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Traffic Impact Study

Proposed Townhouse Development
Eola Preserve
Aurora, Illinois

August 1, 2024

Prepared For:

Bridge Street Properties

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GHA GEWALT HAMILTON ASSOCIATES, INC.

Part I. Introduction and Project Context

Gewalt Hamilton Associates, Inc. (GHA) has conducted a Traffic Impact Study (TIS) for the Eola Preserve townhouse development to be constructed in Aurora, IL. The approximately 8-acre subject site is located on the west side of Eola Road and is to be located southwest of the intersection between Eola Road and Waterstone Drive. Per the May 16, 2024, Preliminary Engineering Plan, prepared by CEMCON, Ltd., 54 townhouse units are being proposed as well as a new right-out only access point onto Eola Road. Additional access to Eola Road is proposed through the existing intersection with Waterstone Drive via Old Eola Road.

The following summarizes our findings and provides various recommendations for your consideration. *Appendices* referenced are in the Technical Addendum at the end of this document.

Part II. Background Information

Site Location Map and Roadway Inventory

Exhibit 1 provides a site location map. The existing traffic operations in the site area are illustrated on ***Exhibit 2***. Pertinent comments to the adjacent roadways include:

Eola Road

- Eola Road is a north-south minor Arterial under the jurisdiction of DuPage County.
- Along the site frontage, Eola Road provides two travel lanes in each direction separated by a wide (approximately 16-foot) landscaped median.
- At the intersection with Waterstone Drive, a northbound left-turn lane is provided along Eola Road.
- Eola Road has a posted speed limit of 45 miles per hour (mph) in the vicinity of the site.
- Separate southbound and northbound right and left-turn lanes are provided at the Eola Road intersections with Sheffer Road and Liberty Street to the north and south of the site, respectively.
- The Annual Average Daily Traffic (AADT), year 2017, on Eola Road was 48,000 vehicles per day.

Liberty Street

- Liberty Street is an east-west major collector under the jurisdiction of the City of Aurora that intersects Eola Road approximately 1,825' south of the intersection with Waterstone Drive.
- Liberty Street provides two travel lanes in each direction but widens to four lanes with left turn lanes in both directions at its signalized intersection with Eola Road.
- Liberty Street has a posted speed limit of 30 mph.
- The Annual Average Daily Traffic (AADT), year 2023, on Liberty Street was 9,250 vehicles east of Eola Road.

Sheffer Road

- Sheffer Road is an east-west local roadway that intersects Eola Road approximately 2,715 feet north of the intersection with Waterstone Drive.
- Sheffer Road provides left turn lanes both east and westbound at the signalized intersection with Eola Road and provides a westbound right-turn lane at the intersection.
- Sheffer Road has a posted speed limit of 25 mph.
- Sheffer Road connects a neighborhood to the west and a shopping center to the east of Eola Road. No AADT data has been provided at this intersection.

Waterstone Drive

- Waterstone Drive is an east-west local road connecting Eola Road with Old Eola Road to the west.
- Waterstone Drive provides one turning lane at its stop-controlled intersection with Eola Road.
- The posted speed limit on Waterstone Court is 25 MPH west of Old Eola Road.

Old Eola Road

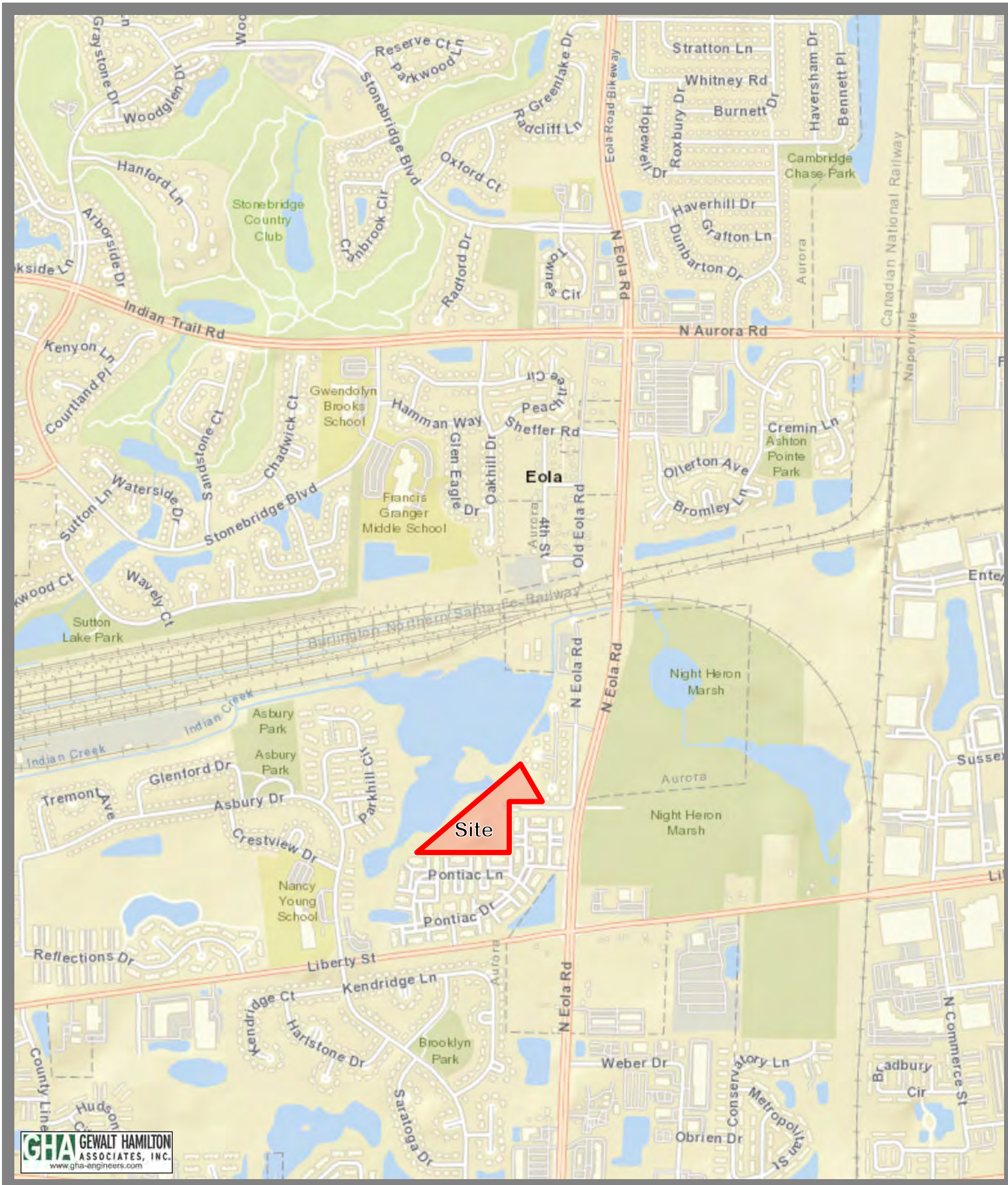
- Old Eola Road extends north of Waterstone Drive providing access to an industrial use (Ferrellgas).
- South of Waterstone Drive Old Eola Road parallels Eola Road for approximately 700-ft then turns west and provides access to the subject site.
- Old Eola Road provides a single travel lane in each direction and is under Stop Sign control at its intersection with Waterstone Drive.
- No speed limit is posted on Old Eola Road so the local road minimum of 25 MPH is assumed.

Pedestrian Facilities

- No sidewalk is provided in the vicinity of the site near Waterstone Drive.
- Sidewalk is provided along the north side of Liberty Street crossing Eola Road.
- Sidewalk is provided along the north side of Shaffer Road west of Eola Road.

Transit

- PACE Bus Route 598 travels along Eola Road in the site vicinity. The route can be seen on the PACE website www.pacebus.com .



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1 inch = 1,000 Feet

Exhibit 1 - Location Map

Proposed Townhouse Development
Eola Preserve - Aurora, IL

Map Center: 88.24469°W 41.77365°N

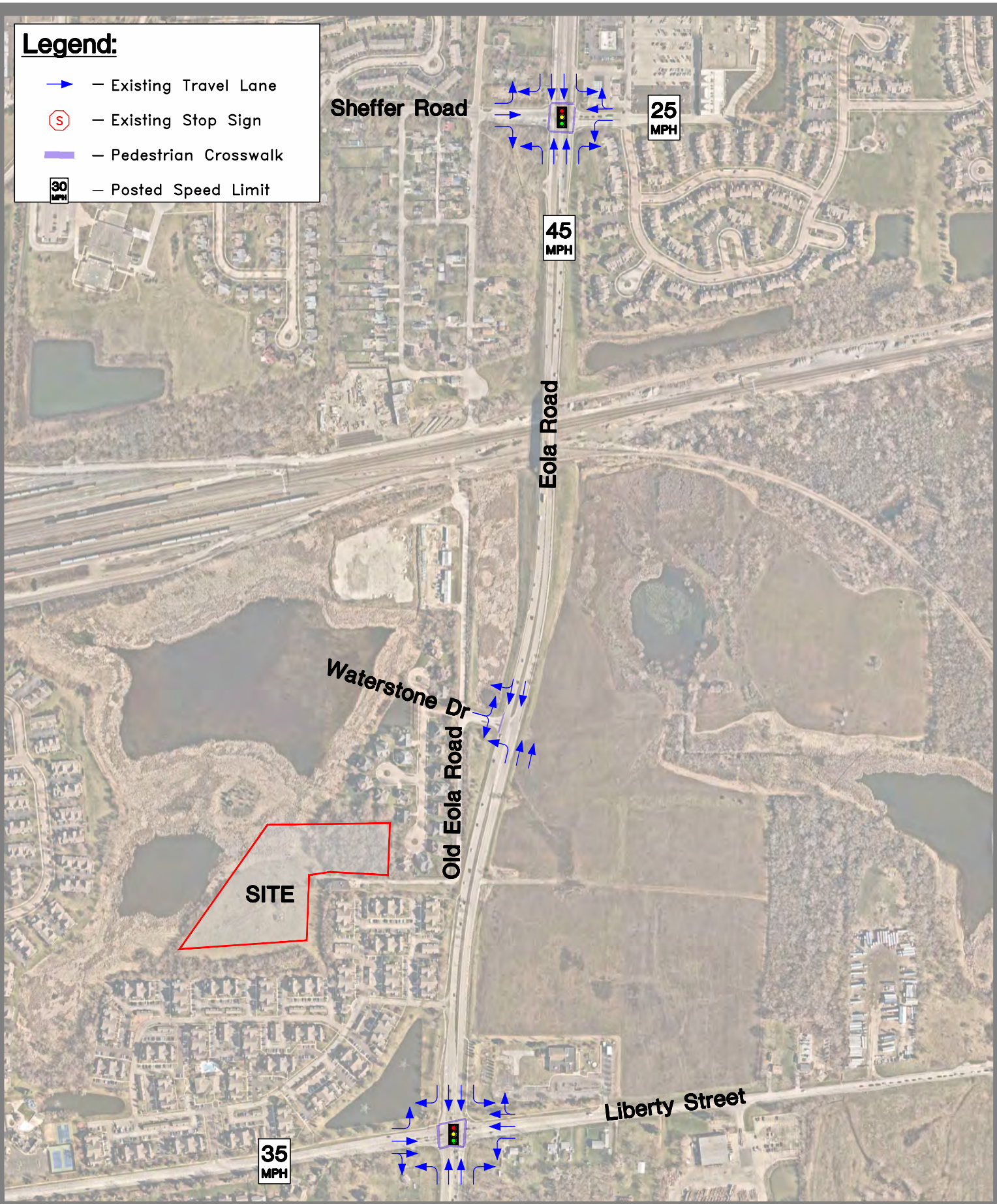

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Exhibit 2
Existing Traffic Operations

Existing Traffic

Exhibit 3 summarizes the existing weekday morning and evening peak hour traffic volumes. Peak period traffic turning movement counts were conducted by GHA on Thursday, July 18th, from 6:00 AM to 9:00 AM and from 3:00 PM to 6:00 PM at the Eola Road intersections with Sheffer Road and Liberty Street. The observed weekday morning and evening peak hours generally occurred from 7:30 to 8:30 AM, and 4:45 to 5:45 PM respectively. CEMCON provided GHA with traffic counts at Waterstone Drive which were collected on December 20th, 2023, which were balanced into the updated counts. *Exhibit 3* also provides the AADT (24-hour volume) along Eola Road and Liberty Street as published by IDOT on their website: www.gettingaroundillinois.com.

No unusual activities (e.g., roadway construction, or inclement weather) were observed during our counts that would be expected to impact traffic volumes or travel patterns in the vicinity. Summaries of the existing traffic counts and the Waterstone Drive counts can be found in *Appendix A*.

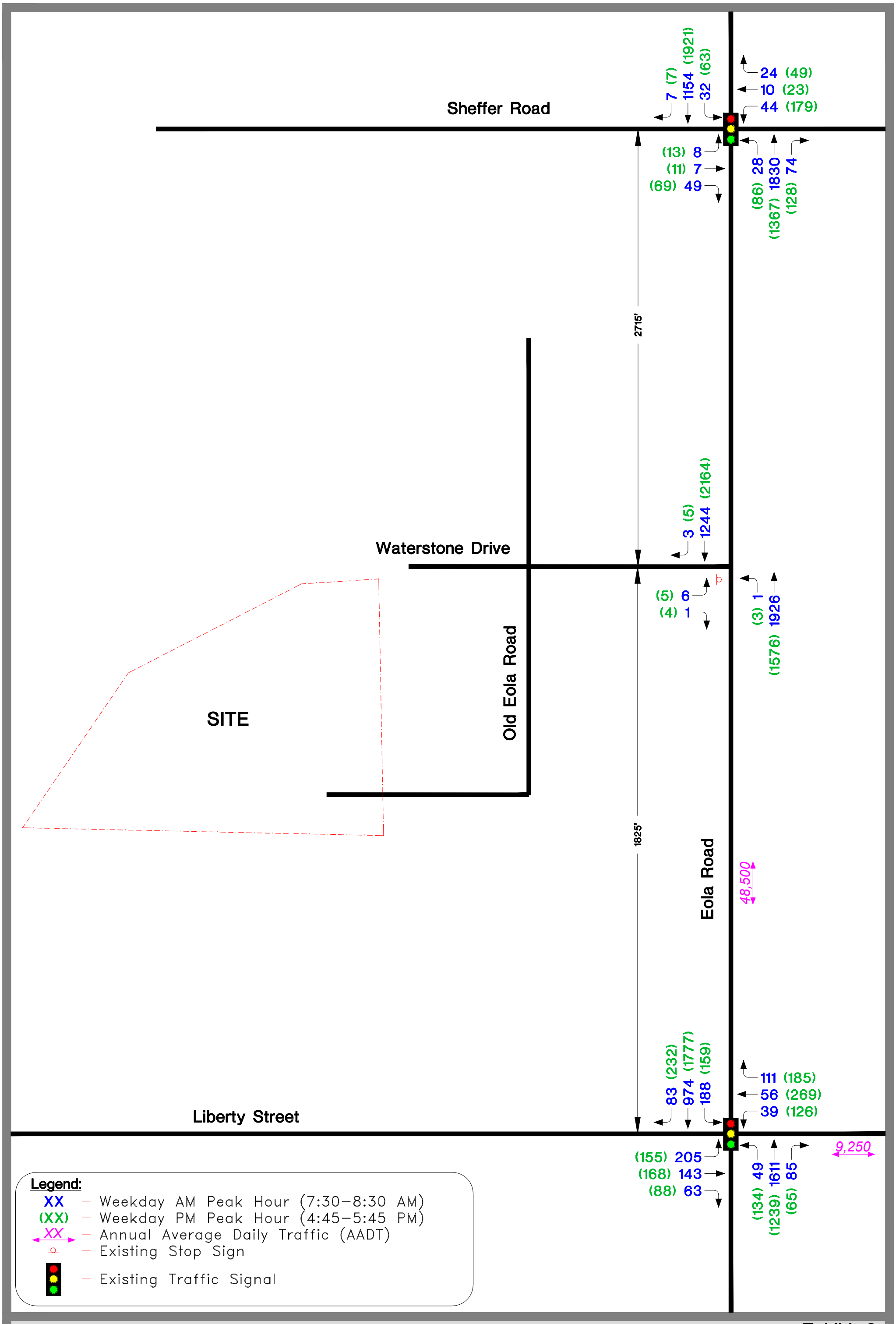

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Exhibit 3

Existing Traffic

Sources: 1) GHA July, 2024, CEMCON Dec, 2023

2) IDOT 2017/2023 AADT

Crash Analysis

Crash data was obtained from the IDOT Division of Transportation and Safety for the last five calendar years, 2019 through 2023. A summary of the crash data is provided in ***Table 1*** with the locations mapped on the exhibit contained in ***Appendix B***.

Table 1: Crash Summary (2019-2023) [A]

Location	No. Of Crashes	Severity [B]																	Percent During Wet/Icy Conditions
		PD	PI [C]			F	A	AN	FO	FTF	FTR	ONC	OO	OT	PMV	SOD	SSD	T	
			A	B	C														
Intersections - Crashes within 300' of intersection																			
Eola Road at Sheffer Road	82	67	1	9	5	-	3	-	1	1	52	1	2	-	-	-	7	15	39%
Eola Road at Waterstone Drive	26	21	-	3	2	-	-	1	4	1	14	-	-	1	-	-	5	-	42%
Eola Road at Liberty Street	120	81	3	18	18	-	3	4	4	1	48	-	1	2	1	1	12	43	26%
Segments																			
Along Eola Road between Sheffer Road and Waterstone Drive	26	19	-	2	5	-	-	1	5	-	16	-	1	-	-	-	3	-	58%
Along Eola Road between Waterstone Drive and Liberty Street	14	11	-	2	1	-	-	1	1	-	11	-	-	-	-	-	-	1	43%
Total (2019-23)	268	199	4	34	31	0	6	7	15	3	141	1	4	3	1	1	27	59	35%

[A] Source: IDOT Division of Transportation Safety for the 2019-2023 calendar years.

[B] PD = property damage only; PI = personal injury; F = fatality.

[C] Type A (incapacitating injury); Type B (non-incapacitating injury); Type C (possible injury).

[D] A = Angle; AN = Animal; FO = Fixed Object; FTF = Front to Front; FTR = Front to Rear; ONC = Other, Non Collision; OO = Other Object; OT = Overturned; PMV = Parked Motor Vehicle; SOD = Sideswipe, Opposide Direction; SSD = Sideswipe, Same Direction; T = Turning

A total of 268 crashes occurred along the corridor in the study period. Approximately 74 percent (199 of 268) of the total crashes involved property damage only. The most common crash type was front to rear, with 53 percent (141 of 268). The second most common crash type across the corridor was turning movement crashes, with 22 percent (59 of 268).

As shown in Table 1, the intersection of Eola Road and Liberty Street experienced the highest number of crashes within the study area over the five-year analyses period, with an average of 24 crashes per year. This intersection saw 68 percent (81 of 120) crashes featuring only property damage. The most common crash type at this intersection was front-to-rear, with 40 percent (48 of 120), and the second most common crash type was turning with 36 percent (43 of 120). Three Type-A crashes occurred at this intersection.

Additionally, the intersection of Eola Road at Sheffer Road experienced the next highest number of crashes with an average of 16 crashes per year. Approximately 82 percent (67 of 82) of the crashes at this intersection involved property damage only and 63 percent (52 of 82) were front-to-rear crashes. The second most common crash type remained turning movement at this intersection with 18 percent (15 of 82). One Type-A crash occurred at this intersection.

Finally, the intersection of Eola Road at Waterstone Drive experienced an average of 5 crashes per year, which was the lowest of the three study intersections. The intersection saw 81 percent (21 of 26) of the crashes at this intersection involve property damage only and continue to have a most common crash type of front-to-rear, with 54 percent (14 of 26). The second most common crash type at this intersection was sideswipe, same direction crashes with 19 percent (5 of 26). Three Type B crashes and two Type C crashes were reported in the five year analysis period.

There were no crashes that involved pedestrians or bicyclists throughout the study area.

No-Build Traffic

Traffic growth in the area is a function of expected land development in the region. Future traffic volume conditions were developed for the year 2033, build-out year of the development (year 2027) plus six years. Based on a review of historical traffic volumes and the Chicago Metropolitan Agency for Planning (CMAP) 2050 projections (see email discussion located in ***Appendix C***), traffic volumes along the roadways surrounding the site are assumed to experience an overall annual compounded growth rate of 0.46% per year. For rounding purposes, 0.5% growth per year was utilized for the roadway network. As cautioned in the CMAP correspondence, traffic volume growth was based on the 2017 vs the 2020 AADT data. Accordingly, the 2033 No-Build peak hour traffic volumes (see ***Exhibit 4***) were developed by applying the predicted growth rates to the existing traffic.

Sheffer Road

7 (7)
1207 (2009)
33 (66)
25 (51)
10 (24)
46 (187)
(14) 8
(11) 7
(72) 51
(90) 29
(1429) 1914
(134) 77

2715'

Waterstone Drive

3 (5)
1301 (2263)
(5) 6
(4) 1
(3) 1
(1648) 2014

Old Eola Road

SITE

1825'

Eola Road

87 (243)
1018 (1858)
197 (166)
116 (193)
59 (281)
41 (132)

Liberty Street

(162) 214
(176) 150
(92) 66
(140) 51
(1296) 1685
(68) 89

Legend:

XX – Weekday AM Peak Hour (7:30–8:30 AM)
(XX) – Weekday PM Peak Hour (4:45–5:45 PM)
– Existing Stop Sign
– Existing Traffic Signal

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Not to Scale

Exhibit 4
Year 2033 No Build Traffic

Part III. Traffic Evaluation

Future Site Characteristics

Proposed Development Plan

Per the May 16, 2024, Preliminary Engineering Plan prepared by CEMCON, Ltd., Bridge Street Properties proposes to construct a townhouse development containing 54 townhouses on the approximately 8-acre subject site located on the west side of Eola Road, southwest of the intersection with Waterstone Drive in Aurora, Illinois. Access to the site is anticipated to be maintained through the existing Waterstone Drive intersection, via Old Eola Road. A secondary right-out only movement exiting the site is proposed approximately 730 feet south of the Waterstone Drive intersection.

These dimensions are also illustrated on ***Exhibit 5.***

The May 16, 2024, Preliminary Engineering Plan is provided in ***Appendix D***.

