Memorandum

TO: Mr. Chad Mease
Redstart Construction, Inc.

FROM: Stephen B. Corcoran, P.E., PTOE
Director of Traffic Engineering

DATE: December 8, 2022 **Revised April 17, 2023**

RE: Townhome Traffic Study
27 W 280 Bauer Road
Naperville, Illinois

This memorandum summarizes a traffic analysis conducted for a proposed 12-unit townhome development at 27 W 280 Bauer Road in Naperville, Illinois. The purpose of the study was to observe the existing traffic patterns in the area, to estimate the traffic generated by the development, to determine the traffic impact of the site traffic, and then to identify strategies to address any issues.

Site Location and Area Land-Use

The subject site was is located on the northeast corner of the Mill Street and Bauer Road intersection. One residential building occupies the site. Uses around the site consist of Nike Park to the north, single-family residential to the east, a nursery to the south, and a church to the west. **Figure 1** illustrates the site and the surrounding land-uses and roads. (Note: all figures are located at the end of the report).

Roadway Characteristics

Mill Street is a north-south minor arterial roadway extending south of Ferry Road to Jackson Avenue in Downtown Naperville. Along the site frontage, it has two thru lanes in each direction with center median. At its signalized intersection with Bauer Road, there is separate left-turn lane on both legs. It is under the jurisdiction of the DuPage County Division of Transportation with a 35-mph speed limit south of and 40 mph north of Bauer Road.

Bauer Road is an east-west two-lane collector road extending east from East Avenue to Commons Road. At Mill Street, each approach has shared thru/right-turn lane and a left-turn lane. It is under the jurisdiction of the City of Naperville west of Mill Street and Naperville Township to the east. Bauer Road has a 25-mph speed limit.

Figure 2 illustrates the existing roadway geometrics.

Existing Traffic Volumes

Weekday morning (7:00 to 9:00 AM) and afternoon (4:00 to 6:00 PM) traffic counts were conducted at the intersection of the Mill Street and Bauer Road. These counts showed the peak-hours of traffic occurred from 7:15 to 8:15 AM and 4:45 to 5:45 PM. The hourly counts were compared to counts from the Year 2020 during the pandemic and found to be significantly higher than the 2020 volumes. No adjustments to the existing counts were made. The existing traffic volumes are shown in **Figure 3** and included in the **Appendix**.

Site Development Plan

The proposed development plan is to build a 12 townhome with one full access drive on Bauer Road and a right-out only drive on Mill Street.

Site Trip Generation

The site traffic generated by the development was estimated from data in the Institute of Transportation Engineer's Trip Generation 11th Ed. manual which contains trip generation surveys of similar uses. The resulting site traffic volumes are shown in **Table 1.** The peak-hour trips in and out of the site are very low.

Table 1
Site Traffic Volumes

Use	Daily Trips	Morning Peak			Evening Peak		
		In	Out	Total	In	Out	Total
Townhomes (12 units)	86	2	4	6	4	3	7

(1) ITE Land Use Code 215 – Single Family Attached Housing

Trip Distribution

The trip distribution for a residential development is based on a combination of the existing traffic volumes going by the site, location of employment centers, and the road network. The trip distribution for the site is shown on **Table 2** and **Figure 4**.

Table 2
Directional Distribution

Approach Route	Percentage
North on Mill Street	40%
South on Mill Street	40%
East on Bauer Road	15%
West on Bauer Road	5%
Total	**100%**

Trip Assignment

The future vehicular trips generated by the development were distributed to the area roadways based on the directional distribution analysis and the proposed site plan. **Figure 5** displays the trip assignment for the new site trips. The individual traffic movements into and out of the site vary from 1 to 3 vehicles per hour.

Projected Traffic Volumes

Total traffic volumes are a combination of the existing traffic volumes, projected non-site growth in those volumes, and the site related traffic. The total traffic volumes were estimated for five years after the construction of the project (2028). Data provided by the Chicago Metropolitan Agency for Planning shows modest growth in traffic volumes along both roads at 0.7% per year. A copy of their letter can be found in the **Appendix**. This growth rate was applied to the existing traffic volumes to obtain the base Year 2028 volumes without the project (**Figure 6**).

The site traffic volumes were combined with the 2028 base volumes to generate the Year 2028 total traffic volumes with the project and are shown on **Figures 7**.

Future Traffic Conditions

In order to determine the operation of study area intersections and access drives, intersection capacity analyses were conducted with the proposed and nearby developments included. An intersection's ability to accommodate traffic flow is based on the average control delay experienced by vehicles passing through

the intersection. The intersection and individual traffic movements are assigned a level of service (LOS), ranging from A to F based on the control delay created by a traffic signal or stop sign. Control delay consists of the initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. LOS A has the best traffic flow and least delay. LOS E represents saturated or at capacity conditions. LOS F experiences oversaturated conditions and extensive delays. The Highway Capacity Manual definitions for levels of service and the corresponding control delay for both signalized and unsignalized intersections are shown in **Table 3**.

Table 3
Level of Service Criteria for Intersections

Level of Service	Description	Control Delay (seconds/vehicle)	
		Signals	Stop Signs
A	Minimal delay and few stops	<10	<10
B	Low delay with more stops	>10-20	>10-15
C	Light congestion	>20-35	>15-25
D	Congestion is more noticeable with longer delays	>35-55	>25-35
E	High delays and number of stops	>55-80	>35-50
F	Unacceptable delays and over capacity	>80	>50

The existing and total traffic volumes were applied to the proposed access system and capacity analyses were completed to determine the existing and future operating conditions with the townhomes. **Table 4** summarizes the results of those analyses.

Mill Street and Bauer Road

The signalized intersection at Mill Street at Bauer Road operates well now and in the future. The increase in non-site and site traffic growth will increase the average delay by less than a half a second per vehicle. This change in delay is imperceivable to the typical driver. No improvements are required.

Site Access on Bauer Road

The proposed full access point into the site is approximately 190 east of the westbound stop bar at Mill Street. The capacity analyses show the peak-hour westbound queues to be less than 170 feet and would not block the new drive. Due to the low volumes, no turn lanes are required on Bauer Road. The drive will have one inbound lanes and one outbound lane under stop sign control.

Table 4
Intersection Level of Service and Delay (seconds)

Intersection	Movement	Morning Peak		Evening Peak	
		2022	2028	2022	2028
Mill Street at Bauer Road	Intersection	C-21.6	C-22.0	B-14.5	B-14.8
Right-out Drive On Mill Street	WB Right		B-11.0		B-10.5
Access Drive on Bauer Road	EB Left		A-7.8		A-7.6
	SB Approach		B-10.5		A-9.9

Site Access on Mill Street

The proposed right-out only drive provides better site circulation for emergency and refuse vehicles so they do not have to back up from the west side of the site. This drive will not adversely impact the northbound traffic on Mill Street. It will have one outbound lane under stop sign control.

Conclusions

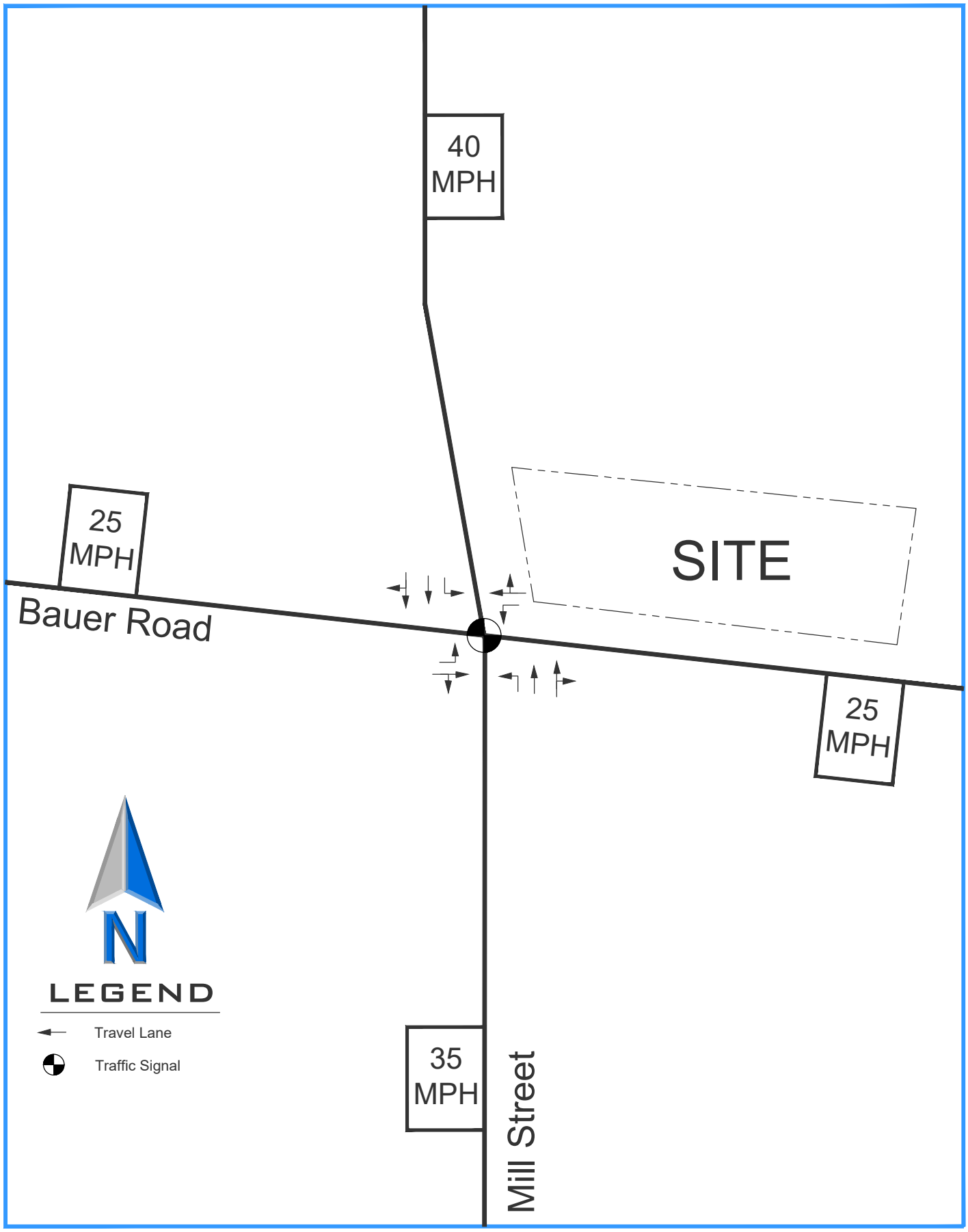
The preceding traffic analysis analyzed the proposed 12-unit townhome development in Naperville and developed the following conclusions:

- The proposed townhome will not adversely impact the level-of-service of study area intersections.
- Trip generation estimates for the site is 6 to 7 vehicles per hour.
- One full access drive on Bauer Road will be adequate to serve the site. Separate turn lanes on Bauer Road are not warranted.
- A right-out only drive on Mill Street will operate well.

ERIKSSON ENGINEERING ASSOCIATES, LTD.

Site Location and Area Roadways

Figure 1



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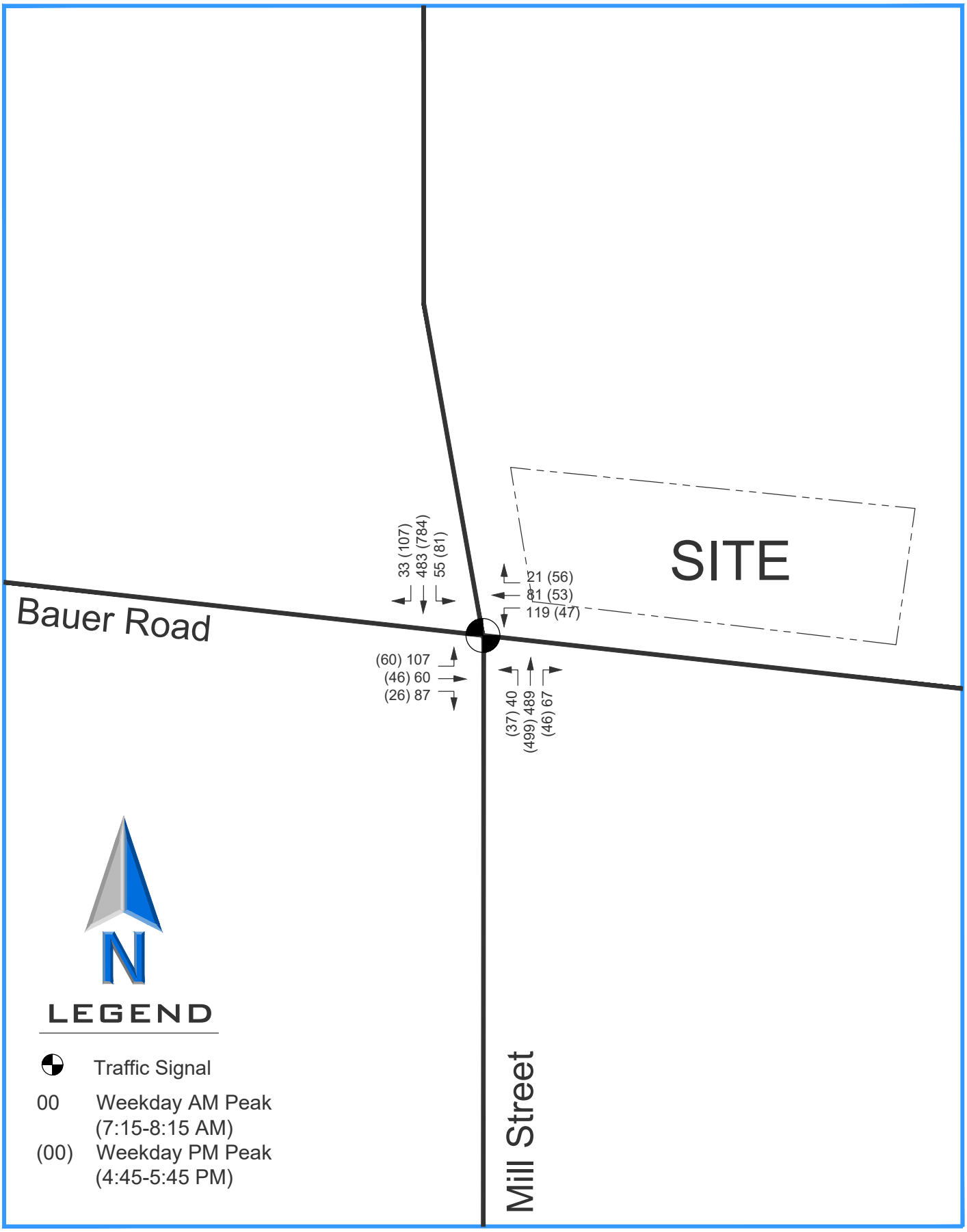
Existing Geometrics

