

APPENDICES

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- Appendix K –** Signal Warrant Analysis

APPENDIX A

Preliminary Submission Correspondence

Michael Scavo

From: Straka, Josh <Josh.Straka@strand.com>
Sent: Friday, December 17, 2021 4:12 PM
To: Michael Scavo; Henderson, Kyle R.; 'dunphy@countyofdane.com'
Cc: Christopher Prisk; Erin Ruth; JJ Larson; Matt Giese
Subject: [External] RE: Preliminary Traffic Submission for Project Silver Eagle

Follow Up Flag: Follow up
Flag Status: Flagged

Hi Michael,

The trip distribution and assumptions seems appropriate to both the Village and the County.

A few items to consider in your final report that will help the review team are listed below:

- A graphic showing the general circulation patterns of the site (vehicles and trucks). Include gated locations, and connections or indicate no connections between truck and employee lots
- A description of employee staffing shift changes and timing.
- Number of vehicle and truck parking spaces.
- Indicate approximate dimensions of spacing between intersections
- Further describe future plans for outlot/green space areas and access, if anticipated.
- Confirmation that this is full traffic buildout for the site.
- Provide midday peak traffic modeling if employees are expected to leave the facility over the lunch period.
- Two separate modeling scenarios for access. For example, one scenario could include full access at all four access points (as you previously suggested) and a second scenario could include right in/right out only at the first access point on CTH N and even CTH TT. The County is concerned about the 55 mph traveling speed along CTH N and would suggest a-right-in and right-out at the southern access point along CTH N (your distribution shows very few lefts at this intersection anyways) and a roundabout intersection at the north access point to help control speeds and promote northbound left turn safety. The roundabout would also help promote the continuous flow of truck traffic into and out of your site.
- Describe plans to mitigate crash potential for up to 4 new accesses onto 40 to 55 mph posted highways, especially left ins and left outs

If you have any questions, don't hesitate to call.

Josh

From: Michael Scavo <Mscavo@langan.com>
Sent: Thursday, December 16, 2021 2:10 PM
To: Straka, Josh <Josh.Straka@strand.com>; Henderson, Kyle R. <Kyle.Henderson@strand.com>; 'dunphy@countyofdane.com' <dunphy@countyofdane.com>
Cc: Christopher Prisk <cprisk@Langan.com>; Erin Ruth <eruth@village.cottage-grove.wi.us>; JJ Larson

<jlarson@village.cottage-grove.wi.us>; Matt Giese <MGiese@village.cottage-grove.wi.us>

Subject: Preliminary Traffic Submission for Project Silver Eagle

[EXTERNAL EMAIL]: Verify sender before opening links or attachments.

Josh, Kyle, and Pam,

Please find a link to our preliminary submission which includes major inputs / assumptions to related to trip distribution and projected traffic volumes for the proposed warehouse development in Cottage Grove (Project Silver Eagle).

<https://clients.langan.com/Sharing/FileSharing/ViewPosted?transactionHash=-485913536>

This submission includes the following:

- Site Location – Figure 1A
- Study Area – Figure 1B
- Conceptual Draft Site Plan – Figure 2
- Trip Distribution Figures including:
 - Existing 2021 Volumes – Figure 3
 - No Build Volumes – Figure 4
 - With Background Growth (2% / Year, as previously discussed)
 - Background development (10 developments provided by Village)
 - Site Trips Based on ITE Methodology – Figure 5
 - Broken out with employee vehicles
 - And Truck Trips
 - Total 2023 Build Volumes – Figure 6

Additionally the trip generation for the proposed development is provided in Table 1 and an additional trip generation table for estimates of background developments is provided in Table 2.

These parameters and assumptions were based on our previous discussions and analysis will be conducted based on these conditions for the four discussed scenarios (Existing, No Build, Build, Build with Improvements).

If the County and Village could please confirm you are agreeable to the trip distributions presented in the preliminary submission, we will then move on to conducting the analysis and issuing a formal report to further inform discussion on the project.

Thanks,
Michael

Michael Scavo, PE
Project Manager

LANGAN

Direct: 312.547.7716

Cell: 630.819.9391

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From: Straka, Josh <Josh.Straka@strand.com>
Sent: Friday, December 10, 2021 9:22 AM
To: Michael Scavo <Mscavo@langan.com>; Henderson, Kyle R. <Kyle.Henderson@strand.com>; 'dunphy@countyofdane.com' <dunphy@countyofdane.com>
Cc: Erin Ruth <eruth@village.cottage-grove.wi.us>; Christopher Prisk <cprisk@Langan.com>; JJ Larson <jl Larson@village.cottage-grove.wi.us>; Matt Giese <MGiese@village.cottage-grove.wi.us>
Subject: [External] RE: Traffic Impact Study Assumptions for Project Silver Eagle
Importance: High

Michael -

I should have also asked if you were able to resolve the north access issue along CTH N? If not, how can we help?

Pam to bring you up to speed, we are suggesting the Developer use WisDOT standards for sight distance at all intersections at the County roadways which pushes that northern access along CTH N further south due to the crest curve. If they shift the access south, the northbound left turn lane development for that intersection then widens CHT N and causes R/W concerns/impact to an adjacent west parcel that the Developer does not own. The developer design team is looking into options to mitigate that impact. Some of those options could include reducing the left turn bay and taper bay lengths along CTH N, shifting the county road east or even cutting down some of the hill's crest curve to the north.

Pam you mentioned a speed reduce here may not be an option. Is that a firm "No" or is that an option to further explore as well?

Thanks,

Josh

From: Straka, Josh
Sent: Friday, December 10, 2021 8:38 AM
To: Michael Scavo <Mscavo@langan.com>; Henderson, Kyle R. <Kyle.Henderson@strand.com>; 'dunphy@countyofdane.com' <dunphy@countyofdane.com>
Cc: Erin Ruth <eruth@village.cottage-grove.wi.us>; Christopher Prisk <cprisk@Langan.com>; JJ Larson <jl Larson@village.cottage-grove.wi.us>; Matt Giese <MGiese@village.cottage-grove.wi.us>
Subject: RE: Traffic Impact Study Assumptions for Project Silver Eagle
Importance: High

Hi Michael -

See our comments below. We only have a few minor comments for consideration.

Pam - If you have any additional thoughts please respond to this email.

Thank you,

Josh

From: Michael Scavo <Mscavo@langan.com>
Sent: Thursday, December 9, 2021 4:01 PM
To: Straka, Josh <Josh.Straka@strand.com>; Henderson, Kyle R. <Kyle.Henderson@strand.com>
Cc: Erin Ruth <eruth@village.cottage-grove.wi.us>; Christopher Prisk <cprisk@Langan.com>
Subject: Traffic Impact Study Assumptions for Project Silver Eagle

[EXTERNAL EMAIL]: Verify sender before opening links or attachments.

Josh and Kyle,

Here is a list of assumptions and general parameters we are hoping to get input on before we move forward with our preliminary submission and ultimate TIS:

Analysis Parameters:

- Study area intersections – see attached map
- Evaluate four (4) analysis scenarios:
 - Existing 2021,
 - No Build 2023,
 - Build 2023,
 - Build 2023 with Improvements
- Trip generation – See attached table
 - First set of numbers – based on ITE methodology, more conservative than client specific information **We would prefer using the ITE methodology.**
 - Second set of numbers – based on client specific information, lower traffic totals than ITE method **We would also suggest checking the overall ITE methodology intersection designs with the peak period of traffic for this facility (sort of a final design check). From what we understand, your client specific information is the average yearly volume and the client may have several months where workforce/traffic (800ish employees) is higher than this average. Please let us know if our understanding is incorrect.**
 - We are comfortable using whatever method you prefer

Background Growth Assumptions:

- All background developments provided from the Village will be included in 2023 background development volumes as applicable. **Good!**
- A conservative 2% per year background growth rate (4% total) will also be added to existing traffic volumes to arrive at the 2023 No-Build Traffic condition. **Good!**
 - For reference, the Master Plan TIA appears to provide a background growth rate of between 0.5% and 1.0% per year.
- Counts were conducted in September 2021, and no other adjustments are recommended. **We agree**

Let us know what you think and then please pass along to Pam for her sign off as well.

Thanks again for your continued assistance on this,
Michael

Michael Scavo, PE
Project Manager

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Direct: 312.547.7716

Cell: 630.819.9391

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APPENDIX B

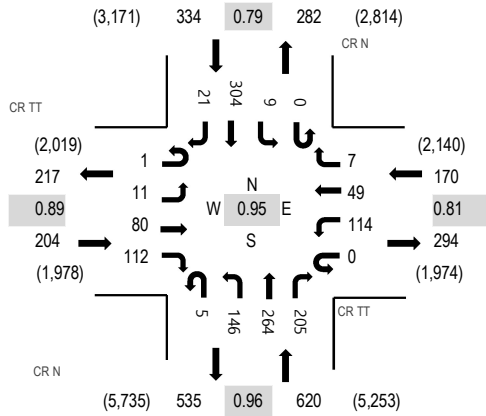
Turning Movement Counts



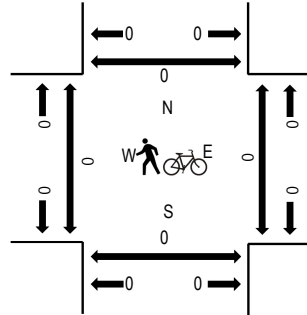
(303) 216-2439
www.alltrafficdata.net

Location: 5 CR N & CR TT AM
Date: Tuesday, September 14, 2021
Peak Hour: 03:00 PM - 04:00 PM
Peak 15-Minutes: 03:45 PM - 04:00 PM

Peak Hour - All Vehicles



Peak Hour - Pedestrians/Bicycles on Crosswalk



Note: Total study counts contained in parentheses.

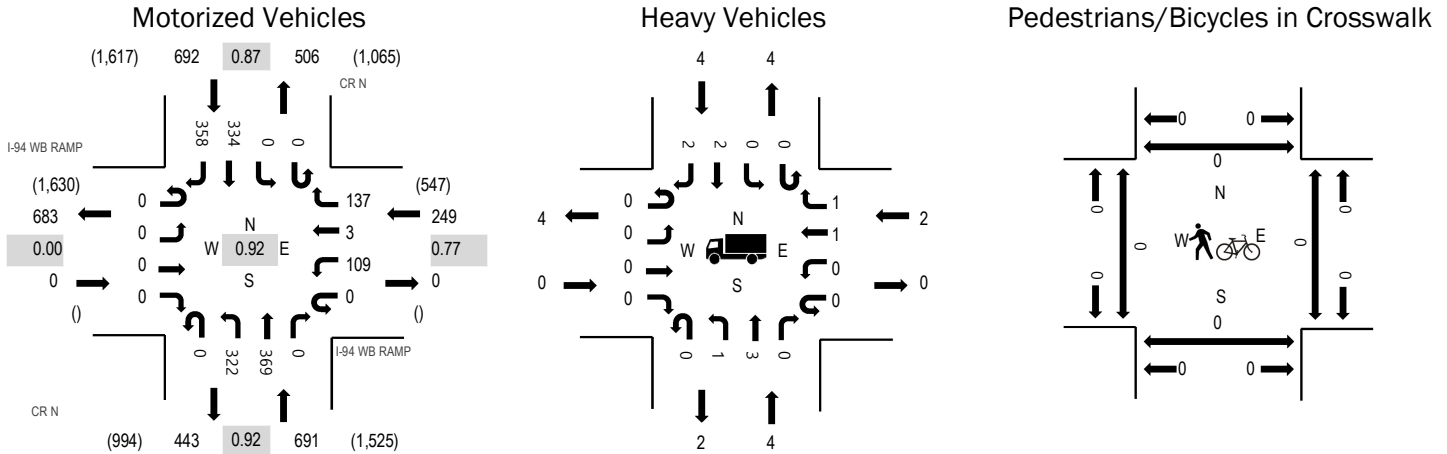
Traffic Counts

Interval Start Time	CR TT Eastbound				CR TT Westbound				CR N Northbound			CR N Southbound				Total	Rolling Hour	Pedestrian Crossings					
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru			Right	West	East	South	North	
12:00 AM	0	0	1	1	0	0	0	0	0	0	3	3	0	0	0	3	1	12	48	0	0	0	0
12:15 AM	0	0	3	5	0	0	0	1	0	2	5	1	0	1	3	0	21	47	0	0	0	0	
12:30 AM	0	0	1	1	0	0	0	0	0	1	1	1	0	1	2	0	8	33	0	0	0	0	
12:45 AM	0	0	0	1	0	0	0	0	0	1	2	1	0	0	2	0	7	28	0	0	0	0	
1:00 AM	0	0	1	1	0	0	0	0	0	3	3	3	0	0	0	0	11	28	0	0	0	0	
1:15 AM	0	0	0	0	0	0	1	0	0	1	1	3	0	0	1	0	7	20	0	0	0	0	
1:30 AM	0	0	0	1	0	0	0	0	0	0	1	1	0	0	0	0	3	20	0	0	0	0	
1:45 AM	0	0	0	1	0	1	1	1	0	1	1	0	0	0	1	0	7	24	0	0	0	0	
2:00 AM	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	3	28	0	0	0	0	
2:15 AM	0	0	1	0	0	1	0	0	0	0	1	3	0	0	1	0	7	32	0	0	0	0	
2:30 AM	0	0	0	1	0	0	1	0	0	0	2	1	0	0	2	0	7	32	0	0	0	0	
2:45 AM	0	0	0	1	0	3	0	0	0	1	2	1	0	0	3	0	11	38	0	0	0	0	
3:00 AM	0	0	1	0	0	3	1	0	0	0	1	1	0	0	0	0	7	40	0	0	0	0	
3:15 AM	0	0	0	2	0	1	0	1	0	0	1	0	0	0	2	0	7	46	0	0	0	0	
3:30 AM	0	0	0	1	0	3	0	0	0	4	3	0	0	0	2	0	13	57	0	0	0	0	
3:45 AM	0	0	1	1	0	2	0	0	0	2	1	0	0	0	6	0	13	82	0	0	0	0	
4:00 AM	0	0	0	2	0	5	0	0	0	0	2	0	0	0	4	0	13	108	0	0	0	0	
4:15 AM	0	0	0	2	0	9	1	0	0	0	4	0	0	0	2	0	18	144	0	0	0	0	
4:30 AM	0	0	0	2	0	6	7	0	0	5	7	1	0	0	10	0	38	219	0	0	0	0	
4:45 AM	0	0	0	3	0	7	2	0	0	6	7	1	0	0	13	0	39	314	0	0	0	0	
5:00 AM	0	0	0	2	0	13	6	0	0	2	6	1	0	0	19	0	49	424	0	0	0	0	
5:15 AM	0	2	3	9	0	27	9	0	0	9	6	6	0	1	21	0	93	518	0	0	0	0	
5:30 AM	0	1	2	13	0	35	8	1	0	9	20	12	0	1	29	2	133	668	0	0	0	0	
5:45 AM	0	0	0	10	0	27	9	4	0	17	25	10	0	2	44	1	149	778	0	0	0	0	
6:00 AM	0	1	3	18	0	35	12	1	0	11	16	6	0	2	38	0	143	877	0	0	0	0	
6:15 AM	0	2	6	22	0	52	17	0	1	26	33	15	0	3	63	3	243	1,031	0	0	0	0	
6:30 AM	0	1	7	15	0	42	17	4	0	27	47	3	0	0	78	2	243	1,136	0	0	0	0	
6:45 AM	0	1	8	18	0	48	20	4	0	25	40	12	0	1	69	2	248	1,250	0	0	0	0	
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7:15 AM	0	2	14	26	0	59	8	3	0	13	80	26	0	2	113	2	348	1,317	0	0	0	0	
7:30 AM	0	6	11	30	0	68	21	5	0	39	76	27	0	2	71	1	357	1,185	0	0	0	0	
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8:15 AM	0	2	5	19	0	33	8	2	0	19	40	19	0	3	65	1	216	683	0	0	0	0	
8:30 AM	0	4	9	17	0	20	9	1	1	14	33	15	0	2	38	3	166	608	0	0	0	0	

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9:00 AM	0	2	6	15	0	22	6	2	0	15	30	6	0	1	31	2	138	635	0	0	0	0
9:15 AM	0	4	5	10	0	13	9	1	0	23	30	8	0	1	37	0	141	662	0	0	0	0
9:30 AM	0	3	7	18	0	21	9	5	1	18	34	10	0	0	54	2	182	680	0	0	0	0
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9:30 PM	0	0	0	5	0	3	1	1	0	8	13	6	0	1	23	1	62	202	0	0	0	0
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10:45 PM	0	0	0	2	0	1	1	0	0	1	7	7	0	0	4	0	23	98	0	0	0	0
11:00 PM	0	0	1	4	0	4	0	0	0	3	8	5	0	0	8	0	33	86	0	0	0	0
11:15 PM	0	0	3	2	0	3	0	0	0	3	5	2	0	0	3	0	21		0	0	0	0
11:30 PM	0	0	3	3	0	1	0	0	0	3	5	4	0	0	2	0	21		0	0	0	0
11:45 PM	0	0	1	1	0	2	0	0	0	1	1	2	0	0	3	0	11		0	0	0	0

Count Total	3	121	541	1,313	0	1,460	536	144	26	1,336	2,548	1,343	1	90	2,936	144	12,542	0	0	0	0
Peak Hour	1	11	80	112	0	114	49	7	5	146	264	205	0	9	304	21	1,328	0	0	0	0

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.00
WB	0.8%	0.77
NB	0.6%	0.92
SB	0.6%	0.87
All	0.6%	0.92

Traffic Counts - Motorized Vehicles

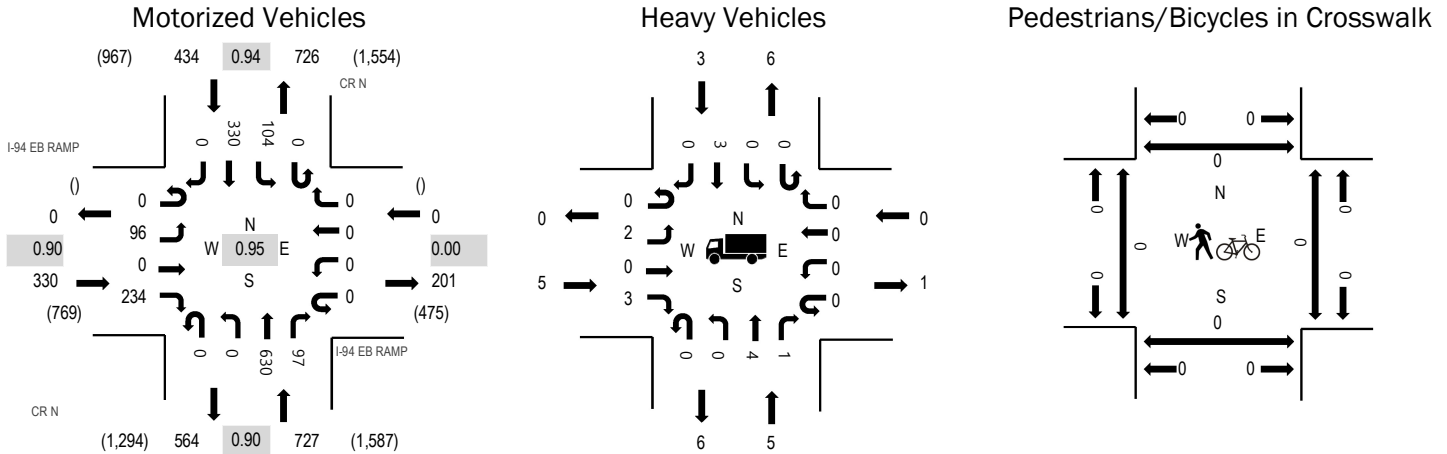
Interval Start Time	I-94 WB RAMP Eastbound				I-94 WB RAMP Westbound				CR N Northbound				CR N Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
6:00 AM	0	0	0	0	0	8	2	14	0	51	23	0	0	0	28	56	182	1,041
6:15 AM	0	0	0	0	0	14	0	28	1	48	46	0	0	0	54	79	270	1,233
6:30 AM	0	0	0	0	0	12	0	34	0	70	49	0	0	0	58	78	301	1,407
6:45 AM	0	0	0	0	0	14	1	29	0	62	48	0	0	0	61	73	288	1,495
7:00 AM	0	0	0	0	0	32	1	21	0	82	74	0	0	0	83	81	374	1,632
7:15 AM	0	0	0	0	0	20	1	36	0	97	91	0	0	0	96	103	444	1,593
7:30 AM	0	0	0	0	0	21	0	36	0	72	97	0	0	0	76	87	389	1,427
7:45 AM	0	0	0	0	0	36	1	44	0	71	107	0	0	0	79	87	425	1,251
8:00 AM	0	0	0	0	0	17	1	27	0	63	65	0	1	0	80	81	335	1,016
8:15 AM	0	0	0	0	0	22	1	22	0	60	56	0	0	0	68	49	278	
8:30 AM	0	0	0	0	0	11	0	10	1	59	54	0	0	0	41	37	213	
8:45 AM	0	0	0	0	0	14	0	17	1	41	36	0	0	0	46	35	190	
Count Total	0	0	0	0	0	221	8	318	3	776	746	0	1	0	770	846	3,689	
Peak Hour	0	0	0	0	0	109	3	137	0	322	369	0	0	0	334	358	1,632	

Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
6:00 AM	0	1	1	0	2	6:00 AM	0	0	0	0	0
6:15 AM	0	0	2	3	5	6:15 AM	0	0	0	0	0
6:30 AM	0	0	0	2	2	6:30 AM	0	0	0	0	0
6:45 AM	0	1	1	1	3	6:45 AM	0	0	0	0	0
7:00 AM	0	1	0	0	1	7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	3	3	7:30 AM	0	0	0	0	0
7:45 AM	0	3	2	1	6	7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0	8:00 AM	0	0	0	0	0

8:15 AM	0	0	5	0	5	8:15 AM	0	0	0	0	0
8:30 AM	0	2	0	2	4	8:30 AM	0	0	0	0	0
8:45 AM	0	5	0	0	5	8:45 AM	0	0	0	0	0
Count Total	0	13	11	12	36	Count Total	0	0	0	0	0
Peak Hour	0	4	2	4	10	Peak Hour	0	0	0	0	0

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	1.5%	0.90
WB	0.0%	0.00
NB	0.7%	0.90
SB	0.7%	0.94
All	0.9%	0.95

Traffic Counts - Motorized Vehicles

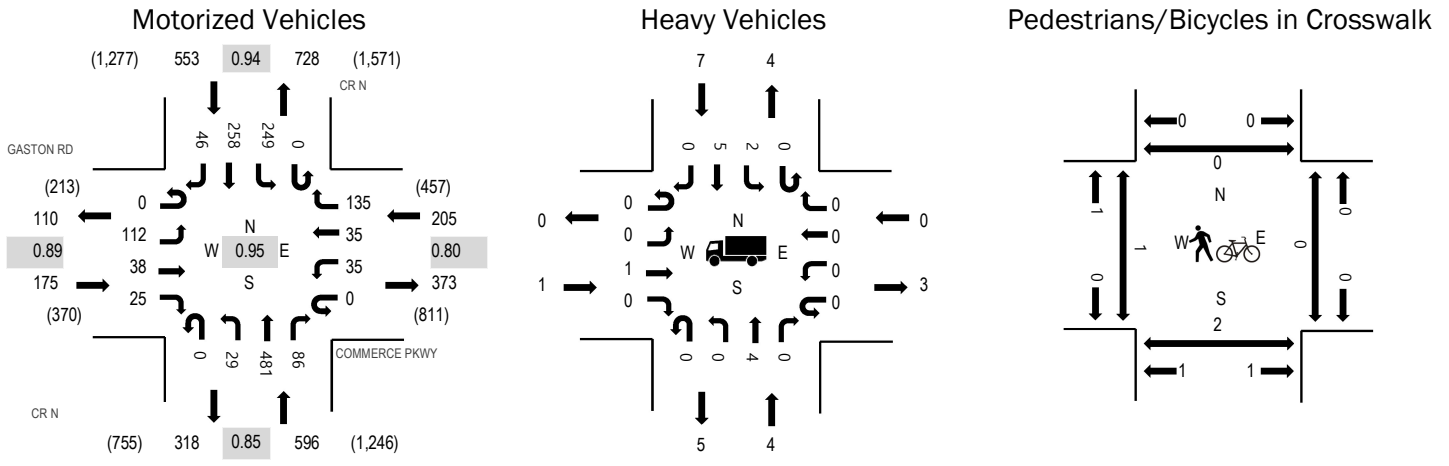
Interval Start Time	I-94 EB RAMP Eastbound				I-94 EB RAMP Westbound				CR N Northbound			CR N Southbound				Total	Rolling Hour	
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru			Right
6:00 AM	0	4	0	17	0	0	0	0	0	0	72	11	0	13	24	0	141	826
6:15 AM	0	13	0	22	0	0	0	0	0	0	80	13	1	18	46	0	193	1,033
6:30 AM	0	7	0	33	0	0	0	0	0	0	109	19	0	23	43	0	234	1,231
6:45 AM	0	10	0	60	0	0	0	0	0	0	99	16	0	22	51	0	258	1,375
7:00 AM	0	20	0	54	0	0	0	0	0	0	132	27	0	28	87	0	348	1,491
7:15 AM	0	24	0	51	0	0	0	0	0	0	180	23	0	33	80	0	391	1,448
7:30 AM	0	27	0	60	0	0	0	0	0	0	169	21	0	24	77	0	378	1,330
7:45 AM	0	25	0	69	0	0	0	0	0	0	149	26	0	19	86	0	374	1,184
8:00 AM	0	16	2	63	0	0	0	0	0	0	110	16	0	17	81	0	305	1,006
8:15 AM	0	17	0	58	0	0	0	0	0	0	96	21	0	24	57	0	273	
8:30 AM	0	13	1	51	0	0	0	0	0	0	96	17	0	11	43	0	232	
8:45 AM	0	13	0	39	0	0	0	0	0	0	72	13	0	17	42	0	196	
Count Total	0	189	3	577	0	0	0	0	0	0	1,364	223	1	249	717	0	3,323	
Peak Hour	0	96	0	234	0	0	0	0	0	0	630	97	0	104	330	0	1,491	

Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
6:00 AM	1	1	0	1	3	6:00 AM	0	0	0	0	0
6:15 AM	1	0	0	4	5	6:15 AM	0	0	0	0	0
6:30 AM	1	0	0	1	2	6:30 AM	0	0	0	0	0
6:45 AM	2	1	0	0	3	6:45 AM	0	0	0	0	0
7:00 AM	1	1	0	1	3	7:00 AM	0	0	0	0	0
7:15 AM	1	1	0	0	2	7:15 AM	0	0	0	0	0
7:30 AM	0	1	0	1	2	7:30 AM	0	0	0	0	0
7:45 AM	3	2	0	1	6	7:45 AM	0	0	0	0	0
8:00 AM	2	1	0	0	3	8:00 AM	0	0	0	0	0

8:15 AM	0	0	0	3	3	8:15 AM	0	0	0	0	0
8:30 AM	4	3	0	2	9	8:30 AM	0	0	0	0	0
8:45 AM	2	6	0	0	8	8:45 AM	0	0	0	0	0
Count Total	18	17	0	14	49	Count Total	0	0	0	0	0
Peak Hour	5	5	0	3	13	Peak Hour	0	0	0	0	0

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.6%	0.89
WB	0.0%	0.80
NB	0.7%	0.85
SB	1.3%	0.94
All	0.8%	0.95

Traffic Counts - Motorized Vehicles

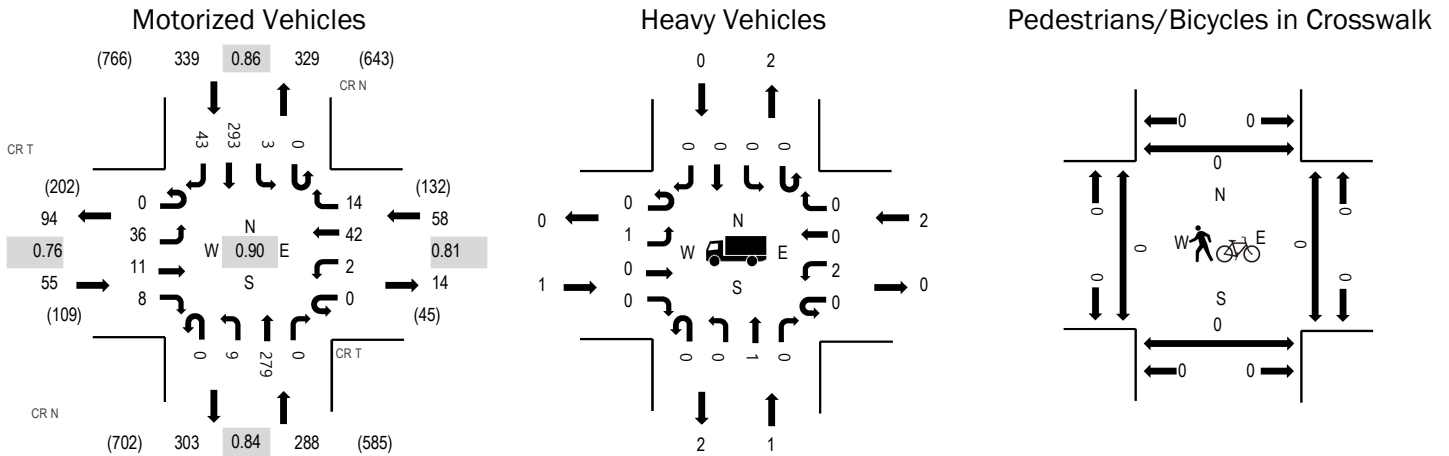
Interval Start Time	GASTON RD Eastbound				COMMERCE PKWY Westbound				CR N Northbound				CR N Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
6:00 AM	0	14	3	1	0	0	10	18	0	1	52	9	0	17	22	2	149	822
6:15 AM	0	13	6	3	0	1	7	26	0	1	55	13	0	25	35	8	193	1,040
6:30 AM	0	15	1	4	0	5	2	29	0	2	77	8	0	20	40	10	213	1,233
6:45 AM	0	15	10	6	0	6	1	17	0	3	82	20	0	42	52	13	267	1,424
7:00 AM	0	30	14	5	0	9	5	24	0	4	112	19	0	54	74	17	367	1,529
7:15 AM	0	29	9	4	0	8	10	46	0	7	123	16	0	58	68	8	386	1,481
7:30 AM	0	27	9	10	0	7	11	34	0	12	139	25	0	49	64	17	404	1,354
7:45 AM	0	26	6	6	0	11	9	31	0	6	107	26	0	88	52	4	372	1,181
8:00 AM	0	21	4	8	0	12	2	24	0	2	86	13	0	62	77	8	319	999
8:15 AM	0	22	8	4	0	3	5	26	0	5	61	16	0	54	49	6	259	
8:30 AM	0	15	3	2	0	5	1	27	0	2	74	8	0	41	50	3	231	
8:45 AM	0	7	7	3	0	5	4	16	0	2	51	7	0	41	44	3	190	
Count Total	0	234	80	56	0	72	67	318	0	47	1,019	180	0	551	627	99	3,350	
Peak Hour	0	112	38	25	0	35	35	135	0	29	481	86	0	249	258	46	1,529	

Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
6:00 AM	0	1	0	1	2	6:00 AM	0	0	0	0	0
6:15 AM	0	0	0	3	3	6:15 AM	0	2	0	0	2
6:30 AM	0	0	0	1	1	6:30 AM	0	2	1	0	3
6:45 AM	0	1	0	1	2	6:45 AM	0	5	1	1	7
7:00 AM	1	2	0	3	6	7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	1	1	7:15 AM	0	2	0	0	2
7:30 AM	0	1	0	1	2	7:30 AM	0	0	0	0	0
7:45 AM	0	1	0	2	3	7:45 AM	1	0	0	0	1
8:00 AM	0	1	0	0	1	8:00 AM	0	0	0	1	1

8:15 AM	0	0	0	3	3	8:15 AM	0	0	0	0	0
8:30 AM	1	1	1	6	9	8:30 AM	0	0	0	0	0
8:45 AM	1	5	0	1	7	8:45 AM	0	0	0	0	0
Count Total	3	13	1	23	40	Count Total	1	11	2	2	16
Peak Hour	1	4	0	7	12	Peak Hour	1	2	0	0	3

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	1.8%	0.76
WB	3.4%	0.81
NB	0.3%	0.84
SB	0.0%	0.86
All	0.5%	0.90