Trip Generation

Table 2 summarizes the traffic generation calculations for the proposed development. Trip generation rates published by the Institute of Transportation Engineers (ITE) in the 11th Edition of the Manual *Trip Generation* were used to determine the anticipated traffic generated by the proposed development. As can be seen in *Table 2* the proposed residential development is expected to generate approximately 420 daily trips (combined inbound and outbound), 40 trips (combined inbound and outbound) during the morning peak hour and approximately 43 trips (combined inbound and outbound) in the evening peak hour.

Table 2: Trip Generation Calculations

Land Use	Units	ITE Code	Weekday Peak Hours								
			Morning			Evening			Daily		
			In	Out	Sum	In	Out	Sum	In	Out	Sum
Eola Preserve Townhouse Development											
Multi-Family Housing (Low-Rise)	54 DU	220	10	30	40	28	15	43	210	210	420
Total New Trips:			10	30	40	28	15	43	210	210	420

Source: ITE Trip Generation Manual, 11th Edition

See ***Appendix E*** for excerpts of the ITE manual.

Trip Distribution

Table 3 provides the anticipated distribution of site traffic. This was based on existing site travel patterns, proposed access, and the operational characteristics of the adjacent street system.

Table 3: Trip Distribution

Route & Direction	Approach Site From	Depart Site To
Eola Road		
North of Sheffer Road	45%	45%
South of Liberty Street	20%	20%
Liberty Street		
East of Eola Road	15%	15%
West of Eola Road	15%	15%
Sheffer Road		
East of Eola Road	5%	5%
West of Eola Road	<5%	<5%
Totals =	*100%*	*100%*

Anticipated Site Traffic usage of the area roadway network is also illustrated on ***Exhibit 5.***

Site and Total Traffic Assignments

Exhibits 5 illustrates the site traffic assignments for the development's trips, which is based on the traffic characteristics summarized in *Tables 2 and 3* (traffic generation and trip distribution) and assigned to the area roadways. As previously noted, the proposed development is anticipated to open in 2027. Therefore, we have considered the total impacts of the complete development for the year 2033, or buildout plus six years.

The site traffic (*Exhibit 5*) and 2033 No-Build traffic (*Exhibit 4*) were combined to produce the 2033 Total traffic, which is illustrated on ***Exhibit 6.***

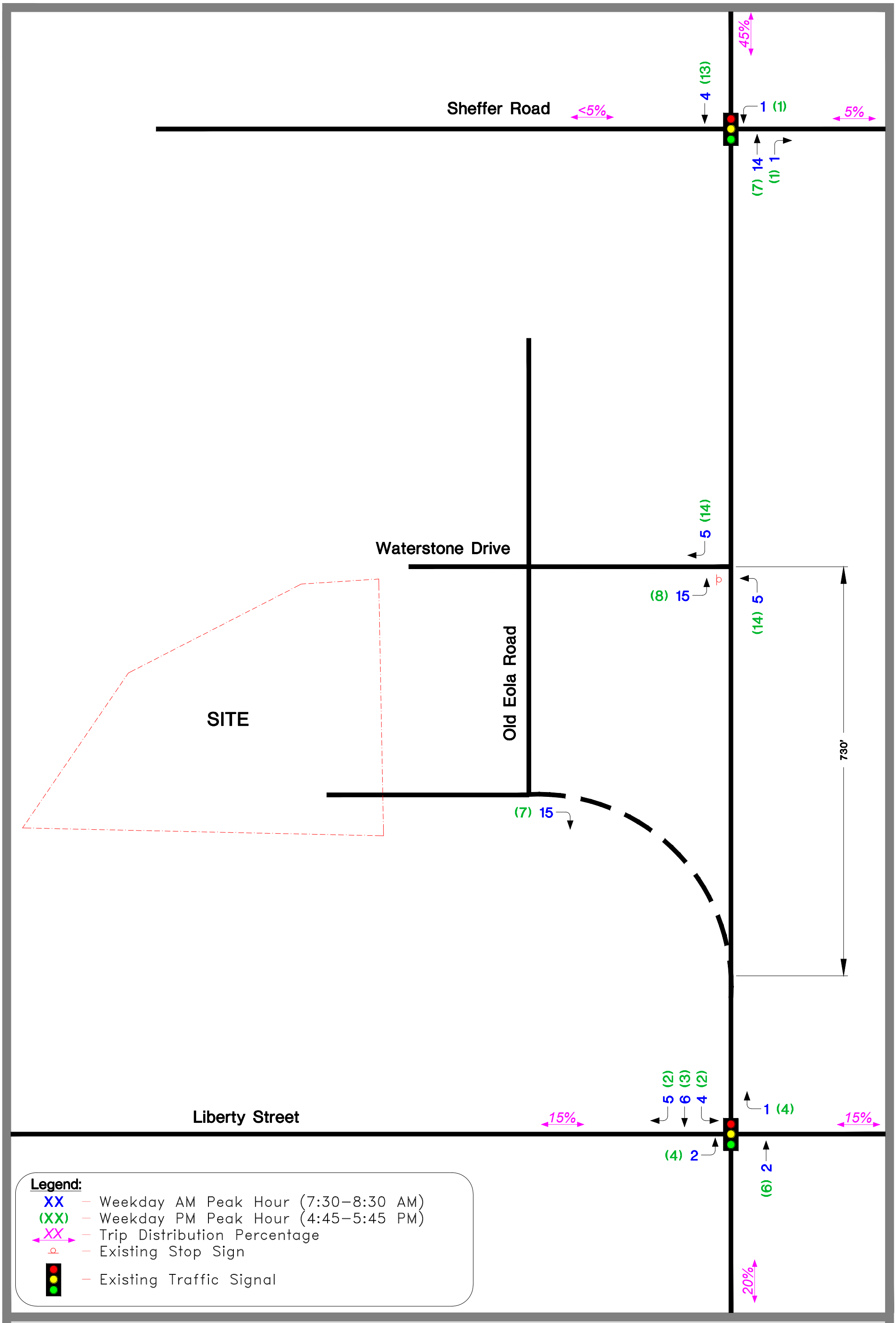

Exhibit 5
Site Traffic

Sheffer Road

7 (7)
1211 (2022)
33 (66)
25 (51)
10 (24)
47 (188)
(14) 8
(11) 7
(72) 51
(90) 29
(1436) 1928
(135) 78

Waterstone Drive

8 (19)
1301 (2263)
(13) 21
(4) 1
(17) 6
(1648) 2014

Old Eola Road

Eola Road

(7) 15

SITE

Liberty Street

92 (245)
1024 (1861)
201 (168)
117 (197)
59 (281)
41 (132)
(166) 216
(176) 150
(92) 66
(140) 51
(1302) 1687
(68) 89

Legend:

XX – Weekday AM Peak Hour (7:30–8:30 AM)
(XX) – Weekday PM Peak Hour (4:45–5:45 PM)
– Existing Stop Sign
– Existing Traffic Signal

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Not to Scale

Exhibit 6
Year 2033 Total Traffic

Capacity Analysis

Capacity analyses are a standard measurement that identifies how an intersection operates. They are measured in terms of Level of Service (LOS). The concept of LOS is defined as a qualitative measure describing operational conditions within a traffic stream and their perception by motorists and/or passengers. A level-of-service definition provides an index to quality of traffic flow in terms of such factors as speed, travel time, freedom to maneuver, traffic interruptions, comfort, convenience, and safety.

Six Levels of Service are defined for each type of facility. They are given letter designations from A to F, with LOS A representing the best operating conditions and LOS F the worst. LOS C is often considered acceptable for design purposes and LOS D is usually considered as providing the lower threshold of acceptable operations. Since the level of service is a function of the traffic flows placed upon it, the facility may operate at a wide range of levels of service, depending on the time of day, day of week or period of year. A description of the operating condition under each level of service, based on the analysis parameters as published in the Transportation Research Board's (TRB) Highway Capacity Manual (HCM), Sixth Edition, is provided in ***Table 4***.

Table 4: Level of Service (LOS) Summary

LOS	Description	Delay (seconds / vehicle)	
		Traffic Signal	Stop Sign
A	Describes conditions with little to no delay to motorists.	<10	< 10
B	Represents a desirable level with relatively low delay to motorists.	>10 and < 20	>10 and < 15
C	Describes conditions with average delays to motorists.	>20 and < 35	>15 and < 25
D	Describes operations where the influence of congestion becomes more noticeable. Delays are still within an acceptable range.	>35 and < 55	>25 and < 35
E	Represents operating conditions with high delay values. This level is often considered within urban settings or for minor streets intersecting major arterial roadways to be the limit of acceptable delay.	>55 and < 80	>35 and < 50
F	Is unacceptable to most drivers with high delay values that often occur when arrival flow rates exceed the capacity of the intersection.	>80	>50

Capacity analyses were performed using SYNCHRO v11 and methodologies outlined in the HCM, for the following scenarios:

- *Existing Traffic* – Year 2024
- *No-Build Traffic* – Future, year 2033 (site build year 2027 plus 6 years)
- *2033 Total Traffic* – Future year 2033 No-Build traffic plus the addition of the site generated traffic

Table 5 summarizes the intersection capacity and queue analysis results.

Table 5: Level-of-Service Summary

Intersection / Timeframe		Roadway Conditions	Movement Group By Approach > = Shared Lane - = Non Critical or not Allowed Movement												Intersetion / Approach
			Eastbound			Westbound			Northbound			Southbound			
1. Eola Road at Liberty Street		Signalized	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	Intersection Delay
AM Peak	A.Existing (See Exhibit 3)	• LOS	F	E	<	D	C	<	A	D	A	F	A	A	C (34.2)
		• 95th Queue Length (ft)	322	141	-	71	71	-	32	826	21	266	48	0	-
	B. 2033 No-Build (See Exhibit 4)	• LOS	F	E	<	D	C	<	A	D	A	F	A	A	D (36.9)
		• 95th Queue Length (ft)	351	149	-	75	73	-	33	867	23	319	51	0	-
	C. 2033 Total (See Exhibit 6)	• LOS	F	E	<	D	C	<	A	D	A	F	B	A	D (38.9)
		• 95th Queue Length (ft)	357	149	-	75	73	-	33	868	23	336	304	13	-
PM Peak	A.Existing (See Exhibit 3)	• LOS	F	E	<	F	F	<	E	C	A	B	A	A	D (46.7)
		• 95th Queue Length (ft)	247	181	-	230	418	-	199	644	15	40	140	8	-
	B. 2033 No-Build (See Exhibit 4)	• LOS	F	E	<	F	F	<	E	C	A	C	A	A	D (50.7)
		• 95th Queue Length (ft)	267	194	-	206	443	-	215	670	16	58	146	8	-
	C. 2033 Total (See Exhibit 6)	• LOS	F	E	<	F	F	<	E	C	A	C	A	A	D (51.3)
		• 95th Queue Length (ft)	275	194	-	206	446	-	215	672	16	63	146	8	-
2. Eola Road at Sheffer Road		TWSC - SB Stops	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	Intersection Delay
AM Peak	A.Existing (See Exhibit 3)	• LOS	D	E	A	E	C	<	A	A	A	A	A	A	A (7.9)
		• 95th Queue Length (ft)	25	27	18	80	47	-	3	879	0	6	182	0	-
	B. 2033 No-Build (See Exhibit 4)	• LOS	D	E	A	E	C	<	A	A	A	B	A	A	A (8.3)
		• 95th Queue Length (ft)	25	27	21	82	48	-	4	893	0	6	192	0	-
	C. 2033 Total (See Exhibit 6)	• LOS	D	E	A	E	C	<	A	B	A	B	A	A	B (12.2)
		• 95th Queue Length (ft)	25	27	21	84	48	-	15	856	17	6	193	0	-
PM Peak	A.Existing (See Exhibit 3)	• LOS	D	E	B	E	C	<	D	B	A	A	B	A	B (17.5)
		• 95th Queue Length (ft)	32	35	44	252	74	-	74	677	13	12	372	0	-
	B. 2033 No-Build (See Exhibit 4)	• LOS	D	E	B	E	C	<	D	B	A	A	B	A	B (18.9)
		• 95th Queue Length (ft)	32	35	47	262	77	-	82	702	11	13	390	0	-
	C. 2033 Total (See Exhibit 6)	• LOS	D	E	B	E	C	<	D	B	A	A	B	A	B (19.1)
		• 95th Queue Length (ft)	32	35	47	263	77	-	81	702	11	13	393	0	-

Table 5: Level-of-Service Summary (cont.)

Intersection / Timeframe		Roadway Conditions	Movement Group By Approach > = Shared Lane - = Non Critical or not Allowed Movement												Intersetion / Approach
			Eastbound			Westbound			Northbound			Southbound			
3.Eola Road at Waterstone Drive		TWSC - EB Stops	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	EB Approach Delay
AM Peak	A.Existing (See Exhibit 3)	• LOS	>	F	<	-	-	-	B	-	-	-	-	-	F (149.6)
		• 95th Queue Length (ft)	-	20	-	-	-	-	0	-	-	-	-	-	-
	B. 2033 No-Build (See Exhibit 4)	• LOS	>	F	<	-	-	-	B	-	-	-	-	-	F (184.2)
		• 95th Queue Length (ft)	-	23	-	-	-	-	0	-	-	-	-	-	-
	C. 2033 Total (See Exhibit 6)	• LOS	>	F	<	-	-	-	B	-	-	-	-	-	F (413.5)
		• 95th Queue Length (ft)	-	75	-	-	-	-	0	-	-	-	-	-	-
	D. 2033 Total w/ Improvements (See Exhibit 6)	• LOS	F	-	B	-	-	-	B	-	-	-	-	-	F (424.2)
		• 95th Queue Length (ft)	73	-	0	-	-	-	0	-	-	-	-	-	-
PM Peak	A.Existing (See Exhibit 3)	• LOS	>	F	<	-	-	-	C	-	-	-	-	-	F (597.8)
		• 95th Queue Length (ft)	-	45	-	-	-	-	0	-	-	-	-	-	-
	B. 2033 No-Build (See Exhibit 4)	• LOS	>	F	<	-	-	-	C	-	-	-	-	-	F (670.1)
		• 95th Queue Length (ft)	-	45	-	-	-	-	3	-	-	-	-	-	-
	C. 2033 Total (See Exhibit 6)	• LOS	>	F	<	-	-	-	D	-	-	-	-	-	F (2097.9)
		• 95th Queue Length (ft)	-	88	-	-	-	-	8	-	-	-	-	-	-
	D. 2033 Total w/ Improvements (See Exhibit 6)	• LOS	F	-	D	-	-	-	D	-	-	-	-	-	F (2177.2)
		• 95th Queue Length (ft)	73	-	3	-	-	-	8	-	-	-	-	-	-
4. Eola Road at Old Eola Road		TWSC - EB Stops	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	EB Approach Delay
AM Peak	C. 2033 Total (See Exhibit 6)	• LOS	-	-	C	-	-	-	-	-	-	-	-	-	C (15.0)
		• 95th Queue Length (ft)	-	-	3	-	-	-	-	-	-	-	-	-	-
PM Peak	C. 2033 Total (See Exhibit 6)	• LOS	-	-	D	-	-	-	-	-	-	-	-	-	D (27.3)
		• 95th Queue Length (ft)	-	-	3	-	-	-	-	-	-	-	-	-	-

Capacity analysis summary printouts are provided in *Appendix F*.

The following summarizes the findings of the Capacity Analyses.

Eola Road at Liberty Street
Currently, multiple movements at this signalized intersection experience longer than desirable and even "failing" operations (LOS E and F) during both Peak Hours. Specifically, all eastbound movements and westbound evening peak hour movements experience lengthy delays. The majority of the operational impacts are a result of non-project related growth and that the impacts of the development traffic (e.g., the change between No-Build 2033 operations and Total Traffic) are negligible.

Eola Road at Sheffer Road
Westbound left-turn movements during the evening peak hour exiting the shopping center parking lot experience LOS E delays. The intersection as a whole operates at LOS A and B, and the impact from site traffic is negligible.

Eola Road at Waterstone Drive
Access to Eola Road from the site is proposed to be via the existing Waterstone Drive intersection. The measured operations at this intersection indicate severe delay for left-turning vehicles at the intersection, with LOS F operations and 3-4 car queues for 6-7 minutes in the morning peak hour and greater than 10 minutes in the evening peak hour. Due to this severe delay, a gap study was performed at this intersection to ensure that exiting vehicles will have appropriate gaps to make the left-turning movements exiting the site during the peak hours.

Restriping or minor widening of the eastbound approach of Waterstone Drive to provide separate left and right turns is recommended. While this does not improve overall operations for left turners, it allows right turning traffic the ability to make their turn without having to wait for left turners.

Eola Road at Old Eola Road (Right-out Only)
A new limited right-out only access from Old Eola Road onto Eola Road is proposed as part of this project. The stop-controlled right-turn exiting movement is anticipated to experience acceptable LOS C and LOS D delays.

Gap Study

A Gap Study was conducted to determine the number of available gaps for left-turning vehicles at the intersection between Waterstone Drive and Eola Road. The gap study was performed on July 18, 2024, and the results can be found as ***Exhibit 7***. The results show that the 6 northbound left turning vehicles during the morning peak hour have a total of 729 effective gaps available in southbound traffic, and the 17 northbound left turning vehicles during the evening peak hour have 362 effective gaps available to make the turn from Eola Road onto Waterstone Drive.

When entering traffic on a major street with a flush median, vehicles can use one-stage or two-stage turning movements to blend into traffic. There is no true flush median at the intersection of Waterstone Drive and Eola Road, but there is space where left-turning vehicles can cross the southbound traffic and stop and wait to pull into northbound traffic. For the 21 vehicles turning left exiting the site in the morning peak hour, there are 38 gaps to make the one-stage turn, 185 gaps to make the first stage of the two-stage turn, and 129 gaps to make the second stage of the two-stage turn. For the 13 vehicles turning left exiting the site in the evening peak hour, there are just 15 gaps to make the one-stage turn, 80 gaps to make the first stage of the two-stage turn, and 141 gaps to make the second stage of the two-stage turn. Most of the left-turning movements exiting the site in the evening peak hour will be required to either accept shorter than ideal gaps or make two-stage turns

The Gap Study Data timing table is attached as ***Appendix G.***

Exhibit 7
Peak Hour Gap Study - Eola Preserve
Proposed Townhouse Development, Aurora, Illinois
Monday, July 29, 2024

Part A. Southbound Gap Distribution (for Left Turns In)

		Gaps in Southbound Traffic on Eola Road			
		Weekday AM Peak Hour (7:30-8:30 AM)		Weekday PM Peak Hour (4:45-5:45 PM)	
Gap Interval	No. of Vehicles per Gap Interval	No. Gaps	Total Effective Gaps	No. Gaps	Total Effective Gaps
4.1 to 6.2	1	67	67	69	69
6.3 to 8.4	2	41	82	15	30
8.5 to 10.6	3	17	51	10	30
10.7 to 12.8	4	24	96	11	44
12.9 to 15.0	5	16	80	4	20
15.1 to 17.2	6	12	72	3	18
17.3 to 19.4	7	9	63	5	35
19.5 to 21.6	8	3	24	4	32
21.7 to 23.8	9	6	54	1	9
23.9 to 26.0	10	3	30	2	20
>26.0	11	10	110	5	55
	Total Peak Hour Gaps =		729		362

Part C.1 Southbound and Northbound Gap Distribution (for Left Turns Out) - Single Stage Turn

		Gaps in South and Northbound Traffic on Eola Road			
		Weekday AM Peak Hour (7:30-8:30 AM)		Weekday PM Peak Hour (4:45-5:45 PM)	
Gap Interval	No. of Vehicles per Gap Interval	No. Gaps	Total Effective Gaps	No. Gaps	Total Effective Gaps
8.0 to 11.5	1	13	13	7	7
11.6 to 15.0	2	6	12	4	8
15.1 to 18.5	3	3	9	0	0
18.6 to 22.0	4	1	4	0	0
22.1 to 25.5	5	0	0	0	0
>25.5	6	0	0	0	0
	Total Peak Hour Gaps =		38		15

Part C.2 Southbound and Northbound Gap Distribution (for Left Turns Out) - Two-Stage Crossing

		Gaps in Southbound Traffic on Eola Road			
		Weekday AM Peak Hour (7:30-8:30 AM)		Weekday PM Peak Hour (4:45-5:45 PM)	
Gap Interval	No. of Vehicles per Gap Interval	No. Gaps	Total Effective Gaps	No. Gaps	Total Effective Gaps
7.5 to 14.0	1	63	63	30	30
14.0 to 20.5	2	31	62	10	20
>20.5	3	20	60	10	30
	Total Peak Hour Gaps =		185		80

		Gaps in Northbound Traffic on Eola Road			
		Weekday AM Peak Hour (7:30-8:30 AM)		Weekday PM Peak Hour (4:45-5:45 PM)	
Gap Interval	No. of Vehicles per Gap Interval	No. Gaps	Total Effective Gaps	No. Gaps	Total Effective Gaps
6.5 to 12.9	1	56	56	90	90
13.0 to 18.4	2	17	34	12	24
>18.5	3	13	39	9	27
	Total Peak Hour Gaps =		129		141

Part D. Gap Supply and Demand Summary

		Number of Vehicles Needing a Gap	*Number of Gaps Available*
Northbound Left Turns In			
Weekday AM Peak Hour	(7:30-8:30 AM)	6	729
Weekday PM Peak Hour	(4:45-5:45 PM)	17	362
Northbound Left Turns Out - Single Stage			
Weekday AM Peak Hour	(7:30-8:30 AM)	21	38
Weekday PM Peak Hour	(4:45-5:45 PM)	13	15
Northbound Left Turns Out - Two Stage Crossing			
Weekday AM Peak Hour	(7:30-8:30 AM)		
	Eastbound	21	185
	Westbound		129
Weekday PM Peak Hour	(4:45-5:45 PM)		
	Eastbound	13	80
	Westbound		141

Source: Illinois Bureau of Design and Environment Manual, May 2024 (gap acceptance time, t_c) and Highway Capacity Manual v7 (follow-up time, tf).

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Sight Distance Study

A sight distance study was performed using the guidelines in Chapter 9 of the AASHTO "Green Book" for the proposed Right-Out access onto Eola Road from Old Eola Road. Based on the design speed of Eola Road (50 MPH, or posted speed plus 5 MPH), adequate vertical and horizontal sight distance are currently provided at the proposed access location.

Included as *Appendix H* is a Sight Distance Study for the proposed Right-Out access location.

