PROPOSED RESIDENTIAL DEVELOPMENT
ELMHURST STREET, KILWORTH

TRAFFIC IMPACT ASSESSMENT

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TABLE OF CONTENTS

APPENDICES

LIST OF FIGURES

LIST OF TABLES

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1. INTRODUCTION AND BACKGROUND

Sweid Holdings has proposed the development of a 45 unit residential subdivision, including a mix of single family homes and townhouses, on a site on Elmhurst Street south of Glendon Drive (County Road 14) in Kilworth. The location of the site is shown in **Figure 1**. The purpose of this report is to identify the potential volume of traffic generated by the site in the peak hours and to determine the impact of this traffic on the operation of adjacent streets and intersections. In this case, the proximity of the site to Glendon Drive suggests that most, if not all, of the traffic generated by the development will access Glendon Drive.

2. EXISTING CONDITIONS

Glendon Drive (County Road 14) is a two lane rural arterial with a posted speed limit of 80km/h. Elmhurst Street is a two lane local street which provides access to a mature residential subdivision. The intersection of Glendon Drive and Elmhurst Street is controlled by a stop sign on the Elmhurst Street approach. There are no turning lanes on Glendon Drive at the intersection. Left turns from Glendon Drive are not permitted.

For the purposes of this assessment, a traffic count was made at the intersection of Glendon Drive and Elmhurst Street on Wednesday November 2, 2022. Peak hour volumes derived from this count are shown in **Figure 2A**. The count reports are contained in Appendix A.

Reference was also made to the Glendon Drive Streetscape Environmental Assessment Report[1] and, in particular, to the Transportation Technical Memo prepared by staff of Stantec in October, 2015. The technical memo contains traffic counts made in 2015 as well as projections to 2035, the assumed 20 year planning horizon.

[1] Glendon Drive Streetscape, Schedule C Municipal Class Environmental Assessment, Stantec, August 2018.

A review of the 2015 and projected 2035 peak hour traffic volumes for the section of Glendon Drive between Kilworth Park Drive and Old River Road (Appendix B) indicates that, with the exception of the eastbound morning peak hour volume, the 2022 count is consistent with the 2015 counts and the 2025 projections. The 2022 eastbound morning peak hour count is actually less than the 2015 count. Based on the actual growth between 2015 and 2022 for the other peak hour counts, averaging about three percent per year, the eastbound morning peak hour volume was adjusted upwards as shown in **Figure 2B**. The adjusted volume is consistent with the growth patterns projected to 2035.

It was noted that peak hour traffic volumes entering and exiting Elmhurst Street were significantly lower than might be expected given the size of the residential neighbourhood served by Elmhurst Street. There are two possible explanations. Given that this is a mature neighbourhood, trip generation may be less than that from a newer neighbourhood with mobile families. Secondly, drivers may be avoiding the intersection of Glendon Drive and Elmhurst Street because of a perceived difficulty in accessing Glendon Drive. With the prohibition to left turns from Glendon Drive, only two vehicles were noted making this turn in the eight hour count period.

3. PROPOSED DEVELOPMENT

The site plan for the proposed development is shown in **Figure 3.** The development will include 15 single family homes and 30 townhomes. A single access is proposed to Elmhurst Street approximately 100 metres south of its intersection with Glendon Drive.

Based on regression equations contained in the Institute of Transportation Engineers (ITE) Trip Generation Manual, Tenth Edition for ITE Land Uses 210 and 220, peak hour vehicle trip generation was estimated as shown in **Table 1**. In the morning peak hour, the development is expected to generate 30 vehicle trips and, in the afternoon peak hour, 36 vehicle trips.

It was assumed that, given the proximity of the site to Glendon Drive, all of these trips would pass through the intersection of Glendon Drive and Elmhurst Street. There are no trip attractions, such as employment, shopping or entertainment to the south. At the intersection, trips were assigned to and from the east and west in proportion to existing turning movements.

Figure 4 shows the assignment of site generated trips. Trips were assigned to the left turn movement from Glendon Drive in order to assess the impact of a potential separate left turn lane.

4. TRAFFIC PROJECTIONS

The development is expected to be complete in 2024. The adjusted 2022 peak hour traffic counts from **Figure 2B** were projected to 2024 assuming an annual growth rate of three percent. **Figure 6** shows projected background traffic while **Figure 7** shows projected total traffic with site generated traffic added.

2035 peak hour traffic volumes were taken from the Glendon Drive EA study (Appendix B). These are shown in **Figure 8**. **Figure 9** shows projected 2035 peak hour volumes with site generated traffic added.

5. ANALYSIS

5.1 Level of Service

The intersection of Glendon Drive and Elmhurst Street was analyzed for delays, volume to capacity (v/c) ratios and queue lengths using the Synchro 11 analysis program. The following conditions were analyzed:

- 2024 total peak hour traffic with existing intersection configuration
- 2024 total peak hour traffic with a westbound left turn lane on Glendon Drive
- 2035 total peak hour traffic with two through lanes in each direction plus a left turn lane on Glendon Drive

The 2035 assumed configuration was based on the recommendations contained in the Glendon Drive EA study report. The results of the analyses are summarized in **Table 2**. Analysis reports are contained in Appendix C.

Level of service is a measure of how well an intersection operates under prevailing traffic conditions. It is expressed on a scale of A to F where A is the highest level of service and F indicates unacceptable congestion and delay. Level of service is measured in terms of average delay to all vehicles passing through the intersection in the peak hour.

Under projected 2024 peak hour conditions, with the existing intersection configuration, the intersection will operate at an acceptable level of service. Delays to through traffic on Glendon Drive are minor. Approach volumes on

Elmhurst Street would be subject to average delays in the peak hours of over 30 seconds, level of service D. While these delays are significant, they are within acceptable limits for a local street intersecting a major arterial.

Under projected 2024 peak hour conditions with a left turn lane on Glendon Drive, average delays to approach traffic on Elmhurst Street would be slightly reduced. There would be no change to the operation of through traffic on Glendon Drive. The addition of a left turn lane would have no significant benefits to the operation of the intersection.

Under projected 2035 peak hour conditions with two lanes in each direction on Glendon Drive plus a left turn lane, through traffic on Glendon Drive would continue to operate with no significant delays. However, on the Elmhurst Street approach, average delays would increase to just under 50 seconds in the morning peak hour, level of service E, and to almost 60 seconds in the afternoon peak hour, level of service F. These results suggest that other measures should be considered in order to improve access to and from the proposed development.

5.2 Sight Distance

County of Middlesex guidelines for sight distances require a 200 metre sight distance for a posted speed limit of 80km/h. To and from the west, this sight distance is exceeded. To and from the east, however, site measurements indicate an available sight distance of 185 metres. While marginally less than the guideline, the intersection appears to operate safely under existing conditions. As traffic volumes increase, however, sight distance is likely to become more of a critical factor in the safe operation of the intersection.

6. SUMMARY AND CONCLUSIONS

The proposed development will generate 30 vehicle trips in the morning peak hour and 36 vehicle trips in the afternoon peak hour. For the purposes of this assessment, all site generated trips were assumed to pass through the intersection of Glendon Drive and Elmhurst Street, including left turns from Glendon Drive to Elmhurst Street.

Under assumed build-out conditions in 2024, the intersection of Glendon Drive and Elmhurst Street will operate at an acceptable level of service. While sight distances to and from the east are marginally less than County guidelines, the intersection is likely to continue operating safely.

In the 2018 Glendon Drive EA study report, it is recommended that Glendon Drive be widened to a four lane cross-section by 2035. With this configuration, the operation of the intersection of Glendon Drive and Elmhurst Street will fall below acceptable limits.