Traffic Counts - Motorized Vehicles

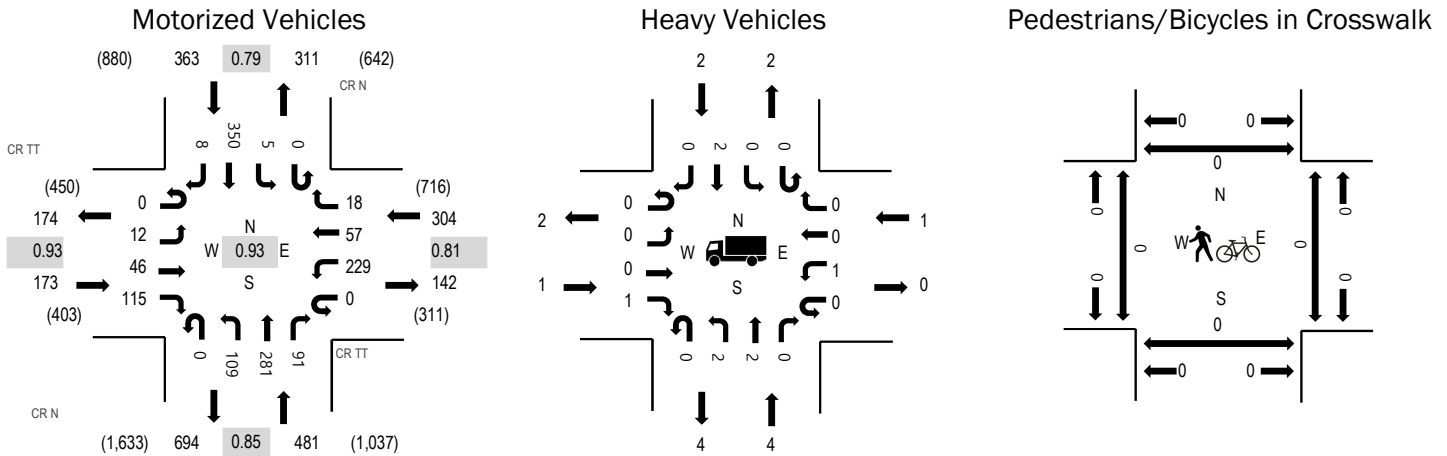
Interval Start Time	CR T Eastbound				CR T Westbound				CR N Northbound				CR N Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
6:00 AM	0	1	0	1	0	0	2	1	0	2	10	1	0	0	28	0	46	408
6:15 AM	0	0	2	1	0	2	4	1	0	1	29	0	0	0	51	3	94	508
6:30 AM	0	1	2	1	0	1	13	1	0	0	46	0	0	1	60	11	137	620
6:45 AM	0	1	2	2	0	0	7	1	0	3	38	1	0	0	69	7	131	667
7:00 AM	0	9	2	1	0	2	8	1	0	2	53	1	0	0	64	3	146	728
7:15 AM	0	7	2	0	0	0	9	3	0	2	85	0	0	0	94	4	206	740
7:30 AM	0	12	1	2	0	1	10	7	0	4	66	0	0	1	65	15	184	659
7:45 AM	0	12	4	2	0	1	12	3	0	0	80	0	0	1	67	10	192	561
8:00 AM	0	5	4	4	0	0	11	1	0	3	48	0	0	1	67	14	158	456
8:15 AM	0	3	6	0	0	0	8	3	0	2	46	0	0	1	46	10	125	
8:30 AM	0	4	5	0	0	1	4	1	0	2	28	0	0	1	36	4	86	
8:45 AM	0	2	6	2	0	1	10	2	0	0	32	0	0	0	30	2	87	
Count Total	0	57	36	16	0	9	98	25	0	21	561	3	0	6	677	83	1,592	
Peak Hour	0	36	11	8	0	2	42	14	0	9	279	0	0	3	293	43	740	

Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
6:00 AM	0	1	0	1	2	6:00 AM	0	0	0	0	0
6:15 AM	0	2	2	0	4	6:15 AM	0	0	0	0	0
6:30 AM	0	1	1	0	2	6:30 AM	0	0	0	0	0
6:45 AM	0	1	0	1	2	6:45 AM	0	0	0	0	0
7:00 AM	0	1	0	0	1	7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	0	0
7:30 AM	1	0	1	0	2	7:30 AM	0	0	0	0	0
7:45 AM	0	1	1	0	2	7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0	8:00 AM	0	0	0	0	0

8:15 AM	0	1	0	0	1	8:15 AM	0	0	0	0	0
8:30 AM	0	1	0	2	3	8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0	8:45 AM	0	0	0	0	0
Count Total	1	9	5	4	19	Count Total	0	0	0	0	0
Peak Hour	1	1	2	0	4	Peak Hour	0	0	0	0	0

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.6%	0.93
WB	0.3%	0.81
NB	0.8%	0.85
SB	0.6%	0.79
All	0.6%	0.93

Traffic Counts - Motorized Vehicles

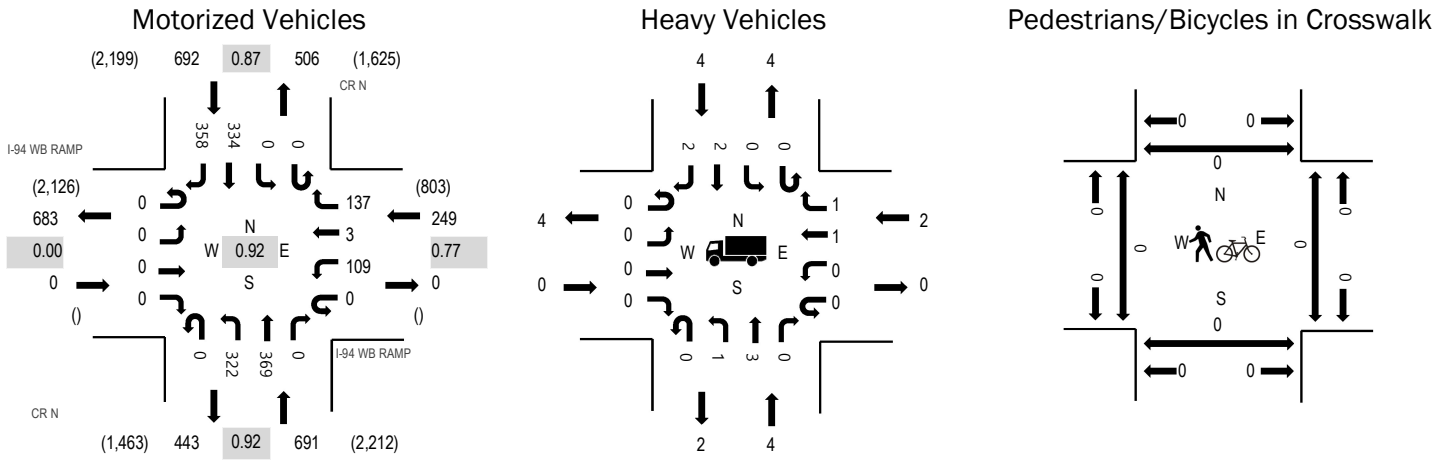
Interval Start Time	CR TT Eastbound				CR TT Westbound				CR N Northbound				CR N Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
6:00 AM	0	1	3	18	0	35	12	1	0	11	16	6	0	2	38	0	143	877
6:15 AM	0	2	6	22	0	52	17	0	1	26	33	15	0	3	63	3	243	1,031
6:30 AM	0	1	7	15	0	42	17	4	0	27	47	3	0	0	78	2	243	1,136
6:45 AM	0	1	8	18	0	48	20	4	0	25	40	12	0	1	69	2	248	1,250
7:00 AM	0	2	11	30	0	50	16	2	0	25	56	15	0	1	88	1	297	1,321
7:15 AM	0	2	14	26	0	59	8	3	0	13	80	26	0	2	113	2	348	1,317
7:30 AM	0	6	11	30	0	68	21	5	0	39	76	27	0	2	71	1	357	1,185
7:45 AM	0	2	10	29	0	52	12	8	0	32	69	23	0	0	78	4	319	994
8:00 AM	0	1	12	35	0	38	12	2	0	21	60	15	0	2	91	4	293	838
8:15 AM	0	2	5	19	0	33	8	2	0	19	40	19	0	3	65	1	216	
8:30 AM	0	4	9	17	0	20	9	1	1	14	33	15	0	2	38	3	166	
8:45 AM	0	1	5	18	0	22	8	5	0	12	30	15	0	1	43	3	163	
Count Total	0	25	101	277	0	519	160	37	2	264	580	191	0	19	835	26	3,036	
Peak Hour	0	12	46	115	0	229	57	18	0	109	281	91	0	5	350	8	1,321	

Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Total	Interval Start Time	Pedestrians/Bicycles on Crosswalk					Total
	EB	NB	WB	SB				EB	NB	WB	SB		
6:00 AM	4	2	0	0	6	6:00 AM	0	0	0	0	0	0	
6:15 AM	1	2	0	3	6	6:15 AM	0	0	0	0	0	0	
6:30 AM	1	0	0	1	2	6:30 AM	0	0	0	0	0	0	
6:45 AM	0	2	0	0	2	6:45 AM	0	0	0	0	0	0	
7:00 AM	0	1	0	0	1	7:00 AM	0	0	0	0	0	0	
7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	0	0	0	
7:30 AM	1	0	1	1	3	7:30 AM	0	0	0	0	0	0	
7:45 AM	0	3	0	1	4	7:45 AM	0	0	0	0	0	0	
8:00 AM	1	1	0	0	2	8:00 AM	0	0	0	0	0	0	

8:15 AM	0	1	0	0	1	8:15 AM	0	0	0	0	0
8:30 AM	0	1	0	2	3	8:30 AM	0	0	0	0	0
8:45 AM	1	2	0	0	3	8:45 AM	0	0	0	0	0
Count Total	9	15	1	8	33	Count Total	0	0	0	0	0
Peak Hour	1	4	1	2	8	Peak Hour	0	0	0	0	0

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.00
WB	0.8%	0.77
NB	0.6%	0.92
SB	0.6%	0.87
All	0.6%	0.92

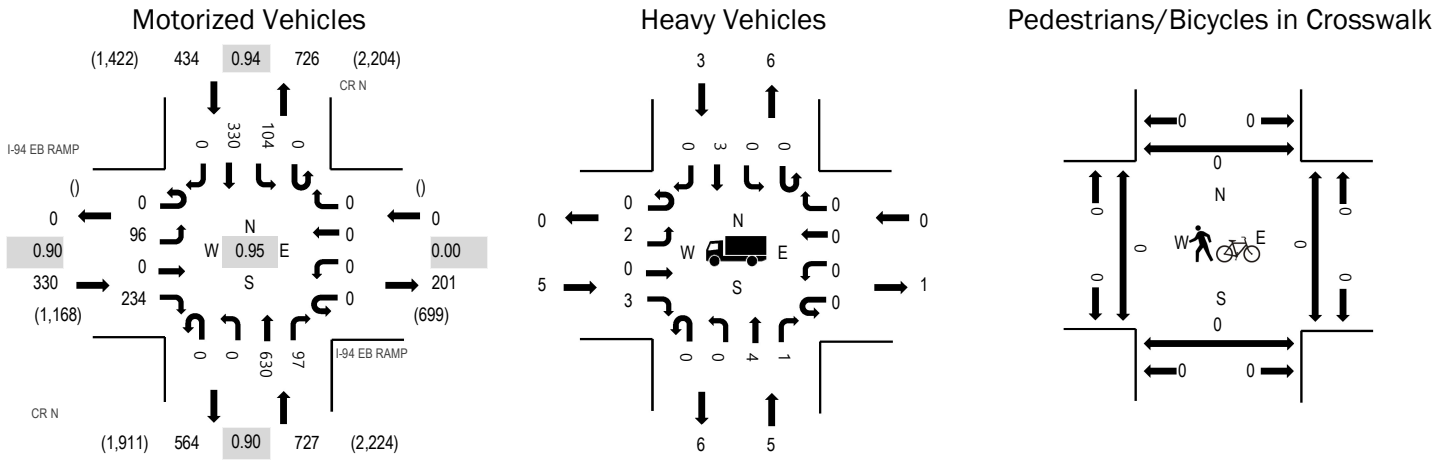
Traffic Counts - Motorized Vehicles

Interval Start Time	I-94 WB RAMP Eastbound				I-94 WB RAMP Westbound				CR N Northbound				CR N Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
6:00 AM	0	0	0	0	0	8	2	14	0	51	23	0	0	0	28	56	182	1,041
6:15 AM	0	0	0	0	0	14	0	28	1	48	46	0	0	0	54	79	270	1,233
6:30 AM	0	0	0	0	0	12	0	34	0	70	49	0	0	0	58	78	301	1,407
6:45 AM	0	0	0	0	0	14	1	29	0	62	48	0	0	0	61	73	288	1,495
7:00 AM	0	0	0	0	0	32	1	21	0	82	74	0	0	0	83	81	374	1,632
7:15 AM	0	0	0	0	0	20	1	36	0	97	91	0	0	0	96	103	444	1,593
7:30 AM	0	0	0	0	0	21	0	36	0	72	97	0	0	0	76	87	389	1,427
7:45 AM	0	0	0	0	0	36	1	44	0	71	107	0	0	0	79	87	425	1,251
8:00 AM	0	0	0	0	0	17	1	27	0	63	65	0	1	0	80	81	335	1,016
8:15 AM	0	0	0	0	0	22	1	22	0	60	56	0	0	0	68	49	278	858
8:30 AM	0	0	0	0	0	11	0	10	1	59	54	0	0	0	41	37	213	743
8:45 AM	0	0	0	0	0	14	0	17	1	41	36	0	0	0	46	35	190	742
9:00 AM	0	0	0	0	0	14	0	18	0	42	33	0	0	0	39	31	177	751
9:15 AM	0	0	0	0	0	13	3	13	0	22	49	0	0	0	36	27	163	754
9:30 AM	0	0	0	0	0	11	0	18	0	42	45	0	0	0	56	40	212	778
9:45 AM	0	0	0	0	0	17	0	15	0	35	50	0	0	0	55	27	199	774
10:00 AM	0	0	0	0	0	7	0	21	1	29	58	0	0	0	46	18	180	774
10:15 AM	0	0	0	0	0	12	0	28	0	33	56	0	0	0	45	13	187	
10:30 AM	0	0	0	0	0	17	0	19	1	32	58	0	0	0	48	33	208	
10:45 AM	0	0	0	0	0	14	0	16	1	37	63	0	0	0	36	32	199	
Count Total	0	0	0	0	0	326	11	466	6	1,048	1,158	0	1	0	1,131	1,067	5,214	
Peak Hour	0	0	0	0	0	109	3	137	0	322	369	0	0	0	334	358	1,632	

Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
6:00 AM	0	1	1	0	2	6:00 AM	0	0	0	0	0
6:15 AM	0	0	2	3	5	6:15 AM	0	0	0	0	0
6:30 AM	0	0	0	2	2	6:30 AM	0	0	0	0	0
6:45 AM	0	1	1	1	3	6:45 AM	0	0	0	0	0
7:00 AM	0	1	0	0	1	7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	3	3	7:30 AM	0	0	0	0	0
7:45 AM	0	3	2	1	6	7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0	8:00 AM	0	0	0	0	0
8:15 AM	0	0	5	0	5	8:15 AM	0	0	0	0	0
8:30 AM	0	2	0	2	4	8:30 AM	0	0	0	0	0
8:45 AM	0	5	0	0	5	8:45 AM	0	0	0	0	0
9:00 AM	0	4	0	4	8	9:00 AM	0	0	0	0	0
9:15 AM	0	2	0	0	2	9:15 AM	0	0	0	0	0
9:30 AM	0	1	1	2	4	9:30 AM	0	0	0	0	0
9:45 AM	0	2	1	5	8	9:45 AM	0	0	0	0	0
10:00 AM	0	6	2	2	10	10:00 AM	0	0	0	0	0
10:15 AM	0	2	1	3	6	10:15 AM	0	0	0	0	0
10:30 AM	0	1	3	2	6	10:30 AM	0	0	0	0	0
10:45 AM	0	5	1	2	8	10:45 AM	0	0	0	0	0
Count Total	0	36	20	32	88	Count Total	0	0	0	0	0
Peak Hour	0	4	2	4	10	Peak Hour	0	0	0	0	0

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	1.5%	0.90
WB	0.0%	0.00
NB	0.7%	0.90
SB	0.7%	0.94
All	0.9%	0.95

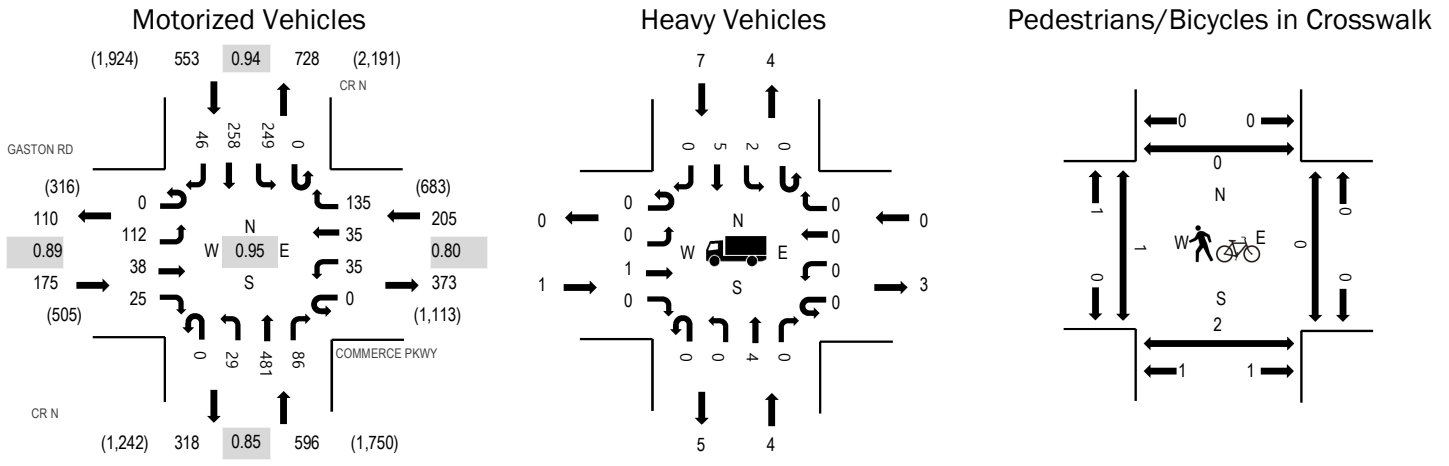
Traffic Counts - Motorized Vehicles

Interval Start Time	I-94 EB RAMP Eastbound				I-94 EB RAMP Westbound				CR N Northbound			CR N Southbound				Total	Rolling Hour	
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru			Right
6:00 AM	0	4	0	17	0	0	0	0	0	0	72	11	0	13	24	0	141	826
6:15 AM	0	13	0	22	0	0	0	0	0	0	80	13	1	18	46	0	193	1,033
6:30 AM	0	7	0	33	0	0	0	0	0	0	109	19	0	23	43	0	234	1,231
6:45 AM	0	10	0	60	0	0	0	0	0	0	99	16	0	22	51	0	258	1,375
7:00 AM	0	20	0	54	0	0	0	0	0	0	132	27	0	28	87	0	348	1,491
7:15 AM	0	24	0	51	0	0	0	0	0	0	180	23	0	33	80	0	391	1,448
7:30 AM	0	27	0	60	0	0	0	0	0	0	169	21	0	24	77	0	378	1,330
7:45 AM	0	25	0	69	0	0	0	0	0	0	149	26	0	19	86	0	374	1,184
8:00 AM	0	16	2	63	0	0	0	0	0	0	110	16	0	17	81	0	305	1,006
8:15 AM	0	17	0	58	0	0	0	0	0	0	96	21	0	24	57	0	273	872
8:30 AM	0	13	1	51	0	0	0	0	0	0	96	17	0	11	43	0	232	765
8:45 AM	0	13	0	39	0	0	0	0	0	0	72	13	0	17	42	0	196	707
9:00 AM	0	7	0	36	0	0	0	0	0	0	66	10	0	12	40	0	171	723
9:15 AM	0	13	1	35	0	0	0	0	1	0	55	13	0	14	34	0	166	740
9:30 AM	0	16	1	35	0	0	0	0	0	0	64	6	0	24	28	0	174	763
9:45 AM	0	13	0	38	0	0	0	0	0	0	75	15	0	19	52	0	212	797
10:00 AM	0	14	2	44	0	0	0	0	0	0	67	6	0	11	44	0	188	768
10:15 AM	0	14	0	30	0	0	0	0	0	0	68	21	0	15	41	0	189	
10:30 AM	0	13	0	35	0	0	0	0	0	0	79	16	0	15	50	0	208	
10:45 AM	0	20	0	32	0	0	0	0	0	0	66	9	0	14	42	0	183	
Count Total	0	299	7	862	0	0	0	0	1	0	1,904	319	1	373	1,048	0	4,814	
Peak Hour	0	96	0	234	0	0	0	0	0	0	630	97	0	104	330	0	1,491	

Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
6:00 AM	1	1	0	1	3	6:00 AM	0	0	0	0	0
6:15 AM	1	0	0	4	5	6:15 AM	0	0	0	0	0
6:30 AM	1	0	0	1	2	6:30 AM	0	0	0	0	0
6:45 AM	2	1	0	0	3	6:45 AM	0	0	0	0	0
7:00 AM	1	1	0	1	3	7:00 AM	0	0	0	0	0
7:15 AM	1	1	0	0	2	7:15 AM	0	0	0	0	0
7:30 AM	0	1	0	1	2	7:30 AM	0	0	0	0	0
7:45 AM	3	2	0	1	6	7:45 AM	0	0	0	0	0
8:00 AM	2	1	0	0	3	8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	3	3	8:15 AM	0	0	0	0	0
8:30 AM	4	3	0	2	9	8:30 AM	0	0	0	0	0
8:45 AM	2	6	0	0	8	8:45 AM	0	0	0	0	0
9:00 AM	2	4	0	4	10	9:00 AM	0	0	0	0	0
9:15 AM	3	4	0	0	7	9:15 AM	0	0	0	0	0
9:30 AM	3	1	0	2	6	9:30 AM	0	0	0	0	0
9:45 AM	5	3	0	3	11	9:45 AM	0	0	0	0	0
10:00 AM	3	6	0	2	11	10:00 AM	0	0	0	0	0
10:15 AM	6	3	0	3	12	10:15 AM	0	0	0	0	0
10:30 AM	2	2	0	3	7	10:30 AM	0	0	0	0	0
10:45 AM	5	1	0	2	8	10:45 AM	0	0	0	0	0
Count Total	47	41	0	33	121	Count Total	0	0	0	0	0
Peak Hour	5	5	0	3	13	Peak Hour	0	0	0	0	0

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.6%	0.89
WB	0.0%	0.80
NB	0.7%	0.85
SB	1.3%	0.94
All	0.8%	0.95

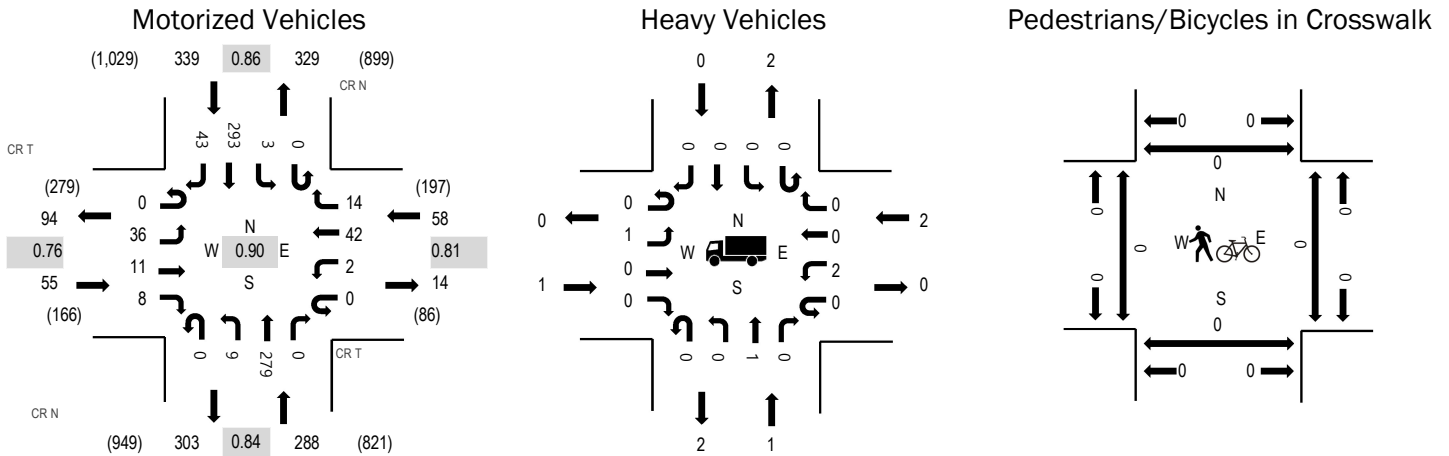
Traffic Counts - Motorized Vehicles

Interval Start Time	GASTON RD Eastbound				COMMERCE PKWY Westbound				CR N Northbound				CR N Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
6:00 AM	0	14	3	1	0	0	10	18	0	1	52	9	0	17	22	2	149	822
6:15 AM	0	13	6	3	0	1	7	26	0	1	55	13	0	25	35	8	193	1,040
6:30 AM	0	15	1	4	0	5	2	29	0	2	77	8	0	20	40	10	213	1,233
6:45 AM	0	15	10	6	0	6	1	17	0	3	82	20	0	42	52	13	267	1,424
7:00 AM	0	30	14	5	0	9	5	24	0	4	112	19	0	54	74	17	367	1,529
7:15 AM	0	29	9	4	0	8	10	46	0	7	123	16	0	58	68	8	386	1,481
7:30 AM	0	27	9	10	0	7	11	34	0	12	139	25	0	49	64	17	404	1,354
7:45 AM	0	26	6	6	0	11	9	31	0	6	107	26	0	88	52	4	372	1,181
8:00 AM	0	21	4	8	0	12	2	24	0	2	86	13	0	62	77	8	319	999
8:15 AM	0	22	8	4	0	3	5	26	0	5	61	16	0	54	49	6	259	860
8:30 AM	0	15	3	2	0	5	1	27	0	2	74	8	0	41	50	3	231	767
8:45 AM	0	7	7	3	0	5	4	16	0	2	51	7	0	41	44	3	190	729
9:00 AM	0	10	5	4	0	8	6	22	1	4	42	3	0	25	44	6	180	739
9:15 AM	0	8	6	2	0	8	2	16	0	1	41	13	0	22	45	2	166	752
9:30 AM	0	9	10	6	0	6	4	13	0	5	52	11	0	14	54	9	193	774
9:45 AM	0	8	1	0	0	11	3	20	0	1	58	9	0	22	53	14	200	787
10:00 AM	0	7	7	3	0	5	4	13	0	1	52	10	0	27	56	8	193	773
10:15 AM	0	12	2	2	0	5	2	18	1	2	53	9	0	23	53	6	188	
10:30 AM	0	11	5	1	0	6	6	20	0	0	60	8	0	29	55	5	206	
10:45 AM	0	8	5	3	0	11	2	15	0	3	52	12	0	24	44	7	186	
Count Total	0	307	121	77	0	132	96	455	2	64	1,429	255	0	737	1,031	156	4,862	
Peak Hour	0	112	38	25	0	35	35	135	0	29	481	86	0	249	258	46	1,529	

Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
6:00 AM	0	1	0	1	2	6:00 AM	0	0	0	0	0
6:15 AM	0	0	0	3	3	6:15 AM	0	2	0	0	2
6:30 AM	0	0	0	1	1	6:30 AM	0	2	1	0	3
6:45 AM	0	1	0	1	2	6:45 AM	0	5	1	1	7
7:00 AM	1	2	0	3	6	7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	1	1	7:15 AM	0	2	0	0	2
7:30 AM	0	1	0	1	2	7:30 AM	0	0	0	0	0
7:45 AM	0	1	0	2	3	7:45 AM	1	0	0	0	1
8:00 AM	0	1	0	0	1	8:00 AM	0	0	0	1	1
8:15 AM	0	0	0	3	3	8:15 AM	0	0	0	0	0
8:30 AM	1	1	1	6	9	8:30 AM	0	0	0	0	0
8:45 AM	1	5	0	1	7	8:45 AM	0	0	0	0	0
9:00 AM	0	4	0	3	7	9:00 AM	0	0	0	0	0
9:15 AM	0	0	0	2	2	9:15 AM	0	0	0	0	0
9:30 AM	0	2	0	1	3	9:30 AM	0	0	0	0	0
9:45 AM	0	1	0	5	6	9:45 AM	0	0	0	0	0
10:00 AM	0	5	0	1	6	10:00 AM	0	0	0	0	0
10:15 AM	0	2	0	5	7	10:15 AM	0	0	0	0	0
10:30 AM	0	2	0	4	6	10:30 AM	0	0	0	0	0
10:45 AM	1	0	0	2	3	10:45 AM	0	0	0	0	0
Count Total	4	29	1	46	80	Count Total	1	11	2	2	16
Peak Hour	1	4	0	7	12	Peak Hour	1	2	0	0	3

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	1.8%	0.76
WB	3.4%	0.81
NB	0.3%	0.84
SB	0.0%	0.86
All	0.5%	0.90

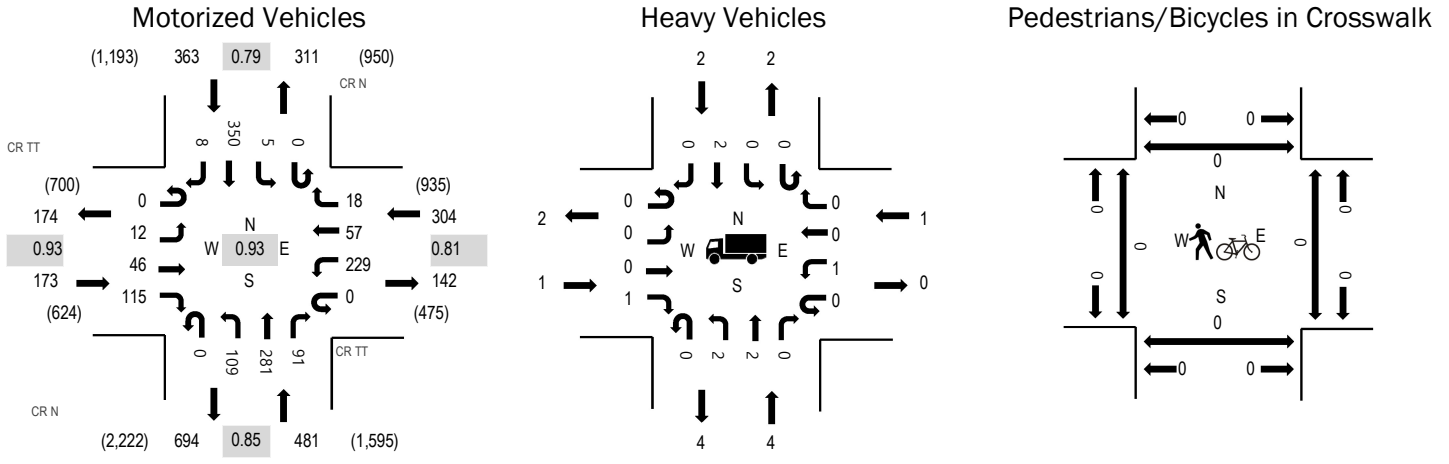
Traffic Counts - Motorized Vehicles

Interval Start Time	CR T Eastbound				CR T Westbound				CR N Northbound				CR N Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
6:00 AM	0	1	0	1	0	0	2	1	0	2	10	1	0	0	28	0	46	408
6:15 AM	0	0	2	1	0	2	4	1	0	1	29	0	0	0	51	3	94	508
6:30 AM	0	1	2	1	0	1	13	1	0	0	46	0	0	1	60	11	137	620
6:45 AM	0	1	2	2	0	0	7	1	0	3	38	1	0	0	69	7	131	667
7:00 AM	0	9	2	1	0	2	8	1	0	2	53	1	0	0	64	3	146	728
7:15 AM	0	7	2	0	0	0	9	3	0	2	85	0	0	0	94	4	206	740
7:30 AM	0	12	1	2	0	1	10	7	0	4	66	0	0	1	65	15	184	659
7:45 AM	0	12	4	2	0	1	12	3	0	0	80	0	0	1	67	10	192	561
8:00 AM	0	5	4	4	0	0	11	1	0	3	48	0	0	1	67	14	158	456
8:15 AM	0	3	6	0	0	0	8	3	0	2	46	0	0	1	46	10	125	370
8:30 AM	0	4	5	0	0	1	4	1	0	2	28	0	0	1	36	4	86	323
8:45 AM	0	2	6	2	0	1	10	2	0	0	32	0	0	0	30	2	87	319
9:00 AM	0	0	3	0	0	1	11	1	0	1	21	0	0	1	30	3	72	309
9:15 AM	0	2	3	1	0	0	5	4	0	0	29	0	0	1	30	3	78	313
9:30 AM	0	1	3	2	0	0	8	2	0	1	25	0	0	0	39	1	82	311
9:45 AM	0	3	4	0	0	0	2	2	0	1	31	2	0	3	27	2	77	310
10:00 AM	0	7	3	1	0	0	4	1	0	3	26	1	0	1	27	2	76	312
10:15 AM	0	2	4	3	0	0	4	2	1	2	33	0	0	0	21	4	76	
10:30 AM	0	4	3	1	0	0	7	3	0	3	24	1	0	2	27	6	81	
10:45 AM	0	1	4	2	0	1	2	5	0	2	27	2	0	0	33	0	79	
Count Total	0	77	63	26	0	11	141	45	1	34	777	9	0	14	911	104	2,213	
Peak Hour	0	36	11	8	0	2	42	14	0	9	279	0	0	3	293	43	740	

Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
6:00 AM	0	1	0	1	2	6:00 AM	0	0	0	0	0
6:15 AM	0	2	2	0	4	6:15 AM	0	0	0	0	0
6:30 AM	0	1	1	0	2	6:30 AM	0	0	0	0	0
6:45 AM	0	1	0	1	2	6:45 AM	0	0	0	0	0
7:00 AM	0	1	0	0	1	7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	0	0
7:30 AM	1	0	1	0	2	7:30 AM	0	0	0	0	0
7:45 AM	0	1	1	0	2	7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0	8:00 AM	0	0	0	0	0
8:15 AM	0	1	0	0	1	8:15 AM	0	0	0	0	0
8:30 AM	0	1	0	2	3	8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0	8:45 AM	0	0	0	0	0
9:00 AM	0	0	0	3	3	9:00 AM	0	0	0	0	0
9:15 AM	0	1	0	0	1	9:15 AM	0	0	0	0	0
9:30 AM	0	0	0	2	2	9:30 AM	0	0	0	0	0
9:45 AM	0	1	0	1	2	9:45 AM	0	0	0	0	0
10:00 AM	0	2	0	1	3	10:00 AM	0	0	0	0	0
10:15 AM	0	3	0	1	4	10:15 AM	0	0	0	0	0
10:30 AM	1	0	0	0	1	10:30 AM	0	0	0	0	0
10:45 AM	0	5	1	0	6	10:45 AM	0	0	0	0	0
Count Total	2	21	6	12	41	Count Total	0	0	0	0	0
Peak Hour	1	1	2	0	4	Peak Hour	0	0	0	0	0

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.6%	0.93
WB	0.3%	0.81
NB	0.8%	0.85
SB	0.6%	0.79
All	0.6%	0.93

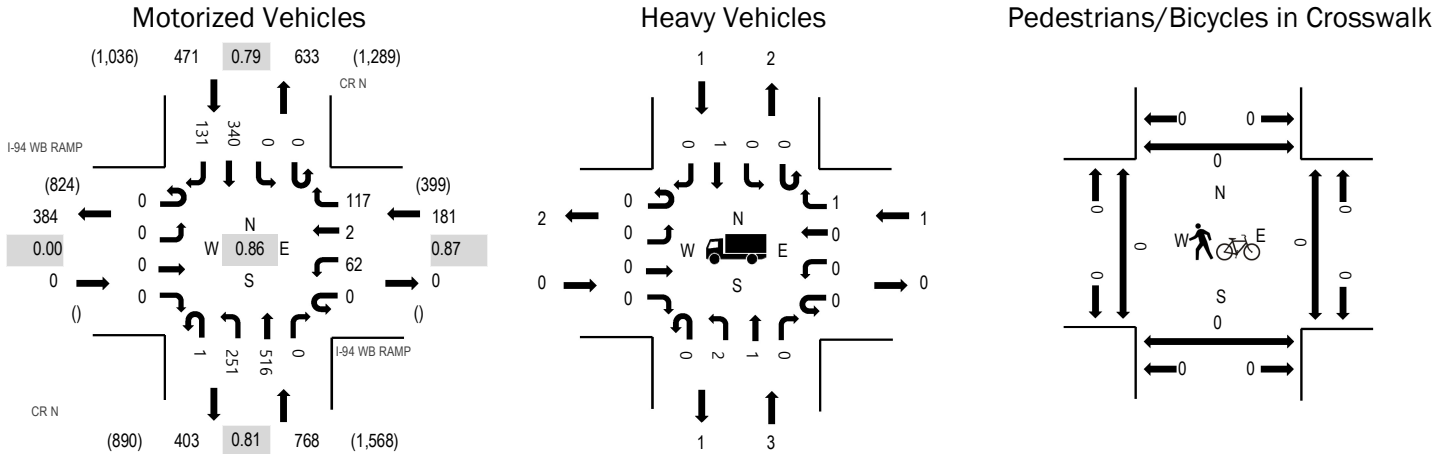
Traffic Counts - Motorized Vehicles

Interval Start Time	CR TT Eastbound				CR TT Westbound				CR N Northbound				CR N Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
6:00 AM	0	1	3	18	0	35	12	1	0	11	16	6	0	2	38	0	143	877
6:15 AM	0	2	6	22	0	52	17	0	1	26	33	15	0	3	63	3	243	1,031
6:30 AM	0	1	7	15	0	42	17	4	0	27	47	3	0	0	78	2	243	1,136
6:45 AM	0	1	8	18	0	48	20	4	0	25	40	12	0	1	69	2	248	1,250
7:00 AM	0	2	11	30	0	50	16	2	0	25	56	15	0	1	88	1	297	1,321
7:15 AM	0	2	14	26	0	59	8	3	0	13	80	26	0	2	113	2	348	1,317
7:30 AM	0	6	11	30	0	68	21	5	0	39	76	27	0	2	71	1	357	1,185
7:45 AM	0	2	10	29	0	52	12	8	0	32	69	23	0	0	78	4	319	994
8:00 AM	0	1	12	35	0	38	12	2	0	21	60	15	0	2	91	4	293	838
8:15 AM	0	2	5	19	0	33	8	2	0	19	40	19	0	3	65	1	216	683
8:30 AM	0	4	9	17	0	20	9	1	1	14	33	15	0	2	38	3	166	608
8:45 AM	0	1	5	18	0	22	8	5	0	12	30	15	0	1	43	3	163	624
9:00 AM	0	2	6	15	0	22	6	2	0	15	30	6	0	1	31	2	138	635
9:15 AM	0	4	5	10	0	13	9	1	0	23	30	8	0	1	37	0	141	662
9:30 AM	0	3	7	18	0	21	9	5	1	18	34	10	0	0	54	2	182	680
9:45 AM	0	2	6	30	0	18	7	1	0	20	37	12	0	0	36	5	174	679
10:00 AM	0	4	4	18	0	19	8	2	2	24	33	15	1	4	27	4	165	676
10:15 AM	0	2	7	17	0	11	8	1	0	22	44	17	0	0	29	1	159	
10:30 AM	0	2	6	29	0	21	6	0	0	24	32	20	0	2	36	3	181	
10:45 AM	0	1	7	16	0	24	3	2	1	29	33	18	0	2	33	2	171	
Count Total	0	45	149	430	0	668	216	51	6	439	853	297	1	29	1,118	45	4,347	
Peak Hour	0	12	46	115	0	229	57	18	0	109	281	91	0	5	350	8	1,321	

Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
6:00 AM	4	2	0	0	6	6:00 AM	0	0	0	0	0
6:15 AM	1	2	0	3	6	6:15 AM	0	0	0	0	0
6:30 AM	1	0	0	1	2	6:30 AM	0	0	0	0	0
6:45 AM	0	2	0	0	2	6:45 AM	0	0	0	0	0
7:00 AM	0	1	0	0	1	7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	0	0
7:30 AM	1	0	1	1	3	7:30 AM	0	0	0	0	0
7:45 AM	0	3	0	1	4	7:45 AM	0	0	0	0	0
8:00 AM	1	1	0	0	2	8:00 AM	0	0	0	0	0
8:15 AM	0	1	0	0	1	8:15 AM	0	0	0	0	0
8:30 AM	0	1	0	2	3	8:30 AM	0	0	0	0	0
8:45 AM	1	2	0	0	3	8:45 AM	0	0	0	0	0
9:00 AM	2	1	0	3	6	9:00 AM	0	0	0	0	0
9:15 AM	0	3	0	0	3	9:15 AM	0	0	0	0	0
9:30 AM	1	1	0	1	3	9:30 AM	0	0	0	0	0
9:45 AM	1	1	2	2	6	9:45 AM	0	0	0	0	0
10:00 AM	3	6	0	1	10	10:00 AM	0	0	0	0	0
10:15 AM	1	3	1	1	6	10:15 AM	0	0	0	0	0
10:30 AM	2	2	0	0	4	10:30 AM	0	0	0	0	0
10:45 AM	2	6	0	0	8	10:45 AM	0	0	0	0	0
Count Total	21	38	4	16	79	Count Total	0	0	0	0	0
Peak Hour	1	4	1	2	8	Peak Hour	0	0	0	0	0

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.00
WB	0.6%	0.87
NB	0.4%	0.81
SB	0.2%	0.79
All	0.4%	0.86

Traffic Counts - Motorized Vehicles

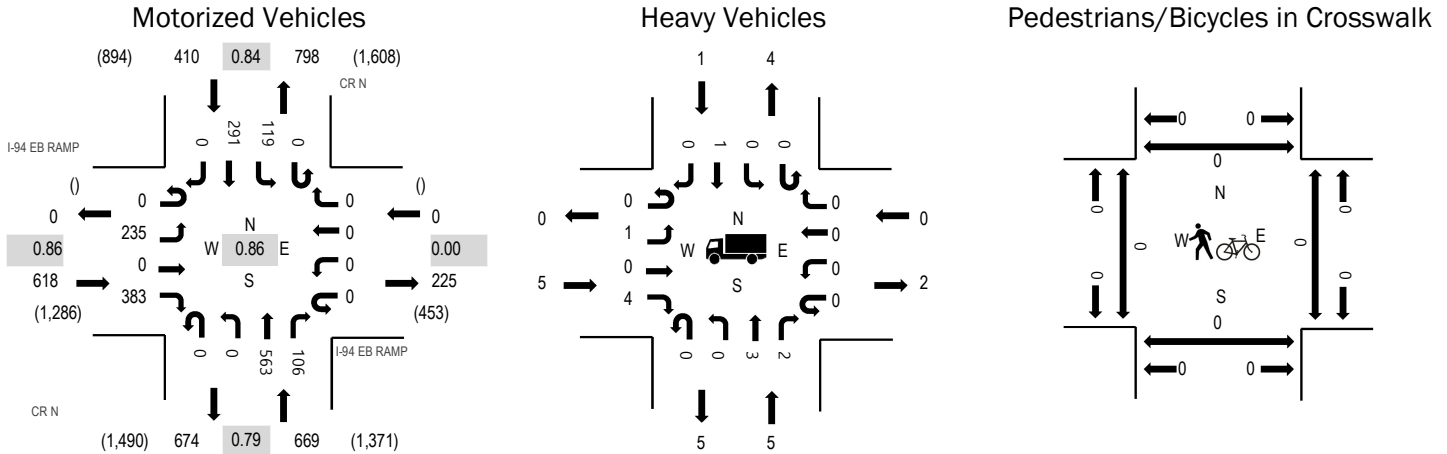
Interval Start Time	I-94 WB RAMP Eastbound				I-94 WB RAMP Westbound				CR N Northbound				CR N Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
3:00 PM	0	0	0	0	0	24	1	27	0	77	160	0	0	0	89	33	411	1,420
3:15 PM	0	0	0	0	0	19	0	32	1	69	126	0	0	0	99	50	396	1,280
3:30 PM	0	0	0	0	0	13	0	32	0	66	134	0	0	0	88	27	360	1,125
3:45 PM	0	0	0	0	0	6	1	26	0	39	96	0	0	0	64	21	253	973
4:00 PM	0	0	0	0	0	14	0	34	0	49	80	0	0	0	67	27	271	940
4:15 PM	0	0	0	0	0	13	0	14	0	44	84	0	0	0	54	32	241	857
4:30 PM	0	0	0	0	0	11	0	25	0	40	54	0	0	0	52	26	208	785
4:45 PM	0	0	0	0	0	10	1	20	0	38	65	0	0	0	60	26	220	727
5:00 PM	0	0	0	0	0	12	0	9	0	35	66	0	0	0	53	13	188	643
5:15 PM	0	0	0	0	0	10	0	14	0	25	61	0	0	0	43	16	169	
5:30 PM	0	0	0	0	0	8	0	13	0	20	56	0	0	0	40	13	150	
5:45 PM	0	0	0	0	0	5	0	5	1	26	56	0	0	0	34	9	136	
Count Total	0	0	0	0	0	145	3	251	2	528	1,038	0	0	0	743	293	3,003	
Peak Hour	0	0	0	0	0	62	2	117	1	251	516	0	0	0	340	131	1,420	

Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Total	Interval Start Time	Pedestrians/Bicycles on Crosswalk					Total
	EB	NB	WB	SB				EB	NB	WB	SB		
3:00 PM	0	2	1	0	3	3:00 PM	0	0	0	0	0	0	
3:15 PM	0	0	0	0	0	3:15 PM	0	0	0	0	0	0	
3:30 PM	0	0	0	1	1	3:30 PM	0	0	0	0	0	0	
3:45 PM	0	1	0	0	1	3:45 PM	0	0	0	0	0	0	
4:00 PM	0	1	0	0	1	4:00 PM	0	0	0	0	0	0	
4:15 PM	0	1	0	0	1	4:15 PM	0	0	0	0	0	0	
4:30 PM	0	3	1	1	5	4:30 PM	0	0	0	0	0	0	
4:45 PM	0	0	1	1	2	4:45 PM	0	0	0	0	0	0	
5:00 PM	0	1	1	0	2	5:00 PM	0	0	0	0	0	0	

5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
Count Total	0	9	4	3	16	Count Total	0	0	0	0	0
Peak Hour	0	3	1	1	5	Peak Hour	0	0	0	0	0

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.8%	0.86
WB	0.0%	0.00
NB	0.7%	0.79
SB	0.2%	0.84
All	0.6%	0.86

Traffic Counts - Motorized Vehicles

Interval Start Time	I-94 EB RAMP Eastbound				I-94 EB RAMP Westbound				CR N Northbound			CR N Southbound				Total	Rolling Hour	
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru			Right
3:00 PM	0	61	0	101	0	0	0	0	0	0	184	28	0	35	82	0	491	1,697
3:15 PM	0	74	0	106	0	0	0	0	0	0	133	29	0	32	90	0	464	1,519
3:30 PM	0	54	0	100	0	0	0	0	0	0	153	30	0	35	70	0	442	1,328
3:45 PM	0	46	0	76	0	0	0	0	0	0	93	19	0	17	49	0	300	1,126
4:00 PM	0	34	0	71	0	0	0	0	0	0	99	25	0	16	68	0	313	1,074
4:15 PM	0	42	1	64	0	0	0	0	0	0	90	10	0	12	54	0	273	987
4:30 PM	0	23	1	60	0	0	0	0	0	0	70	24	0	17	45	0	240	906
4:45 PM	0	28	0	59	0	0	0	0	0	0	78	12	0	18	53	0	248	857
5:00 PM	0	20	0	51	0	0	0	0	0	0	82	9	0	13	51	0	226	780
5:15 PM	0	24	0	46	0	0	0	0	0	0	63	8	0	12	39	0	192	
5:30 PM	0	32	0	49	0	0	0	0	1	0	43	19	0	9	38	0	191	
5:45 PM	0	24	0	39	0	0	0	0	0	0	58	11	0	11	28	0	171	
Count Total	0	462	2	822	0	0	0	0	1	0	1,146	224	0	227	667	0	3,551	
Peak Hour	0	235	0	383	0	0	0	0	0	0	563	106	0	119	291	0	1,697	

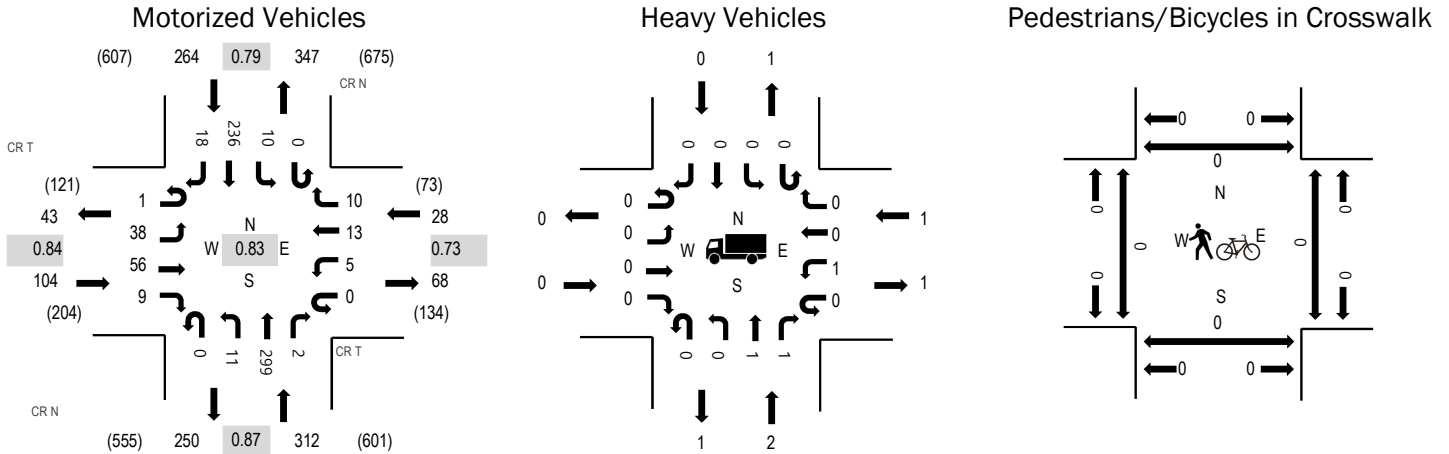
Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Total	Interval Start Time	Pedestrians/Bicycles on Crosswalk					Total
	EB	NB	WB	SB				EB	NB	WB	SB		
3:00 PM	3	2	0	0	5	5	3:00 PM	0	0	0	0	0	0
3:15 PM	1	0	0	0	1	1	3:15 PM	0	0	0	0	0	0
3:30 PM	1	1	0	1	3	3	3:30 PM	0	0	0	0	0	0
3:45 PM	0	2	0	0	2	2	3:45 PM	0	0	0	0	0	0
4:00 PM	0	2	0	0	2	2	4:00 PM	0	0	0	0	0	0
4:15 PM	0	1	0	0	1	1	4:15 PM	0	0	0	0	0	0
4:30 PM	1	4	0	1	6	6	4:30 PM	0	0	0	0	0	0
4:45 PM	1	0	0	1	2	2	4:45 PM	0	0	0	0	0	0
5:00 PM	1	1	0	1	3	3	5:00 PM	0	0	0	0	0	0

5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:30 PM	1	2	0	0	3	5:30 PM	0	0	0	0	0
5:45 PM	1	0	0	0	1	5:45 PM	0	0	0	0	0
Count Total	10	15	0	4	29	Count Total	0	0	0	0	0
Peak Hour	5	5	0	1	11	Peak Hour	0	0	0	0	0

5:15 PM	0	0	0	0	0	5:15 PM	0	2	0	0	2
5:30 PM	0	1	0	0	1	5:30 PM	1	2	0	0	3
5:45 PM	0	0	0	1	1	5:45 PM	0	1	0	0	1
Count Total	0	11	2	12	25	Count Total	1	19	0	0	20
Peak Hour	0	3	0	6	9	Peak Hour	0	8	0	0	8

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.84
WB	3.6%	0.73
NB	0.6%	0.87
SB	0.0%	0.79
All	0.4%	0.83

Traffic Counts - Motorized Vehicles

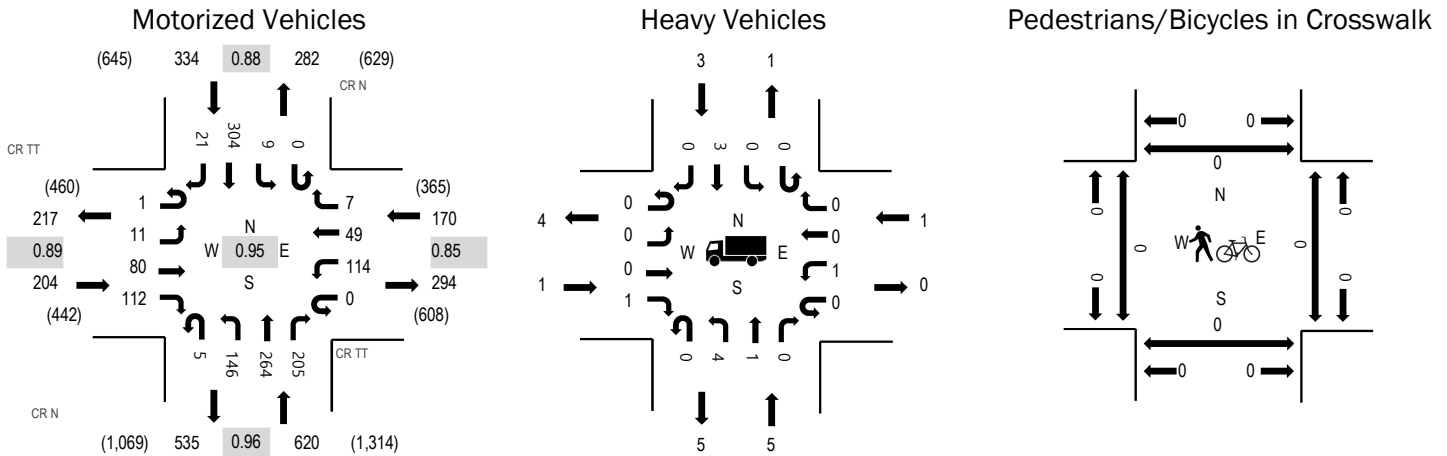
Interval Start Time	CR T Eastbound				CR T Westbound				CR N Northbound			CR N Southbound			Total	Rolling Hour		
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left			Thru	Right
3:00 PM	0	9	19	3	0	0	2	1	0	6	72	1	0	3	63	3	182	708
3:15 PM	1	13	16	1	0	2	4	2	0	1	89	0	0	4	76	4	213	672
3:30 PM	0	7	13	3	0	2	5	4	0	1	79	1	0	3	63	5	186	592
3:45 PM	0	9	8	2	0	1	2	3	0	3	59	0	0	0	34	6	127	507
4:00 PM	0	8	9	3	0	1	4	2	0	0	59	1	0	3	47	9	146	479
4:15 PM	0	8	10	2	0	0	6	1	0	3	35	1	0	2	59	6	133	419
4:30 PM	0	5	7	2	0	1	4	2	0	0	35	0	0	5	37	3	101	367
4:45 PM	0	9	4	1	0	1	5	2	0	3	34	0	0	2	35	3	99	341
5:00 PM	0	3	4	1	0	0	3	0	0	1	35	0	0	2	31	6	86	298
5:15 PM	0	2	6	2	0	1	1	0	0	1	30	0	0	0	32	6	81	
5:30 PM	0	6	4	1	1	0	3	2	0	1	27	0	0	2	25	3	75	
5:45 PM	0	1	2	0	0	1	4	0	0	1	22	0	0	1	22	2	56	
Count Total	1	80	102	21	1	10	43	19	0	21	576	4	0	27	524	56	1,485	
Peak Hour	1	38	56	9	0	5	13	10	0	11	299	2	0	10	236	18	708	

Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
3:00 PM	0	1	0	0	1	3:00 PM	0	0	0	0	0
3:15 PM	0	1	0	0	1	3:15 PM	0	0	0	0	0
3:30 PM	0	0	1	0	1	3:30 PM	0	0	0	0	0
3:45 PM	0	0	0	0	0	3:45 PM	0	0	0	0	0
4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:15 PM	0	1	0	0	1	4:15 PM	0	0	0	0	0
4:30 PM	0	1	0	0	1	4:30 PM	0	0	0	0	0
4:45 PM	0	1	1	0	2	4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0

5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
Count Total	0	5	2	0	7	Count Total	0	0	0	0	0
Peak Hour	0	2	1	0	3	Peak Hour	0	0	0	0	0

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.5%	0.89
WB	0.6%	0.85
NB	0.8%	0.96
SB	0.9%	0.88
All	0.8%	0.95

Traffic Counts - Motorized Vehicles

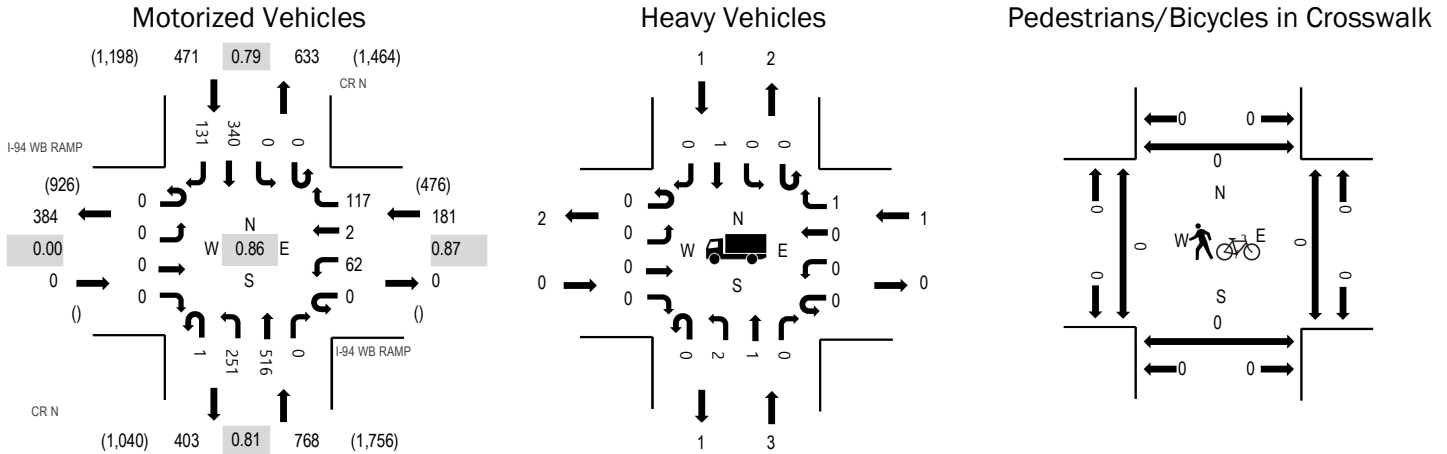
Interval Start Time	CR TT Eastbound				CR TT Westbound				CR N Northbound				CR N Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
3:00 PM	1	3	19	30	0	27	15	2	1	37	70	50	0	4	75	6	340	1,328
3:15 PM	0	2	18	26	0	29	9	1	1	33	63	46	0	3	75	5	311	1,293
3:30 PM	0	1	27	29	0	25	10	2	1	40	70	51	0	1	63	7	327	1,203
3:45 PM	0	5	16	27	0	33	15	2	2	36	61	58	0	1	91	3	350	1,091
4:00 PM	0	5	13	22	0	23	12	5	1	32	66	48	0	3	72	3	305	916
4:15 PM	0	4	15	20	0	16	12	6	0	35	36	36	0	0	39	2	221	754
4:30 PM	1	3	14	20	0	22	5	2	0	25	44	29	0	2	45	3	215	674
4:45 PM	0	4	11	13	0	16	7	1	0	21	30	32	0	2	35	3	175	594
5:00 PM	0	0	17	13	0	9	6	4	0	20	24	22	0	2	25	1	143	522
5:15 PM	0	2	8	15	0	18	6	0	2	16	35	18	0	0	21	0	141	
5:30 PM	0	1	11	17	0	11	7	0	0	15	34	16	0	0	23	0	135	
5:45 PM	0	1	5	3	0	5	2	0	0	7	40	10	0	0	28	2	103	
Count Total	2	31	174	235	0	234	106	25	8	317	573	416	0	18	592	35	2,766	
Peak Hour	1	11	80	112	0	114	49	7	5	146	264	205	0	9	304	21	1,328	

Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Total	Interval Start Time	Pedestrians/Bicycles on Crosswalk					Total
	EB	NB	WB	SB				EB	NB	WB	SB		
3:00 PM	0	1	0	0	1	1	3:00 PM	0	0	0	0	0	0
3:15 PM	0	0	0	1	1	1	3:15 PM	0	0	0	0	0	0
3:30 PM	1	2	1	0	4	4	3:30 PM	0	0	0	0	0	0
3:45 PM	0	2	0	2	4	4	3:45 PM	0	0	0	0	0	0
4:00 PM	2	0	0	0	2	2	4:00 PM	0	0	0	0	0	0
4:15 PM	0	2	0	1	3	3	4:15 PM	0	0	0	0	0	0
4:30 PM	0	1	0	0	1	1	4:30 PM	0	0	0	0	0	0
4:45 PM	0	1	0	1	2	2	4:45 PM	0	0	0	0	0	0
5:00 PM	0	1	0	0	1	1	5:00 PM	0	0	0	0	0	0

5:15 PM	0	1	0	0	1	5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	1	1	5:30 PM	0	0	0	0	0
5:45 PM	0	1	0	0	1	5:45 PM	0	0	0	0	0
Count Total	3	12	1	6	22	Count Total	0	0	0	0	0
Peak Hour	1	5	1	3	10	Peak Hour	0	0	0	0	0

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.00
WB	0.6%	0.87
NB	0.4%	0.81
SB	0.2%	0.79
All	0.4%	0.86

Traffic Counts - Motorized Vehicles

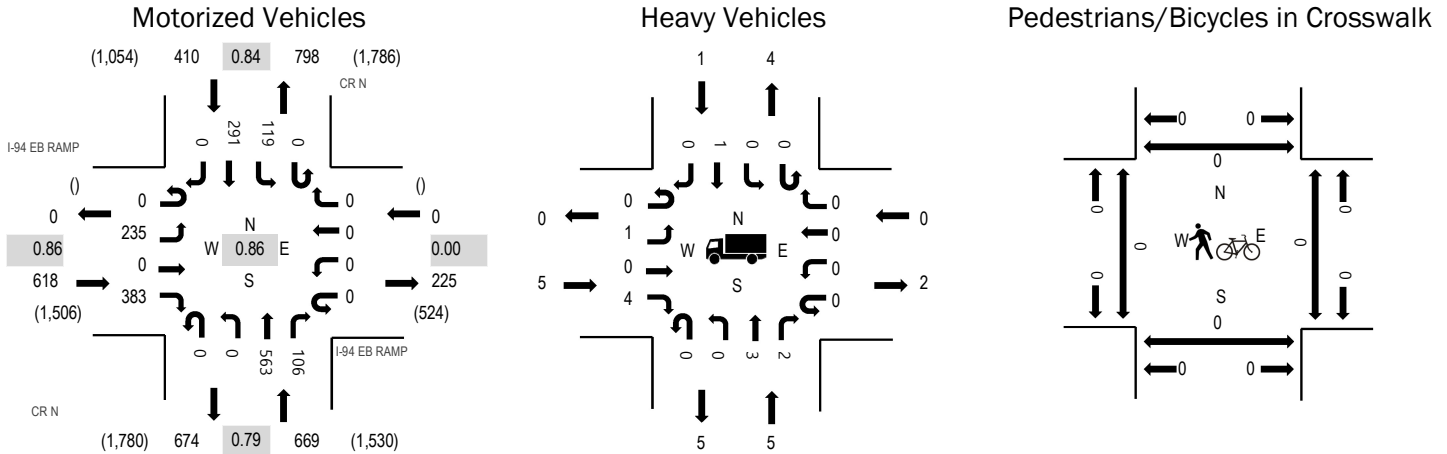
Interval Start Time	I-94 WB RAMP Eastbound				I-94 WB RAMP Westbound				CR N Northbound				CR N Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
3:00 PM	0	0	0	0	0	24	1	27	0	77	160	0	0	0	89	33	411	1,420
3:15 PM	0	0	0	0	0	19	0	32	1	69	126	0	0	0	99	50	396	1,280
3:30 PM	0	0	0	0	0	13	0	32	0	66	134	0	0	0	88	27	360	1,125
3:45 PM	0	0	0	0	0	6	1	26	0	39	96	0	0	0	64	21	253	973
4:00 PM	0	0	0	0	0	14	0	34	0	49	80	0	0	0	67	27	271	940
4:15 PM	0	0	0	0	0	13	0	14	0	44	84	0	0	0	54	32	241	857
4:30 PM	0	0	0	0	0	11	0	25	0	40	54	0	0	0	52	26	208	785
4:45 PM	0	0	0	0	0	10	1	20	0	38	65	0	0	0	60	26	220	727
5:00 PM	0	0	0	0	0	12	0	9	0	35	66	0	0	0	53	13	188	643
5:15 PM	0	0	0	0	0	10	0	14	0	25	61	0	0	0	43	16	169	581
5:30 PM	0	0	0	0	0	8	0	13	0	20	56	0	0	0	40	13	150	510
5:45 PM	0	0	0	0	0	5	0	5	1	26	56	0	0	0	34	9	136	460
6:00 PM	0	0	0	0	0	11	0	10	0	17	38	0	0	0	33	17	126	427
6:15 PM	0	0	0	0	0	8	0	8	0	16	29	0	0	0	28	9	98	
6:30 PM	0	0	0	0	0	10	0	13	0	8	37	0	0	0	26	6	100	
6:45 PM	0	0	0	0	0	5	0	12	0	15	28	0	0	0	29	14	103	
Count Total	0	0	0	0	0	179	3	294	2	584	1,170	0	0	0	859	339	3,430	
Peak Hour	0	0	0	0	0	62	2	117	1	251	516	0	0	0	340	131	1,420	

Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
3:00 PM	0	2	1	0	3	3:00 PM	0	0	0	0	0
3:15 PM	0	0	0	0	0	3:15 PM	0	0	0	0	0
3:30 PM	0	0	0	1	1	3:30 PM	0	0	0	0	0
3:45 PM	0	1	0	0	1	3:45 PM	0	0	0	0	0
4:00 PM	0	1	0	0	1	4:00 PM	0	0	0	0	0

4:15 PM	0	1	0	0	1	4:15 PM	0	0	0	0	0
4:30 PM	0	3	1	1	5	4:30 PM	0	0	0	0	0
4:45 PM	0	0	1	1	2	4:45 PM	0	0	0	0	0
5:00 PM	0	1	1	0	2	5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
6:00 PM	0	0	1	0	1	6:00 PM	0	0	0	0	0
6:15 PM	0	0	0	0	0	6:15 PM	0	0	0	0	0
6:30 PM	0	0	0	0	0	6:30 PM	0	0	0	0	0
6:45 PM	0	1	0	1	2	6:45 PM	0	0	0	0	0
Count Total	0	10	5	4	19	Count Total	0	0	0	0	0
Peak Hour	0	3	1	1	5	Peak Hour	0	0	0	0	0

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.8%	0.86
WB	0.0%	0.00
NB	0.7%	0.79
SB	0.2%	0.84
All	0.6%	0.86

Traffic Counts - Motorized Vehicles

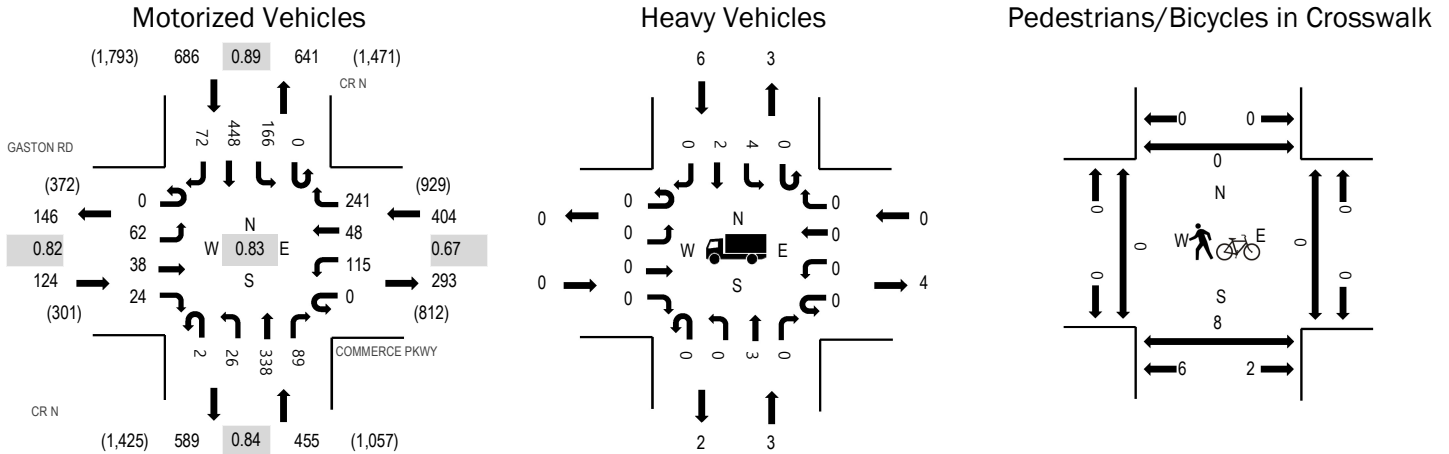
Interval Start Time	I-94 EB RAMP Eastbound				I-94 EB RAMP Westbound				CR N Northbound			CR N Southbound				Total	Rolling Hour	
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru			Right
3:00 PM	0	61	0	101	0	0	0	0	0	0	184	28	0	35	82	0	491	1,697
3:15 PM	0	74	0	106	0	0	0	0	0	0	133	29	0	32	90	0	464	1,519
3:30 PM	0	54	0	100	0	0	0	0	0	0	153	30	0	35	70	0	442	1,328
3:45 PM	0	46	0	76	0	0	0	0	0	0	93	19	0	17	49	0	300	1,126
4:00 PM	0	34	0	71	0	0	0	0	0	0	99	25	0	16	68	0	313	1,074
4:15 PM	0	42	1	64	0	0	0	0	0	0	90	10	0	12	54	0	273	987
4:30 PM	0	23	1	60	0	0	0	0	0	0	70	24	0	17	45	0	240	906
4:45 PM	0	28	0	59	0	0	0	0	0	0	78	12	0	18	53	0	248	857
5:00 PM	0	20	0	51	0	0	0	0	0	0	82	9	0	13	51	0	226	780
5:15 PM	0	24	0	46	0	0	0	0	0	0	63	8	0	12	39	0	192	712
5:30 PM	0	32	0	49	0	0	0	0	1	0	43	19	0	9	38	0	191	663
5:45 PM	0	24	0	39	0	0	0	0	0	0	58	11	0	11	28	0	171	589
6:00 PM	0	13	0	50	0	0	0	0	0	0	35	15	0	3	42	0	158	539
6:15 PM	0	12	0	43	0	0	0	0	0	0	33	10	0	10	35	0	143	
6:30 PM	0	23	0	29	0	0	0	0	0	0	20	9	0	9	27	0	117	
6:45 PM	0	16	0	34	0	0	0	0	1	0	26	10	0	5	29	0	121	
Count Total	0	526	2	978	0	0	0	0	2	0	1,260	268	0	254	800	0	4,090	
Peak Hour	0	235	0	383	0	0	0	0	0	0	563	106	0	119	291	0	1,697	

Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
3:00 PM	3	2	0	0	5	3:00 PM	0	0	0	0	0
3:15 PM	1	0	0	0	1	3:15 PM	0	0	0	0	0
3:30 PM	1	1	0	1	3	3:30 PM	0	0	0	0	0
3:45 PM	0	2	0	0	2	3:45 PM	0	0	0	0	0
4:00 PM	0	2	0	0	2	4:00 PM	0	0	0	0	0

4:15 PM	0	1	0	0	1	4:15 PM	0	0	0	0	0
4:30 PM	1	4	0	1	6	4:30 PM	0	0	0	0	0
4:45 PM	1	0	0	1	2	4:45 PM	0	0	0	0	0
5:00 PM	1	1	0	1	3	5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:30 PM	1	2	0	0	3	5:30 PM	0	0	0	0	0
5:45 PM	1	0	0	0	1	5:45 PM	0	0	0	0	0
6:00 PM	0	0	0	0	0	6:00 PM	0	0	0	0	0
6:15 PM	0	1	0	0	1	6:15 PM	0	0	0	0	0
6:30 PM	0	0	0	1	1	6:30 PM	0	0	0	0	0
6:45 PM	0	1	0	0	1	6:45 PM	0	0	0	0	0
Count Total	10	17	0	5	32	Count Total	0	0	0	0	0
Peak Hour	5	5	0	1	11	Peak Hour	0	0	0	0	0

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.82
WB	0.0%	0.67
NB	0.7%	0.84
SB	0.9%	0.89
All	0.5%	0.83

Traffic Counts - Motorized Vehicles

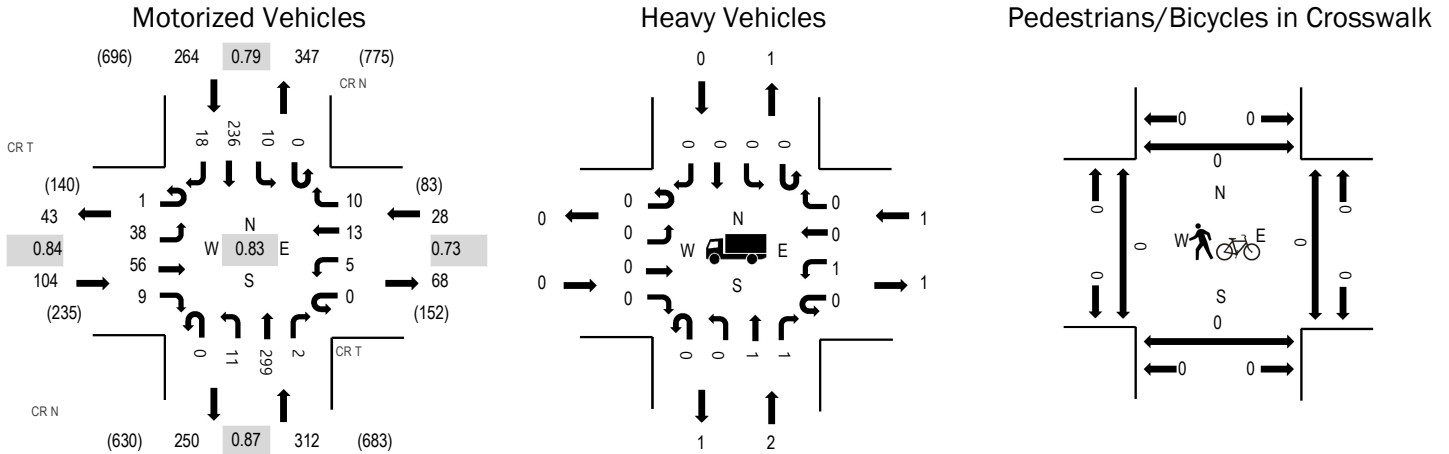
Interval Start Time	GASTON RD Eastbound				COMMERCE PKWY Westbound				CR N Northbound				CR N Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
3:00 PM	0	16	10	6	0	45	24	82	0	14	99	22	0	49	120	18	505	1,669
3:15 PM	0	12	10	9	0	27	13	69	0	4	86	33	0	44	125	24	456	1,462
3:30 PM	0	13	7	3	0	30	6	61	1	7	88	19	0	38	119	20	412	1,299
3:45 PM	0	21	11	6	0	13	5	29	1	1	65	15	0	35	84	10	296	1,122
4:00 PM	0	15	5	2	0	16	3	38	0	4	57	18	0	44	79	17	298	1,075
4:15 PM	0	8	3	5	0	28	7	37	0	9	56	19	0	36	71	14	293	1,025
4:30 PM	0	10	8	2	0	12	5	33	0	3	48	14	0	36	56	8	235	917
4:45 PM	0	4	6	6	0	17	5	26	0	5	51	15	0	32	68	14	249	870
5:00 PM	0	9	8	3	0	17	8	33	0	4	53	11	0	25	70	7	248	796
5:15 PM	0	9	6	8	0	9	7	23	0	1	33	5	0	18	51	15	185	717
5:30 PM	0	11	4	1	0	13	6	18	0	4	31	20	0	29	43	8	188	675
5:45 PM	0	6	7	2	0	11	9	33	0	1	25	7	0	27	43	4	175	596
6:00 PM	0	3	6	1	0	8	4	27	0	3	22	4	1	25	53	12	169	540
6:15 PM	0	1	2	3	0	3	3	18	0	1	21	8	0	23	46	14	143	
6:30 PM	0	1	2	3	0	6	3	14	0	1	19	3	0	16	34	7	109	
6:45 PM	0	3	3	1	0	6	3	16	0	2	17	7	0	17	39	5	119	
Count Total	0	142	98	61	0	261	111	557	2	64	771	220	1	494	1,101	197	4,080	
Peak Hour	0	62	38	24	0	115	48	241	2	26	338	89	0	166	448	72	1,669	

Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
3:00 PM	0	1	0	3	4	3:00 PM	0	3	0	0	3
3:15 PM	0	1	0	1	2	3:15 PM	0	1	0	0	1
3:30 PM	0	0	0	2	2	3:30 PM	0	1	0	0	1
3:45 PM	0	1	0	0	1	3:45 PM	0	3	0	0	3
4:00 PM	0	1	1	0	2	4:00 PM	0	1	0	0	1

4:15 PM	0	2	0	0	2	4:15 PM	0	2	0	0	2
4:30 PM	0	3	1	1	5	4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	2	2	4:45 PM	0	1	0	0	1
5:00 PM	0	1	0	2	3	5:00 PM	0	2	0	0	2
5:15 PM	0	0	0	0	0	5:15 PM	0	2	0	0	2
5:30 PM	0	1	0	0	1	5:30 PM	1	2	0	0	3
5:45 PM	0	0	0	1	1	5:45 PM	0	1	0	0	1
6:00 PM	0	0	0	0	0	6:00 PM	0	0	0	0	0
6:15 PM	0	1	0	0	1	6:15 PM	0	0	0	0	0
6:30 PM	0	0	0	1	1	6:30 PM	0	0	0	0	0
6:45 PM	0	1	0	0	1	6:45 PM	0	0	0	0	0
Count Total	0	13	2	13	28	Count Total	1	19	0	0	20
Peak Hour	0	3	0	6	9	Peak Hour	0	8	0	0	8

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.84
WB	3.6%	0.73
NB	0.6%	0.87
SB	0.0%	0.79
All	0.4%	0.83

Traffic Counts - Motorized Vehicles

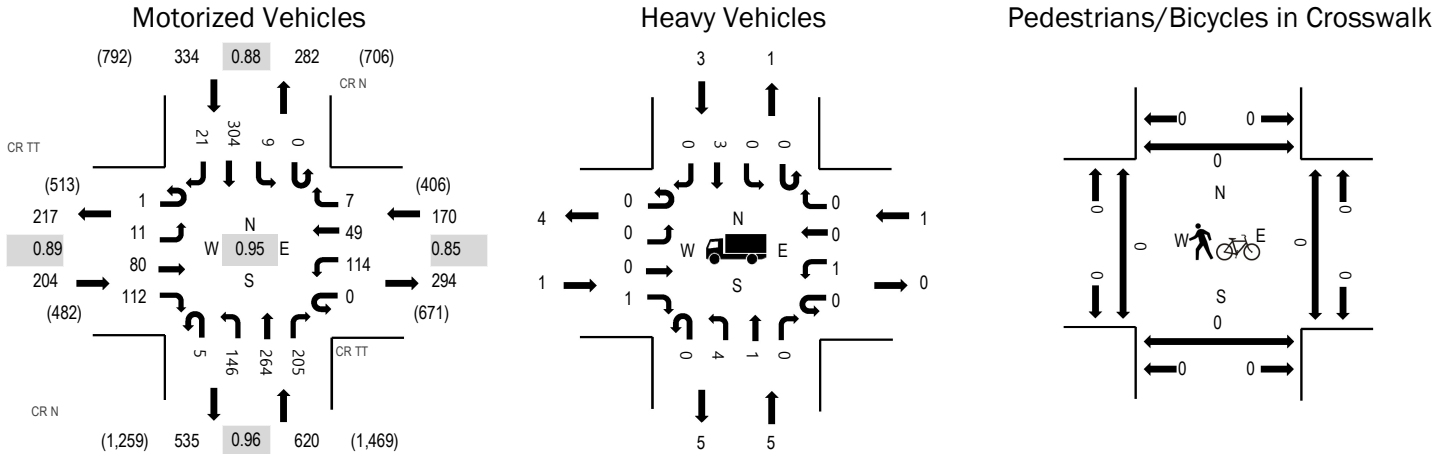
Interval Start Time	CR T Eastbound				CR T Westbound				CR N Northbound				CR N Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
3:00 PM	0	9	19	3	0	0	2	1	0	6	72	1	0	3	63	3	182	708
3:15 PM	1	13	16	1	0	2	4	2	0	1	89	0	0	4	76	4	213	672
3:30 PM	0	7	13	3	0	2	5	4	0	1	79	1	0	3	63	5	186	592
3:45 PM	0	9	8	2	0	1	2	3	0	3	59	0	0	0	34	6	127	507
4:00 PM	0	8	9	3	0	1	4	2	0	0	59	1	0	3	47	9	146	479
4:15 PM	0	8	10	2	0	0	6	1	0	3	35	1	0	2	59	6	133	419
4:30 PM	0	5	7	2	0	1	4	2	0	0	35	0	0	5	37	3	101	367
4:45 PM	0	9	4	1	0	1	5	2	0	3	34	0	0	2	35	3	99	341
5:00 PM	0	3	4	1	0	0	3	0	0	1	35	0	0	2	31	6	86	298
5:15 PM	0	2	6	2	0	1	1	0	0	1	30	0	0	0	32	6	81	288
5:30 PM	0	6	4	1	1	0	3	2	0	1	27	0	0	2	25	3	75	260
5:45 PM	0	1	2	0	0	1	4	0	0	1	22	0	0	1	22	2	56	232
6:00 PM	0	2	4	1	0	2	2	2	0	0	33	0	0	4	18	8	76	212
6:15 PM	0	6	3	1	0	0	0	0	0	1	15	0	0	0	26	1	53	
6:30 PM	0	3	4	1	0	0	1	2	0	0	18	0	0	0	13	5	47	
6:45 PM	0	5	1	0	0	0	0	1	0	0	13	2	0	0	13	1	36	
Count Total	1	96	114	24	1	12	46	24	0	22	655	6	0	31	594	71	1,697	
Peak Hour	1	38	56	9	0	5	13	10	0	11	299	2	0	10	236	18	708	

Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
3:00 PM	0	1	0	0	1	3:00 PM	0	0	0	0	0
3:15 PM	0	1	0	0	1	3:15 PM	0	0	0	0	0
3:30 PM	0	0	1	0	1	3:30 PM	0	0	0	0	0
3:45 PM	0	0	0	0	0	3:45 PM	0	0	0	0	0
4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0

4:15 PM	0	1	0	0	1	4:15 PM	0	0	0	0	0
4:30 PM	0	1	0	0	1	4:30 PM	0	0	0	0	0
4:45 PM	0	1	1	0	2	4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
6:00 PM	0	0	0	0	0	6:00 PM	0	0	0	0	0
6:15 PM	0	0	0	0	0	6:15 PM	0	0	0	0	0
6:30 PM	0	0	0	0	0	6:30 PM	0	0	0	0	0
6:45 PM	0	1	0	1	2	6:45 PM	0	0	0	0	0
Count Total	0	6	2	1	9	Count Total	0	0	0	0	0
Peak Hour	0	2	1	0	3	Peak Hour	0	0	0	0	0

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.5%	0.89
WB	0.6%	0.85
NB	0.8%	0.96
SB	0.9%	0.88
All	0.8%	0.95

Traffic Counts - Motorized Vehicles

Interval Start Time	CR TT Eastbound				CR TT Westbound				CR N Northbound				CR N Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
3:00 PM	1	3	19	30	0	27	15	2	1	37	70	50	0	4	75	6	340	1,328
3:15 PM	0	2	18	26	0	29	9	1	1	33	63	46	0	3	75	5	311	1,293
3:30 PM	0	1	27	29	0	25	10	2	1	40	70	51	0	1	63	7	327	1,203
3:45 PM	0	5	16	27	0	33	15	2	2	36	61	58	0	1	91	3	350	1,091
4:00 PM	0	5	13	22	0	23	12	5	1	32	66	48	0	3	72	3	305	916
4:15 PM	0	4	15	20	0	16	12	6	0	35	36	36	0	0	39	2	221	754
4:30 PM	1	3	14	20	0	22	5	2	0	25	44	29	0	2	45	3	215	674
4:45 PM	0	4	11	13	0	16	7	1	0	21	30	32	0	2	35	3	175	594
5:00 PM	0	0	17	13	0	9	6	4	0	20	24	22	0	2	25	1	143	522
5:15 PM	0	2	8	15	0	18	6	0	2	16	35	18	0	0	21	0	141	483
5:30 PM	0	1	11	17	0	11	7	0	0	15	34	16	0	0	23	0	135	426
5:45 PM	0	1	5	3	0	5	2	0	0	7	40	10	0	0	28	2	103	390
6:00 PM	0	1	4	4	0	7	2	0	0	7	28	9	0	0	39	3	104	383
6:15 PM	0	0	2	4	0	6	4	0	0	8	17	11	0	0	32	0	84	
6:30 PM	0	1	5	8	0	7	4	0	0	11	15	12	0	0	33	3	99	
6:45 PM	0	0	4	7	0	6	4	1	0	7	14	16	0	0	37	0	96	
Count Total	2	33	189	258	0	260	120	26	8	350	647	464	0	18	733	41	3,149	
Peak Hour	1	11	80	112	0	114	49	7	5	146	264	205	0	9	304	21	1,328	

Traffic Counts - Heavy Vehicles and Pedestrians/Bicycles in Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
3:00 PM	0	1	0	0	1	3:00 PM	0	0	0	0	0
3:15 PM	0	0	0	1	1	3:15 PM	0	0	0	0	0
3:30 PM	1	2	1	0	4	3:30 PM	0	0	0	0	0
3:45 PM	0	2	0	2	4	3:45 PM	0	0	0	0	0
4:00 PM	2	0	0	0	2	4:00 PM	0	0	0	0	0

4:15 PM	0	2	0	1	3	4:15 PM	0	0	0	0	0
4:30 PM	0	1	0	0	1	4:30 PM	0	0	0	0	0
4:45 PM	0	1	0	1	2	4:45 PM	0	0	0	0	0
5:00 PM	0	1	0	0	1	5:00 PM	0	0	0	0	0
5:15 PM	0	1	0	0	1	5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	1	1	5:30 PM	0	0	0	0	0
5:45 PM	0	1	0	0	1	5:45 PM	0	0	0	0	0
6:00 PM	0	1	0	0	1	6:00 PM	0	0	0	0	0
6:15 PM	0	1	0	0	1	6:15 PM	0	0	0	0	0
6:30 PM	1	2	0	0	3	6:30 PM	0	0	0	0	0
6:45 PM	0	0	0	1	1	6:45 PM	0	0	0	0	0
Count Total	4	16	1	7	28	Count Total	0	0	0	0	0
Peak Hour	1	5	1	3	10	Peak Hour	0	0	0	0	0

APPENDIX C

Field Inventory Sketches

Intersection 1

Main St (CTH N) & Gaston Rd/Commerce Pkwy

Signalized



County Rd N

35 MPH

275'

0%

11'

+1%

Commerce Pkwy

35 MPH*

Gaston Rd

35 MPH

-1%

11'

150'

65'

11'

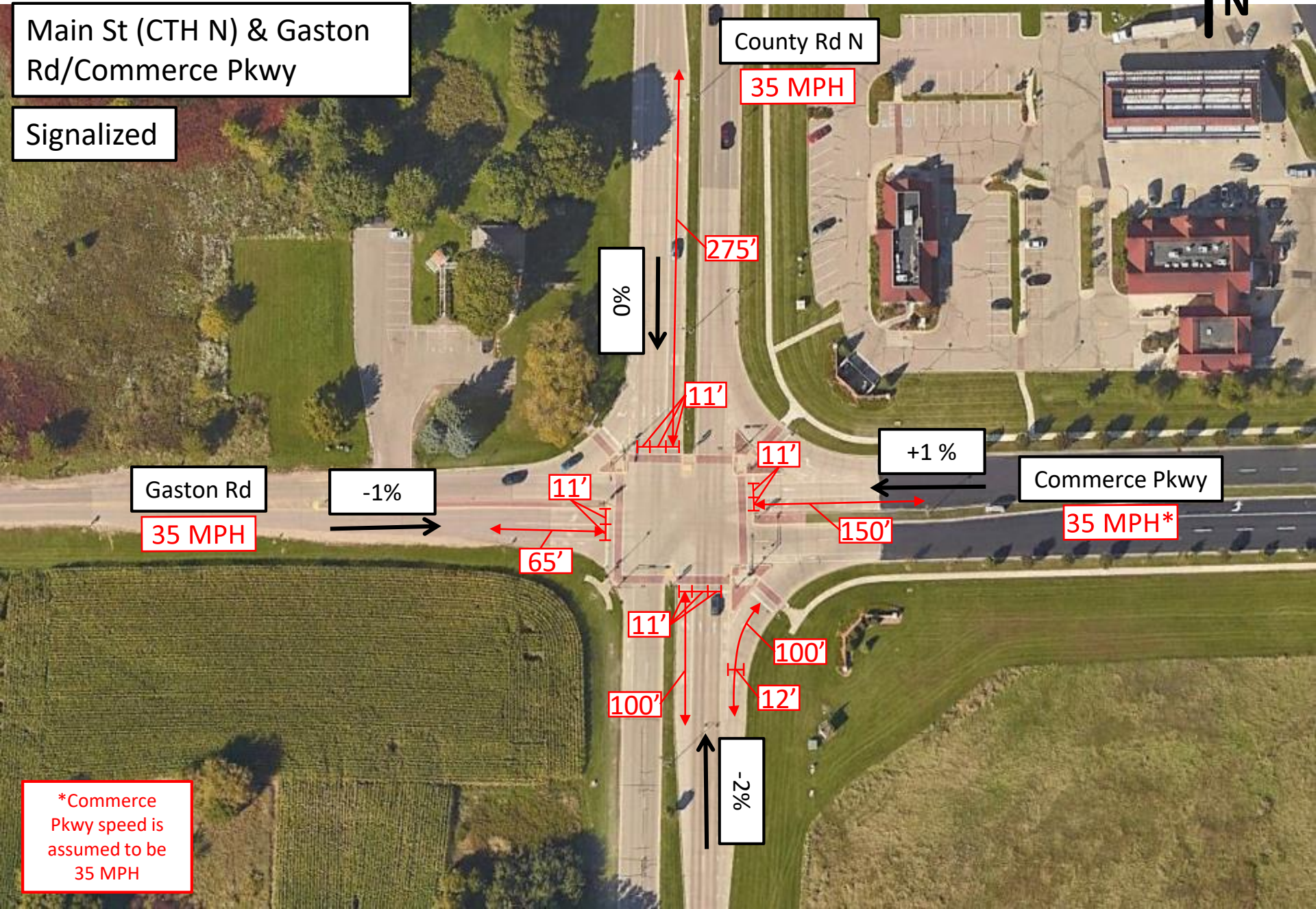
100'

100'

12'

-2%

*Commerce Pkwy speed is assumed to be 35 MPH



Intersection 2

I-94 EB Ramps &
County Rd N

Unsignalized



I-94 EB Off Ramp

County Hwy N

40 MPH

40 MPH

14'

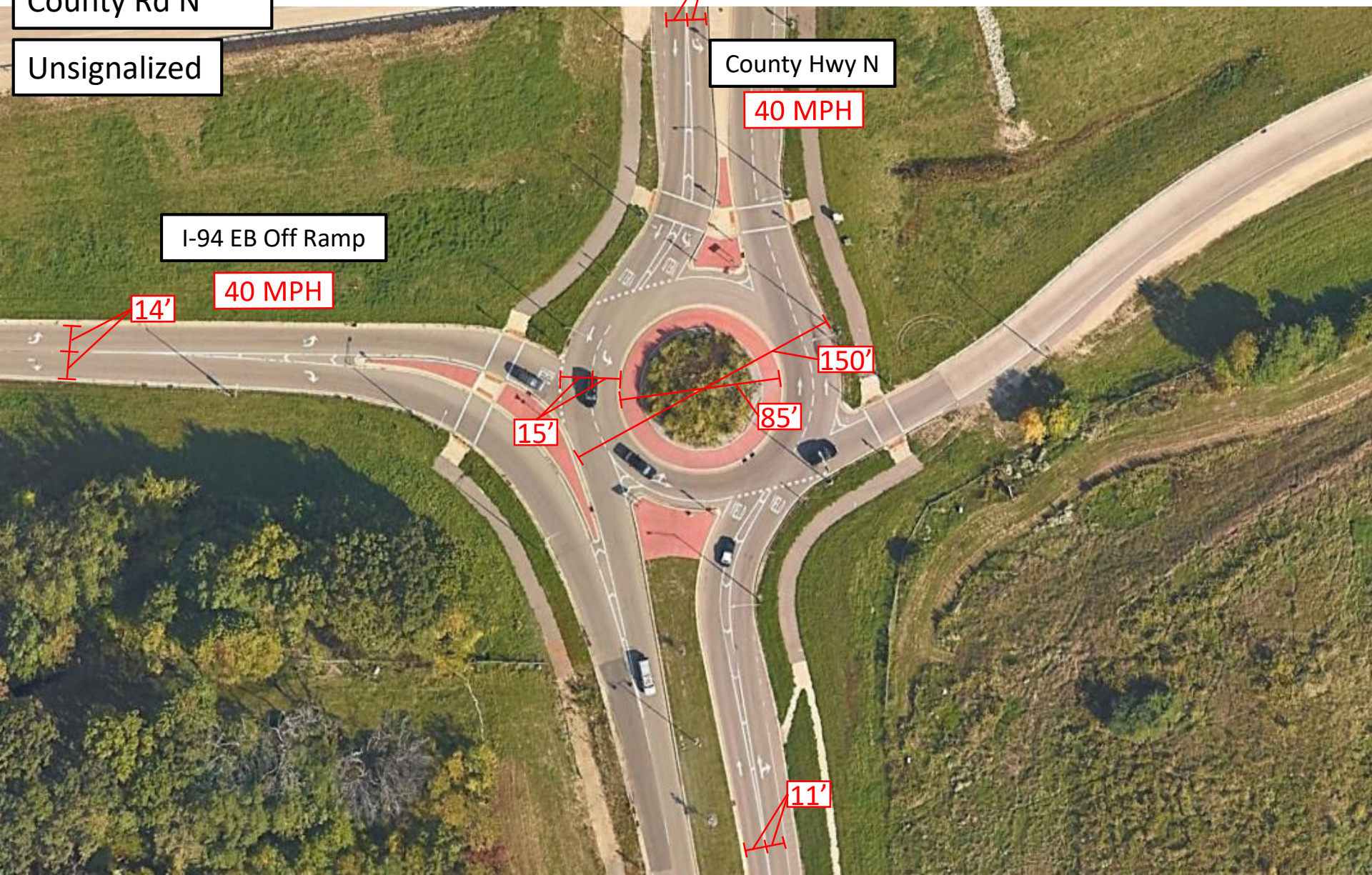
11'

15'

150'

85'

11'



Intersection 3

I-94 WB Ramps &
County Hwy N

Unsignalized



County Hwy N

40 MPH

I-94 WB Off Ramp

40 MPH

14'

11'

175'