Part IV. Recommendations and Conclusions

Analyses have been conducted under existing and future conditions to determine the impact from the proposed townhouse development on the study area intersections. The capacity analysis results indicate that the increase in project site-generated traffic will result in longer than desirable delays, particularly for left turns during the evening peak hour. In an effort to mitigate the impacts we recommend the following improvements:

- Restripe or widen the existing Waterstone Drive pavement to provide separate left and right turn lanes at Eola Road.

Part V. Technical Addendum

The following Appendices were previously referenced. They provide technical support for our observations, findings and recommendations discussed in the text.

Appendices

A. Traffic Count Summaries
B. Crash Summary Map
C. CMAP Traffic Projections Email
D. May 16, 2024, Preliminary Engineering Plan
E. ITE Trip Generation Manual Excerpts
F. Capacity Analysis Worksheets
G. Gap Study Data Timing Table
H. Sight Distance Study

6101.900 - Eola Preserve Traffic Impact Study.docx

Eola Preserve Townhouse Development
Eola Road
Aurora, Illinois

TECHNICAL ADDENDUM

GHA GEWALT HAMILTON ASSOCIATES, INC.

APPENDIX A

Traffic Count Summaries

Eola Rd At Liberty St
6101.900 - Eola Preserve TIS
6 AM - 9 AM, 3 PM - 6 PM
GHA Mio

Gewalt Hamilton Associates Inc.
625 Forest Edge Drive

Vernon Hills, Illinois, United States 60061
(847) 478-9700 poster@gha-engineers.com

Count Name: Eola Rd At Liberty St
Site Code:
Start Date: 07/18/2024
Page No: 1

Turning Movement Data

Start Time	Eola Rd Southbound						Liberty St Westbound						Eola Rd Northbound						Liberty St Eastbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
6:00 AM	2	24	107	4	0	137	0	13	7	15	0	35	0	6	240	5	0	251	0	32	17	7	0	56	479
6:15 AM	1	23	109	6	0	139	0	2	9	8	0	19	0	6	358	18	0	382	0	46	36	4	0	86	626
6:30 AM	3	29	151	10	0	193	0	8	21	35	0	64	0	6	365	29	0	400	0	62	44	5	0	111	768
6:45 AM	1	49	171	16	0	237	0	5	11	18	0	34	0	12	348	30	0	390	0	49	48	5	0	102	763
Hourly Total	7	125	538	36	0	706	0	28	48	76	0	152	0	30	1311	82	0	1423	0	189	145	21	0	355	2636
7:00 AM	0	22	140	23	0	185	0	9	9	23	1	41	0	10	321	27	0	358	1	56	43	16	0	116	700
7:15 AM	0	41	200	23	0	264	0	10	10	25	0	45	0	12	419	28	0	459	0	62	41	11	0	114	882
7:30 AM	0	35	212	28	1	275	0	11	7	24	0	42	0	6	466	22	0	494	0	60	33	9	0	102	913
7:45 AM	2	56	221	27	1	306	0	10	11	27	1	48	0	8	441	20	0	469	0	61	35	16	1	112	935
Hourly Total	2	154	773	101	2	1030	0	40	37	99	2	176	0	36	1647	97	0	1780	1	239	152	52	1	444	3430
8:00 AM	3	39	226	21	0	289	0	6	8	13	0	27	0	12	367	21	0	400	0	60	28	17	0	105	821
8:15 AM	1	41	265	15	0	322	0	11	19	45	0	75	0	14	415	16	0	445	0	39	36	9	1	84	926
8:30 AM	1	45	303	20	0	369	0	12	18	26	0	56	0	15	388	28	0	431	0	45	44	21	1	110	966
8:45 AM	2	44	284	27	1	357	0	12	14	20	0	46	0	15	312	23	0	350	0	46	34	19	0	99	852
Hourly Total	7	169	1078	83	1	1337	0	41	59	104	0	204	0	56	1482	88	0	1626	0	190	142	66	2	398	3565
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	0	25	367	56	0	448	0	39	56	56	0	151	0	19	318	7	0	344	0	36	33	9	0	78	1021
3:15 PM	0	38	396	62	1	496	0	27	50	55	0	132	0	17	325	21	0	363	0	32	25	19	1	76	1067
3:30 PM	1	35	373	55	1	464	0	28	52	66	0	146	0	26	300	15	0	341	0	31	41	15	0	87	1038
3:45 PM	1	34	394	51	0	480	0	29	40	48	0	117	0	29	276	23	0	328	0	27	33	21	0	81	1006
Hourly Total	2	132	1530	224	2	1888	0	123	198	225	0	546	0	91	1219	66	0	1376	0	126	132	64	1	322	4132
4:00 PM	3	44	441	58	0	546	0	30	58	85	0	173	0	25	280	12	0	317	0	30	26	18	1	74	1110
4:15 PM	0	30	433	57	0	520	0	16	20	22	0	58	2	29	297	17	0	345	0	23	27	16	0	66	989
4:30 PM	0	43	424	51	2	518	0	19	49	48	0	116	0	38	292	14	0	344	0	29	38	16	0	83	1061
4:45 PM	0	27	502	58	0	587	0	28	55	77	0	160	0	37	295	18	0	350	0	38	42	13	0	93	1190
Hourly Total	3	144	1800	224	2	2171	0	93	182	232	0	507	2	129	1164	61	0	1356	0	120	133	63	1	316	4350
5:00 PM	1	36	442	45	4	524	0	30	68	29	0	127	0	29	320	17	0	366	0	46	35	23	0	104	1121
5:15 PM	3	50	349	51	0	453	0	33	75	53	0	161	1	34	311	16	0	362	0	44	45	30	0	119	1095
5:30 PM	1	41	473	78	0	593	0	35	71	26	0	132	0	33	304	14	0	351	0	27	46	22	0	95	1171
5:45 PM	2	36	431	79	0	548	0	23	59	26	0	108	0	24	270	28	0	322	0	45	43	19	1	107	1085
Hourly Total	7	163	1695	253	4	2118	0	121	273	134	0	528	1	120	1205	75	0	1401	0	162	169	94	1	425	4472
Grand Total	28	887	7414	921	11	9250	0	446	797	870	2	2113	3	462	8028	469	0	8962	1	1026	873	360	6	2260	22585
Approach %	0.3	9.6	80.2	10.0	-	-	0.0	21.1	37.7	41.2	-	-	0.0	5.2	89.6	5.2	-	-	0.0	45.4	38.6	15.9	-	-	-
Total %	0.1	3.9	32.8	4.1	-	41.0	0.0	2.0	3.5	3.9	-	9.4	0.0	2.0	35.5	2.1	-	39.7	0.0	4.5	3.9	1.6	-	10.0	-
Lights	28	837	7242	901	-	9008	0	431	787	810	-	2028	3	451	7862	463	-	8779	1	1009	857	354	-	2221	22036
% Lights	100.0	94.4	97.7	97.8	-	97.4	-	96.6	98.7	93.1	-	96.0	100.0	97.6	97.9	98.7	-	98.0	100.0	98.3	98.2	98.3	-	98.3	97.6
Mediums	0	20	116	9	-	145	0	8	6	22	-	36	0	7	98	3	-	108	0	11	6	4	-	21	310
% Mediums	0.0	2.3	1.6	1.0	-	1.6	-	1.8	0.8	2.5	-	1.7	0.0	1.5	1.2	0.6	-	1.2	0.0	1.1	0.7	1.1	-	0.9	1.4

Articulated Trucks	0	30	56	11	-	97	0	7	4	38	-	49	0	4	68	3	-	75	0	6	10	2	-	18	239
% Articulated Trucks	0.0	3.4	0.8	1.2	-	1.0	-	1.6	0.5	4.4	-	2.3	0.0	0.9	0.8	0.6	-	0.8	0.0	0.6	1.1	0.6	-	0.8	1.1
Bicycles on Crosswalk	-	-	-	-	3	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	4	-	-
% Bicycles on Crosswalk	-	-	-	-	27.3	-	-	-	-	-	50.0	-	-	-	-	-	-	-	-	-	-	-	66.7	-	-
Pedestrians	-	-	-	-	8	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	2	-	-
% Pedestrians	-	-	-	-	72.7	-	-	-	-	-	50.0	-	-	-	-	-	-	-	-	-	-	-	33.3	-	-

Eola Rd at Sheffer Rd
6101.900 - Eola Preserve TIS
6 AM - 9 AM, 3 PM - 6 PM
GHA Mio

Gewalt Hamilton Associates Inc.
625 Forest Edge Drive

Vernon Hills, Illinois, United States 60061
(847) 478-9700 poster@gha-engineers.com

Count Name: Eola Rd at Sheffer Rd
Site Code:
Start Date: 07/18/2024
Page No: 1

Turning Movement Data

Start Time	Eola Rd Southbound						Sheffer Rd Westbound						Eola Rd Northbound						Sheffer Rd Eastbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
6:00 AM	0	4	129	1	0	134	0	3	0	2	0	5	0	3	268	15	0	286	0	0	1	1	0	2	427
6:15 AM	0	1	122	1	0	124	0	3	1	6	0	10	0	6	402	12	0	420	0	3	2	5	0	10	564
6:30 AM	0	7	186	2	0	195	0	4	1	6	0	11	0	2	452	10	0	464	0	0	0	7	2	7	677
6:45 AM	0	5	210	0	0	215	0	6	0	11	0	17	0	3	416	17	0	436	0	2	0	11	0	13	681
Hourly Total	0	17	647	4	0	668	0	16	2	25	0	43	0	14	1538	54	0	1606	0	5	3	24	2	32	2349
7:00 AM	0	10	188	0	0	198	0	10	0	2	0	12	0	4	397	15	0	416	0	2	0	1	0	3	629
7:15 AM	0	6	230	0	0	236	0	12	1	7	1	20	1	8	482	12	0	503	0	1	0	9	0	10	769
7:30 AM	0	6	239	3	0	248	0	6	2	4	0	12	1	4	493	15	0	513	0	3	2	17	2	22	795
7:45 AM	0	11	268	2	2	281	0	11	2	9	1	22	0	8	526	24	0	558	0	1	4	15	0	20	881
Hourly Total	0	33	925	5	2	963	0	39	5	22	2	66	2	24	1898	66	0	1990	0	7	6	42	2	55	3074
8:00 AM	0	9	229	2	0	240	0	15	5	4	0	24	1	8	485	23	0	517	0	3	1	8	0	12	793
8:15 AM	0	4	248	1	0	253	0	22	1	5	0	28	0	5	437	18	0	460	0	2	0	12	0	14	755
8:30 AM	0	13	266	1	0	280	0	12	2	6	0	20	1	13	388	24	0	426	0	2	2	17	0	21	747
8:45 AM	1	17	286	0	0	304	0	25	2	9	0	36	0	10	402	26	0	438	0	2	1	23	0	26	804
Hourly Total	1	43	1029	4	0	1077	0	74	10	24	0	108	2	36	1712	91	0	1841	0	9	4	60	0	73	3099
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	0	11	375	3	1	389	0	44	5	10	0	59	0	18	349	28	0	395	0	3	3	17	0	23	866
3:15 PM	1	18	466	2	1	487	0	42	7	11	0	60	0	20	373	30	0	423	0	4	6	17	0	27	997
3:30 PM	0	12	446	5	0	463	0	35	4	15	0	54	0	14	384	27	0	425	0	7	2	17	0	26	968
3:45 PM	0	12	476	3	0	491	0	39	7	15	0	61	0	12	365	33	0	410	0	5	6	21	1	32	994
Hourly Total	1	53	1763	13	2	1830	0	160	23	51	0	234	0	64	1471	118	0	1653	0	19	17	72	1	108	3825
4:00 PM	0	17	489	2	0	508	0	56	8	10	0	74	0	10	340	28	1	378	0	2	1	16	0	19	979
4:15 PM	1	12	459	4	1	476	0	42	5	12	0	59	0	15	293	24	0	332	0	2	2	21	0	25	892
4:30 PM	0	12	498	5	1	515	0	47	4	16	0	67	0	13	294	36	1	343	0	2	4	11	0	17	942
4:45 PM	1	24	498	2	1	525	0	42	7	16	1	65	0	25	319	28	1	372	0	3	2	14	0	19	981
Hourly Total	2	65	1944	13	3	2024	0	187	24	54	1	265	0	63	1246	116	3	1425	0	9	9	62	0	80	3794
5:00 PM	2	15	455	1	1	473	0	52	7	12	2	71	0	15	389	30	2	434	0	4	3	14	2	21	999
5:15 PM	0	7	425	1	2	433	0	37	3	7	0	47	0	23	392	30	0	445	0	4	1	19	0	24	949
5:30 PM	0	14	497	3	0	514	0	48	6	14	1	68	0	23	338	40	0	401	0	2	5	22	0	29	1012
5:45 PM	0	16	456	1	1	473	0	65	7	11	0	83	0	17	334	31	2	382	0	2	6	27	1	35	973
Hourly Total	2	52	1833	6	4	1893	0	202	23	44	3	269	0	78	1453	131	4	1662	0	12	15	82	3	109	3933
Grand Total	6	263	8141	45	11	8455	0	678	87	220	6	985	4	279	9318	576	7	10177	0	61	54	342	8	457	20074
Approach %	0.1	3.1	96.3	0.5	-	-	0.0	68.8	8.8	22.3	-	-	0.0	2.7	91.6	5.7	-	-	0.0	13.3	11.8	74.8	-	-	-
Total %	0.0	1.3	40.6	0.2	-	42.1	0.0	3.4	0.4	1.1	-	4.9	0.0	1.4	46.4	2.9	-	50.7	0.0	0.3	0.3	1.7	-	2.3	-
Lights	6	261	7930	43	-	8240	0	670	86	217	-	973	4	274	9074	562	-	9914	0	54	54	340	-	448	19575
% Lights	100.0	99.2	97.4	95.6	-	97.5	-	98.8	98.9	98.6	-	98.8	100.0	98.2	97.4	97.6	-	97.4	-	88.5	100.0	99.4	-	98.0	97.5
Mediums	0	1	122	1	-	124	0	6	1	1	-	8	0	5	128	10	-	143	0	6	0	2	-	8	283
% Mediums	0.0	0.4	1.5	2.2	-	1.5	-	0.9	1.1	0.5	-	0.8	0.0	1.8	1.4	1.7	-	1.4	-	9.8	0.0	0.6	-	1.8	1.4

Articulated Trucks	0	1	89	1	-	91	0	2	0	2	-	4	0	0	116	4	-	120	0	1	0	0	-	1	216
% Articulated Trucks	0.0	0.4	1.1	2.2	-	1.1	-	0.3	0.0	0.9	-	0.4	0.0	0.0	1.2	0.7	-	1.2	-	1.6	0.0	0.0	-	0.2	1.1
Bicycles on Crosswalk	-	-	-	-	2	-	-	-	-	-	4	-	-	-	-	-	5	-	-	-	-	-	6	-	-
% Bicycles on Crosswalk	-	-	-	-	18.2	-	-	-	-	-	66.7	-	-	-	-	-	71.4	-	-	-	-	-	75.0	-	-
Pedestrians	-	-	-	-	9	-	-	-	-	-	2	-	-	-	-	-	2	-	-	-	-	-	2	-	-
% Pedestrians	-	-	-	-	81.8	-	-	-	-	-	33.3	-	-	-	-	-	28.6	-	-	-	-	-	25.0	-	-

Aurora, IL Weather: Cold and Dry 12/21/23
Eola Rd and Waterstone Drive 11:26:05
Wednesday December 20, 2023 Multi Unit Trucks Only

TEAPAC[Ver 9.50.02] - 60-Minute Volumes: by Movement

Int# 3 eola/waterstone/multi

Begin Time	N-Approach RT	N-Approach TH	N-Approach LT	E-Approach RT	E-Approach TH	E-Approach LT	S-Approach RT	S-Approach TH	S-Approach LT	W-Approach RT	W-Approach TH	W-Approach LT	Int Total
700	0	7	0	0	0	0	0	18	0	0	0	0	25
715	0	7	0	0	0	0	0	27	0	0	0	0	34
730	0	7	0	0	0	0	0	27	0	0	0	0	34
745	0	12	0	0	0	0	0	30	1	1	0	0	44
800	0	15	0	0	0	0	0	26	1	1	0	0	43
815	0	13	0	0	0	0	0	16	1	1	0	0	31*
830	0	11	0	0	0	0	0	13	1	1	0	0	26*
845	0	6	0	0	0	0	0	6	0	0	0	0	12*
1600	1	14	0	0	0	0	0	11	0	0	0	0	26
1615	1	15	0	0	0	0	0	7	0	0	0	0	23
1630	1	14	0	0	0	0	0	7	0	0	0	1	23
1645	0	11	0	0	0	0	0	9	0	0	0	1	21
1700	0	6	0	0	0	0	0	13	0	0	0	1	20
1715	0	3	0	0	0	0	0	13	0	0	0	1	17*
1730	0	2	0	0	0	0	0	11	0	0	0	0	13*
1745	0	0	0	0	0	0	0	4	0	0	0	0	4*

TEAPAC[Ver 9.50.02] - 60-Minute Volumes: Appr/Exit Totals

Int# 3 eola/waterstone/multi

Begin Time	Approach Totals N	Approach Totals E	Approach Totals S	Approach Totals W	Exit Totals N	Exit Totals E	Exit Totals S	Exit Totals W	Int Total
700	7	0	18	0	18	0	7	0	25
715	7	0	27	0	27	0	7	0	34
730	7	0	27	0	27	0	7	0	34
745	12	0	31	1	30	0	13	1	44
800	15	0	27	1	26	0	16	1	43
815	13	0	17	1	16	0	14	1	31*
830	11	0	14	1	13	0	12	1	26*
845	6	0	6	0	6	0	6	0	12*
1600	15	0	11	0	11	0	14	1	26
1615	16	0	7	0	7	0	15	1	23
1630	15	0	7	1	8	0	14	1	23
1645	11	0	9	1	10	0	11	0	21
1700	6	0	13	1	14	0	6	0	20
1715	3	0	13	1	14	0	3	0	17*
1730	2	0	11	0	11	0	2	0	13*
1745	0	0	4	0	4	0	0	0	4*

Aurora, IL Weather: Cold and Dry 12/21/23
Eola Rd and Waterstone Drive 11:23:34
Wednesday December 20, 2023 Single Unit Trucks Only

TEAPAC[Ver 9.50.02] - 60-Minute Volumes: by Movement

Int# 2 eola/waterstone/single

Begin Time	N-Approach RT	N-Approach TH	N-Approach LT	E-Approach RT	E-Approach TH	E-Approach LT	S-Approach RT	S-Approach TH	S-Approach LT	W-Approach RT	W-Approach TH	W-Approach LT	Int Total
700	0	18	0	0	0	0	0	9	0	1	0	1	29
715	1	23	0	0	0	0	0	13	0	0	0	1	38
730	1	29	0	0	0	0	0	15	0	0	0	0	45
745	1	34	0	0	0	0	0	18	0	0	0	0	53
800	1	42	0	0	0	0	0	22	0	0	0	0	65
815	0	34	0	0	0	0	0	15	0	0	0	0	49*
830	0	23	0	0	0	0	0	10	0	0	0	0	33*
845	0	10	0	0	0	0	0	5	0	0	0	0	15*
1600	0	16	0	0	0	0	0	18	1	0	0	0	35
1615	0	19	0	0	0	0	0	17	1	0	0	0	37
1630	0	26	0	0	0	0	0	15	1	0	0	0	42
1645	0	23	0	0	0	0	0	16	1	0	0	0	40
1700	0	19	0	0	0	0	0	18	0	0	0	0	37
1715	0	16	0	0	0	0	0	12	0	0	0	0	28*
1730	0	7	0	0	0	0	0	10	0	0	0	0	17*
1745	0	3	0	0	0	0	0	6	0	0	0	0	9*

TEAPAC[Ver 9.50.02] - 60-Minute Volumes: Appr/Exit Totals

Int# 2 eola/waterstone/single

Begin Time	Approach Totals N	Approach Totals E	Approach Totals S	Approach Totals W	Exit Totals N	Exit Totals E	Exit Totals S	Exit Totals W	Int Total
700	18	0	9	2	10	0	19	0	29
715	24	0	13	1	14	0	23	1	38
730	30	0	15	0	15	0	29	1	45
745	35	0	18	0	18	0	34	1	53
800	43	0	22	0	22	0	42	1	65
815	34	0	15	0	15	0	34	0	49*
830	23	0	10	0	10	0	23	0	33*
845	10	0	5	0	5	0	10	0	15*
1600	16	0	19	0	18	0	16	1	35
1615	19	0	18	0	17	0	19	1	37
1630	26	0	16	0	15	0	26	1	42
1645	23	0	17	0	16	0	23	1	40
1700	19	0	18	0	18	0	19	0	37
1715	16	0	12	0	12	0	16	0	28*
1730	7	0	10	0	10	0	7	0	17*
1745	3	0	6	0	6	0	3	0	9*

Aurora, IL Weather: Cold and Dry 12/21/23
Eola Rd and Waterstone Drive 11:21:17
Wednesday December 20, 2023 Passenger Vehicles Only

TEAPAC[Ver 9.50.02] - 60-Minute Volumes: by Movement

Int# 1 eola/waterstone/cars

Begin Time	N-Approach RT	TH	LT	E-Approach RT	TH	LT	S-Approach RT	TH	LT	W-Approach RT	TH	LT	Int Total
700	3	1114	0	0	0	0	0	1679	0	2	0	8	2806
715	2	1139	0	0	0	0	0	1733	0	2	0	6	2882
730	2	1122	0	0	0	0	0	1767	1	1	0	6	2899
745	1	1088	0	0	0	0	0	1627	2	2	0	6	2726
800	3	1081	0	0	0	0	0	1479	2	5	0	6	2576
815	3	825	0	0	0	0	0	1065	2	5	0	6	1906*
830	2	582	0	0	0	0	0	691	1	5	0	4	1285*
845	2	298	0	0	0	0	0	346	0	4	0	2	652*
1600	4	2208	0	0	0	0	0	1591	7	6	0	4	3820
1615	5	2159	0	0	0	0	0	1551	5	6	0	3	3729
1630	3	2141	0	0	0	0	0	1489	3	4	0	5	3645
1645	5	2129	0	0	0	0	0	1540	2	4	0	4	3684
1700	5	2084	0	0	0	0	0	1453	3	7	0	3	3555
1715	3	1542	0	0	0	0	0	1074	3	4	0	3	2629*
1730	3	1015	0	0	0	0	0	709	2	4	0	1	1734*
1745	0	499	0	0	0	0	0	319	2	3	0	1	824*

TEAPAC[Ver 9.50.02] - 60-Minute Volumes: Appr/Exit Totals

Int# 1 eola/waterstone/cars

Begin Time	Approach Totals N	E	S	W	Exit Totals N	E	S	W	Int Total
700	1117	0	1679	10	1687	0	1116	3	2806
715	1141	0	1733	8	1739	0	1141	2	2882
730	1124	0	1768	7	1773	0	1123	3	2899
745	1089	0	1629	8	1633	0	1090	3	2726
800	1084	0	1481	11	1485	0	1086	5	2576
815	828	0	1067	11	1071	0	830	5	1906*
830	584	0	692	9	695	0	587	3	1285*
845	300	0	346	6	348	0	302	2	652*
1600	2212	0	1598	10	1595	0	2214	11	3820
1615	2164	0	1556	9	1554	0	2165	10	3729
1630	2144	0	1492	9	1494	0	2145	6	3645
1645	2134	0	1542	8	1544	0	2133	7	3684
1700	2089	0	1456	10	1456	0	2091	8	3555
1715	1545	0	1077	7	1077	0	1546	6	2629*
1730	1018	0	711	5	710	0	1019	5	1734*
1745	499	0	321	4	320	0	502	2	824*

APPENDIX B

Crash Summary Map

N

1 inch = 1,000 Feet

Appendix B - Crash Map

Proposed Townhouse Development
Old Eola Road, Aurora, IL

Map Center: 88.24194°W 41.77115°N

APPENDIX C

CMAP Traffic Projections Email

Appendix C

Gmail

Steve Grabowski <stevebwcaw@gmail.com>

FW: Aurora (Eola Rd N of Liberty St) 2050 Traffic Projections

2 messages

Steve Corcoran <scorcoran@eea-ltd.com> Fri, Dec 15, 2023 at 11:33 AM
To: Steve Grabowski <stevebwcaw@gmail.com>

Stephen B. Corcoran, PE (IL, IN, MI, MO, WI), PTOE

Director of Traffic Engineering

Direct 847.250.2610

Office 847.223.4804

Mobile 847.254.9792

ERIKSSON ENGINEERING ASSOCIATES, LTD.

