APPENDIX A – DEVELOPMENTS AND TRIP GENERATION

MAD-UNI-FRA 161 Corridor Study

Introduction

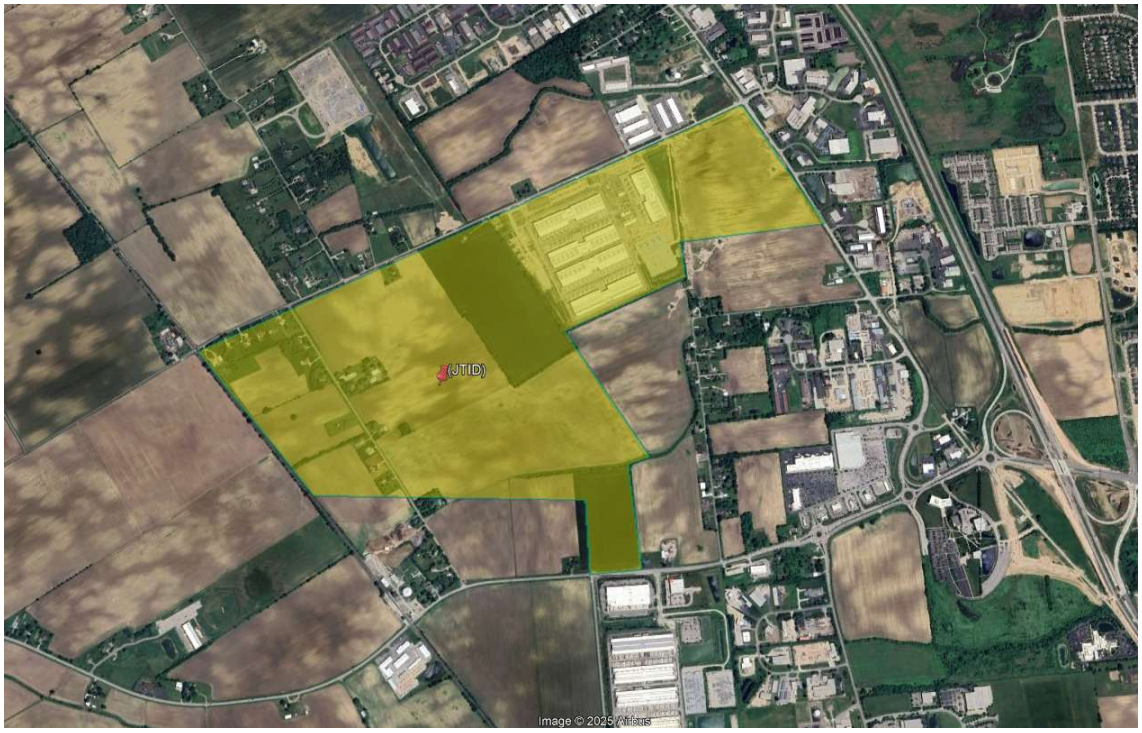
This document contains information on developments with TISs in progress, developments with preliminary details, and additional parcels with assumed development. Provided info includes site location, trip generation and trip distribution assumptions.

The trip generation estimates may not have considered net reductions such as internal capture, pass-by etc., for all developments. Furthermore, these tables do not account for trip distribution; therefore, some of the traffic estimates may not access the SR 161 corridor or the study intersections. Separate AM and PM peak volume plates are developed that assigned these trip estimates to the study intersections.

JEROME TOWNSHIP INNOVATION DISTRICT

Trip Gen, Trip Assignments per the JTID TIS Dated Nov 2024

	JTID_AM TripGen			AM			PM		
				Tot	En	Ex	Tot	En	Ex
140	Manufacturing	557.1	1000 sf		137	143		142	118
150	Warehousing	67.9	1000 sf		79	24		32	81
210	Single-Family Detac	72	DU		14	41		46	27
220	Multi-Family (Low-I	200	DU		20	65		67	40
710	General Office	25	1000 sf		45	6		9	44
760	Research & Develop	75	1000 sf		96	20		18	96
					0	0		0	0
					391	299		314	406
					0%	0%		0%	0%
					391	299		314	406



TIS included 5 intersections along SR 161: Warner Road, Cemetery Pike, Kile Warner Road, Houchard Rd and Industrial Parkway/University Blvd.

Additional Notes on Site Trip Distribution:

*The traffic towards the west on SR 161 is split three ways at Int 1 (north/west/south)

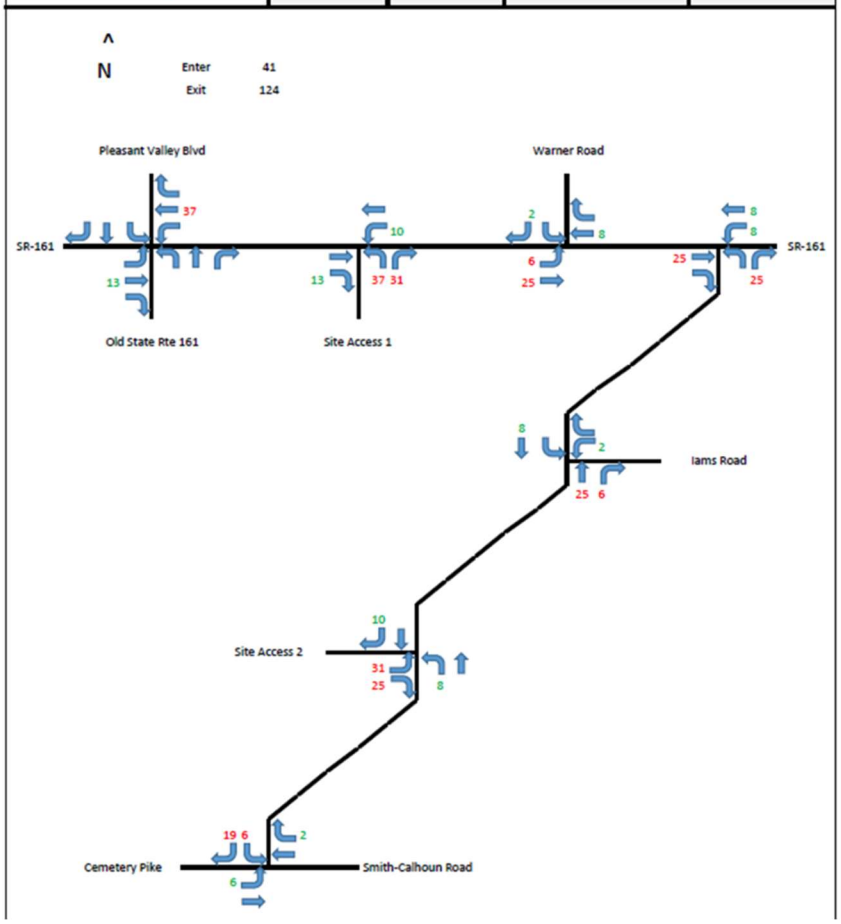
*The traffic toward the east on SR 161 is split at US 33 (25% north, 10% east, 65% south)

Noah Beachy Farms per the draft TIS

	NoahBeachyFarms_AM TripGen				AM				PM		
LU Code	Description				Tot	En	Ex		Tot	En	Ex
210	Single-Family Detached		241	DU	0	41	124		0	143	84

Noah Beachy Farms Single-Family TIS
Traffic Volume Calculations

CARPENTER MARTY	Year	Period	Scenario	Plate
		AM	Non-Pass-By Traffic	G1



Creekview Commerce

(547 acres)

Subarea A

- 5,000 SF Daycare (ITE Code #565)
- 21,000 SF Strip center (ITE Code #822)
- 8,000 SF Auto Parts (ITE Code #843)
- 6,000 SF Tire Store (ITE Code #848)
- 18,000 SF Supermarket (ITE Code #850)
- 15,000 SF Pharmacy (ITE Code #881)
- 4,500 SF Bank (ITE Code #912)
- 2-3,000 SF Fast Casual Restaurants (ITE Code #930)
- 2-5,000 SF High Turnover Sit Down Restaurants (ITE Code #932)
- 2-3,000 SF Quick Service Restaurants w/ Drive Through Window (ITE Code #934)
- 1-Tunnel Car Wash (ITE Code #948)
- 12 Fuel position Gas Station with 6,000 SF Convenience Store (ITE Code #945)

Subarea B

- 150,000 SF Medical Dental Office Building (ITE Code #710)
- 200,000 SF General Office Building (ITE Code #720)
- 200,000 SF Manufacturing (ITE Code #140)

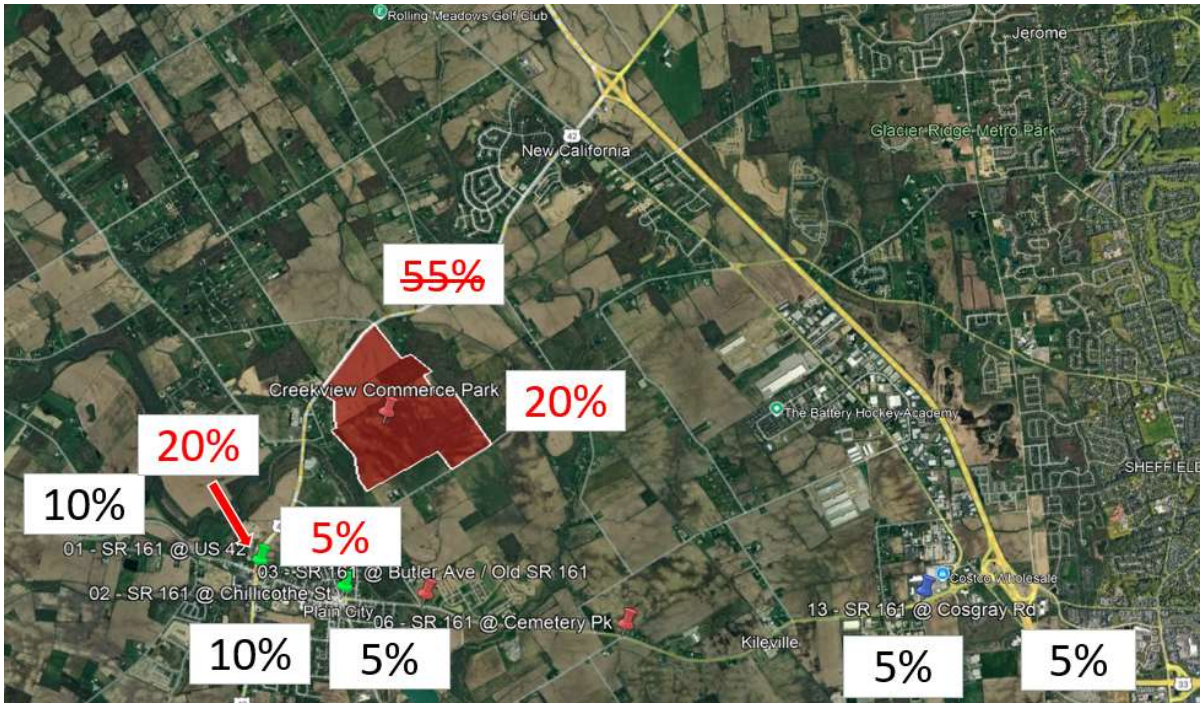
Subarea C

- 500,000 SF Manufacturing (ITE Code #140)
- 500,000 SF Research and Development (ITE Code #780)

TRIP GEN SUMMARY

TIME OF DAY	TOTAL TRIPS	TOTAL PRIMARY TRIPS	ENTERING			EXITING		
			TOTAL	PASS-BY	PRIMARY	TOTAL	PASS-BY	PRIMARY
DAILY	32,301	32,301	16,154	0	16,154	16,147	0	16,147
AM PEAK	2,673	2,228	1,867	225	1,642	806	221	585
PM PEAK	3,488	2,786	1,263	358	905	2,225	344	1,881

* - Trip Gen info is from the Creekview Commerce Park TIS – MOU dated June 9, 2025


Rolling Meadows Golf Club
Jerome
Glacier Ridge Metro Park
New California
55%
Creekview Commerce Park
20%
The Battery Hockey Academy
20%
10%
5%
01 - SR 161 @ US 42
03 - SR 161 @ Butler Ave / Old SR 161
02 - SR 161 @ Chillicothe St
Plain City
06 - SR 161 @ Cemetery Pk
13 - SR 161 @ Cosgray Rd
Kileville
10%
5%
5%
5%

COSGRAY COMMONS DEVELOPMENT

	CosgrayCommons_AM					AM			PM		
LUC	Land Use	Size	Units			Total	Enter	Exit	Tot	Enter	Exit
310	Hotel	240	1000 sf	800	Rooms	392.6	220	173	472	241	231
	Conference	51	1000 sf				0	0		0	0
820	Retail	159	1000 sf			133.6	83	51	540.6	259	281
710	General Office	464	1000 sf			705.3	621	85	668.2	114	555
221	Multi-Family (Mid-F	1075	DU	1075	DU	461.4	106	355	419.6	256	164
215	Single-Family Attac	31	DU			10.42	3	8	14.67	9	6
10001	Other (Cosgray)	5.7	1000sf				10	10		19	19
					Combined Total	1703	1043	682	2115	898	1256
					Internal Capture Reduction:		15%	15%		15%	15%
					Net Trips		886.6	579.7		763.3	1068

Legend: % distribution in red: Direct Site Access, black: study routes, ~~black/red~~ – not applicable to study area

MADISON GATEWAY

	MadisonGateway TripGen				AM			PM		
LU Code	LU Description	Size	Units		Total	Enter	Exit	Total	Enter	Exit
821	Shopping Plaza	125	1000 sf		441	274	168	1129	542	587
140	Manufacturing	362	1000 sf		246	187	59	213	66	147
760	Research & Development	125	1000 sf		129	106	23	123	20	103
710	General Office	87.5	1000 sf		133	117	16	126	21	105
220	Multi-Family (Low-Rise)	600	DU		240	58	182	279	175	103
215	Single-Family Attached	281	DU		140	35	105	165	97	68
			Combined Total			777	553		921	1113
			Pass-by (Commercial)	Reduction:		0%	0%		20%	20%
			Internal Capture			67	47		60	73
			Net Trips			710	506		753	923

Legend: % distribution in red: Direct Site Access, black: study routes, ~~black/red~~ – not applicable to study area

Additional Notes on Site Trip Distribution: None

GREENSQUARE

				AM			PM		
LUC	**Land Use**	**Size**	**Units**	Total	Enter	Exit	Total	Enter	Exit
220	Multifamily Housing (	360	DU	144	35	109	175	110	65
215	Single-Family Attache	140	DU	67	17	50	80	47	33
710	General Office	100	1000 sf	152	134	18	144	24	120
310	Hotel	200	Rooms	93	52	41	118	60	58
932	High-Turnover (Sit-Dc	28	1000 sf	268	147	121	253	160	94
488	Soccer Complex	11	Fields	11	7	4	181	119	61
432	Golf Driving Range	50	Tees	20	12	8	63	28	34
			Combined Total	755	404	351	1014	548	465
			Internal Capture Reduction:		0%	0%		0%	0%
			Net Trips		404	351		548	465

PLAIN CITY RESIDENTIAL

Plain City Res TripGen				AM			PM		
LU Code	LU Description	Size	Units	Total	Enter	Exit	Total	Enter	Exit
210	Single-Family Detached	193	DU	136	34	102	184	116	68
215	Single-Family Attached	100	DU	46	12	35	56	33	23
220	Multi-Family (Low-Rise)	500	DU	200	48	152	236	148	87
710	General Office	200	1000 sf	304	268	36	288	49	239
	Total Residential	793							
			Combined Total		362	325		346	417
					0%	0%		0%	0%
			Net Trips		362	325		346	417

Legend: % distribution in red: Direct Site Access, black: study routes, ~~black/red~~ – not applicable to study area

Additional Notes on Site Trip Distribution: None

OHIO UNIV CAMPUS

LUC	Land Use	Size	Units		Total	Enter	Exit	Tot	Enter	Exit
770	Business Park	3000	Employees	Adj	1281	1089	192	1125	247	877
221	Multi-Family (Mid-Ris	1200	DU		516	119	398	468	286	183
						0	0		0	0
			Combined Total		1797	1208	590	1593	533	1060
			Internal Capture Reduction:			15%	15%		15%	15%
			Net Trips			1027	502		453	901

Legend: % distribution in red: Direct Site Access, black: study routes, ~~black~~ – not applicable to study area

WELDON

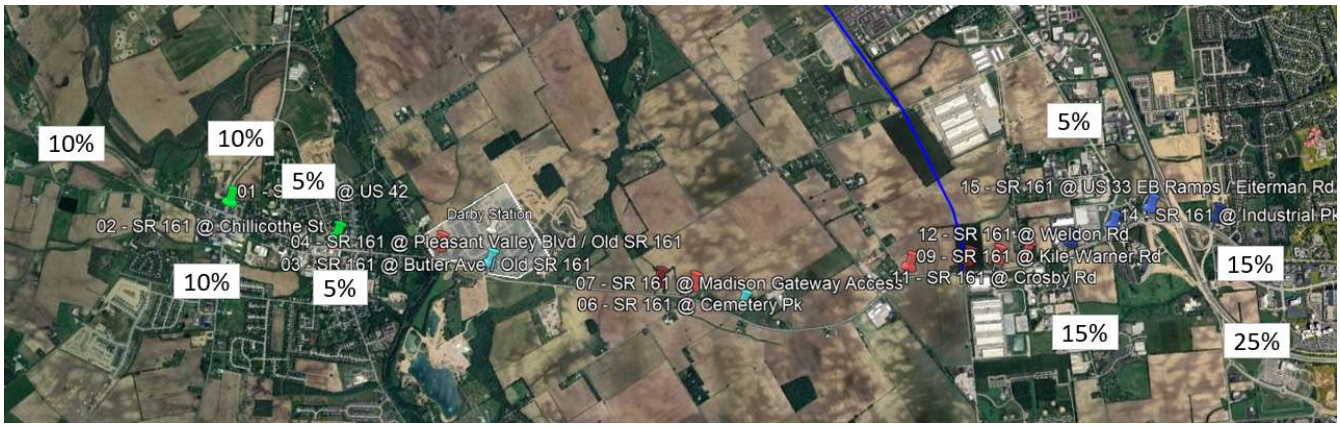
	WeldonDev_AM TripGen				AM			PM		
LUC	**Land Use**		**Size**	**Units**	Total	Enter	Exit	Tot	Enter	Exit
220	Multifamily Housing (Low-Rise)		141	DU	67	16	51	81	51	30
821	Shopping Plaza		128.565	1000 sf		281	173		557	604
948	Automated Car Wash		1	Tunnel		0	0		39	39
945	Convenience Store/Gas Station		24	Fuel Pos.		379	379		323	221
821	Shopping Plaza		73.4	1000 sf		161	98		318	345
					67	837	701	81.18	1288	1239
						-235	-235		-491	-491
						602	466		797	748

* - Trip gen info is from the K2 Retail Development MOU' dated August 11, 2025

PLAINCITY RESIDENTIAL 1 (DARBY STATION)

	PlainCityDev1_AM Trip[1]					AM					PM				
LUC	**Land Use**	**Size**	**Units**			Total	En%	Ex%	Enter	Exit	Tot	En%	Ex%	Enter	Exit
210	Single-Family Detache	217	DU		Adj	151	25%	75%	38	113	206	63%	37%	130	76
215	Single-Family Attache	44	DU		Adj	17	25%	75%	4	13	22	59%	41%	13	9
			Combined Total			167.9			42	126	228.3			143	85
			Internal Capture Reduction:						0%	0%				0%	0%
			Net Trips						42	126				143	85

335 acres (This development is fairly built, assumed dwelling units are for the vacant area)

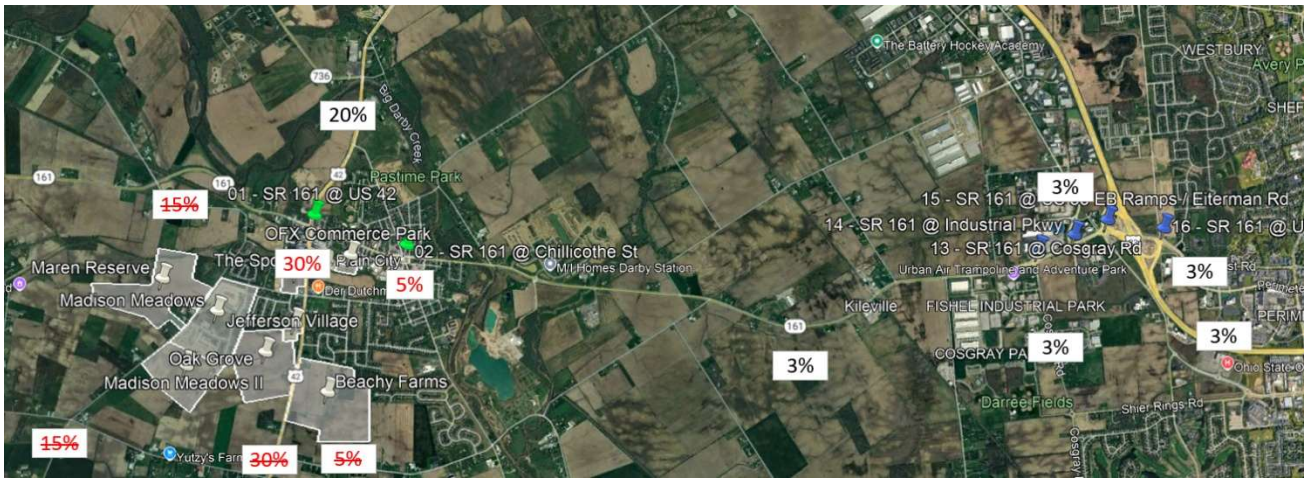


PLAINCITY RESIDENTIAL 2

(MADISON MEADOWS, MADISON MEADOWS II, MAREN RESERVE, JEFFERSON VILLAGE, BEACHY FARMS, THE SPOT, OAK GROVE, OFX COMMERCE)

	PlainCityDev2_AM TripG 2			AM			PM		
LUC	Land Use	Size	Units	Total	Enter	Exit	Tot	Enter	Exit
110	General Light Industri	92	1000 sf	68	60	8	60	8	51
210	Single-Family Detache	1064	DU	641	160	481	917	578	339
215	Single-Family Attache	450	DU	228	57	171	266	157	109
220	Multifamily Housing (	438	DU	175	42	133	209	132	77
252	Senior Housing-Multi	226	DU	45	15	30	57	32	25
821	Shopping Plaza	50	1000 sf	177	109	67	452	217	235
					0	0		0	0
			Combined Total	1334	443	890	1960	1124	836
			Internal Capture Reduction:		0%	0%		0%	0%
			Net Trips		443	890		1124	836

566 acres

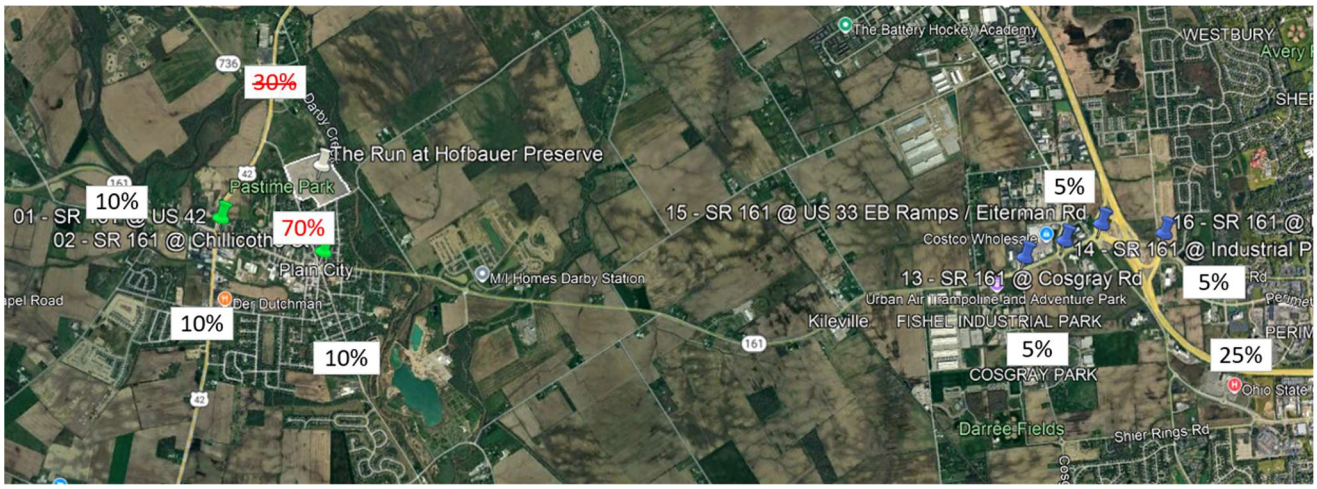


PLAINCITY RESIDENTIAL 3

(THE RUN AT HOFBAUER PRESERVE)

	PlainCityDev3_AM TripC	3													
					AM						PM				
LUC	Land Use	Size	Units		Total	En%	Ex%	Enter	Exit		Tot	En%	Ex%	Enter	Exit
110	General Light Industri	0	1000 sf			88%	12%	0	0			14%	86%	0	0
210	Single-Family Detache	100	DU		74	25%	75%	19	56		99	63%	37%	63	37
			Combined Total		74			19	56		99			63	37
			Internal Capture Reduction:					0%	0%					0%	0%
			Net Trips					19	56					63	37

39 acres



PLAINCITY RESIDENTIAL 4 (The Hamlet on Darby)

	PlainCityDev4_AM TripG4			AM			PM		
LUC	**Land Use**	**Size**	**Units**	Total	Enter	Exit	Tot	Enter	Exit
252	Senior Housing-Multif	67	DU	13	5	9	17	9	7
			Combined Total	13	5	9	17	9	7
			Internal Capture Reduction:		0%	0%		0%	0%
			Net Trips		5	9		9	7

9 acres

PLAINCITY RESIDENTIAL 5 (PULTE HOMES, ARBOR HOMES)

	PlainCityDev5_AM TripG	5		AM			PM		
LUC	**Land Use**	**Size**	**Units**	Total	Enter	Exit	Tot	Enter	Exit
210	Single-Family Detache	600	DU	380.4	95	285	535.5	337	198
215	Single-Family Attache	300	DU	150.3	38	113		0	0
			Combined Total	530.7	133	398	535.5	337	198
			Internal Capture Reduction:		0%	0%		0%	0%
			Net Trips		133	398		337	198

137 acres

BALLANTYNE PROPERTY MIXED USE, PLAIN CITY

	Ballentyne TripGen			AM			PM		
LU Code	LU Description	Size	Units	Total	Enter	Exit	Total	Enter	Exit
252	Senior Housing-Multifamily	100	DU	20	7	13	25	14	11
254	Assisted Living	300	beds	54	32	22	72	28	44
220	Multifamily Housing (Low-Rise)	344	DU	138	33	105	168	106	62
821	Shopping Plaza	50	1000 sf	177	109	67	452	217	235
			Total Trips	388	181	207	717	365	352
			Internal Capture		15%	15%		15%	15%
			Net Trips	330	154	176	609	310	299

57 acres

Legend: % distribution in red: Direct Site Access, black: study routes, ~~black~~ – not applicable to study area

Additional Notes on Site Trip Distribution:

Since 45% (AM) to 60% (PM) of the site trips are commercial, it is assumed that 30% of the overall net trips originate/end within Plain City.

AREA A, DUBLIN PASSENGER RAIL STATION DEVELOPMENT

	AreaA_AM TripGen			AM			PM		
LUC	**Land Use**	**Size**	**Units**	Total	Enter	Exit	Tot	Enter	Exit
821	Shopping Plaza	100	Emp	182	80	102	180	95	85
710	General Office	300	Emp	181	159	22	166	28	138
130	Industrial Park	200	Emp	114	98	16	128	26	102
			Combined Total	477.2	337	140	473.8	149	325
			Internal Capture Reduction:		0%	0%		0%	0%
			Net Trips		337	140		149	325

95 acres

AREA C, LIGHT INDUSTRIAL

	AreaC TripGen			AM			PM		
LU Code	LU Description	Size	Units	Total	Enter	Exit	Total	Enter	Exit
110	General Light Industrial	150	1000 sf	111	98	13	98	14	84
				0	0	0	0	0	0
					98	13		14	84
			Internal Capture Reduction:		0%	0%		0%	0%
					98	13		14	84

265 acres

Legend: % distribution in red: Direct Site Access, black: study routes, ~~black~~ – not applicable to study area

Additional Notes on Site Trip Distribution:

*The 40% toward the west on SR 161 is split three ways at Int 1 (north/west/south)

*The 50% toward the east on SR 161 is split at US 33 (15% north, 20% south, 15% east)

AREA D, RESIDENTIAL

		AreaD_AM TripGen			AM					PM				
	LUC	Land Use	Size	Units	Total	En%	Ex%	Enter	Exit	Tot	En%	Ex%	Enter	Exit
*	210	Single-Family Detache	2950	DU	1621	25%	75%	405	1215	2393	63%	37%	1507	885
^	220	Multi-Family (Low-Ris	500	DU	200	24%	76%	48	152	235.6	63%	37%	148	87
	*- 1 DU per acre			**Combined Total**	1821			453	1367	2628			1655	972
	^ - 5 DU per acre			**Internal Capture Reduction:**				0%	0%				0%	0%
				Net Trips				453	1367				1655	972

Legend: % distribution in red: Direct Site Access, black: study routes, ~~black/red~~ – not applicable to study area

AREA E, INDUSTRIAL/COMMERCIAL

AreaE_AM TripGen				AM					PM				
LUC	Land Use	Size	Units	Total	En%	Ex%	Enter	Exit	Tot	En%	Ex%	Enter	Exit
770	Business Park	500	Emp	274	85%	15%	233	41	263	22%	78%	58	205
140	Manufacturing	500	1000 sf	340	76%	24%	258	82	296	31%	69%	92	204
760	Research & Developn	500	Emp	210	85%	15%	178	31	200	12%	88%	24	176
130	Industrial Park	1000	1000 sf	340	81%	19%	275	65	340	22%	78%	75	265
821	Shop Plaza (40-150k) - No	100	1000 sf	353	62%	38%	219	134	903	48%	52%	433	470
				0	50%	50%	0	0	0	50%	50%	0	0
				0	50%	50%	0	0	0	50%	50%	0	0
			Combined Total	1517			1163	353	2002			682	1320
			Internal Capture Reduction:				0%	0%				87	94
			Net Trips				1163	353				595	1226

1280 acres

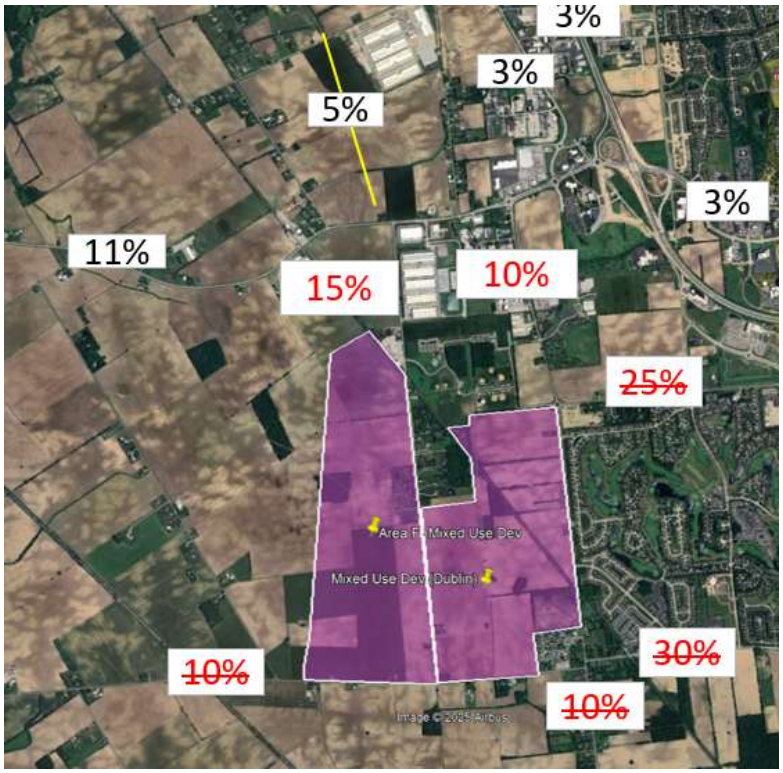
Legend: % distribution in red: Direct Site Access, black: study routes, ~~black/red~~ – not applicable to study area

A small % of trips (total 5%) assigned to other intersections within study area.

AREA F, RESIDENTIAL/INDUSTRIAL

	AreaF_AM TripGen			AM					PM				
LUC	**Land Use**	**Size**	**Units**	Total	En%	Ex%	Enter	Exit	Tot	En%	Ex%	Enter	Exit
210	Single Family Det.	75	DU	57	25%	75%	14	43	76	63%	37%	48	28
760	Research & Developn	1500	Emp	516	85%	15%	439	77	498	12%	88%	60	438
130	Industrial Park	2000	Emp	752	86%	14%	647	105	703	20%	80%	141	562
220	Multifamily Housing (	390	DU	156	24%	76%	37	119	188.3	63%	37%	119	70
252	Senior Housing-Multi	300	DU	60	34%	66%	20	40	75	56%	44%	42	33
821	Shopping Plaza	150	Emp	273	44%	56%	120	153	270	53%	47%	143	127
			Combined Total	1814			1277	537	1810			553	1258
			Internal Capture Reduction:				10%	10%				10%	10%
			Net Trips				1149	483.3				497.7	1132

Area: 933 acres



Legend: % distribution in red: Direct Site Access, black: study routes, ~~black/red~~ – not applicable to study area

AREA G, OFFICE

	AreaG TripGen			AM			PM		
LU Code	LU Description	Size	Units	Total	Enter	Exit	Total	Enter	Exit
710	General Office	250	1000 sf	380	334	46	360	61	299
760	Research & Development	150	1000 sf	155	127	28	147	24	123
110	General Light Industrial	300	1000 sf	150	132	18	195	27	168
					593	92		112	590
					0%	0%		0%	0%
					593	92		112	590

Area: 568 acres

Legend: % distribution in red: Direct Site Access, black: study routes, ~~black/red~~ – not applicable to study area

An additional 5% traffic originates/ends prior to reaching SR 161 corridor.

LAND USE SUMMARIES

Land Uses in Known Traffic Impact Studies (JTID, Noah Beachy Farms)							
LUC	Description	Total	Units	AM		PM	
				Entering	Exiting	Entering	Exiting
140	Manufacturing	557,130	SF	137	143	142	118
150	Warehousing	67,870	SF	79	24	32	81
210	Single-Family Detached	313	DU	55	165	189	111
220	Multi-Family (Low-Rise)	200	DU	20	65	67	40
710	General Office	25,000	SF	45	6	9	44
760	Research & Development	75,000	SF	96	20	18	96
		Total Volume:		**432**	**423**	**457**	**490**

Land Uses in Known and Assumed Devs							
LUC	Description	Total	Units	AM		PM	
				Entering	Exiting	Entering	Exiting
110	General Light Industrial	742,000	SF	413	56	58	360
130	Industrial Park	1,000,000	SF	275	65	75	265
130.2	Industrial Park1	2,200	Employees	745	121	167	664
140	Manufacturing	1,362,000	SF	684	217	288	639
210	Single-Family Detached	5,199	DU	765	2,295	2,779	1,631
215	Single-Family Attached	1,346	DU	166	495	356	248
220	Multi-Family (Low-Rise)	3,273	DU	317	1,003	989	581
221	Multi-Family (Mid-Rise)	2,275	DU	225	753	542	347
252	Senior Housing-Multifamily	693	DU	47	92	97	76
254	Assisted Living	300	beds	32	22	28	44
310	Hotel	440,000	SF	272	214	301	289
432	Golf Driving Range	50	Tees	12	8	28	34
488	Soccer Complex	11	Fields	7	4	119	61
710	General Office Building	1,251,500	SF	1,683	229	308	1,511
710.2	General Office1	300	Employees	159	22	28	138
720	Medical-Dental Office Buildin	200,000	SF	356	94	243	568
760	Research & Development	275,000	SF	233	51	44	226
760.2	Research & Development1	2,000	Employees	617	108	84	614
770.2	Business Park1	3,500	Employees	1,322	233	305	1,082
780	Research and Dev Center	500,000	SF	385	85	71	374
820	Retail	159,000	SF	83	51	259	281
821	Shopping Plaza	526,965	SF	1,153	707	2,284	2,476
821.2	Shopping Plaza1	250	Employees	200	255	238	212
932	n-Turnover (Sit-Down) Restau	28,000	SF	147	121	160	94
945	Convenience Store/Gas Statio	24	Fuel Pos.	379	379	323	221
948	Automated Car Wash	1	Tunnel	0	0	39	39
10000	her Dev (Creekview Commer	0		330	285	413	401
10001	Other (Cosgray)	6	1000sf	10	10	19	19
		Total Volume:		**11,017**	**7,975**	**10,645**	**13,495**

	Combined Total Trip Generation	**11,449**	**8,398**	**11,102**	**13,985**

OVERALL LAND USE SUMMARY

Land Use Category	Size	Units	AM Peak			PM Peak		
			Total	Enter	Exit	Total	Enter	Exit
Industrial/Manufacturing	3,729,000	SF	2,959	2,333	626	2,889	762	2,127
	2,200	Emp						
Residential	13,299	DU	6,517	1,627	4,890	8,125	5,047	3,078
	300	beds						
Hotel/Retail	1,125,965	SF	4,627	2,593	2034	8310	4,183	4,127
Office/Business	2,326,500	SF	5,744	4,896	848	5,763	1,110	4,653
	5,800	Emp						
Total Trips			**19,847**	**11,449**	**8,398**	**25,087**	**11,102**	**13,985**

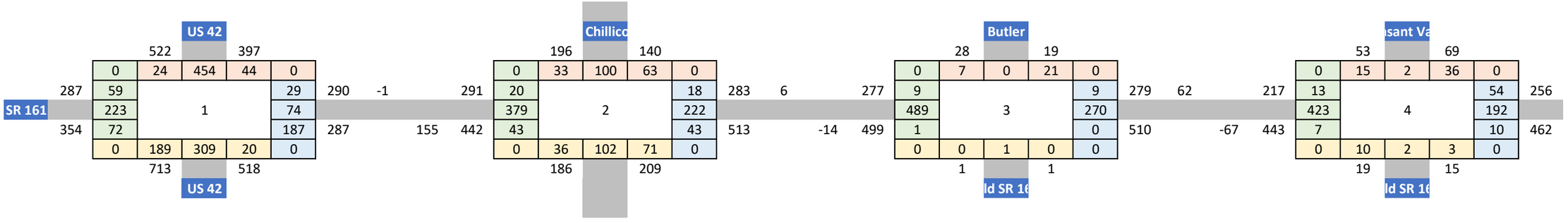
Proportion of Development over time - Assumptions:

