/22/2022 - 15/D/C/D 10/24/2022 - 15/D/C/D	(J) 1/9/2021 - 15/D/C/D 2/5/2021 - 11/D/C/D 7/10/2021 - 13/D/C/D 7/29/2021 - 11/D/O/D 8/5/2021 - 11/D/C/D 4/11/2022 - 12/D/R/W 4/11/2022 - 12/D/R/W 4/15/2022 - 12/D/C/D 12/11/2022 - 16/D/O/D
(B) 7/4/2022 - 12/D/C/D	(K) 2/21/2020 - 18/L/O/D*
(C) 9/17/2022 - 17/D/C/D	(L) 1/15/2022 - 19/L/C/D 11/10/2022 - 17/U/C/D
(D) 10/2/2021 - 18/D/C/D	(M) 9/25/2020 - 17/D/C/D 8/17/2021 - 14/D/O/D 4/10/2022 - 15/D/C/D 12/23/2022 - 15/D/S/S
(E) 6/20/2022 - 13/D/O/D	
(F) 6/4/2020 - 11/D/C/D	
(G) 9/11/2020 - 12/D/C/D	
(H) 6/21/2021 - 12/D/C/D	
(I) 1/23/2021 - 16/D/C/D* 2/7/2021 - 14/D/C/D	

(N) 2/6/2020 - 14/D/C/W 6/26/2020 - 14/D/C/D 11/23/2022 - 18/L/C/D	(Y) 12/8/2021 - 4/L/S/S
(O) 10/31/2020 - 17/D/C/D*	(Z) 3/19/2020 - 9/D/O/W 9/3/2020 - 8/D/R/W 6/19/2021 - 17/D/C/D* 2/24/2022 - 12/D/C/D 7/26/2022 - 17/D/O/D
(P) 2/3/2020 - 8/D/C/D	(a) 2/2/2021 - 14/D/C/D 2/15/2022 - 16/D/C/D
(Q) 3/20/2021 - 13/D/C/D	(b) 11/27/2021 - 19/L/S/W
(R) 11/5/2022 - 23/L/C/D	(c) 8/18/2020 - 15/D/C/D
(S) 1/12/2020 - 18/L/C/D*	(d) 9/11/2020 - 8/D/O/D 5/14/2021 - 11/D/C/D 11/17/2021 - 11/D/O/D
(T) 6/24/2021 - 16/D/C/D	(e) 5/28/2022 - 15/D/O/D
(U) 8/30/2020 - 13/D/C/D* 10/24/2020 - 14/D/O/D 2/8/2021 - 20/L/O/D 5/30/2021 - 14/D/O/D* 5/29/2022 - 14/D/C/D*	(f) 2/7/2020 - 18/L/S/I 6/14/2021 - 12/D/O/D
(V) 9/7/2021 - 11/D/C/D	(g) 3/27/2022 - 13/D/C/D
(W) 8/16/2020 - 13/D/O/D	(h) 1/20/2020 - 11/D/O/W 10/15/2020 - 17/D/R/W
(X) 3/12/2020 - 14/D/O/D	



MATCHLINE A

CALCULATED
JZM
CHECKED
KMS

0 50
HORIZONTAL
SCALE IN FEET

I-77
COLLISION DIAGRAM (2020-2022)

BURGESS & NIPLÉ

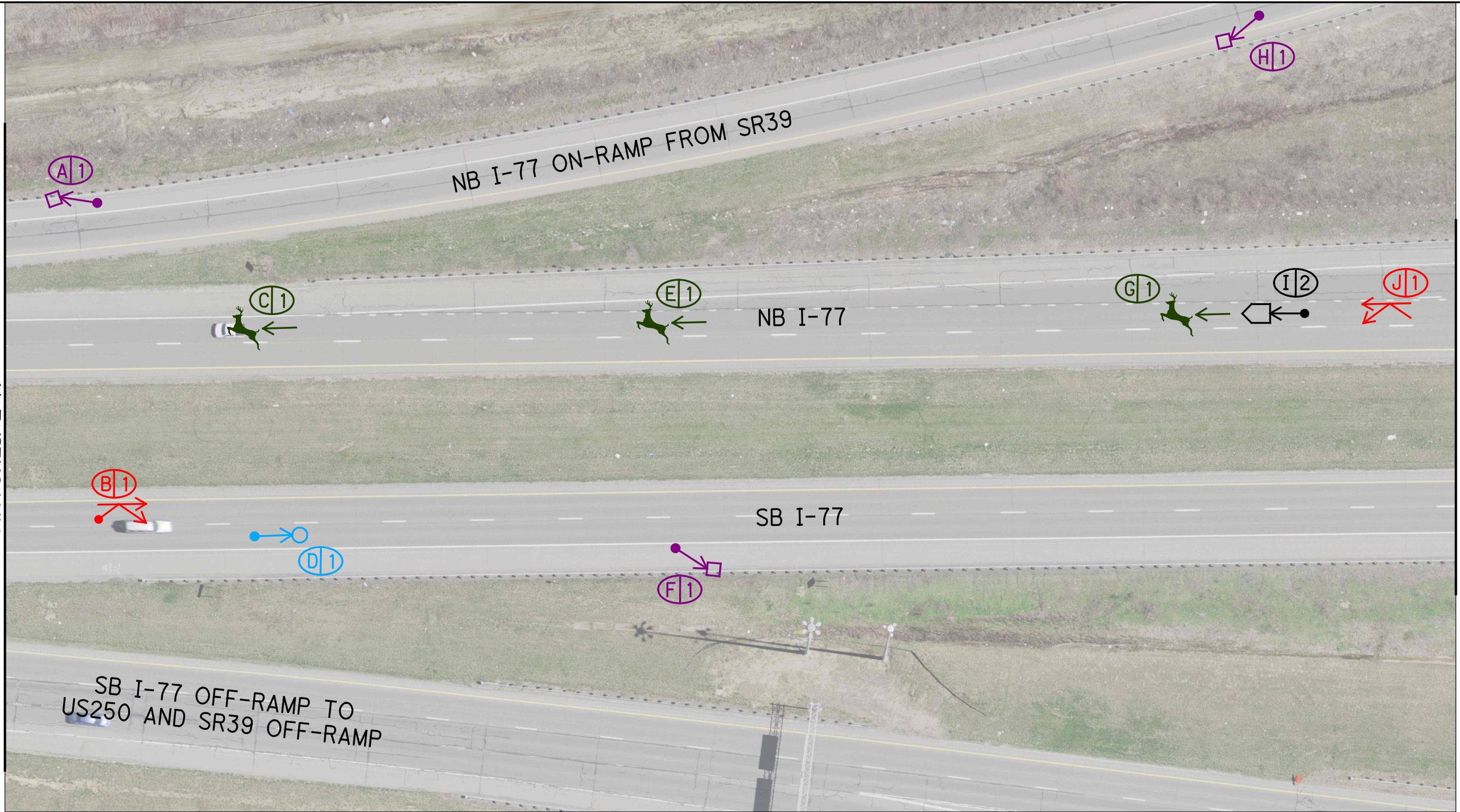
LEGEND

* CRASHES	- DIRECTION OF TRAVEL	XX/XX/XXXX - DATE OF COLLISION
PATTERN	- INJURY REPORTED	11/D/C/D
REAR END	- AT FAULT VEHICLE	
ANIMAL	- FATALITY	
SIDESWIPE PASSING	OFF-ROAD	
	FIXED OBJECT	
	OTHER OBJECT	

ROAD CONDITION	WEATHER CONDITION	LIGHT CONDITION
D - DRY	C - CLEAR	D - DAYLIGHT
S - SNOW	R - RAIN	L - DARK, LIGHTED
U - UNKNOWN	U - UNKNOWN	N - DARK, NOT LIGHTED
		R - DARK, LIGHT UNKNOWN
		U - DUSK
		A - DAWN
		W - WET
		I - ICE
		O - OTHER
		O - CLOUDY
		S - SNOW
		F - FOG
		H - SLUSH

(A) 1/7/2022 - 3/L/S/S*	(F) 1/28/2021 - 18/N/O/D
(B) 6/27/2022 - 7/D/C/D	
(C) 8/8/2022 - 18/D/C/D	
(D) 10/27/2020 - 22/L/R/W	
(E) 8/7/2022 - 23/L/C/D*	

MATCHLINE A



MATCHLINE B

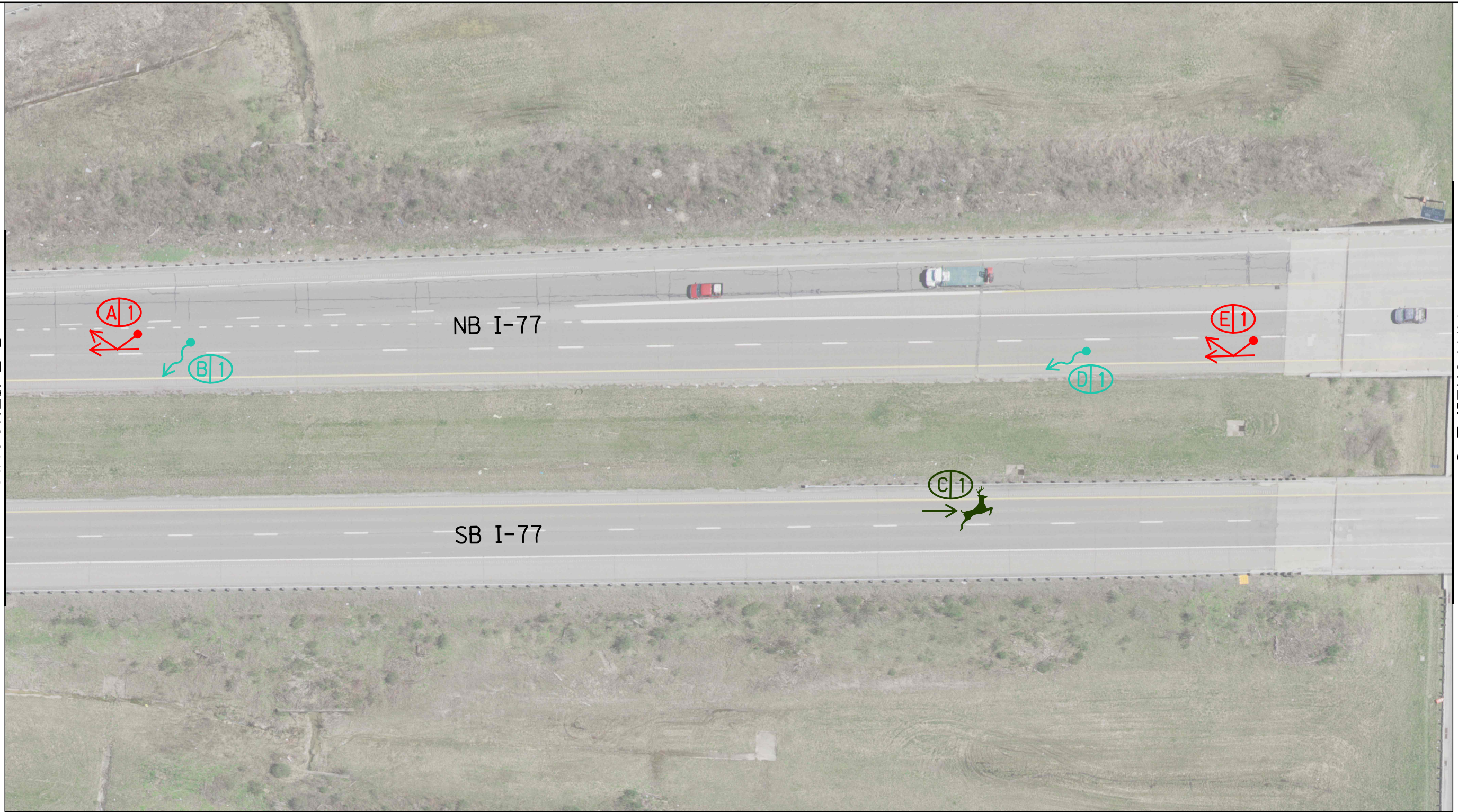


I-77
COLLISION DIAGRAM (2020-2022)

LEGEND	
* CRASHES	→ - DIRECTION OF TRAVEL
- INJURY REPORTED	* - AT FAULT VEHICLE
+ - FATALITY	
REAR END	OFF-ROAD
ANIMAL	FIXED OBJECT
SIDESWIPE PASSING	OTHER OBJECT
XX/XX/XXXX - DATE OF COLLISION	11/D/C/D
ROAD CONDITION	
D - DRY	W - WET
S - SNOW	I - ICE
U - UNKNOWN	O - OTHER
WEATHER CONDITION	
C - CLEAR	O - CLOUDY
R - RAIN	S - SNOW
U - UNKNOWN	F - FOG
	H - SLUSH
LIGHT CONDITION	
D - DAYLIGHT	
L - DARK, LIGHTED	
N - DARK, NOT LIGHTED	
R - DARK, LIGHT UNKNOWN	
U - DUSK	
A - DAWN	

(A) 2/7/2020 - 6/L/S/S	(F) 2/5/2020 - 16/D/O/D
(B) 10/7/2022 - 15/D/O/D*	(G) 10/21/2022 - 21/L/C/D
(C) 11/9/2022 - 5/L/C/D	(H) 8/3/2020 - 13/D/O/D*
(D) 3/31/2022 - 14/D/C/D	(I) 2/12/2020 - 15/D/O/D
(E) 5/8/2021 - 1/L/C/D	2/12/2022 - 18/N/O/D
	(J) 12/31/2021 - 12/D/O/D

MATCHLINE B



MATCHLINE C

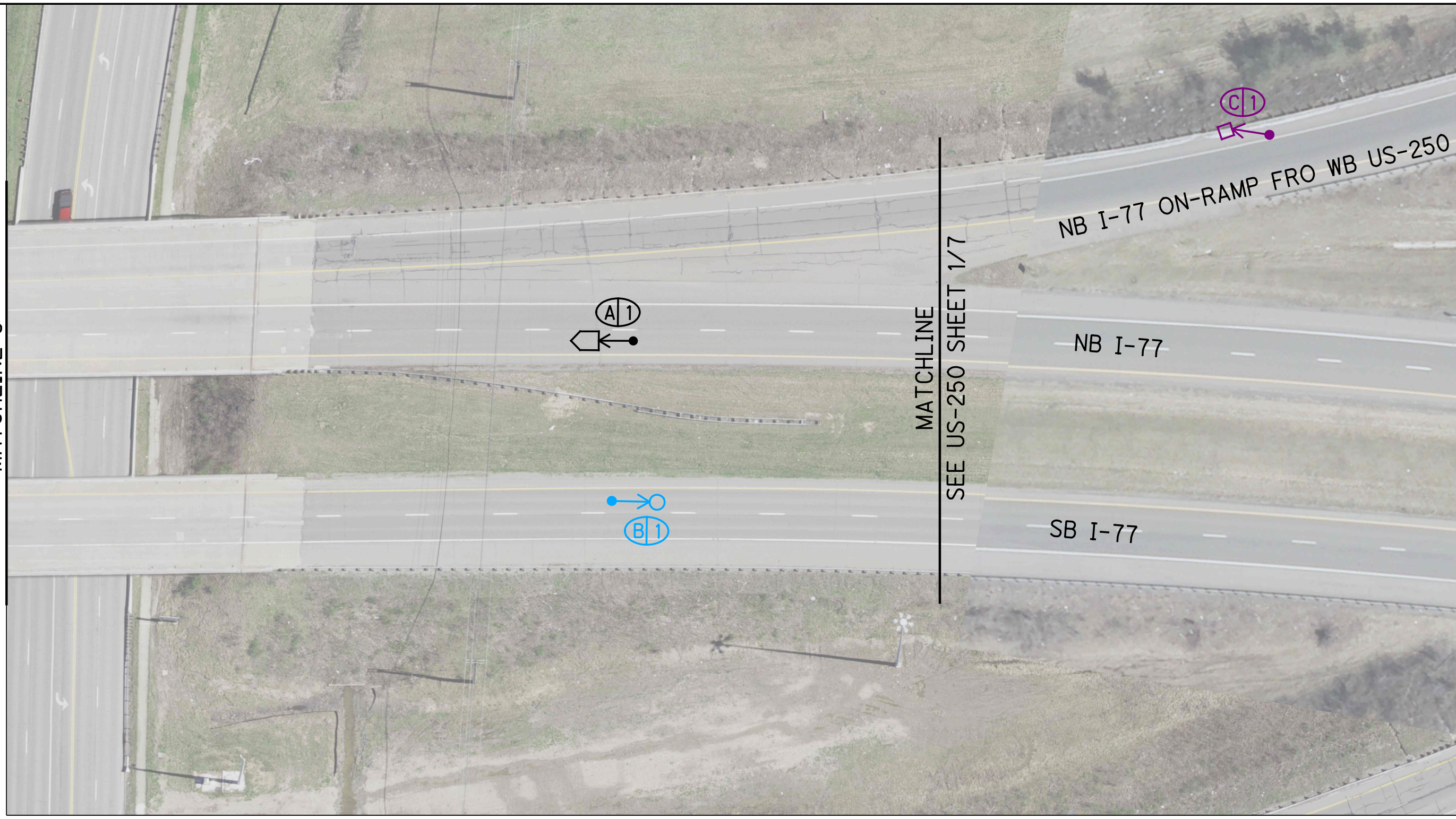
LEGEND																																			
* CRASHES	- DIRECTION OF TRAVEL																																		
- INJURY REPORTED	- AT FAULT VEHICLE																																		
- FATALITY	- FATALITY																																		
REAR END	OFF-ROAD																																		
ANIMAL	FIXED OBJECT																																		
SIDESWIPE PASSING	OTHER OBJECT																																		
<table border="0"> <tr> <td>XX/XX/XXXX - DATE OF COLLISION</td> <td>W - WET</td> </tr> <tr> <td>11/D/C/D</td> <td>I - ICE</td> </tr> <tr> <td>ROAD CONDITION</td> <td>O - OTHER</td> </tr> <tr> <td>D - DRY</td> <td></td> </tr> <tr> <td>S - SNOW</td> <td></td> </tr> <tr> <td>U - UNKNOWN</td> <td></td> </tr> <tr> <td>WEATHER CONDITION</td> <td>O - CLOUDY</td> </tr> <tr> <td>C - CLEAR</td> <td>S - SNOW</td> </tr> <tr> <td>R - RAIN</td> <td>F - FOG</td> </tr> <tr> <td>U - UNKNOWN</td> <td>H - SLUSH</td> </tr> <tr> <td>LIGHT CONDITION</td> <td></td> </tr> <tr> <td>D - DAYLIGHT</td> <td></td> </tr> <tr> <td>L - DARK, LIGHTED</td> <td></td> </tr> <tr> <td>N - DARK, NOT LIGHTED</td> <td></td> </tr> <tr> <td>R - DARK, LIGHT UNKNOWN</td> <td></td> </tr> <tr> <td>U - DUSK</td> <td></td> </tr> <tr> <td>A - DAWN</td> <td></td> </tr> </table>		XX/XX/XXXX - DATE OF COLLISION	W - WET	11/D/C/D	I - ICE	ROAD CONDITION	O - OTHER	D - DRY		S - SNOW		U - UNKNOWN		WEATHER CONDITION	O - CLOUDY	C - CLEAR	S - SNOW	R - RAIN	F - FOG	U - UNKNOWN	H - SLUSH	LIGHT CONDITION		D - DAYLIGHT		L - DARK, LIGHTED		N - DARK, NOT LIGHTED		R - DARK, LIGHT UNKNOWN		U - DUSK		A - DAWN	
XX/XX/XXXX - DATE OF COLLISION	W - WET																																		
11/D/C/D	I - ICE																																		
ROAD CONDITION	O - OTHER																																		
D - DRY																																			
S - SNOW																																			
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R - DARK, LIGHT UNKNOWN																																			
U - DUSK																																			
A - DAWN																																			

- (A) 11/2/2021 - 14/N/C/D*
- (B) 6/7/2022 - 6/D/R/W
- (C) 6/6/2021 - 7/D/C/D
- (D) 12/1/2020 - 20/L/S/S
- (E) 11/5/2020 - 17/U/C/D*



CALCULATED JZM CHECKED KMS
I-77 COLLISION DIAGRAM (2020-2022)

MATCHLINE C



MATCHLINE D

SEE US-250 SHEET 1/7

LEGEND	
* CRASHES	→ - DIRECTION OF TRAVEL
PATTERN	* - INJURY REPORTED
REAR END	→ - AT FAULT VEHICLE
ANIMAL	+ - FATALITY
SIDESWIPE PASSING	
OFF-ROAD	
FIXED OBJECT	
OTHER OBJECT	
	XX/XX/XXXX - DATE OF COLLISION
	11/D/C/D
	ROAD CONDITION
	D - DRY
	S - SNOW
	U - UNKNOWN
	WEATHER CONDITION
	C - CLEAR
	R - RAIN
	U - UNKNOWN
	LIGHT CONDITION
	D - DAYLIGHT
	L - DARK, LIGHTED
	N - DARK, NOT LIGHTED
	R - DARK, LIGHT UNKNOWN
	U - DUSK
	A - DAWN
	W - WET
	I - ICE
	O - OTHER
	O - CLOUDY
	S - SNOW
	F - FOG
	H - SLUSH

- (A) 7/20/2020 - 3/L/C/D
- (B) 7/22/2020 - 20/D/C/D
- (C) 1/24/2022 - 15/D/S/H

CALCULATED
JZM
CHECKED
KMS

HORIZONTAL SCALE IN FEET

I-77
COLLISION DIAGRAM (2020-2022)

MATCHLINE D



LEGEND

* CRASHES	- DIRECTION OF TRAVEL	XX/XX/XXXX - DATE OF COLLISION
- INJURY REPORTED	- AT FAULT VEHICLE	11/D/C/D
+ - FATALITY		
REAR END	OFF-ROAD	ROAD CONDITION
ANIMAL	FIXED OBJECT	D - DRY
SIDESWIPE PASSING	OTHER OBJECT	S - SNOW
		W - WET
		U - UNKNOWN
		I - ICE
		O - OTHER
		WEATHER CONDITION
		C - CLEAR
		R - RAIN
		U - UNKNOWN
		O - CLOUDY
		S - SNOW
		F - FOG
		H - SLUSH
		LIGHT CONDITION
		D - DAYLIGHT
		L - DARK, LIGHTED
		N - DARK, NOT LIGHTED
		R - DARK, LIGHT UNKNOWN
		U - DUSK
		A - DAWN

CALCULATED
JZM
CHECKED
KMS

0 25
HORIZONTAL
SCALE IN FEET

I-77
COLLISION DIAGRAM (2020-2022)

BURGESS & NIPLÉ

MATCHLINE E



MATCHLINE F

CALCULATED
 JZM
 CHECKED
 KMS

0 50
 HORIZONTAL
 SCALE IN FEET

I-77
 COLLISION DIAGRAM (2020-2022)

BURGESS & NIPLÉ

LEGEND	
* CRASHES	→ - DIRECTION OF TRAVEL
- INJURY REPORTED	* - AT FAULT VEHICLE
+ - FATALITY	
REAR END	OFF-ROAD
ANIMAL	FIXED OBJECT
SIDESWIPE PASSING	OTHER OBJECT
XX/XX/XXXX - DATE OF COLLISION	11/D/C/D
ROAD CONDITION D - DRY S - SNOW U - UNKNOWN W - WET I - ICE O - OTHER	
WEATHER CONDITION C - CLEAR R - RAIN U - UNKNOWN O - CLOUDY S - SNOW F - FOG H - SLUSH	
LIGHT CONDITION D - DAYLIGHT L - DARK, LIGHTED N - DARK, NOT LIGHTED R - DARK, LIGHT UNKNOWN U - DUSK A - DAWN	
HOUR OF COLLISION	

- (A) 3/15/2020 - 20/N/O/D
- (B) 10/7/2020 - 22/N/C/D
- (C) 4/29/2022 - 7/D/C/D

MATCHLINE F



MATCHLINE G

LEGEND	
	CRASHES
	PATTERN
	REAR END
	ANIMAL
	SIDESWIPE PASSING
	DIRECTION OF TRAVEL
	INJURY REPORTED
	AT FAULT VEHICLE
	FATALITY
	OFF-ROAD
	FIXED OBJECT
	OTHER OBJECT
	DATE OF COLLISION XX/XX/XXXX 11/D/C/D
	ROAD CONDITION D - DRY S - SNOW U - UNKNOWN W - WET I - ICE O - OTHER
	WEATHER CONDITION C - CLEAR R - RAIN U - UNKNOWN O - CLOUDY S - SNOW F - FOG H - SLUSH
	LIGHT CONDITION D - DAYLIGHT L - DARK, LIGHTED N - DARK, NOT LIGHTED R - DARK, LIGHT UNKNOWN U - DUSK A - DAWN

- (A) 11/3/2022 - 11/D/O/D
- (B) 12/3/2022 - 10/D/O/W
- (C) 10/29/2022 - 5/N/O/D
- (D) 6/16/2022 - 16/D/R/W*
- (E) 5/22/2020 - 21/N/C/D

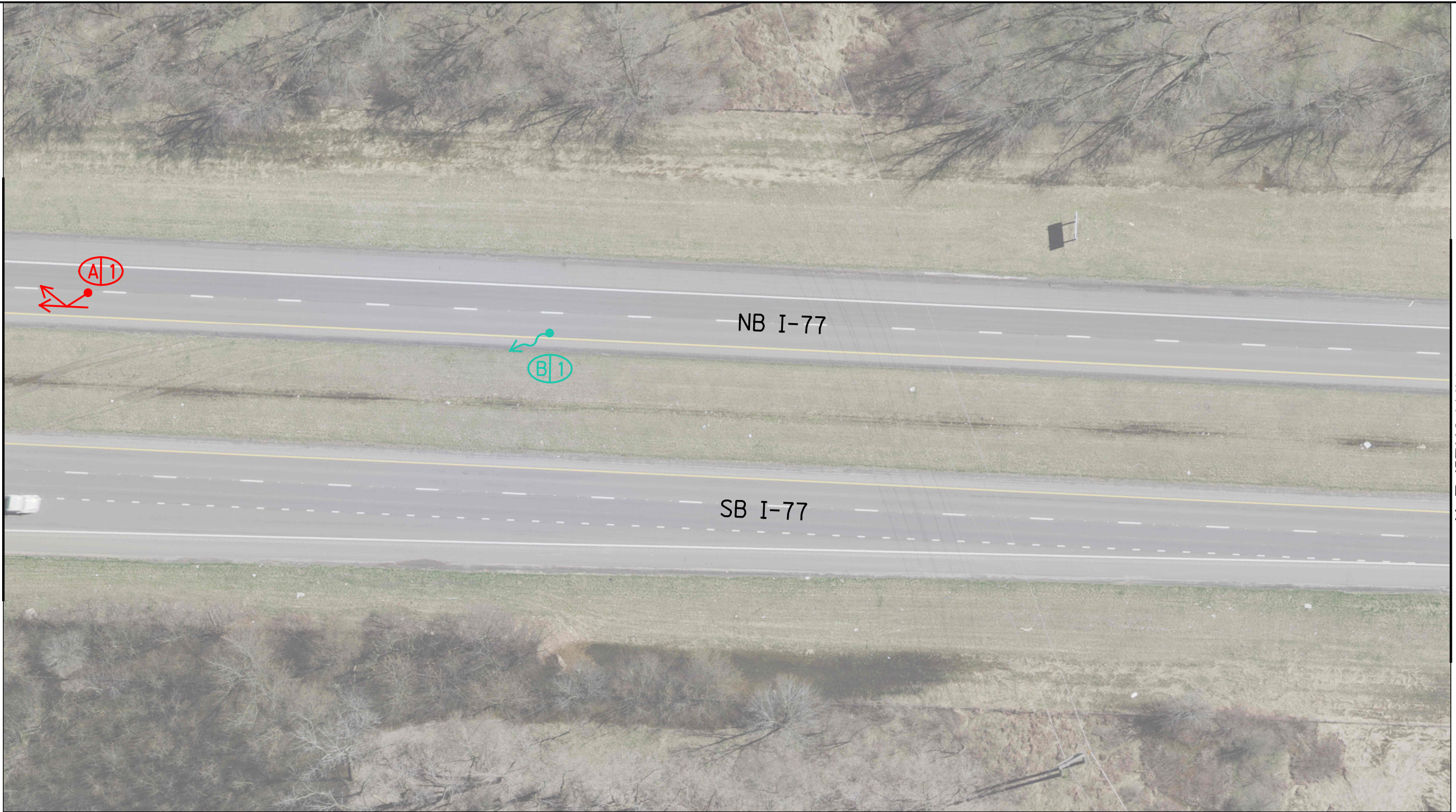
CALCULATED
JZM
CHECKED
KMS

0 50
HORIZONTAL
SCALE IN FEET

I-77
COLLISION DIAGRAM (2020-2022)

BURGESS & NIPLÉ

MATCHLINE G



MATCHLINE H

LEGEND			
	CRASHES		
	DIRECTION OF TRAVEL		
	INJURY REPORTED		
	AT FAULT VEHICLE		
	FATALITY		
	REAR END		
	ANIMAL		
	SIDESWIPE PASSING		
	OFF-ROAD		
	FIXED OBJECT		
	OTHER OBJECT		
XX/XX/XXXX	DATE OF COLLISION		
II/D/C/D	ROAD CONDITION		
	WEATHER CONDITION		
	LIGHT CONDITION		
	HOUR OF COLLISION		
D	DRY	W	WET
S	SNOW	I	ICE
U	UNKNOWN	O	OTHER
C	CLEAR	O	CLOUDY
R	RAIN	S	SNOW
U	UNKNOWN	F	FOG
		H	SLUSH
D	DAYLIGHT		
L	DARK, LIGHTED		
N	DARK, NOT LIGHTED		
R	DARK, LIGHT UNKNOWN		
U	DUSK		
A	DAWN		

(A) 2/23/2021 - 10/D/O/D
 (B) 2/7/2020 - 16/D/S/S

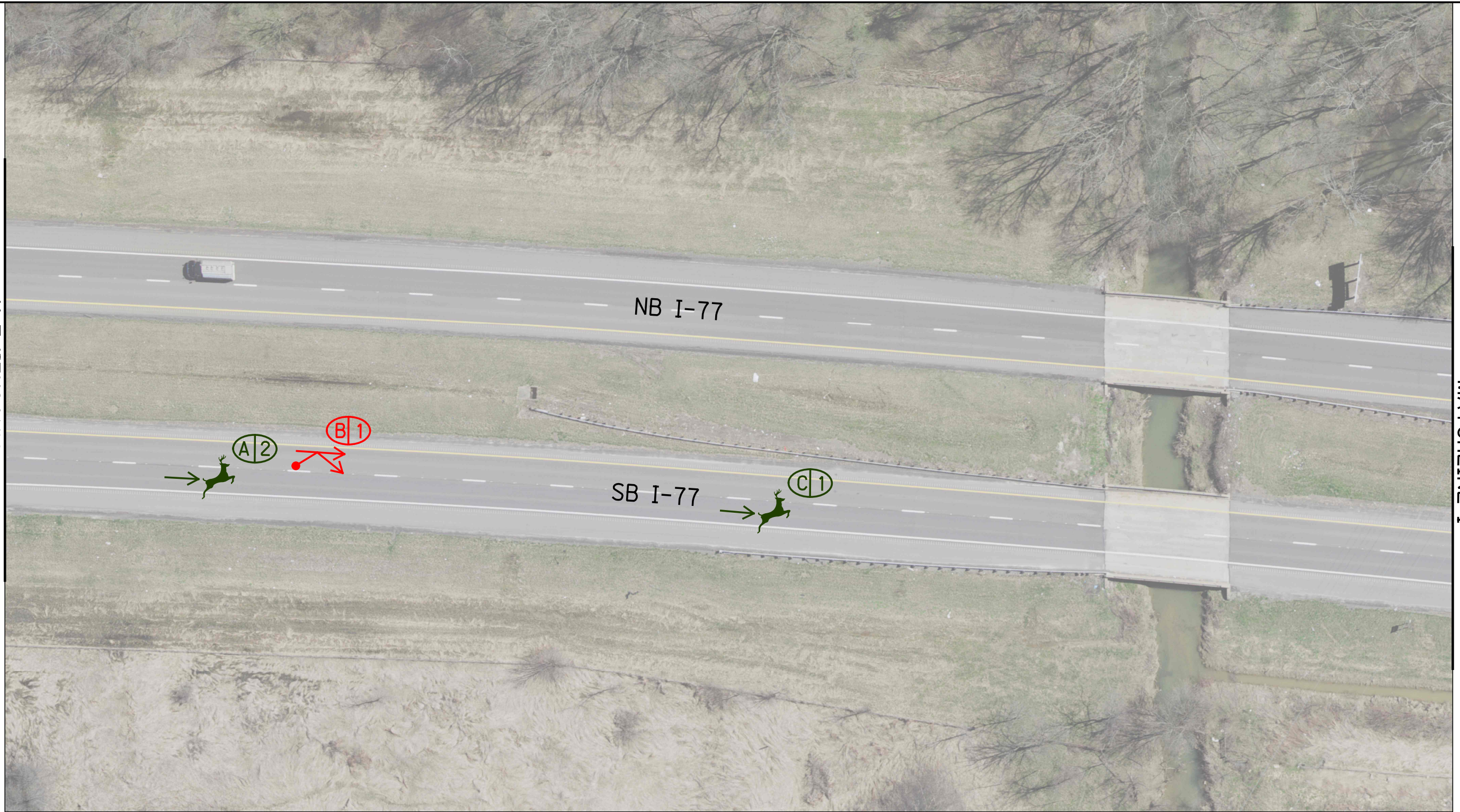
CALCULATED
 JZM
 CHECKED
 KMS

0 50
 HORIZONTAL
 SCALE IN FEET

I-77
 COLLISION DIAGRAM (2020-2022)

BURGESS & NIPLÉ

MATCHLINE H



MATCHLINE I

LEGEND	
<ul style="list-style-type: none"> ★ CRASHES → DIRECTION OF TRAVEL ● INJURY REPORTED → AT FAULT VEHICLE + FATALITY 	<ul style="list-style-type: none"> XX/XX/XXXX - DATE OF COLLISION 11/D/C/D ROAD CONDITION <ul style="list-style-type: none"> D - DRY S - SNOW U - UNKNOWN WEATHER CONDITION <ul style="list-style-type: none"> C - CLEAR R - RAIN U - UNKNOWN LIGHT CONDITION <ul style="list-style-type: none"> D - DAYLIGHT L - DARK, LIGHTED N - DARK, NOT LIGHTED R - DARK, LIGHT UNKNOWN U - DUSK A - DAWN
<ul style="list-style-type: none"> ↔ REAR END 🐘 ANIMAL ↔ SIDESWIPE PASSING 👉 OFF-ROAD 👉 FIXED OBJECT 👉 OTHER OBJECT 	<ul style="list-style-type: none"> W - WET I - ICE O - OTHER O - CLOUDY S - SNOW F - FOG H - SLUSH

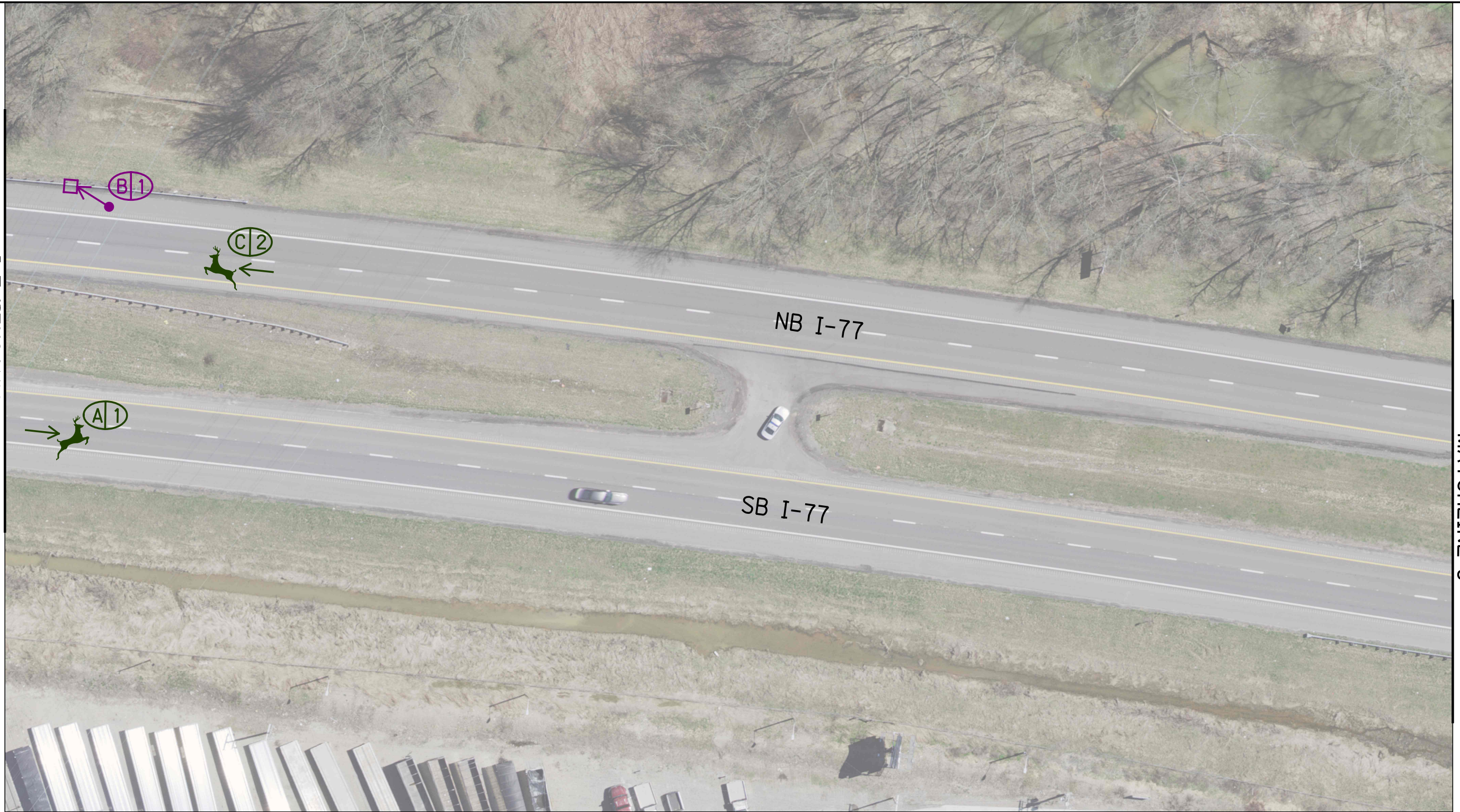
- (A) 10/12/2021 - 5/N/C/D
11/9/2022 - 18/N/O/D
- (B) 7/13/2020 - 12/D/O/D
- (C) 7/8/2021 - 19/D/O/D*

CALCULATED
JZM
CHECKED
KMS

0 50
HORIZONTAL
SCALE IN FEET

I-77
COLLISION DIAGRAM (2020-2022)

MATCHLINE I



MATCHLINE J

LEGEND	
	CRASHES
	DIRECTION OF TRAVEL
	INJURY REPORTED
	AT FAULT VEHICLE
	FATALITY
	REAR END
	ANIMAL
	SIDESWIPE PASSING
	OFF-ROAD
	FIXED OBJECT
	OTHER OBJECT
XX/XX/XXXX	DATE OF COLLISION
II/D/C/D	ROAD CONDITION
	WEATHER CONDITION
	LIGHT CONDITION
	HOUR OF COLLISION

- (A) 10/26/2020 - 23/N/R/W
- (B) 2/7/2020 - 16/D/O/H
- (C) 5/15/2021 - 7/D/C/D
5/30/2022 - 8/D/C/D

CALCULATED
JZM
CHECKED
KMS

0 50
HORIZONTAL
SCALE IN FEET

I-77
COLLISION DIAGRAM (2020-2022)

MATCHLINE J



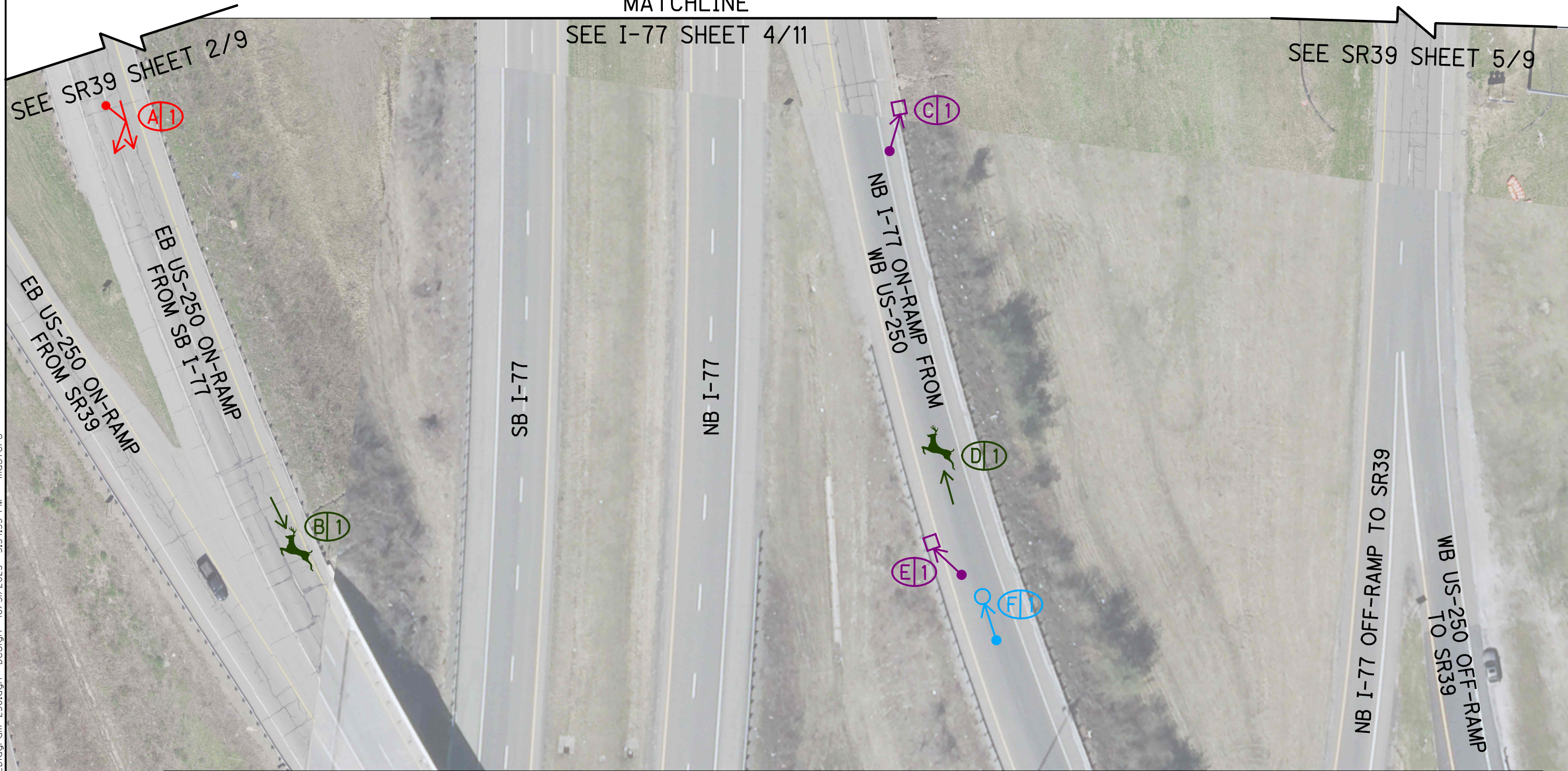
LEGEND	
	• CRASHES
	→ DIRECTION OF TRAVEL
	* INJURY REPORTED
	→ AT FAULT VEHICLE
	+ FATALITY
	⇐ REAR END
	🐘 ANIMAL
	↔ SIDESWIPE PASSING
	↗ OFF-ROAD
	✂ FIXED OBJECT
	⊕ OTHER OBJECT
XX/XX/XXXX	DATE OF COLLISION
11/D/C/D	11/D/C/D
ROAD CONDITION	
D	DRY
S	SNOW
U	UNKNOWN
W	WET
I	ICE
O	OTHER
WEATHER CONDITION	
C	CLEAR
R	RAIN
U	UNKNOWN
O	CLOUDY
S	SNOW
F	FOG
H	SLUSH
LIGHT CONDITION	
D	DAYLIGHT
L	DARK, LIGHTED
N	DARK, NOT LIGHTED
R	DARK, LIGHT UNKNOWN
U	DUSK
A	DAWN

(A) 12/16/2020 - 14/D/S/S
 (B) 11/12/2022 - 23/N/C/D



CALCULATED JZM
 CHECKED KMS
 I-77
 COLLISION DIAGRAM (2020-2022)

BURGESS & NIPLÉ



0 50
HORIZONTAL SCALE IN FEET

CALCULATED JZM
CHECKED KMS

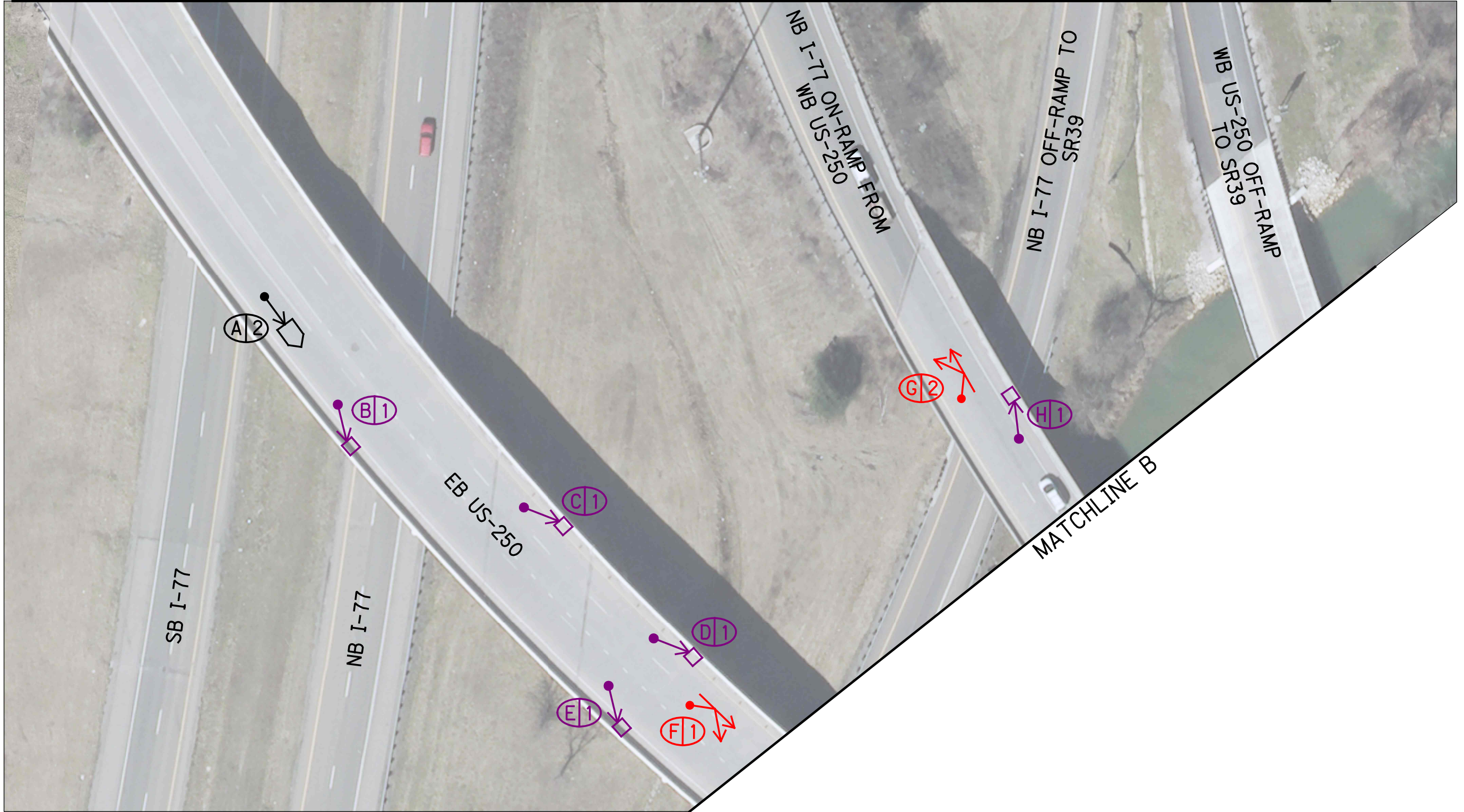
US-250
COLLISION DIAGRAM (2020-2022)

LEGEND

* CRASHES
 - PATTERN
 - REAR END
 - ANIMAL
 - SIDESWIPE PASSING
 - DIRECTION OF TRAVEL
 * - INJURY REPORTED
 - AT FAULT VEHICLE
 + - FATALITY
 - FIXED OBJECT
 - OTHER OBJECT
 XX/XX/XXXX - DATE OF COLLISION
 H/D/C/D
 ROAD CONDITION
 D - DRY
 S - SNOW
 U - UNKNOWN
 WEATHER CONDITION
 C - CLEAR
 R - RAIN
 U - UNKNOWN
 LIGHT CONDITION
 D - DAYLIGHT
 L - DARK, LIGHTED
 N - DARK, NOT LIGHTED
 R - DARK, LIGHT UNKNOWN
 U - DUSK
 A - DAWN
 W - WET
 I - ICE
 O - OTHER
 C - CLOUDY
 S - SNOW
 F - FOG
 H - SLUSH
 L - SLEET

(A) 1/18/2022 - 16/D/C/D
 (B) 6/2/2020 - 15/D/C/D
 (C) 1/24/2022 - 15/D/S/H
 (D) 1/28/2020 - 0/L/C/D
 (E) 7/20/2020 - 5/L/C/D
 (F) 10/1/2020 - 14/D/C/D

MATCHLINE A



CALCULATED
JZM
CHECKED
KMS

0 50
HORIZONTAL
SCALE IN FEET

US-250
COLLISION DIAGRAM (2020-2022)

BURGESS & NIPLÉ

LEGEND

XX/XX/XXXX - DATE OF COLLISION
 M/D/C/D

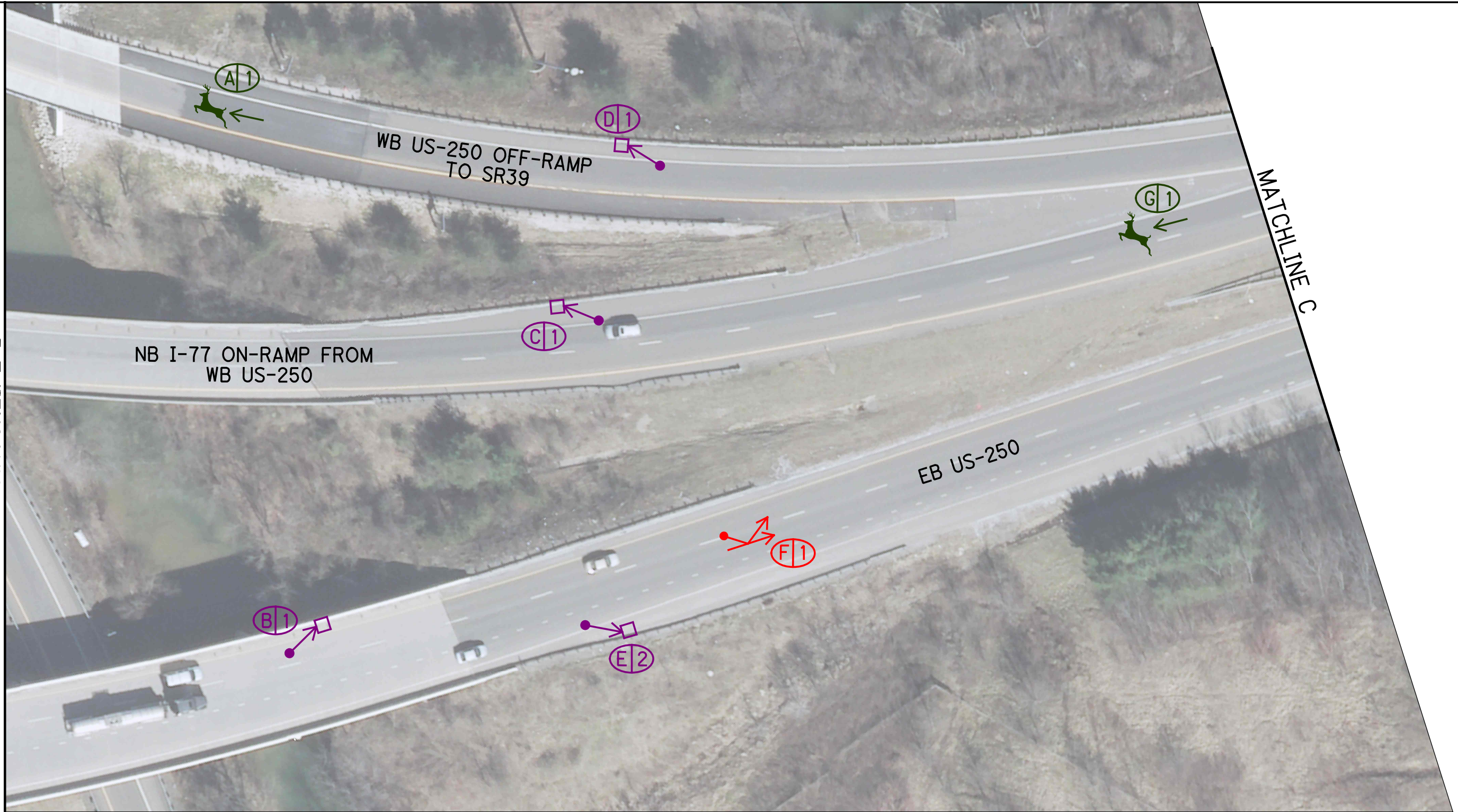
ROAD CONDITION
 D - DRY
 S - SNOW
 U - UNKNOWN
 W - WET
 I - ICE
 O - OTHER

WEATHER CONDITION
 C - CLEAR
 R - RAIN
 U - UNKNOWN
 O - CLOUDY
 S - SNOW
 F - FOG
 H - SLUSH
 L - SLEET

LIGHT CONDITION
 D - DAYLIGHT
 L - DARK, LIGHTED
 N - DARK, NOT LIGHTED
 R - DARK, LIGHT UNKNOWN
 U - DUSK
 A - DAWN

- (A) 2/23/2021 - 17/D/C/D*
8/13/2022 - 22/L/C/D*
- (B) 2/7/2020 - 17/U/S/W
- (C) 8/25/2021 - 15/D/R/W*
- (D) 3/20/2020 - 13/D/R/W*
- (E) 11/12/2020 - 16/D/C/D
- (F) 1/21/2020 - 4/L/C/D*
- (G) 4/15/2021 - 6/D/C/D*
12/1/2021 - 7/A/O/D
- (H) 5/6/2022 - 5/L/R/W

MATCHLINE B



LEGEND	
	CRASHES
	DIRECTION OF TRAVEL
	INJURY REPORTED
	AT FAULT VEHICLE
	FATALITY
	REAR END
	ANIMAL
	SIDESWIPE PASSING
	FIXED OBJECT
	OTHER OBJECT
XX/XX/XXXX	DATE OF COLLISION
11/D/C/D	ROAD CONDITION
	WEATHER CONDITION
	LIGHT CONDITION
	HOUR OF COLLISION
D	DRY
S	SNOW
U	UNKNOWN
C	CLEAR
R	RAIN
U	UNKNOWN
D	DAYLIGHT
L	DARK, LIGHTED
N	DARK, NOT LIGHTED
R	DARK, LIGHT UNKNOWN
U	DUSK
A	DAWN
W	WET
I	ICE
O	OTHER
O	CLOUDY
S	SNOW
F	FOG
H	SLUSH
L	SLEET

(A)	12/8/2020 - 21/L/C/D	(E)	1/1/2021 - 10/D/U/I 12/26/2022 - 14/D/O/W
(B)	4/26/2022 - 16/D/C/D*	(F)	10/25/2022 - 15/D/O/D
(C)	1/18/2020 - 13/D/O/W	(G)	7/2/2020 - 5/N/C/D
(D)	12/5/2022 - 20/L/C/D*		



CALCULATED	JZM
CHECKED	KMS

US-250 COLLISION DIAGRAM (2020-2022)

BURGESS & NIPLÉ

MATCHLINE C



MATCHLINE D

LEGEND	
* CRASHES	→ - DIRECTION OF TRAVEL
PATTERN	* - INJURY REPORTED
REAR END	→ - AT FAULT VEHICLE
ANIMAL	+ - FATALITY
SIDESWIPE PASSING	FIXED OBJECT
	OTHER OBJECT
	XX/XX/XXXX - DATE OF COLLISION
	11/D/C/D
	ROAD CONDITION
	D - DRY
	S - SNOW
	U - UNKNOWN
	WEATHER CONDITION
	C - CLEAR
	R - RAIN
	U - UNKNOWN
	LIGHT CONDITION
	D - DAYLIGHT
	L - DARK, LIGHTED
	N - DARK, NOT LIGHTED
	R - DARK, LIGHT UNKNOWN
	U - DUSK
	A - DAWN
	W - WET
	I - ICE
	O - OTHER
	O - CLOUDY
	S - SNOW
	F - FOG
	H - SLUSH
	L - SLEET

- (A) 7/21/2021 - 14/D/C/D
- (B) 11/7/2021 - 15/D/C/D

CALCULATED
JZM
CHECKED
KMS

0 50
HORIZONTAL
SCALE IN FEET

US-250
COLLISION DIAGRAM (2020-2022)

BURGESS & NIPLÉ

MATCHLINE D



MATCHLINE E

CALCULATED
JZM
CHECKED
KMS

0 50
HORIZONTAL
SCALE IN FEET

US-250
COLLISION DIAGRAM (2020-2022)

BURGESS & NIPLÉ

LEGEND

* CRASHES
 - DIRECTION OF TRAVEL
 * - INJURY REPORTED
 -> - AT FAULT VEHICLE
 + - FATALITY

REAR END
 ANIMAL
 SIDESWIPE PASSING

FIXED OBJECT
 OTHER OBJECT

XX/XX/XXXX - DATE OF COLLISION
 11/D/C/D
 ROAD CONDITION
 D - DRY
 S - SNOW
 U - UNKNOWN
 WEATHER CONDITION
 C - CLEAR
 R - RAIN
 U - UNKNOWN
 LIGHT CONDITION
 D - DAYLIGHT
 L - DARK, LIGHTED
 N - DARK, NOT LIGHTED
 R - DARK, LIGHT UNKNOWN
 U - DUSK
 A - DAWN

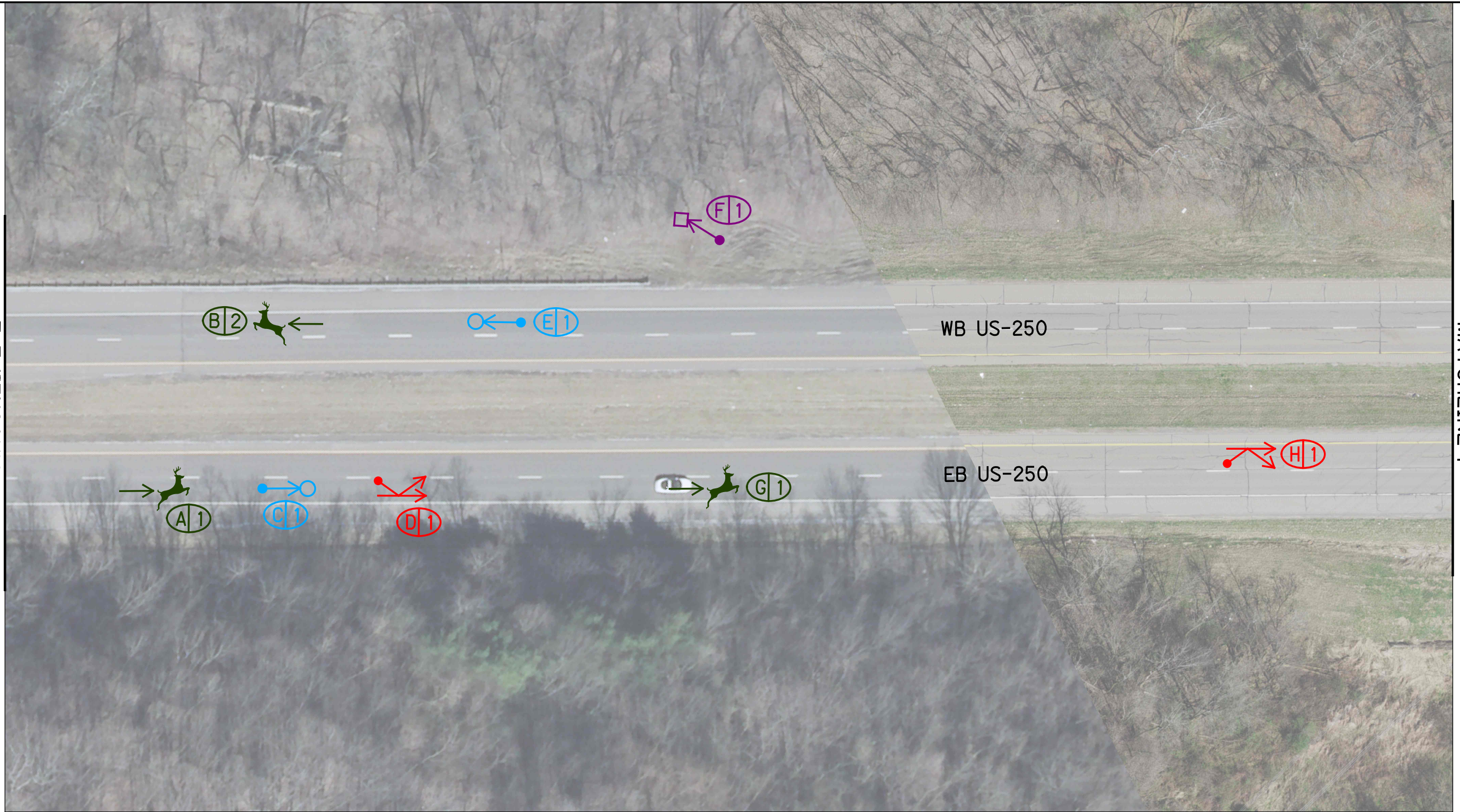
W - WET
 I - ICE
 O - OTHER
 O - CLOUDY
 S - SNOW
 F - FOG
 H - SLUSH
 L - SLEET

(A) 10/30/2021 - 19/N/C/D
1/2/2022 - 18/N/O/D*

(B) 12/1/2020 - 16/L/S/W

(C) 5/13/2020 - 7/A/O/D

MATCHLINE E



MATCHLINE F

CALCULATED JZM CHECKED KMS

0 50
HORIZONTAL SCALE IN FEET

US-250
COLLISION DIAGRAM (2020-2022)

BURGESS & NIPLÉ

LEGEND

* CRASHES
 - DIRECTION OF TRAVEL
 * - INJURY REPORTED
 -> - AT FAULT VEHICLE
 + - FATALITY

REAR END
 ANIMAL
 SIDESWIPE PASSING

FIXED OBJECT
 OTHER OBJECT

XX/XX/XXXX - DATE OF COLLISION
 11/D/C/D

ROAD CONDITION
 D - DRY
 S - SNOW
 U - UNKNOWN
 W - WET
 I - ICE
 O - OTHER

WEATHER CONDITION
 C - CLEAR
 R - RAIN
 U - UNKNOWN
 O - CLOUDY
 S - SNOW
 F - FOG
 H - SLUSH
 L - SLEET

LIGHT CONDITION
 D - DAYLIGHT
 L - DARK, LIGHTED
 N - DARK, NOT LIGHTED
 R - DARK, LIGHT UNKNOWN
 U - DUSK
 A - DAWN

(A) 6/26/2021 - 0/N/C/D
(B) 11/2/2020 - 21/N/C/D
 3/10/2022 - 11/D/C/D
(C) 2/5/2022 - 13/D/C/W
(D) 2/3/2022 - 12/D/L/I

(E) 9/29/2021 - 9/D/C/D
(F) 2/27/2021 - 17/D/C/D
(G) 11/15/2021 - 20/N/O/D
(H) 5/28/2020 - 8/D/R/W

MATCHLINE F



LEGEND	
	CRASHES
	PATTERN
	DIRECTION OF TRAVEL
	INJURY REPORTED
	AT FAULT VEHICLE
	FATALITY
	REAR END
	ANIMAL
	SIDESWIPE PASSING
	FIXED OBJECT
	OTHER OBJECT
XX/XX/XXXX	DATE OF COLLISION
11/D/C/D	11/D/C/D
ROAD CONDITION	
D	DRY
S	SNOW
U	UNKNOWN
WEATHER CONDITION	
C	CLEAR
R	RAIN
U	UNKNOWN
LIGHT CONDITION	
D	DAYLIGHT
L	DARK, LIGHTED
N	DARK, NOT LIGHTED
R	DARK, LIGHT UNKNOWN
U	DUSK
A	DAWN
W	WET
I	ICE
O	OTHER
O	CLOUDY
S	SNOW
F	FOG
H	SLUSH
L	SLEET

(A)	10/16/2020 - 21/N/O/D	(E)	1/28/2020 - 21/N/R/W 11/8/2022 - 19/N/C/D
(B)	4/17/2021 - 0/N/O/D 11/23/2021 - 21/N/O/D 12/27/2021 - 0/N/C/D		
(C)	6/17/2022 - 11/D/C/D		
(D)	11/17/2021 - 21/N/O/D 10/18/2020 - 22/N/C/D		



US-250
COLLISION DIAGRAM (2020-2022)

BURGESS & NIPLÉ

Tuscarawas I-77 / US 250 / SR 39 Feasibility Study

Appendix D: Traffic Counts



SR 39 & Stonecreek Rd - TMC

Wed Aug 16, 2023

Full Length (12 AM-12 AM (+1))

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 1098714, Location: 40.493185, -81.481022



Provided by: Burgess & Niple, Inc
330 Rush Alley, Suite 700, Columbus, OH, 43215, US

Leg Direction	SR 39 Southbound				SR 39 Westbound				Stonecreek Rd Northbound				Int
	T	L	U	App	R	L	U	App	R	T	U	App	
2023-08-16 12:00AM	0	3	0	3	2	1	0	3	1	1	0	2	8
12:15AM	0	3	0	3	7	3	0	10	1	0	0	1	14
12:30AM	4	2	0	6	4	4	0	8	1	1	0	2	16
12:45AM	2	4	0	6	6	1	0	7	0	1	0	1	14
Hourly Total	6	12	0	18	19	9	0	28	3	3	0	6	52
1:00AM	1	2	0	3	2	4	0	6	5	1	0	6	15
1:15AM	0	5	0	5	3	3	0	6	3	0	0	3	14
1:30AM	0	1	0	1	4	3	0	7	2	1	0	3	11
1:45AM	0	4	0	4	2	2	0	4	2	2	0	4	12
Hourly Total	1	12	0	13	11	12	0	23	12	4	0	16	52
2:00AM	1	3	0	4	2	2	0	4	0	0	0	0	8
2:15AM	0	0	0	0	0	6	0	6	4	1	0	5	11
2:30AM	0	2	0	2	3	3	0	6	3	1	0	4	12
2:45AM	0	0	0	0	0	0	0	0	2	0	0	2	2
Hourly Total	1	5	0	6	5	11	0	16	9	2	0	11	33
3:00AM	0	1	0	1	2	3	0	5	5	0	0	5	11
3:15AM	0	7	0	7	4	5	0	9	4	0	0	4	20
3:30AM	1	3	0	4	7	5	0	12	3	3	0	6	22
3:45AM	1	6	0	7	7	6	0	13	7	1	0	8	28
Hourly Total	2	17	0	19	20	19	0	39	19	4	0	23	81
4:00AM	0	2	0	2	4	7	0	11	7	1	0	8	21
4:15AM	2	6	0	8	11	9	0	20	4	2	0	6	34
4:30AM	0	11	0	11	7	13	0	20	14	1	0	15	46
4:45AM	4	4	0	8	10	9	0	19	13	1	0	14	41
Hourly Total	6	23	0	29	32	38	0	70	38	5	0	43	142
5:00AM	1	9	0	10	14	9	0	23	11	1	0	12	45
5:15AM	1	17	0	18	20	11	0	31	12	3	0	15	64
5:30AM	3	12	0	15	18	15	0	33	29	2	0	31	79
5:45AM	8	15	0	23	20	23	0	43	27	2	0	29	95
Hourly Total	13	53	0	66	72	58	0	130	79	8	0	87	283
6:00AM	3	15	0	18	23	18	0	41	26	5	0	31	90
6:15AM	5	23	0	28	26	21	0	47	25	4	0	29	104
6:30AM	3	16	0	19	22	21	0	43	18	9	0	27	89
6:45AM	9	26	0	35	38	23	0	61	39	8	0	47	143
Hourly Total	20	80	0	100	109	83	0	192	108	26	0	134	426
7:00AM	9	29	0	38	54	31	0	85	36	6	0	42	165
7:15AM	4	30	0	34	43	43	0	86	38	12	0	50	170
7:30AM	7	35	0	42	59	25	0	84	36	15	0	51	177
7:45AM	10	29	0	39	49	45	0	94	47	12	0	59	192
Hourly Total	30	123	0	153	205	144	0	349	157	45	0	202	704
8:00AM	3	29	0	32	40	25	0	65	32	4	0	36	133
8:15AM	9	43	0	52	40	24	0	64	38	8	0	46	162
8:30AM	5	19	0	24	26	25	0	51	35	10	0	45	120
8:45AM	11	48	0	59	50	32	0	82	28	16	0	44	185
Hourly Total	28	139	0	167	156	106	0	262	133	38	0	171	600
9:00AM	13	46	0	59	32	29	0	61	35	8	0	43	163
9:15AM	8	36	0	44	43	26	0	69	44	8	0	52	165
9:30AM	6	47	0	53	47	40	0	87	43	5	0	48	188
9:45AM	4	40	0	44	37	27	0	64	34	14	0	48	156
Hourly Total	31	169	0	200	159	122	0	281	156	35	0	191	672
10:00AM	12	52	0	64	25	34	0	59	42	5	0	47	170
10:15AM	17	42	0	59	29	38	0	67	36	10	0	46	172
10:30AM	10	46	0	56	30	34	0	64	33	11	0	44	164
10:45AM	5	37	0	42	25	40	0	65	46	15	0	61	168

Leg Direction	SR 39 Southbound				SR 39 Westbound				Stonecreek Rd Northbound				Int
	T	L	U	App	R	L	U	App	R	T	U	App	
Hourly Total	44	177	0	221	109	146	0	255	157	41	0	198	674
11:00AM	11	54	0	65	42	38	0	80	35	4	0	39	184
11:15AM	14	37	0	51	30	41	0	71	41	8	0	49	171
11:30AM	13	41	0	54	44	53	0	97	40	7	0	47	198
11:45AM	8	51	0	59	42	46	0	88	49	5	0	54	201
Hourly Total	46	183	0	229	158	178	0	336	165	24	0	189	754
12:00PM	14	60	0	74	41	49	0	90	64	17	0	81	245
12:15PM	10	69	0	79	45	45	0	90	51	11	0	62	231
12:30PM	14	47	0	61	52	56	0	108	32	12	0	44	213
12:45PM	6	62	0	68	39	52	0	91	42	10	0	52	211
Hourly Total	44	238	0	282	177	202	0	379	189	50	0	239	900
1:00PM	8	49	0	57	43	53	0	96	47	14	0	61	214
1:15PM	10	55	0	65	31	50	0	81	25	5	0	30	176
1:30PM	17	59	0	76	41	46	0	87	53	12	0	65	228
1:45PM	15	54	0	69	42	54	0	96	43	9	0	52	217
Hourly Total	50	217	0	267	157	203	0	360	168	40	0	208	835
2:00PM	12	46	0	58	35	44	0	79	49	10	0	59	196
2:15PM	9	57	0	66	33	52	1	86	54	16	0	70	222
2:30PM	10	50	0	60	48	38	0	86	46	14	0	60	206
2:45PM	17	55	0	72	36	54	0	90	36	6	0	42	204
Hourly Total	48	208	0	256	152	188	1	341	185	46	0	231	828
3:00PM	12	47	0	59	40	56	0	96	55	16	0	71	226
3:15PM	19	76	0	95	42	71	0	113	44	17	0	61	269
3:30PM	17	72	0	89	48	55	0	103	46	19	0	65	257
3:45PM	15	76	0	91	61	60	0	121	60	17	0	77	289
Hourly Total	63	271	0	334	191	242	0	433	205	69	0	274	1041
4:00PM	23	84	0	107	45	56	0	101	65	12	0	77	285
4:15PM	22	78	0	100	67	58	0	125	48	15	0	63	288
4:30PM	22	86	0	108	62	69	0	131	78	16	0	94	333
4:45PM	29	86	0	115	50	59	0	109	48	17	0	65	289
Hourly Total	96	334	0	430	224	242	0	466	239	60	0	299	1195
5:00PM	22	97	0	119	48	65	0	113	42	10	0	52	284
5:15PM	25	98	0	123	49	69	0	118	38	15	0	53	294
5:30PM	18	63	0	81	41	49	0	90	42	13	0	55	226
5:45PM	15	69	0	84	48	48	0	96	44	12	0	56	236
Hourly Total	80	327	0	407	186	231	0	417	166	50	0	216	1040
6:00PM	11	73	0	84	36	48	0	84	39	3	0	42	210
6:15PM	6	62	0	68	28	43	0	71	34	13	0	47	186
6:30PM	17	44	0	61	28	47	0	75	18	6	0	24	160
6:45PM	12	48	0	60	31	27	0	58	24	8	0	32	150
Hourly Total	46	227	0	273	123	165	0	288	115	30	0	145	706
7:00PM	11	33	0	44	42	36	0	78	27	8	0	35	157
7:15PM	6	37	0	43	35	28	0	63	29	9	0	38	144
7:30PM	10	32	0	42	34	29	0	63	17	5	0	22	127
7:45PM	5	21	0	26	26	31	0	57	17	4	0	21	104
Hourly Total	32	123	0	155	137	124	0	261	90	26	0	116	532
8:00PM	6	25	0	31	20	35	0	55	29	9	0	38	124
8:15PM	2	39	0	41	27	24	0	51	30	3	0	33	125
8:30PM	11	15	0	26	31	26	0	57	26	6	0	32	115
8:45PM	7	19	0	26	21	37	0	58	17	7	0	24	108
Hourly Total	26	98	0	124	99	122	0	221	102	25	0	127	472
9:00PM	4	19	0	23	22	23	0	45	12	4	0	16	84
9:15PM	7	13	0	20	8	10	0	18	11	1	0	12	50
9:30PM	4	13	0	17	16	25	0	41	8	1	0	9	67
9:45PM	3	10	0	13	10	11	0	21	7	5	0	12	46
Hourly Total	18	55	0	73	56	69	0	125	38	11	0	49	247
10:00PM	5	14	0	19	17	9	0	26	12	4	0	16	61
10:15PM	2	9	0	11	11	12	0	23	6	2	0	8	42
10:30PM	1	2	0	3	12	8	0	20	5	0	0	5	28
10:45PM	2	3	0	5	12	8	0	20	4	0	0	4	29

Leg Direction	SR 39 Southbound				SR 39 Westbound				Stonecreek Rd Northbound				Int
	T	L	U	App	R	L	U	App	R	T	U	App	
Hourly Total	10	28	0	38	52	37	0	89	27	6	0	33	160
11:00PM	0	3	0	3	3	8	0	11	6	0	0	6	20
11:15PM	0	9	0	9	12	6	0	18	2	1	0	3	30
11:30PM	1	7	0	8	7	5	0	12	4	3	0	7	27
11:45PM	1	6	0	7	5	2	0	7	5	0	0	5	19
Hourly Total	2	25	0	27	27	21	0	48	17	4	0	21	96
Total	743	3144	0	3887	2636	2772	1	5409	2577	652	0	3229	12525
% Approach	19.1%	80.9%	0%	-	48.7%	51.2%	0%	-	79.8%	20.2%	0%	-	-
% Total	5.9%	25.1%	0%	31.0%	21.0%	22.1%	0%	43.2%	20.6%	5.2%	0%	25.8%	-
Lights	711	3057	0	3768	2558	2478	1	5037	2252	622	0	2874	11679
% Lights	95.7%	97.2%	0%	96.9%	97.0%	89.4%	100%	93.1%	87.4%	95.4%	0%	89.0%	93.2%
Articulated Trucks	10	31	0	41	28	190	0	218	201	11	0	212	471
% Articulated Trucks	1.3%	1.0%	0%	1.1%	1.1%	6.9%	0%	4.0%	7.8%	1.7%	0%	6.6%	3.8%
Buses and Single-Unit Trucks	22	56	0	78	50	104	0	154	124	19	0	143	375
% Buses and Single-Unit Trucks	3.0%	1.8%	0%	2.0%	1.9%	3.8%	0%	2.8%	4.8%	2.9%	0%	4.4%	3.0%

*L: Left, R: Right, T: Thru, U: U-Turn

SR 39 & Stonecreek Rd - TMC

Wed Aug 16, 2023

Full Length (12 AM-12 AM (+1))

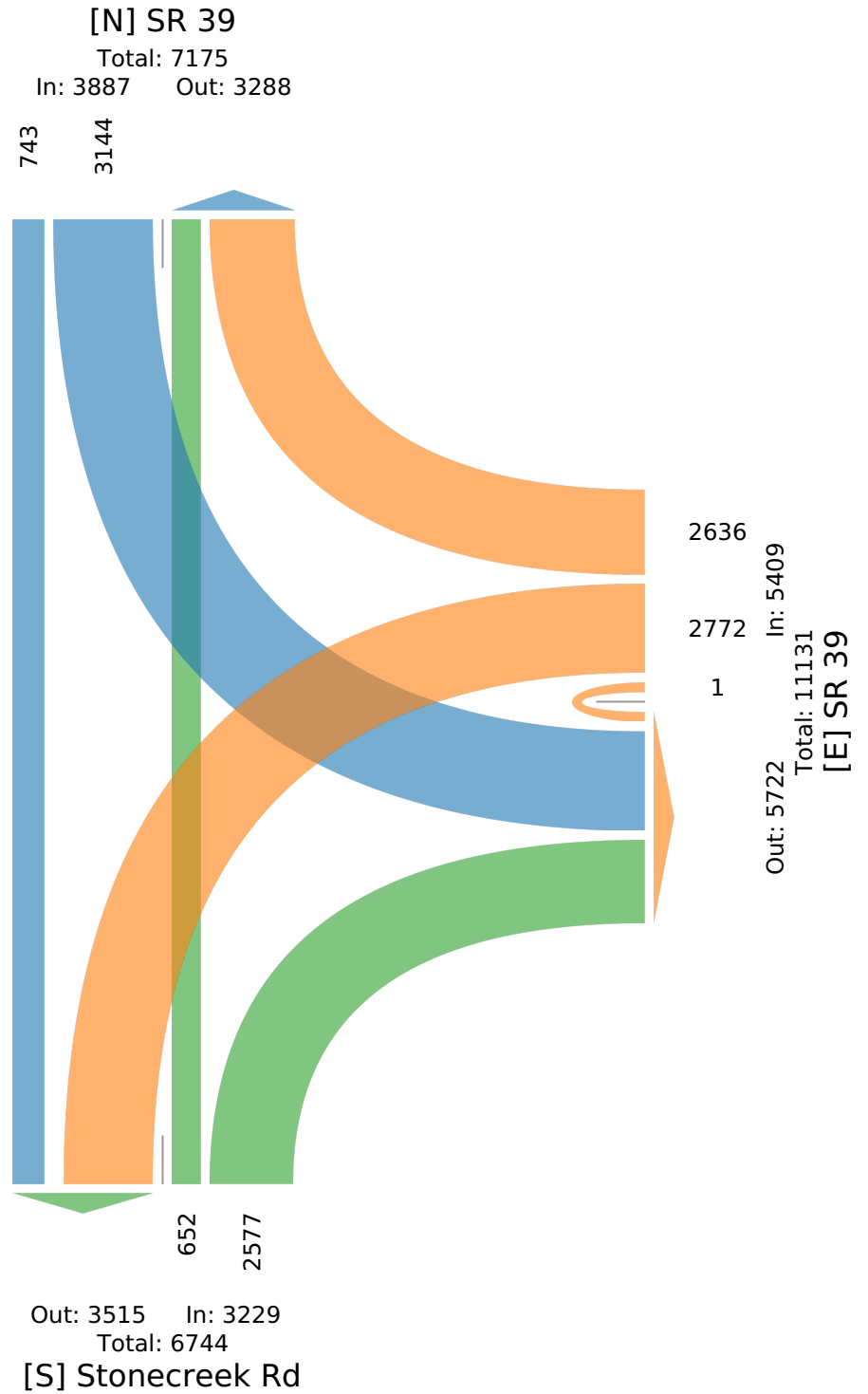
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 1098714, Location: 40.493185, -81.481022