From: Jose Rodriguez <JRodriguez@cmap.illinois.gov>
Sent: Friday, December 15, 2023 10:21 AM
To: Steve Corcoran <scorcoran@eea-ltd.com>
Subject: RE: Aurora (Eola Rd N of Liberty St) 2050 Traffic Projections

Steve:

I must give my general warning with regard to DuPage County – situated AADTs collected by IDOT in Year 2020. The County has felt that these numbers are reflective of pandemic-low volume conditions. From observing several requests over the course of the past 2 years, the 2020 AADTs tended to range from 60% to as low as 40% of the previous count year available (2016, 2017).

I do have several years of intersection count data from DuDOT and IDOT and in most cases recommend that the future year projection be based of the closest past year prior to 2020, in this case 2017:

Street1	Street2	LatestADTYear	North	South	East	West	IntADT	Municipality
Eola Rd	Liberty St	2001	39600	37600	15900	12900	53000	Aurora
Eola Rd	Liberty St	2007	47500	42200	15300	13400	59200	Aurora
Eola Rd	Liberty St	2010	48400	43000	13200	10950	57800	Aurora
Eola Rd	Liberty St	2012	49700	43400	13300	11400	58900	Aurora
Eola Rd	Liberty St	2017	48500	42700	12900	13200	58600	Aurora

The most recent pre-pandemic AADT is 48,500 for Eola north of Liberty St, the 27,300 from 2020 is 56.3% of the 2017 AADT.

If I apply expected model growth rate from the 2017 condition to 2050, here are the results for the 2 base numbers:

ROAD SEGMENT	Current ADT	Year 2050 ADT
Eola Rd N of Liberty St, 2017	48,500	56,400

Appendix C

Eola Rd N of Liberty St, 2020	27,399	31,800

One other alternative might be to submit one of the 2007 through 2017 AADTs as the Year 2050 ADT – this would be a confirmation the road's capacity could not exceed 45,000-50,000 even with surrounding growth.

Please consider which option for Year 2050 ADT would be optimal – reply and then Ill resume the letter prep process.

Thanks,

Jose

From: Steve Corcoran <scorcoran@eea-ltd.com>
Sent: Thursday, December 14, 2023 12:46 PM
To: Jose Rodriguez <JRodriguez@cmap.illinois.gov>
Subject: 2050 Traffic Projections

Jose,

Please provide the Year 2050 ADT projections for Eola Road north of Liberty Street in Aurora, Illinois. The IDOT ADT is 27,300 from 2020. This is for a townhome project traffic study.

Thanks in advance.

Stephen B. Corcoran, PE (IL, IN, MI, MO, WI), PTOE

Director of Traffic Engineering

Direct 847.250.2610

Office847.223.4804

Mobile 847.254.9792

ERIKSSON ENGINEERING ASSOCIATES, LTD.

Illinois | Wisconsin | Indiana | www.eea-ltd.com

145 Commerce Drive, Suite A, Grayslake, IL 60030

Steve Grabowski <stevebwcaw@gmail.com>
To: Steve Corcoran <scorcoran@eea-ltd.com>

Sat, Dec 16, 2023 at 9:07 AM

2017 are probably more realistic plus the % increase is lower.

Sent from my iPad

On Dec 15, 2023, at 11:33 AM, Steve Corcoran <scorcoran@eea-ltd.com> wrote:

Appendix C

Stephen B. Corcoran, PE (IL, IN, MI, MO, WI), PTOE

Director of Traffic Engineering

Direct 847.250.2610

Office 847.223.4804

Mobile 847.254.9792

ERIKSSON ENGINEERING ASSOCIATES, LTD.

From: Jose Rodriguez <JRodriguez@cmap.illinois.gov>
Sent: Friday, December 15, 2023 10:21 AM
To: Steve Corcoran <scorcoran@eea-ltd.com>
Subject: RE: Aurora (Eola Rd N of Liberty St) 2050 Traffic Projections

Steve:

I must give my general warning with regard to DuPage County – situated AADTs collected by IDOT in Year 2020. The County has felt that these numbers are reflective of pandemic-low volume conditions. From observing several requests over the course of the past 2 years, the 2020 AADTs tended to range from 60% to as low as 40% of the previous count year available (2016, 2017).

I do have several years of intersection count data from DuDOT and IDOT and in most cases recommend that the future year projection be based of the closest past year prior to 2020, in this case 2017:

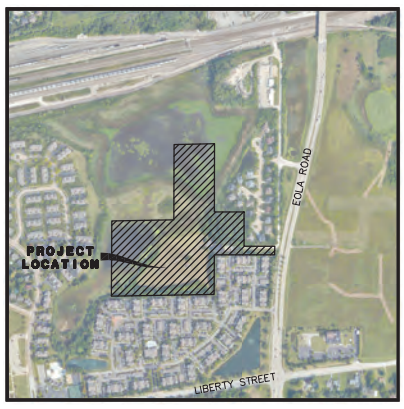
<image003.png>

[Quoted text hidden]

APPENDIX D

May 16, 2024 Site Plan

PRELIMINARY ENGINEERING PLAN
FOR
EOLA PRESERVE
AURORA, ILLINOIS



LOCATION MAP

SURVEYED PARCEL DESCRIPTION

PARCEL A:
THAT PART OF THE SOUTH EAST 1/4 OF SECTION 18, TOWNSHIP 38 NORTH, RANGE 9, EAST OF THE THIRD PRINCIPAL MERIDIAN, DESCRIBED AS FOLLOWS: COMMENCING AT THE SOUTHEAST CORNER OF SAID SOUTH EAST 1/4 OF SECTION 18; THENCE WESTERLY ALONG THE SOUTH LINE OF SAID SOUTH EAST 1/4, 682.0 FEET, FOR THE POINT OF BEGINNING; THENCE NORTHERLY PARALLEL WITH THE EAST LINE OF SAID QUARTER FORMING AN ANGLE OF 88 DEGREES, 44 MINUTES, 41 SECONDS WITH SAID SOUTH LINE (MEASURED COUNTER-CLOCKWISE THEREFROM) 660.0 FEET, THENCE WESTERLY PARALLEL WITH SAID SOUTH LINE 218.0 FEET; THENCE SOUTHERLY PARALLEL WITH SAID EAST LINE FORMING AN ANGLE OF 91 DEGREES, 15 MINUTES, 19 SECONDS WITH THE LAST DESCRIBED COURSE (MEASURED CLOCKWISE THEREFROM) 860.0 FEET TO SAID SOUTH LINE; THENCE EASTERLY ALONG SAID SOUTH LINE FORMING AN ANGLE OF 88 DEGREES, 44 MINUTES, 41 SECONDS WITH THE LAST DESCRIBED COURSE (MEASURED CLOCKWISE THEREFROM) 218.0 FEET TO THE POINT OF BEGINNING, IN DUPAGE COUNTY, ILLINOIS.

PARCEL B:
THAT PART OF THE SOUTHWEST 1/4 OF SECTION 17, TOWNSHIP 38 NORTH, RANGE 9, EAST OF THE THIRD PRINCIPAL MERIDIAN, DESCRIBED AS FOLLOWS: COMMENCING AT THE SOUTHWEST CORNER OF SAID SOUTHWEST 1/4 OF SECTION 17; THENCE NORTHERLY ALONG THE WEST LINE OF SAID SOUTHWEST 1/4 422.40 FEET FOR A POINT OF BEGINNING; THENCE NORTHERLY ALONG THE WEST LINE OF SAID SOUTHWEST 1/4, 300 FEET, THENCE NORTH 89 DEGREES 42 MINUTES EAST ALONG A LINE FORMING AN ANGLE OF 90 DEGREES, 04 MINUTES, 57 SECONDS WITH THE LAST DESCRIBED COURSE (MEASURED COUNTER CLOCKWISE THEREFROM) 260.0 FEET; THENCE SOUTHERLY PARALLEL WITH SAID WEST LINE 300.0 FEET: THENCE SOUTH 89 DEGREES 42 MINUTES WEST 260.0 FEET TO THE POINT OF BEGINNING, IN DUPAGE COUNTY, ILLINOIS.

PARCEL C:
THAT PART OF THE SOUTHWEST 1/4 OF SECTION 17, TOWNSHIP 38 NORTH, RANGE 9, EAST OF THE THIRD PRINCIPAL MERIDIAN, DESCRIBED AS FOLLOWS: COMMENCING AT THE SOUTHWEST CORNER OF SAID SOUTHWEST 4/4 OF SECTION 17; THENCE NORTHERLY ALONG THE WEST LINE OF SAID SOUTHWEST 1/4, 422.40 FEET; THENCE NORTH 89 DEGREES 42 MINUTES EAST ALONG A LINE FORMING AN ANGLE OF 50 DEGREES, 04 MINUTES, 57 SECONDS WITH THE LAST DESCRIBED COURSE (MEASURED COUNTER CLOCKWISE THEREFROM) 100.0 FEET FOR A POINT OF BEGINNING; THENCE SOUTHERLY PARALLEL WITH SAID WEST LINE 75.0 FEET; THENCE NORTH 89 DEGREES 42 MINUTES EAST 426.23 FEET TO THE WEST RIGHT OF WAY LINE OF EOLA ROAD; THENCE NORTHERLY ALONG SAID WEST RIGHT OF WAY LINE 75.01 FEET TO THE LINE DRAWN NORTH 89 DEGREES 42 MINUTES EAST FROM THE POINT OF BEGINNING;
THENCE SOUTH 89 DEGREES 42 MINUTES WEST 427.53 FEET TO THE POINT OF BEGINNING, IN DUPAGE COUNTY, ILLINOIS.

PARCEL D:
THAT PART OF THE SOUTHWEST 1/4 OF SECTION 17, TOWNSHIP 38 NORTH, RANGE 9, EAST OF THE THIRD PRINCIPAL MERIDIAN, DESCRIBED AS FOLLOWS: COMMENCING AT THE SOUTHWEST CORNER OF SAID SOUTHWEST 1/4; THENCE NORTH 0 DEGREES, 04 MINUTES, 38 SECONDS EAST ALONG THE WEST LINE OF SAID SOUTHWEST 1/4 422.40 FEET TO A STONE FOR A POINT OF BEGINNING: THENCE NORTH 89 DEGREES 42 MINUTES EAST 100.0 FEET; THENCE SOUTHERLY PARALLEL WITH SAID WEST LINE 75.0 FEET; THENCE WESTERLY PARALLEL WITH THE PENULTIMATE DESCRIBED COURSE 100.0 FEET TO SAID WEST LINE; THENCE NORTHERLY ALONG SAID WEST LINE 75.0 FEET TO THE POINT OF BEGINNING (EXCEPTING THEREFROM THE NORTHERLY 60.0 FEET THEREOF) IN DUPAGE COUNTY, ILLINOIS.

AND ALSO

THE WESTERLY 100.0 FEET OF THE NORTHERLY 60.0 FEET OF THE FOLLOWING DESCRIBED TRACT: THAT PART OF SECTIONS 17 AND 20, TOWNSHIP 38 NORTH, RANGE 9 EAST OF THE THIRD PRINCIPAL MERIDIAN, DESCRIBED AS FOLLOWS: BEGINNING AT THE SOUTHWEST CORNER OF SAID SECTION 17; THENCE NORTH 0 DEGREES, 04 MINUTES, 38 SECONDS EAST ALONG THE WEST LINE OF SAID SECTION 17, 422.40 FEET TO THE STONE; THENCE NORTH 89 DEGREES 42 MINUTES EAST 558.84 FEET TO THE CENTER LINE OF EOLA ROAD; THENCE SOUTH 0 DEGREES, 47 MINUTES, 33 SECONDS WEST ALONG SAID CENTER LINE 1155.70 FEET TO THE CENTER LINE OF AURORA-WARRENVILLE ROAD; THENCE SOUTH 82 DEGREES, 03 MINUTES, 38 SECONDS WEST ALONG THE CENTER LINE OF SAID AURORA ROAD 544.83 FEET TO THE WEST LINE OF SAID SECTION 20; THENCE NORTH 0 DEGREES, 16 MINUTES, 16 SECONDS WEST ALONG SAID WEST LINE 805.53 FEET TO THE POINT OF BEGINNING, IN DUPAGE COUNTY, ILLINOIS.

PARCEL E:
THAT PART OF THE SOUTH EAST 1/4 OF SECTION 18, TOWNSHIP 38 NORTH, RANGE 9, EAST OF THE THIRD PRINCIPAL MERIDIAN, DESCRIBED BY COMMENCING AT THE SOUTHEAST CORNER OF SAID SECTION 18, AND RUNNING THENCE WEST ALONG THE SOUTH LINE OF SAID SECTION (BEING ALSO THE SOUTH LINE OF VACATED BELT CITY) 682 FEET TO THE ENTER LINE OF WEST SEVENTH STREET IN SAID VACATED BELT CITY; THENCE NORTHERLY PARALLEL WITH THE EAST LINE OF SAID SECTION 18 AND ALONG THE CENTER STREET 660 FEET TO THE CENTER LINE OF PIKE STREET IN SAID VACATED BELT CITY; THENCE EAST PARALLEL WITH THE SOUTH LINE OF SAID SECTION 18 AND ALONG THE CENTER LINE OF SAID PIKE STREET 326 FEET TO THE CENTER LINE OF WEST SIXTH STREET IN SAID VACATED BELT CITY; THENCE NORTHERLY ALONG SAID CENTER LINE AND PARALLEL WITH THE EAST LINE OF SAID SECTION 18, 660 FEET TO THE CENTER LINE OF CRANE STREET IN SAID BELT CITY; THENCE EAST ALONG SAID CENTER LINE 326 FEET TO THE CENTER LINE OF WEST FIFTH STREET IN SAID BELT CITY; THENCE SOUTHERLY PARALLEL WITH THE EAST LINE OF SAID SECTION 18, AND ALONG THE CENTER LINE OF SAID WEST FIFTH STREET 215 FEET TO A POINT IN THE SOUTH LINE EXTENDED OF BLOCKS 38 AND 39 IN SAID VACATED BELT CITY; THENCE EASTERLY 30 FEET TO THE EAST LINE OF SAID SECTION 18; THENCE SOUTH ALONG THE EAST LINE OF SAID SECTION 18, 1105 FEET TO THE POINT OF BEGINNING, IN DUPAGE COUNTY, ILLINOIS.

PARCEL F:
EASEMENT FOR INGRESS AND EGRESS BENEFITING PARCEL C AS SHOWN ABOVE RECORDED DECEMBER 18, 1973 AS DOCUMENT R73-76143 MADE BY CHICAGO TITLE AND TRUST COMPANY, AS TRUSTEE UNDER TRUST NUMBER 60385, TO STEVENS BROADCASTING CORPORATION, A CORPORATION OF ILLINOIS, TOGETHER WITH SUCH OTHER TERMS, PROVISIONS AND CONDITIONS AS THEREIN CONTAINED.

BENCHMARKS / CONTROL POINTS

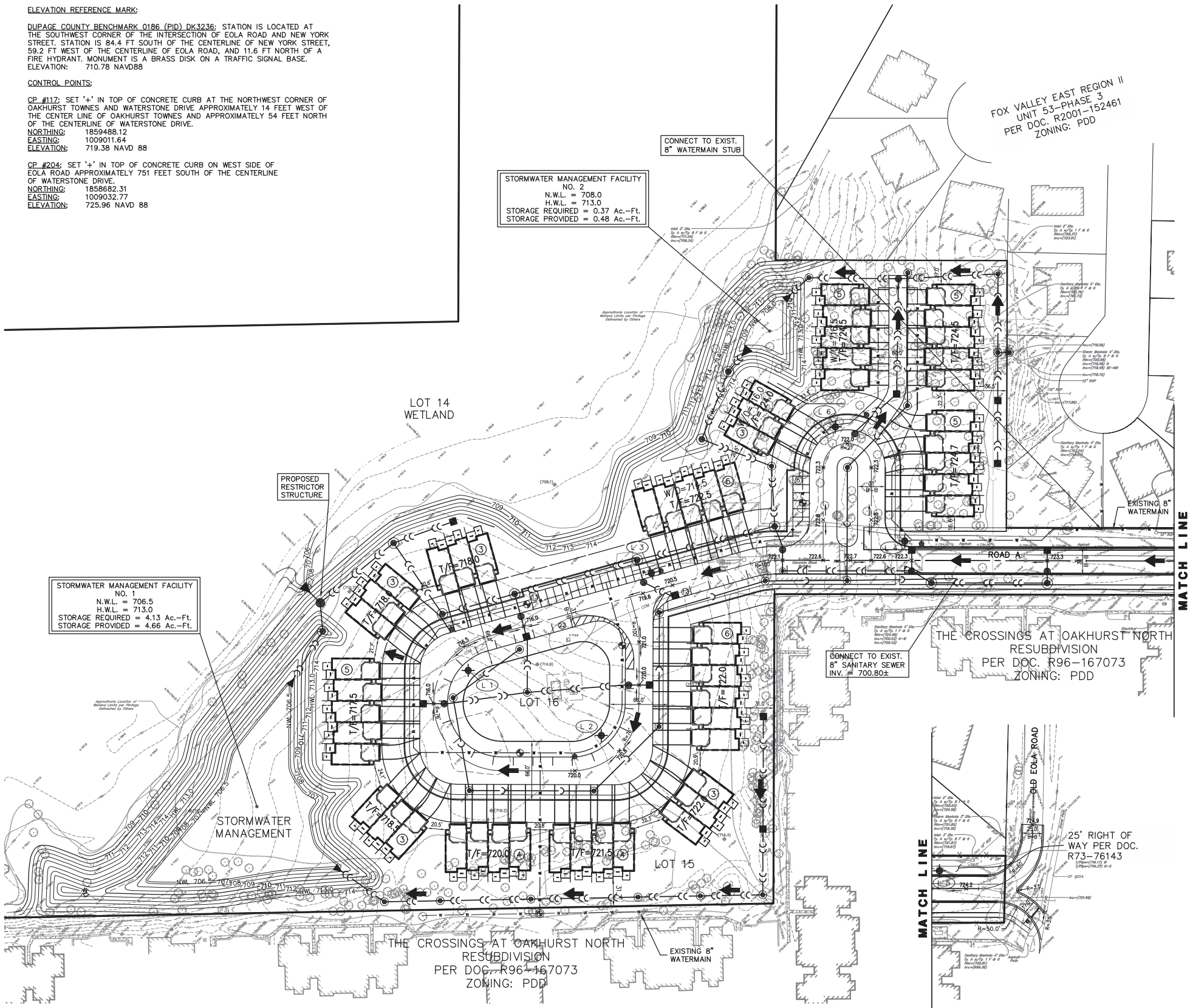
ELEVATION REFERENCE MARK:

DUPAGE COUNTY BENCHMARK 0186 (PID) DK3236: STATION IS LOCATED AT THE SOUTHWEST CORNER OF THE INTERSECTION OF EOLA ROAD AND NEW YORK STREET. STATION IS 84.4 FT SOUTH OF THE CENTERLINE OF NEW YORK STREET, 59.2 FT WEST OF THE CENTERLINE OF EOLA ROAD, AND 11.6 FT NORTH OF A FIRE HYDRANT. MONUMENT IS A BRASS DISK ON A TRAFFIC SIGNAL BASE.
ELEVATION: 710.78 NAVD88

CONTROL POINTS:

CP #117: SET '+' IN TOP OF CONCRETE CURB AT THE NORTHWEST CORNER OF OAKHURST TOWNES AND WATERSTONE DRIVE APPROXIMATELY 14 FEET WEST OF THE CENTER LINE OF OAKHURST TOWNES AND APPROXIMATELY 54 FEET NORTH OF THE CENTERLINE OF WATERSTONE DRIVE.
NORTHING: 1859488.12
EASTING: 1009011.64
ELEVATION: 719.38 NAVD 88

CP #204: SET '+' IN TOP OF CONCRETE CURB ON WEST SIDE OF EOLA ROAD APPROXIMATELY 751 FEET SOUTH OF THE CENTERLINE OF WATERSTONE DRIVE.
NORTHING: 1858682.31
EASTING: 1009032.77
ELEVATION: 725.96 NAVD 88

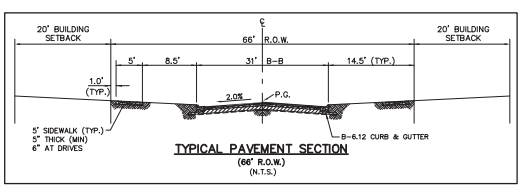


N

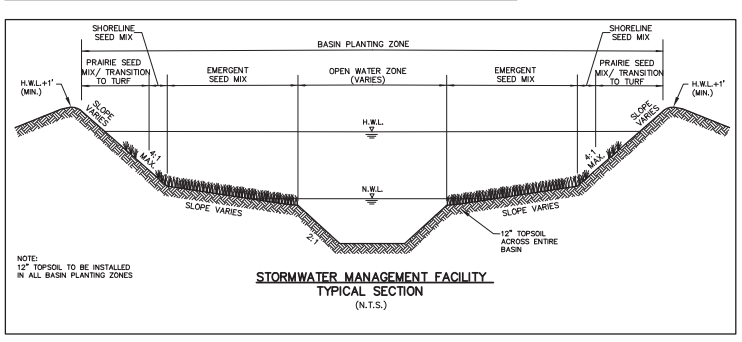
60 30 0 60
SCALE: 1" = 60'

LEGEND

EXISTING	PROPOSED	DESCRIPTION
		MANHOLE
		CATCH BASIN
		INLET
		CLEANOUT
		SLOPE INLET BOX
		HEADWALL
		END SECTION
		STORM SEWER
		SANITARY SEWER
		WATERMAIN
		VALVE & BOX
		WATER VALVE IN VAULT
		FIRE HYDRANT
		CONTOURS
(ELEV)	ELEV	ELEVATIONS
		STREET LIGHT
		WATERMAIN PROTECTION
		SILT FENCE INLET PROTECTOR
		TRIANGULAR SILT DIKE
		SILT FENCE DITCH CHECK
		SETBACK LINE
		RIP-RAP
		OVERFLOW ROUTE



TYPICAL PAVEMENT SECTION
(66' R.O.W.)
(N.T.S.)