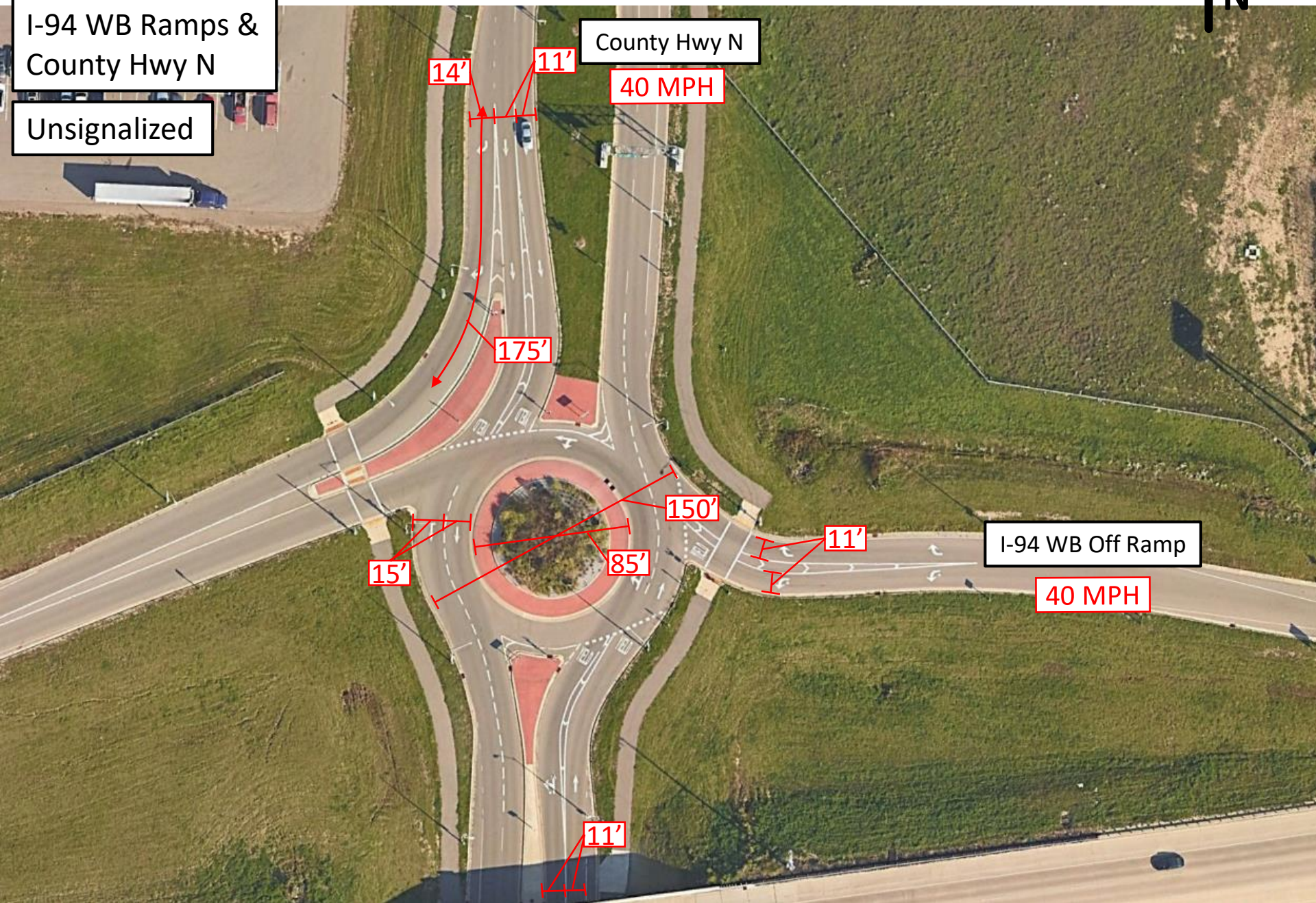
150'

11'

15'

85'

11'



Intersection 4

County Hwy TT
& County Hwy N

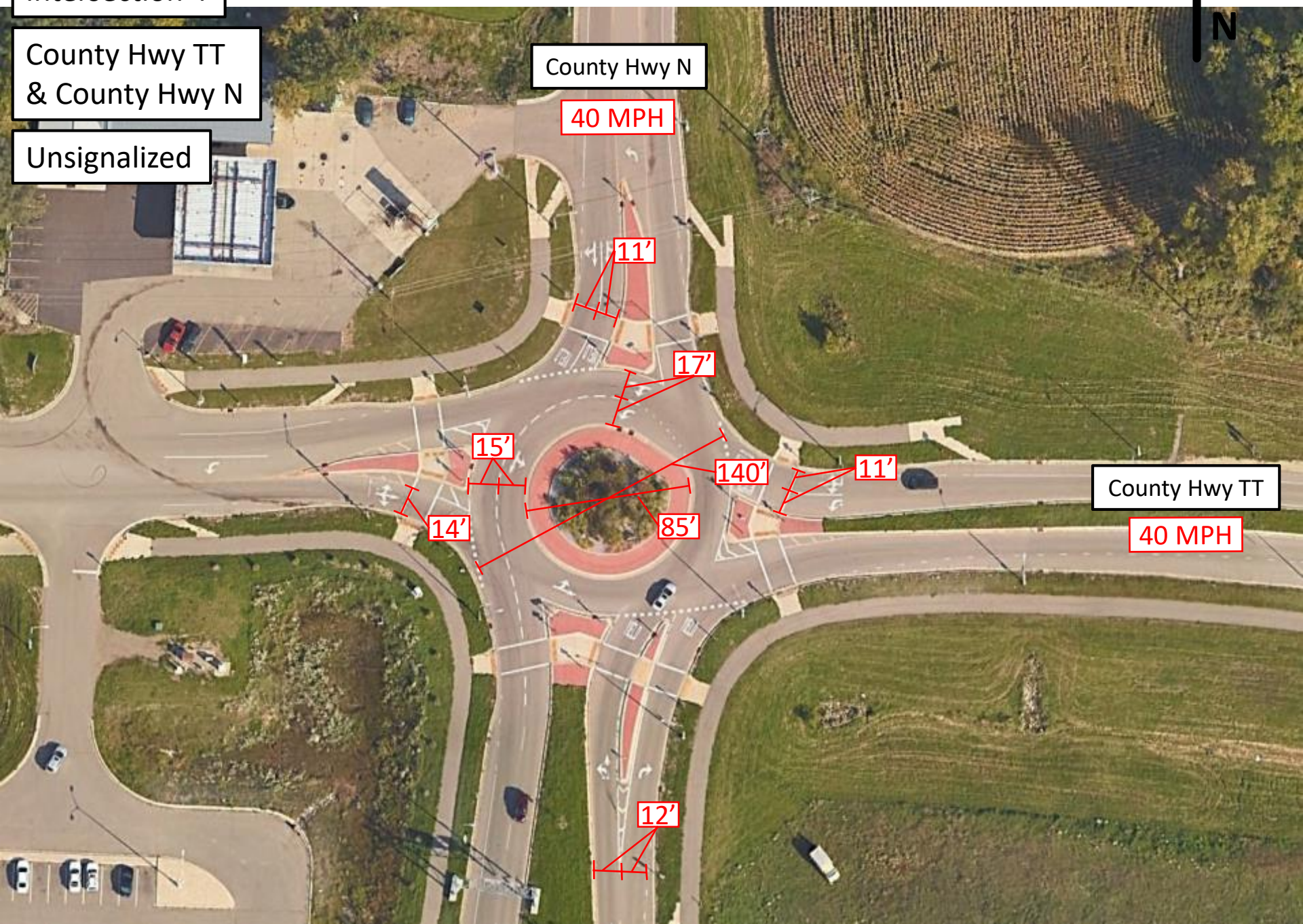
Unsignalized

County Hwy N

40 MPH

County Hwy TT

40 MPH



11'

17'

15'

14'

85'

140'

11'

12'

Intersection 5

County Hwy T &
County Hwy N

Unsignalized



County Hwy N

40 MPH

0%

380'

12'

11'

County Hwy T

55 MPH

+2%

11'

+2%

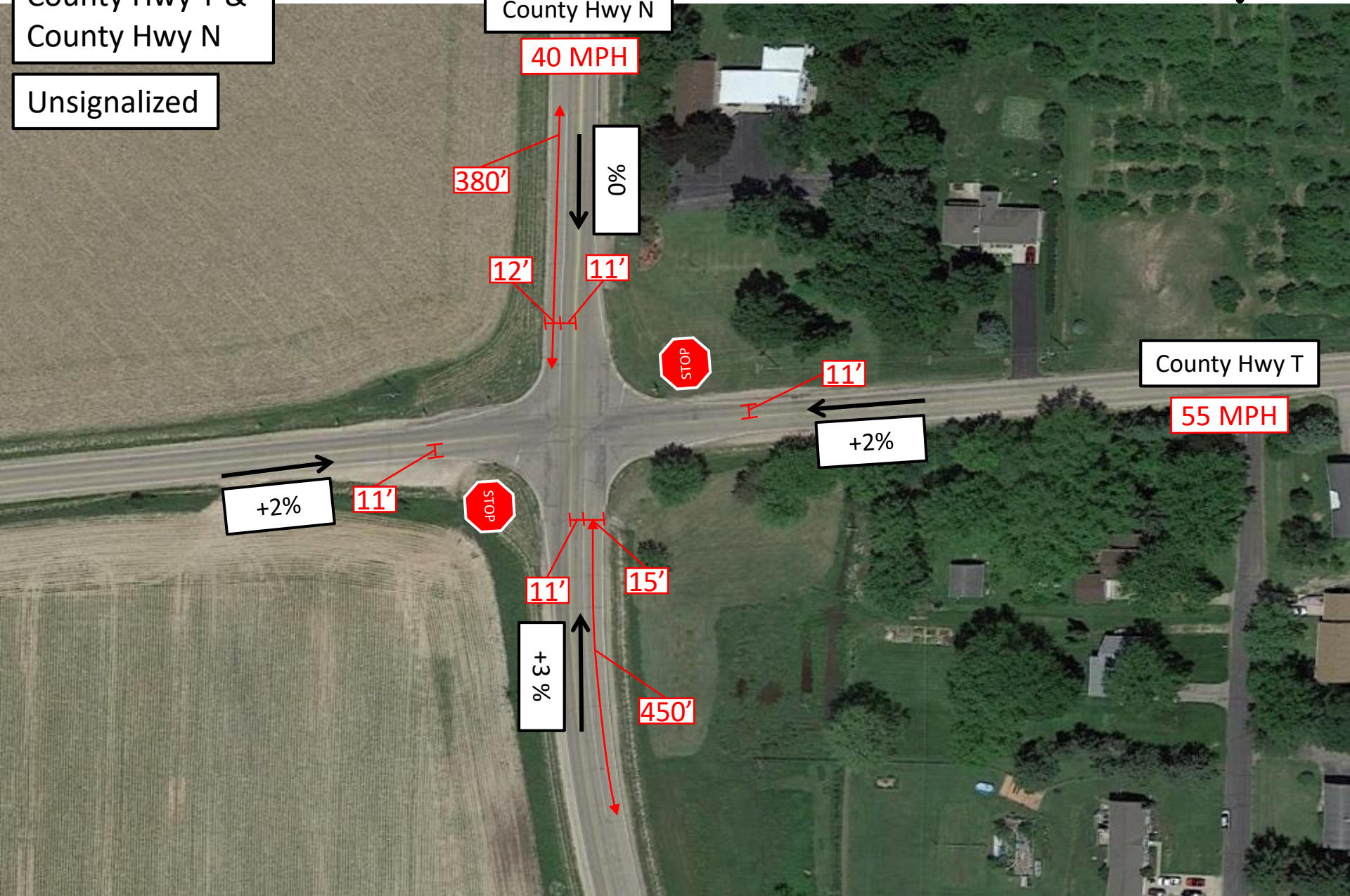
11'

11'

15'

+3%

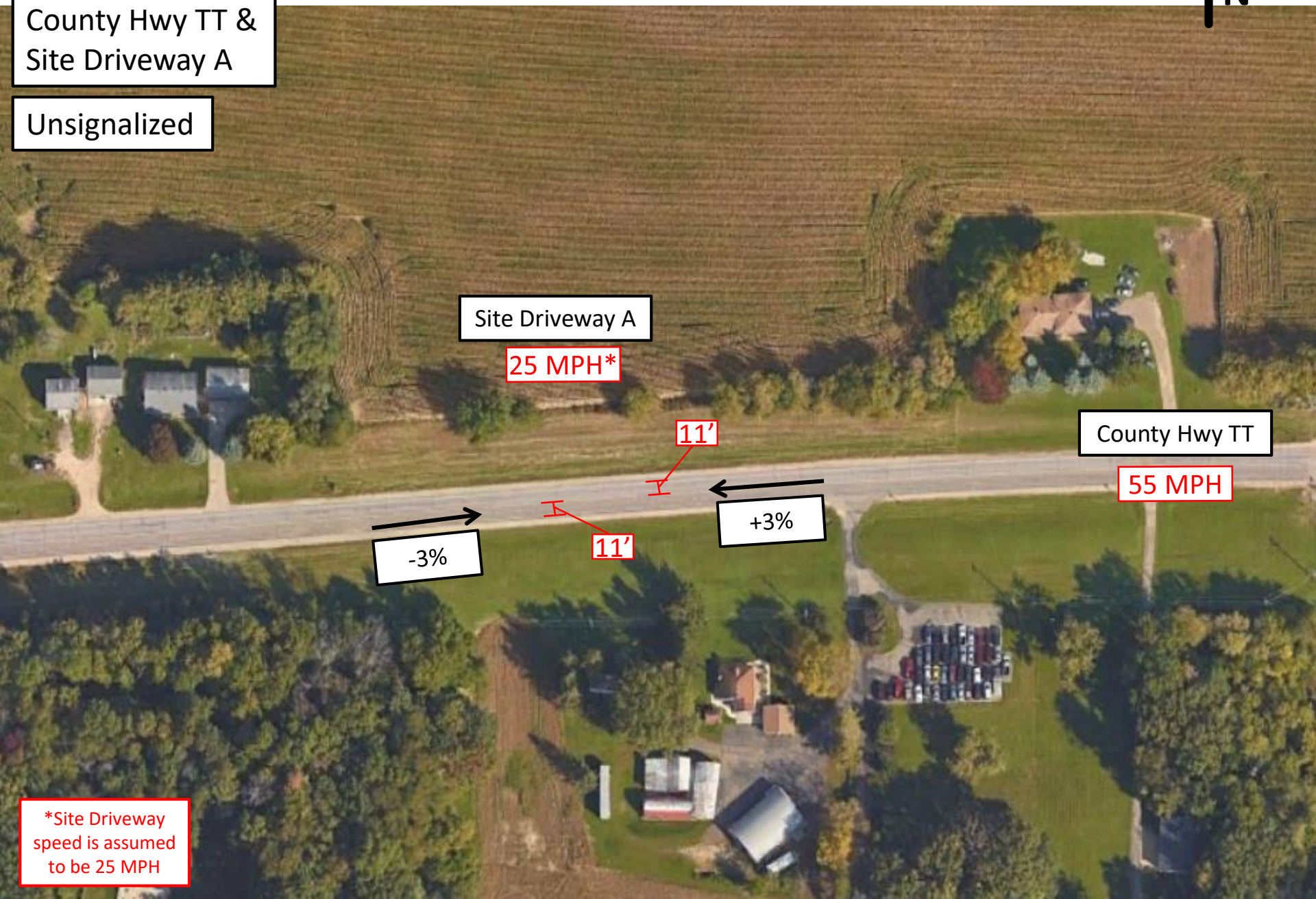
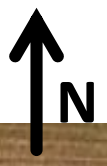
450'



Intersection 6

County Hwy TT &
Site Driveway A

Unsignalized



Site Driveway A

25 MPH*

County Hwy TT

55 MPH

-3%

+3%

11'

11'

*Site Driveway
speed is assumed
to be 25 MPH

Intersection 7

County Hwy TT &
Site Driveway B

Unsignalized



Site Driveway B

25 MPH*

County Hwy TT

40 MPH

-3%

+3%

12'

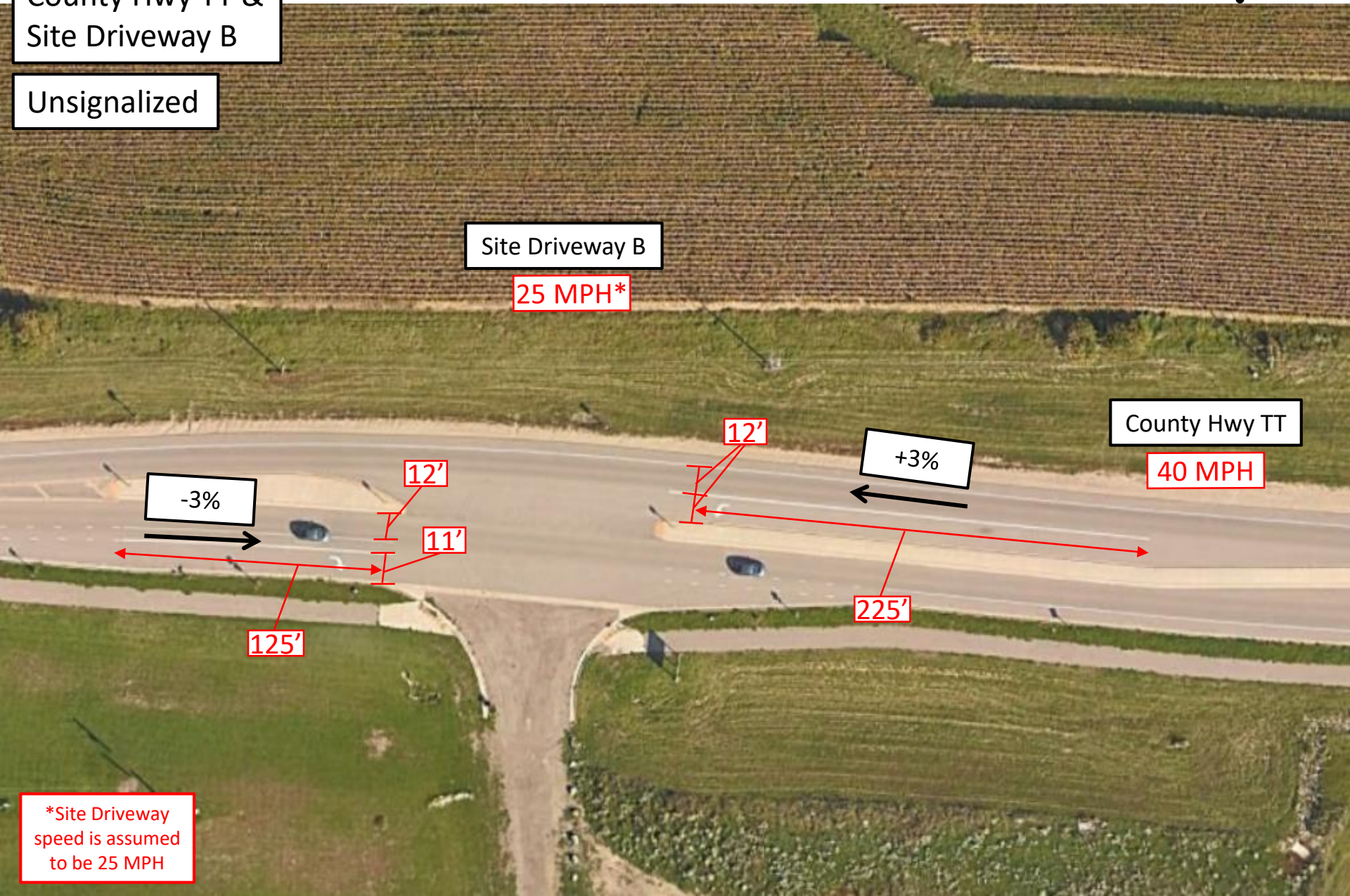
12'

11'

125'

225'

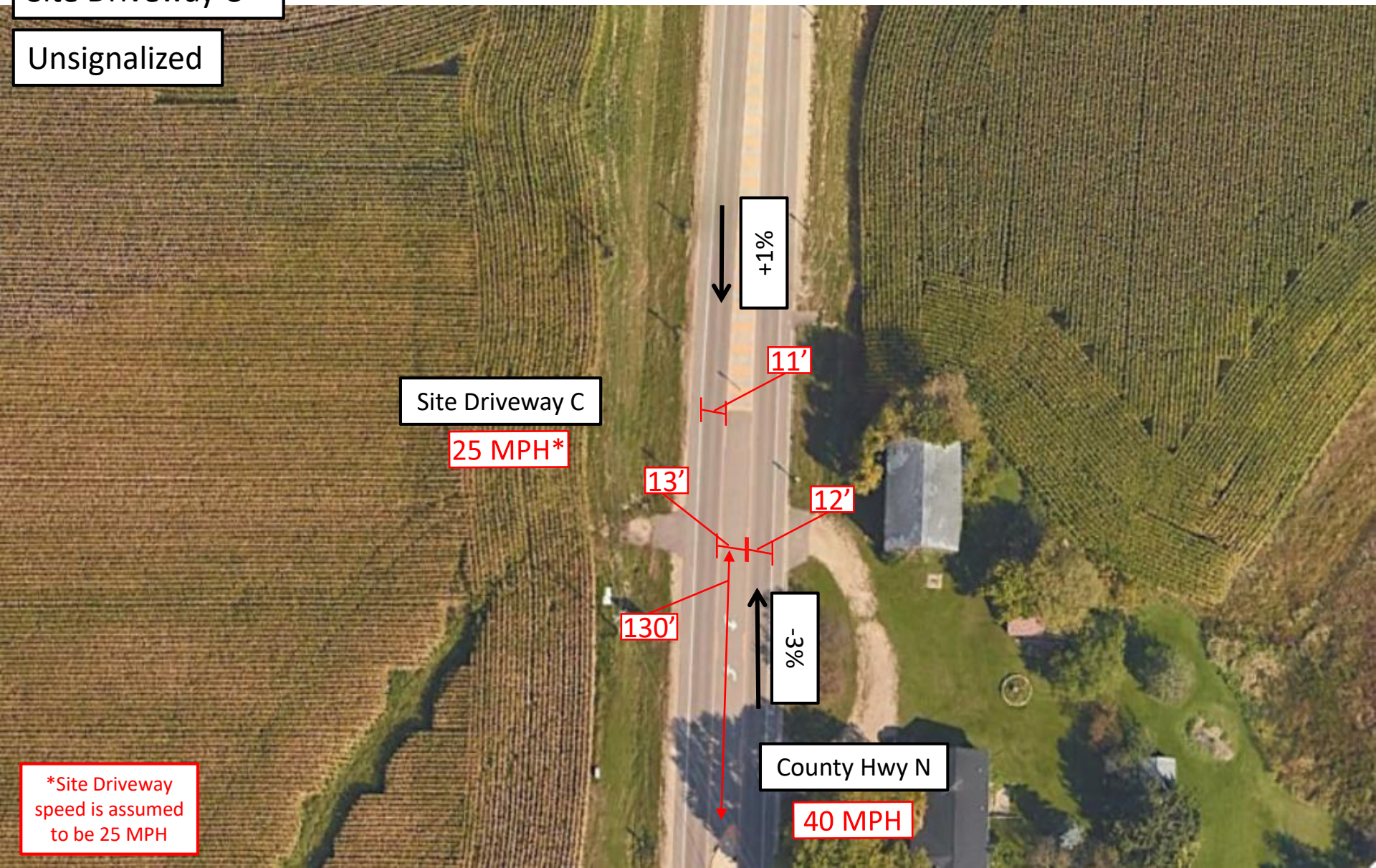
*Site Driveway
speed is assumed
to be 25 MPH



Intersection 8

County Hwy N &
Site Driveway C

Unsignalized



Site Driveway C

25 MPH*

+1%

11'

13'

12'

-3%

130'

County Hwy N

40 MPH

*Site Driveway
speed is assumed
to be 25 MPH

Intersection 9

County Hwy N &
Site Driveway D

Unsignalized

Site Driveway D

25 MPH*

-1%

11'

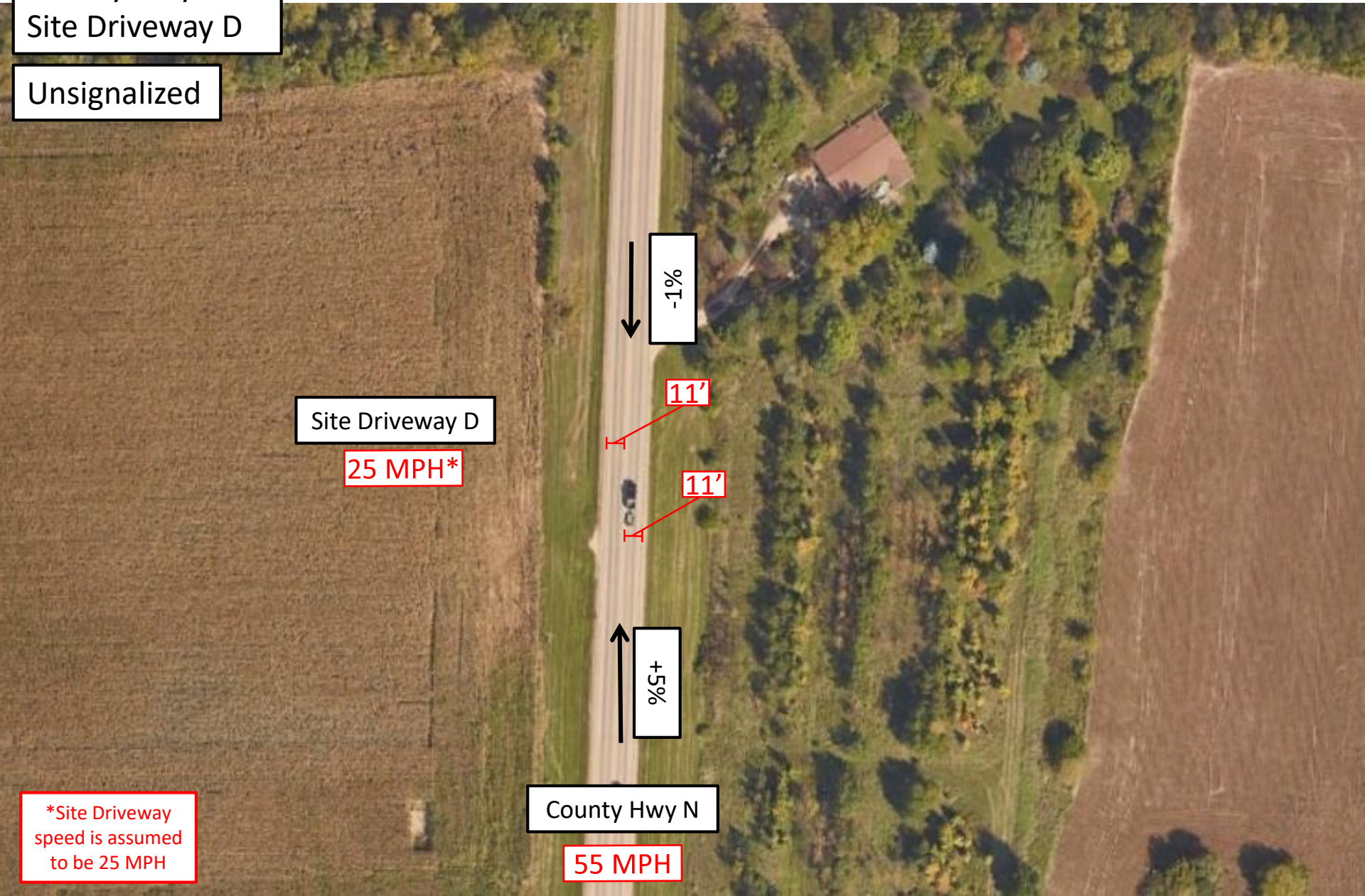
11'

+5%

County Hwy N

55 MPH

*Site Driveway
speed is assumed
to be 25 MPH



APPENDIX D

Intersection Photo Log









County Hwy N - Northbound Approach



County Hwy N - Southbound Approach



I 94 WB Off Ramp - Eastbound Approach



I 94 WB On Ramp - Westbound View



County Hwy N - Southbound Approach



County Hwy N - Northbound Approach



County Hwy TT - Eastbound Approach



County Hwy TT - Westbound Approach



County Hwy N - Northbound Approach



County Hwy N - Southbound Approach



County Hwy T - Eastbound Approach



County Hwy T - Westbound Approach



County Hwy N - Northbound Approach



County Hwy N - Southbound Approach







County Hwy TT - Eastbound Approach



County Hwy TT - Westbound Approach



Site Driveway B - Southbound View



Site Driveway B - Northbound Approach

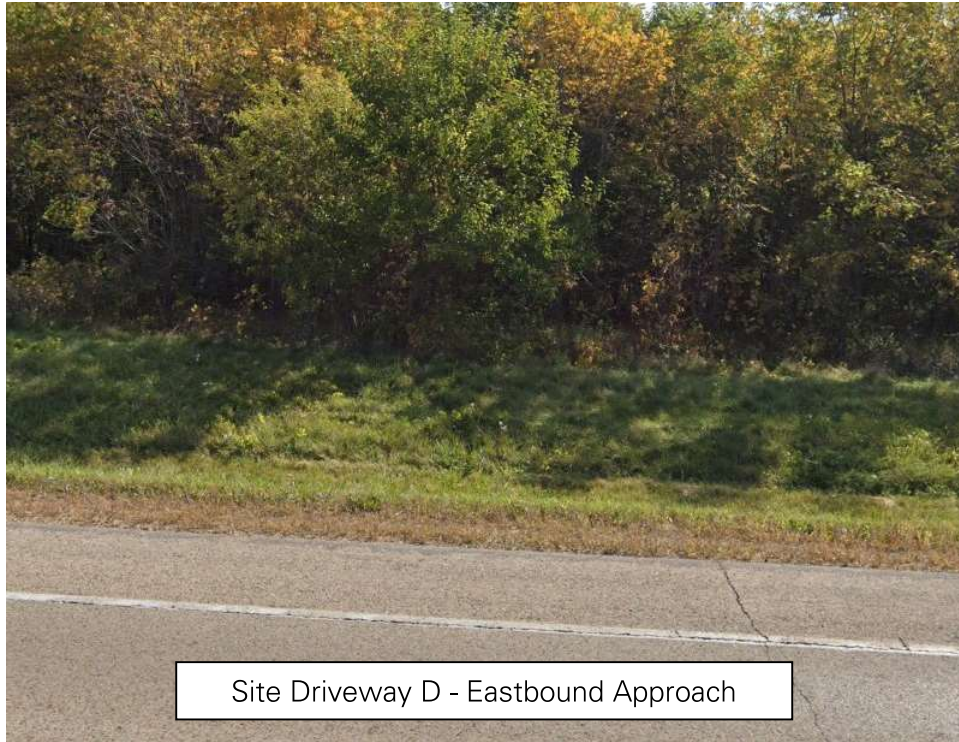




County Hwy N - Northbound Approach



County Hwy N - Southbound Approach



Site Driveway D - Eastbound Approach



Site Driveway D - Westbound View



County Hwy N - Northbound Approach



County Hwy N - Southbound Approach

APPENDIX E

Level of Service Definitions

Table A
Level of Service Criteria – Signalized Intersection

Level of Service	Description of Expected Traffic Delay	Signalized Stop Delay (sec/veh)
A	Little or None	≤ 10
B	Short	> 10 and ≤ 20
C	Average	> 20 and ≤ 35
D	Long	> 35 and ≤ 55
E	Very Long	> 55 and ≤ 80
F	Excessive	> 80

Source: Highway Capacity Manual (HCM), (6th Edition).

Table B
Level of Service Criteria – Unsignalized Intersection

Level of Service	Description of Expected Traffic Delay	Unsignalized Average Total Delay (sec/veh)
A	Little or None	≤ 10
B	Short	> 10 and ≤ 15
C	Average	> 15 and ≤ 25
D	Long	> 25 and ≤ 35
E	Very Long	> 35 and ≤ 50
F	Excessive	> 50

Source: Highway Capacity Manual (HCM), (6th Edition).

The LOS criteria for TWSC intersections are somewhat different from the criteria used for signalized intersections primarily because different transportation facilities create different driver perceptions. The expectation is that a signalized intersection is designed to carry higher traffic volumes and experience greater delay than an unsignalized intersection.

