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TRANSPORTATION SOLUTIONS LIMITED

**Residential Development
Nichol Road 15 & Irvine Street
Elora, ON
Transportation Impact Study**

Paradigm Transportation Solutions Limited

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c/o Cachet Homes

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Residential Development, Nichol Road 15 & Irvine Street, Elora, ON Transportation Impact Study



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Executive Summary

Content

Paradigm Transportation Solutions Limited (Paradigm) was retained to conduct this Transportation Impact Study for a residential development located in the southeast corner of Woolwich Street/Nichol Road 15 and Irvine Street in the community of Elora, Township of Centre Wellington, Ontario.

This Transportation Impact Study (TIS) includes an analysis of existing traffic conditions, a description of the proposed development, traffic forecasts for five-year horizon (2035) from the assumed build-out, ten-year horizon (2040) from the assumed build-out, and any recommendations required to manage future traffic conditions.

Development Concept

The property owner is proposing to develop the 39.84-hectare block with approximately 691 residential units comprised of 388 single detached, 203 townhomes, and 100 senior apartments.

Vehicle access is proposed via four new street connections:

- ▶ Street A to Irvine Street opposite the proposed Cachet Clayton subdivision connection;
- ▶ Street A to Nichol Road 15;
- ▶ Street C to Nichol Road 15; and
- ▶ Street C to Gerrie Road.

Conclusions

Based on the investigations carried out, it is concluded that:

- ▶ **Existing Traffic Conditions:** The study area intersections are currently operating within acceptable levels of service with no specific problem movements during the AM and PM peak hours.
- ▶ **Development Trip Generation:** The residential development is forecast to generate approximately 378 and 502 trips during the AM and PM peak hours upon full build-out.
- ▶ **Background Traffic Conditions:** The study area intersections are forecast to operate within acceptable levels of service under 2035 and 2040 background horizons with the following intersections noted to have critical movements:



- Geddes Street (Wellington Road 18) and James Street (from the 2035 background horizon).
- ▶ **Total Traffic Conditions:** The study area intersections are forecast to operate within acceptable levels of service under 2035 and 2040 background horizons with the following intersections noted to have critical movements:
 - Geddes Street (Wellington Road 18) and James Street (from the 2035 total horizon);
 - Woolwich Street/Nichol Road 15 and Irvine Street (from the 2035 total horizon);
 - East Mill Street (Wellington Road 18) and Irvine Street (from the 2040 total horizon); and
 - Colborne Street and Gerrie Road (from the 2040 total horizon).
- ▶ The proposed municipal street connections to Irvine Street, Nichol Road 15, and Gerrie Road are forecast to operate within acceptable levels of service during the AM and PM peak hours under 2035 and 2040 total traffic conditions.
- ▶ **Remedial Measures:** Traffic control signals are not warranted at the following intersections under 2035 and 2040 future traffic conditions:
 - Geddes Street (Wellington Road 18) and James Street;
 - Woolwich Street/Nichol Road 15 and Irvine Street;
 - Colborne Street and Irvine Street;
 - East Mill Street (Wellington Road 18) and Irvine Street;
 - Colborne Street and Gerrie Road; and
 - Nichol Road 15 and Gerrie Road.
- ▶ Left-turn lanes are warranted at the following intersections:
 - Southbound on Geddes Street (Wellington Road 18) at James Street under future background and total traffic conditions;
 - Westbound on Nichol Road 15 at Irvine Street under future background and total traffic conditions;
 - Westbound on Nichol Road 15 at Gerrie Road under future background and total traffic conditions;
 - Eastbound on East Mill Street (Wellington Road 18) at Irvine Street under total traffic conditions; and



- Westbound on Nichol Road 15 at Street A under total traffic conditions.

Recommendations

Based on the findings of this study it is recommended that the development be approved with construction of a 15-metre westbound left-turn lane on Nichol Road 15 at Street A upon completion of the subject site.

It is further recommended that:

- ▶ The road authority monitors operations at the following intersections to ensue appropriate traffic control to accommodate the future traffic demands:
 - Geddes Street (Wellington Road 18) and James Street;
 - Woolwich Street/Nichol Road 15 and Irvine Street;
 - Colborne Street and Irvine Street;
 - East Mill Street (Wellington Road 18) and Irvine Street; and
 - Colborne Street and Gerrie Road.
- ▶ The road authority considers installing the following left-turn lanes:
 - Southbound on Geddes Street (Wellington Road 18) at James Street with 30 metres of storage upon the completion of the subject site;
 - Westbound on Nichol Road 15 and Irvine Street with 25 metres of storage upon the completion of the subject site;
 - Westbound on Nichol Road 15 at Gerrie Road with 15 metres of storage by the 2035 horizon year. Upon the completion of the subject site, the storage length should be extended to 25 metres;
 - Eastbound on East Mill Street (Wellington Road 18) and Irvine Street with 25 metres of storage upon the completion of the subject site.



Contents

1	Introduction	1
1.1	Overview	1
1.2	Study Area	3
2	Existing Conditions	4
2.1	Road Characteristics	4
2.2	Active Transportation	7
2.3	Traffic Volumes	7
2.4	Traffic Operations	11
3	Development Concept	14
3.1	Description.....	14
3.2	Site Trip Generation & Distribution	16
4	Evaluation of Future Traffic Conditions.....	22
4.1	Forecast Traffic Volumes.....	22
4.2	Forecast Traffic Operations.....	32
4.2.1	2035 Background Traffic Operations.....	32
4.2.2	2040 Background Traffic Operations.....	35
4.2.3	2035 Total Traffic Operations.....	38
4.2.4	2040 Total Traffic Operations.....	41
5	Remedial Measures.....	44
5.1	Traffic Control Signal Justification.....	44
5.2	Left-Turn Lanes	45
5.2.1	Irvine Street and Bricker Avenue.....	46
5.2.2	Irvine Street and Cachet Clayton/Street B.....	46
5.2.3	Nichol Road 15 and Street A.....	47
5.2.4	Nichol Road 15 and Street C.....	48
5.2.5	Gerrie Road and Street C.....	49
5.2.6	Geddes Street (Wellington Road 18) & James Street	49
5.2.7	Woolwich Street/Nichol Road 15 and Irvine Street.....	50
5.2.8	East Mill Street (Wellington Road 18) and Irvine Street	51
5.2.9	Nichol Road 15 and Gerrie Road	51
6	Conclusions and Recommendations	53
6.1	Conclusions.....	53
6.2	Recommendations	54



Appendices

Appendix A	Pre-Study Consultation
Appendix B	Traffic Data
Appendix C	Base Year Operations Synchro Reports
Appendix D	Background Development Traffic Volumes
Appendix E	Background Operations Synchro Reports
Appendix F	Total Operation Synchro Reports
Appendix G	Traffic Control Signal Justification
Appendix H	Left-Turn Lane Warrant Nomographs

Figures

Figure 1.1:	Location of Subject Site	2
Figure 2.1:	Existing Lane Configuration & Traffic Control	6
Figure 2.2:	Cycle and Pedestrian Network	8
Figure 2.3A:	Base Year Traffic Volumes (AM Peak Hour)	9
Figure 2.3B:	Base Year Traffic Volumes (PM Peak Hour)	10
Figure 3.1:	Concept Plan	15
Figure 3.2A:	Trip Distribution (AM Peak Hour)	18
Figure 3.2B:	Trip Distribution (PM Peak Hour)	19
Figure 3.3A:	Site Generated Traffic Volumes (AM Peak Hour)	20
Figure 3.3B:	Site Generated Traffic Volumes (PM Peak Hour)	21
Figure 4.1A:	2035 Background Traffic Volumes (AM Peak Hour)	24
Figure 4.1B:	2035 Background Traffic Volumes (PM Peak Hour)	25
Figure 4.2A:	2040 Background Traffic Volumes (AM Peak Hour)	26
Figure 4.2B:	2040 Background Traffic Volumes (PM Peak Hour)	27
Figure 4.3A:	2035 Total Traffic Volumes (AM Peak Hour)	28
Figure 4.3B:	2035 Total Traffic Volumes (PM Peak Hour)	29
Figure 4.4A:	2040 Total Traffic Volumes (AM Peak Hour)	30
Figure 4.4B:	2040 Total Traffic Volumes (PM Peak Hour)	31



Tables

Table 2.1A: Base Year Operations (AM Peak Hour)	12
Table 2.1B: Base Year Operations (PM Peak Hour)	13
Table 3.1: Trip Generation	16
Table 3.2: Trip Distribution	17
Table 4.1A: 2035 Background Operations (AM Peak Hour)	33
Table 4.1B: 2035 Background Operations (PM Peak Hour)	34
Table 4.2A: 2040 Background Operations (AM Peak Hour)	36
Table 4.2B: 2040 Background Operations (PM Peak Hour)	37
Table 4.3A: 2035 Total Operations (AM Peak Hour)	39
Table 4.3B: 2035 Total Operations (PM Peak Hour)	40
Table 4.4A: 2040 Total Operations (AM Peak Hour)	42
Table 4.4B: 2040 Total Operations (PM Peak Hour)	43
Table 5.1: Traffic Control Signal Justification	45
Table 5.2: Left-Turn Lane Warrant (Irvine Street & Bricker Avenue)	46
Table 5.3: Left-Turn Lane Warrant (Irvine Street & Street B)	47
Table 5.4: Left-Turn Lane Warrant (Irvine Street & Cachet Clayton)	47
Table 5.5: Left-Turn Lane Warrant (Nichol Road 15 & Street A)	48
Table 5.6: Left-Turn Lane Warrant (Nichol Road 15 & Street C)	48
Table 5.7: Left-Turn Lane Warrant (Gerrie Road & Street C)	49
Table 5.8: Left-Turn Lane Warrant (Geddes Street & James Street)	50
Table 5.9: Left-Turn Lane Warrant (Nichol Road 15 & Irvine Street)	50
Table 5.10: Left-Turn Lane Warrant (East Mill Street & Irvine Street)	51
Table 5.11: Left-Turn Lane Warrant (Nichol Road 15 & Gerrie Road)	52



1 Introduction

1.1 Overview

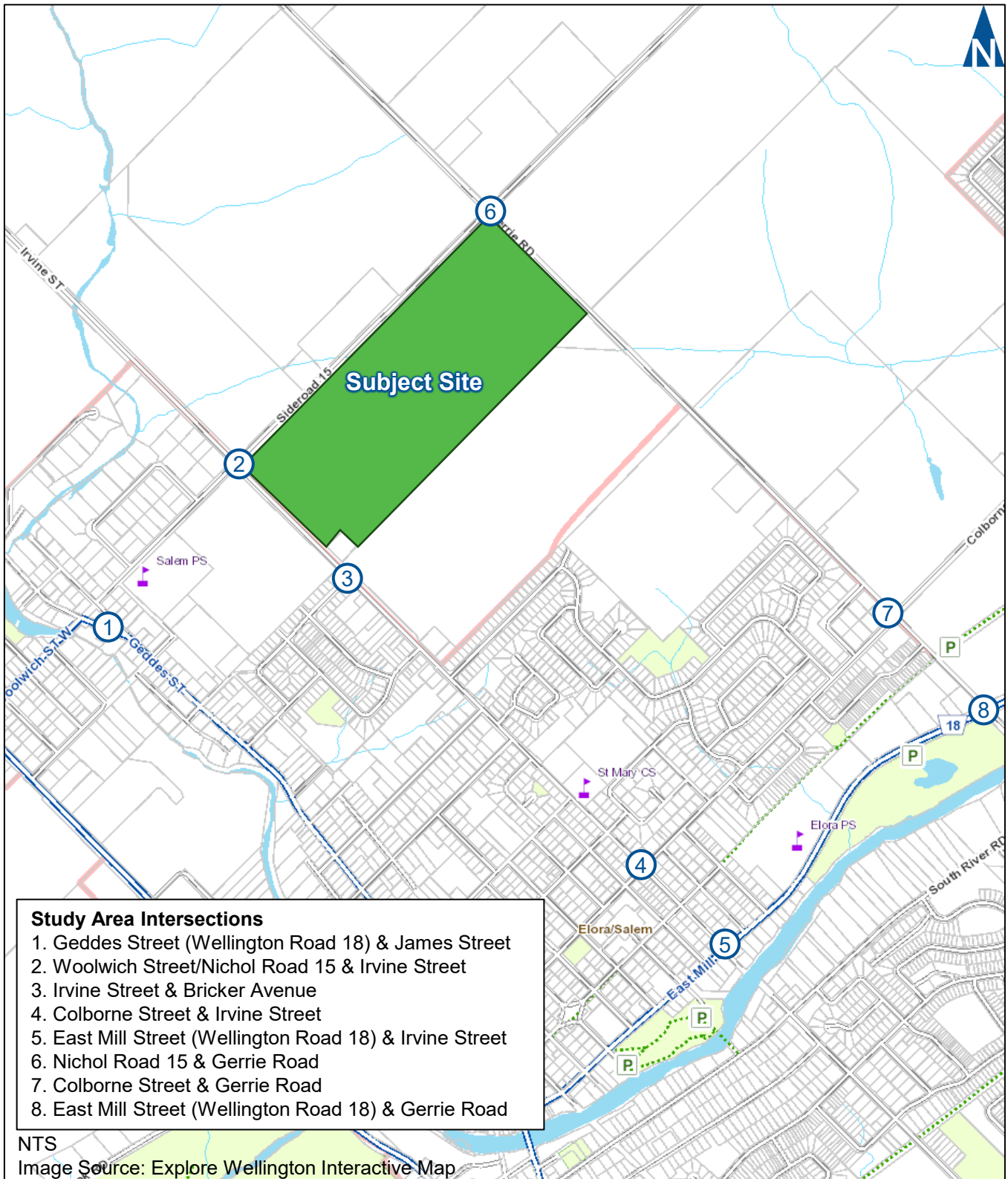
Cachet Developments (Elora) Inc. retained Paradigm Transportation Solutions Limited (Paradigm) to conduct this Transportation Impact Study (TIS) for a residential development located in the southeast corner of Nichol Road 15 and Irvine Street in the community of Elora, Township of Centre Wellington, Ontario. **Figure 1.1** illustrates the location of the subject site.

This study determines the impacts of the additional traffic on the surrounding road network, and the remedial measures necessary (if any) to accommodate future traffic in a satisfactory manner. The scope of the study includes:

- ▶ Assessment of the current traffic and site conditions within the study area;
- ▶ Estimates of background traffic growth;
- ▶ Estimates of additional traffic generated by the subject site;
- ▶ Analysis of the impact of the future traffic on the surrounding road network for assumed five-years after full build-out (year 2035) and ten-years after full build-out (year 2040) horizon years; and
- ▶ Recommendations necessary to mitigate this future traffic in a satisfactory manner.

The study scope was sent to the Township of Centre Wellington via email in December 2024. **Appendix A** contains the pre-study consultation material.





1.2 Study Area

The intersections assessed in this study include:

- ▶ Geddes Street (Wellington Road 18) and James Street (unsignalized);
- ▶ Woolwich Street/Nichol Road 15 and Irvine Street (unsignalized);
- ▶ Irvine Street and Bricker Avenue (unsignalized);
- ▶ Irvine Street and Colborne Street (unsignalized);
- ▶ Irvine Street and East Mill Street (Wellington Road 18) (unsignalized);
- ▶ Nichol Road 15 and Gerrie Road (unsignalized);
- ▶ Colborne Street and Gerrie Road (unsignalized);
- ▶ East Mill Street (Wellington Road 18) and Gerrie Road (signalized); and
- ▶ Five new municipal connections to Irvine Street, Nichol Road 15, and Gerrie Road.



2 Existing Conditions

2.1 Road Characteristics

The roadways are under the jurisdiction of the County of Wellington¹ and Township of Centre Wellington² and are generally described as follows:

- ▶ **Woolwich Street/Nichol Road 15** is an east-west Township collector roadway with a two-lane cross-section. It has a posted speed limit of 40 km/h from James Street to east of Irvine Street where it transitions to a 60 km/h and then 80 km/h speed limit. A sidewalk is provided on the southside of the roadway from James Street to the east driveway of the public school.
- ▶ **Irvine Street** is a north-south Township collector roadway with a two-lane cross-section. Between Woolwich Street and Bricker Avenue, Irvine Street is gravel with a speed limit of 50 km/h. South of Marr Drive is has a posted speed limit of 40 km/h. A sidewalk is provided on the east side of the roadway from East Mill Street to Marr Drive, then on the west side of the roadway between Marr Drive and Bricker Avenue.
- ▶ **Gerrie Road** is a north-south Township collector roadway with a two-lane cross-section. Between East Mill Street (Wellington Road 18) and the north driveway to the Elora Waste Transfer Facility, Gerrie Road has a posted speed limit of 50 km/h. North of the driveway, it transitions to an 80 km/h speed limit. There is a sidewalk on the west side of the roadway between Colborne Street and Patrick Boulevard. North of Colborne Street., Gerrie Road is currently under construction to upgrade the west side of the roadway to an urban cross-section with multi-use path.
- ▶ **Colborne Street** is an east-west Township collector roadway with a posted speed limit of 40 km/h. A sidewalk is provided on the north side of the roadway in the study area.
- ▶ **East Mill Street (Wellington Road 18)** is an east-west County arterial roadway with a two-lane cross-section and a posted speed limit of 40 km/h. A sidewalk is provided on the north side of the roadway within the study area.
- ▶ **Geddes Street (Wellington Road 18)** is a north-south County arterial roadway with a two-lane cross-section and a posted

¹ County of Wellington Official Plan, Schedule A1 Centre Wellington

² Township of Centre Wellington Transportation Master Plan, January 2019, Figure 12 Principal Roadway Classification Elora and Fergus

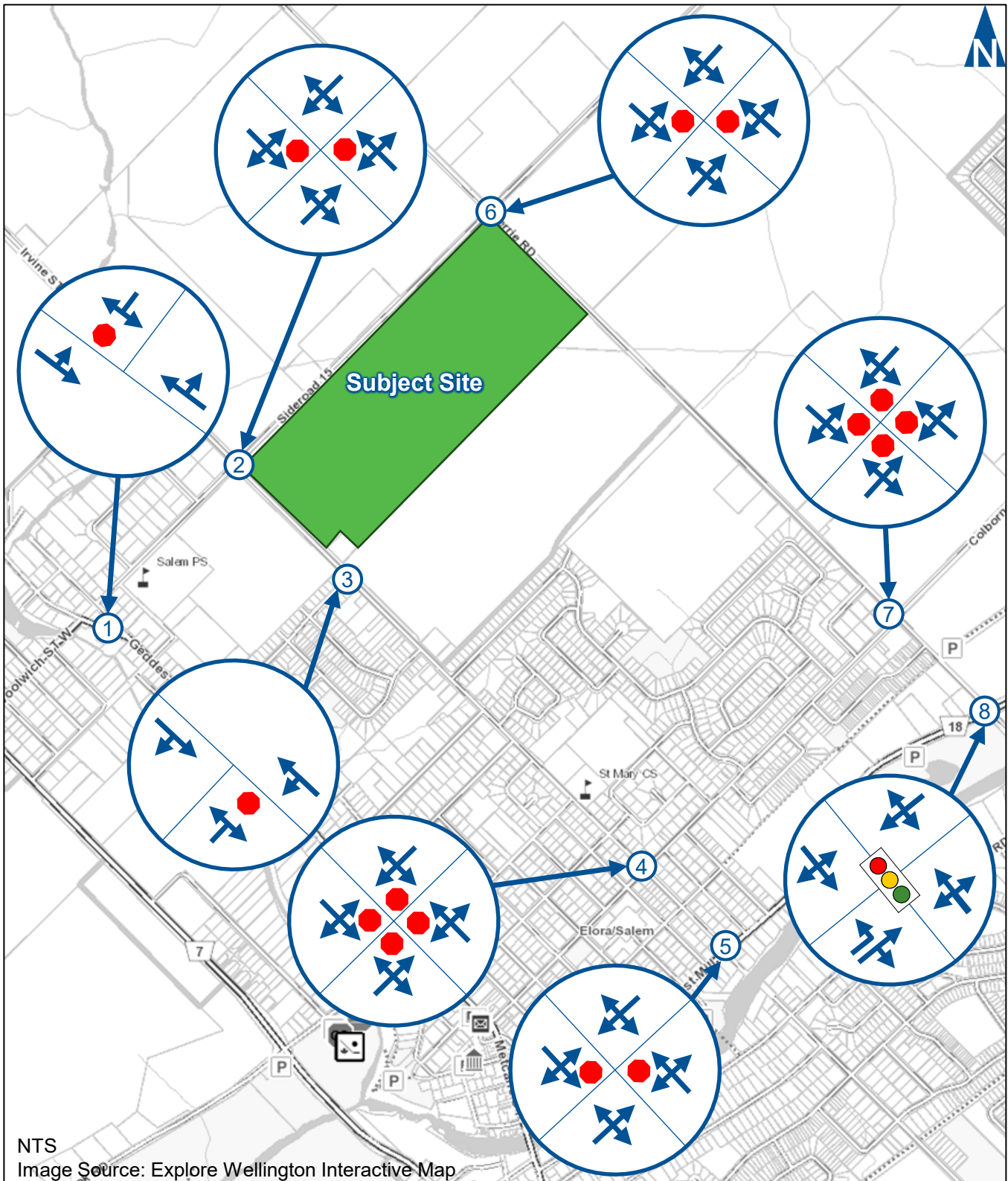


speed limit of 50 km/h. A sidewalk is provided on the east side of the roadway within the study area.

- ▶ **Bricker Avenue** is a local Township residential road with a two-lane cross-section. Sidewalks are provided on both sides of the roadway.

Figure 2.1 details the existing traffic control and lane configurations at the study area intersections





NTS
Image Source: Explore Wellington Interactive Map



Existing Lane Configuration & Traffic Control

2.2 Active Transportation

Near the subject site, there are sidewalks on Irvine Street from north of Bricker Avenue southwards and on Woolwich Street from Salem Public School westwards. Gerrie Road is currently under construction to upgrade the west side of the roadway to an urban cross-section with a multi-use path.

Figure 2.2 illustrates the existing and proposed active transportation network in the community of Elora. It shows an existing on-road route along Geddes Street. Proposed routes include Woolwich Street/Nichol Road 15 and Gerrie Road.

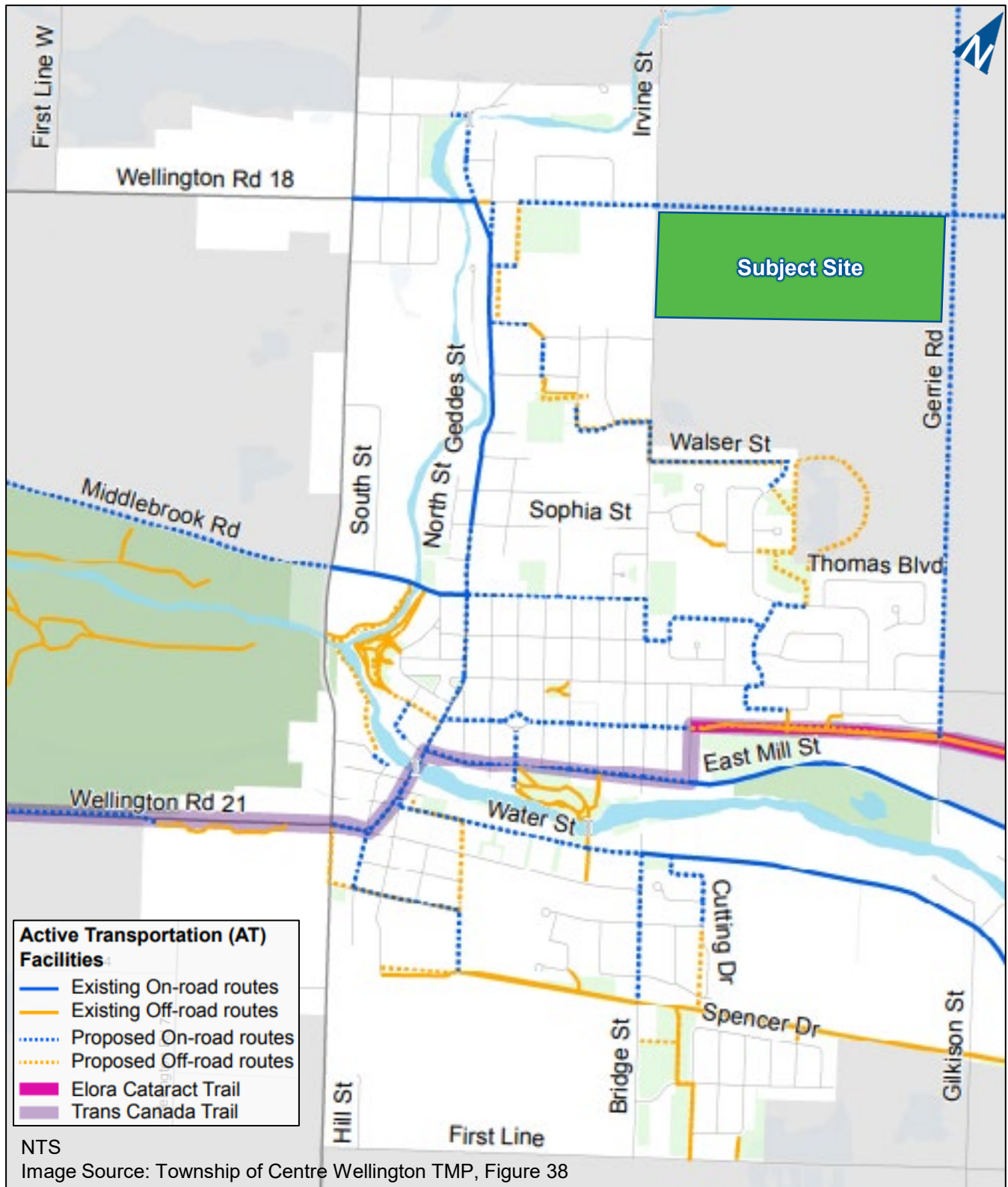
2.3 Traffic Volumes

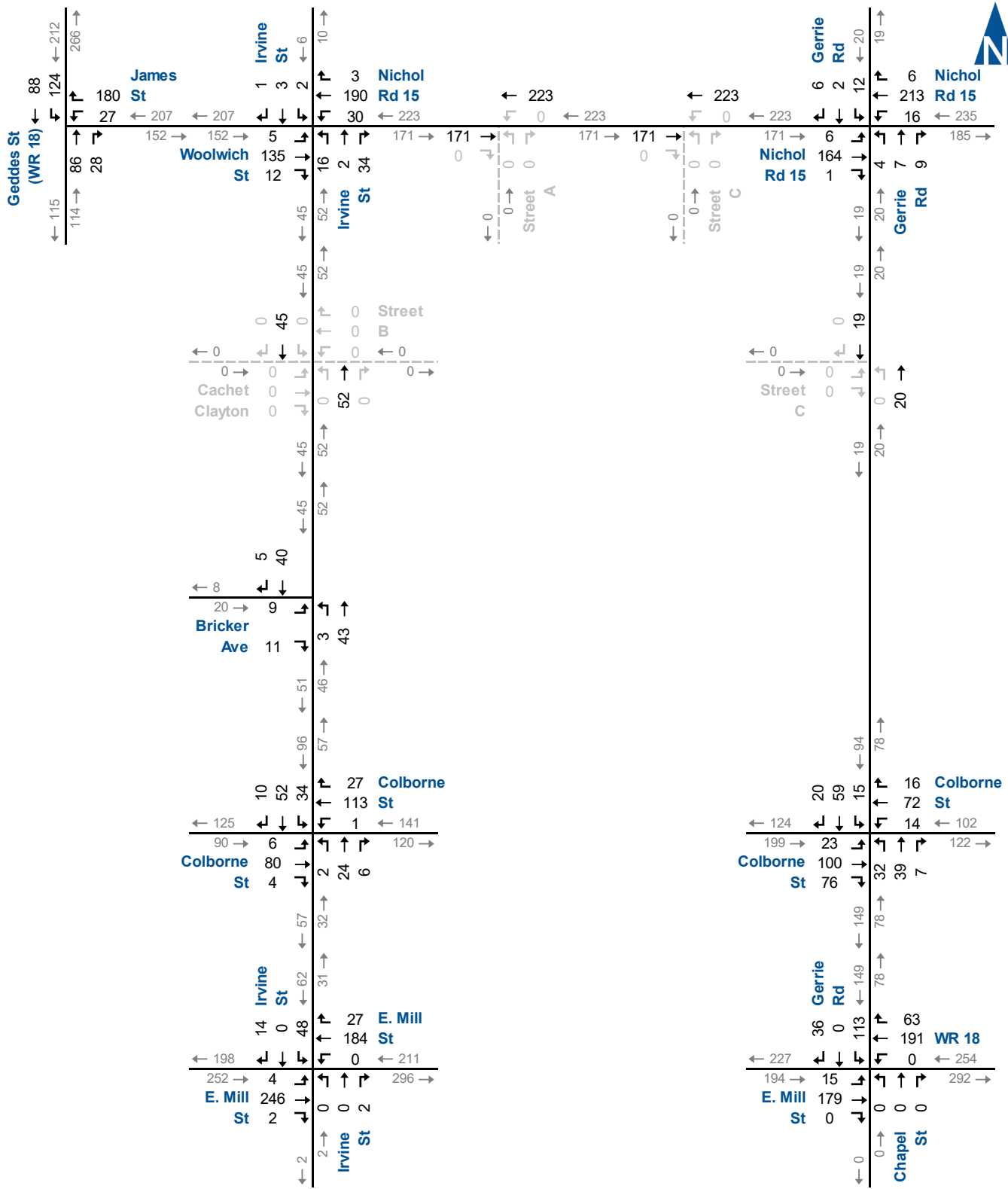
Traffic volumes were counted on Wednesday November 20, 2024, at the study area intersections. As Gerrie Road was closed in sections at the time of the counts, older turning movement counts from 2017 at the Colborne Street and Gerrie Road intersection were used. The historic counts were factored to a 2024 base year using a 2.0% growth rate and adjusted based on upstream and downstream intersections.

Figure 2.3A-B displays the factored base year weekday AM and PM peak hour traffic volumes respectively.

Appendix B contains the detailed traffic counts and signal timing plans for the study area intersections.

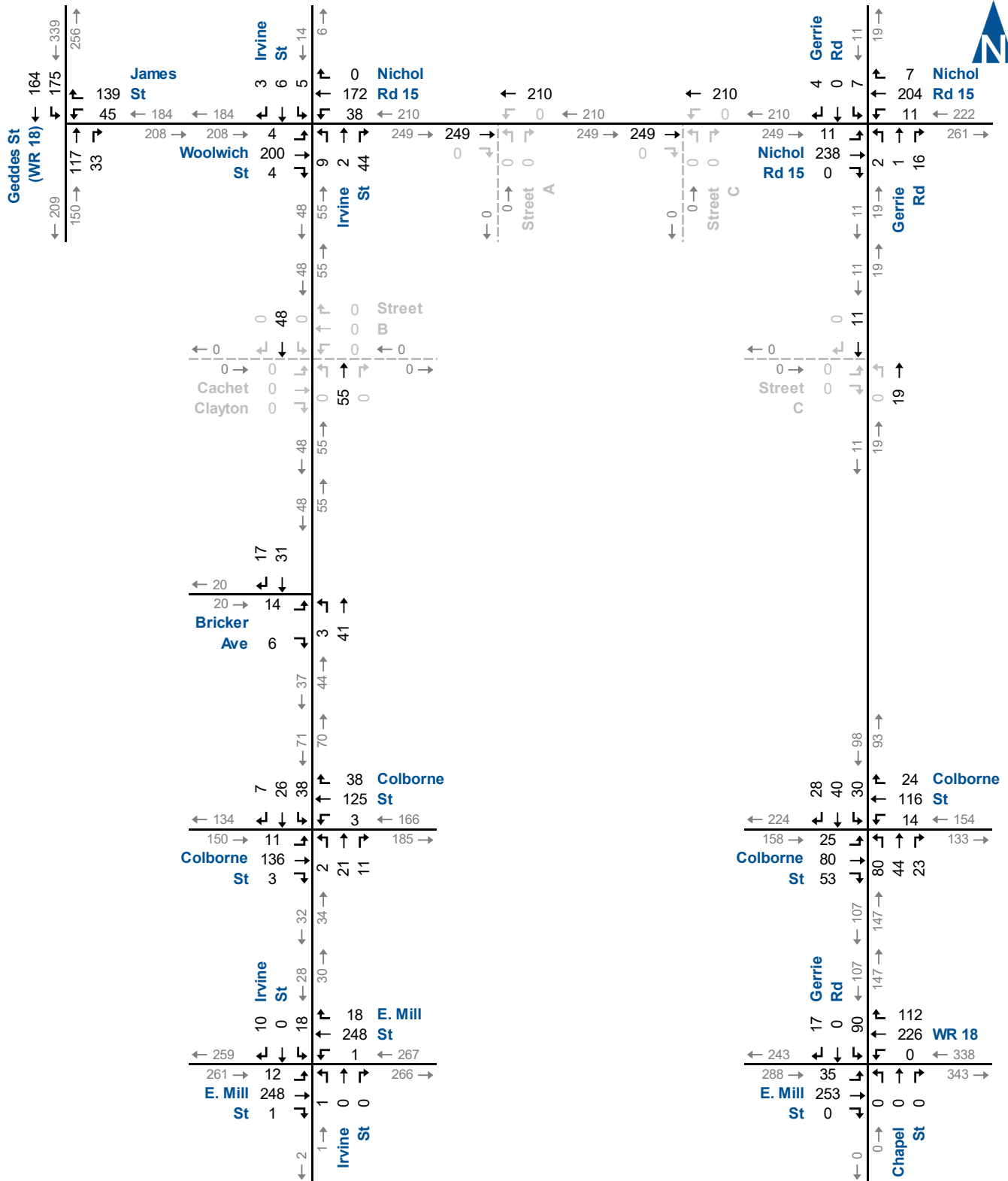






Base Year Traffic Volumes (AM Peak Hour)

Figure 2.3A



Base Year Traffic Volumes (PM Peak Hour)

2.4 Traffic Operations

Intersection level of service (LOS) is a recognized method of quantifying the average delay experienced by drivers at intersections. It is based on the delay experienced by individual vehicles executing the various movements. The delay is related to the number of vehicles intending to make a particular movement, compared to the estimated capacity for that movement. The capacity is based on several criteria related to the opposing traffic flows and intersection geometry.