Provided by: Burgess & Niple, Inc
330 Rush Alley, Suite 700, Columbus, OH, 43215, US



SR 39 & Stonecreek Rd - TMC

Wed Aug 16, 2023

AM Peak (7 AM - 8 AM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 1098714, Location: 40.493185, -81.481022



Provided by: Burgess & Niple, Inc
330 Rush Alley, Suite 700, Columbus, OH, 43215, US

Leg Direction	SR 39 Southbound				SR 39 Westbound				Stonecreek Rd Northbound				
Time	T	L	U	App	R	L	U	App	R	T	U	App	Int
2023-08-16 7:00AM	9	29	0	38	54	31	0	85	36	6	0	42	165
7:15AM	4	30	0	34	43	43	0	86	38	12	0	50	170
7:30AM	7	35	0	42	59	25	0	84	36	15	0	51	177
7:45AM	10	29	0	39	49	45	0	94	47	12	0	59	192
Total	30	123	0	153	205	144	0	349	157	45	0	202	704
% Approach	19.6%	80.4%	0%	-	58.7%	41.3%	0%	-	77.7%	22.3%	0%	-	-
% Total	4.3%	17.5%	0%	21.7%	29.1%	20.5%	0%	49.6%	22.3%	6.4%	0%	28.7%	-
PHF	0.750	0.879	-	0.911	0.869	0.800	-	0.928	0.835	0.750	-	0.856	0.917
Lights	27	122	0	149	198	135	0	333	131	43	0	174	656
% Lights	90.0%	99.2%	0%	97.4%	96.6%	93.8%	0%	95.4%	83.4%	95.6%	0%	86.1%	93.2%
Articulated Trucks	0	0	0	0	5	5	0	10	12	2	0	14	24
% Articulated Trucks	0%	0%	0%	0%	2.4%	3.5%	0%	2.9%	7.6%	4.4%	0%	6.9%	3.4%
Buses and Single-Unit Trucks	3	1	0	4	2	4	0	6	14	0	0	14	24
% Buses and Single-Unit Trucks	10.0%	0.8%	0%	2.6%	1.0%	2.8%	0%	1.7%	8.9%	0%	0%	6.9%	3.4%

* L: Left, R: Right, T: Thru, U: U-Turn

SR 39 & Stonecreek Rd - TMC

Wed Aug 16, 2023

AM Peak (7 AM - 8 AM)

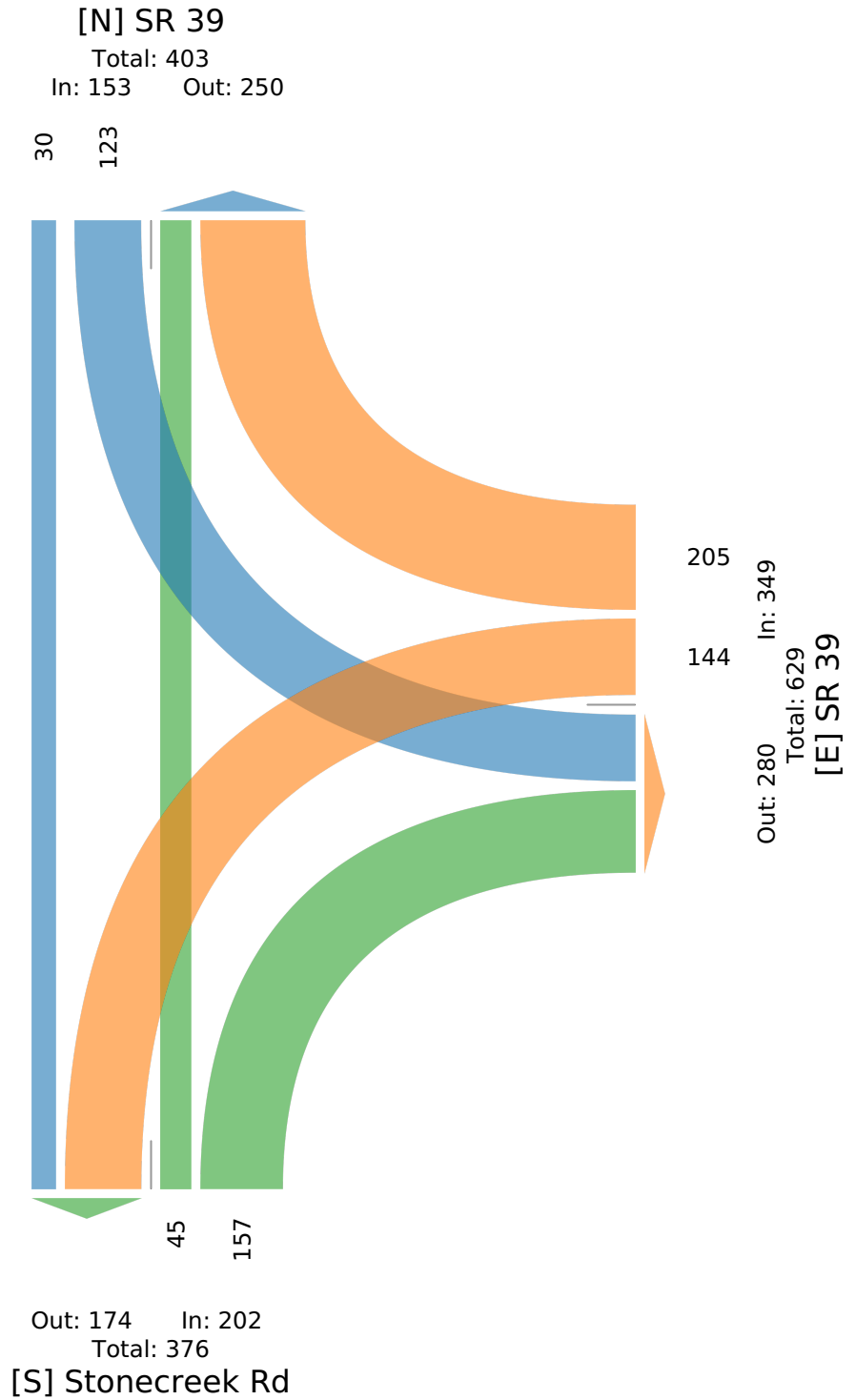
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 1098714, Location: 40.493185, -81.481022



Provided by: Burgess & Niple, Inc
330 Rush Alley, Suite 700, Columbus, OH, 43215, US



SR 39 & Stonecreek Rd - TMC

Wed Aug 16, 2023

Midday Peak (12 PM - 1 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 1098714, Location: 40.493185, -81.481022



Provided by: Burgess & Niple, Inc
330 Rush Alley, Suite 700, Columbus, OH, 43215, US

Leg Direction	SR 39 Southbound				SR 39 Westbound				Stonecreek Rd Northbound				Int
	T	L	U	App	R	L	U	App	R	T	U	App	
2023-08-16 12:00PM	14	60	0	74	41	49	0	90	64	17	0	81	245
12:15PM	10	69	0	79	45	45	0	90	51	11	0	62	231
12:30PM	14	47	0	61	52	56	0	108	32	12	0	44	213
12:45PM	6	62	0	68	39	52	0	91	42	10	0	52	211
Total	44	238	0	282	177	202	0	379	189	50	0	239	900
% Approach	15.6%	84.4%	0%	-	46.7%	53.3%	0%	-	79.1%	20.9%	0%	-	-
% Total	4.9%	26.4%	0%	31.3%	19.7%	22.4%	0%	42.1%	21.0%	5.6%	0%	26.6%	-
PHF	0.786	0.862	-	0.892	0.851	0.902	-	0.877	0.738	0.735	-	0.738	0.918
Lights	41	233	0	274	172	180	0	352	168	46	0	214	840
% Lights	93.2%	97.9%	0%	97.2%	97.2%	89.1%	0%	92.9%	88.9%	92.0%	0%	89.5%	93.3%
Articulated Trucks	2	3	0	5	2	8	0	10	12	1	0	13	28
% Articulated Trucks	4.5%	1.3%	0%	1.8%	1.1%	4.0%	0%	2.6%	6.3%	2.0%	0%	5.4%	3.1%
Buses and Single-Unit Trucks	1	2	0	3	3	14	0	17	9	3	0	12	32
% Buses and Single-Unit Trucks	2.3%	0.8%	0%	1.1%	1.7%	6.9%	0%	4.5%	4.8%	6.0%	0%	5.0%	3.6%

* L: Left, R: Right, T: Thru, U: U-Turn

SR 39 & Stonecreek Rd - TMC

Wed Aug 16, 2023

Midday Peak (12 PM - 1 PM)

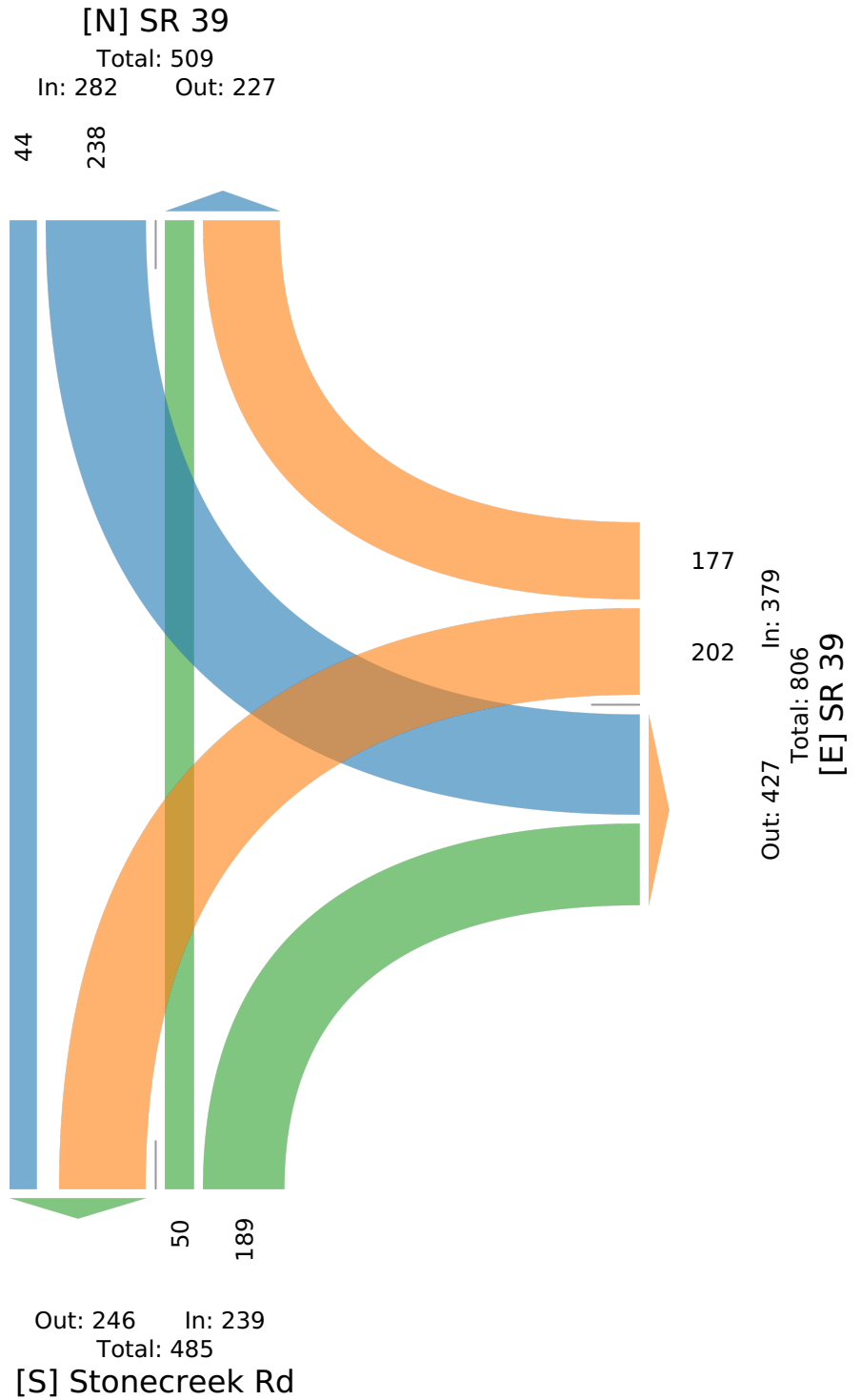
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 1098714, Location: 40.493185, -81.481022



Provided by: Burgess & Niple, Inc
330 Rush Alley, Suite 700, Columbus, OH, 43215, US



SR 39 & Stonecreek Rd - TMC

Wed Aug 16, 2023

PM Peak (4:30 PM - 5:30 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 1098714, Location: 40.493185, -81.481022



Provided by: Burgess & Niple, Inc
330 Rush Alley, Suite 700, Columbus, OH, 43215, US

Leg Direction	SR 39 Southbound				SR 39 Westbound				Stonecreek Rd Northbound				Int
	T	L	U	App	R	L	U	App	R	T	U	App	
2023-08-16 4:30PM	22	86	0	108	62	69	0	131	78	16	0	94	333
4:45PM	29	86	0	115	50	59	0	109	48	17	0	65	289
5:00PM	22	97	0	119	48	65	0	113	42	10	0	52	284
5:15PM	25	98	0	123	49	69	0	118	38	15	0	53	294
Total	98	367	0	465	209	262	0	471	206	58	0	264	1200
% Approach	21.1%	78.9%	0%	-	44.4%	55.6%	0%	-	78.0%	22.0%	0%	-	-
% Total	8.2%	30.6%	0%	38.8%	17.4%	21.8%	0%	39.3%	17.2%	4.8%	0%	22.0%	-
PHF	0.845	0.936	-	0.945	0.843	0.949	-	0.899	0.660	0.853	-	0.702	0.901
Lights	92	362	0	454	205	242	0	447	192	58	0	250	1151
% Lights	93.9%	98.6%	0%	97.6%	98.1%	92.4%	0%	94.9%	93.2%	100%	0%	94.7%	95.9%
Articulated Trucks	2	2	0	4	2	17	0	19	9	0	0	9	32
% Articulated Trucks	2.0%	0.5%	0%	0.9%	1.0%	6.5%	0%	4.0%	4.4%	0%	0%	3.4%	2.7%
Buses and Single-Unit Trucks	4	3	0	7	2	3	0	5	5	0	0	5	17
% Buses and Single-Unit Trucks	4.1%	0.8%	0%	1.5%	1.0%	1.1%	0%	1.1%	2.4%	0%	0%	1.9%	1.4%

* L: Left, R: Right, T: Thru, U: U-Turn

SR 39 & Stonecreek Rd - TMC

Wed Aug 16, 2023

PM Peak (4:30 PM - 5:30 PM) - Overall Peak Hour

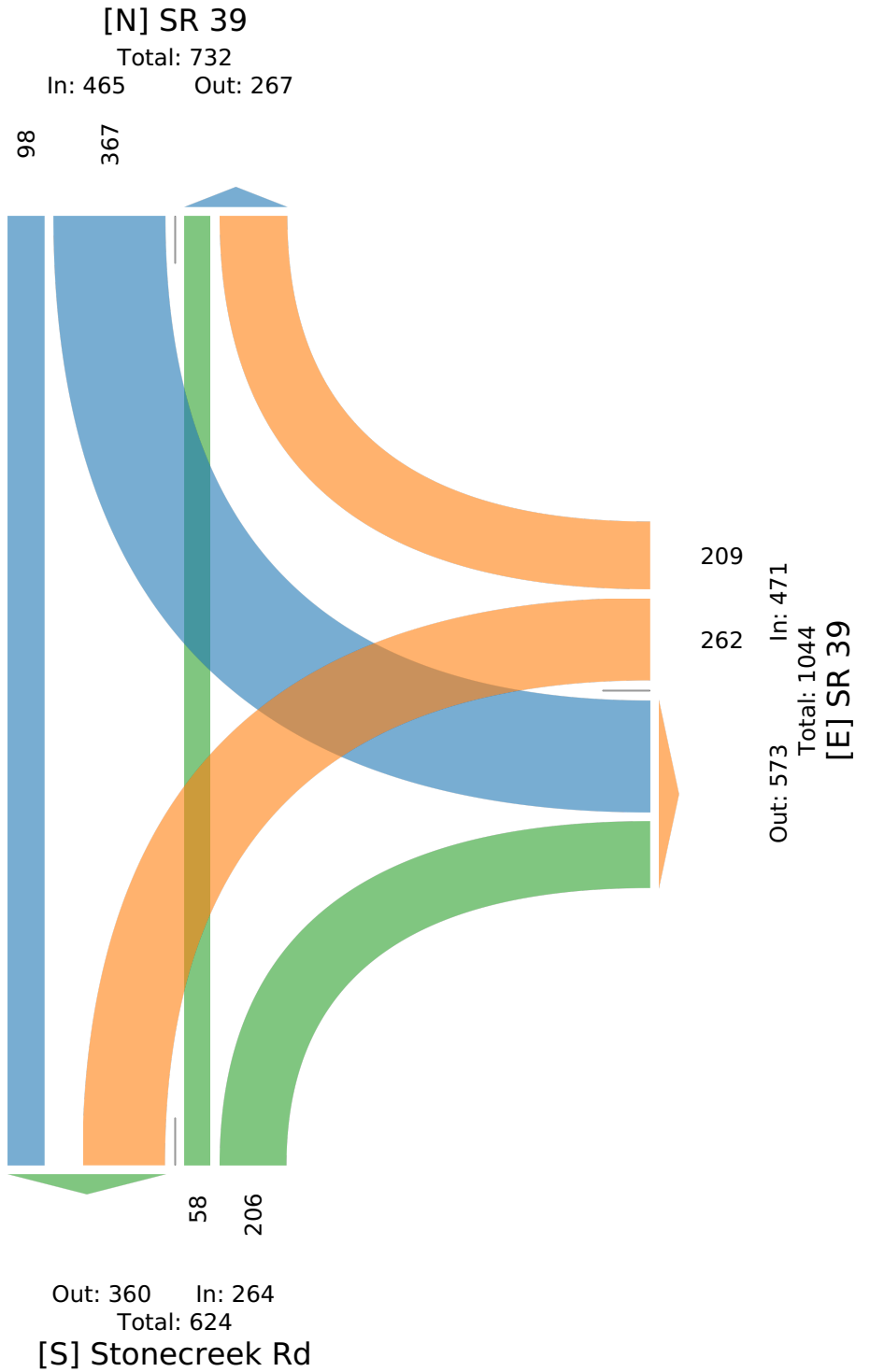
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 1098714, Location: 40.493185, -81.481022



Provided by: Burgess & Niple, Inc
330 Rush Alley, Suite 700, Columbus, OH, 43215, US



Leg Direction	I-77 SB Off-ramp Southbound					SR 39 Westbound					I-77 SB On-ramp Northbound					SR 39 Eastbound					
Time	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	Int
Hourly Total	11	1	51	0	63	0	74	95	0	169	0	0	0	0	0	15	40	0	0	55	287
11:00PM	5	0	12	0	17	0	11	27	1	39	0	0	0	0	0	1	8	0	0	9	65
11:15PM	3	0	9	0	12	0	11	15	0	26	0	0	0	0	0	3	8	0	0	11	49
11:30PM	1	0	12	0	13	0	10	8	0	18	0	0	0	0	0	4	7	0	0	11	42
11:45PM	3	0	6	0	9	0	7	7	0	14	0	0	0	0	0	4	7	0	0	11	34
Hourly Total	12	0	39	0	51	0	39	57	1	97	0	0	0	0	0	12	30	0	0	42	190
Total	804	50	3923	0	4777	0	4604	4644	1	9249	0	0	0	0	0	1788	3931	0	0	5719	19745
% Approach	16.8%	1.0%	82.1%	0%	-	0%	49.8%	50.2%	0%	-	0%	0%	0%	0%	-	31.3%	68.7%	0%	0%	-	-
% Total	4.1%	0.3%	19.9%	0%	24.2%	0%	23.3%	23.5%	0%	46.8%	0%	0%	0%	0%	0%	9.1%	19.9%	0%	0%	29.0%	-
Lights	649	44	3778	0	4471	0	4389	4436	1	8826	0	0	0	0	0	1572	3738	0	0	5310	18607
% Lights	80.7%	88.0%	96.3%	0%	93.6%	0%	95.3%	95.5%	100%	95.4%	0%	0%	0%	0%	-	87.9%	95.1%	0%	0%	92.8%	94.2%
Articulated Trucks	103	3	66	0	172	0	109	110	0	219	0	0	0	0	0	126	98	0	0	224	615
% Articulated Trucks	12.8%	6.0%	1.7%	0%	3.6%	0%	2.4%	2.4%	0%	2.4%	0%	0%	0%	0%	-	7.0%	2.5%	0%	0%	3.9%	3.1%
Buses and Single-Unit Trucks	52	3	79	0	134	0	106	98	0	204	0	0	0	0	0	90	95	0	0	185	523
% Buses and Single-Unit Trucks	6.5%	6.0%	2.0%	0%	2.8%	0%	2.3%	2.1%	0%	2.2%	0%	0%	0%	0%	-	5.0%	2.4%	0%	0%	3.2%	2.6%

*L: Left, R: Right, T: Thru, U: U-Turn

Sr 39 & I-77 SB - TMC

Wed Aug 16, 2023

Full Length (12 AM-12 AM (+1))

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 1098721, Location: 40.493341, -81.480419



Provided by: Burgess & Niple, Inc
330 Rush Alley, Suite 700, Columbus, OH, 43215, US

[N] I-77 SB Off-ramp

Total: 4777

In: 4777 Out: 0

804
50
3923

[W] SR 39
Total: 11127
In: 5719 Out: 5408

3931

1788

4604

4644

1

Out: 7855 In: 9249

Total: 17104

[E] SR 39

Out: 6482 In: 0

Total: 6482

[S] I-77 SB On-ramp

Sr 39 & I-77 SB - TMC

Wed Aug 16, 2023

AM Peak (8:45 AM - 9:45 AM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 1098721, Location: 40.493341, -81.480419



Provided by: Burgess & Niple, Inc
330 Rush Alley, Suite 700, Columbus, OH, 43215, US

Leg Direction	I-77 SB Off-ramp Southbound					SR 39 Westbound					I-77 SB On-ramp Northbound					SR 39 Eastbound					Int
	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	
2023-08-16 8:45AM	7	2	69	0	78	0	84	46	0	130	0	0	0	0	0	26	52	0	0	78	286
9:00AM	11	1	60	0	72	0	43	46	0	89	0	0	0	0	0	20	61	0	0	81	242
9:15AM	13	1	49	0	63	0	68	63	0	131	0	0	0	0	0	19	53	0	0	72	266
9:30AM	8	1	48	0	57	0	70	67	0	137	0	0	0	0	0	23	73	0	0	96	290
Total	39	5	226	0	270	0	265	222	0	487	0	0	0	0	0	88	239	0	0	327	1084
% Approach	14.4%	1.9%	83.7%	0%	-	0%	54.4%	45.6%	0%	-	0%	0%	0%	0%	-	26.9%	73.1%	0%	0%	-	-
% Total	3.6%	0.5%	20.8%	0%	24.9%	0%	24.4%	20.5%	0%	44.9%	0%	0%	0%	0%	0%	8.1%	22.0%	0%	0%	30.2%	-
PHF	0.750	0.625	0.819	-	0.865	-	0.789	0.828	-	0.889	-	-	-	-	-	0.846	0.818	-	-	0.852	0.934
Lights	28	5	217	0	250	0	245	196	0	441	0	0	0	0	0	73	228	0	0	301	992
% Lights	71.8%	100%	96.0%	0%	92.6%	0%	92.5%	88.3%	0%	90.6%	0%	0%	0%	0%	-	83.0%	95.4%	0%	0%	92.0%	91.5%
Articulated Trucks	6	0	5	0	11	0	6	11	0	17	0	0	0	0	0	11	8	0	0	19	47
% Articulated Trucks	15.4%	0%	2.2%	0%	4.1%	0%	2.3%	5.0%	0%	3.5%	0%	0%	0%	0%	-	12.5%	3.3%	0%	0%	5.8%	4.3%
Buses and Single-Unit Trucks	5	0	4	0	9	0	14	15	0	29	0	0	0	0	0	4	3	0	0	7	45
% Buses and Single-Unit Trucks	12.8%	0%	1.8%	0%	3.3%	0%	5.3%	6.8%	0%	6.0%	0%	0%	0%	0%	-	4.5%	1.3%	0%	0%	2.1%	4.2%

* L: Left, R: Right, T: Thru, U: U-Turn

Sr 39 & I-77 SB - TMC

Wed Aug 16, 2023

AM Peak (8:45 AM - 9:45 AM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 1098721, Location: 40.493341, -81.480419



Provided by: Burgess & Niple, Inc
330 Rush Alley, Suite 700, Columbus, OH, 43215, US

[N] I-77 SB Off-ramp

Total: 270

In: 270 Out: 0

39 5 226

[W] SR 39
Total: 631
In: 327 Out: 304



265

222

In: 487
Total: 952
Out: 465

[E] SR 39

Out: 315 In: 0
Total: 315
[S] I-77 SB On-ramp

Sr 39 & I-77 SB - TMC

Wed Aug 16, 2023

Midday Peak (1 PM - 2 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 1098721, Location: 40.493341, -81.480419



Provided by: Burgess & Niple, Inc
330 Rush Alley, Suite 700, Columbus, OH, 43215, US

Leg Direction	I-77 SB Off-ramp Southbound					SR 39 Westbound					I-77 SB On-ramp Northbound					SR 39 Eastbound					Int
	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	
2023-08-16 1:00PM	14	3	69	0	86	0	80	73	0	153	0	0	0	0	0	31	70	0	0	101	340
1:15PM	14	0	58	0	72	0	64	85	0	149	0	0	0	0	0	23	58	0	0	81	302
1:30PM	14	2	65	0	81	0	67	85	0	152	0	0	0	0	0	22	91	0	0	113	346
1:45PM	12	1	80	0	93	0	85	86	0	171	0	0	0	0	0	37	60	0	0	97	361
Total	54	6	272	0	332	0	296	329	0	625	0	0	0	0	0	113	279	0	0	392	1349
% Approach	16.3%	1.8%	81.9%	0%	-	0%	47.4%	52.6%	0%	-	0%	0%	0%	0%	-	28.8%	71.2%	0%	0%	-	-
% Total	4.0%	0.4%	20.2%	0%	24.6%	0%	21.9%	24.4%	0%	46.3%	0%	0%	0%	0%	0%	8.4%	20.7%	0%	0%	29.1%	-
PHF	0.964	0.500	0.850	-	0.892	-	0.871	0.956	-	0.914	-	-	-	-	-	0.764	0.766	-	-	0.867	0.934
Lights	45	6	264	0	315	0	278	315	0	593	0	0	0	0	0	105	263	0	0	368	1276
% Lights	83.3%	100%	97.1%	0%	94.9%	0%	93.9%	95.7%	0%	94.9%	0%	0%	0%	0%	-	92.9%	94.3%	0%	0%	93.9%	94.6%
Articulated Trucks	5	0	2	0	7	0	12	8	0	20	0	0	0	0	0	4	5	0	0	9	36
% Articulated Trucks	9.3%	0%	0.7%	0%	2.1%	0%	4.1%	2.4%	0%	3.2%	0%	0%	0%	0%	-	3.5%	1.8%	0%	0%	2.3%	2.7%
Buses and Single-Unit Trucks	4	0	6	0	10	0	6	6	0	12	0	0	0	0	0	4	11	0	0	15	37
% Buses and Single-Unit Trucks	7.4%	0%	2.2%	0%	3.0%	0%	2.0%	1.8%	0%	1.9%	0%	0%	0%	0%	-	3.5%	3.9%	0%	0%	3.8%	2.7%

* L: Left, R: Right, T: Thru, U: U-Turn

Sr 39 & I-77 SB - TMC

Wed Aug 16, 2023

Midday Peak (1 PM - 2 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 1098721, Location: 40.493341, -81.480419



Provided by: Burgess & Niple, Inc
330 Rush Alley, Suite 700, Columbus, OH, 43215, US

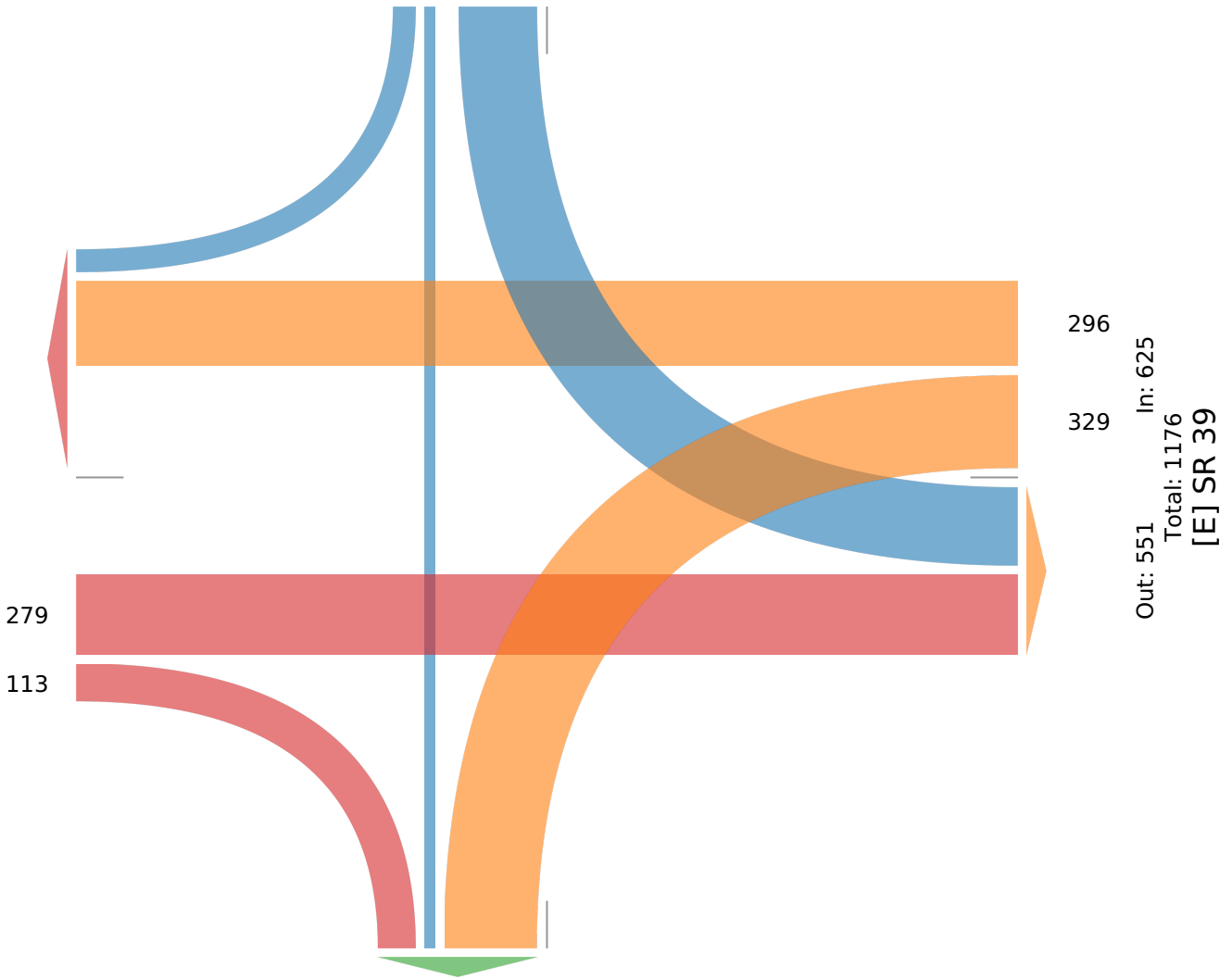
[N] I-77 SB Off-ramp

Total: 332

In: 332 Out: 0

54
6
272

[W] SR 39
Total: 742
In: 392 Out: 350



Out: 551 In: 625
Total: 1176
[E] SR 39

Out: 448 In: 0
Total: 448

[S] I-77 SB On-ramp

Sr 39 & I-77 SB - TMC

Wed Aug 16, 2023

PM Peak (3:45 PM - 4:45 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 1098721, Location: 40.493341, -81.480419



Provided by: Burgess & Niple, Inc
330 Rush Alley, Suite 700, Columbus, OH, 43215, US

Leg Direction	I-77 SB Off-ramp Southbound					SR 39 Westbound					I-77 SB On-ramp Northbound					SR 39 Eastbound					Int
	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	
2023-08-16 3:45PM	24	0	87	0	111	0	94	90	0	184	0	0	0	0	0	40	88	0	0	128	423
4:00PM	20	3	93	0	116	0	89	110	0	199	0	0	0	0	0	58	97	0	0	155	470
4:15PM	18	1	100	0	119	0	101	108	0	209	0	0	0	0	0	41	87	0	0	128	456
4:30PM	15	4	98	0	117	0	108	85	0	193	0	0	0	0	0	51	113	0	0	164	474
Total	77	8	378	0	463	0	392	393	0	785	0	0	0	0	0	190	385	0	0	575	1823
% Approach	16.6%	1.7%	81.6%	0%	-	0%	49.9%	50.1%	0%	-	0%	0%	0%	0%	-	33.0%	67.0%	0%	0%	-	-
% Total	4.2%	0.4%	20.7%	0%	25.4%	0%	21.5%	21.6%	0%	43.1%	0%	0%	0%	0%	0%	10.4%	21.1%	0%	0%	31.5%	-
PHF	0.802	0.500	0.945	-	0.973	-	0.907	0.893	-	0.939	-	-	-	-	-	0.819	0.852	-	-	0.877	0.961
Lights	67	8	366	0	441	0	374	385	0	759	0	0	0	0	0	180	382	0	0	562	1762
% Lights	87.0%	100%	96.8%	0%	95.2%	0%	95.4%	98.0%	0%	96.7%	0%	0%	0%	0%	-	94.7%	99.2%	0%	0%	97.7%	96.7%
Articulated Trucks	9	0	5	0	14	0	7	4	0	11	0	0	0	0	0	7	2	0	0	9	34
% Articulated Trucks	11.7%	0%	1.3%	0%	3.0%	0%	1.8%	1.0%	0%	1.4%	0%	0%	0%	0%	-	3.7%	0.5%	0%	0%	1.6%	1.9%
Buses and Single-Unit Trucks	1	0	7	0	8	0	11	4	0	15	0	0	0	0	0	3	1	0	0	4	27
% Buses and Single-Unit Trucks	1.3%	0%	1.9%	0%	1.7%	0%	2.8%	1.0%	0%	1.9%	0%	0%	0%	0%	-	1.6%	0.3%	0%	0%	0.7%	1.5%

* L: Left, R: Right, T: Thru, U: U-Turn

Sr 39 & I-77 SB - TMC

Wed Aug 16, 2023

PM Peak (3:45 PM - 4:45 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 1098721, Location: 40.493341, -81.480419



Provided by: Burgess & Niple, Inc
330 Rush Alley, Suite 700, Columbus, OH, 43215, US

[N] I-77 SB Off-ramp

Total: 463

In: 463

Out: 0

77 8 378

[W] SR 39
Total: 1044
In: 575 Out: 469



392
393
Out: 763 In: 785
Total: 1548
[E] SR 39

Out: 591 In: 0
Total: 591
[S] I-77 SB On-ramp

Leg Direction	I-77 NB On-ramp Southbound	SR 39 Westbound	I-77 NB Off-ramp Northbound	SR 39 Eastbound	
Time	R T L U App	R T L U App	R T L U App	R T L U App	Int
Hourly Total	0 0 0 0 0	58 139 0 0 197	45 0 28 0 73	0 89 4 0 93	363
11:00PM	0 0 0 0 0	12 33 0 0 45	7 0 5 0 12	0 18 2 0 20	77
11:15PM	0 0 0 0 0	11 27 0 0 38	6 0 1 0 7	0 14 2 0 16	61
11:30PM	0 0 0 0 0	7 10 0 0 17	7 0 6 0 13	0 18 2 0 20	50
11:45PM	0 0 0 0 0	8 7 0 0 15	3 0 4 0 7	0 10 1 0 11	33
Hourly Total	0 0 0 0 0	38 77 0 0 115	23 0 16 0 39	0 60 7 0 67	221
Total	1 0 0 0 1	4595 7152 0 1 11748	4253 35 2088 0 6376	1 7225 648 0 7874	25999
% Approach	100% 0% 0% 0% -	39.1% 60.9% 0% 0% -	66.7% 0.5% 32.7% 0% -	0% 91.8% 8.2% 0% -	-
% Total	0% 0% 0% 0% 0%	17.7% 27.5% 0% 0% 45.2%	16.4% 0.1% 8.0% 0% 24.5%	0% 27.8% 2.5% 0% 30.3%	-
Lights	1 0 0 0 1	4442 6939 0 1 11382	4095 30 1865 0 5990	1 7016 509 0 7526	24899
% Lights	100% 0% 0% 0% 100%	96.7% 97.0% 0% 100% 96.9%	96.3% 85.7% 89.3% 0% 93.9%	100% 97.1% 78.5% 0% 95.6%	95.8%
Articulated Trucks	0 0 0 0 0	65 88 0 0 153	86 4 132 0 222	0 79 81 0 160	535
% Articulated Trucks	0% 0% 0% 0% 0%	1.4% 1.2% 0% 0% 1.3%	2.0% 11.4% 6.3% 0% 3.5%	0% 1.1% 12.5% 0% 2.0%	2.1%
Buses and Single-Unit Trucks	0 0 0 0 0	88 125 0 0 213	72 1 91 0 164	0 130 58 0 188	565
% Buses and Single-Unit Trucks	0% 0% 0% 0% 0%	1.9% 1.7% 0% 0% 1.8%	1.7% 2.9% 4.4% 0% 2.6%	0% 1.8% 9.0% 0% 2.4%	2.2%

*L: Left, R: Right, T: Thru, U: U-Turn

Sr 39 & I-77 NB - TMC

Wed Aug 16, 2023

Full Length (12 AM-12 AM (+1))

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 1098744, Location: 40.493562, -81.477387



Provided by: Burgess & Niple, Inc
330 Rush Alley, Suite 700, Columbus, OH, 43215, US

[N] I-77 NB On-ramp

Total: 5279

In: 1 Out: 5278

1

[W] SR 39
Total: 17115
In: 7874 Out: 9241

648
7225
1

4595
7152

Out: 11479 In: 11748
Total: 23227
[E] SR 39

2088
35
4253

Out: 1 In: 6376
Total: 6377

[S] I-77 NB Off-ramp

Sr 39 & I-77 NB - TMC

Wed Aug 16, 2023

AM Peak (8:45 AM - 9:45 AM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 1098744, Location: 40.493562, -81.477387



Provided by: Burgess & Niple, Inc
330 Rush Alley, Suite 700, Columbus, OH, 43215, US

Leg Direction	I-77 NB On-ramp Southbound					SR 39 Westbound					I-77 NB Off-ramp Northbound					SR 39 Eastbound					Int
	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	
2023-08-16 8:45AM	0	0	0	0	0	60	77	0	0	137	69	0	38	0	107	0	119	7	0	126	370
9:00AM	0	0	0	0	0	58	74	0	0	132	65	0	29	0	94	0	104	7	0	111	337
9:15AM	0	0	0	0	0	60	89	0	0	149	58	0	39	0	97	0	111	10	0	121	367
9:30AM	0	0	0	0	0	54	112	0	0	166	62	1	30	0	93	0	99	11	0	110	369
Total	0	0	0	0	0	232	352	0	0	584	254	1	136	0	391	0	433	35	0	468	1443
% Approach	0%	0%	0%	0%	-	39.7%	60.3%	0%	0%	-	65.0%	0.3%	34.8%	0%	-	0%	92.5%	7.5%	0%	-	-
% Total	0%	0%	0%	0%	0%	16.1%	24.4%	0%	0%	40.5%	17.6%	0.1%	9.4%	0%	27.1%	0%	30.0%	2.4%	0%	32.4%	-
PHF	-	-	-	-	-	0.967	0.786	-	-	0.880	0.920	0.250	0.872	-	0.914	-	0.910	0.795	-	0.929	0.975
Lights	0	0	0	0	0	220	325	0	0	545	236	1	118	0	355	0	418	27	0	445	1345
% Lights	0%	0%	0%	0%	-	94.8%	92.3%	0%	0%	93.3%	92.9%	100%	86.8%	0%	90.8%	0%	96.5%	77.1%	0%	95.1%	93.2%
Articulated Trucks	0	0	0	0	0	3	9	0	0	12	12	0	7	0	19	0	4	8	0	12	43
% Articulated Trucks	0%	0%	0%	0%	-	1.3%	2.6%	0%	0%	2.1%	4.7%	0%	5.1%	0%	4.9%	0%	0.9%	22.9%	0%	2.6%	3.0%
Buses and Single-Unit Trucks	0	0	0	0	0	9	18	0	0	27	6	0	11	0	17	0	11	0	0	11	55
% Buses and Single-Unit Trucks	0%	0%	0%	0%	-	3.9%	5.1%	0%	0%	4.6%	2.4%	0%	8.1%	0%	4.3%	0%	2.5%	0%	0%	2.4%	3.8%

* L: Left, R: Right, T: Thru, U: U-Turn

Sr 39 & I-77 NB - TMC

Wed Aug 16, 2023

AM Peak (8:45 AM - 9:45 AM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

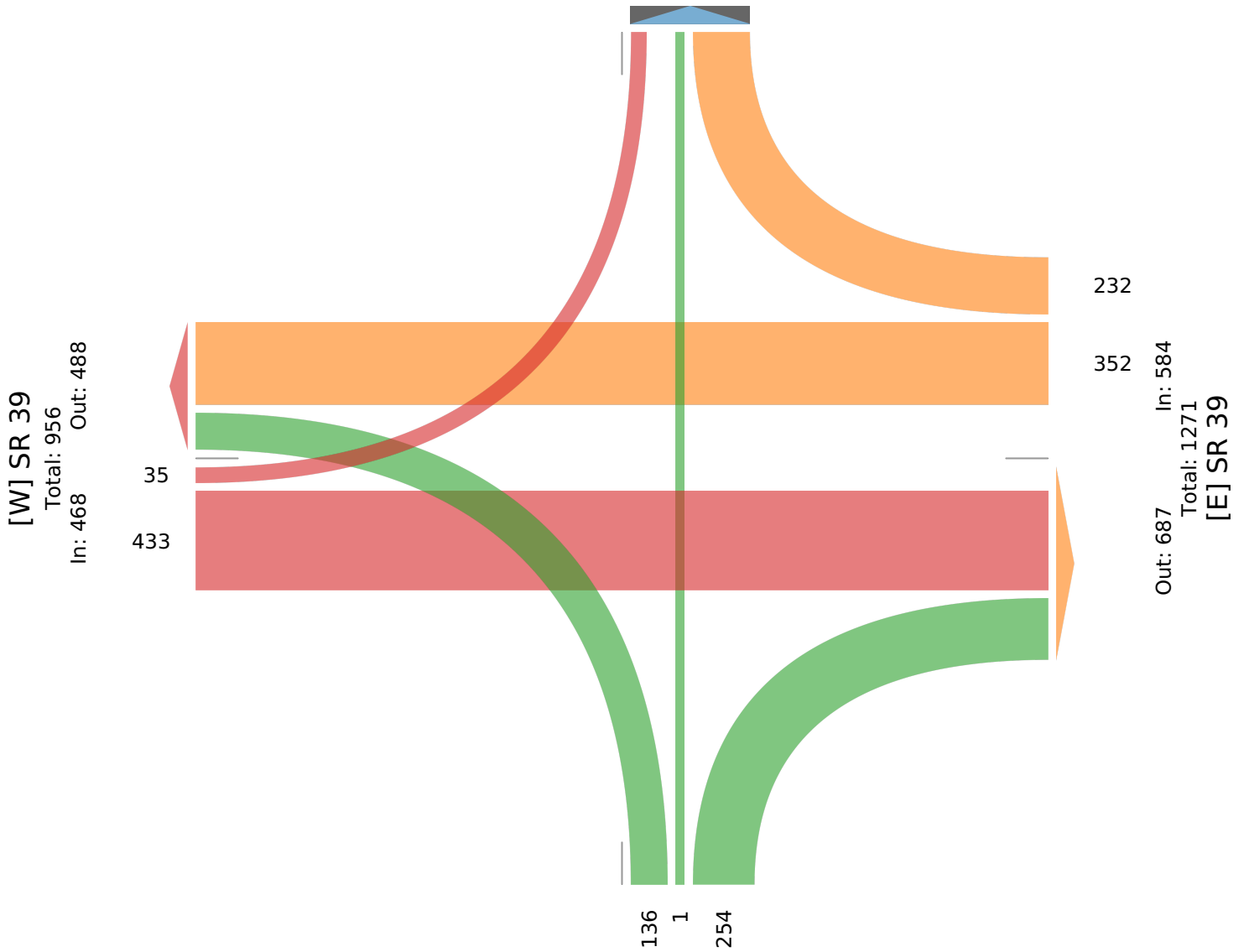
ID: 1098744, Location: 40.493562, -81.477387



Provided by: Burgess & Niple, Inc
330 Rush Alley, Suite 700, Columbus, OH, 43215, US

[N] I-77 NB On-ramp

Total: 268
In: 0 Out: 268



Sr 39 & I-77 NB - TMC

Wed Aug 16, 2023

Midday Peak (1 PM - 2 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 1098744, Location: 40.493562, -81.477387



Provided by: Burgess & Niple, Inc
330 Rush Alley, Suite 700, Columbus, OH, 43215, US

Leg Direction	I-77 NB On-ramp Southbound					SR 39 Westbound					I-77 NB Off-ramp Northbound					SR 39 Eastbound					Int
	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	
2023-08-16 1:00PM	0	0	0	0	0	110	123	0	0	233	81	1	28	0	110	0	127	10	0	137	480
1:15PM	0	0	0	0	0	67	127	0	0	194	60	2	24	0	86	0	117	6	0	123	403
1:30PM	0	0	0	0	0	102	133	0	0	235	91	0	35	0	126	0	146	16	0	162	523
1:45PM	0	0	0	0	0	85	114	0	1	200	75	1	37	0	113	0	122	13	0	135	448
Total	0	0	0	0	0	364	497	0	1	862	307	4	124	0	435	0	512	45	0	557	1854
% Approach	0%	0%	0%	0%	-	42.2%	57.7%	0%	0.1%	-	70.6%	0.9%	28.5%	0%	-	0%	91.9%	8.1%	0%	-	-
% Total	0%	0%	0%	0%	0%	19.6%	26.8%	0%	0.1%	46.5%	16.6%	0.2%	6.7%	0%	23.5%	0%	27.6%	2.4%	0%	30.0%	-
PHF	-	-	-	-	-	0.827	0.934	-	0.250	0.917	0.843	0.500	0.838	-	0.863	-	0.877	0.703	-	0.860	0.886
Lights	0	0	0	0	0	354	476	0	1	831	287	2	107	0	396	0	496	34	0	530	1757
% Lights	0%	0%	0%	0%	-	97.3%	95.8%	0%	100%	96.4%	93.5%	50.0%	86.3%	0%	91.0%	0%	96.9%	75.6%	0%	95.2%	94.8%
Articulated Trucks	0	0	0	0	0	3	8	0	0	11	13	1	12	0	26	0	2	5	0	7	44
% Articulated Trucks	0%	0%	0%	0%	-	0.8%	1.6%	0%	0%	1.3%	4.2%	25.0%	9.7%	0%	6.0%	0%	0.4%	11.1%	0%	1.3%	2.4%
Buses and Single-Unit Trucks	0	0	0	0	0	7	13	0	0	20	7	1	5	0	13	0	14	6	0	20	53
% Buses and Single-Unit Trucks	0%	0%	0%	0%	-	1.9%	2.6%	0%	0%	2.3%	2.3%	25.0%	4.0%	0%	3.0%	0%	2.7%	13.3%	0%	3.6%	2.9%

* L: Left, R: Right, T: Thru, U: U-Turn

Sr 39 & I-77 NB - TMC

Wed Aug 16, 2023

Midday Peak (1 PM - 2 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 1098744, Location: 40.493562, -81.477387



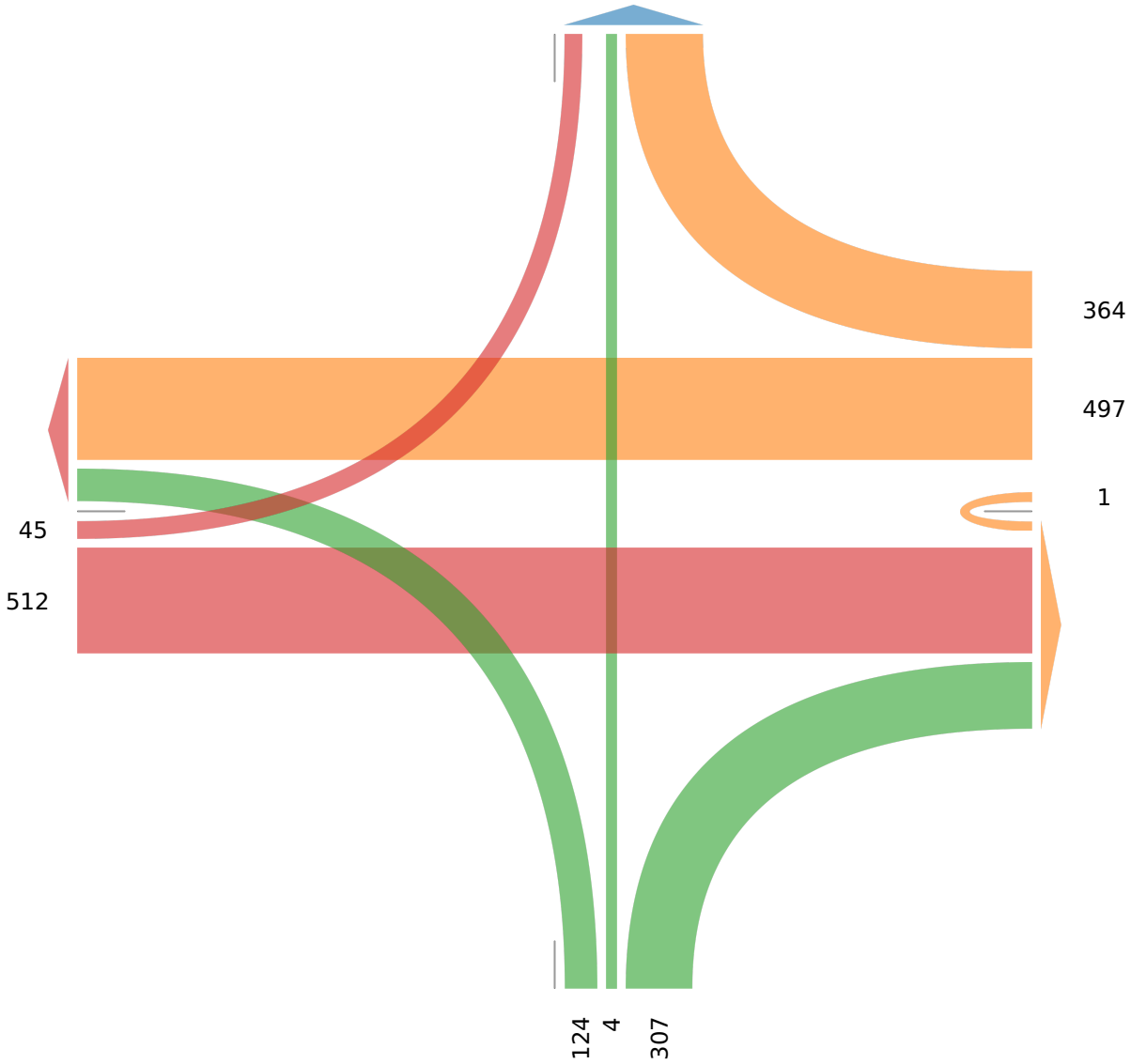
Provided by: Burgess & Niple, Inc
330 Rush Alley, Suite 700, Columbus, OH, 43215, US

[N] I-77 NB On-ramp

Total: 413
In: 0 Out: 413

[W] SR 39

Total: 1178
In: 557 Out: 621



364
497 In: 862
1
Out: 820 Total: 1682
[E] SR 39

Out: 0 In: 435
Total: 435
[S] I-77 NB Off-ramp

Sr 39 & I-77 NB - TMC

Wed Aug 16, 2023

PM Peak (3:45 PM - 4:45 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 1098744, Location: 40.493562, -81.477387



Provided by: Burgess & Niple, Inc
330 Rush Alley, Suite 700, Columbus, OH, 43215, US

Leg Direction	I-77 NB On-ramp Southbound					SR 39 Westbound					I-77 NB Off-ramp Northbound					SR 39 Eastbound					Int
	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	
2023-08-16 3:45PM	0	0	0	0	0	93	137	0	0	230	82	1	44	0	127	0	168	8	0	176	533
4:00PM	0	0	0	0	0	83	165	0	0	248	57	0	46	0	103	0	179	12	0	191	542
4:15PM	0	0	0	0	0	102	150	0	0	252	98	1	45	0	144	0	168	13	0	181	577
4:30PM	0	0	0	0	0	88	158	0	0	246	93	0	48	0	141	0	195	13	0	208	595
Total	0	0	0	0	0	366	610	0	0	976	330	2	183	0	515	0	710	46	0	756	2247
% Approach	0%	0%	0%	0%	-	37.5%	62.5%	0%	0%	-	64.1%	0.4%	35.5%	0%	-	0%	93.9%	6.1%	0%	-	-
% Total	0%	0%	0%	0%	0%	16.3%	27.1%	0%	0%	43.4%	14.7%	0.1%	8.1%	0%	22.9%	0%	31.6%	2.0%	0%	33.6%	-
PHF	-	-	-	-	-	0.897	0.924	-	-	0.968	0.842	0.500	0.953	-	0.894	-	0.910	0.885	-	0.909	0.944
Lights	0	0	0	0	0	358	601	0	0	959	321	2	164	0	487	0	696	43	0	739	2185
% Lights	0%	0%	0%	0%	-	97.8%	98.5%	0%	0%	98.3%	97.3%	100%	89.6%	0%	94.6%	0%	98.0%	93.5%	0%	97.8%	97.2%
Articulated Trucks	0	0	0	0	0	2	2	0	0	4	5	0	10	0	15	0	5	2	0	7	26
% Articulated Trucks	0%	0%	0%	0%	-	0.5%	0.3%	0%	0%	0.4%	1.5%	0%	5.5%	0%	2.9%	0%	0.7%	4.3%	0%	0.9%	1.2%
Buses and Single-Unit Trucks	0	0	0	0	0	6	7	0	0	13	4	0	9	0	13	0	9	1	0	10	36
% Buses and Single-Unit Trucks	0%	0%	0%	0%	-	1.6%	1.1%	0%	0%	1.3%	1.2%	0%	4.9%	0%	2.5%	0%	1.3%	2.2%	0%	1.3%	1.6%

* L: Left, R: Right, T: Thru, U: U-Turn

Sr 39 & I-77 NB - TMC

Wed Aug 16, 2023

PM Peak (3:45 PM - 4:45 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 1098744, Location: 40.493562, -81.477387

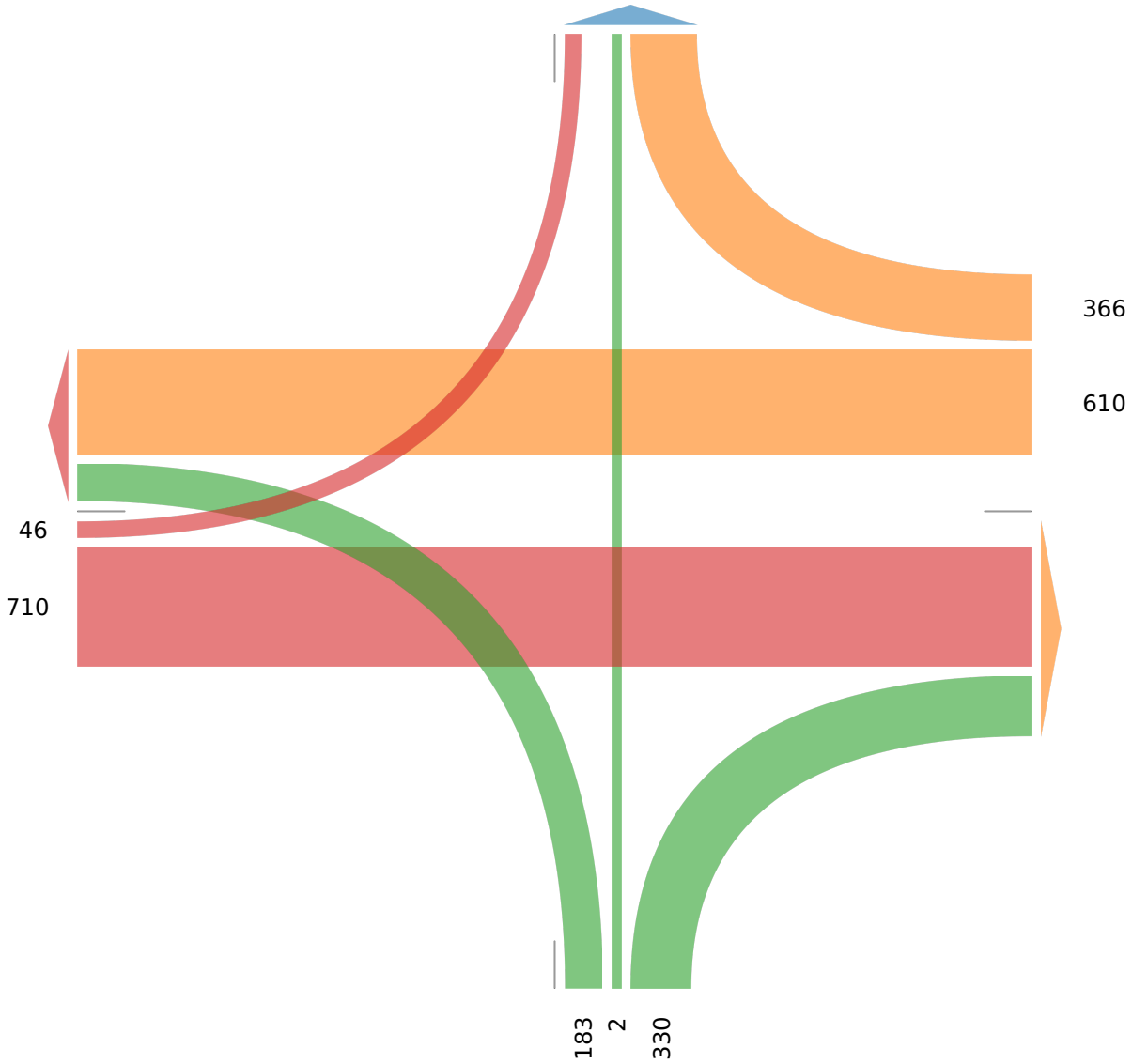


Provided by: Burgess & Niple, Inc
330 Rush Alley, Suite 700, Columbus, OH, 43215, US

[N] I-77 NB On-ramp

Total: 414
In: 0 Out: 414

[W] SR 39
Total: 1549
In: 756 Out: 793



Out: 1040 In: 976
Total: 2016
[E] SR 39

Out: 0 In: 515
Total: 515
[S] I-77 NB Off-ramp

Leg Direction	Bluebell Dr Southbound					SR 39 Westbound					Bluebell Dr Northbound					SR 39 Eastbound					
Time	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	Int
Hourly Total	77	22	94	0	193	32	66	8	0	106	5	8	16	0	29	18	63	32	0	113	441
11:00PM	19	5	16	0	40	6	12	1	0	19	5	2	6	0	13	2	14	5	0	21	93
11:15PM	10	2	3	0	15	7	11	2	0	20	1	2	9	0	12	2	10	2	0	14	61
11:30PM	6	1	3	0	10	4	7	1	0	12	2	0	2	0	4	1	15	2	0	18	44
11:45PM	3	3	2	0	8	3	9	1	0	13	0	2	3	0	5	0	11	2	0	13	39
Hourly Total	38	11	24	0	73	20	39	5	0	64	8	6	20	0	34	5	50	11	0	66	237
Total	3142	1517	3125	0	7784	2782	5159	911	0	8852	825	1127	2091	0	4043	1689	4734	2773	0	9196	29875
% Approach	40.4%	19.5%	40.1%	0%	-	31.4%	58.3%	10.3%	0%	-	20.4%	27.9%	51.7%	0%	-	18.4%	51.5%	30.2%	0%	-	-
% Total	10.5%	5.1%	10.5%	0%	26.1%	9.3%	17.3%	3.0%	0%	29.6%	2.8%	3.8%	7.0%	0%	13.5%	5.7%	15.8%	9.3%	0%	30.8%	-
Lights	3072	1509	3095	0	7676	2764	4960	908	0	8632	819	1118	2020	0	3957	1643	4536	2717	0	8896	29161
% Lights	97.8%	99.5%	99.0%	0%	98.6%	99.4%	96.1%	99.7%	0%	97.5%	99.3%	99.2%	96.6%	0%	97.9%	97.3%	95.8%	98.0%	0%	96.7%	97.6%
Articulated Trucks	46	1	10	0	57	3	85	0	0	88	2	1	16	0	19	7	109	37	0	153	317
% Articulated Trucks	1.5%	0.1%	0.3%	0%	0.7%	0.1%	1.6%	0%	0%	1.0%	0.2%	0.1%	0.8%	0%	0.5%	0.4%	2.3%	1.3%	0%	1.7%	1.1%
Buses and Single-Unit Trucks	24	7	20	0	51	15	114	3	0	132	4	8	55	0	67	39	89	19	0	147	397
% Buses and Single-Unit Trucks	0.8%	0.5%	0.6%	0%	0.7%	0.5%	2.2%	0.3%	0%	1.5%	0.5%	0.7%	2.6%	0%	1.7%	2.3%	1.9%	0.7%	0%	1.6%	1.3%

*L: Left, R: Right, T: Thru, U: U-Turn

Sr 39 & Bluebell Dr - TMC

Wed Aug 16, 2023

Full Length (12 AM-12 AM (+1))

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 1098707, Location: 40.493345, -81.472612



Provided by: Burgess & Niple, Inc
330 Rush Alley, Suite 700, Columbus, OH, 43215, US

[N] Bluebell Dr

Total: 14466

In: 7784

Out: 6682

3142

1517

3125

[W] SR 39
Total: 19588
In: 9196
Out: 10392

2773
4734
1689

2782
5159
911

Out: 8684
In: 8852
Total: 17536
[E] SR 39

2091
1127
825

Out: 4117
In: 4043
Total: 8160

[S] Bluebell Dr

Sr 39 & Bluebell Dr - TMC

Wed Aug 16, 2023

AM Peak (10 AM - 11 AM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 1098707, Location: 40.493345, -81.472612



Provided by: Burgess & Niple, Inc
330 Rush Alley, Suite 700, Columbus, OH, 43215, US

Leg Direction	Bluebell Dr Southbound					SR 39 Westbound					Bluebell Dr Northbound					SR 39 Eastbound					
Time	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	Int
2023-08-16 10:00AM	30	20	54	0	104	50	56	16	0	122	11	24	16	0	51	26	62	39	0	127	404
10:15AM	39	22	52	0	113	49	71	19	0	139	14	24	19	0	57	24	57	42	0	123	432
10:30AM	51	27	42	0	120	57	68	16	0	141	14	22	23	0	59	32	70	54	0	156	476
10:45AM	47	26	52	0	125	59	62	19	0	140	16	26	29	0	71	34	74	56	0	164	500
Total	167	95	200	0	462	215	257	70	0	542	55	96	87	0	238	116	263	191	0	570	1812
% Approach	36.1%	20.6%	43.3%	0%	-	39.7%	47.4%	12.9%	0%	-	23.1%	40.3%	36.6%	0%	-	20.4%	46.1%	33.5%	0%	-	-
% Total	9.2%	5.2%	11.0%	0%	25.5%	11.9%	14.2%	3.9%	0%	29.9%	3.0%	5.3%	4.8%	0%	13.1%	6.4%	14.5%	10.5%	0%	31.5%	-
PHF	0.819	0.880	0.926	-	0.924	0.911	0.905	0.921	-	0.961	0.859	0.923	0.750	-	0.838	0.853	0.889	0.853	-	0.869	0.906
Lights	163	94	198	0	455	212	248	70	0	530	54	94	85	0	233	113	250	187	0	550	1768
% Lights	97.6%	98.9%	99.0%	0%	98.5%	98.6%	96.5%	100%	0%	97.8%	98.2%	97.9%	97.7%	0%	97.9%	97.4%	95.1%	97.9%	0%	96.5%	97.6%
Articulated Trucks	2	0	0	0	2	0	4	0	0	4	1	0	1	0	2	0	10	3	0	13	21
% Articulated Trucks	1.2%	0%	0%	0%	0.4%	0%	1.6%	0%	0%	0.7%	1.8%	0%	1.1%	0%	0.8%	0%	3.8%	1.6%	0%	2.3%	1.2%
Buses and Single-Unit Trucks	2	1	2	0	5	3	5	0	0	8	0	2	1	0	3	3	3	1	0	7	23
% Buses and Single-Unit Trucks	1.2%	1.1%	1.0%	0%	1.1%	1.4%	1.9%	0%	0%	1.5%	0%	2.1%	1.1%	0%	1.3%	2.6%	1.1%	0.5%	0%	1.2%	1.3%

* L: Left, R: Right, T: Thru, U: U-Turn

Sr 39 & Bluebell Dr - TMC

Wed Aug 16, 2023

AM Peak (10 AM - 11 AM)

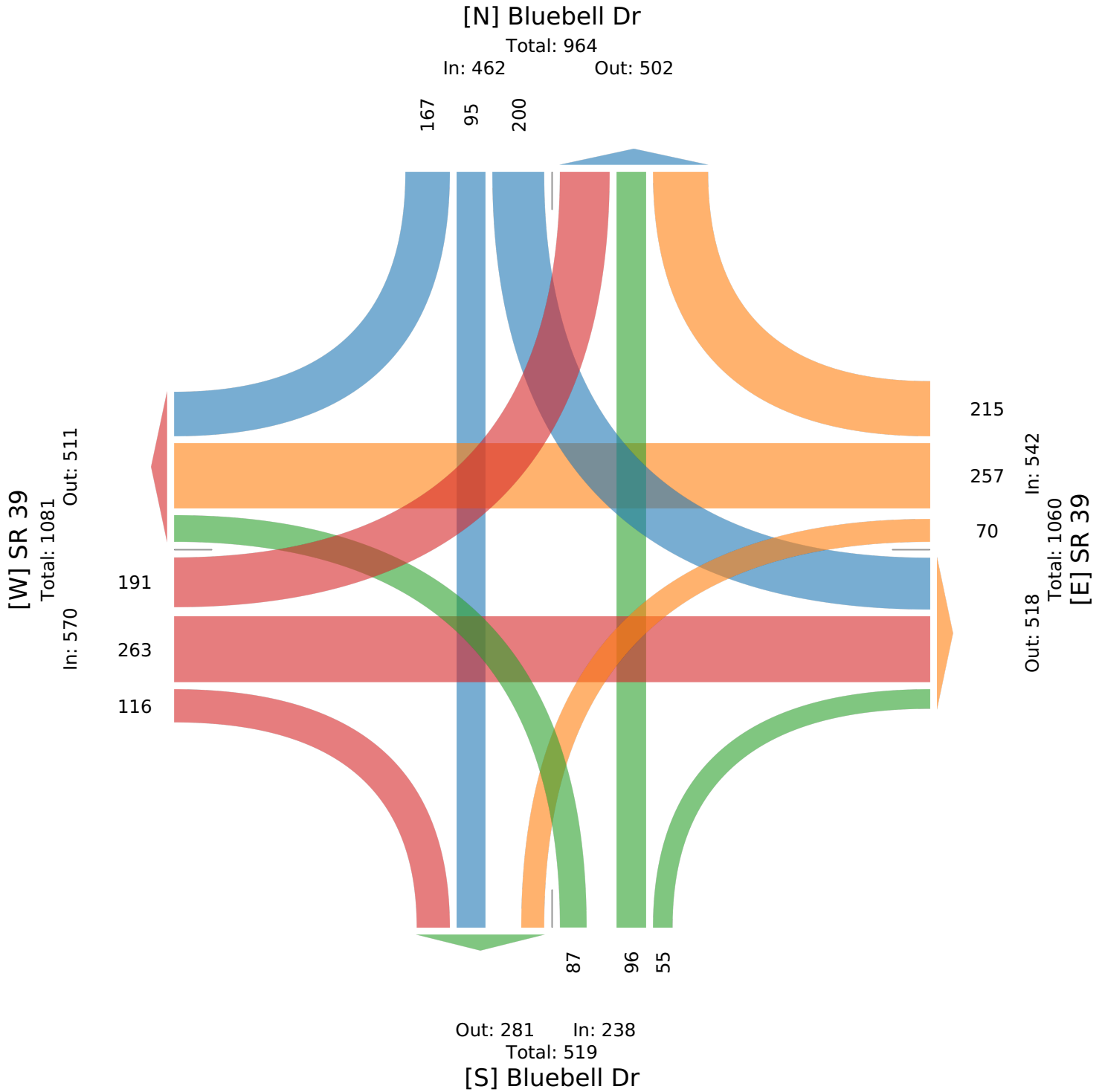
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 1098707, Location: 40.493345, -81.472612



Provided by: Burgess & Niple, Inc
330 Rush Alley, Suite 700, Columbus, OH, 43215, US



Sr 39 & Bluebell Dr - TMC

Wed Aug 16, 2023

Midday Peak (12:15 PM - 1:15 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 1098707, Location: 40.493345, -81.472612



Provided by: Burgess & Niple, Inc
330 Rush Alley, Suite 700, Columbus, OH, 43215, US

Leg Direction	Bluebell Dr Southbound					SR 39 Westbound					Bluebell Dr Northbound					SR 39 Eastbound					
Time	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	Int
2023-08-16 12:15PM	63	41	69	0	173	72	78	29	0	179	24	31	45	0	100	37	74	58	0	169	621
12:30PM	65	28	57	0	150	62	77	27	0	166	21	20	46	0	87	37	73	56	0	166	569
12:45PM	54	40	67	0	161	73	90	20	0	183	19	28	40	0	87	34	69	61	0	164	595
1:00PM	75	41	73	0	189	50	101	24	0	175	14	30	29	0	73	38	84	45	0	167	604
Total	257	150	266	0	673	257	346	100	0	703	78	109	160	0	347	146	300	220	0	666	2389
% Approach	38.2%	22.3%	39.5%	0%	-	36.6%	49.2%	14.2%	0%	-	22.5%	31.4%	46.1%	0%	-	21.9%	45.0%	33.0%	0%	-	-
% Total	10.8%	6.3%	11.1%	0%	28.2%	10.8%	14.5%	4.2%	0%	29.4%	3.3%	4.6%	6.7%	0%	14.5%	6.1%	12.6%	9.2%	0%	27.9%	-
PHF	0.857	0.915	0.911	-	0.890	0.880	0.856	0.862	-	0.960	0.813	0.879	0.870	-	0.868	0.961	0.893	0.902	-	0.985	0.962
Lights	252	150	263	0	665	257	321	100	0	678	78	109	156	0	343	141	288	216	0	645	2331
% Lights	98.1%	100%	98.9%	0%	98.8%	100%	92.8%	100%	0%	96.4%	100%	100%	97.5%	0%	98.8%	96.6%	96.0%	98.2%	0%	96.8%	97.6%
Articulated Trucks	4	0	0	0	4	0	12	0	0	12	0	0	2	0	2	1	5	2	0	8	26
% Articulated Trucks	1.6%	0%	0%	0%	0.6%	0%	3.5%	0%	0%	1.7%	0%	0%	1.3%	0%	0.6%	0.7%	1.7%	0.9%	0%	1.2%	1.1%
Buses and Single-Unit Trucks	1	0	3	0	4	0	13	0	0	13	0	0	2	0	2	4	7	2	0	13	32
% Buses and Single-Unit Trucks	0.4%	0%	1.1%	0%	0.6%	0%	3.8%	0%	0%	1.8%	0%	0%	1.3%	0%	0.6%	2.7%	2.3%	0.9%	0%	2.0%	1.3%

* L: Left, R: Right, T: Thru, U: U-Turn

Sr 39 & Bluebell Dr - TMC

Wed Aug 16, 2023

Midday Peak (12:15 PM - 1:15 PM)

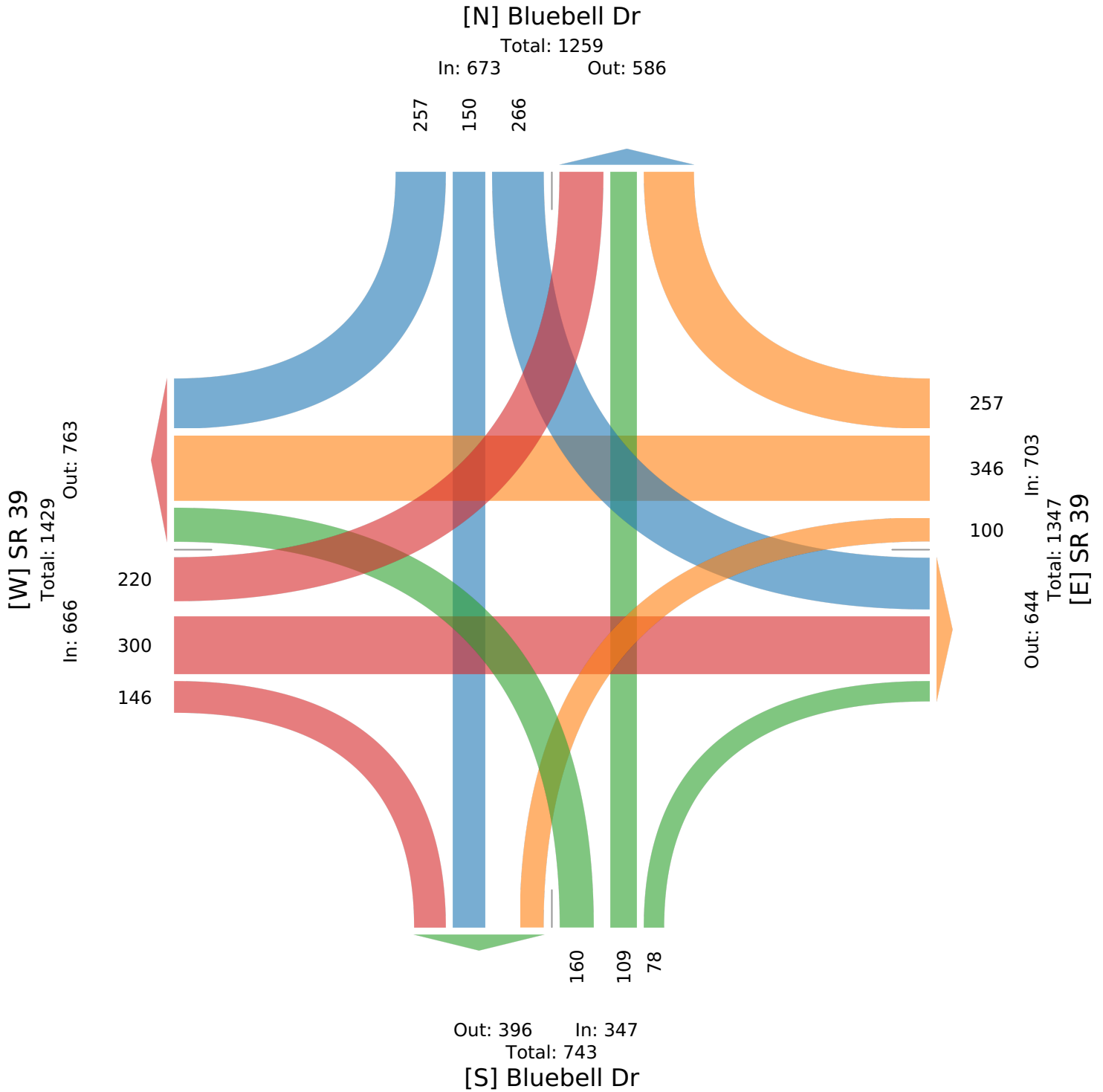
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 1098707, Location: 40.493345, -81.472612



Provided by: Burgess & Niple, Inc
330 Rush Alley, Suite 700, Columbus, OH, 43215, US



Sr 39 & Bluebell Dr - TMC

Wed Aug 16, 2023

PM Peak (3:45 PM - 4:45 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 1098707, Location: 40.493345, -81.472612



Provided by: Burgess & Niple, Inc
330 Rush Alley, Suite 700, Columbus, OH, 43215, US

Leg Direction	Bluebell Dr Southbound					SR 39 Westbound					Bluebell Dr Northbound					SR 39 Eastbound					Int
	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	
2023-08-16 3:45PM	65	27	66	0	158	63	105	17	0	185	13	27	33	0	73	40	104	48	0	192	608
4:00PM	67	38	71	0	176	66	139	20	0	225	11	30	41	0	82	40	116	55	0	211	694
4:15PM	62	32	58	0	152	49	114	13	0	176	13	17	43	0	73	30	111	54	0	195	596
4:30PM	74	32	59	0	165	45	106	16	0	167	15	27	45	0	87	42	118	66	0	226	645
Total	268	129	254	0	651	223	464	66	0	753	52	101	162	0	315	152	449	223	0	824	2543
% Approach	41.2%	19.8%	39.0%	0%	-	29.6%	61.6%	8.8%	0%	-	16.5%	32.1%	51.4%	0%	-	18.4%	54.5%	27.1%	0%	-	-
% Total	10.5%	5.1%	10.0%	0%	25.6%	8.8%	18.2%	2.6%	0%	29.6%	2.0%	4.0%	6.4%	0%	12.4%	6.0%	17.7%	8.8%	0%	32.4%	-
PHF	0.905	0.849	0.894	-	0.925	0.845	0.835	0.825	-	0.837	0.867	0.842	0.900	-	0.905	0.905	0.951	0.845	-	0.912	0.916
Lights	267	129	254	0	650	223	447	66	0	736	52	101	160	0	313	150	434	221	0	805	2504
% Lights	99.6%	100%	100%	0%	99.8%	100%	96.3%	100%	0%	97.7%	100%	100%	98.8%	0%	99.4%	98.7%	96.7%	99.1%	0%	97.7%	98.5%
Articulated Trucks	1	0	0	0	1	0	4	0	0	4	0	0	0	0	0	1	7	1	0	9	14
% Articulated Trucks	0.4%	0%	0%	0%	0.2%	0%	0.9%	0%	0%	0.5%	0%	0%	0%	0%	0%	0.7%	1.6%	0.4%	0%	1.1%	0.6%
Buses and Single-Unit Trucks	0	0	0	0	0	0	13	0	0	13	0	0	2	0	2	1	8	1	0	10	25
% Buses and Single-Unit Trucks	0%	0%	0%	0%	0%	0%	2.8%	0%	0%	1.7%	0%	0%	1.2%	0%	0.6%	0.7%	1.8%	0.4%	0%	1.2%	1.0%