It is recommended that, in conjunction with the upgrading of Glendon Drive, an acceptable configuration for the intersection with Elmhurst Street be evaluated. The level of service analyses suggest that a left turn lane on Glendon Drive would only be marginally effective. Another option could be limiting movements to and from Elmhurst Street to right turns only.

In the meantime, the intersection should be retained in its existing configuration. The left turn prohibition should remain, requiring site generated traffic coming from the east to detour via Kilworth Park Drive.

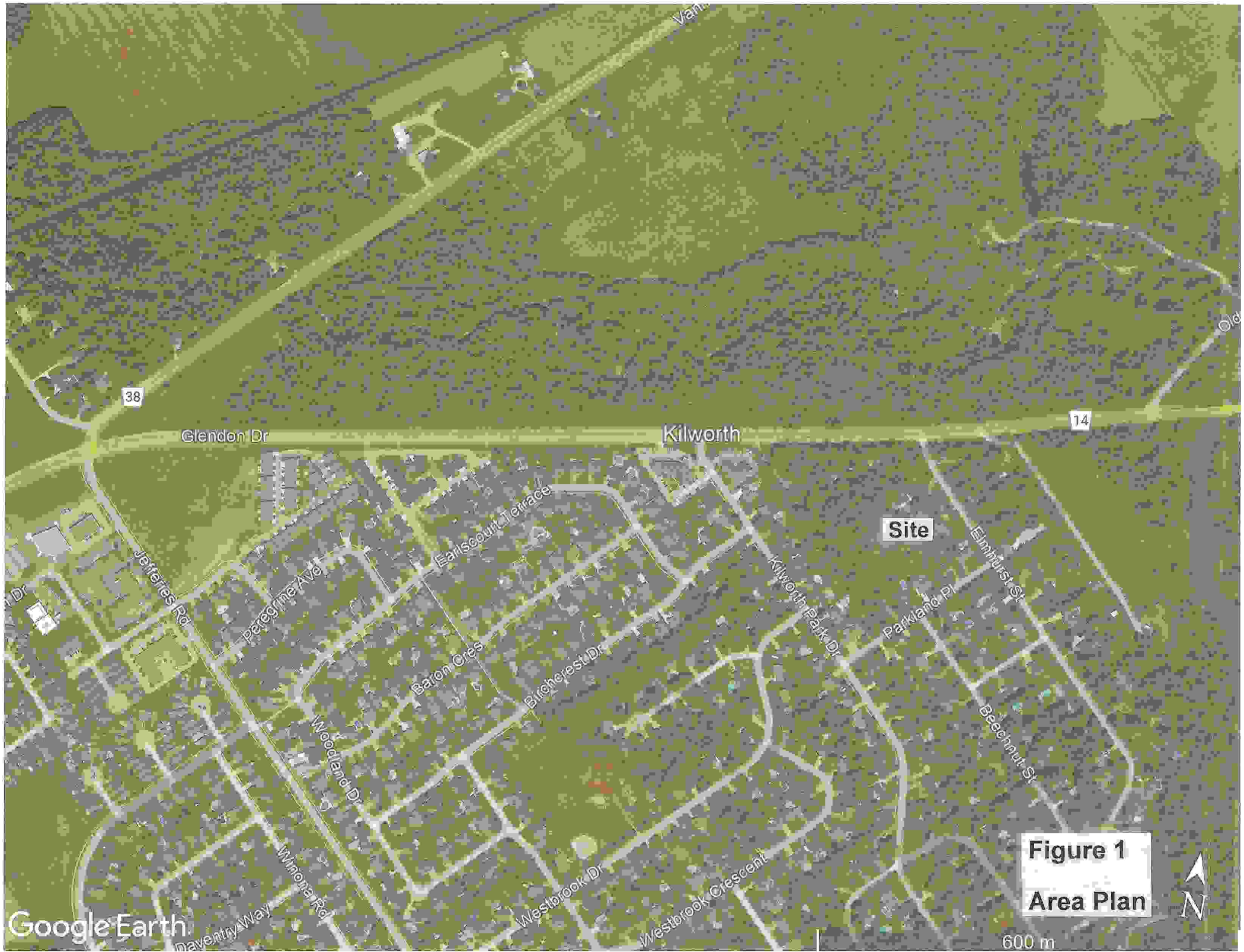


Figure 1

Area Plan

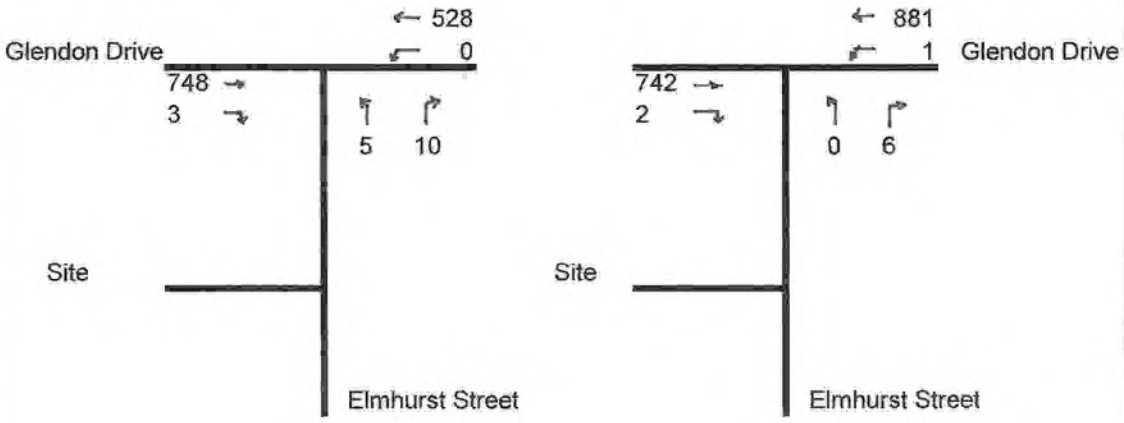


Figure 2A
Existing Traffic 2022

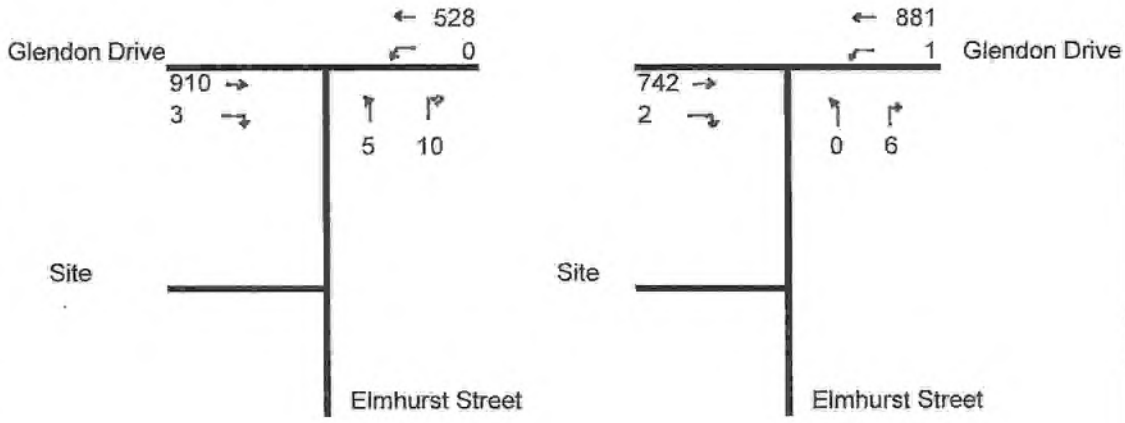


Figure 2B
Existing Traffic 2022
Adjusted

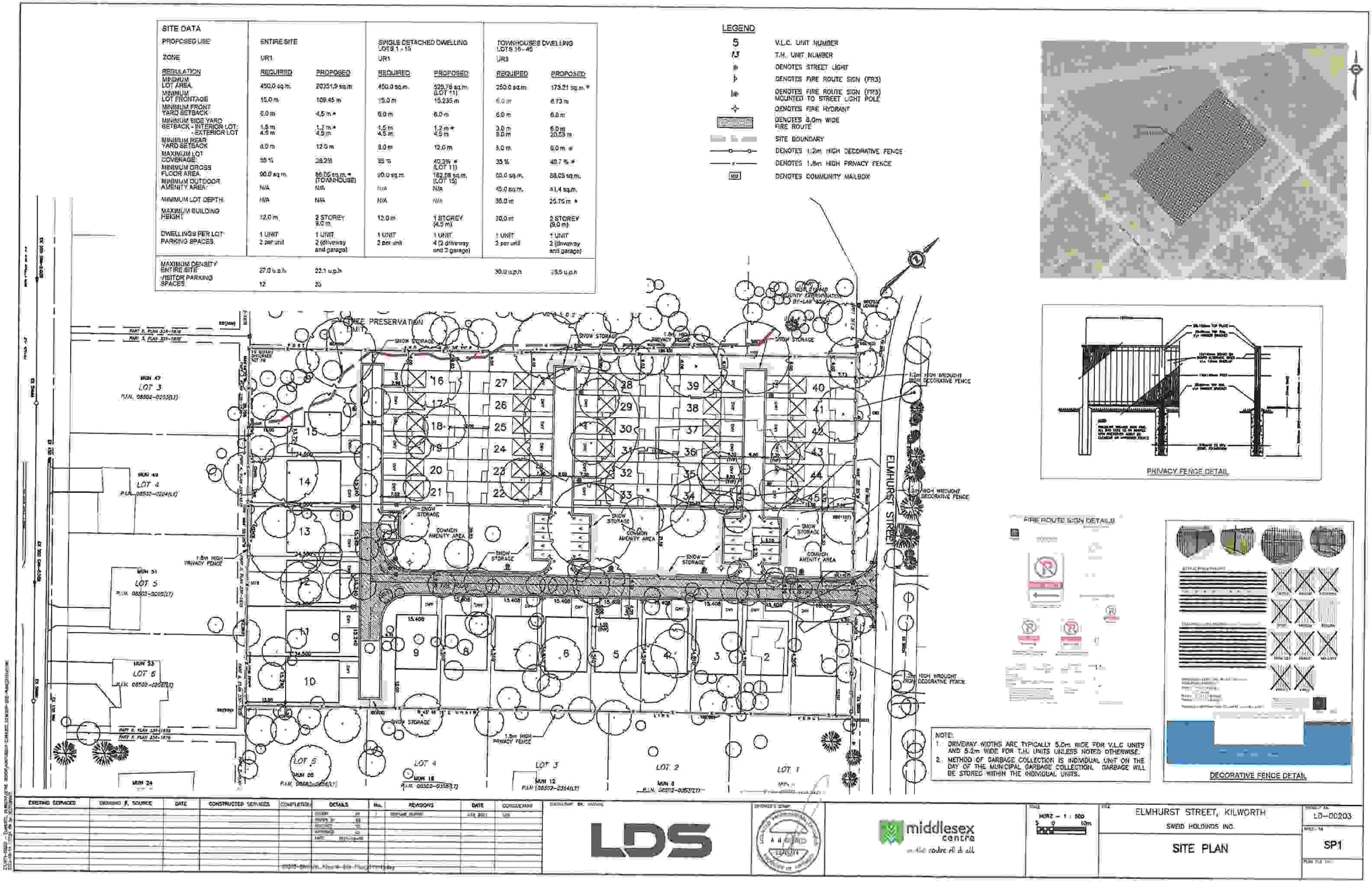


Figure 3

Site Plan

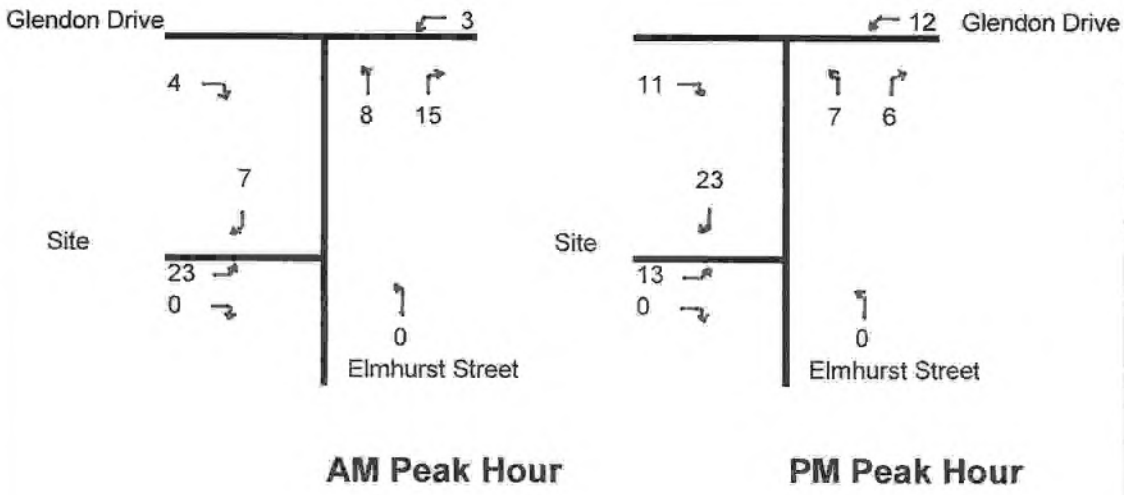


Figure 4
Site Generated Traffic

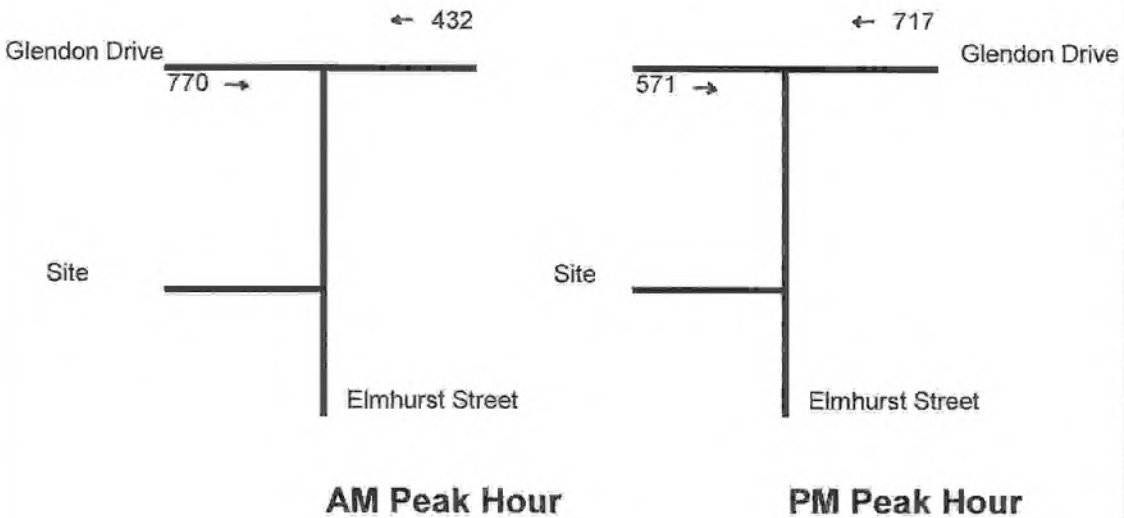
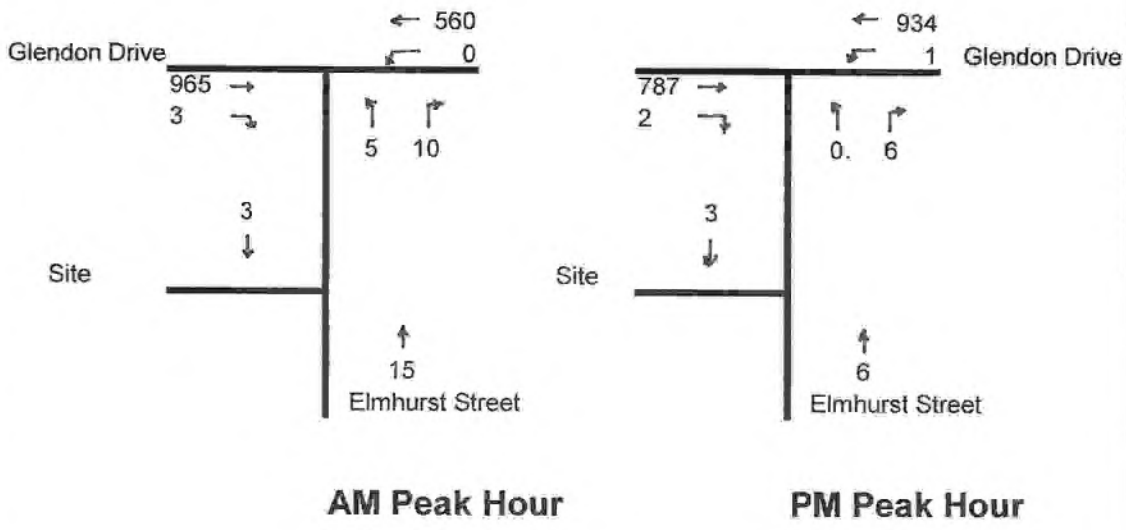
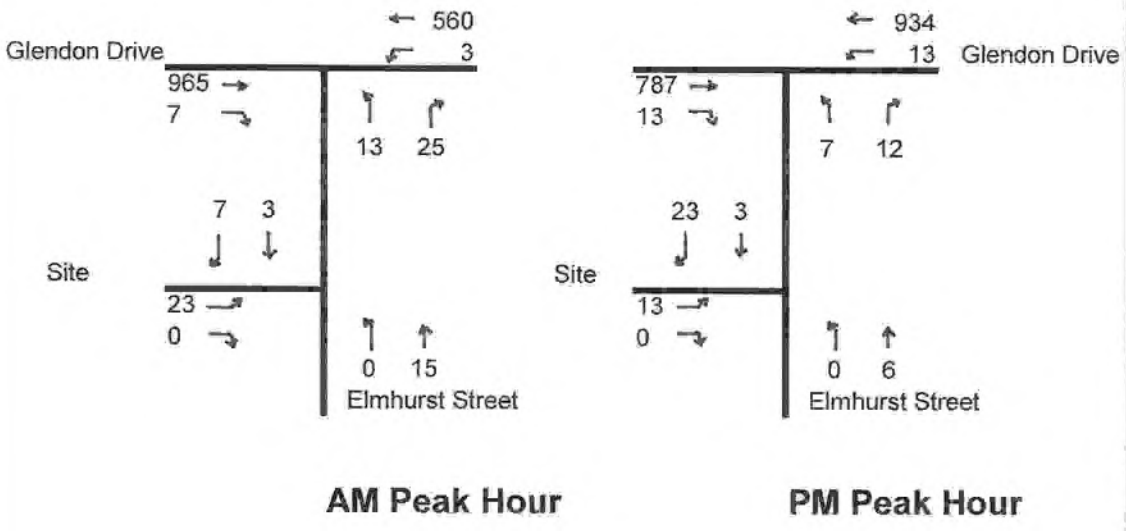


Figure 5
Existing Traffic 2015
Source: Glendon Drive EA Study