- Year 2030 - 30%
- Year 2040 - 60%
- Year 2050 - 100%

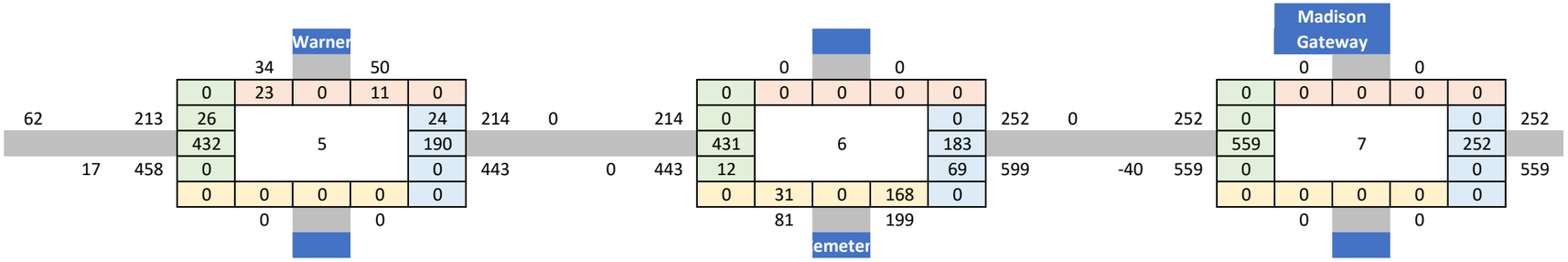
APPENDIX B – INTERSECTION TURN COUNTS

APPENDIX C – TRAFFIC PLATES – BACKGROUND AND BUILD VOLUMES

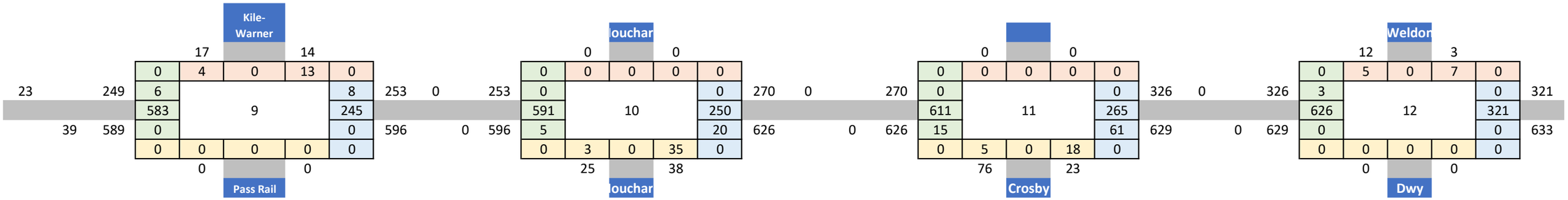
Background 2030 AM



Background 2030 AM

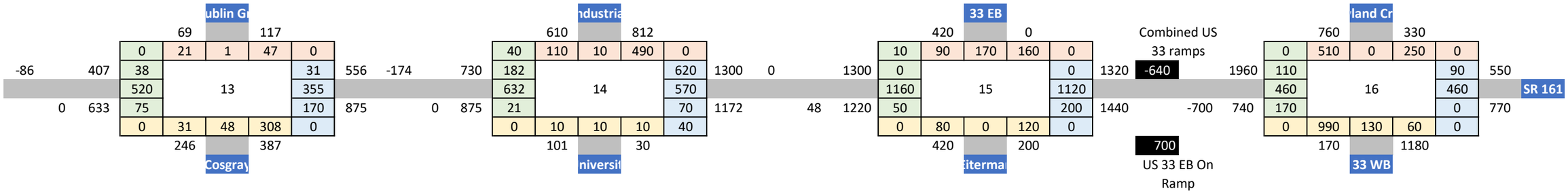


Background 2030 AM

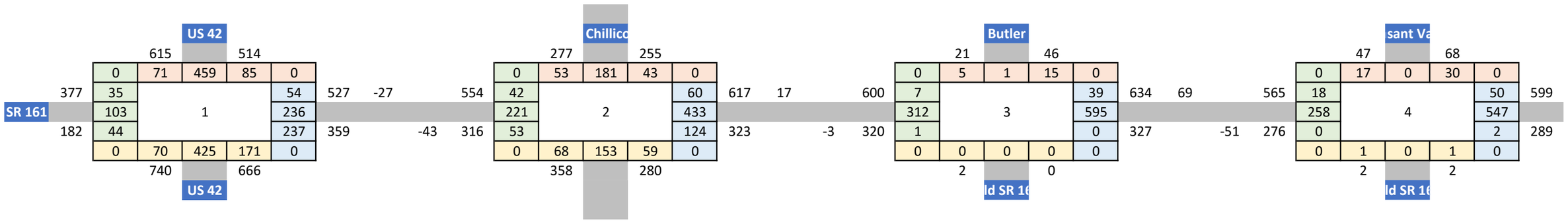


Counts+Bkgd_2030_AM

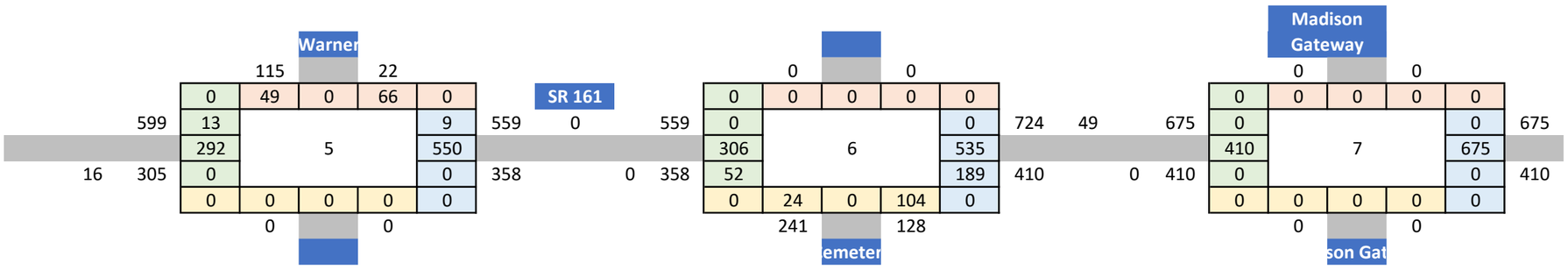
Background 2030 AM



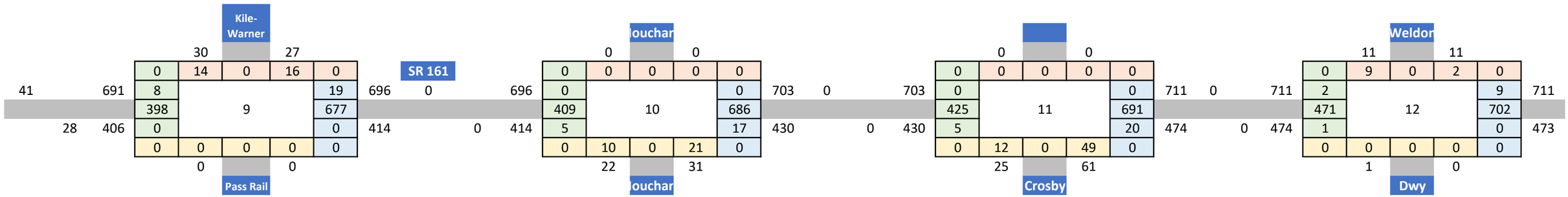
Background 2030 PM



Background 2030 PM

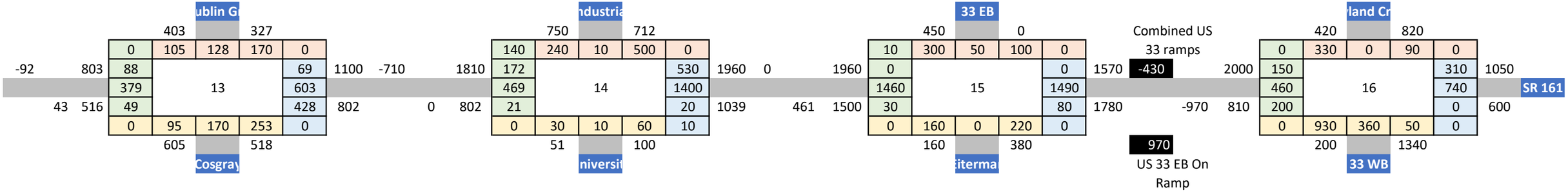


Background 2030 PM

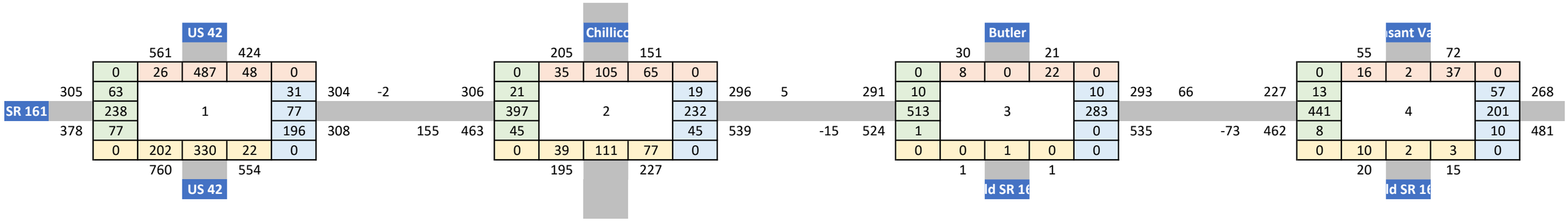


Counts+Bkgd_2030_PM

Background 2030 PM

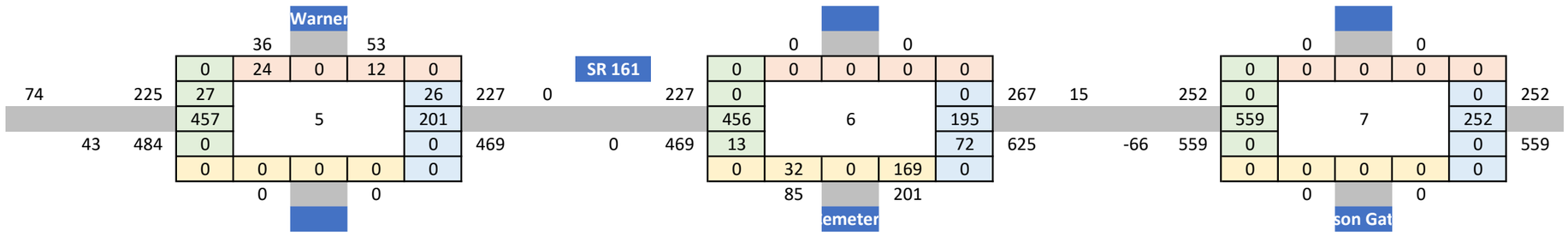


Background 2040 AM

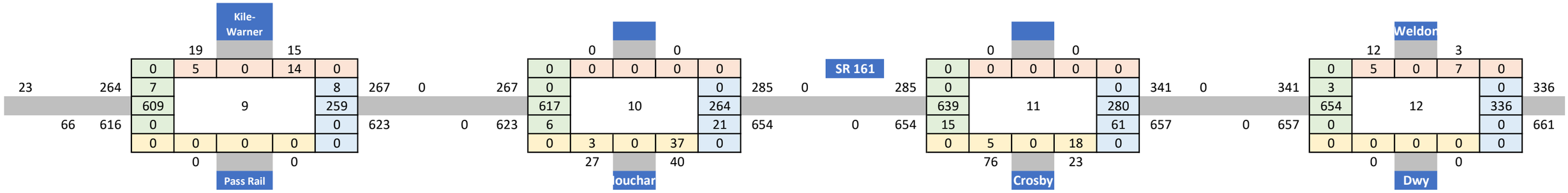


Counts+Bkgd_2040_AM

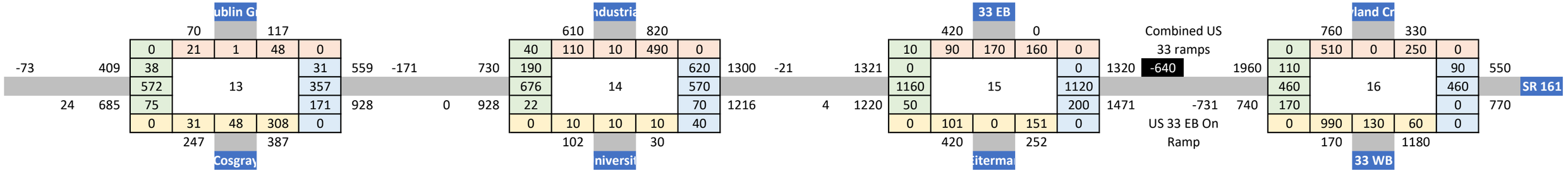
Background 2040 AM



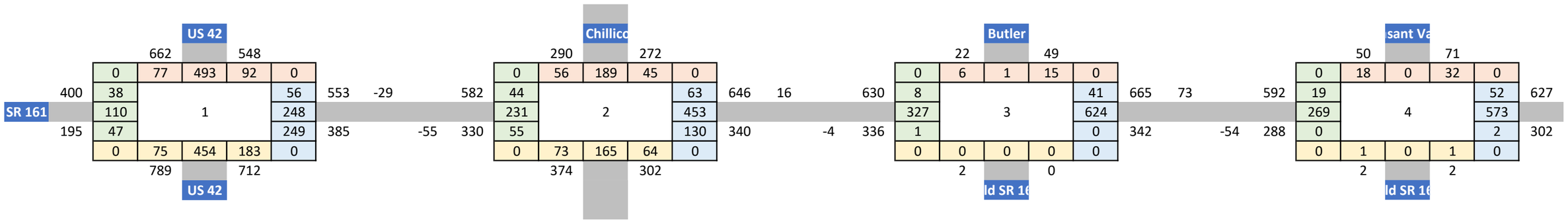
Background 2040 AM



Background 2040 AM

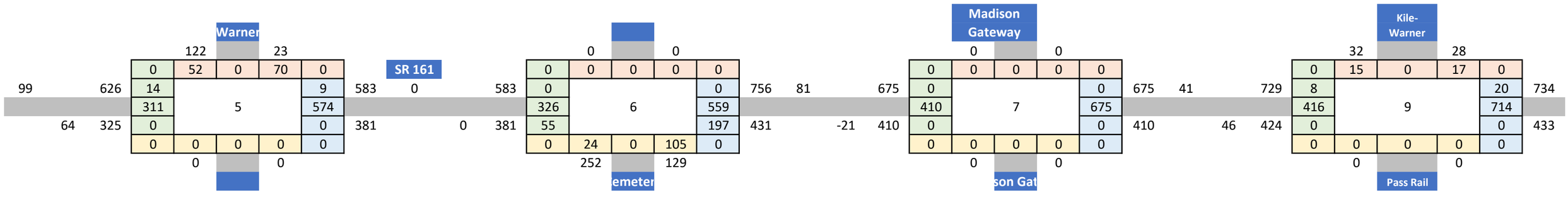


Background 2040 PM



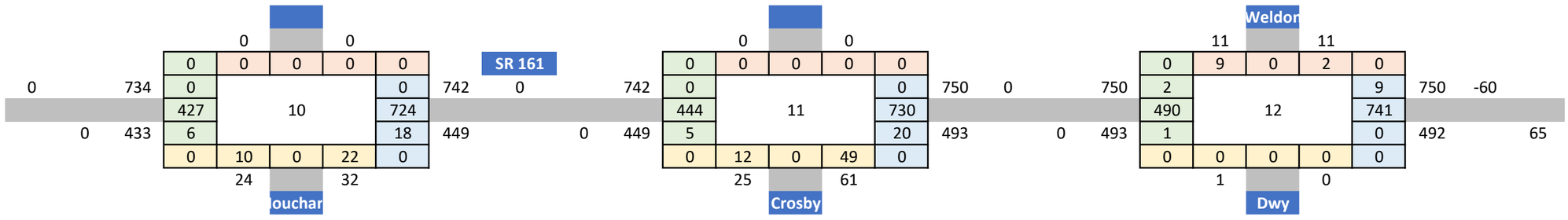
Counts+Bkgd_2040_PM

Background 2040 PM



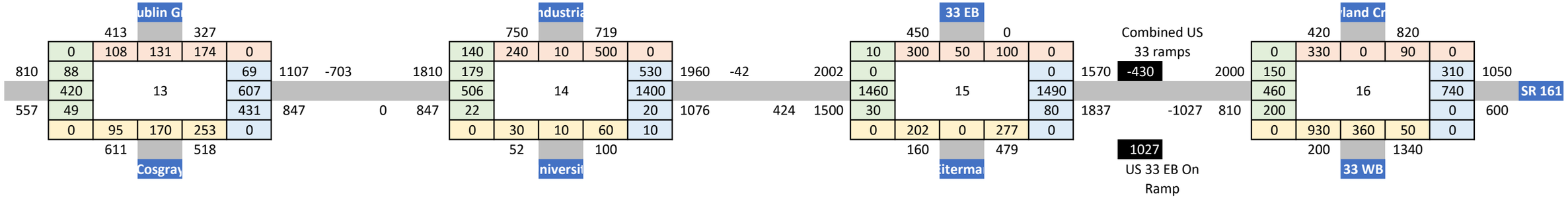
Counts+Bkgd_2040_PM

Background 2040 PM



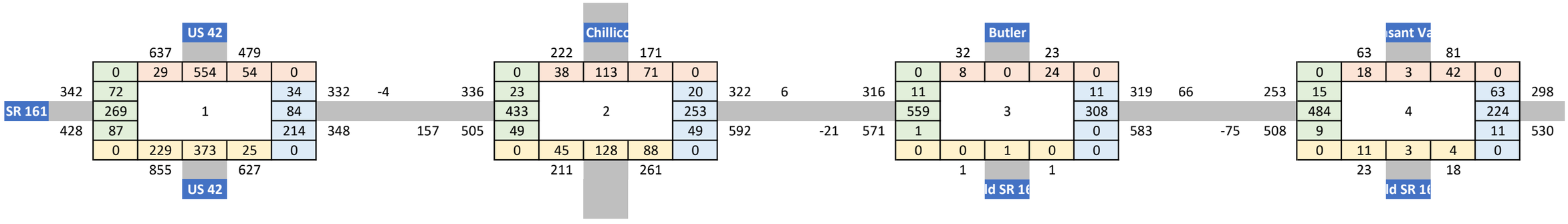
Counts+Bkgd_2040_PM

Background 2040 PM



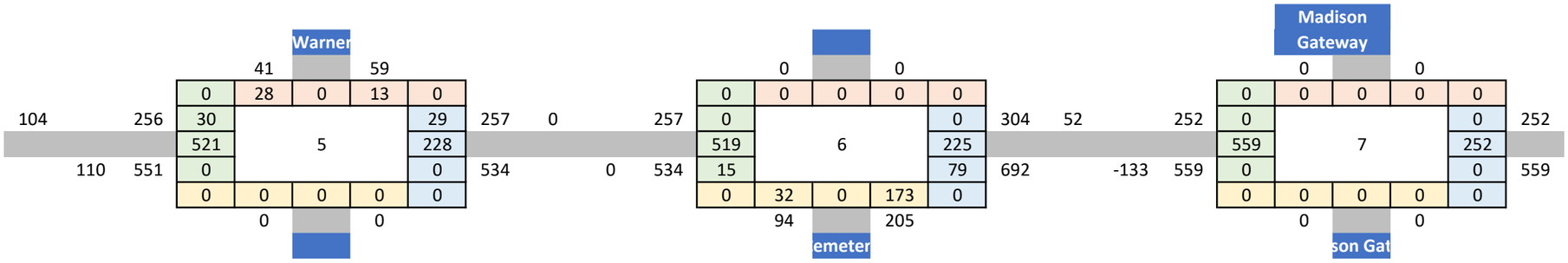
Counts+Bkgd_2040_PM

Background 2050 AM

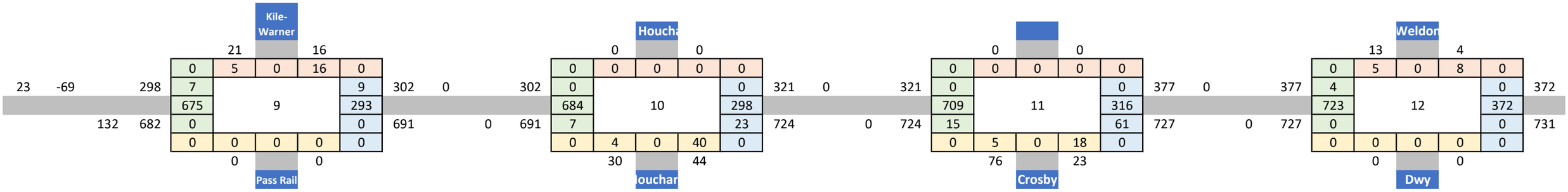


Counts+Bkgd_2050_AM

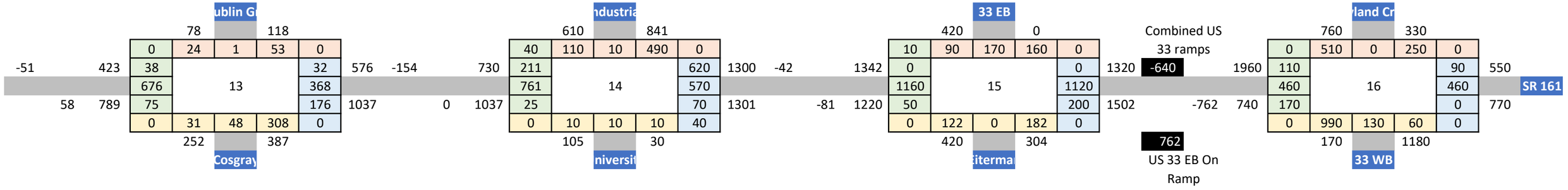
Background 2050 AM



Background 2050 AM

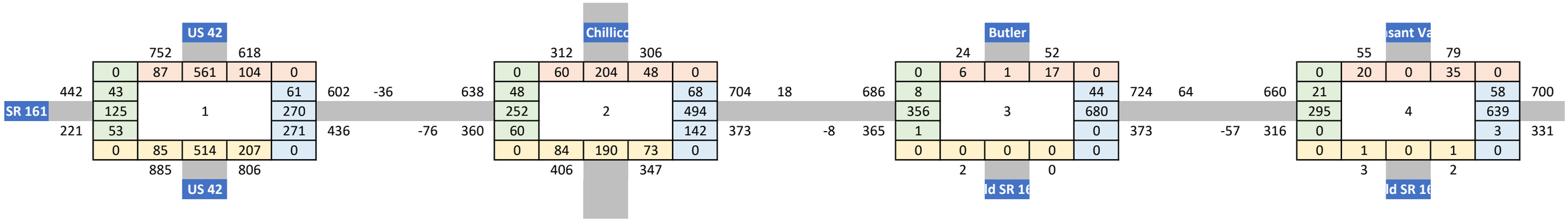


Background 2050 AM

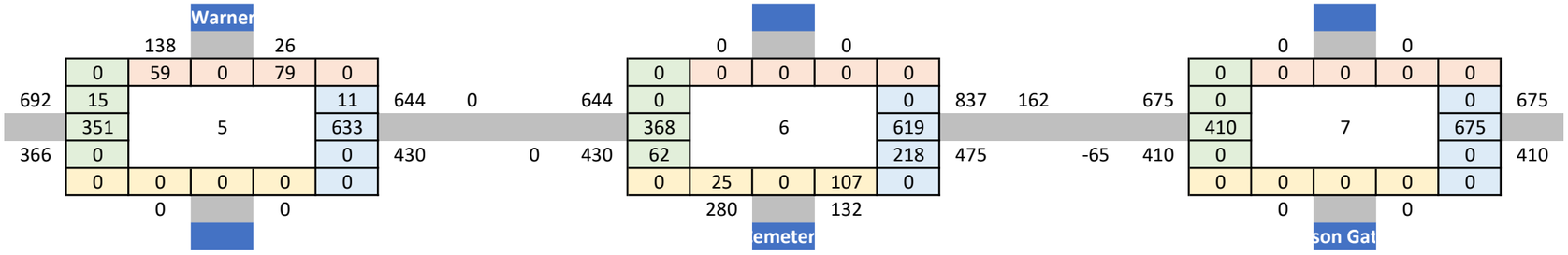


Counts+Bkgd_2050_AM

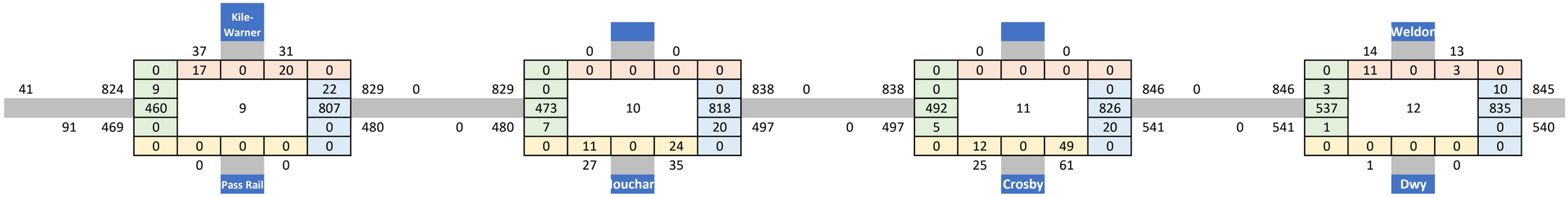
Background 2050 PM



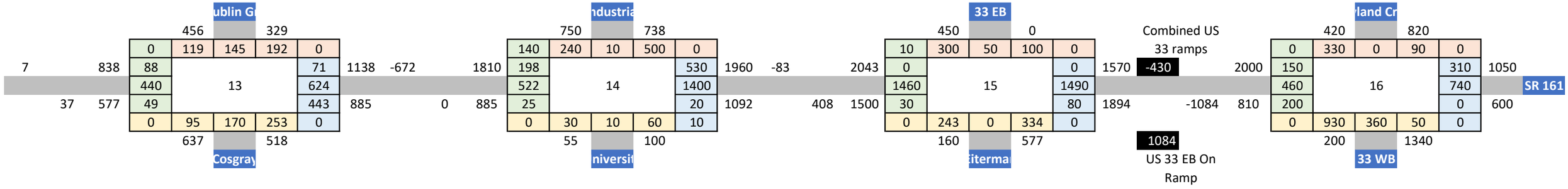
Background 2050 PM



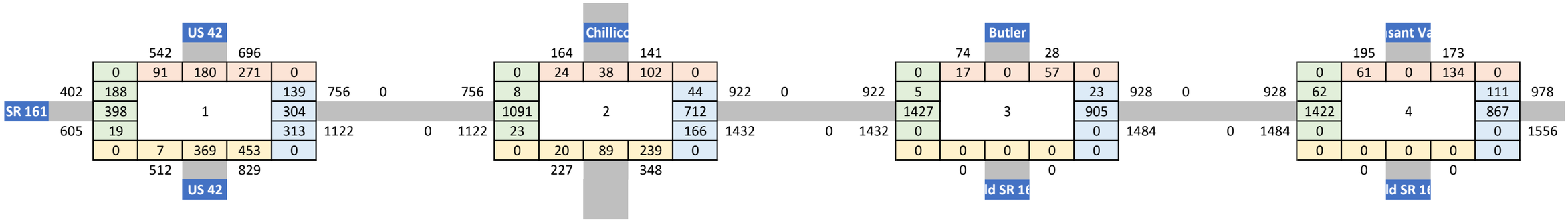
Background 2050 PM



Background 2050 PM

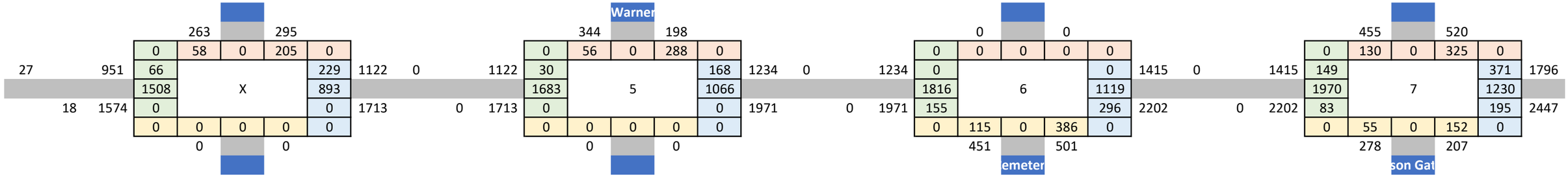


Development Traffic Only - Full Build (AM Peak)



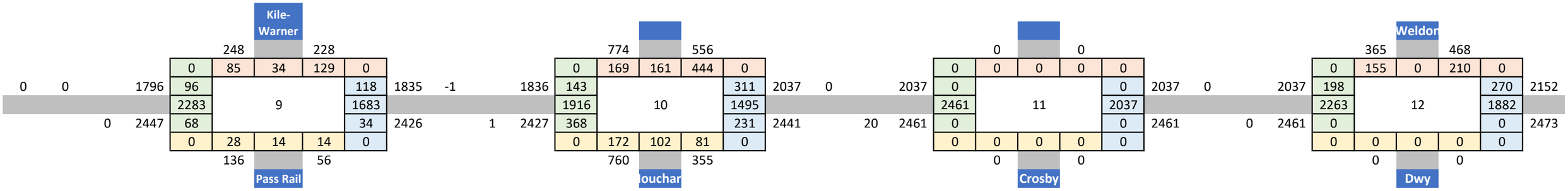
Development Traffic Only - Full Build (AM Peak)

* Potential realignment of Warner and Cemetery



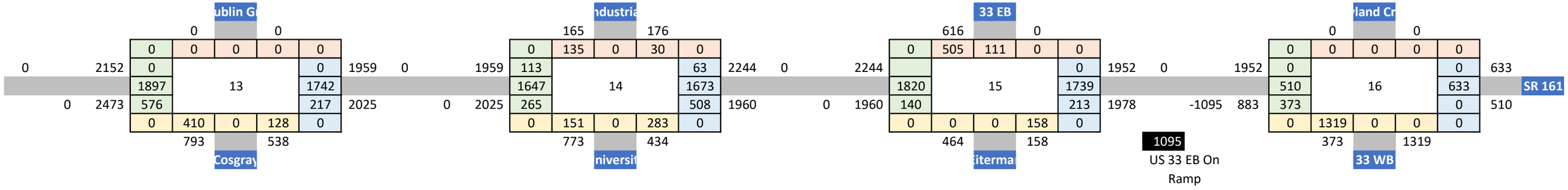
ApprDev_AM

Development Traffic Only - Full Build (AM Peak)

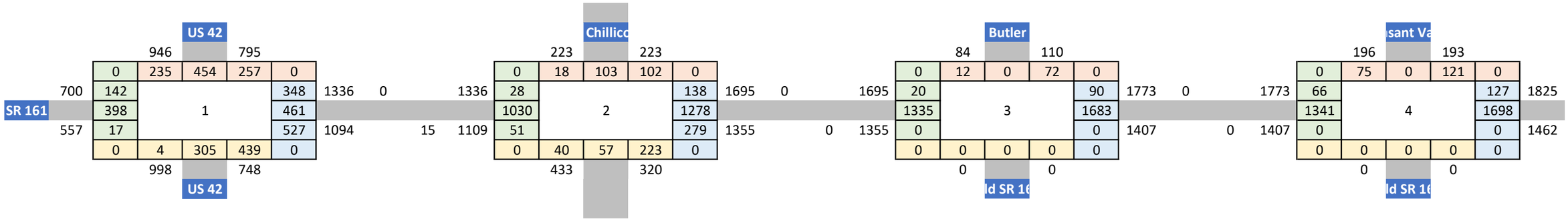


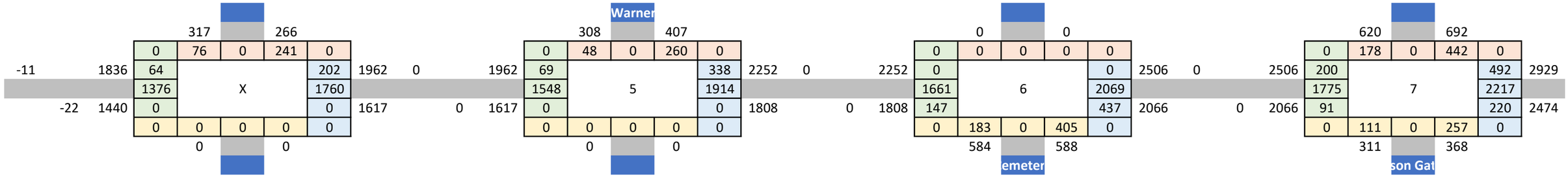
ApprDev_AM

Development Traffic Only - Full Build (AM Peak)



Development Traffic Only - Full Build (PM Peak



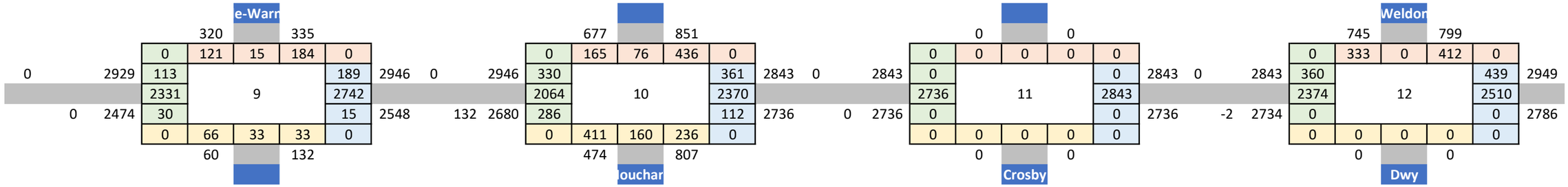


Development Traffic Only - Full Build (PM Peak

* Potential realignment of Warner and Cemetery

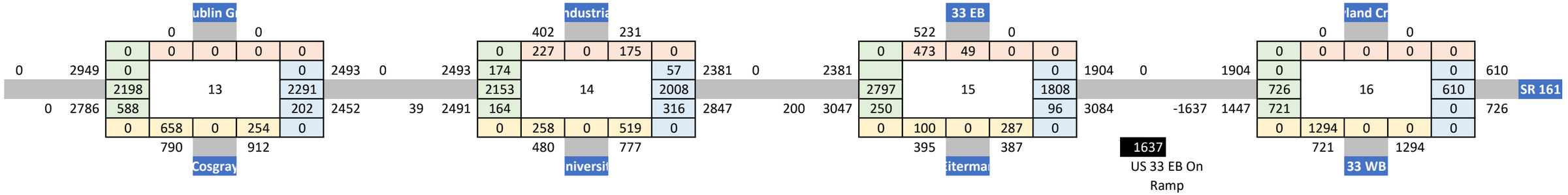
												Warner																			
			317		266						308		407						0		0						620		692		
		0	76	0	241	0				0	48	0	260	0				0	0	0	0	0				0	178	0	442	0	
-11	1836	64				202	1962	0	1962	69				338	2252	0	2252	0				0	2506	0	2506	200				492	2929
		1376		X		1760				1548		5		1914				1661		6		2069				1775		7		2217	
-22	1440	0				0	1617	0	1617	0				0	1808	0	1808	147				437	2066	0	2066	91				220	2474
		0	0	0	0	0				0	0	0	0	0				0	183	0	405	0				0	111	0	257	0	
			0		0						0		0						584		588						311		368		
																				emeter								son Gat			

Development Traffic Only - Full Build (PM Peak



ApprDev_PM

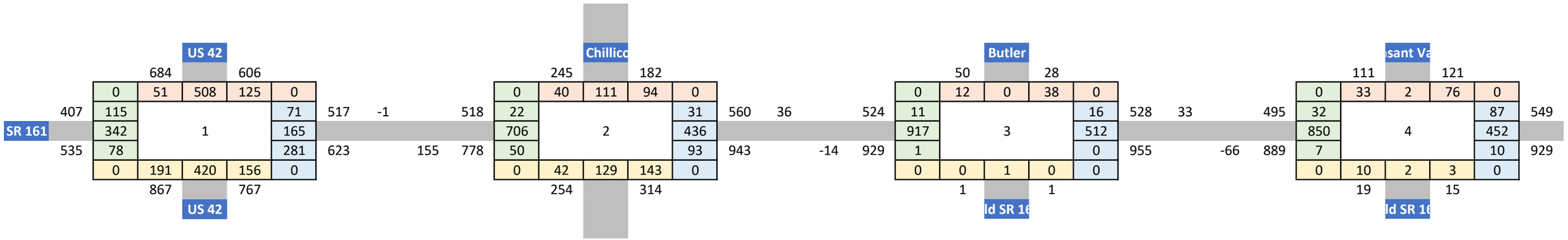
Development Traffic Only - Full Build (PM Peak



2030 Rate	30%
2040 Rate	60%
2050 Rate	100%

Use: 30%

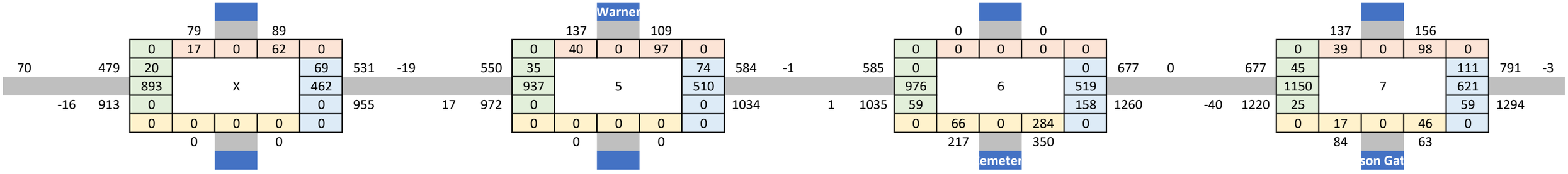
2030 Build AM Volumes (2030 Background+30% Dev Traffic)



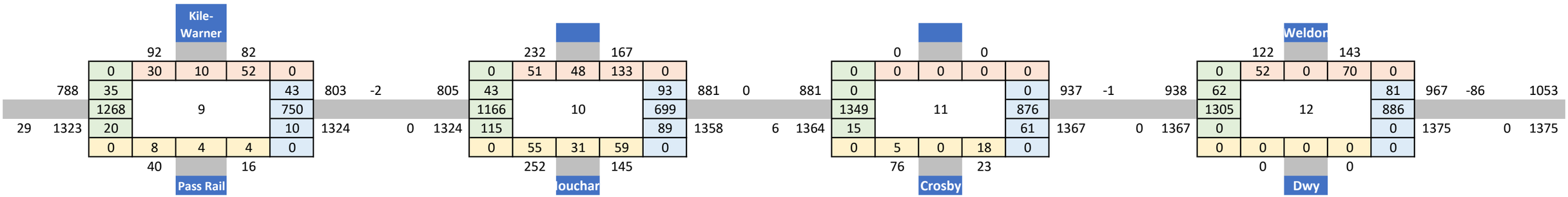
2030_Combined_AM

2030 Build AM Volumes (2030 Background+30% Dev Traffic)

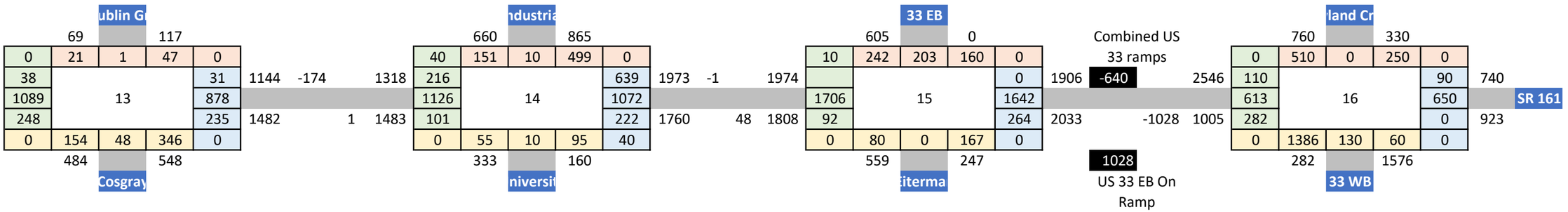
* Potential realignment of Warner and Cemetery



2030 Build AM Volumes (2030 Background+30% Dev Traffic)



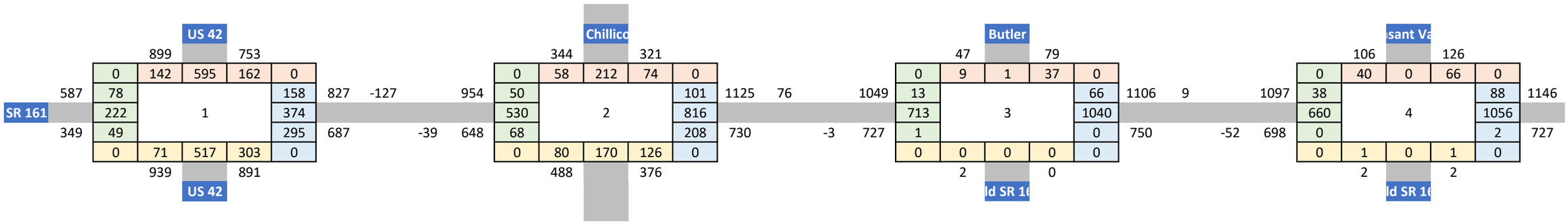
2030 Build AM Volumes (2030 Background+30% Dev Traffic)



2030 Rate	30%
2040 Rate	60%
2050 Rate	100%

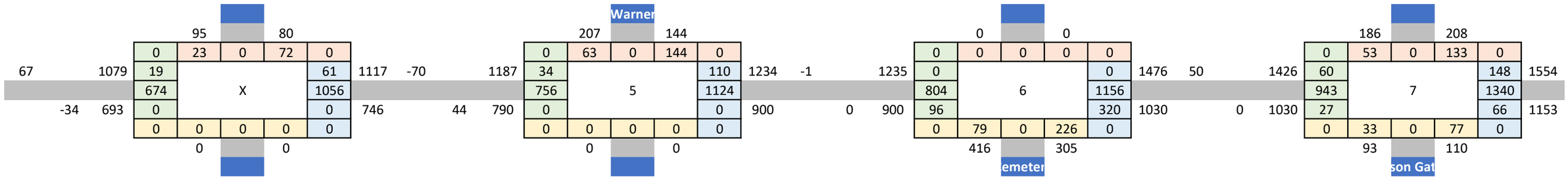
Use: 30%

2030 Build PM Volumes (2030 Background+30% Dev Traffic)

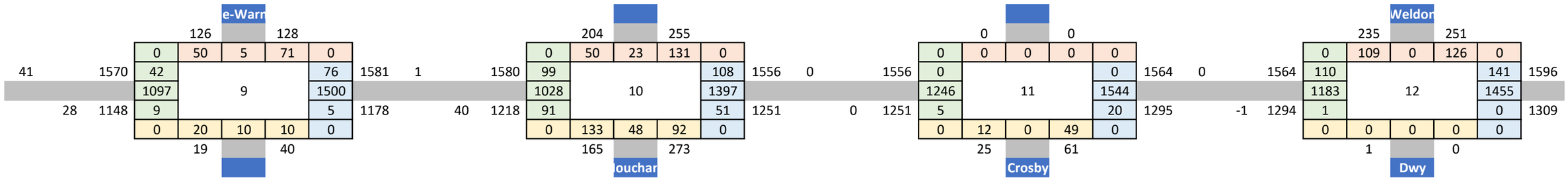


2030 Build PM Volumes (2030 Background+30% Dev Traffic)

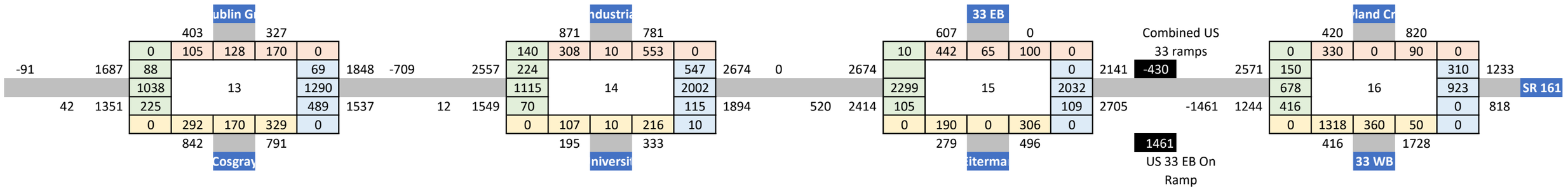
* Potential realignment of Warner and Cemetery



2030 Build PM Volumes (2030 Background+30% Dev Traffic)



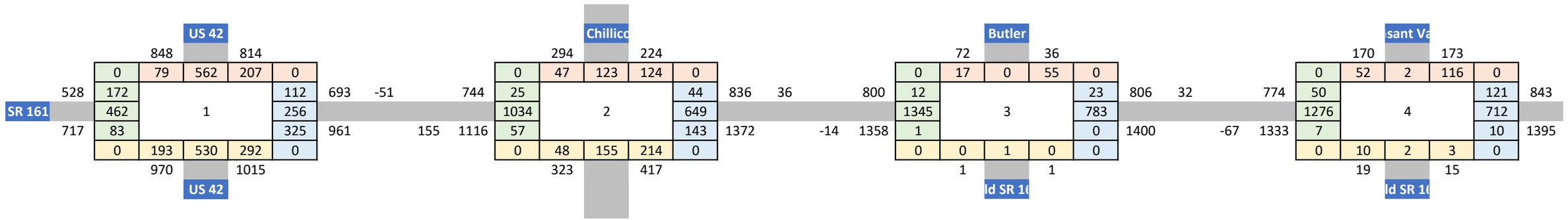
2030 Build PM Volumes (2030 Background+30% Dev Traffic)