Figure 2



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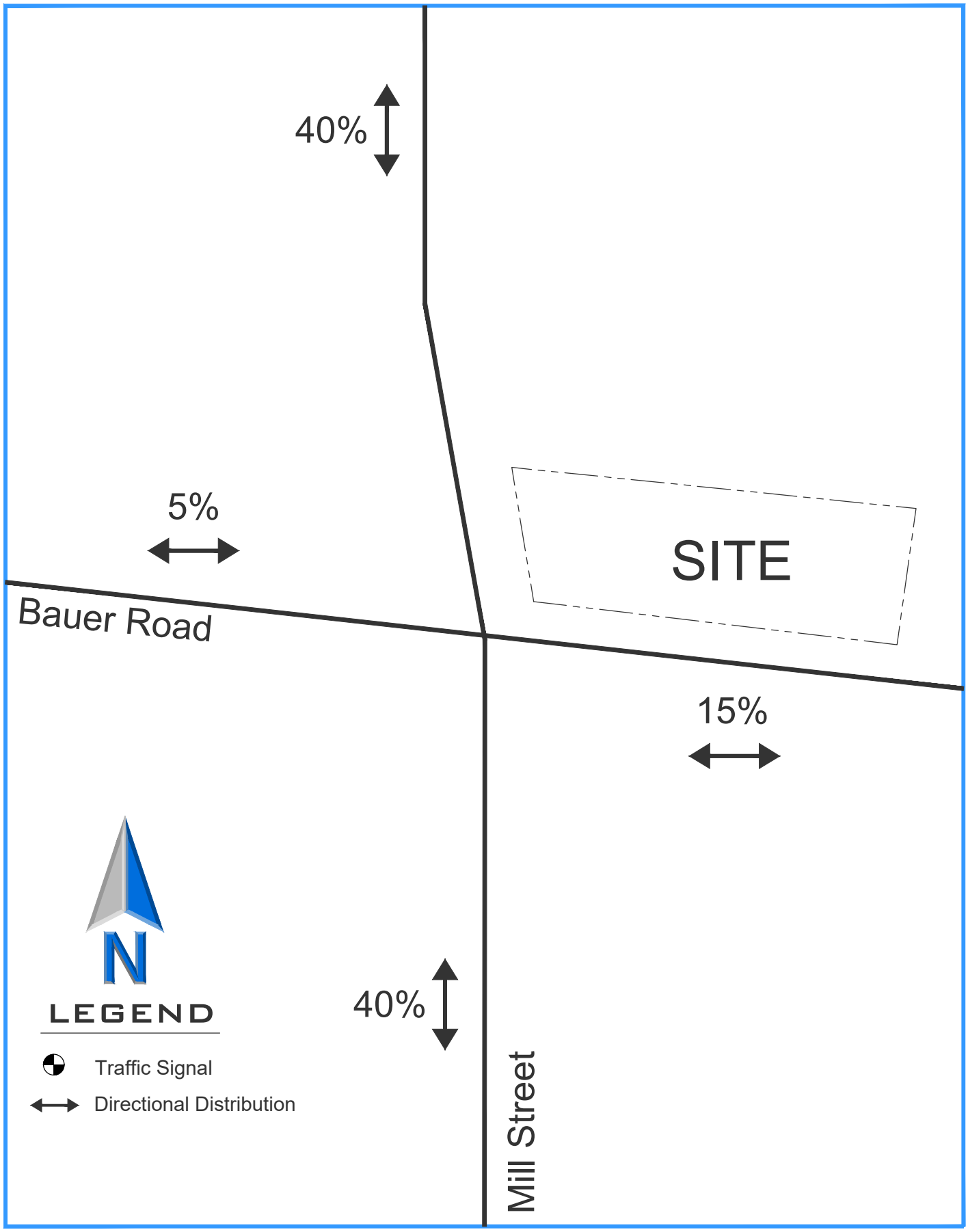
Year 2022 Existing Traffic Volumes

Figure 3



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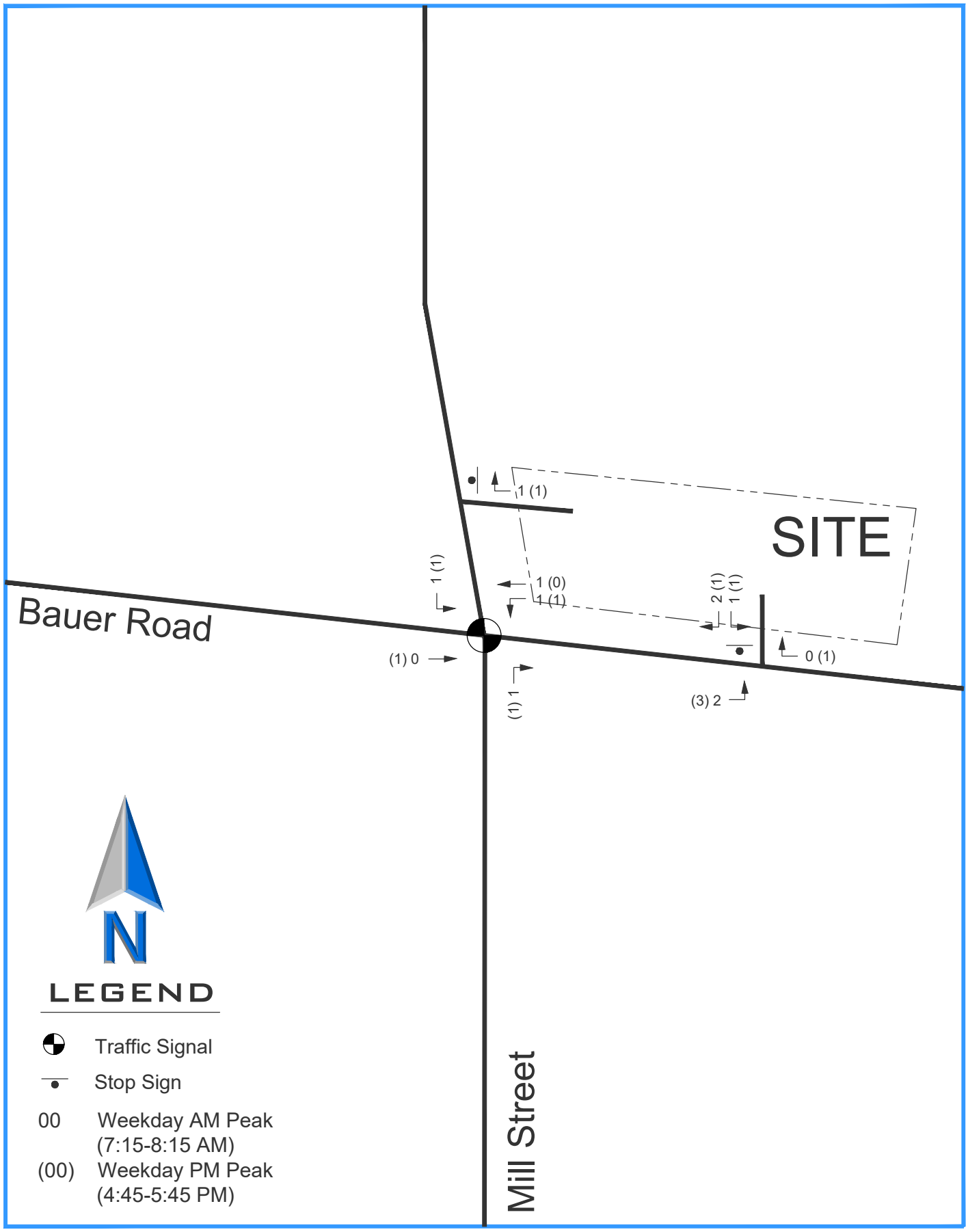
Directional Distribution

Figure 4



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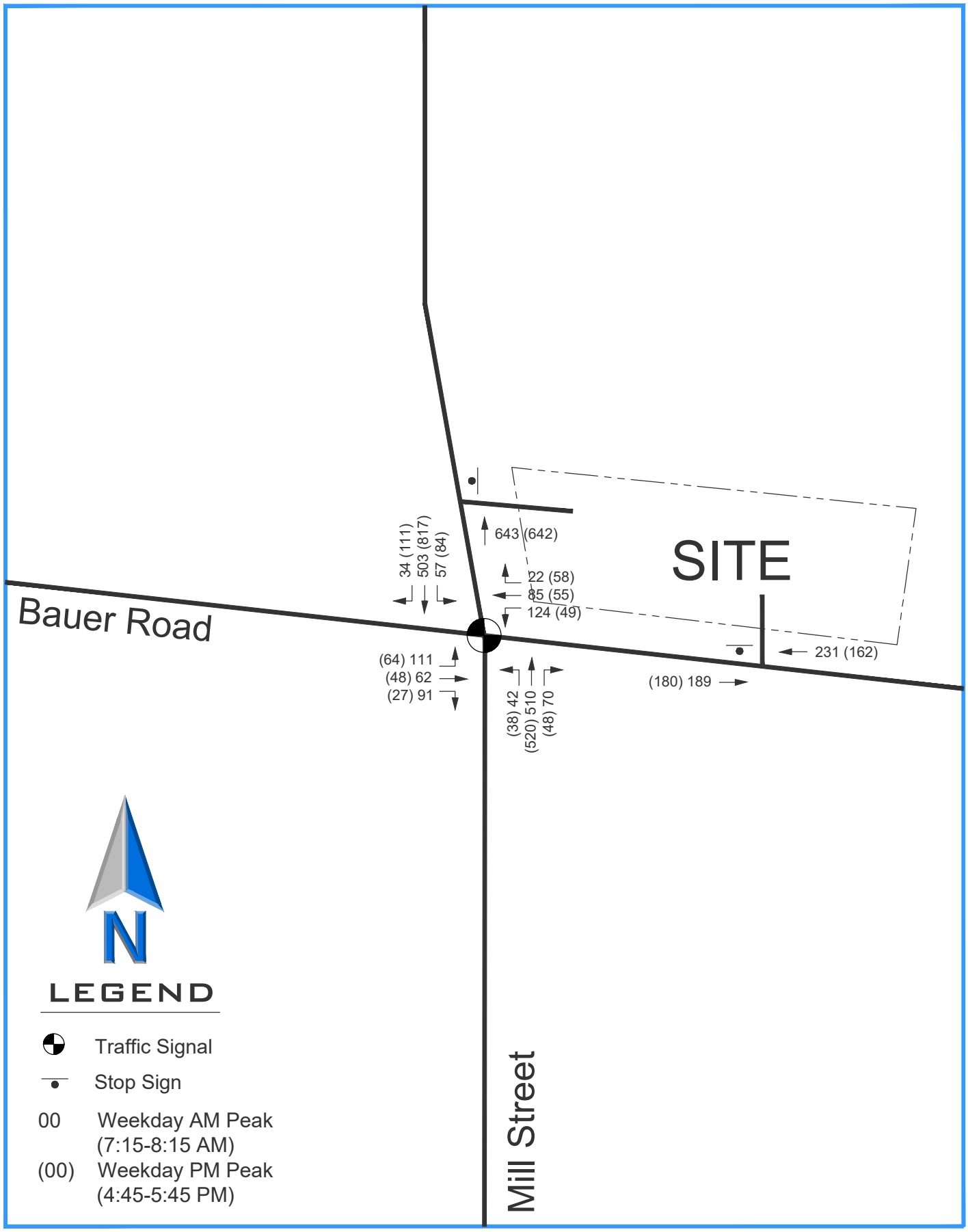
Site Traffic Assignment

Figure 5



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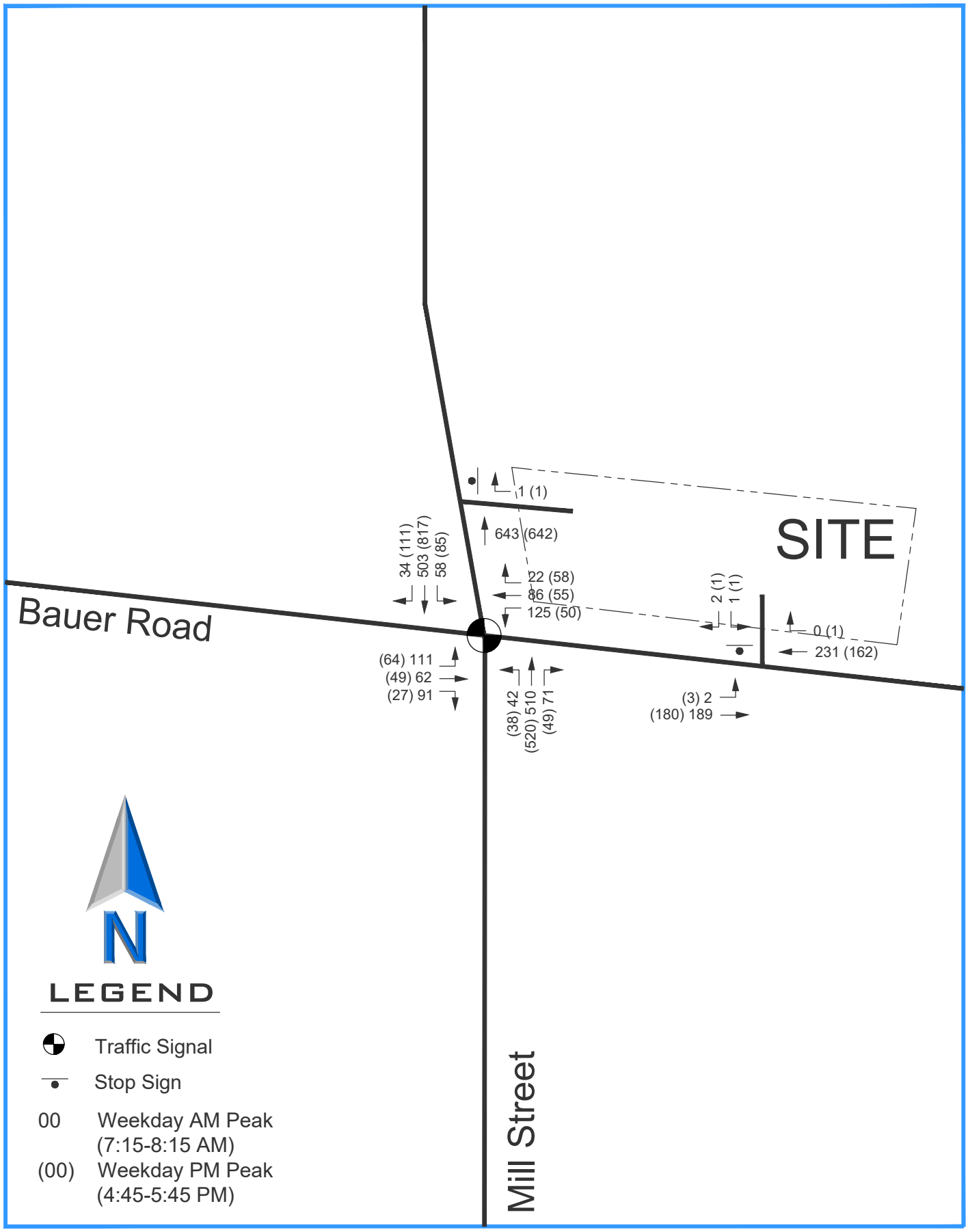
Year 2028 Base Traffic Volumes