The highest possible rating is LOS A, under which the average total delay is equal or less than 10.0 seconds per vehicle. When the average delay exceeds 80 seconds for signalized intersections, 50 seconds for unsignalized intersections or when the volume to capacity ratio is greater than 1.0, the movement is classed as LOS F and remedial measures are usually implemented if they are feasible. LOS E is usually used as a guideline for the determination of road improvement needs on through lanes, while LOS F may be acceptable for left-turn movements at peak times, depending on delays.

The operations of the study intersections were evaluated using the existing lane configurations, traffic controls, and the base year traffic peak volumes. The level of service conditions on the existing road network have been assessed using Synchro 10.

Table 2.1A-B summarizes the existing intersection operations with the entries in the table indicating level of service (LOS), volume to capacity ratios (V/C), and 95th percentile queues experienced for the weekday AM and PM peak hours, respectively.

The study area intersections are currently operating with acceptable levels of service with no specific problem movements.

Appendix C contains the detailed Synchro reports.



TABLE 2.1A: BASE YEAR OPERATIONS (AM PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction / Movement / Approach																																	
				Eastbound				Westbound				Northbound				Southbound				Overall																	
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach																		
AM Peak Hour	Geddes Street (WR18) & James Street	TWSC	LOS Delay V/C Q Ex Avail.					B 11 0.27 9 -					>	>	>	>	B 11					A 0 0.07 0 -					<	<	<	<	A 8 0.09 2 -					A 5	A 6
	Woolwich Street/Nichol Road 15 & Irvine Street	TWSC	LOS Delay V/C Q Ex Avail.	<	A 8	>	A 0	<	A 8	>	A 1	<	B 11	>	B 11	<	B 11	>	B 11	<	B 13	>	B 13	<	B 13	>	B 13	<	B 13	>	B 13	<	B 13	>	B 13	A 2	A 2
	Irvine Street & Bricker Avenue	TWSC	LOS Delay V/C Q Ex Avail.	A 9 0.02 1 -								<	A 7	>	A 1	<	A 7	>	A 1	<	A 0	>	A 0	<	A 0	>	A 0	<	A 0	>	A 0	A 2	A 2				
	Colborne Street & Irvine Street	AWSC	LOS Delay V/C Q Ex Avail.	<	A 8	>	A 8	<	A 8	>	A 8	<	A 8	>	A 8	<	A 8	>	A 8	<	A 9	>	A 9	<	A 9	>	A 9	<	A 9	>	A 9	A 8	A 8				
	East Mill Street (WR18) & Irvine Street	TWSC	LOS Delay V/C Q Ex Avail.	<	A 8	>	A 0	<	A 0	>	A 0	<	A 10	>	A 10	<	A 10	>	A 10	<	B 14	>	B 14	<	B 14	>	B 14	<	B 14	>	B 14	A 2	A 2				
	Nichol Road 15 & Gerrie Road	TWSC	LOS Delay V/C Q Ex Avail.	<	A 8	>	A 0	<	A 8	>	A 1	<	B 12	>	B 12	<	B 12	>	B 12	<	B 12	>	B 12	<	B 12	>	B 12	<	B 12	>	B 12	A 2	A 2				
	Colborne Street & Gerrie Road	AWSC	LOS Delay V/C Q Ex Avail.	<	A 9	>	A 9	<	A 8	>	A 8	<	A 9	>	A 9	<	A 9	>	A 9	<	A 8	>	A 8	<	A 8	>	A 8	<	A 8	>	A 8	A 9	A 9				
	East Mill Street (WR18) & Gerrie Road	TCS	LOS Delay V/C Q Ex Avail.	A 3 0.02 3 30 27	A 4 0.17 18 -	>	A 4	<	A 4	>	A 4	<	A 0	>	A 0	<	A 0	>	A 0	<	C 23	>	C 23	<	C 23	>	C 23	<	C 23	>	C 23	A 9	A 9				

MOE - Measure of Effectiveness Q - 95th Percentile Queue Length (m) TCS - Traffic Control Signal < / > - Shared Turn Lane
 LOS - Level of Service Ex. - Existing Available Storage (m) TWSC - Two-Way Stop Control
 Delay - Average Delay per Vehicle in Seconds Avail. - Available Storage (m) AWSC - All-Way Stop Control



TABLE 2.1B: BASE YEAR OPERATIONS (PM PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction / Movement / Approach																																	
				Eastbound				Westbound				Northbound				Southbound				Overall																	
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach																		
PM Peak Hour	Geddes Street (WR18) & James Street	TWSC	LOS Delay V/C Q Ex Avail.					B 13 0.31 10 -					>	>	>	>	B 13					A 0 0 0 -					<	<	<	<	A 0 8 4 -					A 4	A 6
	Woolwich Street/Nichol Road 15 & Irvine Street	TWSC	LOS Delay V/C Q Ex Avail.	<	A 8	>	A 0	<	A 8	>	A 1	<	B 11	>	B 11	<	B 11	>	B 11	<	B 13	>	B 13	<	-	>	-	<	-	>	-	A 13	A 2				
	Irvine Street & Bricker Avenue	TWSC	LOS Delay V/C Q Ex Avail.	A 9 0.02								<	A 7	>	A 1	<	A 7	>	A 1	<	A 0	>	A 0	<	-	>	-	<	-	>	-	A 0	A 2				
	Colborne Street & Irvine Street	AWSC	LOS Delay V/C Q Ex Avail.	<	A 9	>	A 9	<	A 8	>	A 8	<	A 8	>	A 8	<	A 8	>	A 8	<	A 8	>	A 8	<	-	>	-	<	-	>	-	A 8	A 8				
	East Mill Street (WR18) & Irvine Street	TWSC	LOS Delay V/C Q Ex Avail.	<	A 8	>	A 0	<	A 0	>	A 0	<	B 14	>	B 14	<	B 14	>	B 14	<	B 13	>	B 13	<	-	>	-	<	-	>	-	A 13	A 1				
	Nichol Road 15 & Gerrie Road	TWSC	LOS Delay V/C Q Ex Avail.	<	A 8	>	A 0	<	A 8	>	A 0	<	B 10	>	B 10	<	B 10	>	B 10	<	B 12	>	B 12	<	-	>	-	<	-	>	-	A 12	A 1				
	Colborne Street & Gerrie Road	AWSC	LOS Delay V/C Q Ex Avail.	<	A 9	>	A 9	<	A 9	>	A 9	<	A 10	>	A 10	<	A 10	>	A 10	<	A 9	>	A 9	<	-	>	-	<	-	>	-	A 9	A 9				
	East Mill Street (WR18) & Gerrie Road	TCS	LOS Delay V/C Q Ex Avail.	A 3 0.06	A 4 0.21	>	A 4	<	A 4	>	A 4	<	A 0	>	A 0	<	A 0	>	A 0	<	C 22	>	C 22	<	-	>	-	<	-	>	-	A 22	A 6				

MOE - Measure of Effectiveness Q - 95th Percentile Queue Length (m) TCS - Traffic Control Signal < / > - Shared Turn Lane
 LOS - Level of Service Ex. - Existing Available Storage (m) TWSC - Two-Way Stop Control
 Delay - Average Delay per Vehicle in Seconds Avail. - Available Storage (m) AWSC - All-Way Stop Control



3 Development Concept

3.1 Description

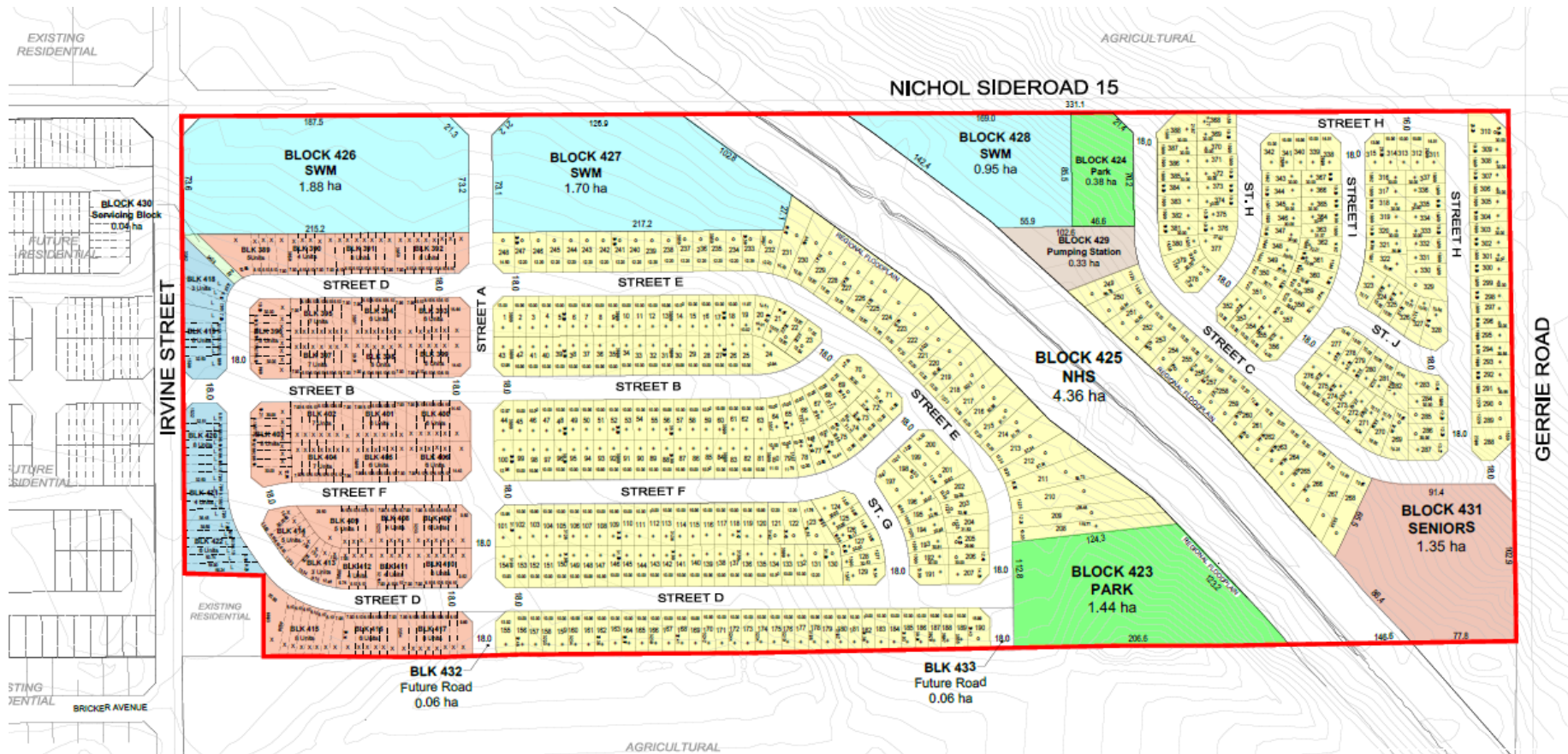
The subject site is in the southeast corner of Nichol Road 15 and Irvine Street in the community of Elora, Township of Centre Wellington. The property owner is proposing to develop the 39.84-hectare block with approximately 691 residential units comprised of 388 single detached, 203 townhomes, and 100 senior apartments. There is no vehicle connection across the existing drain.

Vehicle access is proposed via four new street connections:

- ▶ Street B to Irvine Street opposite the proposed Cachet Clayton subdivision connection;
- ▶ Street A to Nichol Road 15
- ▶ Street C to Nichol Road 15; and
- ▶ Street C and Street E-S to Gerrie Road.

Figure 3.1 shows the proposed development concept.





NTS



Concept Plan

Cachet Elora Sands, Centre Wellington
240695

Figure 3.1

3.2 Site Trip Generation & Distribution

The Institute of Transportation Engineers (ITE) Trip Generation³ methods are used to estimate the site trip generation. The following Land Use Code (LUC) was used to estimate the site trip generation:

- ▶ 210 – Single Family, Detached Housing (dwelling units);
- ▶ 220 – Multifamily Housing, Low-Rise (dwelling units); and
- ▶ 252 – Senior Adult Housing, Multifamily (dwelling units).

The fitted curve equations were used to calculate the trips generated by the development. **Table 3.1** summarizes the estimated trip generation and is estimated to be approximately 378 AM peak hour trips and 502 PM peak hour trips. No reductions for alternative modes of transportation were used in the calculation. The trip generation is split into east and west sections with no transportation connection between the two due to the existing drain.

TABLE 3.1: TRIP GENERATION

ITE Land Use	Units	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
East Section							
210 - Single-Family, Detached Housing (Dwelling Units)	139	26	75	101	85	50	135
252 - Senior Adult Housing, Multifamily (Dwelling Units)	100	7	13	20	14	11	25
<i>East Section Trip Generation</i>	<i>239</i>	<i>33</i>	<i>88</i>	<i>121</i>	<i>99</i>	<i>61</i>	<i>160</i>
West Section							
210 - Single-Family, Detached Housing (Dwelling Units)	249	44	127	171	147	87	234
220 - Multifamily Housing, Low-Rise (Dwelling Units)	203	21	65	86	67	41	108
<i>West Section Trip Generation</i>	<i>452</i>	<i>65</i>	<i>192</i>	<i>257</i>	<i>214</i>	<i>128</i>	<i>342</i>
Total Trip Generation	691	98	280	378	313	189	502

210: AM $\ln(T) = 0.91 \ln(X) + 0.12$ | PM $\ln(T) = 0.94 \ln(X) + 0.27$

220: AM: $T = 0.31(X) + 22.85$ | PM $T = 0.43(X) + 20.55$

252: AM $T = 0.19(X) + 0.90$ | PM $T = 0.25(X) + 0.07$

The trip distribution used for this study was based on the existing traffic patterns at the boundary study area intersections. These intersections provide access to the local arterial/collector network and provide access to the neighbouring communities as well as typical commuting patterns in the Township.

Table 3.2 illustrates the calculated trip distribution. **Figure 3.2A-B** illustrates the trip distribution for the AM and PM peak hours, respectively.

³ Institute of Transportation Engineers, *Trip Generation Manual*, 11th ed., (Washington, DC: ITE, 2021).

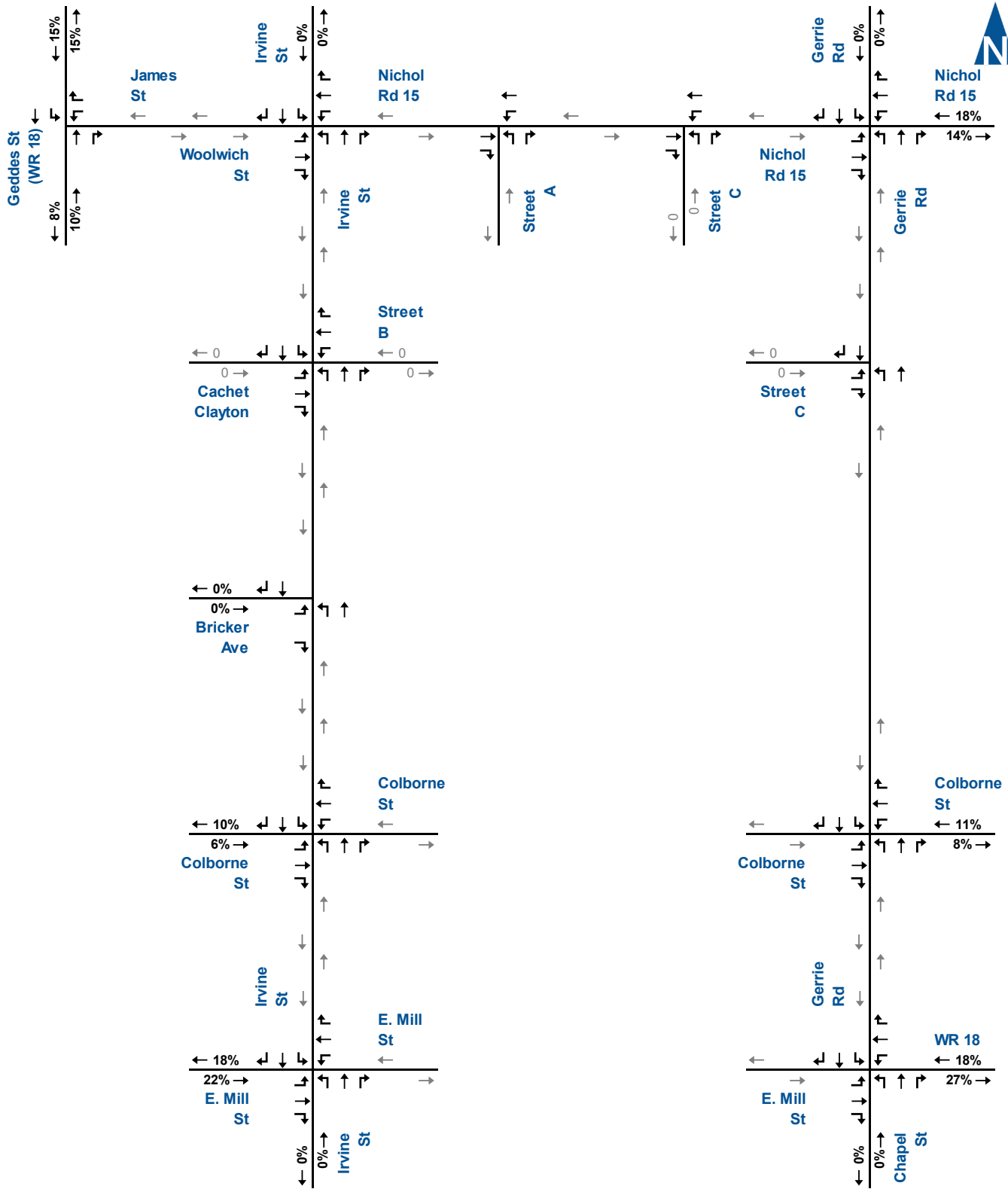


TABLE 3.2: TRIP DISTRIBUTION

Direction	Route	AM Peak Hour		PM Peak Hour	
		In	Out	In	Out
North	Geddes Street (WR18)	15%	15%	21%	16%
	Irvine Street	0%	0%	0%	0%
	Gerrie Road	0%	0%	0%	0%
South	Geddes Street (WR18)	10%	8%	8%	11%
	Irvine Street	0%	0%	0%	0%
	Chapel Street	0%	0%	0%	0%
East	Nichol Road 15	18%	14%	13%	16%
	Colborne Street	11%	8%	10%	12%
	East Mill Street (WR18)	18%	27%	21%	17%
West	Bricker Avenue	0%	0%	0%	0%
	Colborne Street	6%	10%	10%	8%
	East Mill Street (WR18)	22%	18%	17%	20%
Total		100%	100%	100%	100%

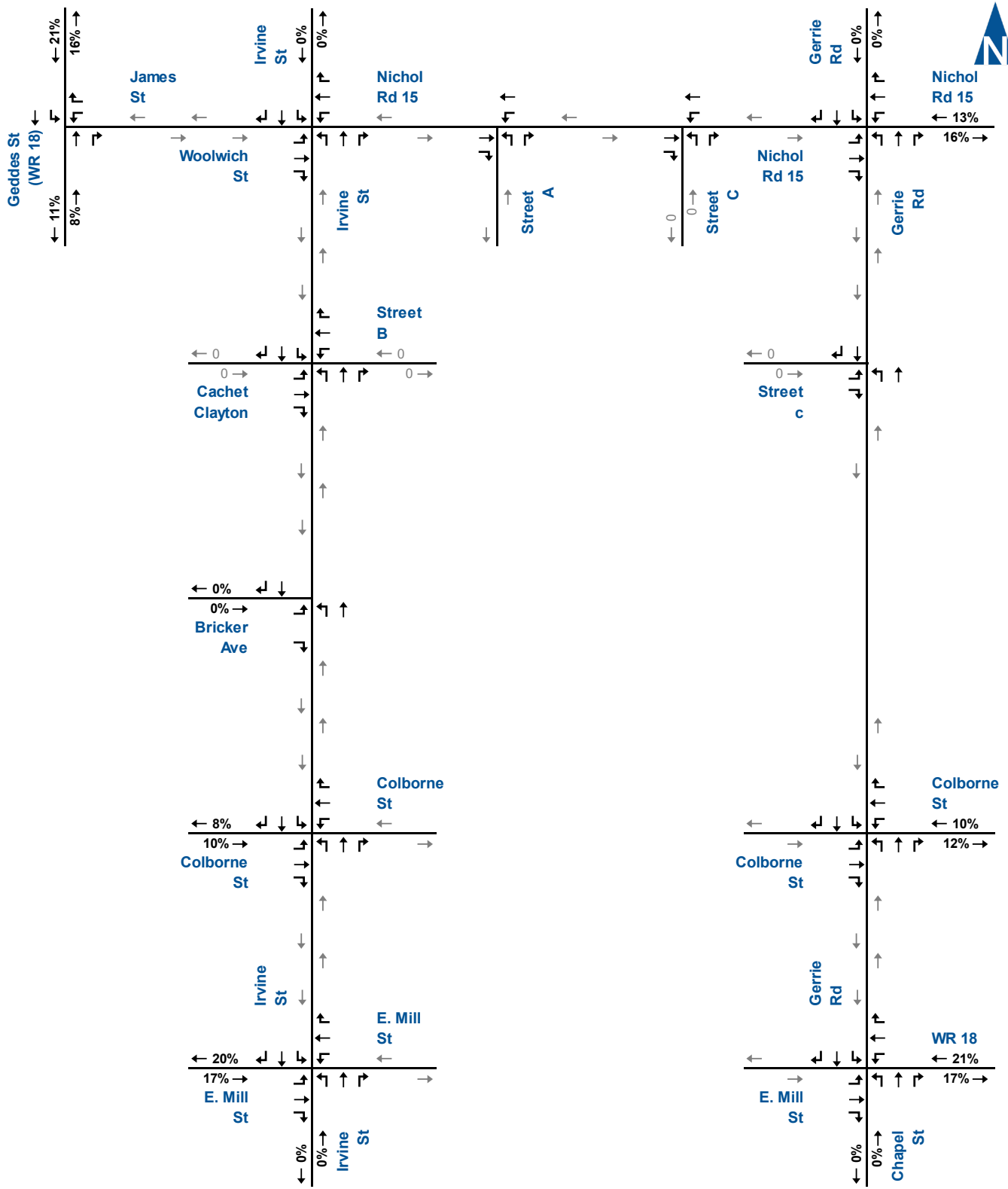
Figure 3.3A-B contains the AM and PM peak hour trip assignment, respectively.





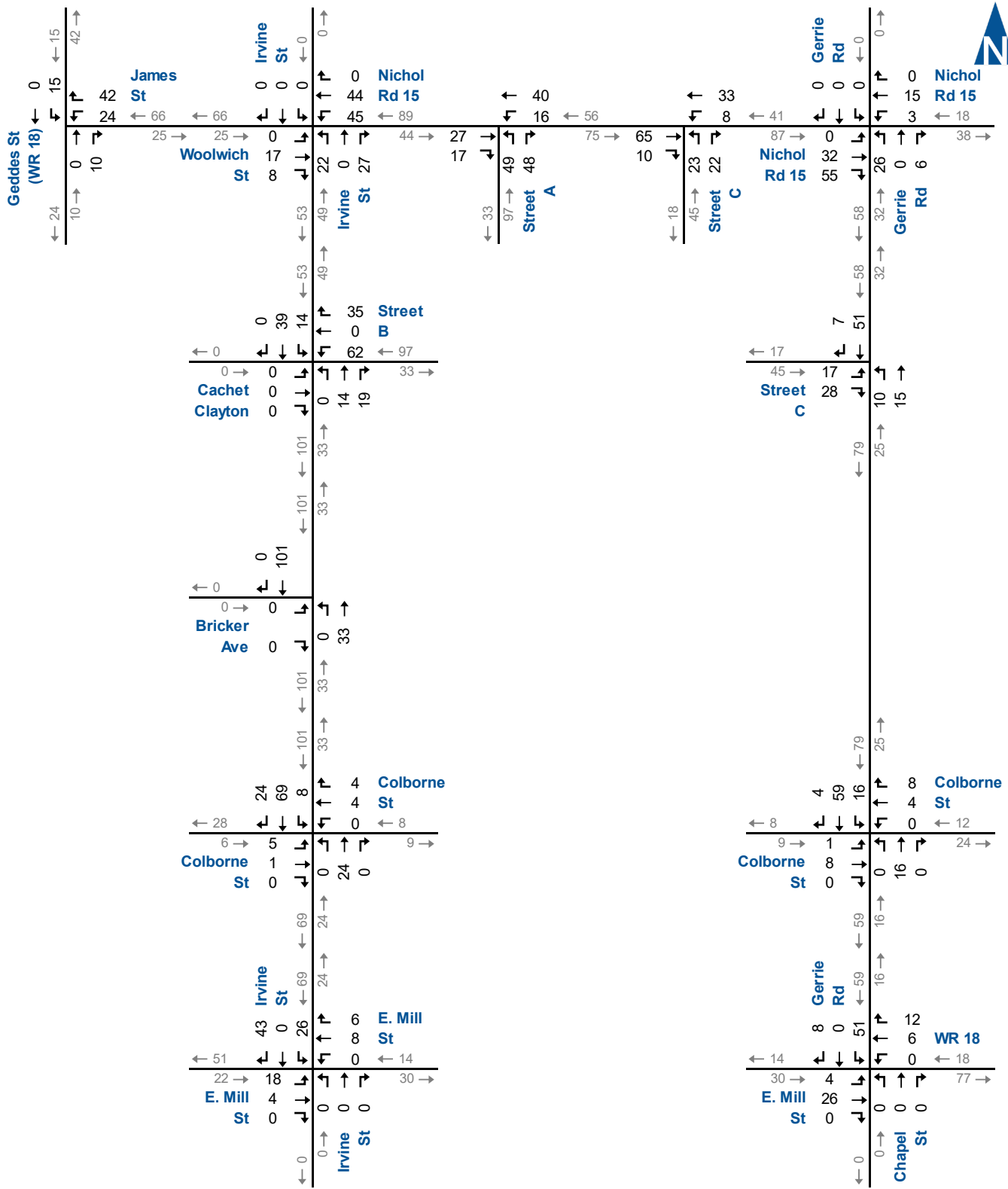
Trip Distribution (AM Peak Hour)

Figure 3.2A

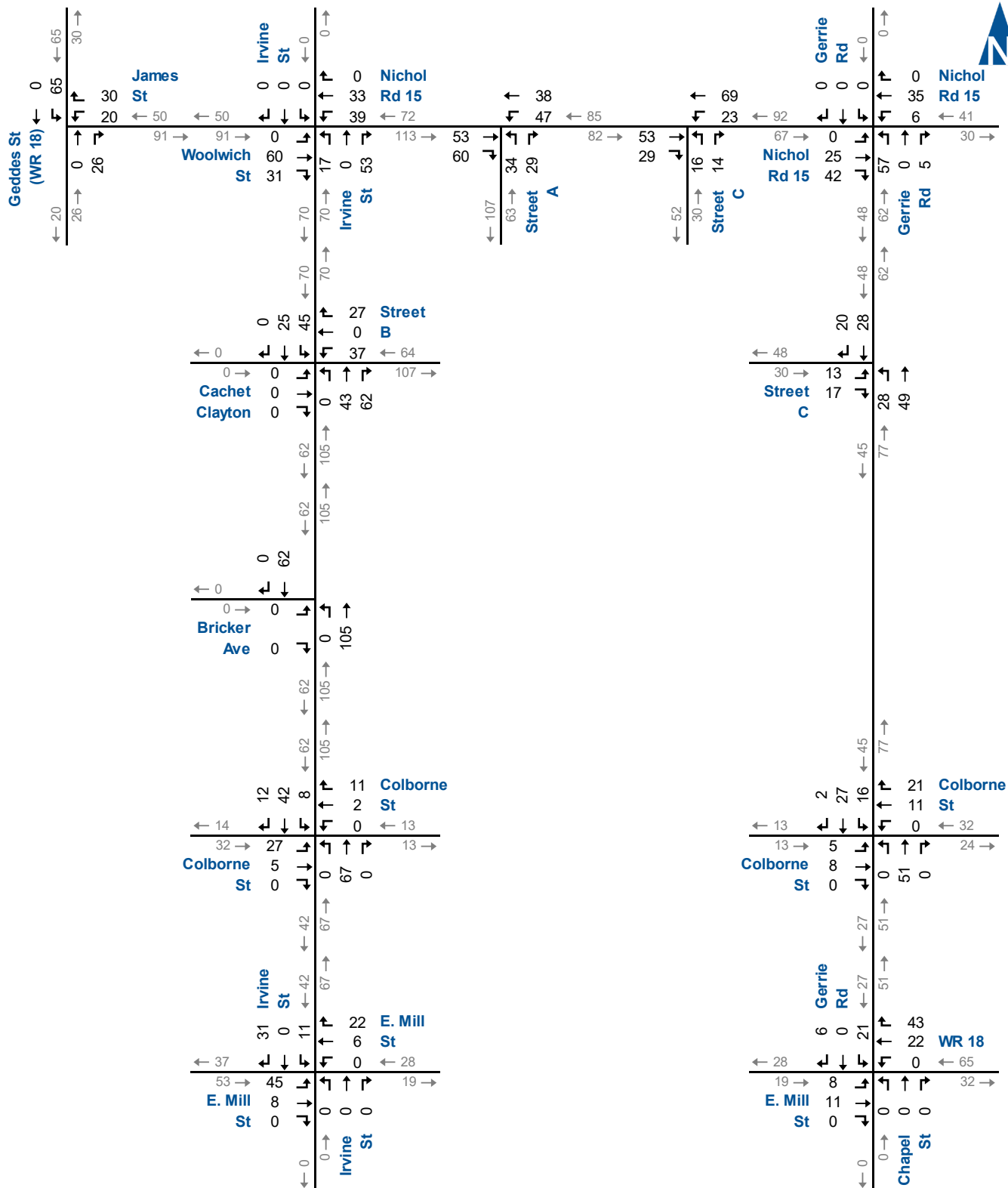


Trip Distribution (PM Peak Hour)

Figure 3.2B



Site Generated Traffic Volumes (AM Peak Hour)



Site Generated Traffic Volumes (PM Peak Hour)

Figure 3.3B

4 Evaluation of Future Traffic Conditions

The assessment of the future traffic conditions contained in this section includes the future traffic forecasts as well as the level of service analysis. An assumed five-year horizon (2035) and ten-year horizon (2040) following from the assumed build-out date has been assessed to determine the impact of the subject site.

No changes to the road network traffic control and lane geometry have been assumed.

4.1 Forecast Traffic Volumes

The likely future traffic volumes are estimated to consist of:

- ▶ Increased non-site traffic (generalized background traffic growth) estimated to be 2.0 percent per annum as noted in the pre-study consultation.
- ▶ Traffic generated from the following developments:
 - Ainley Subdivision, Elora⁴ - 251 residential units comprised of 126 single detached, 63 apartments, and 62 townhouse units; and
 - North West Fergus Secondary Plan⁵ - a mixed-use site situated in the Colborne Street and Beatty Line area of the community of Fergus.
 - Cachet Clayton Subdivision⁶ – a residential subdivision with approximately 275 units situated in the southwest corner of Woolwich Street and Irvine Street; and
- ▶ Traffic generated by the subject site.

The traffic volumes from the background developments were obtained from their respective studies.

Appendix D contains the background development trip assignments.

Figure 4.1A-B details the forecast 2035 background traffic volumes for the weekday AM and PM peak hours, respectively. **Figure 4.2A-B**

⁴ Paradigm Transportation Solutions Limited, *Ainley Subdivision, Elora Transportation Impact Study*, (PTSL, October 2017)

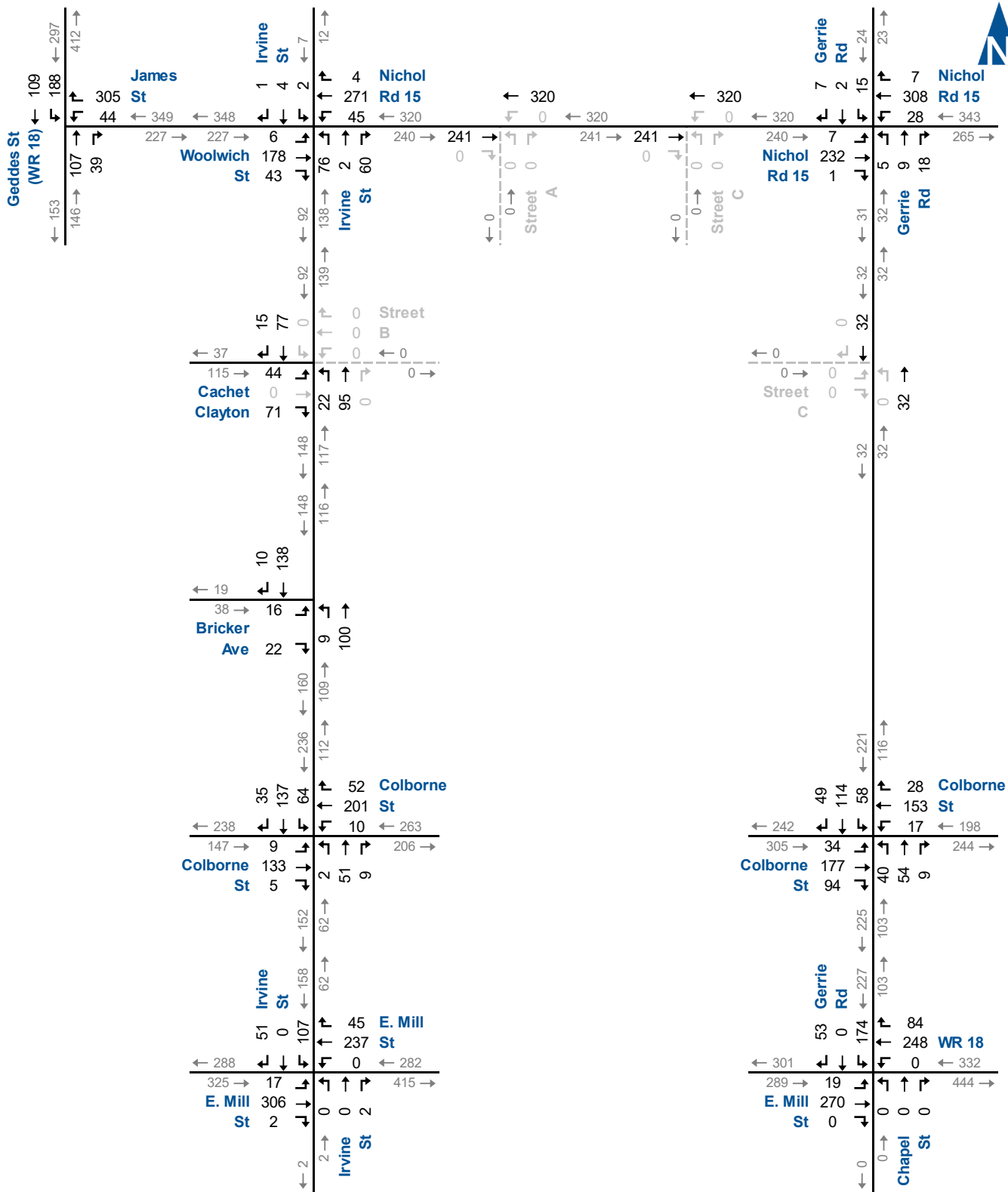
⁵ Traffic Impact Study in support of Draft Plan Approval (Phases 2 & 3), Township of Centre Wellington North West Fergus Secondary Plan, RJ Burnside & Associates Limited, December 2016

⁶ Paradigm Transportation Solutions Limited, *Residential Development Woolwich Street & Irvine Street Elora ON Transportation Impact Study*, (PTSL: Cachet, September 2024).