2030 Rate	30%
2040 Rate	60%
2050 Rate	100%

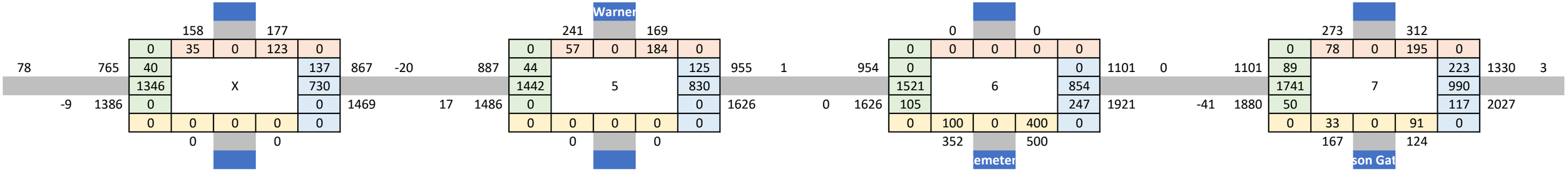
Use: 60%

2040 Build AM Volumes (2040 Background+60% Dev Traffic)



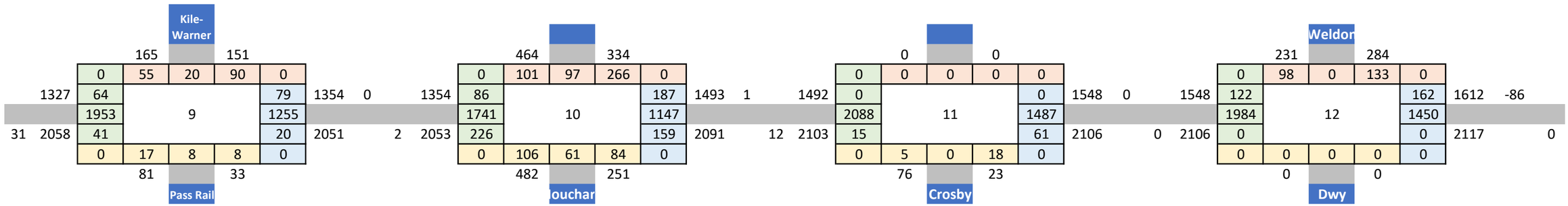
2040 Build AM Volumes (2040 Background+60% Dev Traffic)

* Potential realignment of Warner and Cemetery



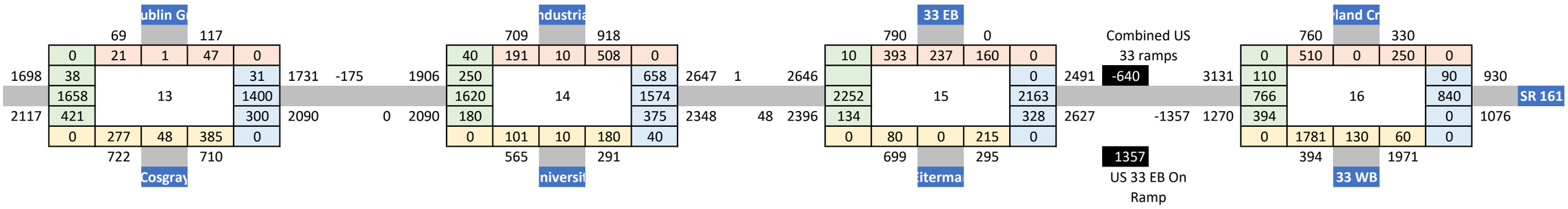
2040_Combined_AM

2040 Build AM Volumes (2040 Background+60% Dev Traffic)



2040_Combined_AM

2040 Build AM Volumes (2040 Background+60% Dev Traffic)

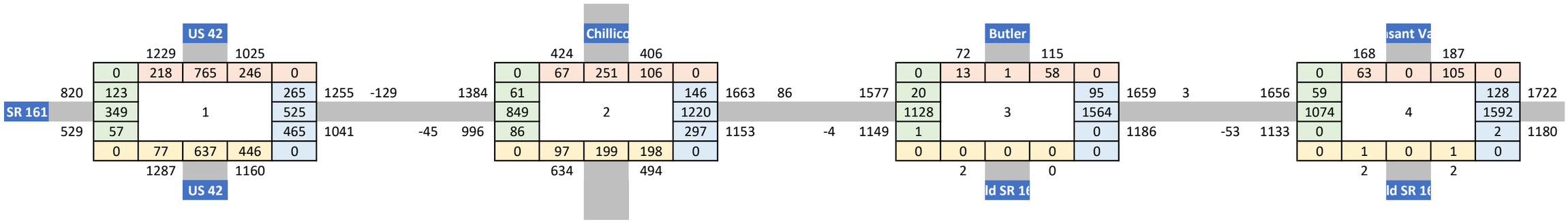


2040_Combined_AM

2030 Rate	30%
2040 Rate	60%
2050 Rate	100%

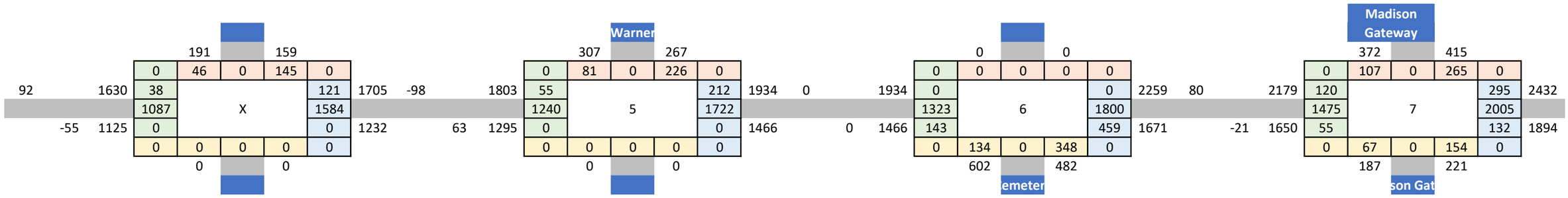
Use: 60%

2040 Build PM Volumes (2040 Background+60% Dev Traffic)

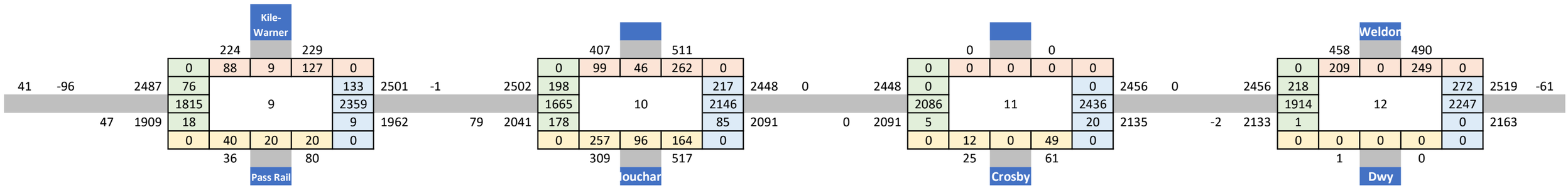


2040 Build PM Volumes (2040 Background+60% Dev Traffic)

* Potential realignment of Warner and Cemetery

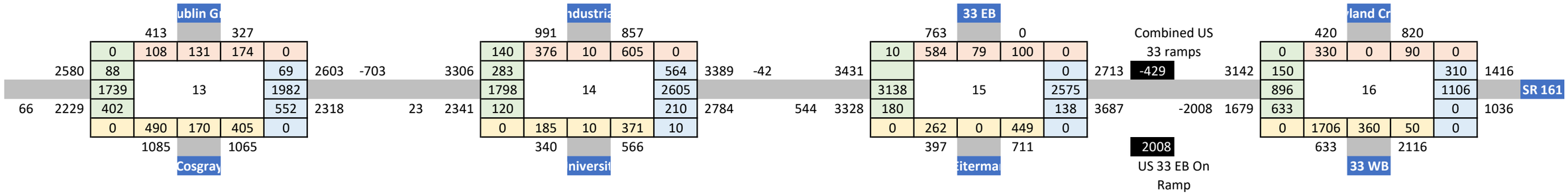


2040 Build PM Volumes (2040 Background+60% Dev Traffic)



2040_Combined_PM

2040 Build PM Volumes (2040 Background+60% Dev Traffic)

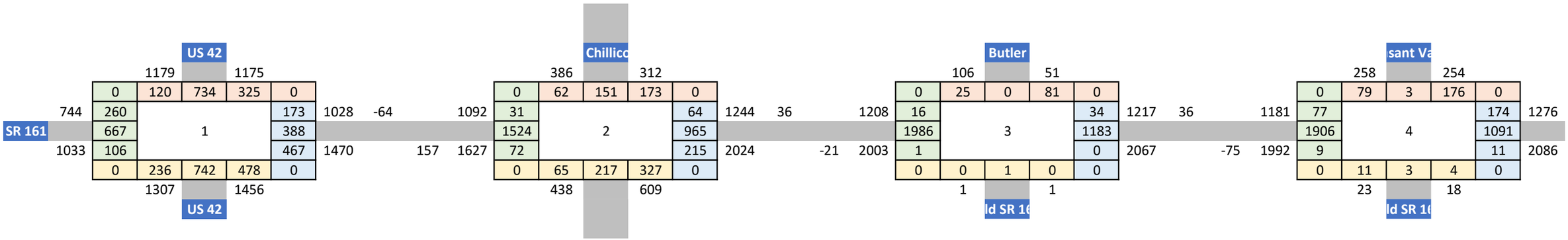


2040_Combined_PM

2030 Rate	30%
2040 Rate	60%
2050 Rate	100%

Use: 100%

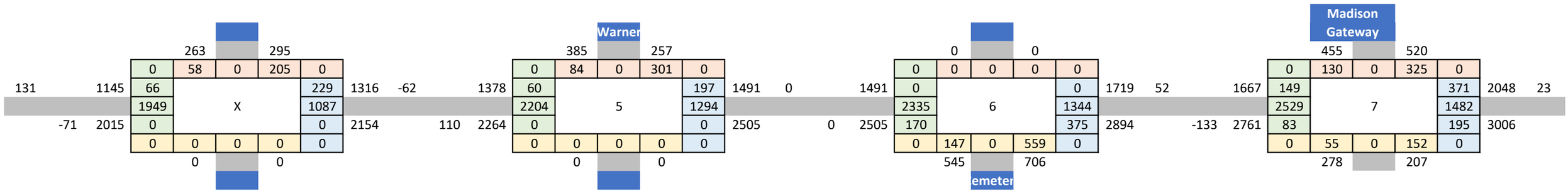
2050 Build AM Volumes (2050 Background+100% Dev Traffic)



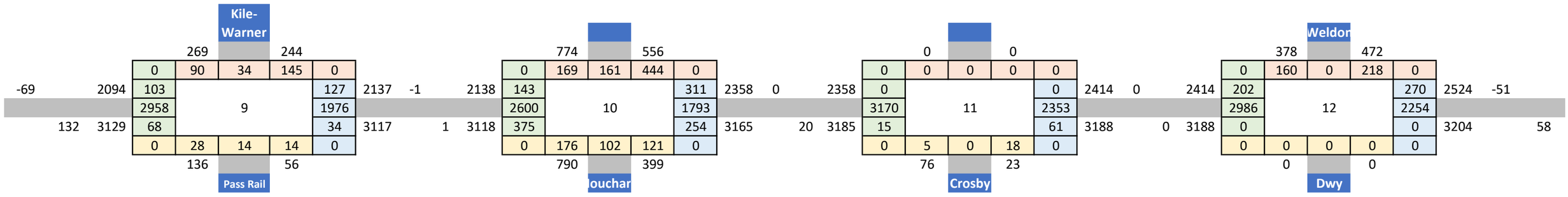
2050_Combined_AM

2050 Build AM Volumes (2050 Background+100% Dev Traffic)

* Potential realignment of Warner and Cemetery

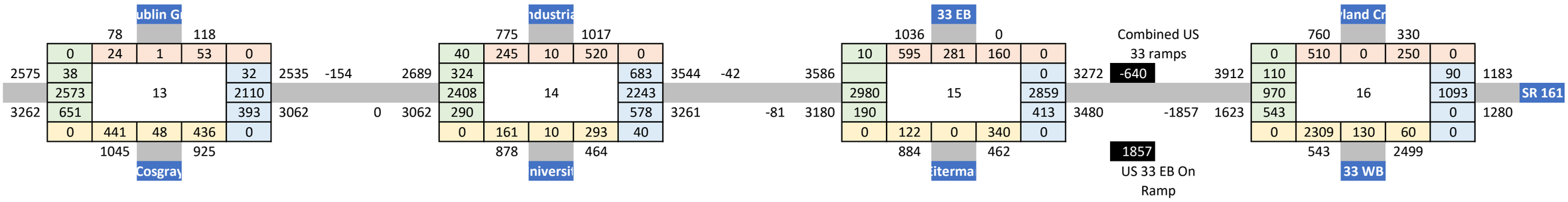


2050 Build AM Volumes (2050 Background+100% Dev Traffic)



2050_Combined_AM

2050 Build AM Volumes (2050 Background+100% Dev Traffic)

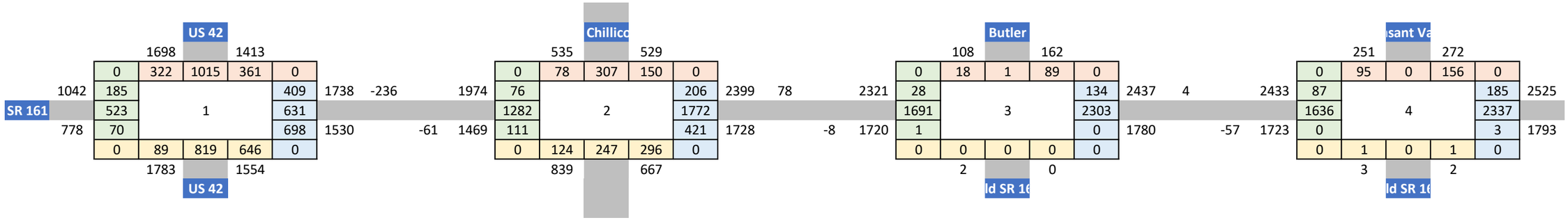


2050_Combined_AM

2030 Rate	30%
2040 Rate	60%
2050 Rate	100%

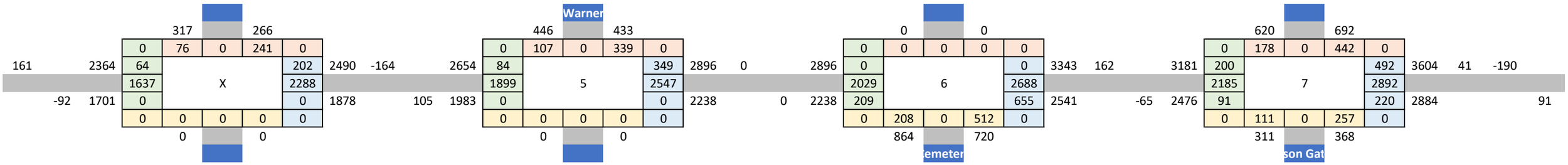
Use:	100%

2050 Build PM Volumes (2050 Background+100% Dev Traffic)



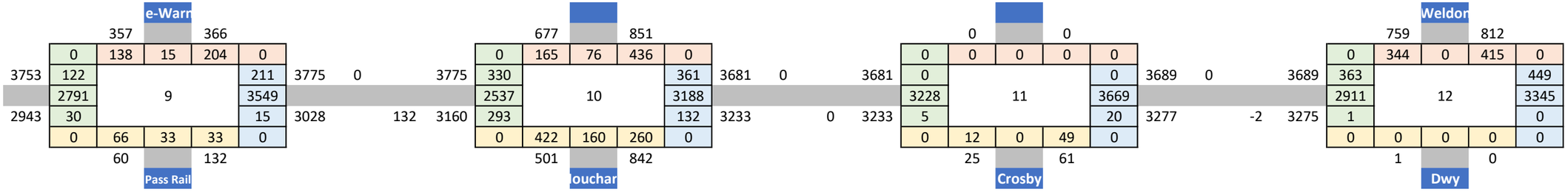
2050 Build PM Volumes (2050 Background+100% Dev Traffic)

* Potential realignment of Warner and Cemetery

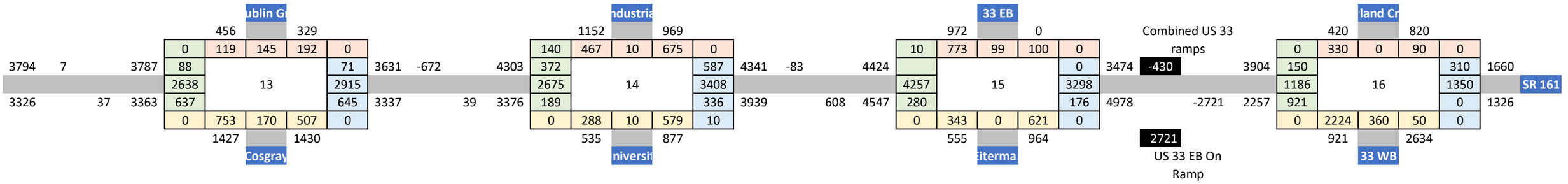


2050_Combined_PM

2050 Build PM Volumes (2050 Background+100% Dev Traffic)



2050 Build PM Volumes (2050 Background+100% Dev Traffic)

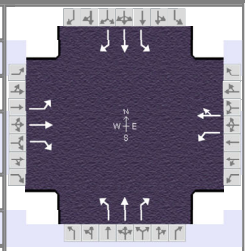


2050_Combined_PM

APPENDIX D – 2030 NO-BUILD CAPACITY ANALYSIS REPORTS (HCS & SIDRA)

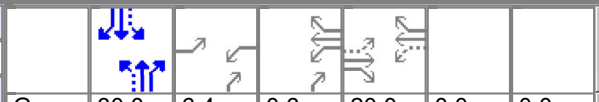
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	LJB Inc.			Duration, h	0.250
Analyst	TLW	Analysis Date	6/23/2025	Area Type	Other
Jurisdiction	UNI-MAD-FRA, OH	Time Period	No Build -AM Peak	PHF	0.98
Urban Street	SR 161	Analysis Year	2030	Analysis Period	1> 7:00
Intersection	SR 161 @ US 42	File Name	01-No Build 2030 AM-SR 161 @ US 42.xus		
Project Description	SR 161 Corridor Study				

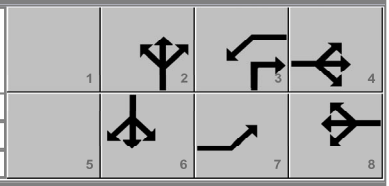


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	115	342	78	281	165	71	191	420	156	125	508	51

Signal Information			
Cycle, s	75.0	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	30.0	6.4	0.6	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



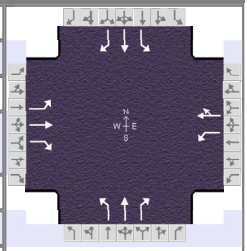
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8		2		6
Case Number	1.1	3.0	1.1	4.0		5.0		5.0
Phase Duration, s	12.4	26.0	13.0	26.6		36.0		36.0
Change Period, ($Y+R_c$), s	6.0	6.0	6.0	6.0		6.0		6.0
Max Allow Headway (*MAH*), s	3.1	3.1	3.1	3.1		0.0		0.0
Queue Clearance Time (g_s), s	5.4	14.5	9.0	10.6				
Green Extension Time (g_e), s	0.0	0.8	0.0	1.1		0.0		0.0
Phase Call Probability	0.91	1.00	1.00	1.00				
Max Out Probability	1.00	0.31	1.00	0.03				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	117	349	80	287	241		195	429	159	128	518	52
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	1885	1610	1767	1760		897	1693	1598	868	1811	1547
Queue Service Time (g_s), s	3.4	12.5	2.9	7.0	8.6		12.0	15.3	4.2	10.4	18.0	1.6
Cycle Queue Clearance Time (g_c), s	3.4	12.5	2.9	7.0	8.6		30.0	15.3	4.2	25.6	18.0	1.6
Green Ratio (*g/C*)	0.35	0.27	0.27	0.36	0.27		0.40	0.40	0.49	0.40	0.40	0.40
Capacity (*c*), veh/h	404	503	429	363	484		239	677	788	267	724	619
Volume-to-Capacity Ratio (*X*)	0.290	0.694	0.185	0.789	0.498		0.815	0.633	0.202	0.478	0.716	0.084
Back of Queue (*Q*), ft/ln (90 th percentile)	59	221	46	115	147		201	262	65	124	305	26
Back of Queue (*Q*), veh/ln (90 th percentile)	2.4	8.8	1.9	4.5	5.7		8.0	9.4	2.6	4.5	11.6	1.0
Queue Storage Ratio (*RQ*) (90 th percentile)	0.24	0.00	0.21	0.38	0.00		0.67	0.00	0.19	0.22	0.00	0.07
Uniform Delay (d_1), s/veh	17.6	24.7	21.2	22.6	22.9		33.1	18.1	10.7	28.4	18.9	14.0
Incremental Delay (d_2), s/veh	0.1	3.5	0.1	10.2	0.3		25.5	4.5	0.6	6.0	6.0	0.3
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	17.7	28.2	21.3	32.9	23.1		58.6	22.5	11.3	34.4	24.9	14.2
Level of Service (LOS)	B	C	C	C	C		E	C	B	C	C	B
Approach Delay, s/veh / LOS	25.0	C		28.4	C		29.2	C		25.8	C	
Intersection Delay, s/veh / LOS	27.2						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.11	B	2.11	B	1.90	B	2.09	B
Bicycle LOS Score / LOS	1.39	A	1.36	A	1.78	B	1.64	B

HCS Signalized Intersection Results Summary

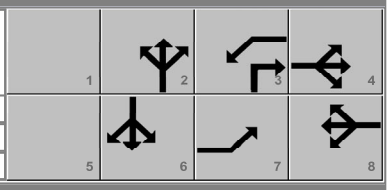
General Information				Intersection Information	
Agency	LJB Inc.			Duration, h	0.250
Analyst	TLW	Analysis Date	6/23/2025	Area Type	Other
Jurisdiction	UNI-MAD-FRA, OH	Time Period	No Build -PM Peak	PHF	0.97
Urban Street	SR 161	Analysis Year	2030	Analysis Period	1> 7:00
Intersection	SR 161 @ US 42	File Name	01-No Build 2030 PM-SR 161 @ US 42.xus		
Project Description	SR 161 Corridor Study				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	78	222	49	295	374	158	71	517	303	162	595	142

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	42.8	6.3	2.3	24.7	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



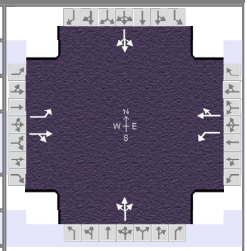
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8		2		6
Case Number	1.1	3.0	1.1	4.0		5.0		5.0
Phase Duration, s	12.3	30.7	20.6	39.0		48.8		48.8
Change Period, ($Y+R_c$), s	6.0	6.0	6.0	6.0		6.0		6.0
Max Allow Headway (*MAH*), s	3.1	3.1	3.1	3.1		0.0		0.0
Queue Clearance Time (g_s), s	5.2	12.3	14.2	31.3				
Green Extension Time (g_e), s	0.1	1.7	0.4	1.7		0.0		0.0
Phase Call Probability	0.89	1.00	1.00	1.00				
Max Out Probability	0.00	0.00	0.05	0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	80	229	51	304	548		73	533	312	167	613	146
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	1900	1610	1767	1804		821	1841	1610	878	1767	1585
Queue Service Time (g_s), s	3.2	10.3	2.4	12.2	29.3		8.6	23.3	10.3	18.9	30.4	5.8
Cycle Queue Clearance Time (g_c), s	3.2	10.3	2.4	12.2	29.3		39.0	23.3	10.3	42.3	30.4	5.8
Green Ratio (*g/C*)	0.31	0.25	0.25	0.41	0.33		0.43	0.43	0.57	0.43	0.43	0.43
Capacity (*c*), veh/h	200	468	397	493	595		173	787	923	243	756	678
Volume-to-Capacity Ratio (*X*)	0.403	0.489	0.127	0.616	0.922		0.422	0.677	0.338	0.688	0.812	0.216
Back of Queue (*Q*), ft/ln (95 th percentile)	62	205	42	219	475		93	412	164	218	539	100
Back of Queue (*Q*), veh/ln (95 th percentile)	2.5	8.2	1.7	8.5	19.0		3.7	16.0	6.5	8.6	20.1	4.0
Queue Storage Ratio (*RQ*) (95 th percentile)	0.25	0.00	0.19	0.73	0.00		0.31	0.00	0.47	0.38	0.00	0.27
Uniform Delay (d_1), s/veh	27.9	32.3	29.3	21.9	32.3		42.2	23.0	11.3	40.1	25.1	18.0
Incremental Delay (d_2), s/veh	0.5	0.3	0.1	0.5	5.1		7.4	4.6	1.0	14.8	9.3	0.7
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	28.4	32.6	29.4	22.4	37.4		49.6	27.7	12.3	54.9	34.3	18.8
Level of Service (LOS)	C	C	C	C	D		D	C	B	D	C	B
Approach Delay, s/veh / LOS	31.2	C		32.1	C		24.2	C		35.6	D	
Intersection Delay, s/veh / LOS	30.7						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.12	B	2.11	B	1.91	B	2.10	B
Bicycle LOS Score / LOS	1.08	A	1.89	B	2.00	B	2.02	B

HCS Signalized Intersection Results Summary

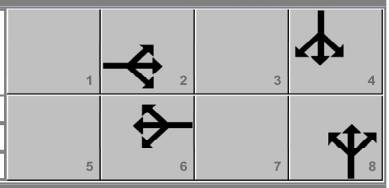
General Information				Intersection Information	
Agency	LJB Inc.			Duration, h	0.250
Analyst	TLW	Analysis Date	6/19/2025	Area Type	Other
Jurisdiction	UNI-MAD-FRA, OH	Time Period	No-Build - AM Peak	PHF	0.93
Urban Street	SR 161	Analysis Year	2030	Analysis Period	1> 7:00
Intersection	SR 161 @ Chillicothe St	File Name	02-No Build 2030 AM-SR 161 @ Chillicothe St.xus		
Project Description	SR 161 Corridor Study				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	22	706	50	93	436	31	42	129	143	94	111	40

Signal Information			
Cycle, s	60.0	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	34.0	14.0	0.0	0.0	0.0	0.0	
Yellow	4.0	4.0	0.0	0.0	0.0	0.0	
Red	2.0	2.0	0.0	0.0	0.0	0.0	



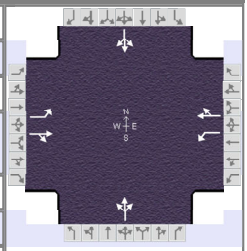
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		6.0		6.0		8.0		8.0
Phase Duration, s		40.0		40.0		20.0		20.0
Change Period, ($Y+R_c$), s		6.0		6.0		6.0		6.0
Max Allow Headway (*MAH*), s		0.0		0.0		3.4		3.4
Queue Clearance Time (g_s), s						12.9		12.4
Green Extension Time (g_e), s		0.0		0.0		1.1		1.2
Phase Call Probability						1.00		1.00
Max Out Probability						0.08		0.06

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	24	813		100	502			338			263	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	911	1819		682	1775			1736			1426	
Queue Service Time (g_s), s	1.0	21.0		8.1	10.3			0.5			0.0	
Cycle Queue Clearance Time (g_c), s	11.3	21.0		29.1	10.3			10.9			10.4	
Green Ratio (*g/C*)	0.57	0.57		0.57	0.57			0.23			0.23	
Capacity (*c*), veh/h	479	1030		267	1005			474			417	
Volume-to-Capacity Ratio (*X*)	0.049	0.789		0.375	0.500			0.712			0.632	
Back of Queue (*Q*), ft/ln (95 th percentile)	9	342		68	176			193			149	
Back of Queue (*Q*), veh/ln (95 th percentile)	0.4	13.3		2.7	6.7			7.7			6.0	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.04	1.52		0.68	1.47			1.14			0.44	
Uniform Delay (d_1), s/veh	11.3	10.2		21.7	7.9			21.8			21.3	
Incremental Delay (d_2), s/veh	0.2	6.2		4.0	1.8			0.8			0.6	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0			0.0			0.0	
Control Delay (*d*), s/veh	11.5	16.4		25.6	9.7			22.5			21.9	
Level of Service (LOS)	B	B		C	A			C			C	
Approach Delay, s/veh / LOS	16.2	B		12.3	B		22.5	C		21.9	C	
Intersection Delay, s/veh / LOS	16.8						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.64	B	1.64	B	1.91	B	1.91	B
Bicycle LOS Score / LOS	1.87	B	1.48	A	1.04	A	0.92	A

HCS Signalized Intersection Results Summary

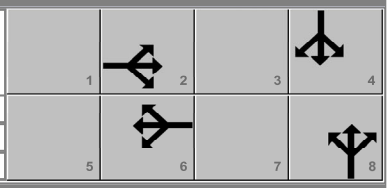
General Information				Intersection Information	
Agency	LJB Inc.			Duration, h	0.250
Analyst	TLW	Analysis Date	6/19/2025	Area Type	Other
Jurisdiction	UNI-MAD-FRA, OH	Time Period	No-Build - PM Peak	PHF	0.91
Urban Street	SR 161	Analysis Year	2030	Analysis Period	1> 7:00
Intersection	SR 161 @ Chillicothe St	File Name	02-No Build 2030 PM-SR 161 @ Chillicothe St.xus		
Project Description	SR 161 Corridor Study				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	50	530	68	208	816	101	80	170	126	74	212	58

Signal Information			
Cycle, s	60.0	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	34.0	14.0	0.0	0.0	0.0	0.0	
Yellow	4.0	4.0	0.0	0.0	0.0	0.0	
Red	2.0	2.0	0.0	0.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		6.0		6.0		8.0		8.0
Phase Duration, s		40.0		40.0		20.0		20.0
Change Period, (*Y+R c*), s		6.0		6.0		6.0		6.0
Max Allow Headway (*MAH*), s		0.0		0.0		3.4		3.4
Queue Clearance Time (*g s*), s						16.0		16.0
Green Extension Time (*g e*), s		0.0		0.0		0.0		0.0
Phase Call Probability						1.00		1.00
Max Out Probability						1.00		1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	55	657		229	1008			413			378	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	568	1847		789	1863			1512			1532	
Queue Service Time (*g s*), s	3.4	14.4		16.5	30.6			0.0			0.0	
Cycle Queue Clearance Time (*g c*), s	34.0	14.4		30.8	30.6			14.0			14.0	
Green Ratio (*g/C*)	0.57	0.57		0.57	0.57			0.23			0.23	
Capacity (*c*), veh/h	152	1047		378	1056			426			430	
Volume-to-Capacity Ratio (*X*)	0.362	0.628		0.604	0.954			0.971			0.878	
Back of Queue (*Q*), ft/ln (95 th percentile)	47	234		157	548			379			289	
Back of Queue (*Q*), veh/ln (95 th percentile)	1.9	9.3		6.3	21.9			15.1			11.6	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.18	1.04		1.57	4.57			2.23			0.85	
Uniform Delay (*d 1*), s/veh	29.0	8.7		19.1	12.3			23.8			23.1	
Incremental Delay (*d 2*), s/veh	6.6	2.9		7.0	18.7			35.8			17.7	
Initial Queue Delay (*d 3*), s/veh	0.0	0.0		0.0	0.0			0.0			0.0	
Control Delay (*d*), s/veh	35.6	11.6		26.1	31.0			59.6			40.8	
Level of Service (LOS)	D	B		C	C			E			D	
Approach Delay, s/veh / LOS	13.4	B		30.1	C		59.6	E		40.8	D	
Intersection Delay, s/veh / LOS	31.7						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.64	B	1.64	B	1.91	B	1.91	B
Bicycle LOS Score / LOS	1.66	B	2.53	C	1.17	A	1.11	A

HCS Two-Way Stop-Control Report

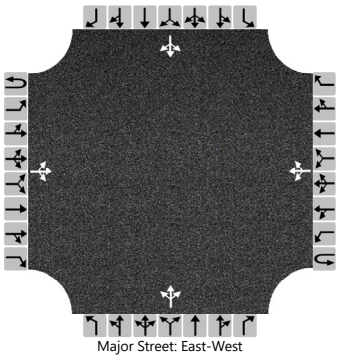
General Information

Analyst	TLW
Agency/Co.	LJB Inc.
Date Performed	6/19/2025
Analysis Year	2030
Time Analyzed	No Build - AM Peak
Intersection Orientation	East-West
Project Description	SR 161 Corridor Study

Site Information

Intersection	SR 161 (Dublin Plain City Rd) @ Butler Ave /...
Jurisdiction	UNI-MAD-FRA, OH
East/West Street	SR 161 (Dublin Plain City Rd)
North/South Street	Butler Ave / Old SR 161
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		11	917	1		0	512	16		0	1	0		38	0	12
Percent Heavy Vehicles (%)		5				5				5	5	5		5	5	5
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.15				4.15				7.15	6.55	6.25		7.15	6.55	6.25
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.25				2.25				3.55	4.05	3.35		3.55	4.05	3.35

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		12				0					1				54	
Capacity, c (veh/h)		984				682					102				104	
v/c Ratio		0.01				0.00					0.01				0.52	
95% Queue Length, Q_{95} (veh)		0.0				0.0					0.0				2.4	
95% Queue Length, Q_{95} (ft)		0.0				0.0					0.0				62.4	
Control Delay (s/veh)		8.7	0.2	0.2		10.3	0.0	0.0			40.6				73.0	
Level of Service (LOS)		A	A	A		B	A	A			E				F	
Approach Delay (s/veh)	0.3				0.0				40.6				73.0			
Approach LOS	A				A				E				F			

HCS Two-Way Stop-Control Report

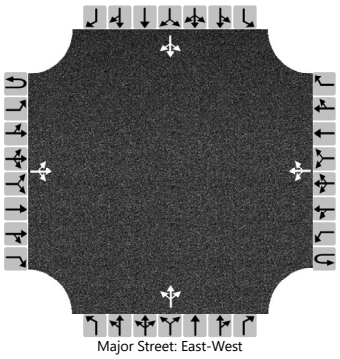
General Information

Analyst	TLW
Agency/Co.	LJB Inc.
Date Performed	6/19/2025
Analysis Year	2030
Time Analyzed	No Build - PM Peak
Intersection Orientation	East-West
Project Description	SR 161 Corridor Study

Site Information

Intersection	SR 161 (Dublin Plain City Rd) @ Butler Ave /...
Jurisdiction	UNI-MAD-FRA, OH
East/West Street	SR 161 (Dublin Plain City Rd)
North/South Street	Butler Ave / Old SR 161
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		13	713	1		0	1040	66		0	0	0		37	1	9
Percent Heavy Vehicles (%)		3				3				3	3	3		3	3	3
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type | Storage			Undivided													

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.13				4.13				7.13	6.53	6.23		7.13	6.53	6.23
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.23				2.23				3.53	4.03	3.33		3.53	4.03	3.33

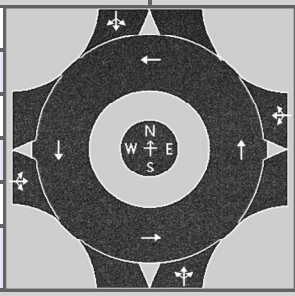
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		14				0					0				51	
Capacity, c (veh/h)		577				836					0				53	
v/c Ratio		0.02				0.00									0.96	
95% Queue Length, Q_{95} (veh)		0.1				0.0									4.3	
95% Queue Length, Q_{95} (ft)		2.5				0.0									110.1	
Control Delay (s/veh)		11.4	0.5	0.5		9.3	0.0	0.0							236.0	
Level of Service (LOS)		B	A	A		A	A	A							F	
Approach Delay (s/veh)		0.7				0.0								236.0		
Approach LOS		A				A								F		

HCS Roundabouts Report

General Information

Analyst	HM
Agency or Co.	LJB Inc.
Date Performed	6/18/2025
Analysis Year	2030
Time Analyzed	No Build - AM Peak
Project Description	SR 161 Corridor Study



Site Information

Intersection	SR 161 @ Pleasant Valley Blv...
E/W Street Name	SR 161
N/S Street Name	Pleasant Valley Blvd/Old SR...
Analysis Time Period, hrs	0.25
Peak Hour Factor	0.92
Jurisdiction	UNI-MAD-FRA, OH

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				LTR	
Volume (V), veh/h	0	32	850	7	0	10	452	87	0	10	2	3	0	76	2	33
Percent Heavy Vehicles, %	0	0	2	17	0	0	3	2	0	22	0	0	0	0	0	0
Flow Rate (v_{PCE}), pc/h	0	35	942	9	0	11	504	96	0	13	2	3	0	83	2	36
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	0				0				0				0			
Proportion of CAVs, %	0															

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway, s		4.9763			4.9763			4.9763			4.9763	
Follow-Up Headway, s		2.6087			2.6087			2.6087			2.6087	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		986			611			18			121	
Entry Volume, veh/h		966			597			16			121	
Circulating Flow (v_c), pc/h	96			50			1060			528		
Exiting Flow (v_{ex}), pc/h	1028			553			133			22		
Capacity (c_{pce}), pc/h		1251			1311			468			805	
Capacity (c), veh/h		1226			1281			407			805	
v/c Ratio (x)		0.79			0.47			0.04			0.15	

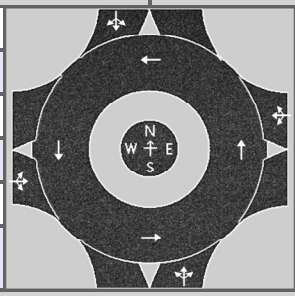
Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		16.8			7.6			9.4			6.0	
Lane LOS		C			A			A			A	
95% Queue Length, Q_{95} (veh)		8.8			2.5			0.1			0.5	
95% Queue Length, Q_{95} (ft)		223.6			63.7			2.8			12.5	
Approach Delay, s/veh | LOS	16.8	C		7.6	A		9.4	A		6.0	A	
Intersection Delay, s/veh | LOS	12.7						B					

HCS Roundabouts Report

General Information

Analyst	HM
Agency or Co.	LJB Inc.
Date Performed	6/18/2025
Analysis Year	2030
Time Analyzed	No Build - PM Peak
Project Description	SR 161 Corridor Study



Site Information

Intersection	SR 161 @ Pleasant Valley Blv...
E/W Street Name	SR 161
N/S Street Name	Pleasant Valley Blvd/Old SR...
Analysis Time Period, hrs	0.25
Peak Hour Factor	0.92
Jurisdiction	UNI-MAD-FRA, OH

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				LTR	
Volume (V), veh/h	0	38	660	0	0	2	1056	88	0	1	0	1	0	66	0	40
Percent Heavy Vehicles, %	0	0	2	29	0	50	2	0	0	42	0	0	0	0	0	0
Flow Rate (v_{PCE}), pc/h	0	41	732	0	0	3	1171	96	0	2	0	1	0	72	0	43
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	0				0				0				0			
Proportion of CAVs, %	0															

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway, s		4.9763			4.9763			4.9763			4.9763	
Follow-Up Headway, s		2.6087			2.6087			2.6087			2.6087	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		773			1270			3			115	
Entry Volume, veh/h		759			1246			2			115	
Circulating Flow (v_c), pc/h	75			43			845			1176		
Exiting Flow (v_{ex}), pc/h	805			1216			137			3		
Capacity (c_{pce}), pc/h		1278			1321			583			416	
Capacity (c), veh/h		1255			1296			468			416	
v/c Ratio (x)		0.60			0.96			0.01			0.28	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		10.2			34.7			7.8			13.3	
Lane LOS		B			D			A			B	
95% Queue Length, Q_{95} (veh)		4.3			18.7			0.0			1.1	
95% Queue Length, Q_{95} (ft)		109.1			474.7			0.0			27.5	
Approach Delay, s/veh | LOS	10.2	B		34.7	D		7.8	A		13.3	B	
Intersection Delay, s/veh | LOS	24.7						C					

HCS Two-Way Stop-Control Report

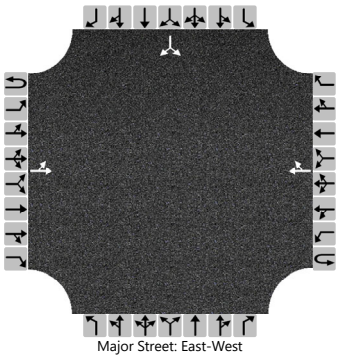
General Information

Analyst	HM
Agency/Co.	LJB Inc.
Date Performed	6/18/2025
Analysis Year	2030
Time Analyzed	No Build - AM Peak
Intersection Orientation	East-West
Project Description	SR 161 Corridor Study

Site Information

Intersection	SR 161 @ Warner Rd
Jurisdiction	UNI-MAD-FRA, OH
East/West Street	SR 161
North/South Street	Warner Rd
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		35	937				510	74						97		40
Percent Heavy Vehicles (%)		9												10		20
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type | Storage			Undivided													

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.19												6.50		6.40
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.28												3.59		3.48

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		38													149	
Capacity, c (veh/h)		916													116	
v/c Ratio		0.04													1.28	
95% Queue Length, Q_{95} (veh)		0.1													9.8	
95% Queue Length, Q_{95} (ft)		2.7													270.3	
Control Delay (s/veh)		9.1	0.9												246.1	
Level of Service (LOS)		A	A												F	
Approach Delay (s/veh)		1.2												246.1		
Approach LOS		A												F		