AM Peak Hour **PM Peak Hour**

Figure 6
Background Traffic 2024



AM Peak Hour **PM Peak Hour**

Figure 7
Total Traffic 2024

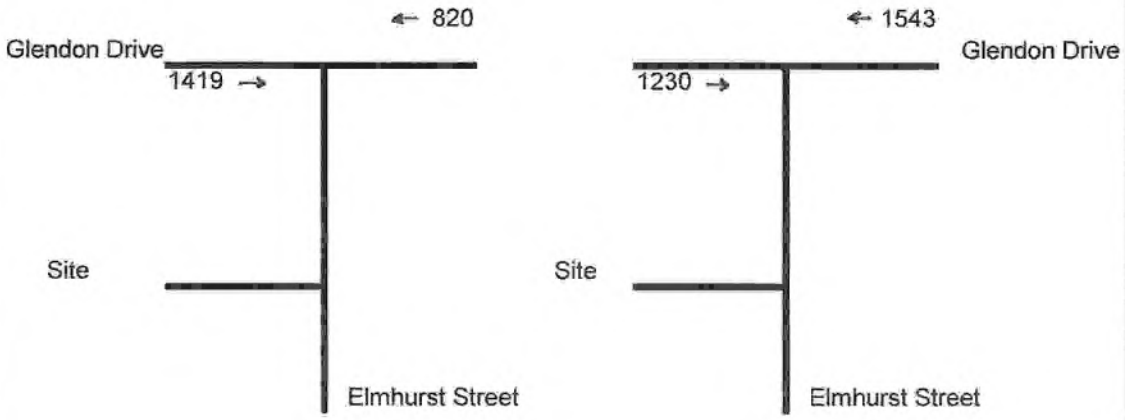


Figure 8
Background Traffic 2035
Source: Glendon Drive EA Study

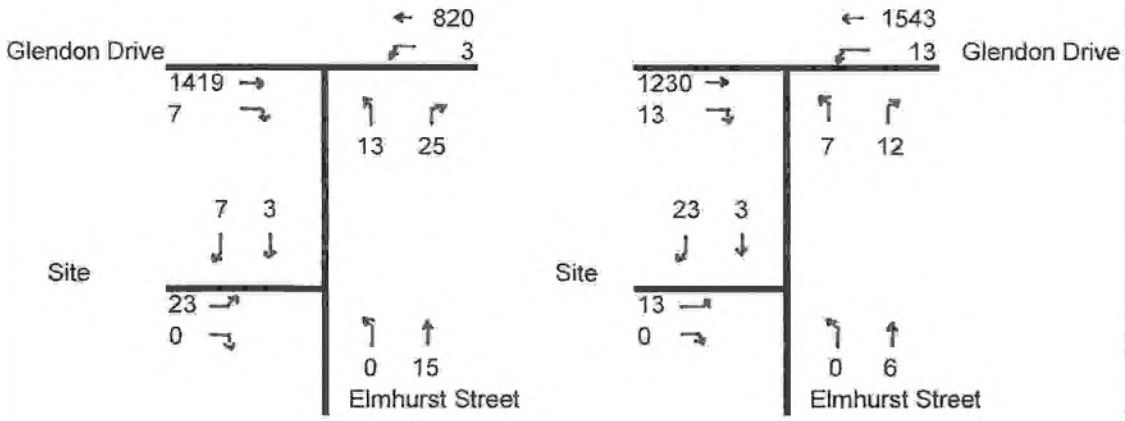


Figure 9
Total Traffic 2035

ITE Land Use		AM Peak Hour				PM Peak Hour			
		Ave. Rate	total	in	out	Ave. Rate	total	in	out
210	Single Family Detached Housing 15du	eq'n	15	4	11	eq'n	16	10	6
220	Multi Family Housing (Low-Rise) 30du	eq'n	15	3	12	eq'n	20	13	7
	Total		30	7	23		36	23	13