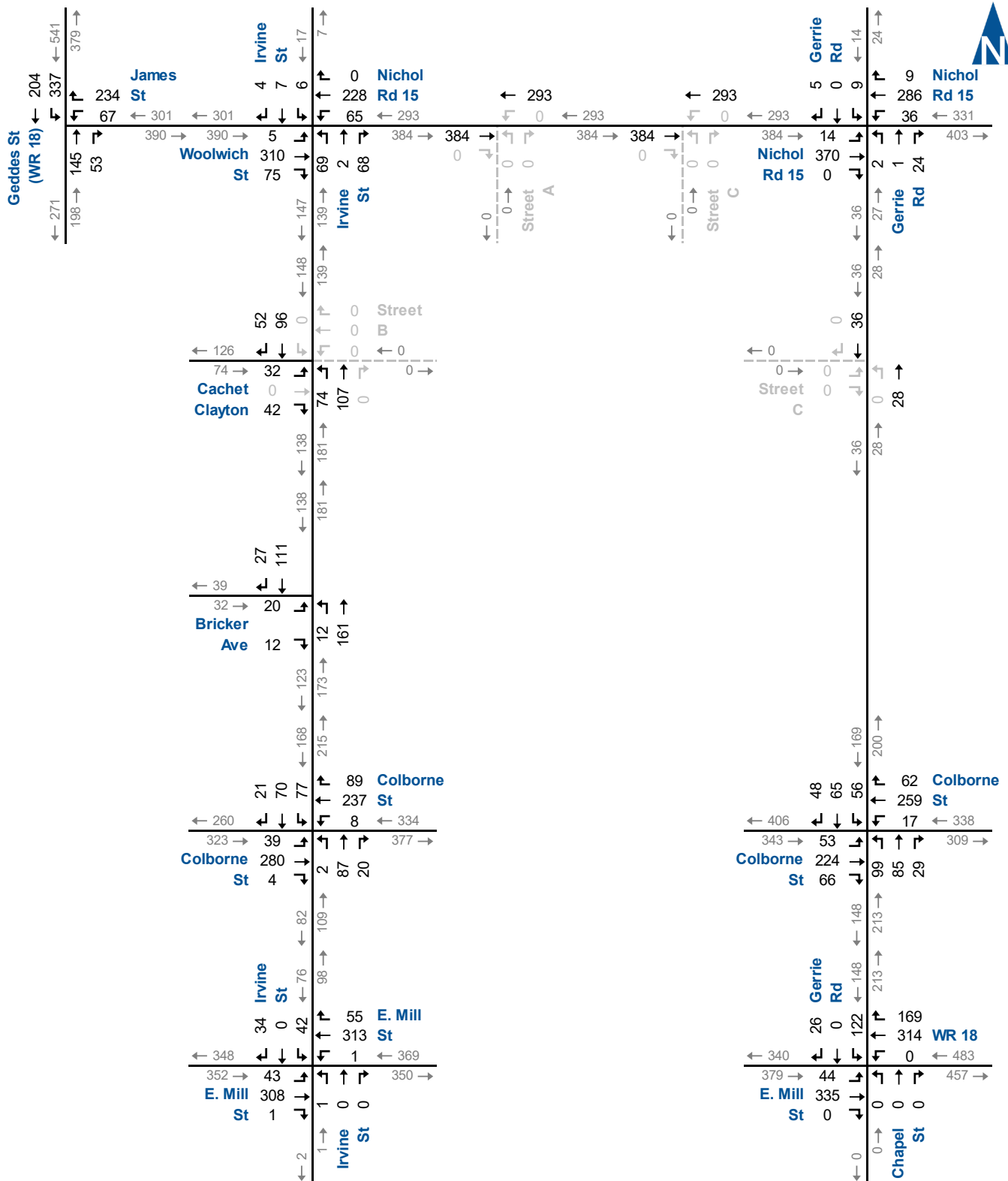
details the forecast 2040 background traffic volumes for the weekday AM and PM peak hours, respectively. **Figure 4.3A-B** details the forecast 2035 total traffic volumes for the weekday AM and PM peak hours, respectively. **Figure 4.4A-B** details the forecast 2040 total traffic volumes for the weekday AM and PM peak hours, respectively.





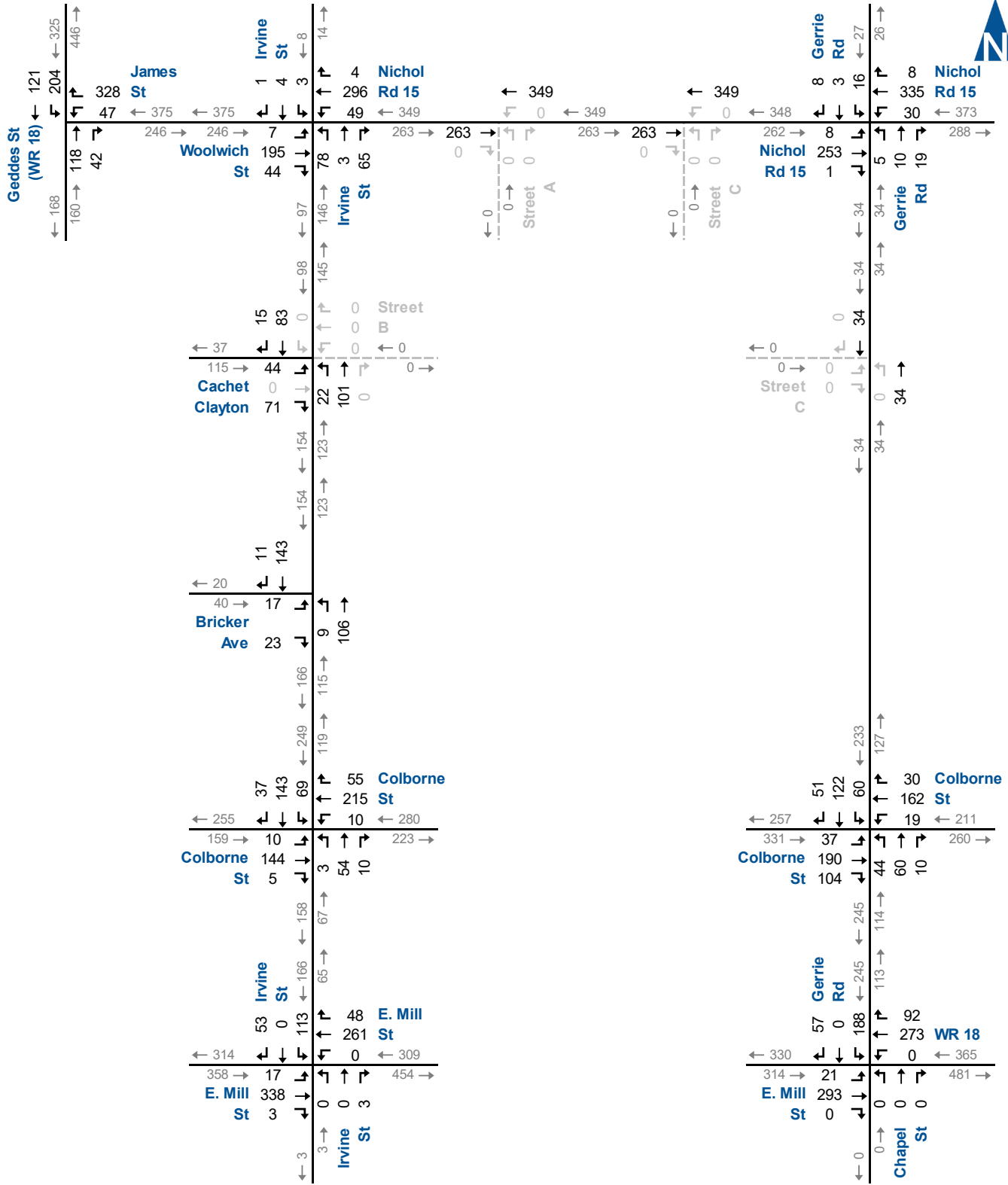
2035 Background Traffic Volumes (AM Peak Hour)

Figure 4.1A



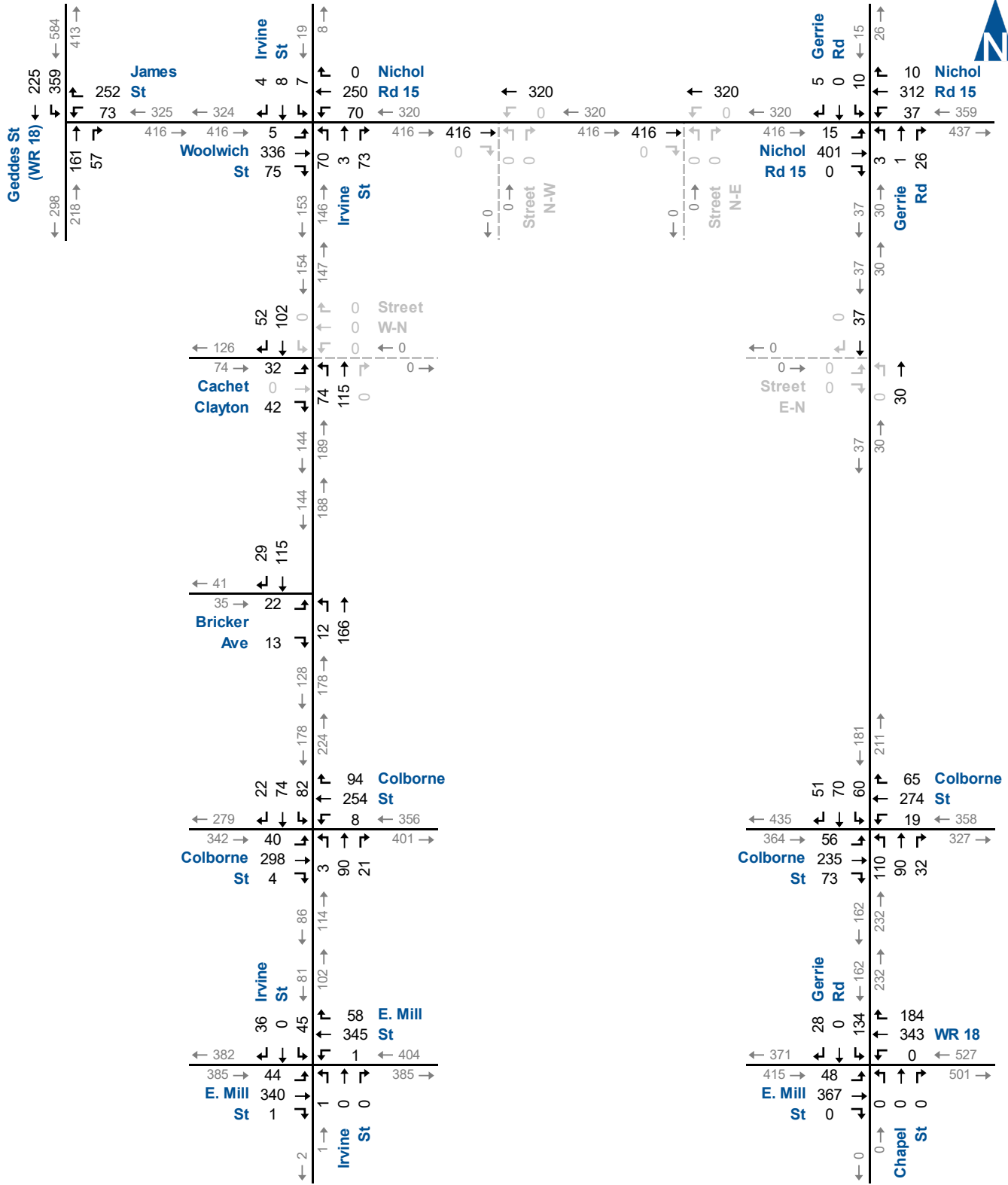
2035 Background Traffic Volumes (PM Peak Hour)

Figure 4.1B



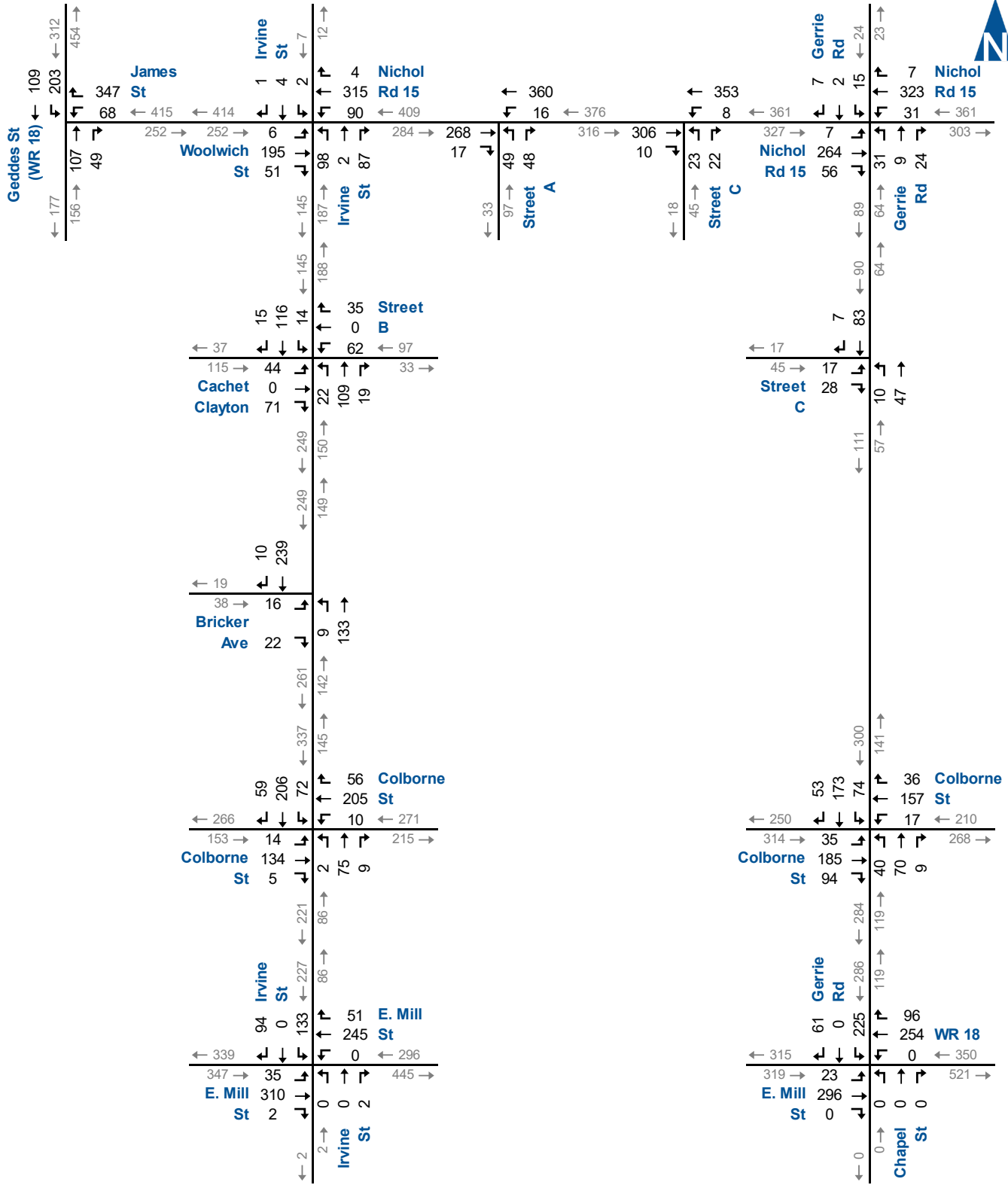
2040 Background Traffic Volumes (AM Peak Hour)

Figure 4.2A



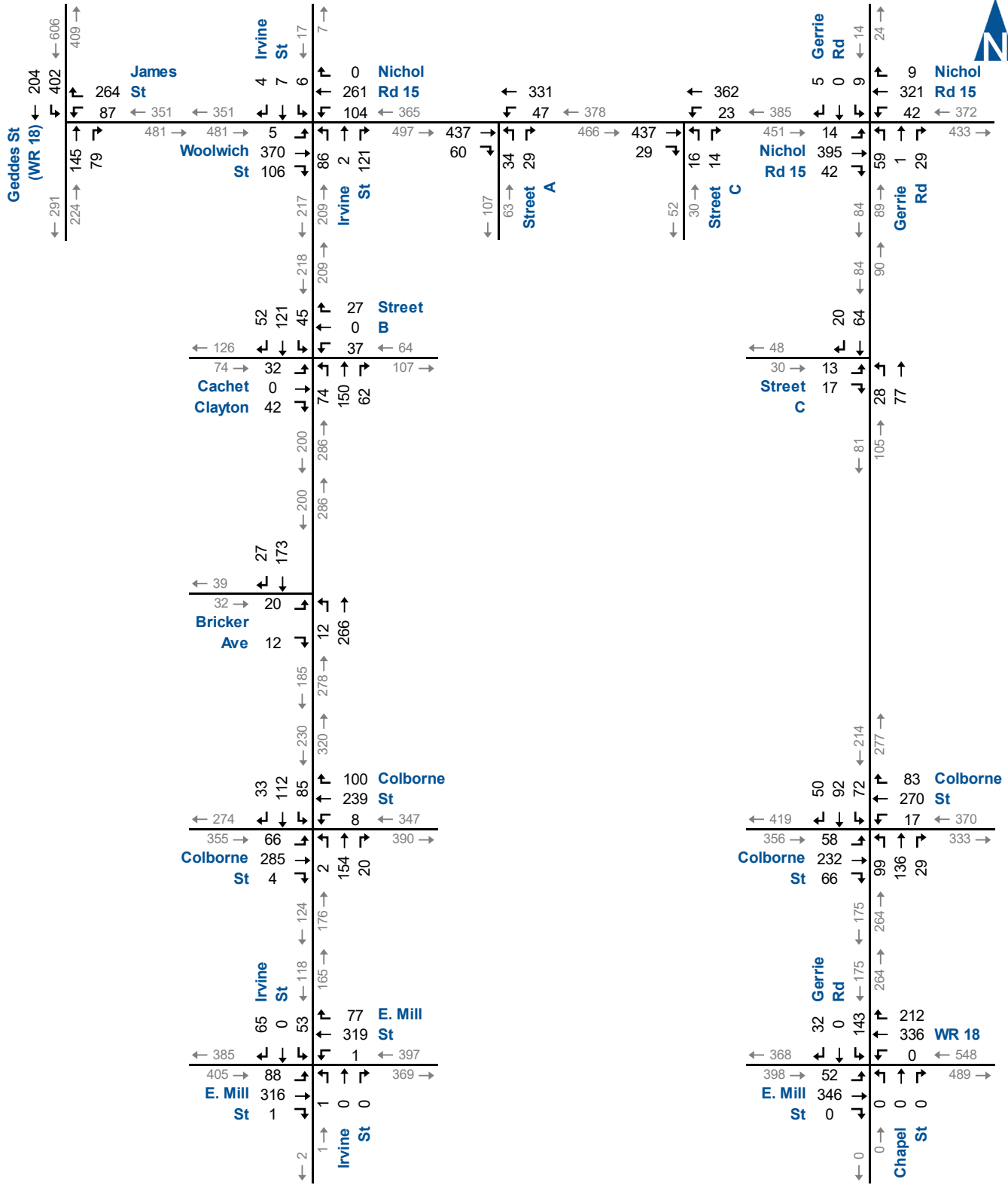
2040 Background Traffic Volumes (PM Peak Hour)

Figure 4.2B



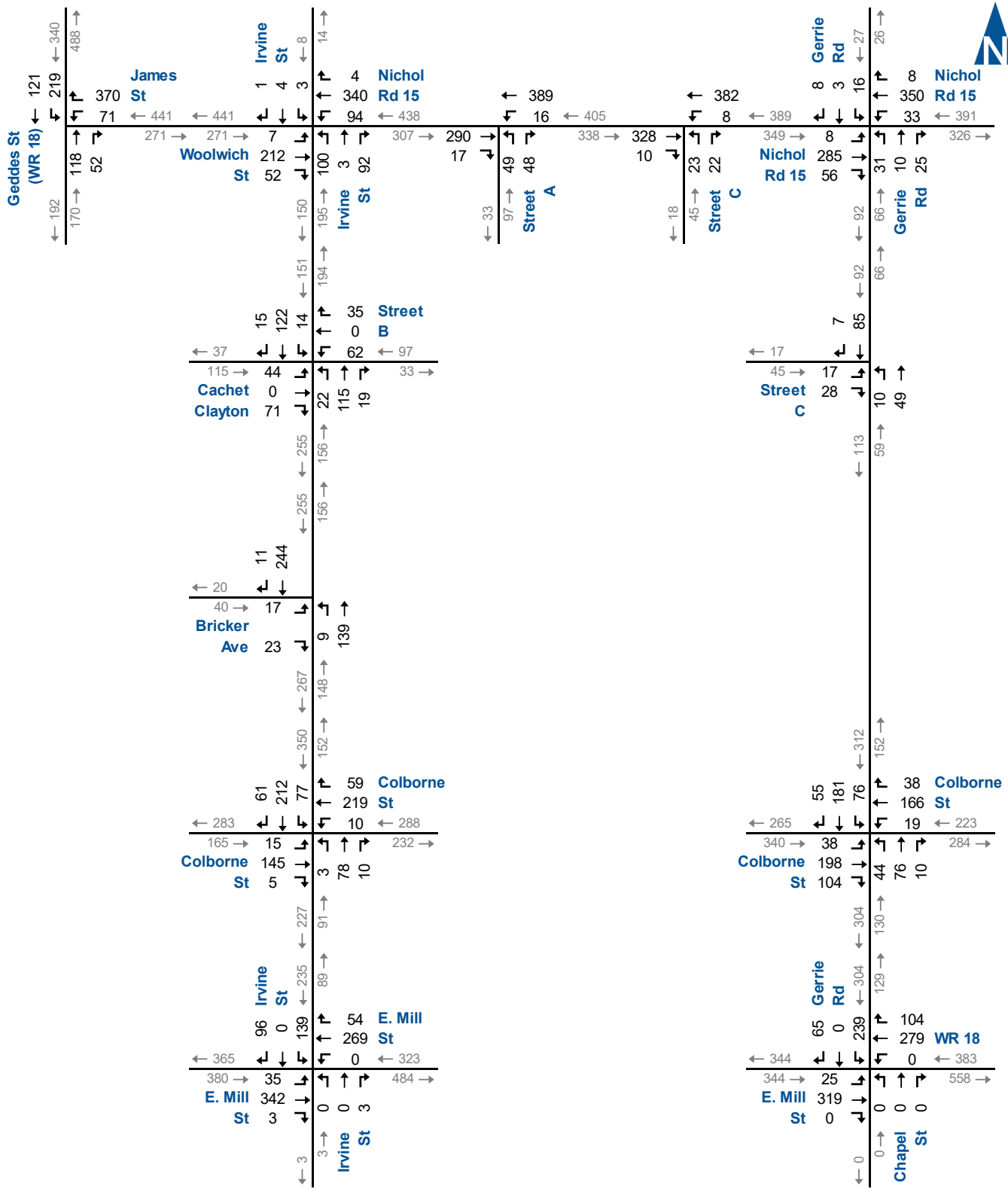
2035 Total Traffic Volumes (AM Peak Hour)

Figure 4.3A

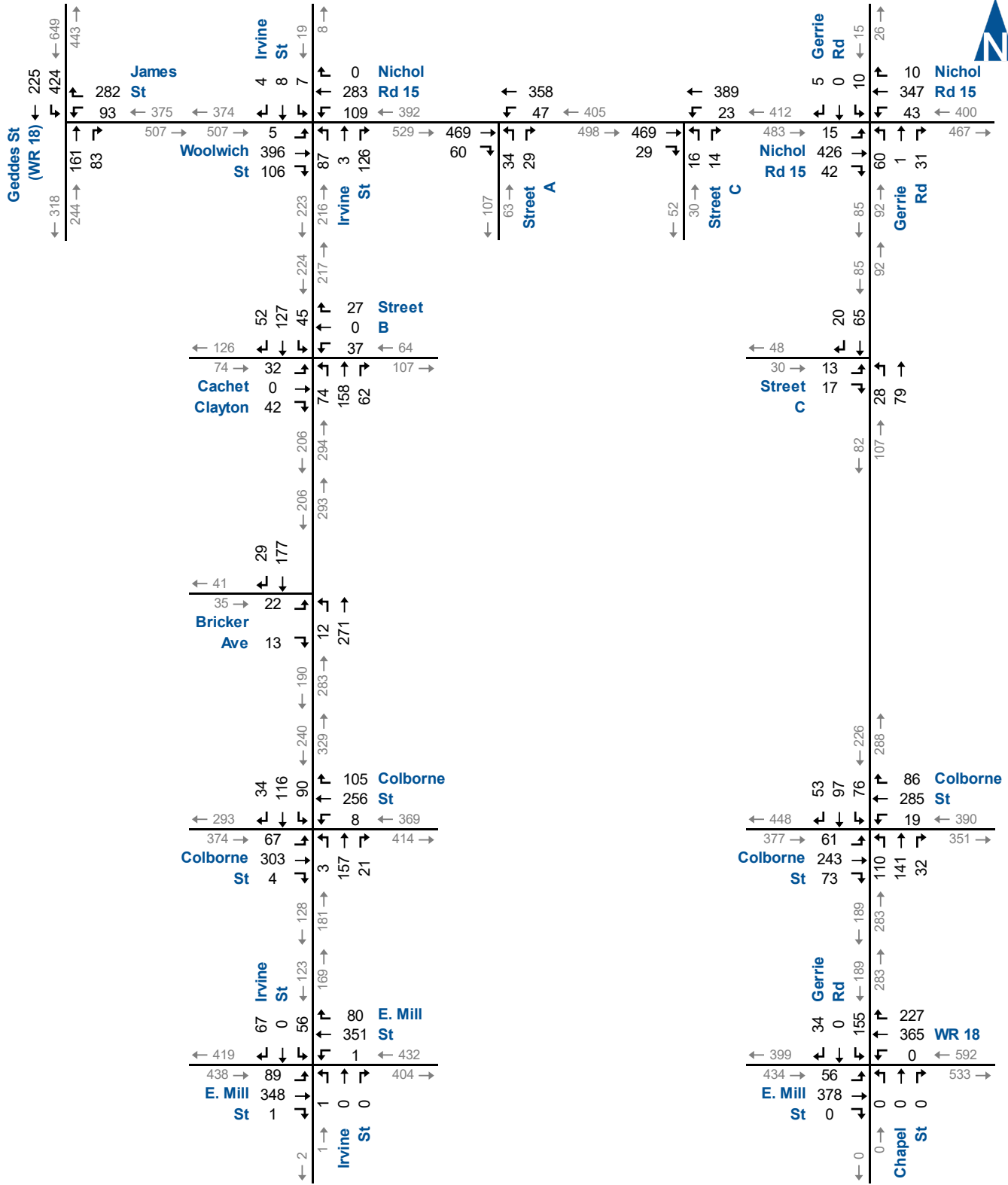


2035 Total Traffic Volumes (PM Peak Hour)

Figure 4.3B



2040 Total Traffic Volumes (AM Peak Hour)



2040 Total Traffic Volumes (PM Peak Hour)

Figure 4.4B

4.2 Forecast Traffic Operations

4.2.1 2035 Background Traffic Operations

The study area intersection operations analysis for the 2035 background traffic scenario followed the same methodology used for the existing traffic conditions with the existing lane configurations.

Table 4.1A-B details the level of service conditions for the weekday AM and PM peak hours, respectively.

The study area intersections are forecast to operate within acceptable levels of service with the following critical movements noted:

- ▶ Geddes Street (Wellington Road 18) and James Street:
 - The minor left/right-turn approach with LOS E and v/c ratio of 0.79 during the PM peak hour.

Appendix E contains the detailed Synchro reports.



TABLE 4.1A: 2035 BACKGROUND OPERATIONS (AM PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction / Movement / Approach																Overall																	
				Eastbound				Westbound				Northbound				Southbound																					
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach																		
AM Peak Hour	Geddes Street (WR18) & James Street	TWSC	LOS Delay V/C Q Ex Avail.					B 15 0.50 23 -					>	>	>	>	B 15					A 0 0.09 0 -					<	<	<	<	A 8 0.15 4 -					A 5	A 8
	Woolwich Street/Nichol Road 15 & Irvine Street	TWSC	LOS Delay V/C Q Ex Avail.	<	A 8 0.01 0 -	>	A 0	<	A 8 0.04 1 -	>	A 1	<	C 18 0.35 12 -	>	C 18	<	C 16 0.02 1 -	>	C 16					<	<	<	<	>	>	>	>	C 16	A 4				
	Irvine Street & Bricker Avenue	TWSC	LOS Delay V/C Q Ex Avail.	B 10 0.05 2 -												<	A 8 0.01 0 -	>	A 1									A 0 0.09 0 -					A 0	A 2			
	Colborne Street & Irvine Street	AWSC	LOS Delay V/C Q Ex Avail.	<	A 10 0.23 7 -	>	A 10	<	B 11 0.39 14 -	>	B 11	<	A 9 0.10 2 -	>	A 9	<	B 12 0.38 14 -	>	B 12					<	<	<	<	>	>	>	>	B 12	B 11				
	East Mill Street (WR18) & Irvine Street	TWSC	LOS Delay V/C Q Ex Avail.	<	A 8 0.02 0 -	>	A 0	<	A 0 0.00 0 -	>	A 0	<	B 10 0.00 0 -	>	B 10	<	C 20 0.42 17 -	>	C 20					<	<	<	<	>	>	>	>	C 20	A 4				
	Nichol Road 15 & Gerrie Road	TWSC	LOS Delay V/C Q Ex Avail.	<	A 8 0.01 0 -	>	A 0	<	A 8 0.02 1 -	>	A 1	<	B 14 0.08 2 -	>	B 14	<	B 15 0.07 2 -	>	B 15					<	<	<	<	>	>	>	>	B 15	A 2				
	Colborne Street & Gerrie Road	AWSC	LOS Delay V/C Q Ex Avail.	<	B 13 0.49 22 -	>	B 13	<	B 11 0.32 11 -	>	B 11	<	B 11 0.19 6 -	>	B 11	<	B 12 0.37 14 -	>	B 12					<	<	<	<	>	>	>	>	B 12	B 12				
	East Mill Street (WR18) & Gerrie Road	TCS	LOS Delay V/C Q Ex Avail.	A 5 0.04 4 30 26	A 0.29 31 -	>	A 6	<	A 6 0.32 35 -	>	A 6	<	A 0 0.00 0 -	>	A 0	<	C 22 0.55 40 -	>	C 22					<	<	<	<	>	>	>	>	C 22	B 10				
	Irvine Street & Cachet Clayton	TWSC	LOS Delay V/C Q Ex Avail.	A 10 0.15 4 -												<	A 8 0.02 0 -	>	A 1									A 0 0.06 0 -					A 0	A 4			

MOE - Measure of Effectiveness
 LOS - Level of Service
 Delay - Average Delay per Vehicle in Seconds
 Q - 95th Percentile Queue Length (m)
 Ex - Existing Available Storage (m)
 Avail. - Available Storage (m)
 TCS - Traffic Control Signal
 TWSC - Two-Way Stop Control
 AWSC - All-Way Stop Control
 < / > - Shared Turn Lane



TABLE 4.1B: 2035 BACKGROUND OPERATIONS (PM PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction / Movement / Approach																Overall												
				Eastbound				Westbound				Northbound				Southbound																
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach													
PM Peak Hour	Geddes Street (WR18) & James Street	TWSC	LOS Delay V/C Q Ex Avail.					E 39 0.79 55 -	>	>	>	>	E 39		A 0 0.13 0 -	>	>	>	>	A 0	<	<	<	<	A 9 0.27 9 -	>	>	>	>	A 5	B 14	
	Woolwich Street/Nichol Road 15 & Irvine Street	TWSC	LOS Delay V/C Q Ex Avail.	<	A 8	>	A 0	<	A 8	>	A 2	<	C 20	>	C 20	<	C 18	>	C 18	<	C 0.06	>	C 2	<	C 2	>	C -	>	C -	>	C 18	A 4
	Irvine Street & Bricker Avenue	TWSC	LOS Delay V/C Q Ex Avail.	B 10 0.05 2 -	>	B 10					<	A 8 0.01 0 -	>	A 1					<	A 0 0.09 0 -	>	A 0	>	A 0	>	A 0	>	A 0	A 1			
	Colborne Street & Irvine Street	AWSC	LOS Delay V/C Q Ex Avail.	<	B 14	>	B 14	<	B 14	>	B 14	<	B 11	>	B 11	<	B 12	>	B 12	<	B 0.31	>	B 10	<	B 10	>	B -	>	B -	>	B 12	B 13
	East Mill Street (WR18) & Irvine Street	TWSC	LOS Delay V/C Q Ex Avail.	<	A 8	>	A 1	<	A 8	>	A 0	<	C 18	>	C 18	<	C 17	>	C 17	<	C 0.21	>	C 6	<	C 6	>	C -	>	C -	>	C 17	A 2
	Nichol Road 15 & Gerrie Road	TWSC	LOS Delay V/C Q Ex Avail.	<	A 8	>	A 0	<	A 8	>	A 1	<	B 12	>	B 12	<	C 16	>	C 16	<	C 0.05	>	C 1	<	C 1	>	C -	>	C -	>	C 16	A 1
	Colborne Street & Gerrie Road	AWSC	LOS Delay V/C Q Ex Avail.	<	C 19	>	C 19	<	C 18	>	C 18	<	C 15	>	C 15	<	B 13	>	B 13	<	B 0.34	>	B 12	<	B 12	>	B -	>	B -	>	B 13	C 17
	East Mill Street (WR18) & Gerrie Road	TCS	LOS Delay V/C Q Ex Avail.	A 4 0.09 6 30 24	A 4 0.29 33 -	>	A 4	<	A 5 0.41 47 -	>	A 5	<	A 0 0.00 0 -	>	A 0	<	C 23 0.40 23 -	>	C 23	<	C 23	<	C -	<	C -	<	C -	<	C -	>	C 23	A 7
	Irvine Street & Cachet Clayton	TWSC	LOS Delay V/C Q Ex Avail.	B 11 0.11 3 -	>	B 11					<	A 8 0.06 2 -	>	A 3					<	A 0 0.09 0 -	>	A 0	>	A 0	>	A 0	>	A 0	A 3			

MOE - Measure of Effectiveness
 LOS - Level of Service
 Delay - Average Delay per Vehicle in Seconds
 Q - 95th Percentile Queue Length (m)
 Ex. - Existing Available Storage (m)
 Avail. - Available Storage (m)
 TCS - Traffic Control Signal
 TWSC - Two-Way Stop Control
 AWSC - All-Way Stop Control
 < / > - Shared Turn Lane

4.2.2 2040 Background Traffic Operations

The study area intersection operations analysis for the 2040 background traffic scenario followed the same methodology used for the existing traffic conditions with the existing lane configurations.