Figure 6



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Year 2022 Total Traffic Volumes

Figure 7

Appendix

- **Traffic Count Data**
- **CMAP Letter**
- **ITE Trip Generation Calculations**
- **Intersection Capacity Analyses**
    - **2022 Existing Conditions**
    - **2028 Total Traffic Volumes**

Mill Street at Bauer Road

Naperville, Illinois															
	Mill Street Southbound			Bauer Road Westbound			Mill Street Northbound			Bauer Road Eastbound			15	60	Peak
Begin Time	Right Turn	Through	Left Turn	Right Turn	Through	Left Turn	Right Turn	Through	Left Turn	Right Turn	Through	Left Turn	Minute Totals	Minute Totals	Hour Factor
	Tuesday November 22, 2022														
7:00 AM	4	73	14	1	10	11	7	99	5	8	2	8	242	1482	0.80
7:15 AM	6	121	14	4	12	23	5	93	0	14	4	30	326	**1642**	**0.88**
7:30 AM	12	158	15	5	30	38	16	112	4	18	16	40	464	1612	0.87
7:45 AM	4	111	17	11	31	30	15	133	17	35	26	20	450	1438	0.80
8:00 AM	11	93	9	1	8	28	31	151	19	20	14	17	402	1313	0.82
8:15 AM	9	88	12	2	8	13	6	130	4	13	5	6	296		
8:30 AM	9	89	17	5	5	22	2	106	8	11	8	8	290		
8:45 AM	13	122	12	6	3	16	9	110	0	16	11	7	325		
Total	68	855	110	35	107	181	91	934	57	135	86	136			
7:15-8:15 AM	**33**	**483**	**55**	**21**	**81**	**119**	**67**	**489**	**40**	**87**	**60**	**107**	**1642**		
4:00 PM	19	122	14	13	13	8	8	109	7	2	8	21	344	1604	0.86
4:15 PM	18	126	16	14	14	8	9	121	8	3	8	23	369	1745	0.90
4:30 PM	21	149	19	17	17	10	11	131	9	3	10	27	424	1800	0.93
4:45 PM	17	179	19	20	14	19	9	140	15	6	15	15	468	**1842**	**0.95**
5:00 PM	27	206	24	15	12	7	20	128	9	7	12	17	484	1796	0.93
5:15 PM	30	190	18	10	13	10	8	110	6	6	9	14	424		
5:30 PM	33	209	20	11	14	11	9	121	7	7	10	15	466		
5:45 PM	30	188	18	10	13	12	8	109	6	6	9	14	422		
Total	194	1369	148	110	110	85	82	969	66	39	81	146			
4:45-5:45 PM	**107**	**784**	**81**	**56**	**53**	**47**	**46**	**499**	**37**	**26**	**46**	**61**	**1842**		

Chicago Metropolitan Agency for Planning

433 West Van Buren Street
Suite 450
Chicago, IL 60607

312-454-0400
cmap.illinois.gov

November 10, 2022

Stephen B. Corcoran, PE), PTOE
Director of Traffic Engineering
ERIKSSON ENGINEERING ASSOCIATES, LTD.
145 Commerce Drive
Suite A
Grayslake, IL 60030

Subject: ***Mill Street and Bauer Road***
IDOT

Dear Mr. Corcoran:

In response to a request made on your behalf and dated November 10, 2022, we have developed year 2020 average daily traffic (ADT) projections for the subject location.

ROAD SEGMENT	Current ADT (2016)	Year 2050 ADT
Mill Street	19,200	23,800
Bauer Road	4,900	6,100

Traffic projections are developed using existing ADT data provided in the request letter and the results from the October 2022 CMAP Travel Demand Analysis. The regional travel model uses CMAP 2020 socioeconomic projections and assumes the implementation of the ON TO 2050 Comprehensive Regional Plan for the Northeastern Illinois area. The provision of this data in support of your request does not constitute a CMAP endorsement of the proposed development or any subsequent developments.

If you have any questions, please call me at (312) 386-8806.

Sincerely,

Jose Rodriguez, PTP, AICP
Senior Planner, Research & Analysis

cc: Rios (IDOT)
2022_ForecastTraffic\Naperville\du-53-22\du-53-22.docx

TRAFFIC FORECAST RECORD

Record Number: du-53-22
Type of Report: Projection
Year Sought: 2020
Analyst: JAR
Organization requesting forecast: Eriksson Engineering Associates
Contact: Stephen B. Corcoran, P.E., PTOE
Email or Phone scorcoran@eea-ltd.com
Sponsor: IDOT
Date request was received: November 10, 2022
Date that response was emailed: November 10, 2022
Facility Location: Mill Street and Bauer Road
Municipality: Naperville

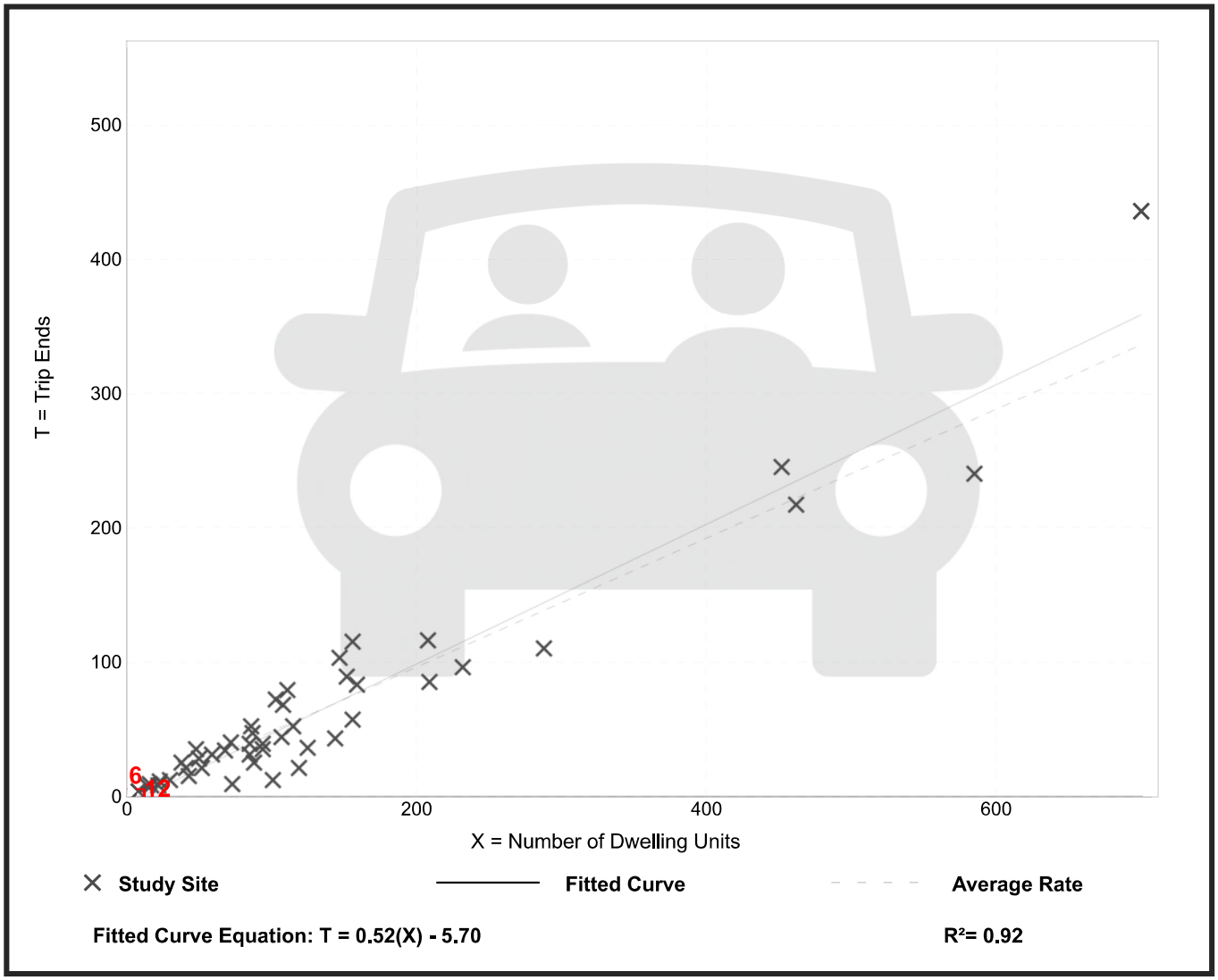
Single-Family Attached Housing
(215)

Vehicle Trip Ends vs:	**Dwelling Units**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 7 and 9 a.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	46
Avg. Num. of Dwelling Units:	135
Directional Distribution:	31% entering, 69% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.48	0.12 - 0.74	0.14

Data Plot and Equation



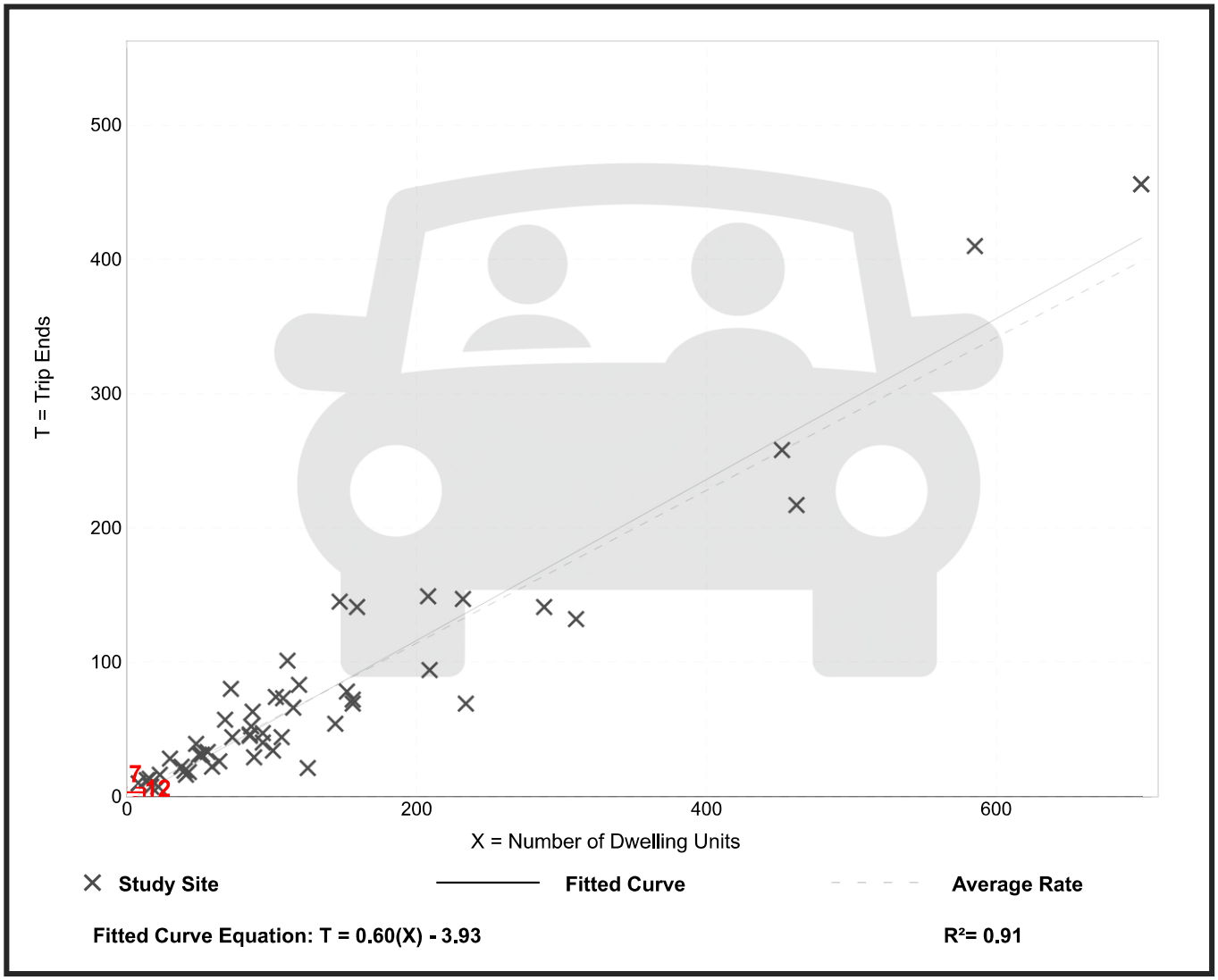
Single-Family Attached Housing
(215)

Vehicle Trip Ends vs:	**Dwelling Units**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 4 and 6 p.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	51
Avg. Num. of Dwelling Units:	136
Directional Distribution:	57% entering, 43% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.57	0.17 - 1.25	0.18

Data Plot and Equation



Single-Family Attached Housing
(215)