* L: Left, R: Right, T: Thru, U: U-Turn

Sr 39 & Bluebell Dr - TMC

Wed Aug 16, 2023

PM Peak (3:45 PM - 4:45 PM) - Overall Peak Hour

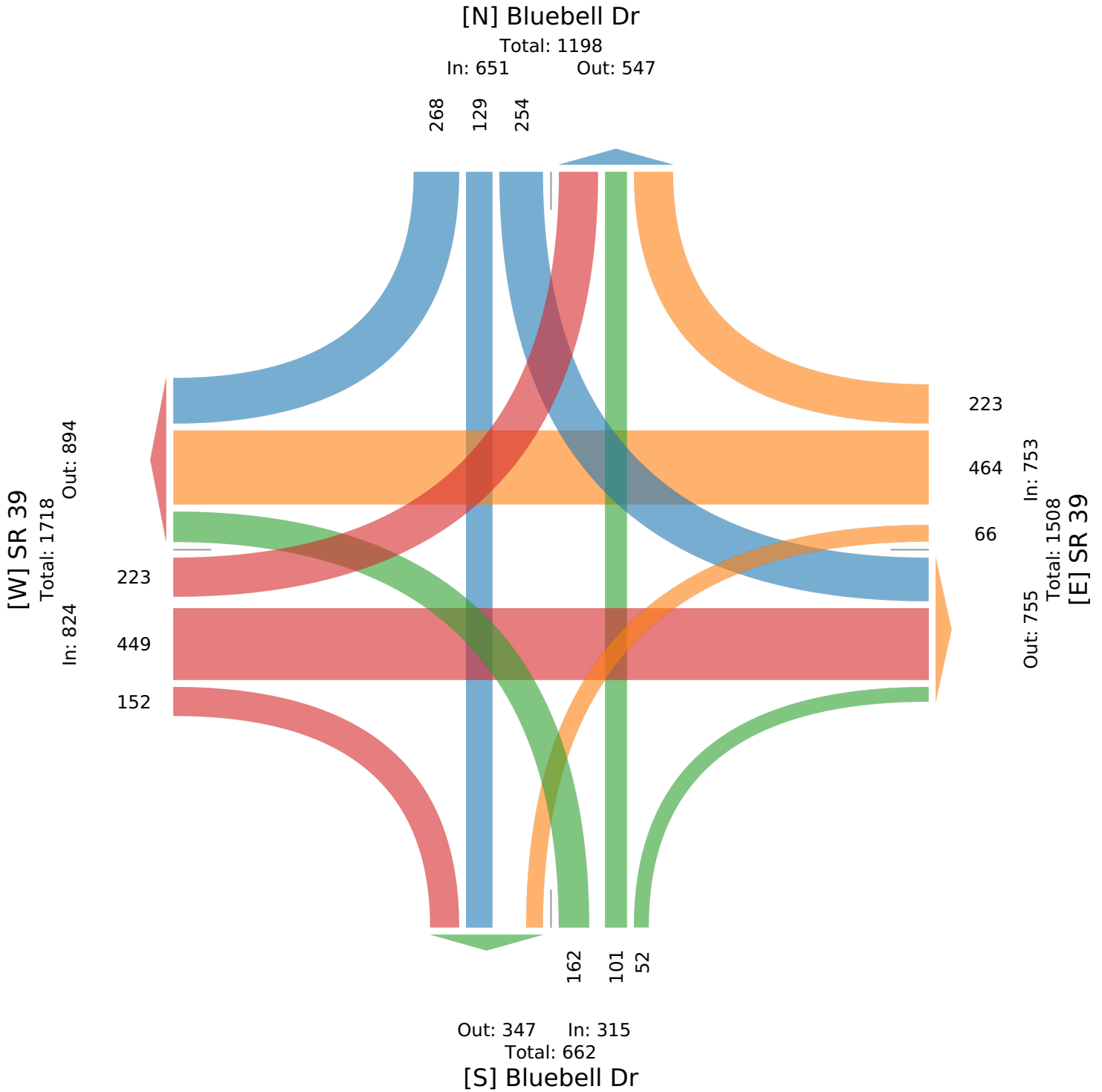
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 1098707, Location: 40.493345, -81.472612



Provided by: Burgess & Niple, Inc
330 Rush Alley, Suite 700, Columbus, OH, 43215, US



US 250 EB - ATR

Wed Aug 16, 2023

Full Length (12 AM-12 AM (+1))

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Channels

ID: 1098967, Location: 40.488467, -81.472088



Provided by: Burgess & Niple, Inc
330 Rush Alley, Suite 700, Columbus, OH, 43215, US

Leg Direction	West Eastbound		
Time	T	App	Int
2023-08-16 12:00AM	24	24	24
12:15AM	31	31	31
12:30AM	23	23	23
12:45AM	28	28	28
Hourly Total	106	106	106
1:00AM	15	15	15
1:15AM	27	27	27
1:30AM	15	15	15
1:45AM	15	15	15
Hourly Total	72	72	72
2:00AM	31	31	31
2:15AM	23	23	23
2:30AM	12	12	12
2:45AM	12	12	12
Hourly Total	78	78	78
3:00AM	14	14	14
3:15AM	15	15	15
3:30AM	21	21	21
3:45AM	23	23	23
Hourly Total	73	73	73
4:00AM	24	24	24
4:15AM	38	38	38
4:30AM	56	56	56
4:45AM	53	53	53
Hourly Total	171	171	171
5:00AM	49	49	49
5:15AM	42	42	42
5:30AM	73	73	73
5:45AM	82	82	82
Hourly Total	246	246	246
6:00AM	78	78	78
6:15AM	114	114	114
6:30AM	161	161	161
6:45AM	184	184	184
Hourly Total	537	537	537
7:00AM	158	158	158
7:15AM	187	187	187
7:30AM	187	187	187
7:45AM	230	230	230
Hourly Total	762	762	762
8:00AM	135	135	135
8:15AM	162	162	162
8:30AM	158	158	158
8:45AM	151	151	151
Hourly Total	606	606	606
9:00AM	140	140	140
9:15AM	151	151	151
9:30AM	182	182	182
9:45AM	148	148	148
Hourly Total	621	621	621
10:00AM	169	169	169
10:15AM	153	153	153
10:30AM	149	149	149
10:45AM	135	135	135

Leg Direction	West Eastbound		
Time		T	App Int
	Hourly Total	606	606
	11:00AM	159	159
	11:15AM	166	166
	11:30AM	210	210
	11:45AM	173	173
	Hourly Total	708	708
	12:00PM	210	210
	12:15PM	206	206
	12:30PM	200	200
	12:45PM	218	218
	Hourly Total	834	834
	1:00PM	231	231
	1:15PM	224	224
	1:30PM	247	247
	1:45PM	223	223
	Hourly Total	925	925
	2:00PM	231	231
	2:15PM	236	236
	2:30PM	273	273
	2:45PM	268	268
	Hourly Total	1008	1008
	3:00PM	258	258
	3:15PM	301	301
	3:30PM	321	321
	3:45PM	305	305
	Hourly Total	1185	1185
	4:00PM	370	370
	4:15PM	345	345
	4:30PM	342	342
	4:45PM	330	330
	Hourly Total	1387	1387
	5:00PM	333	333
	5:15PM	336	336
	5:30PM	290	290
	5:45PM	238	238
	Hourly Total	1197	1197
	6:00PM	213	213
	6:15PM	167	167
	6:30PM	187	187
	6:45PM	167	167
	Hourly Total	734	734
	7:00PM	155	155
	7:15PM	153	153
	7:30PM	138	138
	7:45PM	123	123
	Hourly Total	569	569
	8:00PM	129	129
	8:15PM	128	128
	8:30PM	114	114
	8:45PM	90	90
	Hourly Total	461	461
	9:00PM	91	91
	9:15PM	81	81
	9:30PM	96	96
	9:45PM	53	53
	Hourly Total	321	321
	10:00PM	78	78
	10:15PM	62	62
	10:30PM	61	61
	10:45PM	38	38

Leg Direction	West Eastbound		
Time	T	App	Int
Hourly Total	239	239	239
11:00PM	49	49	49
11:15PM	52	52	52
11:30PM	37	37	37
11:45PM	21	21	21
Hourly Total	159	159	159
Total	13605	13605	13605
% Approach	100%	-	-
% Total	100%	100%	-
Lights	12552	12552	12552
% Lights	92.3%	92.3%	92.3%
Articulated Trucks	488	488	488
% Articulated Trucks	3.6%	3.6%	3.6%
Buses and Single-Unit Trucks	565	565	565
% Buses and Single-Unit Trucks	4.2%	4.2%	4.2%

*T: Thru

US 250 EB - ATR

Wed Aug 16, 2023

Full Length (12 AM-12 AM (+1))

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Channels

ID: 1098967, Location: 40.488467, -81.472088



Provided by: Burgess & Niple, Inc
330 Rush Alley, Suite 700, Columbus, OH, 43215, US

W
Total: 13605
In: 13605
Out: 0
13605



Out: 13605
In: 0
Total: 13605
E

US 250 EB - ATR

Wed Aug 16, 2023

AM Peak (7 AM - 8 AM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Channels

ID: 1098967, Location: 40.488467, -81.472088



Provided by: Burgess & Niple, Inc
330 Rush Alley, Suite 700, Columbus, OH, 43215, US

Leg Direction	West Eastbound		
Time	T	App	Int
2023-08-16 7:00AM	158	158	158
7:15AM	187	187	187
7:30AM	187	187	187
7:45AM	230	230	230
Total	762	762	762
% Approach	100%	-	-
% Total	100%	100%	-
PHF	0.828	0.828	0.828
Lights	672	672	672
% Lights	88.2%	88.2%	88.2%
Articulated Trucks	41	41	41
% Articulated Trucks	5.4%	5.4%	5.4%
Buses and Single-Unit Trucks	49	49	49
% Buses and Single-Unit Trucks	6.4%	6.4%	6.4%

*T: Thru

US 250 EB - ATR

Wed Aug 16, 2023

AM Peak (7 AM - 8 AM)

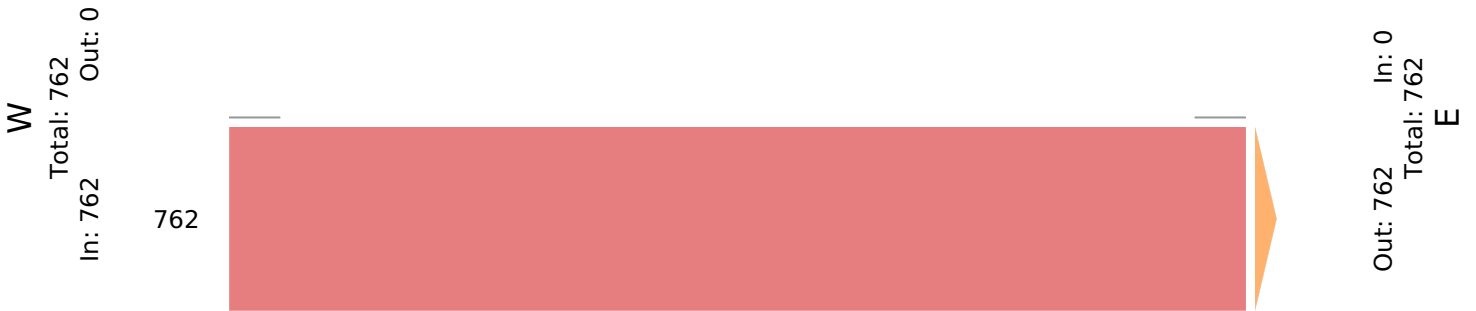
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Channels

ID: 1098967, Location: 40.488467, -81.472088



Provided by: Burgess & Niple, Inc
330 Rush Alley, Suite 700, Columbus, OH, 43215, US



US 250 EB - ATR

Wed Aug 16, 2023

Midday Peak (1 PM - 2 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Channels

ID: 1098967, Location: 40.488467, -81.472088



Provided by: Burgess & Niple, Inc
330 Rush Alley, Suite 700, Columbus, OH, 43215, US

Leg Direction	West Eastbound		
Time	T	App	Int
2023-08-16 1:00PM	231	231	231
1:15PM	224	224	224
1:30PM	247	247	247
1:45PM	223	223	223
Total	925	925	925
% Approach	100%	-	-
% Total	100%	100%	-
PHF	0.936	0.936	0.936
Lights	862	862	862
% Lights	93.2%	93.2%	93.2%
Articulated Trucks	35	35	35
% Articulated Trucks	3.8%	3.8%	3.8%
Buses and Single-Unit Trucks	28	28	28
% Buses and Single-Unit Trucks	3.0%	3.0%	3.0%

*T: Thru

US 250 EB - ATR

Wed Aug 16, 2023

Midday Peak (1 PM - 2 PM)

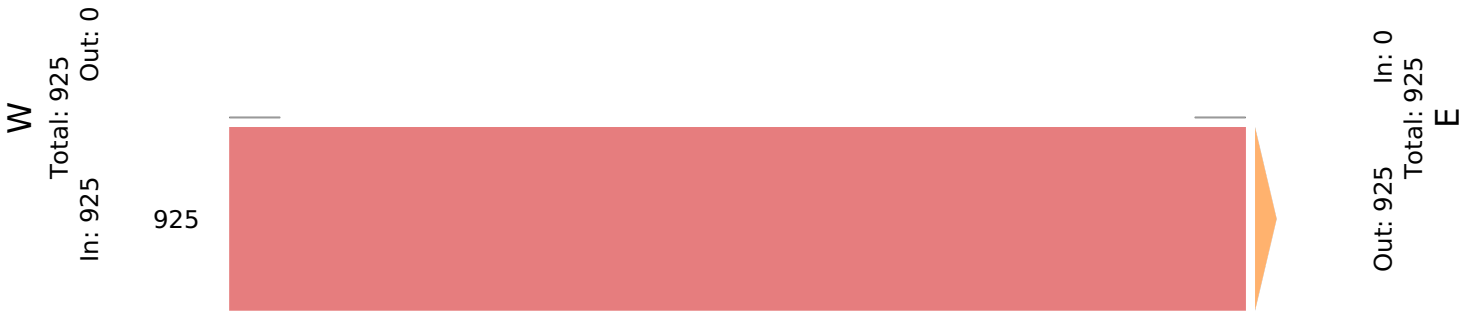
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Channels

ID: 1098967, Location: 40.488467, -81.472088



Provided by: Burgess & Niple, Inc
330 Rush Alley, Suite 700, Columbus, OH, 43215, US



US 250 EB - ATR

Wed Aug 16, 2023

PM Peak (4 PM - 5 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Channels

ID: 1098967, Location: 40.488467, -81.472088



Provided by: Burgess & Niple, Inc
330 Rush Alley, Suite 700, Columbus, OH, 43215, US

Leg Direction	West Eastbound		
Time	T	App	Int
2023-08-16 4:00PM	370	370	370
4:15PM	345	345	345
4:30PM	342	342	342
4:45PM	330	330	330
Total	1387	1387	1387
% Approach	100%	-	-
% Total	100%	100%	-
PHF	0.937	0.937	0.937
Lights	1329	1329	1329
% Lights	95.8%	95.8%	95.8%
Articulated Trucks	24	24	24
% Articulated Trucks	1.7%	1.7%	1.7%
Buses and Single-Unit Trucks	34	34	34
% Buses and Single-Unit Trucks	2.5%	2.5%	2.5%

*T: Thru

US 250 EB - ATR

Wed Aug 16, 2023

PM Peak (4 PM - 5 PM) - Overall Peak Hour

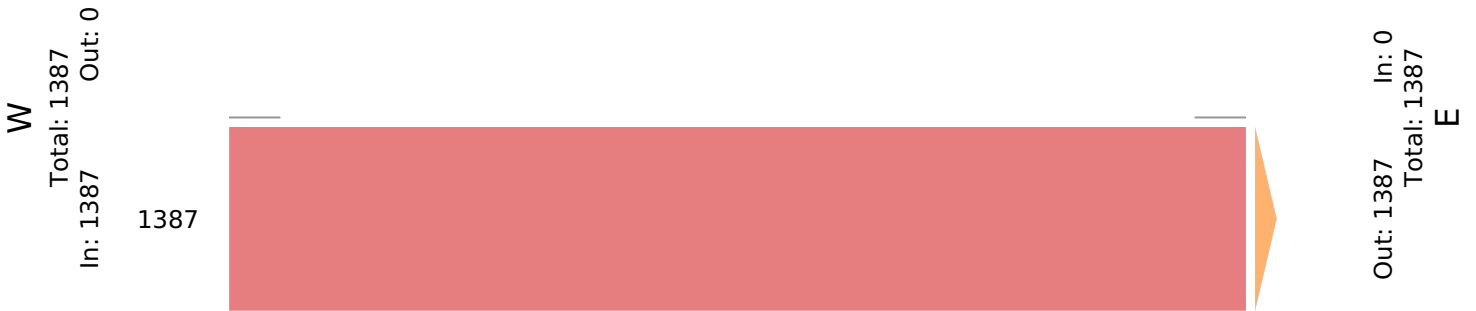
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Channels

ID: 1098967, Location: 40.488467, -81.472088



Provided by: Burgess & Niple, Inc
330 Rush Alley, Suite 700, Columbus, OH, 43215, US



US 250 WB - ATR

Wed Aug 16, 2023

Full Length (12 AM-12 AM (+1))

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Channels

ID: 1098749, Location: 40.488997, -81.472751



Provided by: Burgess & Niple, Inc
330 Rush Alley, Suite 700, Columbus, OH, 43215, US

Leg Direction	Time	East Westbound	T	App	Int
	2023-08-16 12:00AM		23	23	23
	12:15AM		18	18	18
	12:30AM		16	16	16
	12:45AM		16	16	16
	Hourly Total		73	73	73
	1:00AM		21	21	21
	1:15AM		18	18	18
	1:30AM		15	15	15
	1:45AM		17	17	17
	Hourly Total		71	71	71
	2:00AM		18	18	18
	2:15AM		27	27	27
	2:30AM		15	15	15
	2:45AM		22	22	22
	Hourly Total		82	82	82
	3:00AM		19	19	19
	3:15AM		28	28	28
	3:30AM		33	33	33
	3:45AM		54	54	54
	Hourly Total		134	134	134
	4:00AM		72	72	72
	4:15AM		104	104	104
	4:30AM		129	129	129
	4:45AM		131	131	131
	Hourly Total		436	436	436
	5:00AM		152	152	152
	5:15AM		200	200	200
	5:30AM		217	217	217
	5:45AM		154	154	154
	Hourly Total		723	723	723
	6:00AM		170	170	170
	6:15AM		220	220	220
	6:30AM		268	268	268
	6:45AM		232	232	232
	Hourly Total		890	890	890
	7:00AM		235	235	235
	7:15AM		225	225	225
	7:30AM		277	277	277
	7:45AM		289	289	289
	Hourly Total		1026	1026	1026
	8:00AM		205	205	205
	8:15AM		208	208	208
	8:30AM		189	189	189
	8:45AM		191	191	191
	Hourly Total		793	793	793
	9:00AM		185	185	185
	9:15AM		168	168	168
	9:30AM		175	175	175
	9:45AM		181	181	181
	Hourly Total		709	709	709
	10:00AM		182	182	182
	10:15AM		172	172	172
	10:30AM		176	176	176
	10:45AM		166	166	166

Leg Direction	East Westbound		
Time		T	App Int
Hourly Total		696	696 696
11:00AM		182	182 182
11:15AM		185	185 185
11:30AM		209	209 209
11:45AM		196	196 196
Hourly Total		772	772 772
12:00PM		204	204 204
12:15PM		238	238 238
12:30PM		197	197 197
12:45PM		220	220 220
Hourly Total		859	859 859
1:00PM		223	223 223
1:15PM		201	201 201
1:30PM		221	221 221
1:45PM		234	234 234
Hourly Total		879	879 879
2:00PM		220	220 220
2:15PM		212	212 212
2:30PM		256	256 256
2:45PM		244	244 244
Hourly Total		932	932 932
3:00PM		234	234 234
3:15PM		233	233 233
3:30PM		310	310 310
3:45PM		248	248 248
Hourly Total		1025	1025 1025
4:00PM		245	245 245
4:15PM		254	254 254
4:30PM		266	266 266
4:45PM		218	218 218
Hourly Total		983	983 983
5:00PM		307	307 307
5:15PM		245	245 245
5:30PM		250	250 250
5:45PM		234	234 234
Hourly Total		1036	1036 1036
6:00PM		165	165 165
6:15PM		151	151 151
6:30PM		151	151 151
6:45PM		153	153 153
Hourly Total		620	620 620
7:00PM		153	153 153
7:15PM		112	112 112
7:30PM		119	119 119
7:45PM		125	125 125
Hourly Total		509	509 509
8:00PM		104	104 104
8:15PM		109	109 109
8:30PM		95	95 95
8:45PM		88	88 88
Hourly Total		396	396 396
9:00PM		78	78 78
9:15PM		61	61 61
9:30PM		58	58 58
9:45PM		51	51 51
Hourly Total		248	248 248
10:00PM		52	52 52
10:15PM		45	45 45
10:30PM		57	57 57
10:45PM		49	49 49

Leg Direction	East Westbound		
Time	T	App	Int
Hourly Total	203	203	203
11:00PM	33	33	33
11:15PM	25	25	25
11:30PM	24	24	24
11:45PM	16	16	16
Hourly Total	98	98	98
Total	14193	14193	14193
% Approach	100%	-	-
% Total	100%	100%	-
Lights	13010	13010	13010
% Lights	91.7%	91.7%	91.7%
Articulated Trucks	586	586	586
% Articulated Trucks	4.1%	4.1%	4.1%
Buses and Single-Unit Trucks	597	597	597
% Buses and Single-Unit Trucks	4.2%	4.2%	4.2%

*T: Thru

US 250 WB - ATR

Wed Aug 16, 2023

Full Length (12 AM-12 AM (+1))

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Channels

ID: 1098749, Location: 40.488997, -81.472751



Provided by: Burgess & Niple, Inc
330 Rush Alley, Suite 700, Columbus, OH, 43215, US



US 250 WB - ATR

Wed Aug 16, 2023

AM Peak (7 AM - 8 AM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Channels

ID: 1098749, Location: 40.488997, -81.472751



Provided by: Burgess & Niple, Inc
330 Rush Alley, Suite 700, Columbus, OH, 43215, US

Leg Direction	East Westbound		
Time	T	App	Int
2023-08-16 7:00AM	235	235	235
7:15AM	225	225	225
7:30AM	277	277	277
7:45AM	289	289	289
Total	1026	1026	1026
% Approach	100%	-	-
% Total	100%	100%	-
PHF	0.888	0.888	0.888
Lights	963	963	963
% Lights	93.9%	93.9%	93.9%
Articulated Trucks	31	31	31
% Articulated Trucks	3.0%	3.0%	3.0%
Buses and Single-Unit Trucks	32	32	32
% Buses and Single-Unit Trucks	3.1%	3.1%	3.1%

*T: Thru

US 250 WB - ATR

Wed Aug 16, 2023

AM Peak (7 AM - 8 AM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Channels

ID: 1098749, Location: 40.488997, -81.472751



Provided by: Burgess & Niple, Inc
330 Rush Alley, Suite 700, Columbus, OH, 43215, US



US 250 WB - ATR

Wed Aug 16, 2023

Midday Peak (1 PM - 2 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Channels

ID: 1098749, Location: 40.488997, -81.472751



Provided by: Burgess & Niple, Inc
330 Rush Alley, Suite 700, Columbus, OH, 43215, US

Leg Direction	East Westbound		
Time	T	App	Int
2023-08-16 1:00PM	223	223	223
1:15PM	201	201	201
1:30PM	221	221	221
1:45PM	234	234	234
Total	879	879	879
% Approach	100%	-	-
% Total	100%	100%	-
PHF	0.939	0.939	0.939
Lights	774	774	774
% Lights	88.1%	88.1%	88.1%
Articulated Trucks	52	52	52
% Articulated Trucks	5.9%	5.9%	5.9%
Buses and Single-Unit Trucks	53	53	53
% Buses and Single-Unit Trucks	6.0%	6.0%	6.0%

*T: Thru

US 250 WB - ATR

Wed Aug 16, 2023

Midday Peak (1 PM - 2 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Channels

ID: 1098749, Location: 40.488997, -81.472751



Provided by: Burgess & Niple, Inc
330 Rush Alley, Suite 700, Columbus, OH, 43215, US



US 250 WB - ATR

Wed Aug 16, 2023

PM Peak (3:30 PM - 4:30 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Channels

ID: 1098749, Location: 40.488997, -81.472751



Provided by: Burgess & Niple, Inc
330 Rush Alley, Suite 700, Columbus, OH, 43215, US

Leg Direction	East Westbound		
Time	T	App	Int
2023-08-16 3:30PM	310	310	310
3:45PM	248	248	248
4:00PM	245	245	245
4:15PM	254	254	254
Total	1057	1057	1057
% Approach	100%	-	-
% Total	100%	100%	-
PHF	0.852	0.852	0.852
Lights	990	990	990
% Lights	93.7%	93.7%	93.7%
Articulated Trucks	33	33	33
% Articulated Trucks	3.1%	3.1%	3.1%
Buses and Single-Unit Trucks	34	34	34
% Buses and Single-Unit Trucks	3.2%	3.2%	3.2%

*T: Thru

US 250 WB - ATR

Wed Aug 16, 2023

PM Peak (3:30 PM - 4:30 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Channels

ID: 1098749, Location: 40.488997, -81.472751



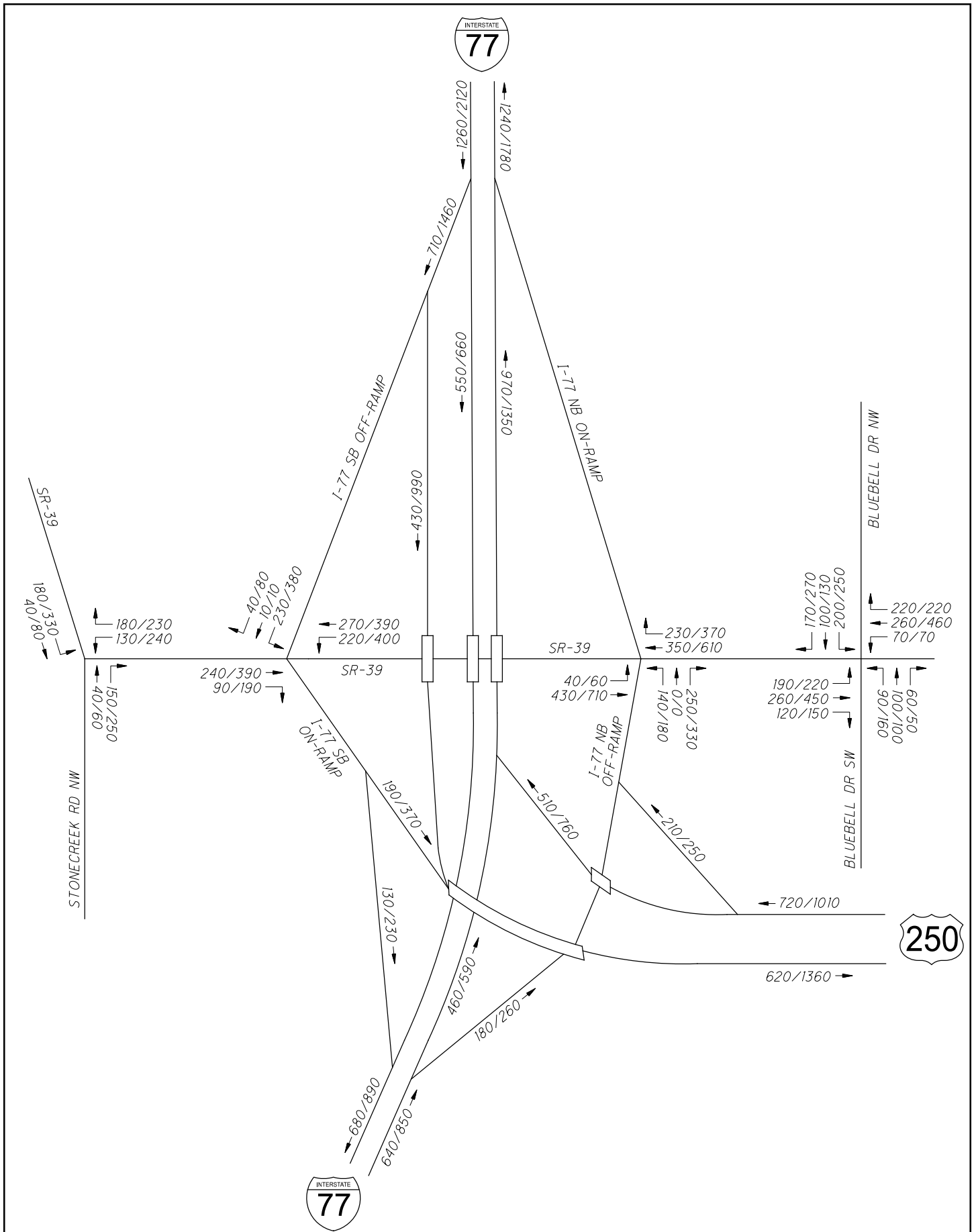
Provided by: Burgess & Niple, Inc
330 Rush Alley, Suite 700, Columbus, OH, 43215, US



Tuscarawas I-77 / US 250 / SR 39 Feasibility Study

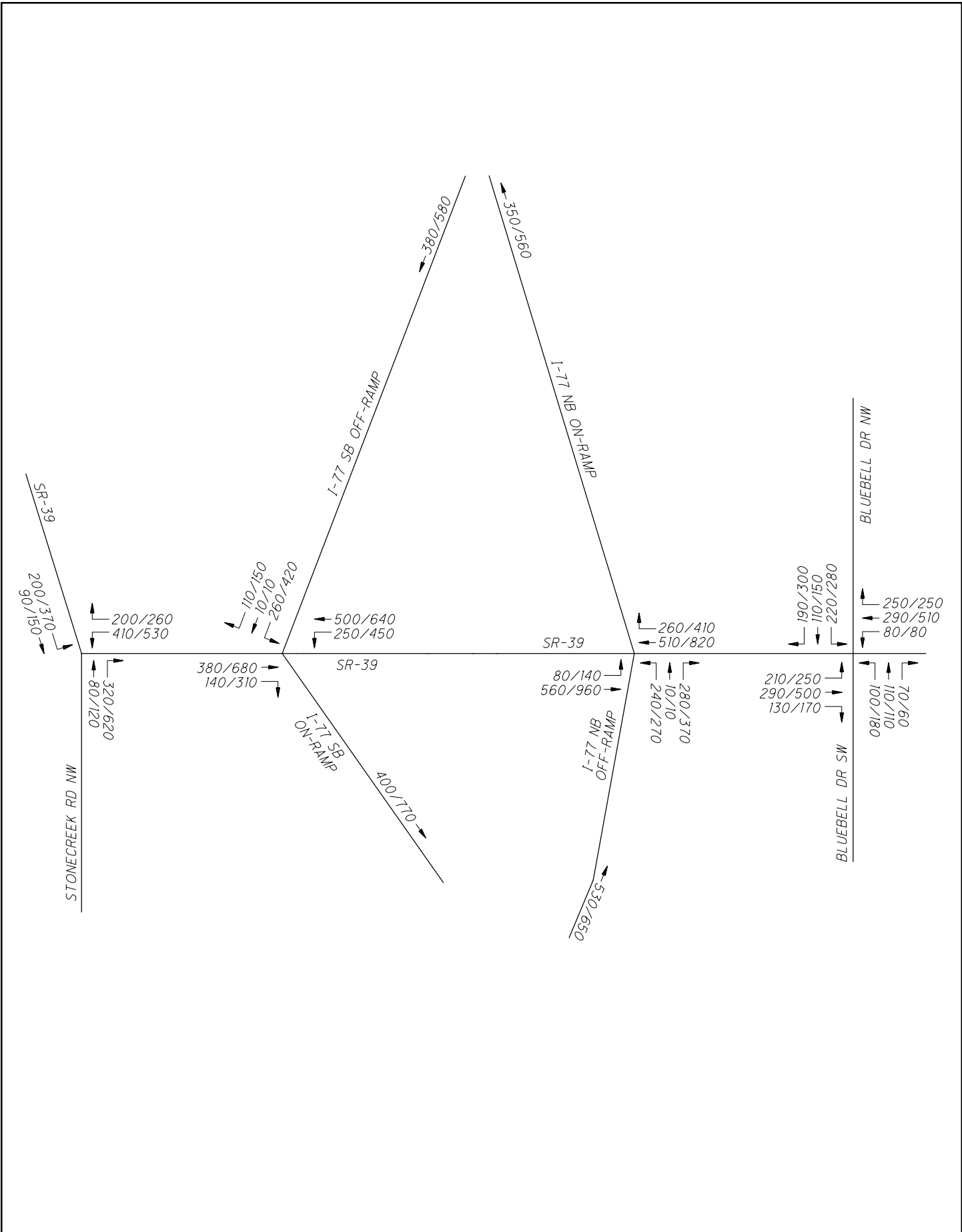
Appendix E: Traffic Forecasts





**TUS-77/US-250/SR-39 INTERCHANGE FEASIBILITY STUDY
EXISTING AM/PM PEAK HOUR VOLUMES**





TUS-77 / US-250 / SR-39 INTERCHANGE FEASIBILITY STUDY
2050 AM / PM DESIGN HOUR VOLUMES



TFMS - Segment Forecast Report

Username	Email	Script Import Date	Script Version	Model Version
kyle.bright	Kyle.Bright@burgessniple.com	4/14/2020 5:30:19 PM	2020.001	2023.1900

Forecast Summary

Project ID	Project Name	Opening Year	Design Year
		2025	2045

Project Description

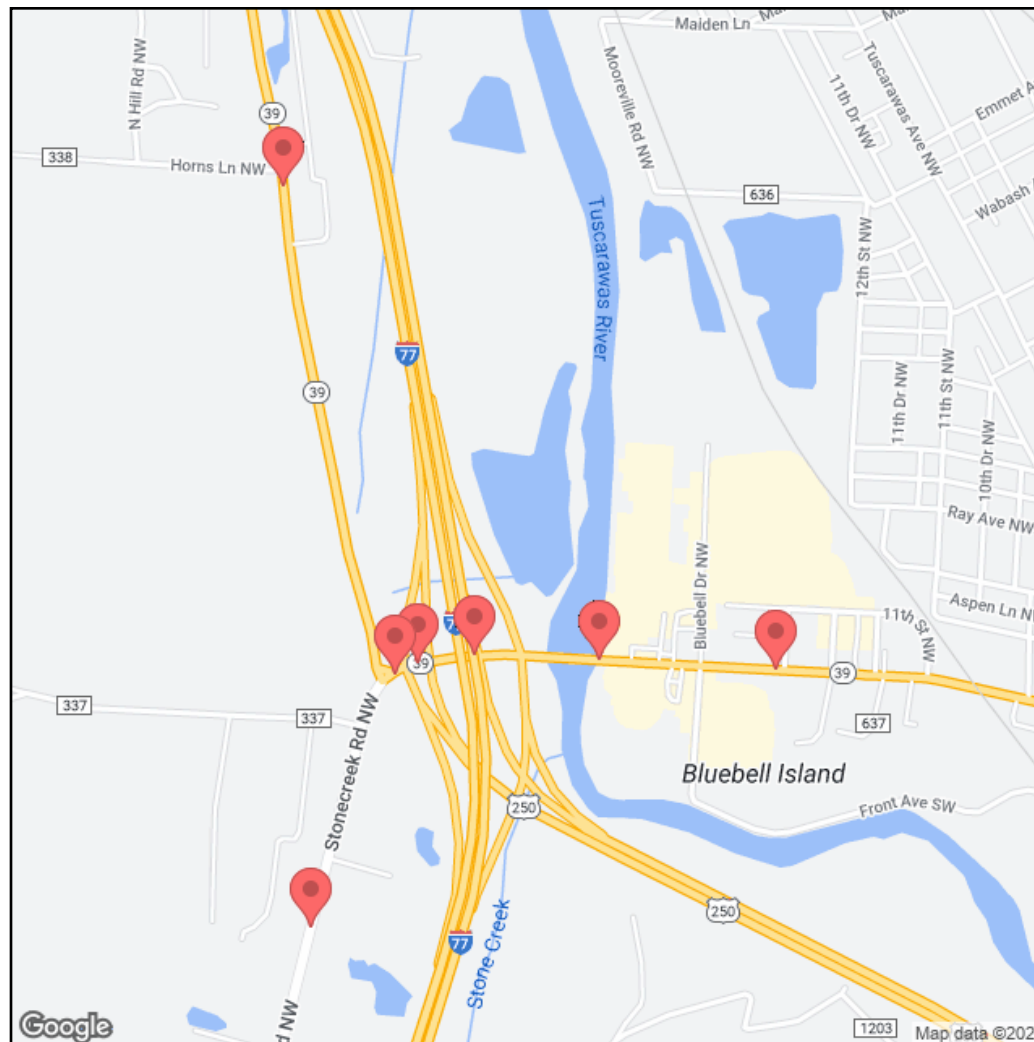
*Users of this data need to be aware that there are limitations to the forecasts generated by this product that make it suitable only for roadway design projects which are low risk.

Segment Information

Segment ID	LRS ID	BMP	EMP	Length	Latitude	Longitude
1808901	CTUSCR00021**C	16.704	17.410	0.706	-81.4829289927252	40.4880991948902
1866577	STUSSR00039**C	11.280	12.692	1.412	-81.4836641983471	40.5030037962432
1866589	STUSSR00039**C	12.692	12.734	0.042	-81.4807117114703	40.4931554330333
1866590	STUSSR00039**C	12.734	12.768	0.034	-81.4801000768084	40.493399839054
1866591	STUSSR00039**C	12.768	12.896	0.128	-81.4785759645174	40.4935630408309
1866593	STUSSR00039**C	12.896	13.116	0.220	-81.4752789322005	40.4934639410387
1866596	STUSSR00039**C	13.116	13.391	0.275	-81.4705981668066	40.4932599152892

Forecast Information

Segment ID	2025 AADT	2045 AADT	DHV-30	K%	D%	T24%	TD%
1808901	4,900	4,900	600	12.0	52.3	0	0
1866577	5,900	5,900	850	14.2	59.3	3	4
1866589	5,900	6,000	850	14.2	59.3	3	4
1866590	5,900	5,900	850	14.2	59.3	3	4
1866591	12,000	12,500	1,600	12.5	52.0	10	16
1866593	21,000	23,000	2,500	10.9	63.3	9	11
1866596	21,000	22,500	2,500	10.9	63.3	9	12



Definitions:

- o AADT – Annual Average Daily Traffic
- o DHV30 – Design Hour Volume for 30th highest hour of the year
- o DHV30 – K * AADT
- o K % – Design Hour Factor
- o D % – Peak Direction Factor
- o T24 % – Percent Daily Trucks
- o TD % – Percent Design Hour Trucks

Forecast Segment ID	Route	BMP	EMP
1808901	CTUSCR00021**C	16.704	17.410

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	12.0	0	4,900	Average	● -0.900	0.000
AADT	D%	TD % (Existing)	BC AADT	BC Method	BC Growth Rate %	BC Calculated Rate %
4,900	52.3	0	! 0	Model	● -999999.000	0.000

● Warning: The growth rate was negative and was capped.

! Warning: FORECAST TRUCKS ZERO BECAUSE NO TRUCK COUNTS ON SEGMENT

Regression

Method Number	PA AADT	BC AADT	AADT
2	1,762		1,762

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
-1712	8487	0	56	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	-2.31	0.00	0	0	1,624		1,729	
2	-2.29	0.00	3	0	1,787		1,762	
3	-2.06	0.00	0	0	2,018		2,082	
4	-2.50	0.00	3	0	1,479		1,479	
5	-0.30	0.00	0	0	4,605		4,497	
6	-999999.00	0.00	0	0				

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %
1	DIF	-2,072	5,735	-64	56	0.56	0.00
2	RAT	0.70	5,491	0.00		0.42	0.00
3	MRAT	1.12	5,517	1.88	26	0.42	0.00
4	RAF		5,626		41	0.49	0.00

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
Average	Model Ratio	0.500	0.000

Method 1 - 4 Volume

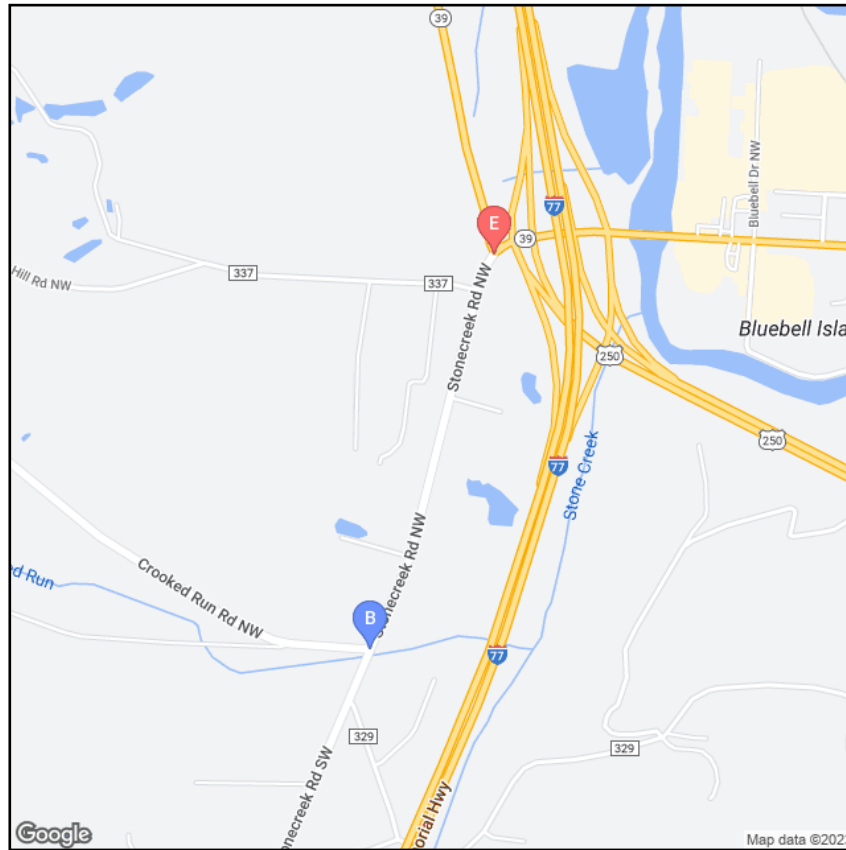
PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total MaxVolume
5491	5679	0	56	5491	5735

Process Flag:	Adjusted model to counts with process per ODOT 255 spreadsheet
Comment:	No Comment

Historical Count

Year	All	Cars	Trucks
2009	6,354	6,354	
2013	6,017	6,017	
2016	5,002	5,002	
2019	5,282	5,282	
* 2022	4,913	4,913	

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1808901	CTUSCR00021**C	16.704	17.410	0.706	4,900	4,900	600	12.0	52.3	0	0

Forecast Segment ID	Route	BMP	EMP
1866577	STUSSR00039**C	11.280	12.692

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	◆ 14.2	3	5,700	Average	● -0.100	0.000
AADT	D%	TD % (Existing)	BC AADT	BC Method	BC Growth Rate %	BC Calculated Rate %
5,900	◆ 59.3	4	200	Average	● -13.700	0.000

● Warning: The growth rate was negative and was capped.

◆ K/D factors from TCDS were used.

Regression

Method Number	PA AADT	BC AADT	AADT
2	5,221	-1,346	3,875

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
2690	9134	-1843	445	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	-0.46	-26.02	0	0	4,774	-1,263	4,939	-1,251
2	-0.29	-27.73	3	2	5,176	-1,347	5,221	-1,346
3	0.24	-19.17	0	0	5,966	-853	6,052	-869
4	-999999.00	-999999.00	0	0				
5	-999999.00	-999999.00	0	0				
6	-999999.00	-999999.00	0	0				

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %
1	DIF	5,563	5,978	187	214	0.06	0.27
2	RAT	18.92	7,850	16.49	445	1.09	4.41
3	MRAT	1.34	7,379	2.24	317	0.87	2.12
4	RAF		6,678		266	0.46	1.20

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
Difference	Difference	0.100	0.300

Method 1 - 4 Volume

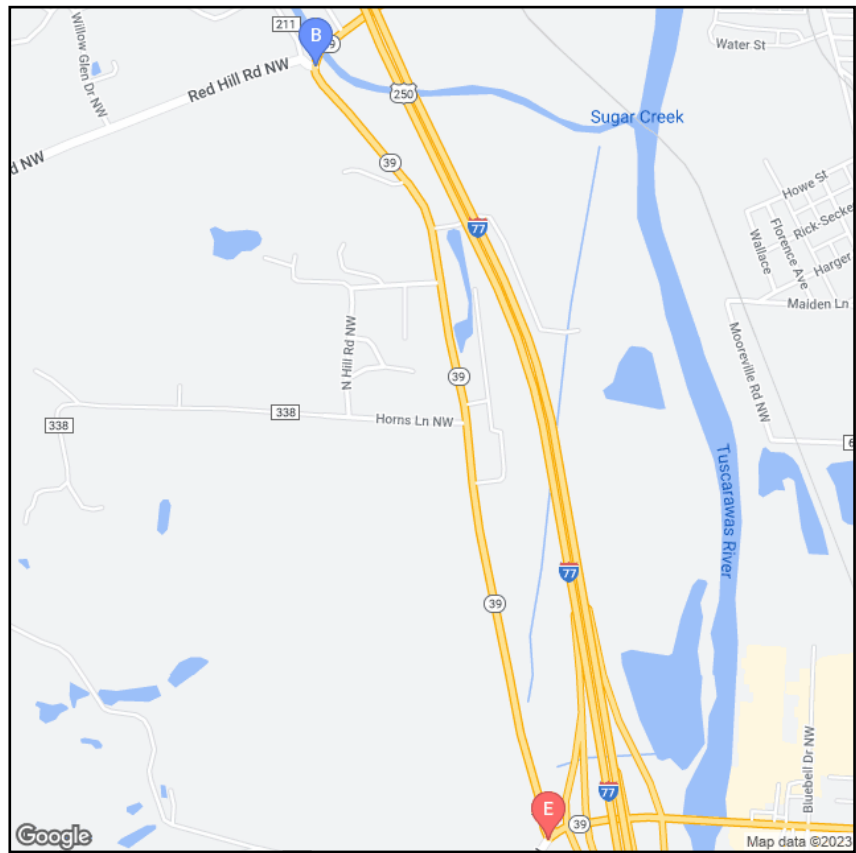
PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total MaxVolume
5764	7405	214	445	5978	7850

Process Flag:	Adjusted model to counts with process per ODOT 255 spreadsheet
Comment:	No Comment

Historical Count

Year	All	Cars	Trucks
2013	6,560	5,864	695
2016	6,022	5,593	428
2019	5,737	5,376	361
* 2022	5,873	5,674	199

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1866577	STUSSR00039**C	11.280	12.692	1.412	5,900	5,900	850	14.2	59.3	3	4

Forecast Segment ID	Route	BMP	EMP
1866589	STUSSR00039**C	12.692	12.734

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	◆ 14.2	3	5,800	Average	0.100	0.100
AADT	D%	TD % (Existing)	BC AADT	BC Method	BC Growth Rate %	BC Calculated Rate %
6,000	◆ 59.3	4	200	Average	● -13.300	0.000

● Warning: The growth rate was negative and was capped.

◆ K/D factors from TCDS were used.

Regression

Method Number	PA AADT	BC AADT	AADT
2	5,221	-1,346	3,875

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
2690	9134	-1843	378	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	-0.46	-26.02	0	0	4,774	-1,263	4,939	-1,251
2	-0.29	-27.73	3	2	5,176	-1,347	5,221	-1,346
3	0.24	-19.17	0	0	5,966	-853	6,052	-869
4	-999999.00	-999999.00	0	0				
5	-999999.00	-999999.00	0	0				
6	-999999.00	-999999.00	0	0				

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %
1	DIF	-1,100	6,706	127	263	0.48	1.15
2	RAT	0.84	6,575	2.78	378	0.33	3.21
3	MRAT	1.12	6,589	1.90	324	0.37	2.24
4	RAF		6,648		294	0.43	1.70

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
Average	Difference	0.500	1.200

Method 1 - 4 Volume

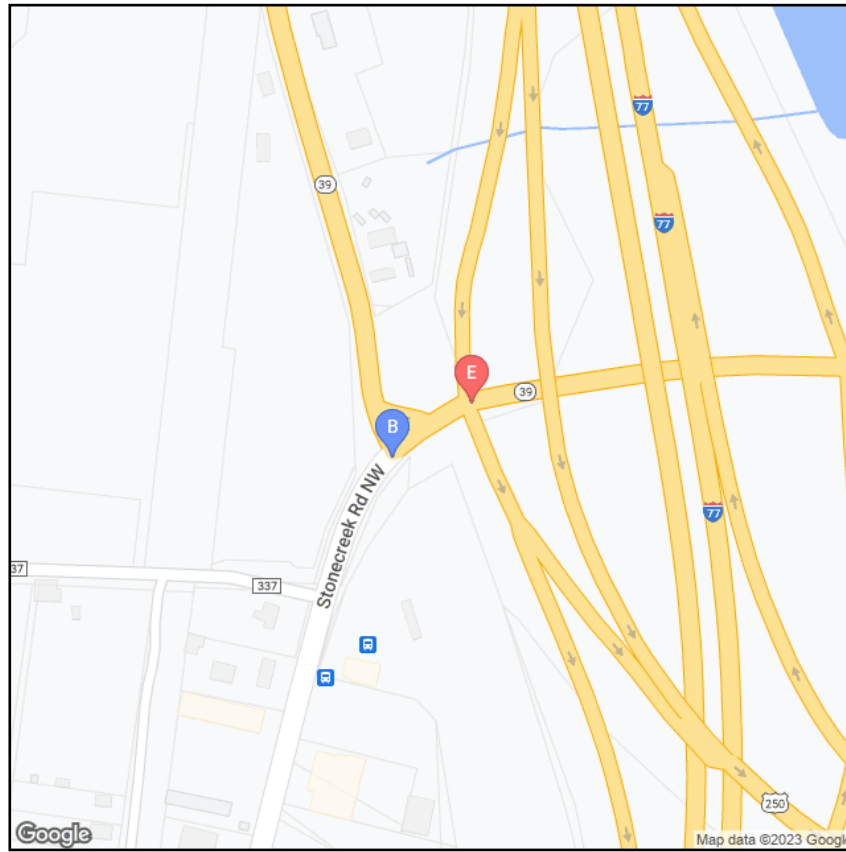
PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total MaxVolume
6197	6443	263	378	6460	6821

Process Flag:	Adjusted model to counts with process per ODOT 255 spreadsheet
Comment:	No Comment

Historical Count

Year	All	Cars	Trucks
2013	6,560	5,864	695
2016	6,022	5,593	428
2019	5,737	5,376	361
* 2022	5,873	5,674	199

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1866589	STUSSR00039**C	12.692	12.734	0.042	5,900	6,000	850	14.2	59.3	3	4

Forecast Segment ID	Route	BMP	EMP
1866590	STUSSR00039**C	12.734	12.768

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	◆ 14.2	3	5,700	Average	● -0.100	0.000
AADT	D%	TD % (Existing)	BC AADT	BC Method	BC Growth Rate %	BC Calculated Rate %
5,900	◆ 59.3	4	200	Average	● -12.500	0.000

● Warning: The growth rate was negative and was capped.

◆ K/D factors from TCDS were used.

Regression

Method Number	PA AADT	BC AADT	AADT
2	5,221	-1,346	3,875

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
2690	9134	-1843	373	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	-0.46	-26.02	0	0	4,774	-1,263	4,939	-1,251
2	-0.29	-27.73	3	2	5,176	-1,347	5,221	-1,346
3	0.24	-19.17	0	0	5,966	-853	6,052	-869
4	-999999.00	-999999.00	0	0				
5	-999999.00	-999999.00	0	0				
6	-999999.00	-999999.00	0	0				

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %
1	DIF	-6,997	6,452	-162	373	0.25	3.12
2	RAT	0.46	6,137	0.55	295	0.11	1.72
3	MRAT	1.04	6,151	1.48	320	0.10	2.17
4	RAF		6,301		346	0.18	2.64

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
Model Ratio	Average	0.100	2.600

Method 1 - 4 Volume

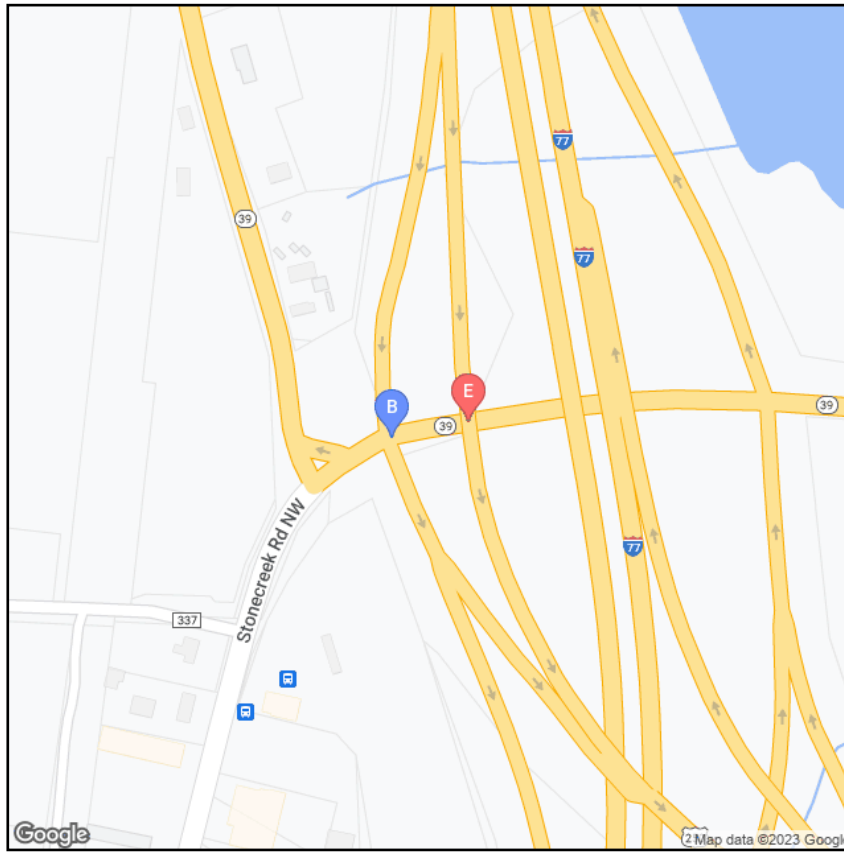
PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total MaxVolume
5805	6079	295	373	6100	6452

Process Flag:	Adjusted model to counts with process per ODOT 255 spreadsheet
Comment:	No Comment

Historical Count

Year	All	Cars	Trucks
2013	6,560	5,864	695
2016	6,022	5,593	428
2019	5,737	5,376	361
* 2022	5,873	5,674	199

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1866590	STUSSR00039**C	12.734	12.768	0.034	5,900	5,900	850	14.2	59.3	3	4

Forecast Segment ID	Route	BMP	EMP
1866591	STUSSR00039**C	12.768	12.896

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	◆ 12.5	9	11,000	Model	0.100	0.100
AADT	D%	TD % (Existing)	BC AADT	BC Method	BC Growth Rate %	BC Calculated Rate %
12,300	◆ 52.0	14	1,300	Model	0.600	0.600

◆ K/D factors from TCDS were used.

Regression

Method Number	PA AADT	BC AADT	AADT
1	7,924	2,037	9,961

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
-16785	35816	-191	6718	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	-0.98	2.86	0	0	9,006	1,957	7,924	2,037
2	-1.27	6.51	4	1	7,301	3,279	7,023	3,194
3	-1.02	6.51	0	0	8,866	3,279	7,801	3,194
4	-1.02	5.18	4	5	8,176	2,678	7,801	2,773
5	-0.65	8.80	0	0	10,108	4,086	8,923	3,922
6	0.61	7.48	4	5	13,535	3,485	12,761	3,502

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %
1	DIF	-833	12,616	771	1,306	0.13	0.55
2	RAT	0.94	12,578	3.13	1,676	0.00	1.72
3	MRAT	1.04	12,580	1.48	1,556	0.04	1.34
4	RAF		12,598		1,431	0.09	0.94

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
Average	Difference	0.100	0.600

Method 1 - 4 Volume

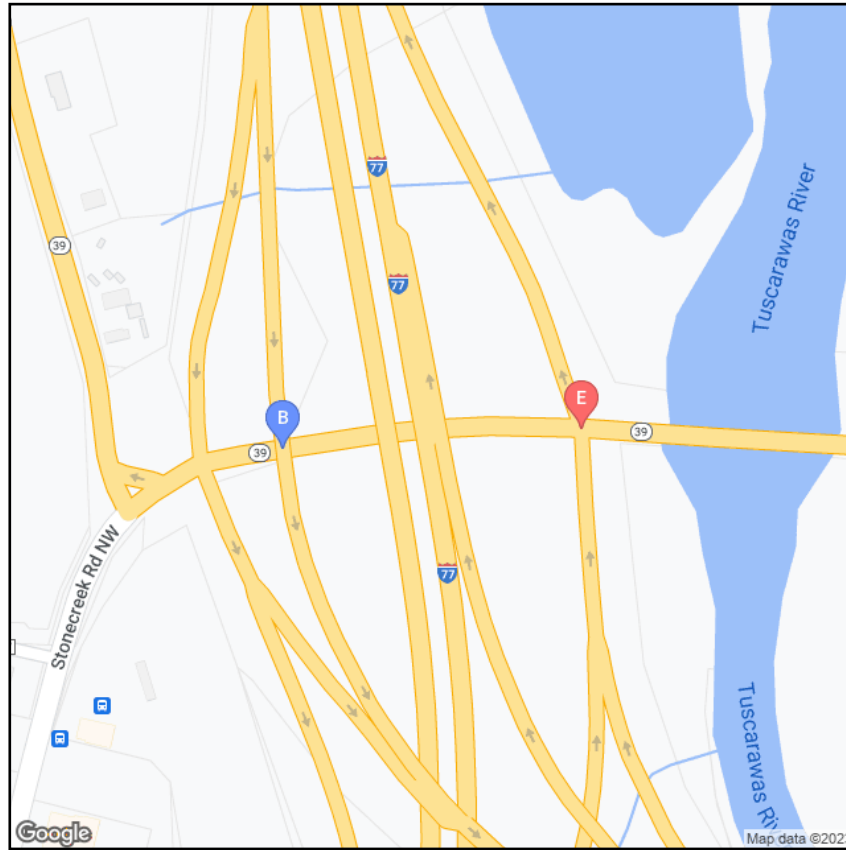
PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total MaxVolume
10902	11310	1306	1676	12208	12986

Process Flag:	Adjusted model to counts with process per ODOT 255 spreadsheet
Comment:	No Comment

Historical Count

Year	All	Cars	Trucks
2007	14,520	13,540	980
2010	14,030	13,540	490
2013	11,082	10,695	387
2016	15,950	15,393	557
2019	13,952	12,640	1,312
* 2022	12,037	10,905	1,132

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1866591	STUSSR00039**C	12.768	12.896	0.128	12,000	12,500	1600	12.5	52.0	10	16

Forecast Segment ID	Route	BMP	EMP
1866593	STUSSR00039**C	12.896	13.116

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	◆ 10.9	9	21,000	Average	0.500	0.500
AADT	D%	TD % (Existing)	BC AADT	BC Method	BC Growth Rate %	BC Calculated Rate %
23,100	◆ 63.3	12	2,100	Model	0.400	0.400

◆ K/D factors from TCDS were used.

Regression

Method Number	PA AADT	BC AADT	AADT
2	22,697	4,501	27,198

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
9794	46658	-31716	28429	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	0.60	7.35	0	0	20,848	7,384	21,918	5,937
2	0.75	4.71	4	4	22,322	4,667	22,697	4,501
3	1.32	4.67	0	0	25,209	5,723	25,734	4,483
4	1.32	4.67	4	4	25,739	4,646	25,735	4,483
5	2.90	-7.10	0	0	34,384	-1,367	34,021	-1,920
6	2.59	1.77	4	4	32,920	2,940	32,382	2,904

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %
1	DIF	5,343	21,709	1,439	2,134	0.15	0.35
2	RAT	1.35	22,054	3.86	2,685	0.11	1.37
3	MRAT	1.06	22,034	1.38	2,532	0.14	1.09
4	RAF		21,871		2,333	0.15	0.72

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
Average	Difference	0.200	0.400

Method 1 - 4 Volume

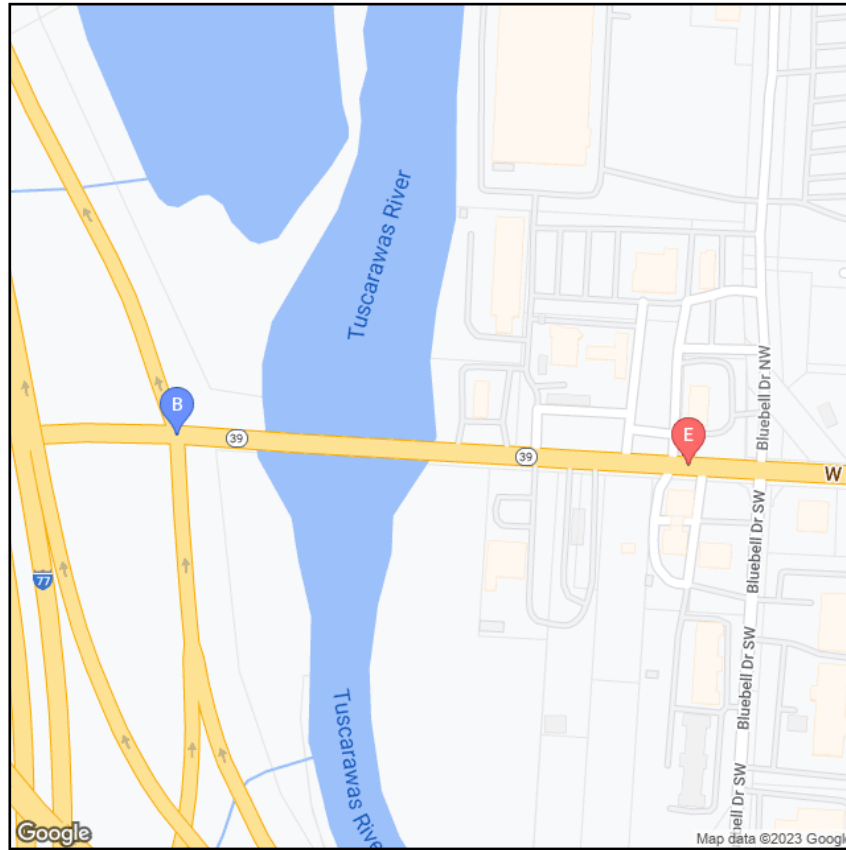
PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total MaxVolume
19369	19737	2134	2685	21503	22422

Process Flag:	Adjusted model to counts with process per ODOT 255 spreadsheet
Comment:	No Comment

Historical Count

Year	All	Cars	Trucks
2007	18,110	17,380	730
2010	17,760	17,040	720
2013	16,320	14,668	1,651
2016	21,581	14,638	6,942
2019	20,591	18,661	1,930
* 2022	20,715	18,773	1,942

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1866593	STUSSR00039**C	12.896	13.116	0.220	21,000	23,000	2500	10.9	63.3	9	11

Forecast Segment ID	Route	BMP	EMP
1866596	STUSSR00039**C	13.116	13.391

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	◆ 10.9	9	21,000	Model	0.400	0.400
AADT	D%	TD % (Existing)	BC AADT	BC Method	BC Growth Rate %	BC Calculated Rate %
23,100	◆ 63.3	12	2,100	Model	0.300	0.300

◆ K/D factors from TCDS were used.

Regression

Method Number	PA AADT	BC AADT	AADT
2	22,697	4,501	27,198

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
9794	46658	-31716	28429	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	0.60	7.35	0	0	20,848	7,384	21,918	5,937
2	0.75	4.71	4	4	22,322	4,667	22,697	4,501
3	1.32	4.67	0	0	25,209	5,723	25,734	4,483
4	1.32	4.67	4	4	25,739	4,646	25,735	4,483
5	2.90	-7.10	0	0	34,384	-1,367	34,021	-1,920
6	2.59	1.77	4	4	32,920	2,940	32,382	2,904

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %
1	DIF	7,674	22,364	1,506	2,107	0.28	0.30
2	RAT	1.59	23,335	4.46	2,678	0.36	1.35
3	MRAT	1.13	23,226	1.38	2,521	0.37	1.06
4	RAF		22,795		2,314	0.32	0.68

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
Average	Difference	0.400	0.300

Method 1 - 4 Volume

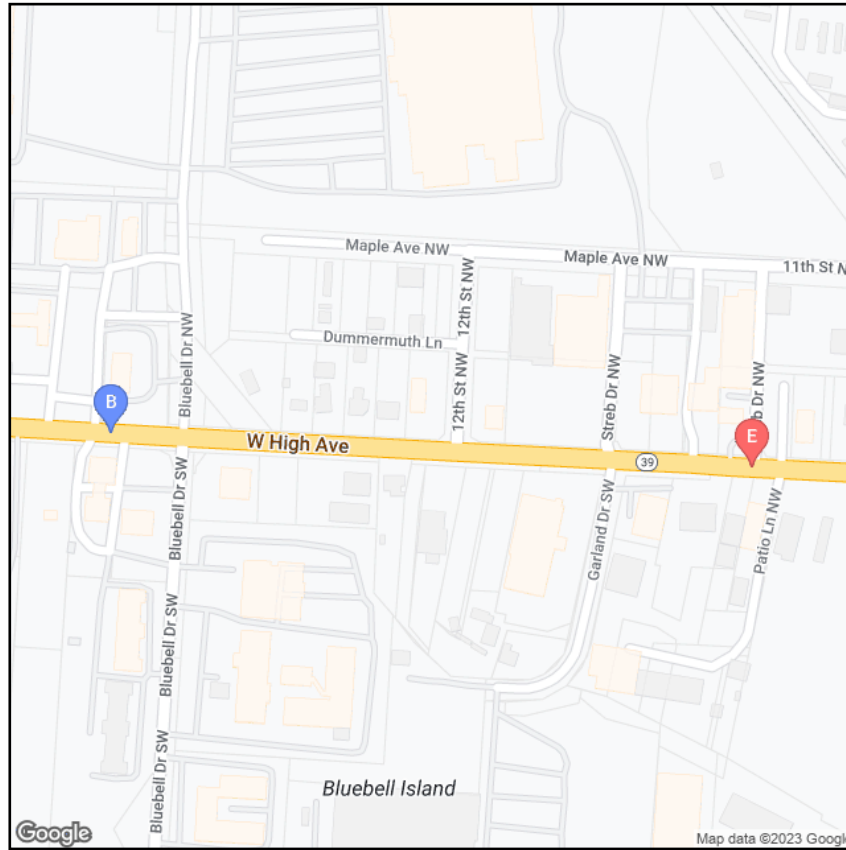
PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total MaxVolume
20257	20705	2107	2678	22364	23383

Process Flag:	Adjusted model to counts with process per ODOT 255 spreadsheet
Comment:	No Comment

Historical Count

Year	All	Cars	Trucks
2007	18,110	17,380	730
2010	17,760	17,040	720
2013	16,320	14,668	1,651
2016	21,581	14,638	6,942
2019	20,591	18,661	1,930
* 2022	20,715	18,773	1,942

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1866596	STUSSR00039**C	13.116	13.391	0.275	21,000	22,500	2500	10.9	63.3	9	12

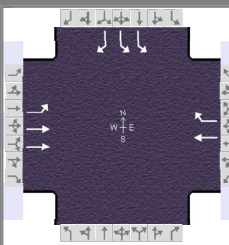
Tuscarawas I-77 / US 250 / SR 39 Feasibility Study

Appendix F: Traffic Analysis



HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	Burgess & Niple			Duration, h	0.250
Analyst	KB	Analysis Date	Jan 16, 2024	Area Type	Other
Jurisdiction		Time Period	AM Peak	PHF	0.93
Urban Street	SR 39	Analysis Year	2050	Analysis Period	1 > 7:00
Intersection	SR 39 and Stonecreek		File Name	SR 39 AM.xus	
Project Description	AM No Build				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	80	320			410	200				200		90

Signal Information												
Cycle, s	100.0	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	9.0	51.0	22.0	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				

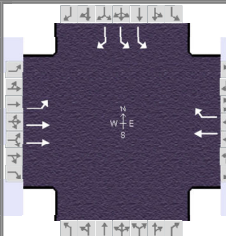
Traffic Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	80	320			410	200				200		90
Initial Queue (Q _b), veh/h	0	0			0	0				0		0
Base Saturation Flow Rate (s ₀), veh/h	1900	1900			1900	1900				1900		1900
Parking (N _m), man/h		None			None						None	
Heavy Vehicles (P _{HV}), %	14	14			5	0				3		3
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			0.98	0.98				1.00		1.00
Lane Width (W), ft	12.0	12.0			12.0	12.0				12.0		12.0
Turn Bay Length, ft	200	300			130	0				2000		260
Grade (P _g), %		0			0			0			0	
Speed Limit, mi/h	35	35			35	35				35		35

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G _{max}) or Phase Split, s	9.0	35.0		51.0				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	6	20		20				10
Start-Up Lost Time (l _t), s	2.0	2.0		2.0			2.0	
Extension of Effective Green (e), s	2.0	2.0		2.0			2.0	
Passage (P _T), s	2.0	2.0		2.0				2.0
Recall Mode	Max	Max		Max				Max
Dual Entry	No	Yes		Yes				Yes
Walk (Walk), s				0.0		0.0		0.0
Pedestrian Clearance Time (P _C), 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		No	0.0	0	No		0		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			0.50	No		0.50	No			No		0.50

HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Burgess & Niple			Duration, h	0.250
Analyst	KB	Analysis Date	Jan 16, 2024	Area Type	Other
Jurisdiction		Time Period	AM Peak	PHF	0.93
Urban Street	SR 39	Analysis Year	2050	Analysis Period	1 > 7:00
Intersection	SR 39 and Stonecreek	File Name	SR 39 AM.xus		
Project Description	AM No Build				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	80	320			410	200				200		90

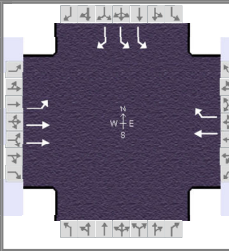
Signal Information				Signal Phases									
Cycle, s	100.0	Reference Phase	2	↔	→	↔	↔	↔	↔	↔	↔	↔	↔
Offset, s	0	Reference Point	End	Green	9.0	51.0	22.0	0.0	0.0	0.0	0.0	0.0	0.0
Uncoordinated	Yes	Simult. Gap E/W	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0
Force Mode	Fixed	Simult. Gap N/S	On	Red	2.0	2.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2		6				4
Case Number	2.0	4.0		7.3				9.0
Phase Duration, s	15.0	72.0		57.0				28.0
Change Period, ($Y+R_c$), s	6.0	6.0		6.0				6.0
Max Allow Headway (MAH), s	3.1	3.1		3.1				3.2
Queue Clearance Time (g_s), s	7.1	6.1		16.7				7.2
Green Extension Time (g_e), s	0.0	2.1		2.1				0.6
Phase Call Probability	1.00	1.00		1.00				1.00
Max Out Probability	1.00	0.00		0.00				0.00

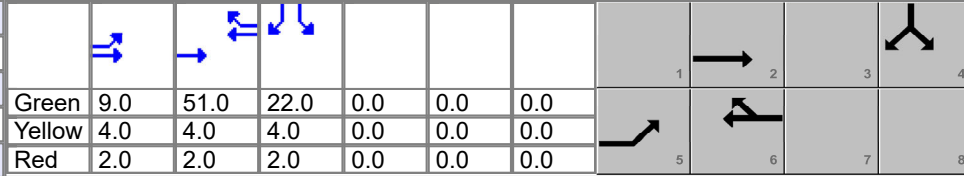
Movement Group Results	EB			WB			NB			SB			
	L	T	R	L	T	R	L	T	R	L	T	R	
Assigned Movement	5	2			6	16				7		14	
Adjusted Flow Rate (v), veh/h	86	344			422	206				215		97	
Adjusted Saturation Flow Rate (s), veh/h/ln	1612	1611			1826					1716		1572	
Queue Service Time (g_s), s	5.1	4.1			14.7					5.2		5.1	
Cycle Queue Clearance Time (g_c), s	5.1	4.1			14.7					5.2		5.1	
Green Ratio (g/C)	0.09	0.66			0.51					0.22		0.22	
Capacity (c), veh/h	145	2127			931					755		346	
Volume-to-Capacity Ratio (X)	0.593	0.162			0.454					0.285		0.280	
Back of Queue (Q), ft/ln (95 th percentile)	134.1	63.6			264.9					102.6		97	
Back of Queue (Q), veh/ln (95 th percentile)	4.8	2.3			10.2					4.0		3.8	
Queue Storage Ratio (RQ) (95 th percentile)	0.67	0.21			2.04					0.05		0.37	
Uniform Delay (d_1), s/veh	43.7	6.5			15.6					32.5		32.4	
Incremental Delay (d_2), s/veh	16.6	0.2			1.6					0.9		2.0	
Initial Queue Delay (d_3), s/veh	0.0	0.0			0.0					0.0		0.0	
Control Delay (d), s/veh	60.3	6.6			17.2	0.0				33.4		34.4	
Level of Service (LOS)	E	A			B	A				C		C	
Approach Delay, s/veh / LOS	17.4		B		11.5		B		0.0			33.7	C
Intersection Delay, s/veh / LOS	18.4						B						

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	0.67	A	2.09	B	2.15	B	2.15	B
Bicycle LOS Score / LOS	0.84	A	1.57	B				F

HCS Signalized Intersection Intermediate Values

General Information				Intersection Information		
Agency	Burgess & Niple			Duration, h	0.250	
Analyst	KB	Analysis Date	Jan 16, 2024	Area Type	Other	
Jurisdiction		Time Period	AM Peak	PHF	0.93	
Urban Street	SR 39	Analysis Year	2050	Analysis Period	1 > 7:00	
Intersection	SR 39 and Stonecreek	File Name	SR 39 AM.xus			
Project Description	AM 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	80	320			410	200				200		90

Signal Information															
Cycle, s	100.0	Reference Phase	2	Green	9.0	51.0	22.0	0.0	0.0	0.0	1	2	3	4	
Offset, s	0	Reference Point	End	Yellow	4.0	4.0	4.0	0.0	0.0	0.0	5	6	7	8	
Uncoordinated	Yes	Simult. Gap E/W	On	Red	2.0	2.0	2.0	0.0	0.0	0.0					
Force Mode	Fixed	Simult. Gap N/S	On												

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	1.000	1.000	0.961	1.000				0.977	1.000	0.977
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	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	0.952	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})	0.952	0.000		1.000	1.000					0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		1.000	1.000		0.000	0.847					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	1612	3304	0	0	1826	1610				3534	0	1572
Proportion of Vehicles Arriving on Green (P)	0.09	0.66	0.00	0.00	0.51	0.51	0.00	0.00	0.00	0.22	0.00	0.22
Incremental Delay Factor (k)	0.50	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				4.0
Green Ratio (g/C)	0.09	0.66		0.51				0.22
Permitted Saturation Flow Rate (s_p), veh/h/ln	0	0		1053				1767
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_t), s	0.0	0.0		51.0				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	0.000	0.000	1.389	0.000	1.389	0.000	1.389	0.000	
Pedestrian F_s / F_{delay}	0.000	0.070	0.000	0.100	0.000	0.157	0.000	0.157	
Pedestrian M_{corner} / M_{cw}	0.00		0.00		0.00		0.00		
Bicycle c_b / d_b	1319.98	5.78	1020.00	12.01		55.13		57.25	
Bicycle F_w / F_v	-3.64	0.35	-3.64	1.08	-3.64		-3.64	Infinity	

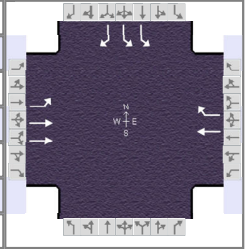
HCS Signalized Intersection Results Graphical Summary

General Information

Agency	Burgess & Niple			Duration, h	0.250
Analyst	KB	Analysis Date	Jan 16, 2024	Area Type	Other
Jurisdiction		Time Period	AM Peak	PHF	0.93
Urban Street	SR 39	Analysis Year	2050	Analysis Period	1 > 7:00
Intersection	SR 39 and Stonecreek	File Name	SR 39 AM.xus		
Project Description	AM No Build				

Intersection Information

Duration, h	0.250
Area Type	Other
PHF	0.93
Analysis Period	1 > 7:00



Demand Information

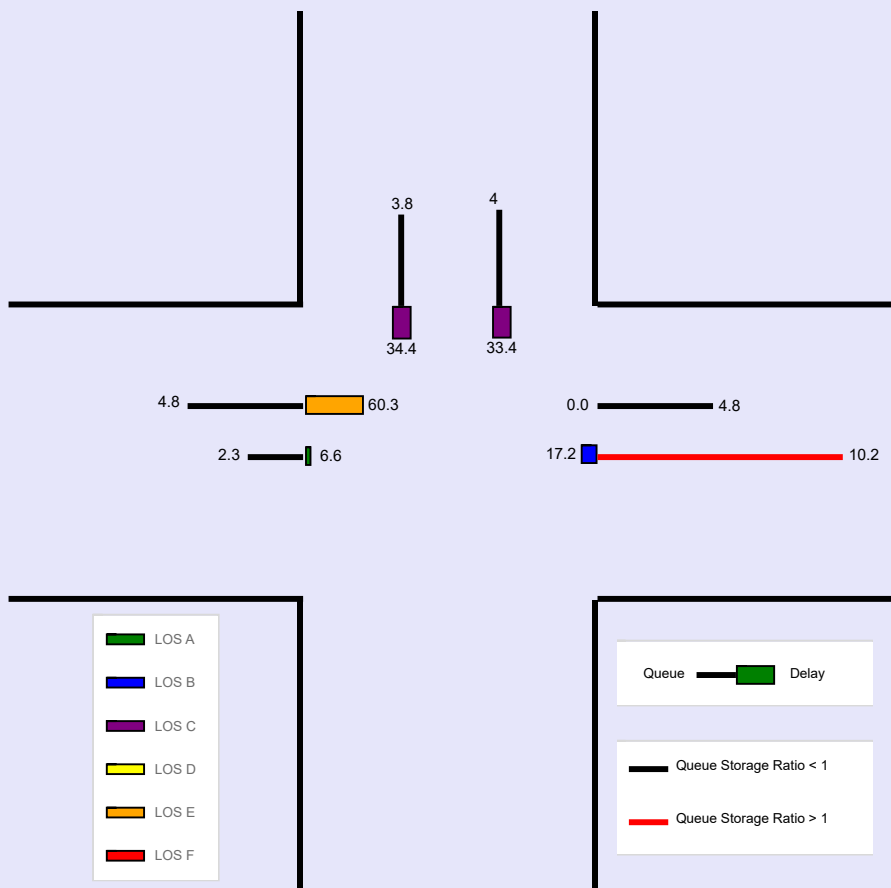
Approach Movement	EB			WB			NB			SB			
	L	T	R	L	T	R	L	T	R	L	T	R	
Demand (v), veh/h	80	320			410	200					200		90

Signal Information

Cycle, s	100.0	Reference Phase	2											
Offset, s	0	Reference Point	End	Green	9.0	51.0	22.0	0.0	0.0	0.0				
Uncoordinated	Yes	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

Approach Movement	EB			WB			NB			SB				
	L	T	R	L	T	R	L	T	R	L	T	R		
Back of Queue (Q), ft/ln (95 th percentile)	134.1	63.6			264.9					102.6		97		
Back of Queue (Q), veh/ln (95 th percentile)	4.8	2.3			10.2					4.0		3.8		
Queue Storage Ratio (RQ) (95 th percentile)	0.67	0.21			2.04					0.05		0.37		
Control Delay (d), s/veh	60.3	6.6			17.2	0.0				33.4		34.4		
Level of Service (LOS)	E	A			B	A				C		C		
Approach Delay, s/veh / LOS	17.4		B		11.5		B		0.0			33.7		C
Intersection Delay, s/veh / LOS	18.4						B							



--- Messages ---

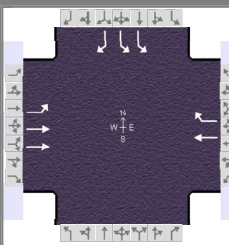
WARNING: Since queue spillover from turn lanes and spillback into upstream intersections is not accounted for in the HCM procedures, use of a simulation tool may be advised in situations where the Queue Storage Ratio exceeds 1.0.