STORMWATER MANAGEMENT FACILITY
TYPICAL SECTION
(N.T.S.)

UTILITY NOTES:

1. ALL STORM SEWER TO BE SIZED AT THE TIME OF FINAL ENGINEERING.
2. ALL WATERMAIN IS 8" D.I.W.M. UNLESS OTHERWISE NOTED.
3. ALL SANITARY SEWER IS 8" P.V.C. SDR 26 UNLESS OTHERWISE NOTED.

PREPARED FOR:
BRIDGE STREET PROPERTIES
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DISC NO.: 847017 FILE NAME: PREOVER
DRAWN BY: DDD FLD. BK. / PG. NO.: ---
COMPLETION DATE: 2-8-2024 JOB NO.: 847.017
XREF: TOPO PROJECT MANAGER: MAM

REVISIONS		
NO.	DATE	DESCRIPTION
1	05-16-24/JGC	REVISED PER NEW LAYOUT

PLOT FILE CREATED: 5/16/2024 BY: JEFF CEBULA DRAWING PATH: P:\847017\DWG\ENG\DRAWINGS\PRELIMINARY\PREOVER.DWG

APPENDIX E

ITE Trip Generation Manual Excerpts

Land Use: 220
Multifamily Housing (Low-Rise)

Description

Low-rise multifamily housing includes apartments, townhouses, and condominiums located within the same building with at least three other dwelling units and that have two or three floors (levels). Various configurations fit this description, including walkup apartment, mansion apartment, and stacked townhouse.

- A walkup apartment typically is two or three floors in height with dwelling units that are accessed by a single or multiple entrances with stairways and hallways.
- A mansion apartment is a single structure that contains several apartments within what appears to be a single-family dwelling unit.
- A fourplex is a single two-story structure with two matching dwelling units on the ground and second floors. Access to the individual units is typically internal to the structure and provided through a central entry and stairway.
- A stacked townhouse is designed to match the external appearance of a townhouse. But, unlike a townhouse dwelling unit that only shares walls with an adjoining unit, the stacked townhouse units share both floors and walls. Access to the individual units is typically internal to the structure and provided through a central entry and stairway.

Multifamily housing (mid-rise) (Land Use 221), multifamily housing (high-rise) (Land Use 222), affordable housing (Land Use 223), and off-campus student apartment (low-rise) (Land Use 225) are related land uses.

Land Use Subcategory

Data are presented for two subcategories for this land use: (1) not close to rail transit and (2) close to rail transit. A site is considered close to rail transit if the walking distance between the residential site entrance and the closest rail transit station entrance is ½ mile or less.

Additional Data

For the three sites for which both the number of residents and the number of occupied dwelling units were available, there were an average of 2.72 residents per occupied dwelling unit.

For the two sites for which the numbers of both total dwelling units and occupied dwelling units were available, an average of 96.2 percent of the total dwelling units were occupied.

The technical appendices provide supporting information on time-of-day distributions for this land use. The appendices can be accessed through either the ITETripGen web app or the trip

generation resource page on the ITE website (https://www.ite.org/technical-resources/topics/trip-and-parking-generation/).

For the three sites for which data were provided for both occupied dwelling units and residents, there was an average of 2.72 residents per occupied dwelling unit.

It is expected that the number of bedrooms and number of residents are likely correlated to the trips generated by a residential site. To assist in future analysis, trip generation studies of all multifamily housing should attempt to obtain information on occupancy rate and on the mix of residential unit sizes (i.e., number of units by number of bedrooms at the site complex).

The sites were surveyed in the 1980s, the 1990s, the 2000s, the 2010s, and the 2020s in British Columbia (CAN), California, Delaware, Florida, Georgia, Illinois, Indiana, Maine, Maryland, Massachusetts, Minnesota, New Jersey, Ontario (CAN), Oregon, Pennsylvania, South Carolina, South Dakota, Tennessee, Texas, Utah, and Washington.

Source Numbers

188, 204, 237, 300, 305, 306, 320, 321, 357, 390, 412, 525, 530, 579, 583, 638, 864, 866, 896, 901, 903, 904, 936, 939, 944, 946, 947, 948, 963, 964, 966, 967, 1012, 1013, 1014, 1036, 1047, 1056, 1071, 1076

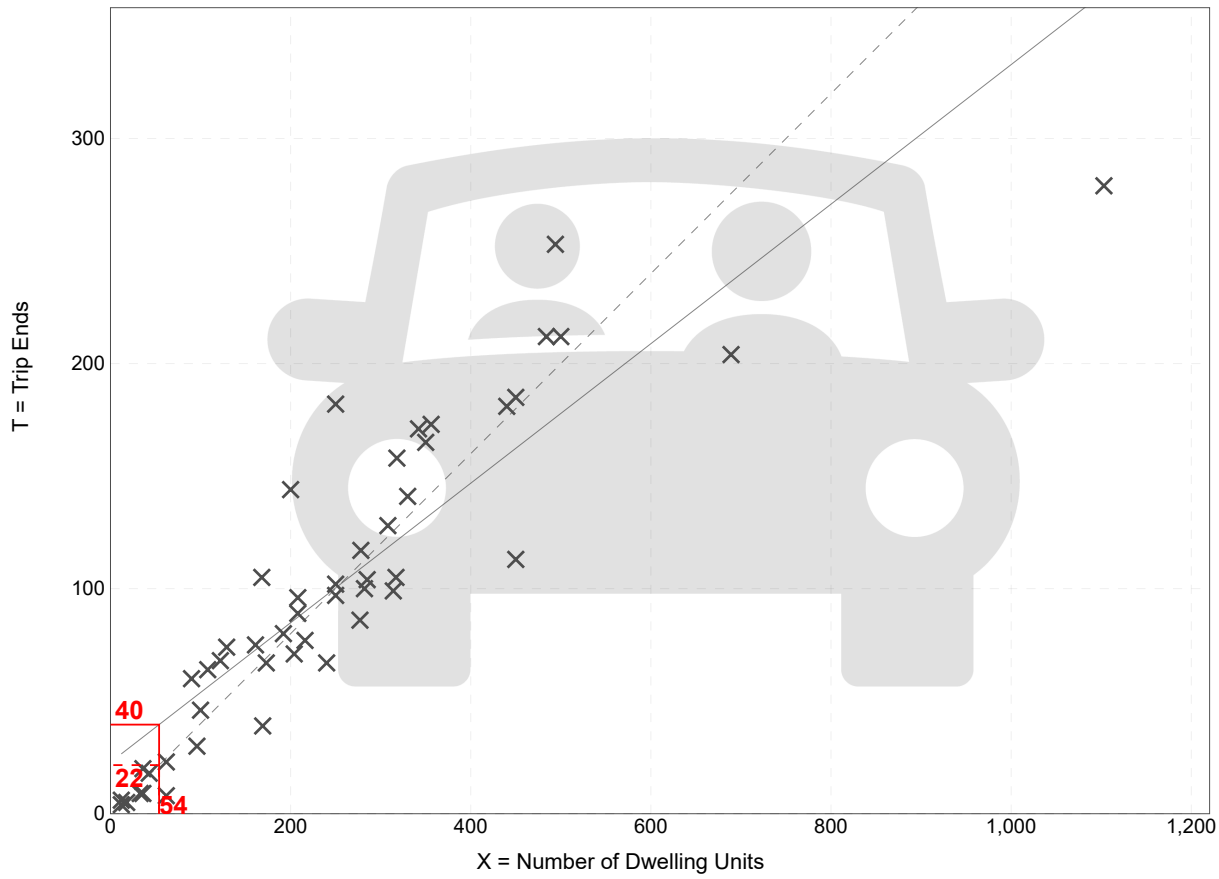
Multifamily Housing (Low-Rise)
Not Close to Rail Transit (220)

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: 49
Avg. Num. of Dwelling Units: 249
Directional Distribution: 24% entering, 76% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.40	0.13 - 0.73	0.12

Data Plot and Equation



Trip Gen Manual, 11th Edition ● Institute of Transportation Engineers

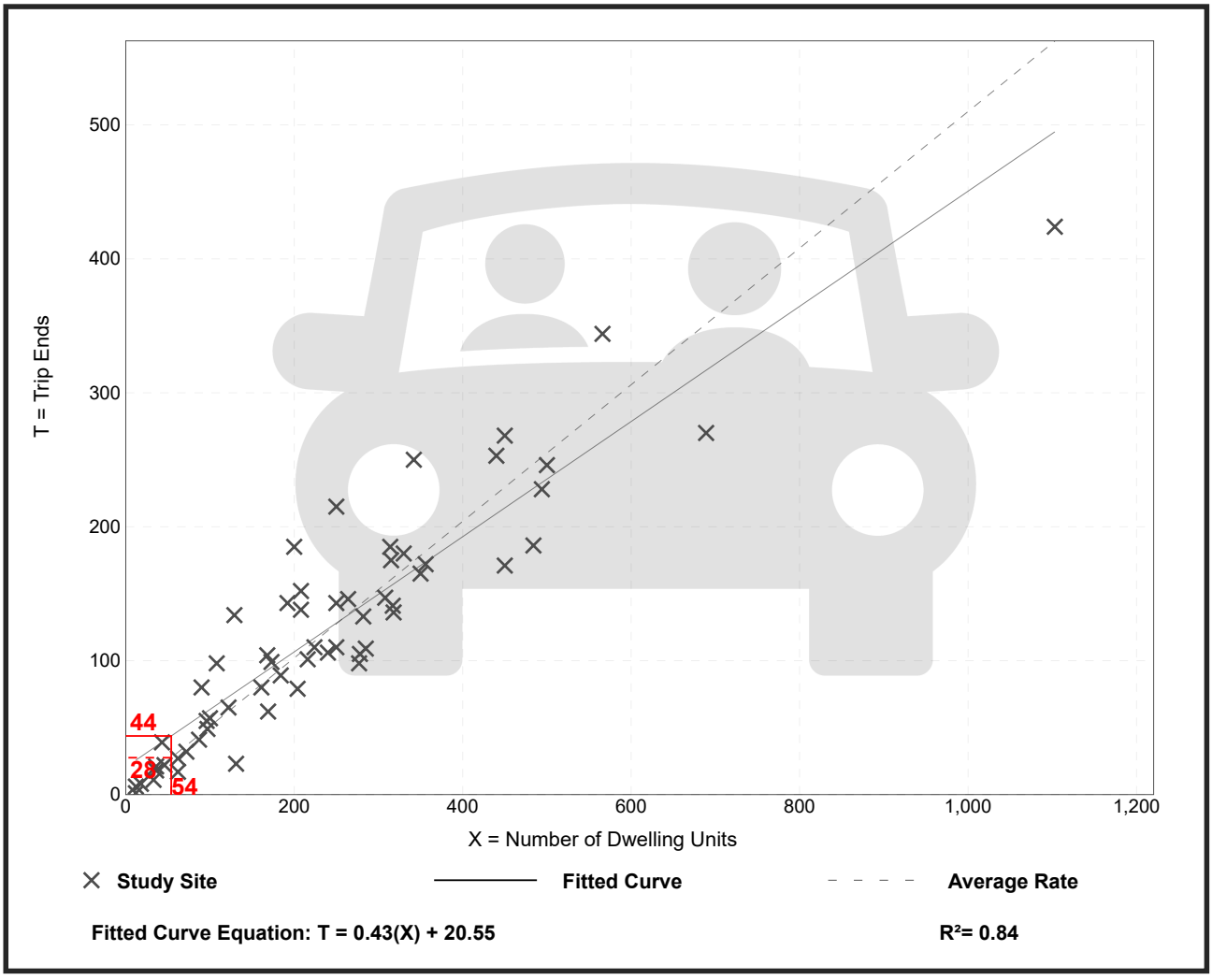
Multifamily Housing (Low-Rise)
Not Close to Rail Transit (220)

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: 59
Avg. Num. of Dwelling Units: 241
Directional Distribution: 63% entering, 37% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.51	0.08 - 1.04	0.15

Data Plot and Equation



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Multifamily Housing (Low-Rise)
Not Close to Rail Transit (220)

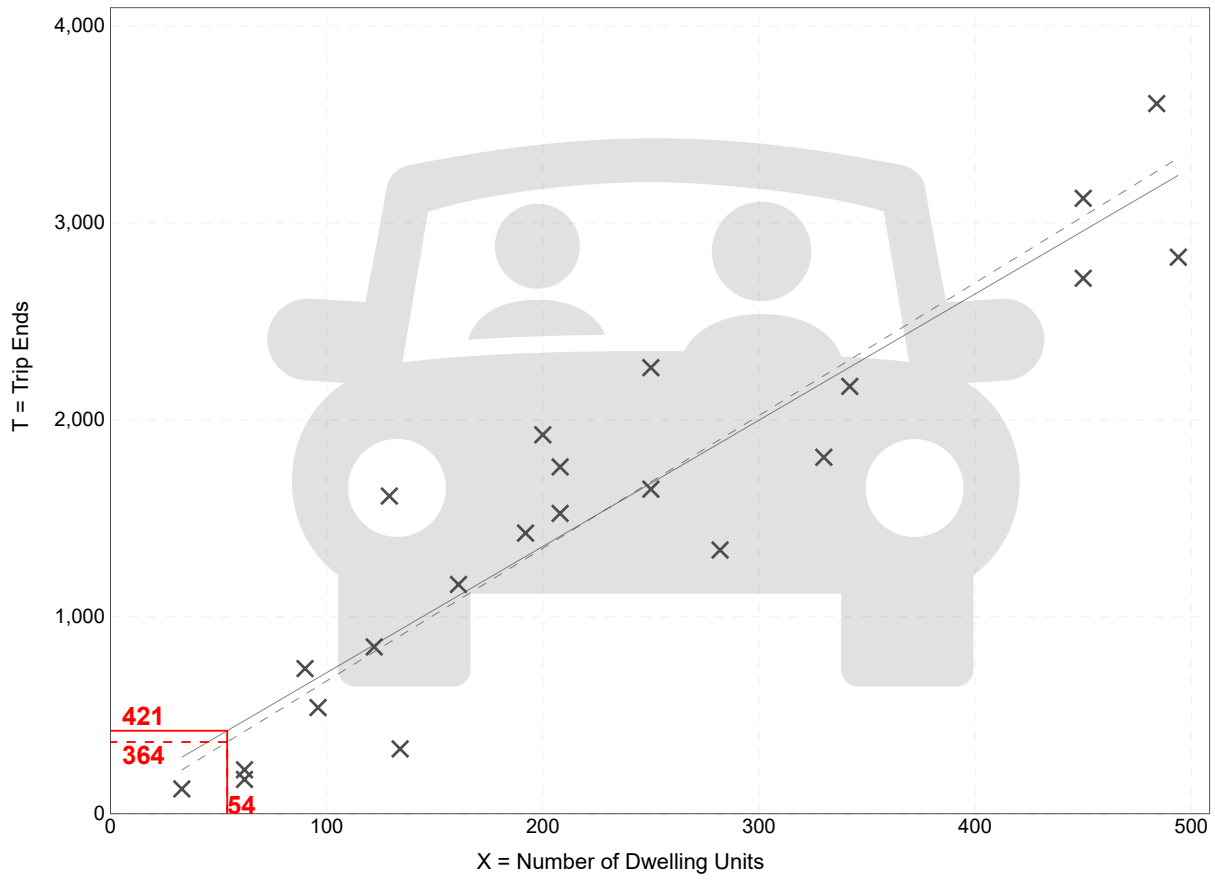
Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 22
Avg. Num. of Dwelling Units: 229
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
6.74	2.46 - 12.50	1.79

Data Plot and Equation



Fitted Curve Equation: T = 6.41(X) + 75.31

R^2= 0.86

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APPENDIX F

Capacity Analysis Worksheets

Lanes, Volumes, Timings
6: Eola Rd & Liberty St

AM Existing
07/30/2024

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	205	143	63	39	56	111	49	1611	85	188	974	83
Future Volume (vph)	205	143	63	39	56	111	49	1611	85	188	974	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	2000	1900	1900	2000	1900
Storage Length (ft)	200		0	200		0	200		200	245		245
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	170			100			180			180		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.954			0.900				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	3397	0	1752	3155	0	1752	3762	1553	1752	3762	1599
Flt Permitted	0.420			0.612			0.249			0.052		
Satd. Flow (perm)	790	3397	0	1129	3155	0	459	3762	1553	96	3762	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		37			121				80			90
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		1393			1214			2673			1839	
Travel Time (s)		31.7			27.6			40.5			27.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	2%	0%	3%	1%	4%	3%	1%	4%	3%	1%	1%
Adj. Flow (vph)	223	155	68	42	61	121	53	1751	92	204	1059	90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	223	223	0	42	182	0	53	1751	92	204	1059	90
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	7	4		3	8		5	2	3	1	6	7
Permitted Phases	4			8			2		2	6		6
Detector Phase	7 4	4		3 8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	3.0	8.0		3.0	8.0		3.0	15.0	3.0	3.0	15.0	3.0
Minimum Split (s)	9.0	14.0		9.0	14.0		9.0	21.0	9.0	9.0	21.0	9.0
Total Split (s)	15.0	20.0		13.0	18.0		14.0	98.0	13.0	19.0	103.0	15.0
Total Split (%)	10.0%	13.3%		8.7%	12.0%		9.3%	65.3%	8.7%	12.7%	68.7%	10.0%
Maximum Green (s)	11.0	14.0		9.0	12.0		10.0	92.0	9.0	15.0	97.0	11.0

Lanes, Volumes, Timings
6: Eola Rd & Liberty St

AM Existing
07/30/2024

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Yellow Time (s)	3.0	4.5		3.0	4.5		3.0	4.5	3.0	3.0	4.5	3.0
All-Red Time (s)	1.0	1.5		1.0	1.5		1.0	1.5	1.0	1.0	1.5	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0		4.0	6.0		4.0	6.0	4.0	4.0	6.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	7.0		3.0	7.0		3.0	7.0	3.0	3.0	7.0	3.0
Recall Mode	None	None		None	None		None	C-Max	None	None	C-Max	None
Act Effct Green (s)	27.9	17.1		21.8	12.0		101.3	92.7	104.6	113.0	102.3	119.3
Actuated g/C Ratio	0.19	0.11		0.15	0.08		0.68	0.62	0.70	0.75	0.68	0.80
v/c Ratio	1.02	0.53		0.21	0.50		0.14	0.75	0.08	0.89	0.41	0.07
Control Delay	121.0	58.3		53.2	28.7		9.7	36.4	4.3	81.8	4.9	0.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	121.0	58.3		53.2	28.7		9.7	36.4	4.3	81.8	4.9	0.3
LOS	F	E		D	C		A	D	A	F	A	A
Approach Delay		89.7			33.3			34.1			16.2	
Approach LOS		F			C			C			B	
Queue Length 50th (ft)	~209	93		34	30		19	732	10	114	75	0
Queue Length 95th (ft)	#322	141		71	71		m32	826	m21	#266	48	0
Internal Link Dist (ft)		1313			1134			2593			1759	
Turn Bay Length (ft)	200			200			200		200	245		245
Base Capacity (vph)	219	419		210	363		406	2325	1107	237	2565	1290
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	1.02	0.53		0.20	0.50		0.13	0.75	0.08	0.86	0.41	0.07

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 111 (74%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.02
Intersection Signal Delay: 34.2 Intersection LOS: C
Intersection Capacity Utilization 87.4% ICU Level of Service E
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Eola Rd & Liberty St

Lanes, Volumes, Timings
6: Eola Rd & Liberty St

AM No-Build
07/30/2024

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	214	150	66	41	59	116	51	1685	89	197	1018	87
Future Volume (vph)	214	150	66	41	59	116	51	1685	89	197	1018	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	2000	1900	1900	2000	1900
Storage Length (ft)	200		0	200		0	200		200	245		245
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	170			100			180			180		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.954			0.901				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	3397	0	1752	3158	0	1752	3762	1553	1752	3762	1599
Flt Permitted	0.404			0.605			0.235			0.042		
Satd. Flow (perm)	760	3397	0	1116	3158	0	433	3762	1553	77	3762	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		37			126				80			95
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		1393			1214			2673			1839	
Travel Time (s)		31.7			27.6			40.5			27.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	2%	0%	3%	1%	4%	3%	1%	4%	3%	1%	1%
Adj. Flow (vph)	233	163	72	45	64	126	55	1832	97	214	1107	95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	233	235	0	45	190	0	55	1832	97	214	1107	95
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	7	4		3	8		5	2	3	1	6	7
Permitted Phases	4			8			2		2	6		6
Detector Phase	7 4	4		3 8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	3.0	8.0		3.0	8.0		3.0	15.0	3.0	3.0	15.0	3.0
Minimum Split (s)	9.0	14.0		9.0	14.0		9.0	21.0	9.0	9.0	21.0	9.0
Total Split (s)	15.0	20.0		13.0	18.0		14.0	98.0	13.0	19.0	103.0	15.0
Total Split (%)	10.0%	13.3%		8.7%	12.0%		9.3%	65.3%	8.7%	12.7%	68.7%	10.0%
Maximum Green (s)	11.0	14.0		9.0	12.0		10.0	92.0	9.0	15.0	97.0	11.0