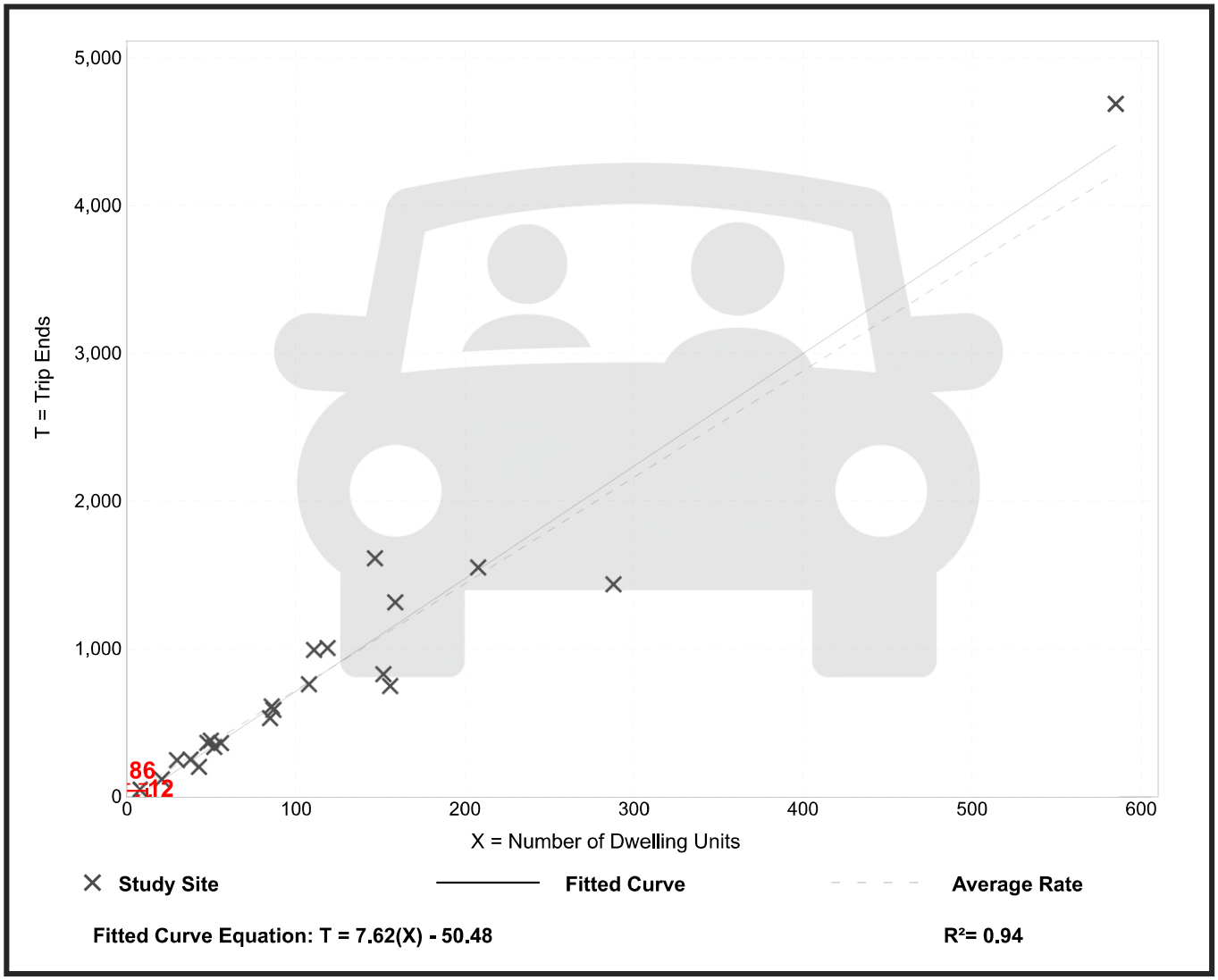
Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 22
Avg. Num. of Dwelling Units: 120
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
7.20	4.70 - 10.97	1.61

Data Plot and Equation



HCS Two-Way Stop-Control Report

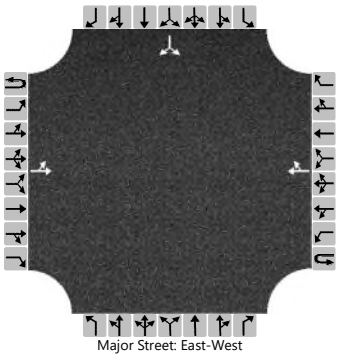
General Information

Analyst	SBC
Agency/Co.	Eriksson Engineering
Date Performed	12/8/2022
Analysis Year	2028
Time Analyzed	AM Peak
Intersection Orientation	East-West
Project Description	Baur Mill Townhomes

Site Information

Intersection	Baur Rd/ Site Access
Jurisdiction	Naperville
East/West Street	Baur Road
North/South Street	Site Access
Peak Hour Factor	0.82
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		2	189				231	0						1		2
Percent Heavy Vehicles (%)		3												3		3
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type | Storage			Undivided													

Critical and Follow-up Headways

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

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		2													4	
Capacity, c (veh/h)		1275													654	
v/c Ratio		0.00													0.01	
95% Queue Length, Q_{95} (veh)		0.0													0.0	
Control Delay (s/veh)		7.8	0.0												10.5	
Level of Service (LOS)		A	A												B	
Approach Delay (s/veh)		0.1												10.5		
Approach LOS		A												B		

HCS Two-Way Stop-Control Report

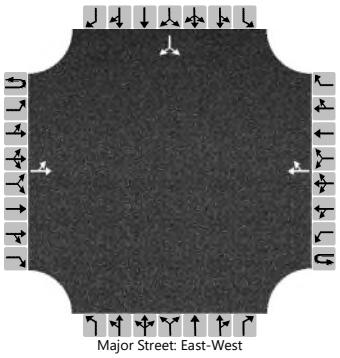
General Information

Analyst	SBC
Agency/Co.	Eriksson Engineering
Date Performed	12/8/2022
Analysis Year	2028
Time Analyzed	PM Peak
Intersection Orientation	East-West
Project Description	Baur Mill Townhomes

Site Information

Intersection	Baur Rd/ Site Access
Jurisdiction	Naperville
East/West Street	Baur Road
North/South Street	Site Access
Peak Hour Factor	0.95
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		3	180				162	1						1		1
Percent Heavy Vehicles (%)		3												3		3
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

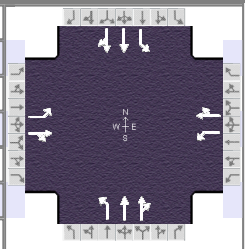
Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.13												6.43		6.23
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.23												3.53		3.33

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		3													2	
Capacity, c (veh/h)		1399													730	
v/c Ratio		0.00													0.00	
95% Queue Length, Q_{95} (veh)		0.0													0.0	
Control Delay (s/veh)		7.6	0.0												9.9	
Level of Service (LOS)		A	A												A	
Approach Delay (s/veh)	0.1												9.9			
Approach LOS	A												A			

HCS Signalized Intersection Input Data

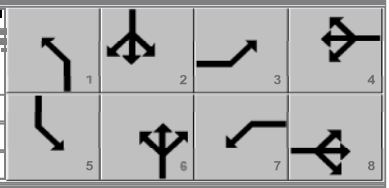
General Information				Intersection Information	
Agency	Eriksson Engineering			Duration, h	0.250
Analyst	SBC	Analysis Date	12/8/2022	Area Type	Other
Jurisdiction	DuPage/Napervile	Time Period	AM Peak	PHF	0.82
Urban Street	Mill Street	Analysis Year	2022	Analysis Period	1> 7:00
Intersection	Baur Road	File Name	Mill 2022 AM.xus		
Project Description	2022 AM Peak Hour				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	107	60	87	119	81	21	40	489	67	55	483	33

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	Begin
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	3.3	1.0	55.9	8.4	0.8	40.6	
Yellow	3.5	0.0	4.5	3.5	0.0	4.5	
Red	0.0	0.0	2.0	0.0	0.0	2.0	



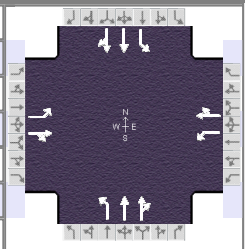
Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	107	60	87	119	81	21	40	489	67	55	483	33
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	3	3		3	3		5	5		5	5	
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	3	3	3	3	3	3	4	4	3	4	4
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (*W*), ft	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Turn Bay Length, ft	225	0		165	0		150	0		150	0	
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h	25	25	25	25	25	25	35	35	35	35	35	35

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s	19.5	32.5	27.3	40.3	15.6	54.6	15.6	54.6
Yellow Change Interval (*Y*), s	3.5	4.5	3.5	4.5	3.5	4.5	3.5	4.5
Red Clearance Interval (R_c), s	0.0	2.0	0.0	2.0	0.0	2.0	0.0	2.0
Minimum Green (G_{min}), s	3	6	3	6	3	15	3	15
Start-Up Lost Time (*lt*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	3.0	4.0	3.0	4.0	3.0	7.0	3.0	7.0
Passage (*PT*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Recall Mode	Off	Off	Off	Off	Off	Max	Off	Max
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Walk (*Walk*), s		14.0		10.0		12.0		14.0
Pedestrian Clearance Time (*PC*), s		25.0		20.0		16.0		20.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

HCS Signalized Intersection Results Summary

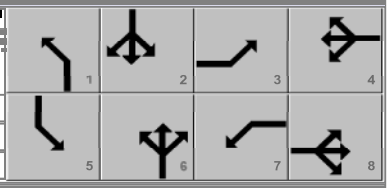
General Information				Intersection Information	
Agency	Eriksson Engineering			Duration, h	0.250
Analyst	SBC	Analysis Date	12/8/2022	Area Type	Other
Jurisdiction	DuPage/Napervile	Time Period	AM Peak	PHF	0.82
Urban Street	Mill Street	Analysis Year	2022	Analysis Period	1> 7:00
Intersection	Baur Road	File Name	Mill 2022 AM.xus		
Project Description	2022 AM Peak Hour				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	107	60	87	119	81	21	40	489	67	55	483	33

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	Begin
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	3.3	1.0	55.9	8.4	0.8	40.6	
Yellow	3.5	0.0	4.5	3.5	0.0	4.5	
Red	0.0	0.0	2.0	0.0	0.0	2.0	



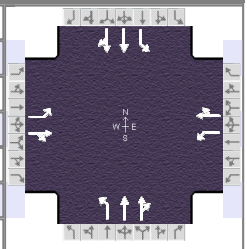
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	3	8	7	4	1	6	5	2
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	4.0
Phase Duration, s	11.9	47.1	12.6	47.9	6.8	62.4	7.8	63.4
Change Period, ($Y+R_c$), s	3.5	6.5	3.5	6.5	3.5	6.5	3.5	6.5
Max Allow Headway (*MAH*), s	3.3	3.3	3.3	3.3	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s	8.3	44.6	9.0	45.4	4.0		4.7	
Green Extension Time (g_e), s	0.1	0.0	0.2	0.0	0.0	0.0	0.0	0.0
Phase Call Probability	0.99	1.00	0.99	1.00	0.83		0.91	
Max Out Probability	0.01	1.00	0.00	1.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h	130	179		145	124		49	346	332	67	318	311
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1767	1677		1767	1789		1739	1826	1749	1739	1826	1784
Queue Service Time (g_s), s	6.3	10.5		7.0	6.5		2.0	12.4	12.4	2.7	10.8	10.8
Cycle Queue Clearance Time (g_c), s	6.3	10.5		7.0	6.5		2.0	12.4	12.4	2.7	10.8	10.8
Green Ratio (*g/C*)	0.39	0.33		0.40	0.33		0.47	0.47	0.47	0.48	0.48	0.48
Capacity (*c*), veh/h	183	550		193	598		377	855	819	381	869	850
Volume-to-Capacity Ratio (*X*)	0.715	0.326		0.751	0.208		0.129	0.404	0.406	0.176	0.366	0.367
Back of Queue (*Q*), ft/ln (95 th percentile)	129.5	199.2		143.5	132.2		37.7	220.6	206.2	51.1	199.3	188.8
Back of Queue (*Q*), veh/ln (95 th percentile)	5.1	7.8		5.6	5.2		1.4	8.5	8.2	2.0	7.7	7.6
Queue Storage Ratio (*RQ*) (95 th percentile)	0.58	0.00		0.87	0.00		0.25	0.00	0.00	0.34	0.00	0.00
Uniform Delay (d_1), s/veh	32.6	32.9		32.2	31.0		19.4	16.3	15.3	18.8	15.4	14.4
Incremental Delay (d_2), s/veh	2.0	0.1		2.2	0.1		0.1	1.4	1.5	0.1	1.2	1.2
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	34.5	33.0		34.4	31.0		19.4	17.7	16.8	18.9	16.6	15.6
Level of Service (LOS)	C	C		C	C		B	B	B	B	B	B
Approach Delay, s/veh / LOS	33.6	C		32.9	C		17.4	B		16.4	B	
Intersection Delay, s/veh / LOS	21.6						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.29	B	2.29	B	1.92	B	1.92	B
Bicycle LOS Score / LOS	1.00	A	0.93	A	1.09	A	1.06	A

HCS Signalized Intersection Intermediate Values

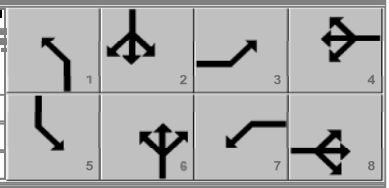
General Information				Intersection Information	
Agency	Eriksson Engineering			Duration, h	0.250
Analyst	SBC	Analysis Date	12/8/2022	Area Type	Other
Jurisdiction	DuPage/Napervile	Time Period	AM Peak	PHF	0.82
Urban Street	Mill Street	Analysis Year	2022	Analysis Period	1> 7:00
Intersection	Baur Road	File Name	Mill 2022 AM.xus		
Project Description	2022 AM Peak Hour				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	107	60	87	119	81	21	40	489	67	55	483	33

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	Begin
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	3.3	1.0	55.9	8.4	0.8	40.6
Yellow	3.5	0.0	4.5	3.5	0.0	4.5
Red	0.0	0.0	2.0	0.0	0.0	2.0