INFO: WBR was specified to have Unsignalized Delay of 0 seconds.

--- Comments ---

HCS Signalized Intersection Input Data

General Information				Intersection Information			
Agency	Burgess & Niple			Duration, h	0.250		
Analyst	KB	Analysis Date	10/12/2023	Area Type	Other		
Jurisdiction		Time Period	PM Peak Hour	PHF	0.90		
Urban Street	SR 39	Analysis Year	2050	Analysis Period	1 > 17:00		
Intersection	SR 39 and Stonecreek		File Name	SR 39 PM.xus			
Project Description	PM No Build						



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	120	620			530	260					370	150

Signal Information				Signal Phases									
Cycle, s	150.0	Reference Phase	2	↔	→	↙ ↘	↘ ↙	↔	↔	↔	↔	↔	↔
Offset, s	0	Reference Point	End	Green	14.0	96.0	22.0	0.0	0.0	0.0	0.0	0.0	0.0
Uncoordinated	Yes	Simult. Gap E/W	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0	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	0.0	0.0	0.0

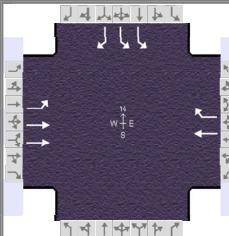
Traffic Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	120	620			530	260					370	150
Initial Queue (Q _b), veh/h	0	0			0	0					0	0
Base Saturation Flow Rate (s ₀), veh/h	1900	1900			1900	1900					1900	1900
Parking (N _m), man/h		None			None						None	
Heavy Vehicles (P _{HV}), %	5	5			5	0					2	2
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
Arrival Type (AT)	3	3			3	3					3	3
Upstream Filtering (I)	1.00	1.00			0.96	0.96					1.00	1.00
Lane Width (W), ft	12.0	12.0			12.0	12.0					12.0	12.0
Turn Bay Length, ft	200	300			130	0					2000	260
Grade (P _g), %		0			0			0			0	
Speed Limit, mi/h	35	35			35	35					35	35

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G _{max}) or Phase Split, s	14.0	19.0		96.0				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	6	6		6				6
Start-Up Lost Time (l _t), s	2.0	2.0		2.0			2.0	
Extension of Effective Green (e), s	2.0	2.0		2.0			2.0	
Passage (PT), s	2.0	2.0		2.0				2.0
Recall Mode	Off	Min		Min				Off
Dual Entry	No	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		No	0.0	0	No		0		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			0.50	No		0.50	No			No		0.50

HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Burgess & Niple			Duration, h	0.250
Analyst	KB	Analysis Date	10/12/2023	Area Type	Other
Jurisdiction		Time Period	PM Peak Hour	PHF	0.90
Urban Street	SR 39	Analysis Year	2050	Analysis Period	1 > 17:00
Intersection	SR 39 and Stonecreek	File Name	SR 39 PM.xus		
Project Description	PM No Build				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	120	620			530	260				370		150

Signal Information												
Cycle, s	150.0	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	14.0	96.0	22.0	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				

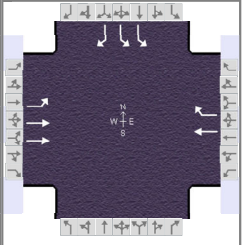
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2		6				4
Case Number	2.0	4.0		7.3				9.0
Phase Duration, s	20.0	122.0		102.0				28.0
Change Period, (Y+R _c), s	6.0	6.0		6.0				6.0
Max Allow Headway (MAH), s	3.1	3.1		3.1				3.2
Queue Clearance Time (g _s), s	13.3	10.4		26.0				19.3
Green Extension Time (g _e), s	0.0	2.7		3.7				0.5
Phase Call Probability	1.00	1.00		1.00				1.00
Max Out Probability	1.00	0.29		0.00				1.00

Movement Group Results	EB			WB			NB			SB			
	L	T	R	L	T	R	L	T	R	L	T	R	
Assigned Movement	5	2			6	16				7		14	
Adjusted Flow Rate (v), veh/h	133	689			562	276				411		167	
Adjusted Saturation Flow Rate (s), veh/h/ln	1739	1738			1826					1730		1585	
Queue Service Time (g _s), s	11.3	8.4			24.0					17.3		15.0	
Cycle Queue Clearance Time (g _c), s	11.3	8.4			24.0					17.3		15.0	
Green Ratio (g/C)	0.09	0.77			0.64					0.15		0.15	
Capacity (c), veh/h	162	2688			1169					507		232	
Volume-to-Capacity Ratio (X)	0.822	0.256			0.481					0.810		0.717	
Back of Queue (Q), ft/ln (95 th percentile)	266.4	127.9			381.5					327.4		275	
Back of Queue (Q), veh/ln (95 th percentile)	10.2	4.9			14.7					12.9		10.8	
Queue Storage Ratio (RQ) (95 th percentile)	1.33	0.43			2.93					0.16		1.06	
Uniform Delay (d ₁), s/veh	66.8	4.8			14.0					62.0		61.0	
Incremental Delay (d ₂), s/veh	25.9	0.0			0.1					8.9		8.8	
Initial Queue Delay (d ₃), s/veh	0.0	0.0			0.0					0.0		0.0	
Control Delay (d), s/veh	92.7	4.8			14.1	0.0				70.9		69.8	
Level of Service (LOS)	F	A			B	A				E		E	
Approach Delay, s/veh / LOS	19.1	B			9.5	A			0.0			70.6	E
Intersection Delay, s/veh / LOS	28.8						C						

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	0.65	A	2.08	B	2.16	B	2.16	B
Bicycle LOS Score / LOS	1.17	A	1.94	B				F

HCS Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	Burgess & Niple			Duration, h	0.250
Analyst	KB	Analysis Date	10/12/2023	Area Type	Other
Jurisdiction		Time Period	PM Peak Hour	PHF	0.90
Urban Street	SR 39	Analysis Year	2050	Analysis Period	1 > 17:00
Intersection	SR 39 and Stonecreek	File Name	SR 39 PM.xus		
Project Description	PM 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	120	620			530	260					370	150

Signal Information				Phase Diagram								
Cycle, s	150.0	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	14.0	96.0	22.0	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	EB			WB			NB			SB		
	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})	0.961	0.961	1.000	1.000	0.961	1.000				0.984	1.000	0.984
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	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	0.952	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})	0.952	0.000		1.000	1.000					0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		1.000	1.000		0.000	0.847					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	1739	3564	0	0	1826	1610				3563	0	1585
Proportion of Vehicles Arriving on Green (P)	0.09	0.77	0.00	0.00	0.64	0.64	0.00	0.00	0.00	0.15	0.00	0.15
Incremental Delay Factor (k)	0.34	0.04			0.04	0.04				0.33		0.24

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				4.0
Green Ratio (g/C)	0.09	0.77		0.64				0.15
Permitted Saturation Flow Rate (s_p), veh/h/ln	0	0		766				1781
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_t), s	0.0	0.0		96.0				0.0
Queue Service Time Before Blockage (g_{ts}), s								
Protected Right Saturation Flow (s_R), veh/h/ln				0				0
Protected Right Effective Green Time (g_R), s				0.0				0.0

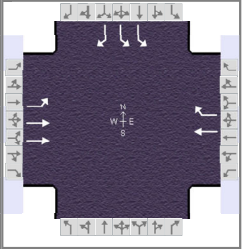
Multimodal	EB			WB			NB			SB		
Pedestrian F_w / F_v	0.000	0.000	1.389	0.000	1.389	0.000	1.389	0.000	1.389	0.000		
Pedestrian F_s / F_{delay}	0.000	0.054	0.000	0.091	0.000	0.173	0.000	0.173	0.000	0.173		
Pedestrian M_{corner} / M_{cw}	0.00		0.00		0.00		0.00		0.00			
Bicycle c_b / d_b	1546.63	3.85	1280.00	9.72	-66.67	80.08	-93.33	82.16				
Bicycle F_w / F_v	-3.64	0.68	-3.64	1.45	-3.64		-3.64	Infinity				

HCS Signalized Intersection Results Graphical Summary

General Information

Agency	Burgess & Niple			Duration, h	0.250
Analyst	KB	Analysis Date	10/12/2023	Area Type	Other
Jurisdiction		Time Period	PM Peak Hour	PHF	0.90
Urban Street	SR 39	Analysis Year	2050	Analysis Period	1 > 17:00
Intersection	SR 39 and Stonecreek	File Name	SR 39 PM.xus		
Project Description	PM No Build				

Intersection Information



Demand Information

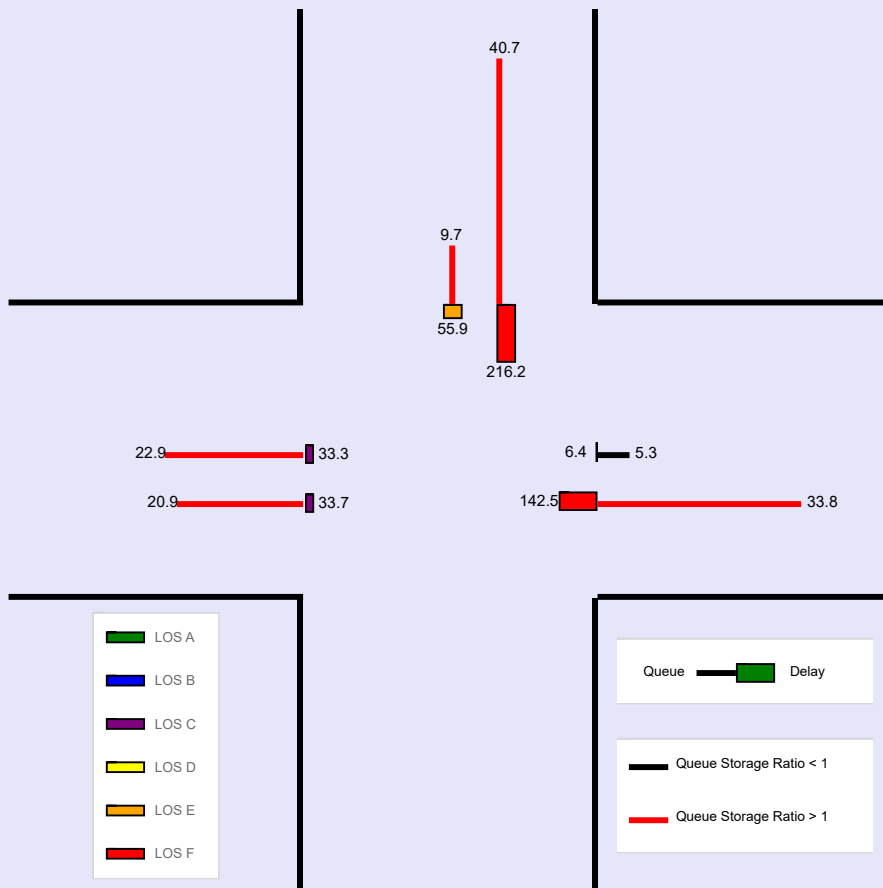
Approach Movement	EB			WB			NB			SB			
	L	T	R	L	T	R	L	T	R	L	T	R	
Demand (v), veh/h	120	620			530	260					370		150

Signal Information

Cycle, s	150.0	Reference Phase	2											
Offset, s	0	Reference Point	End	Green	14.0	96.0	22.0	0.0	0.0	0.0				
Uncoordinated	Yes	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

Approach Movement	EB			WB			NB			SB			
	L	T	R	L	T	R	L	T	R	L	T	R	
Back of Queue (Q), ft/ln (95 th percentile)	266.4	127.9			381.5					327.4		275	
Back of Queue (Q), veh/ln (95 th percentile)	10.2	4.9			14.7					12.9		10.8	
Queue Storage Ratio (RQ) (95 th percentile)	1.33	0.43			2.93					0.16		1.06	
Control Delay (d), s/veh	92.7	4.8			14.1	0.0				70.9		69.8	
Level of Service (LOS)	F	A			B	A				E		E	
Approach Delay, s/veh / LOS	19.1		B		9.5		A		0.0			70.6	E
Intersection Delay, s/veh / LOS	28.8						C						



--- Messages ---

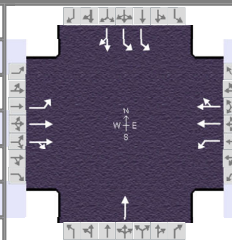
WARNING: Since queue spillover from turn lanes and spillback into upstream intersections is not accounted for in the HCM procedures, use of a simulation tool may be advised in situations where the Queue Storage Ratio exceeds 1.0.

INFO: WBR was specified to have Unsignalized Delay of 0 seconds.

--- Comments ---

HCS Signalized Intersection Input Data

General Information				Intersection Information			
Agency	Burgess & Niple			Duration, h	0.250		
Analyst	KB	Analysis Date	Jan 16, 2024	Area Type	Other		
Jurisdiction		Time Period	AM Peak Hour	PHF	0.93		
Urban Street	SR 39	Analysis Year	2050	Analysis Period	1 > 7:00		
Intersection	Stonecreek & SR 39	File Name	Scenario1_SBRamps_AM.xus				
Project Description	Build Alternative 1						



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	80	230	90	250	340	160		0		410	50	160

Signal Information				Signal Phases								
Cycle, s	60.0	Reference Phase	2									
Offset, s	10	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
Green	15.0	5.3	1.7	20.0	0.0	0.0						
Yellow	4.0	4.0	0.0	4.0	0.0	0.0						
Red	2.0	2.0	0.0	2.0	0.0	0.0						

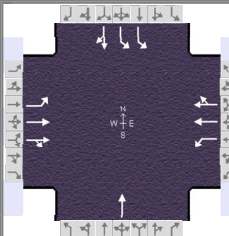
Traffic Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	80	230	90	250	340	160		0		410	50	160
Initial Queue (Q _b), veh/h	0	0	0	0	0	0		0		0	0	0
Base Saturation Flow Rate (s ₀), veh/h	1900	1900	1900	1900	1900	1900		1900		1900	1900	1900
Parking (N _m), man/h		None			None			None			None	
Heavy Vehicles (P _{HV}), %	14	14		5	5			3		3	3	
Ped / Bike / RTOR, /h	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
Upstream Filtering (I)	1.00	1.00	1.00	1.00	1.00	1.00		1.00		0.86	0.86	0.86
Lane Width (W), ft	12.0	12.0		12.0	12.0			12.0		12.0	12.0	
Turn Bay Length, ft	200	300		450	780			0		725	950	
Grade (P _g), %		0			0			0			0	
Speed Limit, mi/h	35	35	35	35	35	35		45		45	45	45

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G _{max}) or Phase Split, s	13.0	26.0	13.0	26.0		21.0		21.0
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	7	20	7	20		10		10
Start-Up Lost Time (lt), s	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
Passage (PT), s	2.0	2.0	2.0	2.0		2.0		2.0
Recall Mode	Off	Off	Off	Off		Min		Min
Dual Entry	No	Yes	No	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	

HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Burgess & Niple			Duration, h	0.250
Analyst	KB	Analysis Date	Jan 16, 2024	Area Type	Other
Jurisdiction		Time Period	AM Peak Hour	PHF	0.93
Urban Street	SR 39	Analysis Year	2050	Analysis Period	1 > 7:00
Intersection	Stonecreek & SR 39	File Name	Scenario1_SBRamps_AM.xus		
Project Description	Build Alternative 1				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	80	230	90	250	340	160		0		410	50	160

Signal Information				Signal Timing and Phases								
Cycle, s	60.0	Reference Phase	2									
Offset, s	10	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
Green	15.0	5.3	1.7	20.0	0.0	0.0						
Yellow	4.0	4.0	0.0	4.0	0.0	0.0						
Red	2.0	2.0	0.0	2.0	0.0	0.0						

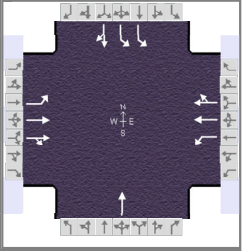
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	3	8	7	4		6		2
Case Number	2.0	4.0	1.1	4.0		8.0		6.0
Phase Duration, s	11.3	26.0	13.0	27.7		21.0		21.0
Change Period, ($Y+R_c$), s	6.0	6.0	6.0	6.0		6.0		6.0
Max Allow Headway (MAH), s	3.1	3.1	3.1	3.1		0.0		0.0
Queue Clearance Time (g_s), s	5.1	6.9	8.0	9.2				
Green Extension Time (g_e), s	0.0	1.6	0.0	1.5		0.0		0.0
Phase Call Probability	0.76	1.00	0.99	1.00				
Max Out Probability	1.00	0.02	1.00	0.03				

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14		6		5	2	12
Adjusted Flow Rate (v), veh/h	86	177	167	269	281	256		0		441	226	
Adjusted Saturation Flow Rate (s), veh/h/ln	1612	1693	1533	1739	1826	1629		1856		1716	1632	
Queue Service Time (g_s), s	3.1	4.7	4.9	6.0	7.0	7.2		0.0		6.6	7.9	
Cycle Queue Clearance Time (g_c), s	3.1	4.7	4.9	6.0	7.0	7.2		0.0		6.6	7.9	
Green Ratio (g/C)	0.09	0.33	0.33	0.45	0.36	0.36		0.25		0.25	0.25	
Capacity (c), veh/h	143	564	511	578	659	588		464		1098	408	
Volume-to-Capacity Ratio (X)	0.601	0.314	0.327	0.465	0.426	0.436		0.000		0.402	0.553	
Back of Queue (Q), ft/ln (95 th percentile)	57.9	80.2	76.2	91.1	118.7	110.5		0		115.9	157.7	
Back of Queue (Q), veh/ln (95 th percentile)	2.1	2.9	2.7	3.5	4.6	4.2		0.0		4.5	6.2	
Queue Storage Ratio (RQ) (95 th percentile)	0.29	0.27	0.25	0.20	0.15	0.14		0.00		0.16	0.17	
Uniform Delay (d_1), s/veh	26.3	14.9	15.0	11.0	14.5	14.5		0.0		20.3	23.8	
Incremental Delay (d_2), s/veh	1.5	0.1	0.1	0.2	0.2	0.2		0.0		0.9	4.6	
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	27.8	15.0	15.1	11.2	14.6	14.7		0.0		21.2	28.4	
Level of Service (LOS)	C	B	B	B	B	B				C	C	
Approach Delay, s/veh / LOS	17.6		B	13.5		B		0.0		23.6		C
Intersection Delay, s/veh / LOS	18.0						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.68	B	2.09	B	2.27	B	2.27	B
Bicycle LOS Score / LOS	0.84	A	1.15	A	0.49	A	1.59	B

HCS Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	Burgess & Niple			Duration, h	0.250
Analyst	KB	Analysis Date	Jan 16, 2024	Area Type	Other
Jurisdiction		Time Period	AM Peak Hour	PHF	0.93
Urban Street	SR 39	Analysis Year	2050	Analysis Period	1 > 7:00
Intersection	Stonecreek & SR 39	File Name	Scenario1_SBRamps_AM.xus		
Project Description	Build Alternative 1				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	80	230	90	250	340	160		0		410	50	160

Signal Information				Signal Phases														
Cycle, s	60.0	Reference Phase	2															
Offset, s	10	Reference Point	End															
Uncoordinated	No	Simult. Gap E/W	On															
Force Mode	Fixed	Simult. Gap N/S	On															
		Green	15.0	5.3	1.7	20.0	0.0	0.0										
		Yellow	4.0	4.0	0.0	4.0	0.0	0.0										
		Red	2.0	2.0	0.0	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})	0.891	0.891	0.891	0.961	0.961	0.945	1.000	0.977	1.000	0.977	0.977	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	0.971	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.952	0.000		0.952	0.000		1.000	1.000		0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.906	0.906		0.892	0.892		0.000	1.000		0.879	0.879
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	1612	2337	888	1739	2362	1093	0	1856	0	3534	389	1243
Proportion of Vehicles Arriving on Green (P)	0.09	0.33	0.33	0.12	0.36	0.36	0.00	0.00	0.00	0.21	0.06	0.11
Incremental Delay Factor (k)	0.04	0.04	0.04	0.04	0.04	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)	0.09	0.33	0.45	0.36		0.25		0.25
Permitted Saturation Flow Rate (s_p), veh/h/ln	0	0	1012	0		1173		1767
Shared Saturation Flow Rate (s_{sh}), veh/h/ln						0		
Permitted Effective Green Time (g_p), s	0.0	0.0	20.0	0.0		0.0		15.0
Permitted Service Time (g_u), s	0.0	0.0	15.1	0.0		0.0		15.0
Permitted Queue Service Time (g_{ps}), s			1.8					6.8
Time to First Blockage (g_t), s	0.0	0.0	0.0	0.0		15.0		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	1.557	0.000	1.557	0.000
Pedestrian F_s / F_{delay}	0.000	0.104	0.000	0.100	0.000	0.113	0.000	0.113
Pedestrian M_{corner} / M_{cw}	0.00		0.00		0.00		0.00	
Bicycle c_b / d_b	666.65	13.33	722.28	12.24	500.02	16.87	500.02	16.87
Bicycle F_w / F_v	-3.64	0.35	-3.64	0.67	-3.64	0.00	-3.64	1.10

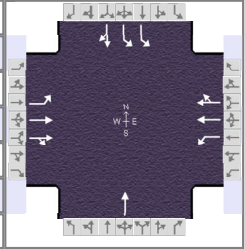
HCS Signalized Intersection Results Graphical Summary

General Information

Agency	Burgess & Niple		
Analyst	KB	Analysis Date	Jan 16, 2024
Jurisdiction		Time Period	AM Peak Hour
Urban Street	SR 39	Analysis Year	2050
Intersection	Stonecreek & SR 39	File Name	Scenario1_SBRamps_AM.xus
Project Description	Build Alternative 1		

Intersection Information

Duration, h	0.250
Area Type	Other
PHF	0.93
Analysis Period	1 > 7:00



Demand Information

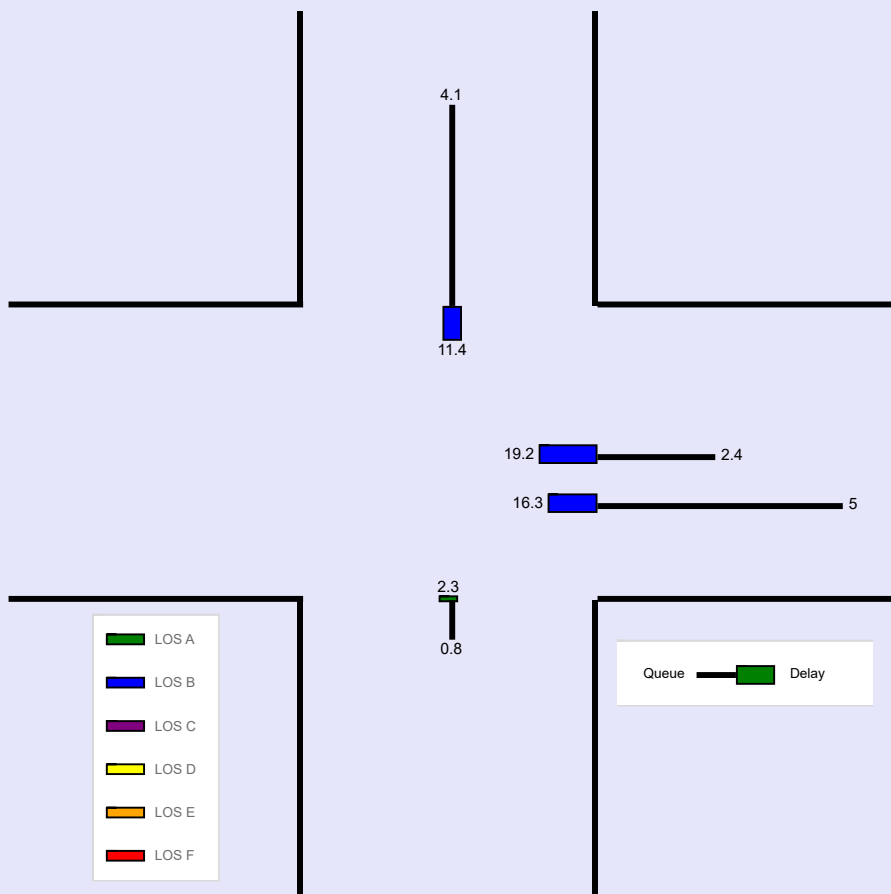
Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	80	230	90	250	340	160		0		410	50	160

Signal Information

Cycle, s	60.0	Reference Phase	2										
Offset, s	10	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On	Green	15.0	5.3	1.7	20.0	0.0	0.0	1		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	0.0	4.0	0.0	0.0	2		
				Red	2.0	2.0	0.0	2.0	0.0	0.0	3		
											4		
											5		
											6		
											7		
											8		

Movement Group Results

Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (Q), ft/ln (95 th percentile)	57.9	80.2	76.2	91.1	118.7	110.5		0		115.9	157.7	
Back of Queue (Q), veh/ln (95 th percentile)	2.1	2.9	2.7	3.5	4.6	4.2		0.0		4.5	6.2	
Queue Storage Ratio (RQ) (95 th percentile)	0.29	0.27	0.25	0.20	0.15	0.14		0.00		0.16	0.17	
Control Delay (d), s/veh	27.8	15.0	15.1	11.2	14.6	14.7		0.0		21.2	28.4	
Level of Service (LOS)	C	B	B	B	B	B				C	C	
Approach Delay, s/veh / LOS	17.6			B			13.5			B		
Intersection Delay, s/veh / LOS	18.0						B					



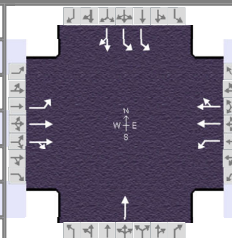
--- Messages ---

No errors or warnings exist.

--- Comments ---

HCS Signalized Intersection Input Data

General Information				Intersection Information			
Agency	Burgess & Niple			Duration, h	0.250		
Analyst	KB	Analysis Date	Jan 16, 2024	Area Type	Other		
Jurisdiction		Time Period	PM Peak Hour	PHF	0.90		
Urban Street	SR 39	Analysis Year	2050	Analysis Period	1 > 17:00		
Intersection	Stonecreek & SR 39	File Name	Scenario1_SBRamps_PM.xus				
Project Description	Build Alternative 1						



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	120	430	190	450	430	210		0		670	120	250

Signal Information				Signal Phases								
Cycle, s	100.0	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	34.4	9.2	9.0	23.4	0.0	0.0				
		Yellow	4.0	4.0	4.0	4.0	0.0	0.0				
		Red	2.0	2.0	2.0	2.0	0.0	0.0				

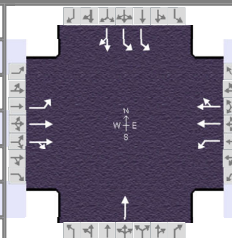
Traffic Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	120	430	190	450	430	210		0		670	120	250
Initial Queue (Q _b), veh/h	0	0	0	0	0	0		0		0	0	0
Base Saturation Flow Rate (s ₀), veh/h	1900	1900	1900	1900	1900	1900		1900		1900	1900	1900
Parking (N _m), man/h		None			None			None			None	
Heavy Vehicles (P _{HV}), %	1	1		3	3			2		2	2	
Ped / Bike / RTOR, /h	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
Upstream Filtering (I)	1.00	1.00	1.00	1.00	1.00	1.00		1.00		0.14	0.14	0.14
Lane Width (W), ft	12.0	12.0		12.0	12.0			12.0		12.0	12.0	
Turn Bay Length, ft	200	300		450	780			0		725	950	
Grade (P _g), %		0			0			0			0	
Speed Limit, mi/h	35	35	35	35	35	35		45		45	45	45

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G _{max}) or Phase Split, s	35.0	26.0	55.0	46.0		19.0		19.0
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	7	20	7	20		10		10
Start-Up Lost Time (l _t), s	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
Passage (PT), s	2.0	2.0	2.0	2.0		2.0		2.0
Recall Mode	Off	Off	Off	Off		Min		Min
Dual Entry	No	Yes	No	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

HCS Signalized Intersection Results Summary

General Information				Intersection Information			
Agency	Burgess & Niple			Duration, h	0.250		
Analyst	KB	Analysis Date	Jan 16, 2024	Area Type	Other		
Jurisdiction		Time Period	PM Peak Hour	PHF	0.90		
Urban Street	SR 39	Analysis Year	2050	Analysis Period	1 > 17:00		
Intersection	Stonecreek & SR 39	File Name	Scenario1_SBRamps_PM.xus				
Project Description	Build Alternative 1						



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	120	430	190	450	430	210		0		670	120	250

Signal Information				Phase Diagram								
Cycle, s	100.0	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	34.4	9.2	9.0	23.4	0.0	0.0						
Yellow	4.0	4.0	4.0	4.0	0.0	0.0						
Red	2.0	2.0	2.0	2.0	0.0	0.0						

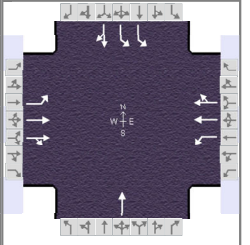
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	3	8	7	4		6		2
Case Number	2.0	4.0	1.1	4.0		8.0		6.0
Phase Duration, s	15.2	29.4	30.3	44.4		40.4		40.4
Change Period, (Y+R _c), s	6.0	6.0	6.0	6.0		6.0		6.0
Max Allow Headway (MAH), s	3.1	3.1	3.1	3.1		0.0		0.0
Queue Clearance Time (g _s), s	9.3	20.4	23.3	17.8				
Green Extension Time (g _e), s	0.2	2.9	1.0	3.0		0.0		0.0
Phase Call Probability	0.98	1.00	1.00	1.00				
Max Out Probability	0.00	0.01	0.00	0.00				

Movement Group Results	EB			WB			NB			SB				
	L	T	R	L	T	R	L	T	R	L	T	R		
Assigned Movement	3	8	18	7	4	14		6		5	2	12		
Adjusted Flow Rate (v), veh/h	133	362	327	500	375	336		0		630	348			
Adjusted Saturation Flow Rate (s), veh/h/ln	1795	1885	1689	1767	1856	1649		1870		1730	1668			
Queue Service Time (g _s), s	7.3	18.2	18.4	21.3	15.6	15.8		0.0		13.2	11.4			
Cycle Queue Clearance Time (g _c), s	7.3	18.2	18.4	21.3	15.6	15.8		0.0		13.2	11.4			
Green Ratio (g/C)	0.09	0.23	0.23	0.50	0.38	0.38		0.34		0.34	0.34			
Capacity (c), veh/h	166	440	394	538	712	633		643		1332	573			
Volume-to-Capacity Ratio (X)	0.803	0.822	0.829	0.929	0.526	0.531		0.000		0.473	0.607			
Back of Queue (Q), ft/ln (95 th percentile)	151.5	329	304.4	352.9	277.8	263.2		0		160.6	100.1			
Back of Queue (Q), veh/ln (95 th percentile)	6.0	13.1	12.1	13.8	10.9	10.0		0.0		6.3	3.9			
Queue Storage Ratio (RQ) (95 th percentile)	0.76	1.10	1.01	0.78	0.36	0.33		0.00		0.22	0.11			
Uniform Delay (d ₁), s/veh	44.5	36.4	36.4	23.2	23.8	23.8		0.0		23.2	12.4			
Incremental Delay (d ₂), s/veh	3.4	1.5	1.7	4.0	0.2	0.3		0.0		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			
Control Delay (d), s/veh	47.9	37.8	38.2	27.3	24.0	24.1		0.0		23.4	13.1			
Level of Service (LOS)	D	D	D	C	C	C				C	B			
Approach Delay, s/veh / LOS	39.6			D			25.4	C			0.0	19.7		B
Intersection Delay, s/veh / LOS	27.4						C							

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.71	B	2.11	B	2.28	B	2.28	B
Bicycle LOS Score / LOS	1.17	A	1.49	A	0.49	A	2.39	B

HCS Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	Burgess & Niple			Duration, h	0.250
Analyst	KB	Analysis Date	Jan 16, 2024	Area Type	Other
Jurisdiction		Time Period	PM Peak Hour	PHF	0.90
Urban Street	SR 39	Analysis Year	2050	Analysis Period	1 > 17:00
Intersection	Stonecreek & SR 39	File Name	Scenario1_SBRamps_PM.xus		
Project Description	Build Alternative 1				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	120	430	190	450	430	210		0		670	120	250

Signal Information												
Cycle, s	100.0	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	34.4	9.2	9.0	23.4	0.0	0.0				
		Yellow	4.0	4.0	4.0	4.0	0.0	0.0				
		Red	2.0	2.0	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})	0.992	0.992	0.992	0.977	0.977	0.945	1.000	0.984	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	0.971	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.952	0.000		0.952	0.000		1.000	1.000		0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.896	0.896		0.889	0.889		0.000	1.000		0.892	0.892
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	1795	2484	1090	1767	2360	1145	0	1870	0	3563	541	1127
Proportion of Vehicles Arriving on Green (P)	0.09	0.23	0.23	0.24	0.38	0.38	0.00	0.00	0.00	0.41	0.79	0.62
Incremental Delay Factor (k)	0.04	0.04	0.04	0.05	0.04	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)	0.09	0.23	0.50	0.38		0.34		0.34
Permitted Saturation Flow Rate (s_p), veh/h/ln	0	0	748	0		1049		1781
Shared Saturation Flow Rate (s_{sh}), veh/h/ln						0		
Permitted Effective Green Time (g_p), s	0.0	0.0	25.4	0.0		0.0		34.4
Permitted Service Time (g_u), s	0.0	0.0	4.9	0.0		0.0		34.4
Permitted Queue Service Time (g_{ps}), s			4.9					12.4
Time to First Blockage (g_t), s	0.0	0.0	0.0	0.0		34.4		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	1.557	0.000	1.557	0.000
Pedestrian F_s / F_{delay}	0.000	0.136	0.000	0.118	0.000	0.123	0.000	0.123
Pedestrian M_{corner} / M_{cw}	0.00		0.00		0.00		0.00	
Bicycle c_b / d_b	467.04	29.37	767.85	18.98	687.19	21.54	687.19	21.54
Bicycle F_w / F_v	-3.64	0.68	-3.64	1.00	-3.64	0.00	-3.64	1.91

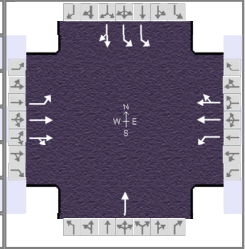
HCS Signalized Intersection Results Graphical Summary

General Information

Agency	Burgess & Niple		
Analyst	KB	Analysis Date	Jan 16, 2024
Jurisdiction		Time Period	PM Peak Hour
Urban Street	SR 39	Analysis Year	2050
Intersection	Stonecreek & SR 39	File Name	Scenario1_SBRamps_PM.xus
Project Description	Build Alternative 1		

Intersection Information

Duration, h	0.250
Area Type	Other
PHF	0.90
Analysis Period	1 > 17:00



Demand Information

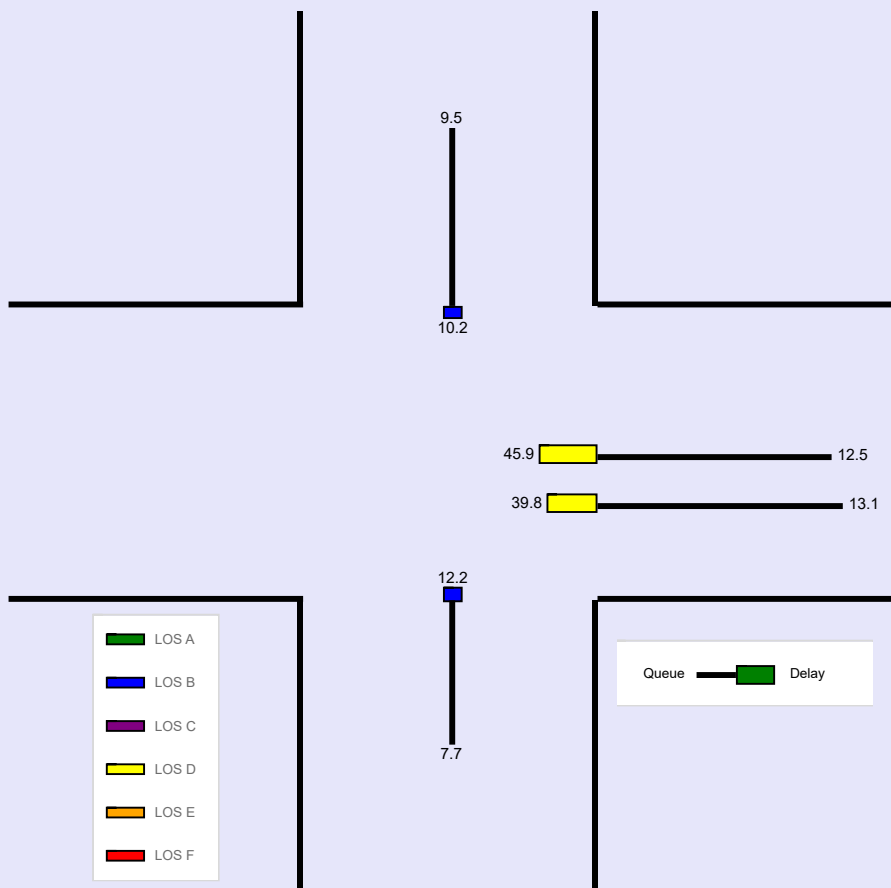
Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	120	430	190	450	430	210		0		670	120	250

Signal Information

Cycle, s	100.0	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	34.4	9.2	9.0	23.4	0.0	0.0						
Yellow	4.0	4.0	4.0	4.0	0.0	0.0						
Red	2.0	2.0	2.0	2.0	0.0	0.0						

Movement Group Results

Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (Q), ft/ln (95 th percentile)	151.5	329	304.4	352.9	277.8	263.2		0		160.6	100.1	
Back of Queue (Q), veh/ln (95 th percentile)	6.0	13.1	12.1	13.8	10.9	10.0		0.0		6.3	3.9	
Queue Storage Ratio (RQ) (95 th percentile)	0.76	1.10	1.01	0.78	0.36	0.33		0.00		0.22	0.11	
Control Delay (d), s/veh	47.9	37.8	38.2	27.3	24.0	24.1		0.0		23.4	13.1	
Level of Service (LOS)	D	D	D	C	C	C				C	B	
Approach Delay, s/veh / LOS	39.6			D			25.4			C		
Intersection Delay, s/veh / LOS	27.4						C					

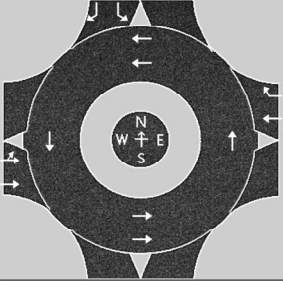


--- Messages ---

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.

--- Comments ---

HCS Roundabouts Report

General Information				Site Information				
Analyst	Sonja Summer				Intersection	SR 39 & Stonecreek		
Agency or Co.	B&N				E/W Street Name	SR 39		
Date Performed	11/28/2023				N/S Street Name	Stonecreek		
Analysis Year	2050				Analysis Time Period, hrs	0.25		
Time Analyzed	AM Peak Hour				Peak Hour Factor	0.93		
Project Description	Build Alternative 2				Jurisdiction			

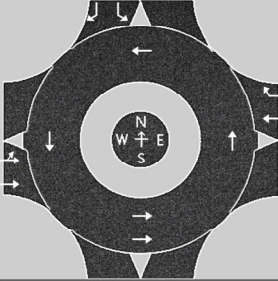
Volume Adjustments and Site Characteristics																
Approach	EB				WB				NB				SB			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	2	0	0	0	1	1	0	0	0	0	0	1	0	1
Lane Assignment	LT		T		T		R						L		R	
Volume (V), veh/h	0	80	320		0		410	200					0	200		90
Percent Heavy Vehicles, %	14	14	14		5		5	5					3	3		3
Flow Rate (v _{PCE}), pc/h	0	98	392		0		463	226					0	222		100
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1								2			
Pedestrians Crossing, p/h	0				0								0			
Proportion of CAVs	0															

Critical and Follow-Up Headway Adjustment												
Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway, s	4.5436	4.5436		4.5436	4.5436					4.6453	4.3276	
Follow-Up Headway, s	2.5352	2.5352		2.5352	2.5352					2.6667	2.5352	

Flow Computations, Capacity and v/c Ratios												
Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v _e), pc/h	230	260		463	226					222	100	
Entry Volume, veh/h	202	228		441	215					216	97	
Circulating Flow (v _c), pc/h	222			98			712			463		
Exiting Flow (v _e), pc/h	614			563			324			0		
Capacity (c _{PCE}), pc/h	1160	1160		1299	1299					882	958	
Capacity (c), veh/h	1018	1018		1237	1237					856	930	
v/c Ratio (x)	0.20	0.22		0.36	0.17					0.25	0.10	

Delay and Level of Service												
Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh	5.4	5.7		6.3	4.4					6.9	4.8	
Lane LOS	A	A		A	A					A	A	
95% Queue, veh	0.7	0.9		1.6	0.6					1.0	0.3	
Approach Delay, s/veh LOS	5.5		A	5.7		A				6.2		A
Intersection Delay, s/veh LOS	5.8						A					

HCS Roundabouts Report

General Information				Site Information				
Analyst	Sonja Summer				Intersection	SR 39 & Stonecreek		
Agency or Co.	B&N				E/W Street Name	SR 39		
Date Performed	11/28/2023				N/S Street Name	Stonecreek		
Analysis Year	2050				Analysis Time Period, hrs	0.25		
Time Analyzed	PM Peak Hour				Peak Hour Factor	0.90		
Project Description	Build Alternative 2				Jurisdiction			

Volume Adjustments and Site Characteristics																
Approach	EB				WB				NB				SB			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	2	0	0	0	1	1	0	0	0	0	0	1	0	1
Lane Assignment	LT		T		T		R						L		R	
Volume (V), veh/h	0	120	620		0		530	260					0	370		150
Percent Heavy Vehicles, %	5	5	5		5		5	5					2	2		2
Flow Rate (V _{PCE}), pc/h	0	140	723		0		618	303					0	419		170
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1								1			
Pedestrians Crossing, p/h	0				0								0			
Proportion of CAVs	0															

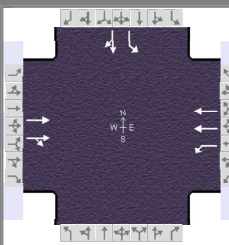
Critical and Follow-Up Headway Adjustment												
Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway, s	4.5436	4.5436		4.5436	4.5436					4.5436	4.5436	
Follow-Up Headway, s	2.5352	2.5352		2.5352	2.5352					2.5352	2.5352	

Flow Computations, Capacity and v/c Ratios												
Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v _e), pc/h	406	457		618	303					419	170	
Entry Volume, veh/h	386	436		589	289					411	167	
Circulating Flow (v _c), pc/h	419			140			1282			618		
Exiting Flow (v _e), pc/h	1142			788			443			0		
Capacity (C _{PCE}), pc/h	970	970		1250	1250					809	809	
Capacity (c), veh/h	924	924		1191	1191					793	793	
v/c Ratio (x)	0.42	0.47		0.49	0.24					0.52	0.21	

Delay and Level of Service												
Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh	8.8	9.7		8.4	5.2					11.9	6.8	
Lane LOS	A	A		A	A					B	A	
95% Queue, veh	2.1	2.6		2.8	1.0					3.0	0.8	
Approach Delay, s/veh LOS	9.3		A	7.4		A				10.4		B
Intersection Delay, s/veh LOS	8.8						A					

HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	Burgess & Niple			Duration, h	0.250
Analyst	KB	Analysis Date	Jan 16, 2024	Area Type	Other
Jurisdiction		Time Period	AM Peak	PHF	0.93
Urban Street	SR 39	Analysis Year	2050	Analysis Period	1 > 7:00
Intersection	SR 39 & SB I-77 Ramps		File Name	SR 39 AM.xus	
Project Description	AM No Build				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h		380	140	250	500					260	10	110

Signal Information													
Cycle, s	130.0	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	21.7	67.2	23.0	0.0	0.0	0.0	0.0				
		Yellow	4.0	4.0	4.0	0.0	0.0	0.0	0.0				
		Red	2.0	2.0	2.0	0.0	0.0	0.0	0.0				

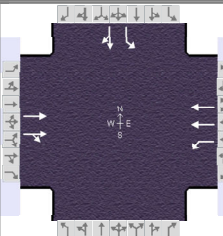
Traffic Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h		380	140	250	500					260	10	110
Initial Queue (Q _b), veh/h		0	0	0	0					0	0	0
Base Saturation Flow Rate (s ₀), veh/h		1900	1900	1900	1900					1900	1900	1900
Parking (N _m), man/h		None		None						None		
Heavy Vehicles (P _{HV}), %		8		9	9					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)		0.99	0.99	0.73	0.73					1.00	1.00	1.00
Lane Width (W), ft		12.0		12.0	12.0					12.0	12.0	
Turn Bay Length, ft		100		340	750					950	200	
Grade (P _g), %		0			0			0			0	
Speed Limit, mi/h		35	35	35	35					35	35	35

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G _{max}) or Phase Split, s		61.0	39.0	100.0				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		6	6	6				6
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		Min	Off	Min				Off
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		No	0.0	0	No		0		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			0.50	No		0.50	No			No		0.50

HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Burgess & Niple			Duration, h	0.250
Analyst	KB	Analysis Date	Jan 16, 2024	Area Type	Other
Jurisdiction		Time Period	AM Peak	PHF	0.93
Urban Street	SR 39	Analysis Year	2050	Analysis Period	1 > 7:00
Intersection	SR 39 & SB I-77 Ramps		File Name	SR 39 AM.xus	
Project Description	AM No Build				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h		380	140	250	500					260	10	110

Signal Information													
Cycle, s	130.0	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	21.7	67.2	23.0	0.0	0.0	0.0	0.0				
		Yellow	4.0	4.0	4.0	0.0	0.0	0.0	0.0				
		Red	2.0	2.0	2.0	0.0	0.0	0.0	0.0				

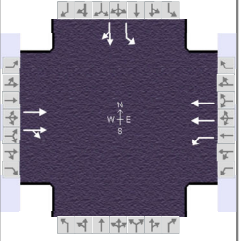
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2	1	6				8
Case Number		8.3	2.0	4.0				10.0
Phase Duration, s		73.2	27.7	101.0				29.0
Change Period, ($Y+R_c$), s		6.0	6.0	6.0				6.0
Max Allow Headway (MAH), s		0.0	3.1	0.0				3.2
Queue Clearance Time (g_s), s			21.3					22.9
Green Extension Time (g_e), s		0.0	0.4	0.0				0.1
Phase Call Probability			1.00					1.00
Max Out Probability			0.00					1.00

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		2	12	1	6					3	8	18
Adjusted Flow Rate (v), veh/h		291	268	255	510					280	129	
Adjusted Saturation Flow Rate (s), veh/h/ln		1781	1618	1682	1682					1711	1542	
Queue Service Time (g_s), s		14.4	12.5	19.3	6.3					20.9	9.8	
Cycle Queue Clearance Time (g_c), s		14.4	12.5	19.3	6.3					20.9	9.8	
Green Ratio (g/C)		0.52	0.52	0.17	0.73					0.18	0.18	
Capacity (c), veh/h		921	837	281	2457					303	273	
Volume-to-Capacity Ratio (X)		0.315	0.321	0.907	0.208					0.923	0.473	
Back of Queue (Q), ft/ln (95 th percentile)		237.1	210.6	346.9	98.4					447.8	179.7	
Back of Queue (Q), veh/ln (95 th percentile)		8.9	8.4	12.9	3.7					17.0	6.8	
Queue Storage Ratio (RQ) (95 th percentile)		2.37	2.24	1.02	0.13					0.47	0.90	
Uniform Delay (d_1), s/veh		18.1	18.2	53.1	5.6					52.6	48.0	
Incremental Delay (d_2), s/veh		0.9	1.0	8.6	0.1					30.0	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		19.0	19.2	61.8	5.7					82.6	48.5	
Level of Service (LOS)		B	B	E	A					F	D	
Approach Delay, s/veh / LOS	19.1	B		24.4	C		0.0				71.9	E
Intersection Delay, s/veh / LOS	33.9						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.39	A	1.63	B	2.32	B	2.16	B
Bicycle LOS Score / LOS	0.95	A	1.15	A			1.16	A

HCS Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	Burgess & Niple			Duration, h	0.250
Analyst	KB	Analysis Date	Jan 16, 2024	Area Type	Other
Jurisdiction		Time Period	AM Peak	PHF	0.93
Urban Street	SR 39	Analysis Year	2050	Analysis Period	1 > 7:00
Intersection	SR 39 & SB I-77 Ramps	File Name	SR 39 AM.xus		
Project Description	AM 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		380	140	250	500					260	10	110

Signal Information														
Cycle, s	130.0	Reference Phase	2	Green	21.7	67.2	23.0	0.0	0.0	0.0				
Offset, s	87	Reference Point	End	Yellow	4.0	4.0	4.0	0.0	0.0	0.0				
Uncoordinated	No	Simult. Gap E/W	On	Red	2.0	2.0	2.0	0.0	0.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On											

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	1.000	0.930	0.930	1.000				0.945	0.945	1.000
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	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	0.952	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	1.000	1.000		0.952	0.000					0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.908	0.908		1.000	1.000					0.858	0.858
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	0	2492	907	1682	3448	0				1711	128	1413
Proportion of Vehicles Arriving on Green (P)	0.00	0.52	0.52	0.17	0.73	0.00	0.00	0.00	0.00	0.18	0.18	0.18
Incremental Delay Factor (k)		0.50	0.50	0.11	0.50					0.39	0.04	

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				4.0
Green Ratio (g/C)		0.52	0.17	0.73				0.18
Permitted Saturation Flow Rate (s_p), veh/h/ln		904	0	0				1711
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_t), s		67.2	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	0.681	0.000	0.972	0.000	1.557	0.000	1.389	0.000				
Pedestrian F_s / F_{delay}	0.000	0.109	0.000	0.062	0.000	0.167	0.000	0.167				
Pedestrian M_{corner} / M_{cw}	0.00		0.00		0.00		0.00					
Bicycle c_b / d_b	1034.55	15.15	1461.18	4.72	-76.92	70.10		72.19				
Bicycle F_w / F_v	-3.64	0.46	-3.64	0.67	-3.64		-3.64	0.67				

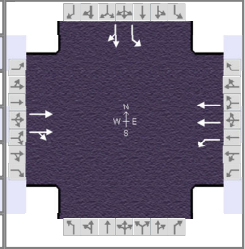
HCS Signalized Intersection Results Graphical Summary

General Information

Agency	Burgess & Niple		
Analyst	KB	Analysis Date	Jan 16, 2024
Jurisdiction		Time Period	AM Peak
Urban Street	SR 39	Analysis Year	2050
Intersection	SR 39 & SB I-77 Ramps	File Name	SR 39 AM.xus
Project Description	AM No Build		

Intersection Information

Duration, h	0.250
Area Type	Other
PHF	0.93
Analysis Period	1 > 7:00



Demand Information

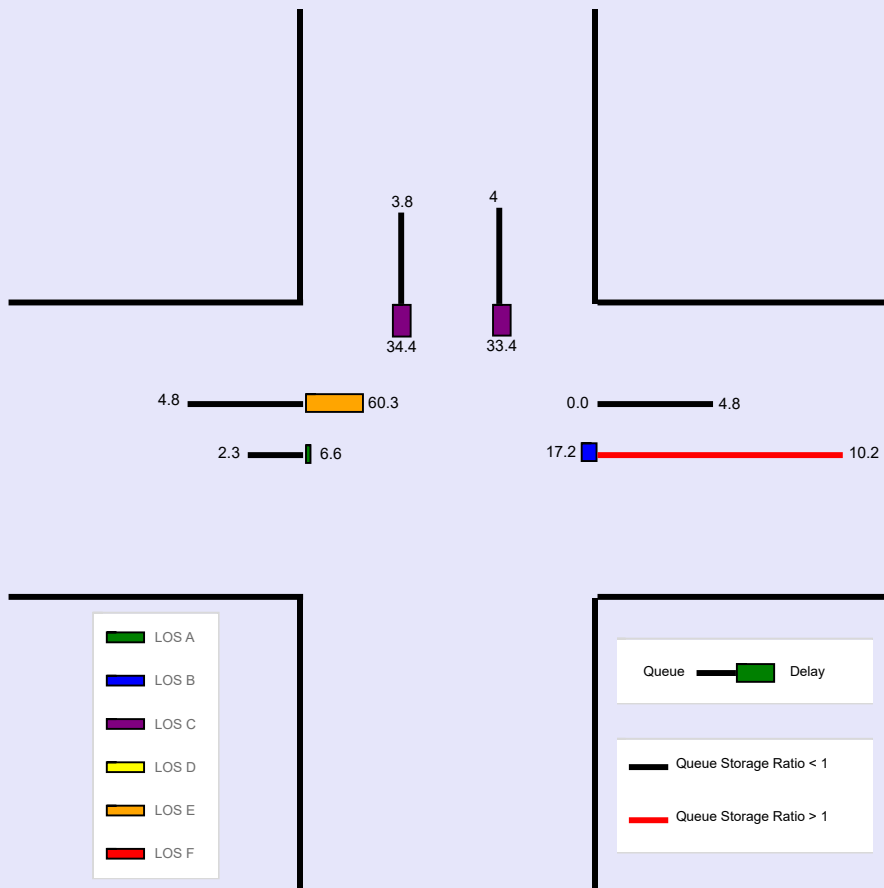
Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h		380	140	250	500					260	10	110

Signal Information

Cycle, s	130.0	Reference Phase	2										
Offset, s	87	Reference Point	End	Green	21.7	67.2	23.0	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

Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (Q), ft/ln (95 th percentile)		237.1	210.6	346.9	98.4					447.8	179.7	
Back of Queue (Q), veh/ln (95 th percentile)		8.9	8.4	12.9	3.7					17.0	6.8	
Queue Storage Ratio (RQ) (95 th percentile)		2.37	2.24	1.02	0.13					0.47	0.90	
Control Delay (d), s/veh		19.0	19.2	61.8	5.7					82.6	48.5	
Level of Service (LOS)		B	B	E	A					F	D	
Approach Delay, s/veh / LOS	19.1	B		24.4	C		0.0				71.9	E
Intersection Delay, s/veh / LOS	33.9						C					



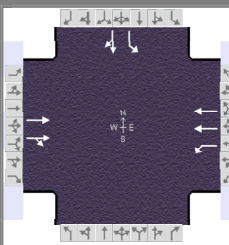
--- Messages ---

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.

--- Comments ---

HCS Signalized Intersection Input Data

General Information				Intersection Information			
Agency	Burgess & Niple			Duration, h	0.250		
Analyst	KB	Analysis Date	10/12/2023	Area Type	Other		
Jurisdiction		Time Period	PM Peak Hour	PHF	0.96		
Urban Street	SR 39	Analysis Year	2050	Analysis Period	1 > 17:00		
Intersection	SR 39 & SB I-77 Ramps		File Name	SR 39 PM.xus			
Project Description	PM No Build						



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h		680	310	450	640					420	10	150

Signal Information													
Cycle, s	150.0	Reference Phase	2										
Offset, s	76	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On										
Force Mode	Float	Simult. Gap N/S	On										
		Green	35.0	71.0	29.0	0.0	0.0	0.0	0.0				
		Yellow	3.0	3.0	3.0	0.0	0.0	0.0	0.0				
		Red	2.0	2.0	2.0	0.0	0.0	0.0	0.0				

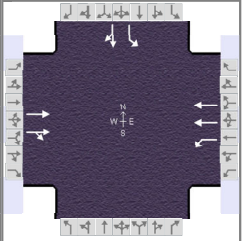
Traffic Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h		680	310	450	640					420	10	150
Initial Queue (Q _b), veh/h		0	0	0	0					0	0	0
Base Saturation Flow Rate (s ₀), veh/h		1900	1900	1900	1900					1900	1900	1900
Parking (N _m), man/h		None			None						None	
Heavy Vehicles (P _{HV}), %		1		3	3					5	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)		0.88	0.88	0.47	0.47					1.00	1.00	1.00
Lane Width (W), ft		12.0		12.0	12.0					12.0	12.0	
Turn Bay Length, ft		100		340	750					950	200	
Grade (P _g), %		0			0			0			0	
Speed Limit, mi/h		35	35	35	35					35	35	35

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G _{max}) or Phase Split, s		76.0	40.0	116.0				34.0
Yellow Change Interval (Y), s		3.0	3.0	3.0				3.0
Red Clearance Interval (R _c), s		2.0	2.0	2.0				2.0
Minimum Green (G _{min}), s		6	6	6				6
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		Min	Off	Min				Off
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		No	0.0	0	No		0		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			0.50		No	0.50		No			No	0.50

HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Burgess & Niple			Duration, h	0.250
Analyst	KB	Analysis Date	10/12/2023	Area Type	Other
Jurisdiction		Time Period	PM Peak Hour	PHF	0.96
Urban Street	SR 39	Analysis Year	2050	Analysis Period	1 > 17:00
Intersection	SR 39 & SB I-77 Ramps	File Name	SR 39 PM.xus		
Project Description	PM No Build				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h		680	310	450	640					420	10	150

Signal Information													
Cycle, s	150.0	Reference Phase	2										
Offset, s	76	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On										
Force Mode	Float	Simult. Gap N/S	On										
		Green	35.0	71.0	29.0	0.0	0.0	0.0	0.0				
		Yellow	3.0	3.0	3.0	0.0	0.0	0.0	0.0				
		Red	2.0	2.0	2.0	0.0	0.0	0.0	0.0				

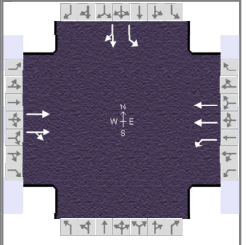
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2	1	6				4
Case Number		8.3	2.0	4.0				10.0
Phase Duration, s		76.0	40.0	116.0				34.0
Change Period, ($Y+R_c$), s		5.0	5.0	5.0				5.0
Max Allow Headway (MAH), s		0.0	3.1	0.0				3.2
Queue Clearance Time (g_s), s			37.0					31.0
Green Extension 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		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		2	12	1	6					7	4	14
Adjusted Flow Rate (v), veh/h		580	520	479	681					438	167	
Adjusted Saturation Flow Rate (s), veh/h/ln		1885	1684	1767	1766					1739	1562	
Queue Service Time (g_s), s		30.9	35.2	35.0	9.3					29.0	14.5	
Cycle Queue Clearance Time (g_c), s		30.9	35.2	35.0	9.3					29.0	14.5	
Green Ratio (g/C)		0.47	0.47	0.23	0.74					0.19	0.19	
Capacity (c), veh/h		892	797	412	2614					336	302	
Volume-to-Capacity Ratio (X)		0.651	0.652	1.161	0.260					1.301	0.552	
Back of Queue (Q), ft/ln (95 th percentile)		576.4	522.9	864.1	136.3					1057.2	253.4	
Back of Queue (Q), veh/ln (95 th percentile)		22.9	20.9	33.8	5.3					40.7	9.7	
Queue Storage Ratio (RQ) (95 th percentile)		5.76	5.27	2.54	0.18					1.11	1.27	
Uniform Delay (d_1), s/veh		30.1	30.1	57.5	6.3					60.5	54.6	
Incremental Delay (d_2), s/veh		3.3	3.7	85.0	0.1					155.7	1.3	
Initial Queue Delay (d_3), s/veh		0.0	0.0	0.0	0.0					0.0	0.0	
Control Delay (d), s/veh		33.3	33.7	142.5	6.4					216.2	55.9	
Level of Service (LOS)		C	C	F	A					F	E	
Approach Delay, s/veh / LOS	33.5	C		62.6	E	0.0				172.0	F	
Intersection Delay, s/veh / LOS		74.5				E						

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.40	A	1.64	B	2.33	B	2.16	B
Bicycle LOS Score / LOS	1.34	A	1.42	A			1.48	A

HCS Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	Burgess & Niple			Duration, h	0.250
Analyst	KB	Analysis Date	10/12/2023	Area Type	Other
Jurisdiction		Time Period	PM Peak Hour	PHF	0.96
Urban Street	SR 39	Analysis Year	2050	Analysis Period	1 > 17:00
Intersection	SR 39 & SB I-77 Ramps	File Name	SR 39 PM.xus		
Project Description	PM 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												
		680	310	450	640					420	10	150

Signal Information										Signal Phases				
Cycle, s	150.0	Reference Phase	2											
Offset, s	76	Reference Point	End	Green	35.0	71.0	29.0	0.0	0.0	0.0				
Uncoordinated	No	Simult. Gap E/W	On	Yellow	3.0	3.0	3.0	0.0	0.0	0.0				
Force Mode	Float	Simult. Gap N/S	On	Red	2.0	2.0	2.0	0.0	0.0	0.0				

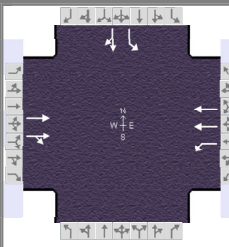
Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000				1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	1.000	0.992	1.000	0.977	0.977	1.000				0.961	0.961	1.000
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000	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	0.952	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	1.000	1.000		0.952	0.000					0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.893	0.893		1.000	1.000					0.856	0.856
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	0	2453	1117	1767	3622	0				1739	98	1465
Proportion of Vehicles Arriving on Green (P)	0.00	0.47	0.47	0.23	0.74	0.00	0.00	0.00	0.00	0.19	0.19	0.19
Incremental Delay Factor (k)		0.50	0.50	0.50	0.50					0.50	0.09	

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)		5.0	5.0	5.0				4.0
Green Ratio (g/C)		0.47	0.23	0.74				0.19
Permitted Saturation Flow Rate (s_p), veh/h/ln		772	0	0				1739
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_t), s		71.0	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	0.681	0.000	0.972	0.000	1.557	0.000	1.389	0.000				
Pedestrian F_s / F_{delay}	0.000	0.122	0.000	0.065	0.000	0.173	0.000	0.173				
Pedestrian M_{corner} / M_{cw}	0.00		0.00		0.00		0.00					
Bicycle c_b / d_b	946.67	20.80	1480.00	5.07	-66.67	80.08	-80.00	81.12				
Bicycle F_w / F_v	-3.64	0.85	-3.64	0.94	-3.64		-3.64	1.00				

HCS Signalized Intersection Results Graphical Summary

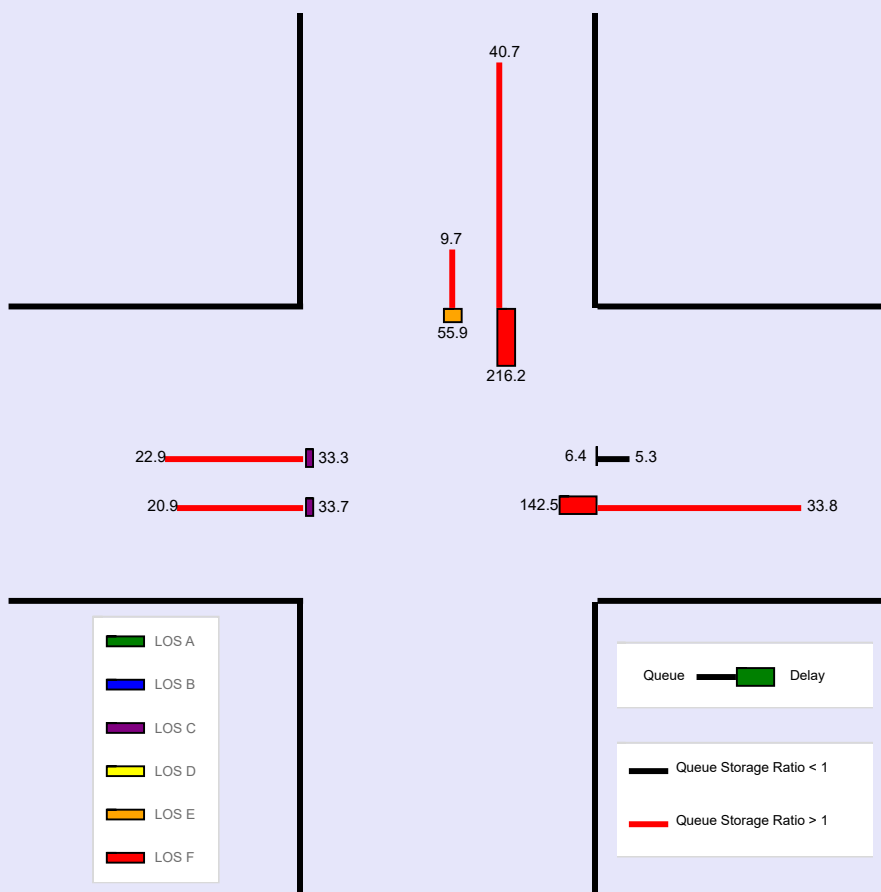
General Information				Intersection Information			
Agency	Burgess & Niple			Duration, h	0.250		
Analyst	KB	Analysis Date	10/12/2023	Area Type	Other		
Jurisdiction		Time Period	PM Peak Hour	PHF	0.96		
Urban Street	SR 39	Analysis Year	2050	Analysis Period	1 > 17:00		
Intersection	SR 39 & SB I-77 Ramps	File Name	SR 39 PM.xus				
Project Description	PM No Build						



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h		680	310	450	640					420	10	150

Signal Information												
Cycle, s	150.0	Reference Phase	2									
Offset, s	76	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On	Green	35.0	71.0	29.0	0.0	0.0	0.0		
Force Mode	Float	Simult. Gap N/S	On	Yellow	3.0	3.0	3.0	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		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Back of Queue (Q), ft/ln (95 th percentile)		576.4	522.9	864.1	136.3					1057.2	253.4	
Back of Queue (Q), veh/ln (95 th percentile)		22.9	20.9	33.8	5.3					40.7	9.7	
Queue Storage Ratio (RQ) (95 th percentile)		5.76	5.27	2.54	0.18					1.11	1.27	
Control Delay (d), s/veh		33.3	33.7	142.5	6.4					216.2	55.9	
Level of Service (LOS)		C	C	F	A					F	E	
Approach Delay, s/veh / LOS	33.5	C		62.6	E		0.0				172.0	F
Intersection Delay, s/veh / LOS	74.5						E					



--- Messages ---

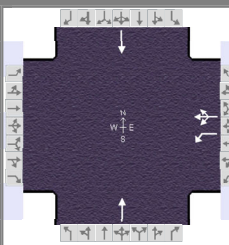
WARNING: Since queue spillover from turn lanes and spillback into upstream intersections is not accounted for in the HCM procedures, use of a simulation tool may be advised in situations where the Queue Storage Ratio exceeds 1.0.

WARNING: If demand exceeds capacity, a multiple-period analysis should be conducted.

--- Comments ---

HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	Burgess & Niple			Duration, h	0.250
Analyst	KB	Analysis Date	Jan 16, 2024	Area Type	Other
Jurisdiction		Time Period	AM Peak Hour	PHF	0.93
Urban Street	SR 39	Analysis Year	2050	Analysis Period	1 > 7:00
Intersection	SR 39 & SB Ramps	File Name	Scenario1_SBRamps_AM.xus		
Project Description	Build Alternative 1				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h				330	0	40			240			290

Signal Information																
Cycle, s	60.0	Reference Phase	2	↓	↑	↔					1	↓	2	3	↔	4
Offset, s	0	Reference Point	End	Green	28.0	20.0	0.0	0.0	0.0	0.0						
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.0	4.0	0.0	0.0	0.0	0.0						
Force Mode	Fixed	Simult. Gap N/S	On	Red	2.0	2.0	0.0	0.0	0.0	0.0		↑	6	7	8	

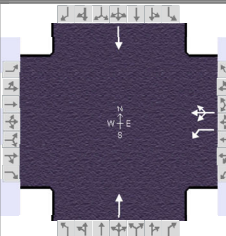
Traffic Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h				330	0	40			240			290
Initial Queue (Q _b), veh/h				0	0	0			0			0
Base Saturation Flow Rate (s ₀), veh/h				1900	1900	1900			1900			1900
Parking (N _m), man/h					None				None			None
Heavy Vehicles (P _{HV}), %				7	0				3			3
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
Upstream Filtering (I)				1.00	1.00	1.00			0.86			1.00
Lane Width (W), ft				12.0	12.0				12.0			12.0
Turn Bay Length, ft				600	675				950			2100
Grade (P _g), %		0			0				0			0
Speed Limit, mi/h				35	35	35			45			45

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G _{max}) or Phase Split, s				26.0		34.0		34.0
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				20		20		20
Start-Up Lost Time (l _t), s			2.0	2.0		2.0		2.0
Extension of Effective Green (e), s			2.0	2.0		2.0		2.0
Passage (PT), s				2.0		2.0		2.0
Recall Mode				Off		Min		Min
Dual Entry				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			
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

HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Burgess & Niple			Duration, h	0.250
Analyst	KB	Analysis Date	Jan 16, 2024	Area Type	Other
Jurisdiction		Time Period	AM Peak Hour	PHF	0.93
Urban Street	SR 39	Analysis Year	2050	Analysis Period	1 > 7:00
Intersection	SR 39 & SB Ramps	File Name	Scenario1_SBRamps_AM.xus		
Project Description	Build Alternative 1				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h				330	0	40		240			290	

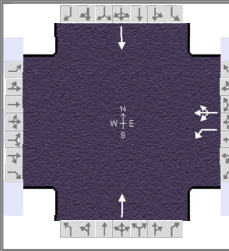
Signal Information													
Cycle, s	60.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On	Green	28.0	20.0	0.0	0.0	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	0.0	0.0	0.0	0.0			
				Red	2.0	2.0	0.0	0.0	0.0	0.0			

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				4		6		2
Case Number				10.0		8.0		8.0
Phase Duration, s				26.0		34.0		34.0
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				10.0				
Green Extension Time (g_e), s				0.6		0.0		0.0
Phase Call Probability				1.00				
Max Out Probability				0.01				

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				7	4	14		6			2	
Adjusted Flow Rate (v), veh/h				284	114			258			312	
Adjusted Saturation Flow Rate (s), veh/h/ln				1711	1673			1856			1856	
Queue Service Time (g_s), s				8.0	3.7			1.1			6.5	
Cycle Queue Clearance Time (g_c), s				8.0	3.7			1.1			6.5	
Green Ratio (g/C)				0.33	0.33			0.47			0.47	
Capacity (c), veh/h				569	557			867			867	
Volume-to-Capacity Ratio (X)				0.498	0.205			0.298			0.360	
Back of Queue (Q), ft/ln (95 th percentile)				131.5	59.6			20			104.7	
Back of Queue (Q), veh/ln (95 th percentile)				5.0	2.4			0.8			4.1	
Queue Storage Ratio (RQ) (95 th percentile)				0.22	0.09			0.02			0.05	
Uniform Delay (d_1), s/veh				16.0	19.1			1.6			10.2	
Incremental Delay (d_2), s/veh				0.3	0.1			0.8			1.2	
Initial Queue Delay (d_3), s/veh				0.0	0.0			0.0			0.0	
Control Delay (d), s/veh				16.3	19.2			2.3			11.4	
Level of Service (LOS)				B	B			A			B	
Approach Delay, s/veh / LOS	0.0			17.1		B		2.3	A		11.4	B
Intersection Delay, s/veh / LOS				11.3				B				

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.71	B	1.71	B	1.66	B	1.37	A
Bicycle LOS Score / LOS			1.14	A	0.91	A	1.00	A

HCS Signalized Intersection Intermediate Values

General Information				Intersection Information		
Agency	Burgess & Niple			Duration, h	0.250	
Analyst	KB	Analysis Date	Jan 16, 2024	Area Type	Other	
Jurisdiction		Time Period	AM Peak Hour	PHF	0.93	
Urban Street	SR 39	Analysis Year	2050	Analysis Period	1 > 7:00	
Intersection	SR 39 & SB Ramps	File Name	Scenario1_SBRamps_AM.xus			
Project Description	Build Alternative 1					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h				330	0	40			240			290

Signal Information													
Cycle, s	60.0	Reference Phase	2	↓	↑	↔					↓	↑	↔
Offset, s	0	Reference Point	End	Green	28.0	20.0	0.0	0.0	0.0	0.0			
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.0	4.0	0.0	0.0	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	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})				0.945	1.000	0.945	1.000	0.977	1.000	1.000	0.977	1.000
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	0.000		1.000	1.000		1.000	1.000	
Right-Turn Adjustment Factor (f_{RT})					0.847	0.847		0.000	1.000		0.000	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 ($f_{CAV,prot}$)												
Left-Turn Perm. CAV Adj. Factor ($f_{CAV,perm}$)							1.00			1.00		
Movement Saturation Flow Rate (s), veh/h				1711	0	1673	0	1856	0	0	1856	0
Proportion of Vehicles Arriving on Green (P)	0.00	0.00	0.00	0.33	0.00	0.33	0.00	0.90	0.00	0.00	0.47	0.00
Incremental Delay Factor (k)				0.04	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)				0.33		0.47		0.47
Permitted Saturation Flow Rate (s_p), veh/h/ln				1711		1085		1139
Shared Saturation Flow Rate (s_{sh}), veh/h/ln						0		0
Permitted Effective Green Time (g_p), s				0.0		0.0		0.0
Permitted Service Time (g_u), s				0.0		0.0		0.0
Permitted Queue Service Time (g_{ps}), s								
Time to First Blockage (g_t), s				0.0		28.0		28.0
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	0.972	0.000	0.972	0.000	0.681	0.000
Pedestrian F_s / F_{delay}	0.000	0.136	0.000	0.136	0.000	0.086	0.000	0.086
Pedestrian M_{corner} / M_{cw}	0.00		0.00		0.00		0.00	
Bicycle c_b / d_b		35.21	-233.33	37.41	934.21	8.52	934.21	8.52
Bicycle F_w / F_v	-3.64		-3.64	0.66	-3.64	0.43	-3.64	0.51

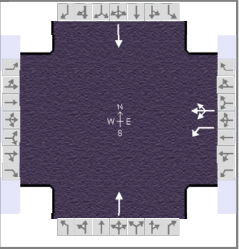
HCS Signalized Intersection Results Graphical Summary

General Information

Agency	Burgess & Niple		
Analyst	KB	Analysis Date	Jan 16, 2024
Jurisdiction		Time Period	AM Peak Hour
Urban Street	SR 39	Analysis Year	2050
Intersection	SR 39 & SB Ramps	File Name	Scenario1_SBRamps_AM.xus
Project Description	Build Alternative 1		

Intersection Information

Duration, h	0.250
Area Type	Other
PHF	0.93
Analysis Period	1 > 7:00



Demand Information

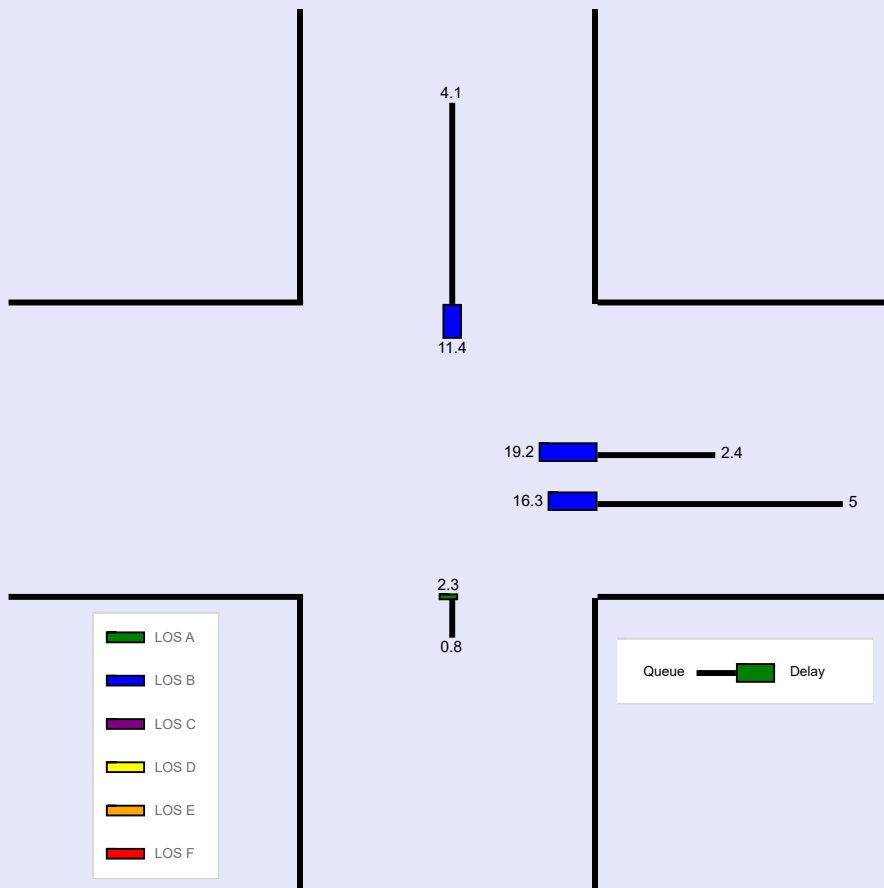
Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h				330	0	40		240			290	

Signal Information

Cycle, s	60.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On	Green	28.0	20.0	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

Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (Q), ft/ln (95 th percentile)				131.5	59.6			20			104.7	
Back of Queue (Q), veh/ln (95 th percentile)				5.0	2.4			0.8			4.1	
Queue Storage Ratio (RQ) (95 th percentile)				0.22	0.09			0.02			0.05	
Control Delay (d), s/veh				16.3	19.2			2.3			11.4	
Level of Service (LOS)				B	B			A			B	
Approach Delay, s/veh / LOS	0.0			17.1		B	2.3		A	11.4		B
Intersection Delay, s/veh / LOS				11.3						B		



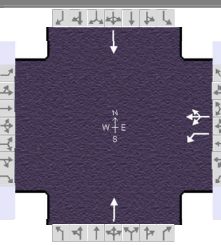
--- Messages ---

WARNING: The shared-plus-exclusive turn lane solution is an approximation of the HCM method, because more than three lane groups cannot be accommodated. Input data for Percent Turns in Shared Lane are used to specify proportion of turning vehicles in the shared lane.