HCS Two-Way Stop-Control Report

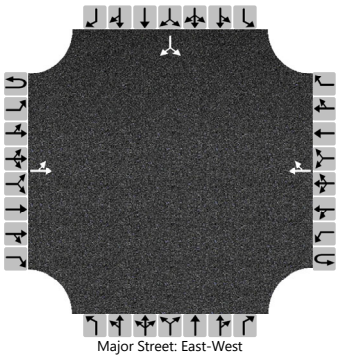
General Information

Analyst	HM
Agency/Co.	LJB Inc.
Date Performed	6/18/2025
Analysis Year	2030
Time Analyzed	No Build - PM Peak
Intersection Orientation	East-West
Project Description	SR 161 Corridor Study

Site Information

Intersection	SR 161 @ Warner Rd
Jurisdiction	UNI-MAD-FRA, OH
East/West Street	SR 161
North/South Street	Warner Rd
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		34	756				1124	110						144		63
Percent Heavy Vehicles (%)		0												3		0
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type | Storage			Undivided													

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.10												6.43		6.20
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.20												3.53		3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		37													225	
Capacity, c (veh/h)		520													58	
v/c Ratio		0.07													3.90	
95% Queue Length, Q_{95} (veh)		0.2													24.4	
95% Queue Length, Q_{95} (ft)		5.0													620.2	
Control Delay (s/veh)		12.4	1.6												1449.8	
Level of Service (LOS)		B	A												F	
Approach Delay (s/veh)		2.1												1449.8		
Approach LOS		A												F		

HCS Two-Way Stop-Control Report

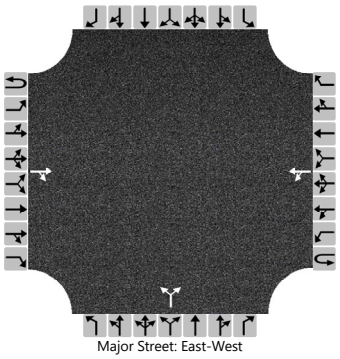
General Information

Analyst	HM
Agency/Co.	LJB Inc.
Date Performed	3/20/2025
Analysis Year	2030
Time Analyzed	No Build - AM Peak
Intersection Orientation	East-West
Project Description	SR 161 Corridor Study

Site Information

Intersection	SR 161 @ Cemetery Pk
Jurisdiction	UNI-MAD-FRA, OH
East/West Street	SR 161
North/South Street	Cemetery Pk
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			976	59		158	519			66		284				
Percent Heavy Vehicles (%)						0				0		0				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.10				6.40		6.20				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.20				3.50		3.30				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						172					380					
Capacity, c (veh/h)						628					128					
v/c Ratio						0.27					2.96					
95% Queue Length, Q_{95} (veh)						1.1					35.5					
95% Queue Length, Q_{95} (ft)						27.5					887.5					
Control Delay (s/veh)						12.9	5.1				956.9					
Level of Service (LOS)						B	A				F					
Approach Delay (s/veh)					6.9				956.9							
Approach LOS					A				F							

HCS Two-Way Stop-Control Report

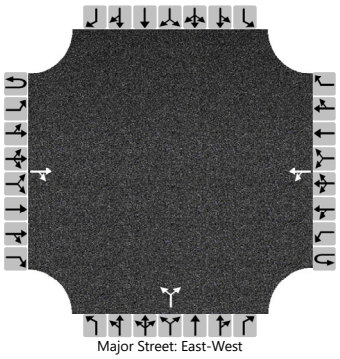
General Information

Analyst	HM
Agency/Co.	LJB Inc.
Date Performed	3/20/2025
Analysis Year	2030
Time Analyzed	No Build - PM Peak
Intersection Orientation	East-West
Project Description	SR 161 Corridor Study

Site Information

Intersection	SR 161 @ Cemetery Pk
Jurisdiction	UNI-MAD-FRA, OH
East/West Street	SR 161
North/South Street	Cemetery Pk
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			804	96		320	1156			79		226				
Percent Heavy Vehicles (%)						0				0		0				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.10				6.40		6.20				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.20				3.50		3.30				

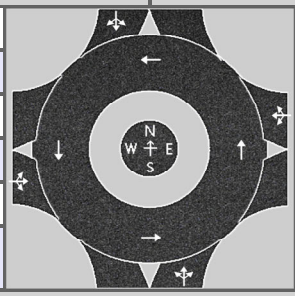
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						348					332					
Capacity, c (veh/h)						713					0					
v/c Ratio						0.49										
95% Queue Length, Q_{95} (veh)						2.7										
95% Queue Length, Q_{95} (ft)						67.5										
Control Delay (s/veh)						14.7	14.7									
Level of Service (LOS)						B	B									
Approach Delay (s/veh)					14.7											
Approach LOS					B											

HCS Roundabouts Report

General Information

Analyst	HM
Agency or Co.	LJB Inc.
Date Performed	6/18/2025
Analysis Year	2030
Time Analyzed	No Build - AM Peak
Project Description	SR 161 Corridor Study



Site Information

Intersection	SR 161 @ Madison Gateway...
E/W Street Name	SR 161
N/S Street Name	Madison Gateway Access
Analysis Time Period, hrs	0.25
Peak Hour Factor	0.92
Jurisdiction	UNI-MAD-FRA, OH

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				LTR	
Volume (V), veh/h	0	45	1150	25	0	59	621	111	0	17	0	46	0	98	0	39
Percent Heavy Vehicles, %	0	0	2	17	0	0	3	2	0	22	0	0	0	0	0	0
Flow Rate (v_{PCE}), pc/h	0	49	1275	32	0	64	692	123	0	23	0	50	0	107	0	42
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	0				0				0				0			
Proportion of CAVs, %	0															

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway, s		4.9763			4.9763			4.9763			4.9763	
Follow-Up Headway, s		2.6087			2.6087			2.6087			2.6087	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		1356			879			73			149	
Entry Volume, veh/h		1326			860			69			149	
Circulating Flow (v_c), pc/h	171			72			1431			779		
Exiting Flow (v_{ex}), pc/h	1432			757			172			96		
Capacity (c_{pce}), pc/h		1159			1282			321			623	
Capacity (c), veh/h		1134			1254			302			623	
v/c Ratio (x)		1.17			0.69			0.23			0.24	

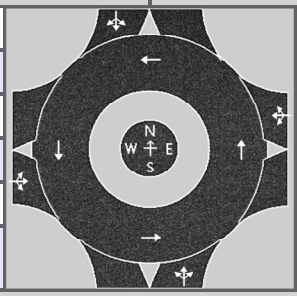
Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		102.4			12.3			16.5			8.8	
Lane LOS		F			B			C			A	
95% Queue Length, Q_{95} (veh)		37.4			5.8			0.9			0.9	
95% Queue Length, Q_{95} (ft)		951.7			147.6			23.6			22.5	
Approach Delay, s/veh | LOS	102.4	F		12.3	B		16.5	C		8.8	A	
Intersection Delay, s/veh | LOS	61.9						F					

HCS Roundabouts Report

General Information

Analyst	HM
Agency or Co.	LJB Inc.
Date Performed	6/18/2025
Analysis Year	2030
Time Analyzed	No Build - PM Peak
Project Description	SR 161 Corridor Study



Site Information

Intersection	SR 161 @ Madison Gateway...
E/W Street Name	SR 161
N/S Street Name	Madison Gateway Access
Analysis Time Period, hrs	0.25
Peak Hour Factor	0.92
Jurisdiction	UNI-MAD-FRA, OH

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				LTR	
Volume (V), veh/h	0	60	943	27	0	66	1340	148	0	33	0	77	0	133	0	53
Percent Heavy Vehicles, %	0	0	2	17	0	0	3	2	0	22	0	0	0	0	0	0
Flow Rate (v_{PCE}), pc/h	0	65	1046	34	0	72	1493	164	0	44	0	84	0	145	0	58
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	0				0				0				0			
Proportion of CAVs, %	0															

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway, s		4.9763			4.9763			4.9763			4.9763	
Follow-Up Headway, s		2.6087			2.6087			2.6087			2.6087	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		1145			1729			128			203	
Entry Volume, veh/h		1120			1689			120			203	
Circulating Flow (v_c), pc/h	217			109			1256			1609		
Exiting Flow (v_{ex}), pc/h	1275			1595			229			106		
Capacity (c_{pce}), pc/h		1106			1235			383			267	
Capacity (c), veh/h		1081			1206			360			267	
v/c Ratio (x)		1.04			1.40			0.33			0.76	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		56.4			198.0			16.6			49.9	
Lane LOS		F			F			C			E	
95% Queue Length, Q_{95} (veh)		23.0			69.5			1.4			5.6	
95% Queue Length, Q_{95} (ft)		585.5			1770.1			36.8			140.0	
Approach Delay, s/veh | LOS	56.4	F		198.0	F		16.6	C		49.9	E	
Intersection Delay, s/veh | LOS	130.8						F					

HCS Two-Way Stop-Control Report

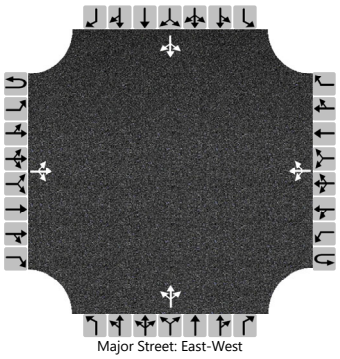
General Information

Analyst	HM
Agency/Co.	LJB Inc.
Date Performed	6/20/2025
Analysis Year	2030
Time Analyzed	No Build - AM Peak
Intersection Orientation	East-West
Project Description	SR 161 Corridor Study

Site Information

Intersection	SR 161 @ Kile-Warner Rd
Jurisdiction	UNI-MAD-FRA, OH
East/West Street	SR 161
North/South Street	Kile-Warner Rd
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		35	1268	20		10	750	43		8	4	4		52	10	30
Percent Heavy Vehicles (%)		33				3				3	3	3		0	3	0
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.43				4.13				7.13	6.53	6.23		7.10	6.53	6.20
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.50				2.23				3.53	4.03	3.33		3.50	4.03	3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		38				11					17				100	
Capacity, c (veh/h)		663				485					17				24	
v/c Ratio		0.06				0.02					1.02				4.09	
95% Queue Length, Q_{95} (veh)		0.2				0.1					2.6				12.5	
95% Queue Length, Q_{95} (ft)		5.0				2.5					66.6				313.3	
Control Delay (s/veh)		10.8	2.8	2.8		12.6	0.5	0.5			529.7				1717.4	
Level of Service (LOS)		B	A	A		B	A	A			F				F	
Approach Delay (s/veh)	3.0				0.7				529.7				1717.4			
Approach LOS	A				A				F				F			

HCS Two-Way Stop-Control Report

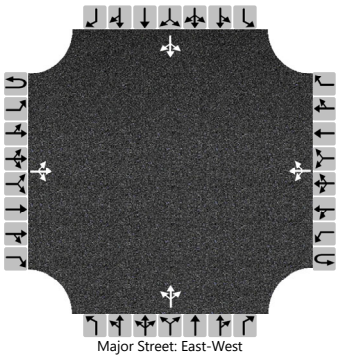
General Information

Analyst	HM
Agency/Co.	LJB Inc.
Date Performed	6/20/2025
Analysis Year	2030
Time Analyzed	No Build - PM Peak
Intersection Orientation	East-West
Project Description	SR 161 Corridor Study

Site Information

Intersection	SR 161 @ Kile-Warner Rd
Jurisdiction	UNI-MAD-FRA, OH
East/West Street	SR 161
North/South Street	Kile-Warner Rd
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		42	1097	9		5	1500	76		20	10	10		71	5	50
Percent Heavy Vehicles (%)		0				3				3	3	3		13	3	15
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type | Storage			Undivided													

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.13				7.13	6.53	6.23		7.23	6.53	6.35
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.23				3.53	4.03	3.33		3.62	4.03	3.44

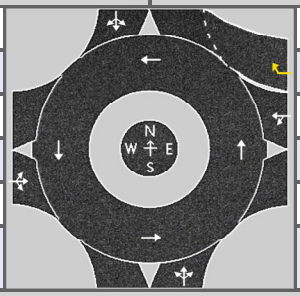
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		46				5					43				137	
Capacity, c (veh/h)		375				577					1				0	
v/c Ratio		0.12				0.01					34.67					
95% Queue Length, Q_{95} (veh)		0.4				0.0					7.5					
95% Queue Length, Q_{95} (ft)		10.0				0.0					192.0					
Control Delay (s/veh)		15.9	5.9	5.9		11.3	2.7	2.7			20561.1					
Level of Service (LOS)		C	A	A		B	A	A			F					
Approach Delay (s/veh)		6.2				2.7				20561.1						
Approach LOS		A				A				F						

HCS Roundabouts Report

General Information

Analyst	HM
Agency or Co.	LJB Inc.
Date Performed	6/20/2025
Analysis Year	2030
Time Analyzed	No Build - AM Peak
Project Description	SR 161 Corridor Study



Site Information

Intersection	SR 161 @ Houchard Rd
E/W Street Name	SR 161
N/S Street Name	Houchard Rd
Analysis Time Period, hrs	0.25
Peak Hour Factor	0.92
Jurisdiction	UNI-MAD-FRA, OH

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LT				LTR				LTR	
Volume (V), veh/h	0	43	1166	115	0	89	699	93	0	55	31	59	0	133	48	51
Percent Heavy Vehicles, %	0	3	5	1	0	7	10	7	0	14	0	9	0	7	0	0
Flow Rate (v_{PCE}), pc/h	0	48	1331	126	0	104	836	108	0	68	34	70	0	155	52	55
Right-Turn Bypass	None				Yielding				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	0				0				0				0			
Proportion of CAVs, %	0															

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway, s		4.9763			4.9763	4.9763		4.9763			4.9763	
Follow-Up Headway, s		2.6087			2.6087	2.6087		2.6087			2.6087	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		1505			940	108		172			262	
Entry Volume, veh/h		1439			857	101		158			252	
Circulating Flow (v_c), pc/h	311			150			1534			1008		
Exiting Flow (v_{ex}), pc/h	1556			959			82			282		
Capacity (c_{pce}), pc/h		1005			1184	1269		289			494	
Capacity (c), veh/h		961			1080	1186		265			474	
v/c Ratio (x)		1.50			0.79	0.09		0.60			0.53	

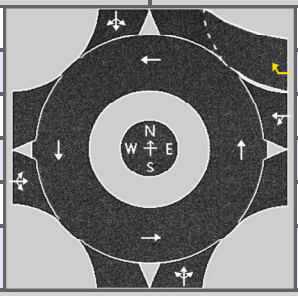
Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		243.5			18.7	3.7		34.8			18.5	
Lane LOS		F			C	A		D			C	
95% Queue Length, Q_{95} (veh)		67.7			8.8	0.3		3.5			3.1	
95% Queue Length, Q_{95} (ft)		1754.6			232.3	7.9		93.8			80.0	
Approach Delay, s/veh | LOS	243.5	F		17.1	C		34.8	D		18.5	C	
Intersection Delay, s/veh | LOS	134.3						F					

HCS Roundabouts Report

General Information

Analyst	HM
Agency or Co.	LJB Inc.
Date Performed	6/20/2025
Analysis Year	2030
Time Analyzed	No Build - PM Peak
Project Description	SR 161 Corridor Study



Site Information

Intersection	SR 161 @ Houchard Rd
E/W Street Name	SR 161
N/S Street Name	Houchard Rd
Analysis Time Period, hrs	0.25
Peak Hour Factor	0.92
Jurisdiction	UNI-MAD-FRA, OH

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LT				LTR				LTR	
Volume (V), veh/h	0	99	1028	91	0	51	1397	108	0	133	48	92	0	131	23	50
Percent Heavy Vehicles, %	0	3	5	1	0	7	10	7	0	14	0	9	0	7	0	0
Flow Rate (v_{PCE}), pc/h	0	111	1173	100	0	59	1670	126	0	165	52	109	0	152	25	54
Right-Turn Bypass	None				Yielding				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	0				0				0				0			
Proportion of CAVs, %	0															

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway, s		4.9763			4.9763	4.9763		4.9763			4.9763	
Follow-Up Headway, s		2.6087			2.6087	2.6087		2.6087			2.6087	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		1384			1729	126		326			231	
Entry Volume, veh/h		1324			1573	118		297			221	
Circulating Flow (v_c), pc/h	236			328			1436			1894		
Exiting Flow (v_{ex}), pc/h	1434			1889			163			184		
Capacity (c_{pce}), pc/h		1085			988	1169		319			200	
Capacity (c), veh/h		1038			899	1092		290			191	
v/c Ratio (x)		1.28			1.75	0.11		1.02			1.16	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		147.0			355.9	4.2		98.0			163.7	
Lane LOS		F			F	A		F			F	
95% Queue Length, Q_{95} (veh)		46.5			90.8	0.4		11.0			11.2	
95% Queue Length, Q_{95} (ft)		1204.7			2397.1	10.6		296.7			290.1	
Approach Delay, s/veh | LOS	147.0	F		331.4	F		98.0	F		163.7	F	
Intersection Delay, s/veh | LOS	232.2						F					

HCS Two-Way Stop-Control Report

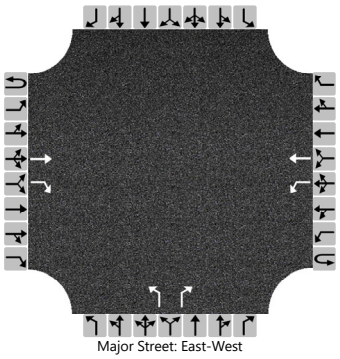
General Information

Analyst	HM
Agency/Co.	LJB Inc.
Date Performed	6/20/2025
Analysis Year	2030
Time Analyzed	No Build - AM Peak
Intersection Orientation	East-West
Project Description	SR 161 Corridor Study

Site Information

Intersection	SR 161 @ Crosby Rd
Jurisdiction	UNI-MAD-FRA, OH
East/West Street	SR 161
North/South Street	Crosby Rd
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	1	0	1	1	0		1	0	1		0	0	0
Configuration			T	R		L	T			L		R				
Volume (veh/h)			1349	15		61	876			5		18				
Percent Heavy Vehicles (%)						5				5		5				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized			No							No						
Median Type | Storage			Undivided													

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.15				6.45		6.25				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.25				3.55		3.35				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						66				5		20				
Capacity, c (veh/h)						445				24		155				
v/c Ratio						0.15				0.22		0.13				
95% Queue Length, Q_{95} (veh)						0.5				0.7		0.4				
95% Queue Length, Q_{95} (ft)						13.0				18.2		10.4				
Control Delay (s/veh)						14.5	1.9			190.2		31.6				
Level of Service (LOS)						B	A			F		D				
Approach Delay (s/veh)						2.7				66.1						
Approach LOS						A				F						

HCS Two-Way Stop-Control Report

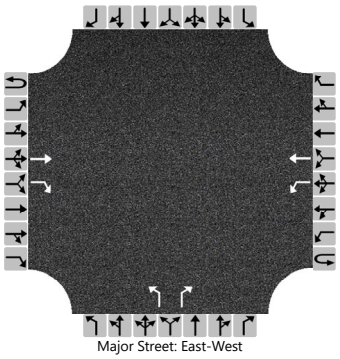
General Information

Analyst	HM
Agency/Co.	LJB Inc.
Date Performed	6/20/2025
Analysis Year	2030
Time Analyzed	No Build - PM Peak
Intersection Orientation	East-West
Project Description	SR 161 Corridor Study

Site Information

Intersection	SR 161 @ Crosby Rd
Jurisdiction	UNI-MAD-FRA, OH
East/West Street	SR 161
North/South Street	Crosby Rd
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	1	0	1	1	0		1	0	1		0	0	0
Configuration			T	R		L	T			L		R				
Volume (veh/h)			1246	5		20	1544			12		49				
Percent Heavy Vehicles (%)						3				3		3				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized			No							No						
Median Type | Storage			Undivided													

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.13				6.43		6.23				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.23				3.53		3.33				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						22				13		53				
Capacity, c (veh/h)						502				13		182				
v/c Ratio						0.04				1.03		0.29				
95% Queue Length, Q_{95} (veh)						0.1				2.2		1.2				
95% Queue Length, Q_{95} (ft)						2.6				56.3		30.7				
Control Delay (s/veh)						12.5	0.5			655.1		32.8				
Level of Service (LOS)						B	A			F		D				
Approach Delay (s/veh)						0.7				155.2						
Approach LOS						A				F						

HCS Two-Way Stop-Control Report

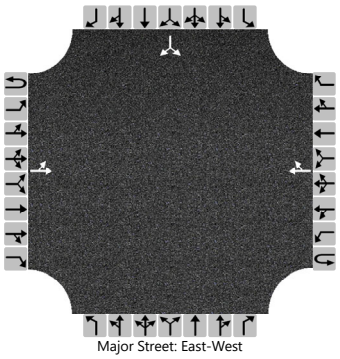
General Information

Analyst	HM
Agency/Co.	LJB Inc.
Date Performed	6/20/2025
Analysis Year	2030
Time Analyzed	No Build - AM Peak
Intersection Orientation	East-West
Project Description	SR 161 Corridor Study

Site Information

Intersection	SR 161 @ Weldon Rd
Jurisdiction	UNI-MAD-FRA, OH
East/West Street	SR 161
North/South Street	Weldon Rd
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		62	1305				886	81						70		52
Percent Heavy Vehicles (%)		0												0		25
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type | Storage			Undivided													

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.10												6.40		6.45
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.20												3.50		3.53

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		67													133	
Capacity, c (veh/h)		670													26	
v/c Ratio		0.10													5.13	
95% Queue Length, Q_{95} (veh)		0.3													16.4	
95% Queue Length, Q_{95} (ft)		7.5													445.0	
Control Delay (s/veh)		11.0	5.2												2162.3	
Level of Service (LOS)		B	A												F	
Approach Delay (s/veh)		5.5												2162.3		
Approach LOS		A												F		

HCS Two-Way Stop-Control Report

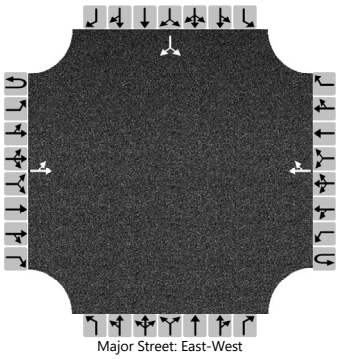
General Information

Analyst	HM
Agency/Co.	LJB Inc.
Date Performed	6/20/2025
Analysis Year	2030
Time Analyzed	No Build - PM Peak
Intersection Orientation	East-West
Project Description	SR 161 Corridor Study

Site Information

Intersection	SR 161 @ Weldon Rd
Jurisdiction	UNI-MAD-FRA, OH
East/West Street	SR 161
North/South Street	Weldon Rd
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		110	1183				1455	141						126		109
Percent Heavy Vehicles (%)		0												0		0
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.10												6.40		6.20
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.20												3.50		3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		120													255	
Capacity, c (veh/h)		368													0	
v/c Ratio		0.32														
95% Queue Length, Q_{95} (veh)		1.4														
95% Queue Length, Q_{95} (ft)		35.0														
Control Delay (s/veh)		19.4	19.4													
Level of Service (LOS)		C	C													
Approach Delay (s/veh)	19.4															
Approach LOS	C															

APPENDIX E – 2030 NO-BUILD CAPACITY ANALYSIS REPORTS (TRANSMODELER)

NO BUILD

Intersection	Control Type	Appr.	Mvmt	2030 AM (30%)				2030 PM (30%)			
				Sim. Veh.	LOS	Delay Mean	Queue (ft) Mean	Sim. Veh.	LOS	Delay Mean	Queue (ft) Mean
SR 161, Cosgray Road	Roundabout	**Overall**		**3161**	**A**	**5.9**		**3979**	**C**	**22.5**	
		EB	T	502	A	5.8	5.6	522	C	15.1	32.6
			T	633	A	6.1	8.3	625	C	16.6	47.2
			R	238	A	1.6	0	219	A	2.6	0.2
		WB	T	579	A	3.7	2	740	B	10.0	23.6
			T	572	A	3.1	1.3	727	A	6.5	10.7
			R	33	A	1.3	0	58	A	1.6	0
		NB	LT	189	B	11.1	7.7	453	C	18.1	40.8
			R	346	B	13.8	19.1	349	B	10.2	10.1
		SB	LT	49	B	11.1	2	212	F	191.3	318.5
			R	21	A	4.1	0.3	75	F	86.2	2.3
Industrial Parkway & SR 161	Roundabout	**Overall**		**3621**	**F**	**86.3**		**4108**	**F**	**125**	
		EB	LT	673	E	49	160.6	758	A	5.7	8.4
			TR	796	E	42.4	130.7	783	A	4.9	5.4
		WB	LT	636	A	6.8	9	839	F	63	84
			TR	789	A	7	8.7	1051	F	76.5	103.2
		NB	LT	93	D	29.7	14.8	169	D	34.7	33.2
			R	81	C	20.1	6.9	211	B	11.4	6.6
		SB	L	374	F	336.5	835.3	207	F	1060.6	1674.5
			LTR	179	F	598.1	956.5	92	F	1583.2	1589.4
SR 161, US 33 EB Off-Ramp to SR 161 & Eiterman Road	Roundabout	**Overall**		**4264**	**F**	**58.7**		**4436**	**F**	**83.9**	
		EB	T	592	E	35.7	28.2	497	A	8.9	1.5
			T	1001	F	63.6	140.9	1374	C	16.1	7.2
			R	83	D	26.1	0	87	A	3.8	0
		WB	LT	1003	A	9.1	4.4	1164	D	32.9	17.5
			T	1151	A	9.7	3.4	1093	E	47.7	70.8
		NB	TR	131	D	32	24.3	91	F	1156.1	1323.8
			R	134	C	21.4	11.4	103	F	1084.7	429.7
		SB	L	37	F	633.3	14.3	12	F	1200.3	62.5
			LTR	132	F	858.1	1405.7	15	F	1697	1635.2
SR 161, US 33 Off-Ramp to SR 161 & Hyland-Croy Road	Signal	**Overall**		**3686**	**D**	**35.6**		**3982**	**C**	**33.4**	
		EB	L	51	E	55.2	15.1	61	E	68.5	23
			L	51	E	55.6	14.5	52	E	75.7	22.2
			T	290	C	33.1	56.3	264	C	28.9	42.7
			T	265	C	34.3	52.6	239	C	29.4	41.1
		WB	T	181	D	41.7	40.9	279	D	37.9	60.7
			T	214	D	45.2	56.1	301	D	42.9	76.5
			T	236	D	46.7	66	335	D	45	90.6
			R	90	A	6.9	2	310	B	17.1	24.2
		NB	L	668	C	34.7	110.2	650	C	31.8	94.1
			L	636	D	35.7	108.9	603	C	32.9	92.8
			TR	247	B	19.4	25.2	470	C	24.6	63.7
		SB	L	123	D	48.1	37.2	45	D	51.1	11.4
			L	126	D	47.4	35.8	45	D	50.9	12.3
			R	227	D	38.2	55.2	148	D	39.4	37.1
			R	282	C	24.3	39.2	180	C	22.7	23.4

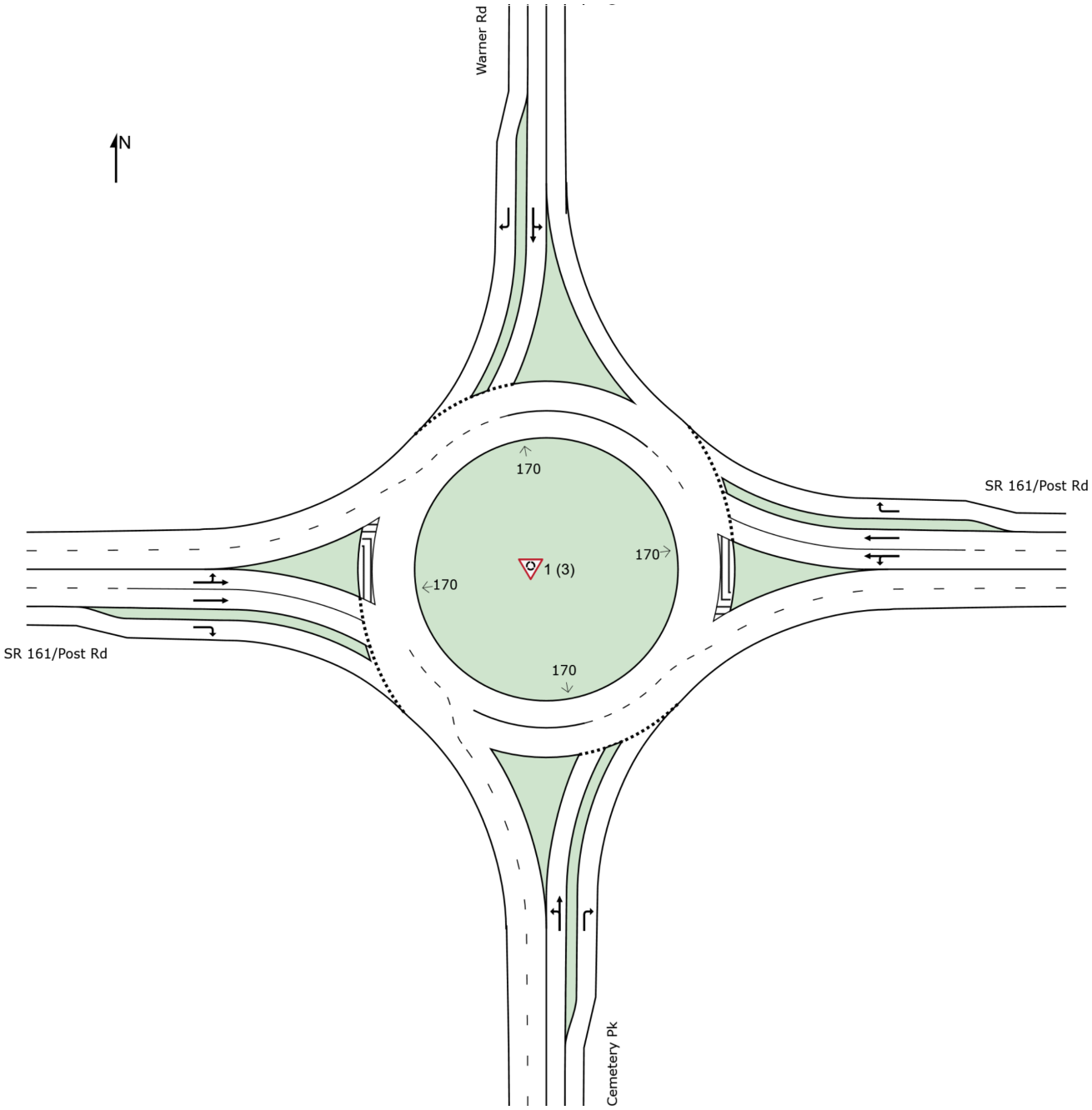
APPENDIX F – 2030 BUILD CAPACITY ANALYSIS REPORTS (SIDRA)

SITE LAYOUT

Site: [1 (3)] SR 161 at Warner-Cemetery-2030 AM (Folder1)

2030 AM
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

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



MOVEMENT SUMMARY

Site: [1 (3)] SR 161 at Warner-Cemetery-2030 AM (Folder1)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

2030 AM
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed mph
South: Cemetery Pk															
3	L2	All MCs	66	3.0	66	3.0	0.206	11.0	LOS B	0.7	17.3	0.69	0.69	0.69	29.6
8	T1	All MCs	27	3.0	27	3.0	0.206	11.0	LOS B	0.7	17.3	0.69	0.69	0.69	30.1
18	R2	All MCs	309	3.0	309	3.0	0.608	20.3	LOS C	3.2	82.2	0.80	0.95	1.33	27.8
Approach			402	3.0	402	3.0	0.608	18.2	LOS C	3.2	82.2	0.77	0.89	1.18	28.2
East: SR 161/Post Rd															
1	L2	All MCs	172	3.0	172	3.0	0.253	5.3	LOS A	1.2	30.4	0.33	0.17	0.33	32.2
6	T1	All MCs	429	3.0	429	3.0	0.253	5.3	LOS A	1.2	30.4	0.33	0.17	0.33	34.2
16	R2	All MCs	153	3.0	153	3.0	0.129	4.1	LOS A	0.5	13.6	0.29	0.15	0.29	34.6
Approach			754	3.0	754	3.0	0.253	5.0	LOS A	1.2	30.4	0.32	0.17	0.32	33.8
North: Warner Rd															
7	L2	All MCs	143	3.0	143	3.0	0.237	7.5	LOS A	0.9	22.2	0.58	0.51	0.58	30.6
4	T1	All MCs	33	3.0	33	3.0	0.237	7.5	LOS A	0.9	22.2	0.58	0.51	0.58	31.2
14	R2	All MCs	72	3.0	72	3.0	0.106	6.4	LOS A	0.4	9.3	0.56	0.50	0.56	33.6
Approach			248	3.0	248	3.0	0.237	7.2	LOS A	0.9	22.2	0.57	0.51	0.57	31.5
West: SR 161/Post Rd															
5	L2	All MCs	60	3.0	60	3.0	0.473	9.2	LOS A	2.9	74.7	0.60	0.46	0.68	31.9
2	T1	All MCs	868	3.0	868	3.0	0.473	9.2	LOS A	2.9	74.7	0.60	0.46	0.68	32.7
12	R2	All MCs	59	3.0	59	3.0	0.060	4.2	LOS A	0.2	5.7	0.41	0.29	0.41	34.6
Approach			987	3.0	987	3.0	0.473	8.9	LOS A	2.9	74.7	0.59	0.45	0.66	32.8
All Vehicles			2391	3.0	2391	3.0	0.608	9.1	LOS A	3.2	82.2	0.53	0.44	0.63	32.1

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: [1 (4)] SR 161 at Warner-Cemetery-2030 PM (Folder1)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

2030 PM
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed mph
South: Cemetery Pk															
3	L2	All MCs	75	3.0	75	3.0	0.192	8.9	LOS A	0.7	17.0	0.63	0.61	0.63	30.4
8	T1	All MCs	33	3.0	33	3.0	0.192	8.9	LOS A	0.7	17.0	0.63	0.61	0.63	31.0
18	R2	All MCs	246	3.0	246	3.0	0.397	11.5	LOS B	1.7	44.5	0.68	0.71	0.89	31.2
Approach			353	3.0	353	3.0	0.397	10.7	LOS B	1.7	44.5	0.67	0.68	0.81	31.0
East: SR 161/Post Rd															
1	L2	All MCs	348	3.0	348	3.0	0.609	10.5	LOS B	4.7	119.1	0.56	0.30	0.56	30.4
6	T1	All MCs	1083	3.0	1083	3.0	0.609	10.5	LOS B	4.7	119.1	0.56	0.30	0.56	31.8
16	R2	All MCs	174	3.0	174	3.0	0.148	4.3	LOS A	0.6	15.9	0.31	0.16	0.31	34.5
Approach			1604	3.0	1604	3.0	0.609	9.8	LOS A	4.7	119.1	0.53	0.29	0.53	31.8
North: Warner Rd															
7	L2	All MCs	202	3.0	202	3.0	0.693	34.4	LOS D	3.2	81.1	0.90	1.08	1.58	22.8
4	T1	All MCs	33	3.0	33	3.0	0.693	34.9	LOS D	3.2	81.1	0.90	1.08	1.58	23.1
14	R2	All MCs	93	3.0	93	3.0	0.321	19.6	LOS C	1.0	26.5	0.82	0.87	0.99	28.0
Approach			328	3.0	328	3.0	0.693	30.3	LOS D	3.2	81.1	0.88	1.02	1.41	24.0
West: SR 161/Post Rd															
5	L2	All MCs	58	3.0	58	3.0	0.423	10.0	LOS B	2.3	57.9	0.66	0.62	0.83	31.4
2	T1	All MCs	602	3.0	602	3.0	0.423	10.0	LOS B	2.3	57.9	0.66	0.62	0.83	32.3
12	R2	All MCs	93	3.0	93	3.0	0.120	5.8	LOS A	0.4	11.2	0.54	0.45	0.54	33.7
Approach			753	3.0	753	3.0	0.423	9.5	LOS A	2.3	57.9	0.65	0.60	0.79	32.4
All Vehicles			3039	3.0	3039	3.0	0.693	12.0	LOS B	4.7	119.1	0.61	0.49	0.72	30.7

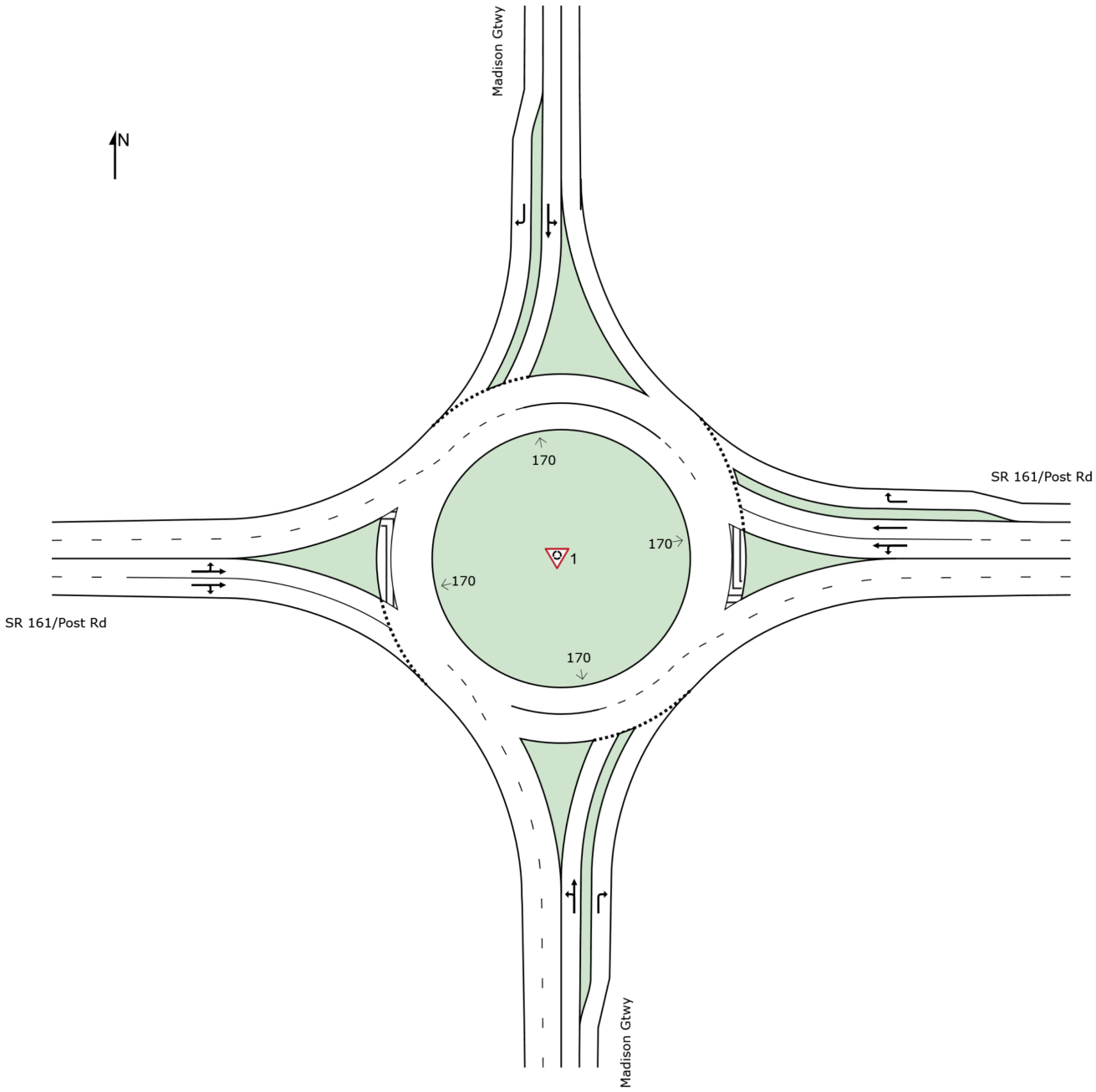
Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result 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 (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

SITE LAYOUT

Site: [1] SR 161 at Madison Gtwy-2040 AM No Build (Folder1)

2040 AM No Build
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

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



MOVEMENT SUMMARY

Site: [1 (3)] SR 161 at Madison Gtwy-2030 AM (Folder1)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

2030 AM
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed mph
South: Madison Gtwy															
3	L2	All MCs	18	3.0	18	3.0	0.091	12.7	LOS B	0.3	6.8	0.75	0.75	0.75	29.2
8	T1	All MCs	11	3.0	11	3.0	0.091	12.7	LOS B	0.3	6.8	0.75	0.75	0.75	29.7
18	R2	All MCs	50	3.0	50	3.0	0.136	12.0	LOS B	0.4	10.0	0.74	0.74	0.74	31.0
Approach			79	3.0	79	3.0	0.136	12.2	LOS B	0.4	10.0	0.74	0.74	0.74	30.3
East: SR 161/Post Rd															
1	L2	All MCs	64	3.0	64	3.0	0.289	5.3	LOS A	1.5	37.5	0.24	0.10	0.24	33.5
6	T1	All MCs	675	3.0	675	3.0	0.289	5.3	LOS A	1.5	37.5	0.24	0.10	0.24	34.6
16	R2	All MCs	121	3.0	121	3.0	0.094	3.5	LOS A	0.4	9.8	0.19	0.08	0.19	34.9
Approach			860	3.0	860	3.0	0.289	5.0	LOS A	1.5	37.5	0.23	0.09	0.23	34.5
North: Madison Gtwy															
7	L2	All MCs	107	3.0	107	3.0	0.172	7.2	LOS A	0.6	15.1	0.58	0.53	0.58	30.5
4	T1	All MCs	11	3.0	11	3.0	0.172	7.2	LOS A	0.6	15.1	0.58	0.53	0.58	31.1
14	R2	All MCs	42	3.0	42	3.0	0.068	6.6	LOS A	0.2	5.8	0.57	0.53	0.57	33.5
Approach			160	3.0	160	3.0	0.172	7.0	LOS A	0.6	15.1	0.58	0.53	0.58	31.3
West: SR 161/Post Rd															
5	L2	All MCs	49	3.0	49	3.0	0.574	9.9	LOS A	4.1	103.7	0.55	0.30	0.55	31.7
2	T1	All MCs	1250	3.0	1250	3.0	0.574	9.9	LOS A	4.1	103.7	0.55	0.30	0.55	32.5
12	R2	All MCs	27	3.0	27	3.0	0.574	9.9	LOS A	4.1	103.7	0.55	0.30	0.55	32.3
Approach			1326	3.0	1326	3.0	0.574	9.9	LOS A	4.1	103.7	0.55	0.30	0.55	32.5
All Vehicles			2425	3.0	2425	3.0	0.574	8.0	LOS A	4.1	103.7	0.44	0.26	0.44	33.0