Lanes, Volumes, Timings
6: Eola Rd & Liberty St

AM No-Build
07/30/2024

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Yellow Time (s)	3.0	4.5		3.0	4.5		3.0	4.5	3.0	3.0	4.5	3.0
All-Red Time (s)	1.0	1.5		1.0	1.5		1.0	1.5	1.0	1.0	1.5	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0		4.0	6.0		4.0	6.0	4.0	4.0	6.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	7.0		3.0	7.0		3.0	7.0	3.0	3.0	7.0	3.0
Recall Mode	None	None		None	None		None	C-Max	None	None	C-Max	None
Act Effct Green (s)	27.8	17.0		21.9	12.0		100.6	92.0	104.0	113.0	102.3	119.3
Actuated g/C Ratio	0.19	0.11		0.15	0.08		0.67	0.61	0.69	0.75	0.68	0.80
v/c Ratio	1.08	0.56		0.23	0.52		0.16	0.79	0.09	0.95	0.43	0.07
Control Delay	136.6	59.7		53.5	28.9		9.7	38.1	4.4	98.8	4.9	0.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	136.6	59.7		53.5	28.9		9.7	38.1	4.4	98.8	4.9	0.3
LOS	F	E		D	C		A	D	A	F	A	A
Approach Delay		98.0			33.6			35.7			18.8	
Approach LOS		F			C			D			B	
Queue Length 50th (ft)	~235	100		37	31		20	774	10	138	74	0
Queue Length 95th (ft)	#351	149		75	73		m33	867	m23	#319	51	0
Internal Link Dist (ft)		1313			1134			2593			1759	
Turn Bay Length (ft)	200			200			200		200	245		245
Base Capacity (vph)	216	417		209	368		388	2307	1101	225	2565	1291
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	1.08	0.56		0.22	0.52		0.14	0.79	0.09	0.95	0.43	0.07

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 111 (74%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.08
Intersection Signal Delay: 36.9 Intersection LOS: D
Intersection Capacity Utilization 90.4% ICU Level of Service E
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Eola Rd & Liberty St

Lanes, Volumes, Timings
6: Eola Rd & Liberty St

AM Total
07/30/2024

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	216	150	66	41	59	117	51	1687	89	201	1024	92
Future Volume (vph)	216	150	66	41	59	117	51	1687	89	201	1024	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	2000	1900	1900	2000	1900
Storage Length (ft)	200		0	200		0	200		200	245		245
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	170			100			180			180		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.954			0.900				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	3397	0	1752	3155	0	1752	3762	1553	1752	3762	1599
Flt Permitted	0.402			0.605			0.233			0.042		
Satd. Flow (perm)	756	3397	0	1116	3155	0	430	3762	1553	77	3762	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		37			127				80			100
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		1393			1214			2673			1137	
Travel Time (s)		31.7			27.6			40.5			17.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	2%	0%	3%	1%	4%	3%	1%	4%	3%	1%	1%
Adj. Flow (vph)	235	163	72	45	64	127	55	1834	97	218	1113	100
Shared Lane Traffic (%)												
Lane Group Flow (vph)	235	235	0	45	191	0	55	1834	97	218	1113	100
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	7	4		3	8		5	2	3	1	6	7
Permitted Phases	4			8			2		2	6		6
Detector Phase	7 4	4		3 8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	3.0	8.0		3.0	8.0		3.0	15.0	3.0	3.0	15.0	3.0
Minimum Split (s)	9.0	14.0		9.0	14.0		9.0	21.0	9.0	9.0	21.0	9.0
Total Split (s)	15.0	20.0		13.0	18.0		14.0	98.0	13.0	19.0	103.0	15.0
Total Split (%)	10.0%	13.3%		8.7%	12.0%		9.3%	65.3%	8.7%	12.7%	68.7%	10.0%
Maximum Green (s)	11.0	14.0		9.0	12.0		10.0	92.0	9.0	15.0	97.0	11.0

Lanes, Volumes, Timings
6: Eola Rd & Liberty St

AM Total
07/30/2024

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Yellow Time (s)	3.0	4.5		3.0	4.5		3.0	4.5	3.0	3.0	4.5	3.0
All-Red Time (s)	1.0	1.5		1.0	1.5		1.0	1.5	1.0	1.0	1.5	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0		4.0	6.0		4.0	6.0	4.0	4.0	6.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	7.0		3.0	7.0		3.0	7.0	3.0	3.0	7.0	3.0
Recall Mode	None	None		None	None		None	C-Max	None	None	C-Max	None
Act Effct Green (s)	27.8	17.0		21.9	12.0		100.6	92.0	104.0	113.0	102.3	119.3
Actuated g/C Ratio	0.19	0.11		0.15	0.08		0.67	0.61	0.69	0.75	0.68	0.80
v/c Ratio	1.09	0.56		0.23	0.52		0.16	0.79	0.09	0.97	0.43	0.08
Control Delay	140.6	59.7		53.5	28.8		9.7	38.2	4.4	97.0	11.8	0.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	140.6	59.7		53.5	28.8		9.7	38.2	4.4	97.0	11.8	0.8
LOS	F	E		D	C		A	D	A	F	B	A
Approach Delay		100.2			33.5			35.8			24.0	
Approach LOS		F			C			D			C	
Queue Length 50th (ft)	~240	100		37	31		20	775	10	163	252	0
Queue Length 95th (ft)	#357	149		75	73		m33	868	m23	#336	304	13
Internal Link Dist (ft)		1313			1134			2593			1057	
Turn Bay Length (ft)	200			200			200		200	245		245
Base Capacity (vph)	215	417		209	369		386	2307	1101	225	2565	1292
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	1.09	0.56		0.22	0.52		0.14	0.79	0.09	0.97	0.43	0.08

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 111 (74%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.09
Intersection Signal Delay: 38.9 Intersection LOS: D
Intersection Capacity Utilization 90.7% ICU Level of Service E
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Eola Rd & Liberty St

Lanes, Volumes, Timings
6: Eola Rd & Liberty St

PM Existing
07/30/2024

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	155	168	88	126	269	185	134	1239	65	159	1777	232
Future Volume (vph)	155	168	88	126	269	185	134	1239	65	159	1777	232
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	2000	1900	1900	2000	1900
Storage Length (ft)	200		0	200		0	200		200	245		245
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	170			100			180			180		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.948			0.939				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	3378	0	1752	3316	0	1752	3762	1553	1752	3762	1599
Flt Permitted	0.286			0.383			0.041			0.143		
Satd. Flow (perm)	538	3378	0	707	3316	0	76	3762	1553	264	3762	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		50			90				80			67
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		1393			1214			2673			1839	
Travel Time (s)		31.7			27.6			40.5			27.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	2%	0%	3%	1%	4%	3%	1%	4%	3%	1%	1%
Adj. Flow (vph)	168	183	96	137	292	201	146	1347	71	173	1932	252
Shared Lane Traffic (%)												
Lane Group Flow (vph)	168	279	0	137	493	0	146	1347	71	173	1932	252
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	7	4		3	8		5	2	3	1	6	7
Permitted Phases	4			8			2		2	6		6
Detector Phase	7 4	4		3 8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	3.0	8.0		3.0	8.0		3.0	15.0	3.0	3.0	15.0	3.0
Minimum Split (s)	9.0	14.0		9.0	14.0		9.0	21.0	9.0	9.0	21.0	9.0
Total Split (s)	15.0	20.0		13.0	18.0		14.0	98.0	13.0	19.0	103.0	15.0
Total Split (%)	10.0%	13.3%		8.7%	12.0%		9.3%	65.3%	8.7%	12.7%	68.7%	10.0%
Maximum Green (s)	11.0	14.0		9.0	12.0		10.0	92.0	9.0	15.0	97.0	11.0

Lanes, Volumes, Timings
6: Eola Rd & Liberty St

PM Existing
07/30/2024

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Yellow Time (s)	3.0	4.5		3.0	4.5		3.0	4.5	3.0	3.0	4.5	3.0
All-Red Time (s)	1.0	1.5		1.0	1.5		1.0	1.5	1.0	1.0	1.5	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0		4.0	6.0		4.0	6.0	4.0	4.0	6.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	7.0		3.0	7.0		3.0	7.0	3.0	3.0	7.0	3.0
Recall Mode	None	None		None	None		None	C-Max	None	None	C-Max	None
Act Effct Green (s)	27.0	14.0		23.0	12.0		108.9	97.0	112.0	109.1	97.2	114.2
Actuated g/C Ratio	0.18	0.09		0.15	0.08		0.73	0.65	0.75	0.73	0.65	0.76
v/c Ratio	0.89	0.78		0.80	1.42		0.89	0.55	0.06	0.60	0.79	0.20
Control Delay	97.7	69.5		86.6	241.6		68.3	29.6	3.4	15.7	7.0	0.7
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	97.7	69.5		86.6	241.6		68.3	29.6	3.4	15.7	7.0	0.7
LOS	F	E		F	F		E	C	A	B	A	A
Approach Delay		80.1			207.9			32.0			6.9	
Approach LOS		F			F			C			A	
Queue Length 50th (ft)	148	117		119	~297		98	552	6	16	117	0
Queue Length 95th (ft)	#247	#181		#230	#418		m#199	644	m15	m40	140	m8
Internal Link Dist (ft)		1313			1134			2593			1759	
Turn Bay Length (ft)	200			200			200		200	245		245
Base Capacity (vph)	188	360		171	348		167	2433	1180	347	2437	1233
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	0.89	0.78		0.80	1.42		0.87	0.55	0.06	0.50	0.79	0.20

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 111 (74%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.42
Intersection Signal Delay: 46.7 Intersection LOS: D
Intersection Capacity Utilization 92.7% ICU Level of Service F
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Eola Rd & Liberty St

Lanes, Volumes, Timings
6: Eola Rd & Liberty St

PM No-Build
07/30/2024

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	162	176	92	132	281	193	140	1296	68	166	1858	243
Future Volume (vph)	162	176	92	132	281	193	140	1296	68	166	1858	243
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	2000	1900	1900	2000	1900
Storage Length (ft)	200		0	200		0	200		200	245		245
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	170			100			180			180		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.948			0.939				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	3378	0	1752	3316	0	1752	3762	1553	1752	3762	1599
Flt Permitted	0.286			0.351			0.041			0.127		
Satd. Flow (perm)	538	3378	0	647	3316	0	76	3762	1553	234	3762	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		50			90				80			61
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		1393			1214			2673			1839	
Travel Time (s)		31.7			27.6			40.5			27.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	2%	0%	3%	1%	4%	3%	1%	4%	3%	1%	1%
Adj. Flow (vph)	176	191	100	143	305	210	152	1409	74	180	2020	264
Shared Lane Traffic (%)												
Lane Group Flow (vph)	176	291	0	143	515	0	152	1409	74	180	2020	264
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	7	4		3	8		5	2	3	1	6	7
Permitted Phases	4			8			2		2	6		6
Detector Phase	7 4	4		3 8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	3.0	8.0		3.0	8.0		3.0	15.0	3.0	3.0	15.0	3.0
Minimum Split (s)	9.0	14.0		9.0	14.0		9.0	21.0	9.0	9.0	21.0	9.0
Total Split (s)	15.0	20.0		13.0	18.0		14.0	98.0	13.0	19.0	103.0	15.0
Total Split (%)	10.0%	13.3%		8.7%	12.0%		9.3%	65.3%	8.7%	12.7%	68.7%	10.0%
Maximum Green (s)	11.0	14.0		9.0	12.0		10.0	92.0	9.0	15.0	97.0	11.0

Lanes, Volumes, Timings
6: Eola Rd & Liberty St

PM No-Build
07/30/2024

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Yellow Time (s)	3.0	4.5		3.0	4.5		3.0	4.5	3.0	3.0	4.5	3.0
All-Red Time (s)	1.0	1.5		1.0	1.5		1.0	1.5	1.0	1.0	1.5	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0		4.0	6.0		4.0	6.0	4.0	4.0	6.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	7.0		3.0	7.0		3.0	7.0	3.0	3.0	7.0	3.0
Recall Mode	None	None		None	None		None	C-Max	None	None	C-Max	None
Act Effct Green (s)	27.0	14.0		23.0	12.0		108.4	96.4	111.4	109.4	97.0	114.0
Actuated g/C Ratio	0.18	0.09		0.15	0.08		0.72	0.64	0.74	0.73	0.65	0.76
v/c Ratio	0.94	0.81		0.87	1.48		0.92	0.58	0.06	0.65	0.83	0.21
Control Delay	106.1	72.6		97.2	267.4		74.6	30.4	3.5	22.8	7.3	0.7
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	106.1	72.6		97.2	267.4		74.6	30.4	3.5	22.8	7.3	0.7
LOS	F	E		F	F		E	C	A	C	A	A
Approach Delay		85.2			230.4			33.3			7.7	
Approach LOS		F			F			C			A	
Queue Length 50th (ft)	156	124		124	~321		104	574	6	34	123	0
Queue Length 95th (ft)	#267	#194		#206	#443		m#215	670	m16	m58	146	m8
Internal Link Dist (ft)		1313			1134			2593			1759	
Turn Bay Length (ft)	200			200			200		200	245		245
Base Capacity (vph)	188	360		165	348		166	2418	1174	328	2432	1229
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	0.94	0.81		0.87	1.48		0.92	0.58	0.06	0.55	0.83	0.21

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 111 (74%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.48
Intersection Signal Delay: 50.7 Intersection LOS: D
Intersection Capacity Utilization 96.1% ICU Level of Service F
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Eola Rd & Liberty St

Lanes, Volumes, Timings
6: Eola Rd & Liberty St

PM Total
07/30/2024

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	166	176	92	132	281	197	140	1302	68	168	1861	245
Future Volume (vph)	166	176	92	132	281	197	140	1302	68	168	1861	245
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	2000	1900	1900	2000	1900
Storage Length (ft)	200		0	200		0	200		200	245		245
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	170			100			180			180		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.948			0.938				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	3378	0	1752	3312	0	1752	3762	1553	1752	3762	1599
Flt Permitted	0.286			0.351			0.042			0.125		
Satd. Flow (perm)	538	3378	0	647	3312	0	77	3762	1553	231	3762	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		50			92				80			62
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		1393			1214			2673			1137	
Travel Time (s)		31.7			27.6			40.5			17.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	2%	0%	3%	1%	4%	3%	1%	4%	3%	1%	1%
Adj. Flow (vph)	180	191	100	143	305	214	152	1415	74	183	2023	266
Shared Lane Traffic (%)												
Lane Group Flow (vph)	180	291	0	143	519	0	152	1415	74	183	2023	266
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	7	4		3	8		5	2	3	1	6	7
Permitted Phases	4			8			2		2	6		6
Detector Phase	7 4	4		3 8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	3.0	8.0		3.0	8.0		3.0	15.0	3.0	3.0	15.0	3.0
Minimum Split (s)	9.0	14.0		9.0	14.0		9.0	21.0	9.0	9.0	21.0	9.0
Total Split (s)	15.0	20.0		13.0	18.0		14.0	98.0	13.0	19.0	103.0	15.0
Total Split (%)	10.0%	13.3%		8.7%	12.0%		9.3%	65.3%	8.7%	12.7%	68.7%	10.0%
Maximum Green (s)	11.0	14.0		9.0	12.0		10.0	92.0	9.0	15.0	97.0	11.0

Lanes, Volumes, Timings
6: Eola Rd & Liberty St

PM Total
07/30/2024

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Yellow Time (s)	3.0	4.5		3.0	4.5		3.0	4.5	3.0	3.0	4.5	3.0
All-Red Time (s)	1.0	1.5		1.0	1.5		1.0	1.5	1.0	1.0	1.5	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0		4.0	6.0		4.0	6.0	4.0	4.0	6.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	7.0		3.0	7.0		3.0	7.0	3.0	3.0	7.0	3.0
Recall Mode	None	None		None	None		None	C-Max	None	None	C-Max	None
Act Effct Green (s)	27.0	14.0		23.0	12.0		108.3	96.3	111.3	109.5	97.0	114.0
Actuated g/C Ratio	0.18	0.09		0.15	0.08		0.72	0.64	0.74	0.73	0.65	0.76
v/c Ratio	0.96	0.81		0.87	1.49		0.91	0.59	0.06	0.66	0.83	0.22
Control Delay	110.8	72.6		97.2	270.1		74.1	30.5	3.5	24.1	7.3	0.7
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	110.8	72.6		97.2	270.1		74.1	30.5	3.5	24.1	7.3	0.7
LOS	F	E		F	F		E	C	A	C	A	A
Approach Delay		87.2			232.8			33.3			7.8	
Approach LOS		F			F			C			A	
Queue Length 50th (ft)	160	124		124	~323		104	577	6	39	123	0
Queue Length 95th (ft)	#275	#194		#206	#446		m#215	672	m16	m63	146	m8
Internal Link Dist (ft)		1313			1134			2593			1057	
Turn Bay Length (ft)	200			200			200		200	245		245
Base Capacity (vph)	188	360		165	349		167	2415	1173	326	2432	1230
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	0.96	0.81		0.87	1.49		0.91	0.59	0.06	0.56	0.83	0.22

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 111 (74%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.49
Intersection Signal Delay: 51.3 Intersection LOS: D
Intersection Capacity Utilization 96.6% ICU Level of Service F
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 6: Eola Rd & Liberty St

Lanes, Volumes, Timings
9: Eola Rd & Sheffer Dr

AM Existing
07/30/2024

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	7	49	44	10	24	28	1830	74	32	1154	7
Future Volume (vph)	8	7	49	44	10	24	28	1830	74	32	1154	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	2000	1900	1900	2000	1900
Storage Length (ft)	150		110	0		0	190		110	215		200
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	65			25			180			200		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850		0.895				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	1900	1599	1805	1700	0	1805	3725	1615	1805	3725	1468
Flt Permitted	0.733			0.528			0.189			0.053		
Satd. Flow (perm)	1393	1900	1599	1003	1700	0	359	3725	1615	101	3725	1468
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			80		26				51			80
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		736			689			2735			929	
Travel Time (s)		16.7			15.7			41.4			14.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	1%	0%	0%	0%	0%	2%	0%	0%	2%	10%
Adj. Flow (vph)	9	8	53	48	11	26	30	1989	80	35	1254	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	9	8	53	48	37	0	30	1989	80	35	1254	8
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	7	4	5	3	8		5	2	3	1	6	7
Permitted Phases	4		4	8			2		2	6		6
Detector Phase	7 4	4	4	3 8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	3.0	5.0	3.0	3.0	5.0		3.0	15.0	3.0	3.0	15.0	3.0
Minimum Split (s)	9.0	11.0	9.0	9.0	11.0		9.0	21.0	9.0	9.0	21.0	9.0
Total Split (s)	14.0	14.0	13.0	23.0	23.0		13.0	100.0	23.0	13.0	100.0	14.0
Total Split (%)	9.3%	9.3%	8.7%	15.3%	15.3%		8.7%	66.7%	15.3%	8.7%	66.7%	9.3%
Maximum Green (s)	10.0	8.0	9.0	19.0	17.0		9.0	94.0	19.0	9.0	94.0	10.0

Lanes, Volumes, Timings
9: Eola Rd & Sheffer Dr

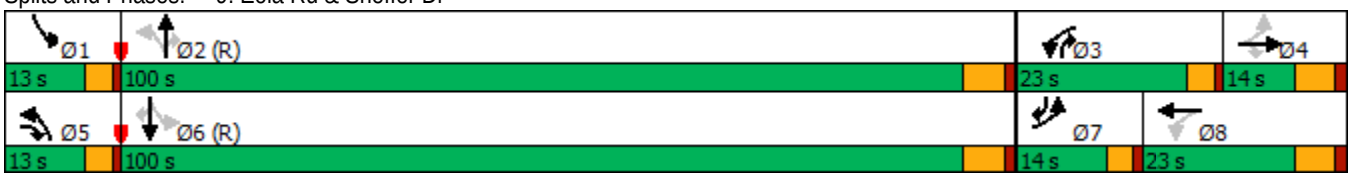
AM Existing
07/30/2024

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Yellow Time (s)	3.0	4.5	3.0	3.0	4.5		3.0	4.5	3.0	3.0	4.5	3.0
All-Red Time (s)	1.0	1.5	1.0	1.0	1.5		1.0	1.5	1.0	1.0	1.5	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	4.0	4.0	6.0		4.0	6.0	4.0	4.0	6.0	4.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	5.0	3.0	3.0	5.0		3.0	7.0	3.0	3.0	7.0	3.0
Recall Mode	None	None	None	None	None		None	C-Max	None	None	C-Max	None
Act Effct Green (s)	15.5	8.4	16.6	21.5	17.2		120.0	114.3	126.8	121.0	116.3	120.2
Actuated g/C Ratio	0.10	0.06	0.11	0.14	0.11		0.80	0.76	0.85	0.81	0.78	0.80
v/c Ratio	0.06	0.08	0.21	0.25	0.17		0.09	0.70	0.06	0.23	0.43	0.01
Control Delay	52.8	68.1	5.9	57.2	29.6		2.4	8.2	0.1	5.7	4.9	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.8	68.1	5.9	57.2	29.6		2.4	8.2	0.1	5.7	4.9	0.0
LOS	D	E	A	E	C		A	A	A	A	A	A
Approach Delay		19.1			45.2			7.8			4.8	
Approach LOS		B			D			A			A	
Queue Length 50th (ft)	8	8	0	41	9		2	468	0	4	146	0
Queue Length 95th (ft)	25	27	18	80	47		m3	m879	m0	m6	m182	m0
Internal Link Dist (ft)		656			609			2655			849	
Turn Bay Length (ft)	150		110				190		110	215		200
Base Capacity (vph)	200	109	250	261	244		379	2838	1373	184	2888	1192
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.07	0.21	0.18	0.15		0.08	0.70	0.06	0.19	0.43	0.01