--- Comments ---

HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	Burgess & Niple			Duration, h	0.250
Analyst	KB	Analysis Date	Jan 16, 2024	Area Type	Other
Jurisdiction		Time Period	PM Peak Hour	PHF	0.90
Urban Street	SR 39	Analysis Year	2050	Analysis Period	1 > 17:00
Intersection	SR 39 & SB Ramps	File Name	Scenario1_SBRamps_PM.xus		
Project Description	Build Alternative 1				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h				530	0	50			330			520

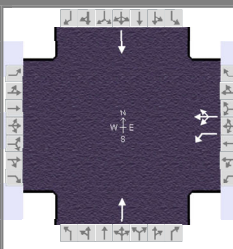
Signal Information													
Cycle, s	100.0	Reference Phase	2	↓	↑	↔	↔	↔	↔	↓	↑	↔	↔
Offset, s	0	Reference Point	End	Green	65.0	23.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Force Mode	Fixed	Simult. Gap N/S	On	Red	2.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Traffic Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h				530	0	50			330			520
Initial Queue (Q _b), veh/h				0	0	0			0			0
Base Saturation Flow Rate (s ₀), veh/h				1900	1900	1900			1900			1900
Parking (N _m), man/h					None				None			None
Heavy Vehicles (P _{HV}), %				5	5				2			2
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
Upstream Filtering (I)				1.00	1.00	1.00			0.74			1.00
Lane Width (W), ft				12.0	12.0				12.0			12.0
Turn Bay Length, ft				600	675				950			2100
Grade (P _g), %		0			0				0			0
Speed Limit, mi/h				35	35	35			45			45

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G _{max}) or Phase Split, s				73.0		27.0		27.0
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				20		20		20
Start-Up Lost Time (l _t), s			2.0	2.0		2.0		2.0
Extension of Effective Green (e), s			2.0	2.0		2.0		2.0
Passage (PT), s				2.0		2.0		2.0
Recall Mode				Off		Min		Min
Dual Entry				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			
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

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	Burgess & Niple			Duration, h	0.250	
Analyst	KB	Analysis Date	Jan 16, 2024	Area Type	Other	
Jurisdiction		Time Period	PM Peak Hour	PHF	0.90	
Urban Street	SR 39	Analysis Year	2050	Analysis Period	1 > 17:00	
Intersection	SR 39 & SB Ramps	File Name	Scenario1_SBRamps_PM.xus			
Project Description	Build Alternative 1					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h				530	0	50			330			520

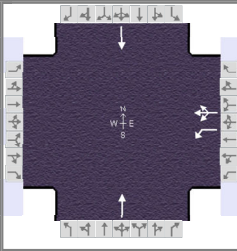
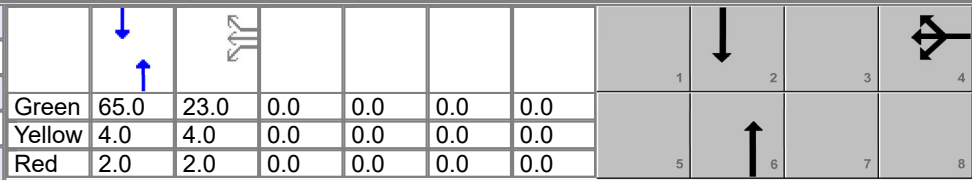
Signal Information														
Cycle, s	100.0	Reference Phase	2	↓	↑	↔					↓	↑	↔	
Offset, s	0	Reference Point	End	Green	65.0	23.0	0.0	0.0	0.0	0.0	1	2	3	4
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.0	4.0	0.0	0.0	0.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On	Red	2.0	2.0	0.0	0.0	0.0	0.0	5	6	7	8

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				4		6		2
Case Number				10.0		8.0		8.0
Phase Duration, s				29.0		71.0		71.0
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				21.6				
Green Extension Time (g_e), s				1.4		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		6			2				
Adjusted Flow Rate (v), veh/h				353	291			367			578				
Adjusted Saturation Flow Rate (s), veh/h/ln				1739	1702			1870			1870				
Queue Service Time (g_s), s				19.6	16.9			11.6			15.6				
Cycle Queue Clearance Time (g_c), s				19.6	16.9			11.6			15.6				
Green Ratio (g/C)				0.23	0.23			0.65			0.65				
Capacity (c), veh/h				400	392			1216			1216				
Volume-to-Capacity Ratio (X)				0.883	0.743			0.302			0.475				
Back of Queue (Q), ft/ln (95 th percentile)				341.5	326.2			196.1			241.4				
Back of Queue (Q), veh/ln (95 th percentile)				13.1	12.5			7.7			9.5				
Queue Storage Ratio (RQ) (95 th percentile)				0.57	0.48			0.21			0.11				
Uniform Delay (d_1), s/veh				37.2	44.9			11.7			8.9				
Incremental Delay (d_2), s/veh				2.6	1.1			0.5			1.3				
Initial Queue Delay (d_3), s/veh				0.0	0.0			0.0			0.0				
Control Delay (d), s/veh				39.8	45.9			12.2			10.2				
Level of Service (LOS)				D	D			B			B				
Approach Delay, s/veh / LOS	0.0			42.6			D			12.2			B		
Intersection Delay, s/veh / LOS	23.8						C								

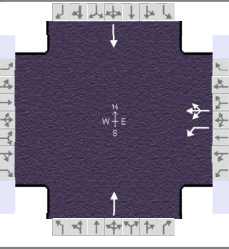
Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.73	B	1.73	B	1.64	B	1.35	A
Bicycle LOS Score / LOS			1.55	B	1.09	A	1.44	A

HCS Signalized Intersection Intermediate Values

General Information					Intersection Information										
Agency	Burgess & Niple				Duration, h	0.250									
Analyst	KB	Analysis Date	Jan 16, 2024		Area Type	Other									
Jurisdiction		Time Period	PM Peak Hour		PHF	0.90									
Urban Street	SR 39	Analysis Year	2050		Analysis Period	1 > 17:00									
Intersection	SR 39 & SB Ramps	File Name	Scenario1_SBRamps_PM.xus												
Project Description	Build Alternative 1														
Demand Information				EB			WB			NB			SB		
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h							530	0	50			330			520
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	65.0	23.0	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
Heavy Vehicles and Grade Factor (f _{HVg})							0.961	0.961	0.961	1.000	0.984	1.000	1.000	0.984	1.000
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	
Area Type Adjustment Factor (f _a)							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	
Left-Turn Adjustment Factor (f _{LT})							0.952	0.000		1.000	1.000		1.000	1.000	
Right-Turn Adjustment Factor (f _{RT})								0.847	0.847		0.000	1.000		0.000	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	
DDI Factor (f _{DDI})							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							1739	0	1702	0	1870	0	0	1870	0
Proportion of Vehicles Arriving on Green (P)				0.00	0.00	0.00	0.23	0.00	0.23	0.00	0.50	0.00	0.00	0.65	0.00
Incremental Delay Factor (k)							0.04	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)							0.23		0.65		0.65				
Permitted Saturation Flow Rate (s _p), veh/h/ln							1739		849		1031				
Shared Saturation Flow Rate (s _{sh}), veh/h/ln									0		0				
Permitted Effective Green Time (g _p), s							0.0		0.0		0.0				
Permitted Service Time (g _u), s							0.0		0.0		0.0				
Permitted Queue Service Time (g _{ps}), s															
Time to First Blockage (g _t), s							0.0		65.0		65.0				
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	0.972	0.000	0.972	0.000	0.681	0.000	0.681	0.000	0.000	0.000
Pedestrian F _s / F _{delay}				0.000	0.157	0.000	0.157	0.000	0.073	0.000	0.073	0.000	0.073	0.000	0.073
Pedestrian M _{corner} / M _{cw}				0.00		0.00		0.00		0.00		0.00		0.00	
Bicycle c _b / d _b					55.13		57.25	1299.79	6.13	1299.79	6.13	1299.79	6.13	1299.79	6.13
Bicycle F _w / F _v				-3.64		-3.64	1.06	-3.64	0.61	-3.64	0.61	-3.64	0.61	-3.64	0.95

HCS Signalized Intersection Results Graphical Summary

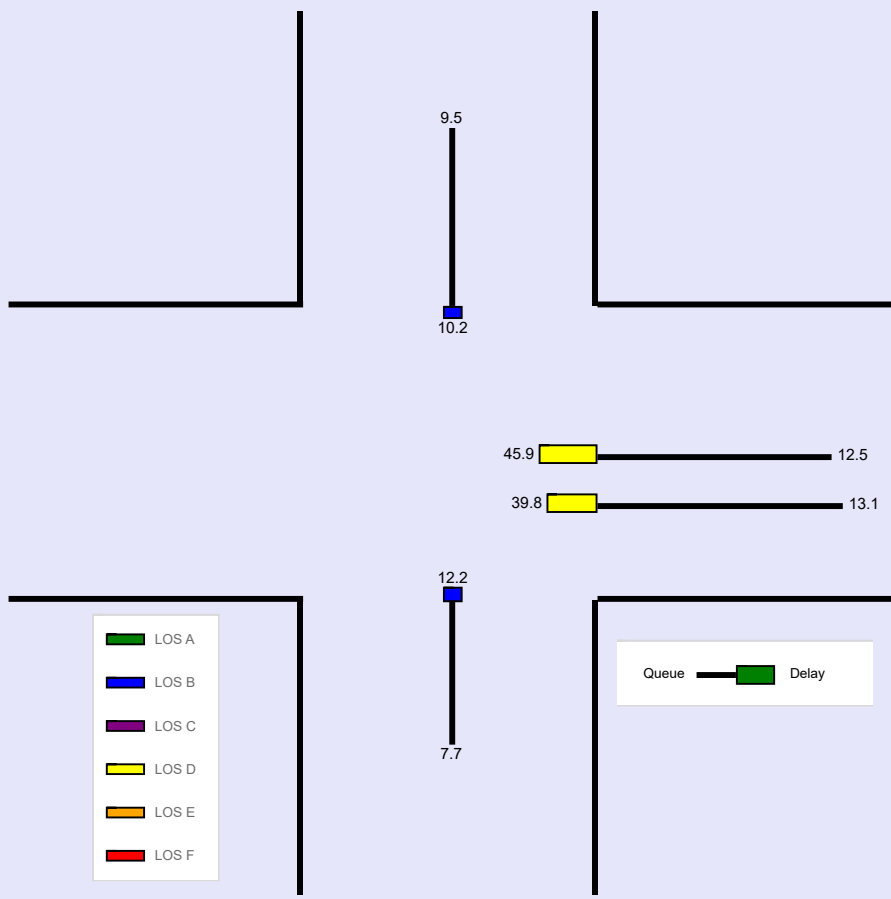
General Information				Intersection Information	
Agency	Burgess & Niple			Duration, h	0.250
Analyst	KB	Analysis Date	Jan 16, 2024	Area Type	Other
Jurisdiction		Time Period	PM Peak Hour	PHF	0.90
Urban Street	SR 39	Analysis Year	2050	Analysis Period	1 > 17:00
Intersection	SR 39 & SB Ramps	File Name	Scenario1_SBRamps_PM.xus		
Project Description	Build Alternative 1				



Demand Information	EB			WB			NB			SB			
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R	
Demand (v), veh/h				530	0	50				330			520

Signal Information											
Cycle, s	100.0	Reference Phase	2	↓	↑	↔	↔	1	2	3	4
Offset, s	0	Reference Point	End	Green	65.0	23.0	0.0	0.0	0.0	0.0	
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.0	4.0	0.0	0.0	0.0	0.0	
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)				341.5	326.2			196.1			241.4				
Back of Queue (Q), veh/ln (95 th percentile)				13.1	12.5			7.7			9.5				
Queue Storage Ratio (RQ) (95 th percentile)				0.57	0.48			0.21			0.11				
Control Delay (d), s/veh				39.8	45.9			12.2			10.2				
Level of Service (LOS)				D	D			B			B				
Approach Delay, s/veh / LOS	0.0			42.6			D			12.2			B		
Intersection Delay, s/veh / LOS	23.8						C								

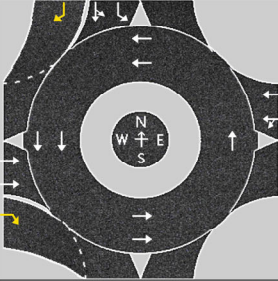


--- Messages ---

WARNING: The shared-plus-exclusive turn lane solution is an approximation of the HCM method, because more than three lane groups cannot be accommodated. Input data for Percent Turns in Shared Lane are used to specify proportion of turning vehicles in the shared lane.

--- Comments ---

HCS Roundabouts Report

General Information				Site Information				
Analyst	Sonja Summer				Intersection	SR 39 & SB Ramps		
Agency or Co.	B&N				E/W Street Name	SR 39		
Date Performed	11/28/2023				N/S Street Name	SB Ramps		
Analysis Year	2050				Analysis Time Period, hrs	0.25		
Time Analyzed	AM Peak Hour				Peak Hour Factor	0.93		
Project Description	Build Alternative 2				Jurisdiction			

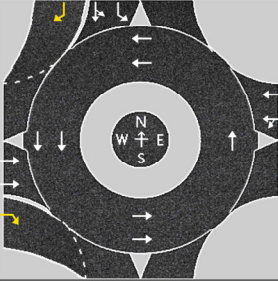
Volume Adjustments and Site Characteristics																
Approach	EB				WB				NB				SB			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Number of Lanes (N)	0	0	2	0	0	0	2	0	0	0	0	0	0	1	1	0
Lane Assignment	T		T		LT		T						L		LT	
Volume (V), veh/h	0		380	140	0	250	500						0	260	10	110
Percent Heavy Vehicles, %	8		8	8	9	9	9						7	7	7	7
Flow Rate (V _{PCE}), pc/h	0		441	163	0	293	586						0	299	12	127
Right-Turn Bypass	Yielding				None				None				Yielding			
Conflicting Lanes	2				1								2			
Pedestrians Crossing, p/h	0				0								0			
Proportion of CAVs	0															

Critical and Follow-Up Headway Adjustment												
Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway, s	4.6453	4.3276	4.9763	4.5436	4.5436					4.6453	4.3276	4.9763
Follow-Up Headway, s	2.6667	2.5352	2.6087	2.5352	2.5352					2.6667	2.5352	2.6087

Flow Computations, Capacity and v/c Ratios												
Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v _e), pc/h	207	234	163	413	466					165	146	127
Entry Volume, veh/h	192	216	151	379	427					154	137	119
Circulating Flow (v _c), pc/h	604			0			740			879		
Exiting Flow (v _e), pc/h	740			586			0			305		
Capacity (C _{PCE}), pc/h	774	850	1011	1420	1420					601	673	759
Capacity (c), veh/h	717	787	936	1303	1303					562	629	709
v/c Ratio (x)	0.27	0.28	0.16	0.29	0.33					0.27	0.22	0.17

Delay and Level of Service												
Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh	8.2	7.7	5.4	5.3	5.7					10.2	8.4	6.9
Lane LOS	A	A	A	A	A					B	A	A
95% Queue, veh	1.1	1.1	0.6	1.2	1.4					1.1	0.8	0.6
Approach Delay, s/veh LOS	7.2		A	5.6		A				8.6		A
Intersection Delay, s/veh LOS	6.8						A					

HCS Roundabouts Report

General Information				Site Information				
Analyst	Sonja Summer				Intersection	SR 39 & SB Ramps		
Agency or Co.	B&N				E/W Street Name	SR 39		
Date Performed	11/28/2023				N/S Street Name	SB Ramps		
Analysis Year	2050				Analysis Time Period, hrs	0.25		
Time Analyzed	PM Peak Hour				Peak Hour Factor	0.90		
Project Description	Build Alternative 2				Jurisdiction			

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Number of Lanes (N)	0	0	2	0	0	0	2	0	0	0	0	0	0	1	1	0
Lane Assignment	T		T		LT		T						L		LT	
Volume (V), veh/h	0		680	310	0	450	640						0	420	10	150
Percent Heavy Vehicles, %	1		1	1	3	3	3						5	5	5	5
Flow Rate (V _{PCE}), pc/h	0		763	348	0	515	732						0	490	12	175
Right-Turn Bypass	Yielding				None				None				Yielding			
Conflicting Lanes	2				1								2			
Pedestrians Crossing, p/h	0				0								0			
Proportion of CAVs	0															

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway, s	4.6453	4.3276	4.9763	4.5436	4.5436					4.6453	4.3276	4.9763
Follow-Up Headway, s	2.6667	2.5352	2.6087	2.5352	2.5352					2.6667	2.5352	2.6087

Flow Computations, Capacity and v/c Ratios

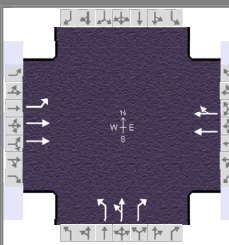
Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v _e), pc/h	359	404	348	586	661					236	266	175
Entry Volume, veh/h	355	400	345	569	642					225	253	167
Circulating Flow (v _c), pc/h	1017			0			1253			1247		
Exiting Flow (v _e), pc/h	1253			732			0			527		
Capacity (C _{PCE}), pc/h	530	598	806	1420	1420					429	492	654
Capacity (c), veh/h	524	592	798	1379	1379					408	469	623
v/c Ratio (x)	0.68	0.68	0.43	0.41	0.47					0.55	0.54	0.27

Delay and Level of Service

Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh	23.4	21.2	10.0	6.5	7.2					21.8	19.1	9.2
Lane LOS	C	C	B	A	A					C	C	A
95% Queue, veh	5.1	5.2	2.2	2.1	2.5					3.2	3.2	1.1
Approach Delay, s/veh LOS	18.4		C	6.9		A				17.5		C
Intersection Delay, s/veh LOS	13.5						B					

HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	Burgess & Niple			Duration, h	0.250
Analyst	KB	Analysis Date	Jan 16, 2024	Area Type	Other
Jurisdiction		Time Period	AM Peak	PHF	0.98
Urban Street	SR 39	Analysis Year	2050	Analysis Period	1 > 7:00
Intersection	SR 39 & NB I-77 Ramps		File Name	SR 39 AM.xus	
Project Description	AM No Build				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	80	560			510	260	240	10	280			

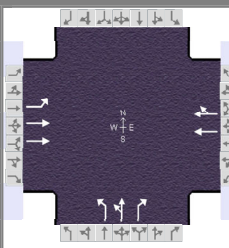
Signal Information													
Cycle, s	57.7	Reference Phase	2	↔	↔↔	↔↔	↕↕	↕↕	↕↕	↕↕	↕↕	↕↕	↕↕
Offset, s	11	Reference Point	End	Green	5.2	21.0	13.5	0.0	0.0	0.0	↗	↖	↕
Uncoordinated	Yes	Simult. Gap E/W	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0	↘	↙	↕
Force Mode	Fixed	Simult. Gap N/S	On	Red	2.0	2.0	2.0	0.0	0.0	0.0	↘	↙	↕

Traffic Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	80	560			510	260	240	10	280			
Initial Queue (Q_0), veh/h	0	0			0	0	0	0	0			
Base Saturation Flow Rate (s_0), veh/h	1900	1900			1900	1900	1900	1900	1900			
Parking (N_m), man/h		None			None			None				
Heavy Vehicles (P_{HV}), %	5	5			7		9	9	9			
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)	0.80	0.80			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			
Turn Bay Length, ft	300	750			1200		750	750	825			
Grade (P_g), %		0			0			0			0	
Speed Limit, mi/h	35	35			35	35	35	35	35			

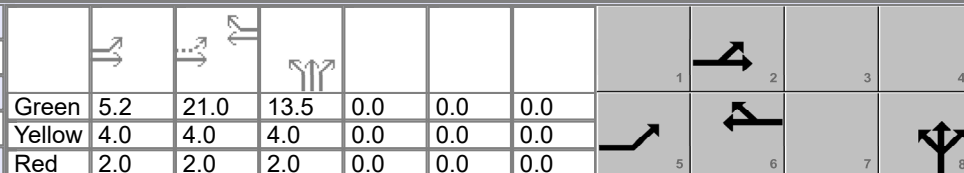
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s	8.0	38.0		30.0		30.0		
Yellow Change Interval (Y), s	4.0	4.0		4.0		4.0		
Red Clearance Interval (R_c), s	2.0	2.0		2.0		2.0		
Minimum Green (G_{min}), s	7	20		20		10		
Start-Up Lost Time (l_t), s	2.0	2.0		2.0	2.0	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		Off		Off		
Dual Entry	No	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		No	0.0	0	No		0	
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			0.50	No		0.50	No		

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	Burgess & Niple			Duration, h	0.250	
Analyst	KB	Analysis Date	Jan 16, 2024	Area Type	Other	
Jurisdiction		Time Period	AM Peak	PHF	0.98	
Urban Street	SR 39	Analysis Year	2050	Analysis Period	1 > 7:00	
Intersection	SR 39 & NB I-77 Ramps	File Name	SR 39 AM.xus			
Project Description	AM No Build					

Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	80	560			510	260	240	10	280			

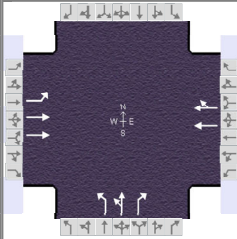
Signal Information													
Cycle, s	57.7	Reference Phase	2										
Offset, s	11	Reference Point	End	Green	5.2	21.0	13.5	0.0	0.0	0.0			
Uncoordinated	Yes	Simult. Gap E/W	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Red	2.0	2.0	2.0	0.0	0.0	0.0			

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2		6		8		
Case Number	1.0	4.0		8.3		9.0		
Phase Duration, s	11.2	38.2		27.0		19.5		
Change Period, (Y+R _c), s	6.0	6.0		6.0		6.0		
Max Allow Headway (MAH), s	3.1	3.1		3.1		3.2		
Queue Clearance Time (g _s), s	3.5	7.3		18.2		12.4		
Green Extension Time (g _e), s	0.0	3.2		2.8		1.1		
Phase Call Probability	0.75	1.00		1.00		1.00		
Max Out Probability	0.15	0.00		0.11		0.00		

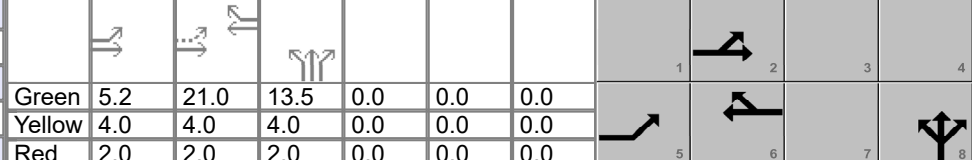
Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2			6	16	3	8	18			
Adjusted Flow Rate (v), veh/h	86	602			416	370	147	108	286			
Adjusted Saturation Flow Rate (s), veh/h/ln	1739	1738			1796	1591	1682	1690	1497			
Queue Service Time (g _s), s	1.5	5.3			16.2	11.1	4.2	3.0	10.4			
Cycle Queue Clearance Time (g _c), s	1.5	5.3			16.2	11.1	4.2	3.0	10.4			
Green Ratio (g/C)	0.49	0.56			0.36	0.36	0.23	0.23	0.23			
Capacity (c), veh/h	338	1942			653	579	393	395	350			
Volume-to-Capacity Ratio (X)	0.254	0.310			0.636	0.639	0.374	0.274	0.817			
Back of Queue (Q), ft/ln (95 th percentile)	21.8	67.7			186.1	157.1	72.4	51.9	165			
Back of Queue (Q), veh/ln (95 th percentile)	0.8	2.6			7.1	6.3	2.7	1.9	6.2			
Queue Storage Ratio (RQ) (95 th percentile)	0.07	0.09			0.16	0.14	0.10	0.07	0.20			
Uniform Delay (d ₁), s/veh	11.2	6.8			15.2	15.2	18.6	18.1	21.0			
Incremental Delay (d ₂), s/veh	0.1	0.0			0.4	0.4	0.2	0.1	1.8			
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	11.3	6.8			15.6	15.7	18.8	18.2	22.8			
Level of Service (LOS)	B	A			B	B	B	B	C			
Approach Delay, s/veh / LOS	7.4	A		15.6	B		20.8	C		0.0		
Intersection Delay, s/veh / LOS	14.2						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.87	B	1.38	A	2.12	B	2.29	B
Bicycle LOS Score / LOS	1.03	A	1.14	A	1.38	A		

HCS Signalized Intersection Intermediate Values

General Information				Intersection Information		
Agency	Burgess & Niple			Duration, h	0.250	
Analyst	KB	Analysis Date	Jan 16, 2024	Area Type	Other	
Jurisdiction		Time Period	AM Peak	PHF	0.98	
Urban Street	SR 39	Analysis Year	2050	Analysis Period	1 > 7:00	
Intersection	SR 39 & NB I-77 Ramps	File Name	SR 39 AM.xus			
Project Description	AM 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	80	560			510	260	240	10	280			

Signal Information														
Cycle, s	57.7	Reference Phase	2	Green	5.2	21.0	13.5	0.0	0.0	0.0	1	2	3	4
Offset, s	11	Reference Point	End	Yellow	4.0	4.0	4.0	0.0	0.0	0.0	5	6	7	8
Uncoordinated	Yes	Simult. Gap E/W	On	Red	2.0	2.0	2.0	0.0	0.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On											

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})	0.961	0.961	1.000	1.000	0.945	1.000	0.930	0.930	0.930			
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000
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	0.952	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		1.000	1.000		0.952	0.000				
Right-Turn Adjustment Factor (f_{RT})		1.000	1.000		0.886	0.886		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	1739	3564	0	0	2246	1141	1682	1690	1497			
Proportion of Vehicles Arriving on Green (P)	0.09	0.56	0.00	0.00	0.36	0.36	0.23	0.23	0.23	0.00	0.00	0.00
Incremental Delay Factor (k)	0.04	0.04			0.04	0.04	0.04	0.04	0.04			

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		4.0		
Green Ratio (g/C)	0.49	0.56		0.36		0.23		
Permitted Saturation Flow Rate (s_p), veh/h/ln	672	0		830		1682		
Shared Saturation Flow Rate (s_{sh}), veh/h/ln				0				
Permitted Effective Green Time (g_p), s	23.0	0.0		0.0		0.0		
Permitted Service Time (g_u), s	4.8	0.0		0.0		0.0		
Permitted Queue Service Time (g_{ps}), s	2.7							
Time to First Blockage (g_t), s	0.0	0.0		21.0		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	1.198	0.000	0.681	0.000	1.389	0.000	1.557	0.000
Pedestrian F_s / F_{delay}	0.000	0.069	0.000	0.099	0.000	0.135	0.000	0.135
Pedestrian M_{corner} / M_{cw}	0.00		0.00		0.00		0.00	
Bicycle c_b / d_b	1116.97	5.63	727.61	11.68	-242.50	36.29		34.08
Bicycle F_w / F_v	-3.64	0.54	-3.64	0.65	-3.64	0.89	-3.64	

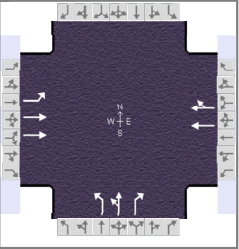
HCS Signalized Intersection Results Graphical Summary

General Information

Agency	Burgess & Niple		
Analyst	KB	Analysis Date	Jan 16, 2024
Jurisdiction		Time Period	AM Peak
Urban Street	SR 39	Analysis Year	2050
Intersection	SR 39 & NB I-77 Ramps	File Name	SR 39 AM.xus
Project Description	AM No Build		

Intersection Information

Duration, h	0.250
Area Type	Other
PHF	0.98
Analysis Period	1 > 7:00



Demand Information

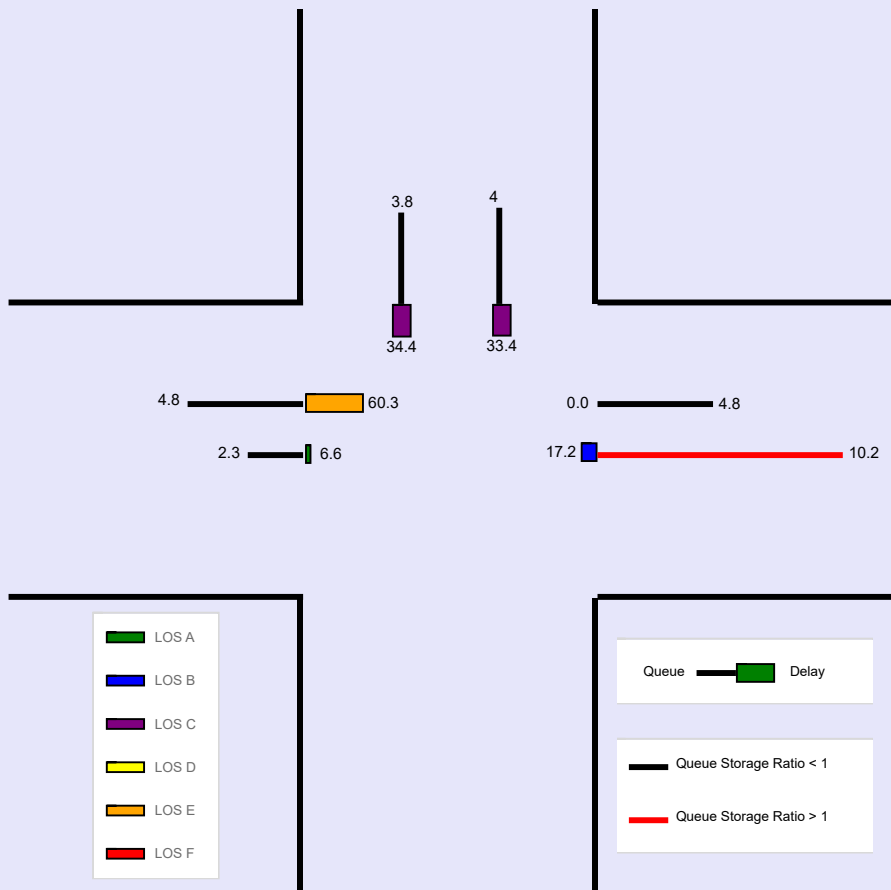
Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	80	560			510	260	240	10	280			

Signal Information

Cycle, s	57.7	Reference Phase	2											
Offset, s	11	Reference Point	End	Green	5.2	21.0	13.5	0.0	0.0	0.0				
Uncoordinated	Yes	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

Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (Q), ft/ln (95 th percentile)	21.8	67.7			186.1	157.1	72.4	51.9	165			
Back of Queue (Q), veh/ln (95 th percentile)	0.8	2.6			7.1	6.3	2.7	1.9	6.2			
Queue Storage Ratio (RQ) (95 th percentile)	0.07	0.09			0.16	0.14	0.10	0.07	0.20			
Control Delay (d), s/veh	11.3	6.8			15.6	15.7	18.8	18.2	22.8			
Level of Service (LOS)	B	A			B	B	B	B	C			
Approach Delay, s/veh / LOS	7.4	A		15.6	B		20.8	C		0.0		
Intersection Delay, s/veh / LOS	14.2						B					



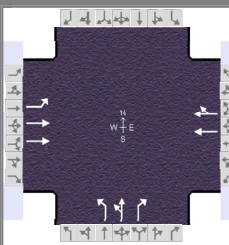
--- Messages ---

WARNING: The shared-plus-exclusive turn lane solution is an approximation of the HCM method, because more than three lane groups cannot be accommodated. Input data for Percent Turns in Shared Lane are used to specify proportion of turning vehicles in the shared lane.

--- Comments ---

HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	Burgess & Niple			Duration, h	0.250
Analyst	KB	Analysis Date	10/12/2023	Area Type	Other
Jurisdiction		Time Period	PM Peak Hour	PHF	0.94
Urban Street	SR 39	Analysis Year	2050	Analysis Period	1 > 17:00
Intersection	SR 39 & NB I-77 Ramps		File Name	SR 39 PM.xus	
Project Description	PM No Build				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	140	960			820	410	270	0	370			

Signal Information				Signal Phases							
Cycle, s	91.3	Reference Phase	2	1	2	3	4	5	6	7	8
Offset, s	6	Reference Point	End	Green	6.8	36.5	30.0	0.0	0.0	0.0	
Uncoordinated	Yes	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	

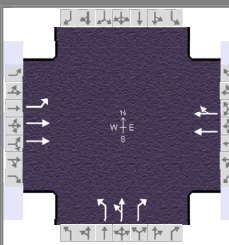
Traffic Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	140	960			820	410	270	0	370			
Initial Queue (Q _b), veh/h	0	0			0	0	0	0	0			
Base Saturation Flow Rate (s ₀), veh/h	1900	1900			1900	1900	1900	1900	1900			
Parking (N _m), man/h		None			None			None				
Heavy Vehicles (P _{HV}), %	2	2			2		5	5	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)	0.34	0.34			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			
Turn Bay Length, ft	300	750			1200		750	750	825			
Grade (P _g), %		0			0			0			0	
Speed Limit, mi/h	35	35			35	35	35	35	35			

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
	Maximum Green (G _{max}) or Phase Split, s	8.0	40.0		40.0		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	7	20		20		10		
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 (P _T), s	2.0	2.0		2.0		2.0		
Recall Mode	Off	Ped		Min		Off		
Dual Entry	No	Yes		Yes		Yes		
Walk (Walk), s		0.0				0.0		0.0
Pedestrian Clearance Time (P _C), 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		No	0.0	0	No		0	
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			0.50	No		0.50	No		

HCS Signalized Intersection Results Summary

General Information				Intersection Information			
Agency	Burgess & Niple			Duration, h	0.250		
Analyst	KB	Analysis Date	10/12/2023	Area Type	Other		
Jurisdiction		Time Period	PM Peak Hour	PHF	0.94		
Urban Street	SR 39	Analysis Year	2050	Analysis Period	1 > 17:00		
Intersection	SR 39 & NB I-77 Ramps		File Name	SR 39 PM.xus			
Project Description	PM No Build						



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	140	960			820	410	270	0	370			

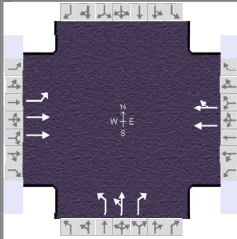
Signal Information				Phase Diagram										
Cycle, s	91.3	Reference Phase	2	↔	↔↔	↔↔	↕	↕	↕	↕	↔	↔	↔	
Offset, s	6	Reference Point	End	Green	6.8	36.5	30.0	0.0	0.0	0.0	1	2	3	4
Uncoordinated	Yes	Simult. Gap E/W	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0	5	6	7	8
Force Mode	Fixed	Simult. Gap N/S	On	Red	2.0	2.0	2.0	0.0	0.0	0.0				

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2		6		8		
Case Number	1.0	4.0		8.3		9.0		
Phase Duration, s	12.8	55.3		42.5		36.0		
Change Period, ($Y+R_c$), s	6.0	6.0		6.0		6.0		
Max Allow Headway (MAH), s	3.1	3.1		3.1		3.3		
Queue Clearance Time (g_s), s	5.9	17.3		34.6		30.8		
Green Extension Time (g_e), s	0.0	6.3		1.8		0.0		
Phase Call Probability	0.97	1.00		1.00		1.00		
Max Out Probability	1.00	0.11		0.77		1.00		

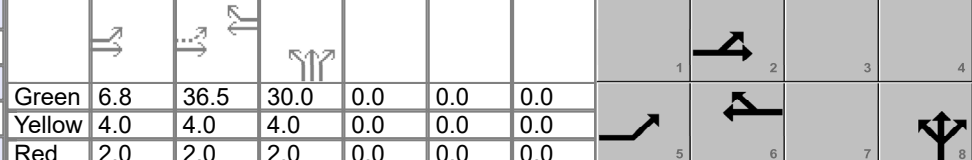
Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2			6	16	3	8	18			
Adjusted Flow Rate (v), veh/h	139	953			689	620	172	0	509			
Adjusted Saturation Flow Rate (s), veh/h/ln	1781	1781			1870	1660	1739	1826	1591			
Queue Service Time (g_s), s	3.9	15.3			31.4	32.6	6.7	0.0	28.8			
Cycle Queue Clearance Time (g_c), s	3.9	15.3			31.4	32.6	6.7	0.0	28.8			
Green Ratio (g/C)	0.50	0.54			0.40	0.40	0.33	0.33	0.33			
Capacity (c), veh/h	229	1922			748	663	572	600	523			
Volume-to-Capacity Ratio (X)	0.606	0.496			0.922	0.934	0.302	0.000	0.973			
Back of Queue (Q), ft/ln (95 th percentile)	67.5	198.7			577.9	539.8	125.4	0	557.3			
Back of Queue (Q), veh/ln (95 th percentile)	2.7	7.8			22.8	21.6	4.8	0.0	21.4			
Queue Storage Ratio (RQ) (95 th percentile)	0.22	0.26			0.48	0.46	0.17	0.00	0.68			
Uniform Delay (d_1), s/veh	20.4	13.2			26.0	26.2	22.8	0.0	30.2			
Incremental Delay (d_2), s/veh	0.7	0.0			14.2	17.5	0.1	0.0	32.2			
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	21.1	13.2			40.3	43.8	22.9	0.0	62.4			
Level of Service (LOS)	C	B			D	D	C		E			
Approach Delay, s/veh / LOS	14.2	B		41.9	D		52.4	D	0.0			
Intersection Delay, s/veh / LOS	34.4						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.89	B	1.39	A	2.14	B	2.31	B
Bicycle LOS Score / LOS	1.45	A	1.57	B	1.61	B		

HCS Signalized Intersection Intermediate Values

General Information				Intersection Information		
Agency	Burgess & Niple			Duration, h	0.250	
Analyst	KB	Analysis Date	10/12/2023	Area Type	Other	
Jurisdiction		Time Period	PM Peak Hour	PHF	0.94	
Urban Street	SR 39	Analysis Year	2050	Analysis Period	1 > 17:00	
Intersection	SR 39 & NB I-77 Ramps	File Name	SR 39 PM.xus			
Project Description	PM 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	140	960			820	410	270	0	370			

Signal Information													
Cycle, s	91.3	Reference Phase	2										
Offset, s	6	Reference Point	End	Green	6.8	36.5	30.0	0.0	0.0	0.0			
Uncoordinated	Yes	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			

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})	0.984	0.984	1.000	1.000	0.984	1.000	0.961	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	0.000	0.000	0.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000
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	0.952	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		1.000	1.000		0.952	0.000				
Right-Turn Adjustment Factor (f_{RT})		1.000	1.000		0.888	0.888		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	1781	3651	0	0	2362	1168	1739	1826	1591			
Proportion of Vehicles Arriving on Green (P)	0.07	0.54	0.00	0.00	0.40	0.40	0.33	0.00	0.33	0.00	0.00	0.00
Incremental Delay Factor (k)	0.09	0.04			0.35	0.36	0.04		0.47			

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		4.0		
Green Ratio (g/C)	0.50	0.54		0.40		0.33		
Permitted Saturation Flow Rate (s_p), veh/h/ln	420	0		598		1739		
Shared Saturation Flow Rate (s_{sh}), veh/h/ln				0				
Permitted Effective Green Time (g_p), s	38.5	0.0		0.0		0.0		
Permitted Service Time (g_u), s	3.8	0.0		0.0		0.0		
Permitted Queue Service Time (g_{ps}), s	3.8							
Time to First Blockage (g_t), s	0.0	0.0		36.5		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	1.198	0.000	0.681	0.000	1.389	0.000	1.557	0.000
Pedestrian F_s / F_{delay}	0.000	0.091	0.000	0.112	0.000	0.153	0.000	0.153
Pedestrian M_{corner} / M_{cw}	0.00		0.00		0.00		0.00	
Bicycle c_b / d_b	1079.66	9.66	799.33	16.45		52.90		50.77
Bicycle F_w / F_v	-3.64	0.97	-3.64	1.08	-3.64	1.12	-3.64	

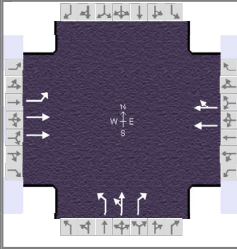
HCS Signalized Intersection Results Graphical Summary

General Information

Agency	Burgess & Niple		
Analyst	KB	Analysis Date	10/12/2023
Jurisdiction		Time Period	PM Peak Hour
Urban Street	SR 39	Analysis Year	2050
Intersection	SR 39 & NB I-77 Ramps	File Name	SR 39 PM.xus
Project Description	PM No Build		

Intersection Information

Duration, h	0.250
Area Type	Other
PHF	0.94
Analysis Period	1 > 17:00



Demand Information

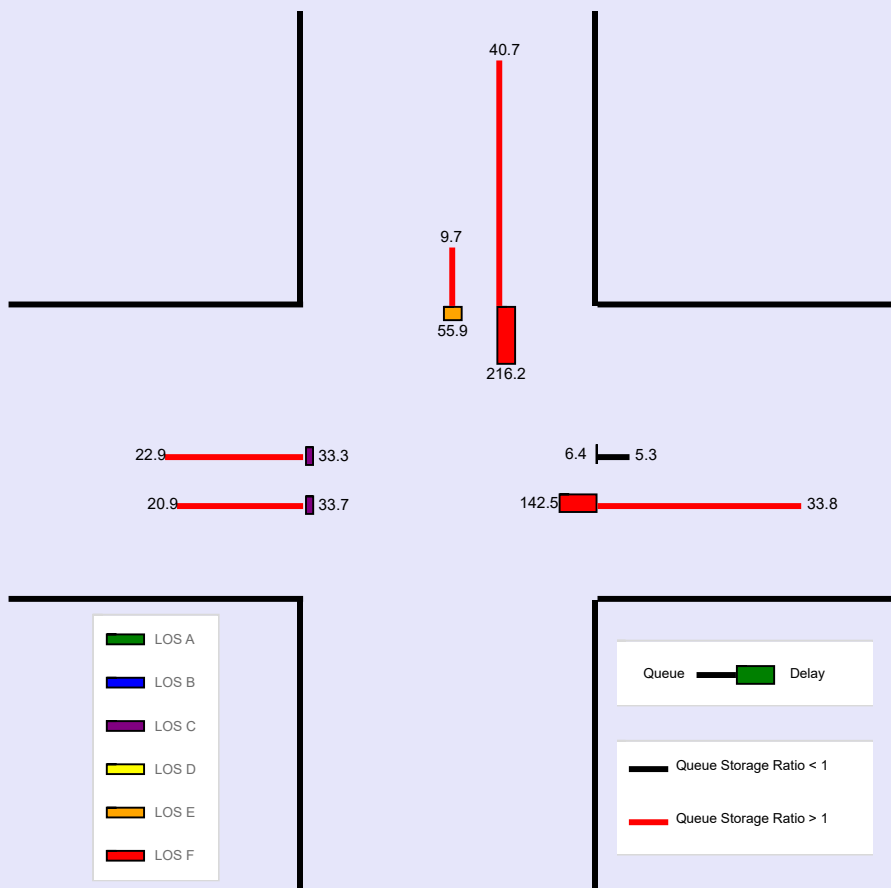
Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	140	960			820	410	270	0	370			

Signal Information

Cycle, s	91.3	Reference Phase	2											
Offset, s	6	Reference Point	End	Green	6.8	36.5	30.0	0.0	0.0	0.0				
Uncoordinated	Yes	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

Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (Q), ft/ln (95 th percentile)	67.5	198.7			577.9	539.8	125.4	0	557.3			
Back of Queue (Q), veh/ln (95 th percentile)	2.7	7.8			22.8	21.6	4.8	0.0	21.4			
Queue Storage Ratio (RQ) (95 th percentile)	0.22	0.26			0.48	0.46	0.17	0.00	0.68			
Control Delay (d), s/veh	21.1	13.2			40.3	43.8	22.9	0.0	62.4			
Level of Service (LOS)	C	B			D	D	C		E			
Approach Delay, s/veh / LOS	14.2		B	41.9		D	52.4		D	0.0		
Intersection Delay, s/veh / LOS	34.4						C					



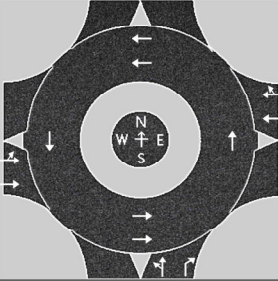
--- Messages ---

WARNING: According to input data, upstream feeding volume is equal to 88% of downstream exit volume during time period #1, for thru movement #2.

WARNING: The shared-plus-exclusive turn lane solution is an approximation of the HCM method, because more than three lane groups cannot be accommodated. Input data for Percent Turns in Shared Lane are used to specify proportion of turning vehicles in the shared lane.

--- Comments ---

HCS Roundabouts Report

General Information				Site Information				
Analyst	Sonja Summer				Intersection	SR 39 & NB I-77 Ramps		
Agency or Co.	B&N				E/W Street Name	SR 39		
Date Performed	11/28/2023				N/S Street Name	NB Ramps		
Analysis Year	2050				Analysis Time Period, hrs	0.25		
Time Analyzed	AM Peak Hour				Peak Hour Factor	0.98		
Project Description	Build Alternative 1				Jurisdiction			

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Number of Lanes (N)	0	0	2	0	0	0	2	0	0	0	1	1	0	0	0	0
Lane Assignment	LT		T		T		TR		LT		R					
Volume (V), veh/h	0	80	560		0		510	260	0	240	10	280				
Percent Heavy Vehicles, %	5	5	5		7		7	7	9	9	9	9				
Flow Rate (V _{PCE}), pc/h	0	86	600		0		557	284	0	267	11	311				
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				2							
Pedestrians Crossing, p/h	0				0				0							
Proportion of CAVs	0															

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway, s	4.5436	4.5436		4.5436	4.5436		4.6453	4.3276				
Follow-Up Headway, s	2.5352	2.5352		2.5352	2.5352		2.6667	2.5352				

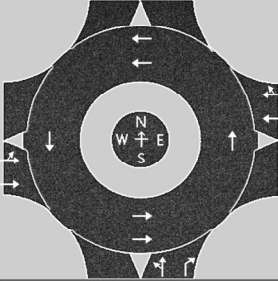
Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v _e), pc/h	322	364		395	446		278	311				
Entry Volume, veh/h	307	346		369	417		255	285				
Circulating Flow (v _c), pc/h	0			364			686			824		
Exiting Flow (v _e), pc/h	911			824			381			0		
Capacity (C _{PCE}), pc/h	1420	1420		1020	1020		718	793				
Capacity (c), veh/h	1352	1352		953	953		659	727				
v/c Ratio (x)	0.23	0.26		0.39	0.44		0.39	0.39				

Delay and Level of Service

Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh	4.6	4.9		8.1	8.9		10.8	10.1				
Lane LOS	A	A		A	A		B	B				
95% Queue, veh	0.9	1.0		1.9	2.3		1.8	1.9				
Approach Delay, s/veh LOS	4.7		A	8.5		A	10.4		B			
Intersection Delay, s/veh LOS	7.8						A					

HCS Roundabouts Report

General Information				Site Information				
Analyst	Sonja Summer				Intersection	SR 39 & NB Ramps		
Agency or Co.	B&N				E/W Street Name	SR 39		
Date Performed	11/28/2023				N/S Street Name	NB Ramps		
Analysis Year	2050				Analysis Time Period, hrs	0.25		
Time Analyzed	PM Peak Hour				Peak Hour Factor	0.94		
Project Description	Build Alternative 1				Jurisdiction			

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Number of Lanes (N)	0	0	2	0	0	0	2	0	0	0	1	1	0	0	0	0
Lane Assignment	LT		T		T		TR		LT		R					
Volume (V), veh/h	0	140	960		0		820	410	0	270	10	370				
Percent Heavy Vehicles, %	2	2	2		2		2	2	5	5	5	5				
Flow Rate (v _{PCE}), pc/h	0	152	1042		0		890	445	0	302	11	413				
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				2							
Pedestrians Crossing, p/h	0				0				0							
Proportion of CAVs	0															

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway, s	4.5436	4.5436		4.5436	4.5436		4.6453	4.3276				
Follow-Up Headway, s	2.5352	2.5352		2.5352	2.5352		2.6667	2.5352				

Flow Computations, Capacity and v/c Ratios

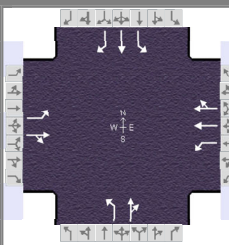
Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v _e), pc/h	561	633		627	708		313	413				
Entry Volume, veh/h	550	620		615	694		298	393				
Circulating Flow (v _c), pc/h	0			465			1194			1192		
Exiting Flow (v _e), pc/h	1455			1192			608			0		
Capacity (c _{PCE}), pc/h	1420	1420		930	930		450	515				
Capacity (c), veh/h	1392	1392		912	912		429	490				
v/c Ratio (x)	0.40	0.45		0.67	0.76		0.70	0.80				

Delay and Level of Service

Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh	6.2	6.9		15.1	19.1		28.9	34.9				
Lane LOS	A	A		C	C		D	D				
95% Queue, veh	1.9	2.4		5.4	7.5		5.2	7.5				
Approach Delay, s/veh LOS	6.6		A	17.2		C	32.3		D			
Intersection Delay, s/veh LOS	16.6						C					

HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	Burgess & Niple			Duration, h	0.250
Analyst	KB	Analysis Date	Jan 16, 2024	Area Type	Other
Jurisdiction		Time Period	AM Peak Hour	PHF	0.91
Urban Street	SR 39	Analysis Year	2050	Analysis Period	1 > 7:00
Intersection	SR 39 & Bluebell Dr		File Name	Bluebell AM.xus	
Project Description	No-Build				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (<i>v</i>), veh/h	210	290	130	80	290	250	100	110	70	220	110	190

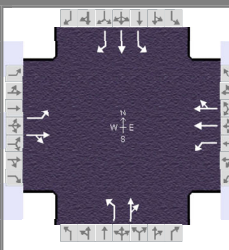
Signal Information				Signal Diagram								
Cycle, s	100.0	Reference Phase	2									
Offset, s	0	Reference Point	End	Green	6.4	3.8	38.6	7.0	0.4	13.9		
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.0	0.0	4.0	4.0	4.0	4.0		
Force Mode	Fixed	Simult. Gap N/S	On	Red	2.0	0.0	2.0	2.0	2.0	2.0		

Traffic Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (<i>v</i>), veh/h	210	290	130	80	290	250	100	110	70	220	110	190
Initial Queue (<i>Q_b</i>), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (<i>s₀</i>), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (<i>N_m</i>), man/h		None			None			None			None	
Heavy Vehicles (<i>P_{HV}</i>), %	4	4		2	2		2	2		2	2	2
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (<i>N_b</i>), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (<i>AT</i>)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (<i>I</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 (<i>W</i>), ft	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	12.0
Turn Bay Length, ft	1170	1170		200	530		90	2000		210	500	500
Grade (<i>P_g</i>), %		0			0			0			0	
Speed Limit, mi/h	35	35	35	35	35	35	25	25	25	25	25	25

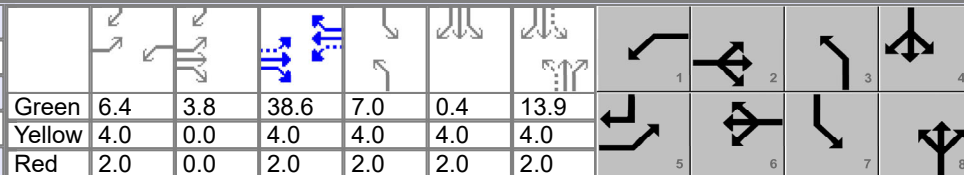
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (<i>G_{max}</i>) or Phase Split, s	26.0	31.0	21.0	26.0	25.0	21.0	27.0	23.0
Yellow Change Interval (<i>Y</i>), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Red Clearance Interval (<i>R_c</i>), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Green (<i>G_{min}</i>), s	7	20	7	20	7	10	7	10
Start-Up Lost Time (<i>l_t</i>), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (<i>e</i>), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (<i>PT</i>), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Recall Mode	Off	Min	Off	Min	Off	Off	Off	Off
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Walk (<i>Walk</i>), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (<i>PC</i>), 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	

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	Burgess & Niple			Duration, h	0.250	
Analyst	KB	Analysis Date	Jan 16, 2024	Area Type	Other	
Jurisdiction		Time Period	AM Peak Hour	PHF	0.91	
Urban Street	SR 39	Analysis Year	2050	Analysis Period	1 > 7:00	
Intersection	SR 39 & Bluebell Dr	File Name	Bluebell AM.xus			
Project Description	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	210	290	130	80	290	250	100	110	70	220	110	190

Signal Information																						
Cycle, s	100.0	Reference Phase	2	Green	6.4	3.8	38.6	7.0	0.4	13.9	Yellow	4.0	0.0	4.0	4.0	4.0	Red	2.0	0.0	2.0	2.0	2.0
Offset, s	0	Reference Point	End	Uncoordinated	No	Simult. Gap E/W	On	Force Mode	Fixed	Simult. Gap N/S	On											

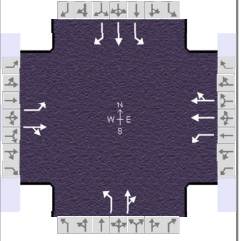
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	3.0
Phase Duration, s	16.1	48.3	12.4	44.6	13.0	19.9	19.4	26.3
Change Period, ($Y+R_c$), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Allow Headway (MAH), s	3.1	0.0	3.1	0.0	3.3	3.3	3.3	3.3
Queue Clearance Time (g_s), s	9.8		4.9		7.2	13.0	13.1	12.6
Green Extension Time (g_e), s	0.4	0.0	0.1	0.0	0.1	0.9	0.3	1.1
Phase Call Probability	1.00		0.91		0.95	1.00	1.00	1.00
Max Out Probability	0.00		0.00		0.00	0.04	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	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (v), veh/h	231	462		88	318	276	110	198		242	121	209
Adjusted Saturation Flow Rate (s), veh/h/ln	1753	1744		1781	1870	1586	1781	1748		1781	1870	1585
Queue Service Time (g_s), s	7.8	20.8		2.9	12.6	12.9	5.2	11.0		11.1	5.5	10.6
Cycle Queue Clearance Time (g_c), s	7.8	20.8		2.9	12.6	12.9	5.2	11.0		11.1	5.5	10.6
Green Ratio (g/C)	0.49	0.42		0.45	0.39	0.39	0.21	0.14		0.29	0.20	0.30
Capacity (c), veh/h	458	738		368	721	611	359	243		345	380	483
Volume-to-Capacity Ratio (X)	0.504	0.626		0.239	0.441	0.451	0.306	0.814		0.700	0.318	0.432
Back of Queue (Q), ft/ln (95 th percentile)	138.8	356.5		51.9	245.2	218.9	103.9	217		214.4	115.8	184.2
Back of Queue (Q), veh/ln (95 th percentile)	5.4	13.8		2.0	9.7	8.8	4.1	8.5		8.4	4.6	7.3
Queue Storage Ratio (RQ) (95 th percentile)	0.12	0.30		0.26	0.46	0.42	1.15	0.11		1.02	0.23	0.37
Uniform Delay (d_1), s/veh	16.3	22.6		17.9	22.7	22.9	33.4	41.8		30.0	33.9	27.8
Incremental Delay (d_2), s/veh	0.3	4.0		0.1	2.0	2.4	0.2	2.6		1.0	0.2	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	16.6	26.6		18.1	24.7	25.2	33.5	44.3		31.0	34.1	28.1
Level of Service (LOS)	B	C		B	C	C	C	D		C	C	C
Approach Delay, s/veh / LOS	23.3	C		24.1	C		40.5	D		30.6	C	
Intersection Delay, s/veh / LOS	27.7						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.91	B	2.11	B	2.13	B	2.13	B
Bicycle LOS Score / LOS	1.63	B	1.05	A	1.00	A	1.43	A

HCS Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	Burgess & Niple			Duration, h	0.250
Analyst	KB	Analysis Date	Jan 16, 2024	Area Type	Other
Jurisdiction		Time Period	AM Peak Hour	PHF	0.91
Urban Street	SR 39	Analysis Year	2050	Analysis Period	1 > 7:00
Intersection	SR 39 & Bluebell Dr	File Name	Bluebell AM.xus		
Project Description	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	210	290	130	80	290	250	100	110	70	220	110	190

Signal Information																	
Cycle, s	100.0	Reference Phase	2	Green		Yellow		Red		1		2		3		4	
Offset, s	0	Reference Point	End	6.4	3.8	38.6	7.0	0.4	13.9	5		6		7		8	
Uncoordinated	No	Simult. Gap E/W	On	4.0	0.0	4.0	4.0	4.0	4.0	5		6		7		8	
Force Mode	Fixed	Simult. Gap N/S	On	2.0	0.0	2.0	2.0	2.0	2.0	5		6		7		8	

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	0.984	0.984	1.000	0.984	0.984	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	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})		0.947	0.947		0.848	0.848		0.935	0.935		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	1753	1204	540	1781	1876	1580	1781	1068	680	1781	1870	1585
Proportion of Vehicles Arriving on Green (P)	0.10	0.42	0.42	0.06	0.39	0.39	0.07	0.14	0.14	0.13	0.20	0.20
Incremental Delay Factor (k)	0.04	0.50		0.04	0.50	0.50	0.04	0.04		0.04	0.04	0.04

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)	0.49	0.42	0.45	0.39	0.21	0.14	0.29	0.20
Permitted Saturation Flow Rate (s_p), veh/h/ln	811	0	931	0	1271	0	1185	0
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								
Permitted Effective Green Time (g_p), s	38.6	0.0	38.6	0.0	13.9	0.0	15.9	0.0
Permitted Service Time (g_u), s	25.6	0.0	19.5	0.0	12.8	0.0	2.9	0.0
Permitted Queue Service Time (g_{ps}), s	5.1		2.0		0.1		2.9	
Time to First Blockage (g_t), 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								1585
Protected Right Effective Green Time (g_R), s								10.1

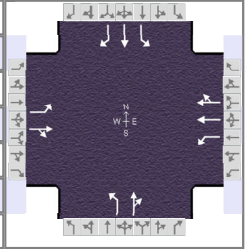
Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.198	0.000	1.389	0.000	1.389	0.000	1.389	0.000
Pedestrian F_s / F_{delay}	0.000	0.113	0.000	0.118	0.000	0.145	0.000	0.139
Pedestrian M_{corner} / M_{cw}	0.00		0.00		0.00		0.00	
Bicycle c_b / d_b	846.23	16.64	771.10	18.88	278.06	37.06	406.20	31.75
Bicycle F_w / F_v	-3.64	1.14	-3.64	0.56	-3.64	0.51	-3.64	0.94

HCS Signalized Intersection Results Graphical Summary

General Information

Agency	Burgess & Niple			Duration, h	0.250
Analyst	KB	Analysis Date	Jan 16, 2024	Area Type	Other
Jurisdiction		Time Period	AM Peak Hour	PHF	0.91
Urban Street	SR 39	Analysis Year	2050	Analysis Period	1 > 7:00
Intersection	SR 39 & Bluebell Dr	File Name	Bluebell AM.xus		
Project Description	No-Build				

Intersection Information



Demand Information

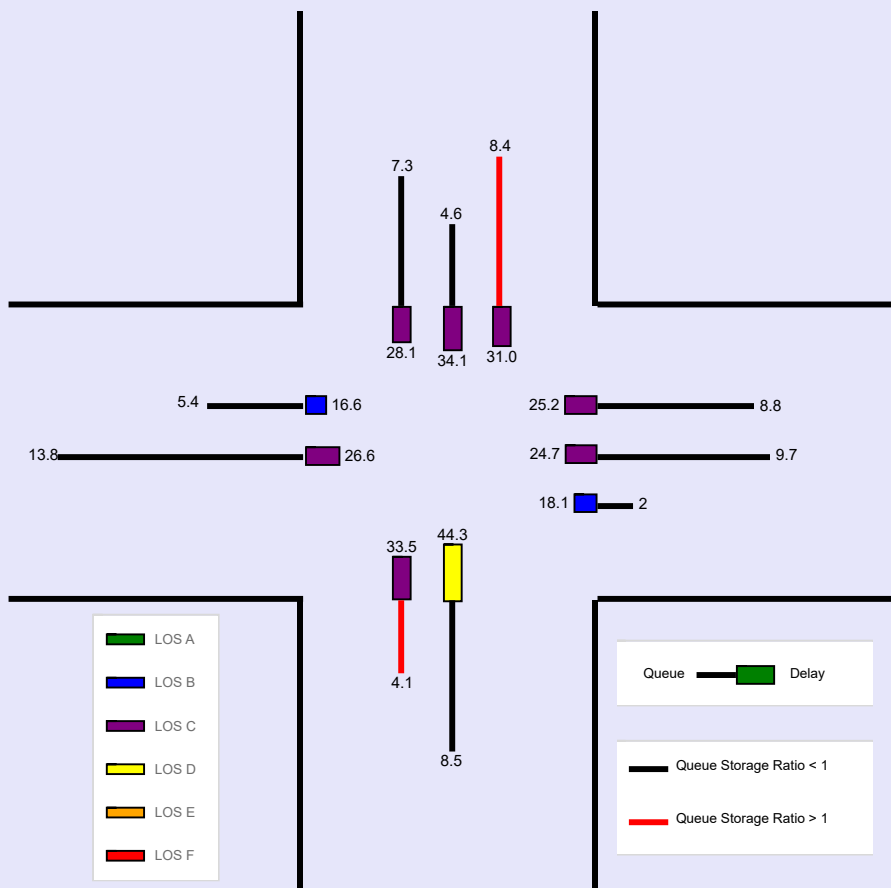
Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	210	290	130	80	290	250	100	110	70	220	110	190

Signal Information

Cycle, s	100.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On	Green	6.4	3.8	38.6	7.0	0.4	13.9			
Force Mode	Fixed	Simult. Gap N/S	On	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			

Movement Group Results

Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (Q), ft/ln (95 th percentile)	138.8	356.5		51.9	245.2	218.9	103.9	217		214.4	115.8	184.2
Back of Queue (Q), veh/ln (95 th percentile)	5.4	13.8		2.0	9.7	8.8	4.1	8.5		8.4	4.6	7.3
Queue Storage Ratio (RQ) (95 th percentile)	0.12	0.30		0.26	0.46	0.42	1.15	0.11		1.02	0.23	0.37
Control Delay (d), s/veh	16.6	26.6		18.1	24.7	25.2	33.5	44.3		31.0	34.1	28.1
Level of Service (LOS)	B	C		B	C	C	C	D		C	C	C
Approach Delay, s/veh / LOS	23.3	C		24.1	C		40.5	D		30.6	C	
Intersection Delay, s/veh / LOS	27.7						C					



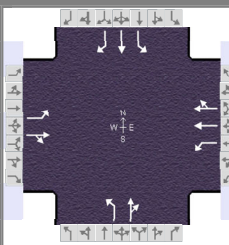
--- Messages ---

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.

--- Comments ---

HCS Signalized Intersection Input Data

General Information				Intersection Information			
Agency	Burgess & Niple			Duration, h	0.250		
Analyst	KB	Analysis Date	Jan 16, 2024	Area Type	Other		
Jurisdiction		Time Period	PM Peak Hour	PHF	0.92		
Urban Street	SR 39	Analysis Year	2050	Analysis Period	1 > 17:00		
Intersection	SR 39 & Bluebell Dr		File Name	Bluebell PM.xus			
Project Description	No-Build						



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	250	500	170	80	510	250	180	110	60	280	150	300

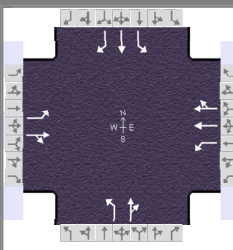
Signal Information				Signal Diagram									
Cycle, s	120.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On										
Force Mode	Fixed	Simult. Gap N/S	On										
		Green		6.6	0.1	48.3	8.0	5.5	15.5				
		Yellow		4.0	4.0	4.0	4.0	4.0	4.0				
		Red		2.0	2.0	2.0	2.0	2.0	2.0				

Traffic Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	250	500	170	80	510	250	180	110	60	280	150	300
Initial Queue (Q _b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s ₀), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N _m), man/h		None			None			None			None	
Heavy Vehicles (P _{HV}), %	2	2		2	2		1	1		1	1	1
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	1170	1170		200	530		90	2000		210	500	500
Grade (P _g), %		0			0			0			0	
Speed Limit, mi/h	35	35	35	35	35	35	25	25	25	25	25	25

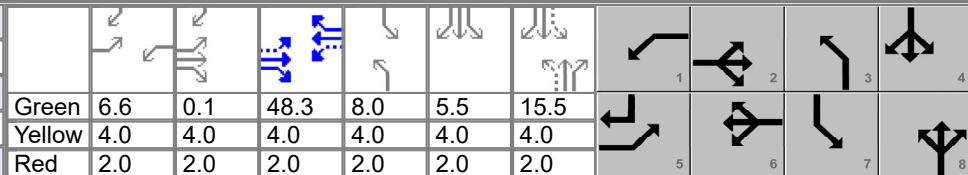
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G _{max}) or Phase Split, s	26.0	45.0	18.0	37.0	14.0	16.0	41.0	43.0
Yellow Change Interval (Y), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Red Clearance Interval (R _c), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Green (G _{min}), s	7	20	7	20	7	10	7	10
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 (P _T), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Recall Mode	Off	Min	Off	Min	Off	Off	Off	Off
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Walk (Walk), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (P _C), 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	

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	Burgess & Niple			Duration, h	0.250	
Analyst	KB	Analysis Date	Jan 16, 2024	Area Type	Other	
Jurisdiction		Time Period	PM Peak Hour	PHF	0.92	
Urban Street	SR 39	Analysis Year	2050	Analysis Period	1 > 17:00	
Intersection	SR 39 & Bluebell Dr	File Name	Bluebell PM.xus			
Project Description	No-Build					

Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	250	500	170	80	510	250	180	110	60	280	150	300

Signal Information																						
Cycle, s	120.0	Reference Phase	2	Green	6.6	0.1	48.3	8.0	5.5	15.5	Yellow	4.0	4.0	4.0	4.0	4.0	Red	2.0	2.0	2.0	2.0	2.0
Offset, s	0	Reference Point	End	Uncoordinated	No	Simult. Gap E/W	On	Force Mode	Fixed	Simult. Gap N/S	On											

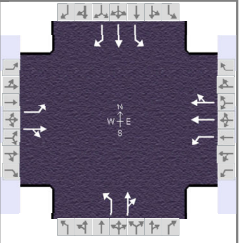
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	3.0
Phase Duration, s	18.7	60.4	12.6	54.3	14.0	21.5	25.5	33.0
Change Period, (Y+R _c), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Allow Headway (MAH), s	3.1	0.0	3.1	0.0	3.3	3.4	3.3	3.4
Queue Clearance Time (g _s), s	12.3		5.3		10.0	14.2	18.9	22.6
Green Extension Time (g _e), s	0.5	0.0	0.1	0.0	0.0	1.3	0.6	1.4
Phase Call Probability	1.00		0.94		1.00	1.00	1.00	1.00
Max Out Probability	0.00		0.00		1.00	0.03	0.00	0.01

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (v), veh/h	272	728		87	437	389	196	185		304	163	326
Adjusted Saturation Flow Rate (s), veh/h/ln	1781	1789		1781	1870	1662	1795	1773		1795	1885	1598
Queue Service Time (g _s), s	10.3	45.1		3.3	21.9	21.9	8.0	12.2		16.9	8.8	20.6
Cycle Queue Clearance Time (g _c), s	10.3	45.1		3.3	21.9	21.9	8.0	12.2		16.9	8.8	20.6
Green Ratio (g/C)	0.53	0.45		0.46	0.40	0.40	0.20	0.13		0.31	0.22	0.33
Capacity (c), veh/h	394	811		203	753	669	339	229		385	424	529
Volume-to-Capacity Ratio (X)	0.689	0.898		0.429	0.581	0.582	0.578	0.808		0.790	0.385	0.617
Back of Queue (Q), ft/ln (95 th percentile)	190.1	752		63.8	394.3	355.4	236.4	239.1		305.6	188.9	322
Back of Queue (Q), veh/ln (95 th percentile)	7.5	29.6		2.5	15.5	14.2	9.4	9.5		12.1	7.5	12.8
Queue Storage Ratio (RQ) (95 th percentile)	0.16	0.64		0.32	0.74	0.68	2.63	0.12		1.46	0.38	0.64
Uniform Delay (d ₁), s/veh	20.0	30.3		26.5	28.0	28.0	43.8	50.8		35.7	39.5	33.7
Incremental Delay (d ₂), s/veh	0.8	14.8		0.5	3.3	3.7	1.6	2.6		1.4	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		0.0	0.0	0.0
Control Delay (d), s/veh	20.8	45.1		27.0	31.2	31.7	45.4	53.4		37.1	39.7	34.2
Level of Service (LOS)	C	D		C	C	C	D	D		D	D	C
Approach Delay, s/veh / LOS	38.5		D	31.0		C	49.3		D	36.4		D
Intersection Delay, s/veh / LOS	37.1						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.91	B	2.11	B	2.14	B	2.13	B
Bicycle LOS Score / LOS	2.14	B	1.24	A	1.12	A	1.80	B

HCS Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	Burgess & Niple			Duration, h	0.250
Analyst	KB	Analysis Date	Jan 16, 2024	Area Type	Other
Jurisdiction		Time Period	PM Peak Hour	PHF	0.92
Urban Street	SR 39	Analysis Year	2050	Analysis Period	1 > 17:00
Intersection	SR 39 & Bluebell Dr	File Name	Bluebell PM.xus		
Project Description	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	250	500	170	80	510	250	180	110	60	280	150	300

Signal Information												
Cycle, s	120.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On	Green	6.6	0.1	48.3	8.0	5.5	15.5		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	4.0	4.0	4.0	4.0		
				Red	2.0	2.0	2.0	2.0	2.0	2.0		

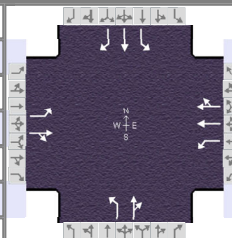
Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	0.984	0.984	1.000	0.984	0.984	1.000	0.992	0.992	1.000	0.992	0.992	0.992
Parking Activity Adjustment Factor (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})		0.956	0.956		0.888	0.888		0.940	0.940		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	1781	1335	454	1781	2372	1160	1795	1147	626	1795	1885	1598
Proportion of Vehicles Arriving on Green (P)	0.11	0.45	0.45	0.06	0.40	0.40	0.07	0.13	0.13	0.16	0.22	0.22
Incremental Delay Factor (k)	0.04	0.50		0.04	0.50	0.50	0.11	0.04		0.04	0.04	0.04

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)	0.53	0.45	0.46	0.40	0.20	0.13	0.31	0.22
Permitted Saturation Flow Rate (s_p), veh/h/ln	663	0	727	0	1233	0	1208	0
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								
Permitted Effective Green Time (g_p), s	50.3	0.0	48.3	0.0	15.5	0.0	17.5	0.0
Permitted Service Time (g_u), s	26.3	0.0	7.3	0.0	15.5	0.0	3.3	0.0
Permitted Queue Service Time (g_{ps}), s	16.6		5.6		5.9		3.3	
Time to First Blockage (g_t), 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								1598
Protected Right Effective Green Time (g_R), s								12.7

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.198	0.000	1.389	0.000	1.389	0.000	1.389	0.000
Pedestrian F_s / F_{delay}	0.000	0.116	0.000	0.123	0.000	0.153	0.000	0.144
Pedestrian M_{corner} / M_{cw}	0.00		0.00		0.00		0.00	
Bicycle c_b / d_b	906.57	17.93	804.78	21.43	257.98	45.52	449.86	36.04
Bicycle F_w / F_v	-3.64	1.65	-3.64	0.75	-3.64	0.63	-3.64	1.31

HCS Signalized Intersection Results Graphical Summary

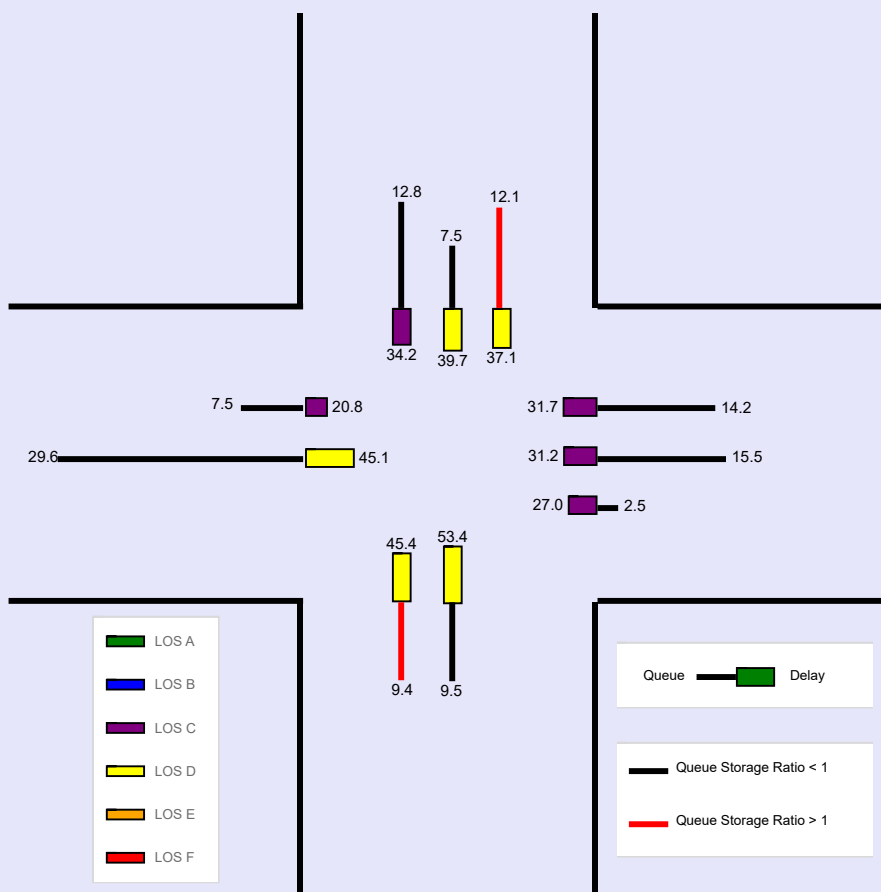
General Information				Intersection Information			
Agency	Burgess & Niple			Duration, h	0.250		
Analyst	KB	Analysis Date	Jan 16, 2024	Area Type	Other		
Jurisdiction		Time Period	PM Peak Hour	PHF	0.92		
Urban Street	SR 39	Analysis Year	2050	Analysis Period	1 > 17:00		
Intersection	SR 39 & Bluebell Dr	File Name	Bluebell PM.xus				
Project Description	No-Build						



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	250	500	170	80	510	250	180	110	60	280	150	300

Signal Information				Signal Phases									
Cycle, s	120.0	Reference Phase	2										
Offset, s	0	Reference Point	End	Green	6.6	0.1	48.3	8.0	5.5	15.5			
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.0	4.0	4.0	4.0	4.0	4.0			
Force Mode	Fixed	Simult. Gap N/S	On	Red	2.0	2.0	2.0	2.0	2.0	2.0			

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Back of Queue (Q), ft/ln (95 th percentile)	190.1	752		63.8	394.3	355.4	236.4	239.1		305.6	188.9	322
Back of Queue (Q), veh/ln (95 th percentile)	7.5	29.6		2.5	15.5	14.2	9.4	9.5		12.1	7.5	12.8
Queue Storage Ratio (RQ) (95 th percentile)	0.16	0.64		0.32	0.74	0.68	2.63	0.12		1.46	0.38	0.64
Control Delay (d), s/veh	20.8	45.1		27.0	31.2	31.7	45.4	53.4		37.1	39.7	34.2
Level of Service (LOS)	C	D		C	C	C	D	D		D	D	C
Approach Delay, s/veh / LOS	38.5		D	31.0		C	49.3		D	36.4		D
Intersection Delay, s/veh / LOS	37.1						D					



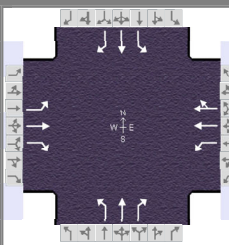
--- Messages ---

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.