Table 1

Vehicle Trip Generation

Intersection	AM Peak Hour				PM Peak Hour			
	v/c	Del.	LofS	Q	v/c	Del.	LofS	Q
Total Traffic 2024 existing confign.								
Eastbound TR	-	0.0	A	-	-	0.0	A	-
Westbound LT	0.005	0.1	A	0.0	0.018	0.1	A	0.1
Northbound LR	0.232	31.2	D	0.9	0.140	33.5	D	0.5
Ave. Intersec'n Delay			0.8sec				0.4sec	
LofS			A				A	
Total Traffic 2024 w. left turn lane								
Eastbound TR	-	0.0	A	-	-	0.0	A	-
Westbound L	0.005	10.4	B	0.0	0.018	9.7	A	0.1
Westbound T	-	0.1	A	-	-	0.1	A	-
Northbound LR	0.231	31.0	D	0.9	0.138	32.8	D	0.5
Ave. Intersec'n Delay			0.8sec				0.4sec	
LofS			A				A	
Total Traffic 2035 widened confign.								
Eastbound TTR	-	0.0	A	-	-	0.0	A	-
Westbound L	0.008	13.4	B	0.0	0.027	12.2	B	0.1
Westbound TT	-	0.0	A	-	-	0.1	A	-
Northbound LR	0.341	49.4	E	1.4	0.237	58.8	F	0.8
Ave. Intersec'n Delay			0.8sec				0.5sec	
LofS			A				A	

Note: Del. - ave. delay (secs.)

LofS - level of service

v/c - volume to capacity ratio

Average Intersection Delay (secs.)

Q - maximum queue length (vehicles)

(95th percentile)

Table 2

Level of Service
Glendon Drive and
Elmhurst Street

APPENDIX A

TRAFFIC COUNTS

Glendon Dr @ Elmhurst St

Morning Peak Diagram

Specified Period
From: 7:00:00
To: 9:00:00

One Hour Peak
From: 7:30:00
To: 8:30:00

Municipality: Kilworth
Site #: 0000000001
Intersection: Glendon Dr & Elmhurst St
TFR File #: 1
Count date: 2-Nov-2022

Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Non-Signalized Intersection ****

Major Road: Glendon Dr runs W/E

East Leg Total: 1286
East Entering: 528
East Peds: 0
Peds Cross: ⧖

	Heavys	Trucks	Cars	Totals
	14	10	509	533

Glendon Dr (CR 14)

	Heavys	Trucks	Cars	Totals
	18	17	713	748
	0	0	3	3
	18	17	716	

	Cars	Trucks	Heavys	Totals
	505	10	13	528
	0	0	0	0
	505	10	13	

Glendon Dr (CR 14)

	Cars	Trucks	Heavys	Totals
	723	17	18	758

Elmhurst St

Peds Cross: ⧖
West Peds: 0
West Entering: 751
West Leg Total: 1284

Cars	3		
Trucks	0		
Heavys	0		
Totals	3		

Cars	4	10	14
Trucks	0	0	0
Heavys	1	0	1
Totals	5	10	

Peds Cross: ⋈
South Peds: 1
South Entering: 15
South Leg Total: 18

Comments

Glendon Dr @ Elmhurst St

Mid-day Peak Diagram

Specified Period
From: 11:00:00
To: 14:00:00

One Hour Peak
From: 12:00:00
To: 13:00:00

Municipality: Kilworth
Site #: 0000000001
Intersection: Glendon Dr & Elmhurst St
TFR File #: 1
Count date: 2-Nov-2022

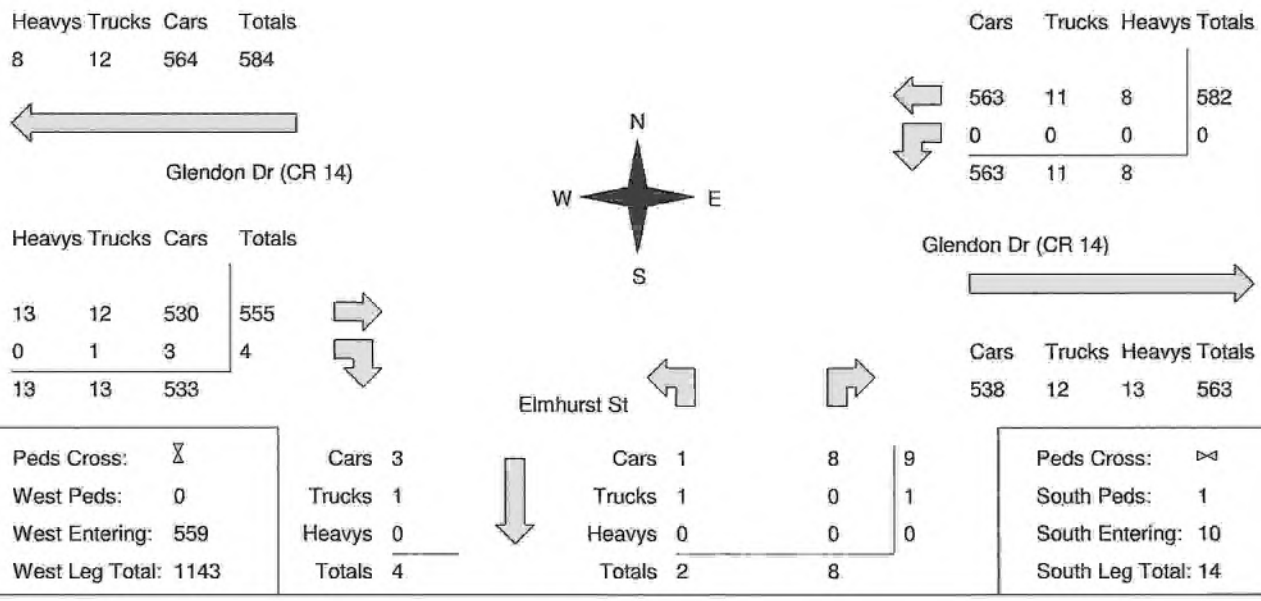
Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Non-Signalized Intersection ****

Major Road: Glendon Dr runs W/E

East Leg Total: 1145
East Entering: 582
East Peds: 0
Peds Cross: ⧖



Peds Cross: ⧖
West Peds: 0
West Entering: 559
West Leg Total: 1143

Peds Cross: ⋈
South Peds: 1
South Entering: 10
South Leg Total: 14

Comments

Glendon Dr @ Elmhurst St

Afternoon Peak Diagram

Specified Period
From: 15:00:00
To: 18:00:00

One Hour Peak
From: 16:30:00
To: 17:30:00

Municipality: Kilworth
Site #: 0000000001
Intersection: Glendon Dr & Elmhurst St
TFR File #: 1
Count date: 2-Nov-2022