Intersection Summary			
Area Type:	Other		
Cycle Length: 150			
Actuated Cycle Length: 150			
Offset: 47 (31%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.70			
Intersection Signal Delay: 7.9		Intersection LOS: A	
Intersection Capacity Utilization 67.2%		ICU Level of Service C	
Analysis Period (min) 15			

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 9: Eola Rd & Sheffer Dr



Lanes, Volumes, Timings
9: Eola Rd & Sheffer Dr

AM No-Build
07/30/2024

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	7	51	46	10	25	29	1914	77	33	1207	7
Future Volume (vph)	8	7	51	46	10	25	29	1914	77	33	1207	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	2000	1900	1900	2000	1900
Storage Length (ft)	150		110	0		0	190		110	215		200
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	65			25			180			200		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850		0.893				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	1900	1599	1805	1697	0	1805	3725	1615	1805	3725	1468
Flt Permitted	0.732			0.526			0.174			0.042		
Satd. Flow (perm)	1391	1900	1599	999	1697	0	331	3725	1615	80	3725	1468
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			80		27				51			80
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		736			689			2735			929	
Travel Time (s)		16.7			15.7			41.4			14.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	1%	0%	0%	0%	0%	2%	0%	0%	2%	10%
Adj. Flow (vph)	9	8	55	50	11	27	32	2080	84	36	1312	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	9	8	55	50	38	0	32	2080	84	36	1312	8
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	7	4	5	3	8		5	2	3	1	6	7
Permitted Phases	4		4	8			2		2	6		6
Detector Phase	7 4	4	4	3 8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	3.0	5.0	3.0	3.0	5.0		3.0	15.0	3.0	3.0	15.0	3.0
Minimum Split (s)	9.0	11.0	9.0	9.0	11.0		9.0	21.0	9.0	9.0	21.0	9.0
Total Split (s)	14.0	14.0	13.0	23.0	23.0		13.0	100.0	23.0	13.0	100.0	14.0
Total Split (%)	9.3%	9.3%	8.7%	15.3%	15.3%		8.7%	66.7%	15.3%	8.7%	66.7%	9.3%
Maximum Green (s)	10.0	8.0	9.0	19.0	17.0		9.0	94.0	19.0	9.0	94.0	10.0

Lanes, Volumes, Timings
9: Eola Rd & Sheffer Dr

AM No-Build
07/30/2024

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Yellow Time (s)	3.0	4.5	3.0	3.0	4.5		3.0	4.5	3.0	3.0	4.5	3.0
All-Red Time (s)	1.0	1.5	1.0	1.0	1.5		1.0	1.5	1.0	1.0	1.5	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	4.0	4.0	6.0		4.0	6.0	4.0	4.0	6.0	4.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	5.0	3.0	3.0	5.0		3.0	7.0	3.0	3.0	7.0	3.0
Recall Mode	None	None	None	None	None		None	C-Max	None	None	C-Max	None
Act Effct Green (s)	15.5	8.4	16.6	21.7	17.4		119.9	114.1	126.8	120.9	116.2	120.0
Actuated g/C Ratio	0.10	0.06	0.11	0.14	0.12		0.80	0.76	0.85	0.81	0.77	0.80
v/c Ratio	0.06	0.08	0.22	0.26	0.17		0.10	0.73	0.06	0.27	0.45	0.01
Control Delay	52.5	68.1	6.5	57.3	29.1		2.4	8.8	0.1	10.5	5.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.1	0.0
Total Delay	52.5	68.1	6.5	57.3	29.1		2.4	8.8	0.1	10.5	5.1	0.0
LOS	D	E	A	E	C		A	A	A	B	A	A
Approach Delay		19.1			45.1			8.3			5.2	
Approach LOS		B			D			A			A	
Queue Length 50th (ft)	8	8	0	43	9		2	792	0	4	157	0
Queue Length 95th (ft)	25	27	21	82	48		m4	m893	m0	m6	m192	m0
Internal Link Dist (ft)		656			609			2655			849	
Turn Bay Length (ft)	150		110				190		110	215		200
Base Capacity (vph)	200	109	250	261	246		357	2833	1373	168	2884	1190
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	437	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.07	0.22	0.19	0.15		0.09	0.73	0.06	0.21	0.54	0.01

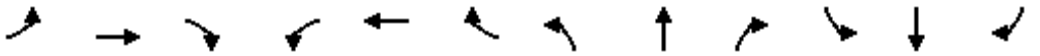
Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 47 (31%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.73
Intersection Signal Delay: 8.3 Intersection LOS: A
Intersection Capacity Utilization 69.5% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 9: Eola Rd & Sheffer Dr

Lanes, Volumes, Timings
9: Eola Rd & Sheffer Dr

AM Total
07/30/2024



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	7	51	47	10	25	29	1926	78	33	1211	7
Future Volume (vph)	8	7	51	47	10	25	29	1926	78	33	1211	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	2000	1900	1900	2000	1900
Storage Length (ft)	150		110	0		0	190		110	215		200
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	65			25			180			200		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850		0.893				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	1900	1599	1805	1697	0	1805	3725	1615	1805	3725	1468
Flt Permitted	0.732			0.528			0.173			0.040		
Satd. Flow (perm)	1391	1900	1599	1003	1697	0	329	3725	1615	76	3725	1468
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			80		27				51			80
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		736			689			2735			929	
Travel Time (s)		16.7			15.7			41.4			14.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	1%	0%	0%	0%	0%	2%	0%	0%	2%	10%
Adj. Flow (vph)	9	8	55	51	11	27	32	2093	85	36	1316	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	9	8	55	51	38	0	32	2093	85	36	1316	8
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	7	4	5	3	8		5	2	3	1	6	7
Permitted Phases	4		4	8			2		2	6		6
Detector Phase	7 4	4	4	3 8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	3.0	5.0	3.0	3.0	5.0		3.0	15.0	3.0	3.0	15.0	3.0
Minimum Split (s)	9.0	11.0	9.0	9.0	11.0		9.0	21.0	9.0	9.0	21.0	9.0
Total Split (s)	14.0	14.0	13.0	23.0	23.0		13.0	100.0	23.0	13.0	100.0	14.0
Total Split (%)	9.3%	9.3%	8.7%	15.3%	15.3%		8.7%	66.7%	15.3%	8.7%	66.7%	9.3%
Maximum Green (s)	10.0	8.0	9.0	19.0	17.0		9.0	94.0	19.0	9.0	94.0	10.0

Lanes, Volumes, Timings
9: Eola Rd & Sheffer Dr

AM Total
07/30/2024

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Yellow Time (s)	3.0	4.5	3.0	3.0	4.5		3.0	4.5	3.0	3.0	4.5	3.0
All-Red Time (s)	1.0	1.5	1.0	1.0	1.5		1.0	1.5	1.0	1.0	1.5	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	4.0	4.0	6.0		4.0	6.0	4.0	4.0	6.0	4.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	5.0	3.0	3.0	5.0		3.0	7.0	3.0	3.0	7.0	3.0
Recall Mode	None	None	None	None	None		None	C-Max	None	None	C-Max	None
Act Effct Green (s)	15.5	8.4	16.6	21.7	17.5		119.8	114.1	126.8	120.8	116.1	120.0
Actuated g/C Ratio	0.10	0.06	0.11	0.14	0.12		0.80	0.76	0.85	0.81	0.77	0.80
v/c Ratio	0.06	0.08	0.22	0.26	0.17		0.10	0.74	0.06	0.27	0.46	0.01
Control Delay	52.5	68.1	6.5	57.4	29.1		4.6	15.6	1.5	11.8	5.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.1	0.0
Total Delay	52.5	68.1	6.5	57.4	29.1		4.6	15.6	1.5	11.8	5.1	0.0
LOS	D	E	A	E	C		A	B	A	B	A	A
Approach Delay		19.1			45.3			14.9			5.2	
Approach LOS		B			D			B			A	
Queue Length 50th (ft)	8	8	0	44	9		6	657	5	4	157	0
Queue Length 95th (ft)	25	27	21	84	48		15	856	17	m6	m193	m0
Internal Link Dist (ft)		656			609			2655			849	
Turn Bay Length (ft)	150		110				190		110	215		200
Base Capacity (vph)	200	109	250	261	246		356	2832	1373	165	2883	1190
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	435	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.07	0.22	0.20	0.15		0.09	0.74	0.06	0.22	0.54	0.01

Intersection Summary			
Area Type:	Other		
Cycle Length: 150			
Actuated Cycle Length: 150			
Offset: 47 (31%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.74			
Intersection Signal Delay: 12.2		Intersection LOS: B	
Intersection Capacity Utilization 69.8%		ICU Level of Service C	
Analysis Period (min) 15			

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 9: Eola Rd & Sheffer Dr

Lanes, Volumes, Timings
9: Eola Rd & Sheffer Dr

PM Existing
07/30/2024

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	11	69	179	23	49	86	1367	128	63	1921	7
Future Volume (vph)	13	11	69	179	23	49	86	1367	128	63	1921	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	2000	1900	1900	2000	1900
Storage Length (ft)	150		110	0		0	190		110	215		200
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	65			25			180			200		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850		0.898				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	1900	1599	1805	1706	0	1805	3725	1615	1805	3725	1468
Flt Permitted	0.706			0.547			0.042			0.113		
Satd. Flow (perm)	1341	1900	1599	1039	1706	0	80	3725	1615	215	3725	1468
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			80		53				111			80
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		736			689			2735			929	
Travel Time (s)		16.7			15.7			41.4			14.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	1%	0%	0%	0%	0%	2%	0%	0%	2%	10%
Adj. Flow (vph)	14	12	75	195	25	53	93	1486	139	68	2088	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	14	12	75	195	78	0	93	1486	139	68	2088	8
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	7	4	5	3	8		5	2	3	1	6	7
Permitted Phases	4		4	8			2		2	6		6
Detector Phase	7 4	4	4	3 8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	3.0	5.0	3.0	3.0	5.0		3.0	15.0	3.0	3.0	15.0	3.0
Minimum Split (s)	9.0	11.0	9.0	9.0	11.0		9.0	21.0	9.0	9.0	21.0	9.0
Total Split (s)	14.0	14.0	13.0	23.0	23.0		13.0	100.0	23.0	13.0	100.0	14.0
Total Split (%)	9.3%	9.3%	8.7%	15.3%	15.3%		8.7%	66.7%	15.3%	8.7%	66.7%	9.3%
Maximum Green (s)	10.0	8.0	9.0	19.0	17.0		9.0	94.0	19.0	9.0	94.0	10.0

Lanes, Volumes, Timings
9: Eola Rd & Sheffer Dr

PM Existing
07/30/2024

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Yellow Time (s)	3.0	4.5	3.0	3.0	4.5		3.0	4.5	3.0	3.0	4.5	3.0
All-Red Time (s)	1.0	1.5	1.0	1.0	1.5		1.0	1.5	1.0	1.0	1.5	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	4.0	4.0	6.0		4.0	6.0	4.0	4.0	6.0	4.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	5.0	3.0	3.0	5.0		3.0	7.0	3.0	3.0	7.0	3.0
Recall Mode	None	None	None	None	None		None	C-Max	None	None	C-Max	None
Act Effct Green (s)	16.8	8.3	22.3	31.7	25.2		107.9	99.1	122.5	105.4	96.3	102.9
Actuated g/C Ratio	0.11	0.06	0.15	0.21	0.17		0.72	0.66	0.82	0.70	0.64	0.69
v/c Ratio	0.08	0.11	0.25	0.63	0.24		0.63	0.60	0.10	0.30	0.87	0.01
Control Delay	48.1	70.2	11.6	61.9	24.4		47.9	17.8	1.1	5.0	12.3	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.5	0.0
Total Delay	48.1	70.2	11.6	61.9	24.4		47.9	17.8	1.1	5.0	12.8	0.0
LOS	D	E	B	E	C		D	B	A	A	B	A
Approach Delay		23.6			51.2			18.1			12.5	
Approach LOS		C			D			B			B	
Queue Length 50th (ft)	11	11	0	169	20		24	618	15	10	321	0
Queue Length 95th (ft)	32	35	44	252	74		m74	m677	m13	m12	m372	m0
Internal Link Dist (ft)		656			609			2655			849	
Turn Bay Length (ft)	150		110				190		110	215		200
Base Capacity (vph)	213	107	298	316	330		161	2462	1339	249	2391	1032
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	75	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.11	0.25	0.62	0.24		0.58	0.60	0.10	0.27	0.90	0.01

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 47 (31%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 17.5 Intersection LOS: B
Intersection Capacity Utilization 85.1% ICU Level of Service E
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 9: Eola Rd & Sheffer Dr

Lanes, Volumes, Timings
9: Eola Rd & Sheffer Dr

PM No-Build
07/30/2024

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	11	72	187	24	51	90	1429	134	66	2009	7
Future Volume (vph)	14	11	72	187	24	51	90	1429	134	66	2009	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	2000	1900	1900	2000	1900
Storage Length (ft)	150		110	0		0	190		110	215		200
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	65			25			180			200		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850		0.898				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	1900	1599	1805	1706	0	1805	3725	1615	1805	3725	1468
Flt Permitted	0.704			0.544			0.042			0.096		
Satd. Flow (perm)	1338	1900	1599	1034	1706	0	80	3725	1615	182	3725	1468
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			80		55				112			80
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		736			689			2735			929	
Travel Time (s)		16.7			15.7			41.4			14.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	1%	0%	0%	0%	0%	2%	0%	0%	2%	10%
Adj. Flow (vph)	15	12	78	203	26	55	98	1553	146	72	2184	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	15	12	78	203	81	0	98	1553	146	72	2184	8
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	7	4	5	3	8		5	2	3	1	6	7
Permitted Phases	4		4	8			2		2	6		6
Detector Phase	7 4	4	4	3 8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	3.0	5.0	3.0	3.0	5.0		3.0	15.0	3.0	3.0	15.0	3.0
Minimum Split (s)	9.0	11.0	9.0	9.0	11.0		9.0	21.0	9.0	9.0	21.0	9.0
Total Split (s)	14.0	14.0	13.0	23.0	23.0		13.0	100.0	23.0	13.0	100.0	14.0
Total Split (%)	9.3%	9.3%	8.7%	15.3%	15.3%		8.7%	66.7%	15.3%	8.7%	66.7%	9.3%
Maximum Green (s)	10.0	8.0	9.0	19.0	17.0		9.0	94.0	19.0	9.0	94.0	10.0

Lanes, Volumes, Timings
9: Eola Rd & Sheffer Dr

PM No-Build
07/30/2024

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Yellow Time (s)	3.0	4.5	3.0	3.0	4.5		3.0	4.5	3.0	3.0	4.5	3.0
All-Red Time (s)	1.0	1.5	1.0	1.0	1.5		1.0	1.5	1.0	1.0	1.5	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	4.0	4.0	6.0		4.0	6.0	4.0	4.0	6.0	4.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	5.0	3.0	3.0	5.0		3.0	7.0	3.0	3.0	7.0	3.0
Recall Mode	None	None	None	None	None		None	C-Max	None	None	C-Max	None
Act Effct Green (s)	16.8	8.2	22.3	31.8	25.2		107.1	97.0	120.6	105.2	96.1	102.7
Actuated g/C Ratio	0.11	0.05	0.15	0.21	0.17		0.71	0.65	0.80	0.70	0.64	0.68
v/c Ratio	0.09	0.12	0.26	0.65	0.24		0.65	0.64	0.11	0.35	0.92	0.01
Control Delay	48.2	70.3	12.5	63.1	24.5		51.2	19.0	1.0	6.5	13.9	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.6	0.0
Total Delay	48.2	70.3	12.5	63.1	24.5		51.2	19.0	1.0	6.5	14.5	0.0
LOS	D	E	B	E	C		D	B	A	A	B	A
Approach Delay		24.2			52.1			19.3			14.2	
Approach LOS		C			D			B			B	
Queue Length 50th (ft)	12	11	0	176	21		29	649	14	11	337	0
Queue Length 95th (ft)	32	35	47	262	77		m82	m702	m11	m13	m390	m0
Internal Link Dist (ft)		656			609			2655			849	
Turn Bay Length (ft)	150		110				190		110	215		200
Base Capacity (vph)	212	105	298	317	332		161	2408	1320	227	2386	1030
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	44	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.11	0.26	0.64	0.24		0.61	0.64	0.11	0.32	0.93	0.01

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 47 (31%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 18.9 Intersection LOS: B
Intersection Capacity Utilization 88.1% ICU Level of Service E
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 9: Eola Rd & Sheffer Dr

Lanes, Volumes, Timings
9: Eola Rd & Sheffer Dr

PM Total
07/30/2024

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	11	72	188	24	51	90	1436	135	66	2022	7
Future Volume (vph)	14	11	72	188	24	51	90	1436	135	66	2022	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	2000	1900	1900	2000	1900
Storage Length (ft)	150		110	0		0	190		110	215		200
Storage Lanes	1		1	1		0	1		1	1		1
Taper Length (ft)	65			25			180			200		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850		0.898				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	1900	1599	1805	1706	0	1805	3725	1615	1805	3725	1468
Flt Permitted	0.704			0.544			0.042			0.094		
Satd. Flow (perm)	1338	1900	1599	1034	1706	0	80	3725	1615	179	3725	1468
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			80		55				112			80
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		736			689			2735			929	
Travel Time (s)		16.7			15.7			41.4			14.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	1%	0%	0%	0%	0%	2%	0%	0%	2%	10%
Adj. Flow (vph)	15	12	78	204	26	55	98	1561	147	72	2198	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	15	12	78	204	81	0	98	1561	147	72	2198	8
Number of Detectors	1	2	1	1	2		1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA	pm+ov
Protected Phases	7	4	5	3	8		5	2	3	1	6	7
Permitted Phases	4		4	8			2		2	6		6
Detector Phase	7 4	4	4	3 8	8		5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	3.0	5.0	3.0	3.0	5.0		3.0	15.0	3.0	3.0	15.0	3.0
Minimum Split (s)	9.0	11.0	9.0	9.0	11.0		9.0	21.0	9.0	9.0	21.0	9.0
Total Split (s)	14.0	14.0	13.0	23.0	23.0		13.0	100.0	23.0	13.0	100.0	14.0
Total Split (%)	9.3%	9.3%	8.7%	15.3%	15.3%		8.7%	66.7%	15.3%	8.7%	66.7%	9.3%
Maximum Green (s)	10.0	8.0	9.0	19.0	17.0		9.0	94.0	19.0	9.0	94.0	10.0

Lanes, Volumes, Timings
9: Eola Rd & Sheffer Dr

PM Total
07/30/2024

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Yellow Time (s)	3.0	4.5	3.0	3.0	4.5		3.0	4.5	3.0	3.0	4.5	3.0
All-Red Time (s)	1.0	1.5	1.0	1.0	1.5		1.0	1.5	1.0	1.0	1.5	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	4.0	4.0	6.0		4.0	6.0	4.0	4.0	6.0	4.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	5.0	3.0	3.0	5.0		3.0	7.0	3.0	3.0	7.0	3.0
Recall Mode	None	None	None	None	None		None	C-Max	None	None	C-Max	None
Act Effct Green (s)	16.8	8.2	22.3	31.8	25.2		107.1	97.0	120.6	105.2	96.1	102.7
Actuated g/C Ratio	0.11	0.05	0.15	0.21	0.17		0.71	0.65	0.80	0.70	0.64	0.68
v/c Ratio	0.09	0.12	0.26	0.66	0.24		0.65	0.65	0.11	0.35	0.92	0.01
Control Delay	48.2	70.3	12.5	63.2	24.5		50.9	19.1	1.0	6.8	14.2	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.6	0.0
Total Delay	48.2	70.3	12.5	63.2	24.5		50.9	19.1	1.0	6.8	14.8	0.0
LOS	D	E	B	E	C		D	B	A	A	B	A
Approach Delay		24.2			52.2			19.4			14.5	
Approach LOS		C			D			B			B	
Queue Length 50th (ft)	12	11	0	177	21		30	652	14	11	340	0
Queue Length 95th (ft)	32	35	47	263	77		m81	m702	m11	m13	m393	m0
Internal Link Dist (ft)		656			609			2655			849	
Turn Bay Length (ft)	150		110				190		110	215		200
Base Capacity (vph)	212	105	298	317	332		161	2408	1320	225	2386	1030
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	40	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.11	0.26	0.64	0.24		0.61	0.65	0.11	0.32	0.94	0.01

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 47 (31%), Referenced to phase 2:NBTL and 6:SBTL, Start of 1st Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 19.1 Intersection LOS: B
Intersection Capacity Utilization 88.5% ICU Level of Service E
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 9: Eola Rd & Sheffer Dr

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	6	1	1	1926	1244	3
Future Vol, veh/h	6	1	1	1926	1244	3
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	-	210	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	1	1	2093	1352	3

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2403	678	1355	0	-	0
Stage 1	1354	-	-	-	-	-
Stage 2	1049	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	28	395	504	-	-	-
Stage 1	205	-	-	-	-	-
Stage 2	298	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	28	395	504	-	-	-
Mov Cap-2 Maneuver	28	-	-	-	-	-
Stage 1	205	-	-	-	-	-
Stage 2	298	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	149.6	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	504	-	32	-	-
HCM Lane V/C Ratio	0.002	-	0.238	-	-
HCM Control Delay (s)	12.2	-	149.6	-	-
HCM Lane LOS	B	-	F	-	-
HCM 95th %tile Q(veh)	0	-	0.8	-	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	6	1	1	2014	1301	3
Future Vol, veh/h	6	1	1	2014	1301	3
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	-	210	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	1	1	2189	1414	3

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2513	709	1417	0	-	0
Stage 1	1416	-	-	-	-	-
Stage 2	1097	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	23	377	477	-	-	-
Stage 1	190	-	-	-	-	-
Stage 2	281	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	23	377	477	-	-	-
Mov Cap-2 Maneuver	23	-	-	-	-	-
Stage 1	190	-	-	-	-	-
Stage 2	281	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	184.2	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	477	-	27	-	-
HCM Lane V/C Ratio	0.002	-	0.282	-	-
HCM Control Delay (s)	12.6	-	184.2	-	-
HCM Lane LOS	B	-	F	-	-
HCM 95th %tile Q(veh)	0	-	0.9	-	-

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	21	1	6	2014	1301	8
Future Vol, veh/h	21	1	6	2014	1301	8
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	-	210	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	23	1	7	2189	1414	9