Table 4.2A-B details the level of service conditions for the weekday AM and PM peak hours, respectively.

The study area intersections are forecast to operate within acceptable levels of service with the following critical movements noted:

- ▶ Geddes Street (Wellington Road 18) and James Street:
 - The minor left/right-turn approach with LOS F and v/c ratio of 0.97 during the PM peak hour.

Appendix E contains the detailed Synchro reports.



TABLE 4.2A: 2040 BACKGROUND OPERATIONS (AM PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction / Movement / Approach																Overall						
				Eastbound				Westbound				Northbound				Southbound										
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach							
AM Peak Hour	Geddes Street (WR18) & James Street	TWSC	LOS Delay V/C Q Ex Avail.					C 16						C 16					A 0						A 5	A 9
	Woolwich Street/Nichol Road 15 & Irvine Street	TWSC	LOS Delay V/C Q Ex Avail.	<	A 8	>	A 0	<	A 8	>	A 1	<	C 20	>	C 20	<	C 17	>	C 17	>	C 17	>	C 17		C 17	A 5
	Irvine Street & Bricker Avenue	TWSC	LOS Delay V/C Q Ex Avail.	B 10			B 10						A 1		A 1		A 0		A 0		A 0		A 0		A 0	A 2
	Colborne Street & Irvine Street	AWSC	LOS Delay V/C Q Ex Avail.	<	B 10	>	B 10	<	B 12	>	B 12	<	A 9	>	A 9	<	B 12	>	B 12	>	B 12	>	B 12		B 12	B 11
	East Mill Street (WR18) & Irvine Street	TWSC	LOS Delay V/C Q Ex Avail.	<	A 0	>	A 0	<	A 0	>	A 0	<	B 10	>	B 10	<	C 24	>	C 24	>	C 24	>	C 24		C 24	A 5
	Nichol Road 15 & Gerrie Road	TWSC	LOS Delay V/C Q Ex Avail.	<	A 0	>	A 0	<	A 1	>	A 1	<	B 15	>	B 15	<	C 16	>	C 16	>	C 16	>	C 16		C 16	A 2
	Colborne Street & Gerrie Road	AWSC	LOS Delay V/C Q Ex Avail.	<	B 15	>	B 15	<	B 12	>	B 12	<	B 11	>	B 11	<	B 13	>	B 13	>	B 13	>	B 13		B 13	B 13
	East Mill Street (WR18) & Gerrie Road	TCS	LOS Delay V/C Q Ex Avail.	A 5	A 6		A 6	<	A 7	>	A 7	<	A 0	>	A 0	<	C 23	>	C 23	>	C 23	>	C 23		C 23	B 11
	Irvine Street & Cachet Clayton	TWSC	LOS Delay V/C Q Ex Avail.	B 10			B 10						A 1		A 1		A 0		A 0		A 0		A 0		A 0	A 4

MOE - Measure of Effectiveness
 LOS - Level of Service
 Delay - Average Delay per Vehicle in Seconds
 Q - 95th Percentile Queue Length (m)
 Ex. - Existing Available Storage (m)
 Avail. - Available Storage (m)
 TCS - Traffic Control Signal
 TWSC - Two-Way Stop Control
 AWSC - All-Way Stop Control
 </ > - Shared Turn Lane

TABLE 4.2B: 2040 BACKGROUND OPERATIONS (PM PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction / Movement / Approach																Overall				
				Eastbound				Westbound				Northbound				Southbound								
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach					
PM Peak Hour	Geddes Street (WR18) & James Street	TWSC	LOS Delay V/C Q Ex Avail.					F 73 0.97 86 -					F 73					A 0 0 0.14 0 -					A 5	C 24
	Woolwich Street/Nichol Road 15 & Irvine Street	TWSC	LOS Delay V/C Q Ex Avail.	<	A 8	>	A 0	<	A 9	>	A 2	<	C 22	>	C 22	<	C 20	>	C 20	<	C 20	>	A 5	
	Irvine Street & Bricker Avenue	TWSC	LOS Delay V/C Q Ex Avail.	B 10 0.05			B 10									<	A 8	>	A 1				A 1	
	Colborne Street & Irvine Street	AWSC	LOS Delay V/C Q Ex Avail.	<	C 16	>	C 16	<	C 16	>	C 16	<	B 11	>	B 11	<	B 13	>	B 13	<	B 13	>	B 15	
	East Mill Street (WR18) & Irvine Street	TWSC	LOS Delay V/C Q Ex Avail.	<	A 1	>	A 1	<	A 8	>	A 0	<	C 20	>	C 20	<	C 19	>	C 19	<	C 19	>	A 2	
	Nichol Road 15 & Gerrie Road	TWSC	LOS Delay V/C Q Ex Avail.	<	A 0	>	A 0	<	A 8	>	A 1	<	B 12	>	B 12	<	C 18	>	C 18	<	C 18	>	A 1	
	Colborne Street & Gerrie Road	AWSC	LOS Delay V/C Q Ex Avail.	<	C 23	>	C 23	<	C 22	>	C 22	<	C 18	>	C 18	<	B 15	>	B 15	<	B 15	>	C 20	
	East Mill Street (WR18) & Gerrie Road	TCS	LOS Delay V/C Q Ex Avail.	A 5 0.12	A 5 0.33	>	A 5	<	A 6	>	A 6	<	A 0	>	A 0	<	C 21	>	C 21	<	C 21	>	A 8	
	Irvine Street & Cachet Clayton	TWSC	LOS Delay V/C Q Ex Avail.	B 11 0.11			B 11									<	A 8	>	A 3				A 3	

MOE - Measure of Effectiveness Q - 95th Percentile Queue Length (m) TCS - Traffic Control Signal < / > - Shared Turn Lane
 LOS - Level of Service Ex. - Existing Available Storage (m) TWSC - Two-Way Stop Control
 Delay - Average Delay per Vehicle in Seconds Avail. - Available Storage (m) AWSC - All-Way Stop Control



4.2.3 2035 Total Traffic Operations

The study area intersection operations analysis for the future total traffic scenario followed the same methodology used for the 2035 background traffic conditions. **Table 4.3A-B** details the level of service conditions for the weekday AM and PM peak hours, respectively.

The study area intersections are forecast to operate within acceptable levels of service with the following critical movements noted:

- ▶ Geddes Street (Wellington Road 18) and James Street:
 - The minor left/right-turn approach with LOS F and v/c ratio greater than 1.00 during the PM peak hour.
- ▶ Woolwich Street/Nichol Road 15 and Irvine Street:
 - The northbound left/through/right-turn movement with LOS E and v/c ratio of 0.70 during the PM peak hour.

Appendix F contains the detailed Synchro reports.

The new municipal roadway approaches to the boundary road network are forecast to operate at LOS C or better and v/c ratio of 0.21 or lower during the AM and PM peak hours.



TABLE 4.3A: 2035 TOTAL OPERATIONS (AM PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction / Movement / Approach																Overall			
				Eastbound				Westbound				Northbound				Southbound							
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach				
AM Peak Hour	Geddes Street (WR18) & James Street	TWSC	LOS Delay V/C Q					C 19		>	>	C 19		A 0	>	>	A 0	<	A 8	>	>	A 5	B 11
	Woolwich Street/Nichol Road 15 & Irvine Street	TWSC	LOS Delay V/C Q	<	A 8	>	A 0	<	A 8	>	A 2	<	D 30	>	>	D 30	<	C 22	>	>	C 22	A 7	
	Irvine Street & Bricker Avenue	TWSC	LOS Delay V/C Q	B 11		>	B 11					<	A 8	>	>	A 0		A 0	>	>	A 0	A 1	
	Colborne Street & Irvine Street	AWSC	LOS Delay V/C Q	<	B 11	>	B 11	<	B 13	>	B 13	<	A 10	>	>	A 10	<	C 15	>	>	C 15	B 13	
	East Mill Street (WR18) & Irvine Street	TWSC	LOS Delay V/C Q	<	A 8	>	A 1	<	A 0	>	A 0	<	B 10	>	>	B 10	<	D 28	>	>	D 28	A 8	
	Nichol Road 15 & Gerrie Road	TWSC	LOS Delay V/C Q	<	A 8	>	A 0	<	A 8	>	A 1	<	C 18	>	>	C 18	<	C 17	>	>	C 17	A 2	
	Colborne Street & Gerrie Road	AWSC	LOS Delay V/C Q	<	C 18	>	C 18	<	B 14	>	B 14	<	B 14	>	>	B 14	<	C 17	>	>	C 17	C 16	
	East Mill Street (WR18) & Gerrie Road	TCS	LOS Delay V/C Q Ex Avail.	A 9	A 7	>	A 7	<	A 7	>	A 7	<	A 0	>	>	A 0	<	C 26	>	>	C 26	B 13	
	Irvine Street & Cachet Clayton/Street B	TWSC	LOS Delay V/C Q	<	B 11	>	B 11	<	B 12	>	B 12	<	A 1	>	>	A 1	<	A 8	>	>	A 1	A 5	
	Nichol Road 15 & Street A	TWSC	LOS Delay V/C Q		A 0	>	A 0	<	A 8	>	A 0	B 14				B 14						A 2	
	Nichol Road 15 & Street C	TWSC	LOS Delay V/C Q		A 0	>	A 0	<	A 8	>	A 0	B 13				B 13						A 1	
	Gerrie Road & Street C	TWSC	LOS Delay V/C Q	A 9		>	A 9					<	A 7	>	>	A 1		A 0	>	>	A 0	A 3	

MOE - Measure of Effectiveness Q - 95th Percentile Queue Length (m) TCS - Traffic Control Signal < / > - Shared Turn Lane
 LOS - Level of Service Ex. - Existing Available Storage (m) TWSC - Two-Way Stop Control
 Delay - Average Delay per Vehicle in Seconds Avail. - Available Storage (m) AWSC - All-Way Stop Control

TABLE 4.3B: 2035 TOTAL OPERATIONS (PM PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction / Movement / Approach																Overall																											
				Eastbound				Westbound				Northbound				Southbound																															
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach																												
PM Peak Hour	Geddes Street (WR18) & James Street	TWSC	LOS Delay V/C Q				F	159		>	F	159		A	>	>	A	0	>	A	0		<	A	9		<	A	0		<	A	9		<	A	6		F	50							
	Woolwich Street/Nichol Road 15 & Irvine Street	TWSC	LOS Delay V/C Q	<	A	>	A	0	<	A	>	A	3	<	E	>	E	39	<	D	>	D	25	<	D	25	<	D	25	<	D	25	<	D	25	<	D	25	<	D	25		A	9			
	Irvine Street & Bricker Avenue	TWSC	LOS Delay V/C Q	B	11		B	11		>	B	11		<	A		A	0	<	A		A	0	<	A	0	<	A	0	<	A	0	<	A	0	<	A	0	<	A	0		A	1			
	Colborne Street & Irvine Street	AWSC	LOS Delay V/C Q	<	C	>	C	21	<	C	>	C	19	<	B	>	B	14	<	C	>	C	16	<	C	16	<	C	16	<	C	16	<	C	16	<	C	16	<	C	16		C	18			
	East Mill Street (WR18) & Irvine Street	TWSC	LOS Delay V/C Q	<	A	>	A	2	<	A	>	A	0	<	C	>	C	24	<	C	>	C	21	<	C	21	<	C	21	<	C	21	<	C	21	<	C	21	<	C	21	<	C	21		A	4
	Nichol Road 15 & Gerrie Road	TWSC	LOS Delay V/C Q	<	A	>	A	0	<	A	>	A	1	<	C	>	C	23	<	C	>	C	18	<	C	18	<	C	18	<	C	18	<	C	18	<	C	18	<	C	18	<	C	18		A	3
	Colborne Street & Gerrie Road	AWSC	LOS Delay V/C Q	<	D	>	D	29	<	D	>	D	29	<	C	>	C	22	<	C	>	C	18	<	C	18	<	C	18	<	C	18	<	C	18	<	C	18	<	C	18	<	C	18		D	25
	East Mill Street (WR18) & Gerrie Road	TCS	LOS Delay V/C Q Ex Avail.	A	A	>	A	5	<	A	>	A	6	<	A	>	A	0	<	C	>	C	24	<	C	24	<	C	24	<	C	24	<	C	24	<	C	24	<	C	24	<	C	24		A	9
	Irvine Street & Cachet Clayton/Street B	TWSC	LOS Delay V/C Q	<	B	>	B	13	<	B	>	B	14	<	A	>	A	2	<	A	>	A	2	<	A	2	<	A	2	<	A	2	<	A	2	<	A	2	<	A	2	<	A	2		A	4
	Nichol Road 15 & Street A	TWSC	LOS Delay V/C Q		A	>	A	0	<	A	>	A	1	<	C		C	18	<	C		C	18	<	C	18	<	C	18	<	C	18	<	C	18	<	C	18	<	C	18	<	C	18		A	2
	Nichol Road 15 & Street C	TWSC	LOS Delay V/C Q		A	>	A	0	<	A	>	A	1	<	C		C	16	<	C		C	16	<	C	16	<	C	16	<	C	16	<	C	16	<	C	16	<	C	16	<	C	16		A	1
	Gerrie Road & Street C	TWSC	LOS Delay V/C Q	A	9		A	9		>	A	9		<	A		A	2	<	A		A	0	<	A	0	<	A	0	<	A	0	<	A	0	<	A	0	<	A	0	<	A	0		A	2

MOE - Measure of Effectiveness Q - 95th Percentile Queue Length (m) TCS - Traffic Control Signal < / > - Shared Turn Lane
 LOS - Level of Service Ex - Existing Available Storage (m) TWSC - Two-Way Stop Control
 Delay - Average Delay per Vehicle in Seconds Avail. - Available Storage (m) AWSC - All-Way Stop Control

4.2.4 2040 Total Traffic Operations

The study area intersection operations analysis for the future total traffic scenario followed the same methodology used for the 2040 background traffic conditions. **Table 4.4A-B** details the level of service conditions for the weekday AM and PM peak hours, respectively.

The study area intersections are forecast to operate within acceptable levels of service with the following critical movements noted:

- ▶ Geddes Street (Wellington Road 18) and James Street:
 - The minor left/right-turn approach with LOS F and v/c ratio greater than 1.00 during the PM peak hour.
- ▶ Woolwich Street/Nichol Road 15 and Irvine Street:
 - The northbound left/through/right-turn movement with LOS E and v/c ratio of 0.67 during the AM peak hour and LOS F and v/c ratio of 0.79 during the PM peak hour.
- ▶ East Mill Street (Wellington Road 18) and Irvine Street:
 - The southbound left/through/right-turn movement with LOS E and v/c ratio of 0.71 during the PM peak hour.
- ▶ Colborne Street and Gerrie Road:
 - The eastbound left/through/right-turn movement with LOS E and v/c ratio of 0.86 during the PM peak hour; and
 - The westbound left/through/right-turn movement with LOS E and v/c ratio of 0.88 during the PM peak hour.

Appendix F contains the detailed Synchro reports.

The new municipal roadway approaches to the boundary road network are forecast to operate at LOS C or better and v/c ratio of 0.22 or lower during the AM and PM peak hours.



TABLE 4.4A: 2040 TOTAL OPERATIONS (AM PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction / Movement / Approach																Overall			
				Eastbound				Westbound				Northbound				Southbound							
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach				
AM Peak Hour	Geddes Street (WR18) & James Street	TWSC	LOS Delay V/C Q					C 23 0.72 50		>	>	C 23		A 0 0.11 0	>	>	A 0	<	A 8 0.17 5		>	A 5	B 13
	Woolwich Street/Nichol Road 15 & Irvine Street	TWSC	LOS Delay V/C Q	<	A 8 0.01 0	>	A 0	<	A 8 0.08 0	>	A 2	<	E 37 0.67 36	>	E 37	<	C 22 0.04 1	>	C 22		>	C 22	A 9
	Irvine Street & Bricker Avenue	TWSC	LOS Delay V/C Q	B 11 0.07 2		>	B 11					<	A 8 0.01 0		A 1		A 0 0.16 2	>	A 0		>	A 0	A 1
	Colborne Street & Irvine Street	AWSC	LOS Delay V/C Q	<	B 11 0.29 10	>	B 11	<	B 14 0.48 21	>	B 14	<	B 10 0.17 5	>	B 10	<	C 17 0.60 31	>	C 17		>	C 17	B 14
	East Mill Street (WR18) & Irvine Street	TWSC	LOS Delay V/C Q	<	A 8 0.03 1	>	A 1	<	A 0 0.00 0	>	A 0	<	B 10 0.01 0	>	B 10	<	E 36 0.71 42	>	E 36		>	E 36	A 9
	Nichol Road 15 & Gerrie Road	TWSC	LOS Delay V/C Q	<	A 8 0.01 0	>	A 0	<	A 8 0.03 1	>	A 1	<	C 20 0.23 7	>	C 20	<	C 18 0.10 2	>	C 18		>	C 18	A 3
	Colborne Street & Gerrie Road	AWSC	LOS Delay V/C Q	<	C 18 0.61 34	>	C 18	<	B 14 0.41 16	>	B 14	<	B 13 0.27 9	>	B 13	<	C 17 0.57 29	>	C 17		>	C 17	C 16
	East Mill Street (WR18) & Gerrie Road	TCS	LOS Delay V/C Q Ex Avail.	B 10 0.05 5 30 25	A 7 0.35 38 -	>	A 8 -	<	A 8 0.41 41 -	>	A 8	<	A 0 0.00 0 -	>	A 0	<	C 27 0.70 66 -	>	C 27		>	C 27	B 13
	Irvine Street & Cachet Clayton/Street B	TWSC	LOS Delay V/C Q	<	B 11 0.17 5	>	B 11	<	B 12 0.18 5	>	B 12	<	A 8 0.02 1	>	A 1	<	A 8 0.01 0	>	A 1		>	A 1	A 5
	Nichol Road 15 & Street A	TWSC	LOS Delay V/C Q		A 0 0.20 0	>	A 0	<	A 8 0.01 0		A 0	B 15 0.22 6		B 15									A 2
	Nichol Road 15 & Street C	TWSC	LOS Delay V/C Q		A 0 0.22 0	>	A 0	<	A 8 0.01 0		A 0	B 14 0.11 3		B 14									A 1
	Gerrie Road & Street C	TWSC	LOS Delay V/C Q	A 9 0.05 2		>	A 9					<	A 7 0.01 0		A 1		A 0 0.06 0	>	A 0		>	A 0	A 3

MOE - Measure of Effectiveness Q - 95th Percentile Queue Length (m) TCS - Traffic Control Signal < / > - Shared Turn Lane
 LOS - Level of Service Ex. - Existing Available Storage (m) TWSC - Two-Way Stop Control
 Delay - Average Delay per Vehicle in Seconds Avail. - Available Storage (m) AWSC - All-Way Stop Control

TABLE 4.4B: 2040 TOTAL OPERATIONS (PM PEAK HOUR)

Analysis Period	Intersection	Control Type	MOE	Direction / Movement / Approach																Overall				
				Eastbound				Westbound				Northbound				Southbound								
				Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach	Left	Through	Right	Approach					
PM Peak Hour	Geddes Street (WR18) & James Street	TWSC	LOS Delay V/C Q					F 277 1.50 188		>	>	F 271			A 0 0.16 0	>	>	A 0		<	A 9 0.36 13		A 6	F 85
	Woolwich Street/Nichol Road 15 & Irvine Street	TWSC	LOS Delay V/C Q	<	A 8 0.00 0	>	A 0	<	A 9 0.12 3	>	>	A 3	<	F 51 0.79 50	>	>	F 51	<	D 29 0.12 3	>	>	D 29	B 11	
	Irvine Street & Bricker Avenue	TWSC	LOS Delay V/C Q	B 12 0.07 2		>	B 12						<	A 8 0.01 0			A 0		A 0 0.13 0	>	>	A 0	A 1	
	Colborne Street & Irvine Street	AWSC	LOS Delay V/C Q	<	D 26 0.74 51	>	D 26	<	C 24 0.71 46	>	>	C 24	<	C 15 0.40 15	>	>	C 15	<	C 18 0.52 23	>	>	C 18	C 22	
	East Mill Street (WR18) & Irvine Street	TWSC	LOS Delay V/C Q	<	A 9 0.09 2	>	A 2	<	A 8 0.00 0	>	>	A 0	<	D 26 0.01 0	>	>	D 26	<	C 24 0.42 16	>	>	C 24	A 4	
	Nichol Road 15 & Gerrie Road	TWSC	LOS Delay V/C Q	<	A 8 0.01 0	>	A 0	<	A 9 0.04 1	>	>	A 1	<	D 26 0.37 14	>	>	D 26	<	C 20 0.07 2	>	>	C 20	A 3	
	Colborne Street & Gerrie Road	AWSC	LOS Delay V/C Q	<	E 43 0.86 72	>	E 43	<	E 44 0.88 75	>	>	E 44	<	D 29 0.71 43	>	>	D 29	<	C 22 0.57 27	>	>	C 22	E 36	
	East Mill Street (WR18) & Gerrie Road	TCS	LOS Delay V/C Q Ex Avail.	B 10 0.13 9 30 21	A 5 0.34 43 -	>	A 6	<	A 7 0.56 73 -	>	>	A 7	<	A 0 0.00 0 -	>	>	A 0	<	C 24 0.56 32 -	>	>	C 24	A 9	
	Irvine Street & Cachet Clayton/Street B	TWSC	LOS Delay V/C Q	<	B 13 0.16 4	>	B 13	<	B 15 0.16 5	>	>	B 15	<	A 8 0.06 2	>	>	A 2	<	A 8 0.04 1	>	>	A 2	A 4	
	Nichol Road 15 & Street A	TWSC	LOS Delay V/C Q		A 0 0.34 0	>	A 0	<	A 9 0.05 2			A 1	C 19 0.21 6					C 19						A 2
	Nichol Road 15 & Street C	TWSC	LOS Delay V/C Q		A 0 0.32 0	>	A 0	<	A 9 0.02 0			A 1	C 16 0.09 2					C 16						A 1
Gerrie Road & Street C	TWSC	LOS Delay V/C Q	A 9 0.04 1		>	A 9						<	A 7 0.02 1			A 2		A 0 0.05 0	>	>	A 0	A 2		

MOE - Measure of Effectiveness Q - 95th Percentile Queue Length (m) TCS - Traffic Control Signal < / > - Shared Turn Lane
 LOS - Level of Service Ex. - Existing Available Storage (m) TWSC - Two-Way Stop Control
 Delay - Average Delay per Vehicle in Seconds Avail. - Available Storage (m) AWSC - All-Way Stop Control



5 Remedial Measures

The operational analysis indicates that several study area intersections are forecast to operate with delay and capacity constraints under future background and total traffic conditions. Traffic control signal justification and left-turn lane warrants intersections were undertaken at boundary road intersections and the new municipal street intersections.

5.1 Traffic Control Signal Justification

Table 5.1 summaries the Ontario Traffic Manual (OTM) Book 12 Justification 7⁷ analyses under future background and total traffic conditions at the following intersections:

- ▶ Geddes Street (Wellington Road 18) and James Street;
- ▶ Woolwich Street/Nichol Road 15 and Irvine Street;
- ▶ Colborne Street and Irvine Street;
- ▶ East Mill Street (Wellington Road 18) and Irvine Street;
- ▶ Colborne Street and Gerrie Road; and
- ▶ Nichol Road 15 and Gerrie Road.

It indicates that traffic control signals are not justified at the six intersections listed above. **Appendix G** includes the signal warrant worksheets.

Based on operations with background and total traffic, it is recommended that the road authority monitor operations at these intersections to ensure appropriate traffic control is provided.

⁷ Ontario Ministry of Transportation, *Ontario Traffic Manual Book 12: Traffic Signals*, (Toronto: Queen's Printer for Ontario, 2012).



TABLE 5.1: TRAFFIC CONTROL SIGNAL JUSTIFICATION

Intersection	Horizon	OTM Warrant Summary				Warranted	
		1A	1B	2A	2B	120%	150%
Geddes Street (WR18) & James Street	Background 2035	64%	116%	23%	283%	No	No
	Total 2035	72%	127%	27%	309%	No	No
	Background 2040	69%	126%	24%	306%	No	No
	Total 2040	77%	138%	28%	333%	No	No
Woolwich Street/Nichol Road 15 & Irvine Street	Background 2035	53%	44%	43%	58%	No	No
	Total 2035	67%	59%	53%	66%	No	No
	Background 2040	57%	47%	46%	60%	No	No
	Total 2040	71%	61%	57%	68%	No	No
Colborne Street & Irvine Street	Background 2035	56%	80%	37%	124%	No	No
	Total 2035	67%	119%	39%	159%	No	No
	Background 2040	61%	89%	39%	131%	No	No
	Total 2040	71%	124%	42%	167%	No	No
East Mill Street (WR18) & Irvine Street	Background 2035	54%	35%	46%	57%	No	No
	Total 2035	61%	49%	49%	63%	No	No
	Background 2040	59%	37%	51%	60%	No	No
	Total 2040	67%	51%	55%	66%	No	No
Colborne Street & Gerrie Road	Background 2035	66%	104%	41%	151%	No	No
	Total 2035	75%	135%	43%	197%	No	No
	Background 2040	70%	112%	44%	162%	No	No
	Total 2040	80%	143%	46%	209%	No	No
Nichol Road 15 & Gerrie Road	Background 2035	73%	20%	68%	21%	No	No
	Total 2035	90%	40%	80%	62%	No	No
	Background 2040	79%	22%	73%	23%	No	No
	Total 2040	96%	42%	86%	64%	No	No

5.2 Left-Turn Lanes

The need for dedicated left-turn lanes at the unsignalized intersections within the study area were assessed using Ministry of Transportation (MTO) procedures outlined in the *Design Supplement for the TAC Guide*⁸.

The percentages of left-turning vehicles in the approaching volume were rounded to the nearest 5%, as nomographs are only provided for 5% increments. This apparent requirement is due to the nature of the warrant procedure that assumes a minimum of 5% of left turning vehicles in the advancing volume. Therefore, left-turn lanes are automatically not warranted for any left turning volume less than 5%.

A design speed of 10 km/h over posted speed limit was assessed for the study area roadways. **Appendix H** contains the left-turn lane warrant nomographs.

⁸ Ontario Ministry of Transportation, *MTO Design Supplement for TAC Geometric Design Guide for Canadian Roads*, (Toronto: Queen's Printer for Ontario, 2020),



5.2.1 Irvine Street and Bricker Avenue

Table 5.2 summarizes the left-turn lane warrant for a northbound left-turn lane on Irvine Street at Bricker Avenue. It indicates a northbound left-turn lane is not warranted under future background and total traffic conditions.

TABLE 5.2: LEFT-TURN LANE WARRANT (IRVINE STREET & BRICKER AVENUE)

Roadway	Irvine Street							
Intersection	Bricker Avenue							
Approach Direction	Northbound							
Design Speed	60 km/h							
Horizon	BG (2035)		TT (2035)		BG (2040)		TT (2040)	
Peak Hour	AM	PM	AM	PM	AM	PM	AM	PM
Advancing Volume	109	173	142	278	115	178	148	283
Opposing Volumes	148	138	227	200	154	144	233	206
Left Turning Traffic	9	12	9	12	9	12	9	12
% of Left Turning Traffic	8.3%	6.9%	6.3%	4.3%	7.8%	6.7%	6.1%	4.2%
Figure Used*	9A-6	9A-6	9A-6	9A-6	9A-6	9A-6	9A-6	9A-6
Warranted	No	No	No	No	No	No	No	No
Storage Length Required	-	-	-	-	-	-	-	-

Based on MTO Design Supplement for TAC Geometric Design Guide for Canadian Roads - June 2017

5.2.2 Irvine Street and Cachet Clayton/Street B

Table 5.3 summarizes the left-turn lane warrant for a southbound left-turn lane on Irvine Street at the proposed Street B. It indicates that a southbound left-turn lane is not warranted under future total traffic conditions.



TABLE 5.3: LEFT-TURN LANE WARRANT (IRVINE STREET & STREET B)

Roadway	Irvine Street			
Intersection	Street B			
Approach Direction	Southbound			
Design Speed	60 km/h			
Horizon	TT (2035)		TT (2040)	
Peak Hour	AM	PM	AM	PM
Advancing Volume	163	218	169	224
Opposing Volumes	150	286	156	294
Left Turning Traffic	14	45	14	45
% of Left Turning Traffic	8.6%	20.6%	8.3%	20.1%
Figure Used*	9A-6	9A-7	9A-6	9A-7
Warranted	No	No	No	No
Storage Length Required	-	-	-	-

Based on MTO Design Supplement for TAC Geometric Design Guide for Canadian Roads - June 2017

Table 5.4 summarizes the left-turn lane warrant for a northbound left-turn lane on Irvine Street at the proposed Cachet Clayton Street. It indicates a northbound left-turn lane is not warranted under future traffic conditions.

TABLE 5.4: LEFT-TURN LANE WARRANT (IRVINE STREET & CACHET CLAYTON)

Roadway	Irvine Street							
Intersection	Cachet Clayton							
Approach Direction	Northbound							
Design Speed	60 km/h							
Horizon	BG (2035)		TT (2035)		BG (2040)		TT (2040)	
Peak Hour	AM	PM	AM	PM	AM	PM	AM	PM
Advancing Volume	117	181	150	286	123	189	156	294
Opposing Volumes	92	148	163	218	98	154	169	224
Left Turning Traffic	22	74	22	74	22	74	22	74
% of Left Turning Traffic	18.8%	40.9%	14.7%	25.9%	17.9%	39.2%	14.1%	25.2%
Figure Used*	9A-7	9A-9	9A-7	9A-8	9A-7	9A-9	9A-7	9A-8
Warranted	No	No	No	No	No	No	No	No
Storage Length Required	-	-	-	-	-	-	-	-

Based on MTO Design Supplement for TAC Geometric Design Guide for Canadian Roads - June 2017

5.2.3 Nichol Road 15 and Street A

Table 5.5 summarizes the left-turn lane warrant for a westbound left-turn lane on Nichol Road 15 at the proposed Street A. It indicates that a westbound left-turn lane with 15 metres of storage is warranted under future 2035 and 2040 total traffic conditions.



TABLE 5.5: LEFT-TURN LANE WARRANT (NICHOL ROAD 15 & STREET A)

Roadway	Nichol Road 15			
Intersection	Street A			
Approach Direction	Westbound			
Design Speed	70 km/h			
Horizon	TT (2035)		TT (2040)	
Peak Hour	AM	PM	AM	PM
Advancing Volume	376	378	405	405
Opposing Volumes	276	497	299	529
Left Turning Traffic	16	47	16	47
% of Left Turning Traffic	4.3%	12.4%	4.0%	11.6%
Figure Used*	9A-10	9A-10	9A-10	9A-10
Warranted	No	Yes	No	Yes
Storage Length Required	-	15m	-	15m

Based on MTO Design Supplement for TAC Geometric Design Guide for Canadian Roads - June 2017

5.2.4 Nichol Road 15 and Street C

Table 5.6 summarizes the left-turn lane warrant for a westbound left-turn lane on Nichol Road 15 at the proposed Street C. It indicates that a westbound left-turn lane is not warranted under future total traffic conditions.