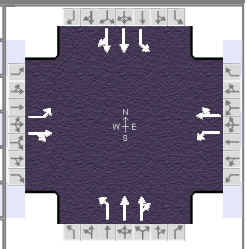
Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	0.977	0.977	1.000	0.977	0.977	1.000	0.961	0.961	1.000	0.961	0.961	1.000
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.952	0.000		0.952	0.000		0.952	0.000		0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.904	0.904		0.964	0.964		0.958	0.958		0.977	0.977
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000			1.000			1.000			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Prot. CAV Adj. Factor ($f_{CAV,prot}$)	1.00			1.00			1.00			1.00		
Left-Turn Perm. CAV Adj. Factor ($f_{CAV,perm}$)	1.00											
Movement Saturation Flow Rate (s), veh/h	1767	684	992	1767	1421	368	1739	3145	430	1739	3380	231
Proportion of Vehicles Arriving on Green (P)	0.07	0.33	0.33	0.08	0.33	0.33	0.03	0.62	0.62	0.04	0.63	0.63
Incremental Delay Factor (k)	0.04	0.04		0.04	0.04		0.04	0.50	0.50	0.04	0.50	0.50

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)	2.5	4.5	2.5	4.5	2.5	1.5	2.5	1.5
Green Ratio (g/C)	0.39	0.33	0.40	0.33	0.47	0.47	0.48	0.48
Permitted Saturation Flow Rate (s_p), veh/h/ln	1257	1257	1195	0	778	0	743	0
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								
Permitted Effective Green Time (g_p), s	41.6	26.5	41.9	0.0	56.9	0.0	57.4	0.0
Permitted Service Time (g_u), s	0.0	0.0	0.0	0.0	44.1	0.0	44.5	0.0
Permitted Queue Service Time (g_{ps}), s	0.0		0.0		0.9		1.3	
Time to First Blockage (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln								
Protected Right Effective Green Time (g_R), s								

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.557	0.000	1.557	0.000	1.198	0.000	1.198	0.000
Pedestrian F_s / F_{delay}	0.000	0.137	0.000	0.137	0.000	0.122	0.000	0.121
Pedestrian M_{corner} / M_{cw}	0.00		0.00		0.00		0.00	
Bicycle c_b / d_b	625.28	30.71	637.45	30.17	859.89	21.12	875.23	20.56
Bicycle F_w / F_v	-3.64	0.51	-3.64	0.44	-3.64	0.60	-3.64	0.57

HCS Signalized Intersection Results Graphical Summary

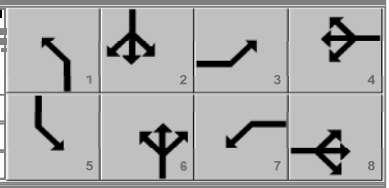
General Information				Intersection Information	
Agency	Eriksson Engineering			Duration, h	0.250
Analyst	SBC	Analysis Date	12/8/2022	Area Type	Other
Jurisdiction	DuPage/Napervile	Time Period	AM Peak	PHF	0.82
Urban Street	Mill Street	Analysis Year	2022	Analysis Period	1> 7:00
Intersection	Baur Road	File Name	Mill 2022 AM.xus		
Project Description	2022 AM Peak Hour				



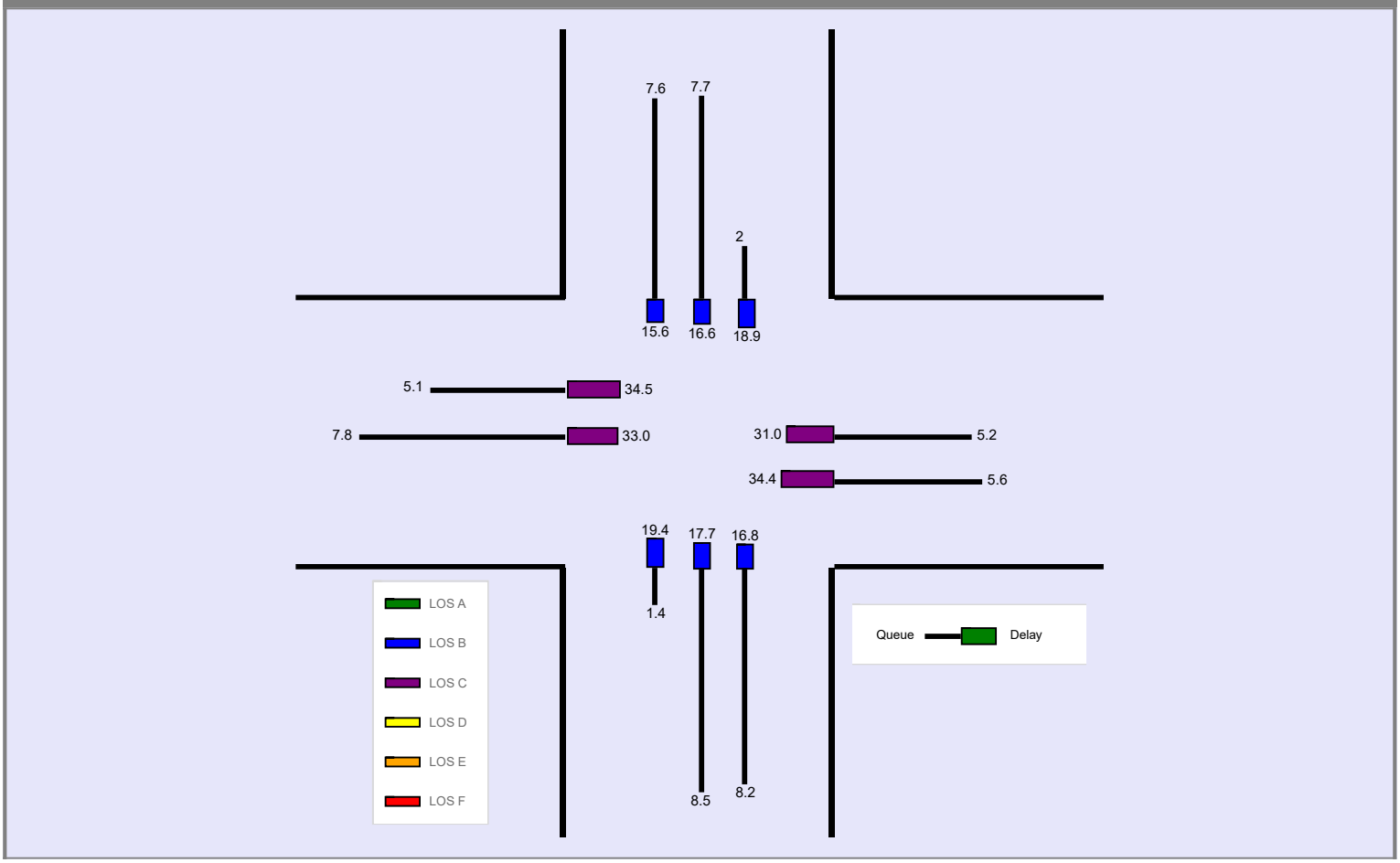
Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	107	60	87	119	81	21	40	489	67	55	483	33

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	Begin
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	3.3	1.0	55.9	8.4	0.8	40.6	
Yellow	3.5	0.0	4.5	3.5	0.0	4.5	
Red	0.0	0.0	2.0	0.0	0.0	2.0	



Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)	129.5	199.2		143.5	132.2		37.7	220.6	206.2	51.1	199.3	188.8
Back of Queue (*Q*), veh/ln (95 th percentile)	5.1	7.8		5.6	5.2		1.4	8.5	8.2	2.0	7.7	7.6
Queue Storage Ratio (*RQ*) (95 th percentile)	0.58	0.00		0.87	0.00		0.25	0.00	0.00	0.34	0.00	0.00
Control Delay (*d*), s/veh	34.5	33.0		34.4	31.0		19.4	17.7	16.8	18.9	16.6	15.6
Level of Service (LOS)	C	C		C	C		B	B	B	B	B	B
Approach Delay, s/veh / LOS	33.6	C		32.9	C		17.4	B		16.4	B	
Intersection Delay, s/veh / LOS	21.6						C					



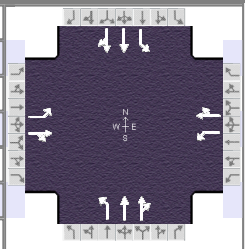
--- Messages ---

No errors or warnings exist.

--- Comments ---

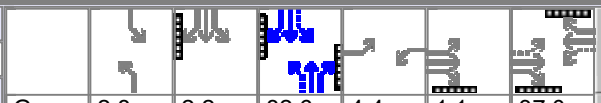
HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	Eriksson Engineering			Duration, h	0.250
Analyst	SBC	Analysis Date	12/8/2022	Area Type	Other
Jurisdiction	DuPage/Napervile	Time Period	PM Peak	PHF	0.95
Urban Street	Mill Street	Analysis Year	2022	Analysis Period	1> 7:00
Intersection	Baur Road	File Name	Mill 2022 PM.xus		
Project Description	2022 PM Peak Hour				

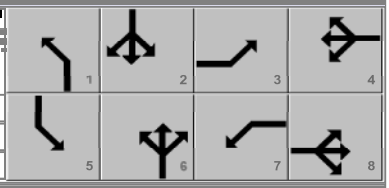


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	60	46	26	47	53	56	37	499	46	81	784	107

Signal Information			
Cycle, s	150.0	Reference Phase	2
Offset, s	0	Reference Point	Begin
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	2.8	2.2	82.6	4.4	1.1	37.0
Yellow	3.5	0.0	4.5	3.5	0.0	4.5
Red	0.0	0.0	2.0	0.0	0.0	2.0



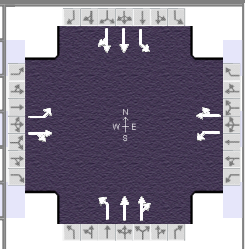
Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	60	46	26	47	53	56	37	499	46	81	784	107
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	3	3		3	3		5	5		5	5	
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	3	3	3	3	3	3	4	4	3	4	4
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (*W*), ft	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Turn Bay Length, ft	225	0		165	0		150	0		150	0	
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h	25	25	25	25	25	25	35	35	35	35	35	35

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s	15.0	37.5	15.0	37.5	21.0	84.0	13.5	76.5
Yellow Change Interval (*Y*), s	3.5	4.5	3.5	4.5	3.5	4.5	3.5	4.5
Red Clearance Interval (R_c), s	0.0	2.0	0.0	2.0	0.0	2.0	0.0	2.0
Minimum Green (G_{min}), s	3	6	3	6	3	15	3	15
Start-Up Lost Time (*lt*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	3.0	4.0	3.0	4.0	3.0	7.0	3.0	7.0
Passage (*PT*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Recall Mode	Off	Off	Off	Off	Off	Max	Off	Max
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Walk (*Walk*), s		14.0		10.0		12.0		14.0
Pedestrian Clearance Time (*PC*), s		25.0		20.0		16.0		20.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

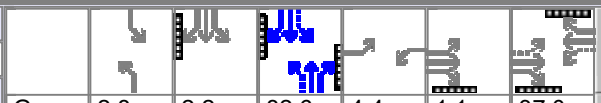
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Eriksson Engineering			Duration, h	0.250
Analyst	SBC	Analysis Date	12/8/2022	Area Type	Other
Jurisdiction	DuPage/Napervile	Time Period	PM Peak	PHF	0.95
Urban Street	Mill Street	Analysis Year	2022	Analysis Period	1> 7:00
Intersection	Baur Road	File Name	Mill 2022 PM.xus		
Project Description	2022 PM Peak Hour				

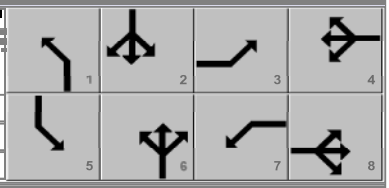


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	60	46	26	47	53	56	37	499	46	81	784	107

Signal Information			
Cycle, s	150.0	Reference Phase	2
Offset, s	0	Reference Point	Begin
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	2.8	2.2	82.6	4.4	1.1	37.0
Yellow	3.5	0.0	4.5	3.5	0.0	4.5
Red	0.0	0.0	2.0	0.0	0.0	2.0



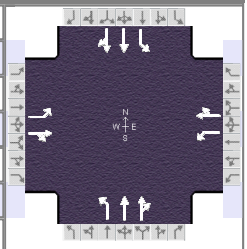
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	3	8	7	4	1	6	5	2
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	4.0
Phase Duration, s	9.0	44.5	7.9	43.5	6.3	89.1	8.4	91.2
Change Period, ($Y+R_c$), s	3.5	6.5	3.5	6.5	3.5	6.5	3.5	6.5
Max Allow Headway (*MAH*), s	3.3	3.3	3.3	3.3	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s	5.9	42.0	5.1	41.0	3.4		5.0	
Green Extension Time (g_e), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase Call Probability	0.93	1.00	0.87	1.00	0.80		0.97	
Max Out Probability	0.03	1.00	0.01	1.00	0.00		0.07	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h	63	76		49	115		39	290	283	85	479	459
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1767	1742		1767	1698		1739	1826	1771	1739	1826	1749
Queue Service Time (g_s), s	3.9	5.0		3.1	8.0		1.4	6.7	6.8	3.0	12.3	12.3
Cycle Queue Clearance Time (g_c), s	3.9	5.0		3.1	8.0		1.4	6.7	6.8	3.0	12.3	12.3
Green Ratio (*g/C*)	0.30	0.27		0.29	0.26		0.58	0.58	0.58	0.61	0.60	0.60
Capacity (*c*), veh/h	125	465		112	442		366	1066	1034	536	1092	1046
Volume-to-Capacity Ratio (*X*)	0.507	0.163		0.441	0.260		0.106	0.272	0.274	0.159	0.439	0.439
Back of Queue (*Q*), ft/ln (95 th percentile)	81.8	102.1		64.5	160.4		26.8	121.3	114	55.7	195.5	180.7
Back of Queue (*Q*), veh/ln (95 th percentile)	3.2	4.0		2.5	6.3		1.0	4.7	4.6	2.1	7.5	7.2
Queue Storage Ratio (*RQ*) (95 th percentile)	0.36	0.00		0.39	0.00		0.18	0.00	0.00	0.37	0.00	0.00
Uniform Delay (d_1), s/veh	43.0	42.1		43.8	44.1		14.0	8.2	7.7	12.4	7.9	7.3
Incremental Delay (d_2), s/veh	1.2	0.1		1.0	0.1		0.0	0.6	0.7	0.1	1.3	1.3
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	44.2	42.2		44.8	44.2		14.0	8.9	8.3	12.4	9.2	8.7
Level of Service (LOS)	D	D		D	D		B	A	A	B	A	A
Approach Delay, s/veh / LOS	43.1	D		44.3	D		8.9	A		9.2	A	
Intersection Delay, s/veh / LOS	14.5						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.31	B	2.31	B	1.91	B	1.90	B
Bicycle LOS Score / LOS	0.72	A	0.76	A	0.99	A	1.33	A