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2528	712	1423	0	-	0
Stage 1	1419	-	-	-	-	-
Stage 2	1109	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	23	375	474	-	-	-
Stage 1	189	-	-	-	-	-
Stage 2	277	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	23	375	474	-	-	-
Mov Cap-2 Maneuver	23	-	-	-	-	-
Stage 1	186	-	-	-	-	-
Stage 2	277	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 413.5	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	474	-	24	-	-
HCM Lane V/C Ratio	0.014	-	0.996	-	-
HCM Control Delay (s)	12.7	-	$ 413.5	-	-
HCM Lane LOS	B	-	F	-	-
HCM 95th %tile Q(veh)	0	-	3	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	21	1	6	2014	1301	8
Future Vol, veh/h	21	1	6	2014	1301	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	130	-	210	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	23	1	7	2189	1414	9

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2528	712	1423	0	-	0
Stage 1	1419	-	-	-	-	-
Stage 2	1109	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	23	375	474	-	-	-
Stage 1	189	-	-	-	-	-
Stage 2	277	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	23	375	474	-	-	-
Mov Cap-2 Maneuver	23	-	-	-	-	-
Stage 1	186	-	-	-	-	-
Stage 2	277	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 405.6	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	474	-	23	375	-	-
HCM Lane V/C Ratio	0.014	-	0.992	0.003	-	-
HCM Control Delay (s)	12.7	-	$ 424.2	14.6	-	-
HCM Lane LOS	B	-	F	B	-	-
HCM 95th %tile Q(veh)	0	-	2.9	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	4	3	1576	2164	5
Future Vol, veh/h	5	4	3	1576	2164	5
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	-	210	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	4	3	1713	2352	5

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	3218	1179	2357	0	-	0
Stage 1	2355	-	-	-	-	-
Stage 2	863	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	7	183	205	-	-	-
Stage 1	57	-	-	-	-	-
Stage 2	373	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	7	183	205	-	-	-
Mov Cap-2 Maneuver	7	-	-	-	-	-
Stage 1	56	-	-	-	-	-
Stage 2	373	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 597.8	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	205	-	12	-	-
HCM Lane V/C Ratio	0.016	-	0.815	-	-
HCM Control Delay (s)	22.8	-	$ 597.8	-	-
HCM Lane LOS	C	-	F	-	-
HCM 95th %tile Q(veh)	0	-	1.8	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	4	3	1648	2263	5
Future Vol, veh/h	5	4	3	1648	2263	5
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	-	210	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	4	3	1791	2460	5

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	3365	1233	2465	0	-	0
Stage 1	2463	-	-	-	-	-
Stage 2	902	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	6	169	185	-	-	-
Stage 1	50	-	-	-	-	-
Stage 2	356	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	6	169	185	-	-	-
Mov Cap-2 Maneuver	6	-	-	-	-	-
Stage 1	49	-	-	-	-	-
Stage 2	356	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 670.1	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	185	-	11	-	-
HCM Lane V/C Ratio	0.018	-	0.889	-	-
HCM Control Delay (s)	24.8	-	$ 670.1	-	-
HCM Lane LOS	C	-	F	-	-
HCM 95th %tile Q(veh)	0.1	-	1.8	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	9.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	13	4	17	1648	2263	19
Future Vol, veh/h	13	4	17	1648	2263	19
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	-	210	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	4	18	1791	2460	21

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	3403	1241	2481	0	-	0
Stage 1	2471	-	-	-	-	-
Stage 2	932	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	~ 5	166	183	-	-	-
Stage 1	49	-	-	-	-	-
Stage 2	344	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 5	166	183	-	-	-
Mov Cap-2 Maneuver	~ 5	-	-	-	-	-
Stage 1	44	-	-	-	-	-
Stage 2	344	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 2097.9	0.3	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	183	-	6	-	-
HCM Lane V/C Ratio	0.101	-	3.08	-	-
HCM Control Delay (s)	26.9		$ 2097.9	-	-
HCM Lane LOS	D	-	F	-	-
HCM 95th %tile Q(veh)	0.3	-	3.5	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	7.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	13	4	17	1648	2263	19
Future Vol, veh/h	13	4	17	1648	2263	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	130	-	210	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	4	18	1791	2460	21

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	3403	1241	2481	0	-	0
Stage 1	2471	-	-	-	-	-
Stage 2	932	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	~ 5	166	183	-	-	-
Stage 1	49	-	-	-	-	-
Stage 2	344	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 5	166	183	-	-	-
Mov Cap-2 Maneuver	~ 5	-	-	-	-	-
Stage 1	44	-	-	-	-	-
Stage 2	344	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, $	1671.3	0.3	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	183	-	5	166	-	-
HCM Lane V/C Ratio	0.101	-	2.826	0.026	-	-
HCM Control Delay (s)	26.9	-	$ 2177.2	27.3	-	-
HCM Lane LOS	D	-	F	D	-	-
HCM 95th %tile Q(veh)	0.3	-	2.9	0.1	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	15	0	2020	1302	0
Future Vol, veh/h	0	15	0	2020	1302	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	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	16	0	2196	1415	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	708	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	377	0	-	-	0
Stage 1	0	-	0	-	-	0
Stage 2	0	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	-	377	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT
Capacity (veh/h)	-	377	-
HCM Lane V/C Ratio	-	0.043	-
HCM Control Delay (s)	-	15	-
HCM Lane LOS	-	C	-
HCM 95th %tile Q(veh)	-	0.1	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	7	0	1665	2267	0
Future Vol, veh/h	0	7	0	1665	2267	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	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	8	0	1810	2464	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	1232	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	169	0	-	-	0
Stage 1	0	-	0	-	-	0
Stage 2	0	-	0	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	-	169	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	27.3	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT
Capacity (veh/h)	-	169	-
HCM Lane V/C Ratio	-	0.045	-
HCM Control Delay (s)	-	27.3	-
HCM Lane LOS	-	D	-
HCM 95th %tile Q(veh)	-	0.1	-

APPENDIX G

Gap Study Data Timing Table

Location: Eola Rd @ Waterstone Dr
Date: 7/18/2024
Time: 6:00 AM - 9:00 AM

Gap Analysis - Combined																	
Time	Volume	< 2.0 s	2.0 - 3.9 s	4.0 - 5.9 s	6.0 - 7.9 s	8.0 - 9.9 s	10.0 - 11.9 s	12.0 - 13.9 s	14.0 - 15.9 s	16.0 - 17.9 s	18.0 - 19.9 s	20.0 - 21.9 s	22.0 - 23.9 s	24.0 - 25.9 s	26.0 - 27.9 s	28.0 - 29.9 s	> 30.0 s
6:00 AM	436	337	39	26	13	6	5	4	0	1	2	1	0	0	1	0	0
6:15 AM	558	459	50	22	12	5	3	6	0	1	0	0	0	0	0	0	0
6:30 AM	666	563	64	28	4	2	4	0	1	0	0	0	0	0	0	0	0
6:45 AM	676	586	57	14	10	5	2	2	0	0	0	0	0	0	0	0	0
7:00 AM	596	485	68	23	11	2	2	4	1	0	0	0	0	0	0	0	0
7:15 AM	744	646	67	19	6	0	3	2	0	0	0	1	0	0	0	0	0
7:30 AM	820	746	43	13	9	1	7	0	0	1	0	0	0	0	0	0	0
7:45 AM	846	770	60	8	4	1	1	1	0	0	0	1	0	0	0	0	0
8:00 AM	709	626	57	12	5	3	2	1	1	2	0	0	0	0	0	0	0
8:15 AM	784	680	76	17	10	0	1	0	0	0	0	0	0	0	0	0	0
8:30 AM	777	686	71	12	5	2	1	0	0	0	0	0	0	0	0	0	0
8:45 AM	749	658	62	16	8	4	1	0	0	0	0	0	0	0	0	0	0
Total	**8361**	**7242**	**714**	**210**	**97**	**31**	**32**	**20**	**3**	**5**	**2**	**3**	**0**	**0**	**1**	**0**	**0**

Gap Analysis - Northbound																	
Time	Volume	< 2.0 s	2.0 - 3.9 s	4.0 - 5.9 s	6.0 - 7.9 s	8.0 - 9.9 s	10.0 - 11.9 s	12.0 - 13.9 s	14.0 - 15.9 s	16.0 - 17.9 s	18.0 - 19.9 s	20.0 - 21.9 s	22.0 - 23.9 s	24.0 - 25.9 s	26.0 - 27.9 s	28.0 - 29.9 s	> 30.0 s
6:00 AM	299	216	27	13	13	7	5	3	3	2	3	1	2	0	1	1	1
6:15 AM	419	339	35	18	3	5	5	5	2	1	2	0	1	1	0	0	2
6:30 AM	466	360	61	19	8	2	10	1	3	1	0	1	0	0	0	0	0
6:45 AM	454	366	47	13	6	11	1	3	0	2	1	0	1	1	1	0	1
7:00 AM	398	302	49	19	10	3	2	2	1	3	2	1	1	1	0	1	1
7:15 AM	495	392	64	18	8	1	4	2	1	2	0	1	1	0	0	0	1
7:30 AM	549	469	42	13	9	1	4	4	0	2	1	0	0	2	2	0	0
7:45 AM	543	442	73	10	8	5	1	1	0	1	0	0	0	0	1	0	1
8:00 AM	444	357	51	9	6	2	4	7	1	3	2	0	2	0	0	0	0
8:15 AM	496	397	55	20	8	5	4	2	0	2	1	0	0	1	0	0	1
8:30 AM	454	341	73	20	11	2	3	1	0	1	0	1	0	0	0	0	1
8:45 AM	403	313	46	15	8	3	2	6	1	3	0	0	2	1	1	1	1
Total	**5420**	**4294**	**623**	**187**	**98**	**47**	**45**	**37**	**12**	**23**	**12**	**5**	**10**	**7**	**6**	**3**	**10**

Gap Analysis - Southbound																	
Time	Volume	< 2.0 s	2.0 - 3.9 s	4.0 - 5.9 s	6.0 - 7.9 s	8.0 - 9.9 s	10.0 - 11.9 s	12.0 - 13.9 s	14.0 - 15.9 s	16.0 - 17.9 s	18.0 - 19.9 s	20.0 - 21.9 s	22.0 - 23.9 s	24.0 - 25.9 s	26.0 - 27.9 s	28.0 - 29.9 s	> 30.0 s
6:00 AM	137	66	23	13	5	3	4	1	2	4	1	0	1	3	3	1	6
6:15 AM	139	56	21	15	13	8	3	6	1	5	0	2	0	2	2	0	5
6:30 AM	200	108	35	21	8	5	4	5	4	1	1	3	0	1	0	0	4
6:45 AM	222	119	41	20	12	9	3	4	2	4	2	3	2	1	0	0	0
7:00 AM	198	97	45	14	6	6	7	5	5	5	2	2	1	1	0	0	2
7:15 AM	249	141	44	27	8	8	4	5	3	3	0	1	1	1	2	1	0
7:30 AM	271	170	51	14	8	4	8	4	2	3	2	0	1	1	2	0	1
7:45 AM	303	214	38	18	7	3	3	4	7	2	2	0	2	1	1	0	1
8:00 AM	265	160	53	18	8	5	1	5	6	1	1	0	2	1	2	2	0
8:15 AM	288	164	67	17	16	4	9	3	0	3	2	1	1	0	0	1	0
8:30 AM	323	206	62	21	10	7	2	5	4	2	2	1	0	1	0	0	0
8:45 AM	346	228	54	32	4	12	6	7	0	1	0	2	0	0	0	0	0
Total	**2941**	**1729**	**534**	**230**	**105**	**74**	**54**	**54**	**36**	**34**	**15**	**15**	**11**	**13**	**12**	**5**	**19**

Location: Eola Rd @ Waterstone Dr
Date: 7/18/2024
Time: 3:00 PM - 6:00 PM

Gap Analysis - Combined																	
Time	Volume	< 2.0 s	2.0 - 3.9 s	4.0 - 5.9 s	6.0 - 7.9 s	8.0 - 9.9 s	10.0 - 11.9 s	12.0 - 13.9 s	14.0 - 15.9 s	16.0 - 17.9 s	18.0 - 19.9 s	20.0 - 21.9 s	22.0 - 23.9 s	24.0 - 25.9 s	26.0 - 27.9 s	28.0 - 29.9 s	> 30.0 s
3:00 PM	846	758	60	23	1	2	0	1	0	0	0	0	0	0	0	0	0
3:15 PM	936	861	58	11	2	3	1	0	0	0	0	0	0	0	0	0	0
3:30 PM	942	868	54	12	2	4	1	0	0	1	0	0	0	0	0	0	0
3:45 PM	898	817	65	11	3	1	1	0	0	0	0	0	0	0	0	0	0
4:00 PM	955	883	51	15	4	1	0	1	0	0	0	0	0	0	0	0	0
4:15 PM	888	811	49	17	8	2	0	0	1	0	0	0	0	0	0	0	0
4:30 PM	931	850	67	8	4	2	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	952	871	67	7	6	1	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	974	907	49	9	5	1	2	1	0	0	0	0	0	0	0	0	0
5:15 PM	967	897	57	6	3	2	2	0	0	0	0	0	0	0	0	0	0
5:30 PM	947	872	60	10	3	0	0	1	1	0	0	0	0	0	0	0	0
5:45 PM	898	817	66	7	6	2	0	0	0	0	0	0	0	0	0	0	0
Total	**11134**	**10212**	**703**	**136**	**47**	**21**	**7**	**4**	**2**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

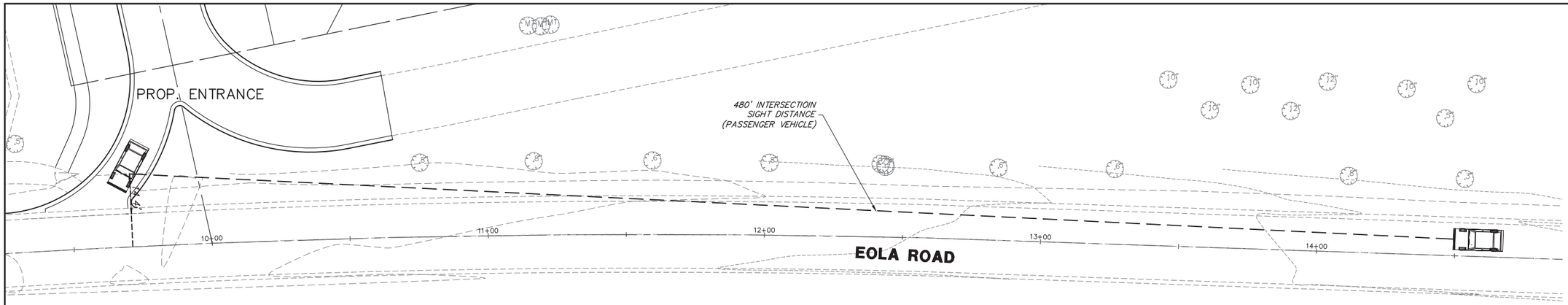
Gap Analysis - Northbound																	
Time	Volume	< 2.0 s	2.0 - 3.9 s	4.0 - 5.9 s	6.0 - 7.9 s	8.0 - 9.9 s	10.0 - 11.9 s	12.0 - 13.9 s	14.0 - 15.9 s	16.0 - 17.9 s	18.0 - 19.9 s	20.0 - 21.9 s	22.0 - 23.9 s	24.0 - 25.9 s	26.0 - 27.9 s	28.0 - 29.9 s	> 30.0 s
3:00 PM	385	265	58	32	13	5	3	3	2	2	0	0	0	0	0	0	1
3:15 PM	423	320	51	21	10	10	2	3	4	0	1	0	1	0	0	0	0
3:30 PM	425	327	45	24	8	10	4	2	1	0	1	0	0	2	1	0	0
3:45 PM	385	287	44	20	14	6	4	4	1	1	2	0	0	0	1	0	1
4:00 PM	399	289	59	27	8	3	3	5	2	0	2	0	0	0	0	0	1
4:15 PM	348	254	42	14	9	9	5	2	3	3	0	2	3	1	1	0	0
4:30 PM	385	276	50	31	12	3	3	3	2	3	0	0	0	0	1	0	1
4:45 PM	390	265	68	26	18	5	1	2	0	2	1	1	0	0	0	0	1
5:00 PM	453	337	68	21	12	6	6	1	1	0	0	0	0	1	0	0	0
5:15 PM	453	348	57	17	10	8	6	4	2	0	1	0	0	0	0	0	0
5:30 PM	385	274	56	19	16	9	1	4	1	0	2	1	0	2	0	0	0
5:45 PM	371	246	71	19	14	9	2	5	2	2	1	0	0	0	0	0	0
Total	**4802**	**3488**	**669**	**271**	**144**	**83**	**40**	**38**	**21**	**13**	**11**	**4**	**4**	**6**	**4**	**0**	**5**

Gap Analysis - Southbound																	
Time	Volume	< 2.0 s	2.0 - 3.9 s	4.0 - 5.9 s	6.0 - 7.9 s	8.0 - 9.9 s	10.0 - 11.9 s	12.0 - 13.9 s	14.0 - 15.9 s	16.0 - 17.9 s	18.0 - 19.9 s	20.0 - 21.9 s	22.0 - 23.9 s	24.0 - 25.9 s	26.0 - 27.9 s	28.0 - 29.9 s	> 30.0 s
3:00 PM	461	357	57	20	8	6	2	3	5	0	2	0	0	0	0	0	0
3:15 PM	513	428	51	10	6	6	5	3	1	0	0	0	1	0	1	1	0
3:30 PM	517	424	63	10	4	7	2	3	0	1	0	1	1	0	0	0	1
3:45 PM	513	408	66	18	9	3	2	5	1	0	0	1	0	0	0	0	0
4:00 PM	556	459	56	20	8	6	3	2	0	1	0	1	0	0	0	0	0
4:15 PM	540	454	50	15	7	7	1	0	2	1	2	0	0	0	1	0	0
4:30 PM	546	448	65	14	9	3	2	0	1	0	0	1	1	1	1	0	0
4:45 PM	562	473	62	12	3	4	2	1	0	1	1	0	0	0	2	0	1
5:00 PM	521	421	67	17	3	1	5	1	0	4	1	0	0	0	0	0	1
5:15 PM	514	420	57	17	5	3	2	3	1	0	1	2	1	2	0	0	0
5:30 PM	562	459	69	25	3	2	1	1	0	0	1	0	0	0	1	0	0
5:45 PM	527	423	72	13	6	4	4	2	2	0	1	0	0	0	0	0	0
Total	**6332**	**5174**	**735**	**191**	**71**	**52**	**31**	**24**	**13**	**8**	**9**	**6**	**4**	**3**	**6**	**1**	**3**

APPENDIX H

Draft Sight Distance Study

GEWALT HAMILTON ASSOCIATES, INC.



N

GRAPHIC SCALE
20 0 10 20
(IN FEET)
H. 1"= 20 ft. V. 1"= 10 ft.

POSTED SPEED LIMIT: 45 MPH
DESIGN SPEED: 50 MPH

TIME GAP FOR MINOR ROAD VEHICLE TO ENTER MAJOR ROAD VIA RIGHT TURN PER AASHTO TABLE 9-8:
6.5 SEC (PASSENGER VEHICLE)
1.47 * 50 MPH * 6.5 SEC = 477.8' -> USE 480'
(PASSENGER VEHICLE)

DANIEL P. BRINKMAN 062-055293 LICENSED PROFESSIONAL ENGINEER OF ILLINOIS

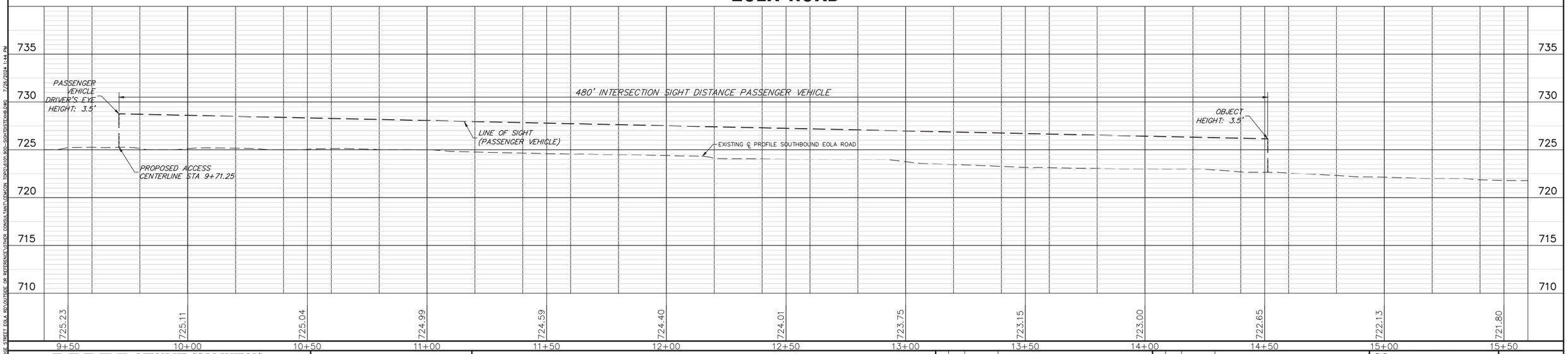
SIGNED: _____
DANIEL P. BRINKMAN, P.E., PTOE

DATE: JULY 26, 2024

ILLINOIS LICENSE NO.: 062-055293

EXPIRATION DATE: NOVEMBER 30, 2025

EOLA ROAD



P:\6100-6149\6101.900 BRIDGE STREET EOLA RD\OUTSIDE OR REFERENCES\OTHER CONSULTANTS\CIVIL\6101.900-SIGHTDISTEXH.DWG 7/26/2024 1:44 PM

GHA GEWALT HAMILTON ASSOCIATES, INC.
625 Forest Edge Drive ■ Vernon Hills, IL. 60061
TEL 847.478.9700 ■ FAX 847.478.9701

SIGHT DISTANCE EXHIBIT

PROPOSED ENTRANCE
EOLA PRESERVE SUBDIVISION
CITY OF AURORA, ILLINOIS

NO.	BY	DATE	REVISION

NO.	BY	DATE	REVISION

FILE: 6101.900-SightDistExhb.dwg
DRAWN BY: ZCW
DATE: 07.26.2024
GHA PROJECT #: 6101.900
CHECKED BY: DPB
DATE: 07.26.2024
SCALE: AS NOTED
SHEET NUMBER: 1
OF 1 SHEETS