--- Comments ---

HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	Burgess & Niple			Duration, h	0.250
Analyst	KB	Analysis Date	Jan 16, 2024	Area Type	Other
Jurisdiction		Time Period	AM Peak Hour	PHF	0.91
Urban Street	SR 39	Analysis Year	2050	Analysis Period	1 > 7:00
Intersection	SR 39 & Bluebell Dr	File Name	Scenario4_Bluebell_AM.xus		
Project Description	Build Alternativie 4				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	310	290	130	80	290	250	100	110	70	220	110	190

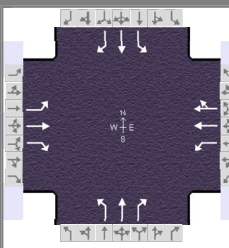
Signal Information				Phase Diagrams								
Cycle, s	100.0	Reference Phase	2									
Offset, s	0	Reference Point	End	Green	6.4	1.1	39.0	7.2	0.7	9.6		
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.0	4.0	4.0	4.0	4.0	4.0		
Force Mode	Float	Simult. Gap N/S	On	Red	2.0	2.0	2.0	2.0	2.0	2.0		

Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	310	290	130	80	290	250	100	110	70	220	110	190
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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N_m), man/h	None			None			None			None		
Heavy Vehicles (P_{HV}), %	4	4	4	2	2		2	2	2	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	12.0	12.0
Turn Bay Length, ft	1170	1170	300	200	530		200	2000	400	350	500	500
Grade (P_g), %	0			0			0			0		
Speed Limit, mi/h	35	35	35	35	35	35	25	25	25	25	25	25

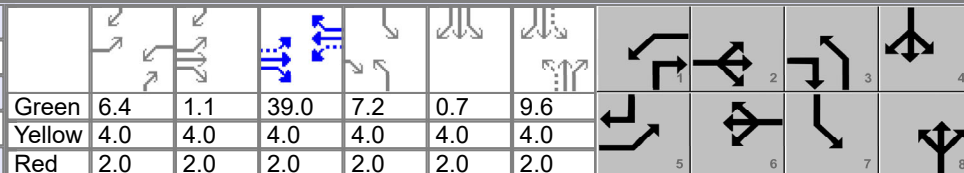
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s	28.0	33.0	21.0	26.0	24.0	19.0	27.0	22.0
Yellow Change Interval (Y), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Red Clearance Interval (R_c), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Green (G_{min}), s	7	20	7	20	7	10	7	10
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	2.0	2.0
Recall Mode	Off	Min	Off	Min	Off	Off	Off	Off
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	

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	Burgess & Niple			Duration, h	0.250	
Analyst	KB	Analysis Date	Jan 16, 2024	Area Type	Other	
Jurisdiction		Time Period	AM Peak Hour	PHF	0.91	
Urban Street	SR 39	Analysis Year	2050	Analysis Period	1 > 7:00	
Intersection	SR 39 & Bluebell Dr	File Name	Scenario4_Bluebell_AM.xus			
Project Description	Build Alternativie 4					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	310	290	130	80	290	250	100	110	70	220	110	190

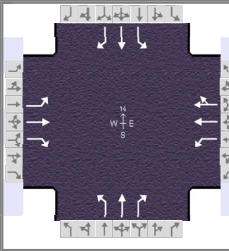
Signal Information																	
Cycle, s	100.0	Reference Phase	2	Green	6.4	1.1	39.0	7.2	0.7	9.6	Yellow	4.0	4.0	4.0	4.0	4.0	4.0
Offset, s	0	Reference Point	End	Red	2.0	2.0	2.0	2.0	2.0	2.0	Yellow	4.0	4.0	4.0	4.0	4.0	4.0
Uncoordinated	No	Simult. Gap E/W	On	Force Mode	Float	Simult. Gap N/S	On										

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	1.1	3.0	1.1	4.0	1.1	3.0	1.1	3.0
Phase Duration, s	19.5	52.0	12.4	45.0	13.2	15.6	20.0	22.3
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	0.0	3.1	0.0	3.3	3.3	3.3	3.3
Queue Clearance Time (g_s), s	13.0		4.8		7.5	8.2	13.7	12.6
Green Extension Time (g_e), s	0.5	0.0	0.1	0.0	0.1	0.2	0.3	0.5
Phase Call Probability	1.00		0.91		0.95	1.00	1.00	1.00
Max Out Probability	0.01		0.00		0.00	0.47	0.03	0.99

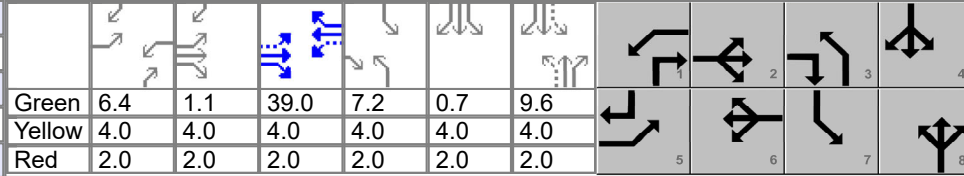
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (v), veh/h	341	319	143	88	318	276	110	121	77	242	121	209
Adjusted Saturation Flow Rate (s), veh/h/ln	1753	1841	1560	1781	1870	1586	1781	1870	1585	1781	1870	1585
Queue Service Time (g_s), s	11.0	11.3	4.7	2.8	12.5	12.8	5.5	6.2	4.3	11.7	5.8	10.6
Cycle Queue Clearance Time (g_c), s	11.0	11.3	4.7	2.8	12.5	12.8	5.5	6.2	4.3	11.7	5.8	10.6
Green Ratio (g/C)	0.54	0.46	0.53	0.45	0.39	0.39	0.17	0.10	0.16	0.26	0.16	0.30
Capacity (c), veh/h	520	847	831	533	729	618	310	180	254	364	306	473
Volume-to-Capacity Ratio (X)	0.656	0.376	0.172	0.165	0.436	0.446	0.355	0.672	0.303	0.665	0.395	0.442
Back of Queue (Q), ft/ln (95 th percentile)	191	219.3	76.7	51.3	243.8	217.6	110.1	136.2	77	223.7	122.8	186.2
Back of Queue (Q), veh/ln (95 th percentile)	7.4	8.5	3.0	2.0	9.6	8.7	4.3	5.4	3.0	8.8	4.8	7.3
Queue Storage Ratio (RQ) (95 th percentile)	0.16	0.19	0.26	0.26	0.46	0.42	0.55	0.07	0.19	0.64	0.25	0.37
Uniform Delay (d_1), s/veh	14.8	17.6	12.0	15.9	22.4	22.6	36.9	43.7	37.1	32.5	37.4	28.4
Incremental Delay (d_2), s/veh	0.6	1.3	0.4	0.1	1.9	2.3	0.3	1.6	0.2	0.8	0.3	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	0.0	0.0
Control Delay (d), s/veh	15.4	18.9	12.5	16.0	24.3	24.9	37.1	45.3	37.3	33.2	37.7	28.6
Level of Service (LOS)	B	B	B	B	C	C	D	D	D	C	D	C
Approach Delay, s/veh / LOS	16.3		B	23.5		C	40.4		D	32.5		C
Intersection Delay, s/veh / LOS	25.4						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.10	B	2.11	B	2.14	B	2.30	B
Bicycle LOS Score / LOS	1.81	B	1.05	A	1.00	A	1.43	A

HCS Signalized Intersection Intermediate Values

General Information				Intersection Information		
Agency	Burgess & Niple			Duration, h	0.250	
Analyst	KB	Analysis Date	Jan 16, 2024	Area Type	Other	
Jurisdiction		Time Period	AM Peak Hour	PHF	0.91	
Urban Street	SR 39	Analysis Year	2050	Analysis Period	1 > 7:00	
Intersection	SR 39 & Bluebell Dr	File Name	Scenario4_Bluebell_AM.xus			
Project Description	Build Alternativie 4					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	310	290	130	80	290	250	100	110	70	220	110	190

Signal Information																						
Cycle, s	100.0	Reference Phase	2	Green	6.4	1.1	39.0	7.2	0.7	9.6	Yellow	4.0	4.0	4.0	4.0	4.0	Red	2.0	2.0	2.0	2.0	2.0
Offset, s	0	Reference Point	End	Uncoordinated	No	Simult. Gap E/W	On	Force Mode	Float	Simult. Gap N/S	On											

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	0.969	0.984	0.984	1.000	0.984	0.984	0.984	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	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})		0.000	0.847		0.848	0.848		0.000	0.847		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	1753	1841	1560	1781	1876	1580	1781	1870	1585	1781	1870	1585
Proportion of Vehicles Arriving on Green (P)	0.13	0.46	0.46	0.06	0.39	0.39	0.07	0.10	0.10	0.14	0.16	0.16
Incremental Delay Factor (k)	0.05	0.50	0.50	0.04	0.50	0.50	0.04	0.04	0.04	0.04	0.04	0.04

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)	0.54	0.46	0.45	0.39	0.17	0.10	0.26	0.16
Permitted Saturation Flow Rate (s_p), veh/h/ln	811	0	1061	0	1271	0	1271	0
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								
Permitted Effective Green Time (g_p), s	41.0	0.0	39.0	0.0	9.6	0.0	11.6	0.0
Permitted Service Time (g_u), s	26.1	0.0	32.7	0.0	8.6	0.0	3.4	0.0
Permitted Queue Service Time (g_{ps}), s	10.8		0.6		0.1		1.9	
Time to First Blockage (g_t), 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			1560				1585	
Protected Right Effective Green Time (g_R), s			7.2				6.4	

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.389	0.000	1.389	0.000	1.389	0.000	1.557	0.000
Pedestrian F_s / F_{delay}	0.000	0.107	0.000	0.117	0.000	0.149	0.000	0.143
Pedestrian M_{corner} / M_{cw}	0.00		0.00		0.00		0.00	
Bicycle c_b / d_b	920.65	14.56	779.06	18.63	192.25	40.85	326.89	34.99
Bicycle F_w / F_v	-3.64	1.32	-3.64	0.56	-3.64	0.51	-3.64	0.94

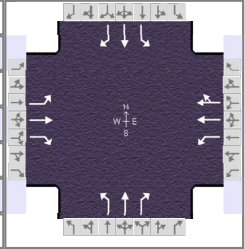
HCS Signalized Intersection Results Graphical Summary

General Information

Agency	Burgess & Niple		
Analyst	KB	Analysis Date	Jan 16, 2024
Jurisdiction		Time Period	AM Peak Hour
Urban Street	SR 39	Analysis Year	2050
Intersection	SR 39 & Bluebell Dr	File Name	Scenario4_Bluebell_AM.xus
Project Description	Build Alternativie 4		

Intersection Information

Duration, h	0.250
Area Type	Other
PHF	0.91
Analysis Period	1 > 7:00



Demand Information

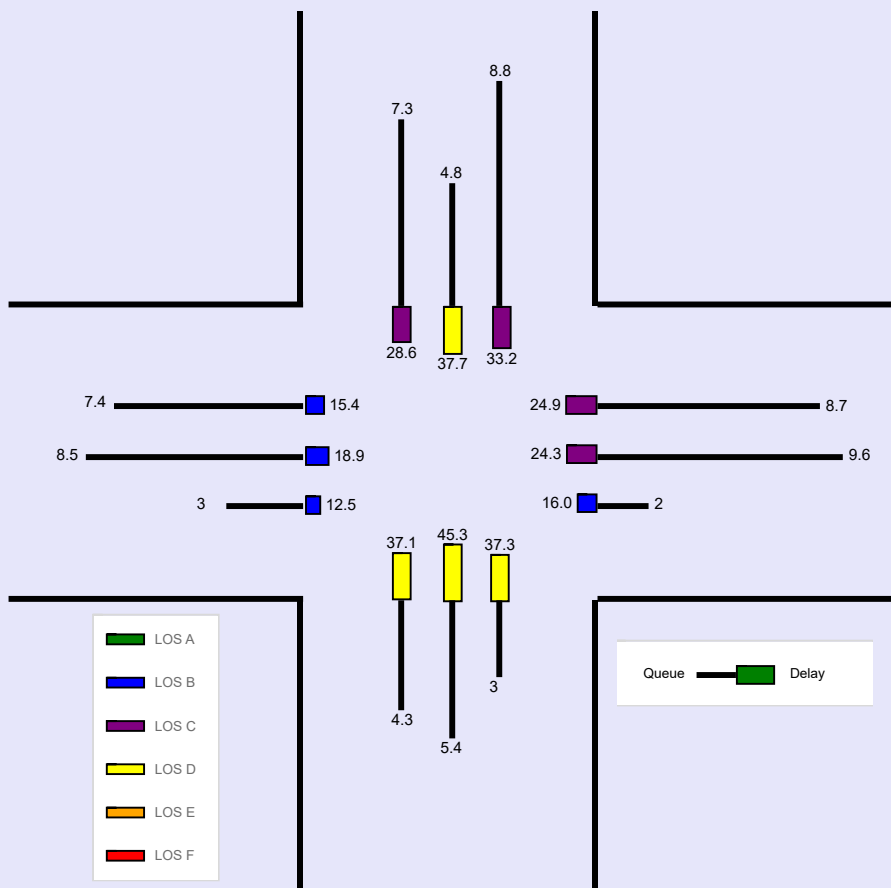
Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	310	290	130	80	290	250	100	110	70	220	110	190

Signal Information

Cycle, s	100.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On	Green	6.4	1.1	39.0	7.2	0.7	9.6			
Force Mode	Float	Simult. Gap N/S	On	Yellow	4.0	4.0	4.0	4.0	4.0	4.0			
				Red	2.0	2.0	2.0	2.0	2.0	2.0			

Movement Group Results

Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (Q), ft/ln (95 th percentile)	191	219.3	76.7	51.3	243.8	217.6	110.1	136.2	77	223.7	122.8	186.2
Back of Queue (Q), veh/ln (95 th percentile)	7.4	8.5	3.0	2.0	9.6	8.7	4.3	5.4	3.0	8.8	4.8	7.3
Queue Storage Ratio (RQ) (95 th percentile)	0.16	0.19	0.26	0.26	0.46	0.42	0.55	0.07	0.19	0.64	0.25	0.37
Control Delay (d), s/veh	15.4	18.9	12.5	16.0	24.3	24.9	37.1	45.3	37.3	33.2	37.7	28.6
Level of Service (LOS)	B	B	B	B	C	C	D	D	D	C	D	C
Approach Delay, s/veh / LOS	16.3 / B			23.5 / C			40.4 / D			32.5 / C		
Intersection Delay, s/veh / LOS	25.4						C					



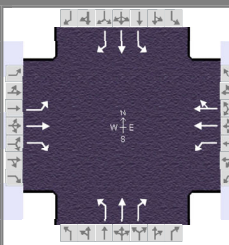
--- Messages ---

No errors or warnings exist.

--- Comments ---

HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	B&N			Duration, h	0.250
Analyst	Sonja Summer	Analysis Date	Jan 16, 2024	Area Type	Other
Jurisdiction		Time Period	PM Peak Hour	PHF	0.92
Urban Street	SR 39	Analysis Year	2050	Analysis Period	1 > 17:00
Intersection	SR 39 & Bluebell Dr	File Name	Scenario4_Bluebell_PM.xus		
Project Description	Build Alternative 4				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	350	500	170	80	510	250	180	110	60	280	150	300

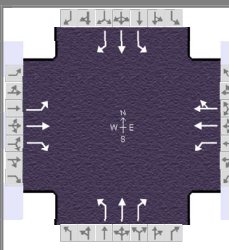
Signal Information														
Cycle, s	100.0	Reference Phase	2											
Offset, s	0	Reference Point	End											
Uncoordinated	No	Simult. Gap E/W	On	Green	6.4	3.1	35.6	8.0	11.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	4.0	4.0	4.0	0.0				
				Red	2.0	2.0	2.0	2.0	2.0	0.0				

Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	350	500	170	80	510	250	180	110	60	280	150	300
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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N_m), man/h	None			None			None			None		
Heavy Vehicles (P_{HV}), %	2	2	2	2	2		1	1	1	1	1	1
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	12.0	12.0
Turn Bay Length, ft	1170	1170	300	200	530		200	2000	400	350	500	500
Grade (P_g), %	0			0			0			0		
Speed Limit, mi/h	35	35	35	35	35	35	25	25	25	25	25	25

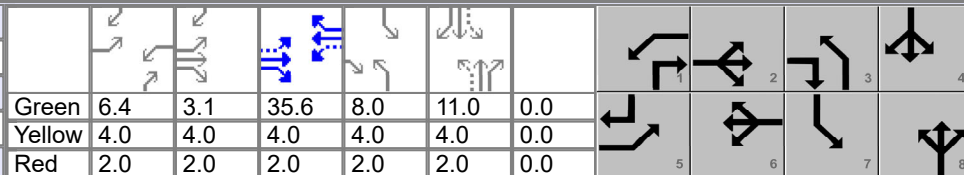
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s	37.0	39.0	24.0	26.0	14.0	17.0	20.0	23.0
Yellow Change Interval (Y), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Red Clearance Interval (R_c), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Minimum Green (G_{min}), s	7	20	7	20	7	10	7	10
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	2.0	2.0
Recall Mode	Off	Min	Off	Min	Min	Off	Max	Min
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	

HCS Signalized Intersection Results Summary

General Information				Intersection Information			
Agency	B&N			Duration, h	0.250		
Analyst	Sonja Summer		Analysis Date	Jan 16, 2024	Area Type		Other
Jurisdiction		Time Period	PM Peak Hour	PHF	0.92		
Urban Street	SR 39	Analysis Year	2050	Analysis Period	1 > 17:00		
Intersection	SR 39 & Bluebell Dr	File Name	Scenario4_Bluebell_PM.xus				
Project Description	Build Alternative 4						

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	350	500	170	80	510	250	180	110	60	280	150	300

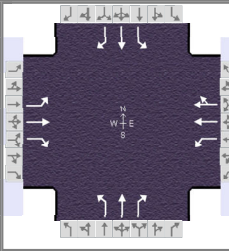
Signal Information																								
Cycle, s	100.0	Reference Phase	2	Green	6.4	3.1	35.6	8.0	11.0	0.0	Yellow	4.0	4.0	4.0	4.0	4.0	0.0	Red	2.0	2.0	2.0	2.0	2.0	0.0
Offset, s	0	Reference Point	End	Uncoordinated	No	Simult. Gap E/W	On	Force Mode	Fixed	Simult. Gap N/S	On													

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6	3	8	7	4
Case Number	1.1	3.0	1.1	4.0	1.1	3.0	1.1	3.0
Phase Duration, s	21.4	50.6	12.4	41.6	14.0	17.0	20.0	23.0
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	0.0	3.1	0.0	3.3	3.4	3.3	3.4
Queue Clearance Time (g_s), s	14.8		5.0		10.0	8.0	16.0	19.0
Green Extension Time (g_e), s	0.7	0.0	0.1	0.0	0.0	0.6	0.0	0.0
Phase Call Probability	1.00		0.91		1.00	1.00	1.00	1.00
Max Out Probability	0.00		0.00		1.00	1.00	1.00	1.00

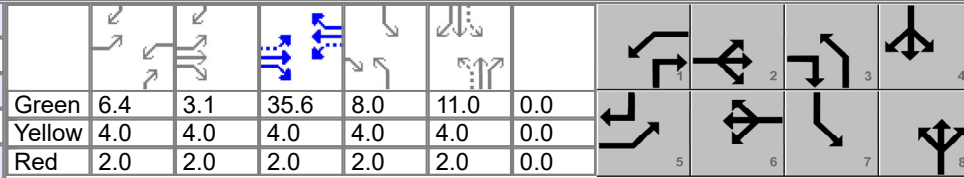
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (v), veh/h	380	543	185	87	437	389	196	120	65	304	163	326
Adjusted Saturation Flow Rate (s), veh/h/ln	1781	1870	1585	1781	1870	1662	1795	1885	1598	1795	1885	1598
Queue Service Time (g_s), s	12.8	22.7	6.3	3.0	19.6	19.7	8.0	6.0	3.5	14.0	7.9	17.0
Cycle Queue Clearance Time (g_c), s	12.8	22.7	6.3	3.0	19.6	19.7	8.0	6.0	3.5	14.0	7.9	17.0
Green Ratio (g/C)	0.53	0.45	0.53	0.42	0.36	0.36	0.19	0.11	0.17	0.27	0.17	0.32
Capacity (c), veh/h	452	835	834	358	665	591	304	207	278	387	320	518
Volume-to-Capacity Ratio (X)	0.841	0.651	0.222	0.243	0.657	0.659	0.644	0.577	0.235	0.786	0.509	0.629
Back of Queue (Q), ft/ln (95 th percentile)	223.4	395.8	102.2	54.9	365.3	330.6	42.7	134.5	63.1	319.6	167.4	281
Back of Queue (Q), veh/ln (95 th percentile)	8.8	15.6	4.0	2.2	14.4	13.2	1.7	5.3	2.5	12.7	6.6	11.2
Queue Storage Ratio (RQ) (95 th percentile)	0.19	0.34	0.34	0.27	0.69	0.63	0.21	0.07	0.16	0.91	0.33	0.56
Uniform Delay (d_1), s/veh	18.9	21.6	12.7	19.1	27.1	27.1	37.7	42.3	35.6	33.0	37.7	28.7
Incremental Delay (d_2), s/veh	2.5	3.9	0.6	0.1	5.0	5.7	3.6	2.6	0.2	14.8	0.6	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	0.0	0.0	0.0
Control Delay (d), s/veh	21.4	25.5	13.3	19.2	32.1	32.8	41.3	44.9	35.7	47.8	38.3	30.5
Level of Service (LOS)	C	C	B	B	C	C	D	D	D	D	D	C
Approach Delay, s/veh / LOS	22.1	C		31.2	C		41.5	D		38.7	D	
Intersection Delay, s/veh / LOS	31.1						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.10	B	2.11	B	2.14	B	2.30	B
Bicycle LOS Score / LOS	2.32	B	1.24	A	1.12	A	1.80	B

HCS Signalized Intersection Intermediate Values

General Information				Intersection Information		
Agency	B&N			Duration, h	0.250	
Analyst	Sonja Summer	Analysis Date	Jan 16, 2024	Area Type	Other	
Jurisdiction		Time Period	PM Peak Hour	PHF	0.92	
Urban Street	SR 39	Analysis Year	2050	Analysis Period	1 > 17:00	
Intersection	SR 39 & Bluebell Dr	File Name	Scenario4_Bluebell_PM.xus			
Project Description	Build Alternative 4					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	350	500	170	80	510	250	180	110	60	280	150	300

Signal Information																								
Cycle, s	100.0	Reference Phase	2	Green	6.4	3.1	35.6	8.0	11.0	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
Offset, s	0	Reference Point	End	Uncoordinated	No	Simult. Gap E/W	On	Force Mode	Fixed	Simult. Gap N/S	On													

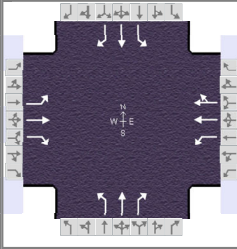
Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	0.984	0.984	0.984	0.984	0.984	1.000	0.992	0.992	0.992	0.992	0.992	0.992
Parking Activity Adjustment Factor (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})		0.000	0.847		0.888	0.888		0.000	0.847		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	1781	1870	1585	1781	2372	1160	1795	1885	1598	1795	1885	1598
Proportion of Vehicles Arriving on Green (P)	0.15	0.45	0.45	0.06	0.36	0.36	0.08	0.11	0.11	0.14	0.17	0.17
Incremental Delay Factor (k)	0.06	0.50	0.50	0.04	0.50	0.50	0.17	0.11	0.04	0.50	0.05	0.16

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)	0.53	0.45	0.42	0.36	0.19	0.11	0.27	0.17
Permitted Saturation Flow Rate (s_p), veh/h/ln	663	0	863	0	1233	0	1282	0
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								
Permitted Effective Green Time (g_p), s	37.6	0.0	35.6	0.0	11.0	0.0	13.0	0.0
Permitted Service Time (g_u), s	15.8	0.0	19.9	0.0	7.1	0.0	5.0	0.0
Permitted Queue Service Time (g_{ps}), s	15.8		1.8		3.7		3.9	
Time to First Blockage (g_t), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Service Time Before Blockage (g_{ts}), s								
Protected Right Saturation Flow (s_R), veh/h/ln			1585				1598	
Protected Right Effective Green Time (g_R), s			8.0				6.4	

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.389	0.000	1.389	0.000	1.389	0.000	1.557	0.000
Pedestrian F_s / F_{delay}	0.000	0.109	0.000	0.122	0.000	0.148	0.000	0.142
Pedestrian M_{corner} / M_{cw}	0.00		0.00		0.00		0.00	
Bicycle c_b / d_b	892.50	15.33	711.09	20.77	220.00	39.61	340.00	34.45
Bicycle F_w / F_v	-3.64	1.83	-3.64	0.75	-3.64	0.63	-3.64	1.31

HCS Signalized Intersection Results Graphical Summary

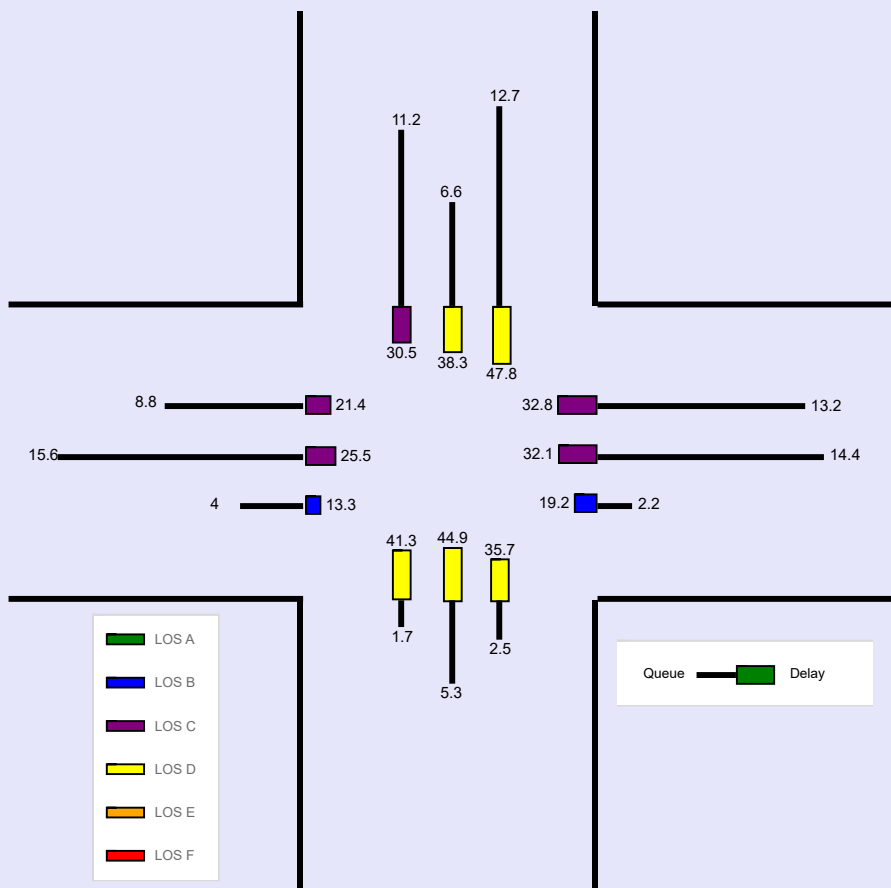
General Information				Intersection Information				
Agency	B&N			Duration, h	0.250			
Analyst	Sonja Summer		Analysis Date	Jan 16, 2024		Area Type	Other	
Jurisdiction				Time Period	PM Peak Hour		PHF	0.92
Urban Street	SR 39		Analysis Year	2050		Analysis Period	1 > 17:00	
Intersection	SR 39 & Bluebell Dr		File Name	Scenario4_Bluebell_PM.xus				
Project Description	Build Alternative 4							



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	350	500	170	80	510	250	180	110	60	280	150	300

Signal Information				Signal Timing (s)								Signal Phases					
Cycle, s	100.0	Reference Phase	2	Green	6.4	3.1	35.6	8.0	11.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Offset, s	0	Reference Point	End	Yellow	4.0	4.0	4.0	4.0	4.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uncoordinated	No	Simult. Gap E/W	On	Red	2.0	2.0	2.0	2.0	2.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Force Mode	Fixed	Simult. Gap N/S	On														

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Back of Queue (Q), ft/ln (95 th percentile)	223.4	395.8	102.2	54.9	365.3	330.6	42.7	134.5	63.1	319.6	167.4	281
Back of Queue (Q), veh/ln (95 th percentile)	8.8	15.6	4.0	2.2	14.4	13.2	1.7	5.3	2.5	12.7	6.6	11.2
Queue Storage Ratio (RQ) (95 th percentile)	0.19	0.34	0.34	0.27	0.69	0.63	0.21	0.07	0.16	0.91	0.33	0.56
Control Delay (d), s/veh	21.4	25.5	13.3	19.2	32.1	32.8	41.3	44.9	35.7	47.8	38.3	30.5
Level of Service (LOS)	C	C	B	B	C	C	D	D	D	D	D	C
Approach Delay, s/veh / LOS	22.1	C		31.2	C		41.5	D		38.7	D	
Intersection Delay, s/veh / LOS	31.1						C					

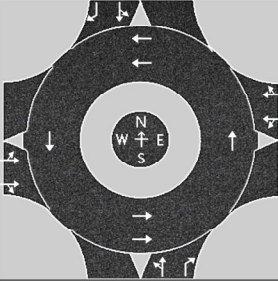


--- Messages ---

No errors or warnings exist.

--- Comments ---

HCS Roundabouts Report

General Information				Site Information				
Analyst	Sonja Summer				Intersection	SR 39 & Bluebell		
Agency or Co.	B&N				E/W Street Name	SR 39		
Date Performed	11/28/2023				N/S Street Name	Bluebell Dr		
Analysis Year	2050				Analysis Time Period, hrs	0.25		
Time Analyzed	AM Peak Hour				Peak Hour Factor	0.91		
Project Description	Build Alternative 5				Jurisdiction			

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Number of Lanes (N)	0	0	2	0	0	0	2	0	0	0	1	1	0	0	1	1
Lane Assignment	LT		TR		LT		TR		LT		R		LT		R	
Volume (V), veh/h	100	210	290	130	0	80	290	250	0	100	110	70	0	220	110	190
Percent Heavy Vehicles, %	4	4	4	4	2	2	2	2	2	2	2	2	2	2	2	2
Flow Rate (v _{PCE}), pc/h	114	240	331	149	0	90	325	280	0	112	123	78	0	247	123	213
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				2				2			
Pedestrians Crossing, p/h	0				0				0				0			
Proportion of CAVs	0															

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway, s	4.5436	4.5436		4.5436	4.5436		4.6453	4.3276		4.6453	4.3276	
Follow-Up Headway, s	2.5352	2.5352		2.5352	2.5352		2.6667	2.5352		2.6667	2.5352	

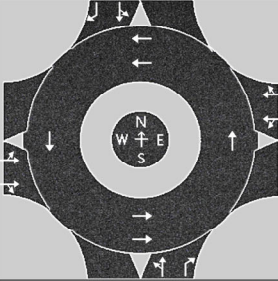
Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v _e), pc/h	392	442		327	368		235	78		370	213	
Entry Volume, veh/h	377	425		320	361		230	76		363	209	
Circulating Flow (v _c), pc/h	460			589			932			641		
Exiting Flow (v _{ex}), pc/h	656			764			643			362		
Capacity (c _{PCE}), pc/h	934	934		831	831		573	643		749	824	
Capacity (c), veh/h	898	898		815	815		562	630		734	807	
v/c Ratio (x)	0.42	0.47		0.39	0.44		0.41	0.12		0.49	0.26	

Delay and Level of Service

Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh	9.0	9.9		9.2	10.1		12.9	7.1		12.1	7.3	
Lane LOS	A	A		A	B		B	A		B	A	
95% Queue, veh	2.1	2.6		1.9	2.3		2.0	0.4		2.8	1.0	
Approach Delay, s/veh LOS	9.5		A	9.7		A	11.4		B	10.3		B
Intersection Delay, s/veh LOS	10.0						A					

HCS Roundabouts Report

General Information				Site Information				
Analyst	Sonja Summer				Intersection	SR 39 & Bluebell		
Agency or Co.	B&N				E/W Street Name	SR 39		
Date Performed	11/28/2023				N/S Street Name	Bluebell Dr		
Analysis Year	2050				Analysis Time Period, hrs	0.25		
Time Analyzed	PM Peak Hour				Peak Hour Factor	0.92		
Project Description	Build Alternative 5				Jurisdiction			

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Number of Lanes (N)	0	0	2	0	0	0	2	0	0	0	1	1	0	0	1	1
Lane Assignment	LT		TR		LT		TR		LT		R		LT		R	
Volume (V), veh/h	100	250	500	170	0	80	510	250	0	180	110	60	0	280	150	300
Percent Heavy Vehicles, %	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1
Flow Rate (v _{PCE}), pc/h	111	277	554	188	0	89	565	277	0	198	121	66	0	307	165	329
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				2				2			
Pedestrians Crossing, p/h	0				0				0				0			
Proportion of CAVs	0															

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway, s	4.5436	4.5436		4.5436	4.5436		4.6453	4.3276		4.6453	4.3276	
Follow-Up Headway, s	2.5352	2.5352		2.5352	2.5352		2.6667	2.5352		2.6667	2.5352	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v _e), pc/h	531	599		438	493		319	66		472	329	
Entry Volume, veh/h	521	587		429	484		316	65		467	326	
Circulating Flow (v _c), pc/h	561			707			1249			963		
Exiting Flow (v _{ex}), pc/h	927			1203			675			442		
Capacity (c _{PCE}), pc/h	852	852		746	746		428	491		557	626	
Capacity (c), veh/h	836	836		732	732		424	486		551	620	
v/c Ratio (x)	0.62	0.70		0.59	0.66		0.75	0.13		0.85	0.53	

Delay and Level of Service

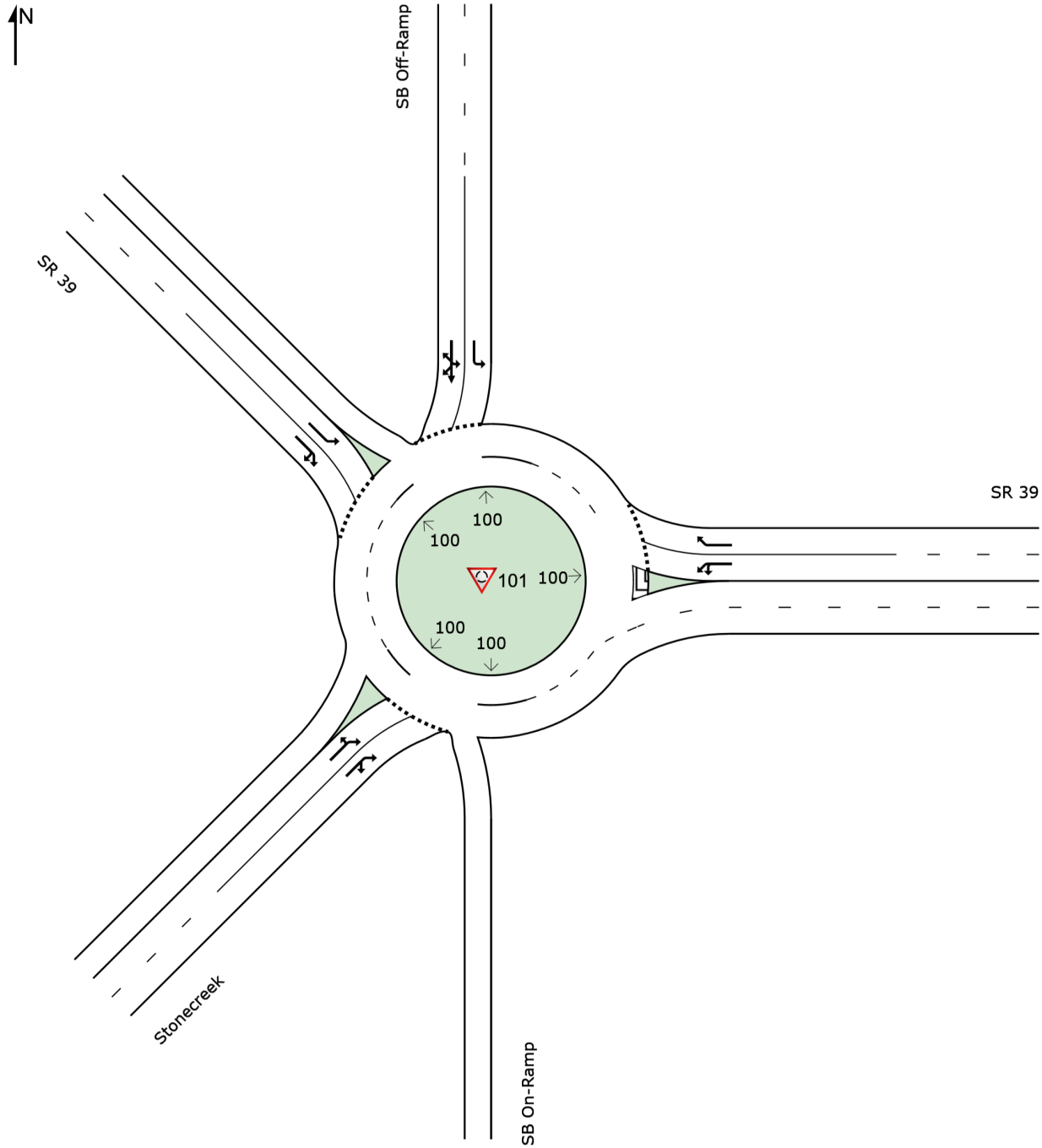
Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh	14.3	17.3		14.6	17.3		33.3	9.2		37.1	14.7	
Lane LOS	B	C		B	C		D	A		E	B	
95% Queue, veh	4.5	6.0		3.9	5.0		6.1	0.5		9.0	3.1	
Approach Delay, s/veh LOS	15.9 C			16.0 C			29.1 D			27.9 D		
Intersection Delay, s/veh LOS	20.5									C		

SITE LAYOUT

Site: 101 [SR39 Peanut - 2045 PM - Sidra (Site Folder: General)]

2045 PM Peak
Site Category: (None)
Roundabout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 101 [SR39 Peanut - 2045 AM (Site Folder: General)]

2045 AM Peak
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] ft				
East: SR 39														
1	L2	250	9.0	269	9.0	0.532	9.1	LOS A	3.4	90.3	0.36	0.19	0.36	31.0
1a	L1	340	9.0	366	9.0	0.532	9.1	LOS A	3.4	90.3	0.36	0.19	0.36	30.6
16a	R1	160	9.0	172	9.0	0.144	4.3	LOS A	0.6	15.4	0.22	0.11	0.22	35.4
Approach		750	9.0	806	9.0	0.532	8.0	LOS A	3.4	90.3	0.33	0.18	0.33	31.6
North: SB Off-Ramp														
7	L2	260	7.0	280	7.0	0.502	14.8	LOS B	2.6	67.7	0.72	0.86	1.16	28.7
4	T1	10	7.0	11	7.0	0.502	14.8	LOS B	2.6	67.7	0.72	0.86	1.16	28.7
14a	R1	70	7.0	75	7.0	0.230	10.2	LOS B	0.8	20.7	0.65	0.65	0.65	32.3
14b	R3	40	7.0	43	7.0	0.230	10.2	LOS B	0.8	20.7	0.65	0.65	0.65	31.1
Approach		380	7.0	409	7.0	0.502	13.5	LOS B	2.6	67.7	0.70	0.80	1.01	29.5
NorthWest: SR 39														
7ax	L1	150	3.0	161	3.0	0.392	12.7	LOS B	1.7	43.3	0.71	0.78	0.96	30.0
14ax	R1	50	3.0	54	3.0	0.392	12.7	LOS B	1.7	43.3	0.71	0.78	0.96	30.0
14x	R2	90	3.0	97	3.0	0.200	10.3	LOS B	0.7	17.6	0.68	0.68	0.68	31.4
Approach		290	3.0	312	3.0	0.392	11.9	LOS B	1.7	43.3	0.70	0.75	0.87	30.4
SouthWest: Stonecreek														
5x	L2	80	14.0	86	14.0	0.366	11.4	LOS B	1.5	41.5	0.67	0.72	0.83	31.0
12ax	R1	230	14.0	247	14.0	0.366	11.4	LOS B	1.5	41.5	0.67	0.72	0.83	31.2
12bx	R3	90	14.0	97	14.0	0.366	11.4	LOS B	1.5	41.5	0.67	0.72	0.83	30.4
Approach		400	14.0	430	14.0	0.366	11.4	LOS B	1.5	41.5	0.67	0.72	0.83	31.0
All Vehicles		1820	8.7	1957	8.7	0.532	10.6	LOS B	3.4	90.3	0.54	0.52	0.67	30.8

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Geometric Delay is not included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [SR39 Peanut - 2045 PM (Site Folder: General)]

2045 PM Peak
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] ft				
East: SR 39														
1	L2	450	3.0	500	3.0	0.801	17.6	LOS C	11.0	281.3	0.73	0.48	0.77	27.9
1a	L1	430	3.0	478	3.0	0.801	17.6	LOS C	11.0	281.3	0.73	0.48	0.77	27.7
16a	R1	210	3.0	233	3.0	0.191	4.6	LOS A	0.8	21.5	0.27	0.15	0.27	35.3
Approach		1090	3.0	1211	3.0	0.801	15.1	LOS C	11.0	281.3	0.64	0.41	0.68	29.0
North: SB Off-Ramp														
7	L2	420	5.0	467	5.0	0.827	45.7	LOS E	6.4	165.9	0.92	1.34	2.46	20.9
4	T1	10	5.0	11	5.0	0.827	42.6	LOS E	6.4	165.9	0.91	1.34	2.47	21.8
14a	R1	100	5.0	111	5.0	0.827	42.6	LOS E	6.4	165.9	0.91	1.34	2.47	21.7
14b	R3	50	5.0	56	5.0	0.827	42.6	LOS E	6.4	165.9	0.91	1.34	2.47	21.2
Approach		580	5.0	644	5.0	0.827	44.9	LOS E	6.4	165.9	0.92	1.34	2.46	21.1
NorthWest: SR 39														
7ax	L1	250	2.0	278	2.0	0.936	75.4	LOS F	8.4	214.3	0.98	1.57	3.31	16.4
14ax	R1	120	2.0	133	2.0	0.858	53.3	LOS F	6.4	162.4	0.95	1.39	2.66	19.9
14x	R2	150	2.0	167	2.0	0.858	53.3	LOS F	6.4	162.4	0.95	1.39	2.66	19.7
Approach		520	2.0	578	2.0	0.936	63.9	LOS F	8.4	214.3	0.96	1.48	2.97	18.0
SouthWest: Stonecreek														
5x	L2	120	5.0	133	5.0	1.108	116.1	LOS F	21.6	560.6	1.00	2.34	6.03	12.9
12ax	R1	430	5.0	478	5.0	1.108	113.0	LOS F	24.2	628.2	1.00	2.41	6.25	13.0
12bx	R3	190	5.0	211	5.0	1.108	109.6	LOS F	24.2	628.2	1.00	2.48	6.48	13.1
Approach		740	5.0	822	5.0	1.108	112.6	LOS F	24.2	628.2	1.00	2.41	6.27	13.0
All Vehicles		2930	3.7	3256	3.7	1.108	54.3	LOS F	24.2	628.2	0.84	1.29	2.85	19.5

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

Delay Model: HCM Delay Formula (Geometric Delay is not included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [SR39 Peanut - 2045 PM - Sidra (Site Folder: General)]

2045 PM Peak
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] ft				
East: SR 39														
1	L2	450	3.0	500	3.0	0.710	1.2	LOS A	8.6	219.5	0.65	0.39	0.65	33.7
1a	L1	430	3.0	478	3.0	0.710	1.2	LOS A	8.6	219.5	0.65	0.39	0.65	33.3
16a	R1	210	3.0	233	3.0	0.256	1.1	LOS A	1.6	39.7	0.42	0.26	0.42	36.6
Approach		1090	3.0	1211	3.0	0.710	1.2	LOS A	8.6	219.5	0.61	0.36	0.61	34.1
North: SB Off-Ramp														
7	L2	420	5.0	467	5.0	0.630	10.9	LOS B	4.6	119.8	0.88	1.00	1.26	30.5
4	T1	10	5.0	11	5.0	0.630	9.9	LOS A	4.6	119.8	0.89	1.01	1.26	31.5
14a	R1	100	5.0	111	5.0	0.630	9.9	LOS A	4.6	119.8	0.89	1.01	1.26	31.3
14b	R3	50	5.0	56	5.0	0.630	9.9	LOS A	4.6	119.8	0.89	1.01	1.26	30.2
Approach		580	5.0	644	5.0	0.630	10.7	LOS B	4.6	119.8	0.88	1.00	1.26	30.6
NorthWest: SR 39														
7ax	L1	250	2.0	278	2.0	0.733	24.6	LOS C	6.2	157.1	0.95	1.19	1.71	25.7
14ax	R1	120	2.0	133	2.0	0.642	17.6	LOS B	5.4	135.9	0.95	1.13	1.50	29.2
14x	R2	150	2.0	167	2.0	0.642	17.6	LOS B	5.4	135.9	0.95	1.13	1.50	28.6
Approach		520	2.0	578	2.0	0.733	21.0	LOS C	6.2	157.1	0.95	1.16	1.60	27.2
SouthWest: Stonecreek														
5x	L2	120	5.0	133	5.0	0.686	10.8	LOS B	4.6	118.4	0.84	0.99	1.31	31.6
12ax	R1	430	5.0	478	5.0	0.686	9.9	LOS A	5.0	128.8	0.84	0.99	1.30	32.0
12bx	R3	190	5.0	211	5.0	0.686	9.1	LOS A	5.0	128.8	0.85	0.99	1.29	31.7
Approach		740	5.0	822	5.0	0.686	9.8	LOS A	5.0	128.8	0.84	0.99	1.30	31.9
All Vehicles		2930	3.7	3256	3.7	0.733	8.8	LOS A	8.6	219.5	0.78	0.79	1.09	31.4

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is not included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Project: US 39 & Stonecreek RB
 Scenario: PM Peak
 Run(s): Batch (10 runs)
 Simulated: Various
 Time: 17:00:00 - 18:00:00
 Interval: Summary
 Selection: --

Intersection Level of Service - Overview

STATE RT 39, 720504701, 720504700 & 720504703 -- SIGNALIZED **NODE: 720409962**

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
1	2,988.0	24.60	29.6	C
2	2,981.0	24.81	30.0	C
3	2,978.0	24.01	29.0	C
4	2,982.0	24.63	29.7	C
5	2,978.0	24.10	29.1	C
6	2,974.0	24.36	29.5	C
7	2,985.0	24.19	29.2	C
8	2,980.0	24.08	29.1	C
9	2,977.0	23.88	28.9	C
10	2,982.0	24.45	29.5	C
Average:	2,980.5	24.31	29.4	C

Project: US 39 & Stonecreek RB
Scenario: PM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 17:00:00 - 18:00:00
Interval: Summary
Selection: --

Intersection Level of Service - Total Control Delay

Node ID	Intersection	Control Type	Average	Std Dev	Minimum	Maximum	# Samples
720409962	STATE RT 39, 720504701, 720504700 & 720504703	Actuated	24.3	0.3	23.9	24.8	10

Project: US 39 & Stonecreek RB
Scenario: PM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 17:00:00 - 18:00:00
Interval: Summary
Selection: --

Intersection Level of Service - Avg Control Delay

Node ID	Intersection	Control Type	Average	Std Dev	Minimum	Maximum	# Samples
720409962	STATE RT 39, 720504701, 720504700 & 720504703	Actuated	29.4	0.4	28.9	30.0	10

Project: US 39 & Stonecreek RB
 Scenario: PM Peak
 Run(s): Batch (10 runs)
 Simulated: Various
 Time: 17:00:00 - 18:00:00
 Interval: Summary
 Selection: --

Intersection Level of Service by Approach - Overview

STATE RT 39, 720504701, 720504700 & 720504703 -- SIGNALIZED

NODE: 720409962

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
EB on STATE RT 39: Superlink ID 720504699				
1	1,103.0	8.74	28.5	C
2	1,093.0	8.61	28.4	C
3	1,099.0	8.29	27.2	C
4	1,102.0	8.69	28.4	C
5	1,098.0	8.41	27.6	C
6	1,099.0	8.17	26.8	C
7	1,102.0	8.62	28.2	C
8	1,098.0	8.11	26.6	C
9	1,102.0	8.60	28.1	C
10	1,101.0	8.42	27.5	C
Average:	1,099.7	8.47	27.7	C

NB on [Unnamed Street]: Superlink ID 720504701

1	651.0	6.74	37.2	D
2	650.0	6.96	38.5	D
3	641.0	6.66	37.4	D
4	646.0	6.69	37.3	D
5	645.0	6.60	36.9	D
6	642.0	6.61	37.1	D
7	647.0	6.63	36.9	D
8	648.0	6.82	37.9	D
9	642.0	6.26	35.1	D
10	647.0	6.71	37.4	D
Average:	645.9	6.67	37.2	D

WB on STATE RT 39: Superlink ID 720496106

1	1,234.0	9.12	26.6	C
2	1,238.0	9.24	26.9	C
3	1,238.0	9.06	26.3	C
4	1,234.0	9.25	27.0	C
5	1,235.0	9.09	26.5	C
6	1,233.0	9.58	28.0	C
7	1,236.0	8.93	26.0	C
8	1,234.0	9.14	26.7	C
9	1,233.0	9.02	26.3	C

STATE RT 39, 720504701, 720504700 & 720504703 -- SIGNALIZED**NODE: 720409962**

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
10	1,234.0	9.31	27.2	C
Average:	1,234.9	9.17	26.8	C

Project: US 39 & Stonecreek RB
 Scenario: PM Peak
 Run(s): Batch (10 runs)
 Simulated: Various
 Time: 17:00:00 - 18:00:00
 Interval: Summary
 Selection: --

Intersection Level of Service by Approach - Total Control Delay

STATE RT 39, 720504701, 720504700 & 720504703

NODE: 720409962

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
E	STATE RT 39	720504699	8.5	0.2	8.1	8.7	10
N	[Unnamed Street]	720504701	6.7	0.2	6.3	7.0	10
W	STATE RT 39	720496106	9.2	0.2	8.9	9.6	10

Project: US 39 & Stonecreek RB
 Scenario: PM Peak
 Run(s): Batch (10 runs)
 Simulated: Various
 Time: 17:00:00 - 18:00:00
 Interval: Summary
 Selection: --

Intersection Level of Service by Approach - Avg Control Delay

STATE RT 39, 720504701, 720504700 & 720504703

NODE: 720409962

Direction	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
E	STATE RT 39	720504699	27.7	0.7	26.6	28.5	10
N	[Unnamed Street]	720504701	37.2	0.9	35.1	38.5	10
W	STATE RT 39	720496106	26.8	0.6	26.0	28.0	10

Project: US 39 & Stonecreek RB
 Scenario: PM Peak
 Run(s): Batch (10 runs)
 Simulated: Various
 Time: 17:00:00 - 18:00:00
 Interval: Summary
 Selection: --

Intersection Level of Service by Lane Group - Overview

STATE RT 39, 720504701, 720504700 & 720504703 -- SIGNALIZED

NODE: 720409962

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
EB L on STATE RT 39: Superlink ID 720504699				
1	141.0	1.74	44.5	D
2	138.0	1.87	48.7	D
3	138.0	1.86	48.4	D
4	139.0	1.87	48.5	D
5	138.0	1.81	47.1	D
6	138.0	1.91	49.8	D
7	141.0	1.82	46.6	D
8	136.0	1.70	45.1	D
9	140.0	1.73	44.6	D
10	141.0	1.77	45.2	D
Average:	139.0	1.81	46.9	D

EB T on STATE RT 39: Superlink ID 720504699

1	962.0	6.99	26.2	C
2	955.0	6.75	25.4	C
3	961.0	6.44	24.1	C
4	963.0	6.82	25.5	C
5	960.0	6.60	24.8	C
6	961.0	6.26	23.4	C
7	961.0	6.80	25.5	C
8	962.0	6.41	24.0	C
9	962.0	6.87	25.7	C
10	960.0	6.65	24.9	C
Average:	960.7	6.66	25.0	C

NB LT on [Unnamed Street]: Superlink ID 720504701

1	282.0	4.03	51.4	D
2	276.0	4.09	53.3	D
3	272.0	3.90	51.7	D
4	277.0	3.92	51.0	D
5	279.0	3.76	48.6	D
6	276.0	3.95	51.5	D
7	277.0	3.89	50.5	D
8	278.0	4.02	52.0	D
9	272.0	3.61	47.8	D
10	277.0	3.94	51.2	D
Average:	276.6	3.91	50.9	D

STATE RT 39, 720504701, 720504700 & 720504703 -- SIGNALIZED

NODE: 720409962

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
NB R on [Unnamed Street]: Superlink ID 720504701				
1	369.0	2.71	26.4	C
2	374.0	2.87	27.7	C
3	369.0	2.75	26.9	C
4	369.0	2.76	27.0	C
5	366.0	2.84	27.9	C
6	366.0	2.66	26.2	C
7	370.0	2.75	26.7	C
8	370.0	2.80	27.3	C
9	370.0	2.65	25.8	C
10	370.0	2.77	27.0	C
Average:	369.3	2.76	26.9	C

WB T on STATE RT 39: Superlink ID 720496106				
1	1,234.0	9.12	26.6	C
2	1,238.0	9.24	26.9	C
3	1,238.0	9.06	26.3	C
4	1,234.0	9.25	27.0	C
5	1,235.0	9.09	26.5	C
6	1,233.0	9.58	28.0	C
7	1,236.0	8.93	26.0	C
8	1,234.0	9.14	26.7	C
9	1,233.0	9.02	26.3	C
10	1,234.0	9.31	27.2	C
Average:	1,234.9	9.17	26.8	C

Project: US 39 & Stonecreek RB
 Scenario: PM Peak
 Run(s): Batch (10 runs)
 Simulated: Various
 Time: 17:00:00 - 18:00:00
 Interval: Summary
 Selection: --

Intersection Level of Service by Lane Group - Total Control Delay

STATE RT 39, 720504701, 720504700 & 720504703

NODE: 720409962

Lane Group	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
EB L	STATE RT 39	720504699	1.8	0.1	1.7	1.9	10
EB T	STATE RT 39	720504699	6.7	0.2	6.3	7.0	10
NB LT	[Unnamed Street]	720504701	3.9	0.1	3.6	4.1	10
NB R	[Unnamed Street]	720504701	2.8	0.1	2.7	2.9	10
WB T	STATE RT 39	720496106	9.2	0.2	8.9	9.6	10

Project: US 39 & Stonecreek RB
 Scenario: PM Peak
 Run(s): Batch (10 runs)
 Simulated: Various
 Time: 17:00:00 - 18:00:00
 Interval: Summary
 Selection: --

Intersection Level of Service by Lane Group - Avg Control Delay

STATE RT 39, 720504701, 720504700 & 720504703

NODE: 720409962

Lane Group	Street Name	Superlink ID	Average	Std Dev	Minimum	Maximum	# Samples
EB L	STATE RT 39	720504699	46.9	1.9	44.5	49.8	10
EB T	STATE RT 39	720504699	25.0	0.9	23.4	26.2	10
NB LT	[Unnamed Street]	720504701	50.9	1.6	47.8	53.3	10
NB R	[Unnamed Street]	720504701	26.9	0.7	25.8	27.9	10
WB T	STATE RT 39	720496106	26.8	0.6	26.0	28.0	10

Project: US 39 & Stonecreek RB
 Scenario: PM Peak
 Run(s): Batch (10 runs)
 Simulated: Various
 Time: 17:00:00 - 18:00:00
 Interval: Summary
 Selection: --

Roundabout Level of Service - Overview

STONECREEK NB, STONECREEK SB & RAMP -- ROUNDABOUT

NODE: 2

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
1	2,597.0	4.54	6.3	A
2	2,584.0	4.63	6.4	A
3	2,583.0	4.24	5.9	A
4	2,588.0	4.59	6.4	A
5	2,589.0	4.49	6.2	A
6	2,581.0	4.54	6.3	A
7	2,588.0	4.51	6.3	A
8	2,582.0	4.76	6.6	A
9	2,582.0	4.45	6.2	A
10	2,581.0	4.58	6.4	A
Average:	2,585.5	4.53	6.3	A

Project: US 39 & Stonecreek RB
Scenario: PM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 17:00:00 - 18:00:00
Interval: Summary
Selection: --

Roundabout Level of Service - Total Control Delay

Node ID	Intersection	Control Type	Average	Std Dev	Minimum	Maximum	# Samples
2	Stonecreek NB, Stonecreek SB & RAMP	Roundabout	4.5	0.1	4.2	4.8	10

Project: US 39 & Stonecreek RB
Scenario: PM Peak
Run(s): Batch (10 runs)
Simulated: Various
Time: 17:00:00 - 18:00:00
Interval: Summary
Selection: --

Roundabout Level of Service - Avg Control Delay

Node ID	Intersection	Control Type	Average	Std Dev	Minimum	Maximum	# Samples
2	Stonecreek NB, Stonecreek SB & RAMP	Roundabout	6.3	0.2	5.9	6.6	10

Project: US 39 & Stonecreek RB
 Scenario: PM Peak
 Run(s): Batch (10 runs)
 Simulated: Various
 Time: 17:00:00 - 18:00:00
 Interval: Summary
 Selection: --

Roundabout Level of Service by Lane - Overview

STONECREEK NB, STONECREEK SB & RAMP -- ROUNDABOUT

NODE: 2

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
NEB T on Stonecreek: Lane ID 33625043				
1	322.0	0.80	9.0	A
2	329.0	0.74	8.1	A
3	325.0	0.72	8.0	A
4	306.0	0.69	8.2	A
5	328.0	0.76	8.4	A
6	322.0	0.85	9.5	A
7	330.0	0.73	8.0	A
8	323.0	0.81	9.0	A
9	331.0	0.71	7.7	A
10	319.0	0.78	8.8	A
Average:	323.0	0.76	8.5	A

NEB T on Stonecreek: Lane ID 33625044

1	419.0	0.57	4.9	A
2	409.0	0.52	4.6	A
3	416.0	0.51	4.4	A
4	433.0	0.55	4.5	A
5	413.0	0.60	5.2	A
6	418.0	0.54	4.6	A
7	408.0	0.52	4.6	A
8	415.0	0.51	4.4	A
9	410.0	0.52	4.6	A
10	419.0	0.50	4.3	A
Average:	416.0	0.53	4.6	A

SB T on [Unnamed Street]: Lane ID 33625035

1	179.0	0.52	10.4	B
2	181.0	0.57	11.4	B
3	168.0	0.43	9.2	A
4	181.0	0.63	12.4	B
5	166.0	0.46	10.1	B
6	169.0	0.47	10.0	B
7	172.0	0.60	12.6	B
8	181.0	0.56	11.2	B
9	176.0	0.51	10.3	B
10	176.0	0.49	10.0	A
Average:	174.0	0.52	10.8	B

STONECREEK NB, STONECREEK SB & RAMP -- ROUNDABOUT

NODE: 2

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
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SB T on [Unnamed Street]: Lane ID 33625036

1	343.0	0.87	9.1	A
2	336.0	0.90	9.6	A
3	346.0	0.76	8.0	A
4	334.0	1.06	11.4	B
5	354.0	0.76	7.7	A
6	346.0	0.83	8.7	A
7	348.0	0.93	9.6	A
8	336.0	0.90	9.6	A
9	341.0	0.92	9.7	A
10	342.0	0.83	8.8	A
Average:	342.0	0.88	9.2	A

SWB T on RAMP: Lane ID 33578451

1	231.0	0.56	8.7	A
2	232.0	0.63	9.8	A
3	244.0	0.61	9.0	A
4	232.0	0.53	8.2	A
5	250.0	0.61	8.8	A
6	245.0	0.62	9.1	A
7	253.0	0.60	8.5	A
8	240.0	0.68	10.2	B
9	249.0	0.57	8.2	A
10	250.0	0.62	8.9	A
Average:	242.0	0.60	8.9	A

SWB T on RAMP: Lane ID 33578452

1	348.0	0.71	7.3	A
2	350.0	0.77	7.9	A
3	336.0	0.72	7.7	A
4	349.0	0.67	6.9	A
5	326.0	0.78	8.7	A
6	333.0	0.78	8.4	A
7	330.0	0.62	6.8	A
8	337.0	0.80	8.5	A
9	329.0	0.73	7.9	A
10	324.0	0.85	9.5	A
Average:	336.0	0.74	8.0	A

WB T on STATE RT 39: Lane ID 33625039

1	545.0	0.44	2.9	A
2	538.0	0.41	2.7	A
3	539.0	0.40	2.6	A
4	541.0	0.38	2.5	A

STONECREEK NB, STONECREEK SB & RAMP -- ROUNDABOUT

NODE: 2

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
5	541.0	0.41	2.7	A
6	536.0	0.36	2.4	A
7	538.0	0.44	2.9	A
8	541.0	0.41	2.7	A
9	539.0	0.42	2.8	A
10	541.0	0.42	2.8	A
Average:	539.0	0.41	2.7	A

WB T on STATE RT 39: Lane ID 33625040

1	210.0	0.09	1.5	A
2	209.0	0.09	1.5	A
3	209.0	0.09	1.5	A
4	212.0	0.08	1.4	A
5	211.0	0.10	1.8	A
6	212.0	0.09	1.5	A
7	209.0	0.09	1.5	A
8	209.0	0.09	1.6	A
9	207.0	0.08	1.5	A
10	210.0	0.09	1.6	A
Average:	209.0	0.09	1.5	A

Project: US 39 & Stonecreek RB
 Scenario: PM Peak
 Run(s): Batch (10 runs)
 Simulated: Various
 Time: 17:00:00 - 18:00:00
 Interval: Summary
 Selection: --

Roundabout Level of Service by Lane - Total Control Delay

STONECREEK NB, STONECREEK SB & RAMP

NODE: 2

Lane	Lane ID	Street Name	Average	Std Dev	Minimum	Maximum	# Samples
SWB T	33578451	RAMP	0.6	0.0	0.5	0.7	10
SWB T	33578452	RAMP	0.7	0.1	0.6	0.9	10
SB T	33625035	[Unnamed Street]	0.5	0.1	0.4	0.6	10
SB T	33625036	[Unnamed Street]	0.9	0.1	0.8	1.1	10
WB T	33625039	STATE RT 39	0.4	0.0	0.4	0.4	10
WB T	33625040	STATE RT 39	0.1	0.0	0.1	0.1	10
NEB T	33625043	Stonecreek	0.8	0.1	0.7	0.9	10
NEB T	33625044	Stonecreek	0.5	0.0	0.5	0.6	10

Project: US 39 & Stonecreek RB
 Scenario: PM Peak
 Run(s): Batch (10 runs)
 Simulated: Various
 Time: 17:00:00 - 18:00:00
 Interval: Summary
 Selection: --

Roundabout Level of Service by Lane - Avg Control Delay

STONECREEK NB, STONECREEK SB & RAMP

NODE: 2

Lane	Lane ID	Street Name	Average	Std Dev	Minimum	Maximum	# Samples
SWB T	33578451	RAMP	8.9	0.6	8.2	10.2	10
SWB T	33578452	RAMP	8.0	0.8	6.8	9.5	10
SB T	33625035	[Unnamed Street]	10.8	1.1	9.2	12.6	10
SB T	33625036	[Unnamed Street]	9.2	1.0	7.7	11.4	10
WB T	33625039	STATE RT 39	2.7	0.2	2.4	2.9	10
WB T	33625040	STATE RT 39	1.5	0.1	1.4	1.8	10
NEB T	33625043	Stonecreek	8.5	0.6	7.7	9.5	10
NEB T	33625044	Stonecreek	4.6	0.3	4.3	5.2	10

Project: US 39 & Stonecreek RB
 Scenario: PM Peak
 Run(s): Batch (10 runs)
 Simulated: Various
 Time: 17:00:00 - 18:00:00
 Interval: Summary
 Selection: --

Lane Queue by Intersection - Overview

STATE RT 39, 720504701, 720504700 & 720504703

NODE: 720409962

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
EB L on STATE RT 39 - Lane ID 33625097						
1	119.0	36.1	1.6	105.7	4.0	0.0%
2	119.0	39.7	1.7	105.0	4.0	0.0%
3	119.0	37.7	1.7	106.0	4.0	0.0%
4	119.0	37.9	1.7	100.7	4.0	0.0%
5	119.0	40.8	1.8	129.0	5.0	0.0%
6	119.0	39.0	1.7	101.9	4.0	0.0%
7	119.0	37.5	1.6	100.3	4.0	0.0%
8	119.0	37.3	1.6	110.7	4.1	0.0%
9	119.0	36.7	1.6	119.0	5.0	0.0%
10	119.0	35.7	1.5	112.4	4.1	0.0%
Average:	119.0	37.8	1.7	109.1	4.2	0.0%

EB T on STATE RT 39 - Lane ID 33625077

1	119.0	72.6	3.1	286.9	11.1	0.0%
2	119.0	73.7	3.0	254.8	10.0	0.0%
3	119.0	61.9	2.6	252.6	10.0	0.0%
4	119.0	72.8	3.1	273.3	11.0	0.0%
5	119.0	69.6	2.9	251.8	10.0	0.0%
6	119.0	60.4	2.5	271.5	10.1	0.0%
7	119.0	68.0	2.9	262.9	11.0	0.0%
8	119.0	68.1	2.8	256.1	10.1	0.0%
9	119.0	74.8	3.1	283.6	11.0	0.0%
10	119.0	75.7	3.1	305.0	12.0	0.0%
Average:	119.0	69.8	2.9	269.9	10.6	0.0%

EB T on STATE RT 39 - Lane ID 33625078

1	119.0	68.7	2.8	236.5	10.0	0.0%
2	119.0	59.9	2.4	214.6	9.0	0.0%
3	119.0	55.6	2.2	230.7	9.0	0.0%
4	119.0	69.5	2.7	252.7	10.0	0.0%
5	119.0	72.7	2.8	250.8	9.1	0.0%
6	119.0	51.1	2.1	212.4	8.0	0.0%
7	119.0	64.0	2.5	220.4	9.0	0.0%
8	119.0	66.2	2.6	223.1	8.1	0.0%
9	119.0	62.5	2.5	226.2	9.0	0.0%
10	119.0	60.7	2.4	221.1	8.1	0.0%

STATE RT 39, 720504701, 720504700 & 720504703

NODE: 720409962

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
EB T on STATE RT 39 - Lane ID 33625078						
Average:	119.0	63.1	2.5	228.9	8.9	0.0%
NB LT on [Unnamed Street] - Lane ID 33625087						
1	119.0	91.2	3.6	227.0	9.0	0.0%
2	119.0	99.9	3.9	236.8	9.0	0.0%
3	119.0	93.4	3.7	244.3	9.0	0.0%
4	119.0	91.4	3.6	233.9	9.0	0.0%
5	119.0	79.6	3.3	212.4	8.0	0.0%
6	119.0	93.2	3.7	227.3	9.0	0.0%
7	119.0	84.0	3.4	213.4	8.1	0.0%
8	119.0	93.1	3.8	234.9	9.0	0.0%
9	119.0	85.8	3.4	225.7	8.0	0.0%
10	119.0	92.9	3.7	236.5	9.0	0.0%
Average:	119.0	90.5	3.6	229.2	8.7	0.0%
NB R on [Unnamed Street] - Lane ID 33625088						
1	119.0	51.8	2.1	185.2	7.0	0.0%
2	119.0	61.9	2.4	188.8	7.1	0.0%
3	119.0	57.8	2.3	194.0	8.0	0.0%
4	119.0	63.5	2.5	225.0	9.0	0.0%
5	119.0	56.4	2.3	200.4	7.1	0.0%
6	119.0	57.5	2.3	197.2	8.0	0.0%
7	119.0	52.3	2.1	184.1	7.0	0.0%
8	119.0	55.9	2.3	201.5	8.0	0.0%
9	119.0	54.2	2.2	198.2	8.0	0.0%
10	119.0	57.7	2.3	205.8	8.0	0.0%
Average:	119.0	56.9	2.3	198.0	7.7	0.0%
WB T on STATE RT 39 - Lane ID 33578448						
1	119.0	97.7	3.8	242.6	9.0	0.0%
2	119.0	106.0	4.1	274.6	10.0	0.0%
3	119.0	106.2	4.2	261.2	10.0	0.0%
4	119.0	103.8	4.1	266.7	10.0	0.0%
5	119.0	112.2	4.4	270.5	10.0	0.0%
6	119.0	104.9	4.1	265.0	10.0	0.0%
7	119.0	104.4	4.1	276.0	10.0	0.0%
8	119.0	95.0	3.7	248.8	9.1	0.0%
9	119.0	101.2	4.0	254.4	10.0	0.0%
10	119.0	101.5	4.0	277.8	11.0	0.0%
Average:	119.0	103.3	4.1	263.8	9.9	0.0%
WB T on STATE RT 39 - Lane ID 33578449						
1	119.0	73.7	2.8	361.9	13.1	0.0%

STATE RT 39, 720504701, 720504700 & 720504703

NODE: 720409962

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
WB T on STATE RT 39 - Lane ID 33578449						
2	119.0	77.4	3.0	357.9	14.0	0.0%
3	119.0	61.5	2.4	311.2	12.0	0.0%
4	119.0	74.3	2.8	328.8	12.0	0.0%
5	119.0	66.1	2.6	303.4	11.1	0.0%
6	119.0	76.8	2.9	358.8	13.1	0.0%
7	119.0	89.2	3.4	367.7	14.0	0.0%
8	119.0	78.1	3.0	347.0	13.1	0.0%
9	119.0	82.4	3.1	374.2	13.1	0.0%
10	119.0	79.8	3.1	375.3	14.1	0.0%
Average:	119.0	75.9	2.9	348.6	13.0	0.0%

STONECREEK NB, STONECREEK SB & RAMP

NODE: 2

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
NEB T on Stonecreek - Lane ID 33625043						
1	119.0	14.2	0.7	70.0	3.0	0.0%
2	119.0	10.0	0.5	49.2	2.0	0.0%
3	119.0	13.8	0.6	71.3	3.0	0.0%
4	119.0	11.9	0.6	46.3	2.0	0.0%
5	119.0	11.6	0.5	47.8	2.0	0.0%
6	119.0	11.8	0.5	51.2	2.1	0.0%
7	119.0	10.2	0.5	46.2	2.0	0.0%
8	119.0	14.2	0.7	73.4	3.0	0.0%
9	119.0	9.4	0.4	46.9	2.1	0.0%
10	119.0	14.8	0.7	54.4	2.1	0.0%
Average:	119.0	12.2	0.6	55.7	2.3	0.0%

NEB T on Stonecreek - Lane ID 33625044

1	119.0	10.5	0.5	47.4	2.0	0.0%
2	119.0	6.1	0.3	41.1	2.0	0.0%
3	119.0	4.9	0.2	25.2	1.0	0.0%
4	119.0	7.1	0.3	44.7	2.0	0.0%
5	119.0	8.8	0.4	44.0	2.0	0.0%
6	119.0	6.7	0.3	46.7	2.0	0.0%
7	119.0	7.2	0.3	42.2	2.0	0.0%
8	119.0	8.9	0.4	47.7	2.0	0.0%
9	119.0	6.0	0.3	29.6	1.1	0.0%
10	119.0	4.8	0.2	22.9	1.0	0.0%
Average:	119.0	7.1	0.3	39.2	1.7	0.0%

SB T on [Unnamed Street] - Lane ID 33625035

1	119.0	9.4	0.5	43.1	2.0	0.0%
2	119.0	9.3	0.5	46.1	2.0	0.0%

STONECREEK NB, STONECREEK SB & RAMP

NODE: 2

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
SB T on [Unnamed Street] - Lane ID 33625035						
3	119.0	5.3	0.3	20.6	1.0	0.0%
4	119.0	12.7	0.6	44.3	2.0	0.0%
5	119.0	7.0	0.4	22.2	1.0	0.0%
6	119.0	7.0	0.4	24.7	1.0	0.0%
7	119.0	11.0	0.5	46.8	2.0	0.0%
8	119.0	10.7	0.5	50.3	2.0	0.0%
9	119.0	9.6	0.5	44.8	2.0	0.0%
10	119.0	8.6	0.4	43.4	2.0	0.0%
Average:	119.0	9.1	0.5	38.6	1.7	0.0%

SB T on [Unnamed Street] - Lane ID 33625036

1	119.0	15.3	0.7	69.3	3.0	0.0%
2	119.0	21.2	0.9	71.0	3.0	0.0%
3	119.0	12.4	0.6	55.3	2.1	0.0%
4	119.0	20.8	0.9	89.1	4.0	0.0%
5	119.0	13.4	0.6	69.6	3.0	0.0%
6	119.0	14.9	0.7	78.0	3.0	0.0%
7	119.0	19.6	0.9	77.9	3.0	0.0%
8	119.0	15.6	0.7	72.7	3.0	0.0%
9	119.0	22.9	1.0	88.2	4.0	0.0%
10	119.0	15.3	0.7	75.1	3.0	0.0%
Average:	119.0	17.1	0.8	74.6	3.1	0.0%

SWB T on RAMP - Lane ID 33578451

1	119.0	8.5	0.4	48.6	2.0	0.0%
2	119.0	11.1	0.5	48.7	2.0	0.0%
3	119.0	7.8	0.4	37.2	2.0	0.0%
4	119.0	6.4	0.4	38.1	2.0	0.0%
5	119.0	10.2	0.5	44.4	2.0	0.0%
6	119.0	8.9	0.4	44.4	2.0	0.0%
7	119.0	7.6	0.4	41.1	2.0	0.0%
8	119.0	10.0	0.5	47.0	2.0	0.0%
9	119.0	7.6	0.4	46.3	2.0	0.0%
10	119.0	10.1	0.5	48.6	2.0	0.0%
Average:	119.0	8.8	0.4	44.4	2.0	0.0%

SWB T on RAMP - Lane ID 33578452

1	119.0	12.9	0.6	65.9	3.0	0.0%
2	119.0	11.7	0.5	62.9	2.1	0.0%
3	119.0	10.0	0.5	66.7	3.0	0.0%
4	119.0	9.2	0.4	47.2	2.0	0.0%
5	119.0	13.8	0.6	70.6	3.0	0.0%
6	119.0	13.9	0.6	71.8	3.0	0.0%

STONECREEK NB, STONECREEK SB & RAMP

NODE: 2

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
SWB T on RAMP - Lane ID 33578452						
7	119.0	7.9	0.4	44.2	2.0	0.0%
8	119.0	12.9	0.6	71.9	3.0	0.0%
9	119.0	8.6	0.4	42.3	2.0	0.0%
10	119.0	14.8	0.7	73.5	3.0	0.0%
Average:	119.0	11.6	0.5	61.7	2.6	0.0%

WB T on STATE RT 39 - Lane ID 33625039						
1	119.0	1.6	0.1	15.8	1.0	0.0%
2	119.0	1.6	0.1	0.0	0.0	0.0%
3	119.0	0.9	0.0	0.0	0.0	0.0%
4	119.0	0.4	0.0	0.0	0.0	0.0%
5	119.0	1.0	0.0	0.0	0.0	0.0%
6	119.0	0.6	0.0	0.0	0.0	0.0%
7	119.0	1.1	0.1	1.5	0.1	0.0%
8	119.0	1.8	0.1	20.4	1.0	0.0%
9	119.0	0.6	0.0	0.0	0.0	0.0%
10	119.0	2.0	0.1	18.4	1.0	0.0%
Average:	119.0	1.2	0.1	5.6	0.3	0.0%

WB T on STATE RT 39 - Lane ID 33625040						
1	119.0	0.1	0.0	0.0	0.0	0.0%
2	119.0	0.5	0.0	0.0	0.0	0.0%
3	119.0	0.0	0.0	0.0	0.0	0.0%
4	119.0	0.3	0.0	0.0	0.0	0.0%
5	119.0	0.1	0.0	0.0	0.0	0.0%
6	119.0	0.8	0.0	0.0	0.0	0.0%
7	119.0	0.5	0.0	0.0	0.0	0.0%
8	119.0	0.7	0.0	0.0	0.0	0.0%
9	119.0	0.5	0.0	0.0	0.0	0.0%
10	119.0	0.5	0.0	0.0	0.0	0.0%
Average:	119.0	0.4	0.0	0.0	0.0	0.0%

Project: US 39 & Stonecreek RB
 Scenario: PM Peak
 Run(s): Batch (10 runs)
 Simulated: Various
 Time: 17:00:00 - 18:00:00
 Interval: Summary
 Selection: --

Lane Queue by Intersection - Avg Queue

STATE RT 39, 720504701, 720504700 & 720504703

NODE: 720409962

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB LT	33625087	[Unnamed Street]	90.5	5.8	79.6	99.9	10
NB R	33625088	[Unnamed Street]	56.9	3.7	51.8	63.5	10

STATE RT 39, 720504701, 720504700 & 720504703

NODE: 720409962

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
WB T	33578448	STATE RT 39	103.3	4.8	95.0	112.2	10
WB T	33578449	STATE RT 39	75.9	7.8	61.5	89.2	10
EB T	33625077	STATE RT 39	69.8	5.3	60.4	75.7	10
EB T	33625078	STATE RT 39	63.1	6.6	51.1	72.7	10
EB L	33625097	STATE RT 39	37.8	1.6	35.7	40.8	10

STONECREEK NB, STONECREEK SB & RAMP

NODE: 2

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SB T	33625035	[Unnamed Street]	9.1	2.2	5.3	12.7	10
SB T	33625036	[Unnamed Street]	17.1	3.6	12.4	22.9	10

STONECREEK NB, STONECREEK SB & RAMP

NODE: 2

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB T	33578451	RAMP	8.8	1.5	6.4	11.1	10
SWB T	33578452	RAMP	11.6	2.5	7.9	14.8	10

STONECREEK NB, STONECREEK SB & RAMP

NODE: 2

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
WB T	33625039	STATE RT 39	1.2	0.6	0.4	2.0	10
WB T	33625040	STATE RT 39	0.4	0.3	0.0	0.8	10

STONECREEK NB, STONECREEK SB & RAMP

NODE: 2

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	33625043	Stonecreek	12.2	2.0	9.4	14.8	10
NEB T	33625044	Stonecreek	7.1	1.8	4.8	10.5	10

Project: US 39 & Stonecreek RB
 Scenario: PM Peak
 Run(s): Batch (10 runs)
 Simulated: Various
 Time: 17:00:00 - 18:00:00
 Interval: Summary
 Selection: --

Lane Queue by Intersection - Avg Num Queued

STATE RT 39, 720504701, 720504700 & 720504703

NODE: 720409962

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB LT	33625087	[Unnamed Street]	3.6	0.2	3.3	3.9	10
NB R	33625088	[Unnamed Street]	2.3	0.1	2.1	2.5	10

STATE RT 39, 720504701, 720504700 & 720504703

NODE: 720409962

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
WB T	33578448	STATE RT 39	4.1	0.2	3.7	4.4	10
WB T	33578449	STATE RT 39	2.9	0.3	2.4	3.4	10
EB T	33625077	STATE RT 39	2.9	0.2	2.5	3.1	10
EB T	33625078	STATE RT 39	2.5	0.2	2.1	2.8	10
EB L	33625097	STATE RT 39	1.7	0.1	1.5	1.8	10

STONECREEK NB, STONECREEK SB & RAMP

NODE: 2

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SB T	33625035	[Unnamed Street]	0.5	0.1	0.3	0.6	10
SB T	33625036	[Unnamed Street]	0.8	0.1	0.6	1.0	10

STONECREEK NB, STONECREEK SB & RAMP

NODE: 2

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB T	33578451	RAMP	0.4	0.1	0.4	0.5	10
SWB T	33578452	RAMP	0.5	0.1	0.4	0.7	10

STONECREEK NB, STONECREEK SB & RAMP

NODE: 2

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
WB T	33625039	STATE RT 39	0.1	0.1	0.0	0.1	10
WB T	33625040	STATE RT 39	0.0	0.0	0.0	0.0	10

STONECREEK NB, STONECREEK SB & RAMP

NODE: 2

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	33625043	Stonecreek	0.6	0.1	0.4	0.7	10
NEB T	33625044	Stonecreek	0.3	0.1	0.2	0.5	10

Project: US 39 & Stonecreek RB
 Scenario: PM Peak
 Run(s): Batch (10 runs)
 Simulated: Various
 Time: 17:00:00 - 18:00:00
 Interval: Summary
 Selection: --

Lane Queue by Intersection - Percentile Queue

STATE RT 39, 720504701, 720504700 & 720504703

NODE: 720409962

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB LT	33625087	[Unnamed Street]	229.2	10.3	212.4	244.3	10
NB R	33625088	[Unnamed Street]	198.0	11.9	184.1	225.0	10

STATE RT 39, 720504701, 720504700 & 720504703

NODE: 720409962

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
WB T	33578448	STATE RT 39	263.8	12.0	242.6	277.8	10
WB T	33578449	STATE RT 39	348.6	25.7	303.4	375.3	10
EB T	33625077	STATE RT 39	269.9	17.7	251.8	305.0	10
EB T	33625078	STATE RT 39	228.9	14.0	212.4	252.7	10
EB L	33625097	STATE RT 39	109.1	9.1	100.3	129.0	10

STONECREEK NB, STONECREEK SB & RAMP

NODE: 2

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SB T	33625035	[Unnamed Street]	38.6	11.4	20.6	50.3	10
SB T	33625036	[Unnamed Street]	74.6	9.8	55.3	89.1	10

STONECREEK NB, STONECREEK SB & RAMP

NODE: 2

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB T	33578451	RAMP	44.4	4.3	37.2	48.7	10
SWB T	33578452	RAMP	61.7	12.3	42.3	73.5	10

STONECREEK NB, STONECREEK SB & RAMP

NODE: 2

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
WB T	33625039	STATE RT 39	5.6	8.8	0.0	20.4	10
WB T	33625040	STATE RT 39	0.0	0.0	0.0	0.0	10

STONECREEK NB, STONECREEK SB & RAMP

NODE: 2

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	33625043	Stonecreek	55.7	11.3	46.2	73.4	10
NEB T	33625044	Stonecreek	39.2	9.5	22.9	47.7	10

Project: US 39 & Stonecreek RB
 Scenario: PM Peak
 Run(s): Batch (10 runs)
 Simulated: Various
 Time: 17:00:00 - 18:00:00
 Interval: Summary
 Selection: --

Lane Queue by Intersection - Percentile Num Queued

STATE RT 39, 720504701, 720504700 & 720504703

NODE: 720409962

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB LT	33625087	[Unnamed Street]	8.7	0.5	8.0	9.0	10
NB R	33625088	[Unnamed Street]	7.7	0.7	7.0	9.0	10

STATE RT 39, 720504701, 720504700 & 720504703

NODE: 720409962

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
WB T	33578448	STATE RT 39	9.9	0.6	9.0	11.0	10
WB T	33578449	STATE RT 39	13.0	1.0	11.1	14.1	10
EB T	33625077	STATE RT 39	10.6	0.7	10.0	12.0	10
EB T	33625078	STATE RT 39	8.9	0.7	8.0	10.0	10
EB L	33625097	STATE RT 39	4.2	0.4	4.0	5.0	10

STONECREEK NB, STONECREEK SB & RAMP

NODE: 2

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SB T	33625035	[Unnamed Street]	1.7	0.5	1.0	2.0	10
SB T	33625036	[Unnamed Street]	3.1	0.5	2.1	4.0	10

STONECREEK NB, STONECREEK SB & RAMP

NODE: 2

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB T	33578451	RAMP	2.0	0.0	2.0	2.0	10
SWB T	33578452	RAMP	2.6	0.5	2.0	3.0	10

STONECREEK NB, STONECREEK SB & RAMP

NODE: 2

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
WB T	33625039	STATE RT 39	0.3	0.5	0.0	1.0	10
WB T	33625040	STATE RT 39	0.0	0.0	0.0	0.0	10

STONECREEK NB, STONECREEK SB & RAMP

NODE: 2

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	33625043	Stonecreek	2.3	0.5	2.0	3.0	10
NEB T	33625044	Stonecreek	1.7	0.5	1.0	2.0	10

Project: US 39 & Stonecreek RB
 Scenario: PM Peak
 Run(s): Batch (10 runs)
 Simulated: Various
 Time: 17:00:00 - 18:00:00
 Interval: Summary
 Selection: --

Lane Queue by Intersection - Spillback Rate

STATE RT 39, 720504701, 720504700 & 720504703

NODE: 720409962

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB LT	33625087	[Unnamed Street]	0.0	0.0	0.0	0.0	10
NB R	33625088	[Unnamed Street]	0.0	0.0	0.0	0.0	10

STATE RT 39, 720504701, 720504700 & 720504703

NODE: 720409962

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
WB T	33578448	STATE RT 39	0.0	0.0	0.0	0.0	10
WB T	33578449	STATE RT 39	0.0	0.0	0.0	0.0	10
EB T	33625077	STATE RT 39	0.0	0.0	0.0	0.0	10
EB T	33625078	STATE RT 39	0.0	0.0	0.0	0.0	10
EB L	33625097	STATE RT 39	0.0	0.0	0.0	0.0	10

STONECREEK NB, STONECREEK SB & RAMP

NODE: 2

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SB T	33625035	[Unnamed Street]	0.0	0.0	0.0	0.0	10
SB T	33625036	[Unnamed Street]	0.0	0.0	0.0	0.0	10

STONECREEK NB, STONECREEK SB & RAMP

NODE: 2

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SWB T	33578451	RAMP	0.0	0.0	0.0	0.0	10
SWB T	33578452	RAMP	0.0	0.0	0.0	0.0	10

STONECREEK NB, STONECREEK SB & RAMP

NODE: 2

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
WB T	33625039	STATE RT 39	0.0	0.0	0.0	0.0	10
WB T	33625040	STATE RT 39	0.0	0.0	0.0	0.0	10

STONECREEK NB, STONECREEK SB & RAMP

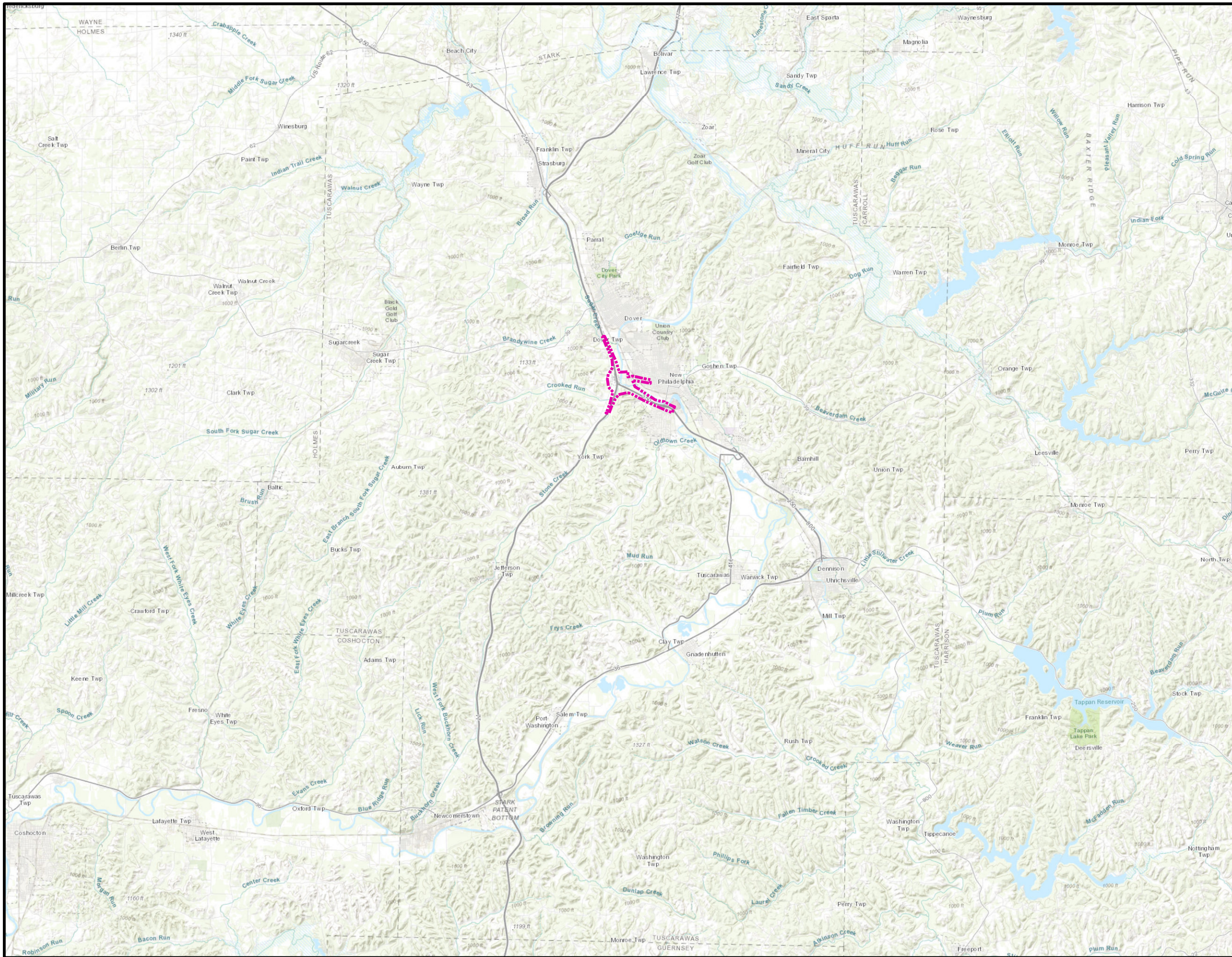
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Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NEB T	33625043	Stonecreek	0.0	0.0	0.0	0.0	10
NEB T	33625044	Stonecreek	0.0	0.0	0.0	0.0	10

Tuscarawas I-77 / US 250 / SR 39 Feasibility Study

Appendix G: Environmental Overview





Site Location Map

Legend

 Study Area



**TUS-IR77-19.76
PID 116377**

County Map



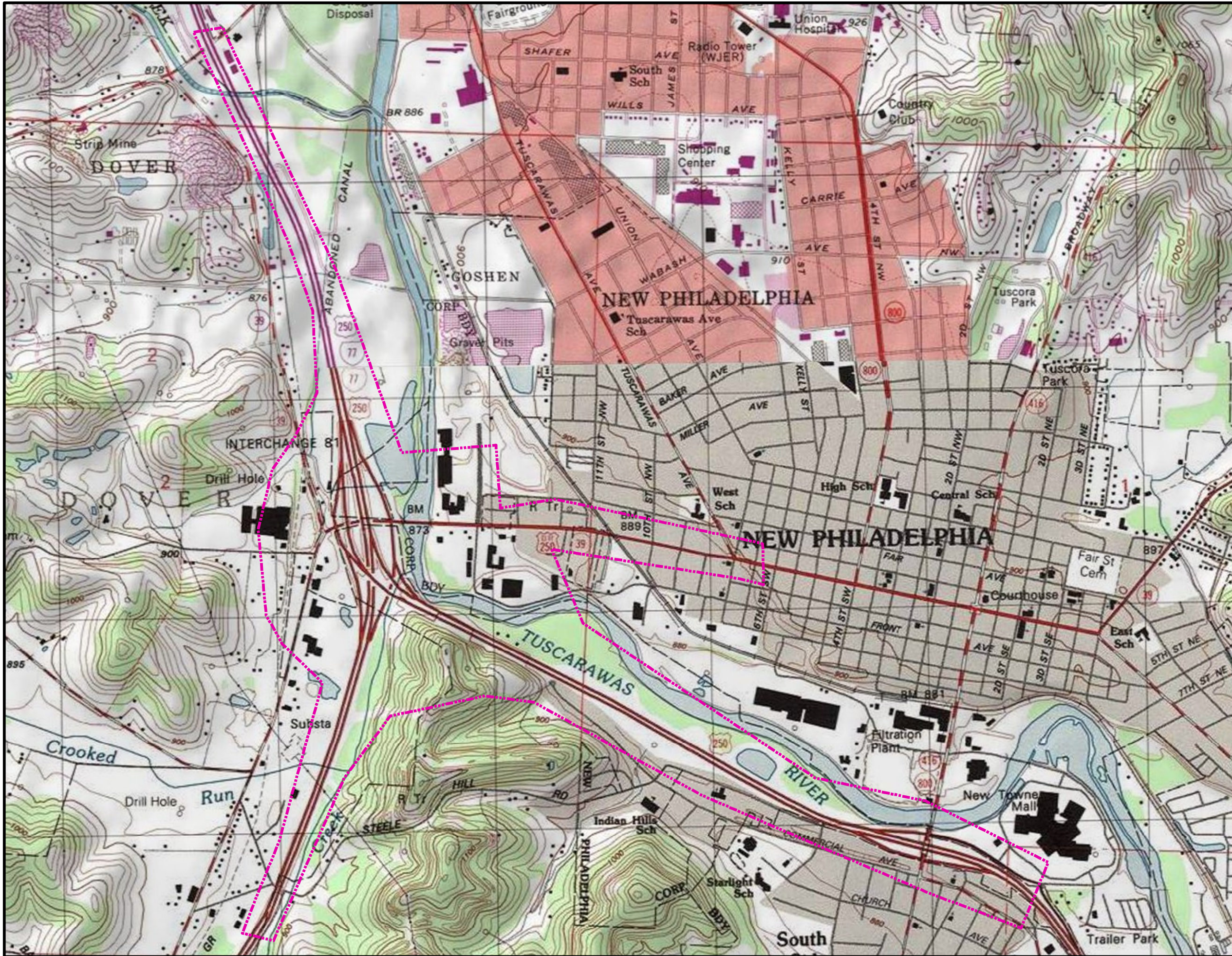
Lawhon & Associates, Inc.