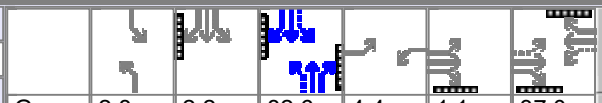
HCS Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	Eriksson Engineering			Duration, h	0.250
Analyst	SBC	Analysis Date	12/8/2022	Area Type	Other
Jurisdiction	DuPage/Napervile	Time Period	PM Peak	PHF	0.95
Urban Street	Mill Street	Analysis Year	2022	Analysis Period	1> 7:00
Intersection	Baur Road	File Name	Mill 2022 PM.xus		
Project Description	2022 PM Peak Hour				

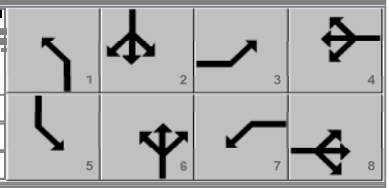


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	60	46	26	47	53	56	37	499	46	81	784	107

Signal Information			
Cycle, s	150.0	Reference Phase	2
Offset, s	0	Reference Point	Begin
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	2.8	2.2	82.6	4.4	1.1	37.0
Yellow	3.5	0.0	4.5	3.5	0.0	4.5
Red	0.0	0.0	2.0	0.0	0.0	2.0



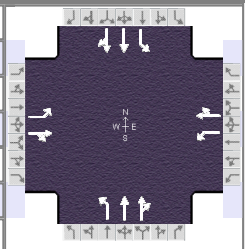
Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	0.977	0.977	1.000	0.977	0.977	1.000	0.961	0.961	1.000	0.961	0.961	1.000
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.952	0.000		0.952	0.000		0.952	0.000		0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.939	0.939		0.915	0.915		0.970	0.970		0.958	0.958
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000			1.000			1.000			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Prot. CAV Adj. Factor ($f_{CAV,prot}$)	1.00			1.00			1.00			1.00		
Left-Turn Perm. CAV Adj. Factor ($f_{CAV,perm}$)	1.00											
Movement Saturation Flow Rate (s), veh/h	1767	1113	629	1767	826	873	1739	3294	303	1739	3145	429
Proportion of Vehicles Arriving on Green (P)	0.04	0.27	0.27	0.04	0.26	0.26	0.03	0.78	0.78	0.04	0.80	0.80
Incremental Delay Factor (k)	0.04	0.04		0.04	0.04		0.04	0.50	0.50	0.04	0.50	0.50

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)	2.5	4.5	2.5	4.5	2.5	1.5	2.5	1.5
Green Ratio (g/C)	0.30	0.27	0.29	0.26	0.58	0.58	0.61	0.60
Permitted Saturation Flow Rate (s_p), veh/h/ln	1268	1257	1313	0	583	0	819	0
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								
Permitted Effective Green Time (g_p), s	38.5	26.5	38.0	0.0	83.6	0.0	85.2	0.0
Permitted Service Time (g_u), s	0.0	0.0	0.0	0.0	70.5	0.0	76.8	0.0
Permitted Queue Service Time (g_{ps}), s	0.0		0.0		0.9		1.0	
Time to First Blockage (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln								
Protected Right Effective Green Time (g_R), s								

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.557	0.000	1.557	0.000	1.198	0.000	1.198	0.000
Pedestrian F_s / F_{delay}	0.000	0.150	0.000	0.150	0.000	0.109	0.000	0.106
Pedestrian M_{corner} / M_{cw}	0.00		0.00		0.00		0.00	
Bicycle c_b / d_b	507.32	41.78	493.30	42.56	1100.97	15.15	1129.65	14.20
Bicycle F_w / F_v	-3.64	0.23	-3.64	0.27	-3.64	0.51	-3.64	0.84

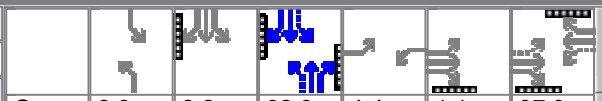
HCS Signalized Intersection Results Graphical Summary

General Information				Intersection Information	
Agency	Eriksson Engineering			Duration, h	0.250
Analyst	SBC	Analysis Date	12/8/2022	Area Type	Other
Jurisdiction	DuPage/Napervile	Time Period	PM Peak	PHF	0.95
Urban Street	Mill Street	Analysis Year	2022	Analysis Period	1> 7:00
Intersection	Baur Road	File Name	Mill 2022 PM.xus		
Project Description	2022 PM Peak Hour				

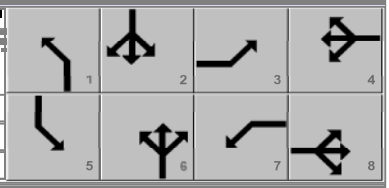


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	60	46	26	47	53	56	37	499	46	81	784	107

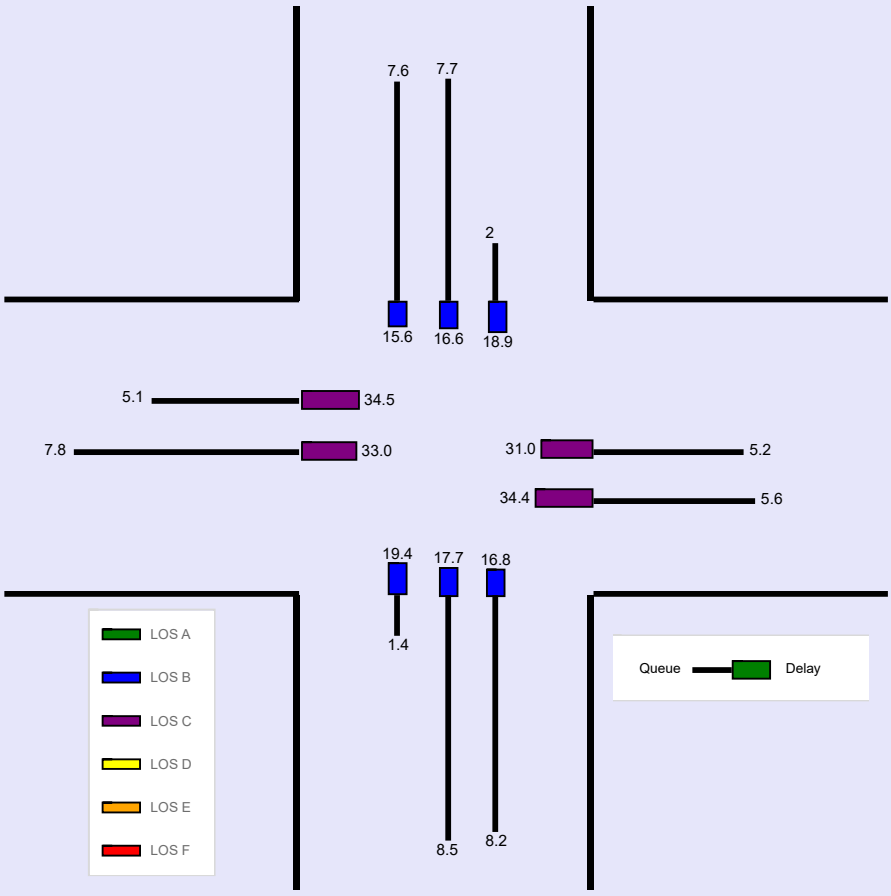
Signal Information			
Cycle, s	150.0	Reference Phase	2
Offset, s	0	Reference Point	Begin
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	2.8	2.2		82.6	4.4	1.1	37.0					
Yellow	3.5	0.0		4.5	3.5	0.0	4.5					
Red	0.0	0.0		2.0	0.0	0.0	2.0					



Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)	81.8	102.1		64.5	160.4		26.8	121.3	114	55.7	195.5	180.7
Back of Queue (*Q*), veh/ln (95 th percentile)	3.2	4.0		2.5	6.3		1.0	4.7	4.6	2.1	7.5	7.2
Queue Storage Ratio (*RQ*) (95 th percentile)	0.36	0.00		0.39	0.00		0.18	0.00	0.00	0.37	0.00	0.00
Control Delay (*d*), s/veh	44.2	42.2		44.8	44.2		14.0	8.9	8.3	12.4	9.2	8.7
Level of Service (LOS)	D	D		D	D		B	A	A	B	A	A
Approach Delay, s/veh / LOS	43.1	D		44.3	D		8.9	A		9.2	A	
Intersection Delay, s/veh / LOS	14.5						B					



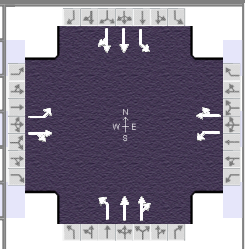
--- Messages ---

No errors or warnings exist.

--- Comments ---

HCS Signalized Intersection Input Data

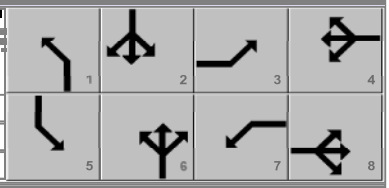
General Information				Intersection Information	
Agency	Eriksson Engineering			Duration, h	0.250
Analyst	SBC	Analysis Date	12/8/2022	Area Type	Other
Jurisdiction	DuPage/Napervile	Time Period	AM Peak	PHF	0.82
Urban Street	Mill Street	Analysis Year	2028	Analysis Period	1> 7:00
Intersection	Baur Road	File Name	Mill 2028 AM.xus		
Project Description	2028 AM Peak Hour				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	111	62	91	125	86	22	42	510	71	58	503	34

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	Begin
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	3.5	1.0		55.7	8.6	0.9	40.2					
Yellow	3.5	0.0		4.5	3.5	0.0	4.5					
Red	0.0	0.0		2.0	0.0	0.0	2.0					



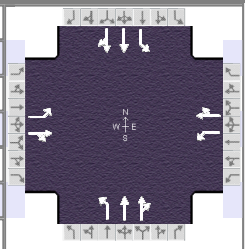
Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	111	62	91	125	86	22	42	510	71	58	503	34
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	3	3		3	3		5	5		5	5	
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	3	3	3	3	3	3	4	4	3	4	4
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (*W*), ft	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Turn Bay Length, ft	225	0		165	0		150	0		150	0	
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h	25	25	25	25	25	25	35	35	35	35	35	35

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s	19.5	32.5	27.3	40.3	15.6	54.6	15.6	54.6
Yellow Change Interval (*Y*), s	3.5	4.5	3.5	4.5	3.5	4.5	3.5	4.5
Red Clearance Interval (R_c), s	0.0	2.0	0.0	2.0	0.0	2.0	0.0	2.0
Minimum Green (G_{min}), s	3	6	3	6	3	15	3	15
Start-Up Lost Time (*lt*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	3.0	4.0	3.0	4.0	3.0	7.0	3.0	7.0
Passage (*PT*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Recall Mode	Off	Off	Off	Off	Off	Max	Off	Max
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Walk (*Walk*), s		14.0		10.0		12.0		14.0
Pedestrian Clearance Time (*PC*), s		25.0		20.0		16.0		20.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

HCS Signalized Intersection Results Summary

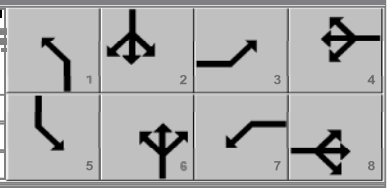
General Information				Intersection Information	
Agency	Eriksson Engineering			Duration, h	0.250
Analyst	SBC	Analysis Date	12/8/2022	Area Type	Other
Jurisdiction	DuPage/Napervile	Time Period	AM Peak	PHF	0.82
Urban Street	Mill Street	Analysis Year	2028	Analysis Period	1> 7:00
Intersection	Baur Road	File Name	Mill 2028 AM.xus		
Project Description	2028 AM Peak Hour				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	111	62	91	125	86	22	42	510	71	58	503	34

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	Begin
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	3.5	1.0	55.7	8.6	0.9	40.2	
Yellow	3.5	0.0	4.5	3.5	0.0	4.5	
Red	0.0	0.0	2.0	0.0	0.0	2.0	



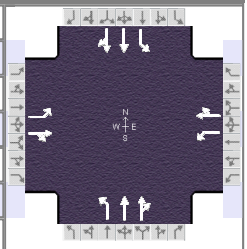
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	3	8	7	4	1	6	5	2
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	4.0
Phase Duration, s	12.1	46.7	13.0	47.7	7.0	62.2	8.0	63.2
Change Period, ($Y+R_c$), s	3.5	6.5	3.5	6.5	3.5	6.5	3.5	6.5
Max Allow Headway (*MAH*), s	3.3	3.3	3.3	3.3	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s	8.6	44.2	9.3	45.1	4.1		4.9	
Green Extension Time (g_e), s	0.1	0.0	0.2	0.0	0.0	0.0	0.0	0.0
Phase Call Probability	0.99	1.00	1.00	1.00	0.84		0.92	
Max Out Probability	0.01	1.00	0.00	1.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h	135	187		152	132		51	361	347	71	331	324
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1767	1676		1767	1790		1739	1826	1747	1739	1826	1785
Queue Service Time (g_s), s	6.6	11.0		7.3	6.9		2.1	13.2	13.3	2.9	11.4	11.4
Cycle Queue Clearance Time (g_c), s	6.6	11.0		7.3	6.9		2.1	13.2	13.3	2.9	11.4	11.4
Green Ratio (*g/C*)	0.39	0.32		0.40	0.33		0.47	0.47	0.47	0.48	0.47	0.47
Capacity (*c*), veh/h	186	545		199	594		369	853	816	371	867	848
Volume-to-Capacity Ratio (*X*)	0.726	0.343		0.767	0.222		0.139	0.424	0.425	0.191	0.381	0.382
Back of Queue (*Q*), ft/ln (95 th percentile)	135	207		151.3	141.1		39.7	231.2	216	54	207.4	196.5
Back of Queue (*Q*), veh/ln (95 th percentile)	5.3	8.1		5.9	5.5		1.5	8.9	8.6	2.1	8.0	7.9
Queue Storage Ratio (*RQ*) (95 th percentile)	0.60	0.00		0.92	0.00		0.26	0.00	0.00	0.36	0.00	0.00
Uniform Delay (d_1), s/veh	32.6	33.3		32.2	31.3		19.5	16.6	15.6	18.9	15.6	14.6
Incremental Delay (d_2), s/veh	2.0	0.1		2.3	0.1		0.1	1.5	1.6	0.1	1.3	1.3
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	34.6	33.5		34.5	31.4		19.6	18.1	17.2	19.0	16.8	15.9
Level of Service (LOS)	C	C		C	C		B	B	B	B	B	B
Approach Delay, s/veh / LOS	34.0	C		33.1	C		17.8	B		16.6	B	
Intersection Delay, s/veh / LOS	22.0						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.29	B	2.29	B	1.92	B	1.92	B
Bicycle LOS Score / LOS	1.02	A	0.96	A	1.11	A	1.09	A