TABLE 5.6: LEFT-TURN LANE WARRANT (NICHOL ROAD 15 & STREET C)

Roadway	Nichol Road 15			
Intersection	Street C			
Approach Direction	Westbound			
Design Speed	70 km/h			
Horizon	TT (2035)		TT (2040)	
Peak Hour	AM	PM	AM	PM
Advancing Volume	361	385	389	412
Opposing Volumes	339	466	361	498
Left Turning Traffic	8	23	8	23
% of Left Turning Traffic	2.2%	6.0%	2.1%	5.6%
Figure Used*		9A-10		9A-10
Warranted	No	No	No	No
Storage Length Required		-		-

Based on MTO Design Supplement for TAC Geometric Design Guide for Canadian Roads - June 2017



5.2.5 Gerrie Road and Street C

Table 5.7 summarizes the left-turn lane warrant for a northbound left-turn lane on Irvine Street at the proposed Street C. It indicates a northbound left-turn lane is not warranted under future total traffic conditions.

TABLE 5.7: LEFT-TURN LANE WARRANT (GERRIE ROAD & STREET C)

Roadway	Gerrie Road			
Intersection	Street C			
Approach Direction	Northbound			
Design Speed	60 km/h			
Horizon	TT (2035)		TT (2040)	
Peak Hour	AM	PM	AM	PM
Advancing Volume	57	105	59	107
Opposing Volumes	112	84	114	85
Left Turning Traffic	10	28	10	28
% of Left Turning Traffic	17.5%	26.7%	16.9%	26.2%
Figure Used*	9A-7	9A-8	9A-7	9A-8
Warranted	No	No		
Storage Length Required	-	-		

Based on MTO Design Supplement for TAC Geometric Design Guide for Canadian Roads - June 2017

5.2.6 Geddes Street (Wellington Road 18) & James Street

Table 5.8 summarizes the left-turn lane warrant for a southbound left-turn lane on Geddes Street (Wellington Road 18) at James Street. It indicates that a southbound left-turn lane with 25 metres of storage is warranted under future 2035 and 2040 background conditions. With the addition of the site generated traffic volumes, the storage length increases by 5 metres to 30 metres during the 2035 and 2040 total horizons.



TABLE 5.8: LEFT-TURN LANE WARRANT (GEDDES STREET & JAMES STREET)

Roadway	Geddes Street (WR18)							
Intersection	James Street							
Approach Direction	Southbound							
Design Speed	60 km/h							
Horizon	BG (2035)		TT (2035)		BG (2040)		TT (2040)	
Peak Hour	AM	PM	AM	PM	AM	PM	AM	PM
Advancing Volume	297	541	312	606	325	584	340	649
Opposing Volumes	146	198	156	224	160	218	170	244
Left Turning Traffic	188	337	203	402	204	359	219	424
% of Left Turning Traffic	63.3%	62.3%	65.1%	66.3%	62.8%	61.5%	64.4%	65.3%
Figure Used*	9A-9	9A-9	9A-9	9A-9	9A-9	9A-9	9A-9	9A-9
Warranted	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Storage Length Required	-	25m	15m	30m	15m	25m	15m	30m

Based on MTO Design Supplement for TAC Geometric Design Guide for Canadian Roads - June 2017

5.2.7 Woolwich Street/Nichol Road 15 and Irvine Street

An eastbound left-turn lane on Woolwich Street/Nichol Road 15 and Irvine Street is not warranted as the left-turn volume percentage is less than 5% under future background and total traffic conditions.

Table 5.9 summarizes the left-turn lane warrant for a westbound left-turn lane on Nichol Road 15 at Irvine Street. It indicates that a westbound left-turn lane with 15 metres of storage is warranted from the 2040 background horizon. With the addition of the site generated traffic, the storage length increases to 25 metres for the 2040 total traffic horizon.

TABLE 5.9: LEFT-TURN LANE WARRANT (NICHOL ROAD 15 & IRVINE STREET)

Roadway	Nichol Road 15							
Intersection	Irvine Street							
Approach Direction	Westbound							
Design Speed	50 km/h							
Horizon	BG (2035)		TT (2035)		BG (2040)		TT (2040)	
Peak Hour	AM	PM	AM	PM	AM	PM	AM	PM
Advancing Volume	320	293	442	365	349	320	471	392
Opposing Volumes	227	390	252	481	246	416	271	507
Left Turning Traffic	45	65	108	104	49	70	112	109
% of Left Turning Traffic	14.1%	22.2%	24.4%	28.5%	14.0%	21.9%	23.8%	27.8%
Figure Used*	9A-3	9A-3	9A-4	9A-4	9A-3	9A-3	9A-4	9A-4
Warranted	No	No	Yes	Yes	No	Yes	Yes	Yes
Storage Length Required	-	-	15m	15m	-	15m	15m	25m

Based on MTO Design Supplement for TAC Geometric Design Guide for Canadian Roads - June 2017



5.2.8 East Mill Street (Wellington Road 18) and Irvine Street

Table 5.10 summarizes the left-turn lane warrant for an eastbound left-turn lane on East Mill Street (Wellington Road 18) at Irvine Street. It indicates that an eastbound left-turn lane with 15 metres of storage is warranted under 2035 and 2040 total traffic conditions.

TABLE 5.10: LEFT-TURN LANE WARRANT (EAST MILL STREET & IRVINE STREET)

Roadway	East Mil Street (WR18)							
Intersection	Irvine Street							
Approach Direction	Eastbound							
Design Speed	50 km/h							
Horizon	BG (2035)		TT (2035)		BG (2040)		TT (2040)	
Peak Hour	AM	PM	AM	PM	AM	PM	AM	PM
Advancing Volume	325	352	347	405	358	385	380	438
Opposing Volumes	282	369	296	397	309	404	323	432
Left Turning Traffic	17	43	35	88	17	44	35	89
% of Left Turning Traffic	5.2%	12.2%	10.1%	21.7%	4.7%	11.4%	9.2%	20.3%
Figure Used*	9A-2	9A-2	9A-2	9A-3	9A-2	9A-2	9A-2	9A-3
Warranted	No	No	No	Yes	No	No	No	Yes
Storage Length Required	-	-	-	15m	-	-	-	15m

Based on MTO Design Supplement for TAC Geometric Design Guide for Canadian Roads - June 2017

5.2.9 Nichol Road 15 and Gerrie Road

An eastbound left-turn lane on Nichol Road 15 and Gerrie Road is not warranted as the left-turn volume percentage is less than 5% under future background and total traffic conditions.

Table 5.11 summarizes the left-turn lane warrant for a westbound left-turn lane on Nichol Road 15 at Gerrie Road. It indicates that a westbound left-turn lane with 15 metres of storage is warranted under 2035 and 2040 background traffic conditions. With the addition of the site generated traffic volumes, the storage length remains at 15 metres under 2035 and 2040 total traffic conditions.



TABLE 5.11: LEFT-TURN LANE WARRANT (NICHOL ROAD 15 & GERRIE ROAD)

Roadway	Nichol Road 15							
Intersection	Gerrie Road							
Approach Direction	Westbound							
Design Speed	90 km/h							
Horizon	BG (2035)		TT (2035)		BG (2040)		TT (2040)	
Peak Hour	AM	PM	AM	PM	AM	PM	AM	PM
Advancing Volume	343	331	361	372	373	359	391	400
Opposing Volumes	240	384	350	451	262	416	372	483
Left Turning Traffic	28	36	31	42	30	37	33	43
% of Left Turning Traffic	8.2%	10.9%	8.6%	11.3%	8.0%	10.3%	8.4%	10.8%
Figure Used*	9A-18	9A-18	9A-18	9A-18	9A-18	9A-18	9A-18	9A-18
Warranted	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Storage Length Required	15m	15m	15m	15m	15m	15m	15m	15m

Based on MTO Design Supplement for TAC Geometric Design Guide for Canadian Roads - June 2017



6 Conclusions and Recommendations

6.1 Conclusions

Based on the investigations carried out, it is concluded that:

- ▶ **Existing Traffic Conditions:** The study area intersections are currently operating within acceptable levels of service with no specific problem movements during the AM and PM peak hours.
- ▶ **Development Trip Generation:** The residential development is forecast to generate approximately 378 and 502 trips during the AM and PM peak hours upon full build-out.
- ▶ **Background Traffic Conditions:** The study area intersections are forecast to operate within acceptable levels of service under 2035 and 2040 background horizons with the following intersections noted to have critical movements:
 - Geddes Street (Wellington Road 18) and James Street (from the 2035 background horizon).
- ▶ **Total Traffic Conditions:** The study area intersections are forecast to operate within acceptable levels of service under 2035 and 2040 background horizons with the following intersections noted to have critical movements:
 - Geddes Street (Wellington Road 18) and James Street (from the 2035 total horizon);
 - Woolwich Street/Nichol Road 15 and Irvine Street (from the 2035 total horizon);
 - East Mill Street (Wellington Road 18) and Irvine Street (from the 2040 total horizon); and
 - Colborne Street and Gerrie Road (from the 2040 total horizon).
- ▶ The proposed municipal street connections to Irvine Street, Nichol Road 15, and Gerrie Road are forecast to operate within acceptable levels of service during the AM and PM peak hours under 2035 and 2040 total traffic conditions.
- ▶ **Remedial Measures:** Traffic control signals are not warranted at the following intersections under 2035 and 2040 future traffic conditions:
 - Geddes Street (Wellington Road 18) and James Street;
 - Woolwich Street/Nichol Road 15 and Irvine Street;
 - Colborne Street and Irvine Street;



- East Mill Street (Wellington Road 18) and Irvine Street;
 - Colborne Street and Gerrie Road; and
 - Nichol Road 15 and Gerrie Road.
- ▶ Left-turn lanes are warranted at the following intersections:
- Southbound on Geddes Street (Wellington Road 18) at James Street under future background and total traffic conditions;
 - Westbound on Nichol Road 15 at Irvine Street under future background and total traffic conditions;
 - Westbound on Nichol Road 15 at Gerrie Road under future background and total traffic conditions;
 - Eastbound on East Mill Street (Wellington Road 18) at Irvine Street under total traffic conditions; and
 - Westbound on Nichol Road 15 at Street A under total traffic conditions.

6.2 Recommendations

Based on the findings of this study it is recommended that the development be approved with construction of a 15-metre westbound left-turn lane on Nichol Road 15 at Street A upon completion of the subject site.

It is further recommended that:

- ▶ The road authority monitors operations at the following intersections to ensue appropriate traffic control to accommodate the future traffic demands:
 - Geddes Street (Wellington Road 18) and James Street;
 - Woolwich Street/Nichol Road 15 and Irvine Street;
 - Colborne Street and Irvine Street;
 - East Mill Street (Wellington Road 18) and Irvine Street; and
 - Colborne Street and Gerrie Road.
- ▶ The road authority considers installing the following left-turn lanes:
 - Southbound on Geddes Street (Wellington Road 18) at James Street with 30 metres of storage upon the completion of the subject site;



- Westbound on Nichol Road 15 and Irvine Street with 25 metres of storage upon the completion of the subject site;
- Westbound on Nichol Road 15 at Gerrie Road with 15 metres of storage by the 2035 horizon year. Upon the completion of the subject site, the storage length should be extended to 25 metres;
- Eastbound on East Mill Street (Wellington Road 18) and Irvine Street with 25 metres of storage upon the completion of the subject site.



Appendix A

Pre-Study Consultation



From: [Andrew Evans](#)
To: [Lee Wheildon](#)
Cc: [Erica Bayley](#)
Subject: (240695) Elora Sands TIA - Scope of Work
Date: November 28, 2024 2:58:00 PM
Attachments: [2023 05 30 Elora Sands Concept Plan2-Concept.pdf](#)
[image001.png](#)

Greetings,

Paradigm Transportation Solutions Limited is preparing the Transportation Impact Assessment for a proposed residential development of the lands bounded by Nichol Road 15 to the north, Irvine Street to the west, and Gerrie Road to the east in the Township of Centre Wellington, ON.

Below is a brief description of the concept and our proposed terms of reference for the TIA. Please review and provide comment at your earliest convenience.

SITE DESCRIPTION

-
The property owner is proposing to develop the lands with approximately 633 single-family units, 675 townhome units, and a Senior residence (approximately 100 units).
The concept plan is attached.

Vehicle access are proposed via six new municipal roadway connections that include two onto Irvine Street, two onto Nichol Road 15, and two onto Gerrie Road.

PROPOSED TERMS OF REFERENCE

-
Study Area Intersections:

1. Geddes Street & James Street (unsignalized)
2. Woolwich Street/Nichol Road 15 & Irvine Street (unsignalized)
3. Nichol Rd 15 & Gerrie Road (unsignalized)
4. Irvine Street & Bricker Avenue (unsignalized)
5. Irvine Street & Colborne Street (unsignalized)
6. Gerrie Road & Colborne Street (unsignalized)
7. East Mill Street & Irvine Street (unsignalized)
8. Wellington Road 18 & Gerrie Road (signalized); and
9. Six new municipal roadway connections to the boundary road network.

Analysis Periods:

- Weekday AM peak hour
- Weekday PM peak hour

Horizon Year

- Five-years from the assumed full build-out (Year 2035); and
- Ten-year from the assumed full build-out (Year 2040).

Existing Data:

- Eight Hour TMC at the study area intersections

Analysis

- Synchro 11

Background Traffic

- Generalized growth rate: 2.0%/annum **to be confirmed by Township**
- Active Development Applications: **to be confirmed/provided by Township**
 - Remaining Phases from Northwest Fergus Secondary Plan (Storybrook West)
 - Ainley Residential Development
 - Cachet Clayton Residential Subdivision

Future Road Improvements: **to be provided by Township**

Trip Generation

- ITE Trip Generation Data 11th Edition with no modal split reductions.

Site Traffic Distribution

- Based on existing traffic patterns and anticipated destinations (work/shopping/employment) and location of arterial and collector roadways.

Report

- We will document the study methodologies, findings, and conclusions in a report with appendices containing the detailed analysis results and any data collected.

Please let us know your comments on the study.

Thank you and regards.

Andrew Evans, M.Sc.

Transportation Planner, Associate

Paradigm Transportation Solutions Limited

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Office Hours: 07:30 – 17:30 M-T, closed Fridays



Appendix B

Traffic Data





Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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Count Name: Geddes Street & James Street
Site Code: 240695
Start Date: 11/20/2024
Page No: 1

Turning Movement Data

Start Time	James Street Westbound					Geddes Street Northbound					Geddes Street Southbound					Int. Total
	Left	Right	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	
7:00 AM	4	27	0	2	31	22	3	0	0	25	15	8	0	0	23	79
7:15 AM	3	34	0	0	37	21	2	0	0	23	25	12	0	0	37	97
7:30 AM	11	50	0	2	61	21	4	0	0	25	21	21	0	0	42	128
7:45 AM	7	43	0	0	50	26	2	0	0	28	30	23	0	0	53	131
Hourly Total	25	154	0	4	179	90	11	0	0	101	91	64	0	0	155	435
8:00 AM	4	50	0	1	54	17	8	0	1	25	29	17	0	0	46	125
8:15 AM	5	37	0	0	42	22	9	0	0	31	21	27	0	0	48	121
8:30 AM	6	38	0	0	44	27	4	0	0	31	28	25	0	0	53	128
8:45 AM	11	29	0	0	40	19	13	0	0	32	34	24	0	0	58	130
Hourly Total	26	154	0	1	180	85	34	0	1	119	112	93	0	0	205	504
9:00 AM	18	25	0	1	43	10	6	0	1	16	12	14	0	0	26	85
9:15 AM	10	15	0	0	25	27	6	0	0	33	16	21	0	0	37	95
9:30 AM	6	24	0	0	30	11	2	0	0	13	20	10	0	0	30	73
9:45 AM	5	19	0	0	24	15	9	0	0	24	21	27	0	0	48	96
Hourly Total	39	83	0	1	122	63	23	0	1	86	69	72	0	0	141	349
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:30 AM	6	19	0	1	25	13	4	0	0	17	13	20	0	0	33	75
11:45 AM	4	14	0	0	18	23	11	0	0	34	11	15	0	0	26	78
Hourly Total	10	33	0	1	43	36	15	0	0	51	24	35	0	0	59	153
12:00 PM	7	21	0	0	28	16	5	0	0	21	12	18	0	0	30	79
12:15 PM	3	17	0	0	20	19	5	0	0	24	9	21	0	0	30	74
12:30 PM	3	18	0	0	21	15	6	0	0	21	12	24	0	0	36	78
12:45 PM	6	13	0	0	19	27	6	0	0	33	24	18	0	0	42	94
Hourly Total	19	69	0	0	88	77	22	0	0	99	57	81	0	0	138	325
1:00 PM	6	21	0	2	27	18	4	0	0	22	23	24	0	0	47	96
1:15 PM	8	12	0	0	20	15	13	0	0	28	17	24	0	0	41	89
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	14	33	0	2	47	33	17	0	0	50	40	48	0	0	88	185
3:00 PM	7	21	0	0	28	25	12	0	0	37	23	27	1	0	51	116
3:15 PM	15	31	0	0	46	14	8	0	0	22	34	21	0	0	55	123
3:30 PM	11	26	0	2	37	18	11	0	0	29	23	19	0	0	42	108
3:45 PM	11	26	0	0	37	30	10	0	0	40	34	39	0	0	73	150
Hourly Total	44	104	0	2	148	87	41	0	0	128	114	106	1	0	221	497
4:00 PM	4	34	0	0	38	27	14	0	0	41	26	27	0	0	53	132
4:15 PM	17	27	0	0	44	24	6	0	0	30	37	42	0	0	79	153
4:30 PM	7	39	0	2	46	27	9	0	0	36	41	41	0	0	82	164

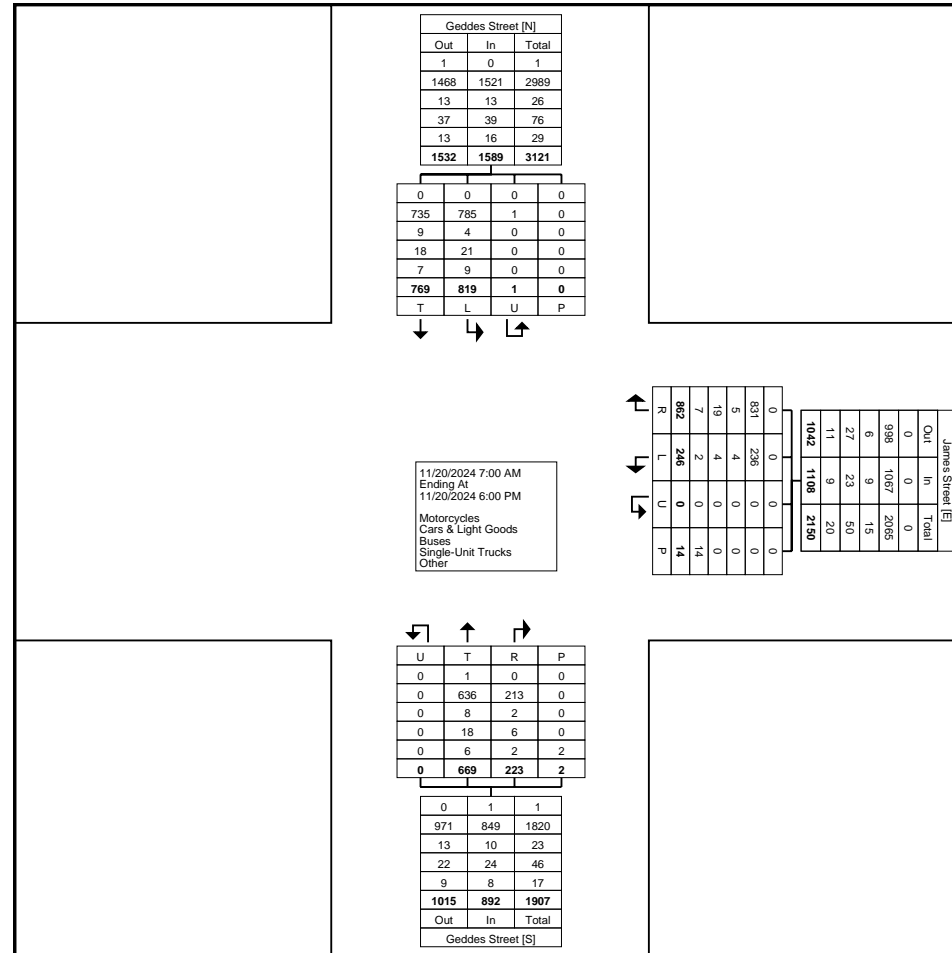
4:45 PM	12	33	0	1	45	21	5	0	0	26	42	50	0	0	92	163
Hourly Total	40	133	0	3	173	99	34	0	0	133	146	160	0	0	306	612
5:00 PM	7	34	0	0	41	45	12	0	0	57	50	31	0	0	81	179
5:15 PM	6	28	0	0	34	18	9	0	0	27	41	33	0	0	74	135
5:30 PM	8	22	0	0	30	19	4	0	0	23	48	30	0	0	78	131
5:45 PM	8	15	0	0	23	17	1	0	0	18	27	16	0	0	43	84
Hourly Total	29	99	0	0	128	99	26	0	0	125	166	110	0	0	276	529
Grand Total	246	862	0	14	1108	669	223	0	2	892	819	769	1	0	1589	3589
Approach %	22.2	77.8	0.0	-	-	75.0	25.0	0.0	-	-	51.5	48.4	0.1	-	-	-
Total %	6.9	24.0	0.0	-	30.9	18.6	6.2	0.0	-	24.9	22.8	21.4	0.0	-	44.3	-
Motorcycles	0	0	0	-	0	1	0	0	-	1	0	0	0	-	0	1
% Motorcycles	0.0	0.0	-	-	0.0	0.1	0.0	-	-	0.1	0.0	0.0	0.0	-	0.0	0.0
Cars & Light Goods	236	831	0	-	1067	636	213	0	-	849	785	735	1	-	1521	3437
% Cars & Light Goods	95.9	96.4	-	-	96.3	95.1	95.5	-	-	95.2	95.8	95.6	100.0	-	95.7	95.8
Buses	4	5	0	-	9	8	2	0	-	10	4	9	0	-	13	32
% Buses	1.6	0.6	-	-	0.8	1.2	0.9	-	-	1.1	0.5	1.2	0.0	-	0.8	0.9
Single-Unit Trucks	4	19	0	-	23	18	6	0	-	24	21	18	0	-	39	86
% Single-Unit Trucks	1.6	2.2	-	-	2.1	2.7	2.7	-	-	2.7	2.6	2.3	0.0	-	2.5	2.4
Articulated Trucks	1	6	0	-	7	4	1	0	-	5	8	6	0	-	14	26
% Articulated Trucks	0.4	0.7	-	-	0.6	0.6	0.4	-	-	0.6	1.0	0.8	0.0	-	0.9	0.7
Bicycles on Road	1	1	0	-	2	2	1	0	-	3	1	1	0	-	2	7
% Bicycles on Road	0.4	0.1	-	-	0.2	0.3	0.4	-	-	0.3	0.1	0.1	0.0	-	0.1	0.2
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	0.0	-	-	-	-	-	-	-
Pedestrians	-	-	-	14	-	-	-	-	2	-	-	-	-	0	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	-	-	-



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Count Name: Geddes Street & James Street
Site Code: 240695
Start Date: 11/20/2024
Page No: 3



Turning Movement Data Plot



Paradigm Transportation Solutions Limited
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Count Name: Geddes Street & James Street
Site Code: 240695
Start Date: 11/20/2024
Page No: 4

Turning Movement Peak Hour Data (7:30 AM)

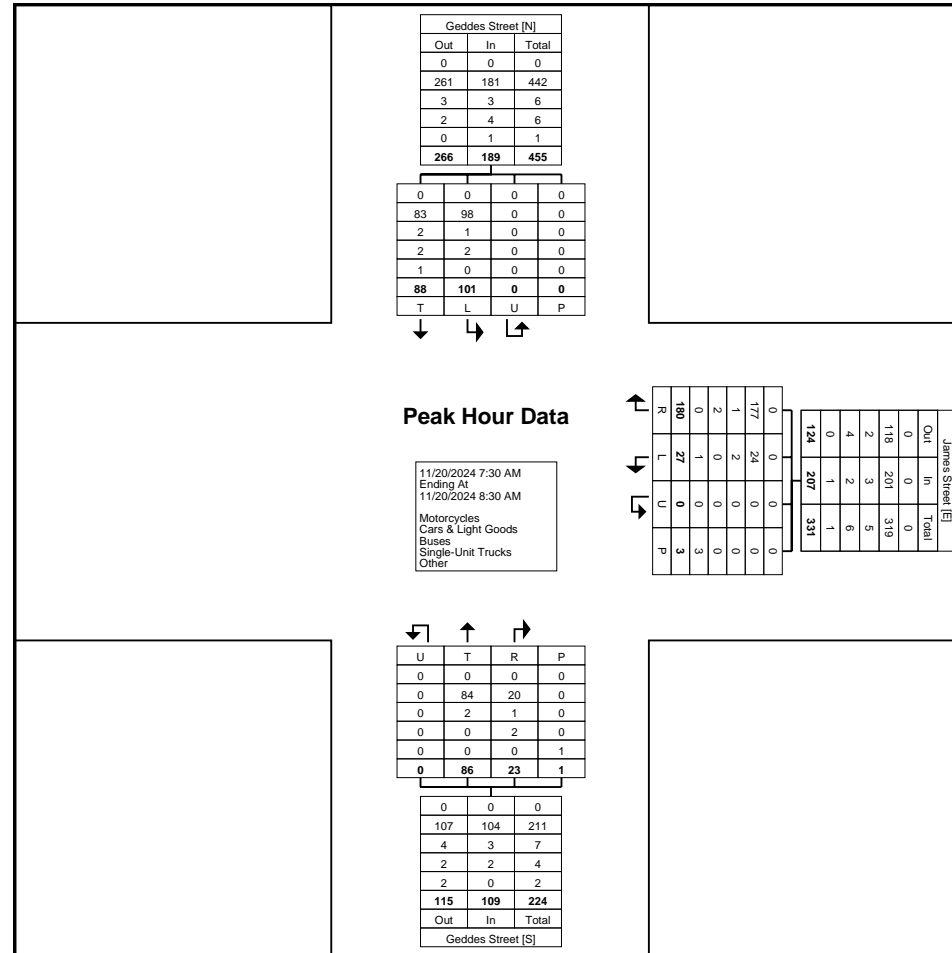
Start Time	James Street Westbound					Geddes Street Northbound					Geddes Street Southbound					Int. Total
	Left	Right	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	
7:30 AM	11	50	0	2	61	21	4	0	0	25	21	21	0	0	42	128
7:45 AM	7	43	0	0	50	26	2	0	0	28	30	23	0	0	53	131
8:00 AM	4	50	0	1	54	17	8	0	1	25	29	17	0	0	46	125
8:15 AM	5	37	0	0	42	22	9	0	0	31	21	27	0	0	48	121
Total	27	180	0	3	207	86	23	0	1	109	101	88	0	0	189	505
Approach %	13.0	87.0	0.0	-	-	78.9	21.1	0.0	-	-	53.4	46.6	0.0	-	-	-
Total %	5.3	35.6	0.0	-	41.0	17.0	4.6	0.0	-	21.6	20.0	17.4	0.0	-	37.4	-
PHF	0.614	0.900	0.000	-	0.848	0.827	0.639	0.000	-	0.879	0.842	0.815	0.000	-	0.892	0.964
Motorcycles	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	24	177	0	-	201	84	20	0	-	104	98	83	0	-	181	486
% Cars & Light Goods	88.9	98.3	-	-	97.1	97.7	87.0	-	-	95.4	97.0	94.3	-	-	95.8	96.2
Buses	2	1	0	-	3	2	1	0	-	3	1	2	0	-	3	9
% Buses	7.4	0.6	-	-	1.4	2.3	4.3	-	-	2.8	1.0	2.3	-	-	1.6	1.8
Single-Unit Trucks	0	2	0	-	2	0	2	0	-	2	2	2	0	-	4	8
% Single-Unit Trucks	0.0	1.1	-	-	1.0	0.0	8.7	-	-	1.8	2.0	2.3	-	-	2.1	1.6
Articulated Trucks	0	0	0	-	0	0	0	0	-	0	0	1	0	-	1	1
% Articulated Trucks	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	1.1	-	-	0.5	0.2
Bicycles on Road	1	0	0	-	1	0	0	0	-	0	0	0	0	-	0	1
% Bicycles on Road	3.7	0.0	-	-	0.5	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.2
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	0.0	-	-	-	-	-	-	-
Pedestrians	-	-	-	3	-	-	-	-	1	-	-	-	-	0	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	-	-	-



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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Count Name: Geddes Street & James Street
Site Code: 240695
Start Date: 11/20/2024
Page No: 5



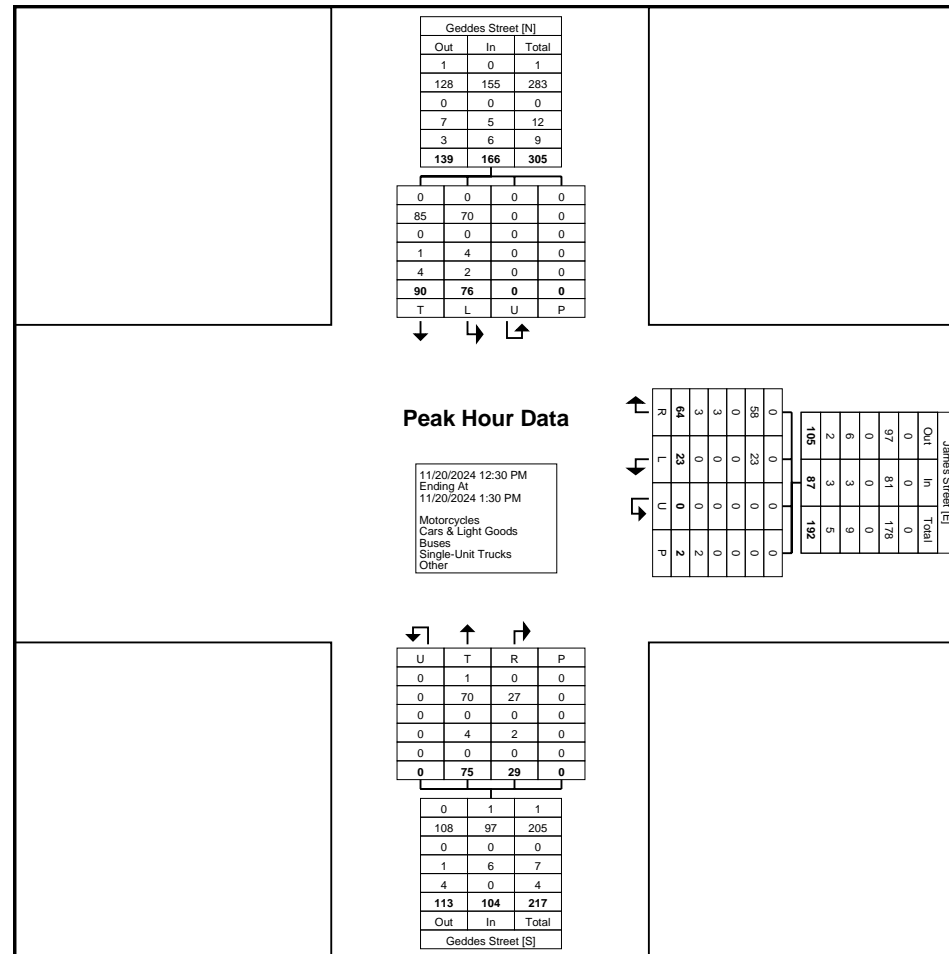
Turning Movement Peak Hour Data Plot (7:30 AM)



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Count Name: Geddes Street & James Street
Site Code: 240695
Start Date: 11/20/2024
Page No: 7



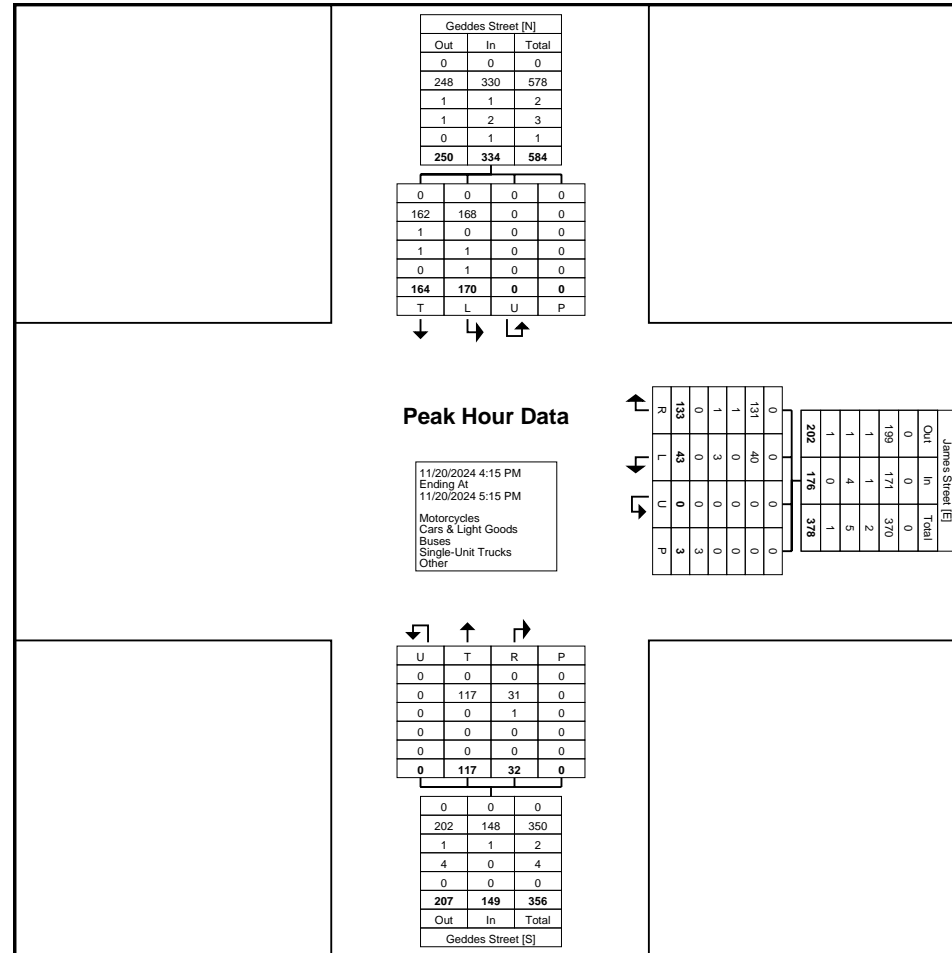
Turning Movement Peak Hour Data Plot (12:30 PM)