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: [1 (4)] SR 161 at Madison Gtwy-2030 PM (Folder1)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

2030 PM
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed mph
South: Madison Gtwy															
3	L2	All MCs	36	3.0	36	3.0	0.122	11.3	LOS B	0.4	9.5	0.72	0.72	0.72	29.4
8	T1	All MCs	11	3.0	11	3.0	0.122	11.3	LOS B	0.4	9.5	0.72	0.72	0.72	29.9
18	R2	All MCs	84	3.0	84	3.0	0.193	11.2	LOS B	0.6	15.2	0.71	0.71	0.71	31.3
Approach			130	3.0	130	3.0	0.193	11.2	LOS B	0.6	15.2	0.71	0.71	0.71	30.6
East: SR 161/Post Rd															
1	L2	All MCs	72	3.0	72	3.0	0.618	10.1	LOS B	5.1	131.2	0.49	0.22	0.49	31.6
6	T1	All MCs	1457	3.0	1457	3.0	0.618	10.1	LOS B	5.1	131.2	0.49	0.22	0.49	32.4
16	R2	All MCs	161	3.0	161	3.0	0.130	4.0	LOS A	0.5	13.9	0.24	0.11	0.24	34.7
Approach			1689	3.0	1689	3.0	0.618	9.6	LOS A	5.1	131.2	0.46	0.21	0.46	32.5
North: Madison Gtwy															
7	L2	All MCs	145	3.0	145	3.0	0.482	23.3	LOS C	1.7	44.8	0.85	0.94	1.20	25.3
4	T1	All MCs	11	3.0	11	3.0	0.482	23.9	LOS C	1.7	44.8	0.85	0.94	1.20	25.7
14	R2	All MCs	58	3.0	58	3.0	0.210	17.6	LOS C	0.6	15.7	0.81	0.82	0.83	28.8
Approach			213	3.0	213	3.0	0.482	21.8	LOS C	1.7	44.8	0.84	0.91	1.10	26.2
West: SR 161/Post Rd															
5	L2	All MCs	65	3.0	65	3.0	0.506	8.9	LOS A	3.1	79.4	0.54	0.32	0.54	32.0
2	T1	All MCs	1025	3.0	1025	3.0	0.506	8.9	LOS A	3.1	79.4	0.54	0.32	0.54	32.8
12	R2	All MCs	29	3.0	29	3.0	0.506	8.9	LOS A	3.1	79.4	0.54	0.32	0.54	32.8
Approach			1120	3.0	1120	3.0	0.506	8.9	LOS A	3.1	79.4	0.54	0.32	0.54	32.8
All Vehicles			3152	3.0	3152	3.0	0.618	10.2	LOS B	5.1	131.2	0.53	0.32	0.54	32.0

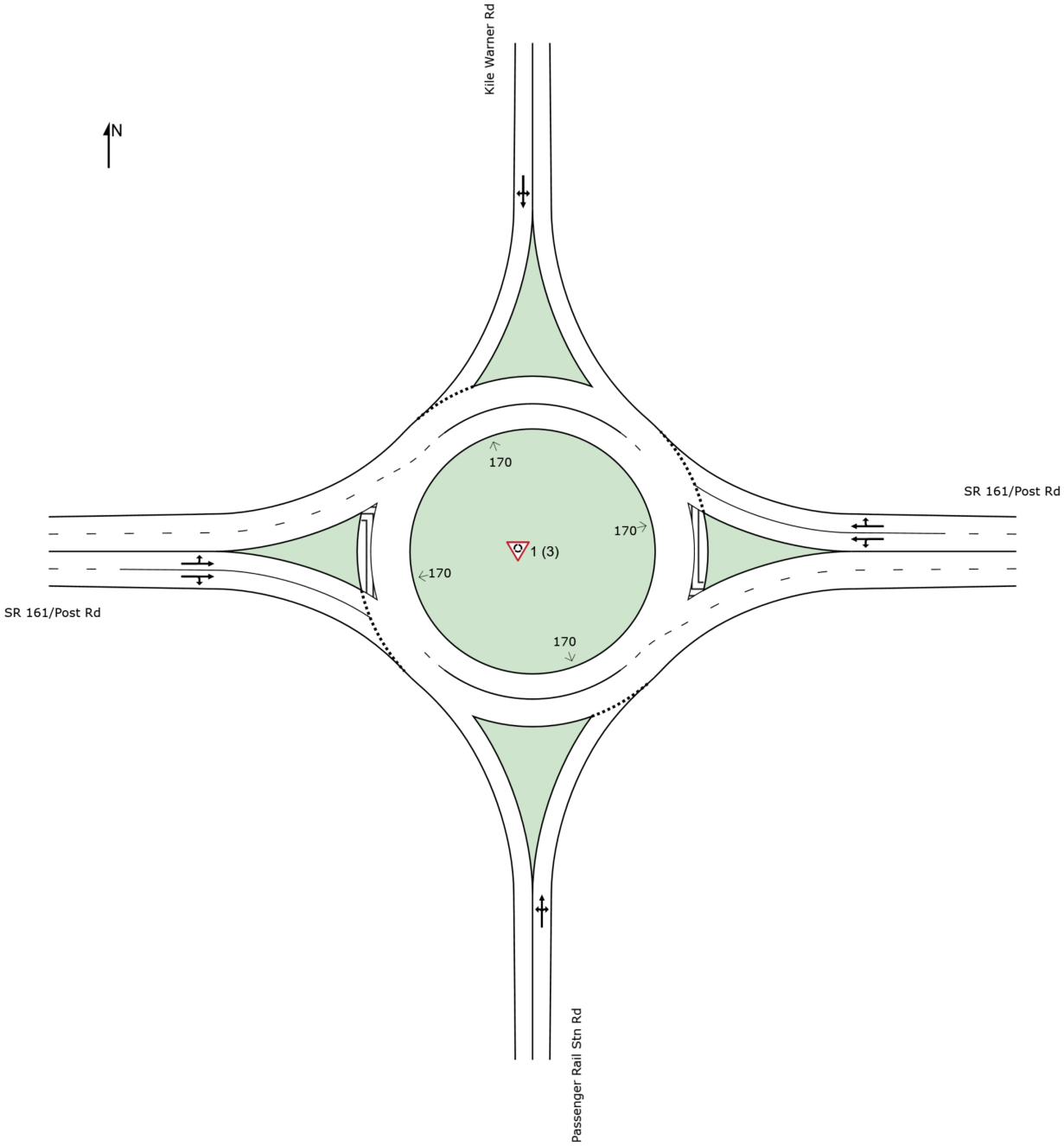
Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result 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 (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

SITE LAYOUT

Site: [1 (3)] SR 161 at Kile Warner-2030 AM (Folder1)

2030 AM
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

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



MOVEMENT SUMMARY

Site: [1 (3)] SR 161 at Kile Warner-2030 AM (Folder1)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

2030 AM
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed mph
South: Passenger Rail Stn Rd															
3	L2	All MCs	60	3.0	60	3.0	0.451	20.6	LOS C	1.6	41.0	0.82	0.90	1.11	26.9
8	T1	All MCs	34	3.0	34	3.0	0.451	20.6	LOS C	1.6	41.0	0.82	0.90	1.11	23.8
18	R2	All MCs	64	3.0	64	3.0	0.451	20.6	LOS C	1.6	41.0	0.82	0.90	1.11	27.2
Approach			158	3.0	158	3.0	0.451	20.6	LOS C	1.6	41.0	0.82	0.90	1.11	26.5
East: SR 161/Post Rd															
1	L2	All MCs	97	3.0	97	3.0	0.398	6.8	LOS A	2.2	57.4	0.38	0.19	0.38	32.7
6	T1	All MCs	760	3.0	760	3.0	0.398	6.8	LOS A	2.2	57.4	0.38	0.19	0.38	33.7
16	R2	All MCs	101	3.0	101	3.0	0.398	6.8	LOS A	2.2	57.4	0.38	0.19	0.38	31.3
Approach			958	3.0	958	3.0	0.398	6.8	LOS A	2.2	57.4	0.38	0.19	0.38	33.4
North: Kile Warner Rd															
7	L2	All MCs	145	3.0	145	3.0	0.429	12.7	LOS B	1.9	49.7	0.70	0.76	0.97	26.0
4	T1	All MCs	52	3.0	52	3.0	0.429	12.7	LOS B	1.9	49.7	0.70	0.76	0.97	26.6
14	R2	All MCs	55	3.0	55	3.0	0.429	12.7	LOS B	1.9	49.7	0.70	0.76	0.97	26.4
Approach			252	3.0	252	3.0	0.429	12.7	LOS B	1.9	49.7	0.70	0.76	0.97	26.2
West: SR 161/Post Rd															
5	L2	All MCs	47	3.0	47	3.0	0.695	14.1	LOS B	9.9	252.4	0.77	0.72	1.23	22.0
2	T1	All MCs	1267	3.0	1267	3.0	0.695	14.1	LOS B	9.9	252.4	0.77	0.72	1.23	30.7
12	R2	All MCs	125	3.0	125	3.0	0.695	14.1	LOS B	9.9	252.4	0.77	0.72	1.23	30.5
Approach			1439	3.0	1439	3.0	0.695	14.1	LOS B	9.9	252.4	0.77	0.72	1.23	30.4
All Vehicles			2807	3.0	2807	3.0	0.695	11.9	LOS B	9.9	252.4	0.63	0.55	0.91	30.8

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: [1 (4)] SR 161 at Kile Warner-2030 PM (Folder1)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

2030 PM
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed mph
South: Passenger Rail Stn Rd															
3	L2	All MCs	22	3.0	22	3.0	0.108	10.6	LOS B	0.3	8.1	0.71	0.71	0.71	30.2
8	T1	All MCs	11	3.0	11	3.0	0.108	10.6	LOS B	0.3	8.1	0.71	0.71	0.71	27.7
18	R2	All MCs	11	3.0	11	3.0	0.108	10.6	LOS B	0.3	8.1	0.71	0.71	0.71	30.6
Approach			43	3.0	43	3.0	0.108	10.6	LOS B	0.3	8.1	0.71	0.71	0.71	29.8
East: SR 161/Post Rd															
1	L2	All MCs	5	3.0	5	3.0	0.672	10.9	LOS B	6.6	169.7	0.47	0.19	0.47	31.5
6	T1	All MCs	1630	3.0	1630	3.0	0.672	10.9	LOS B	6.6	169.7	0.47	0.19	0.47	32.1
16	R2	All MCs	83	3.0	83	3.0	0.672	10.9	LOS B	6.6	169.7	0.47	0.19	0.47	29.0
Approach			1718	3.0	1718	3.0	0.672	10.9	LOS B	6.6	169.7	0.47	0.19	0.47	32.0
North: Kile Warner Rd															
7	L2	All MCs	77	3.0	77	3.0	0.477	25.6	LOS D	1.6	41.5	0.86	0.95	1.21	21.5
4	T1	All MCs	5	3.0	5	3.0	0.477	25.6	LOS D	1.6	41.5	0.86	0.95	1.21	21.9
14	R2	All MCs	54	3.0	54	3.0	0.477	25.6	LOS D	1.6	41.5	0.86	0.95	1.21	21.7
Approach			137	3.0	137	3.0	0.477	25.6	LOS D	1.6	41.5	0.86	0.95	1.21	21.6
West: SR 161/Post Rd															
5	L2	All MCs	46	3.0	46	3.0	0.493	7.8	LOS A	3.3	85.4	0.34	0.14	0.34	24.1
2	T1	All MCs	1192	3.0	1192	3.0	0.493	7.8	LOS A	3.3	85.4	0.34	0.14	0.34	33.5
12	R2	All MCs	10	3.0	10	3.0	0.493	7.8	LOS A	3.3	85.4	0.34	0.14	0.34	33.3
Approach			1248	3.0	1248	3.0	0.493	7.8	LOS A	3.3	85.4	0.34	0.14	0.34	33.2
All Vehicles			3147	3.0	3147	3.0	0.672	10.3	LOS B	6.6	169.7	0.44	0.21	0.45	31.9

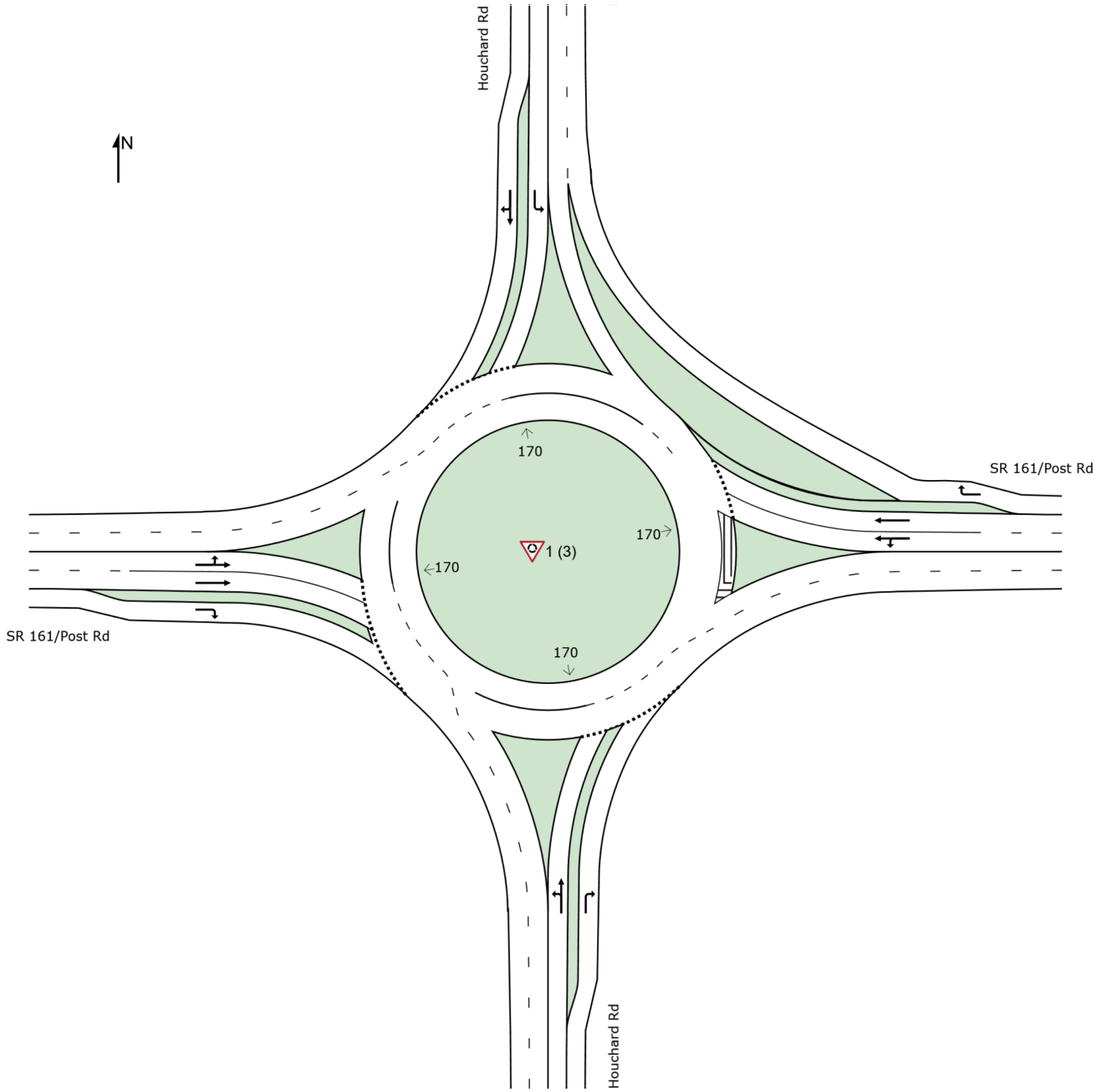
Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result 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 (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

SITE LAYOUT

Site: [1 (3)] SR 161 at Houchard Rd-2030 AM (Folder1)

2030 AM
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

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



MOVEMENT SUMMARY

Site: [1 (3)] SR 161 at Houchard Rd-2030 AM (Folder1)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

2030 AM
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed mph
South: Houchard Rd															
3	L2	All MCs	60	3.0	60	3.0	0.268	15.3	LOS C	0.8	21.0	0.78	0.80	0.87	28.3
8	T1	All MCs	34	3.0	34	3.0	0.268	15.3	LOS C	0.8	21.0	0.78	0.80	0.87	28.8
18	R2	All MCs	64	3.0	64	3.0	0.210	15.9	LOS C	0.6	16.0	0.79	0.79	0.80	29.4
Approach			158	3.0	158	3.0	0.268	15.5	LOS C	0.8	21.0	0.78	0.80	0.84	28.8
East: SR 161/Post Rd															
1	L2	All MCs	97	3.0	97	3.0	0.356	6.3	LOS A	1.9	48.6	0.36	0.18	0.36	32.8
6	T1	All MCs	760	3.0	760	3.0	0.356	6.3	LOS A	1.9	48.6	0.36	0.18	0.36	34.0
16	R2	All MCs	101	3.0	101	3.0	0.062	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	37.3
Approach			958	3.0	958	3.0	0.356	5.7	LOS A	1.9	48.6	0.32	0.16	0.32	34.2
North: Houchard Rd															
7	L2	All MCs	145	3.0	145	3.0	0.246	9.3	LOS A	0.8	21.5	0.64	0.62	0.64	29.5
4	T1	All MCs	52	3.0	52	3.0	0.203	9.5	LOS A	0.7	17.8	0.64	0.63	0.64	32.6
14	R2	All MCs	55	3.0	55	3.0	0.203	9.5	LOS A	0.7	17.8	0.64	0.63	0.64	32.3
Approach			252	3.0	252	3.0	0.246	9.4	LOS A	0.8	21.5	0.64	0.63	0.64	30.6
West: SR 161/Post Rd															
5	L2	All MCs	47	3.0	47	3.0	0.645	13.0	LOS B	7.4	190.6	0.70	0.64	1.07	30.4
2	T1	All MCs	1267	3.0	1267	3.0	0.645	12.7	LOS B	7.4	190.6	0.69	0.62	1.05	31.3
12	R2	All MCs	125	3.0	125	3.0	0.127	4.8	LOS A	0.5	12.5	0.40	0.27	0.40	34.3
Approach			1439	3.0	1439	3.0	0.645	12.0	LOS B	7.4	190.6	0.67	0.59	0.99	31.5
All Vehicles			2807	3.0	2807	3.0	0.645	9.8	LOS A	7.4	190.6	0.55	0.46	0.72	32.1

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: [1 (4)] SR 161 at Houchard Rd-2030 PM (Folder1)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

2030 PM
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed mph
South: Houchard Rd															
3	L2	All MCs	145	3.0	145	3.0	0.515	21.4	LOS C	2.1	52.6	0.83	0.93	1.22	26.2
8	T1	All MCs	52	3.0	52	3.0	0.515	21.4	LOS C	2.1	52.6	0.83	0.93	1.22	26.6
18	R2	All MCs	100	3.0	100	3.0	0.298	16.6	LOS C	1.0	25.2	0.79	0.83	0.92	29.1
Approach			297	3.0	297	3.0	0.515	19.8	LOS C	2.1	52.6	0.81	0.90	1.12	27.1
East: SR 161/Post Rd															
1	L2	All MCs	55	3.0	55	3.0	0.768	17.4	LOS C	14.1	361.1	0.87	0.91	1.59	28.8
6	T1	All MCs	1518	3.0	1518	3.0	0.768	17.4	LOS C	14.1	361.1	0.87	0.91	1.59	29.4
16	R2	All MCs	117	3.0	117	3.0	0.072	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	37.3
Approach			1691	3.0	1691	3.0	0.768	16.2	LOS C	14.1	361.1	0.81	0.85	1.48	29.8
North: Houchard Rd															
7	L2	All MCs	142	3.0	142	3.0	0.497	26.6	LOS D	1.7	44.1	0.87	0.95	1.17	24.4
4	T1	All MCs	25	3.0	25	3.0	0.340	24.7	LOS C	1.0	26.2	0.86	0.90	1.02	26.7
14	R2	All MCs	54	3.0	54	3.0	0.340	24.7	LOS C	1.0	26.2	0.86	0.90	1.02	26.5
Approach			222	3.0	222	3.0	0.497	25.9	LOS D	1.7	44.1	0.87	0.93	1.12	25.1
West: SR 161/Post Rd															
5	L2	All MCs	108	3.0	108	3.0	0.562	10.3	LOS B	4.1	104.8	0.57	0.37	0.62	31.2
2	T1	All MCs	1117	3.0	1117	3.0	0.562	10.0	LOS B	4.1	104.8	0.56	0.36	0.59	32.3
12	R2	All MCs	99	3.0	99	3.0	0.094	4.2	LOS A	0.4	9.1	0.34	0.21	0.34	34.6
Approach			1324	3.0	1324	3.0	0.562	9.6	LOS A	4.1	104.8	0.54	0.35	0.58	32.4
All Vehicles			3534	3.0	3534	3.0	0.768	14.6	LOS B	14.1	361.1	0.72	0.67	1.09	30.1

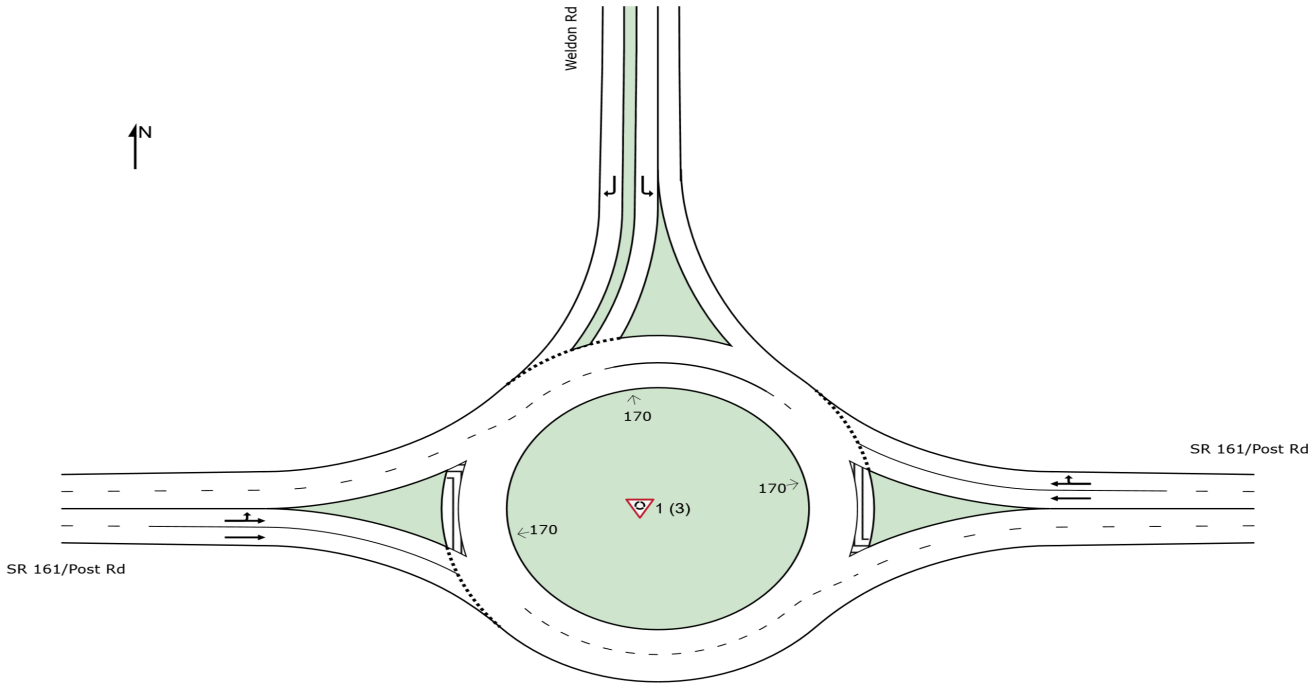
Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result 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 (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

SITE LAYOUT

Site: [1 (3)] SR 161 at Weldon-2030 AM (Folder1)

2030 AM
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

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



Organisation: LJB INC | Licence: PLUS / 1PC | Created: Wednesday, January 14, 2026 1:59:08 PM
Project: C:\Users\vmadineni\OneDrive - LJB INC\Desktop\MAD-UNI-FRA 161\SIDRA\Weldon.sipx

MOVEMENT SUMMARY

Site: [1 (3)] SR 161 at Weldon-2030 AM (Folder1)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

2030 AM
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed mph
East: SR 161/Post Rd															
6	T1	All MCs	963	3.0	963	3.0	0.407	6.5	LOS A	2.4	62.5	0.26	0.10	0.26	34.2
16	R2	All MCs	88	3.0	88	3.0	0.407	6.5	LOS A	2.4	62.5	0.26	0.10	0.26	33.9
Approach			1051	3.0	1051	3.0	0.407	6.5	LOS A	2.4	62.5	0.26	0.10	0.26	34.2
North: Weldon Rd															
7	L2	All MCs	76	3.0	76	3.0	0.135	8.1	LOS A	0.4	11.1	0.61	0.60	0.61	30.0
14	R2	All MCs	57	3.0	57	3.0	0.112	8.6	LOS A	0.4	9.3	0.63	0.63	0.63	32.5
Approach			133	3.0	133	3.0	0.135	8.3	LOS A	0.4	11.1	0.62	0.61	0.62	30.9
West: SR 161/Post Rd															
5	L2	All MCs	67	3.0	67	3.0	0.580	9.0	LOS A	4.7	119.5	0.38	0.15	0.38	32.1
2	T1	All MCs	1418	3.0	1418	3.0	0.580	9.0	LOS A	4.7	119.5	0.38	0.15	0.38	32.9
Approach			1486	3.0	1486	3.0	0.580	9.0	LOS A	4.7	119.5	0.38	0.15	0.38	32.8
All Vehicles			2670	3.0	2670	3.0	0.580	8.0	LOS A	4.7	119.5	0.34	0.15	0.34	33.2

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: [1 (4)] SR 161 at Weldon-2030 PM (Folder1)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

2030 PM
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

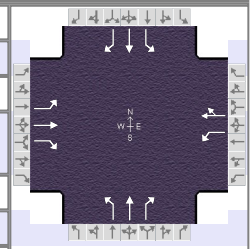
Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed mph
East: SR 161/Post Rd															
6	T1	All MCs	1582	3.0	1582	3.0	0.706	12.5	LOS B	7.1	180.6	0.61	0.29	0.61	31.4
16	R2	All MCs	153	3.0	153	3.0	0.706	12.5	LOS B	7.1	180.6	0.61	0.29	0.61	31.1
Approach			1735	3.0	1735	3.0	0.706	12.5	LOS B	7.1	180.6	0.61	0.29	0.61	31.4
North: Weldon Rd															
7	L2	All MCs	137	3.0	137	3.0	0.433	21.8	LOS C	1.5	38.0	0.84	0.91	1.12	25.6
14	R2	All MCs	118	3.0	118	3.0	0.437	25.2	LOS D	1.5	38.2	0.86	0.93	1.14	26.2
Approach			255	3.0	255	3.0	0.437	23.4	LOS C	1.5	38.2	0.85	0.92	1.13	25.9
West: SR 161/Post Rd															
5	L2	All MCs	120	3.0	120	3.0	0.582	9.7	LOS A	4.4	112.0	0.49	0.25	0.49	31.5
2	T1	All MCs	1286	3.0	1286	3.0	0.582	9.7	LOS A	4.4	112.0	0.49	0.25	0.49	32.5
Approach			1405	3.0	1405	3.0	0.582	9.7	LOS A	4.4	112.0	0.49	0.25	0.49	32.4
All Vehicles			3396	3.0	3396	3.0	0.706	12.1	LOS B	7.1	180.6	0.58	0.32	0.60	31.3

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

APPENDIX G – 2040 NO-BUILD CAPACITY ANALYSIS REPORTS (HCS & SIDRA)

HCS Signalized Intersection Results Summary

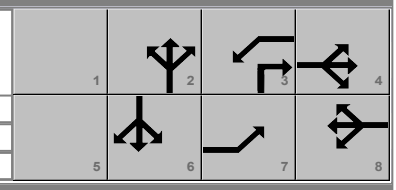
General Information				Intersection Information	
Agency	LJB Inc.			Duration, h	0.250
Analyst	TLW	Analysis Date	6/23/2025	Area Type	Other
Jurisdiction	UNI-MAD-FRA, OH	Time Period	No Build -AM Peak	PHF	0.98
Urban Street	SR 161	Analysis Year	2040	Analysis Period	1> 7:00
Intersection	SR 161 @ US 42	File Name	01-No Build 2040 AM-SR 161 @ US 42.xus		
Project Description	SR 161 Corridor Study				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	172	462	83	325	256	112	193	530	292	207	562	79

Signal Information			
Cycle, s	105.0	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	45.7	8.0	5.0	28.3	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	



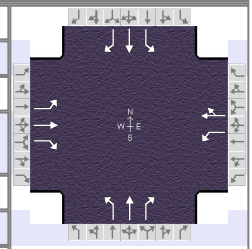
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8		2		6
Case Number	1.1	3.0	1.1	4.0		5.0		5.0
Phase Duration, s	14.0	34.3	19.0	39.3		51.7		51.7
Change Period, ($Y+R_c$), s	6.0	6.0	6.0	6.0		6.0		6.0
Max Allow Headway (*MAH*), s	3.1	3.1	3.1	3.1		0.0		0.0
Queue Clearance Time (g_s), s	9.4	27.6	15.0	21.5				
Green Extension Time (g_e), s	0.0	0.7	0.0	1.7		0.0		0.0
Phase Call Probability	0.99	1.00	1.00	1.00				
Max Out Probability	1.00	1.00	1.00	0.02				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	176	471	85	332	376		197	541	298	211	573	81
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	1885	1610	1767	1759		852	1693	1598	783	1811	1547
Queue Service Time (g_s), s	7.4	25.6	4.3	13.0	19.5		18.3	27.8	10.6	17.9	27.5	3.3
Cycle Queue Clearance Time (g_c), s	7.4	25.6	4.3	13.0	19.5		45.7	27.8	10.6	45.7	27.5	3.3
Green Ratio (*g/C*)	0.35	0.27	0.27	0.40	0.32		0.44	0.44	0.56	0.44	0.44	0.44
Capacity (*c*), veh/h	321	507	433	311	557		217	737	894	202	789	674
Volume-to-Capacity Ratio (*X*)	0.546	0.929	0.195	1.068	0.674		0.907	0.733	0.333	1.045	0.727	0.120
Back of Queue (*Q*), ft/ln (95 th percentile)	144	522	74	447	336		303	488	173	416	478	56
Back of Queue (*Q*), veh/ln (95 th percentile)	5.8	20.7	2.9	17.5	13.1		12.1	17.6	6.9	15.0	18.3	2.2
Queue Storage Ratio (*RQ*) (95 th percentile)	0.58	0.00	0.33	1.49	0.00		1.01	0.00	0.50	0.72	0.00	0.15
Uniform Delay (d_1), s/veh	26.5	37.4	29.6	27.2	31.2		45.6	24.6	12.5	46.6	24.5	17.6
Incremental Delay (d_2), s/veh	1.1	21.5	0.1	70.2	2.2		41.0	6.4	1.0	75.6	5.8	0.4
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	27.6	58.9	29.7	97.4	33.4		86.6	30.9	13.5	122.2	30.3	18.0
Level of Service (LOS)	C	E	C	F	C		F	C	B	F	C	B
Approach Delay, s/veh / LOS	48.0	D		63.4	E		36.5	D		51.6	D	
Intersection Delay, s/veh / LOS	48.6						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.12	B	2.12	B	1.91	B	2.10	B
Bicycle LOS Score / LOS	1.69	B	1.65	B	2.20	B	1.92	B

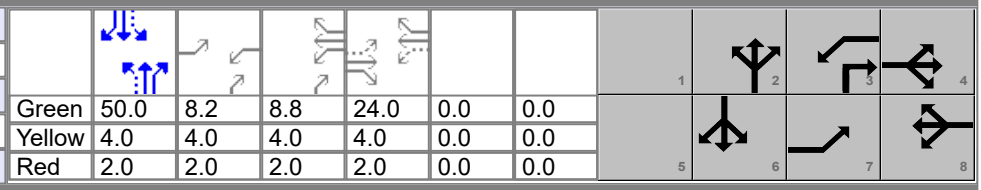
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	LJB Inc.			Duration, h	0.250
Analyst	TLW	Analysis Date	6/23/2025	Area Type	Other
Jurisdiction	UNI-MAD-FRA, OH	Time Period	No Build -PM Peak	PHF	0.97
Urban Street	SR 161	Analysis Year	2040	Analysis Period	1> 7:00
Intersection	SR 161 @ US 42	File Name	01-No Build 2040 PM-SR 161 @ US 42.xus		
Project Description	SR 161 Corridor Study				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	123	349	57	465	525	265	77	637	446	246	765	218

Signal Information			
Cycle, s	115.0	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	50.0	8.2	8.8	24.0	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

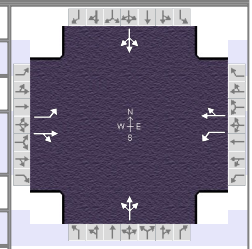
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8		2		6
Case Number	1.1	3.0	1.1	4.0		5.0		5.0
Phase Duration, s	14.2	30.0	29.0	44.8		56.0		56.0
Change Period, ($Y+R_c$), s	6.0	6.0	6.0	6.0		6.0		6.0
Max Allow Headway (*MAH*), s	3.1	3.1	3.1	3.1		0.0		0.0
Queue Clearance Time (g_s), s	8.2	23.3	25.0	40.8				
Green Extension Time (g_e), s	0.1	0.3	0.0	0.0		0.0		0.0
Phase Call Probability	0.98	1.00	1.00	1.00				
Max Out Probability	0.00	1.00	1.00	1.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	127	360	59	479	814		79	657	460	254	789	225
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1810	1900	1610	1767	1792		698	1841	1610	783	1767	1585
Queue Service Time (g_s), s	6.2	21.3	3.4	23.0	38.8		0.0	36.0	16.8	14.0	50.0	10.7
Cycle Queue Clearance Time (g_c), s	6.2	21.3	3.4	23.0	38.8		50.0	36.0	16.8	50.0	50.0	10.7
Green Ratio (*g/C*)	0.28	0.21	0.21	0.43	0.34		0.43	0.43	0.63	0.43	0.43	0.43
Capacity (*c*), veh/h	192	396	336	440	604		63	800	1022	158	768	689
Volume-to-Capacity Ratio (*X*)	0.660	0.908	0.175	1.090	1.348		1.268	0.820	0.450	1.607	1.027	0.326
Back of Queue (*Q*), ft/ln (95 th percentile)	125	456	61	667	1652		239	622	247	782	1025	190
Back of Queue (*Q*), veh/ln (95 th percentile)	5.0	18.2	2.5	26.0	66.1		9.6	24.1	9.9	31.0	38.3	7.5
Queue Storage Ratio (*RQ*) (95 th percentile)	0.50	0.00	0.27	2.22	0.00		0.80	0.00	0.72	1.36	0.00	0.52
Uniform Delay (d_1), s/veh	34.5	44.4	37.4	30.7	38.1		57.5	28.6	10.7	53.3	32.5	21.4
Incremental Delay (d_2), s/veh	1.4	23.6	0.1	69.2	167.5		201.8	9.2	1.4	300.6	39.4	1.3
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	36.0	68.0	37.5	99.9	205.6		259.3	37.8	12.2	353.9	71.9	22.7
Level of Service (LOS)	D	E	D	F	F		F	D	B	F	F	C
Approach Delay, s/veh / LOS	57.3	E		166.5	F		42.6	D		119.6	F	
Intersection Delay, s/veh / LOS	104.4						F					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.13	B	2.12	B	1.91	B	2.11	B
Bicycle LOS Score / LOS	1.39	A	2.62	C	2.46	B	2.58	C

HCS Signalized Intersection Results Summary

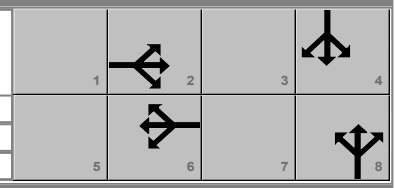
General Information				Intersection Information	
Agency	LJB Inc.			Duration, h	0.250
Analyst	TLW	Analysis Date	6/19/2025	Area Type	Other
Jurisdiction	UNI-MAD-FRA, OH	Time Period	No-Build - AM Peak	PHF	0.93
Urban Street	SR 161	Analysis Year	2040	Analysis Period	1> 7:00
Intersection	SR 161 @ Chillicothe St	File Name	02-No Build 2040 AM-SR 161 @ Chillicothe St.xus		
Project Description	SR 161 Corridor Study				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	25	1034	57	143	649	44	48	155	214	124	123	47

Signal Information			
Cycle, s	60.0	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	36.0	12.0	0.0	0.0	0.0	0.0	
Yellow	4.0	4.0	0.0	0.0	0.0	0.0	
Red	2.0	2.0	0.0	0.0	0.0	0.0	



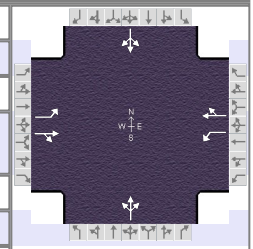
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		6.0		6.0		8.0		8.0
Phase Duration, s		42.0		42.0		18.0		18.0
Change Period, ($Y+R_c$), s		6.0		6.0		6.0		6.0
Max Allow Headway (*MAH*), s		0.0		0.0		3.5		3.5
Queue Clearance Time (g_s), s						14.0		14.0
Green Extension Time (g_e), s		0.0		0.0		0.0		0.0
Phase Call Probability						1.00		1.00
Max Out Probability						1.00		1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	27	1173		154	745			448			316	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	727	1824		486	1776			1750			1154	
Queue Service Time (g_s), s	1.6	36.0		0.0	17.3			0.0			0.0	
Cycle Queue Clearance Time (g_c), s	18.9	36.0		36.0	17.3			12.0			12.0	
Green Ratio (*g/C*)	0.60	0.60		0.60	0.60			0.20			0.20	
Capacity (*c*), veh/h	346	1094		120	1066			417			316	
Volume-to-Capacity Ratio (*X*)	0.078	1.072		1.281	0.699			1.076			1.000	
Back of Queue (*Q*), ft/ln (95 th percentile)	13	930		339	274			505			344	
Back of Queue (*Q*), veh/ln (95 th percentile)	0.5	36.1		13.6	10.4			20.2			13.7	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.05	4.13		3.39	2.28			2.97			1.01	
Uniform Delay (d_1), s/veh	14.8	12.0		30.0	8.3			25.0			25.4	
Incremental Delay (d_2), s/veh	0.4	48.8		175.8	3.8			65.8			50.6	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0			0.0			0.0	
Control Delay (*d*), s/veh	15.2	60.8		205.8	12.1			90.8			76.0	
Level of Service (LOS)	B	F		F	B			F			E	
Approach Delay, s/veh / LOS	59.7	E		45.2	D		90.8	F		76.0	E	
Intersection Delay, s/veh / LOS	61.8						E					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.64	B	1.64	B	1.92	B	1.92	B
Bicycle LOS Score / LOS	2.47	B	1.97	B	1.23	A	1.01	A

HCS Signalized Intersection Results Summary

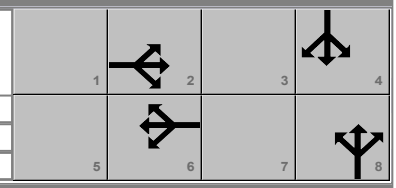
General Information				Intersection Information	
Agency	LJB Inc.			Duration, h	0.250
Analyst	TLW	Analysis Date	6/19/2025	Area Type	Other
Jurisdiction	UNI-MAD-FRA, OH	Time Period	No-Build - PM Peak	PHF	0.91
Urban Street	SR 161	Analysis Year	2040	Analysis Period	1> 7:00
Intersection	SR 161 @ Chillicothe St	File Name	02-No Build 2040 PM-SR 161 @ Chillicothe St.xus		
Project Description	SR 161 Corridor Study				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	61	849	86	297	1220	146	97	199	198	106	251	67

Signal Information			
Cycle, s	70.0	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	45.0	13.0	0.0	0.0	0.0	0.0	
Yellow	4.0	4.0	0.0	0.0	0.0	0.0	
Red	2.0	2.0	0.0	0.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		6.0		6.0		8.0		8.0
Phase Duration, s		51.0		51.0		19.0		19.0
Change Period, ($Y+R_c$), s		6.0		6.0		6.0		6.0
Max Allow Headway (*MAH*), s		0.0		0.0		3.5		3.5
Queue Clearance Time (g_s), s						15.0		15.0
Green Extension Time (g_e), s		0.0		0.0		0.0		0.0
Phase Call Probability						1.00		1.00
Max Out Probability						1.00		1.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (*v*), veh/h	67	1027		326	1501			543			466	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	355	1854		558	1864			1514			1393	
Queue Service Time (g_s), s	0.0	31.1		13.9	45.0			0.0			0.0	
Cycle Queue Clearance Time (g_c), s	45.0	31.1		45.0	45.0			13.0			13.0	
Green Ratio (*g/C*)	0.64	0.64		0.64	0.64			0.19			0.19	
Capacity (*c*), veh/h	103	1192		214	1198			343			323	
Volume-to-Capacity Ratio (*X*)	0.652	0.862		1.526	1.253			1.584			1.443	
Back of Queue (*Q*), ft/ln (95 th percentile)	86	464		833	1982			1248			965	
Back of Queue (*Q*), veh/ln (95 th percentile)	3.5	18.4		33.3	79.3			49.9			38.6	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.34	2.06		8.33	16.51			7.34			2.84	
Uniform Delay (d_1), s/veh	35.0	10.0		31.4	12.5			29.6			29.7	
Incremental Delay (d_2), s/veh	27.8	8.3		258.9	120.7			276.4			216.0	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0			0.0			0.0	
Control Delay (*d*), s/veh	62.8	18.3		290.3	133.2			306.0			245.6	
Level of Service (LOS)	E	B		F	F			F			F	
Approach Delay, s/veh / LOS	21.0	C		161.2	F		306.0	F		245.6	F	
Intersection Delay, s/veh / LOS	152.2						F					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.63	B	1.63	B	1.92	B	1.92	B
Bicycle LOS Score / LOS	2.29	B	3.50	D	1.38	A	1.26	A