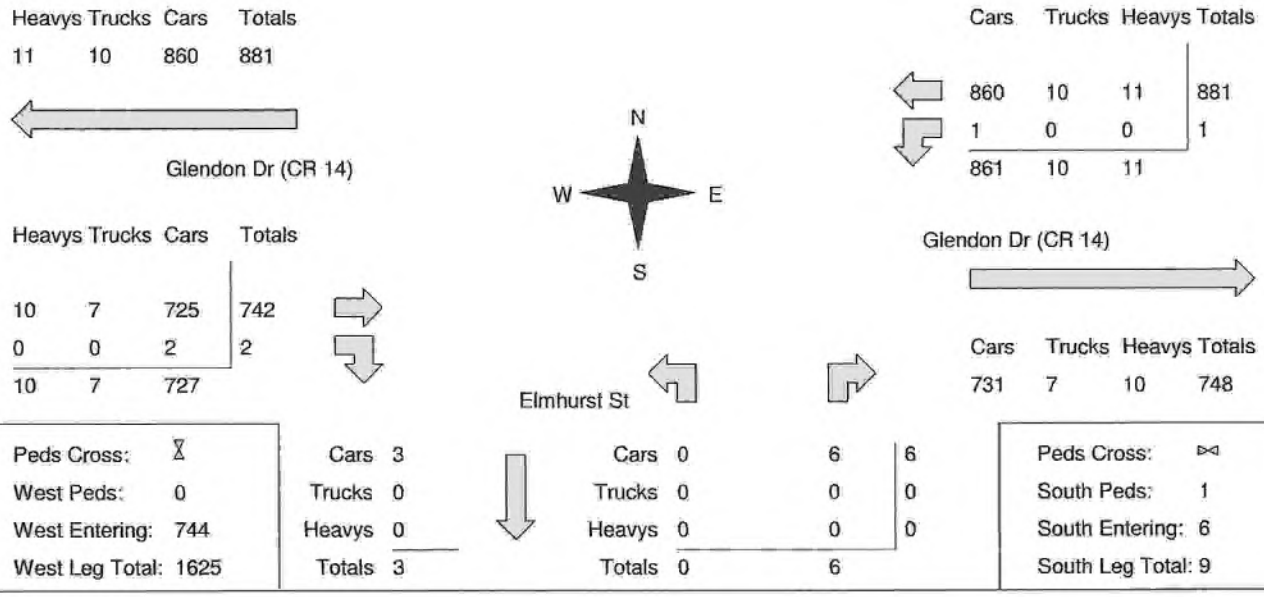
Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

** Non-Signalized Intersection **

Major Road: Glendon Dr runs W/E

East Leg Total: 1630
East Entering: 882
East Peds: 0
Peds Cross: ⧖



Peds Cross: ⧖
West Peds: 0
West Entering: 744
West Leg Total: 1625

Cars 3
Trucks 0
Heavys 0
Totals 3

Cars 0 6 6
Trucks 0 0 0
Heavys 0 0 0
Totals 0 6

Peds Cross: ⋈
South Peds: 1
South Entering: 6
South Leg Total: 9

Comments

Glendon Dr @ Elmhurst St

Total Count Diagram

Municipality: Kilworth
Site #: 0000000001
Intersection: Glendon Dr & Elmhurst St
TFR File #: 1
Count date: 2-Nov-2022

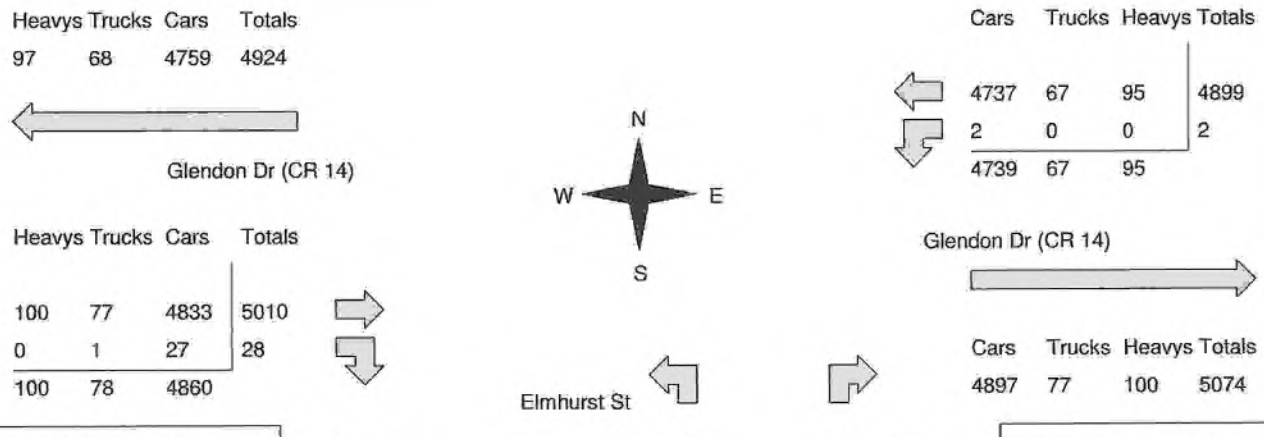
Weather conditions:
Clear/Dry

Person(s) who counted:
Cam

**** Non-Signalized Intersection ****

Major Road: Glendon Dr runs W/E

East Leg Total: 9975
East Entering: 4901
East Peds: 0
Peds Cross: ⧖



Peds Cross: ⧖
West Peds: 1
West Entering: 5038
West Leg Total: 9962

Cars 29
Trucks 1
Heavys 0
Totals 30

Cars 22 64 86
Trucks 1 0 1
Heavys 2 0 2
Totals 25 64

Peds Cross: ⋈
South Peds: 3
South Entering: 89
South Leg Total: 119

Comments

Glendon Dr @ Elmhurst St

Municipality: Kilworth
Major Road: Glendon Dr
Minor Road: Elmhurst St

Date: Nov 2, 2022

Major Road Runs: East/West
Weather Conditions: Clear/Dry
Person No. 1 Cam
Person No. 2