HCS Signalized Intersection Intermediate Values

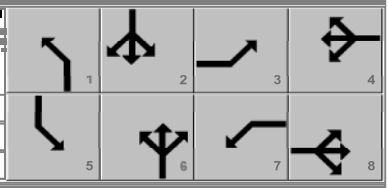
General Information				Intersection Information	
Agency	Eriksson Engineering			Duration, h	0.250
Analyst	SBC	Analysis Date	12/8/2022	Area Type	Other
Jurisdiction	DuPage/Napervile	Time Period	AM Peak	PHF	0.82
Urban Street	Mill Street	Analysis Year	2028	Analysis Period	1> 7:00
Intersection	Baur Road	File Name	Mill 2028 AM.xus		
Project Description	2028 AM Peak Hour				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	111	62	91	125	86	22	42	510	71	58	503	34

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	Begin
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	3.5	1.0	55.7	8.6	0.9	40.2
Yellow	3.5	0.0	4.5	3.5	0.0	4.5
Red	0.0	0.0	2.0	0.0	0.0	2.0



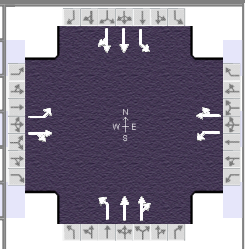
Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	0.977	0.977	1.000	0.977	0.977	1.000	0.961	0.961	1.000	0.961	0.961	1.000
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.952	0.000		0.952	0.000		0.952	0.000		0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.903	0.903		0.965	0.965		0.957	0.957		0.977	0.977
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000			1.000			1.000			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Prot. CAV Adj. Factor ($f_{CAV,prot}$)	1.00			1.00			1.00			1.00		
Left-Turn Perm. CAV Adj. Factor ($f_{CAV,perm}$)	1.00											
Movement Saturation Flow Rate (s), veh/h	1767	679	997	1767	1425	365	1739	3137	436	1739	3382	228
Proportion of Vehicles Arriving on Green (P)	0.07	0.32	0.32	0.08	0.33	0.33	0.03	0.62	0.62	0.04	0.63	0.63
Incremental Delay Factor (k)	0.04	0.04		0.04	0.04		0.04	0.50	0.50	0.04	0.50	0.50

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)	2.5	4.5	2.5	4.5	2.5	1.5	2.5	1.5
Green Ratio (g/C)	0.39	0.32	0.40	0.33	0.47	0.47	0.48	0.47
Permitted Saturation Flow Rate (s_p), veh/h/ln	1248	1257	1187	0	760	0	723	0
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								
Permitted Effective Green Time (g_p), s	41.2	26.5	41.6	0.0	56.7	0.0	57.3	0.0
Permitted Service Time (g_u), s	0.0	0.0	0.0	0.0	43.4	0.0	43.5	0.0
Permitted Queue Service Time (g_{ps}), s	0.0		0.0		1.0		1.5	
Time to First Blockage (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln								
Protected Right Effective Green Time (g_R), s								

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.557	0.000	1.557	0.000	1.198	0.000	1.198	0.000
Pedestrian F_s / F_{delay}	0.000	0.138	0.000	0.137	0.000	0.123	0.000	0.121
Pedestrian M_{corner} / M_{cw}	0.00		0.00		0.00		0.00	
Bicycle c_b / d_b	619.20	30.98	633.16	30.36	856.90	21.23	872.97	20.64
Bicycle F_w / F_v	-3.64	0.53	-3.64	0.47	-3.64	0.63	-3.64	0.60

HCS Signalized Intersection Results Graphical Summary

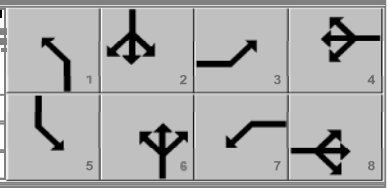
General Information				Intersection Information	
Agency	Eriksson Engineering			Duration, h	0.250
Analyst	SBC	Analysis Date	12/8/2022	Area Type	Other
Jurisdiction	DuPage/Napervile	Time Period	AM Peak	PHF	0.82
Urban Street	Mill Street	Analysis Year	2028	Analysis Period	1> 7:00
Intersection	Baur Road	File Name	Mill 2028 AM.xus		
Project Description	2028 AM Peak Hour				



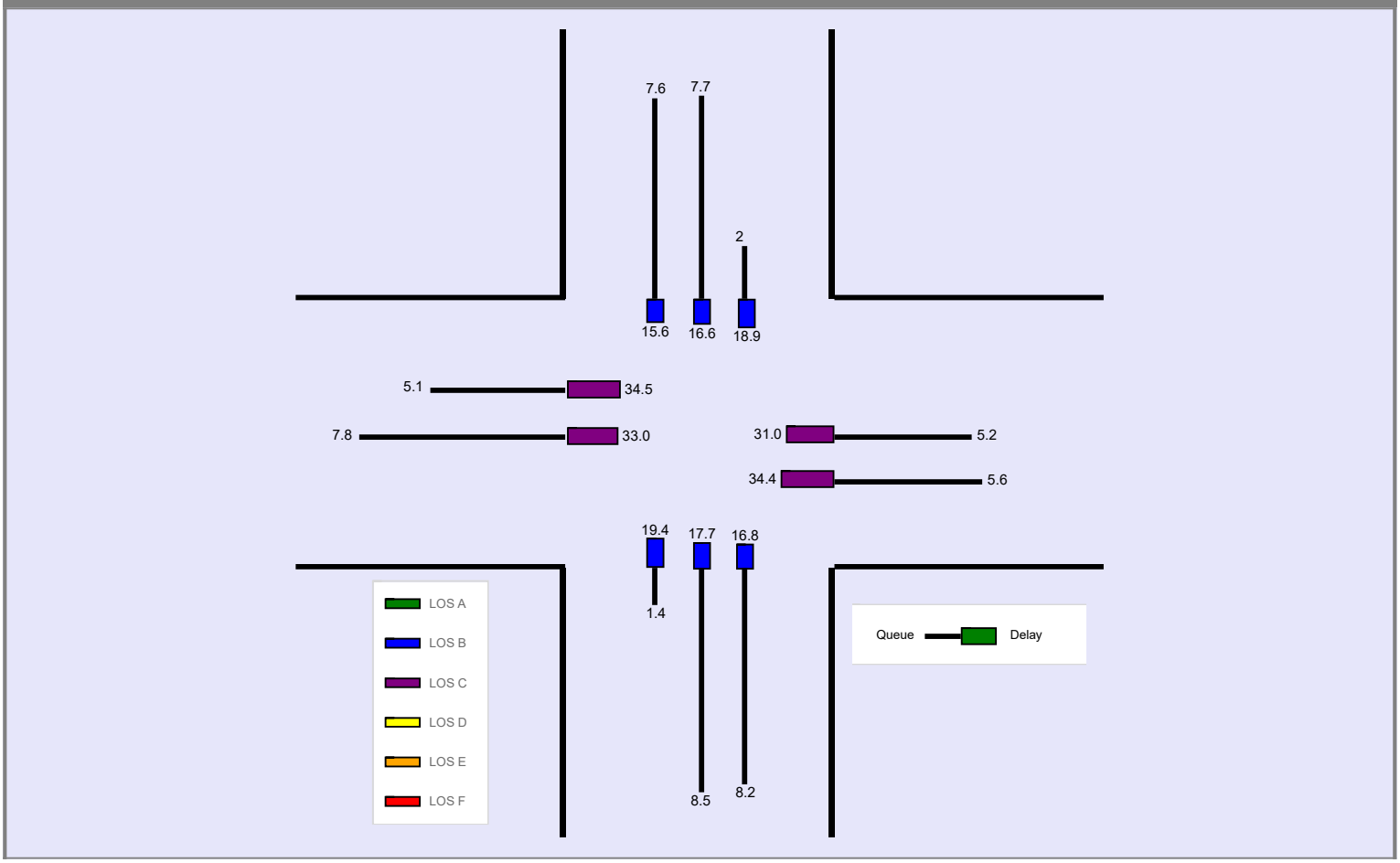
Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	111	62	91	125	86	22	42	510	71	58	503	34

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	Begin
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	3.5	1.0	55.7	8.6	0.9	40.2	
Yellow	3.5	0.0	4.5	3.5	0.0	4.5	
Red	0.0	0.0	2.0	0.0	0.0	2.0	



Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)	135	207		151.3	141.1		39.7	231.2	216	54	207.4	196.5
Back of Queue (*Q*), veh/ln (95 th percentile)	5.3	8.1		5.9	5.5		1.5	8.9	8.6	2.1	8.0	7.9
Queue Storage Ratio (*RQ*) (95 th percentile)	0.60	0.00		0.92	0.00		0.26	0.00	0.00	0.36	0.00	0.00
Control Delay (*d*), s/veh	34.6	33.5		34.5	31.4		19.6	18.1	17.2	19.0	16.8	15.9
Level of Service (LOS)	C	C		C	C		B	B	B	B	B	B
Approach Delay, s/veh / LOS	34.0	C		33.1	C		17.8	B		16.6	B	
Intersection Delay, s/veh / LOS	22.0						C					



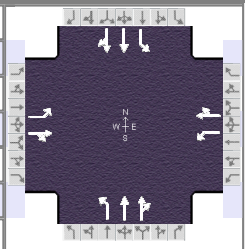
--- Messages ---

No errors or warnings exist.

--- Comments ---

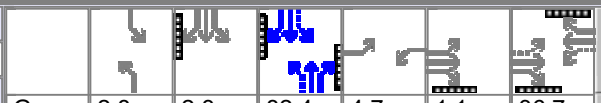
HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	Eriksson Engineering			Duration, h	0.250
Analyst	SBC	Analysis Date	12/8/2022	Area Type	Other
Jurisdiction	DuPage/Napervile	Time Period	PM Peak	PHF	0.95
Urban Street	Mill Street	Analysis Year	2028	Analysis Period	1> 7:00
Intersection	Baur Road	File Name	Mill 2028 PM.xus		
Project Description	2028 PM Peak Hour				

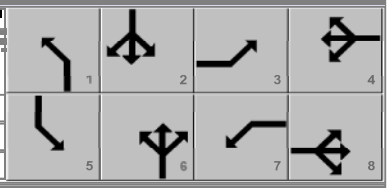


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	64	49	27	50	55	58	38	520	49	85	817	111

Signal Information			
Cycle, s	150.0	Reference Phase	2
Offset, s	0	Reference Point	Begin
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	2.8	2.3	82.4	4.7	1.1	36.7	
Yellow	3.5	0.0	4.5	3.5	0.0	4.5	
Red	0.0	0.0	2.0	0.0	0.0	2.0	



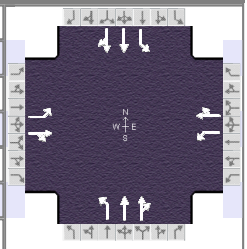
Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	64	49	27	50	55	58	38	520	49	85	817	111
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	3	3		3	3		5	5		5	5	
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (*AT*)	3	3	3	3	3	3	3	4	4	3	4	4
Upstream Filtering (*I*)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (*W*), ft	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
Turn Bay Length, ft	225	0		165	0		150	0		150	0	
Grade (*Pg*), %		0			0			0			0	
Speed Limit, mi/h	25	25	25	25	25	25	35	35	35	35	35	35

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s	15.0	37.5	15.0	37.5	21.0	84.0	13.5	76.5
Yellow Change Interval (*Y*), s	3.5	4.5	3.5	4.5	3.5	4.5	3.5	4.5
Red Clearance Interval (R_c), s	0.0	2.0	0.0	2.0	0.0	2.0	0.0	2.0
Minimum Green (G_{min}), s	3	6	3	6	3	15	3	15
Start-Up Lost Time (*lt*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (*e*), s	3.0	4.0	3.0	4.0	3.0	7.0	3.0	7.0
Passage (*PT*), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Recall Mode	Off	Off	Off	Off	Off	Max	Off	Max
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Walk (*Walk*), s		14.0		10.0		12.0		14.0
Pedestrian Clearance Time (*PC*), s		25.0		20.0		16.0		20.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

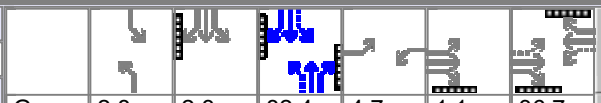
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Eriksson Engineering			Duration, h	0.250
Analyst	SBC	Analysis Date	12/8/2022	Area Type	Other
Jurisdiction	DuPage/Napervile	Time Period	PM Peak	PHF	0.95
Urban Street	Mill Street	Analysis Year	2028	Analysis Period	1> 7:00
Intersection	Baur Road	File Name	Mill 2028 PM.xus		
Project Description	2028 PM Peak Hour				

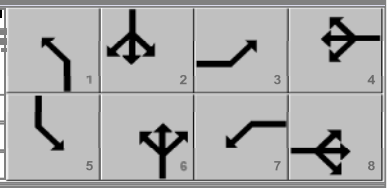


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	64	49	27	50	55	58	38	520	49	85	817	111

Signal Information			
Cycle, s	150.0	Reference Phase	2
Offset, s	0	Reference Point	Begin
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	2.8	2.3	82.4	4.7	1.1	36.7
Yellow	3.5	0.0	4.5	3.5	0.0	4.5
Red	0.0	0.0	2.0	0.0	0.0	2.0