HCS Two-Way Stop-Control Report

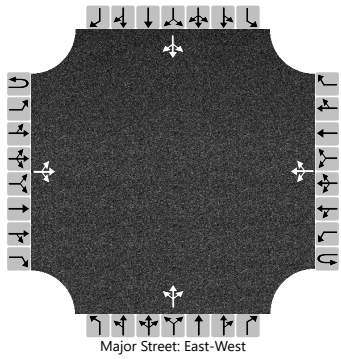
General Information

Analyst	TLW
Agency/Co.	LJB Inc.
Date Performed	6/19/2025
Analysis Year	2040
Time Analyzed	No Build - AM Peak
Intersection Orientation	East-West
Project Description	SR 161 Corridor Study

Site Information

Intersection	SR 161 (Dublin Plain City Rd) @ Butler Ave /...
Jurisdiction	UNI-MAD-FRA, OH
East/West Street	SR 161 (Dublin Plain City Rd)
North/South Street	Butler Ave / Old SR 161
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		12	1345	1		0	783	23		0	1	0		55	0	17
Percent Heavy Vehicles (%)		5				5				5	5	5		5	5	5
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type | Storage			Undivided													

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.15				4.15				7.15	6.55	6.25		7.15	6.55	6.25
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.25				2.25				3.55	4.05	3.35		3.55	4.05	3.35

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		13				0					1				78	
Capacity, c (veh/h)		758				453					31				28	
v/c Ratio		0.02				0.00					0.03				2.84	
95% Queue Length, Q_{95} (veh)		0.1				0.0					0.1				9.4	
95% Queue Length, Q_{95} (ft)		2.5				0.0					2.6				244.4	
Control Delay (s/veh)		9.8	0.9	0.9		13.0	0.0	0.0			124.3				1131.3	
Level of Service (LOS)		A	A	A		B	A	A			F				F	
Approach Delay (s/veh)		1.0				0.0				124.3				1131.3		
Approach LOS		A				A				F				F		

HCS Two-Way Stop-Control Report

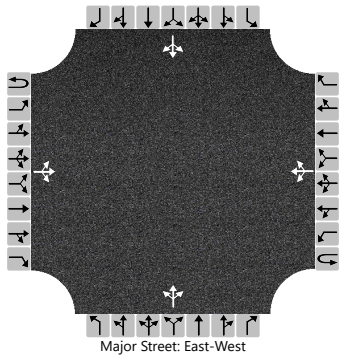
General Information

Analyst	TLW
Agency/Co.	LJB Inc.
Date Performed	6/19/2025
Analysis Year	2040
Time Analyzed	No Build - PM Peak
Intersection Orientation	East-West
Project Description	SR 161 Corridor Study

Site Information

Intersection	SR 161 (Dublin Plain City Rd) @ Butler Ave /...
Jurisdiction	UNI-MAD-FRA, OH
East/West Street	SR 161 (Dublin Plain City Rd)
North/South Street	Butler Ave / Old SR 161
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		20	1128	1		0	1564	95		0	0	0		58	1	13
Percent Heavy Vehicles (%)		3				3				3	3	3		3	3	3
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized																
Median Type | Storage			Undivided													

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.13				4.13				7.13	6.53	6.23		7.13	6.53	6.23
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.23				2.23				3.53	4.03	3.33		3.53	4.03	3.33

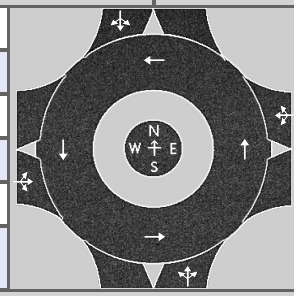
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		22				0					0				78	
Capacity, c (veh/h)		339				564					0				8	
v/c Ratio		0.06				0.00									10.08	
95% Queue Length, Q_{95} (veh)		0.2				0.0									11.4	
95% Queue Length, Q_{95} (ft)		5.0				0.0									291.8	
Control Delay (s/veh)		16.3	3.3	3.3		11.4	0.0	0.0							5019.1	
Level of Service (LOS)		C	A	A		B	A	A							F	
Approach Delay (s/veh)	3.5				0.0								5019.1			
Approach LOS	A				A								F			

HCS Roundabouts Report

General Information

Analyst	HM
Agency or Co.	LJB Inc.
Date Performed	6/18/2025
Analysis Year	2040
Time Analyzed	No Build - AM Peak
Project Description	SR 161 Corridor Study



Site Information

Intersection	SR 161 @ Pleasant Valley Blv...
E/W Street Name	SR 161
N/S Street Name	Pleasant Valley Blvd/Old SR...
Analysis Time Period, hrs	0.25
Peak Hour Factor	0.92
Jurisdiction	UNI-MAD-FRA, OH

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				LTR	
Volume (V), veh/h	0	50	1276	7	0	10	712	121	0	10	2	3	0	116	2	52
Percent Heavy Vehicles, %	0	0	2	17	0	0	3	2	0	22	0	0	0	0	0	0
Flow Rate (v_{PCE}), pc/h	0	54	1415	9	0	11	793	134	0	13	2	3	0	126	2	57
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	0				0				0				0			
Proportion of CAVs, %	0															

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway, s		4.9763			4.9763			4.9763			4.9763	
Follow-Up Headway, s		2.6087			2.6087			2.6087			2.6087	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		1478			938			18			185	
Entry Volume, veh/h		1449			916			16			185	
Circulating Flow (v_c), pc/h	139			69			1595			817		
Exiting Flow (v_{ex}), pc/h	1544			863			190			22		
Capacity (c_{pce}), pc/h		1198			1286			271			600	
Capacity (c), veh/h		1174			1256			236			600	
v/c Ratio (x)		1.23			0.73			0.07			0.31	

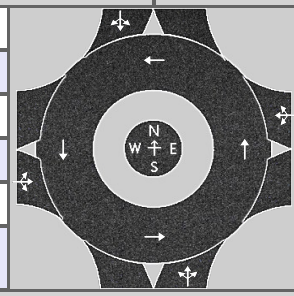
Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		127.7			13.8			16.7			10.2	
Lane LOS		F			B			C			B	
95% Queue Length, Q_{95} (veh)		46.1			6.9			0.2			1.3	
95% Queue Length, Q_{95} (ft)		1171.0			175.8			5.6			32.5	
Approach Delay, s/veh | LOS	127.7	F		13.8	B		16.7	C		10.2	B	
Intersection Delay, s/veh | LOS	77.9						F					

HCS Roundabouts Report

General Information

Analyst	HM
Agency or Co.	LJB Inc.
Date Performed	6/18/2025
Analysis Year	2040
Time Analyzed	No Build - PM Peak
Project Description	SR 161 Corridor Study



Site Information

Intersection	SR 161 @ Pleasant Valley Blv...
E/W Street Name	SR 161
N/S Street Name	Pleasant Valley Blvd/Old SR...
Analysis Time Period, hrs	0.25
Peak Hour Factor	0.92
Jurisdiction	UNI-MAD-FRA, OH

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				LTR	
Volume (V), veh/h	0	59	1074	0	0	2	1592	128	0	1	0	1	0	105	0	63
Percent Heavy Vehicles, %	0	0	2	29	0	50	2	0	0	42	0	0	0	0	0	0
Flow Rate (v_{PCE}), pc/h	0	64	1191	0	0	3	1765	139	0	2	0	1	0	114	0	68
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	0				0				0				0			
Proportion of CAVs, %	0															

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway, s		4.9763			4.9763			4.9763			4.9763	
Follow-Up Headway, s		2.6087			2.6087			2.6087			2.6087	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		1255			1907			3			182	
Entry Volume, veh/h		1232			1871			2			182	
Circulating Flow (v_c), pc/h	117			66			1369			1770		
Exiting Flow (v_{ex}), pc/h	1306			1835			203			3		
Capacity (c_{pce}), pc/h		1225			1290			342			227	
Capacity (c), veh/h		1202			1266			274			227	
v/c Ratio (x)		1.02			1.48			0.01			0.80	

Delay and Level of Service

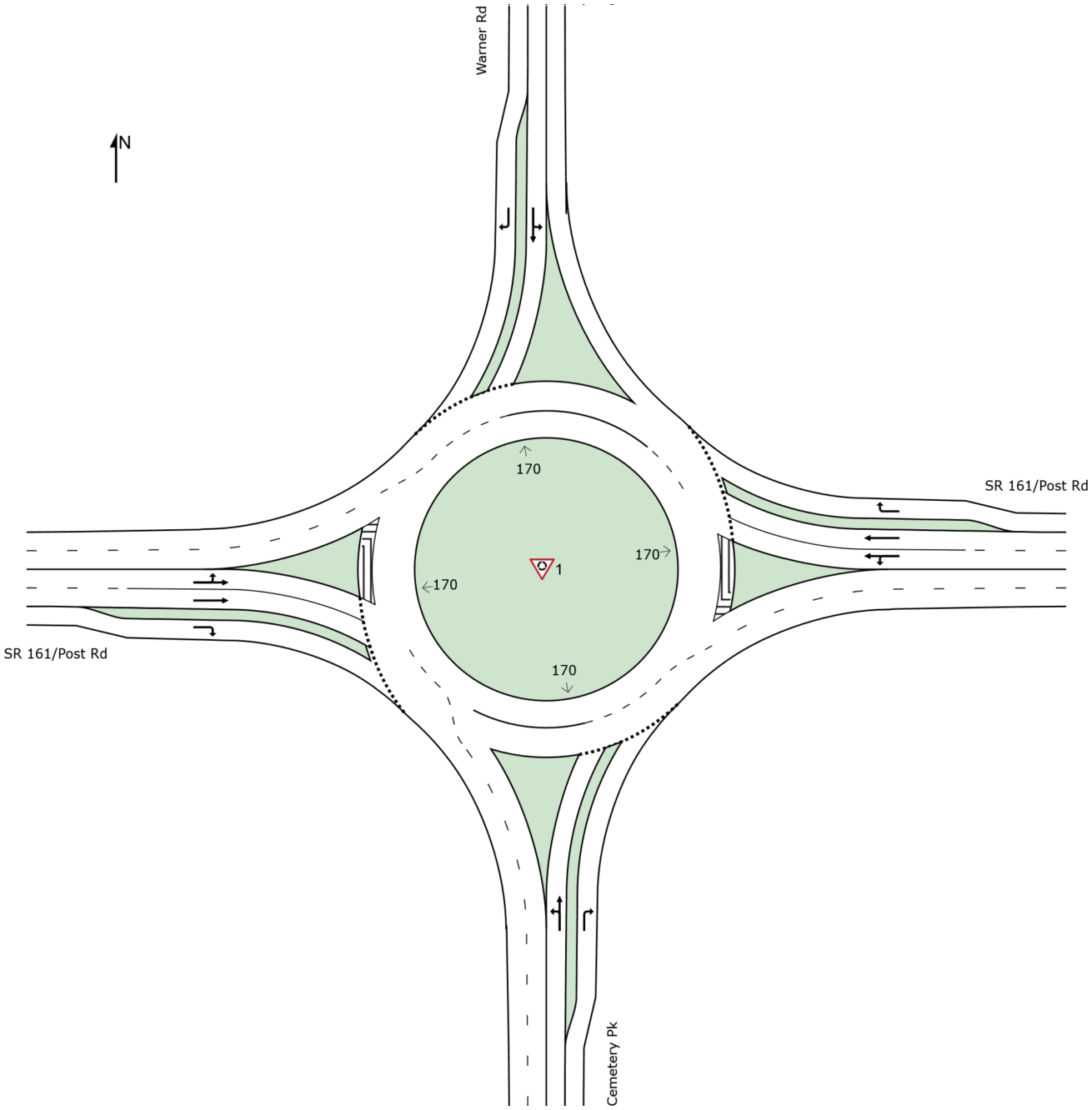
Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		51.1			231.5			13.3			63.2	
Lane LOS		F			F			B			F	
95% Queue Length, Q_{95} (veh)		23.4			84.0			0.0			5.9	
95% Queue Length, Q_{95} (ft)		593.9			2132.0			0.0			147.5	
Approach Delay, s/veh | LOS	51.1	F		231.5	F		13.3	B		63.2	F	
Intersection Delay, s/veh | LOS	154.4						F					

SITE LAYOUT

Site: [1] SR 161 at Warner-Cemetery-2040 AM NB (Folder1)

2040 AM No Build
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

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



MOVEMENT SUMMARY

Site: [1] SR 161 at Warner-Cemetery-2040 AM NB (Folder1)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

2040 AM No Build
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed mph
South: Cemetery Pk															
3	L2	All MCs	98	3.0	98	3.0	0.584	36.3	LOS E	2.1	52.8	0.90	1.00	1.28	22.6
8	T1	All MCs	43	3.0	43	3.0	0.584	36.5	LOS E	2.1	52.8	0.90	1.00	1.28	22.9
18	R2	All MCs	435	3.0	435	3.0	1.472	260.1	LOS F	47.7	1221.7	1.00	3.58	11.14	9.7
Approach			576	3.0	576	3.0	1.472	205.2	LOS F	47.7	1221.7	0.98	2.95	8.72	11.4
East: SR 161/Post Rd															
1	L2	All MCs	268	3.0	268	3.0	0.478	8.5	LOS A	2.8	71.7	0.52	0.32	0.52	31.1
6	T1	All MCs	782	3.0	782	3.0	0.478	8.5	LOS A	2.8	71.7	0.52	0.32	0.52	32.7
16	R2	All MCs	267	3.0	267	3.0	0.243	5.5	LOS A	1.1	28.0	0.40	0.24	0.40	33.9
Approach			1317	3.0	1317	3.0	0.478	7.9	LOS A	2.8	71.7	0.50	0.30	0.50	32.6
North: Warner Rd															
7	L2	All MCs	284	3.0	284	3.0	0.693	26.3	LOS D	4.0	102.0	0.85	1.06	1.57	24.7
4	T1	All MCs	43	3.0	43	3.0	0.693	26.3	LOS D	4.0	102.0	0.85	1.06	1.57	25.1
14	R2	All MCs	100	3.0	100	3.0	0.239	12.4	LOS B	0.8	20.0	0.72	0.73	0.74	30.8
Approach			427	3.0	427	3.0	0.693	23.0	LOS C	4.0	102.0	0.82	0.98	1.38	25.9
West: SR 161/Post Rd															
5	L2	All MCs	91	3.0	91	3.0	0.912	36.4	LOS E	17.6	451.2	1.00	1.55	2.86	23.3
2	T1	All MCs	1312	3.0	1312	3.0	0.912	36.4	LOS E	17.6	451.2	1.00	1.55	2.86	23.7
12	R2	All MCs	103	3.0	103	3.0	0.134	6.1	LOS A	0.5	12.7	0.55	0.46	0.55	33.6
Approach			1507	3.0	1507	3.0	0.912	34.4	LOS D	17.6	451.2	0.97	1.48	2.70	24.2
All Vehicles			3827	3.0	3827	3.0	1.472	49.7	LOS E	47.7	1221.7	0.79	1.24	2.70	22.6

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: [1 (6)] SR 161 at Warner-Cemetery-2040 PM NB (Folder1)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

2040 PM No-Build
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed mph
South: Cemetery Pk															
3	L2	All MCs	135	3.0	135	3.0	0.513	23.2	LOS C	2.0	51.8	0.84	0.93	1.17	25.7
8	T1	All MCs	43	3.0	43	3.0	0.513	23.2	LOS C	2.0	51.8	0.84	0.93	1.17	26.1
18	R2	All MCs	346	3.0	346	3.0	0.213	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	37.1
Approach			524	3.0	524	3.0	0.513	7.9	LOS A	2.0	51.8	0.29	0.32	0.40	32.0
East: SR 161/Post Rd															
1	L2	All MCs	499	3.0	499	3.0	1.008	46.6	LOS F	51.3	1313.3	1.00	2.11	3.39	20.8
6	T1	All MCs	1620	3.0	1620	3.0	1.008	46.6	LOS F	51.3	1313.3	1.00	2.11	3.39	21.4
16	R2	All MCs	337	3.0	337	3.0	0.321	6.6	LOS A	1.5	39.1	0.47	0.31	0.47	33.4
Approach			2455	3.0	2455	3.0	1.008	41.1	LOS E	51.3	1313.3	0.93	1.87	2.99	22.3
North: Warner Rd															
7	L2	All MCs	359	3.0	359	3.0	2.149	571.2	LOS F	70.1	1795.8	1.00	3.85	13.06	7.4
4	T1	All MCs	43	3.0	43	3.0	2.149	579.5	LOS F	70.1	1795.8	1.00	3.85	13.06	7.4
14	R2	All MCs	138	3.0	138	3.0	0.883	98.1	LOS F	3.8	96.6	0.98	1.20	1.92	14.2
Approach			540	3.0	540	3.0	2.149	450.9	LOS F	70.1	1795.8	1.00	3.17	10.21	8.4
West: SR 161/Post Rd															
5	L2	All MCs	101	3.0	101	3.0	0.828	28.1	LOS D	10.1	258.6	0.95	1.23	2.11	25.3
2	T1	All MCs	1072	3.0	1072	3.0	0.828	28.1	LOS D	10.1	258.7	0.95	1.23	2.11	25.9
12	R2	All MCs	145	3.0	145	3.0	0.204	7.4	LOS A	0.8	19.7	0.60	0.53	0.60	33.0
Approach			1317	3.0	1317	3.0	0.828	25.9	LOS D	10.1	258.7	0.91	1.15	1.94	26.4
All Vehicles			4837	3.0	4837	3.0	2.149	79.1	LOS F	70.1	1795.8	0.86	1.65	3.23	20.0

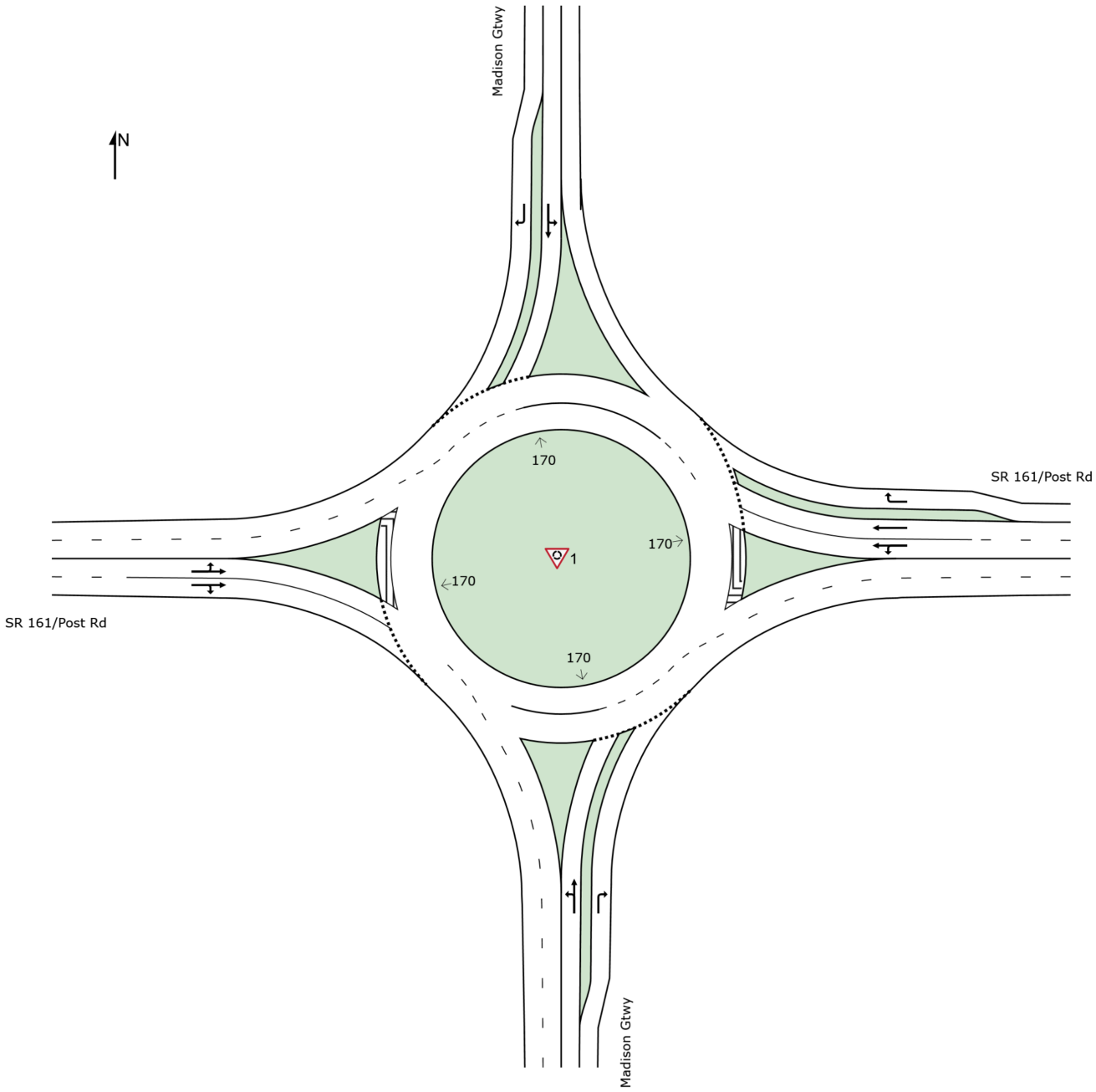
Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result 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 (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

SITE LAYOUT

Site: [1] SR 161 at Madison Gtwy-2040 AM No Build (Folder1)

2040 AM No Build
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

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



MOVEMENT SUMMARY

Site: [1] SR 161 at Madison Gtwy-2040 AM No Build (Folder1)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

2040 AM No Build
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed mph
South: Madison Gtwy															
3	L2	All MCs	36	3.0	36	3.0	0.305	34.8	LOS D	0.8	20.5	0.90	0.93	1.03	22.9
8	T1	All MCs	11	3.0	11	3.0	0.305	34.8	LOS D	0.8	20.5	0.90	0.93	1.03	23.2
18	R2	All MCs	99	3.0	99	3.0	0.491	36.1	LOS E	1.5	38.8	0.91	0.97	1.17	23.2
Approach			146	3.0	146	3.0	0.491	35.7	LOS E	1.5	38.8	0.91	0.96	1.12	23.1
East: SR 161/Post Rd															
1	L2	All MCs	127	3.0	127	3.0	0.500	8.2	LOS A	3.3	83.5	0.43	0.22	0.43	32.0
6	T1	All MCs	1076	3.0	1076	3.0	0.500	8.2	LOS A	3.3	83.5	0.43	0.22	0.43	33.1
16	R2	All MCs	242	3.0	242	3.0	0.201	4.7	LOS A	0.9	23.0	0.30	0.15	0.30	34.3
Approach			1446	3.0	1446	3.0	0.500	7.6	LOS A	3.3	83.5	0.41	0.21	0.41	33.2
North: Madison Gtwy															
7	L2	All MCs	212	3.0	212	3.0	0.516	19.3	LOS C	2.2	56.5	0.80	0.91	1.21	26.4
4	T1	All MCs	11	3.0	11	3.0	0.516	19.3	LOS C	2.2	56.5	0.80	0.91	1.21	26.9
14	R2	All MCs	85	3.0	85	3.0	0.222	13.1	LOS B	0.7	17.9	0.74	0.74	0.74	30.5
Approach			308	3.0	308	3.0	0.516	17.6	LOS C	2.2	56.5	0.79	0.87	1.08	27.4
West: SR 161/Post Rd															
5	L2	All MCs	97	3.0	97	3.0	1.043	57.8	LOS F	50.8	1299.5	1.00	2.36	4.16	19.2
2	T1	All MCs	1892	3.0	1892	3.0	1.043	57.8	LOS F	50.8	1299.5	1.00	2.36	4.16	19.5
12	R2	All MCs	54	3.0	54	3.0	1.043	57.8	LOS F	50.8	1299.5	1.00	2.36	4.16	19.4
Approach			2043	3.0	2043	3.0	1.043	57.8	LOS F	50.8	1299.5	1.00	2.36	4.16	19.5
All Vehicles			3942	3.0	3942	3.0	1.043	35.5	LOS E	50.8	1299.5	0.76	1.40	2.43	23.7

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: [1 (2)] SR 161 at Madison Gtwy-2040 PM No Build

(Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

2040 PM No Build
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed mph
South: Madison Gtwy															
3	L2	All MCs	73	3.0	73	3.0	0.428	33.5	LOS D	1.3	32.9	0.90	0.95	1.11	23.0
8	T1	All MCs	11	3.0	11	3.0	0.428	33.9	LOS D	1.3	32.9	0.90	0.95	1.11	23.3
18	R2	All MCs	167	3.0	167	3.0	0.668	42.1	LOS E	2.5	64.4	0.93	1.04	1.38	21.9
Approach			251	3.0	251	3.0	0.668	39.2	LOS E	2.5	64.4	0.92	1.01	1.29	22.3
East: SR 161/Post Rd															
1	L2	All MCs	143	3.0	143	3.0	1.003	43.1	LOS F	58.5	1498.8	1.00	2.01	2.95	21.8
6	T1	All MCs	2102	3.0	2102	3.0	1.003	43.1	LOS F	58.5	1498.8	1.00	2.01	2.95	22.2
16	R2	All MCs	321	3.0	321	3.0	0.286	5.9	LOS A	1.4	34.7	0.40	0.24	0.40	33.7
Approach			2566	3.0	2566	3.0	1.003	38.5	LOS E	58.5	1498.8	0.93	1.79	2.64	23.1
North: Madison Gtwy															
7	L2	All MCs	288	3.0	288	3.0	1.677	369.7	LOS F	40.9	1047.4	1.00	3.06	9.77	8.5
4	T1	All MCs	11	3.0	11	3.0	1.677	380.2	LOS F	40.9	1047.4	1.00	3.06	9.77	8.6
14	R2	All MCs	116	3.0	116	3.0	0.804	87.5	LOS F	2.9	75.4	0.98	1.12	1.61	15.2
Approach			415	3.0	415	3.0	1.677	290.9	LOS F	40.9	1047.4	0.99	2.51	7.48	9.6
West: SR 161/Post Rd															
5	L2	All MCs	130	3.0	130	3.0	0.883	26.3	LOS D	24.9	637.3	1.00	1.34	2.33	25.8
2	T1	All MCs	1603	3.0	1603	3.0	0.883	26.3	LOS D	24.9	637.3	1.00	1.34	2.33	26.4
12	R2	All MCs	60	3.0	60	3.0	0.883	26.3	LOS D	24.9	637.3	1.00	1.34	2.33	26.3
Approach			1793	3.0	1793	3.0	0.883	26.3	LOS D	24.9	637.3	1.00	1.34	2.33	26.3
All Vehicles			5026	3.0	5026	3.0	1.677	55.0	LOS F	58.5	1498.8	0.96	1.65	2.86	21.5

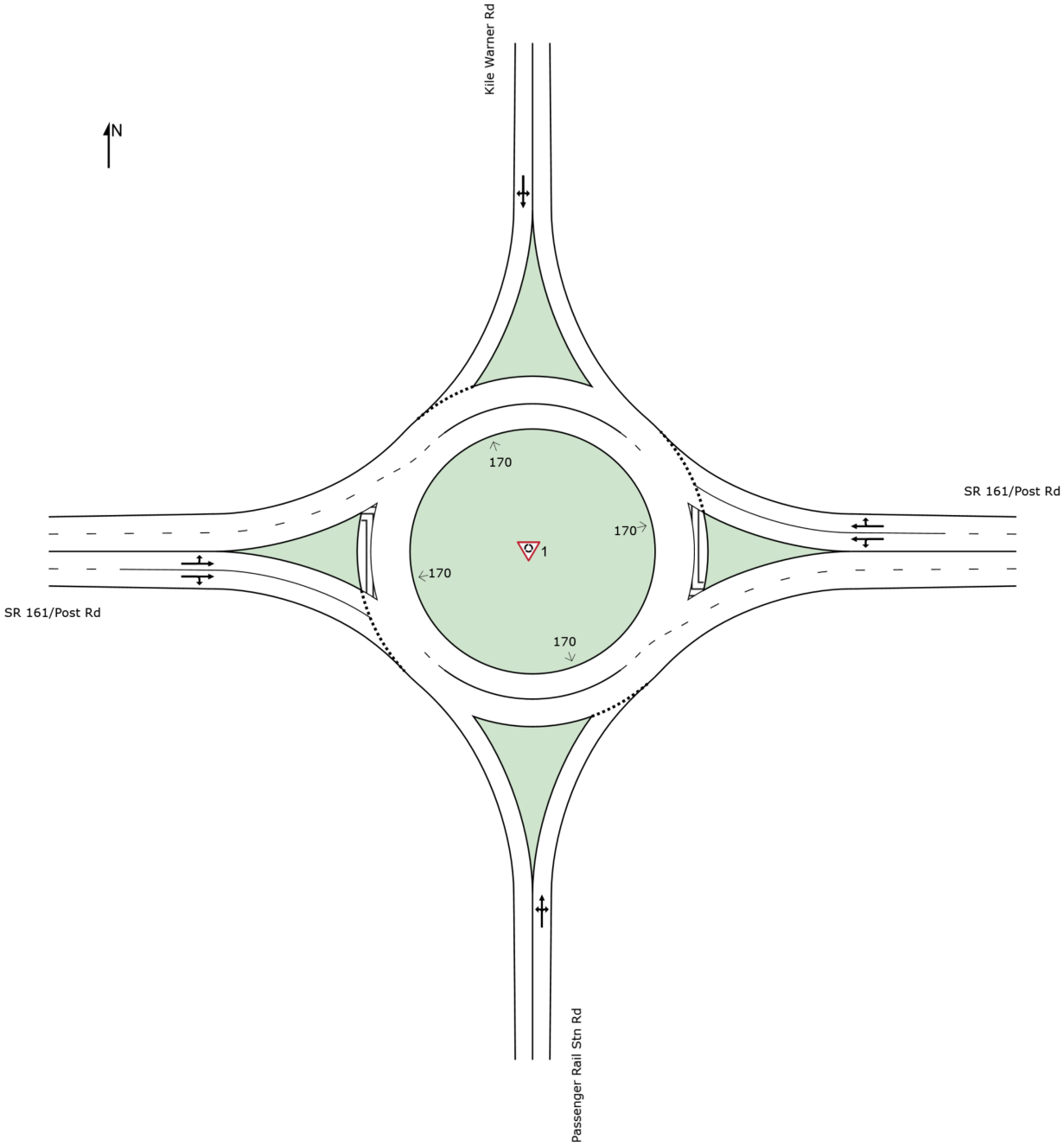
Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result 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 (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

SITE LAYOUT

Site: [1] SR 161 at Kile Warner-2040 AM (Folder1)

2040 AM No Build
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

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



MOVEMENT SUMMARY

Site: [1] SR 161 at Kile Warner-2040 AM (Folder1)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

2040 AM No Build
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed mph
South: Passenger Rail Stn Rd															
3	L2	All MCs	18	3.0	18	3.0	0.237	32.0	LOS D	0.6	14.4	0.89	0.91	0.97	23.7
8	T1	All MCs	9	3.0	9	3.0	0.237	32.0	LOS D	0.6	14.4	0.89	0.91	0.97	20.3
18	R2	All MCs	9	3.0	9	3.0	0.237	32.0	LOS D	0.6	14.4	0.89	0.91	0.97	23.9
Approach			36	3.0	36	3.0	0.237	32.0	LOS D	0.6	14.4	0.89	0.91	0.97	23.0
East: SR 161/Post Rd															
1	L2	All MCs	22	3.0	22	3.0	0.586	9.4	LOS A	4.7	119.2	0.43	0.19	0.43	32.1
6	T1	All MCs	1364	3.0	1364	3.0	0.586	9.4	LOS A	4.7	119.2	0.43	0.19	0.43	32.8
16	R2	All MCs	86	3.0	86	3.0	0.586	9.4	LOS A	4.7	119.2	0.43	0.19	0.43	29.8
Approach			1472	3.0	1472	3.0	0.586	9.4	LOS A	4.7	119.2	0.43	0.19	0.43	32.6
North: Kile Warner Rd															
7	L2	All MCs	98	3.0	98	3.0	0.487	21.0	LOS C	1.9	47.8	0.83	0.92	1.19	22.9
4	T1	All MCs	22	3.0	22	3.0	0.487	21.0	LOS C	1.9	47.8	0.83	0.92	1.19	23.4
14	R2	All MCs	60	3.0	60	3.0	0.487	21.0	LOS C	1.9	47.8	0.83	0.92	1.19	23.3
Approach			179	3.0	179	3.0	0.487	21.0	LOS C	1.9	47.8	0.83	0.92	1.19	23.1
West: SR 161/Post Rd															
5	L2	All MCs	70	3.0	70	3.0	0.930	27.4	LOS D	43.1	1103.9	1.00	1.17	1.82	18.6
2	T1	All MCs	2123	3.0	2123	3.0	0.930	27.4	LOS D	43.1	1103.9	1.00	1.17	1.82	26.1
12	R2	All MCs	45	3.0	45	3.0	0.930	27.4	LOS D	43.1	1103.9	1.00	1.17	1.82	26.0
Approach			2237	3.0	2237	3.0	0.930	27.4	LOS D	43.1	1103.9	1.00	1.17	1.82	25.9
All Vehicles			3924	3.0	3924	3.0	0.930	20.4	LOS C	43.1	1103.9	0.78	0.79	1.26	28.0

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: [1 (2)] SR 161 at Kile Warner-2040 PM (Folder1)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

2040 PM No-Build
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed mph
South: Passenger Rail Stn Rd															
3	L2	All MCs	43	3.0	43	3.0	0.497	41.5	LOS E	1.4	35.2	0.92	0.99	1.20	21.6
8	T1	All MCs	22	3.0	22	3.0	0.497	41.5	LOS E	1.4	35.2	0.92	0.99	1.20	18.1
18	R2	All MCs	22	3.0	22	3.0	0.497	41.5	LOS E	1.4	35.2	0.92	0.99	1.20	21.8
Approach			87	3.0	87	3.0	0.497	41.5	LOS E	1.4	35.2	0.92	0.99	1.20	20.9
East: SR 161/Post Rd															
1	L2	All MCs	10	3.0	10	3.0	1.138	80.4	LOS F	105.3	2695.2	1.00	2.54	3.57	16.3
6	T1	All MCs	2564	3.0	2564	3.0	1.138	80.4	LOS F	105.3	2695.2	1.00	2.54	3.57	16.4
16	R2	All MCs	145	3.0	145	3.0	1.138	80.4	LOS F	105.3	2695.2	1.00	2.54	3.57	12.7
Approach			2718	3.0	2718	3.0	1.138	80.4	LOS F	105.3	2695.2	1.00	2.54	3.57	16.3
North: Kile Warner Rd															
7	L2	All MCs	138	3.0	138	3.0	1.385	250.5	LOS F	24.6	629.8	1.00	2.47	7.25	6.9
4	T1	All MCs	10	3.0	10	3.0	1.385	260.3	LOS F	24.6	629.8	1.00	2.47	7.25	7.0
14	R2	All MCs	96	3.0	96	3.0	1.385	252.0	LOS F	24.6	629.8	1.00	2.47	7.25	7.0
Approach			243	3.0	243	3.0	1.385	251.4	LOS F	24.6	629.8	1.00	2.47	7.25	7.0
West: SR 161/Post Rd															
5	L2	All MCs	83	3.0	83	3.0	0.837	18.0	LOS C	16.3	416.6	0.88	0.48	0.99	20.8
2	T1	All MCs	1973	3.0	1973	3.0	0.837	18.0	LOS C	16.3	416.6	0.88	0.48	0.99	29.2
12	R2	All MCs	20	3.0	20	3.0	0.837	18.0	LOS C	16.3	416.6	0.88	0.48	0.99	29.1
Approach			2075	3.0	2075	3.0	0.837	18.0	LOS C	16.3	416.6	0.88	0.48	0.99	28.9
All Vehicles			5124	3.0	5124	3.0	1.385	62.6	LOS F	105.3	2695.2	0.95	1.67	2.66	18.9

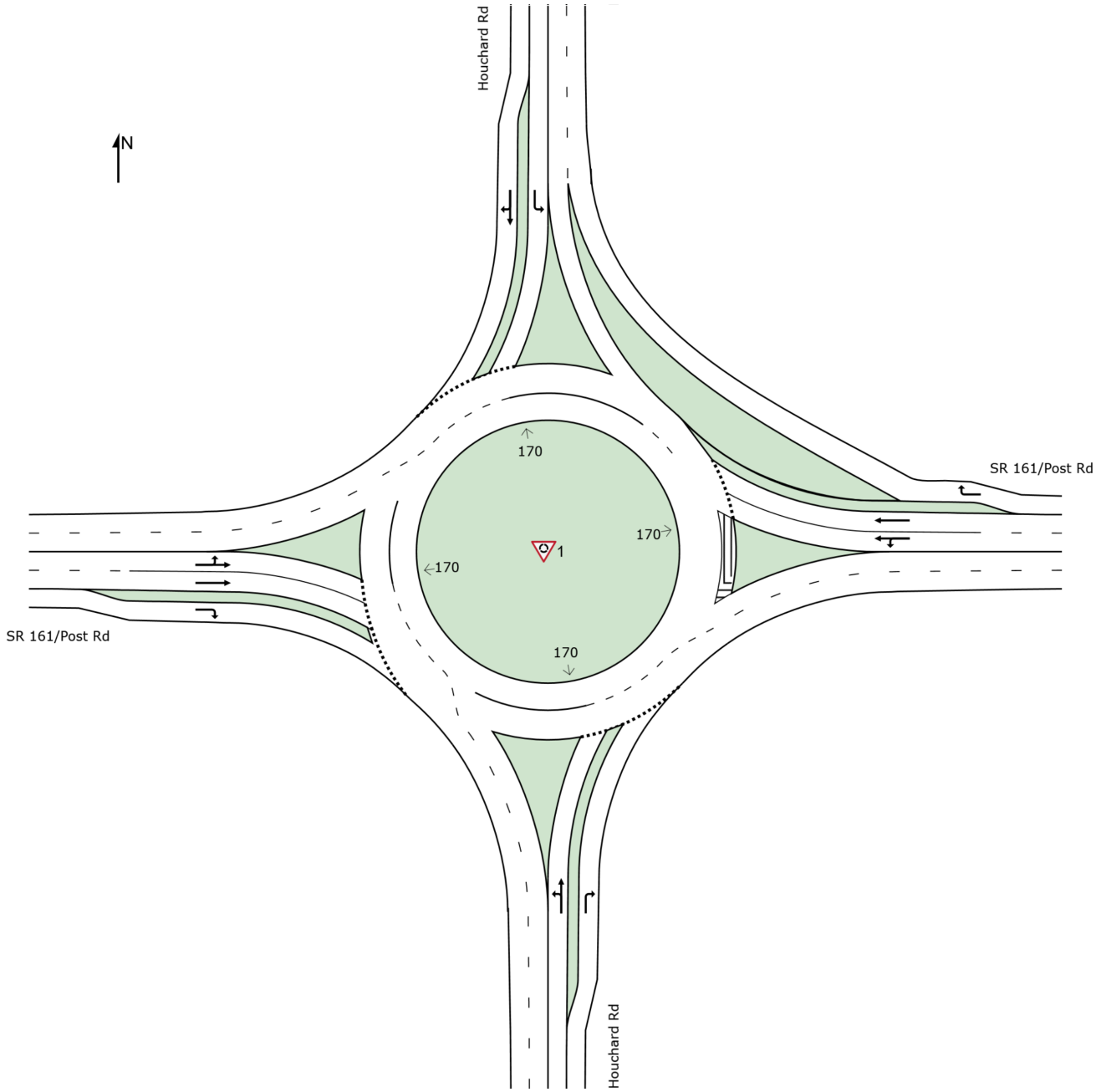
Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result 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 (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

SITE LAYOUT

Site: [1] SR 161 at Houchard Rd-2040 AM NB (Folder1)

2040 AM No-Build
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

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



MOVEMENT SUMMARY

Site: [1] SR 161 at Houchard Rd-2040 AM NB (Folder1)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

2040 AM No-Build
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed mph
South: Houchard Rd															
3	L2	All MCs	115	3.0	115	3.0	0.741	49.6	LOS E	2.9	73.5	0.94	1.09	1.55	20.0
8	T1	All MCs	66	3.0	66	3.0	0.741	51.8	LOS F	2.9	73.5	0.94	1.09	1.55	20.3
18	R2	All MCs	91	3.0	91	3.0	0.437	31.9	LOS D	1.4	34.9	0.90	0.95	1.13	24.3
Approach			273	3.0	273	3.0	0.741	44.2	LOS E	2.9	73.5	0.93	1.04	1.41	21.3
East: SR 161/Post Rd															
1	L2	All MCs	173	3.0	173	3.0	0.656	12.4	LOS B	8.1	207.4	0.70	0.58	0.99	30.2
6	T1	All MCs	1247	3.0	1247	3.0	0.656	12.4	LOS B	8.1	207.4	0.70	0.58	0.99	31.2
16	R2	All MCs	203	3.0	203	3.0	0.125	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	37.3
Approach			1623	3.0	1623	3.0	0.656	10.9	LOS B	8.1	207.4	0.61	0.51	0.87	31.7
North: Houchard Rd															
7	L2	All MCs	289	3.0	289	3.0	0.868	55.9	LOS F	5.4	137.5	0.96	1.29	2.25	18.9
4	T1	All MCs	105	3.0	105	3.0	0.759	46.8	LOS E	3.6	91.8	0.93	1.14	1.73	21.3
14	R2	All MCs	110	3.0	110	3.0	0.759	46.8	LOS E	3.6	91.8	0.93	1.14	1.73	21.2
Approach			504	3.0	504	3.0	0.868	52.0	LOS F	5.4	137.5	0.95	1.23	2.03	19.8
West: SR 161/Post Rd															
5	L2	All MCs	93	3.0	93	3.0	1.267	146.4	LOS F	77.1	1974.0	1.00	3.86	9.12	11.8
2	T1	All MCs	1892	3.0	1892	3.0	1.267	145.5	LOS F	83.3	2131.6	1.00	3.97	9.33	11.9
12	R2	All MCs	246	3.0	246	3.0	0.327	8.7	LOS A	1.3	34.5	0.61	0.52	0.61	32.3
Approach			2232	3.0	2232	3.0	1.267	130.4	LOS F	83.3	2131.6	0.96	3.58	8.36	12.7
All Vehicles			4632	3.0	4632	3.0	1.267	74.9	LOS F	83.3	2131.6	0.83	2.10	4.64	17.5