Date:
Feb. 2024

Approved by:
SD

L&A No.
23-0364

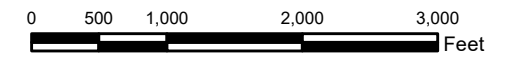
Figure
1



Site Location Map

Legend

-  Study Area



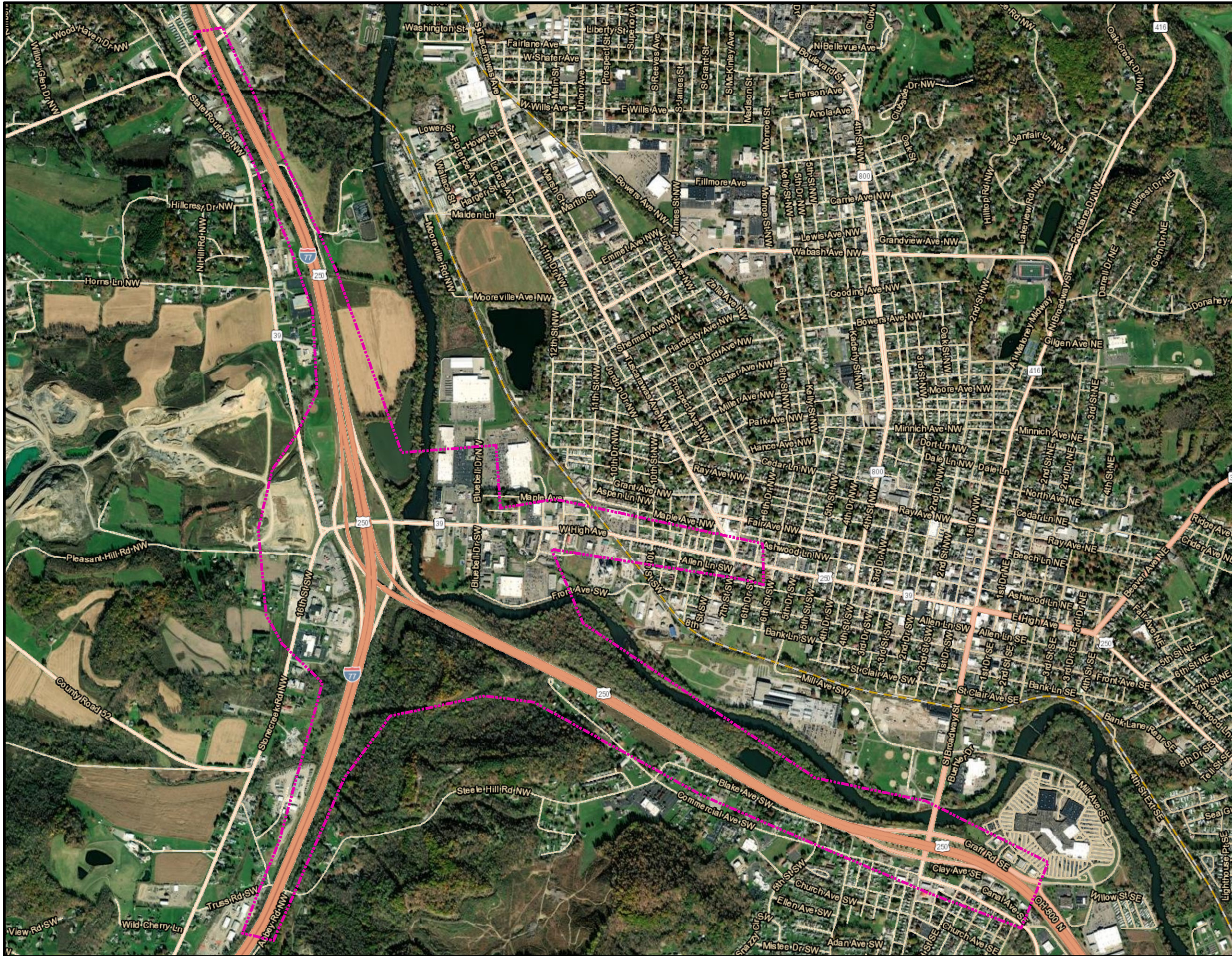
TUS-IR77-19.76
PID 116377

Topographic Map




Lawhon & Associates, Inc.

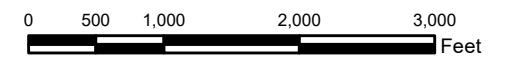
Date: Feb. 2024	Approved by: SD	L&A No. 23-0364	Figure 2
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Site Location Map

Legend

 Study_Area



TUS-IR77-19.76
PID 116377

Study Area



Lawhon & Associates, Inc.

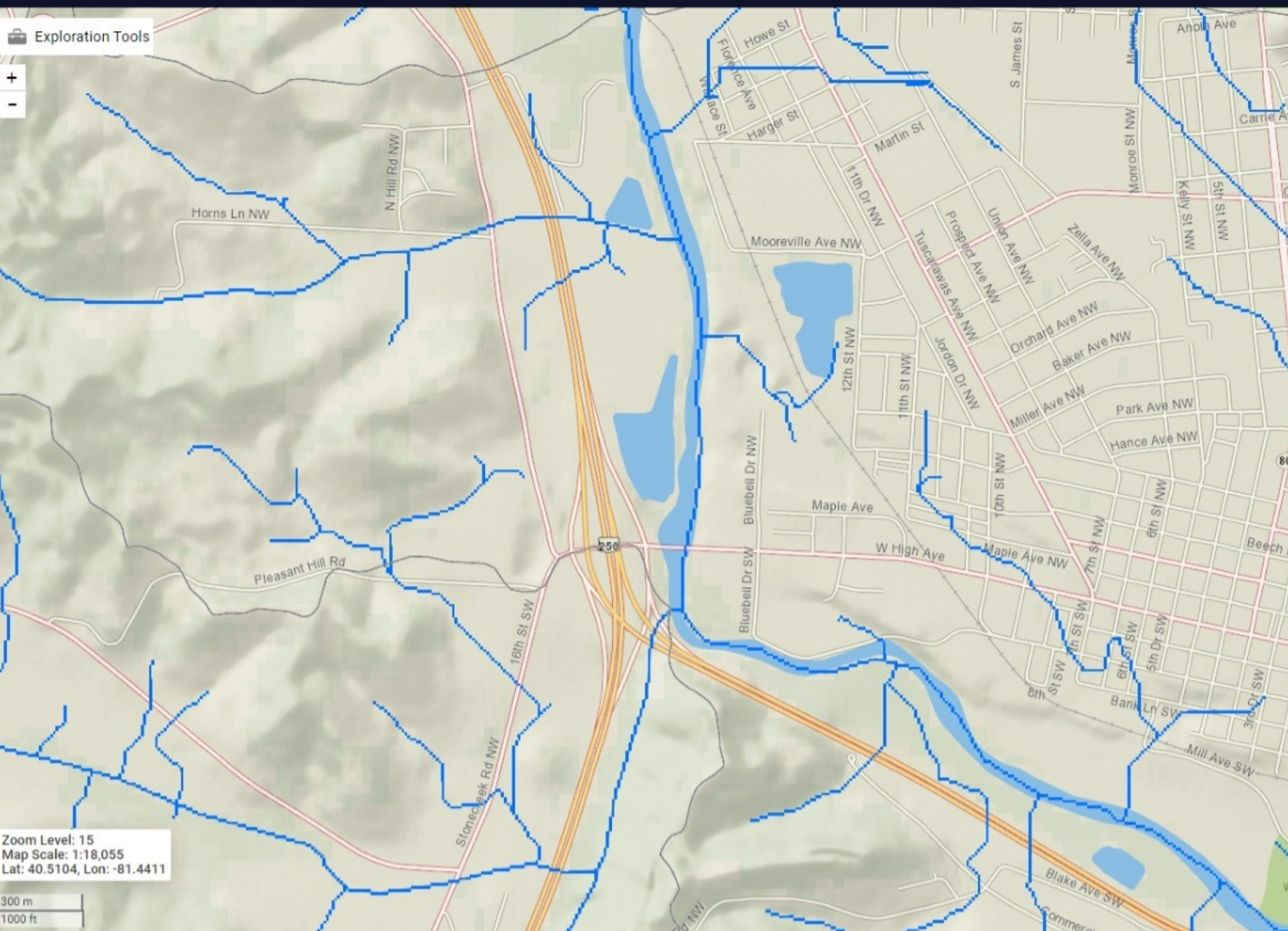
Date:
Feb. 2024

Approved by:
SD

L&A No.
23-0364

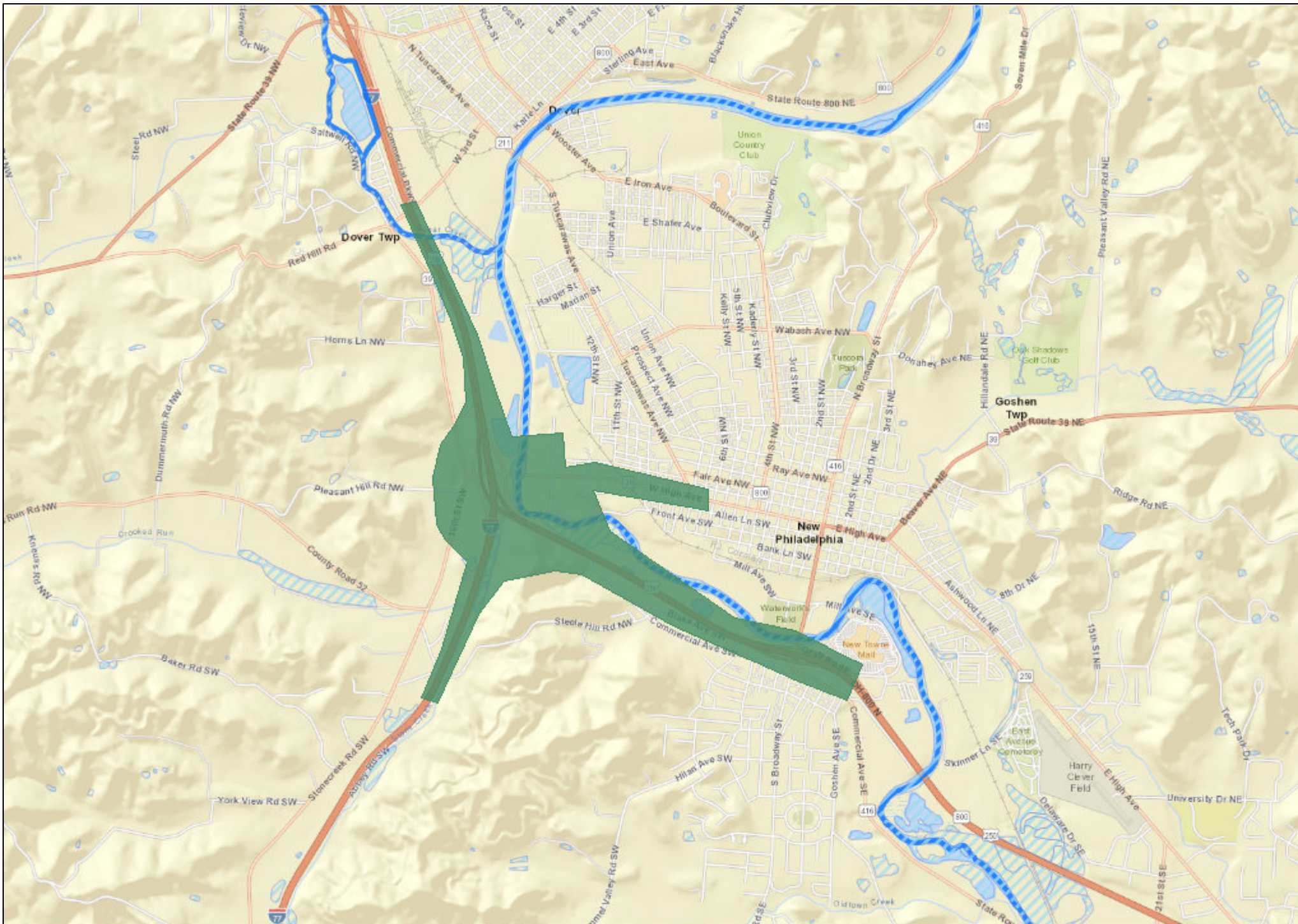
Figure
1

Exploration Tools



Zoom Level: 15
Map Scale: 1:18,055
Lat: 40.5104, Lon: -81.4411

300 m
1000 ft



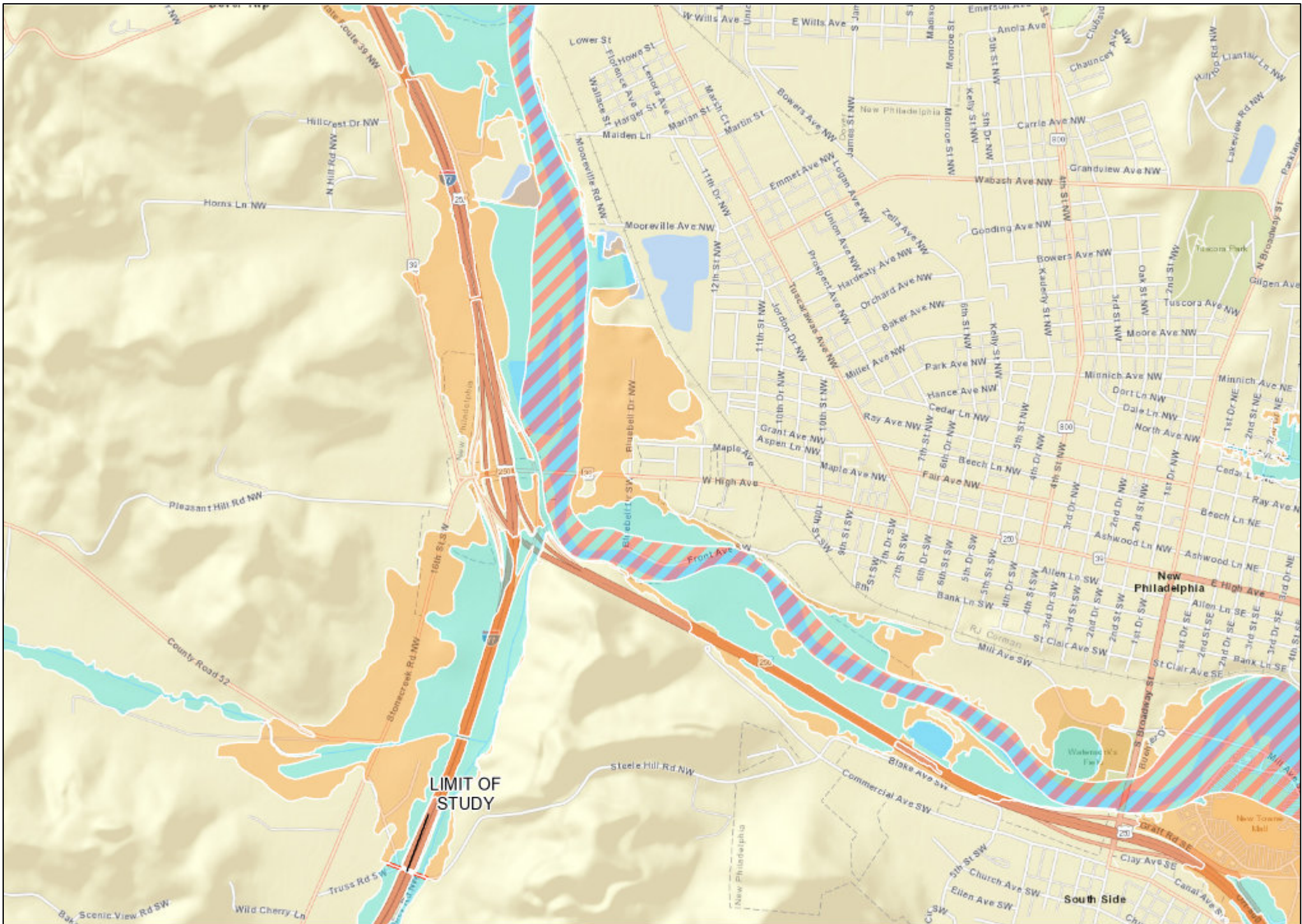


February 1, 2024

Wetlands

- | | | |
|--|---|--|
|  Estuarine and Marine Deepwater |  Freshwater Emergent Wetland |  Lake |
|  Estuarine and Marine Wetland |  Freshwater Forested/Shrub Wetland |  Other |
| |  Freshwater Pond |  Riverine |

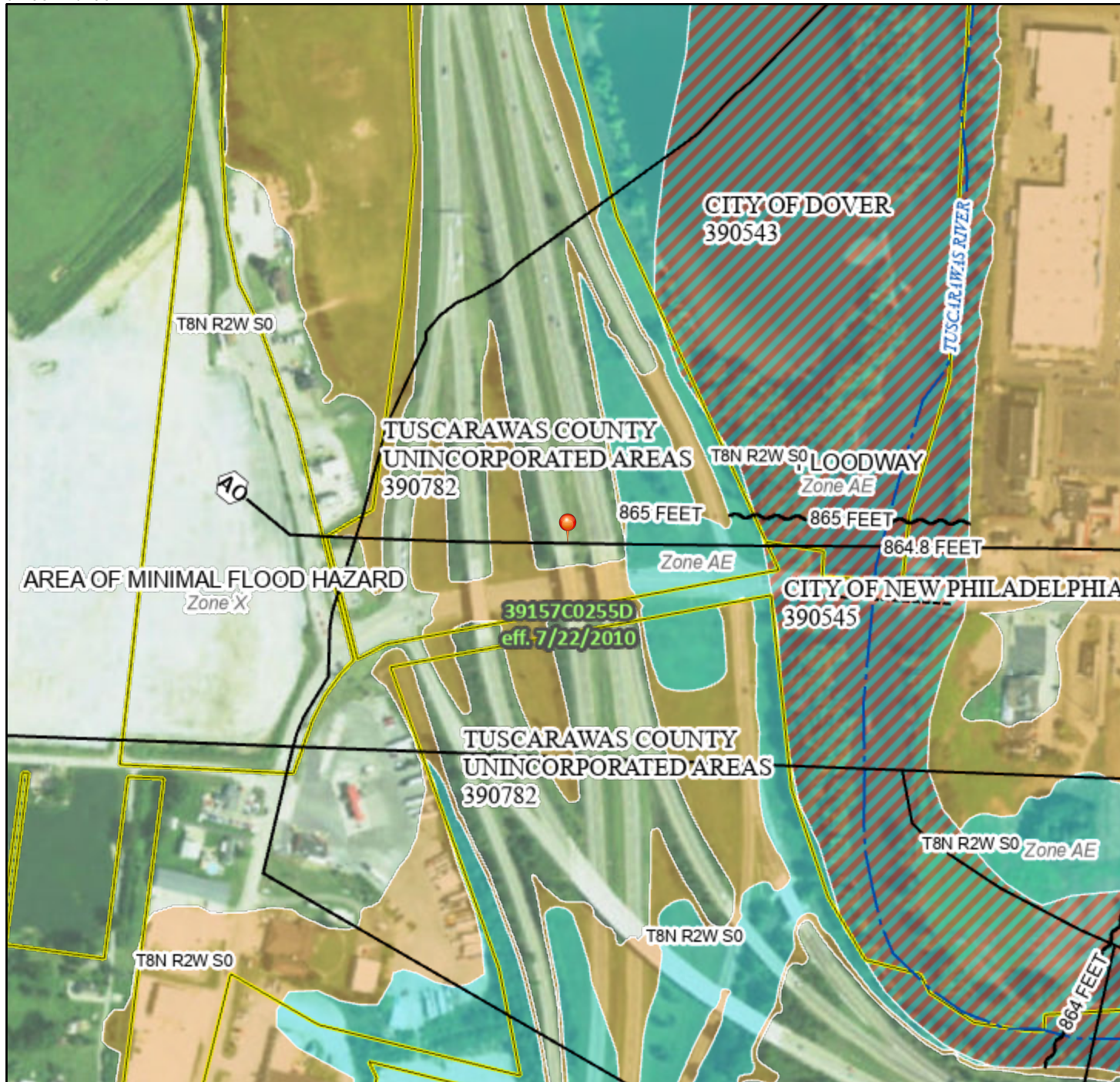
This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.



National Flood Hazard Layer FIRMette



81°29'3"W 40°29'52"N



Legend

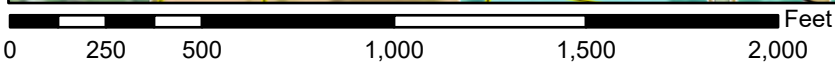
SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

- | | | |
|------------------------------------|--|---|
| SPECIAL FLOOD HAZARD AREAS | | Without Base Flood Elevation (BFE)
Zone A, V, A99 |
| | | With BFE or Depth Zone AE, AO, AH, VE, AR |
| | | Regulatory Floodway |
| OTHER AREAS OF FLOOD HAZARD | | 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X |
| | | Future Conditions 1% Annual Chance Flood Hazard Zone X |
| | | Area with Reduced Flood Risk due to Levee. See Notes. Zone X |
| | | Area with Flood Risk due to Levee Zone D |
| OTHER AREAS | | NO SCREEN Area of Minimal Flood Hazard Zone X |
| | | Effective LOMRs |
| | | Area of Undetermined Flood Hazard Zone D |
| GENERAL STRUCTURES | | Channel, Culvert, or Storm Sewer |
| | | Levee, Dike, or Floodwall |
| OTHER FEATURES | | 20.2 Cross Sections with 1% Annual Chance Water Surface Elevation |
| | | 17.5 |
| | | Coastal Transect |
| | | Base Flood Elevation Line (BFE) |
| | | Limit of Study |
| | | Jurisdiction Boundary |
| | | Coastal Transect Baseline |
| | | Profile Baseline |
| | | Hydrographic Feature |
| MAP PANELS | | Digital Data Available |
| | | No Digital Data Available |
| | | Unmapped |
- The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 2/1/2024 at 2:57 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.



1:6,000

81°28'25"W 40°29'24"N

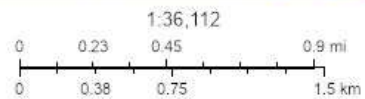
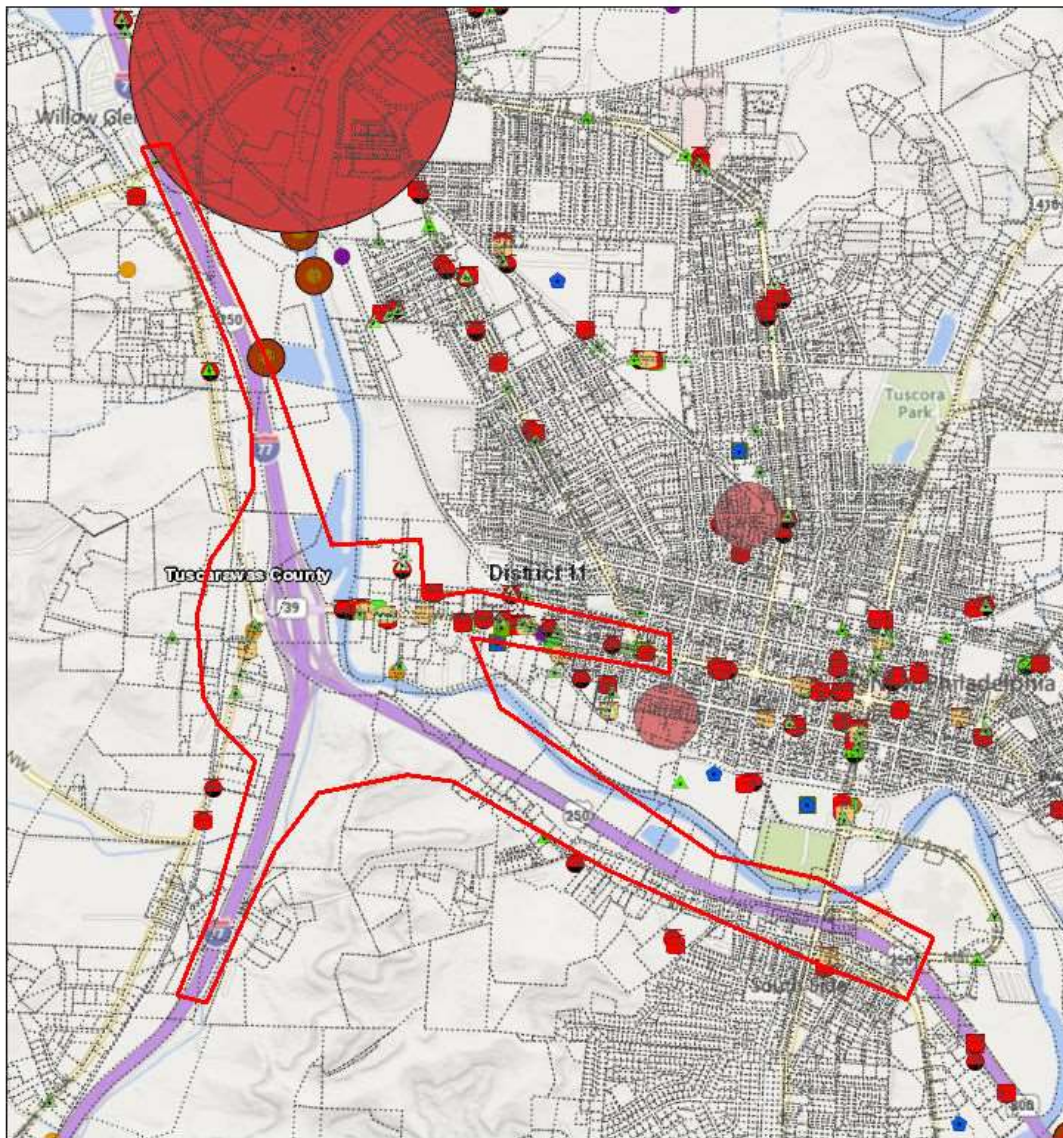


ORPS Summary Report: TUS-IR77-19.76 PID 116377

Area of Interest (AOI) Information

Area : 785.94 acres

Feb 1 2024 15:32:43 Eastern Standard Time



Summary

Name	Count	Area(acres)	Length(ft)
SEMS - Non-NPL Sites w/buffer (US EPA)	0	0	N/A
SEMS - NPL Sites w/buffer (US EPA)	1	4.41	N/A
RCRA (US EPA)	18	N/A	N/A
RCRA - TSD Sites w/buffer (US EPA)	0	0	N/A
Federal Engineering Controls (US EPA)	0	N/A	N/A
Federal Institutional Controls (US EPA)	1	N/A	N/A
BUSTR - UST Locations (BUSTR/OGRIP)	64	N/A	N/A
BUSTR - LUST Locations (BUSTR/OGRIP)	35	N/A	N/A
Coal Gas Generators (OEPA-DERR)	0	N/A	N/A
DERR Database (OEPA-DERR)	0	N/A	N/A
Impoundment Sites (OEPA-DERR)	1	N/A	N/A
Landfills - Active Solid Waste Facilities w/buffer (OEPA-DMWM)	0	0	N/A
Landfills - Historic/Abandoned Facilities w/buffer (OEPA-DMWM/DERR)	1	3.15	N/A
Landfills - Solid Waste Facility Polygons (OEPA-DMWM)	0	0	N/A
Projects With Engineering Controls (OEPA-DERR)	0	N/A	N/A
Projects With Institutional Controls (OEPA-DERR)	0	N/A	N/A
Spills Database (OEPA)	2	N/A	N/A
VAP Sites (OEPA-DERR)	0	N/A	N/A
Potential Areas of Concern (ODOT-OES)	0	0	N/A

SEMS - NPL Sites w/buffer (US EPA)

#	REGISTRY_ID	PRIMARY_NAME	ADDRESS	CITY	STATE
1	110009304751	REILLY TAR & CHEMICAL CORP. (DOVER PLANT)	THIRD ST	DOVER	OH

#	ZIP	LAST_REPORTED_DATE	URL	PGM_SYS_ID	PGM_SYS_ACRONYM
1	44622	No Data	https://ofmpub.epa.gov/frs_public2/fii_query_detail_disp_program_facility?p_registry_id=110009304751	OHD980610042	SEMS

#	INTEREST_TYPE	REFERENCE_POINT_DESC	Area(acres)
1	SUPERFUND NPL	No Data	4.41

RCRA (US EPA)

#	REGISTRY_ID	PRIMARY_NAME	ADDRESS	CITY	STATE
1	110031338979	RITE AID #2392	705 W HIGH AVE	NEW PHILADELPHIA	OH
2	110002112026	W W HENRY CO	520 W. 3RD ST.	DOVER	OH
3	110004574657	WAL-MART NO 2115	231 BLUEBELL DR NW	NEW PHILADELPHIA	OH
4	110070541352	TUSCARAWAS AUTO PARTS INC	546 16TH ST SW	NEW PHILADELPHIA	OH
5	110004612508	ALLSTATE TRUCK SALES	327 STONECREEK RD NW	NEW PHILADELPHIA	OH
6	110024869105	SPEEDWAY 6246	1260 WEST HIGH AVE	NEW PHILADELPHIA	OH
7	110022821008	TUSCARAWAS AUTO PARTS	1037 WEST HIGH AVE	NEW PHILADELPHIA	OH
8	110004697052	TUSCARAWAS LANDMARK CO-OP INC	1062 W HIGH ST	NEW PHILADELPHIA	OH
9	110033158749	ASPEN DENTAL	341 GRAFF RD	NEW PHILADELPHIA	OH
10	110004677252	KWIK FILL	1025 W HIGH ST	NEW PHILADELPHIA	OH
11	110007710129	OHIO DOT TUSCARAWAS COUNTY GARAGE	384 STONECREEK RD SE	NEW PHILADELPHIA	OH
12	110043775046	SHEETZ STORE #357	1281 WEST HIGH AVE	NEW PHILADELPHIA	OH
13	110004633264	TRACTOR SUPPLY COMPANY #574	240 BLUEBELL DR NW	NEW PHILADELPHIA	OH
14	110009429822	OHIO DEPARTMENT OF AGRI LANDMARK CO-OP	1062 W HIGH	NEW PHILADELPHIA	OH
15	110004681014	BP OIL CO NO 05979 *	1297 W HIGH ST	NEW PHILADELPHIA	OH
16	110000701697	OHIO DEPT OF TRANSPORTATION DISTRICT 11 TESTING	1072 WEST HIGH AVENUE	NEW PHILADELPHIA	OH
17	110000701697	OHIO DEPT OF TRANSPORTATION DISTRICT 11 TESTING	1072 WEST HIGH AVENUE	NEW PHILADELPHIA	OH
18	110004713800	PENSKE AUTO CENTER NO 4954	611 BLUEBELL DR NW BLDG B	NEW PHILADELPHIA	OH

#	ZIP	LAST_REPORTED_DATE	URL	PGM_SYS_ID	PGM_SYS_ACRONYM
1	44663	4/19/2019	https://ofmpub.epa.gov/frs_public2/fii_query_detail_disp_program_facility?p_registry_id=110031338979	OHR000140475	RCRAINFO
2	44622	4/14/2015	https://ofmpub.epa.gov/frs_public2/fii_query_detail_disp_program_facility?p_registry_id=110002112026	OHD987012689	RCRAINFO
3	44663	12/5/2018	https://ofmpub.epa.gov/frs_public2/fii_query_detail_disp_program_facility?p_registry_id=110004574657	OH0000443994	RCRAINFO
4	44663	7/3/2017	https://ofmpub.epa.gov/frs_public2/fii_query_detail_disp_program_facility?p_registry_id=110070541352	OHR000125112	RCRAINFO
5	44663	9/12/2019	https://ofmpub.epa.gov/frs_public2/fii_query_detail_disp_program_facility?p_registry_id=110004612508	OHD049382468	RCRAINFO
6	44663	4/28/2015	https://ofmpub.epa.gov/frs_public2/fii_query_detail_disp_program_facility?p_registry_id=110024869105	OHR000136333	RCRAINFO
7	44663	4/28/2015	https://ofmpub.epa.gov/frs_public2/fii_query_detail_disp_program_facility?p_registry_id=110022821008	OHR000130831	RCRAINFO
8	44663-6936	4/28/2015	https://ofmpub.epa.gov/frs_public2/fii_query_detail_disp_program_facility?p_registry_id=110004697052	OHD987042645	RCRAINFO
9	44663	6/4/2015	https://ofmpub.epa.gov/frs_public2/fii_query_detail_disp_program_facility?p_registry_id=110033158749	OHR000147249	RCRAINFO
10	44663-2071	1/20/2015	https://ofmpub.epa.gov/frs_public2/fii_query_detail_disp_program_facility?p_registry_id=110004677252	OHD987011590	RCRAINFO
11	44663	9/15/2017	https://ofmpub.epa.gov/frs_public2/fii_query_detail_disp_program_facility?p_registry_id=110007710129	OHD982204471	RCRAINFO
12	44663	4/28/2015	https://ofmpub.epa.gov/frs_public2/fii_query_detail_disp_program_facility?p_registry_id=110043775046	OHR000129155	RCRAINFO

13	44663	4/22/2014	https://ofmpub.epa.gov/frs_public2/fii_query_detail_disp_program_facility?p_registry_id=110004633264	OHD119475077	RCRAINFO
14	44663	4/14/2015	https://ofmpub.epa.gov/frs_public2/fii_query_detail_disp_program_facility?p_registry_id=110009429822	OHR000029058	RCRAINFO
15	44663-6943	4/28/2015	https://ofmpub.epa.gov/frs_public2/fii_query_detail_disp_program_facility?p_registry_id=110004681014	OHD987017035	RCRAINFO
16	44663-6937	2/17/2015	https://ofmpub.epa.gov/frs_public2/fii_query_detail_disp_program_facility?p_registry_id=110000701697	OHD982072688	RCRAINFO
17	44663-6937	4/14/2015	https://ofmpub.epa.gov/frs_public2/fii_query_detail_disp_program_facility?p_registry_id=110000701697	OHD075759175	RCRAINFO
18	44663	4/28/2015	https://ofmpub.epa.gov/frs_public2/fii_query_detail_disp_program_facility?p_registry_id=110004713800	OHR000009258	RCRAINFO

#	INTEREST_TYPE	REFERENCE_POINT_DESC	Count
1	UNSPECIFIED UNIVERSE	CENTER OF A FACILITY OR STATION	1
2	UNSPECIFIED UNIVERSE	CENTER OF A FACILITY OR STATION	1
3	CESQG	CENTER OF A FACILITY OR STATION	1
4	UNSPECIFIED UNIVERSE	ENTRANCE POINT OF A FACILITY OR STATION	1
5	UNSPECIFIED UNIVERSE	ENTRANCE POINT OF A FACILITY OR STATION	1
6	CESQG	CENTER OF A FACILITY OR STATION	1
7	UNSPECIFIED UNIVERSE	CENTER OF A FACILITY OR STATION	1
8	UNSPECIFIED UNIVERSE	CENTER OF A FACILITY OR STATION	1
9	CESQG	CENTER OF A FACILITY OR STATION	1
10	UNSPECIFIED UNIVERSE	CENTER OF A FACILITY OR STATION	1
11	CESQG	ENTRANCE POINT OF A FACILITY OR STATION	1
12	CESQG	CENTER OF A FACILITY OR STATION	1
13	CESQG	CENTER OF A FACILITY OR STATION	1
14	UNSPECIFIED UNIVERSE	CENTER OF A FACILITY OR STATION	1
15	UNSPECIFIED UNIVERSE	CENTER OF A FACILITY OR STATION	1
16	OTHER HAZARDOUS WASTE ACTIVITIES	CENTER OF A FACILITY OR STATION	1
17	UNSPECIFIED UNIVERSE	CENTER OF A FACILITY OR STATION	1
18	UNSPECIFIED UNIVERSE	ENTRANCE POINT OF A FACILITY OR STATION	1

Federal Institutional Controls (US EPA)

#	SITE_ID	SITE_NAME	ADDRESS	EVENT_CODE	EVENT_CODE_DESCRIPTION
1	OHD982072688	OHIO DEPT OF TRANSPORTATION HEADQUARTERS	1072 W HIGH AVE B NEW PHILADELPHIA, OH 44663	CA772PR	INSTITUTIONAL CONTROLS ESTABLISHED- PROPRIETARY CONTROL

#	ACTUAL_DATE	EPA_REGION	Count
1	July 2, 2013	SEDO	1

BUSTR - UST Locations (BUSTR/OGRIP)

#	FACILITY_ID	CURRENT_FACILITY_NAME	ADDRESS	CITY	ZIP
1	79010098	SHEETZ 357	1281 WEST HIGH AVE	NEW PHILADELPHIA	44663
2	79010098	SHEETZ 357	1281 WEST HIGH AVE	NEW PHILADELPHIA	44663
3	79010098	SHEETZ 357	1281 WEST HIGH AVE	NEW PHILADELPHIA	44663
4	79010098	SHEETZ 357	1281 WEST HIGH AVE	NEW PHILADELPHIA	44663
5	79010098	SHEETZ 357	1281 WEST HIGH AVE	NEW PHILADELPHIA	44663
6	79000178	AGLAND CO-OP INC	1062 W HIGH AVE	NEW PHILADELPHIA	44663
7	79000178	AGLAND CO-OP INC	1062 W HIGH AVE	NEW PHILADELPHIA	44663
8	79000178	AGLAND CO-OP INC	1062 W HIGH AVE	NEW PHILADELPHIA	44663
9	79000249	Speedway 6246	1260 W HIGH AVE	NEW PHILADELPHIA	44663
10	79000249	Speedway 6246	1260 W HIGH AVE	NEW PHILADELPHIA	44663
11	79000468	NEW PHILADELPHIA BULK	130 10TH ST SW	NEW PHILADELPHIA	44663
12	79000468	NEW PHILADELPHIA BULK	130 10TH ST SW	NEW PHILADELPHIA	44663
13	79000468	NEW PHILADELPHIA BULK	130 10TH ST SW	NEW PHILADELPHIA	44663
14	79000007	KWIK FILL #S241/286	1025 W HIGH AVE	NEW PHILADELPHIA	44663
15	79000007	KWIK FILL #S241/286	1025 W HIGH AVE	NEW PHILADELPHIA	44663
16	79000007	KWIK FILL #S241/286	1025 W HIGH AVE	NEW PHILADELPHIA	44663
17	79000082	ODOT DISTRICT 11 HEADQUARTERS	1072 W HIGH AVE	NEW PHILADELPHIA	44663
18	79000082	ODOT DISTRICT 11 HEADQUARTERS	1072 W HIGH AVE	NEW PHILADELPHIA	44663
19	79000082	ODOT DISTRICT 11 HEADQUARTERS	1072 W HIGH AVE	NEW PHILADELPHIA	44663
20	79000082	ODOT DISTRICT 11 HEADQUARTERS	1072 W HIGH AVE	NEW PHILADELPHIA	44663
21	79000249	Speedway 6246	1260 W HIGH AVE	NEW PHILADELPHIA	44663
22	79000249	Speedway 6246	1260 W HIGH AVE	NEW PHILADELPHIA	44663
23	79000249	Speedway 6246	1260 W HIGH AVE	NEW PHILADELPHIA	44663
24	79000249	Speedway 6246	1260 W HIGH AVE	NEW PHILADELPHIA	44663
25	79000249	Speedway 6246	1260 W HIGH AVE	NEW PHILADELPHIA	44663
26	79000249	Speedway 6246	1260 W HIGH AVE	NEW PHILADELPHIA	44663
27	79000249	Speedway 6246	1260 W HIGH AVE	NEW PHILADELPHIA	44663
28	79000249	Speedway 6246	1260 W HIGH AVE	NEW PHILADELPHIA	44663
29	79000249	Speedway 6246	1260 W HIGH AVE	NEW PHILADELPHIA	44663
30	79000287	EAST OHIO GAS CO. NEW PHILADELPH	100 11TH ST NW	NEW PHILADELPHIA	44663
31	79000451	RIVER GAS STATION LLC	1297 W HIGH AVE	NEW PHILADELPHIA	44663
32	79000451	RIVER GAS STATION LLC	1297 W HIGH AVE	NEW PHILADELPHIA	44663
33	79000451	RIVER GAS STATION LLC	1297 W HIGH AVE	NEW PHILADELPHIA	44663
34	79000451	RIVER GAS STATION LLC	1297 W HIGH AVE	NEW PHILADELPHIA	44663
35	79010024	POINT PANELING	700 W HIGH AVE	NEW PHILADELPHIA	44663

36	79009372	FUEL DEPOT	1219 E HIGH AVE	NEW PHILADELPHIA	44663
37	79009372	FUEL DEPOT	1219 E HIGH AVE	NEW PHILADELPHIA	44663
38	79009372	FUEL DEPOT	1219 E HIGH AVE	NEW PHILADELPHIA	44663
39	79009372	FUEL DEPOT	1219 E HIGH AVE	NEW PHILADELPHIA	44663
40	79000249	Speedway 6246	1260 W HIGH AVE	NEW PHILADELPHIA	44663
41	79000249	Speedway 6246	1260 W HIGH AVE	NEW PHILADELPHIA	44663
42	79000444	SOUTHSIDE BELLSTORES	110 COMMERCIAL AVE S E	NEW PHILADELPHIA	44663
43	79004432	EAGLE AUTO/TRUCK PLAZA	217 16TH ST SW	NEW PHILADELPHIA	44663
44	79004432	EAGLE AUTO/TRUCK PLAZA	217 16TH ST SW	NEW PHILADELPHIA	44663
45	79010098	SHEETZ 357	1281 WEST HIGH AVE	NEW PHILADELPHIA	44663
46	79000178	AGLAND CO-OP INC	1062 W HIGH AVE	NEW PHILADELPHIA	44663
47	79000178	AGLAND CO-OP INC	1062 W HIGH AVE	NEW PHILADELPHIA	44663
48	79010098	SHEETZ 357	1281 WEST HIGH AVE	NEW PHILADELPHIA	44663
49	79010098	SHEETZ 357	1281 WEST HIGH AVE	NEW PHILADELPHIA	44663
50	79010098	SHEETZ 357	1281 WEST HIGH AVE	NEW PHILADELPHIA	44663
51	79010098	SHEETZ 357	1281 WEST HIGH AVE	NEW PHILADELPHIA	44663
52	79000444	SOUTHSIDE BELLSTORES	110 COMMERCIAL AVE S E	NEW PHILADELPHIA	44663
53	79000444	SOUTHSIDE BELLSTORES	110 COMMERCIAL AVE S E	NEW PHILADELPHIA	44663
54	79000444	SOUTHSIDE BELLSTORES	110 COMMERCIAL AVE S E	NEW PHILADELPHIA	44663
55	79004432	EAGLE AUTO/TRUCK PLAZA	217 16TH ST SW	NEW PHILADELPHIA	44663
56	79004432	EAGLE AUTO/TRUCK PLAZA	217 16TH ST SW	NEW PHILADELPHIA	44663
57	79004432	EAGLE AUTO/TRUCK PLAZA	217 16TH ST SW	NEW PHILADELPHIA	44663
58	79000444	SOUTHSIDE BELLSTORES	110 COMMERCIAL AVE S E	NEW PHILADELPHIA	44663
59	79000178	AGLAND CO-OP INC	1062 W HIGH AVE	NEW PHILADELPHIA	44663

#	Status	INSPECTION_DATE	FACILITY_CO	TANK_ID	CAPACITY
1	CIU	09/05/13	Yes	T00004	12000
2	CIU	09/05/13	Yes	T00005	8000
3	CIU	09/05/13	Yes	T00001	15000
4	CIU	09/05/13	Yes	T00002	15000
5	CIU	09/05/13	Yes	T00003	15000
6	CIU	03/08/12	Yes	T00001	4000
7	CIU	03/08/12	Yes	T00002	4000
8	CIU	03/08/12	Yes	T00003	4000
9	CIU	09/05/13	Yes	T00010	15000
10	CIU	09/05/13	Yes	T00011	15000
11	CIU	08/29/13	Yes	T00003	20000
12	CIU	08/29/13	Yes	T00001	15000
13	CIU	08/29/13	Yes	T00002	20000
14	REM	No Data	No Data	T00001	10000
15	REM	No Data	No Data	T00002	10000
16	REM	No Data	No Data	T00003	10000
17	REM	No Data	No Data	T00001	10000
18	REM	No Data	No Data	T00002	10000
19	REM	No Data	No Data	T00003	10000
20	REM	No Data	No Data	T00004	550
21	REM	No Data	No Data	T00001	20000
22	REM	No Data	No Data	T00002	12000
23	REM	No Data	No Data	T00003	17542
24	REM	No Data	No Data	T00004	20000
25	REM	No Data	No Data	T00005	4000
26	REM	No Data	No Data	T00006	4000
27	REM	No Data	No Data	T00007	6000
28	REM	No Data	No Data	T00008	6000
29	REM	No Data	No Data	T00009	6000
30	REM	No Data	No Data	T00001	10000
31	REM	No Data	No Data	T00001	1000
32	REM	No Data	No Data	T00002	10000
33	REM	No Data	No Data	T00003	10000
34	REM	No Data	No Data	T00004	10000
35	REM	No Data	No Data	T00001	550
36	CIU	No Data	No Data	T00004	10000
37	CIU	No Data	No Data	T00005	3000
38	CIU	No Data	No Data	T00006	3000
39	CIU	No Data	No Data	T00007	3000
40	CIU	No Data	No Data	T00010	15000
41	CIU	No Data	No Data	T00011	15000
42	CIU	No Data	No Data	T00008	6000

43	CIU	<i>No Data</i>	<i>No Data</i>	T00005	10000
44	CIU	<i>No Data</i>	<i>No Data</i>	T00001	10000
45	CIU	<i>No Data</i>	<i>No Data</i>	T00002	15000
46	CIU	<i>No Data</i>	<i>No Data</i>	T00002	4000
47	CIU	<i>No Data</i>	<i>No Data</i>	T00003	4000
48	CIU	<i>No Data</i>	<i>No Data</i>	T00001	15000
49	CIU	<i>No Data</i>	<i>No Data</i>	T00003	15000
50	CIU	<i>No Data</i>	<i>No Data</i>	T00004	12000
51	CIU	<i>No Data</i>	<i>No Data</i>	T00005	8000
52	CIU	<i>No Data</i>	<i>No Data</i>	T00006	10000
53	CIU	<i>No Data</i>	<i>No Data</i>	T00007	10000
54	CIU	<i>No Data</i>	<i>No Data</i>	T00009	2500
55	CIU	<i>No Data</i>	<i>No Data</i>	T00002	10000
56	CIU	<i>No Data</i>	<i>No Data</i>	T00003	10000
57	CIU	<i>No Data</i>	<i>No Data</i>	T00004	10000
58	CIU	<i>No Data</i>	<i>No Data</i>	T00005	10000
59	CIU	<i>No Data</i>	<i>No Data</i>	T00001	4000

#	CONTENT	DATE_REMOVED	FACILITY_STATUS	Count
1	Diesel	NULL	Active	2
2	Kerosene	NULL	Active	2
3	Gasoline	NULL	Active	2
4	Gasoline	NULL	Active	2
5	Gasoline	NULL	Active	2
6	Gasoline	NULL	Active	1
7	Gasoline	NULL	Active	1
8	Diesel	NULL	Active	1
9	Gasoline	NULL	Active	1
10	Gasoline	NULL	Active	1
11	Gasoline	NULL	Active	1
12	Diesel	NULL	Active	1
13	Gasoline	NULL	Active	1
14	Gasoline	05/28/13	Inactive	1
15	Gasoline	05/28/13	Inactive	1
16	Gasoline	05/28/13	Inactive	1
17	Gasoline	11/16/98	Inactive	1
18	Gasoline	11/16/98	Inactive	1
19	Diesel	11/16/98	Inactive	1
20	Used Oil	11/16/98	Inactive	1
21	Gasoline	11/23/92	Inactive	1
22	Gasoline	11/23/92	Inactive	1
23	Gasoline	11/23/92	Inactive	1
24	Gasoline	11/23/92	Inactive	1
25	Diesel	11/23/92	Inactive	1
26	Kerosene	11/23/92	Inactive	1
27	Gasoline	09/08/93	Inactive	1
28	Gasoline	09/08/93	Inactive	1
29	Gasoline	09/08/93	Inactive	1
30	Gasoline	06/19/12	Inactive	1
31	Used Oil	05/17/11	Inactive	1
32	Gasoline	05/17/11	Inactive	1
33	Gasoline	05/17/11	Inactive	1
34	Gasoline	05/17/11	Inactive	1
35	Gasoline	01/03/92	Inactive	1
36	Gasoline	No Data	No Data	1
37	Diesel	No Data	No Data	1
38	Kerosene	No Data	No Data	1
39	Gasoline	No Data	No Data	1
40	Gasoline	No Data	No Data	1
41	Gasoline	No Data	No Data	1
42	Gasoline	No Data	No Data	1

43	Gasoline	<i>No Data</i>	<i>No Data</i>	1
44	Diesel	<i>No Data</i>	<i>No Data</i>	1
45	Gasoline	<i>No Data</i>	<i>No Data</i>	1
46	Gasoline	<i>No Data</i>	<i>No Data</i>	1
47	Diesel	<i>No Data</i>	<i>No Data</i>	1
48	Gasoline	<i>No Data</i>	<i>No Data</i>	1
49	Gasoline	<i>No Data</i>	<i>No Data</i>	1
50	Diesel	<i>No Data</i>	<i>No Data</i>	1
51	Kerosene	<i>No Data</i>	<i>No Data</i>	1
52	Gasoline	<i>No Data</i>	<i>No Data</i>	1
53	Diesel	<i>No Data</i>	<i>No Data</i>	1
54	Kerosene	<i>No Data</i>	<i>No Data</i>	1
55	Diesel	<i>No Data</i>	<i>No Data</i>	1
56	Diesel	<i>No Data</i>	<i>No Data</i>	1
57	Gasoline	<i>No Data</i>	<i>No Data</i>	1
58	Gasoline	<i>No Data</i>	<i>No Data</i>	1
59	Gasoline	<i>No Data</i>	<i>No Data</i>	1

BUSTR - LUST Locations (BUSTR/OGRIP)

#	FACILITY_ID	CURRENT_FACILITY_NAME	ADDRESS	CITY	ZIP
1	No Data	INTERSTATE MOBIL	963 STATE ROUTE 39 S.W.	NEW PHILADELPHIA	44663
2	No Data	ODOT DISTRICT 11 HEADQUARTERS	1072 W HIGH AVE	NEW PHILADELPHIA	44663
3	79000249	Speedway 6246	1260 W HIGH AVE	NEW PHILADELPHIA	44663
4	79000249	Speedway 6246	1260 W HIGH AVE	NEW PHILADELPHIA	44663
5	79000451	RIVER GAS STATION LLC	1297 W HIGH AVE	NEW PHILADELPHIA	44663
6	79010024	POINT PANELING	700 W HIGH AVE	NEW PHILADELPHIA	44663
7	79000007	KWIK FILL #S241/286	1025 W HIGH AVE	NEW PHILADELPHIA	44663
8	79000007	KWIK FILL #S241/286	1025 W HIGH AVE	NEW PHILADELPHIA	44663
9	79000082	ODOT DISTRICT 11 HEADQUARTERS	1072 W HIGH AVE	NEW PHILADELPHIA	44663
10	79000082	ODOT DISTRICT 11 HEADQUARTERS	1072 W HIGH AVE	NEW PHILADELPHIA	44663
11	79000178	AGLAND CO-OP INC	1062 W HIGH AVE	NEW PHILADELPHIA	44663
12	79000249	Speedway 6246	1260 W HIGH AVE	NEW PHILADELPHIA	44663
13	79000287	EAST OHIO GAS CO. NEW PHILADELPH	100 11TH ST NW	NEW PHILADELPHIA	44663
14	79000287	EAST OHIO GAS CO. NEW PHILADELPH	100 11TH ST NW	NEW PHILADELPHIA	44663
15	79000451	RIVER GAS STATION LLC	1297 W HIGH AVE	NEW PHILADELPHIA	44663
16	79000468	NEW PHILADELPHIA BULK	130 10TH ST SW	NEW PHILADELPHIA	44663
17	No Data	Speedway 6246	1260 W HIGH AVE	NEW PHILADELPHIA	44663
18	No Data	AGLAND CO-OP INC	1062 W HIGH AVE	NEW PHILADELPHIA	44663
19	No Data	SOUTHSIDE BELLSTORES	110 COMMERCIAL AVE S E	NEW PHILADELPHIA	44663
20	No Data	RIVER GAS STATION LLC	1297 W HIGH AVE	NEW PHILADELPHIA	44663
21	No Data	RIVER GAS STATION LLC	1297 W HIGH AVE	NEW PHILADELPHIA	44663
22	No Data	K MART #3500	240 BLUEBALL DR	NEW PHILADELPHIA	44663
23	No Data	FUEL DEPOT	1219 E HIGH AVE	NEW PHILADELPHIA	44663
24	No Data	EAST OHIO GAS CO. NEW PHILADELPH	100 11TH ST NW	NEW PHILADELPHIA	44663
25	No Data	Speedway 6246	1260 W HIGH AVE	NEW PHILADELPHIA	44663
26	No Data	Speedway 6246	1260 W HIGH AVE	NEW PHILADELPHIA	44663
27	No Data	EAGLE AUTO/TRUCK PLAZA	217 16TH ST SW	NEW PHILADELPHIA	44663
28	No Data	HICKS REALTY INC.	742 E HIGH AVE	NEW PHILADELPHIA	44663
29	No Data	INTERSTATE MOBIL	963 STATE ROUTE 39 S.W.	NEW PHILADELPHIA	44663
30	No Data	EAST OHIO GAS CO. NEW PHILADELPH	100 11TH ST NW	NEW PHILADELPHIA	44663
31	No Data	POINT PANELING	700 W HIGH AVE	NEW PHILADELPHIA	44663
32	No Data	KWIK FILL #S241/286	1025 W HIGH AVE	NEW PHILADELPHIA	44663

33	<i>No Data</i>	KWIK FILL #S241/286	1025 W HIGH AVE	NEW PHILADELPHIA	44663
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#	INCIDENT_ID	LTF	STATUS	FACILITY_STATUS	Count
1	No Data	6 Closure of regulated UST	NFA: No Further Action	Inactive	2
2	No Data	6 Closure of regulated UST	NFA: No Further Action	Inactive	2
3	N00001	1 SUS/CON from regulated UST	TR2: Tier 2	Active	1
4	N00002	1 SUS/CON from regulated UST	RAP: Remedial Action Plan	Active	1
5	N00002	1 SUS/CON from regulated UST	T1N: Tier 1 Notification	Active	1
6	N00001	6 Closure of regulated UST	CLO: Closure	Active	1
7	N00001	1 SUS/CON from regulated UST	NFA: No Further Action	Inactive	1
8	N00002	6 Closure of regulated UST	NFA: No Further Action	Inactive	1
9	N00002	6 Closure of regulated UST	NFA: No Further Action	Inactive	1
10	N00001	6 Closure of regulated UST	NFA: No Further Action	Inactive	1
11	N00001	6 Closure of regulated UST	NFA: No Further Action	Inactive	1
12	N00003	1 SUS/CON from regulated UST	DIS: a release is disproved	Inactive	1
13	N00001	1 SUS/CON from regulated UST	NFA: No Further Action	Inactive	1
14	N00002	6 Closure of regulated UST	NFA: No Further Action	Inactive	1
15	N00001	1 SUS/CON from regulated UST	NFA: No Further Action	Inactive	1
16	N00001	6 Closure of regulated UST	NFA: No Further Action	Inactive	1
17	No Data	1 SUS/CON from regulated UST	NFA: No Further Action	Inactive	1
18	No Data	6 Closure of regulated UST	NFA: No Further Action	Inactive	1
19	No Data	6 Closure of regulated UST	NFA: No Further Action	Inactive	1
20	No Data	1 SUS/CON from regulated UST	NFA: No Further Action	Inactive	1
21	No Data	1 SUS/CON from regulated UST	T1N: Tier 1 Notification	Active	1
22	No Data	6 Closure of regulated UST	NFA: No Further Action	Inactive	1
23	No Data	6 Closure of regulated UST	NFA: No Further Action	Inactive	1
24	No Data	6 Closure of regulated UST	NFA: No Further Action	Inactive	1
25	No Data	1 SUS/CON from regulated UST	RAP: Remedial Action Plan	Active	1
26	No Data	1 SUS/CON from regulated UST	DIS: a release is disproved	Inactive	1

27	No Data	1 SUS/CON from regulated UST	RAP: Remedial Action Plan	Active	1
28	No Data	6 Closure of regulated UST	NFA: No Further Action	Inactive	1
29	No Data	1 SUS/CON from regulated UST	NFA: No Further Action	Inactive	1
30	No Data	1 SUS/CON from regulated UST	NFA: No Further Action	Inactive	1
31	No Data	6 Closure of regulated UST	CLO: Closure	Active	1
32	No Data	1 SUS/CON from regulated UST	NFA: No Further Action	Inactive	1
33	No Data	6 Closure of regulated UST	NFA: No Further Action	Inactive	1

Impoundment Sites (OEPA-DERR)

#	LATITUDE	LONGITUDE	COUNTY	SIA_NO	STATE_ID
1	40.4925	-81.464444	Tuscarawas	818	SE TUS 104NW

#	NPDES_NUMBER	SIC_CODE	CATEGORY	IMPOUND	REPORT_DATE
1	No Data	2999	IND	1	122278

#	OWNER	OWNER_ADDRESS	OWNER_CITY	OWNER_STATE	OWNER_ZIP
1	STANDARD OIL CO.	1800 MIDLAND BLDG.	CLEVELAND	OH	44115

#	PURPOSE	PURPOSE_DESCRIPTION	AGE_1980	LINER_TYPE	LINER_THICKNESS
1	e	No Data	4	1	0

#	LINER_OTHER	GW_MON_WEL	GW_CNT_POT	Count
1	No Data	N	23	1

Landfills - Historic/Abandoned Facilities w/buffer (OEPA-DMWM/DERR)

#	LATITUDE	LONGITUDE	SITE	ALT SITE NAME/LOCATION	COUNTY
1	40.504722	-81.480556	UNION CAMP SLUDGE FILL SITE	EAST SIDE OF TR-384, 0.2 MILE EAST OF I-77.	TUSCARAWAS

#	WASTE_TYPE	YEAR_CLOSED	SECONDARY_ID	SWLF_ID	DATABASE
1	INDUSTRIAL	1976	No Data	790006	Abandoned

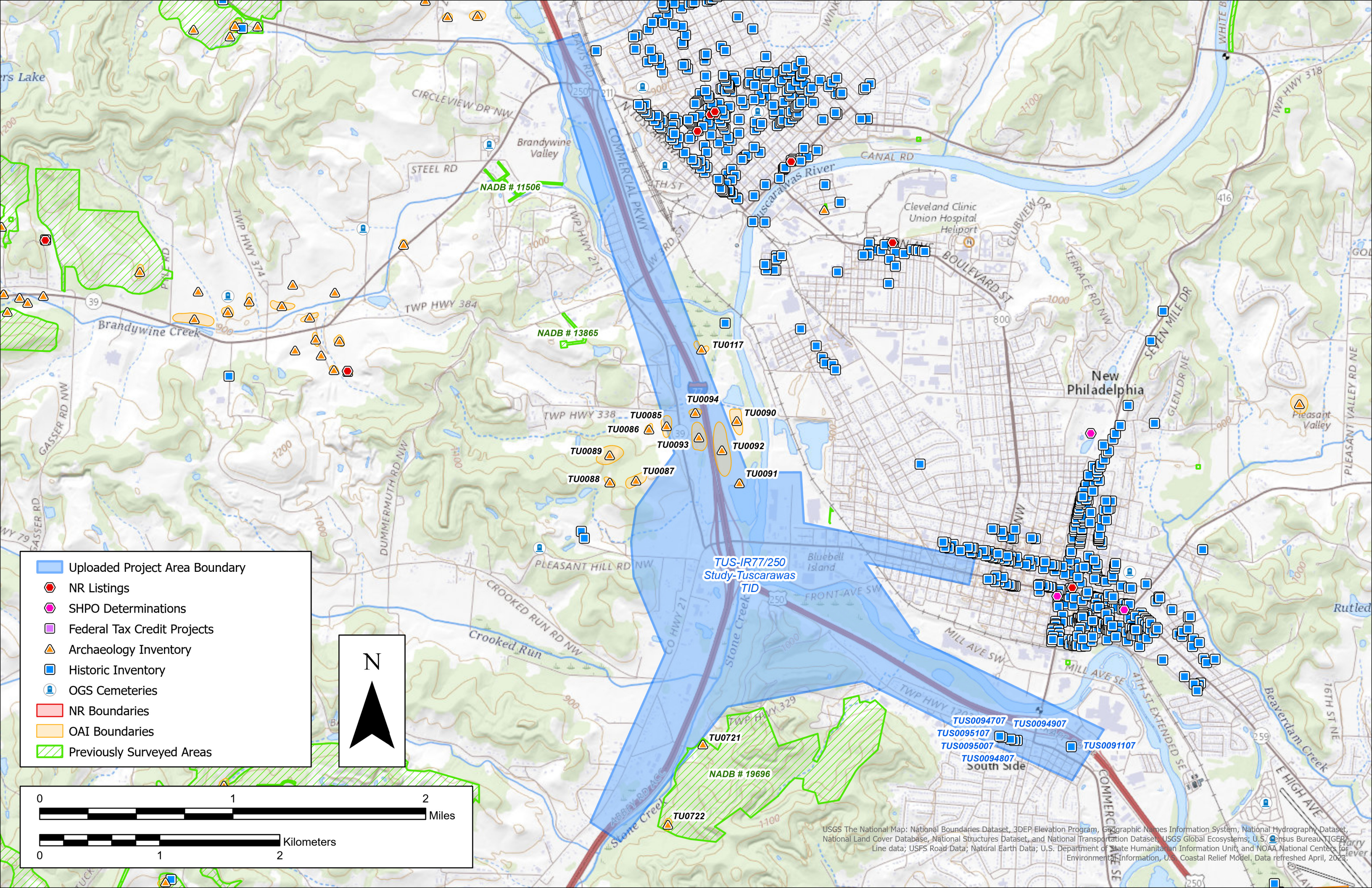
#	OEPA_DISTRICT	EDOCS_LINK	Area(acres)
1	SEDO		3.15

Spills Database (OEPA)

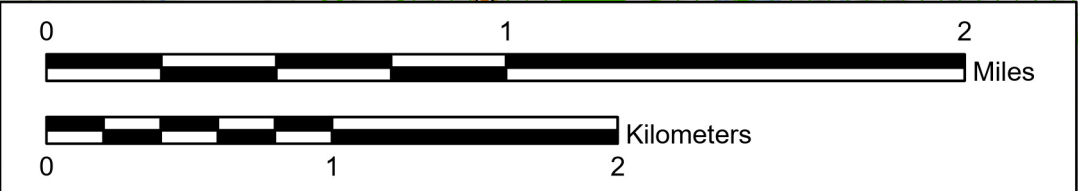
#	LATITUDE	LONGITUDE	SPILL_NUMBER	SPILL_YEAR	SPILL_LOCATION
1	40.492639	-81.481306	2125	2003	I-77 NEAR MP 21 @ EAGLE TRUCK STOP
2	40.490778	-81.472972	2603	2010	181 BLUE BELL DRIVE

#	SPILL_CITY	SPILL_COUNTY	WATERWAY	SPILL_AMOUNT	PRODUCT
1	NEW PHILADELPHIA	TUSCARAWAS	N/A	45	DIESEL FUEL
2	NEW PHILADELPHIA	TUSCARAWAS	TUSCARAWAS RIVER	80	TRANSFORMER OIL

#	STATUS	OEPA_DISTRICT	Count
1	5/17/2017	SEDO	1
2	5/17/2017	SEDO	1

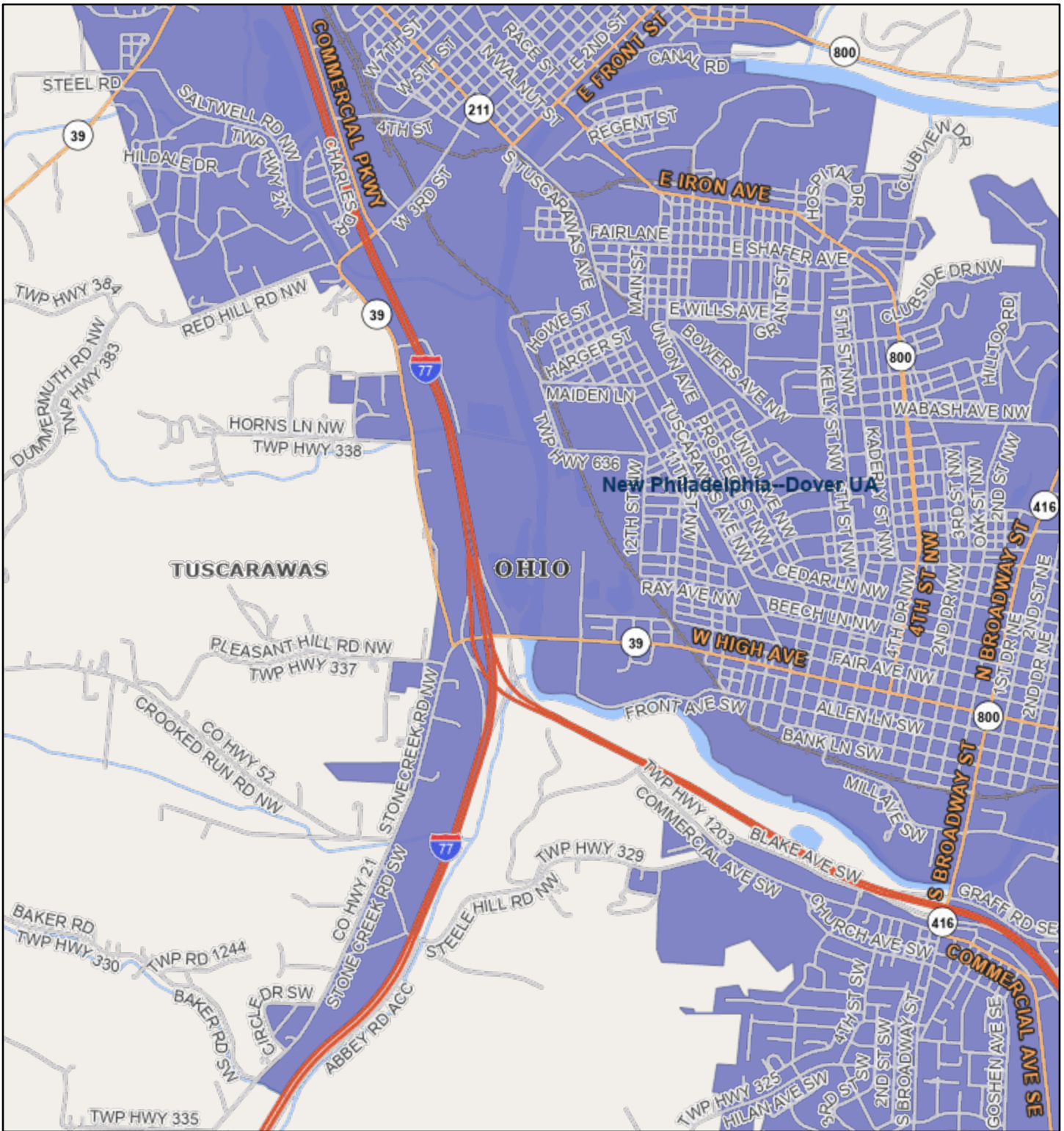


- Uploaded Project Area Boundary
- NR Listings
- SHPO Determinations
- Federal Tax Credit Projects
- ▲ Archaeology Inventory
- Historic Inventory
- OGS Cemeteries
- NR Boundaries
- OAI Boundaries
- ▨ Previously Surveyed Areas



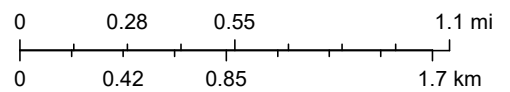
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Global Ecosystems; U.S. Census Bureau TIGER/Line data; USFS Road Data; Natural Earth Data; U.S. Department of State Humanitarian Information Unit, and NOAA National Centers for Environmental Information, U.S. Coastal Relief Model. Data refreshed April, 2023.