APPENDIX F

2021 Existing Conditions Capacity Analysis

Lanes, Volumes, Timings
 1: Main Street (CH N) & Gaston Road/Commerce Parkway

Project Silver Eagle
 2021 Existing - AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	112	38	25	35	35	135	29	481	86	249	258	46
Future Volume (vph)	112	38	25	35	35	135	29	481	86	249	258	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	12	11	11	12	11	11	12
Grade (%)		-1%			1%			-2%			0%	
Storage Length (ft)	0		65	150		0	100		100	275		0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	75			100			125			125		
Satd. Flow (prot)	1754	1696	0	1736	1827	1607	1762	3490	1631	1728	3342	0
Flt Permitted	0.511			0.714			0.558			0.317		
Satd. Flow (perm)	943	1696	0	1302	1827	1607	1034	3490	1631	576	3342	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26				206			206		26	
Link Speed (mph)		35			25			35			35	
Link Distance (ft)		2705			600			949			1065	
Travel Time (s)		52.7			16.4			18.5			20.7	
Confl. Peds. (#/hr)			2	2			1					1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	3%	0%	0%	0%	0%	0%	1%	0%	1%	2%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	118	66	0	37	37	142	31	506	91	262	320	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2		2	6		
Total Split (s)	14.0	27.0		12.0	25.0	25.0	12.0	31.0	31.0	20.0	39.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Act Effct Green (s)	18.6	17.4		14.1	11.5	11.5	23.4	16.5	16.5	34.1	32.5	
Actuated g/C Ratio	0.31	0.29		0.23	0.19	0.19	0.39	0.27	0.27	0.57	0.54	
v/c Ratio	0.29	0.13		0.10	0.11	0.30	0.06	0.53	0.15	0.48	0.18	
Control Delay	18.9	17.5		17.6	28.3	3.4	9.6	23.4	0.5	12.5	12.0	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	18.9	17.5		17.6	28.3	3.4	9.6	23.4	0.5	12.5	12.0	
LOS	B	B		B	C	A	A	C	A	B	B	
Approach Delay		18.4			10.1			19.4			12.2	
Approach LOS		B			B			B			B	
Queue Length 50th (ft)	32	10		10	13	0	6	96	0	60	33	
Queue Length 95th (ft)	80	50		32	42	19	17	149	0	102	74	
Internal Link Dist (ft)		2625			520			869			985	
Turn Bay Length (ft)				150			100		100	275		
Base Capacity (vph)	450	745		385	699	742	519	1735	914	656	2014	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.26	0.09		0.10	0.05	0.19	0.06	0.29	0.10	0.40	0.16	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 60.3

Lanes, Volumes, Timings
 1: Main Street (CH N) & Gaston Road/Commerce Parkway

Project Silver Eagle
 2021 Existing - AM Peak Hour

Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.53	
Intersection Signal Delay: 15.5	Intersection LOS: B
Intersection Capacity Utilization 52.5%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 1: Main Street (CH N) & Gaston Road/Commerce Parkway



HCS7 Roundabouts Report

General Information					Site Information				
Analyst	JMK				Intersection	I-94 EB Ramps & CTH N			
Agency or Co.	Langan				E/W Street Name	I-94 EB Ramps			
Date Performed	12/10/2021				N/S Street Name	County Trunk Hwy N			
Analysis Year	2021				Analysis Time Period (hrs)	0.25			
Time Analyzed	Existing - AM Peak				Peak Hour Factor	0.95			
Project Description	Project Silver Eagle				Jurisdiction	Cottage Grove, Wisconsin			

Volume Adjustments and Site Characteristics																
Approach	EB				WB				NB				SB			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	0	0	0	0	2	0	0	1	1	0
Lane Assignment	LT								T	TR		L		T		
Volume (V), veh/h	0	96	0	234					0		630	97	0	104	330	
Percent Heavy Vehicles, %	0	2	0	1					0		1	1	0	0	1	
Flow Rate (v _{pce}), pc/h	0	103	0	249					0		670	103	0	109	351	
Right-Turn Bypass	Non-Yielding				None				None				None			
Conflicting Lanes	2								1				1			
Pedestrians Crossing, p/h	0								0				0			

Critical and Follow-Up Headway Adjustment												
Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (s)		4.8000					4.7000	4.4000		4.7000	4.4000	
Follow-Up Headway (s)		2.6000					2.5000	2.5000		2.5000	2.5000	

Flow Computations, Capacity and v/c Ratios												
Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v _e), pc/h		103.00	249.00				363.31	409.69		109.00	351.00	
Entry Volume veh/h		100.98	246.53				359.71	405.63		108.18	348.35	
Circulating Flow (v _c), pc/h	460			773			212			0		
Exiting Flow (v _{ex}), pc/h	212			0			773			351		
Capacity (c _{pce}), pc/h		885.33					1175.24	1196.19		1440.00	1440.00	
Capacity (c), veh/h		867.97					1163.61	1184.35		1429.12	1429.12	
v/c Ratio (x)		0.12					0.31	0.34		0.08	0.24	

Delay and Level of Service												
Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		5.3					6.0	6.3		3.1	4.5	
Lane LOS		A	A				A	A		A	A	
95% Queue, veh		0.4					1.3	1.5		0.2	1.0	
Approach Delay, s/veh	1.5						6.2			4.2		
Approach LOS	A						A			A		
Intersection Delay, s/veh LOS	4.6						A					

HCS7 Roundabouts Report

General Information					Site Information				
Analyst	JMK				Intersection	I-94 WB Ramps & CTH N			
Agency or Co.	Langan				E/W Street Name	I-94 WB Ramps			
Date Performed	12/10/2021				N/S Street Name	County Trunk Hwy N			
Analysis Year	2021				Analysis Time Period (hrs)	0.25			
Time Analyzed	Existing - AM Peak				Peak Hour Factor	0.92			
Project Description	Project Silver Eagle				Jurisdiction	Cottage Grove, Wisconsin			

Volume Adjustments and Site Characteristics																
Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	0	0	0	0	1	1	0	0	2	0	0	0	2	0
Lane Assignment					LT		R		LT		T		T		T	
Volume (V), veh/h					0	109	3	137	0	322	369		0		334	358
Percent Heavy Vehicles, %					0	0	33	1	0	0	1		0		1	1
Flow Rate (v _{pce}), pc/h					0	118	4	150	0	350	405		0		367	393
Right-Turn Bypass	None				None				None				Non-Yielding			
Conflicting Lanes					2				1				1			
Pedestrians Crossing, p/h					0				0				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)				4.8000	4.8000		4.7000	4.4000		4.7000	4.4000		
Follow-Up Headway (s)				2.8000	2.8000		2.5000	2.5000		2.5000	2.5000		

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				122.00	150.00		354.85	400.15		172.49	194.51	393.00	
Entry Volume veh/h				120.89	148.63		352.97	398.02		170.78	192.58	389.11	
Circulating Flow (v _c), pc/h	485			755			0			472			
Exiting Flow (v _{ex}), pc/h	0			354			555			485			
Capacity (c _{pce}), pc/h				630.19	630.19		1440.00	1440.00		916.04	952.79		
Capacity (c), veh/h				624.45	624.45		1432.35	1432.35		906.97	943.36		
v/c Ratio (x)				0.19	0.24		0.25	0.28		0.19	0.20		

Delay and Level of Service													
Approach	EB			WB			NB			SB			
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	
Lane Control Delay (d), s/veh				8.1	8.7		4.6	4.9		5.8	5.8		
Lane LOS				A	A		A	A		A	A	A	
95% Queue, veh				0.7	0.9		1.0	1.1		0.7	0.8		
Approach Delay, s/veh				8.5			4.7			2.8			
Approach LOS				A			A			A			
Intersection Delay, s/veh LOS	4.5						A						

HCS7 Roundabouts Report

General Information					Site Information				
Analyst	JMK				Intersection	CTH TT and CTH N			
Agency or Co.	Langan				E/W Street Name	County Trunk Hwy TT			
Date Performed	12/10/2021				N/S Street Name	County Truck Hwy N			
Analysis Year	2021				Analysis Time Period (hrs)	0.25			
Time Analyzed	Existing - AM Peak				Peak Hour Factor	0.93			
Project Description	Project Silver Eagle				Jurisdiction	Cottage Grove, Wisconsin			

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	1	1	0	0	0	1	0	0	0	2	0
Lane Assignment				LTR	L		LTR					LT		LT		TR
Volume (V), veh/h	0	12	46	115	0	229	57	18	0	109	281	91	0	5	350	8
Percent Heavy Vehicles, %	0	0	0	1	0	0	0	0	0	2	1	0	0	0	1	0
Flow Rate (v _{pce}), pc/h	0	13	49	125	0	246	61	19	0	120	305	98	0	5	380	9
Right-Turn Bypass	None				None				Yielding				None			
Conflicting Lanes	2				1				1				2			
Pedestrians Crossing, p/h	0				0				0				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)		4.8000		4.7000	4.4000			4.0000	4.0000	4.6000	4.3000		
Follow-Up Headway (s)		2.6000		2.5000	2.5000			2.3000	2.3000	2.6000	2.6000		

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		187.00		172.78	153.22			425.00	98.00	185.18	208.82		
Entry Volume veh/h		185.76		172.78	153.22			419.63	98.00	183.41	206.83		
Circulating Flow (v _c), pc/h	631			438			67			427			
Exiting Flow (v _{ex}), pc/h	54			190			337			751			
Capacity (c _{pce}), pc/h		749.72		946.38	981.57			1484.36	1499.71	936.14	970.05		
Capacity (c), veh/h		744.76		946.38	981.57			1465.59	1499.71	927.20	960.78		
v/c Ratio (x)		0.25		0.18	0.16			0.29	0.07	0.20	0.22		

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		7.7		5.6	5.1			4.9	2.9	5.8	5.8		
Lane LOS		A		A	A			A	A	A	A		
95% Queue, veh		1.0		0.7	0.6			1.2	0.2	0.7	0.8		
Approach Delay, s/veh	7.7			5.4			4.5			5.8			
Approach LOS	A			A			A			A			
Intersection Delay, s/veh LOS	5.5						A						

Intersection												
Int Delay, s/veh	2.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↗	↖		↗	↖
Traffic Vol, veh/h	36	11	8	2	42	14	9	279	0	3	293	43
Future Vol, veh/h	36	11	8	2	42	14	9	279	0	3	293	43
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	450	-	-	380
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	2	-	-	2	-	-	3	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	3	0	0	100	0	0	0	0	0	0	0	0
Mvmt Flow	40	12	9	2	47	16	10	310	0	3	326	48

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	694	662	326	697	710	310	374	0	0	310	0	0
Stage 1	332	332	-	330	330	-	-	-	-	-	-	-
Stage 2	362	330	-	367	380	-	-	-	-	-	-	-
Critical Hdwy	7.53	6.9	6.4	8.5	6.9	6.4	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.53	5.9	-	7.5	5.9	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.53	5.9	-	7.5	5.9	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4	3.3	4.4	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	329	357	707	234	334	722	1196	-	-	1262	-	-
Stage 1	655	625	-	500	626	-	-	-	-	-	-	-
Stage 2	629	626	-	473	592	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	284	352	707	223	330	722	1196	-	-	1262	-	-
Mov Cap-2 Maneuver	284	352	-	223	330	-	-	-	-	-	-	-
Stage 1	648	623	-	495	620	-	-	-	-	-	-	-
Stage 2	563	620	-	457	590	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	18.6		16.7		0.3		0.1	
HCM LOS	C		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1196	-	-	325	373	1262	-	-
HCM Lane V/C Ratio	0.008	-	-	0.188	0.173	0.003	-	-
HCM Control Delay (s)	8	0	-	18.6	16.7	7.9	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.7	0.6	0	-	-

Lanes, Volumes, Timings
1: Main Street (CH N) & Gaston Road/Commerce Parkway

Project Silver Eagle
2021 Existing - PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	62	38	24	115	48	241	26	338	89	166	448	72
Future Volume (vph)	62	38	24	115	48	241	26	338	89	166	448	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	12	11	11	12	11	11	12
Grade (%)		-1%			1%			-2%			0%	
Storage Length (ft)	0		65	150		0	100		100	275		0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	75			100			125			125		
Satd. Flow (prot)	1754	1724	0	1736	1827	1607	1762	3490	1631	1711	3359	0
Flt Permitted	0.719			0.582			0.414			0.372		
Satd. Flow (perm)	1327	1724	0	1056	1827	1607	768	3490	1631	670	3359	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		29				290			206		23	
Link Speed (mph)		35			25			35			35	
Link Distance (ft)		2705			600			949			1065	
Travel Time (s)		52.7			16.4			18.5			20.7	
Confl. Peds. (#/hr)			8	8								
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	2%	2%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	75	75	0	139	58	290	31	407	107	200	627	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2		2	6		
Total Split (s)	14.0	27.0		12.0	25.0	25.0	12.0	31.0	31.0	20.0	39.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Act Effct Green (s)	15.2	11.8		14.8	11.2	11.2	20.1	13.7	13.7	28.9	25.2	
Actuated g/C Ratio	0.26	0.20		0.26	0.19	0.19	0.35	0.24	0.24	0.50	0.44	
v/c Ratio	0.18	0.20		0.38	0.16	0.53	0.08	0.49	0.20	0.39	0.42	
Control Delay	16.1	17.5		19.0	25.2	8.0	10.6	22.8	0.8	11.9	14.8	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	16.1	17.5		19.0	25.2	8.0	10.6	22.8	0.8	11.9	14.8	
LOS	B	B		B	C	A	B	C	A	B	B	
Approach Delay		16.8			13.2			17.8			14.1	
Approach LOS		B			B			B			B	
Queue Length 50th (ft)	17	14		33	18	0	6	68	0	41	70	
Queue Length 95th (ft)	46	46		77	51	47	18	116	0	81	152	
Internal Link Dist (ft)		2625			520			869			985	
Turn Bay Length (ft)				150			100		100	275		
Base Capacity (vph)	444	712		368	669	773	409	1663	885	623	2102	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.17	0.11		0.38	0.09	0.38	0.08	0.24	0.12	0.32	0.30	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 57.6

Lanes, Volumes, Timings
 1: Main Street (CH N) & Gaston Road/Commerce Parkway

Project Silver Eagle
 2021 Existing - PM Peak Hour

Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.53	
Intersection Signal Delay: 15.1	Intersection LOS: B
Intersection Capacity Utilization 44.4%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 1: Main Street (CH N) & Gaston Road/Commerce Parkway



HCS7 Roundabouts Report

General Information					Site Information				
Analyst	JMK				Intersection	I-94 EB Ramps & CTH N			
Agency or Co.	Langan				E/W Street Name	I-94 EB Ramps			
Date Performed	12/10/2021				N/S Street Name	County Trunk Hwy N			
Analysis Year	2021				Analysis Time Period (hrs)	0.25			
Time Analyzed	Existing - PM Peak				Peak Hour Factor	0.86			
Project Description	Project Silver Eagle				Jurisdiction	Cottage Grove, Wisconsin			

Volume Adjustments and Site Characteristics																
Approach	EB				WB				NB				SB			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	0	0	0	0	2	0	0	1	1	0
Lane Assignment	LT								T		TR		L		T	
Volume (V), veh/h	0	235	0	383					0		563	106	0	119	291	
Percent Heavy Vehicles, %	0	0	0	1					0		1	2	0	0	0	
Flow Rate (v _{pce}), pc/h	0	273	0	450					0		661	126	0	138	338	
Right-Turn Bypass	Non-Yielding				None				None				None			
Conflicting Lanes	2								1				1			
Pedestrians Crossing, p/h	0								0				0			

Critical and Follow-Up Headway Adjustment												
Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (s)		4.8000					4.7000	4.4000		4.7000	4.4000	
Follow-Up Headway (s)		2.6000					2.5000	2.5000		2.5000	2.5000	

Flow Computations, Capacity and v/c Ratios												
Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v _e), pc/h		273.00	450.00				369.89	417.11		138.00	338.00	
Entry Volume veh/h		273.00	445.54				365.65	412.33		138.00	338.00	
Circulating Flow (v _c), pc/h	476			934			411			0		
Exiting Flow (v _{ex}), pc/h	264			0			934			338		
Capacity (c _{pce}), pc/h		871.66					971.19	1005.03		1440.00	1440.00	
Capacity (c), veh/h		871.66					960.07	993.52		1440.00	1440.00	
v/c Ratio (x)		0.31					0.38	0.42		0.10	0.23	

Delay and Level of Service												
Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		7.6					7.9	8.2		3.2	4.4	
Lane LOS		A	A				A	A		A	A	
95% Queue, veh		1.3					1.8	2.1		0.3	0.9	
Approach Delay, s/veh	2.9						8.1			4.1		
Approach LOS	A						A			A		
Intersection Delay, s/veh LOS	5.2						A					

HCS7 Roundabouts Report

General Information					Site Information				
Analyst	JMK				Intersection	I-94 WB Ramps & CTH N			
Agency or Co.	Langan				E/W Street Name	I-94 WB Ramps			
Date Performed	12/10/2021				N/S Street Name	County Trunk Hwy N			
Analysis Year	2021				Analysis Time Period (hrs)	0.25			
Time Analyzed	Existing - PM Peak				Peak Hour Factor	0.86			
Project Description	Project Silver Eagle				Jurisdiction	Cottage Grove, Wisconsin			

Volume Adjustments and Site Characteristics																
Approach	EB				WB				NB				SB			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	0	0	0	0	1	1	0	0	2	0	0	0	2	0
Lane Assignment					LT		R		LT		T		T		T	
Volume (V), veh/h					0	62	2	117	0	251	516		0		340	131
Percent Heavy Vehicles, %					0	0	0	1	0	1	0		0		0	0
Flow Rate (v _{pce}), pc/h					0	72	2	137	0	295	600		0		395	152
Right-Turn Bypass	None				None				None				Non-Yielding			
Conflicting Lanes					2				1				1			
Pedestrians Crossing, p/h					0				0				0			

Critical and Follow-Up Headway Adjustment													
Approach	EB			WB			NB			SB			
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	
Critical Headway (s)				4.8000	4.8000		4.7000	4.4000		4.7000	4.4000		
Follow-Up Headway (s)				2.8000	2.8000		2.5000	2.5000		2.5000	2.5000		

Flow Computations, Capacity and v/c Ratios													
Approach	EB			WB			NB			SB			
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	
Entry Flow (v _e), pc/h				74.00	137.00		420.65	474.35		185.65	209.35	152.00	
Entry Volume veh/h				73.52	136.12		419.28	472.80		185.65	209.35	152.00	
Circulating Flow (v _c), pc/h	467			895			0			369			
Exiting Flow (v _{ex}), pc/h	0			297			737			467			
Capacity (c _{pce}), pc/h				552.13	552.13		1440.00	1440.00		1011.08	1042.65		
Capacity (c), veh/h				548.59	548.59		1435.30	1435.30		1011.08	1042.65		
v/c Ratio (x)				0.13	0.25		0.29	0.33		0.18	0.20		

Delay and Level of Service													
Approach	EB			WB			NB			SB			
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	
Lane Control Delay (d), s/veh				8.2	10.0		5.0	5.4		5.3	5.3		
Lane LOS				A	A		A	A		A	A	A	
95% Queue, veh				0.5	1.0		1.2	1.5		0.7	0.7		
Approach Delay, s/veh				9.4			5.2			3.8			
Approach LOS				A			A			A			
Intersection Delay, s/veh LOS	5.3						A						

HCS7 Roundabouts Report

General Information					Site Information				
Analyst	JMK				Intersection	CTH TT and CTH N			
Agency or Co.	Langan				E/W Street Name	County Trunk Hwy TT			
Date Performed	12/10/2021				N/S Street Name	County Truck Hwy N			
Analysis Year	2021				Analysis Time Period (hrs)	0.25			
Time Analyzed	Existing - PM Peak				Peak Hour Factor	0.95			
Project Description	Project Silver Eagle				Jurisdiction	Cottage Grove, Wisconsin			

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	1	1	0	0	0	1	0	0	0	2	0
Lane Assignment			LTR		L		LTR				LT		LT		TR	
Volume (V), veh/h	0	11	80	112	0	114	49	7	0	146	264	205	0	9	304	21
Percent Heavy Vehicles, %	0	0	0	1	0	1	0	0	0	3	0	0	0	0	1	0
Flow Rate (v _{pce}), pc/h	0	12	84	119	0	121	52	7	0	158	278	216	0	9	323	22
Right-Turn Bypass	None				None				Yielding				None			
Conflicting Lanes	2				1				1				2			
Pedestrians Crossing, p/h	0				0				0				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)		4.8000		4.7000	4.4000			4.0000	4.0000	4.6000	4.3000		
Follow-Up Headway (s)		2.6000		2.5000	2.5000			2.3000	2.3000	2.6000	2.6000		

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		215.00		95.40	84.60			436.00	216.00	166.38	187.62		
Entry Volume veh/h		213.82		94.77	84.04			431.40	216.00	164.88	185.93		
Circulating Flow (v _c), pc/h	453			448			105			331			
Exiting Flow (v _{ex}), pc/h	93			232			297			563			
Capacity (c _{pce}), pc/h		891.37		937.36	973.01			1440.37	1454.12	1022.25	1050.84		
Capacity (c), veh/h		886.49		931.12	966.54			1425.17	1454.12	1013.01	1041.35		
v/c Ratio (x)		0.24		0.10	0.09			0.30	0.15	0.16	0.18		

Delay and Level of Service													
Approach	EB			WB			NB			SB			
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	
Lane Control Delay (d), s/veh		6.6		4.8	4.5			5.1	3.6	5.1	5.1		
Lane LOS		A		A	A			A	A	A	A		
95% Queue, veh		0.9		0.3	0.3			1.3	0.5	0.6	0.6		
Approach Delay, s/veh	6.6			4.7			4.6			5.1			
Approach LOS	A			A			A			A			
Intersection Delay, s/veh LOS	5.0						A						

Intersection												
Int Delay, s/veh	4.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↗	↖		↗	↖
Traffic Vol, veh/h	38	56	9	5	13	10	11	299	2	10	236	18
Future Vol, veh/h	38	56	9	5	13	10	11	299	2	10	236	18
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	450	-	-	380
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	2	-	-	2	-	-	3	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	0	0	0	20	0	0	0	0	50	0	0	0
Mvmt Flow	46	67	11	6	16	12	13	360	2	12	284	22

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	709	696	284	744	716	360	306	0	0	362	0	0
Stage 1	308	308	-	386	386	-	-	-	-	-	-	-
Stage 2	401	388	-	358	330	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.9	6.4	7.7	6.9	6.4	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.9	-	6.7	5.9	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.9	-	6.7	5.9	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.68	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	325	340	748	284	331	675	1266	-	-	1208	-	-
Stage 1	683	642	-	577	588	-	-	-	-	-	-	-
Stage 2	602	587	-	600	626	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	302	332	748	232	323	675	1266	-	-	1208	-	-
Mov Cap-2 Maneuver	302	332	-	232	323	-	-	-	-	-	-	-
Stage 1	674	634	-	569	580	-	-	-	-	-	-	-
Stage 2	568	579	-	522	618	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	21.9		15.9		0.3		0.3	
HCM LOS	C		C					
























Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1266	-	-	336	365	1208	-	-
HCM Lane V/C Ratio	0.01	-	-	0.369	0.092	0.01	-	-
HCM Control Delay (s)	7.9	0	-	21.9	15.9	8	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	1.7	0.3	0	-	-

APPENDIX G

2023 No Build Capacity Analysis

Lanes, Volumes, Timings
 1: Main Street (CH N) & Gaston Road/Commerce Parkway

Project Silver Eagle
 2023 No Build - AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	156	51	26	56	41	183	30	556	138	351	297	51
Future Volume (vph)	156	51	26	56	41	183	30	556	138	351	297	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	12	11	11	12	11	11	12
Grade (%)		-1%			1%			-2%			0%	
Storage Length (ft)	0		65	150		0	100		100	275		0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	75			100			125			125		
Satd. Flow (prot)	1754	1711	0	1736	1827	1607	1762	3490	1631	1728	3345	0
Flt Permitted	0.527			0.704			0.533			0.248		
Satd. Flow (perm)	973	1711	0	1284	1827	1607	988	3490	1631	451	3345	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26				206			206		25	
Link Speed (mph)		35			25			35			35	
Link Distance (ft)		2705			600			949			1065	
Travel Time (s)		52.7			16.4			18.5			20.7	
Confl. Peds. (#/hr)			2	2			1					1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	3%	0%	0%	0%	0%	0%	1%	0%	1%	2%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	164	81	0	59	43	193	32	585	145	369	367	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2		2	6		
Total Split (s)	14.0	27.0		12.0	25.0	25.0	12.0	31.0	31.0	20.0	39.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Act Effct Green (s)	22.4	17.3		16.8	10.3	10.3	24.8	18.6	18.6	37.8	33.5	
Actuated g/C Ratio	0.31	0.24		0.23	0.14	0.14	0.34	0.26	0.26	0.52	0.47	
v/c Ratio	0.41	0.19		0.17	0.17	0.48	0.08	0.65	0.25	0.76	0.23	
Control Delay	23.0	21.8		20.3	31.3	8.8	9.6	27.3	2.2	22.4	12.2	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	23.0	21.8		20.3	31.3	8.8	9.6	27.3	2.2	22.4	12.2	
LOS	C	C		C	C	A	A	C	A	C	B	
Approach Delay		22.6			14.4			21.8			17.3	
Approach LOS		C			B			C			B	
Queue Length 50th (ft)	54	22		18	17	0	6	123	0	91	38	
Queue Length 95th (ft)	113	64		48	49	50	18	175	15	#199	86	
Internal Link Dist (ft)		2625			520			869			985	
Turn Bay Length (ft)				150			100		100	275		
Base Capacity (vph)	401	558		353	512	598	428	1272	725	505	1663	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.41	0.15		0.17	0.08	0.32	0.07	0.46	0.20	0.73	0.22	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 72

HCS7 Roundabouts Report

General Information					Site Information				
Analyst	JMK				Intersection	I-94 EB Ramps & CTH N			
Agency or Co.	Langan				E/W Street Name	I-94 EB Ramps			
Date Performed	12/10/2021				N/S Street Name	County Trunk Hwy N			
Analysis Year	2023				Analysis Time Period (hrs)	0.25			
Time Analyzed	No Build - AM Peak				Peak Hour Factor	0.95			
Project Description	Project Silver Eagle				Jurisdiction	Cottage Grove, Wisconsin			

Volume Adjustments and Site Characteristics																
Approach	EB				WB				NB				SB			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	0	0	0	0	2	0	0	1	1	0
Lane Assignment	LT								T	TR		L		T		
Volume (V), veh/h	0	99	0	303					0		725	166	0	108	410	
Percent Heavy Vehicles, %	0	2	0	1					0		1	1	0	0	1	
Flow Rate (v _{pce}), pc/h	0	106	0	322					0		771	176	0	114	436	
Right-Turn Bypass	Non-Yielding				None				None				None			
Conflicting Lanes	2								1				1			
Pedestrians Crossing, p/h	0								0				0			

Critical and Follow-Up Headway Adjustment												
Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (s)		4.8000					4.7000	4.4000		4.7000	4.4000	
Follow-Up Headway (s)		2.6000					2.5000	2.5000		2.5000	2.5000	

Flow Computations, Capacity and v/c Ratios												
Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v _e), pc/h		106.00	322.00				445.09	501.91		114.00	436.00	
Entry Volume veh/h		103.92	318.81				440.68	496.94		113.11	432.58	
Circulating Flow (v _c), pc/h	550			877			220			0		
Exiting Flow (v _{ex}), pc/h	290			0			877			436		
Capacity (c _{pce}), pc/h		811.15					1166.27	1187.85		1440.00	1440.00	
Capacity (c), veh/h		795.25					1154.72	1176.09		1428.70	1428.70	
v/c Ratio (x)		0.13					0.38	0.42		0.08	0.30	

Delay and Level of Service												
Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		5.9					6.9	7.4		3.1	5.1	
Lane LOS		A	A				A	A		A	A	
95% Queue, veh		0.4					1.8	2.1		0.3	1.3	
Approach Delay, s/veh	1.4						7.2			4.7		
Approach LOS	A						A			A		
Intersection Delay, s/veh LOS	5.2						A					

HCS7 Roundabouts Report

General Information					Site Information				
Analyst	JMK				Intersection	I-94 WB Ramps & CTH N			
Agency or Co.	Langan				E/W Street Name	I-94 WB Ramps			
Date Performed	12/10/2021				N/S Street Name	County Trunk Hwy N			
Analysis Year	2023				Analysis Time Period (hrs)	0.25			
Time Analyzed	No Build - AM Peak				Peak Hour Factor	0.92			
Project Description	Project Silver Eagle				Jurisdiction	Cottage Grove, Wisconsin			

Volume Adjustments and Site Characteristics																
Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	0	0	0	0	1	1	0	0	2	0	0	0	2	0
Lane Assignment					LT		R		LT		T		T		T	
Volume (V), veh/h					0	174	3	142	0	401	387		0		353	371
Percent Heavy Vehicles, %					0	0	33	1	0	0	1		0		1	1
Flow Rate (V _{PCE}), pc/h					0	189	4	156	0	436	425		0		388	407
Right-Turn Bypass	None				None				None				Non-Yielding			
Conflicting Lanes					2				1				1			
Pedestrians Crossing, p/h					0				0				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)				4.8000	4.8000		4.7000	4.4000		4.7000	4.4000		
Follow-Up Headway (s)				2.8000	2.8000		2.5000	2.5000		2.5000	2.5000		

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				193.00	156.00		404.67	456.33		182.36	205.64	407.00	
Entry Volume veh/h				191.60	154.87		402.69	454.10		180.55	203.60	402.97	
Circulating Flow (v _c), pc/h	577			861			0			629			
Exiting Flow (v _{ex}), pc/h	0			440			581			577			
Capacity (C _{PCE}), pc/h				570.15	570.15		1440.00	1440.00		788.09	830.50		
Capacity (C), veh/h				566.01	566.01		1432.96	1432.96		780.28	822.27		
v/c Ratio (x)				0.34	0.27		0.28	0.32		0.23	0.25		

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				11.3	10.1		4.9	5.3		7.2	7.1		
Lane LOS				B	B		A	A		A	A	A	
95% Queue, veh				1.5	1.1		1.2	1.4		0.9	1.0		
Approach Delay, s/veh				10.8			5.1			3.5			
Approach LOS				B			A			A			
Intersection Delay, s/veh LOS	5.4						A						

HCS7 Roundabouts Report

General Information					Site Information				
Analyst	JMK				Intersection	CTH TT and CTH N			
Agency or Co.	Langan				E/W Street Name	County Trunk Hwy TT			
Date Performed	12/10/2021				N/S Street Name	County Truck Hwy N			
Analysis Year	2023				Analysis Time Period (hrs)	0.25			
Time Analyzed	No Build - AM Peak				Peak Hour Factor	0.93			
Project Description	Project Silver Eagle				Jurisdiction	Cottage Grove, Wisconsin			

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	1	1	0	0	0	1	0	0	0	2	0
Lane Assignment	LTR				L				LTR				LT			
Volume (V), veh/h	0	12	48	119	0	237	59	19	0	113	296	94	0	5	369	8
Percent Heavy Vehicles, %	0	0	0	1	0	0	0	0	0	2	1	0	0	0	1	0
Flow Rate (v _{pce}), pc/h	0	13	52	129	0	255	63	20	0	124	321	101	0	5	401	9
Right-Turn Bypass	None				None				Yielding				None			
Conflicting Lanes	2				1				1				2			
Pedestrians Crossing, p/h	0				0				0				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)		4.8000		4.7000	4.4000			4.0000	4.0000	4.6000	4.3000		
Follow-Up Headway (s)		2.6000		2.5000	2.5000			2.3000	2.3000	2.6000	2.6000		

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		194.00		179.14	158.86			445.00	101.00	195.05	219.95		
Entry Volume veh/h		192.72		179.14	158.86			439.39	101.00	193.18	217.85		
Circulating Flow (v _c), pc/h	661			458			70			442			
Exiting Flow (v _{ex}), pc/h	57			196			354			785			
Capacity (c _{pce}), pc/h		728.17		928.42	964.54			1480.84	1496.16	923.35	958.00		
Capacity (c), veh/h		723.38		928.42	964.54			1462.17	1496.16	914.52	948.83		
v/c Ratio (x)		0.27		0.19	0.16			0.30	0.07	0.21	0.23		

Delay and Level of Service													
Approach	EB			WB			NB			SB			
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	
Lane Control Delay (d), s/veh		8.1		5.8	5.3			5.0	2.9	6.0	6.1		
Lane LOS		A		A	A			A	A	A	A		
95% Queue, veh		1.1		0.7	0.6			1.3	0.2	0.8	0.9		
Approach Delay, s/veh	8.1			5.5			4.6			6.1			
Approach LOS	A			A			A			A			
Intersection Delay, s/veh LOS	5.7						A						

Intersection												
Int Delay, s/veh	2.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔	↔		↔	↔
Traffic Vol, veh/h	37	11	8	2	43	14	9	294	0	3	310	45
Future Vol, veh/h	37	11	8	2	43	14	9	294	0	3	310	45
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	450	-	-	380
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	2	-	-	2	-	-	3	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	3	0	0	100	0	0	0	0	0	0	0	0
Mvmt Flow	41	12	9	2	48	16	10	327	0	3	344	50

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	729	697	344	733	747	327	394	0	0	327	0	0
Stage 1	350	350	-	347	347	-	-	-	-	-	-	-
Stage 2	379	347	-	386	400	-	-	-	-	-	-	-
Critical Hdwy	7.53	6.9	6.4	8.5	6.9	6.4	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.53	5.9	-	7.5	5.9	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.53	5.9	-	7.5	5.9	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4	3.3	4.4	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	311	340	690	219	316	706	1176	-	-	1244	-	-
Stage 1	639	612	-	487	614	-	-	-	-	-	-	-
Stage 2	614	614	-	459	579	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	266	336	690	208	312	706	1176	-	-	1244	-	-
Mov Cap-2 Maneuver	266	336	-	208	312	-	-	-	-	-	-	-
Stage 1	633	610	-	482	608	-	-	-	-	-	-	-
Stage 2	548	608	-	443	577	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	19.8		17.5		0.2		0.1	
HCM LOS	C		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1176	-	-	305	353	1244	-	-
HCM Lane V/C Ratio	0.009	-	-	0.204	0.186	0.003	-	-
HCM Control Delay (s)	8.1	0	-	19.8	17.5	7.9	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.8	0.7	0	-	-