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: [1 (2)] SR 161 at Houchard Rd-2040 PM NB (Folder1)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

2040 PM No-Build
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed mph
South: Houchard Rd															
3	L2	All MCs	279	3.0	279	3.0	1.927	471.2	LOS F	60.8	1556.3	1.00	3.72	12.39	7.9
8	T1	All MCs	104	3.0	104	3.0	1.927	472.6	LOS F	60.8	1556.3	1.00	3.72	12.39	7.9
18	R2	All MCs	178	3.0	178	3.0	1.070	142.7	LOS F	8.7	222.5	1.00	1.57	3.43	11.6
Approach			562	3.0	562	3.0	1.927	367.3	LOS F	60.8	1556.3	1.00	3.04	9.55	8.7
East: SR 161/Post Rd															
1	L2	All MCs	92	3.0	92	3.0	1.305	157.4	LOS F	108.9	2787.4	1.00	4.20	8.87	10.6
6	T1	All MCs	2333	3.0	2333	3.0	1.305	157.4	LOS F	108.9	2787.4	1.00	4.20	8.87	10.7
16	R2	All MCs	236	3.0	236	3.0	0.145	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	37.3
Approach			2661	3.0	2661	3.0	1.305	143.4	LOS F	108.9	2787.4	0.91	3.83	8.08	11.4
North: Houchard Rd															
7	L2	All MCs	285	3.0	285	3.0	1.221	172.2	LOS F	20.5	523.9	1.00	2.28	6.25	11.6
4	T1	All MCs	50	3.0	50	3.0	0.848	82.9	LOS F	3.6	91.0	0.97	1.18	1.83	16.1
14	R2	All MCs	108	3.0	108	3.0	0.848	79.4	LOS F	3.6	91.0	0.97	1.18	1.83	16.1
Approach			442	3.0	442	3.0	1.221	139.5	LOS F	20.5	523.9	0.99	1.88	4.67	12.8
West: SR 161/Post Rd															
5	L2	All MCs	215	3.0	215	3.0	1.052	62.0	LOS F	49.7	1272.4	1.00	2.38	4.30	18.5
2	T1	All MCs	1810	3.0	1810	3.0	1.052	61.1	LOS F	52.6	1346.9	1.00	2.41	4.34	19.0
12	R2	All MCs	193	3.0	193	3.0	0.208	5.9	LOS A	0.8	21.6	0.46	0.34	0.46	33.7
Approach			2218	3.0	2218	3.0	1.052	56.4	LOS F	52.6	1346.9	0.95	2.23	4.00	19.6
All Vehicles			5884	3.0	5884	3.0	1.927	131.7	LOS F	108.9	2787.4	0.94	3.00	6.43	13.2

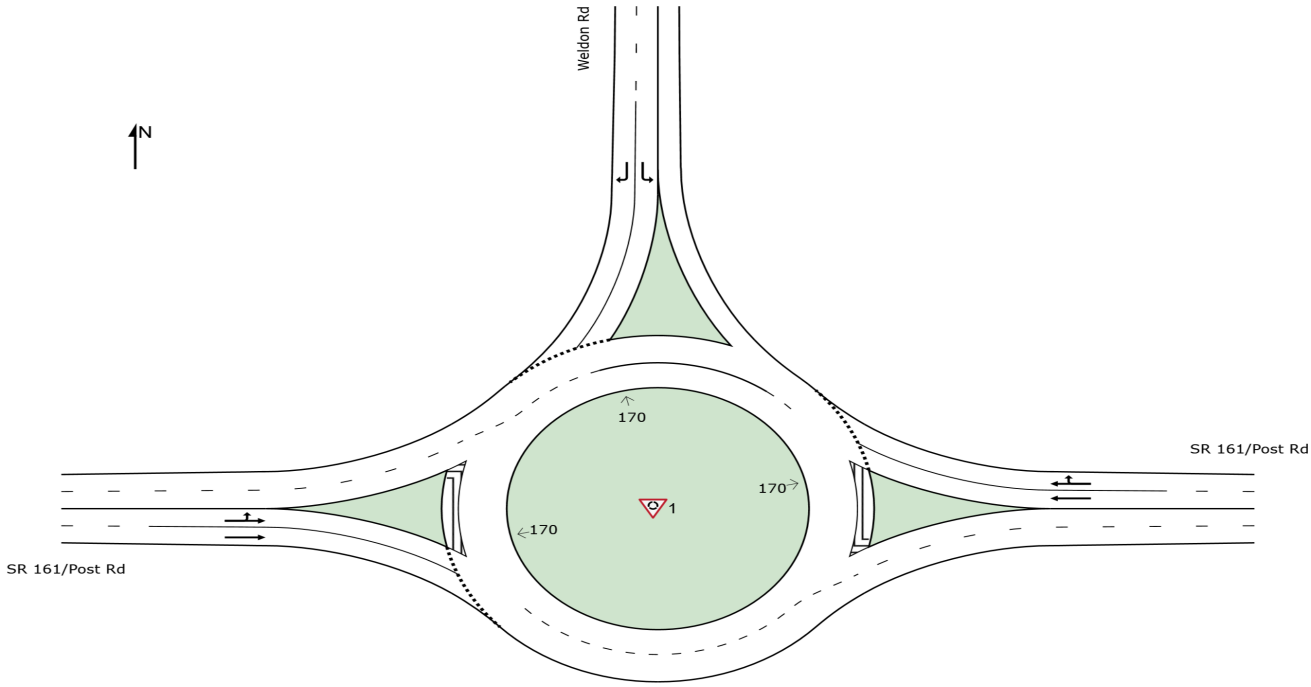
Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result 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 (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

SITE LAYOUT

Site: [1] SR 161 at Weldon-2040 AM (Folder1)

2040 AM No-Build
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

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



Organisation: LJB INC | Licence: PLUS / 1PC | Created: Wednesday, January 14, 2026 2:15:50 PM
Project: C:\Users\vmadineni\OneDrive - LJB INC\Desktop\MAD-UNI-FRA 161\SIDRA\Weldon.sipx

MOVEMENT SUMMARY

Site: [1] SR 161 at Weldon-2040 AM (Folder1)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

2040 AM No-Build
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed mph
East: SR 161/Post Rd															
6	T1	All MCs	1576	3.0	1576	3.0	0.723	13.2	LOS B	7.3	187.7	0.66	0.32	0.66	31.1
16	R2	All MCs	176	3.0	176	3.0	0.723	13.2	LOS B	7.3	187.7	0.66	0.32	0.66	30.8
Approach			1752	3.0	1752	3.0	0.723	13.2	LOS B	7.3	187.7	0.66	0.32	0.66	31.1
North: Weldon Rd															
7	L2	All MCs	145	3.0	145	3.0	0.452	22.3	LOS C	1.6	40.4	0.84	0.92	1.13	25.5
14	R2	All MCs	107	3.0	107	3.0	0.394	23.5	LOS C	1.3	33.1	0.85	0.91	1.08	26.7
Approach			251	3.0	251	3.0	0.452	22.8	LOS C	1.6	40.4	0.85	0.91	1.11	26.0
West: SR 161/Post Rd															
5	L2	All MCs	133	3.0	133	3.0	0.955	31.1	LOS D	50.8	1299.7	1.00	1.37	2.01	24.6
2	T1	All MCs	2157	3.0	2157	3.0	0.955	31.1	LOS D	50.8	1299.7	1.00	1.37	2.01	25.1
Approach			2289	3.0	2289	3.0	0.955	31.1	LOS D	50.8	1299.7	1.00	1.37	2.01	25.1
All Vehicles			4292	3.0	4292	3.0	0.955	23.3	LOS C	50.8	1299.7	0.85	0.92	1.40	27.3

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: LJB INC | Licence: PLUS / 1PC | Processed: Wednesday, January 14, 2026 2:15:59 PM
Project: C:\Users\vmadineni\OneDrive - LJB INC\Desktop\MAD-UNI-FRA 161\SIDRA\Weldon.sipx

MOVEMENT SUMMARY

Site: [1 (2)] SR 161 at Weldon-2040 PM (Folder1)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

2040 PM No-Build
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed mph
East: SR 161/Post Rd															
6	T1	All MCs	2442	3.0	2442	3.0	1.247	128.5	LOS F	119.2	3050.2	1.00	3.52	6.07	12.3
16	R2	All MCs	296	3.0	296	3.0	1.247	128.5	LOS F	119.2	3050.2	1.00	3.52	6.07	12.2
Approach			2738	3.0	2738	3.0	1.247	128.5	LOS F	119.2	3050.2	1.00	3.52	6.07	12.2
North: Weldon Rd															
7	L2	All MCs	271	3.0	271	3.0	2.101	540.6	LOS F	84.7	2167.2	1.00	4.40	14.94	7.5
14	R2	All MCs	227	3.0	227	3.0	2.101	540.6	LOS F	84.7	2167.2	1.00	4.40	14.94	7.5
Approach			498	3.0	498	3.0	2.101	540.6	LOS F	84.7	2167.2	1.00	4.40	14.94	7.5
West: SR 161/Post Rd															
5	L2	All MCs	237	3.0	237	3.0	0.945	28.7	LOS D	47.1	1205.9	1.00	1.18	1.76	25.1
2	T1	All MCs	2080	3.0	2080	3.0	0.945	28.7	LOS D	47.1	1205.9	1.00	1.18	1.76	25.7
Approach			2317	3.0	2317	3.0	0.945	28.7	LOS D	47.1	1205.9	1.00	1.18	1.76	25.6
All Vehicles			5553	3.0	5553	3.0	2.101	123.8	LOS F	119.2	3050.2	1.00	2.62	5.07	14.6

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

APPENDIX H – 2040 NO-BUILD CAPACITY ANALYSIS REPORTS (TRANSMODELER)

				NO BUILD							
				2040 AM (60%)				2040 PM (60%)			
Intersection	Control Type	Appr.	Mvmt	Sim. Veh.	LOS	Delay	Queue (ft)	Sim. Veh.	LOS	Delay	Queue (ft)
						Mean	Mean			Mean	Mean
SR 161, Cosgray Road	Roundabout	**Overall**		**3498**	**F**	**145.6**		**4606**	**F**	**180.5**	
		EB	T	740	F	211.5	125.3	766	F	321.6	151.2
			T	773	F	232.4	239.1	836	F	344.2	207.4
			R	349	F	194.1	0.1	326	F	305.4	0.2
		WB	T	713	A	3.3	1.4	794	B	10.2	24.6
			T	765	A	3	1	857	A	7.3	11.6
			R	28	A	1.6	0	47	A	1.8	0
		NB	LT	29	F	1494.7	30.3	447	F	201.5	408.5
			R	32	F	1879.5	1146.2	310	F	144.9	22.2
		SB	LT	47	C	18	3	164	F	257.8	345
			R	21	A	6.9	0.3	58	F	117.1	2.4
Industrial Parkway & SR 161	Roundabout	**Overall**		**4048**	**F**	**112.7**		**4718**	**F**	**140.3**	
		EB	LT	714	F	76.6	248.8	960	B	11.9	27.1
			TR	828	F	61.5	177.4	985	B	11.4	24.3
		WB	LT	813	A	8.8	14.3	864	F	58.2	67.7
			T	989	A	9	14.1	1092	F	71.3	77
		NB	LT	167	C	19	14.4	148	F	527.3	623.6
			R	151	B	11	5.3	280	F	246.9	461.1
		SB	L	193	F	778.8	1343.5	156	F	902	1423.2
			LT	83	F	1416.3	1531.4	78	F	1611.4	1545
			R	110	F	567	5.8	154	F	650.1	22
SR 161, US 33 EB Off-Ramp to SR 161 & Eiterman Road	Roundabout	**Overall**		**4629**	**E**	**42.7**		**4709**	**F**	**135.2**	
		EB	T	556	C	18.6	16.7	577	C	23.8	2.8
			T	1045	E	39	90	1437	E	42.4	16.1
			R	95	B	10.5	0	128	C	22.3	0
		WB	LT	1215	B	12.4	6	1217	F	98.6	26.6
			T	1331	B	13	4.3	1140	F	159.4	118.7
		NB	TR	162	E	37.6	36.3	90	F	1237.1	1330.4
			R	167	D	28.1	24.3	110	F	1165.2	396.9
		SB	L	11	F	1458.7	8	6	F	1341.6	40.4
			LTR	48	F	1806.9	1968.2	5	F	2002.1	2116.6
SR 161, US 33 Off-Ramp to SR 161 & Hyland-Croy Road	Signal	**Overall**		**3983**	**F**	**87.5**		**4081**	**F**	**103.1**	
		EB	L	38	E	57.3	10.8	47	E	61.4	15.4
			L	38	C	55	10.7	45	E	64.6	15.9
			T	275	C	32	52.1	274	C	30.2	49.7
			T	253	C	32.8	50.3	252	C	31.2	47.4
		WB	T	246	D	42.1	59.7	361	F	87.3	191.9
			T	275	D	48.8	78.3	349	F	94.4	207.1
			T	289	D	49.7	85.6	355	F	108.3	244.2
			R	90	A	6.6	2.1	310	B	17.5	17.5
		NB	L	766	F	164.2	392.2	598	F	212	472.2
			L	740	F	152.7	399.5	700	F	158.9	398.2
			TR	212	F	91.4	19.7	371	F	97.9	50
		SB	L	126	D	46.2	34.2	44	D	48.3	11.1
			L	123	D	47.6	34.6	46	D	53.3	13.6
			R	235	D	42.4	60.2	162	D	43.7	43.3
			R	276	C	30.7	47.9	167	C	30.7	30.1

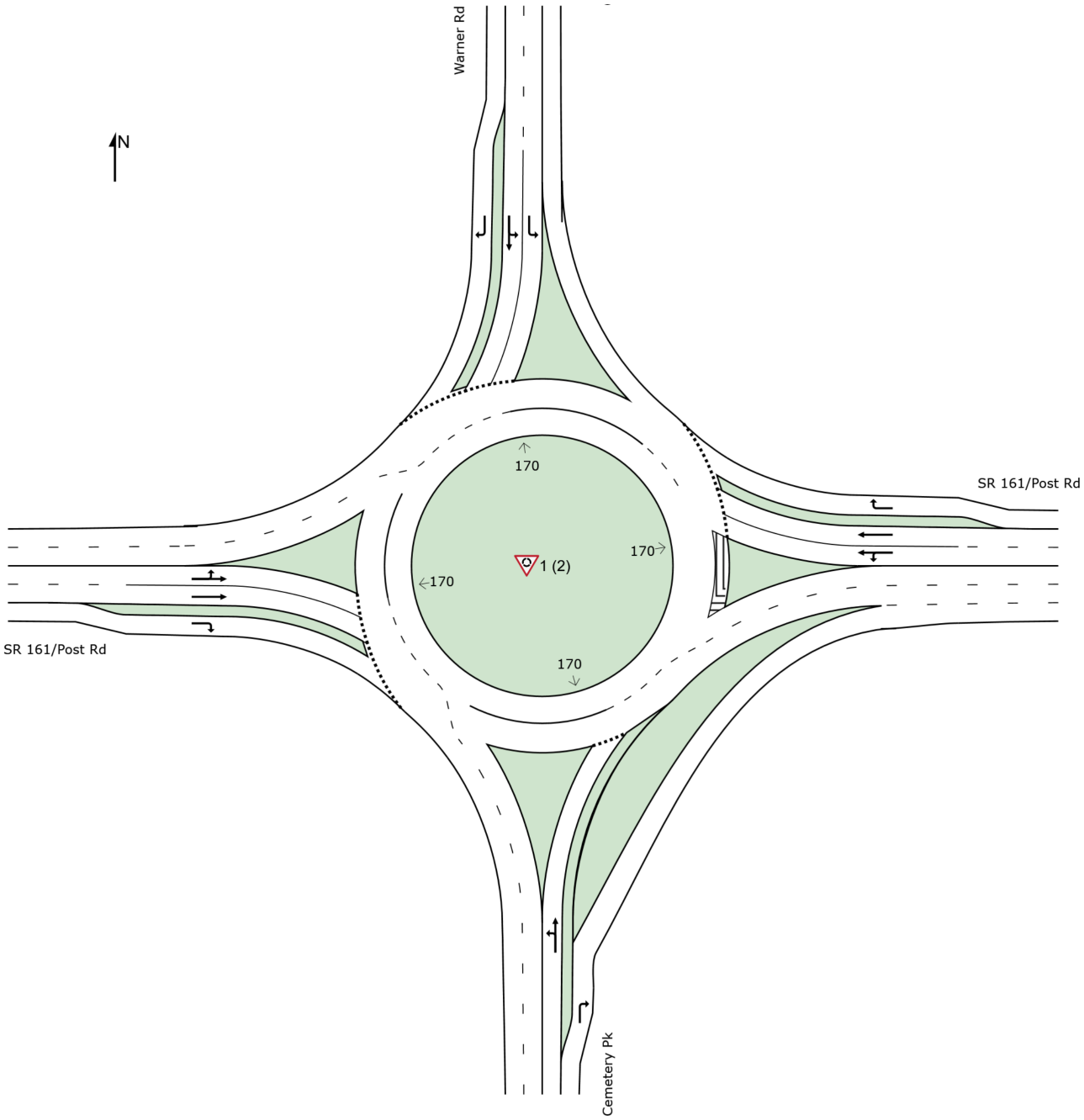
APPENDIX I – 2040 BUILD CAPACITY ANALYSIS REPORTS (SIDRA)

SITE LAYOUT

Site: [1 (2)] SR 161 at Warner-Cemetery-2040 PM Build (Folder1)

2040 PM Build
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

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



MOVEMENT SUMMARY

Site: [1 (5)] SR 161 at Warner-Cemetery-2040 AM Build (Folder1)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

2040 AM Build
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed mph
South: Cemetery Pk															
3	L2	All MCs	98	3.0	98	3.0	0.506	27.7	LOS D	1.7	43.1	0.87	0.95	1.18	24.6
8	T1	All MCs	43	3.0	43	3.0	0.506	27.7	LOS D	1.7	43.1	0.87	0.95	1.18	25.0
18	R2	All MCs	435	3.0	435	3.0	0.267	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	37.4
Approach			576	3.0	576	3.0	0.506	6.9	LOS A	1.7	43.1	0.21	0.23	0.29	33.0
East: SR 161/Post Rd															
1	L2	All MCs	268	3.0	268	3.0	0.478	8.5	LOS A	2.8	71.7	0.52	0.32	0.52	31.1
6	T1	All MCs	782	3.0	782	3.0	0.478	8.5	LOS A	2.8	71.7	0.52	0.32	0.52	32.7
16	R2	All MCs	267	3.0	267	3.0	0.243	5.5	LOS A	1.1	28.0	0.40	0.24	0.40	33.9
Approach			1317	3.0	1317	3.0	0.478	7.9	LOS A	2.8	71.7	0.50	0.30	0.50	32.6
North: Warner Rd															
7	L2	All MCs	284	3.0	284	3.0	0.367	14.6	LOS B	1.4	35.6	0.75	0.80	0.95	28.0
4	T1	All MCs	43	3.0	43	3.0	0.367	13.8	LOS B	1.4	35.4	0.73	0.79	0.94	29.0
14	R2	All MCs	100	3.0	100	3.0	0.239	12.4	LOS B	0.8	20.0	0.72	0.73	0.74	30.7
Approach			427	3.0	427	3.0	0.367	14.0	LOS B	1.4	35.6	0.74	0.78	0.90	28.7
West: SR 161/Post Rd															
5	L2	All MCs	91	3.0	91	3.0	0.920	38.9	LOS E	17.8	454.6	1.00	1.59	2.97	22.7
2	T1	All MCs	1312	3.0	1312	3.0	0.920	37.8	LOS E	18.7	477.6	1.00	1.59	2.98	23.4
12	R2	All MCs	103	3.0	103	3.0	0.141	6.4	LOS A	0.5	13.0	0.54	0.47	0.54	33.4
Approach			1507	3.0	1507	3.0	0.920	35.7	LOS E	18.7	477.6	0.97	1.52	2.82	23.8
All Vehicles			3827	3.0	3827	3.0	0.920	19.4	LOS C	18.7	477.6	0.67	0.82	1.42	28.1

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: [1 (2)] SR 161 at Warner-Cemetery-2040 PM Build (Folder1)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

2040 PM Build
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed mph
South: Cemetery Pk															
3	L2	All MCs	135	3.0	135	3.0	0.517	23.5	LOS C	1.9	49.2	0.85	0.93	1.18	25.6
8	T1	All MCs	43	3.0	43	3.0	0.517	23.5	LOS C	1.9	49.2	0.85	0.93	1.18	26.0
18	R2	All MCs	346	3.0	346	3.0	0.213	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	37.4
Approach			524	3.0	524	3.0	0.517	8.1	LOS A	1.9	49.2	0.29	0.32	0.40	32.2
East: SR 161/Post Rd															
1	L2	All MCs	499	3.0	499	3.0	1.008	46.7	LOS F	51.3	1313.9	1.00	2.11	3.39	20.8
6	T1	All MCs	1620	3.0	1620	3.0	1.008	46.7	LOS F	51.3	1313.9	1.00	2.11	3.39	21.4
16	R2	All MCs	337	3.0	337	3.0	0.321	6.6	LOS A	1.5	39.1	0.47	0.31	0.47	33.4
Approach			2455	3.0	2455	3.0	1.008	41.2	LOS E	51.3	1313.9	0.93	1.87	2.99	22.3
North: Warner Rd															
7	L2	All MCs	359	3.0	359	3.0	1.178	175.7	LOS F	14.3	365.3	1.00	1.87	4.72	11.1
4	T1	All MCs	43	3.0	43	3.0	1.178	177.8	LOS F	14.3	365.3	1.00	1.95	5.03	11.4
14	R2	All MCs	138	3.0	138	3.0	0.882	97.9	LOS F	3.8	96.4	0.98	1.20	1.91	14.2
Approach			540	3.0	540	3.0	1.178	156.0	LOS F	14.3	365.3	1.00	1.71	4.03	11.7
West: SR 161/Post Rd															
5	L2	All MCs	101	3.0	101	3.0	0.967	55.0	LOS F	16.1	412.2	1.00	1.74	3.49	19.6
2	T1	All MCs	1072	3.0	1072	3.0	0.967	53.3	LOS F	17.1	436.8	1.00	1.76	3.53	20.3
12	R2	All MCs	145	3.0	145	3.0	0.251	9.6	LOS A	0.9	23.0	0.64	0.62	0.64	31.9
Approach			1317	3.0	1317	3.0	0.967	48.6	LOS E	17.1	436.8	0.96	1.64	3.21	21.0
All Vehicles			4837	3.0	4837	3.0	1.178	52.4	LOS F	51.3	1313.9	0.87	1.62	2.89	20.5

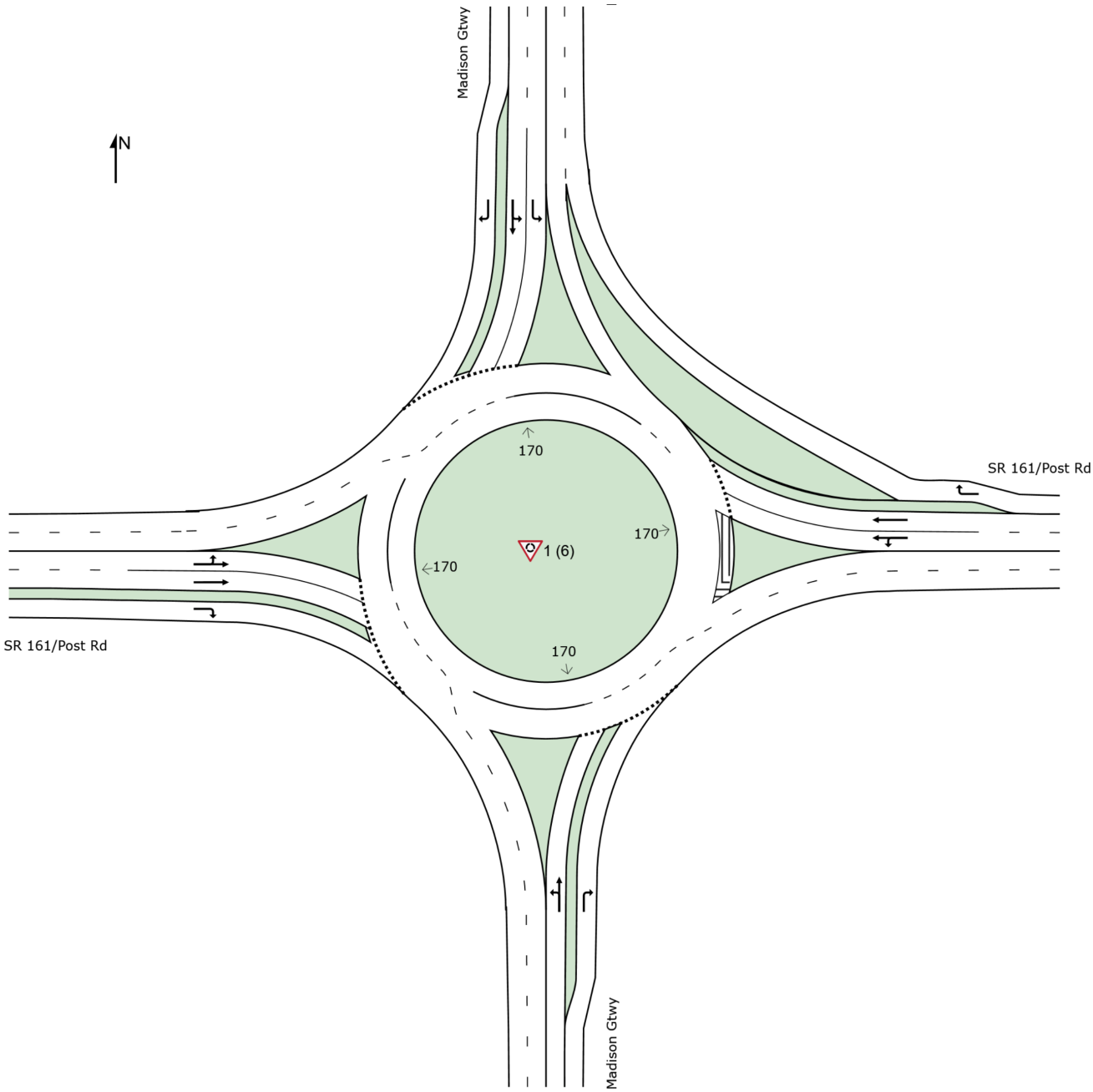
Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result 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 (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

SITE LAYOUT

Site: [1 (6)] SR 161 at Madison Gtwy-2040 AM Build (Folder1)

2040 AM Build
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

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



MOVEMENT SUMMARY

Site: [1 (6)] SR 161 at Madison Gtwy-2040 AM Build (Folder1)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

2040 AM Build
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed mph
South: Madison Gtwy															
3	L2	All MCs	36	3.0	36	3.0	0.313	36.0	LOS E	0.8	21.0	0.91	0.94	1.04	22.6
8	T1	All MCs	11	3.0	11	3.0	0.313	36.0	LOS E	0.8	21.0	0.91	0.94	1.04	22.9
18	R2	All MCs	99	3.0	99	3.0	0.500	37.3	LOS E	1.5	39.6	0.92	0.98	1.18	23.0
Approach			146	3.0	146	3.0	0.500	36.9	LOS E	1.5	39.6	0.91	0.97	1.13	22.9
East: SR 161/Post Rd															
1	L2	All MCs	127	3.0	127	3.0	0.500	8.3	LOS A	3.3	83.6	0.44	0.22	0.44	32.0
6	T1	All MCs	1076	3.0	1076	3.0	0.500	8.3	LOS A	3.3	83.6	0.44	0.22	0.44	33.1
16	R2	All MCs	242	3.0	242	3.0	0.149	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	37.3
Approach			1446	3.0	1446	3.0	0.500	6.9	LOS A	3.3	83.6	0.36	0.18	0.36	33.6
North: Madison Gtwy															
7	L2	All MCs	212	3.0	212	3.0	0.274	13.5	LOS B	0.9	23.4	0.74	0.77	0.83	28.2
4	T1	All MCs	11	3.0	11	3.0	0.274	12.8	LOS B	0.9	23.1	0.73	0.75	0.82	29.0
14	R2	All MCs	85	3.0	85	3.0	0.222	13.1	LOS B	0.7	17.9	0.74	0.74	0.74	30.4
Approach			308	3.0	308	3.0	0.274	13.4	LOS B	0.9	23.4	0.74	0.76	0.81	28.8
West: SR 161/Post Rd															
5	L2	All MCs	97	3.0	97	3.0	1.030	55.5	LOS F	46.2	1183.7	1.00	2.25	3.98	19.6
2	T1	All MCs	1892	3.0	1892	3.0	1.030	54.6	LOS F	48.9	1250.7	1.00	2.28	4.00	20.0
12	R2	All MCs	54	3.0	54	3.0	0.058	4.4	LOS A	0.2	5.4	0.41	0.29	0.41	34.5
Approach			2043	3.0	2043	3.0	1.030	53.3	LOS F	48.9	1250.7	0.98	2.22	3.91	20.2
All Vehicles			3942	3.0	3942	3.0	1.030	32.6	LOS D	48.9	1250.7	0.73	1.31	2.26	24.5

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: [1 (5)] SR 161 at Madison Gtwy-2040 PM Build (Folder1)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

2040 PM Build
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed mph
South: Madison Gtwy															
3	L2	All MCs	73	3.0	73	3.0	0.473	39.2	LOS E	1.4	36.6	0.92	0.98	1.17	21.8
8	T1	All MCs	11	3.0	11	3.0	0.473	41.0	LOS E	1.4	36.6	0.92	0.98	1.17	22.1
18	R2	All MCs	167	3.0	167	3.0	0.733	52.5	LOS F	2.9	73.4	0.95	1.09	1.53	19.9
Approach			251	3.0	251	3.0	0.733	48.2	LOS E	2.9	73.4	0.94	1.05	1.41	20.5
East: SR 161/Post Rd															
1	L2	All MCs	143	3.0	143	3.0	1.003	43.2	LOS F	58.6	1499.1	1.00	2.01	2.96	21.8
6	T1	All MCs	2102	3.0	2102	3.0	1.003	43.2	LOS F	58.6	1499.1	1.00	2.01	2.96	22.2
16	R2	All MCs	321	3.0	321	3.0	0.197	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	37.3
Approach			2566	3.0	2566	3.0	1.003	37.8	LOS E	58.6	1499.1	0.88	1.76	2.59	23.3
North: Madison Gtwy															
7	L2	All MCs	288	3.0	288	3.0	0.924	105.1	LOS F	4.3	110.8	0.99	1.25	2.11	13.7
4	T1	All MCs	11	3.0	11	3.0	0.924	109.1	LOS F	4.3	110.8	0.99	1.26	2.15	14.3
14	R2	All MCs	116	3.0	116	3.0	0.803	87.4	LOS F	2.9	75.4	0.98	1.12	1.61	15.2
Approach			415	3.0	415	3.0	0.924	100.3	LOS F	4.3	110.8	0.99	1.22	1.97	14.0
West: SR 161/Post Rd															
5	L2	All MCs	130	3.0	130	3.0	0.974	44.6	LOS E	30.2	773.5	1.00	1.89	3.43	21.5
2	T1	All MCs	1603	3.0	1603	3.0	0.974	43.6	LOS E	31.8	815.1	1.00	1.90	3.45	22.1
12	R2	All MCs	60	3.0	60	3.0	0.070	4.9	LOS A	0.2	6.4	0.46	0.36	0.46	34.2
Approach			1793	3.0	1793	3.0	0.974	42.4	LOS E	31.8	815.1	0.98	1.85	3.35	22.3
All Vehicles			5026	3.0	5026	3.0	1.003	45.1	LOS E	58.6	1499.1	0.93	1.71	2.75	21.6

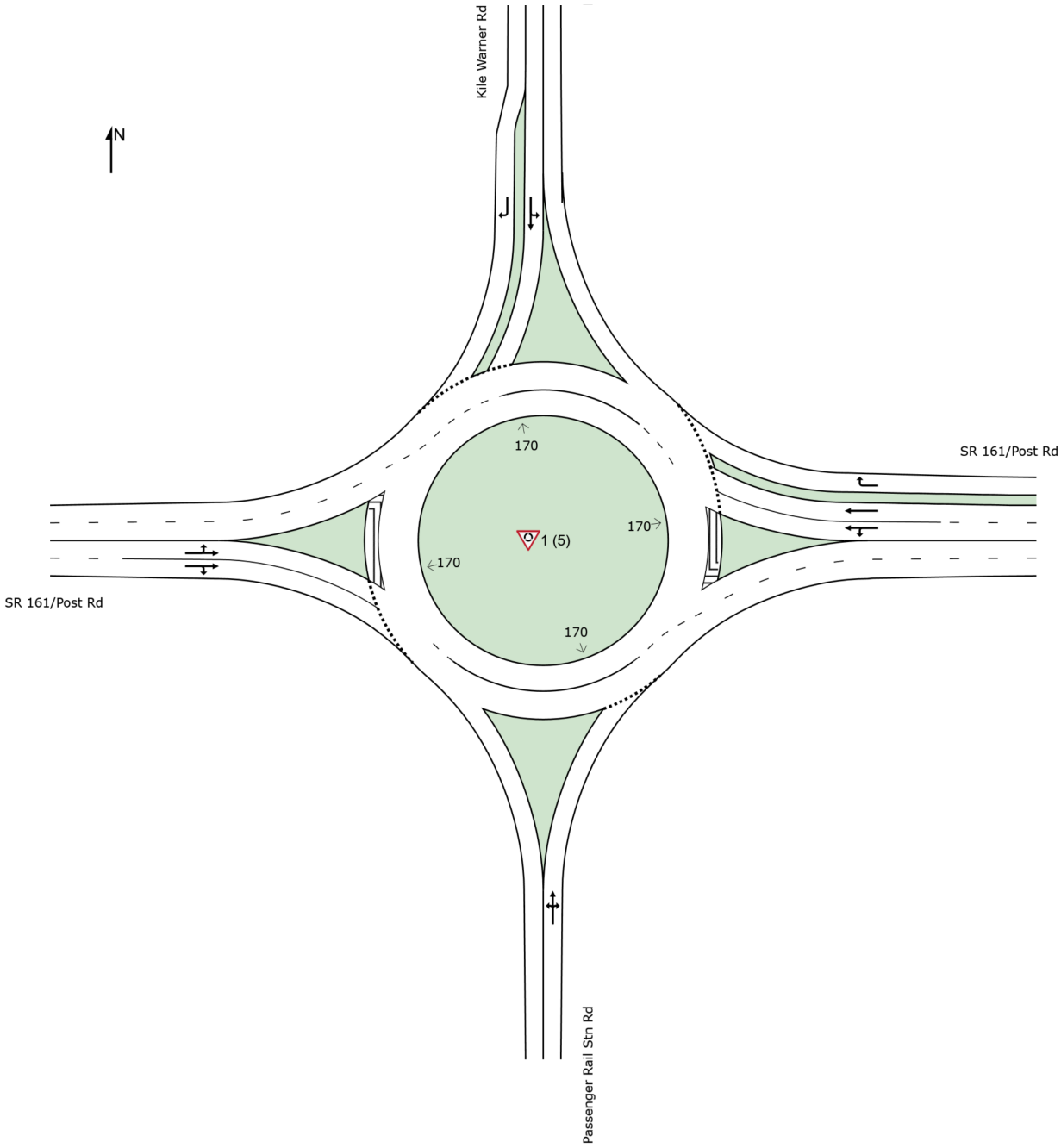
Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result 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 (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

SITE LAYOUT

Site: [1 (5)] SR 161 at Kile Warner-2040 AM - Build (Folder1)

2040 AM Build
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

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



MOVEMENT SUMMARY

Site: [1 (5)] SR 161 at Kile Warner-2040 AM - Build (Folder1)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

2040 AM Build
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed mph
South: Passenger Rail Stn Rd															
3	L2	All MCs	18	3.0	18	3.0	0.237	32.0	LOS D	0.6	14.4	0.89	0.91	0.97	23.7
8	T1	All MCs	9	3.0	9	3.0	0.237	32.0	LOS D	0.6	14.4	0.89	0.91	0.97	24.0
18	R2	All MCs	9	3.0	9	3.0	0.237	32.0	LOS D	0.6	14.4	0.89	0.91	0.97	23.9
Approach			36	3.0	36	3.0	0.237	32.0	LOS D	0.6	14.4	0.89	0.91	0.97	23.8
East: SR 161/Post Rd															
1	L2	All MCs	22	3.0	22	3.0	0.552	8.7	LOS A	4.1	105.2	0.40	0.17	0.40	32.4
6	T1	All MCs	1364	3.0	1364	3.0	0.552	8.7	LOS A	4.1	105.2	0.40	0.17	0.40	33.1
16	R2	All MCs	86	3.0	86	3.0	0.068	3.4	LOS A	0.3	6.9	0.21	0.09	0.21	35.0
Approach			1472	3.0	1472	3.0	0.552	8.4	LOS A	4.1	105.2	0.39	0.17	0.39	33.2
North: Kile Warner Rd															
7	L2	All MCs	98	3.0	98	3.0	0.325	15.9	LOS C	1.1	27.5	0.78	0.83	0.96	27.7
4	T1	All MCs	22	3.0	22	3.0	0.325	15.9	LOS C	1.1	27.5	0.78	0.83	0.96	28.2
14	R2	All MCs	60	3.0	60	3.0	0.185	14.5	LOS B	0.6	14.2	0.77	0.77	0.77	29.9
Approach			179	3.0	179	3.0	0.325	15.5	LOS C	1.1	27.5	0.78	0.81	0.90	28.4
West: SR 161/Post Rd															
5	L2	All MCs	70	3.0	70	3.0	0.930	27.4	LOS D	43.1	1104.4	1.00	1.17	1.82	25.7
2	T1	All MCs	2123	3.0	2123	3.0	0.930	27.4	LOS D	43.1	1104.4	1.00	1.17	1.82	26.1
12	R2	All MCs	45	3.0	45	3.0	0.930	27.4	LOS D	43.1	1104.4	1.00	1.17	1.82	26.0
Approach			2237	3.0	2237	3.0	0.930	27.4	LOS D	43.1	1104.4	1.00	1.17	1.82	26.1
All Vehicles			3924	3.0	3924	3.0	0.930	19.8	LOS C	43.1	1104.4	0.76	0.78	1.23	28.5

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: [1 (6)] SR 161 at Kile Warner-2040 PM - Build (Folder1)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

2040 PM Build
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed mph
South: Passenger Rail Stn Rd															
3	L2	All MCs	43	3.0	43	3.0	0.515	44.3	LOS E	1.4	36.1	0.92	0.99	1.19	21.1
8	T1	All MCs	22	3.0	22	3.0	0.515	44.3	LOS E	1.4	36.1	0.92	0.99	1.19	21.4
18	R2	All MCs	22	3.0	22	3.0	0.515	44.3	LOS E	1.4	36.1	0.92	0.99	1.19	21.3
Approach			87	3.0	87	3.0	0.515	44.3	LOS E	1.4	36.1	0.92	0.99	1.19	21.2
East: SR 161/Post Rd															
1	L2	All MCs	10	3.0	10	3.0	1.077	59.8	LOS F	87.8	2246.7	1.00	2.21	3.02	19.0
6	T1	All MCs	2564	3.0	2564	3.0	1.077	59.8	LOS F	87.8	2246.7	1.00	2.21	3.02	19.2
16	R2	All MCs	145	3.0	145	3.0	0.121	4.0	LOS A	0.5	12.7	0.28	0.14	0.28	34.7
Approach			2718	3.0	2718	3.0	1.077	56.8	LOS F	87.8	2246.7	0.96	2.10	2.88	19.7
North: Kile Warner Rd															
7	L2	All MCs	138	3.0	138	3.0	0.927	106.4	LOS F	4.2	106.4	0.99	1.25	2.12	13.5
4	T1	All MCs	10	3.0	10	3.0	0.927	119.3	LOS F	4.2	106.4	0.99	1.25	2.12	13.7
14	R2	All MCs	96	3.0	96	3.0	0.745	85.3	LOS F	2.5	63.7	0.97	1.09	1.47	15.4
Approach			243	3.0	243	3.0	0.927	98.6	LOS F	4.2	106.4	0.98	1.19	1.86	14.2
West: SR 161/Post Rd															
5	L2	All MCs	83	3.0	83	3.0	0.868	21.2	LOS C	28.7	735.6	1.00	0.90	1.61	27.4
2	T1	All MCs	1973	3.0	1973	3.0	0.868	21.2	LOS C	28.7	735.6	1.00	0.90	1.61	28.0
12	R2	All MCs	20	3.0	20	3.0	0.868	21.2	LOS C	28.7	735.6	1.00	0.90	1.61	27.9
Approach			2075	3.0	2075	3.0	0.868	21.2	LOS C	28.7	735.6	1.00	0.90	1.61	28.0
All Vehicles			5124	3.0	5124	3.0	1.077	44.2	LOS E	87.8	2246.7	0.98	1.55	2.29	21.9