TIGERweb Urbanized Area



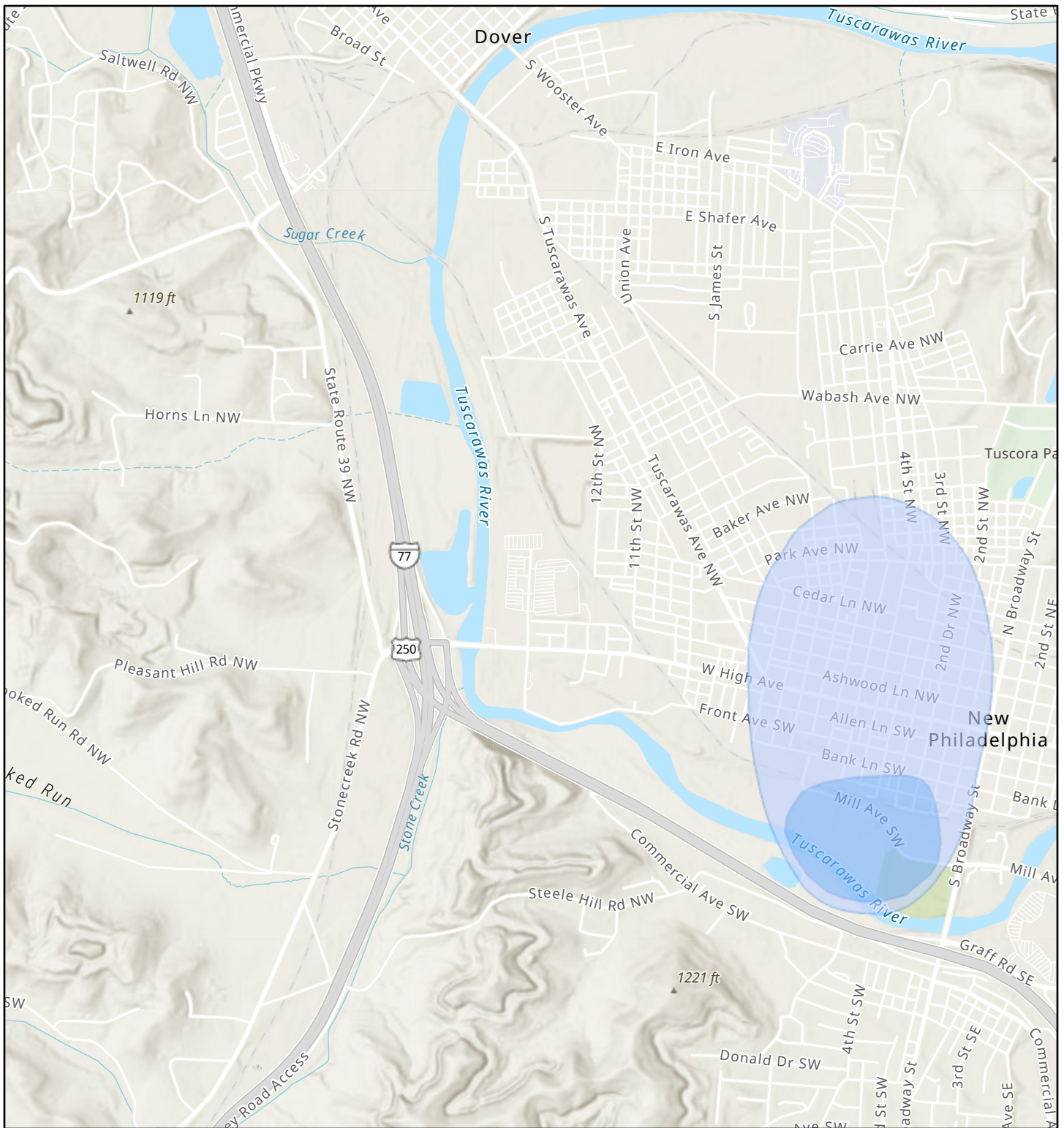
February 1, 2024

1:40,927





Source: U.S. Census Bureau

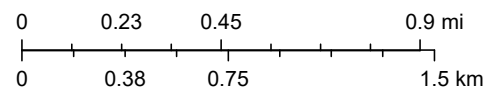
Drinking Water Source Protection Areas



2/1/2024, 3:44:34 PM

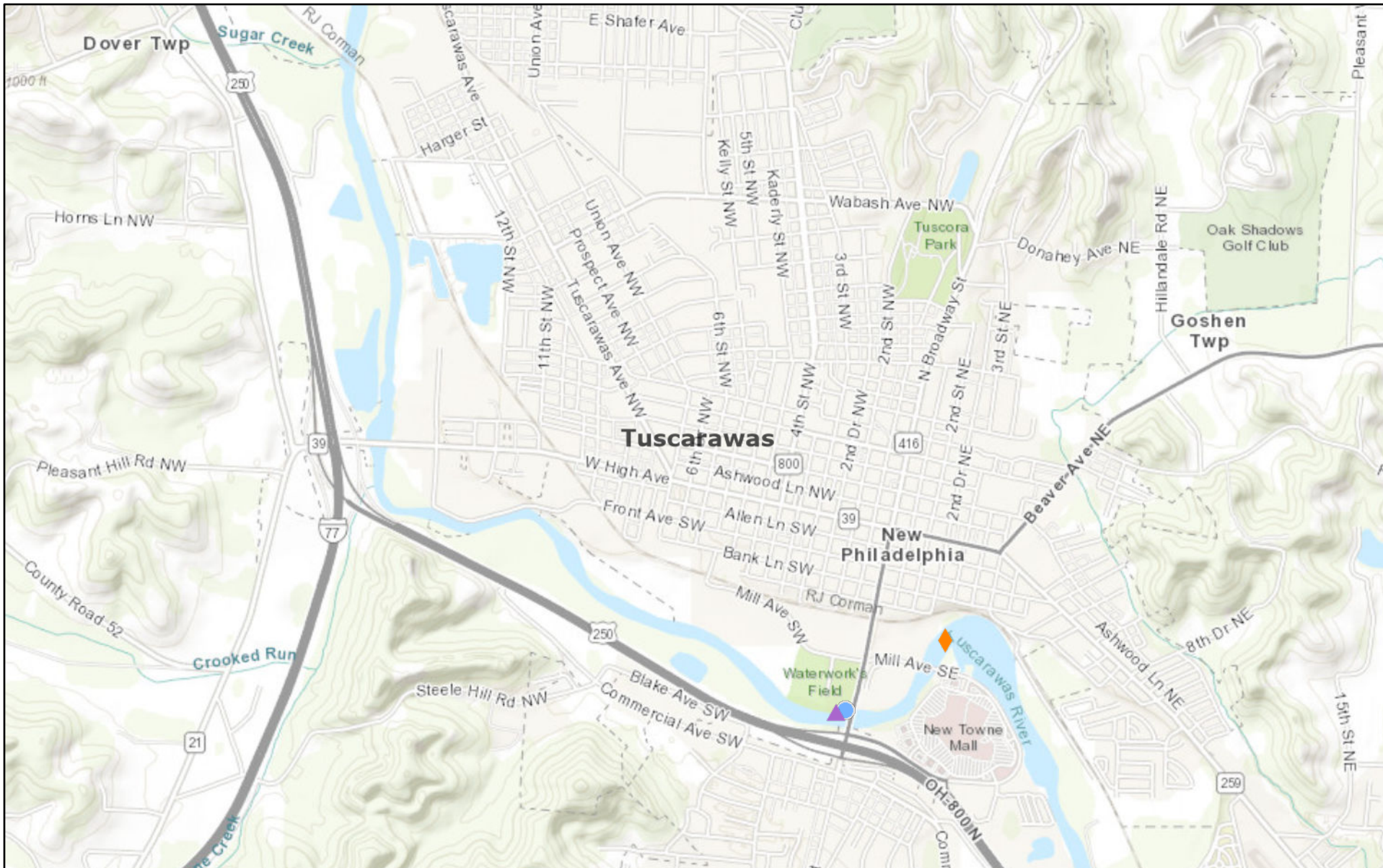
1:36,112

-  Source Water Protection Area
-  Inner Management Zone



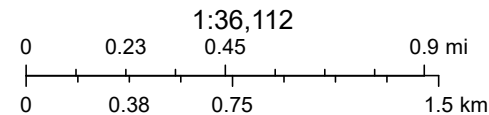
Division of Drinking and Ground Waters, Ohio EPA, Esri, NASA, NGA, USGS, FEMA, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS

Boater Access & Amenities



February 1, 2024

- ◆ Paddling Hazards - Other
- ▲ Motorized Launch Facilities
- Paddling Access



West Virginia GIS, Esri, HERE, Garmin, INCREMENT P, USGS, METI/NASA, NGA, EPA, USDA

Tuscarawas I-77 / US 250 / SR 39 Feasibility Study

Appendix H: Conceptual Estimates



Interchange Feasibility Study TUS-77

System - WB to SB, FLYOVER
02/05/24

ITEM	ITEM EXTENSION	DESCRIPTION	TOTAL QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE (2023 dollars)
ROADWAY						
202	Pavement Removed		2,900	SQ YD	\$8.00	\$23,200
609	Type D Barrier		1,000	FT	\$100.00	\$100,000
202	Guardrail Removed		500	FT	\$4.00	\$2,000
606	Guardrail		3,000	FT	\$25.00	\$75,000
203	Excavation		16,000	CU YD	\$15.00	\$240,000
203	Embankment		70,000	CU YD	\$12.00	\$840,000
ROADWAY SUBTOTAL						\$1,280,200
DRAINAGE						
670	Drainage		1	LUMP	\$200,000.00	\$200,000
DRAINAGE SUBTOTAL						\$200,000
EROSION CONTROL & BMP ELEMENTS						
670	Erosion Control		1	LUMP	\$75,000.00	\$75,000
EROSION CONTROL SUBTOTAL						\$75,000
PAVEMENT						
<i>FULL DEPTH PAVEMENT - ASPHALT</i>						
441	Asphalt Pavement Build-up		8,589	SQ YD	\$90.00	\$773,000
<i>FULL DEPTH PAVEMENT - CONCRETE</i>						
451	Concrete Pavement Build-up		6,789	SQ YD	\$120.00	\$814,667
<i>RESURFACING - ASPHALT</i>						
251	Asphalt Resurfacing		1,011	SQ YD	\$18.00	\$18,200
PAVEMENT SUBTOTAL						\$1,605,900
MAINTENANCE OF TRAFFIC						
614	MOT		1	LUMP	\$100,000.00	\$100,000
MAINTENANCE OF TRAFFIC SUBTOTAL						\$100,000
TRAFFIC CONTROL						
640	Traffic Control		1	LUMP	\$150,000.00	\$150,000
TRAFFIC CONTROL SUBTOTAL						\$150,000
LIGHTING						
625	Lighting		1	LUMP	\$100,000.00	\$100,000
LIGHTING SUBTOTAL						\$100,000
STRUCTURES						
511	Retaining Walls		15,000	SQ FT	\$200.00	\$3,000,000
500	Flyover Bridge		1	LUMP	\$12,000,000.00	\$12,000,000
500	Bridge SB77 over creek		1	LUMP	\$300,000.00	\$300,000
STRUCTURES SUBTOTAL						\$15,300,000
CONSTRUCTION MISC.						
619	Field Office, Type C		24	MONTH	\$2,500.00	\$60,000
623	Construction Layout Stakes (0.75% of Total)		1	LUMP	\$141,083.25	\$141,083
624	Mobilization		1	LUMP	\$400,000.00	\$400,000
CONSTRUCTION MISC. SUBTOTAL						\$601,100
CONSTRUCTION COST SUBTOTAL						\$19,412,200
COST CONTINGENCY - PRELIMINARY ENGINEERING (30%)						\$5,823,660
TOTAL CONSTRUCTION COST, 2023 DOLLARS						\$25,236,000
		Construction Cost Inflation Rate (2023 to 2029)	26.5%			\$6,687,540
CONSTRUCTION COST, 2029 DOLLARS						\$31,924,000
- ESTIMATE DOES NOT INCLUDE COSTS FOR RIGHT OF WAY ACQUISITIONS OR UTILITY RELOCATIONS.						

Interchange Feasibility Study TUS-77

System - WB to SB, TEXAS U-TURN
02/05/24

ITEM	ITEM EXTENSION	DESCRIPTION	TOTAL QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE (2023 dollars)
ROADWAY						
202	Pavement Removed		8,933	SQ YD	\$8.00	\$71,467
609	Type D Barrier		600	FT	\$100.00	\$60,000
202	Guardrail Removed		600	FT	\$4.00	\$2,400
606	Guardrail		1,500	FT	\$25.00	\$37,500
203	Excavation		30,000	CU YD	\$15.00	\$450,000
203	Embankment		22,000	CU YD	\$12.00	\$264,000
ROADWAY SUBTOTAL						\$885,400
DRAINAGE						
670	Drainage		1	LUMP	\$88,540.00	\$88,540
DRAINAGE SUBTOTAL						\$88,600
EROSION CONTROL & BMP ELEMENTS						
670	Erosion Control		1	LUMP	\$25,000.00	\$25,000
EROSION CONTROL SUBTOTAL						\$25,000
PAVEMENT						
<i>FULL DEPTH PAVEMENT - ASPHALT</i>						
441	Asphalt Pavement Build-up		11,144	SQ YD	\$90.00	\$1,003,000
<i>FULL DEPTH PAVEMENT - CONCRETE</i>						
451	Concrete Pavement Build-up		4,178	SQ YD	\$120.00	\$501,333
<i>RESURFACING - ASPHALT</i>						
251	Asphalt Resurfacing		8,622	SQ YD	\$18.00	\$155,200
PAVEMENT SUBTOTAL						\$1,659,600
MAINTENANCE OF TRAFFIC						
614	MOT		1	LUMP	\$150,000.00	\$150,000
MAINTENANCE OF TRAFFIC SUBTOTAL						\$150,000
TRAFFIC CONTROL						
640	Traffic Control		1	LUMP	\$150,000.00	\$150,000
TRAFFIC CONTROL SUBTOTAL						\$150,000
LIGHTING						
625	Lighting		1	LUMP	\$150,000.00	\$150,000
LIGHTING SUBTOTAL						\$150,000
STRUCTURES						
511	Retaining Walls		18,750	SQ FT	\$200.00	\$3,750,000
500	Bridge Widening NB250		1	LUMP	\$2,000,000.00	\$2,000,000
500	Bridge SB77		1	LUMP	\$2,500,000.00	\$2,500,000
500	Bridge NB77		1	LUMP	\$3,700,000.00	\$3,700,000
500	Structure Removed NB77		1	LUMP	\$339,000.00	\$339,000
500	Structure Removed SB77		1	LUMP	\$294,000.00	\$294,000
STRUCTURES SUBTOTAL						\$12,583,000
CONSTRUCTION MISC.						
619	Field Office, Type C		24	MONTH	\$2,500.00	\$60,000
623	Construction Layout Stakes (0.75% of Total)		1	LUMP	\$117,687.00	\$117,687
624	Mobilization		1	LUMP	\$400,000.00	\$400,000
CONSTRUCTION MISC. SUBTOTAL						\$577,700
CONSTRUCTION COST SUBTOTAL						\$16,269,300
COST CONTINGENCY - PRELIMINARY ENGINEERING (30%)						\$4,880,790
TOTAL CONSTRUCTION COST, 2023 DOLLARS						\$21,151,000
		Construction Cost Inflation Rate (2023 to 2029)	26.5%			\$5,605,015
CONSTRUCTION COST, 2029 DOLLARS						\$26,757,000
- ESTIMATE DOES NOT INCLUDE COSTS FOR RIGHT OF WAY ACQUISITIONS OR UTILITY RELOCATIONS.						

Interchange Feasibility Study TUS-77

System - WB to SB, LOOP RAMP
02/05/24

ITEM	ITEM EXTENSION	DESCRIPTION	TOTAL QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE (2023 dollars)
202	ROADWAY	Pavement Removed	10,044	SQ YD	\$8.00	\$80,356
609		Curb		FT	\$20.00	\$0
609		Type D Barrier	1,600	FT	\$100.00	\$160,000
202		Guardrail Removed	1,000	FT	\$4.00	\$4,000
606		Guardrail	8,000	FT	\$25.00	\$200,000
203		Excavation	35,000	CU YD	\$15.00	\$525,000
203		Embankment	92,000	CU YD	\$12.00	\$1,104,000
					\$60,000.00	
					ROADWAY SUBTOTAL	\$2,073,400
670	DRAINAGE	Drainage	1	LUMP	\$0.00	\$0
					DRAINAGE SUBTOTAL	\$0
670	EROSION CONTROL & BMP ELEMENTS	Erosion Control	1	LUMP	\$25,000.00	\$25,000
					EROSION CONTROL SUBTOTAL	\$25,000
441	PAVEMENT	FULL DEPTH PAVEMENT - ASPHALT	19,733	SQ YD	\$90.00	\$1,776,000
451		FULL DEPTH PAVEMENT - CONCRETE	10,967	SQ YD	\$120.00	\$1,316,000
251		RESURFACING - ASPHALT	9,633	SQ YD	\$18.00	\$173,400
					PAVEMENT SUBTOTAL	\$3,265,400
614	MAINTENANCE OF TRAFFIC	MOT	1	LUMP	\$0.00	\$0
					MAINTENANCE OF TRAFFIC SUBTOTAL	\$0
640	TRAFFIC CONTROL	Traffic Control	1	LUMP	\$0.00	\$0
					TRAFFIC CONTROL SUBTOTAL	\$0
625	LIGHTING	Lighting	1	LUMP	\$0.00	\$0
					LIGHTING SUBTOTAL	\$0
511	STRUCTURES	Retaining Walls	33,750	SQ FT	\$200.00	\$6,750,000
500		Bridge	1	LUMP	\$26,500,000.00	\$26,500,000
202		Structure Removed SR250 to NB77	1	LUMP	\$217,000.00	\$217,000
					STRUCTURES SUBTOTAL	\$33,467,000
619	CONSTRUCTION MISC.	Field Office, Type C	24	MONTH	\$2,500.00	\$60,000
623		Construction Layout Stakes (0.75% of Total)	1	LUMP	\$291,231.00	\$291,231
624		Mobilization	1	LUMP	\$800,000.00	\$800,000
					CONSTRUCTION MISC. SUBTOTAL	\$1,151,300
					CONSTRUCTION COST SUBTOTAL	\$39,992,100
					COST CONTINGENCY - PRELIMINARY ENGINEERING (30%)	\$11,994,630
					TOTAL CONSTRUCTION COST, 2023 DOLLARS	\$51,977,000
		Construction Cost Inflation Rate (2023 to 2029)	26.5%			\$13,773,905
					CONSTRUCTION COST, 2029 DOLLARS	\$65,751,000
- ESTIMATE DOES NOT INCLUDE COSTS FOR RIGHT OF WAY ACQUISITIONS OR UTILITY RELOCATIONS.						

Interchange Feasibility Study TUS-77

System - NB to EB
02/05/24

ITEM	ITEM EXTENSION	DESCRIPTION	TOTAL QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE (2023 dollars)
202	ROADWAY	Pavement Removed	2,900	SQ YD	\$8.00	\$23,200
609		Type D Barrier	800	FT	\$100.00	\$80,000
202		Guardrail Removed	200	FT	\$4.00	\$800
606		Guardrail	2,000	FT	\$25.00	\$50,000
203		Excavation	125,000	CU YD	\$15.00	\$1,875,000
203		Embankment	180,000	CU YD	\$12.00	\$2,160,000
					ROADWAY SUBTOTAL	\$4,189,000
670	DRAINAGE	Drainage	1	LUMP	\$200,000.00	\$200,000
					DRAINAGE SUBTOTAL	\$200,000
670	EROSION CONTROL & BMP ELEMENTS	Erosion Control	1	LUMP	\$75,000.00	\$75,000
					EROSION CONTROL SUBTOTAL	\$75,000
441	PAVEMENT	FULL DEPTH PAVEMENT - ASPHALT	5,966	SQ YD	\$90.00	\$536,000
451		FULL DEPTH PAVEMENT - CONCRETE	5,711	SQ YD	\$120.00	\$685,333
251		RESURFACING - ASPHALT	478	SQ YD	\$18.00	\$8,600
					PAVEMENT SUBTOTAL	\$1,230,000
614	MAINTENANCE OF TRAFFIC	MOT	1	LUMP	\$80,000.00	\$80,000
					MAINTENANCE OF TRAFFIC SUBTOTAL	\$80,000
640	TRAFFIC CONTROL	Traffic Control	1	LUMP	\$150,000.00	\$150,000
					TRAFFIC CONTROL SUBTOTAL	\$150,000
625	LIGHTING	Lighting	1	LUMP	\$150,000.00	\$150,000
					LIGHTING SUBTOTAL	\$150,000
511	STRUCTURES	Retaining Walls	35,000	SQ FT	\$200.00	\$7,000,000
500		Bridge over Stone Creek	1	LUMP	\$1,800,000.00	\$1,800,000
202		Structure Removed	1	LUMP	\$0.00	\$0
					STRUCTURES SUBTOTAL	\$8,800,000
619	CONSTRUCTION MISC.	Field Office, Type C	24	MONTH	\$2,500.00	\$60,000
623		Construction Layout Stakes (0.75% of Total)	1	LUMP	\$111,555.00	\$111,555
624		Mobilization	1	LUMP	\$400,000.00	\$400,000
					CONSTRUCTION MISC. SUBTOTAL	\$571,600
					CONSTRUCTION COST SUBTOTAL	\$15,443,600
					COST CONTINGENCY - PRELIMINARY ENGINEERING (30%)	\$4,633,680
					TOTAL CONSTRUCTION COST, 2023 DOLLARS	\$20,080,000
		Construction Cost Inflation Rate (2023 to 2029)	26.5%			\$5,321,200
					CONSTRUCTION COST, 2029 DOLLARS	\$25,402,000
- ESTIMATE DOES NOT INCLUDE COSTS FOR RIGHT OF WAY ACQUISITIONS OR UTILITY RELOCATIONS.						

Interchange Feasibility Study TUS-77

Intersection - SR-39 / STONECREEK ROAD SIGNALIZED INTERSECTION + I-77 SB
02/05/24

ITEM	ITEM EXTENSION	DESCRIPTION	TOTAL QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE (2023 dollars)
ROADWAY						
202	Pavement Removed		23,589	SQ YD	\$8.00	\$188,711
609	Curb			FT	\$20.00	\$0
609	Curb & Gutter		3,100	FT	\$30.00	\$93,000
609	Type D Barrier		400	FT	\$100.00	\$40,000
202	Guardrail Removed		3,400	FT	\$4.00	\$13,600
606	Guardrail		2,100	FT	\$25.00	\$52,500
201	Clearing and Grubbing		1	LUMP	\$5,000.00	\$5,000
203	Excavation		2,500	CU YD	\$15.00	\$37,500
203	Embankment		7,500	CU YD	\$12.00	\$90,000
ROADWAY SUBTOTAL						\$520,400
DRAINAGE						
670	Drainage		1	LUMP	\$50,000.00	\$50,000
DRAINAGE SUBTOTAL						\$50,000
EROSION CONTROL & BMP ELEMENTS						
670	Erosion Control		1	LUMP	\$30,000.00	\$30,000
670	BMPs		1	LUMP	\$50,000.00	\$50,000
EROSION CONTROL SUBTOTAL						\$80,000
PAVEMENT						
FULL DEPTH PAVEMENT - ASPHALT						
441	Asphalt Pavement Build-up		18,300	SQ YD	\$90.00	\$1,647,000
FULL DEPTH PAVEMENT - CONCRETE						
451	Concrete Pavement Build-up		7,967	SQ YD	\$120.00	\$956,000
CONCRETE WALK						
608	Concrete Walk		8,000	SQ FT	\$13.00	\$104,000
PAVEMENT SUBTOTAL						\$2,707,000
MAINTENANCE OF TRAFFIC						
614	MOT		1	LUMP	\$420,000.00	\$420,000
MAINTENANCE OF TRAFFIC SUBTOTAL						\$420,000
TRAFFIC CONTROL						
640	Traffic Control		1	LUMP	\$70,000.00	\$70,000
640	Rectangular Rapid Flashing Beacon		2	EACH	\$15,000.00	\$30,000
TRAFFIC CONTROL SUBTOTAL						\$100,000
LIGHTING						
625	Lighting		1	LUMP	\$100,000.00	\$100,000
LIGHTING SUBTOTAL						\$100,000
CONSTRUCTION MISC.						
619	Field Office, Type C		3	MONTH	\$2,100.00	\$6,300
623	Construction Layout Stakes (0.75% of Total)		1	LUMP	\$29,830.50	\$29,831
624	Mobilization		1	LUMP	\$100,000.00	\$100,000
CONSTRUCTION MISC. SUBTOTAL						\$136,200
COST CONTINGENCY - PRELIMINARY ENGINEERING (30%)						\$4,113,600
TOTAL CONSTRUCTION COST, 2023 DOLLARS						\$5,348,000
Construction Cost Inflation Rate (2023 to 2029)						\$1,417,220
CONSTRUCTION COST, 2029 DOLLARS						\$6,766,000
- ESTIMATE DOES NOT INCLUDE COSTS FOR RIGHT OF WAY ACQUISITIONS OR UTILITY RELOCATIONS.						

Interchange Feasibility Study TUS-77

Intersection - SR-39 / SB I-77 / EB US 250 / STONECREEK ROAD PEANUT ROUNDABOUT
02/05/24

ITEM	ITEM EXTENSION	DESCRIPTION	TOTAL QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE (2023 dollars)
ROADWAY						
202	Pavement Removed		16,400	SQ YD	\$8.00	\$131,200
609	Curb			FT	\$20.00	\$0
609	Curb & Gutter		2,500	FT	\$30.00	\$75,000
609	Type D Barrier		400	FT	\$100.00	\$40,000
202	Guardrail Removed		700	FT	\$4.00	\$2,800
606	Guardrail		700	FT	\$25.00	\$17,500
201	Clearing and Grubbing		1	LUMP	\$5,000.00	\$5,000
666	Tree Trimming		1	LUMP	\$0.00	\$0
203	Excavation		5,000	CU YD	\$15.00	\$75,000
203	Embankment		15,000	CU YD	\$12.00	\$180,000
606	Truck Island		856	SQ YD	\$185.00	\$158,278
ROADWAY SUBTOTAL						\$684,800
DRAINAGE						
670	Drainage		1	LUMP	\$40,000.00	\$40,000
DRAINAGE SUBTOTAL						\$40,000
EROSION CONTROL & BMP ELEMENTS						
670	Erosion Control		1	LUMP	\$25,000.00	\$25,000
670	BMPs		1	LUMP	\$50,000.00	\$50,000
EROSION CONTROL SUBTOTAL						\$75,000
PAVEMENT						
FULL DEPTH PAVEMENT - ASPHALT						
441	Asphalt Pavement Build-up		11,478	SQ YD	\$90.00	\$1,033,000
FULL DEPTH PAVEMENT - CONCRETE						
451	Concrete Pavement Build-up		5,578	SQ YD	\$120.00	\$669,333
CONCRETE WALK						
608	Concrete Walk		9,000	SQ FT	\$13.00	\$117,000
PAVEMENT SUBTOTAL						\$1,819,400
MAINTENANCE OF TRAFFIC						
614	MOT		1	LUMP	\$340,000.00	\$340,000
MAINTENANCE OF TRAFFIC SUBTOTAL						\$340,000
TRAFFIC CONTROL						
640	Traffic Control		1	LUMP	\$60,000.00	\$60,000
640	Rectangular Rapid Flashing Beacon		2	EACH	\$15,000.00	\$30,000
TRAFFIC CONTROL SUBTOTAL						\$90,000
LIGHTING						
625	Lighting		1	LUMP	\$150,000.00	\$150,000
LIGHTING SUBTOTAL						\$150,000
STRUCTURES						
640	Rectangular Rapid Flashing Beacon		1	LUMP	\$50,000.00	\$50,000
STRUCTURES SUBTOTAL						\$50,000
CONSTRUCTION MISC.						
619	Field Office, Type B		9	MONTH	\$1,500.00	\$13,500
623	Construction Layout Stakes (0.75% of Total)		1	LUMP	\$24,369.00	\$24,369
624	Mobilization		1	LUMP	\$100,000.00	\$100,000
CONSTRUCTION MISC. SUBTOTAL						\$137,900
COST CONTINGENCY - PRELIMINARY ENGINEERING (30%)						\$3,387,100
TOTAL CONSTRUCTION COST, 2023 DOLLARS						\$4,404,000
Construction Cost Inflation Rate (2023 to 2029)						\$1,167,060
CONSTRUCTION COST, 2029 DOLLARS						\$5,572,000
- ESTIMATE DOES NOT INCLUDE COSTS FOR RIGHT OF WAY ACQUISITIONS OR UTILITY RELOCATIONS.						

Interchange Feasibility Study TUS-77

Intersection - SR-39 / BLUEBELL BACKAGE ROADS
02/05/24

ITEM	ITEM EXTENSION	DESCRIPTION	TOTAL QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE (2023 dollars)
ROADWAY						
202		Pavement Removed	7,989	SQ YD	\$8.00	\$63,911
609		Curb		FT	\$20.00	\$0
609		Curb & Gutter	900	FT	\$30.00	\$27,000
609		Type D Barrier		FT	\$100.00	\$0
202		Guardrail Removed		FT	\$4.00	\$0
606		Guardrail		FT	\$25.00	\$0
201		Clearing and Grubbing	1	LUMP	\$20,000.00	\$20,000
203		Excavation	2,500	CU YD	\$15.00	\$37,500
203		Embankment	2,500	CU YD	\$12.00	\$30,000
606		Truck Island	67	SQ YD	\$185.00	\$12,333
ROADWAY SUBTOTAL						\$190,800
DRAINAGE						
670		Drainage	1	LUMP	\$40,000.00	\$40,000
DRAINAGE SUBTOTAL						\$40,000
EROSION CONTROL & BMP ELEMENTS						
670		Erosion Control	1	LUMP	\$25,000.00	\$25,000
670		BMPs	1	LUMP	\$40,000.00	\$40,000
EROSION CONTROL SUBTOTAL						\$65,000
PAVEMENT						
FULL DEPTH PAVEMENT - ASPHALT						
441		Asphalt Pavement Build-up	11,500	SQ YD	\$90.00	\$1,035,000
CONCRETE WALK						
608		Concrete Walk	4,800	SQ FT	\$13.00	\$62,400
PAVEMENT SUBTOTAL						\$1,097,400
MAINTENANCE OF TRAFFIC						
614		MOT	1	LUMP	\$170,000.00	\$170,000
MAINTENANCE OF TRAFFIC SUBTOTAL						\$170,000
TRAFFIC CONTROL						
640		Traffic Control	1	LUMP	\$20,000.00	\$20,000
TRAFFIC CONTROL SUBTOTAL						\$20,000
LIGHTING						
625		Lighting	1	LUMP	\$10,000.00	\$10,000
LIGHTING SUBTOTAL						\$10,000
CONSTRUCTION MISC.						
16020		Field Office, Type B	3	MONTH	\$1,500.00	\$4,500
623		Construction Layout Stakes (0.75% of Total)	1	LUMP	\$11,949.00	\$11,949
624		Mobilization	1	LUMP	\$40,000.00	\$40,000
CONSTRUCTION MISC. SUBTOTAL						\$56,500
CONSTRUCTION COST SUBTOTAL						\$1,649,700
COST CONTINGENCY - PRELIMINARY ENGINEERING (30%)						\$494,910
TOTAL CONSTRUCTION COST, 2023 DOLLARS						\$2,145,000
CONSTRUCTION Cost Inflation Rate (2023 to 2029)						
			26.5%			\$568,425
CONSTRUCTION COST, 2029 DOLLARS						\$2,714,000
- ESTIMATE DOES NOT INCLUDE COSTS FOR RIGHT OF WAY ACQUISITIONS OR UTILITY RELOCATIONS.						

Interchange Feasibility Study TUS-77

Intersection - SR-39 / SB I-77 / EB US 250 / STONECREEK ROAD DOUBLE ROUNDABOUT
02/05/24

ITEM	ITEM EXTENSION	DESCRIPTION	TOTAL QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE (2023 dollars)
ROADWAY						
202		Pavement Removed	41,400	SQ YD	\$8.00	\$331,200
609		Curb	900	FT	\$20.00	\$18,000
609		Curb & Gutter	2,700	FT	\$30.00	\$81,000
609		Type D Barrier	400	FT	\$100.00	\$40,000
202		Guardrail Removed	6,100	FT	\$4.00	\$24,400
606		Guardrail	5,100	FT	\$25.00	\$127,500
201		Clearing and Grubbing	1	LUMP	\$10,000.00	\$10,000
203		Excavation	10,000	CU YD	\$15.00	\$150,000
203		Embankment	30,000	CU YD	\$12.00	\$360,000
606		Truck Island	1,289	SQ YD	\$185.00	\$238,444
ROADWAY SUBTOTAL						\$1,380,600
DRAINAGE						
670		Drainage	1	LUMP	\$90,000.00	\$90,000
DRAINAGE SUBTOTAL						\$90,000
EROSION CONTROL & BMP ELEMENTS						
670		Erosion Control	1	LUMP	\$50,000.00	\$50,000
670		BMPs	1	LUMP	\$50,000.00	\$50,000
EROSION CONTROL SUBTOTAL						\$100,000
PAVEMENT						
FULL DEPTH PAVEMENT - ASPHALT						
441		Asphalt Pavement Build-up	25,867	SQ YD	\$90.00	\$2,310,000
CONCRETE WALK						
451		Concrete Pavement Build-up	20,811	SQ YD	\$120.00	\$2,497,333
CONCRETE WALK						
608		Concrete Walk	15,200	SQ FT	\$13.00	\$197,600
PAVEMENT SUBTOTAL						\$5,005,000
MAINTENANCE OF TRAFFIC						
614		MOT	1	LUMP	\$1,150,000.00	\$1,150,000
MAINTENANCE OF TRAFFIC SUBTOTAL						\$1,150,000
TRAFFIC CONTROL						
640		Traffic Control	1	LUMP	\$60,000.00	\$60,000
640		Rectangular Rapid Flashing Beacon	2	EACH	\$15,000.00	\$30,000
TRAFFIC CONTROL SUBTOTAL						\$90,000
LIGHTING						
625		Lighting	1	LUMP	\$250,000.00	\$250,000
LIGHTING SUBTOTAL						\$250,000
STRUCTURES						
500		Structures	1	LUMP	\$2,600,000.00	\$2,600,000
500		Structure Removed	1	LUMP	\$300,000.00	\$300,000
640		Rectangular Rapid Flashing Beacon	1	LUMP	\$50,000.00	\$50,000
STRUCTURES SUBTOTAL						\$2,950,000
CONSTRUCTION MISC.						
619	16020	Field Office, Type C	12	MONTH	\$2,100.00	\$25,200
623	10000	Construction Layout Stakes (0.75% of Total)	1	LUMP	\$82,617.00	\$82,617
624	10000	Mobilization	1	LUMP	\$400,000.00	\$400,000
CONSTRUCTION MISC. SUBTOTAL						\$507,900
CONSTRUCTION COST SUBTOTAL						\$11,523,500
COST CONTINGENCY - PRELIMINARY ENGINEERING (30%)						\$3,457,050
TOTAL CONSTRUCTION COST, 2023 DOLLARS						\$14,981,000
CONSTRUCTION Cost Inflation Rate (2023 to 2029)						
			26.5%			\$3,969,965
CONSTRUCTION COST, 2029 DOLLARS						\$18,951,000
- ESTIMATE DOES NOT INCLUDE COSTS FOR RIGHT OF WAY ACQUISITIONS OR UTILITY RELOCATIONS.						

Interchange Feasibility Study TUS-77

Intersection - SR-39 / BLUEBELL ROUNDABOUT
02/05/24

ITEM	ITEM EXTENSION	DESCRIPTION	TOTAL QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE (2023 dollars)
ROADWAY						
202		Pavement Removed	9,344	SQ YD	\$8.00	\$74,756
609		Curb	400	FT	\$20.00	\$8,000
609		Curb & Gutter	1,700	FT	\$30.00	\$51,000
609		Type D Barrier		FT	\$100.00	\$0
202		Guardrail Removed		FT	\$4.00	\$0
606		Guardrail		FT	\$25.00	\$0
201		Clearing and Grubbing	1	LUMP	\$5,000.00	\$5,000
203		Excavation	1,000	CU YD	\$15.00	\$15,000
203		Embankment	1,000	CU YD	\$12.00	\$12,000
606		Truck Island	533	SQ YD	\$185.00	\$98,667
ROADWAY SUBTOTAL						\$264,500
DRAINAGE						
670		Drainage	1	LUMP	\$60,000.00	\$60,000
DRAINAGE SUBTOTAL						\$60,000
EROSION CONTROL & BMP ELEMENTS						
670		Erosion Control	1	LUMP	\$30,000.00	\$30,000
670		BMPs	1	LUMP	\$50,000.00	\$50,000
EROSION CONTROL SUBTOTAL						\$80,000
PAVEMENT						
FULL DEPTH PAVEMENT - ASPHALT						
441		Asphalt Pavement Build-up	10,622	SQ YD	\$90.00	\$956,000
FULL DEPTH PAVEMENT - CONCRETE						
451		Concrete Pavement Build-up	589	SQ YD	\$120.00	\$70,667
CONCRETE WALK						
608		Concrete Walk	7,700	SQ FT	\$13.00	\$100,100
PAVEMENT SUBTOTAL						\$1,126,800
MAINTENANCE OF TRAFFIC						
614		MOT	1	LUMP	\$230,000.00	\$230,000
MAINTENANCE OF TRAFFIC SUBTOTAL						\$230,000
TRAFFIC CONTROL						
640		Traffic Control	1	LUMP	\$40,000.00	\$40,000
640		Rectangular Rapid Flashing Beacon	4	EACH	\$15,000.00	\$60,000
TRAFFIC CONTROL SUBTOTAL						\$100,000
LIGHTING						
625		Lighting	1	LUMP	\$150,000.00	\$150,000
LIGHTING SUBTOTAL						\$150,000
STRUCTURES						
630		Overhead Signage Removal	1	LUMP	\$100,000.00	\$100,000
500		Structure Removed	1	LUMP	\$20,000.00	\$20,000
STRUCTURES SUBTOTAL						\$120,000
CONSTRUCTION MISC.						
619	16020	Field Office, Type B	6	MONTH	\$1,500.00	\$9,000
623	10000	Construction Layout Stakes (0.75% of Total)	1	LUMP	\$15,984.75	\$15,985
624	10000	Mobilization	1	LUMP	\$100,000.00	\$100,000
CONSTRUCTION MISC. SUBTOTAL						\$125,000
CONSTRUCTION COST SUBTOTAL						\$2,256,300
COST CONTINGENCY - PRELIMINARY ENGINEERING (30%)						
TOTAL CONSTRUCTION COST, 2023 DOLLARS						\$2,934,000
		Construction Cost Inflation Rate (2023 to 2029)	26.5%			\$777,510
CONSTRUCTION COST, 2029 DOLLARS						\$3,712,000
- ESTIMATE DOES NOT INCLUDE COSTS FOR RIGHT OF WAY ACQUISITIONS OR UTILITY RELOCATIONS.						

Interchange Feasibility Study TUS-77

Intersection - SR-39 / BLUEBELL SIGNALIZED INTERSECTION TURN LANES
02/05/24

ITEM	ITEM EXTENSION	DESCRIPTION	TOTAL QUANTITY	UNIT	UNIT PRICE	TOTAL PRICE (2023 dollars)
ROADWAY						
202		Pavement Removed	15,011	SQ YD	\$8.00	\$120,089
609		Curb		FT	\$20.00	\$0
609		Curb & Gutter	4,200	FT	\$30.00	\$126,000
609		Type D Barrier		FT	\$100.00	\$0
202		Guardrail Removed		FT	\$4.00	\$0
606		Guardrail		FT	\$25.00	\$0
201		Clearing and Grubbing	1	LUMP	\$5,000.00	\$5,000
203		Excavation	500	CU YD	\$15.00	\$7,500
203		Embankment	500	CU YD	\$12.00	\$6,000
606		Truck Island	400	SQ YD	\$185.00	\$74,000
ROADWAY SUBTOTAL						\$338,600
DRAINAGE						
670		Drainage	1	LUMP	\$30,000.00	\$30,000
DRAINAGE SUBTOTAL						\$30,000
EROSION CONTROL & BMP ELEMENTS						
670		Erosion Control	1	LUMP	\$10,000.00	\$10,000
670		BMPs	1	LUMP	\$20,000.00	\$20,000
EROSION CONTROL SUBTOTAL						\$30,000
PAVEMENT						
FULL DEPTH PAVEMENT - ASPHALT						
441		Asphalt Pavement Build-up	15,200	SQ YD	\$90.00	\$1,368,000
CONCRETE WALK						
608		Concrete Walk	10,000	SQ FT	\$13.00	\$130,000
PAVEMENT SUBTOTAL						\$1,498,000
MAINTENANCE OF TRAFFIC						
614		MOT	1	LUMP	\$240,000.00	\$240,000
MAINTENANCE OF TRAFFIC SUBTOTAL						\$240,000
TRAFFIC CONTROL						
640		Traffic Control	1	LUMP	\$50,000.00	\$50,000
TRAFFIC CONTROL SUBTOTAL						\$50,000
LIGHTING						
625		Lighting	1	LUMP	\$10,000.00	\$10,000
LIGHTING SUBTOTAL						\$10,000
CONSTRUCTION MISC.						
619	16020	Field Office, Type B	3	MONTH	\$1,500.00	\$4,500
623	10000	Construction Layout Stakes (0.75% of Total)	1	LUMP	\$16,474.50	\$16,475
624	10000	Mobilization	1	LUMP	\$100,000.00	\$100,000
CONSTRUCTION MISC. SUBTOTAL						\$121,000
CONSTRUCTION COST SUBTOTAL						\$2,317,600
COST CONTINGENCY - PRELIMINARY ENGINEERING (30%)						
TOTAL CONSTRUCTION COST, 2023 DOLLARS						\$3,013,000
		Construction Cost Inflation Rate (2023 to 2029)	26.5%			\$798,445
CONSTRUCTION COST, 2029 DOLLARS						\$3,812,000
- ESTIMATE DOES NOT INCLUDE COSTS FOR RIGHT OF WAY ACQUISITIONS OR UTILITY RELOCATIONS.						














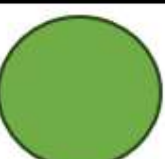










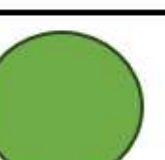
Tuscarawas I-77 / US 250 / SR 39 Feasibility Study

Appendix I: Evaluation Matrix











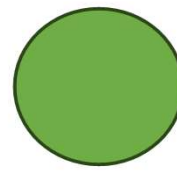


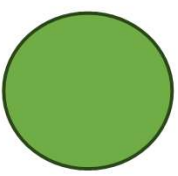



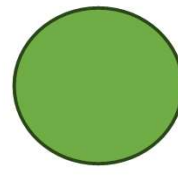


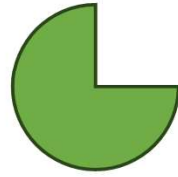




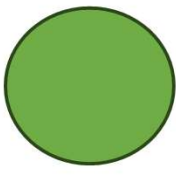



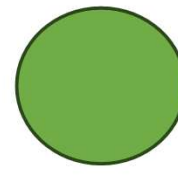


IR 77 & US 250 System Interchange					
Evaluation Criteria	Alternative 1 Flyover	Alternative 2 Texas U	Alternative 3 Loop	Alternative 4 NB to EB	Alternative 5 No Build
Safety Performance					
Traffic Operations					
Environmental Impacts					
Stakeholder Input					
Right-of-way Impacts					
Construction Costs	\$32.9 M	\$26.8 M	\$65.8 M	\$25.4 M	\$0.0

BURGESS & NIPLE

I-77 & SR 39 Service Interchange					
Evaluation Criteria	Alternative 1 Relocated SB Off Ramp	Alternative 2 Double Roundabout	Alternative 3 Peanut Roundabout	Alternative 4 NB Ramp Roundabout	Alternative 5 No Build
Safety Performance					
Traffic Operations					
Environmental Impacts					
Stakeholder Input					
Right-of-way Impacts					
Construction Costs	\$6.8 M	\$5.5 M	\$18.9 M	\$3.8 M	\$0.0

BURGESS & NIPLE

East of the River including Bluebell Drive						
Evaluation Criteria	Alternative 1 Backage Roads	Alternative 2 Right-in/Right-out	Alternative 3 Median	Alternative 4 Turnlanes	Alternative 5 Roundabout	Alternative 6 No Build
Safety Performance						
Traffic Operations						
Environmental Impacts						
Stakeholder Input						
Right-of-way Impacts						
Construction Costs	\$2.7 M	\$0.1 M	\$1.0 M	\$3.8 M	\$3.7 M	\$0.0

BURGESS & NIPLÉ

Tuscarawas IR 77 / US 250 / SR 39 Feasibility Study

Appendix J: Draft Purpose and Need Statement



TUS-IR77-19.76 PID 116377

Purpose and Need Statement

January 10, 2024

Project History

An Alternatives Analysis Report, prepared by ms consultants, inc. in 2014, reviewed the existing IR 77/US 250/SR 39 interchange configuration and discussed five alternatives to address transportation needs for the study area. The report identified excessive queueing on the SB IR 77 exit ramp, congested-related crash patterns on SR 39 within the interchange area, and incomplete direct freeway-to-freeway connectivity within the interchange as contributing to the congestion on SR 39. In addition to the No-Build option, the AAR discussed optimizing signal timing/phasing, turn lane additions, installing a roundabout to serve one or both intersections on the west side of the interchange, adding the “missing” freeway-to-freeway ramps, and modifying the southbound ramp configuration in a way that re-routed SR 39 traffic bound for US 250. The report selected implementing the first two alternatives, optimizing signal timing/phasing and turn lane additions, as the preferred solutions based on cost/benefit and environmental impact considerations. Two of the three recommended turn lane additions, a SB right turn lane at the SR 39 & CR 21 intersection and a NB left turn lane at the NB IR 77/US 250 & SR 39 ramp intersection, have since been implemented.

The Vision Plan for The City of New Philadelphia, prepared by Michael McInturf Architects, was finalized in March 2021. Prior to the Vision Plan, the 1967 Comprehensive Plan was the most recent citywide master plan for the City of New Philadelphia. Some of the key objectives of the Vision Plan include identifying key infrastructure improvements to road, streetscapes, and gateways; specifying priorities; and stating the city’s long-range perspective. The Vision Plan explains that the US 250 corridor east of IR 77 provides important access to the shopping mall area, water works recreation area, and residential areas on the south side of the city. Also noted is that the Ohio Mid-Eastern Governments Association (OMEGA) identified improving traffic flow at the IR 77/SR 39 interchange and providing connection between WB US 250 and SB IR 77 as two of four prioritized roadway projects.

Purpose Statement

The purpose of the project is to reduce circuitry of travel, improve safety, and reduce congestion within the IR 77/US 250/SR 39 interchange area and adjacent intersections.

Need Elements

Primary Needs for the project include:

- Reduce Circuitry of Travel

The existing IR 77/US250/SR 30 interchange is the principal access point for the City of New Philadelphia, which serves as the Tuscarawas County seat. US 250 serves as a Freeway Principal Arterial connecting the city and surrounding communities to the Interstate Highway System while SR 39 provides access to the city’s Central Business District. The importance of this connection to the City of New Philadelphia and Tuscarawas County underlines the disconnect of two missing movements within the freeway-to-freeway system interchange. This interchange lacks direct freeway-to-freeway movement between northbound IR 77 and eastbound US 250 and between westbound US 250 and southbound IR 77. The lack of this direct access between freeways impacts traffic using IR 70 40 miles to the south, as well as negatively impacting traffic associated with communities south of New Philadelphia.

To serve the traffic movement between the south and east legs of the interchange, traffic is directed to the SR 39 exit ramps where vehicles leave the freeway and travel westbound on SR 39 between the signalized northbound IR 77 ramp intersection and the signalized southbound IR 77 ramp intersection to access collector-distributor roads connecting IR 77 to US 250. For drivers unfamiliar with the area, this maneuver causes wayfinding confusion. It also encourages drivers to use SR 39, which is a city street, instead of using the US 250 freeway to access points east of IR 77. This choice increases safety and congestion concerns on SR 39.

- Improve Safety

Burgess & Niple prepared collision diagrams and ECAT analyses for the study area. The half-mile segment of SR 39 experienced 160 crashes between 2020 and 2022, which is nearly two-thirds of the crashes for the entire study area. The SR 39 crash experience was relatively consistent across the 3-year period. On SR 39, crashes were mostly clustered at three locations: at the signalized Bluebell Drive intersection east of the interchange, the 0.25-mile segment of SR 39 between Bluebell Drive and the IR 77 northbound ramps, and IR 77 southbound ramp intersection. The ECAT analysis indicates that these three locations experienced excess crashes across all severity levels. The rest of the SR 39 corridor experienced excess Property Damage Only crashes but not excess injury or fatal crashes.

SR 39 & Bluebell Drive Intersection: This intersection experienced an average of 6.4764 excess crashes per year compared to the number of crashes predicted for this location. The Potential for Safety Improvement (PSI) is remarkable for this specific location and can be attributed to 7 crash types totaling 65 crashes. The most common was 32 (49%) rear end crashes. The eastbound through/right turn lane experienced at least twice the number rear end crashes, 9, of any other lane movement. The next highest crash types were 12 (18%) left turn crashes and 9 (14%) angle crashes. These crashes indicate that congestion may be a contributing factor to the crash experience at this intersection. Other types of crashes occurring in the intersection area included 5 (8%) sideswipe-passing crashes, 3 (5%) right turn crashes, 3 (5%) backing crashes, and 1 (2%) fixed object crash.

SR 39 between IR 77 NB ramps and Bluebell Drive: This section of SR 39 experienced an average of 4.6319 excess crashes per year compared to the number of crashes predicted for this area. Most of the crashes in this section occurred in the 550 feet of roadway between the bridge over the Tuscarawas River and the Bluebell Drive intersection area where there are 13 commercial driveway approaches. There are 8 driveways on the south side and 5 driveways on the north side of SR 39 that serve gas stations, restaurants, and a hotel. This 550-foot-long section of roadway experienced a total of 36 crashes consisting of 7 crash types. The most common type here was 17 (47%) rear end crashes, followed by 6 (17%) left turn crashes, 5 (14%) sideswipe-passing

crashes, and 4 (11%) angle crashes. These crashes indicate that congestion may be a contributing factor to the crash experience at this intersection. The remaining crashes included 2 (6%) right turn crashes, 1 (3%) pedalcycle crash, and 1 (3%) “other” crash.

SR 39 and IR 77 SB ramps: This intersection experienced an average of 1.0672 excess crashes per year compared to the number of crashes predicted for this location. This intersection experienced a total of 27 crashes consisting of 5 crash types. The most common type was 19 (70%) rear end crashes; 10 of these crashes occurred on the WB SR 39 approach. The high proportion of rear end crashes suggests that congestion is a contributing factor to the crash experience at this intersection. In addition to the rear end crashes, there were 3 (11%) improper backing crashes, 3 (11%) sideswipe-passing crashes, 1 (4%) right turn crash, and 1 (4%) fixed object crash.

The IR 77/US 250 portion of the study area, including the ramps serving SR 39 and US 250, experienced a total of 92 crashes during the three-year study period; however, 36 (39%) of those crashes were animal crashes. A review of the freeway collision diagrams shows that these animal crashes – purportedly all deer-related – occurred throughout the study area on the freeway mainline and ramp elements. The ECAT analysis excludes animal crashes for the average crash frequency calculations, and therefore only considered the remaining 56 crashes. All the freeway segments and ramps are experiencing crash rates close to what is predicted for each element. Of the remaining 56 crashes, there were 20 fixed object crashes and 17 sideswipe-passing crashes. Two ramps, SB IR 77 to EB US 250 and WB US 250 to NB IR 77, presented somewhat of a pattern for these two crash types. For both ramps, the fixed object and sideswipe-passing crashes occur on curved overpass bridges. The objects struck appear to be bridge parapets or guardrail runs attached to the parapets, while most sideswipe crashes appear to be related to cars not maintaining their lanes while navigating curves. A few of the sideswipe passing crashes could be related to inappropriate lane changes.

- Reduce Congestion

Burgess & Niple prepared Highway Capacity Analyses of the signalized intersections in the study area using existing signal phasing and timing. These locations include SR 39 & Stonecreek Road, SR 39 & SB IR 77 ramps, SR 39 & NB IR 77 ramps, and SR 39 & Bluebell Drive.

SR 39 & Stonecreek Road intersection and SR 39 & SB IR 77 ramp intersection: These intersections are less than 200 feet apart. To avoid trapping cars between the intersections, the signal heads for both are operated by a single signal controller using a unique timing configuration. This results in a very long cycle length and a significant amount of lost time throughout the cycle. In the PM Peak Hour, the SB IR 77 exit ramp operates at LOS F due to excessive delay for the SB left turn movement and this congestion appears to be related to the 7 rear end crashes on this approach. The SB ramp queues can extend to the collector-distributor road that also serves the SB IR 77 to EB US 250 traffic, creating a conflict between high-speed vehicles on the C-D road and stopped vehicles on the ramp. WB SR 39 also experiences excessive delay for the left-turn movement, and queues for this movement sometimes extend through the NB IR 77 ramp intersection. The 10 rear end crashes and 4 sideswipe passing crashes on this approach could be related to congestion with this movement.

SR 39 & NB IR 77 ramp intersection: This intersection operates at LOS B during both AM and PM peak hours. Accordingly, the crash experience at this location is also within predicted range.

SR 39 & Bluebell Drive intersection: This intersection operates at acceptable levels of service on all approaches; however, the left turn lanes on the NB and SB approaches are not long enough to serve the demand volume. The SB left turn lane Queue Storage Ratio during the PM Peak Hour is 1.41, and the NB left turn lane Queue Storage Ratio is 2.11. This means that the turn lane queue exceeds the available storage by 40% and 110%, respectively, during the PM Peak Hour. The queueing spillback will block the SB and NB through and right turn movements and cause delay that is not reflected in the capacity analyses. The number of rear end crashes on these approaches – 9 on SB Bluebell Drive and 7 on NB Bluebell Drive – appear to be related to this issue.

Tuscarawas IR 77 / US 250 / SR 39 Feasibility Study

Appendix K: Utilities



12/22/2023

ERIKA RILEY
BURGESS & NIPLE
330 RUSH ALLEY
COLUMBUS, OH 43215

**Re: OUPS Request # A335501181
0 W HIGH AVE, NEW PHILADELPHIA, TUSCARAWAS COUNTY**

Dear ERIKA RILEY,

We received your Ohio Utilities Protection Service (OUPS) inquiry referenced above. The approximate locations of Dominion Energy Ohio's (DEO) facilities are illustrated on the enclosed map.

As required by statute, DEO acknowledges its pipelines, as a rule, were installed at approximately 36" deep. At concerned points where you need to know the location and elevation of DEO's pipeline, you may excavate by hand digging to temporarily expose the pipeline enabling you to obtain the necessary information. Contact the Ohio Utility Protection Service (OUPS) (1-800-362-2764) prior to your excavation and submit an excavation ticket. In addition to hand digging, you may use non-destructive pipeline location methods, such as those performed by companies like So-Deep or T2 Utility Engineers (330-486-0932).

DEO requests that its facilities and easement areas be appropriately represented, dimensioned and identified on all survey plats, improvement and/or development plans and plats, etc. DEO requests that all parties comply with the attached Ohio General Restrictions, Landscape-Fence Guidelines, Pavement Vent Details. DEO requires equipment specifications be submitted for loading analysis and mitigation purposes when crossing DEO's pipeline. Complete and submit the surface loading assessment form to DEO.

FOR RESIDENTIAL SERVICES AND SERVICE LINE DISCONNECTS: Please contact the Ohio Construction Support Group at 888-619-0786 or email: ohioconstructionsupport@dominionenergy.com.

FOR MAINLINE EXTENSIONS AND COMMERCIAL SERVICES (NEW AND LOAD ADDITIONS): Please contact the Ohio Construction Support Group at 888-619-0786 or email: ohioconstructionsupport@dominionenergy.com.

FOR RELOCATIONS: Please send a copy of your proposed plans to our office for conflict review and resolution at least 4 months prior to your constructions. Please send all plans and correspondence to the following address:

Dominion Energy Ohio
Attn: 2nd Floor Relocations Design
320 Springside Dr, Suite 320
Akron, Ohio 44333
Email: relocation@dominionengery.com
Ph: 330-664-2409
Fax: 888-504-0126

In addition to the review for conflicts with DEO facilities and your project, DEO will also need to review the plan, profile and cross sections for the proposed improvements where they cross DEO's pipeline. When crossing DEO's high pressure pipeline (high, transmission, gathering, storage and production) the profile centerline should be based along the centerline of DEO's pipeline. For DEO's distribution pipeline, the profile centerline can be based along the centerline of the proposed roadway work. Use the standard scale of a vertical scale of 1"=5' and a horizontal scale of 1"=50' for

your plan, profile and cross sections. Included in the profile and cross sections should be the existing and proposed grades, existing utilities, proposed road and utility improvements, and DEO's existing pipeline. The profiles and cross sections should be incorporated into your construction improvement plans.

DEO's response is based on the project information you or others provided for this project. The location of DEO facilities within the project area are based on the records of the original installation, and are therefore approximate, and not guaranteed. DEO has no knowledge or information of changes that may have been made to the site after the original installation. Any reliance on the information provided is solely at the risk of the user, who agrees to indemnify, defend and hold DEO, its owners, officers, affiliates and subsidiaries harmless, to the fullest extent permitted by law, from and against any and all loss, claims, demands, damages, injuries or suits in anyway arising out of or incident to its use.

Dominion Energy requests that the following note be added to your plans for the benefit of your contractor:

"It is the contractor's responsibility to maintain the lateral and subjacent support of Dominion Energy's pipeline(s), in compliance to 29 CFR, Part 1926, subpart P, (safe excavation & shoring). One-foot minimum vertical and horizontal clearance must be maintained between Dominion Energy Ohio's (DEO) existing pipeline(s) and all other improvements. Extreme care should be taken not to harm any DEO facility (pipelines, etc.) or appurtenance (pipe coating, tracer wire, cathodic protection test station wires & devices, valve boxes, etc.). DEO facilities must be protected with a tarp during bridge construction. The contractor will be responsible and liable for ensuring that all DEO existing facilities, above and below ground, remain undamaged, accessible and in working order. The crossing of DEO's pipeline with another steel facility may create a potential corrosion issue for the proposed facility and the existing DEO facility. Please contact Dominion Energy Ohio's Corrosion Department: Dave Cutlip (330-266-2121), Rick McDonald (330-266-2122), or Al Humrichouser (330-478-3757)."

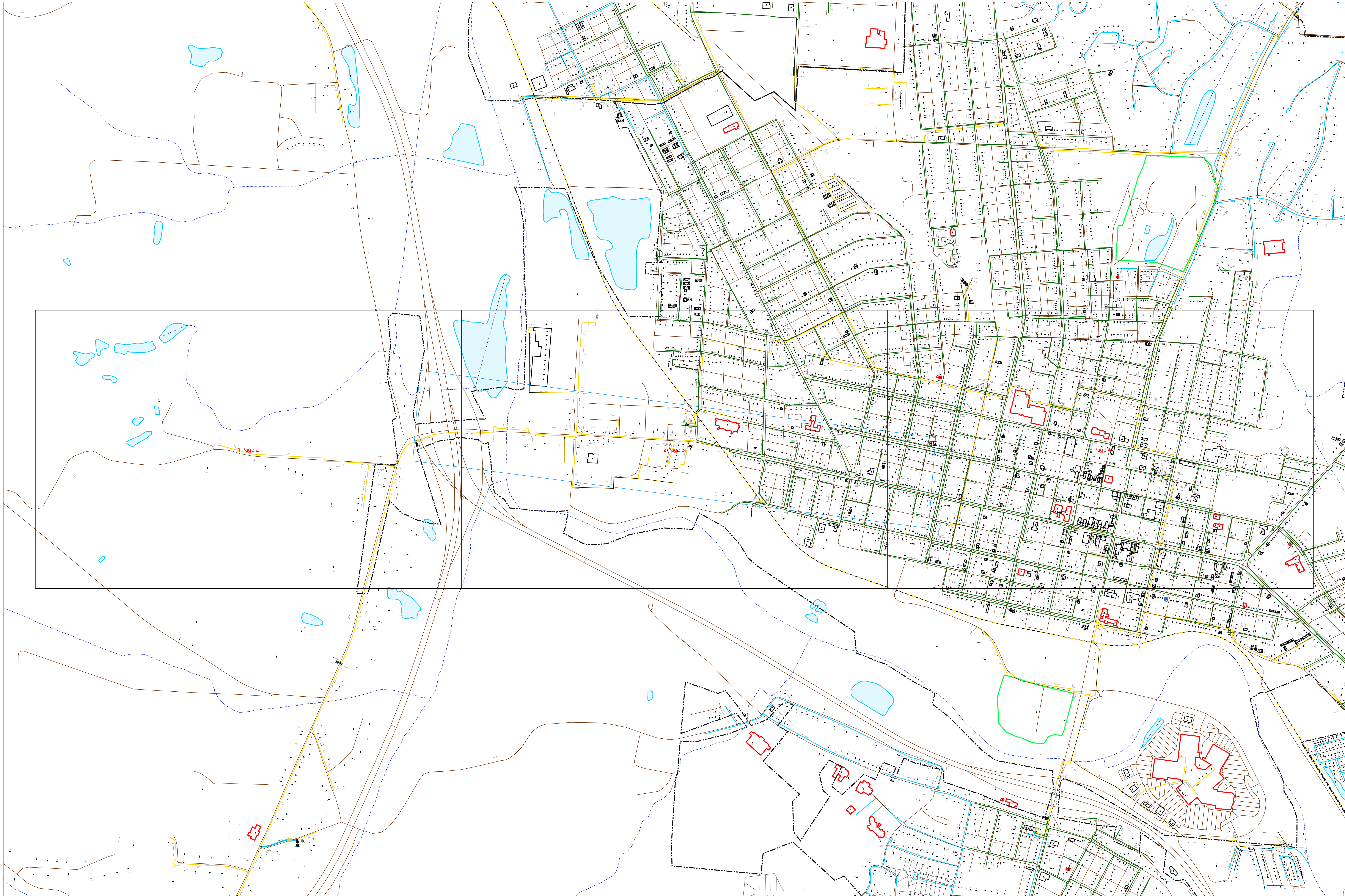
Since over 1000 gas companies now operate in Ohio, proper pipeline identification is necessary to assure minimum critical response time. We request that you add the following general note to your construction plans: DEO = Dominion Energy Ohio, 1-800-362-7557. Dominion Energy's facilities should be identified appropriately on your construction plans.

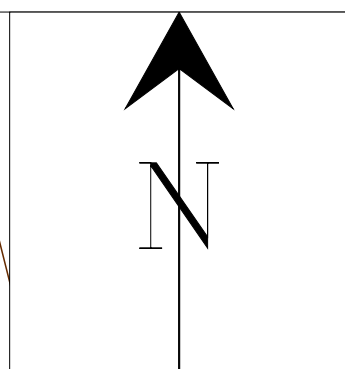
To avoid personal injuries, property damages, legal actions, etc., no construction, grading or excavating should begin within 30 feet of any DEO high pressure natural gas pipeline without written approval from this office. No improvements of any kind should be made by any party other than DEO within 100 feet radius of a DEO Gas Well or DEO Brine/Oil Tank.

DEO will not be liable for nor accept any contractor delay costs that the company has not had an opportunity to review, dispute and/or resolve.

Sincerely,

















Dominion Energy Ohio

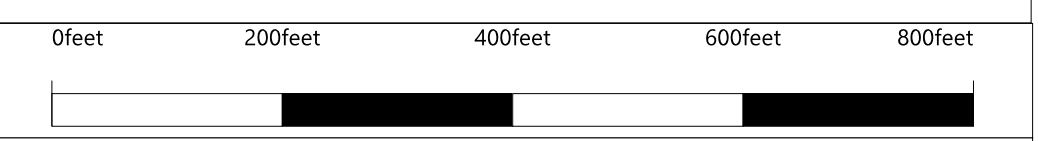




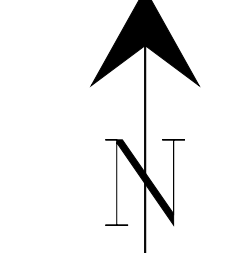
Dominion Energy Ohio

OUPS Legend

-  Medium Pressure Main
-  High Pressure Main
-  Intermediate Pressure Main
-  Low Pressure Main
-  Storage Pipe
-  Gathering Pipe
-  Transmission Pipe
-  Valve
-  Storage Well
-  Casing
-  Building
-  Parcel Line
-  Railroad
-  Road
-  Waterway
-  Municipality Boundary



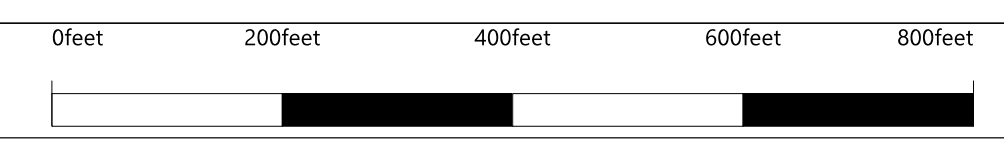
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Dominion Energy Ohio

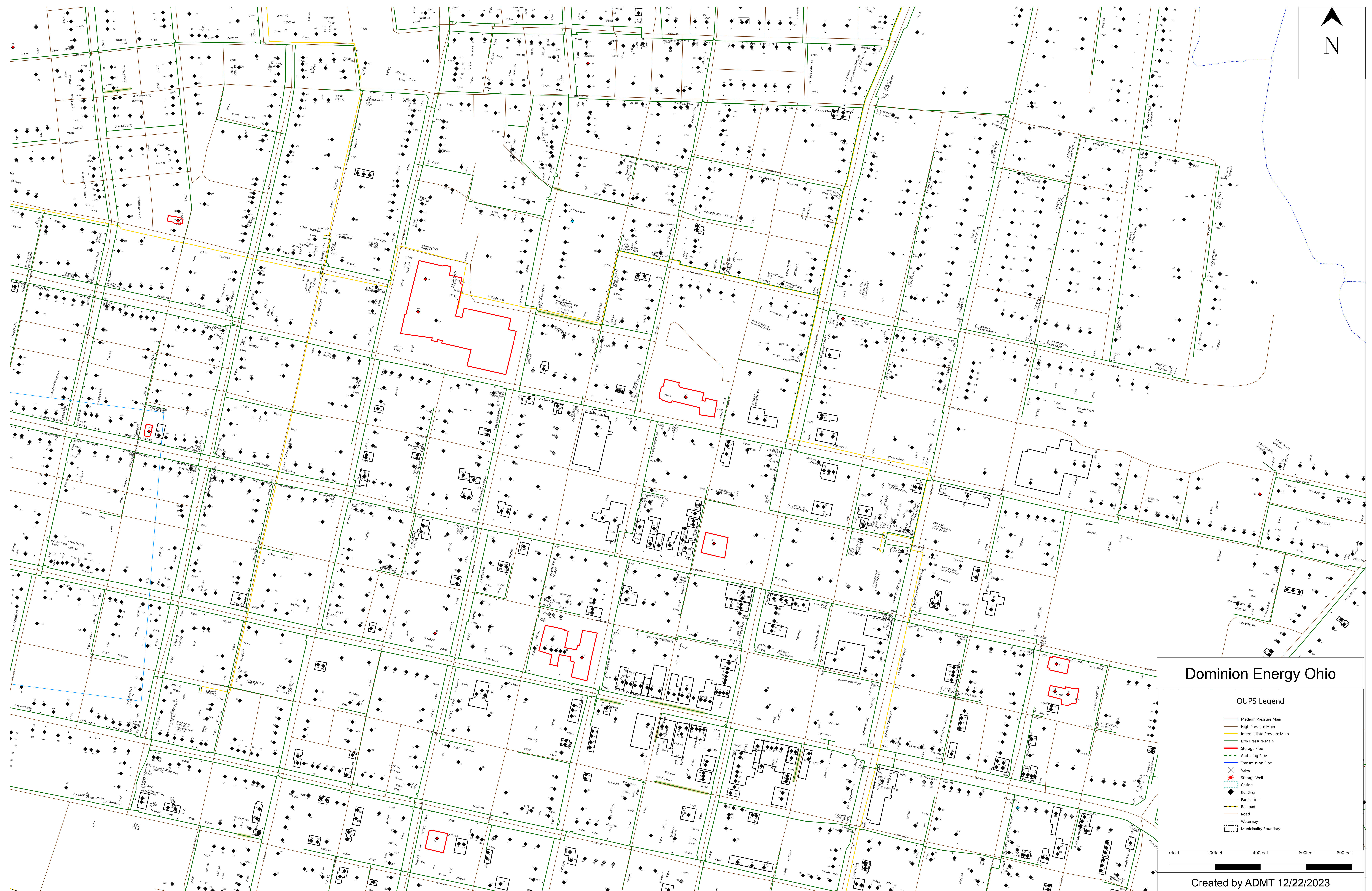
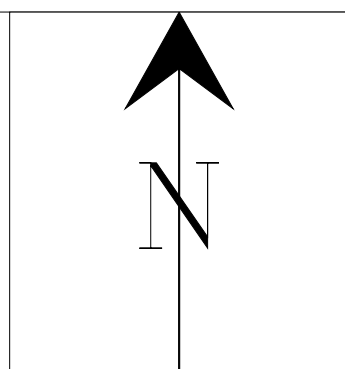
OUPS Legend

- Medium Pressure Main
- High Pressure Main
- Intermediate Pressure Main
- Low Pressure Main
- Storage Pipe
- Gathering Pipe
- Transmission Pipe
- Valve
- Storage Well
- Casing
- Building
- Parcel Line
- Railroad
- Road
- Waterway
- Municipality Boundary



















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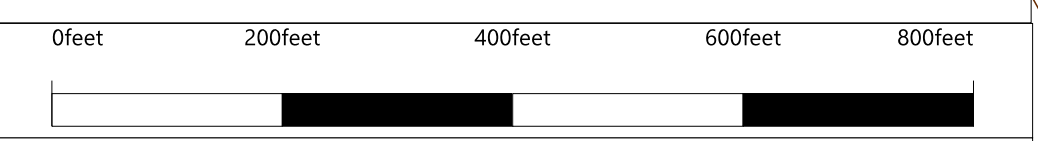
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Dominion Energy Ohio

OUPS Legend

-  Medium Pressure Main
-  High Pressure Main
-  Intermediate Pressure Main
-  Low Pressure Main
-  Storage Pipe
-  Gathering Pipe
-  Transmission Pipe
-  Valve
-  Storage Well
-  Casing
-  Building
-  Parcel Line
-  Railroad
-  Road
-  Waterway
-  Municipality Boundary



Created by ADMT 12/22/2023

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Questions regarding these PDF's contact:



James VanSickle (614) 883-7871 jdvensickle@aep.com
Deborah Harris (614) 883-7832 daharris@aep.com

For Planning and Projects:



An **AEP** Company

AEP Ohio
Attn: Brent Gates (614) 883-6802 bmgates@aep.com
700 Morrison Road
Gahanna, OH 43230



An **AEP** Company

Appalachian Power
Attn: Jay Singleton III (304) 348-4162 jesingleton@aep.com
200 Association Drive, 02
Charleston, WV 25311



An **AEP** Company

For Indiana:
Indiana Michigan Power
Attn: David A Hursh (260) 408-3446 dahursh@aep.com
110 E. Wayne St, 21st Floor
Fort Wayne, IN 46802



An **AEP** Company

For Michigan:
Indiana Michigan Power
Attn: Brandon Thomas (269) 208-0057 bmthomas@aep.com
52807 US 131 N., 01
Three Rivers, MI 49093



An **AEP** Company

Kentucky Power
Robert E Matthews Service Center
Attn: Amber Hatfield (606) 929-1458 adhatfield@aep.com
12333 Kevin Avenue, 01
Ashland, KY 41102



An **AEP** Company

All planning inquiries go through the Solution Center
888-216-3523

Legend

CBYD

Transmission

Overhead Conductor



Underground



Station



Structure



Takeoff



Distribution

Pole

- Company Owned
- Foreign Owned
- Private Owned
- Push Pole
- 0

Transformer_Critical_Customer



Critical Customer

Transformer_Special_Op_Condition



Special Operating Condition

Meter

- All Other Meters
- Primary Meter (in line)
- Primary Meter (not in line)

Legend

Transformer

- Distribution Ground Mount
- Distribution OH Pole Mount
- Distribution UG Pad Mount
- Network

UG_Property

- Below Grade
- Double Meter
- Handhole
- Manhole
- Meter
- Switch Cabinet
- Primary Enclosure
- Pad
- Pedestal
- Pit
- Power
- Pullbox
- Secondary
- Secondary Bus Enclosure
- Splice Box
- Temporary
- Unknown

Vault

Energy_Storage

Battery

Conduit

- Contains conduit
- No conduit

Legend

Light

- Area Light
- Light Node Controlled
- Light, Not On List
- Light, Owned, Co. Maintained
- Street Light
- Light, Unknown
- Light, Undetermined

Primary

- OH 0
- OH MV 1 Phase
- OH MV 2 Phase
- OH MV 3 Phase
- UG 0
- UG MV 1 Phase
- UG MV 2 Phase
- UG MV 3 Phase

Secondary UG

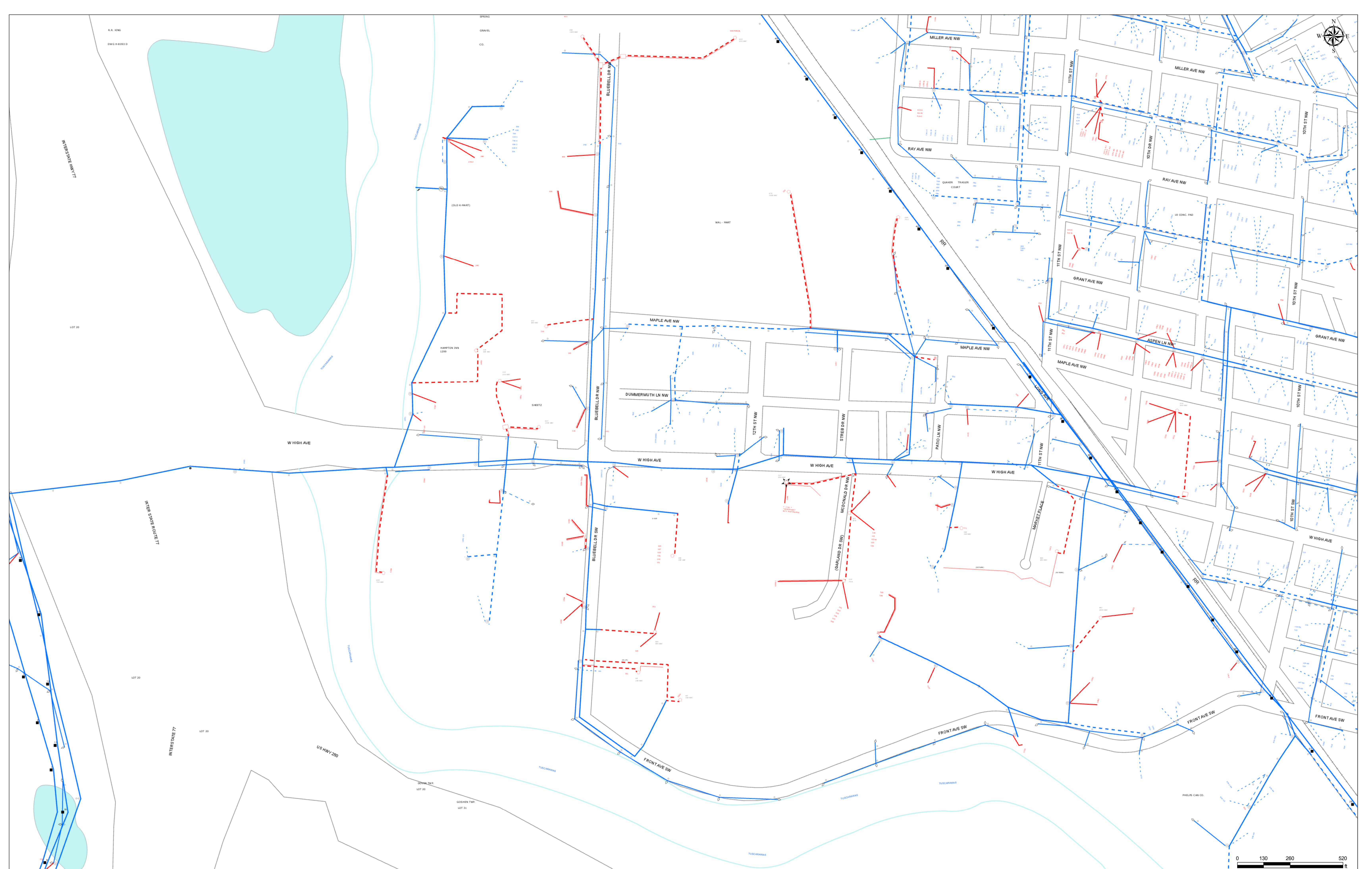
- UG LV Service
- UG LV Street Light
- UG 0
- UG LV Secondary
- UG LV Secondary Poly Phase

Secondary Aerial

- OH 0
- OH LV Service
- OH LV Secondary
- OH LV Secondary Poly Phase
- OH LV Street Light

Substation_Fence

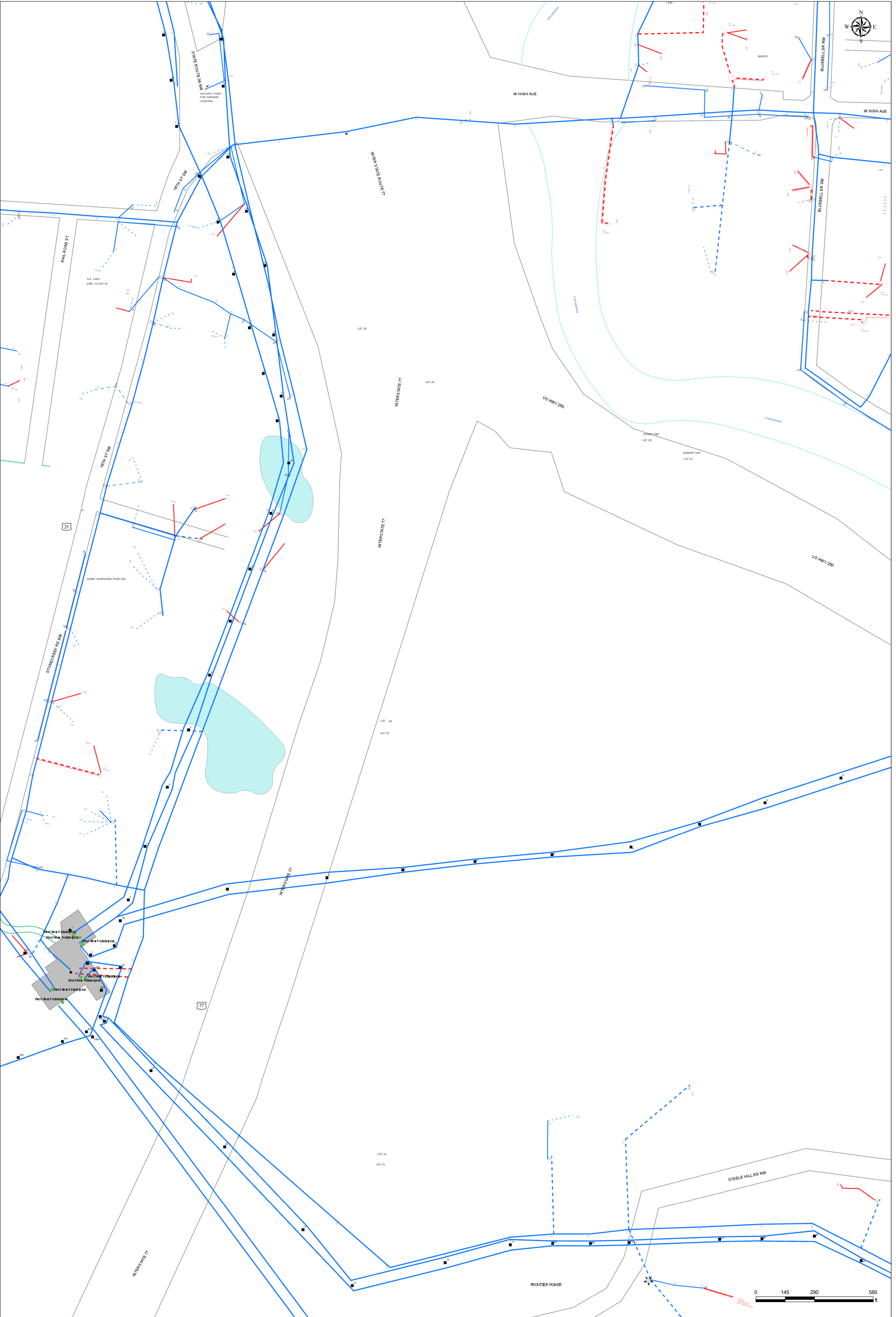
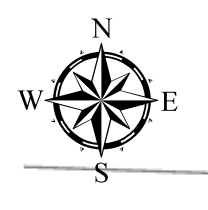
Substation



AEP Distribution Web Map



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 Date: 12/21/2023



AEP Distribution Web Map

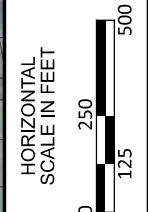


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Tuscarawas IR 77 / US 250 / SR 39 Feasibility Study

Appendix L: Recommended Strategy





Recommended Strategy

DESIGN AGENCY

DESIGNER
XXX

REVIEWER
XXX MM-DD-YY

PROJECT ID
0

SHEET TOTAL