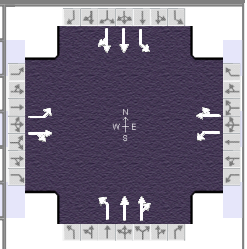
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	3	8	7	4	1	6	5	2
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	4.0
Phase Duration, s	9.3	44.3	8.2	43.2	6.3	88.9	8.6	91.2
Change Period, ($Y+R_c$), s	3.5	6.5	3.5	6.5	3.5	6.5	3.5	6.5
Max Allow Headway (*MAH*), s	3.3	3.3	3.3	3.3	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s	6.2	41.8	5.3	40.7	3.5		5.2	
Green Extension Time (g_e), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase Call Probability	0.94	1.00	0.89	1.00	0.81		0.98	
Max Out Probability	0.05	1.00	0.01	1.00	0.00		0.09	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h	67	80		53	119		40	303	296	89	499	478
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1767	1744		1767	1699		1739	1826	1770	1739	1826	1749
Queue Service Time (g_s), s	4.2	5.3		3.3	8.4		1.5	7.1	7.2	3.2	13.1	13.1
Cycle Queue Clearance Time (g_c), s	4.2	5.3		3.3	8.4		1.5	7.1	7.2	3.2	13.1	13.1
Green Ratio (*g/C*)	0.30	0.27		0.29	0.26		0.58	0.58	0.58	0.61	0.60	0.60
Capacity (*c*), veh/h	128	463		115	438		353	1064	1032	525	1091	1045
Volume-to-Capacity Ratio (*X*)	0.525	0.173		0.457	0.272		0.113	0.285	0.286	0.170	0.457	0.457
Back of Queue (*Q*), ft/ln (95 th percentile)	87.3	108.4		68.8	167.3		27.6	128.2	120.4	58.4	204	190.3
Back of Queue (*Q*), veh/ln (95 th percentile)	3.4	4.2		2.7	6.5		1.1	4.9	4.8	2.2	7.8	7.6
Queue Storage Ratio (*RQ*) (95 th percentile)	0.39	0.00		0.42	0.00		0.18	0.00	0.00	0.39	0.00	0.00
Uniform Delay (d_1), s/veh	43.0	42.4		43.8	44.4		14.1	8.4	7.8	12.4	8.0	7.5
Incremental Delay (d_2), s/veh	1.2	0.1		1.0	0.1		0.1	0.7	0.7	0.1	1.4	1.4
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	44.3	42.5		44.8	44.5		14.2	9.0	8.5	12.5	9.4	8.9
Level of Service (LOS)	D	D		D	D		B	A	A	B	A	A
Approach Delay, s/veh / LOS	43.3	D		44.6	D		9.1	A		9.4	A	
Intersection Delay, s/veh / LOS	14.8						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.31	B	2.31	B	1.91	B	1.90	B
Bicycle LOS Score / LOS	0.73	A	0.77	A	1.01	A	1.37	A

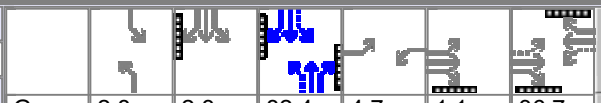
HCS Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	Eriksson Engineering			Duration, h	0.250
Analyst	SBC	Analysis Date	12/8/2022	Area Type	Other
Jurisdiction	DuPage/Napervile	Time Period	PM Peak	PHF	0.95
Urban Street	Mill Street	Analysis Year	2028	Analysis Period	1> 7:00
Intersection	Baur Road	File Name	Mill 2028 PM.xus		
Project Description	2028 PM Peak Hour				

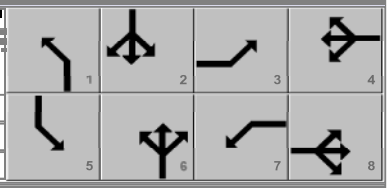


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	64	49	27	50	55	58	38	520	49	85	817	111

Signal Information			
Cycle, s	150.0	Reference Phase	2
Offset, s	0	Reference Point	Begin
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	2.8	2.3	82.4	4.7	1.1	36.7
Yellow	3.5	0.0	4.5	3.5	0.0	4.5
Red	0.0	0.0	2.0	0.0	0.0	2.0



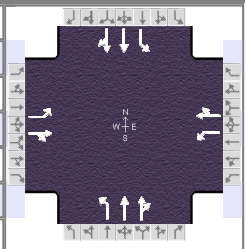
Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	0.977	0.977	1.000	0.977	0.977	1.000	0.961	0.961	1.000	0.961	0.961	1.000
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.952	0.000		0.952	0.000		0.952	0.000		0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.940	0.940		0.915	0.915		0.970	0.970		0.958	0.958
Left-Turn Pedestrian Adjustment Factor (f_{Lpb})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})			1.000			1.000			1.000			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Prot. CAV Adj. Factor ($f_{CAV,prot}$)	1.00			1.00			1.00			1.00		
Left-Turn Perm. CAV Adj. Factor ($f_{CAV,perm}$)	1.00											
Movement Saturation Flow Rate (s), veh/h	1767	1124	620	1767	827	872	1739	3287	309	1739	3147	428
Proportion of Vehicles Arriving on Green (P)	0.05	0.27	0.27	0.04	0.26	0.26	0.03	0.78	0.78	0.04	0.80	0.80
Incremental Delay Factor (k)	0.04	0.04		0.04	0.04		0.04	0.50	0.50	0.04	0.50	0.50

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)	2.5	4.5	2.5	4.5	2.5	1.5	2.5	1.5
Green Ratio (g/C)	0.30	0.27	0.29	0.26	0.58	0.58	0.61	0.60
Permitted Saturation Flow Rate (s_p), veh/h/ln	1263	1257	1308	0	562	0	800	0
Shared Saturation Flow Rate (s_{sh}), veh/h/ln								
Permitted Effective Green Time (g_p), s	38.3	26.5	37.7	0.0	83.4	0.0	85.2	0.0
Permitted Service Time (g_u), s	0.0	0.0	0.0	0.0	69.6	0.0	76.2	0.0
Permitted Queue Service Time (g_{ps}), s	0.0		0.0		1.1		1.1	
Time to First Blockage (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Service Time Before Blockage (g_{fs}), s								
Protected Right Saturation Flow (s_R), veh/h/ln								
Protected Right Effective Green Time (g_R), s								

Multimodal	EB		WB		NB		SB	
Pedestrian F_w / F_v	1.557	0.000	1.557	0.000	1.198	0.000	1.198	0.000
Pedestrian F_s / F_{delay}	0.000	0.150	0.000	0.151	0.000	0.109	0.000	0.106
Pedestrian M_{corner} / M_{cw}	0.00		0.00		0.00		0.00	
Bicycle c_b / d_b	503.82	41.97	489.02	42.81	1098.65	15.23	1128.79	14.23
Bicycle F_w / F_v	-3.64	0.24	-3.64	0.28	-3.64	0.53	-3.64	0.88

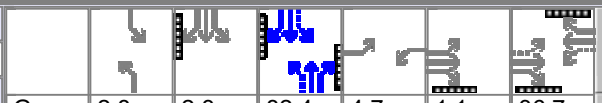
HCS Signalized Intersection Results Graphical Summary

General Information				Intersection Information	
Agency	Eriksson Engineering			Duration, h	0.250
Analyst	SBC	Analysis Date	12/8/2022	Area Type	Other
Jurisdiction	DuPage/Napervile	Time Period	PM Peak	PHF	0.95
Urban Street	Mill Street	Analysis Year	2028	Analysis Period	1> 7:00
Intersection	Baur Road	File Name	Mill 2028 PM.xus		
Project Description	2028 PM Peak Hour				

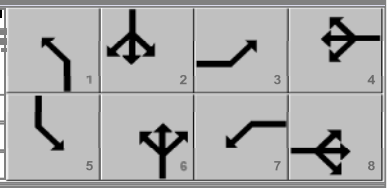


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	64	49	27	50	55	58	38	520	49	85	817	111

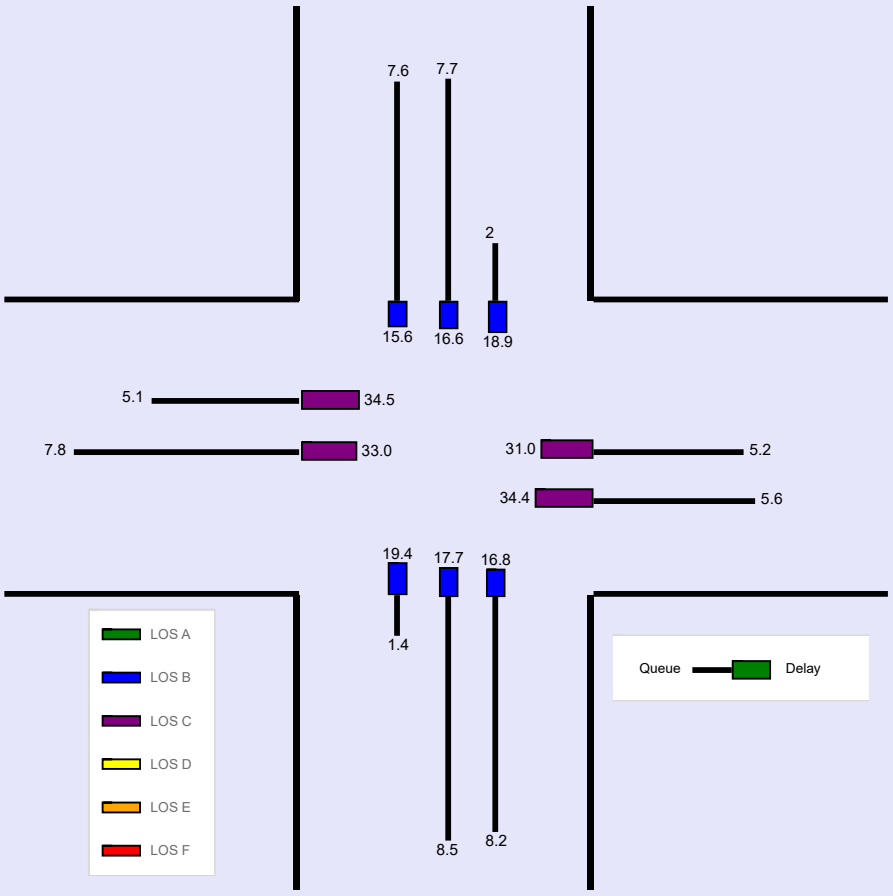
Signal Information			
Cycle, s	150.0	Reference Phase	2
Offset, s	0	Reference Point	Begin
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	2.8	2.3		82.4	4.7	1.1	36.7					
Yellow	3.5	0.0		4.5	3.5	0.0	4.5					
Red	0.0	0.0		2.0	0.0	0.0	2.0					



Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (*Q*), ft/ln (95 th percentile)	87.3	108.4		68.8	167.3		27.6	128.2	120.4	58.4	204	190.3
Back of Queue (*Q*), veh/ln (95 th percentile)	3.4	4.2		2.7	6.5		1.1	4.9	4.8	2.2	7.8	7.6
Queue Storage Ratio (*RQ*) (95 th percentile)	0.39	0.00		0.42	0.00		0.18	0.00	0.00	0.39	0.00	0.00
Control Delay (*d*), s/veh	44.3	42.5		44.8	44.5		14.2	9.0	8.5	12.5	9.4	8.9
Level of Service (LOS)	D	D		D	D		B	A	A	B	A	A
Approach Delay, s/veh / LOS	43.3	D		44.6	D		9.1	A		9.4	A	
Intersection Delay, s/veh / LOS	14.8						B					



--- Messages ---

No errors or warnings exist.

--- Comments ---

HCS Two-Way Stop-Control Report

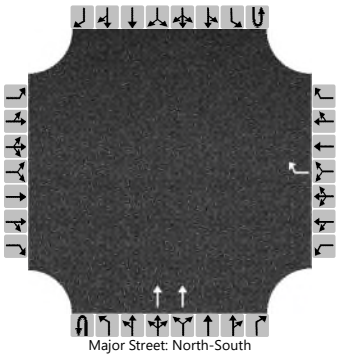
General Information

Analyst	SBC
Agency/Co.	Eriksson Engineering
Date Performed	12/8/2022
Analysis Year	2028
Time Analyzed	AM Peak Hour
Intersection Orientation	North-South
Project Description	Baur Mill Townhomes

Site Information

Intersection	Mill Street/Site Right-out Dr
Jurisdiction	DuPage DOT/Naperville
East/West Street	Townhome Right-out Drive
North/South Street	Mill Street
Peak Hour Factor	0.82
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	0	1	0	0	2	0	0	0	0	0
Configuration								R			T					
Volume (veh/h)								1			643					
Percent Heavy Vehicles (%)								3								
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized						No										
Median Type | Storage		Left Only								1						

Critical and Follow-up Headways

Base Critical Headway (sec)								6.9								
Critical Headway (sec)								6.96								
Base Follow-Up Headway (sec)								3.3								
Follow-Up Headway (sec)								3.33								

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)								1								
Capacity, c (veh/h)								604								
v/c Ratio								0.00								
95% Queue Length, Q_{95} (veh)								0.0								
Control Delay (s/veh)								11.0								
Level of Service (LOS)								B								
Approach Delay (s/veh)						11.0										
Approach LOS						B										

HCS Two-Way Stop-Control Report

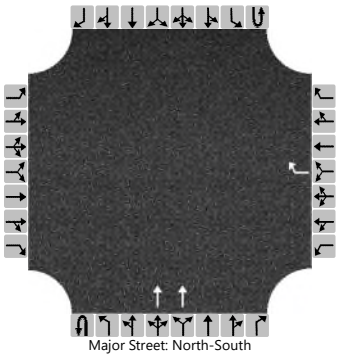
General Information

Analyst	SBC
Agency/Co.	Eriksson Engineering
Date Performed	12/8/2022
Analysis Year	2028
Time Analyzed	PM Peak Hour
Intersection Orientation	North-South
Project Description	Baur Mill Townhomes

Site Information

Intersection	Mill Street/Site Right-out Dr
Jurisdiction	DuPage DOT/Naperville
East/West Street	Townhome Right-out Drive
North/South Street	Mill Street
Peak Hour Factor	0.95
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	0	1	0	0	2	0	0	0	0	0
Configuration								R			T					
Volume (veh/h)								1			642					
Percent Heavy Vehicles (%)								3								
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized						No										
Median Type | Storage		Left Only								1						

Critical and Follow-up Headways

Base Critical Headway (sec)								6.9								
Critical Headway (sec)								6.96								
Base Follow-Up Headway (sec)								3.3								
Follow-Up Headway (sec)								3.33								

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)								1								
Capacity, c (veh/h)								655								
v/c Ratio								0.00								
95% Queue Length, Q_{95} (veh)								0.0								
Control Delay (s/veh)								10.5								
Level of Service (LOS)								B								
Approach Delay (s/veh)						10.5										
Approach LOS						B										