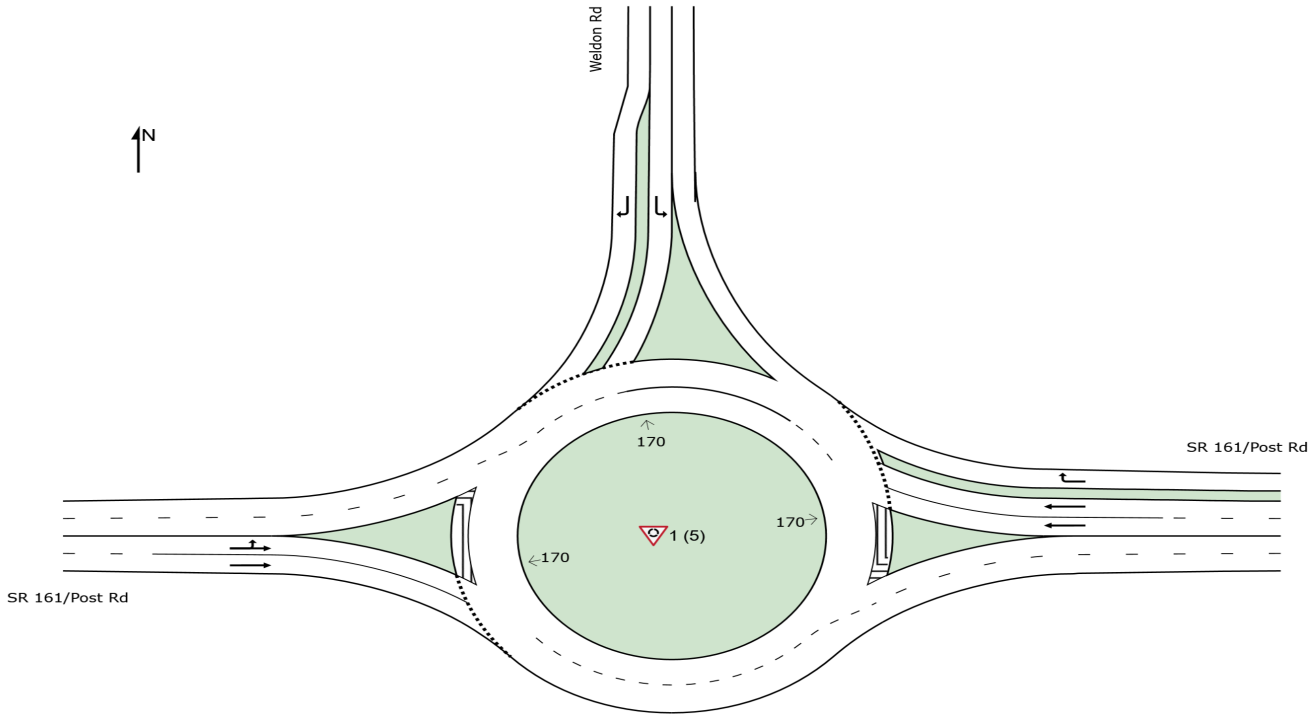
Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result 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 (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

SITE LAYOUT

Site: [1 (5)] SR 161 at Weldon-2040 AM Build (Folder1)

2040 AM Build
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

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



Organisation: LJB INC | Licence: PLUS / 1PC | Created: Wednesday, January 14, 2026 3:03:51 PM
Project: C:\Users\vmadineni\OneDrive - LJB INC\Desktop\MAD-UNI-FRA 161\SIDRA\Weldon.sipx

MOVEMENT SUMMARY

Site: [1 (5)] SR 161 at Weldon-2040 AM Build (Folder1)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

2040 AM Build
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed mph
East: SR 161/Post Rd															
6	T1	All MCs	1576	3.0	1576	3.0	0.650	11.1	LOS B	5.6	143.4	0.56	0.27	0.56	32.1
16	R2	All MCs	176	3.0	176	3.0	0.145	4.2	LOS A	0.6	15.7	0.27	0.13	0.27	34.6
Approach			1752	3.0	1752	3.0	0.650	10.4	LOS B	5.6	143.4	0.53	0.26	0.53	32.3
North: Weldon Rd															
7	L2	All MCs	145	3.0	145	3.0	0.452	22.3	LOS C	1.6	40.7	0.84	0.92	1.15	25.5
14	R2	All MCs	107	3.0	107	3.0	0.394	23.5	LOS C	1.3	33.3	0.85	0.91	1.10	26.7
Approach			251	3.0	251	3.0	0.452	22.8	LOS C	1.6	40.7	0.85	0.92	1.13	26.0
West: SR 161/Post Rd															
5	L2	All MCs	133	3.0	133	3.0	0.955	31.1	LOS D	50.8	1299.7	1.00	1.37	2.01	24.6
2	T1	All MCs	2157	3.0	2157	3.0	0.955	31.1	LOS D	50.8	1299.7	1.00	1.37	2.01	25.1
Approach			2289	3.0	2289	3.0	0.955	31.1	LOS D	50.8	1299.7	1.00	1.37	2.01	25.1
All Vehicles			4292	3.0	4292	3.0	0.955	22.2	LOS C	50.8	1299.7	0.80	0.89	1.35	27.6

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: LJB INC | Licence: PLUS / 1PC | Processed: Wednesday, January 14, 2026 2:15:59 PM
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MOVEMENT SUMMARY

Site: [1 (6)] SR 161 at Weldon-2040 PM Build (Folder1)
Output produced by SIDRA INTERSECTION Version: 10.0.5.217

Weldon Rd
Site Category: (None)
Roundabout
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] ft	Prop. Queued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed mph
East: SR 161/Post Rd															
6	T1	All MCs	2442	3.0	2442	3.0	1.113	76.4	LOS F	80.8	2069.2	1.00	2.68	4.38	16.9
16	R2	All MCs	296	3.0	296	3.0	0.269	5.8	LOS A	1.2	31.8	0.41	0.25	0.41	33.8
Approach			2738	3.0	2738	3.0	1.113	68.7	LOS F	80.8	2069.2	0.94	2.42	3.95	17.8
North: Weldon Rd															
7	L2	All MCs	271	3.0	271	3.0	1.382	243.7	LOS F	27.0	690.9	1.00	2.57	7.62	10.0
14	R2	All MCs	227	3.0	227	3.0	1.405	264.6	LOS F	24.0	614.3	1.00	2.35	6.78	9.1
Approach			498	3.0	498	3.0	1.405	253.2	LOS F	27.0	690.9	1.00	2.47	7.24	9.6
West: SR 161/Post Rd															
5	L2	All MCs	237	3.0	237	3.0	1.008	43.4	LOS F	62.6	1603.0	1.00	1.99	2.85	21.7
2	T1	All MCs	2080	3.0	2080	3.0	1.008	43.4	LOS F	62.6	1603.0	1.00	1.99	2.85	22.1
Approach			2317	3.0	2317	3.0	1.008	43.4	LOS E	62.6	1603.0	1.00	1.99	2.85	22.1
All Vehicles			5553	3.0	5553	3.0	1.405	74.7	LOS F	80.8	2069.2	0.97	2.24	3.78	17.9

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

APPENDIX J – PHASE I CONCEPTUAL PLANS

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SHEET 1 TOTAL 16	PROJECT ID 0	XXX MM-DD-YY	DESIGNER XXX	DESIGN AGENCY	S.R. 161 PLAN STA. 60+00 TO STA. 70+00

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0 40
20 80

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SHEET	TOTAL	PROJECT ID	REVIEWER	DESIGNER	DESIGN AGENCY
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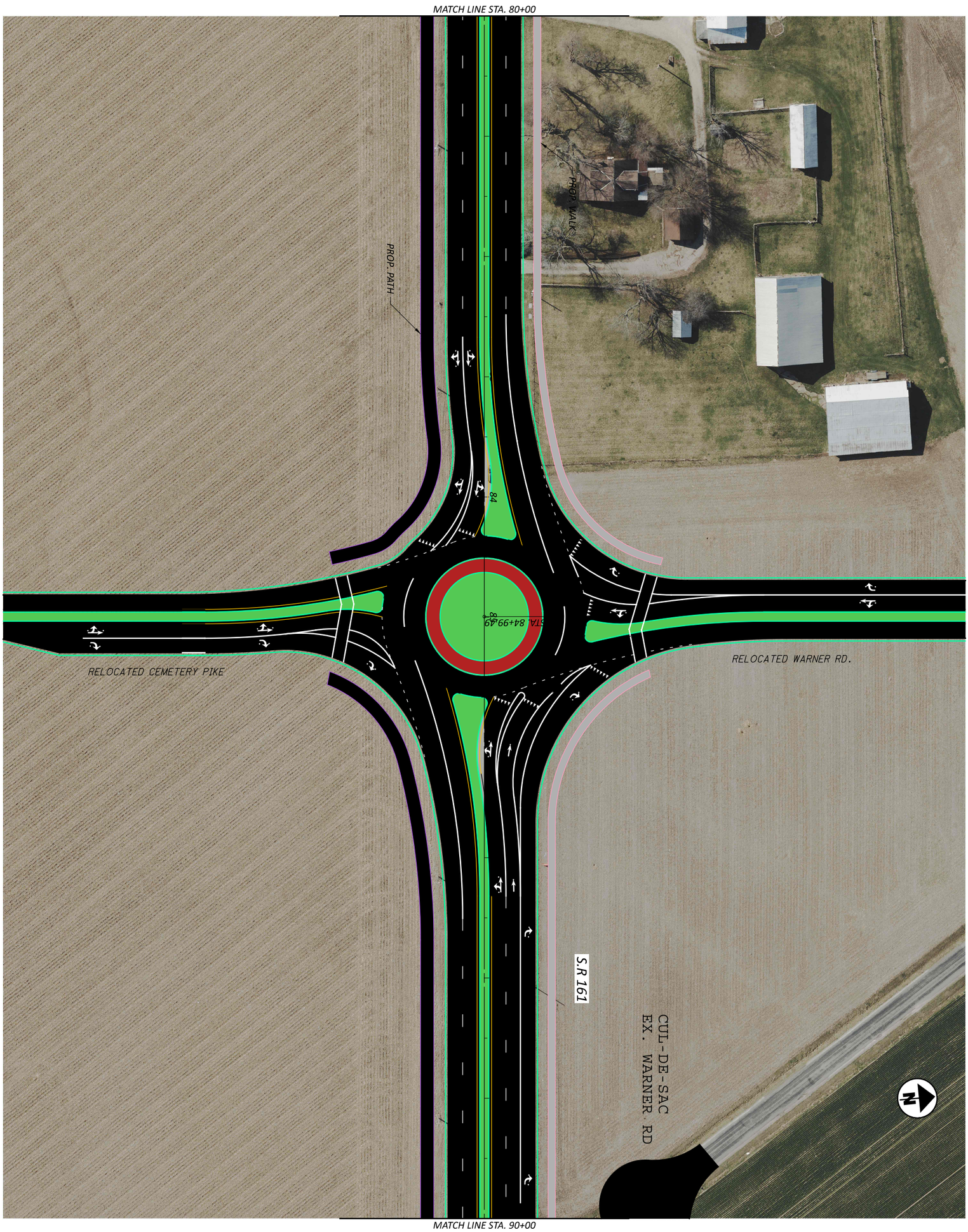
S.R. 161 PLAN
STA. 60+00 TO STA. 70+00

HORIZONTAL SCALE IN FEET
0 40
20 80



SHEET	TOTAL	PROJECT ID	REVIEWER	DESIGNER	DESIGN AGENCY
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S.R. 161 PLAN
STA. 80+00 TO STA. 90+00

HORIZONTAL SCALE IN FEET
0 40
20 80

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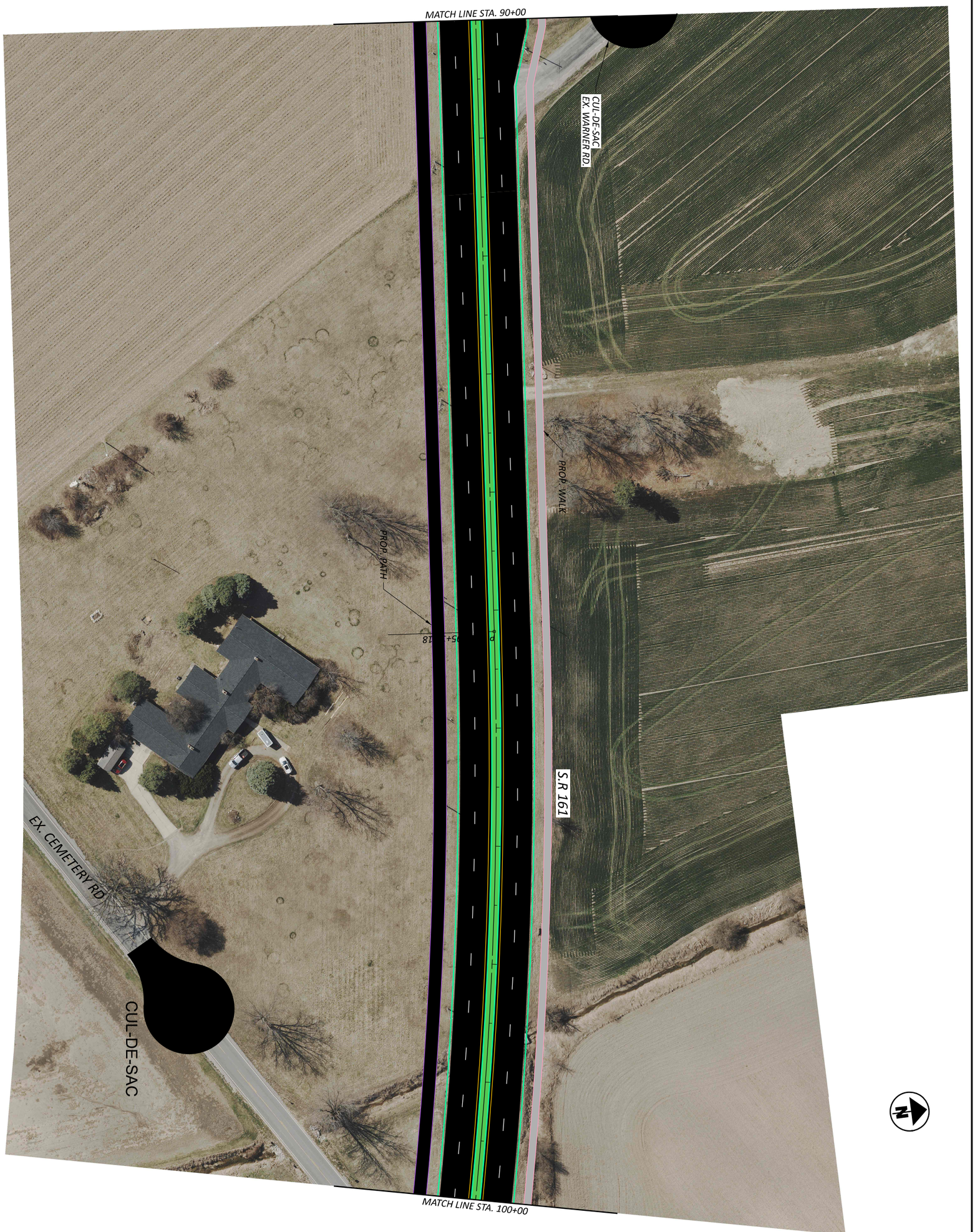

S.R. 161 PLAN
STA. 90+00 TO STA. 100+00

HORIZONTAL SCALE IN FEET
0 40
20 80

DESIGN AGENCY

DESIGNER XXX

REVIEWER XXX

PROJECT ID 0

MM-DD-YY

SHEET 4 | TOTAL 16

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SHEET 5 | TOTAL 16
PROJECT ID 0
XXX MM-DD-YY
REVIEWER XXX
DESIGNER XXX
DESIGN AGENCY

S.R. 161 PLAN
STA. 100+00 TO STA. 110+00

HORIZONTAL SCALE IN FEET
0 40
20 80

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HORIZONTAL SCALE IN FEET
0 40
20 80

HORIZONTAL SCALE IN FEET
0 20 40 80

S.R. 161 PLAN
STA. 120+00 TO STA. 130+00

DESIGN AGENCY

DESIGNER XXX

REVIEWER XXX MM-DD-YY

PROJECT ID 0

SHEET 7 TOTAL 16

MAD-UNI-FRA-161 STUDY

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HORIZONTAL SCALE IN FEET
0 20 40 80

S.R. 161 PLAN
STA. 130+00 TO STA. 140+00

DESIGN AGENCY

DESIGNER
XXX

REVIEWER
XXX MM-DD-YY

PROJECT ID
0

SHEET 8 TOTAL 16

MAD-UNI-FRA-161 STUDY

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SHEET 9 / TOTAL 16	PROJECT ID 0	XXX MM-DD-YY	REVIEWER XXX	DESIGNER XXX	DESIGN AGENCY

S.R. 161 PLAN
STA. 140+00 TO STA. 150+00

HORIZONTAL SCALE IN FEET
0 40
20 80

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SHEET 10 | TOTAL 16

PROJECT ID 0

REVIEWER XXX MM-DD-YY

DESIGNER XXX

DESIGN AGENCY

S.R. 161 PLAN
STA. 150+00 TO STA. 160+00

HORIZONTAL SCALE IN FEET

0 40
20 80

MAD-UNI-FRA-161 STUDY

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SHEET	TOTAL
11	16

PROJECT ID: 0

REVIEWER: XXX MM-DD-YY

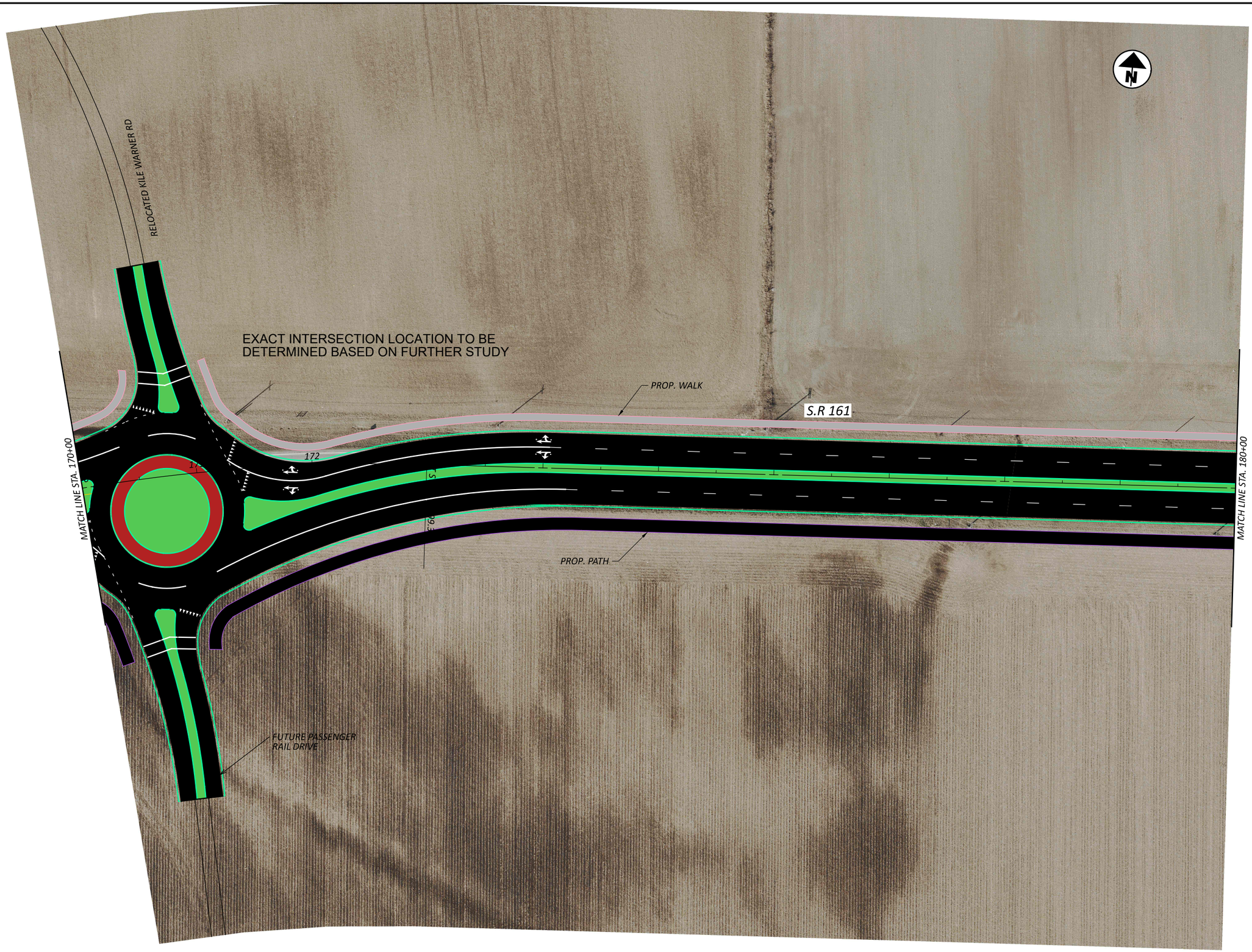
DESIGNER: XXX

DESIGN AGENCY

S.R. 161 PLAN
STA. 160+00 TO STA. 170+00

HORIZONTAL SCALE IN FEET

0 40
20 80



HORIZONTAL
SCALE IN FEET
0 20 40 80

S.R. 161 PLAN
STA. 170+00 TO STA. 180+00

DESIGN AGENCY

DESIGNER
XXX

REVIEWER
XXX MM-DD-YY

PROJECT ID
0

SHEET 12 | TOTAL 15

MAD-UNI-FRA-161 STUDY

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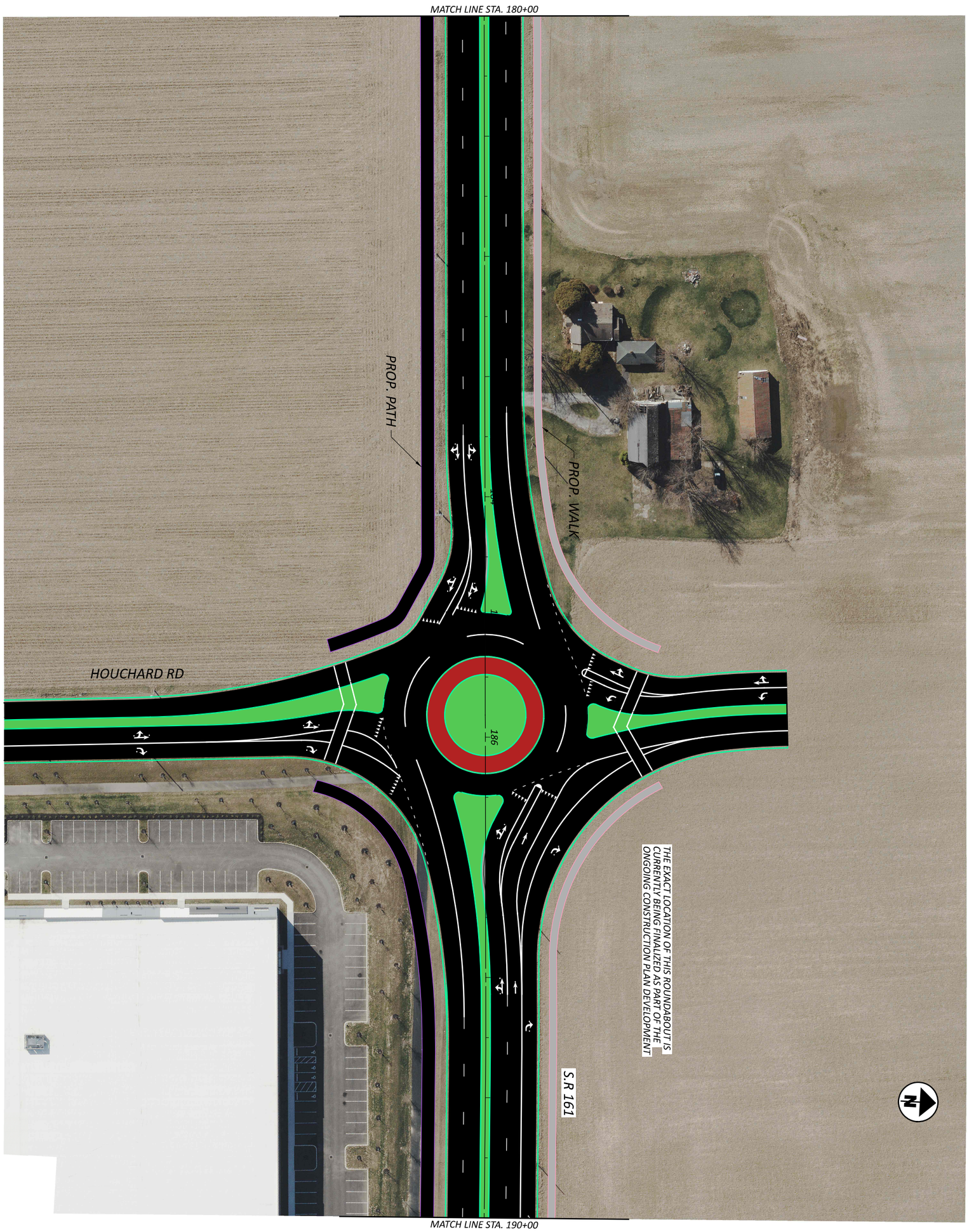

SHEET 13 | TOTAL 16

PROJECT ID 0

REVIEWER XXX MM-DD-YY

DESIGNER XXX

DESIGN AGENCY

S.R. 161 PLAN
STA. 180+00 TO STA. 190+00

HORIZONTAL SCALE IN FEET

0 40
20 80

HORIZONTAL SCALE IN FEET
0 20 40 80

S.R. 161 PLAN
STA. 190+00 TO STA. 200+00

DESIGN AGENCY

DESIGNER XXX

REVIEWER XXX MM-DD-YY

PROJECT ID 0

SHEET 14 TOTAL 16

MAD-UNI-FRA-161 STUDY

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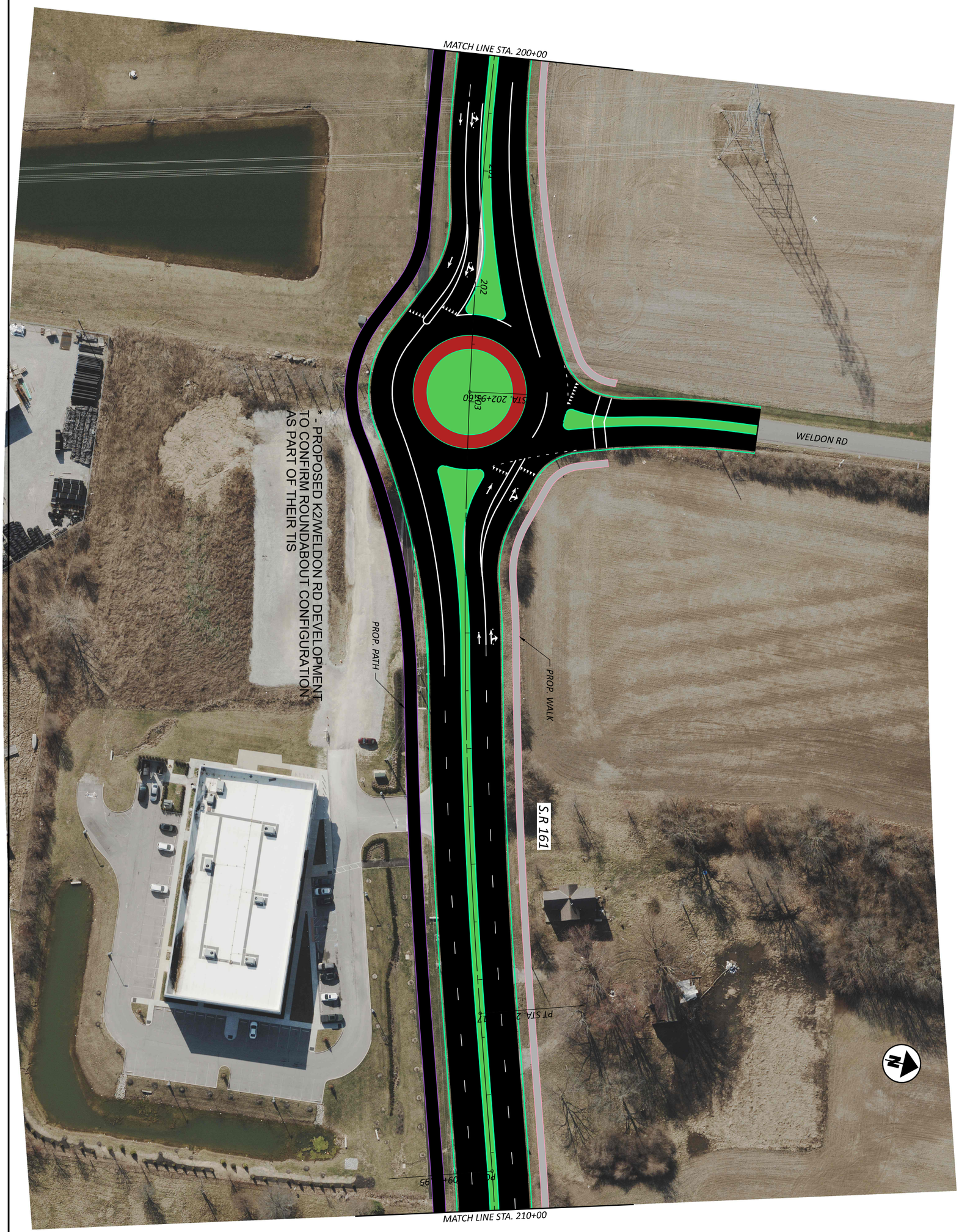

S.R. 161 PLAN
STA. 200+00 TO STA. 210+00

HORIZONTAL SCALE IN FEET
0 40
20 80

SHEET 15 TOTAL 16
PROJECT ID 0
REVIEWER XXX MM-DD-YY
DESIGNER XXX
DESIGN AGENCY

MAD-UNI-FRA-161 STUDY

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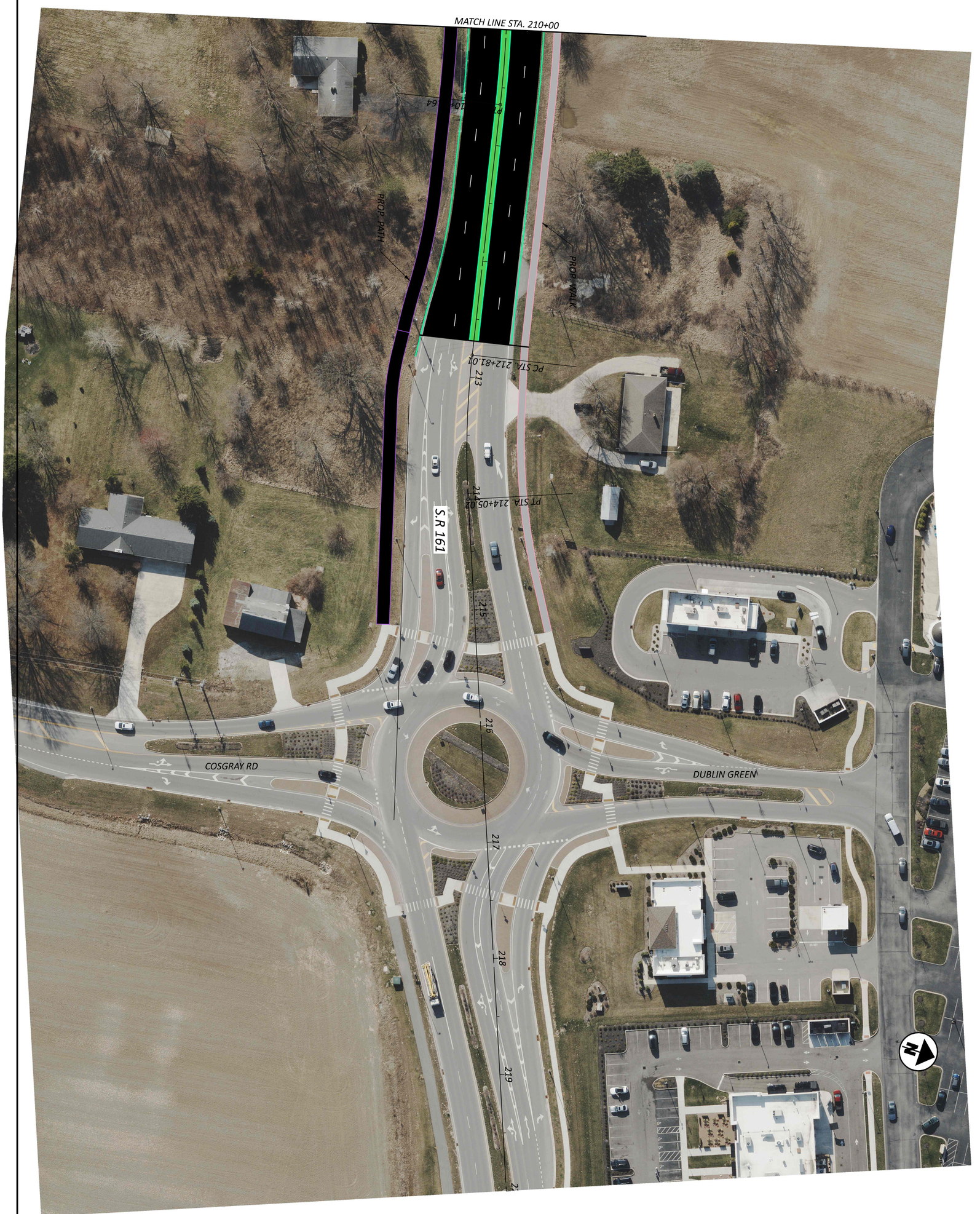

SHEET 16 / TOTAL 16	PROJECT ID 0	XXX MM-DD-YY REVIEWER	DESIGNER XXX	DESIGN AGENCY	S.R. 161 PLAN STA. 210+00 TO STA. 220+00

HORIZONTAL SCALE IN FEET
0 40
20 80

APPENDIX K – COST ESTIMATES

Estimate MAD-UNI-FRA 161

Estimated Cost:$19,610,543.22

Contingency: 25.00%

Estimated Total: $24,513,179.03

25% DESIGN RISK

Base Date: 08/01/25

Spec Year: 23

Unit System: E

Work Type: ASPHALT

Highway Type:

Urban/Rural Type: URBAN CLASS

Season: SPRING

County: MADISON

Latitude of Midpoint: 0

Longitude of Midpoint: 0

District: 06

Federal/State Project Number: PID 119637

Estimate Type: Concept Plan

Prepared by ASN on 09/13/25
Checked by JRE on 09/13/25

Line #	Item Number	Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
Group 0010: Roadway						
0005	201E11000	CLEARING AND GRUBBING	1.000	LS	$100,000.00000	$100,000.00
0006	202E23000	PAVEMENT REMOVED *(ASPHALT)*	48,000.000	SY	$15.00000	$720,000.00
0007	202E30000	WALK REMOVED	1,000.000	SF	$4.14648	$4,146.48
0008	202E35100	PIPE REMOVED, 24" AND UNDER	1,000.000	FT	$13.97066	$13,970.66
0009	202E58100	CATCH BASIN REMOVED	10.000	EACH	$413.30596	$4,133.06
0020	203E10000	EXCAVATION	50,000.000	CY	$35.00000	$1,750,000.00
0021	203E20000	EMBANKMENT	20,000.000	CY	$30.00000	$600,000.00
0022	204E10000	SUBGRADE COMPACTION	117,000.000	SY	$1.14704	$134,203.68
0023	206E15010	CEMENT STABILIZED SUBGRADE, 12 INCHES DEEP	116,945.000	SY	$3.78195	$442,280.14
0024	608E10000	4" CONCRETE WALK	84,790.000	SF	$6.00000	$508,740.00
		Total for Group 0010:				$4,277,474.02
Group 0015: Bikeway						
0113	441E50000	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (448), PG64-22	602.000	CY	$200.00000	$120,400.00
0114	441E50300	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, (448)	845.000	CY	$175.00000	$147,875.00
0115	304E20000	AGGREGATE BASE	2,900.000	CY	$67.80227	$196,626.58
		Total for Group 0015:				$464,901.58
Group 0020: Erosion Control						
0028	659E00300	TOPSOIL	11,000.000	CY	$50.00000	$550,000.00
0029	659E10000		400,000.000	SY	$2.50000	$1,000,000.00

Line #	Item Number	Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
		SEEDING AND MULCHING				
0030	659E14000	REPAIR SEEDING AND MULCHING	20,000.000	SY	$1.50000	$30,000.00
0031	659E15000	INTER-SEEDING	20,000.000	SY	$1.00000	$20,000.00
0036	832E15000	STORM WATER POLLUTION PREVENTION PLAN	1.000	LS	$15,000.00000	$15,000.00
0037	832E15002	STORM WATER POLLUTION PREVENTION INSPECTIONS	1.000	LS	$25,000.00000	$25,000.00
0038	832E15010	STORM WATER POLLUTION PREVENTION INSPECTION SOFTWARE	1.000	LS	$10,000.00000	$10,000.00
0039	832E30000	EROSION CONTROL	100,000.000	EACH	$1.00000	$100,000.00

Total for Group 0020:$1,750,000.00

Group 0040: Drainage

0040	605E14000	6" BASE PIPE UNDERDRAINS	33,765.000	FT	$13.00000	$438,945.00
0041	611E00510	6" CONDUIT, TYPE F FOR UNDERDRAIN OUTLETS	1,000.000	FT	$25.67664	$25,676.64
0045	611E04400	12" CONDUIT, TYPE B	3,000.000	FT	$85.00000	$255,000.00
0046	611E04600	12" CONDUIT, TYPE C	200.000	FT	$90.00000	$18,000.00
0047	611E07400	18" CONDUIT, TYPE B	8,000.000	FT	$150.00000	$1,200,000.00
0048	611E10400	24" CONDUIT, TYPE B	4,000.000	FT	$175.00000	$700,000.00
0049	611E98150	CATCH BASIN, NO. 3	25.000	EACH	$3,800.00000	$95,000.00
0050	611E98180	CATCH BASIN, NO. 3A	75.000	EACH	$3,500.00000	$262,500.00
0051	611E98470	CATCH BASIN, NO. 2-2B	25.000	EACH	$2,000.00000	$50,000.00
0052	611E99574		50.000	EACH	$1,284.27000	$64,213.50

Line #	Item Number / Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
	MANHOLE, NO. 3				

Total for Group 0040:$3,109,335.14

Group 0050: Pavement

0053	302E56000 ASPHALT CONCRETE BASE, PG64-22, (449)	17,025.000	CY	$128.45940	$2,187,021.28
0054	304E20000 AGGREGATE BASE	19,500.000	CY	$100.00000	$1,950,000.00
0055	407E10000 TACK COAT	5,600.000	GAL	$2.52731	$14,152.94
0057	441E10000 ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (446), PG64-22	4,260.000	CY	$176.77646	$753,067.72
0058	441E10200 ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, (446)	4,965.000	CY	$155.74209	$773,259.48
0060	452E14011 10" NON-REINFORCED CONCRETE PAVEMENT, CLASS QC 1P, AS PER PL AN *truck aprons*	1,450.000	SY	$120.00000	$174,000.00
0063	609E12000 COMBINATION CURB AND GUTTER, TYPE 2	33,765.000	FT	$35.00000	$1,181,775.00
0064	609E26000 CURB, TYPE 6	31,940.000	FT	$25.00000	$798,500.00
0065	609E31000 COMBINATION CURB AND GUTTER, TYPE 9 *truck aprons*	2,130.000	FT	$22.27467	$47,445.05

Total for Group 0050:$7,879,221.47

Group 0080: Lighting

0106	625E98200 LIGHTING, MISC.: *4 RA intersections at $150,000 each*	1.000	LS	$600,000.00000	$600,000.00

Total for Group 0080:$600,000.00

Group 0120: Traffic Control

0091	644E00104 EDGE LINE, 6"	6.000	MILE	$4,235.59050	$25,413.54
0092	644E00300 CENTER LINE	0.400	MILE	$7,437.77529	$2,975.11
0094	644E01520 DOTTED LINE, 12"	1,740.000	FT	$1.41809	$2,467.48

Line #	Item Number	Description / *Supplemental Description*	Quantity	Units	Unit Price	Extension
0095	644E20800	YIELD LINE	420.000	FT	$15.00000	$6,300.00
0107	644E00400	CHANNELIZING LINE, 8"	8,525.000	FT	$1.36271	$11,617.10
0108	644E00620	CROSSWALK LINE, 12"	1,080.000	FT	$3.61858	$3,908.07
0109	644E01300	LANE ARROW	42.000	EACH	$109.92442	$4,616.83
0110	644E00200	LANE LINE, 4"	4.600	MILE	$1,689.59994	$7,772.16
0111	644E00500	STOP LINE	35.000	FT	$12.12643	$424.43
0112	630E95000	SIGNING, MISC.: *lump sum for ground mounted signing*	1.000	LS	$75,000.00000	$75,000.00

Total for Group 0120:$140,494.72

Group 0200: Structures Over 20 Foot Span (Bridge Number of SFN)

0128	518E63300	STRUCTURE DRAINAGE, MISC.: *Lump sum cost for structure west of existing Cemetery Rd*	1.000	LS	$325,000.00000	$325,000.00

Total for Group 0200:$325,000.00

Group 0230: Incidentals

0101	103E05000	PREMIUM FOR CONTRACT PERFORMANCE BOND AND FOR PAYMENT BOND	1.000	LS	$39,000.00000	$39,000.00
0102	614E11000	MAINTAINING TRAFFIC *aprox. 5%*	1.000	LS	$900,000.00000	$900,000.00
0103	619E16010	FIELD OFFICE, TYPE B	15.000	MNTH	$1,674.41945	$25,116.29
0104	623E10000	CONSTRUCTION LAYOUT STAKES AND SURVEYING	1.000	LS	$75,000.00000	$75,000.00
0105	624E10000	MOBILIZATION	1.000	LS	$25,000.00000	$25,000.00

Total for Group 0230:$1,064,116.29