Lanes, Volumes, Timings
 1: Main Street (CH N) & Gaston Road/Commerce Parkway

Project Silver Eagle
 2023 No Build - PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	92	51	25	172	60	363	27	382	132	251	544	83
Future Volume (vph)	92	51	25	172	60	363	27	382	132	251	544	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	12	11	11	12	11	11	12
Grade (%)		-1%			1%			-2%			0%	
Storage Length (ft)	0		65	150		0	100		100	275		0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	75			100			125			125		
Satd. Flow (prot)	1754	1743	0	1736	1827	1607	1762	3490	1631	1711	3362	0
Flt Permitted	0.710			0.580			0.365			0.329		
Satd. Flow (perm)	1311	1743	0	1052	1827	1607	677	3490	1631	592	3362	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26				437			206		22	
Link Speed (mph)		35			25			35			35	
Link Distance (ft)		2705			600			949			1065	
Travel Time (s)		52.7			16.4			18.5			20.7	
Confl. Peds. (#/hr)			8	8								
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	2%	2%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	111	91	0	207	72	437	33	460	159	302	755	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2		2	6		
Total Split (s)	14.0	27.0		12.0	25.0	25.0	12.0	31.0	31.0	20.0	39.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Act Effct Green (s)	18.6	13.5		17.6	12.4	12.4	22.2	15.7	15.7	33.2	29.3	
Actuated g/C Ratio	0.28	0.20		0.27	0.19	0.19	0.33	0.24	0.24	0.50	0.44	
v/c Ratio	0.26	0.24		0.57	0.21	0.67	0.10	0.56	0.29	0.60	0.50	
Control Delay	18.3	21.1		25.6	28.3	8.9	11.7	26.4	3.2	16.7	16.8	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	18.3	21.1		25.6	28.3	8.9	11.7	26.4	3.2	16.7	16.8	
LOS	B	C		C	C	A	B	C	A	B	B	
Approach Delay		19.6			15.7			20.0			16.8	
Approach LOS		B			B			C			B	
Queue Length 50th (ft)	30	23		60	26	0	7	87	0	71	95	
Queue Length 95th (ft)	69	61		122	63	50	21	144	15	139	207	
Internal Link Dist (ft)		2625			520			869			985	
Turn Bay Length (ft)				150			100		100	275		
Base Capacity (vph)	457	630		366	585	811	357	1453	799	565	1841	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.24	0.14		0.57	0.12	0.54	0.09	0.32	0.20	0.53	0.41	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 66.3

Lanes, Volumes, Timings
 1: Main Street (CH N) & Gaston Road/Commerce Parkway

Project Silver Eagle
 2023 No Build - PM Peak Hour

Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.67	
Intersection Signal Delay: 17.5	Intersection LOS: B
Intersection Capacity Utilization 53.2%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 1: Main Street (CH N) & Gaston Road/Commerce Parkway



HCS7 Roundabouts Report

General Information					Site Information				
Analyst	JMK				Intersection	I-94 EB Ramps & CTH N			
Agency or Co.	Langan				E/W Street Name	I-94 EB Ramps			
Date Performed	12/10/2021				N/S Street Name	County Trunk Hwy N			
Analysis Year	2023				Analysis Time Period (hrs)	0.25			
Time Analyzed	No Build - PM Peak				Peak Hour Factor	0.86			
Project Description	Project Silver Eagle				Jurisdiction	Cottage Grove, Wisconsin			

Volume Adjustments and Site Characteristics																
Approach	EB				WB				NB				SB			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	0	0	0	0	2	0	0	1	1	0
Lane Assignment	LT								T	TR		L		T		
Volume (V), veh/h	0	243	0	476					0		674	192	0	123	387	
Percent Heavy Vehicles, %	0	0	0	1					0		1	2	0	0	0	
Flow Rate (v _{PCE}), pc/h	0	283	0	559					0		792	228	0	143	450	
Right-Turn Bypass	Non-Yielding				None				None				None			
Conflicting Lanes	2								1				1			
Pedestrians Crossing, p/h	0								0				0			

Critical and Follow-Up Headway Adjustment													
Approach	EB			WB			NB			SB			
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	
Critical Headway (s)		4.8000					4.7000	4.4000		4.7000	4.4000		
Follow-Up Headway (s)		2.6000					2.5000	2.5000		2.5000	2.5000		

Flow Computations, Capacity and v/c Ratios													
Approach	EB			WB			NB			SB			
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	
Entry Flow (v _e), pc/h		283.00	559.00				479.40	540.60		143.00	450.00		
Entry Volume veh/h		283.00	553.47				473.61	534.07		143.00	450.00		
Circulating Flow (v _c), pc/h	593			1075			426			0			
Exiting Flow (v _{ex}), pc/h	371			0			1075			450			
Capacity (c _{PCE}), pc/h		777.94					957.33	991.93		1440.00	1440.00		
Capacity (c), veh/h		777.94					945.77	979.95		1440.00	1440.00		
v/c Ratio (x)		0.36					0.50	0.55		0.10	0.31		

Delay and Level of Service													
Approach	EB			WB			NB			SB			
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	
Lane Control Delay (d), s/veh		9.1					10.1	10.7		3.3	5.2		
Lane LOS		A	A				B	B		A	A		
95% Queue, veh		1.7					2.9	3.4		0.3	1.3		
Approach Delay, s/veh	3.1						10.4			4.7			
Approach LOS	A						B			A			
Intersection Delay, s/veh LOS	6.5						A						

HCS7 Roundabouts Report

General Information					Site Information				
Analyst	JMK				Intersection	I-94 WB Ramps & CTH N			
Agency or Co.	Langan				E/W Street Name	I-94 WB Ramps			
Date Performed	12/10/2021				N/S Street Name	County Trunk Hwy N			
Analysis Year	2023				Analysis Time Period (hrs)	0.25			
Time Analyzed	No Build - PM Peak				Peak Hour Factor	0.86			
Project Description	Project Silver Eagle				Jurisdiction	Cottage Grove, Wisconsin			

Volume Adjustments and Site Characteristics																
Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	0	0	0	0	1	1	0	0	2	0	0	0	2	0
Lane Assignment					LT		R		LT		T		T		T	
Volume (V), veh/h					0	145	2	121	0	343	542		0		357	136
Percent Heavy Vehicles, %					0	0	0	1	0	1	0		0		0	0
Flow Rate (v _{pce}), pc/h					0	169	2	142	0	403	630		0		415	158
Right-Turn Bypass	None				None				None				Non-Yielding			
Conflicting Lanes					2				1				1			
Pedestrians Crossing, p/h					0				0				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)				4.8000	4.8000		4.7000	4.4000		4.7000	4.4000		
Follow-Up Headway (s)				2.8000	2.8000		2.5000	2.5000		2.5000	2.5000		

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				171.00	142.00		485.51	547.49		195.05	219.95	158.00	
Entry Volume veh/h				170.23	141.36		483.63	545.38		195.05	219.95	158.00	
Circulating Flow (v _c), pc/h	584			1033			0			574			
Exiting Flow (v _{ex}), pc/h	0			405			772			584			
Capacity (c _{pce}), pc/h				484.67	484.67		1440.00	1440.00		830.74	871.44		
Capacity (c), veh/h				482.49	482.49		1434.44	1434.44		830.74	871.44		
v/c Ratio (x)				0.35	0.29		0.34	0.38		0.23	0.25		

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				13.2	12.0		5.5	5.9		6.8	6.8		
Lane LOS				B	B		A	A		A	A	A	
95% Queue, veh				1.6	1.2		1.5	1.8		0.9	1.0		
Approach Delay, s/veh				12.7			5.7			4.9			
Approach LOS				B			A			A			
Intersection Delay, s/veh LOS	6.6						A						

HCS7 Roundabouts Report

General Information					Site Information				
Analyst	JMK				Intersection	CTH TT and CTH N			
Agency or Co.	Langan				E/W Street Name	County Trunk Hwy TT			
Date Performed	12/10/2021				N/S Street Name	County Truck Hwy N			
Analysis Year	2023				Analysis Time Period (hrs)	0.25			
Time Analyzed	No Build - PM Peak				Peak Hour Factor	0.95			
Project Description	Project Silver Eagle				Jurisdiction	Cottage Grove, Wisconsin			

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	1	1	0	0	0	1	0	0	0	2	0
Lane Assignment			LTR		L		LTR				LT		LT		TR	
Volume (V), veh/h	0	11	83	116	0	118	51	7	0	151	281	212	0	9	320	22
Percent Heavy Vehicles, %	0	0	0	1	0	1	0	0	0	3	0	0	0	0	1	0
Flow Rate (v _{pce}), pc/h	0	12	87	123	0	125	54	7	0	164	296	223	0	9	340	23
Right-Turn Bypass	None				None				Yielding				None			
Conflicting Lanes	2				1				1				2			
Pedestrians Crossing, p/h	0				0				0				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)		4.8000		4.7000	4.4000			4.0000	4.0000	4.6000	4.3000		
Follow-Up Headway (s)		2.6000		2.5000	2.5000			2.3000	2.3000	2.6000	2.6000		

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		222.00		98.58	87.42			460.00	223.00	174.84	197.16		
Entry Volume veh/h		220.78		97.92	86.84			455.22	223.00	173.26	195.38		
Circulating Flow (v _c), pc/h	474			472			108			343			
Exiting Flow (v _{ex}), pc/h	96			241			315			588			
Capacity (c _{pce}), pc/h		873.36		916.04	952.79			1436.95	1450.67	1011.07	1040.38		
Capacity (c), veh/h		868.57		909.95	946.45			1422.03	1450.67	1001.92	1030.97		
v/c Ratio (x)		0.25		0.11	0.09			0.32	0.15	0.17	0.19		

Delay and Level of Service													
Approach	EB			WB			NB			SB			
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	
Lane Control Delay (d), s/veh		6.8		5.0	4.6			5.3	3.7	5.2	5.3		
Lane LOS		A		A	A			A	A	A	A		
95% Queue, veh		1.0		0.4	0.3			1.4	0.5	0.6	0.7		
Approach Delay, s/veh	6.8			4.8			4.8			5.2			
Approach LOS	A			A			A			A			
Intersection Delay, s/veh LOS	5.2						A						

Intersection												
Int Delay, s/veh	4.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔	↔		↔	↔
Traffic Vol, veh/h	39	58	9	5	13	10	11	317	2	10	249	19
Future Vol, veh/h	39	58	9	5	13	10	11	317	2	10	249	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	450	-	-	380
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	2	-	-	2	-	-	3	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	0	0	0	20	0	0	0	0	50	0	0	0
Mvmt Flow	47	70	11	6	16	12	13	382	2	12	300	23

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	747	734	300	784	755	382	323	0	0	384	0	0
Stage 1	324	324	-	408	408	-	-	-	-	-	-	-
Stage 2	423	410	-	376	347	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.9	6.4	7.7	6.9	6.4	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.9	-	6.7	5.9	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.9	-	6.7	5.9	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.68	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	305	322	732	266	313	656	1248	-	-	1186	-	-
Stage 1	668	630	-	560	574	-	-	-	-	-	-	-
Stage 2	585	572	-	585	614	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	282	314	732	213	305	656	1248	-	-	1186	-	-
Mov Cap-2 Maneuver	282	314	-	213	305	-	-	-	-	-	-	-
Stage 1	659	622	-	553	567	-	-	-	-	-	-	-
Stage 2	551	565	-	505	607	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	23.9		16.6		0.3		0.3	
HCM LOS	C		C					
























Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1248	-	-	316	344	1186	-	-
HCM Lane V/C Ratio	0.011	-	-	0.404	0.098	0.01	-	-
HCM Control Delay (s)	7.9	0	-	23.9	16.6	8.1	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	1.9	0.3	0	-	-

APPENDIX H

2023 Build Capacity Analysis

Lanes, Volumes, Timings
 1: Main Street (CH N) & Gaston Road/Commerce Parkway

Project Silver Eagle
 2023 Build - AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	156	51	26	56	41	183	30	610	138	351	311	51
Future Volume (vph)	156	51	26	56	41	183	30	610	138	351	311	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	12	11	11	12	11	11	12
Grade (%)		-1%			1%			-2%			0%	
Storage Length (ft)	0		65	150		0	100		100	275		0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	75			100			125			125		
Satd. Flow (prot)	1754	1711	0	1736	1827	1607	1762	3490	1631	1728	3349	0
Flt Permitted	0.530			0.704			0.526			0.220		
Satd. Flow (perm)	978	1711	0	1284	1827	1607	975	3490	1631	400	3349	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26				206			206		24	
Link Speed (mph)		35			25			35			35	
Link Distance (ft)		2705			600			949			1065	
Travel Time (s)		52.7			16.4			18.5			20.7	
Confl. Peds. (#/hr)			2	2			1					1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	3%	0%	0%	0%	0%	0%	1%	0%	1%	2%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	164	81	0	59	43	193	32	642	145	369	381	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2		2	6		
Total Split (s)	14.0	27.0		12.0	25.0	25.0	12.0	31.0	31.0	20.0	39.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Act Effct Green (s)	22.3	17.2		16.8	10.3	10.3	25.9	19.7	19.7	39.2	34.8	
Actuated g/C Ratio	0.30	0.23		0.23	0.14	0.14	0.35	0.27	0.27	0.53	0.47	
v/c Ratio	0.42	0.19		0.18	0.17	0.48	0.08	0.68	0.25	0.78	0.24	
Control Delay	23.7	22.1		20.8	31.8	8.9	9.5	28.1	2.1	24.8	12.1	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	23.7	22.1		20.8	31.8	8.9	9.5	28.1	2.1	24.8	12.1	
LOS	C	C		C	C	A	A	C	A	C	B	
Approach Delay		23.2			14.6			22.7			18.4	
Approach LOS		C			B			C			B	
Queue Length 50th (ft)	56	22		19	18	0	6	137	0	91	41	
Queue Length 95th (ft)	113	64		48	49	50	18	194	15	#221	91	
Internal Link Dist (ft)		2625			520			869			985	
Turn Bay Length (ft)				150			100		100	275		
Base Capacity (vph)	393	547		346	502	590	431	1246	715	487	1662	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.42	0.15		0.17	0.09	0.33	0.07	0.52	0.20	0.76	0.23	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 73.3

HCS7 Roundabouts Report

General Information					Site Information				
Analyst	JMK				Intersection	I-94 EB Ramps & CTH N			
Agency or Co.	Langan				E/W Street Name	I-94 EB Ramps			
Date Performed	12/10/2021				N/S Street Name	County Trunk Hwy N			
Analysis Year	2023				Analysis Time Period (hrs)	0.25			
Time Analyzed	Build - AM Peak				Peak Hour Factor	0.95			
Project Description	Project Silver Eagle				Jurisdiction	Cottage Grove, Wisconsin			

Volume Adjustments and Site Characteristics																
Approach	EB				WB				NB				SB			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	0	0	0	0	2	0	0	1	1	0
Lane Assignment	LT								T	TR		L		T		
Volume (V), veh/h	0	191	0	303					0		779	166	0	146	424	
Percent Heavy Vehicles, %	0	2	0	1					0		1	1	0	0	1	
Flow Rate (v _{pce}), pc/h	0	205	0	322					0		828	176	0	154	451	
Right-Turn Bypass	Non-Yielding				None				None				None			
Conflicting Lanes	2								1				1			
Pedestrians Crossing, p/h	0								0				0			

Critical and Follow-Up Headway Adjustment												
Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (s)		4.8000					4.7000	4.4000		4.7000	4.4000	
Follow-Up Headway (s)		2.6000					2.5000	2.5000		2.5000	2.5000	

Flow Computations, Capacity and v/c Ratios												
Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v _e), pc/h		205.00	322.00				471.88	532.12		154.00	451.00	
Entry Volume veh/h		200.98	318.81				467.21	526.85		152.86	447.67	
Circulating Flow (v _c), pc/h	605			1033			359			0		
Exiting Flow (v _{ex}), pc/h	330			0			1033			451		
Capacity (c _{pce}), pc/h		768.92					1020.82	1051.82		1440.00	1440.00	
Capacity (c), veh/h		753.84					1010.71	1041.40		1429.37	1429.37	
v/c Ratio (x)		0.27					0.46	0.51		0.11	0.31	

Delay and Level of Service												
Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		7.8					8.9	9.5		3.4	5.2	
Lane LOS		A	A				A	A		A	A	
95% Queue, veh		1.1					2.5	2.9		0.4	1.4	
Approach Delay, s/veh	3.0						9.2			4.8		
Approach LOS	A						A			A		
Intersection Delay, s/veh LOS	6.4						A					

HCS7 Roundabouts Report

General Information					Site Information				
Analyst	JMK				Intersection	I-94 WB Ramps & CTH N			
Agency or Co.	Langan				E/W Street Name	I-94 WB Ramps			
Date Performed	12/10/2021				N/S Street Name	County Trunk Hwy N			
Analysis Year	2023				Analysis Time Period (hrs)	0.25			
Time Analyzed	Build - AM Peak				Peak Hour Factor	0.92			
Project Description	Project Silver Eagle				Jurisdiction	Cottage Grove, Wisconsin			

Volume Adjustments and Site Characteristics																
Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	0	0	0	0	1	1	0	0	2	0	0	0	2	0
Lane Assignment					LT		R		LT		T		T		T	
Volume (V), veh/h					0	174	3	231	0	401	533		0		405	417
Percent Heavy Vehicles, %					0	0	33	1	0	0	1		0		1	1
Flow Rate (v _{pce}), pc/h					0	189	4	254	0	436	585		0		445	458
Right-Turn Bypass	None				None				None				Non-Yielding			
Conflicting Lanes					2				1				1			
Pedestrians Crossing, p/h					0				0				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)				4.8000	4.8000		4.7000	4.4000		4.7000	4.4000		
Follow-Up Headway (s)				2.8000	2.8000		2.5000	2.5000		2.5000	2.5000		

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				193.00	254.00		479.87	541.13		209.15	235.85	458.00	
Entry Volume veh/h				191.49	252.01		477.15	538.06		207.08	233.51	453.47	
Circulating Flow (v _c), pc/h	634			1021			0			629			
Exiting Flow (v _{ex}), pc/h	0			440			839			634			
Capacity (c _{pce}), pc/h				490.19	490.19		1440.00	1440.00		788.09	830.50		
Capacity (c), veh/h				486.34	486.34		1431.83	1431.83		780.28	822.27		
v/c Ratio (x)				0.39	0.52		0.33	0.38		0.27	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				14.1	17.7		5.4	5.9		7.6	7.5		
Lane LOS				B	C		A	A		A	A	A	
95% Queue, veh				1.9	2.9		1.5	1.8		1.1	1.2		
Approach Delay, s/veh				16.1			5.7			3.7			
Approach LOS				C			A			A			
Intersection Delay, s/veh LOS	6.9						A						

HCS7 Roundabouts Report

General Information					Site Information				
Analyst	JMK				Intersection	CTH TT and CTH N			
Agency or Co.	Langan				E/W Street Name	County Trunk Hwy TT			
Date Performed	12/10/2021				N/S Street Name	County Truck Hwy N			
Analysis Year	2023				Analysis Time Period (hrs)	0.25			
Time Analyzed	Build - AM Peak				Peak Hour Factor	0.93			
Project Description	Project Silver Eagle				Jurisdiction	Cottage Grove, Wisconsin			

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	1	1	0	0	0	1	0	0	0	2	0
Lane Assignment			LTR		L		LTR				LT		LT		TR	
Volume (V), veh/h	0	12	52	148	0	237	73	19	0	275	369	94	0	5	438	8
Percent Heavy Vehicles, %	0	0	0	1	0	0	0	0	0	2	1	0	0	0	1	0
Flow Rate (v _{pce}), pc/h	0	13	56	161	0	255	78	20	0	302	401	101	0	5	476	9
Right-Turn Bypass	None				None				Yielding				None			
Conflicting Lanes	2				1				1				2			
Pedestrians Crossing, p/h	0				0				0				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)		4.8000		4.7000	4.4000			4.0000	4.0000	4.6000	4.3000		
Follow-Up Headway (s)		2.6000		2.5000	2.5000			2.3000	2.3000	2.6000	2.6000		

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		230.00		187.09	165.91			703.00	101.00	230.30	259.70		
Entry Volume veh/h		228.41		187.09	165.91			693.11	101.00	228.08	257.20		
Circulating Flow (v _c), pc/h	736			716			74			635			
Exiting Flow (v _{ex}), pc/h	61			389			434			892			
Capacity (c _{pce}), pc/h		676.97		725.04	769.62			1476.16	1491.43	773.63	815.67		
Capacity (c), veh/h		672.27		725.04	769.62			1455.39	1491.43	766.19	807.83		
v/c Ratio (x)		0.34		0.26	0.22			0.48	0.07	0.30	0.32		

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		9.8		8.0	7.0			7.1	2.9	8.2	8.1		
Lane LOS		A		A	A			A	A	A	A		
95% Queue, veh		1.5		1.0	0.8			2.7	0.2	1.2	1.4		
Approach Delay, s/veh	9.8			7.5			6.6			8.1			
Approach LOS	A			A			A			A			
Intersection Delay, s/veh LOS	7.5						A						

HCM 6th TWSC
5: County Highway N & County Highway T

Project Silver Eagle
2023 Build - AM Peak Hour

Intersection												
Int Delay, s/veh	2.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔	↔		↔	↔
Traffic Vol, veh/h	37	11	8	2	43	14	9	298	0	3	324	45
Future Vol, veh/h	37	11	8	2	43	14	9	298	0	3	324	45
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	450	-	-	380
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	2	-	-	2	-	-	3	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	3	0	0	100	0	0	0	0	0	0	0	0
Mvmt Flow	41	12	9	2	48	16	10	331	0	3	360	50

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	749	717	360	753	767	331	410	0	0	331	0	0
Stage 1	366	366	-	351	351	-	-	-	-	-	-	-
Stage 2	383	351	-	402	416	-	-	-	-	-	-	-
Critical Hdwy	7.53	6.9	6.4	8.5	6.9	6.4	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.53	5.9	-	7.5	5.9	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.53	5.9	-	7.5	5.9	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4	3.3	4.4	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	301	330	675	212	307	702	1160	-	-	1240	-	-
Stage 1	625	601	-	484	611	-	-	-	-	-	-	-
Stage 2	611	611	-	448	568	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	256	325	675	201	303	702	1160	-	-	1240	-	-
Mov Cap-2 Maneuver	256	325	-	201	303	-	-	-	-	-	-	-
Stage 1	618	599	-	479	604	-	-	-	-	-	-	-
Stage 2	544	604	-	432	566	-	-	-	-	-	-	-

Approach	EB		WB		NB			SB		
HCM Control Delay, s	20.5		18		0.2			0.1		
HCM LOS	C		C							

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1160	-	-	294	343	1240	-	-
HCM Lane V/C Ratio	0.009	-	-	0.212	0.191	0.003	-	-
HCM Control Delay (s)	8.1	0	-	20.5	18	7.9	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.8	0.7	0	-	-

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	↔
Traffic Vol, veh/h	13	193	184	81	15	3
Future Vol, veh/h	13	193	184	81	15	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	-3	3	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	214	204	90	17	3

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	294	0	-	0	491 249
Stage 1	-	-	-	-	249 -
Stage 2	-	-	-	-	242 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1268	-	-	-	537 790
Stage 1	-	-	-	-	792 -
Stage 2	-	-	-	-	798 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1268	-	-	-	530 790
Mov Cap-2 Maneuver	-	-	-	-	530 -
Stage 1	-	-	-	-	782 -
Stage 2	-	-	-	-	798 -

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	11.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1268	-	-	-	530	790
HCM Lane V/C Ratio	0.011	-	-	-	0.031	0.004
HCM Control Delay (s)	7.9	0	-	-	12	9.6
HCM Lane LOS	A	A	-	-	B	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	↔
Traffic Vol, veh/h	14	194	261	95	18	4
Future Vol, veh/h	14	194	261	95	18	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	-3	3	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	216	290	106	20	4

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	396	0	-	0	591 343
Stage 1	-	-	-	-	343 -
Stage 2	-	-	-	-	248 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1163	-	-	-	470 700
Stage 1	-	-	-	-	719 -
Stage 2	-	-	-	-	793 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1163	-	-	-	462 700
Mov Cap-2 Maneuver	-	-	-	-	462 -
Stage 1	-	-	-	-	707 -
Stage 2	-	-	-	-	793 -

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	12.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1163	-	-	-	462	700
HCM Lane V/C Ratio	0.013	-	-	-	0.043	0.006
HCM Control Delay (s)	8.1	0	-	-	13.1	10.2
HCM Lane LOS	A	A	-	-	B	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0

Intersection						
Int Delay, s/veh	1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↙	↗	↙	↑	↗	
Traffic Vol, veh/h	4	29	54	346	423	14
Future Vol, veh/h	4	29	54	346	423	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	130	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	-3	1	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	32	60	384	470	16

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	982	478	486	0	-	0
Stage 1	478	-	-	-	-	-
Stage 2	504	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	276	587	1077	-	-	-
Stage 1	624	-	-	-	-	-
Stage 2	607	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	261	587	1077	-	-	-
Mov Cap-2 Maneuver	261	-	-	-	-	-
Stage 1	589	-	-	-	-	-
Stage 2	607	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.4	1.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1077	-	261	587	-	-
HCM Lane V/C Ratio	0.056	-	0.017	0.055	-	-
HCM Control Delay (s)	8.5	-	19	11.5	-	-
HCM Lane LOS	A	-	C	B	-	-
HCM 95th %tile Q(veh)	0.2	-	0.1	0.2	-	-

Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	40	19	331	397	0
Future Vol, veh/h	0	40	19	331	397	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	5	-1	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	44	21	368	441	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	851	441	441	0	-	0
Stage 1	441	-	-	-	-	-
Stage 2	410	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	330	616	1119	-	-	-
Stage 1	648	-	-	-	-	-
Stage 2	670	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	322	616	1119	-	-	-
Mov Cap-2 Maneuver	322	-	-	-	-	-
Stage 1	632	-	-	-	-	-
Stage 2	670	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.3	0.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1119	-	-	616	-	-
HCM Lane V/C Ratio	0.019	-	-	0.072	-	-
HCM Control Delay (s)	8.3	0	0	11.3	-	-
HCM Lane LOS	A	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	-	-

Lanes, Volumes, Timings
 1: Main Street (CH N) & Gaston Road/Commerce Parkway

Project Silver Eagle
 2023 Build - PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	92	51	25	172	60	363	27	409	132	251	595	83
Future Volume (vph)	92	51	25	172	60	363	27	409	132	251	595	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	12	11	11	12	11	11	12
Grade (%)		-1%			1%			-2%			0%	
Storage Length (ft)	0		65	150		0	100		100	275		0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	75			100			125			125		
Satd. Flow (prot)	1754	1743	0	1736	1827	1607	1762	3490	1631	1711	3368	0
Flt Permitted	0.710			0.582			0.344			0.311		
Satd. Flow (perm)	1311	1743	0	1056	1827	1607	638	3490	1631	560	3368	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26				430			206		19	
Link Speed (mph)		35			25			35			35	
Link Distance (ft)		2705			600			949			1065	
Travel Time (s)		52.7			16.4			18.5			20.7	
Confl. Peds. (#/hr)			8	8								
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	2%	2%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	111	91	0	207	72	437	33	493	159	302	817	0
Turn Type	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2		2	6		
Total Split (s)	14.0	27.0		12.0	25.0	25.0	12.0	31.0	31.0	20.0	39.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Act Effct Green (s)	18.7	13.6		17.8	12.5	12.5	23.0	16.5	16.5	34.1	30.2	
Actuated g/C Ratio	0.28	0.20		0.26	0.19	0.19	0.34	0.25	0.25	0.51	0.45	
v/c Ratio	0.26	0.24		0.57	0.21	0.67	0.10	0.57	0.29	0.61	0.54	
Control Delay	18.8	21.4		26.3	28.8	9.4	11.7	26.5	3.0	17.0	17.3	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	18.8	21.4		26.3	28.8	9.4	11.7	26.5	3.0	17.0	17.3	
LOS	B	C		C	C	A	B	C	A	B	B	
Approach Delay		20.0			16.2			20.4			17.3	
Approach LOS		B			B			C			B	
Queue Length 50th (ft)	31	23		61	27	3	7	95	0	71	106	
Queue Length 95th (ft)	71	62		124	64	54	21	154	14	138	227	
Internal Link Dist (ft)		2625			520			869			985	
Turn Bay Length (ft)				150			100		100	275		
Base Capacity (vph)	453	622		363	577	801	351	1433	791	556	1818	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.25	0.15		0.57	0.12	0.55	0.09	0.34	0.20	0.54	0.45	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 67.3

Lanes, Volumes, Timings
 1: Main Street (CH N) & Gaston Road/Commerce Parkway

Project Silver Eagle
 2023 Build - PM Peak Hour

Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.67	
Intersection Signal Delay: 18.0	Intersection LOS: B
Intersection Capacity Utilization 53.9%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 1: Main Street (CH N) & Gaston Road/Commerce Parkway



HCS7 Roundabouts Report

General Information					Site Information				
Analyst	JMK				Intersection	I-94 EB Ramps & CTH N			
Agency or Co.	Langan				E/W Street Name	I-94 EB Ramps			
Date Performed	12/10/2021				N/S Street Name	County Trunk Hwy N			
Analysis Year	2023				Analysis Time Period (hrs)	0.25			
Time Analyzed	No Build - PM Peak				Peak Hour Factor	0.86			
Project Description	Project Silver Eagle				Jurisdiction	Cottage Grove, Wisconsin			

Volume Adjustments and Site Characteristics																
Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	0	0	0	0	2	0	0	1	1	0
Lane Assignment	LT								T	TR		L		T		
Volume (V), veh/h	0	297	0	476					0		701	192	0	209	438	
Percent Heavy Vehicles, %	0	0	0	1					0		1	2	0	0	0	
Flow Rate (v _{pce}), pc/h	0	345	0	559					0		823	228	0	243	509	
Right-Turn Bypass	Non-Yielding				None				None				None			
Conflicting Lanes	2								1				1			
Pedestrians Crossing, p/h	0								0				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)		4.8000					4.7000	4.4000		4.7000	4.4000	
Follow-Up Headway (s)		2.6000					2.5000	2.5000		2.5000	2.5000	

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		345.00	559.00				493.97	557.03		243.00	509.00	
Entry Volume veh/h		345.00	553.47				488.04	550.34		243.00	509.00	
Circulating Flow (v _c), pc/h	752			1168			588			0		
Exiting Flow (v _{ex}), pc/h	471			0			1168			509		
Capacity (c _{pce}), pc/h		666.52					819.67	860.83		1440.00	1440.00	
Capacity (c), veh/h		666.52					809.83	850.50		1440.00	1440.00	
v/c Ratio (x)		0.52					0.60	0.65		0.17	0.35	

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		13.6					14.0	14.9		3.9	5.6	
Lane LOS		B	A				B	B		A	A	
95% Queue, veh		3.0					4.1	4.9		0.6	1.6	
Approach Delay, s/veh	5.2						14.5			5.1		
Approach LOS	A						B			A		
Intersection Delay, s/veh LOS	8.7						A					

HCS7 Roundabouts Report

General Information					Site Information				
Analyst	JMK				Intersection	I-94 WB Ramps & CTH N			
Agency or Co.	Langan				E/W Street Name	I-94 WB Ramps			
Date Performed	12/10/2021				N/S Street Name	County Trunk Hwy N			
Analysis Year	2023				Analysis Time Period (hrs)	0.25			
Time Analyzed	No Build - PM Peak				Peak Hour Factor	0.86			
Project Description	Project Silver Eagle				Jurisdiction	Cottage Grove, Wisconsin			

Volume Adjustments and Site Characteristics																
Approach	EB				WB				NB				SB			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	0	0	0	0	1	1	0	0	2	0	0	0	2	0
Lane Assignment					LT		R		LT		T		T		T	
Volume (V), veh/h					0	145	2	171	0	343	623		0		494	226
Percent Heavy Vehicles, %					0	0	0	1	0	1	0		0		0	0
Flow Rate (v _{pce}), pc/h					0	169	2	201	0	403	724		0		574	263
Right-Turn Bypass	None				None				None				Non-Yielding			
Conflicting Lanes					2				1				1			
Pedestrians Crossing, p/h					0				0				0			

Critical and Follow-Up Headway Adjustment													
Approach	EB			WB			NB			SB			
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	
Critical Headway (s)				4.8000	4.8000		4.7000	4.4000		4.7000	4.4000		
Follow-Up Headway (s)				2.8000	2.8000		2.5000	2.5000		2.5000	2.5000		

Flow Computations, Capacity and v/c Ratios													
Approach	EB			WB			NB			SB			
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	
Entry Flow (v _e), pc/h				171.00	201.00		529.69	597.31		269.78	304.22	263.00	
Entry Volume veh/h				170.09	199.92		527.81	595.20		269.78	304.22	263.00	
Circulating Flow (v _c), pc/h	743			1127			0			574			
Exiting Flow (v _{ex}), pc/h	0			405			925			743			
Capacity (c _{pce}), pc/h				443.49	443.49		1440.00	1440.00		830.74	871.44		
Capacity (c), veh/h				441.12	441.12		1434.90	1434.90		830.74	871.44		
v/c Ratio (x)				0.39	0.45		0.37	0.41		0.32	0.35		