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Count Name: Geddes Street & James Street
Site Code: 240695
Start Date: 11/20/2024
Page No: 9



Turning Movement Peak Hour Data Plot (4:15 PM)



Paradigm Transportation Solutions Limited
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Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@pts.com

Count Name: Woolwich Street & Irvine Street
Site Code: 240695
Start Date: 11/20/2024
Page No: 1

Turning Movement Data

Start Time	Woolwich Street Eastbound						Woolwich Street Westbound						Irvine Street Northbound						Irvine Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:00 AM	0	18	0	0	0	18	0	28	0	0	0	28	0	0	5	0	0	5	0	0	2	0	0	2	53
7:15 AM	1	25	1	0	0	27	1	42	0	0	0	43	1	0	7	0	0	8	0	0	1	0	0	1	79
7:30 AM	0	25	2	0	0	27	9	57	0	0	0	66	1	0	9	0	0	10	0	0	4	0	0	4	107
7:45 AM	1	28	0	0	0	29	10	51	0	0	0	61	3	0	9	0	0	12	0	0	2	0	0	2	104
Hourly Total	2	96	3	0	0	101	20	178	0	0	0	198	5	0	30	0	0	35	0	0	9	0	0	9	343
8:00 AM	0	35	3	0	0	38	7	49	2	0	0	58	0	1	3	0	0	4	0	1	0	0	0	1	101
8:15 AM	1	24	3	0	0	28	9	48	0	0	0	57	2	1	8	0	0	11	0	0	0	0	0	0	96
8:30 AM	2	27	2	0	0	31	10	48	1	0	0	59	7	0	11	0	0	18	2	2	0	0	0	4	112
8:45 AM	2	49	4	0	0	55	4	40	0	0	0	44	7	0	12	0	0	19	0	0	1	0	2	1	119
Hourly Total	5	135	12	0	0	152	30	185	3	0	0	218	16	2	34	0	0	52	2	3	1	0	2	6	428
9:00 AM	1	25	2	0	0	28	4	42	0	0	0	46	0	1	8	0	0	9	0	2	2	0	0	4	87
9:15 AM	1	22	1	0	0	24	2	27	1	0	0	30	1	1	5	0	0	7	1	0	0	0	0	1	62
9:30 AM	1	21	0	0	0	22	4	27	1	0	0	32	1	0	3	0	0	4	1	1	1	0	0	3	61
9:45 AM	1	23	1	0	0	25	1	26	0	0	0	27	1	1	6	0	0	8	0	0	1	0	0	1	61
Hourly Total	4	91	4	0	0	99	11	122	2	0	0	135	3	3	22	0	0	28	2	3	4	0	0	9	271
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:30 AM	0	18	0	0	0	18	5	20	2	0	0	27	0	0	7	0	0	7	0	0	0	0	0	0	52
11:45 AM	3	14	0	0	0	17	11	17	2	0	0	30	0	0	3	0	0	3	2	1	1	0	0	4	54
Hourly Total	3	32	0	0	0	35	16	37	4	0	0	57	0	0	10	0	0	10	2	1	1	0	0	4	106
12:00 PM	0	18	0	0	0	18	6	24	0	0	0	30	3	0	10	0	0	13	0	2	1	0	0	3	64
12:15 PM	0	19	0	0	0	19	7	16	0	0	0	23	1	0	7	0	0	8	3	0	1	0	0	4	54
12:30 PM	0	18	0	0	0	18	3	23	0	0	0	26	0	0	6	0	0	6	0	0	0	0	0	0	50
12:45 PM	0	28	1	0	0	29	4	22	1	0	0	27	0	0	6	0	0	6	0	0	0	0	0	0	62
Hourly Total	0	83	1	0	0	84	20	85	1	0	0	106	4	0	29	0	0	33	3	2	2	0	0	7	230
1:00 PM	0	27	1	0	0	28	5	21	1	0	0	27	1	1	4	0	0	6	2	1	1	0	0	4	65
1:15 PM	2	22	1	0	0	25	6	14	0	0	0	20	0	0	3	0	0	3	0	1	1	0	0	2	50
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	2	49	2	0	0	53	11	35	1	0	0	47	1	1	7	0	0	9	2	2	2	0	0	6	115
3:00 PM	0	29	4	0	0	33	5	36	0	0	0	41	3	1	13	0	0	17	1	0	1	0	0	2	93
3:15 PM	1	48	6	0	0	55	5	39	0	0	0	44	6	1	16	0	0	23	3	1	2	0	0	6	128
3:30 PM	1	41	7	0	0	49	9	32	3	0	0	44	3	1	4	0	0	8	1	0	0	0	0	1	102
3:45 PM	1	34	4	0	0	39	5	31	1	0	0	37	1	1	5	0	0	7	1	0	0	0	0	1	84
Hourly Total	3	152	21	0	0	176	24	138	4	0	0	166	13	4	38	0	0	55	6	1	3	0	0	10	407
4:00 PM	0	38	0	0	0	38	12	34	1	0	0	47	0	0	8	0	0	8	3	1	1	0	0	5	98
4:15 PM	2	43	1	0	0	46	12	46	0	0	0	58	1	1	12	0	0	14	1	1	1	0	0	3	121

4:30 PM	0	51	1	0	0	52	7	52	0	0	0	59	3	1	9	0	0	13	2	2	0	0	0	4	128
4:45 PM	1	44	0	0	0	45	12	36	0	0	0	48	3	0	10	0	0	13	2	0	1	0	0	3	109
Hourly Total	3	176	2	0	0	181	43	168	1	0	0	212	7	2	39	0	0	48	8	4	3	0	0	15	456
5:00 PM	1	62	2	0	0	65	7	38	0	0	0	45	1	0	10	0	0	11	0	3	1	0	0	4	125
5:15 PM	0	54	0	0	0	54	11	36	3	0	0	50	1	0	6	0	0	7	0	1	0	0	0	1	112
5:30 PM	0	49	0	0	0	49	11	24	0	0	0	35	0	0	10	0	0	10	0	0	2	0	0	2	96
5:45 PM	0	31	1	0	0	32	6	19	1	0	0	26	0	1	3	0	0	4	0	0	0	0	0	0	62
Hourly Total	1	196	3	0	0	200	35	117	4	0	0	156	2	1	29	0	0	32	0	4	3	0	0	7	395
Grand Total	23	1010	48	0	0	1081	210	1065	20	0	0	1295	51	13	238	0	0	302	25	20	28	0	2	73	2751
Approach %	2.1	93.4	4.4	0.0	-	-	16.2	82.2	1.5	0.0	-	-	16.9	4.3	78.8	0.0	-	-	34.2	27.4	38.4	0.0	-	-	-
Total %	0.8	36.7	1.7	0.0	-	39.3	7.6	38.7	0.7	0.0	-	47.1	1.9	0.5	8.7	0.0	-	11.0	0.9	0.7	1.0	0.0	-	2.7	-
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	22	967	39	0	-	1028	203	1027	18	0	-	1248	36	11	224	0	-	271	25	16	26	0	-	67	2614
% Cars & Light Goods	95.7	95.7	81.3	-	-	95.1	96.7	96.4	90.0	-	-	96.4	70.6	84.6	94.1	-	-	89.7	100.0	80.0	92.9	-	-	91.8	95.0
Buses	0	10	7	0	-	17	3	9	0	0	-	12	14	2	10	0	-	26	0	3	0	0	-	3	58
% Buses	0.0	1.0	14.6	-	-	1.6	1.4	0.8	0.0	-	-	0.9	27.5	15.4	4.2	-	-	8.6	0.0	15.0	0.0	-	-	4.1	2.1
Single-Unit Trucks	0	24	0	0	-	24	4	24	2	0	-	30	0	0	4	0	-	4	0	1	1	0	-	2	60
% Single-Unit Trucks	0.0	2.4	0.0	-	-	2.2	1.9	2.3	10.0	-	-	2.3	0.0	0.0	1.7	-	-	1.3	0.0	5.0	3.6	-	-	2.7	2.2
Articulated Trucks	1	9	0	0	-	10	0	5	0	0	-	5	0	0	0	0	-	0	0	0	1	0	-	1	16
% Articulated Trucks	4.3	0.9	0.0	-	-	0.9	0.0	0.5	0.0	-	-	0.4	0.0	0.0	0.0	-	-	0.0	0.0	0.0	3.6	-	-	1.4	0.6
Bicycles on Road	0	0	2	0	-	2	0	0	0	0	-	0	1	0	0	0	-	1	0	0	0	0	-	0	3
% Bicycles on Road	0.0	0.0	4.2	-	-	0.2	0.0	0.0	0.0	-	-	0.0	2.0	0.0	0.0	-	-	0.3	0.0	0.0	0.0	-	-	0.0	0.1
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	2	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsll.com

Count Name: Woolwich Street & Irvine Street
Site Code: 240695
Start Date: 11/20/2024
Page No: 4

Turning Movement Peak Hour Data (8:00 AM)

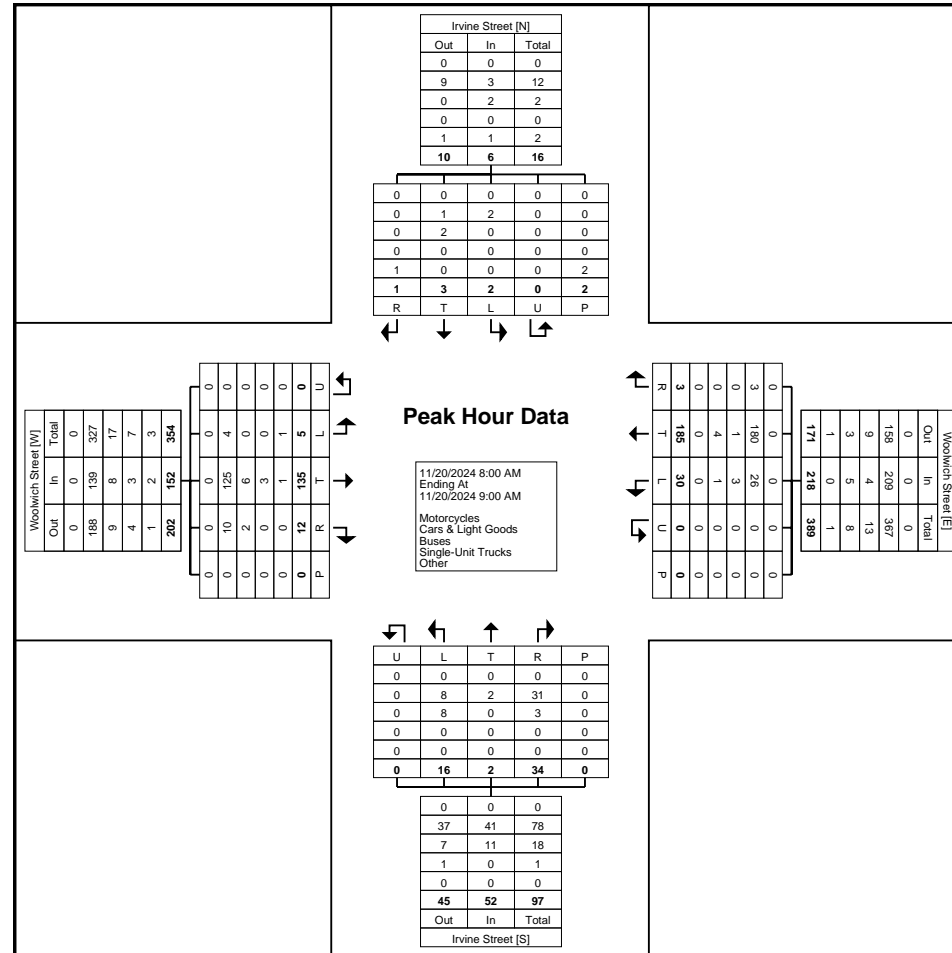
Start Time	Woolwich Street Eastbound						Woolwich Street Westbound						Irvine Street Northbound						Irvine Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
8:00 AM	0	35	3	0	0	38	7	49	2	0	0	58	0	1	3	0	0	4	0	1	0	0	0	1	101
8:15 AM	1	24	3	0	0	28	9	48	0	0	0	57	2	1	8	0	0	11	0	0	0	0	0	0	96
8:30 AM	2	27	2	0	0	31	10	48	1	0	0	59	7	0	11	0	0	18	2	2	0	0	0	4	112
8:45 AM	2	49	4	0	0	55	4	40	0	0	0	44	7	0	12	0	0	19	0	0	1	0	2	1	119
Total	5	135	12	0	0	152	30	185	3	0	0	218	16	2	34	0	0	52	2	3	1	0	2	6	428
Approach %	3.3	88.8	7.9	0.0	-	-	13.8	84.9	1.4	0.0	-	-	30.8	3.8	65.4	0.0	-	-	33.3	50.0	16.7	0.0	-	-	-
Total %	1.2	31.5	2.8	0.0	-	35.5	7.0	43.2	0.7	0.0	-	50.9	3.7	0.5	7.9	0.0	-	12.1	0.5	0.7	0.2	0.0	-	1.4	-
PHF	0.625	0.689	0.750	0.000	-	0.691	0.750	0.944	0.375	0.000	-	0.924	0.571	0.500	0.708	0.000	-	0.684	0.250	0.375	0.250	0.000	-	0.375	0.899
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	4	125	10	0	-	139	26	180	3	0	-	209	8	2	31	0	-	41	2	1	0	0	-	3	392
% Cars & Light Goods	80.0	92.6	83.3	-	-	91.4	86.7	97.3	100.0	-	-	95.9	50.0	100.0	91.2	-	-	78.8	100.0	33.3	0.0	-	-	50.0	91.6
Buses	0	6	2	0	-	8	3	1	0	0	-	4	8	0	3	0	-	11	0	2	0	0	-	2	25
% Buses	0.0	4.4	16.7	-	-	5.3	10.0	0.5	0.0	-	-	1.8	50.0	0.0	8.8	-	-	21.2	0.0	66.7	0.0	-	-	33.3	5.8
Single-Unit Trucks	0	3	0	0	-	3	1	4	0	0	-	5	0	0	0	0	-	0	0	0	0	0	-	0	8
% Single-Unit Trucks	0.0	2.2	0.0	-	-	2.0	3.3	2.2	0.0	-	-	2.3	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	1.9
Articulated Trucks	1	1	0	0	-	2	0	0	0	0	-	0	0	0	0	0	-	0	0	0	1	0	-	1	3
% Articulated Trucks	20.0	0.7	0.0	-	-	1.3	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	100.0	-	-	16.7	0.7
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	2	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
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Count Name: Woolwich Street & Irvine Street
Site Code: 240695
Start Date: 11/20/2024
Page No: 5



Turning Movement Peak Hour Data Plot (8:00 AM)



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@pts1.com

Count Name: Woolwich Street & Irvine Street
Site Code: 240695
Start Date: 11/20/2024
Page No: 6

Turning Movement Peak Hour Data (12:15 PM)

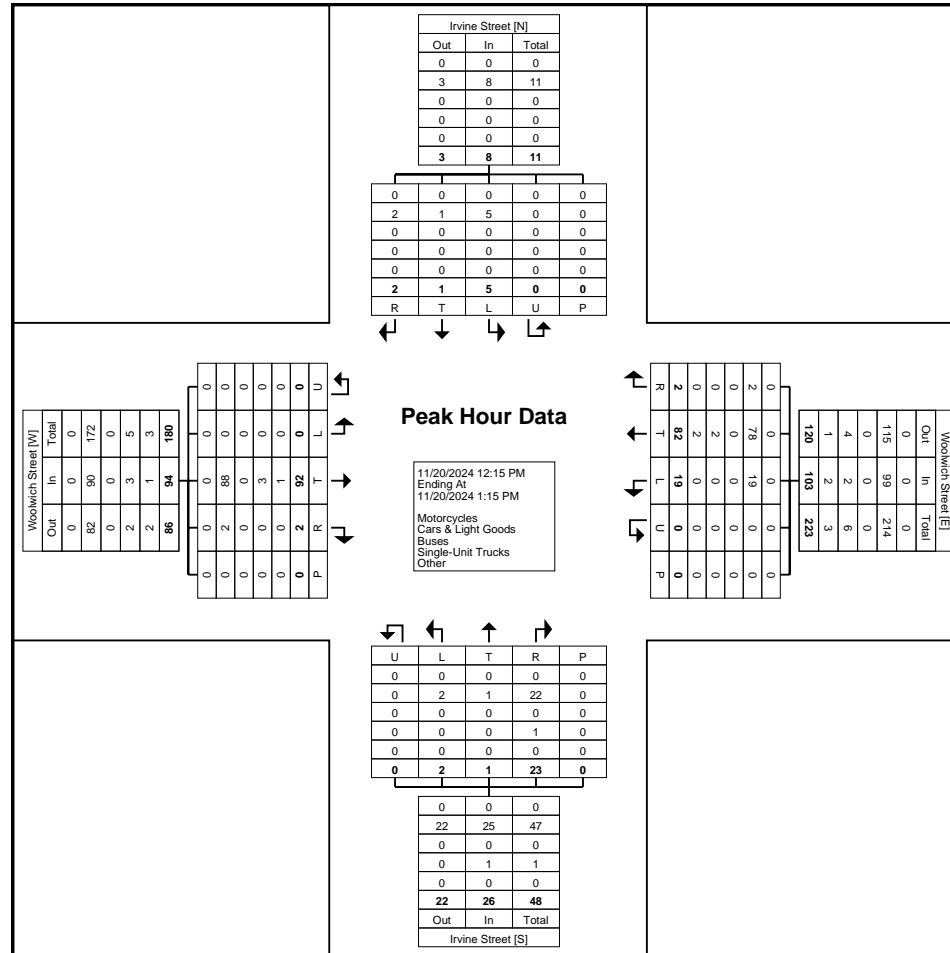
Start Time	Woolwich Street Eastbound						Woolwich Street Westbound						Irvine Street Northbound						Irvine Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
12:15 PM	0	19	0	0	0	19	7	16	0	0	0	23	1	0	7	0	0	8	3	0	1	0	0	4	54
12:30 PM	0	18	0	0	0	18	3	23	0	0	0	26	0	0	6	0	0	6	0	0	0	0	0	0	50
12:45 PM	0	28	1	0	0	29	4	22	1	0	0	27	0	0	6	0	0	6	0	0	0	0	0	0	62
1:00 PM	0	27	1	0	0	28	5	21	1	0	0	27	1	1	4	0	0	6	2	1	1	0	0	4	65
Total	0	92	2	0	0	94	19	82	2	0	0	103	2	1	23	0	0	26	5	1	2	0	0	8	231
Approach %	0.0	97.9	2.1	0.0	-	-	18.4	79.6	1.9	0.0	-	-	7.7	3.8	88.5	0.0	-	-	62.5	12.5	25.0	0.0	-	-	-
Total %	0.0	39.8	0.9	0.0	-	40.7	8.2	35.5	0.9	0.0	-	44.6	0.9	0.4	10.0	0.0	-	11.3	2.2	0.4	0.9	0.0	-	3.5	-
PHF	0.000	0.821	0.500	0.000	-	0.810	0.679	0.891	0.500	0.000	-	0.954	0.500	0.250	0.821	0.000	-	0.813	0.417	0.250	0.500	0.000	-	0.500	0.888
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Motorcycles	-	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	0	88	2	0	-	90	19	78	2	0	-	99	2	1	22	0	-	25	5	1	2	0	-	8	222
% Cars & Light Goods	-	95.7	100.0	-	-	95.7	100.0	95.1	100.0	-	-	96.1	100.0	100.0	95.7	-	-	96.2	100.0	100.0	100.0	-	-	100.0	96.1
Buses	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Buses	-	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Single-Unit Trucks	0	3	0	0	-	3	0	2	0	0	-	2	0	0	1	0	-	1	0	0	0	0	-	0	6
% Single-Unit Trucks	-	3.3	0.0	-	-	3.2	0.0	2.4	0.0	-	-	1.9	0.0	0.0	4.3	-	-	3.8	0.0	0.0	0.0	-	-	0.0	2.6
Articulated Trucks	0	1	0	0	-	1	0	2	0	0	-	2	0	0	0	0	-	0	0	0	0	0	-	0	3
% Articulated Trucks	-	1.1	0.0	-	-	1.1	0.0	2.4	0.0	-	-	1.9	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	1.3
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	-	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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Count Name: Woolwich Street & Irvine Street
Site Code: 240695
Start Date: 11/20/2024
Page No: 7



Turning Movement Peak Hour Data Plot (12:15 PM)



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Woolwich Street & Irvine Street
Site Code: 240695
Start Date: 11/20/2024
Page No: 8

Turning Movement Peak Hour Data (4:15 PM)

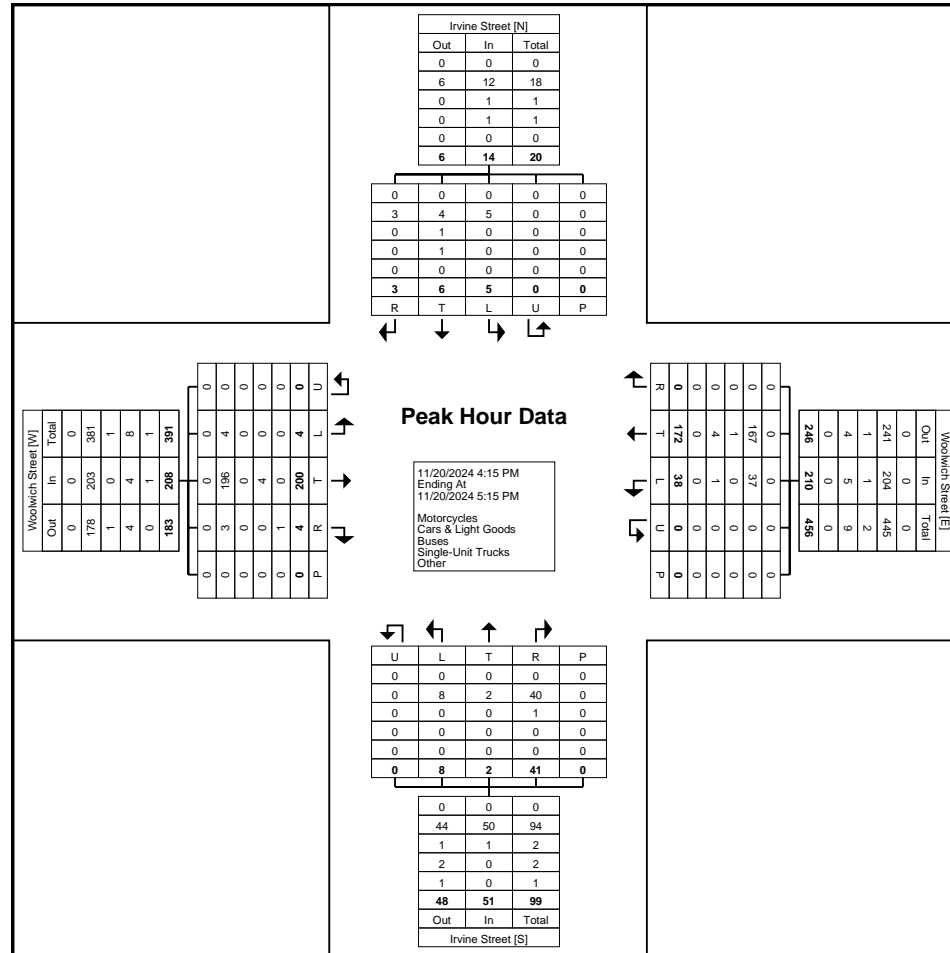
Start Time	Woolwich Street Eastbound						Woolwich Street Westbound						Irvine Street Northbound						Irvine Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
4:15 PM	2	43	1	0	0	46	12	46	0	0	0	58	1	1	12	0	0	14	1	1	1	0	0	3	121
4:30 PM	0	51	1	0	0	52	7	52	0	0	0	59	3	1	9	0	0	13	2	2	0	0	0	4	128
4:45 PM	1	44	0	0	0	45	12	36	0	0	0	48	3	0	10	0	0	13	2	0	1	0	0	3	109
5:00 PM	1	62	2	0	0	65	7	38	0	0	0	45	1	0	10	0	0	11	0	3	1	0	0	4	125
Total	4	200	4	0	0	208	38	172	0	0	0	210	8	2	41	0	0	51	5	6	3	0	0	14	483
Approach %	1.9	96.2	1.9	0.0	-	-	18.1	81.9	0.0	0.0	-	-	15.7	3.9	80.4	0.0	-	-	35.7	42.9	21.4	0.0	-	-	-
Total %	0.8	41.4	0.8	0.0	-	43.1	7.9	35.6	0.0	0.0	-	43.5	1.7	0.4	8.5	0.0	-	10.6	1.0	1.2	0.6	0.0	-	2.9	-
PHF	0.500	0.806	0.500	0.000	-	0.800	0.792	0.827	0.000	0.000	-	0.890	0.667	0.500	0.854	0.000	-	0.911	0.625	0.500	0.750	0.000	-	0.875	0.943
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	4	196	3	0	-	203	37	167	0	0	-	204	8	2	40	0	-	50	5	4	3	0	-	12	469
% Cars & Light Goods	100.0	98.0	75.0	-	-	97.6	97.4	97.1	-	-	-	97.1	100.0	100.0	97.6	-	-	98.0	100.0	66.7	100.0	-	-	85.7	97.1
Buses	0	0	0	0	-	0	0	1	0	0	-	1	0	0	1	0	-	1	0	1	0	0	-	1	3
% Buses	0.0	0.0	0.0	-	-	0.0	0.0	0.6	-	-	-	0.5	0.0	0.0	2.4	-	-	2.0	0.0	16.7	0.0	-	-	7.1	0.6
Single-Unit Trucks	0	4	0	0	-	4	1	4	0	0	-	5	0	0	0	0	-	0	0	1	0	0	-	1	10
% Single-Unit Trucks	0.0	2.0	0.0	-	-	1.9	2.6	2.3	-	-	-	2.4	0.0	0.0	0.0	-	-	0.0	0.0	16.7	0.0	-	-	7.1	2.1
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Road	0	0	1	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	1
% Bicycles on Road	0.0	0.0	25.0	-	-	0.5	0.0	0.0	-	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.2
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsI.com

Count Name: Woolwich Street & Irvine Street
Site Code: 240695
Start Date: 11/20/2024
Page No: 9



Turning Movement Peak Hour Data Plot (4:15 PM)



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Irvine Street & Bricker Avenue
Site Code: 240695
Start Date: 11/20/2024
Page No: 1

Turning Movement Data

Start Time	Bricker Avenue Eastbound					Irvine Street Northbound					Irvine Street Southbound					Int. Total
	Left	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	
7:00 AM	1	1	0	0	2	1	4	0	0	5	0	0	0	0	0	7
7:15 AM	1	1	0	0	2	0	7	0	1	7	1	0	0	0	1	10
7:30 AM	3	0	0	1	3	3	7	0	0	10	10	3	0	0	13	26
7:45 AM	1	1	0	0	2	0	11	0	0	11	10	0	0	0	10	23
Hourly Total	6	3	0	1	9	4	29	0	1	33	21	3	0	0	24	66
8:00 AM	1	2	0	0	3	0	5	0	0	5	10	1	0	0	11	19
8:15 AM	2	5	0	1	7	0	9	0	0	9	11	0	0	0	11	27
8:30 AM	1	2	0	0	3	1	14	0	0	15	10	3	0	0	13	31
8:45 AM	5	2	0	2	7	2	15	0	0	17	8	1	0	0	9	33
Hourly Total	9	11	0	3	20	3	43	0	0	46	39	5	0	0	44	110
9:00 AM	1	1	0	0	2	2	8	0	0	10	5	2	0	0	7	19
9:15 AM	2	2	0	0	4	0	4	0	0	4	4	0	0	0	4	12
9:30 AM	1	2	0	0	3	1	3	0	0	4	2	3	0	0	5	12
9:45 AM	4	2	0	0	6	2	4	0	0	6	2	0	0	0	2	14
Hourly Total	8	7	0	0	15	5	19	0	0	24	13	5	0	0	18	57
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:30 AM	3	1	0	0	4	0	4	0	0	4	4	0	0	0	4	12
11:45 AM	0	1	0	0	1	1	3	0	0	4	7	6	0	0	13	18
Hourly Total	3	2	0	0	5	1	7	0	0	8	11	6	0	0	17	30
12:00 PM	4	0	0	0	4	1	10	0	0	11	9	0	0	0	9	24
12:15 PM	2	2	0	0	4	3	7	0	0	10	4	2	0	0	6	20
12:30 PM	0	0	0	1	0	0	4	0	0	4	4	0	0	0	4	8
12:45 PM	2	2	0	1	4	0	4	0	0	4	4	0	0	0	4	12
Hourly Total	8	4	0	2	12	4	25	0	0	29	21	2	0	0	23	64
1:00 PM	1	2	0	0	3	0	6	0	0	6	5	2	0	0	7	16
1:15 PM	0	0	0	0	0	0	5	0	0	5	9	1	0	0	10	15
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	1	2	0	0	3	0	11	0	0	11	14	3	0	0	17	31
3:00 PM	3	0	0	0	3	2	17	0	0	19	8	1	0	0	9	31
3:15 PM	1	0	0	0	1	1	18	0	0	19	8	3	0	0	11	31
3:30 PM	3	0	0	0	3	2	4	0	0	6	16	0	0	0	16	25
3:45 PM	3	1	0	0	4	5	6	0	0	11	8	2	0	0	10	25
Hourly Total	10	1	0	0	11	10	45	0	0	55	40	6	0	0	46	112
4:00 PM	1	0	0	0	1	1	7	0	1	8	10	4	0	0	14	23
4:15 PM	4	2	0	1	6	1	12	0	0	13	6	7	0	0	13	32
4:30 PM	3	0	0	1	3	0	10	0	0	10	7	5	0	0	12	25

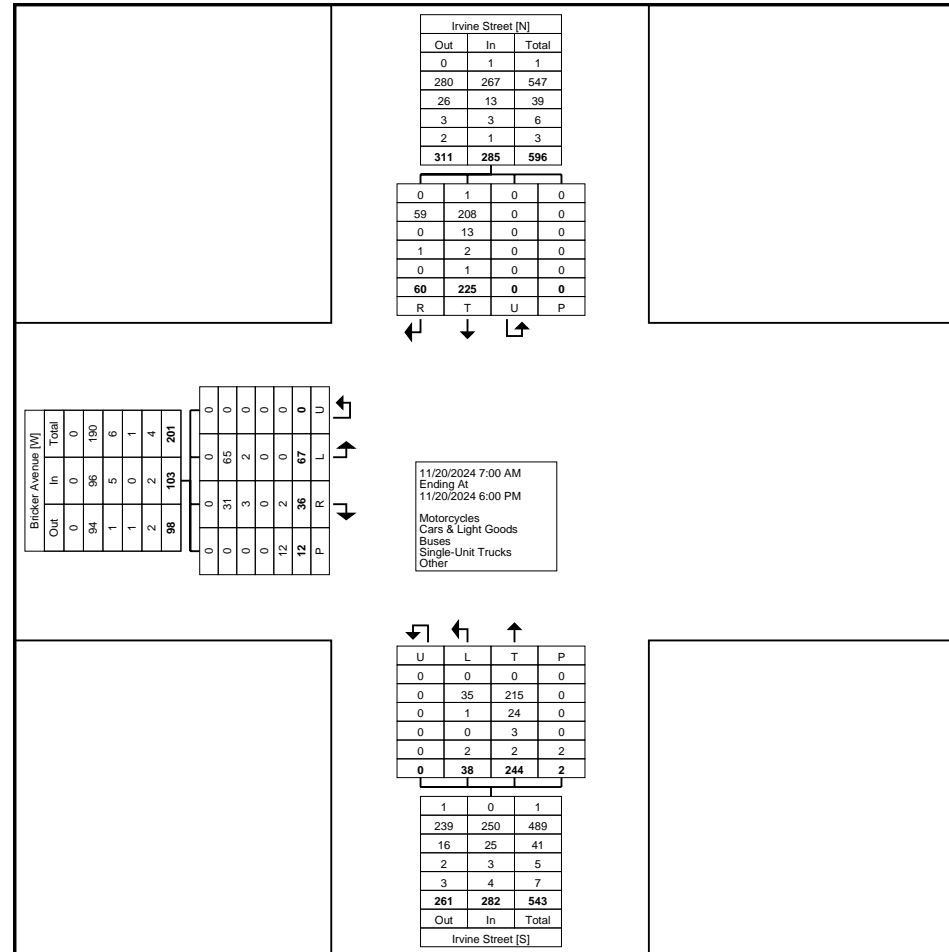
4:45 PM	4	0	0	0	4	1	9	0	0	10	7	5	0	0	12	26
Hourly Total	12	2	0	2	14	3	38	0	1	41	30	21	0	0	51	106
5:00 PM	3	4	0	3	7	1	10	0	0	11	12	0	0	0	12	30
5:15 PM	1	0	0	0	1	2	7	0	0	9	8	4	0	0	12	22
5:30 PM	3	0	0	0	3	2	9	0	0	11	8	3	0	0	11	25
5:45 PM	3	0	0	1	3	3	1	0	0	4	8	2	0	0	10	17
Hourly Total	10	4	0	4	14	8	27	0	0	35	36	9	0	0	45	94
Grand Total	67	36	0	12	103	38	244	0	2	282	225	60	0	0	285	670
Approach %	65.0	35.0	0.0	-	-	13.5	86.5	0.0	-	-	78.9	21.1	0.0	-	-	-
Total %	10.0	5.4	0.0	-	15.4	5.7	36.4	0.0	-	42.1	33.6	9.0	0.0	-	42.5	-
Motorcycles	0	0	0	-	0	0	0	0	-	0	1	0	0	-	1	1
% Motorcycles	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.4	0.0	-	-	0.4	0.1
Cars & Light Goods	65	31	0	-	96	35	215	0	-	250	208	59	0	-	267	613
% Cars & Light Goods	97.0	86.1	-	-	93.2	92.1	88.1	-	-	88.7	92.4	98.3	-	-	93.7	91.5
Buses	2	3	0	-	5	1	24	0	-	25	13	0	0	-	13	43
% Buses	3.0	8.3	-	-	4.9	2.6	9.8	-	-	8.9	5.8	0.0	-	-	4.6	6.4
Single-Unit Trucks	0	0	0	-	0	0	3	0	-	3	2	1	0	-	3	6
% Single-Unit Trucks	0.0	0.0	-	-	0.0	0.0	1.2	-	-	1.1	0.9	1.7	-	-	1.1	0.9
Articulated Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Articulated Trucks	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Road	0	2	0	-	2	2	2	0	-	4	1	0	0	-	1	7
% Bicycles on Road	0.0	5.6	-	-	1.9	5.3	0.8	-	-	1.4	0.4	0.0	-	-	0.4	1.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	0.0	-	-	-	-	-	-	-
Pedestrians	-	-	-	12	-	-	-	-	2	-	-	-	-	0	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	-	-	-