Period Ending	North Approach							East Approach							South Approach							West Approach							Veh. Summary	
	Cars			Trucks			Ped.	Cars			Trucks			Ped.	Cars			Trucks			Ped.	Cars			Trucks			Ped.		
	Left	Thru	Right	Left	Thru	Right	Cross.	Left	Thru	Right	Left	Thru	Right	Cross.	Left	Thru	Right	Left	Thru	Right	Cross.	Left	Thru	Right	Left	Thru	Right	Cross.	15	60
7:15	0	0	0	0	0	0	0	0	73	0	0	4	0	0	2	0	3	0	0	0	0	0	138	0	0	4	0	0	224	
7:30	0	0	0	0	0	0	0	0	108	0	0	6	0	0	3	0	2	0	0	0	0	0	169	2	0	5	0	0	295	
7:45	0	0	0	0	0	0	0	0	129	0	0	2	0	0	0	0	4	1	0	0	0	0	192	0	0	12	0	0	340	
8:00	0	0	0	0	0	0	0	0	138	0	0	3	0	0	1	0	4	0	0	0	0	0	193	0	0	6	0	0	345	1204
8:15	0	0	0	0	0	0	0	0	111	0	0	9	0	0	2	0	0	0	0	0	0	0	153	1	0	10	0	0	286	1266
8:30	0	0	0	0	0	0	0	0	127	0	0	9	0	0	1	0	2	0	0	0	1	0	175	2	0	7	0	0	323	1294
8:45	0	0	0	0	0	0	0	0	100	0	0	4	0	0	3	0	3	0	0	0	0	0	166	1	0	5	0	0	282	1236
9:00	0	0	0	0	0	0	0	0	104	0	0	9	0	0	0	0	4	0	0	0	0	0	146	3	0	8	0	0	274	1165
11:15	0	0	0	0	0	0	0	0	98	0	0	7	0	0	0	0	0	0	0	0	0	0	127	0	0	5	0	0	237	
11:30	0	0	0	0	0	0	0	0	123	0	0	2	0	0	0	0	1	0	0	0	0	0	132	0	0	9	0	0	267	
11:45	0	0	0	0	0	0	0	0	103	0	0	3	0	0	1	0	4	0	0	0	0	0	143	1	0	5	0	0	260	
12:00	0	0	0	0	0	0	0	0	132	0	0	4	0	0	0	0	1	0	0	0	0	0	105	0	0	4	0	0	246	1010
12:15	0	0	0	0	0	0	0	0	128	0	0	7	0	0	0	0	3	0	0	0	0	0	147	0	0	3	1	0	289	1062
12:30	0	0	0	0	0	0	0	0	141	0	0	1	0	0	0	0	2	1	0	0	0	0	137	1	0	9	0	0	292	1087
12:45	0	0	0	0	0	0	0	0	144	0	0	6	0	0	1	0	3	0	0	0	0	0	131	1	0	5	0	0	291	1118
13:00	0	0	0	0	0	0	0	0	150	0	0	6	0	0	0	0	0	0	0	0	1	0	115	1	0	8	0	0	279	1151
13:15	0	0	0	0	0	0	0	0	130	0	0	0	0	0	0	0	1	0	0	0	0	0	120	1	0	2	0	0	254	1116
13:30	0	0	0	0	0	0	0	0	124	0	0	5	0	0	0	0	4	0	0	0	0	0	117	0	0	6	0	0	256	1080
13:45	0	0	0	0	0	0	0	1	145	0	0	5	0	0	1	0	4	0	0	0	0	0	104	0	0	2	0	0	262	1051
14:00	0	0	0	0	0	0	0	0	119	0	0	12	0	0	1	0	2	0	0	0	0	0	119	0	0	7	0	0	260	1032
15:15	0	0	0	0	0	0	0	0	165	0	0	3	0	0	0	0	1	0	0	0	0	0	143	1	0	10	0	0	323	
15:30	0	0	0	0	0	0	0	0	164	0	0	5	0	0	1	0	1	0	0	0	0	0	152	1	0	3	0	0	327	
15:45	0	0	0	0	0	0	0	0	173	0	0	5	0	0	3	0	0	0	0	0	0	0	150	4	0	6	0	0	341	
16:00	0	0	0	0	0	0	0	0	186	0	0	11	0	0	0	0	1	0	0	0	0	0	194	2	0	6	0	1	400	1391
16:15	0	0	0	0	0	0	0	0	203	0	0	6	0	0	1	0	2	0	0	0	0	0	170	2	0	5	0	0	389	1457
16:30	0	0	0	0	0	0	0	0	216	0	0	6	0	0	1	0	1	1	0	0	0	0	182	1	0	3	0	0	411	1541
16:45	0	0	0	0	0	0	0	0	210	0	0	6	0	0	0	0	1	0	0	0	0	0	175	0	0	7	0	0	399	1599
17:00	0	0	0	0	0	0	0	0	210	0	0	6	0	0	0	0	1	0	0	0	1	0	179	1	0	4	0	0	401	1600
17:15	0	0	0	0	0	0	0	1	222	0	0	5	0	0	0	0	3	0	0	0	0	0	185	1	0	3	0	0	420	1631
17:30	0	0	0	0	0	0	0	0	218	0	0	4	0	0	0	0	1	0	0	0	0	0	186	0	0	3	0	0	412	1632
17:45	0	0	0	0	0	0	0	0	183	0	0	0	0	0	0	0	3	0	0	0	0	0	143	0	0	0	0	0	329	1562
18:00	0	0	0	0	0	0	0	0	160	0	0	2	0	0	0	0	2	0	0	0	0	0	145	0	0	5	0	0	314	1475