Delay and Level of Service													
Approach	EB			WB			NB			SB			
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	
Lane Control Delay (d), s/veh				15.1	17.0		5.8	6.3		8.0	8.1		
Lane LOS				C	C		A	A		A	A	A	
95% Queue, veh				1.8	2.3		1.7	2.1		1.4	1.6		
Approach Delay, s/veh				16.1			6.1			5.5			
Approach LOS				C			A			A			
Intersection Delay, s/veh LOS	7.5						A						

HCS7 Roundabouts Report

General Information					Site Information				
Analyst	JMK				Intersection	CTH TT and CTH N			
Agency or Co.	Langan				E/W Street Name	County Trunk Hwy TT			
Date Performed	12/10/2021				N/S Street Name	County Truck Hwy N			
Analysis Year	2023				Analysis Time Period (hrs)	0.25			
Time Analyzed	No Build - PM Peak				Peak Hour Factor	0.95			
Project Description	Project Silver Eagle				Jurisdiction	Cottage Grove, Wisconsin			

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	1	1	0	0	0	1	0	0	0	2	0
Lane Assignment			LTR		L		LTR				LT		LT		TR	
Volume (V), veh/h	0	11	96	218	0	118	58	7	0	231	332	212	0	9	445	22
Percent Heavy Vehicles, %	0	0	0	1	0	1	0	0	0	3	0	0	0	0	1	0
Flow Rate (V _{PCE}), pc/h	0	12	101	232	0	125	61	7	0	250	349	223	0	9	473	23
Right-Turn Bypass	None				None				Yielding				None			
Conflicting Lanes	2				1				1				2			
Pedestrians Crossing, p/h	0				0				0				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)		4.8000		4.7000	4.4000			4.0000	4.0000	4.6000	4.3000		
Follow-Up Headway (s)		2.6000		2.5000	2.5000			2.3000	2.3000	2.6000	2.6000		

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		345.00		102.29	90.71			599.00	223.00	237.35	267.65		
Entry Volume veh/h		342.70		101.63	90.13			591.72	223.00	235.15	265.17		
Circulating Flow (v _c), pc/h	607			611			122			436			
Exiting Flow (v _{ex}), pc/h	110			334			368			830			
Capacity (c _{pce}), pc/h		767.42		801.80	843.68			1421.11	1434.68	928.44	962.80		
Capacity (c), veh/h		762.31		796.66	838.27			1403.84	1434.68	919.83	953.87		
v/c Ratio (x)		0.45		0.13	0.11			0.42	0.16	0.26	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		10.8		5.8	5.3			6.5	3.7	6.5	6.6		
Lane LOS		B		A	A			A	A	A	A		
95% Queue, veh		2.3		0.4	0.4			2.1	0.6	1.0	1.1		
Approach Delay, s/veh	10.8			5.6			5.8			6.6			
Approach LOS	B			A			A			A			
Intersection Delay, s/veh LOS	6.9						A						

Intersection												
Int Delay, s/veh	4.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔	↔		↔	↔
Traffic Vol, veh/h	39	58	9	5	13	10	11	330	2	10	256	19
Future Vol, veh/h	39	58	9	5	13	10	11	330	2	10	256	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	450	-	-	380
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	2	-	-	2	-	-	3	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	0	0	0	20	0	0	0	0	50	0	0	0
Mvmt Flow	47	70	11	6	16	12	13	398	2	12	308	23

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	771	758	308	808	779	398	331	0	0	400	0	0
Stage 1	332	332	-	424	424	-	-	-	-	-	-	-
Stage 2	439	426	-	384	355	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.9	6.4	7.7	6.9	6.4	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.9	-	6.7	5.9	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.9	-	6.7	5.9	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.68	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	293	311	724	255	302	642	1240	-	-	1170	-	-
Stage 1	661	625	-	548	563	-	-	-	-	-	-	-
Stage 2	572	562	-	579	609	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	270	303	724	203	294	642	1240	-	-	1170	-	-
Mov Cap-2 Maneuver	270	303	-	203	294	-	-	-	-	-	-	-
Stage 1	652	617	-	541	556	-	-	-	-	-	-	-
Stage 2	538	555	-	499	601	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	25.2		17.1		0.3		0.3	
HCM LOS	D		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1240	-	-	304	332	1170	-	-
HCM Lane V/C Ratio	0.011	-	-	0.42	0.102	0.01	-	-
HCM Control Delay (s)	7.9	0	-	25.2	17.1	8.1	0	-
HCM Lane LOS	A	A	-	D	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	2	0.3	0	-	-

Intersection						
Int Delay, s/veh	1.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	↔
Traffic Vol, veh/h	6	216	237	40	51	13
Future Vol, veh/h	6	216	237	40	51	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	-3	3	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	240	263	44	57	14

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	307	0	-	0	539 285
Stage 1	-	-	-	-	285 -
Stage 2	-	-	-	-	254 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1254	-	-	-	503 754
Stage 1	-	-	-	-	763 -
Stage 2	-	-	-	-	788 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1254	-	-	-	500 754
Mov Cap-2 Maneuver	-	-	-	-	500 -
Stage 1	-	-	-	-	758 -
Stage 2	-	-	-	-	788 -

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	12.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1254	-	-	-	500	754
HCM Lane V/C Ratio	0.005	-	-	-	0.113	0.019
HCM Control Delay (s)	7.9	0	-	-	13.1	9.9
HCM Lane LOS	A	A	-	-	B	A
HCM 95th %tile Q(veh)	0	-	-	-	0.4	0.1

Intersection						
Int Delay, s/veh	1.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	↔
Traffic Vol, veh/h	6	261	264	47	64	13
Future Vol, veh/h	6	261	264	47	64	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	-3	3	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	290	293	52	71	14

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	345	0	-	0	623 319
Stage 1	-	-	-	-	319 -
Stage 2	-	-	-	-	304 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1214	-	-	-	450 722
Stage 1	-	-	-	-	737 -
Stage 2	-	-	-	-	748 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1214	-	-	-	447 722
Mov Cap-2 Maneuver	-	-	-	-	447 -
Stage 1	-	-	-	-	732 -
Stage 2	-	-	-	-	748 -

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	13.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1214	-	-	-	447	722
HCM Lane V/C Ratio	0.005	-	-	-	0.159	0.02
HCM Control Delay (s)	8	0	-	-	14.6	10.1
HCM Lane LOS	A	A	-	-	B	B
HCM 95th %tile Q(veh)	0	-	-	-	0.6	0.1

Intersection						
Int Delay, s/veh	1.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↶	↷	↶	↷	↷	
Traffic Vol, veh/h	13	103	27	324	373	7
Future Vol, veh/h	13	103	27	324	373	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	130	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	-3	1	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	114	30	360	414	8

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	838	418	422	0	-	0
Stage 1	418	-	-	-	-	-
Stage 2	420	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	336	635	1137	-	-	-
Stage 1	664	-	-	-	-	-
Stage 2	663	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	327	635	1137	-	-	-
Mov Cap-2 Maneuver	327	-	-	-	-	-
Stage 1	647	-	-	-	-	-
Stage 2	663	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.4	0.6	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1137	-	327	635	-	-
HCM Lane V/C Ratio	0.026	-	0.044	0.18	-	-
HCM Control Delay (s)	8.3	-	16.5	11.9	-	-
HCM Lane LOS	A	-	C	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	0.7	-	-

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↶	↷		↶	↷	
Traffic Vol, veh/h	0	22	24	313	358	0
Future Vol, veh/h	0	22	24	313	358	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	5	-1	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	24	27	348	398	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	800	398	398	0	-	0
Stage 1	398	-	-	-	-	-
Stage 2	402	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	354	652	1161	-	-	-
Stage 1	678	-	-	-	-	-
Stage 2	676	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	344	652	1161	-	-	-
Mov Cap-2 Maneuver	344	-	-	-	-	-
Stage 1	658	-	-	-	-	-
Stage 2	676	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.7	0.6	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1161	-	-	652	-	-
HCM Lane V/C Ratio	0.023	-	-	0.037	-	-
HCM Control Delay (s)	8.2	0	0	10.7	-	-
HCM Lane LOS	A	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-	-

APPENDIX I

Turn Lane Warrant Analysis

INTERSECTION: County Hwy TT & Site Dwy A

MAJOR STREET: County Hwy TT

MINOR STREET: Site Dwy A

DATE: 10/21/2021

ANALYST: JMK

Table 5.1 Operational Warrants for Left-Turn Lanes at Intersections on Two-Lane Highways ⁵⁹

Opposing Volume (veh/hr)	Advancing volume to warrant a left-turn lane (veh/hr)			
	with 5 percent left turns	with 10 percent left turns	with 20 percent left turns	with 30 percent left turns
40-mph Operating Speed				
800	330	240	180	160
600	410	305	225	200
400	510	380	275	245
200	640	470	350	305
100	720	515	390	340
50-mph Operating Speed				
800	280	210	165	135
600	350	260	195	170
400	430	320	240	210
200	550	400	300	270
100	615	445	335	295
60-mph Operating Speed				
800	230	170	125	115
600	290	210	160	140
400	365	270	200	175
200	450	330	250	215
100	505	370	275	240

SCENARIO	OPPOSING VOLUME (VPH)	ADVANCING VOLUME (VPH)	% LEFT VOLUME	WARRANT SATISFIED?
2021 Existing AM	174	173	0%	NO
2021 Existing PM	216	203	0%	NO
2023 No Build AM	180	179	0%	NO
2023 No Build PM	224	210	0%	NO
2023 Build AM	265	206	6%	NO
2023 Build PM	277	222	3%	NO

Note: Values that lie in-between table values have been linearly interpolated.

INTERSECTION: County Hwy TT & Site Dwy A

MAJOR STREET: County Hwy TT

MINOR STREET: Site Dwy A

DATE: 10/21/2021

ANALYST: JMK



SYMBOL	SCENARIO	ADVANCING VOLUME (VPH)	RIGHT TURN VOLUME (VPH)	WARRANT SATISFIED?
■	2021 Existing AM	174	0	NO*
■	2021 Existing PM	216	0	NO
▲	2023 No Build AM	180	0	NO*
▲	2023 No Build PM	224	0	NO
◆	2023 Build AM	265	81	NO
◆	2023 Build PM	277	40	NO

* Data Point lies outside of chart area.

INTERSECTION: County Hwy TT & Site Dwy B

MAJOR STREET: County Hwy TT

MINOR STREET: Site Dwy B

DATE: 10/21/2021

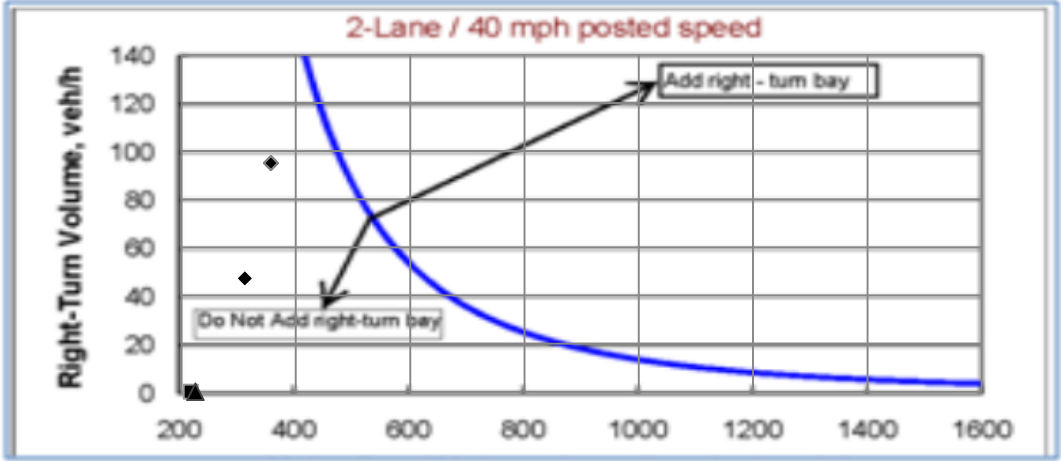
ANALYST: JMK

Table 5.1 Operational Warrants for Left-Turn Lanes at Intersections on Two-Lane Highways ⁵⁹

Opposing Volume (veh/hr)	Advancing volume to warrant a left-turn lane (veh/hr)			
	with 5 percent left turns	with 10 percent left turns	with 20 percent left turns	with 30 percent left turns
40-mph Operating Speed				
800	330	240	180	160
600	410	305	225	200
400	510	380	275	245
200	640	470	350	305
100	720	515	390	340
50-mph Operating Speed				
800	280	210	165	135
600	350	260	195	170
400	430	320	240	210
200	550	400	300	270
100	615	445	335	295
60-mph Operating Speed				
800	230	170	125	115
600	290	210	160	140
400	365	270	200	175
200	450	330	250	215
100	505	370	275	240

SCENARIO	OPPOSING VOLUME (VPH)	ADVANCING VOLUME (VPH)	% LEFT VOLUME	WARRANT SATISFIED?
2021 Existing AM	174	173	0%	NO
2021 Existing PM	216	203	0%	NO
2023 No Build AM	180	179	0%	NO
2023 No Build PM	224	210	0%	NO
2023 Build AM	356	208	7%	NO
2023 Build PM	311	267	2%	NO

INTERSECTION: County Hwy TT & Site Dwy B
MAJOR STREET: County Hwy TT
MINOR STREET: Site Dwy B
DATE: 10/21/2021
ANALYST: JMK



SYMBOL	SCENARIO	ADVANCING VOLUME (VPH)	RIGHT TURN VOLUME (VPH)	WARRANT SATISFIED?
■	2021 Existing AM	174	0	NO*
■	2021 Existing PM	216	0	NO
▲	2023 No Build AM	180	0	NO*
▲	2023 No Build PM	224	0	NO
◆	2023 Build AM	356	95	NO
◆	2023 Build PM	311	47	NO

* Data Point lies outside of chart area.

INTERSECTION: County Hwy N & Site Dwy C

MAJOR STREET: County Hwy N

MINOR STREET: Site Dwy C

DATE: 10/21/2021

ANALYST: JMK

Table 5.1 Operational Warrants for Left-Turn Lanes at Intersections on Two-Lane Highways ⁵⁹

Opposing Volume (veh/hr)	Advancing volume to warrant a left-turn lane (veh/hr)			
	with 5 percent left turns	with 10 percent left turns	with 20 percent left turns	with 30 percent left turns
40-mph Operating Speed				
800	330	240	180	160
600	410	305	225	200
400	510	380	275	245
200	640	470	350	305
100	720	515	390	340
50-mph Operating Speed				
800	280	210	165	135
600	350	260	195	170
400	430	320	240	210
200	550	400	300	270
100	615	445	335	295
60-mph Operating Speed				
800	230	170	125	115
600	290	210	160	140
400	365	270	200	175
200	450	330	250	215
100	505	370	275	240

SCENARIO	OPPOSING VOLUME (VPH)	ADVANCING VOLUME (VPH)	% LEFT VOLUME	WARRANT SATISFIED?
2021 Existing AM	363	311	0%	NO
2021 Existing PM	334	282	0%	NO
2023 No Build AM	383	327	0%	NO
2023 No Build PM	351	300	0%	NO
2023 Build AM	437	400	14%	YES
2023 Build PM	380	351	8%	NO

Note: Values that lie in-between table values have been linearly interpolated.

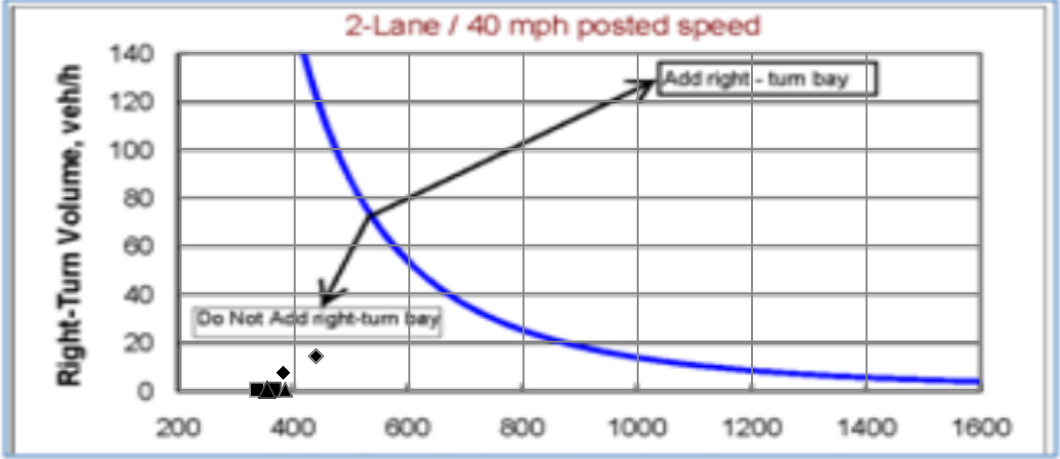
INTERSECTION: County Hwy N & Site Dwy C

MAJOR STREET: County Hwy N

MINOR STREET: Site Dwy C

DATE: 10/21/2021

ANALYST: JMK



SYMBOL	SCENARIO	ADVANCING VOLUME (VPH)	RIGHT TURN VOLUME (VPH)	WARRANT SATISFIED?
■	2021 Existing AM	363	0	NO
■	2021 Existing PM	334	0	NO
▲	2023 No Build AM	383	0	NO
▲	2023 No Build PM	351	0	NO
◆	2023 Build AM	437	14	NO
◆	2023 Build PM	380	7	NO

INTERSECTION: County Hwy N & Site Dwy D

MAJOR STREET: County Hwy N

MINOR STREET: Site Dwy D

DATE: 10/21/2021

ANALYST: JMK

Table 5.1 Operational Warrants for Left-Turn Lanes at Intersections on Two-Lane Highways ⁵⁹

Opposing Volume (veh/hr)	Advancing volume to warrant a left-turn lane (veh/hr)			
	with 5 percent left turns	with 10 percent left turns	with 20 percent left turns	with 30 percent left turns
40-mph Operating Speed				
800	330	240	180	160
600	410	305	225	200
400	510	380	275	245
200	640	470	350	305
100	720	515	390	340
50-mph Operating Speed				
800	280	210	165	135
600	350	260	195	170
400	430	320	240	210
200	550	400	300	270
100	615	445	335	295
60-mph Operating Speed				
800	230	170	125	115
600	290	210	160	140
400	365	270	200	175
200	450	330	250	215
100	505	370	275	240

SCENARIO	OPPOSING VOLUME (VPH)	ADVANCING VOLUME (VPH)	% LEFT VOLUME	WARRANT SATISFIED?
2021 Existing AM	363	311	0%	NO
2021 Existing PM	334	282	0%	NO
2023 No Build AM	383	327	0%	NO
2023 No Build PM	351	300	0%	NO
2023 Build AM	397	350	5%	NO
2023 Build PM	358	337	7%	NO

Note: Values that lie in-between table values have been linearly interpolated.

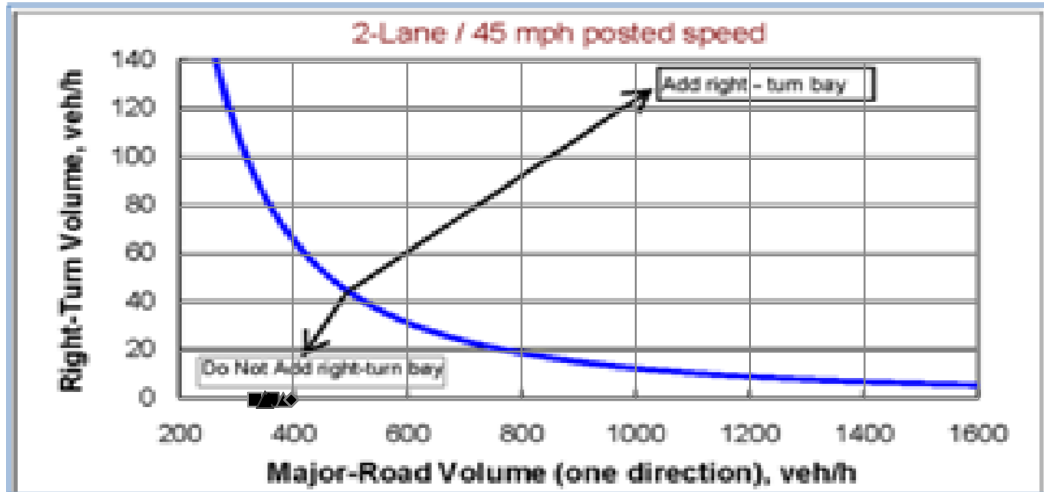
INTERSECTION: County Hwy N & Site Dwy D

MAJOR STREET: County Hwy N

MINOR STREET: Site Dwy D

DATE: 10/21/2021

ANALYST: JMK

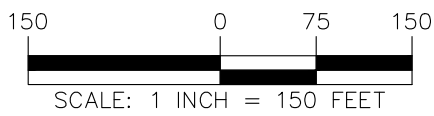
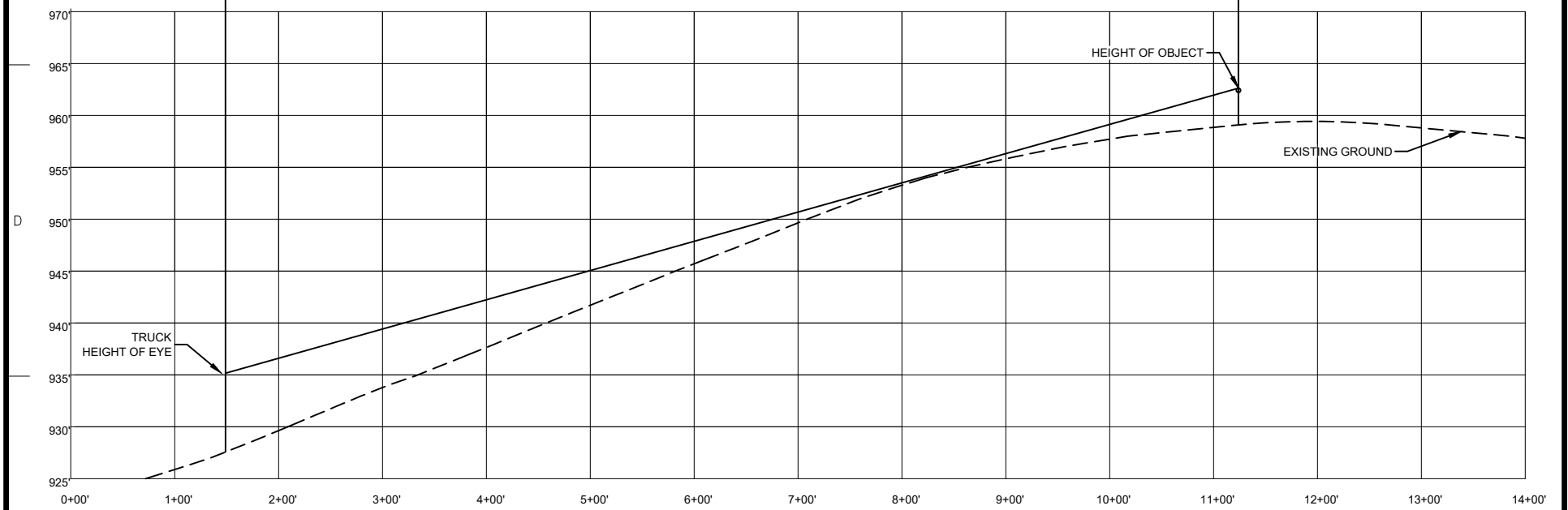
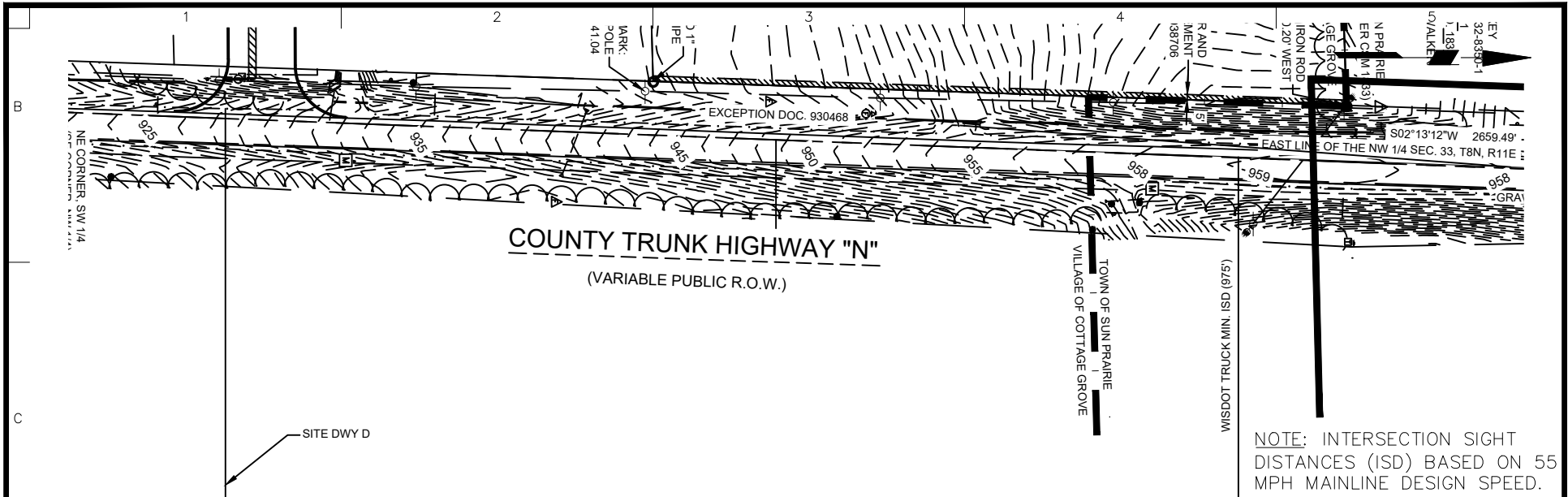


SYMBOL	SCENARIO	ADVANCING VOLUME (VPH)	RIGHT TURN VOLUME (VPH)	WARRANT SATISFIED?
■	2021 Existing AM	363	0	NO
■	2021 Existing PM	334	0	NO
▲	2023 No Build AM	383	0	NO
▲	2023 No Build PM	351	0	NO
◆	2023 Build AM	397	0	NO
◆	2023 Build PM	358	0	NO

* Data Point lies outside of chart area.

APPENDIX J

Driveway “D” Sight Distance Analysis



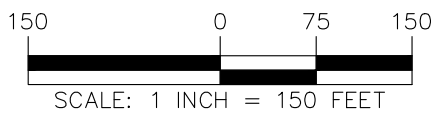
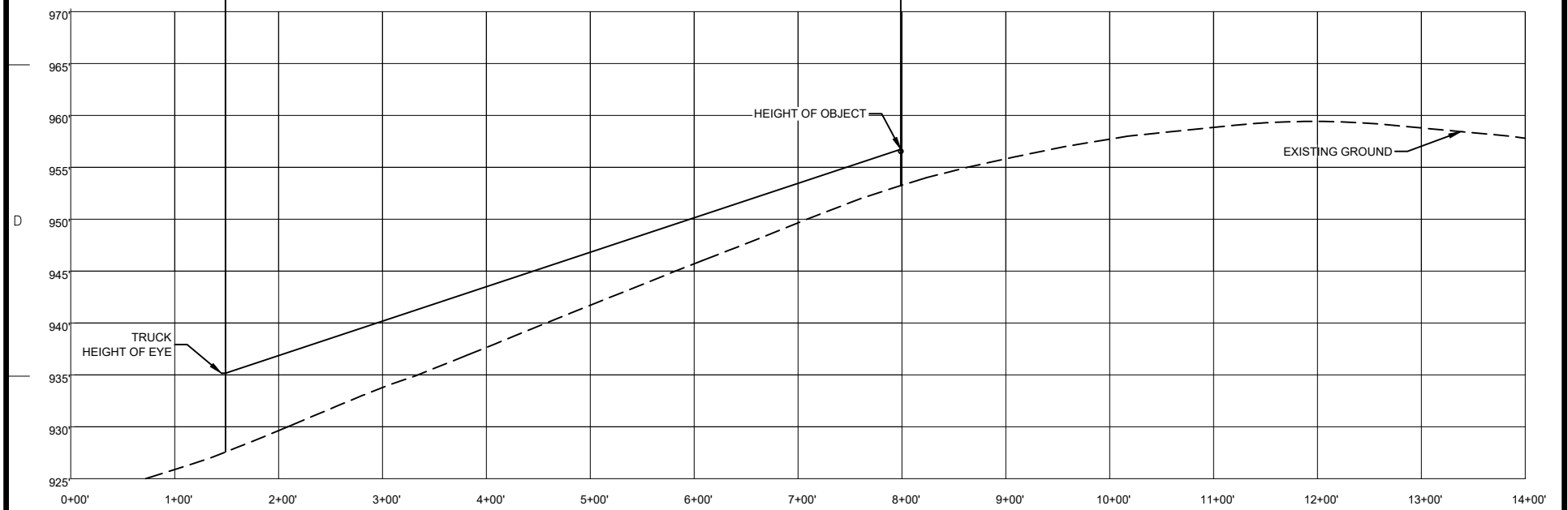
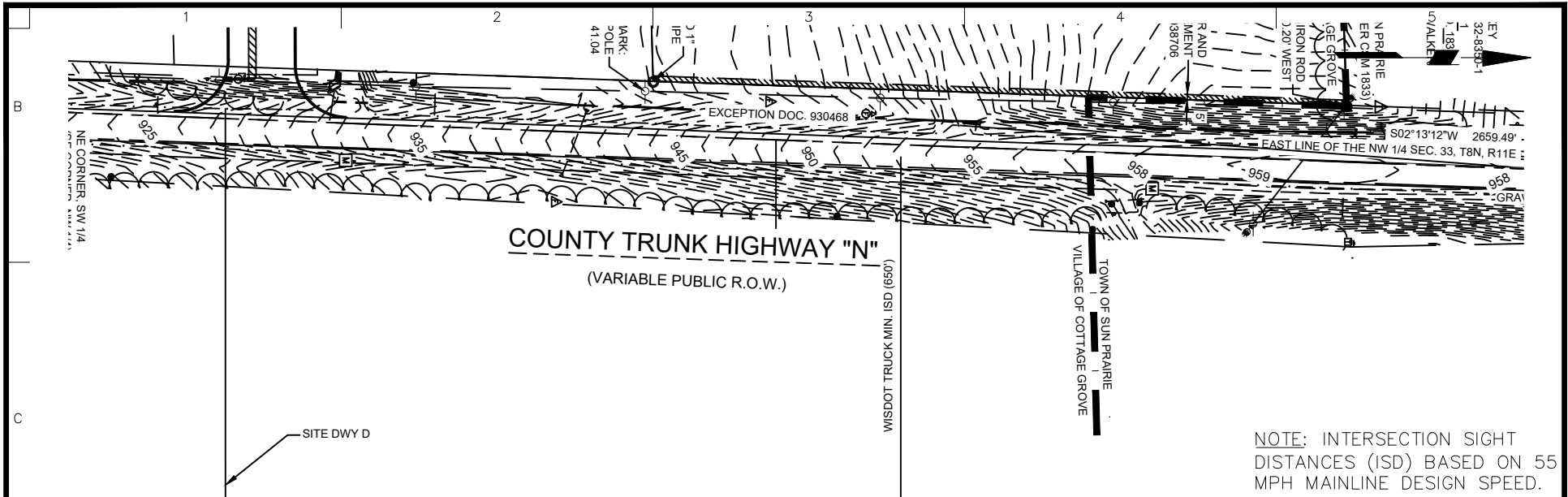
LANGAN
 Langan Engineering and Environmental Services, Inc.
 200 South Wacker Drive, Suite 3100
 Chicago, IL 60606
 T: 800.952.6426 www.langan.com

Project
PROJECT SILVER EAGLE
 VILLAGE OF COTTAGE GROVE
 DANE COUNTY WISCONSIN

Drawing Title
TRUCK OUTBOUND RIGHT TURN SIGHT DISTANCE

Project No.
541011901
 Date
JANUARY 2022
 Drawn By
JMK
 Checked By
CAP

Figure
J-1



<p>LANGAN Langan Engineering and Environmental Services, Inc. 200 South Wacker Drive, Suite 3100 Chicago, IL 60606 T: 800.952.6426 www.langan.com</p>	Project	Drawing Title	Project No.	Figure
	<p>PROJECT SILVER EAGLE</p> <p>VILLAGE OF COTTAGE GROVE DANE COUNTY WISCONSIN</p>		<p>TRUCK INBOUND LEFT TURN SIGHT DISTANCE</p>	
			<p>Date</p> <p>JANUARY 2022</p> <p>Drawn By</p> <p>JMK</p> <p>Checked By</p> <p>CAP</p>	