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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Count Name: Irvine Street & Bricker Avenue
Site Code: 240695
Start Date: 11/20/2024
Page No: 3



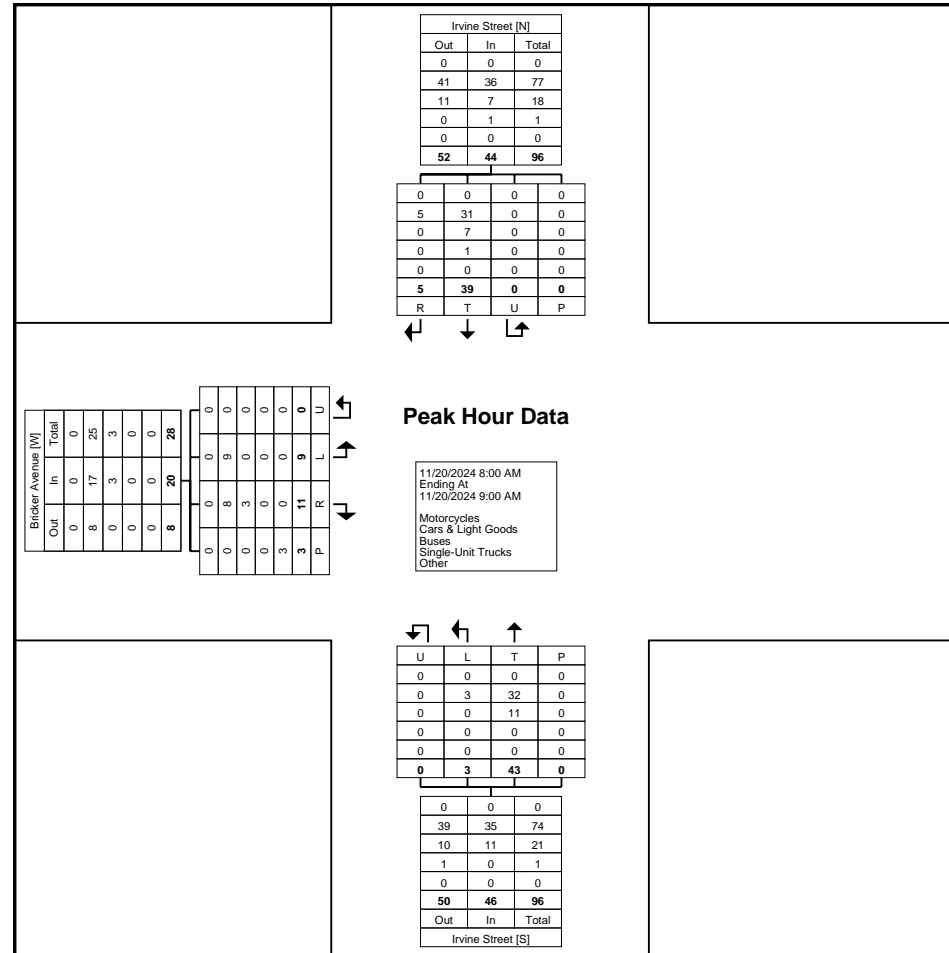
Turning Movement Data Plot



Paradigm Transportation Solutions Limited
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Cambridge, Ontario, Canada N1R 8J8
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Count Name: Irvine Street & Bricker Avenue
Site Code: 240695
Start Date: 11/20/2024
Page No: 5



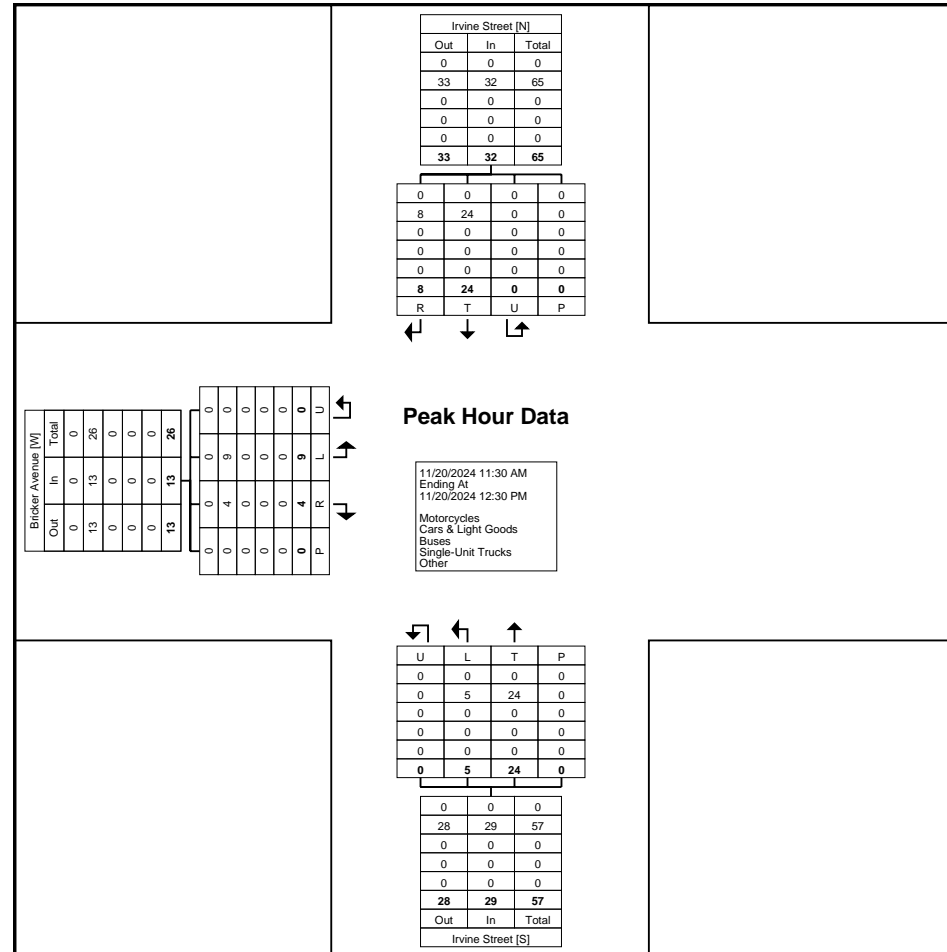
Turning Movement Peak Hour Data Plot (8:00 AM)



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsI.com

Count Name: Irvine Street & Bricker Avenue
Site Code: 240695
Start Date: 11/20/2024
Page No: 7



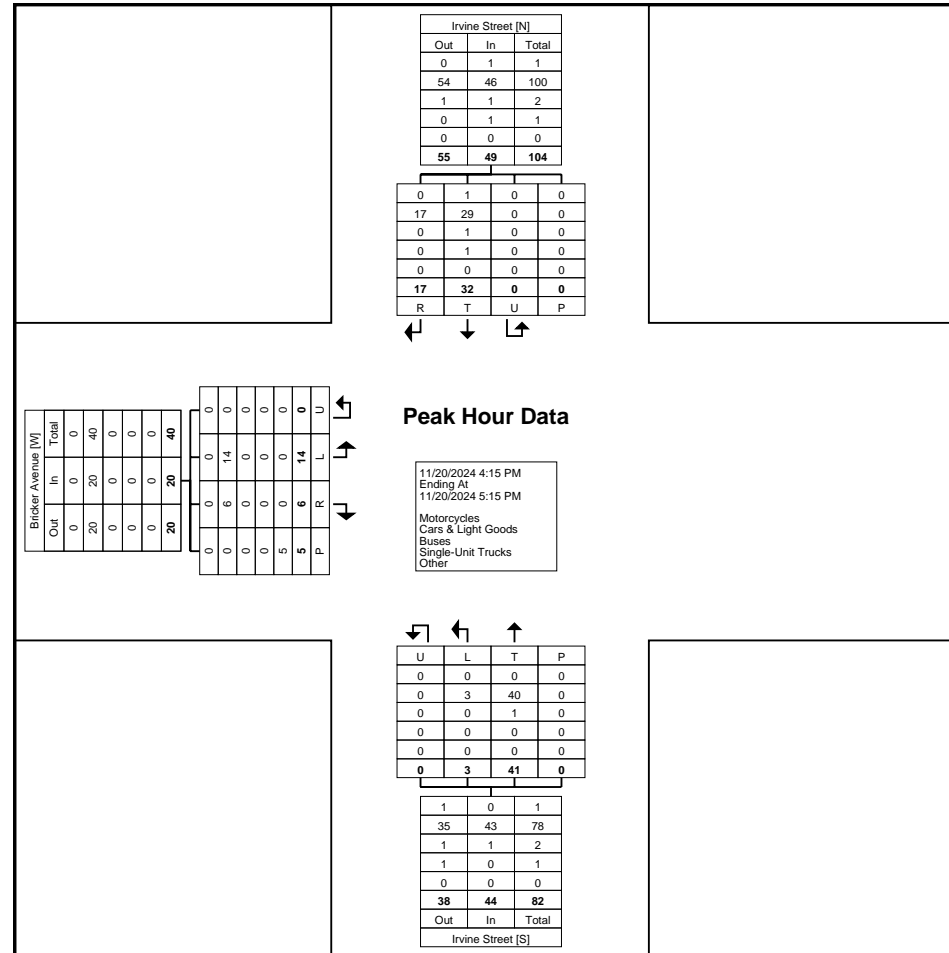
Turning Movement Peak Hour Data Plot (11:30 AM)



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@pts1.com

Count Name: Irvine Street & Bricker Avenue
Site Code: 240695
Start Date: 11/20/2024
Page No: 9



Turning Movement Peak Hour Data Plot (4:15 PM)



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsI.com

Count Name: Irvine Street & Colborne Street
Site Code: 240695
Start Date: 11/20/2024
Page No: 1

Turning Movement Data

Start Time	Colborne Street Eastbound						Colborne Street Westbound						Irvine Street Northbound						Irvine Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:00 AM	0	6	0	0	0	6	1	19	0	0	2	20	0	5	0	0	0	5	3	8	0	0	1	11	42
7:15 AM	0	5	1	0	0	6	0	29	4	0	0	33	0	4	1	0	0	5	2	3	1	0	1	6	50
7:30 AM	0	13	0	0	0	13	0	29	3	0	0	32	0	4	0	0	0	4	5	11	2	0	3	18	67
7:45 AM	1	16	1	0	1	18	0	27	7	0	2	34	1	5	0	0	0	6	6	9	1	0	1	16	74
Hourly Total	1	40	2	0	1	43	1	104	14	0	4	119	1	18	1	0	0	20	16	31	4	0	6	51	233
8:00 AM	2	12	0	0	0	14	0	24	5	0	0	29	0	5	0	0	0	5	8	6	0	0	1	14	62
8:15 AM	3	20	1	0	0	24	1	34	7	0	0	42	0	5	3	0	0	8	12	17	2	0	1	31	105
8:30 AM	0	32	2	0	0	34	0	28	8	0	5	36	1	9	3	0	0	13	8	20	7	0	4	35	118
8:45 AM	0	17	1	0	0	18	1	20	7	0	2	28	0	9	0	0	0	9	5	13	1	0	1	19	74
Hourly Total	5	81	4	0	0	90	2	106	27	0	7	135	1	28	6	0	0	35	33	56	10	0	7	99	359
9:00 AM	1	12	0	0	0	13	1	23	6	0	0	30	0	4	0	0	0	4	3	6	5	0	2	14	61
9:15 AM	1	13	2	0	1	16	0	25	6	0	3	31	0	0	0	0	1	0	7	5	3	0	2	15	62
9:30 AM	0	14	3	0	0	17	2	29	1	0	1	32	0	3	1	0	0	4	2	4	1	0	4	7	60
9:45 AM	2	17	1	0	0	20	0	20	2	0	1	22	0	7	1	0	0	8	3	9	1	0	5	13	63
Hourly Total	4	56	6	0	1	66	3	97	15	0	5	115	0	14	2	0	1	16	15	24	10	0	13	49	246
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:30 AM	2	8	0	0	0	10	0	22	9	0	0	31	1	1	2	0	0	4	0	4	2	0	1	6	51
11:45 AM	2	20	0	0	0	22	0	21	11	0	1	32	1	4	0	0	0	5	6	8	0	0	0	14	73
Hourly Total	4	28	0	0	0	32	0	43	20	0	1	63	2	5	2	0	0	9	6	12	2	0	1	20	124
12:00 PM	2	20	0	0	0	22	1	28	11	0	0	40	1	6	0	0	0	7	7	7	2	0	0	16	85
12:15 PM	1	31	0	0	0	32	0	27	3	0	0	30	0	7	0	0	0	7	9	4	2	0	1	15	84
12:30 PM	2	26	1	0	0	29	2	26	7	0	1	35	0	2	1	0	0	3	6	3	0	0	3	9	76
12:45 PM	2	16	1	0	0	19	2	23	2	0	0	27	0	2	1	0	0	3	14	11	2	0	0	27	76
Hourly Total	7	93	2	0	0	102	5	104	23	0	1	132	1	17	10	0	0	20	36	25	6	0	4	67	321
1:00 PM	0	26	1	0	0	27	1	22	3	0	1	26	0	3	1	0	0	4	8	3	0	0	1	11	68
1:15 PM	4	20	2	0	0	26	0	21	3	0	0	24	1	5	3	0	0	9	6	6	2	0	2	14	73
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	4	46	3	0	0	53	1	43	6	0	1	50	1	8	4	0	0	13	14	9	2	0	3	25	141
3:00 PM	1	31	1	0	0	33	2	36	13	0	0	51	0	11	1	0	0	12	6	10	2	0	1	18	114
3:15 PM	1	29	1	0	0	31	2	31	7	0	15	40	0	16	1	0	0	17	4	11	1	0	5	16	104
3:30 PM	2	26	1	0	0	29	1	26	5	0	3	32	0	8	0	0	0	8	6	10	5	0	8	21	90
3:45 PM	3	36	0	0	0	39	0	29	11	0	0	40	0	5	2	0	0	7	11	5	2	0	2	18	104
Hourly Total	7	122	3	0	0	132	5	122	36	0	18	163	0	40	4	0	0	44	27	36	10	0	16	73	412
4:00 PM	3	35	1	0	0	39	2	34	9	0	0	45	2	7	0	0	0	9	11	9	3	0	2	23	116
4:15 PM	1	35	2	0	0	38	0	34	8	0	0	42	0	5	5	0	0	10	9	7	0	0	1	16	106

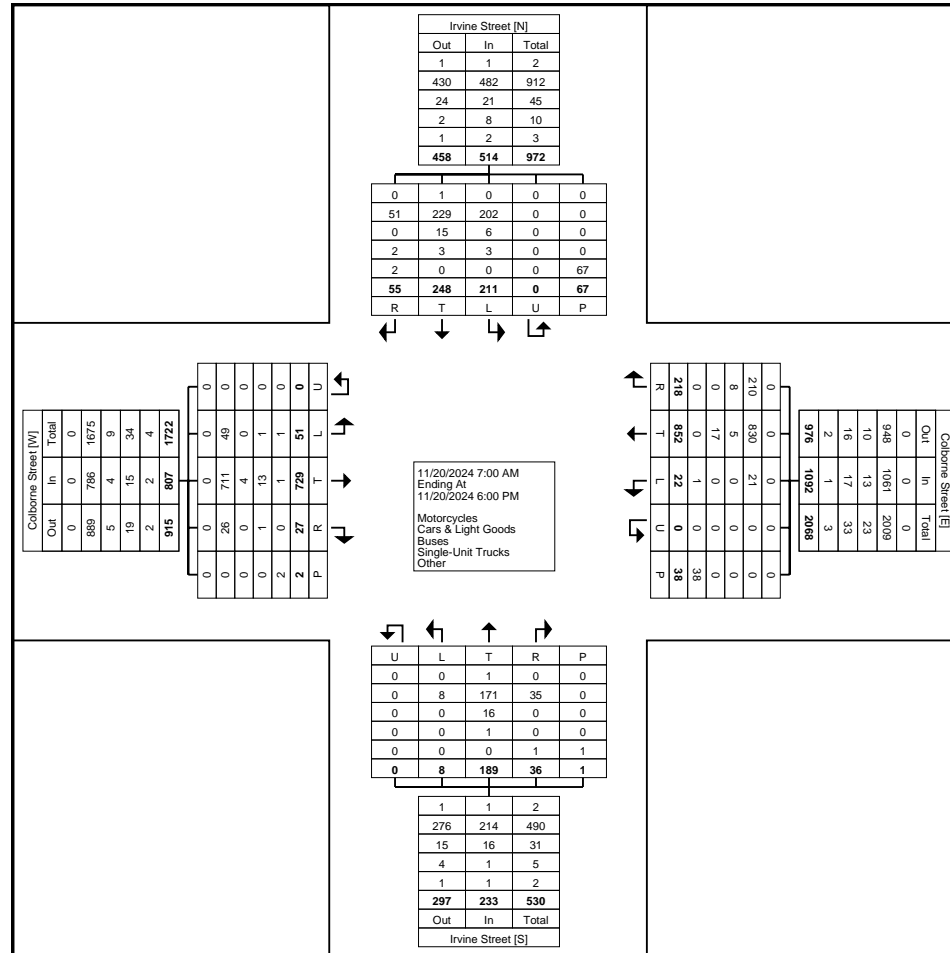
4:30 PM	4	30	0	0	0	34	1	28	10	0	0	39	0	4	4	0	0	8	7	5	2	0	1	14	95
4:45 PM	2	30	0	0	0	32	0	32	11	0	0	43	0	6	1	0	0	7	7	4	3	0	2	14	96
Hourly Total	10	130	3	0	0	143	3	128	38	0	0	169	2	22	10	0	0	34	34	25	8	0	6	67	413
5:00 PM	2	40	0	0	0	42	0	32	12	0	0	44	0	9	1	0	0	10	13	5	0	0	5	18	114
5:15 PM	3	41	0	0	0	44	0	23	8	0	0	31	0	6	1	0	0	7	5	10	1	0	2	16	98
5:30 PM	3	27	2	0	0	32	2	23	5	0	1	30	0	11	1	0	0	12	6	5	1	0	4	12	86
5:45 PM	1	25	2	0	0	28	0	27	14	0	0	41	0	11	2	0	0	13	6	10	1	0	0	17	99
Hourly Total	9	133	4	0	0	146	2	105	39	0	1	146	0	37	5	0	0	42	30	30	3	0	11	63	397
Grand Total	51	729	27	0	2	807	22	852	218	0	38	1092	8	189	36	0	1	233	211	248	55	0	67	514	2646
Approach %	6.3	90.3	3.3	0.0	-	-	2.0	78.0	20.0	0.0	-	-	3.4	81.1	15.5	0.0	-	-	41.1	48.2	10.7	0.0	-	-	-
Total %	1.9	27.6	1.0	0.0	-	30.5	0.8	32.2	8.2	0.0	-	41.3	0.3	7.1	1.4	0.0	-	8.8	8.0	9.4	2.1	0.0	-	19.4	-
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	0	1	0	0	-	1	2
% Motorcycles	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.5	0.0	-	-	0.4	0.0	0.4	0.0	-	-	0.2	0.1
Cars & Light Goods	49	711	26	0	-	786	21	830	210	0	-	1061	8	171	35	0	-	214	202	229	51	0	-	482	2543
% Cars & Light Goods	96.1	97.5	96.3	-	-	97.4	95.5	97.4	96.3	-	-	97.2	100.0	90.5	97.2	-	-	91.8	95.7	92.3	92.7	-	-	93.8	96.1
Buses	0	4	0	0	-	4	0	5	8	0	-	13	0	16	0	0	-	16	6	15	0	0	-	21	54
% Buses	0.0	0.5	0.0	-	-	0.5	0.0	0.6	3.7	-	-	1.2	0.0	8.5	0.0	-	-	6.9	2.8	6.0	0.0	-	-	4.1	2.0
Single-Unit Trucks	1	13	1	0	-	15	0	17	0	0	-	17	0	1	0	0	-	1	3	3	2	0	-	8	41
% Single-Unit Trucks	2.0	1.8	3.7	-	-	1.9	0.0	2.0	0.0	-	-	1.6	0.0	0.5	0.0	-	-	0.4	1.4	1.2	3.6	-	-	1.6	1.5
Articulated Trucks	0	1	0	0	-	1	1	0	0	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	2
% Articulated Trucks	0.0	0.1	0.0	-	-	0.1	4.5	0.0	0.0	-	-	0.1	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.1
Bicycles on Road	1	0	0	0	-	1	0	0	0	0	-	0	0	0	1	0	-	1	0	0	2	0	-	2	4
% Bicycles on Road	2.0	0.0	0.0	-	-	0.1	0.0	0.0	0.0	-	-	0.0	0.0	0.0	2.8	-	-	0.4	0.0	0.0	3.6	-	-	0.4	0.2
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	2.6	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	2	-	-	-	-	-	37	-	-	-	-	-	1	-	-	-	-	-	67	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	97.4	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
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Count Name: Irvine Street & Colborne Street
Site Code: 240695
Start Date: 11/20/2024
Page No: 3



Turning Movement Data Plot



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
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Count Name: Irvine Street & Colborne Street
Site Code: 240695
Start Date: 11/20/2024
Page No: 4

Turning Movement Peak Hour Data (7:45 AM)

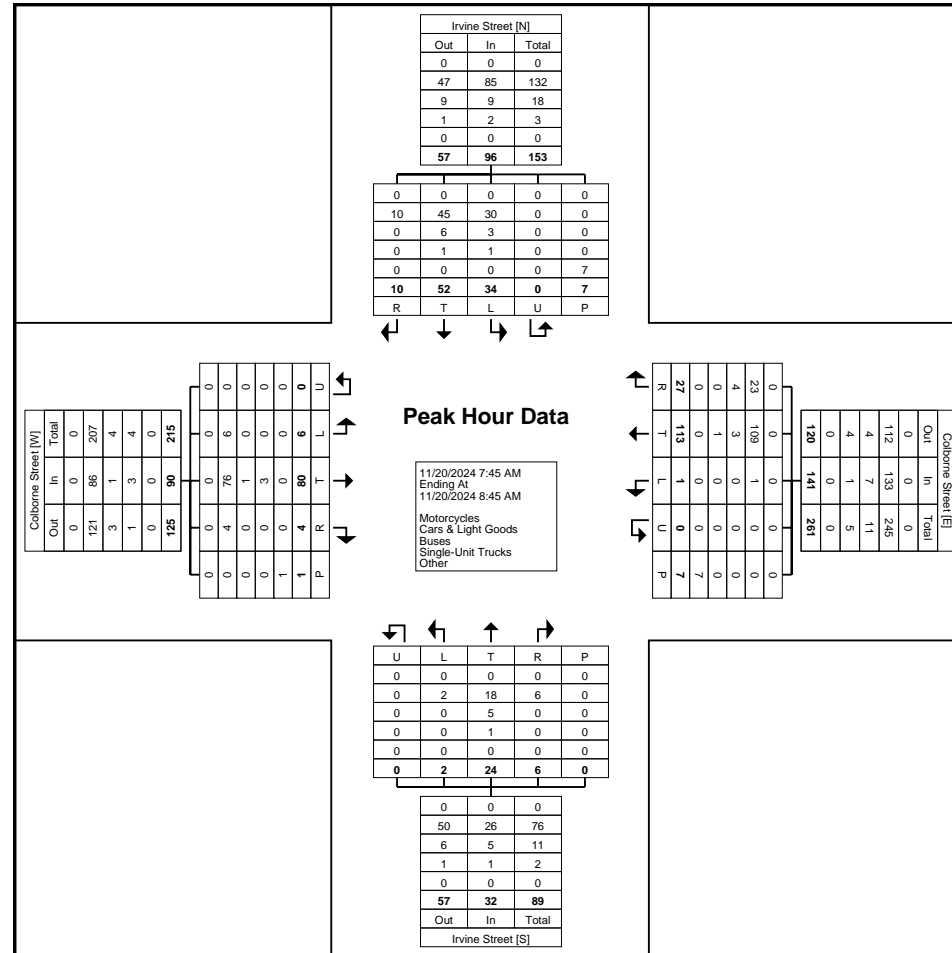
Start Time	Colborne Street Eastbound						Colborne Street Westbound						Irvine Street Northbound						Irvine Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:45 AM	1	16	1	0	1	18	0	27	7	0	2	34	1	5	0	0	0	6	6	9	1	0	1	16	74
8:00 AM	2	12	0	0	0	14	0	24	5	0	0	29	0	5	0	0	0	5	8	6	0	0	1	14	62
8:15 AM	3	20	1	0	0	24	1	34	7	0	0	42	0	5	3	0	0	8	12	17	2	0	1	31	105
8:30 AM	0	32	2	0	0	34	0	28	8	0	5	36	1	9	3	0	0	13	8	20	7	0	4	35	118
Total	6	80	4	0	1	90	1	113	27	0	7	141	2	24	6	0	0	32	34	52	10	0	7	96	359
Approach %	6.7	88.9	4.4	0.0	-	-	0.7	80.1	19.1	0.0	-	-	6.3	75.0	18.8	0.0	-	-	35.4	54.2	10.4	0.0	-	-	-
Total %	1.7	22.3	1.1	0.0	-	25.1	0.3	31.5	7.5	0.0	-	39.3	0.6	6.7	1.7	0.0	-	8.9	9.5	14.5	2.8	0.0	-	26.7	-
PHF	0.500	0.625	0.500	0.000	-	0.662	0.250	0.831	0.844	0.000	-	0.839	0.500	0.667	0.500	0.000	-	0.615	0.708	0.650	0.357	0.000	-	0.686	0.761
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	6	76	4	0	-	86	1	109	23	0	-	133	2	18	6	0	-	26	30	45	10	0	-	85	330
% Cars & Light Goods	100.0	95.0	100.0	-	-	95.6	100.0	96.5	85.2	-	-	94.3	100.0	75.0	100.0	-	-	81.3	88.2	86.5	100.0	-	-	88.5	91.9
Buses	0	1	0	0	-	1	0	3	4	0	-	7	0	5	0	0	-	5	3	6	0	0	-	9	22
% Buses	0.0	1.3	0.0	-	-	1.1	0.0	2.7	14.8	-	-	5.0	0.0	20.8	0.0	-	-	15.6	8.8	11.5	0.0	-	-	9.4	6.1
Single-Unit Trucks	0	3	0	0	-	3	0	1	0	0	-	1	0	1	0	0	-	1	1	1	0	0	-	2	7
% Single-Unit Trucks	0.0	3.8	0.0	-	-	3.3	0.0	0.9	0.0	-	-	0.7	0.0	4.2	0.0	-	-	3.1	2.9	1.9	0.0	-	-	2.1	1.9
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	1	-	-	-	-	-	7	-	-	-	-	-	0	-	-	-	-	-	7	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
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Count Name: Irvine Street & Colborne Street
Site Code: 240695
Start Date: 11/20/2024
Page No: 5



Turning Movement Peak Hour Data Plot (7:45 AM)



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
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Count Name: Irvine Street & Colborne Street
Site Code: 240695
Start Date: 11/20/2024
Page No: 6

Turning Movement Peak Hour Data (12:00 PM)

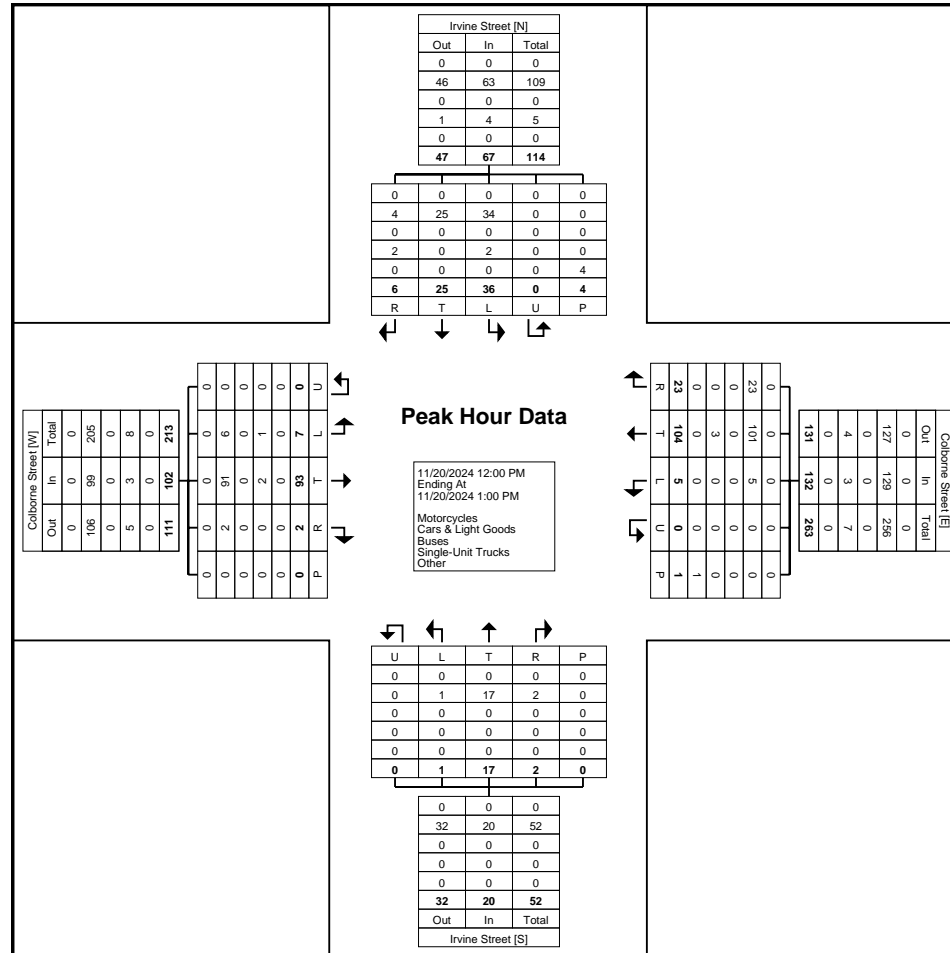
Start Time	Colborne Street Eastbound						Colborne Street Westbound						Irvine Street Northbound						Irvine Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
12:00 PM	2	20	0	0	0	22	1	28	11	0	0	40	1	6	0	0	0	7	7	7	2	0	0	16	85
12:15 PM	1	31	0	0	0	32	0	27	3	0	0	30	0	7	0	0	0	7	9	4	2	0	1	15	84
12:30 PM	2	26	1	0	0	29	2	26	7	0	1	35	0	2	1	0	0	3	6	3	0	0	3	9	76
12:45 PM	2	16	1	0	0	19	2	23	2	0	0	27	0	2	1	0	0	3	14	11	2	0	0	27	76
Total	7	93	2	0	0	102	5	104	23	0	1	132	1	17	2	0	0	20	36	25	6	0	4	67	321
Approach %	6.9	91.2	2.0	0.0	-	-	3.8	78.8	17.4	0.0	-	-	5.0	85.0	10.0	0.0	-	-	53.7	37.3	9.0	0.0	-	-	-
Total %	2.2	29.0	0.6	0.0	-	31.8	1.6	32.4	7.2	0.0	-	41.1	0.3	5.3	0.6	0.0	-	6.2	11.2	7.8	1.9	0.0	-	20.9	-
PHF	0.875	0.750	0.500	0.000	-	0.797	0.625	0.929	0.523	0.000	-	0.825	0.250	0.607	0.500	0.000	-	0.714	0.643	0.568	0.750	0.000	-	0.620	0.944
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	6	91	2	0	-	99	5	101	23	0	-	129	1	17	2	0	-	20	34	25	4	0	-	63	311
% Cars & Light Goods	85.7	97.8	100.0	-	-	97.1	100.0	97.1	100.0	-	-	97.7	100.0	100.0	100.0	-	-	100.0	94.4	100.0	66.7	-	-	94.0	96.9
Buses	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Buses	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Single-Unit Trucks	1	2	0	0	-	3	0	3	0	0	-	3	0	0	0	0	-	0	2	0	2	0	-	4	10
% Single-Unit Trucks	14.3	2.2	0.0	-	-	2.9	0.0	2.9	0.0	-	-	2.3	0.0	0.0	0.0	-	-	0.0	5.6	0.0	33.3	-	-	6.0	3.1
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	4	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
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Count Name: Irvine Street & Colborne Street
Site Code: 240695
Start Date: 11/20/2024
Page No: 7