APPENDIX B

TRAFFIC COUNTS AND PROJECTIONS GLENDON DRIVE EA STUDY

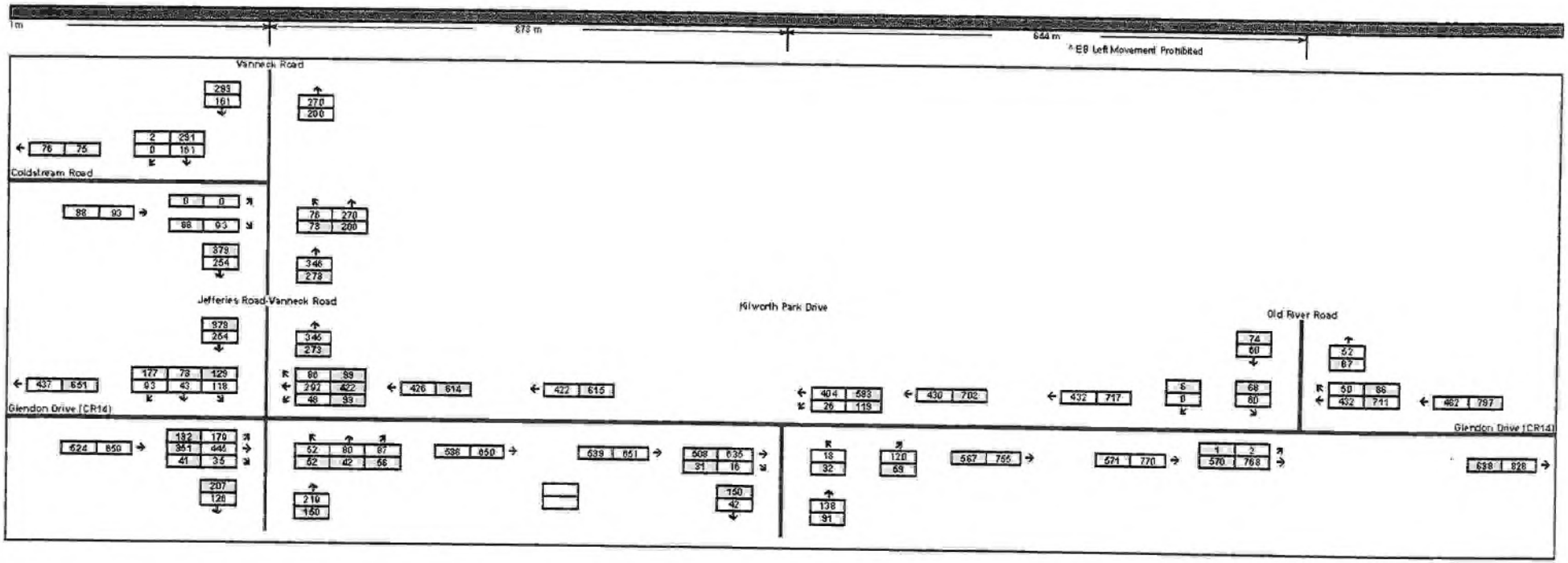


Figure 2
2015 Existing Peak Hour Traffic Volumes
3/3

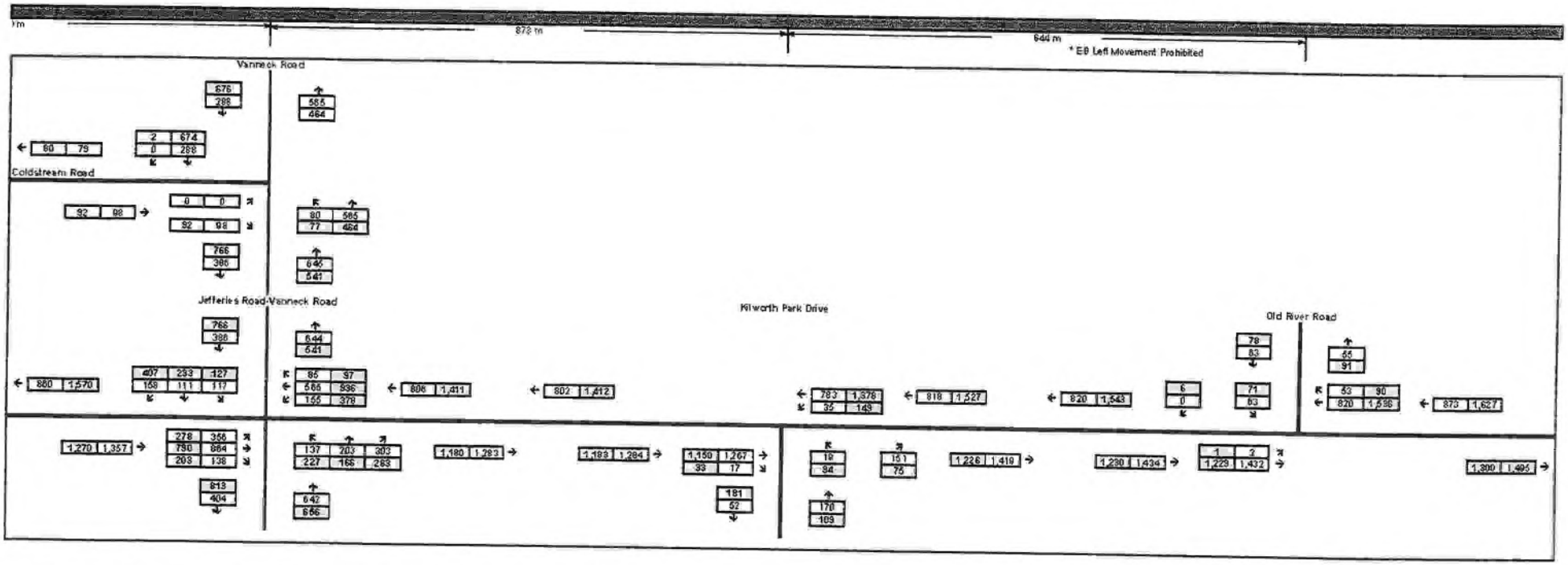


Figure 9
2035 Future Peak Hour Traffic Volumes
3/3

APPENDIX C

LEVEL OF SERVICE ANALYSIS

Intersection	
Int Delay, s/veh	0.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	965	7	3	560	13	25
Future Vol, veh/h	965	7	3	560	13	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	4	0	0	4	0	0
Mvmt Flow	1049	8	3	609	14	27

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1057	0	1668	1053
Stage 1	-	-	-	-	1053	-
Stage 2	-	-	-	-	615	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	667	-	107	277
Stage 1	-	-	-	-	339	-
Stage 2	-	-	-	-	543	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	667	-	106	277
Mov Cap-2 Maneuver	-	-	-	-	106	-
Stage 1	-	-	-	-	339	-
Stage 2	-	-	-	-	539	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	31.2
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	178	-	-	667	-
HCM Lane V/C Ratio	0.232	-	-	0.005	-
HCM Control Delay (s)	31.2	-	-	10.4	0
HCM Lane LOS	D	-	-	B	A
HCM 95th %tile Q(veh)	0.9	-	-	0	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	787	13	13	934	7	12
Future Vol, veh/h	787	13	13	934	7	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	0	0	2	0	0
Mvmt Flow	855	14	14	1015	8	13

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	869	0	1905	862
Stage 1	-	-	-	-	862	-
Stage 2	-	-	-	-	1043	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	784	-	76	358
Stage 1	-	-	-	-	417	-
Stage 2	-	-	-	-	342	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	784	-	73	358
Mov Cap-2 Maneuver	-	-	-	-	73	-
Stage 1	-	-	-	-	417	-
Stage 2	-	-	-	-	328	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	33.5
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	147	-	-	784	-
HCM Lane V/C Ratio	0.14	-	-	0.018	-
HCM Control Delay (s)	33.5	-	-	9.7	0
HCM Lane LOS	D	-	-	A	A
HCM 95th %tile Q(veh)	0.5	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	965	7	3	560	13	25
Future Vol, veh/h	965	7	3	560	13	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	15	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	4	0	0	4	0	0
Mvmt Flow	1049	8	3	609	14	27

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1057	0	1668	1053
Stage 1	-	-	-	-	1053	-
Stage 2	-	-	-	-	615	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	667	-	107	277
Stage 1	-	-	-	-	339	-
Stage 2	-	-	-	-	543	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	667	-	107	277
Mov Cap-2 Maneuver	-	-	-	-	107	-
Stage 1	-	-	-	-	339	-
Stage 2	-	-	-	-	541	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	31
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	179	-	-	667	-
HCM Lane V/C Ratio	0.231	-	-	0.005	-
HCM Control Delay (s)	31	-	-	10.4	-
HCM Lane LOS	D	-	-	B	-
HCM 95th %tile Q(veh)	0.9	-	-	0	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	787	13	13	934	7	12
Future Vol, veh/h	787	13	13	934	7	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	15	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	0	0	2	0	0
Mvmt Flow	855	14	14	1015	8	13

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	869	0	1905	862
Stage 1	-	-	-	-	862	-
Stage 2	-	-	-	-	1043	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	784	-	76	358
Stage 1	-	-	-	-	417	-
Stage 2	-	-	-	-	342	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	784	-	75	358
Mov Cap-2 Maneuver	-	-	-	-	75	-
Stage 1	-	-	-	-	417	-
Stage 2	-	-	-	-	336	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	32.8
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	150	-	-	784	-
HCM Lane V/C Ratio	0.138	-	-	0.018	-
HCM Control Delay (s)	32.8	-	-	9.7	-
HCM Lane LOS	D	-	-	A	-
HCM 95th %tile Q(veh)	0.5	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1419	7	3	820	13	25
Future Vol, veh/h	1419	7	3	820	13	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	15	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	4	0	0	4	0	0
Mvmt Flow	1542	8	3	891	14	27

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1550	0	1998	775
Stage 1	-	-	-	-	1546	-
Stage 2	-	-	-	-	452	-
Critical Hdwy	-	-	4.1	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	433	-	54	345
Stage 1	-	-	-	-	165	-
Stage 2	-	-	-	-	614	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	433	-	54	345
Mov Cap-2 Maneuver	-	-	-	-	54	-
Stage 1	-	-	-	-	165	-
Stage 2	-	-	-	-	610	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	49.4
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	121	-	-	433	-
HCM Lane V/C Ratio	0.341	-	-	0.008	-
HCM Control Delay (s)	49.4	-	-	13.4	-
HCM Lane LOS	E	-	-	B	-
HCM 95th %tile Q(veh)	1.4	-	-	0	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1230	13	13	1543	7	12
Future Vol, veh/h	1230	13	13	1543	7	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	15	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	0	0	2	0	0
Mvmt Flow	1337	14	14	1677	8	13

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1351	0	2211	676
Stage 1	-	-	-	-	1344	-
Stage 2	-	-	-	-	867	-
Critical Hdwy	-	-	4.1	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	516	-	38	401
Stage 1	-	-	-	-	211	-
Stage 2	-	-	-	-	377	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	516	-	37	401
Mov Cap-2 Maneuver	-	-	-	-	37	-
Stage 1	-	-	-	-	211	-
Stage 2	-	-	-	-	367	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	58.8
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	87	-	-	516	-
HCM Lane V/C Ratio	0.237	-	-	0.027	-
HCM Control Delay (s)	58.8	-	-	12.2	-
HCM Lane LOS	F	-	-	B	-
HCM 95th %tile Q(veh)	0.8	-	-	0.1	-