Turning Movement Peak Hour Data Plot (12:00 PM)



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsI.com

Count Name: Irvine Street & Colborne Street
Site Code: 240695
Start Date: 11/20/2024
Page No: 8

Turning Movement Peak Hour Data (3:45 PM)

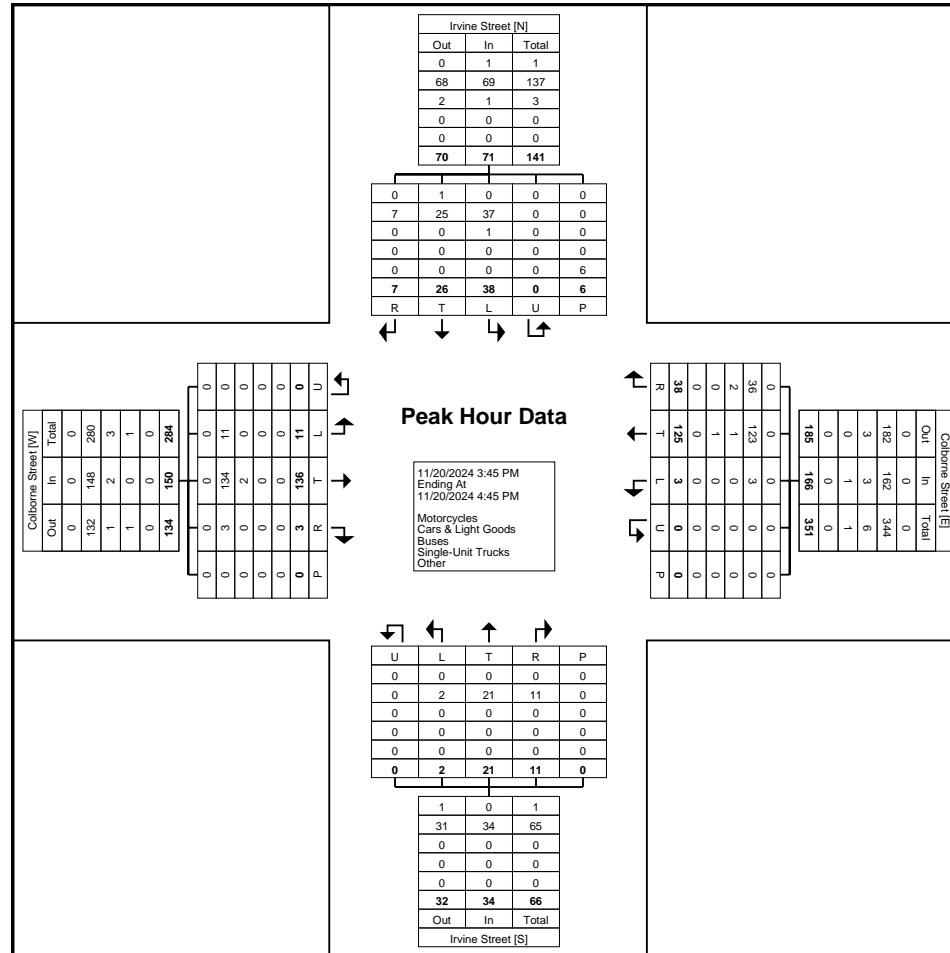
Start Time	Colborne Street Eastbound						Colborne Street Westbound						Irvine Street Northbound						Irvine Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
3:45 PM	3	36	0	0	0	39	0	29	11	0	0	40	0	5	2	0	0	7	11	5	2	0	2	18	104
4:00 PM	3	35	1	0	0	39	2	34	9	0	0	45	2	7	0	0	0	9	11	9	3	0	2	23	116
4:15 PM	1	35	2	0	0	38	0	34	8	0	0	42	0	5	5	0	0	10	9	7	0	0	1	16	106
4:30 PM	4	30	0	0	0	34	1	28	10	0	0	39	0	4	4	0	0	8	7	5	2	0	1	14	95
Total	11	136	3	0	0	150	3	125	38	0	0	166	2	21	11	0	0	34	38	26	7	0	6	71	421
Approach %	7.3	90.7	2.0	0.0	-	-	1.8	75.3	22.9	0.0	-	-	5.9	61.8	32.4	0.0	-	-	53.5	36.6	9.9	0.0	-	-	-
Total %	2.6	32.3	0.7	0.0	-	35.6	0.7	29.7	9.0	0.0	-	39.4	0.5	5.0	2.6	0.0	-	8.1	9.0	6.2	1.7	0.0	-	16.9	-
PHF	0.688	0.944	0.375	0.000	-	0.962	0.375	0.919	0.864	0.000	-	0.922	0.250	0.750	0.550	0.000	-	0.850	0.864	0.722	0.583	0.000	-	0.772	0.907
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	1
% Motorcycles	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	3.8	0.0	-	-	1.4	0.2
Cars & Light Goods	11	134	3	0	-	148	3	123	36	0	-	162	2	21	11	0	-	34	37	25	7	0	-	69	413
% Cars & Light Goods	100.0	98.5	100.0	-	-	98.7	100.0	98.4	94.7	-	-	97.6	100.0	100.0	100.0	-	-	100.0	97.4	96.2	100.0	-	-	97.2	98.1
Buses	0	2	0	0	-	2	0	1	2	0	-	3	0	0	0	0	-	0	1	0	0	0	-	1	6
% Buses	0.0	1.5	0.0	-	-	1.3	0.0	0.8	5.3	-	-	1.8	0.0	0.0	0.0	-	-	0.0	2.6	0.0	0.0	-	-	1.4	1.4
Single-Unit Trucks	0	0	0	0	-	0	0	1	0	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	1
% Single-Unit Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.8	0.0	-	-	0.6	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.2
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	6	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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Count Name: Irvine Street & Colborne Street
Site Code: 240695
Start Date: 11/20/2024
Page No: 9



Turning Movement Peak Hour Data Plot (3:45 PM)



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
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Count Name: Nichol Road 15 & Gerrie Road
Site Code: 240695
Start Date: 11/20/2024
Page No: 1

Turning Movement Data

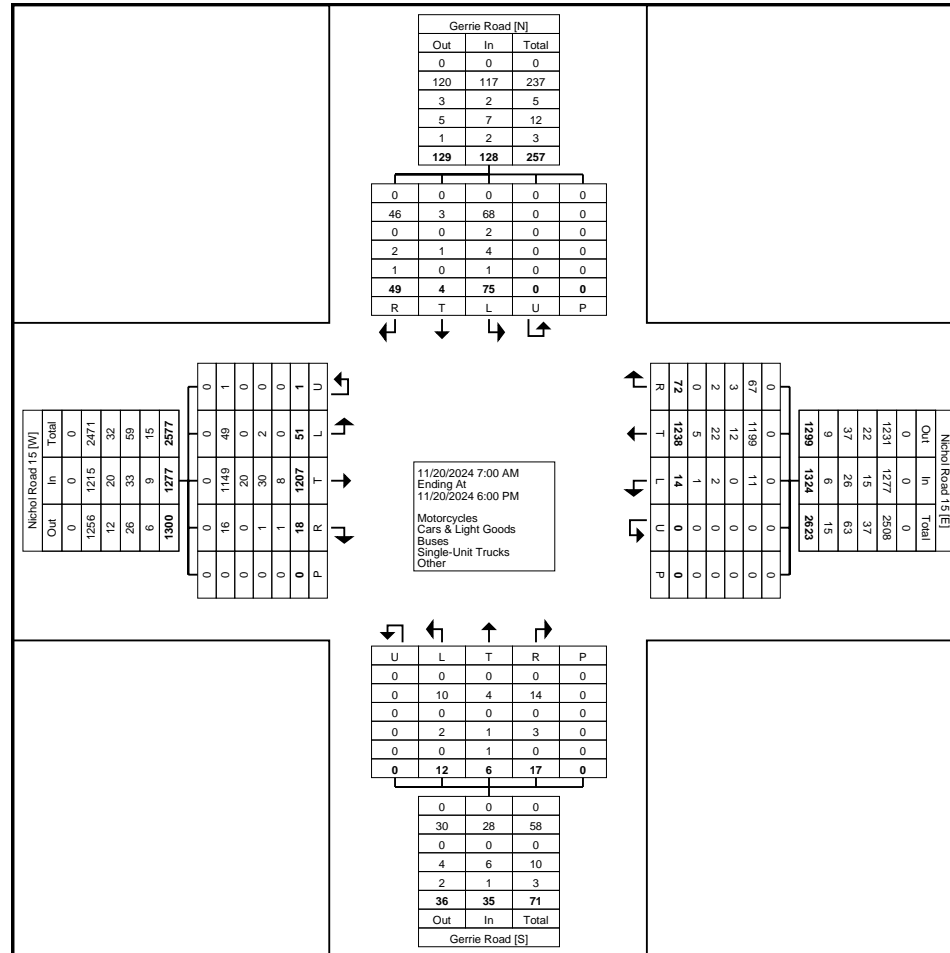
Start Time	Nichol Road 15 Eastbound						Nichol Road 15 Westbound						Gerrie Road Northbound						Gerrie Road Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:00 AM	2	20	1	0	0	23	1	25	1	0	0	27	0	0	0	0	0	0	1	0	2	0	0	3	53
7:15 AM	1	31	1	0	0	33	0	40	0	0	0	40	1	0	1	0	0	2	1	0	2	0	0	3	78
7:30 AM	0	31	0	0	0	31	2	60	2	0	0	64	0	0	2	0	0	2	4	1	7	0	0	12	109
7:45 AM	2	37	1	0	0	40	1	57	1	0	0	59	0	0	0	0	0	0	4	0	2	0	0	6	105
Hourly Total	5	119	3	0	0	127	4	182	4	0	0	190	1	0	3	0	0	4	10	1	13	0	0	24	345
8:00 AM	1	34	1	0	0	36	0	58	1	0	0	59	0	0	1	0	0	1	4	0	1	0	0	5	101
8:15 AM	2	32	0	0	0	34	0	53	3	0	0	56	1	1	0	0	0	2	3	0	1	0	0	4	96
8:30 AM	2	38	0	0	0	40	0	57	0	0	0	57	2	1	0	0	0	3	3	2	2	0	0	7	107
8:45 AM	1	63	0	0	0	64	2	43	2	0	0	47	1	1	1	0	0	3	2	0	2	0	0	4	118
Hourly Total	6	167	1	0	0	174	2	211	6	0	0	219	4	3	2	0	0	9	12	2	6	0	0	20	422
9:00 AM	3	30	1	0	0	34	0	40	3	0	0	43	0	1	1	0	0	2	3	0	3	0	0	6	85
9:15 AM	1	27	0	0	0	28	0	30	1	0	0	31	0	0	0	0	0	0	1	0	0	0	0	1	60
9:30 AM	0	22	1	0	0	23	1	30	1	0	0	32	1	0	1	0	0	2	0	0	2	0	0	2	59
9:45 AM	0	30	1	0	0	31	0	30	1	0	0	31	0	0	0	0	0	0	2	0	0	0	0	2	64
Hourly Total	4	109	3	0	0	116	1	130	6	0	0	137	1	1	2	0	0	4	6	0	5	0	0	11	268
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:30 AM	1	25	0	0	0	26	0	26	3	0	0	29	0	0	0	0	0	0	2	0	1	0	0	3	58
11:45 AM	1	18	0	0	0	19	0	24	1	0	0	25	0	0	0	0	0	0	1	1	6	0	0	8	52
Hourly Total	2	43	0	0	0	45	0	50	4	0	0	54	0	0	0	0	0	0	3	1	7	0	0	11	110
12:00 PM	4	22	0	0	0	26	0	26	6	0	0	32	0	0	1	0	0	1	2	0	1	0	0	3	62
12:15 PM	0	30	1	0	0	31	0	20	5	0	0	25	0	0	0	0	0	0	2	0	2	0	0	4	60
12:30 PM	0	19	0	0	0	19	0	24	1	0	0	25	0	0	0	0	0	0	3	0	1	0	0	4	48
12:45 PM	0	38	0	0	0	38	1	28	3	0	0	32	0	0	0	0	0	0	3	0	0	0	0	3	73
Hourly Total	4	109	1	0	0	114	1	98	15	0	0	114	0	0	1	0	0	1	10	0	4	0	0	14	243
1:00 PM	1	29	1	0	0	31	0	25	0	0	0	25	1	0	1	0	0	2	4	0	0	0	0	4	62
1:15 PM	1	23	1	0	0	25	0	20	2	0	0	22	0	0	0	0	0	0	2	0	1	0	0	3	50
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	2	52	2	0	0	56	0	45	2	0	0	47	1	0	1	0	0	2	6	0	1	0	0	7	112
3:00 PM	3	39	0	0	0	42	1	42	3	0	0	46	0	0	2	0	0	2	0	0	1	0	0	1	91
3:15 PM	5	60	0	0	0	65	1	42	6	0	0	49	1	0	0	0	0	1	5	0	0	0	0	5	120
3:30 PM	1	46	2	1	0	50	1	39	4	0	0	44	0	1	0	0	0	1	3	0	5	0	0	8	103
3:45 PM	1	40	1	0	0	42	0	39	2	0	0	41	0	0	0	0	0	0	5	0	1	0	0	6	89
Hourly Total	10	185	3	1	0	199	3	162	15	0	0	180	1	1	2	0	0	4	13	0	7	0	0	20	403
4:00 PM	2	45	1	0	0	48	0	46	8	0	0	54	0	0	0	0	0	0	4	0	1	0	0	5	107
4:15 PM	1	51	2	0	0	54	0	56	2	0	0	58	2	0	1	0	0	3	0	0	1	0	0	1	116



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsI.com

Count Name: Nichol Road 15 & Gerrie Road
Site Code: 240695
Start Date: 11/20/2024
Page No: 3



Turning Movement Data Plot



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsI.com

Count Name: Nichol Road 15 & Gerrie Road
Site Code: 240695
Start Date: 11/20/2024
Page No: 4

Turning Movement Peak Hour Data (8:00 AM)

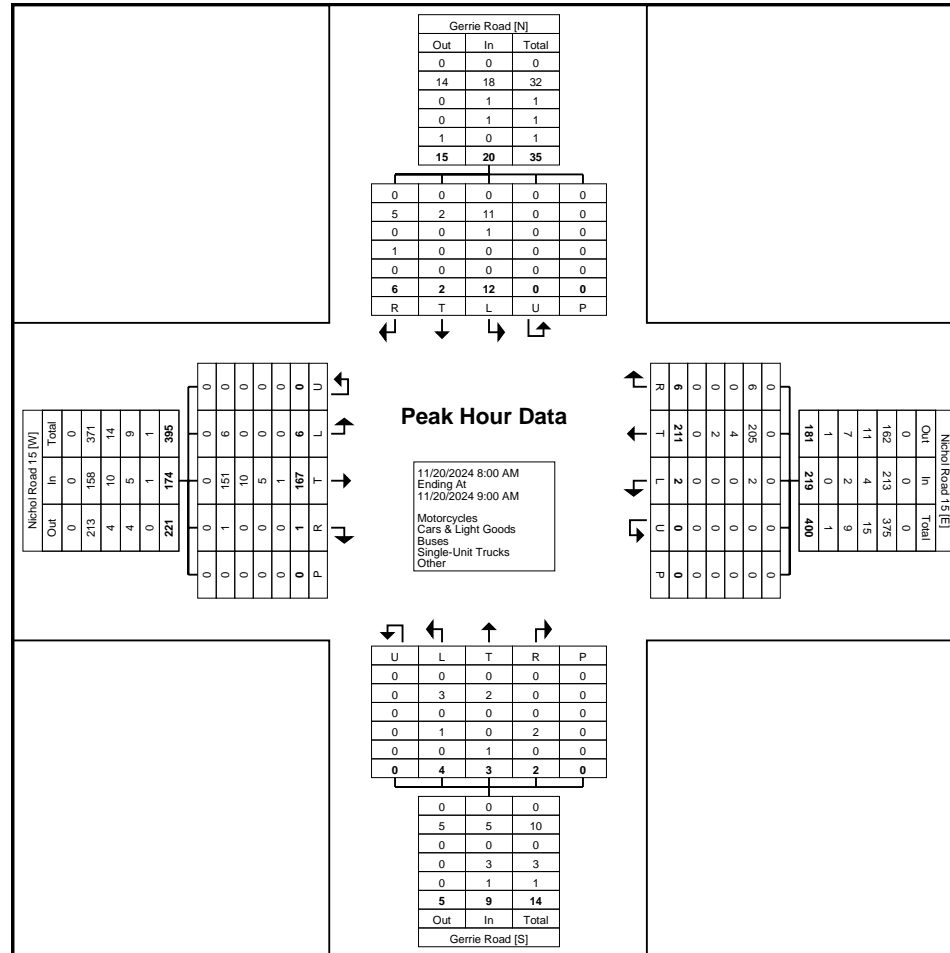
Start Time	Nichol Road 15 Eastbound						Nichol Road 15 Westbound						Gerrie Road Northbound						Gerrie Road Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
8:00 AM	1	34	1	0	0	36	0	58	1	0	0	59	0	0	1	0	0	1	4	0	1	0	0	5	101
8:15 AM	2	32	0	0	0	34	0	53	3	0	0	56	1	1	0	0	0	2	3	0	1	0	0	4	96
8:30 AM	2	38	0	0	0	40	0	57	0	0	0	57	2	1	0	0	0	3	3	2	2	0	0	7	107
8:45 AM	1	63	0	0	0	64	2	43	2	0	0	47	1	1	1	0	0	3	2	0	2	0	0	4	118
Total	6	167	1	0	0	174	2	211	6	0	0	219	4	3	2	0	0	9	12	2	6	0	0	20	422
Approach %	3.4	96.0	0.6	0.0	-	-	0.9	96.3	2.7	0.0	-	-	44.4	33.3	22.2	0.0	-	-	60.0	10.0	30.0	0.0	-	-	-
Total %	1.4	39.6	0.2	0.0	-	41.2	0.5	50.0	1.4	0.0	-	51.9	0.9	0.7	0.5	0.0	-	2.1	2.8	0.5	1.4	0.0	-	4.7	-
PHF	0.750	0.663	0.250	0.000	-	0.680	0.250	0.909	0.500	0.000	-	0.928	0.500	0.750	0.500	0.000	-	0.750	0.750	0.250	0.750	0.000	-	0.714	0.894
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Cars & Light Goods	6	151	1	0	-	158	2	205	6	0	-	213	3	2	0	0	-	5	11	2	5	0	-	18	394
% Cars & Light Goods	100.0	90.4	100.0	-	-	90.8	100.0	97.2	100.0	-	-	97.3	75.0	66.7	0.0	-	-	55.6	91.7	100.0	83.3	-	-	90.0	93.4
Buses	0	10	0	0	-	10	0	4	0	0	-	4	0	0	0	0	-	0	1	0	0	0	-	1	15
% Buses	0.0	6.0	0.0	-	-	5.7	0.0	1.9	0.0	-	-	1.8	0.0	0.0	0.0	-	-	0.0	8.3	0.0	0.0	-	-	5.0	3.6
Single-Unit Trucks	0	5	0	0	-	5	0	2	0	0	-	2	1	0	2	0	-	3	0	0	1	0	-	1	11
% Single-Unit Trucks	0.0	3.0	0.0	-	-	2.9	0.0	0.9	0.0	-	-	0.9	25.0	0.0	100.0	-	-	33.3	0.0	0.0	16.7	-	-	5.0	2.6
Articulated Trucks	0	1	0	0	-	1	0	0	0	0	-	0	0	1	0	0	-	1	0	0	0	0	-	0	2
% Articulated Trucks	0.0	0.6	0.0	-	-	0.6	0.0	0.0	0.0	-	-	0.0	0.0	33.3	0.0	-	-	11.1	0.0	0.0	0.0	-	-	0.0	0.5
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
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Count Name: Nichol Road 15 & Gerrie Road
Site Code: 240695
Start Date: 11/20/2024
Page No: 5



Turning Movement Peak Hour Data Plot (8:00 AM)



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
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Count Name: Nichol Road 15 & Gerrie Road
Site Code: 240695
Start Date: 11/20/2024
Page No: 6

Turning Movement Peak Hour Data (12:00 PM)

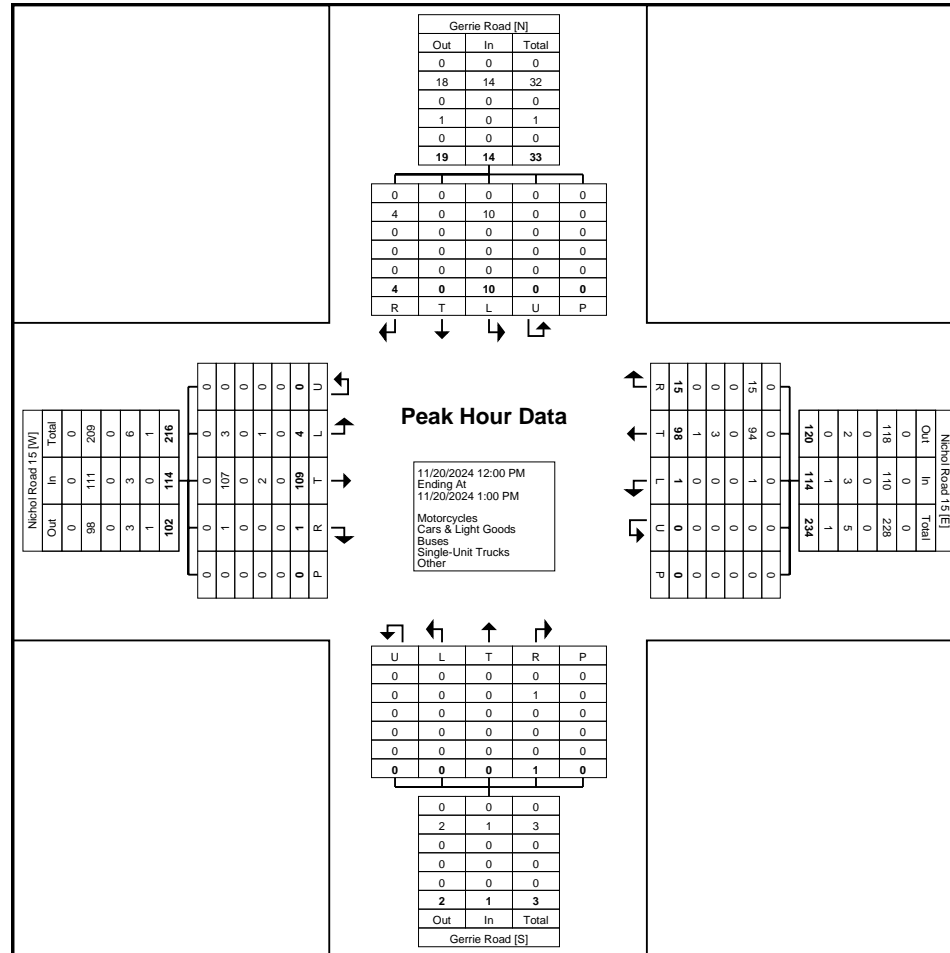
Start Time	Nichol Road 15 Eastbound						Nichol Road 15 Westbound						Gerrie Road Northbound						Gerrie Road Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
12:00 PM	4	22	0	0	0	26	0	26	6	0	0	32	0	0	1	0	0	1	2	0	1	0	0	3	62
12:15 PM	0	30	1	0	0	31	0	20	5	0	0	25	0	0	0	0	0	0	2	0	2	0	0	4	60
12:30 PM	0	19	0	0	0	19	0	24	1	0	0	25	0	0	0	0	0	0	3	0	1	0	0	4	48
12:45 PM	0	38	0	0	0	38	1	28	3	0	0	32	0	0	0	0	0	0	3	0	0	0	0	3	73
Total	4	109	1	0	0	114	1	98	15	0	0	114	0	0	1	0	0	1	10	0	4	0	0	14	243
Approach %	3.5	95.6	0.9	0.0	-	-	0.9	86.0	13.2	0.0	-	-	0.0	0.0	100.0	0.0	-	-	71.4	0.0	28.6	0.0	-	-	-
Total %	1.6	44.9	0.4	0.0	-	46.9	0.4	40.3	6.2	0.0	-	46.9	0.0	0.0	0.4	0.0	-	0.4	4.1	0.0	1.6	0.0	-	5.8	-
PHF	0.250	0.717	0.250	0.000	-	0.750	0.250	0.875	0.625	0.000	-	0.891	0.000	0.000	0.250	0.000	-	0.250	0.833	0.000	0.500	0.000	-	0.875	0.832
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	-	-	0.0	-	-	0.0	0.0	-	0.0	-	-	0.0	0.0
Cars & Light Goods	3	107	1	0	-	111	1	94	15	0	-	110	0	0	1	0	-	1	10	0	4	0	-	14	236
% Cars & Light Goods	75.0	98.2	100.0	-	-	97.4	100.0	95.9	100.0	-	-	96.5	-	-	100.0	-	-	100.0	100.0	-	100.0	-	-	100.0	97.1
Buses	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Buses	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	-	-	0.0	-	-	0.0	0.0	-	0.0	-	-	0.0	0.0
Single-Unit Trucks	1	2	0	0	-	3	0	3	0	0	-	3	0	0	0	0	-	0	0	0	0	0	-	0	6
% Single-Unit Trucks	25.0	1.8	0.0	-	-	2.6	0.0	3.1	0.0	-	-	2.6	-	-	0.0	-	-	0.0	0.0	-	0.0	-	-	0.0	2.5
Articulated Trucks	0	0	0	0	-	0	0	1	0	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	1
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	0.0	1.0	0.0	-	-	0.9	-	-	0.0	-	-	0.0	0.0	-	0.0	-	-	0.0	0.4
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	-	-	0.0	-	-	0.0	0.0	-	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
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Count Name: Nichol Road 15 & Gerrie Road
Site Code: 240695
Start Date: 11/20/2024
Page No: 7



Turning Movement Peak Hour Data Plot (12:00 PM)



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsl.com

Count Name: Nichol Road 15 & Gerrie Road
Site Code: 240695
Start Date: 11/20/2024
Page No: 8

Turning Movement Peak Hour Data (4:30 PM)

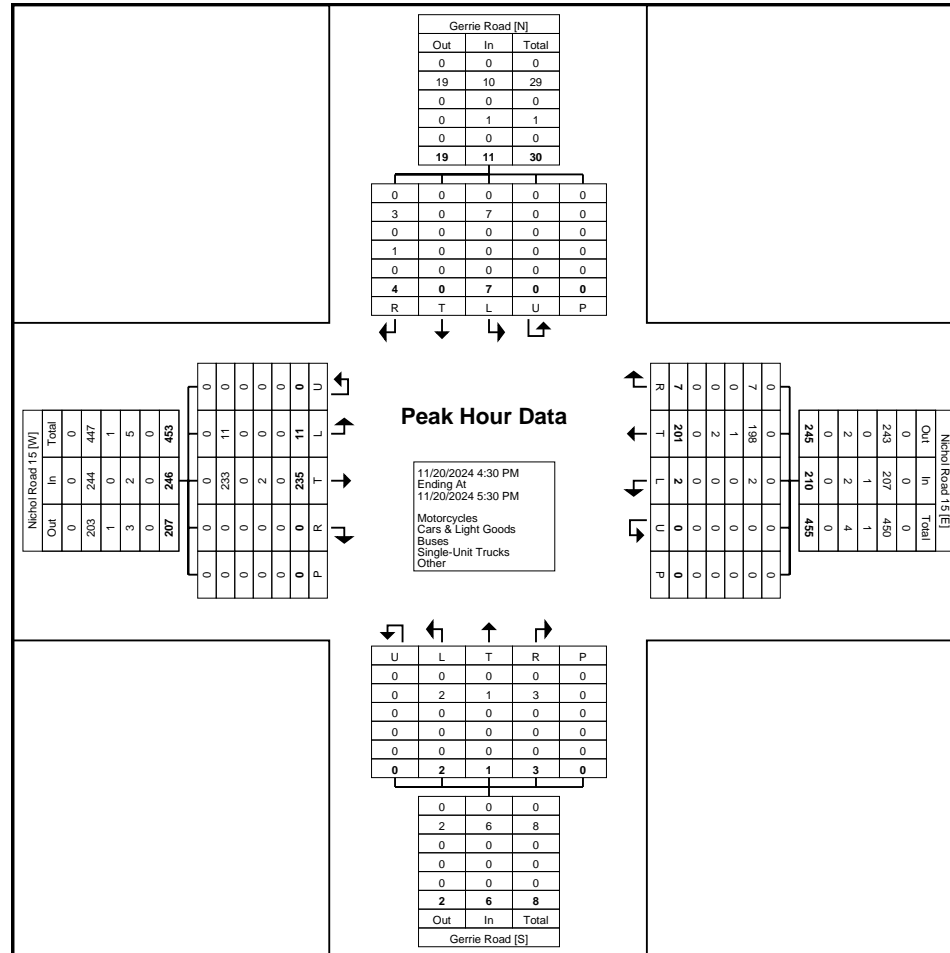
Start Time	Nichol Road 15 Eastbound						Nichol Road 15 Westbound						Gerrie Road Northbound						Gerrie Road Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
4:30 PM	2	55	0	0	0	57	0	62	0	0	0	62	0	0	0	0	0	0	3	0	1	0	0	4	123
4:45 PM	2	58	0	0	0	60	1	44	3	0	0	48	1	0	1	0	0	2	1	0	0	0	0	1	111
5:00 PM	1	66	0	0	0	67	0	43	3	0	0	46	0	0	2	0	0	2	2	0	2	0	0	4	119
5:15 PM	6	56	0	0	0	62	1	52	1	0	0	54	1	1	0	0	0	2	1	0	1	0	0	2	120
Total	11	235	0	0	0	246	2	201	7	0	0	210	2	1	3	0	0	6	7	0	4	0	0	11	473
Approach %	4.5	95.5	0.0	0.0	-	-	1.0	95.7	3.3	0.0	-	-	33.3	16.7	50.0	0.0	-	-	63.6	0.0	36.4	0.0	-	-	-
Total %	2.3	49.7	0.0	0.0	-	52.0	0.4	42.5	1.5	0.0	-	44.4	0.4	0.2	0.6	0.0	-	1.3	1.5	0.0	0.8	0.0	-	2.3	-
PHF	0.458	0.890	0.000	0.000	-	0.918	0.500	0.810	0.583	0.000	-	0.847	0.500	0.250	0.375	0.000	-	0.750	0.583	0.000	0.500	0.000	-	0.688	0.961
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	-	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	-	0.0	-	-	0.0	0.0
Cars & Light Goods	11	233	0	0	-	244	2	198	7	0	-	207	2	1	3	0	-	6	7	0	3	0	-	10	467
% Cars & Light Goods	100.0	99.1	-	-	-	99.2	100.0	98.5	100.0	-	-	98.6	100.0	100.0	100.0	-	-	100.0	100.0	-	75.0	-	-	90.9	98.7
Buses	0	0	0	0	-	0	0	1	0	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	1
% Buses	0.0	0.0	-	-	-	0.0	0.0	0.5	0.0	-	-	0.5	0.0	0.0	0.0	-	-	0.0	0.0	-	0.0	-	-	0.0	0.2
Single-Unit Trucks	0	2	0	0	-	2	0	2	0	0	-	2	0	0	0	0	-	0	0	0	1	0	-	1	5
% Single-Unit Trucks	0.0	0.9	-	-	-	0.8	0.0	1.0	0.0	-	-	1.0	0.0	0.0	0.0	-	-	0.0	0.0	-	25.0	-	-	9.1	1.1
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Articulated Trucks	0.0	0.0	-	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	-	0.0	-	-	0.0	0.0
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	-	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	-	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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Count Name: Nichol Road 15 & Gerrie Road
Site Code: 240695
Start Date: 11/20/2024
Page No: 9



Turning Movement Peak Hour Data Plot (4:30 PM)



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsI.com

Count Name: East Mill Street & Irvine Street
Site Code: 240695
Start Date: 11/20/2024
Page No: 1

Turning Movement Data

Start Time	East Mill Street Eastbound						East Mill Street Westbound						Irvine Street Northbound						Irvine Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:00 AM	1	14	0	0	0	15	0	9	2	0	0	11	0	0	0	0	0	0	8	0	2	0	0	10	36
7:15 AM	0	18	0	0	0	18	0	27	3	0	0	30	0	0	0	0	0	0	4	0	0	0	0	4	52
7:30 AM	1	34	0	0	0	35	0	34	5	0	0	39	0	0	0	0	0	0	12	0	2	0	1	14	88
7:45 AM	0	36	0	0	0	36	1	28	3	0	0	32	0	0	0	0	0	0	8	0	1	0	5	9	77
Hourly Total	2	102	0	0	0	104	1	98	13	0	0	112	0	0	0	0	0	0	32	0	5	0	6	37	253
8:00 AM	0	44	0	0	0	44	0	39	5	0	0	44	0	0	0	0	0	0	4	0	4	0	0	8	96
8:15 AM	2	61	2	0	0	65	0	33	4	0	0	37	0	0	2	0	0	2	15	0	4	0	0	19	123
8:30 AM	2	70	0	0	0	72	0	38	11	0	0	49	0	0	0	0	0	0	18	0	2	0	11	20	141
8:45 AM	0	71	0	0	0	71	0	74	7	0	0	81	0	0	0	0	0	0	11	0	4	0	10	15	167
Hourly Total	4	246	2	0	0	252	0	184	27	0	0	211	0	0	2	0	0	2	48	0	14	0	21	62	527
9:00 AM	0	23	0	0	0	23	0	46	2	0	0	48	0	0	0	0	0	0	7	0	2	0	4	9	80
9:15 AM	0	45	0	0	0	45	1	25	0	0	0	26	0	0	0	0	0	0	6	0	2	0	1	8	79
9:30 AM	1	34	0	0	0	35	0	26	3	0	0	29	0	0	0	0	0	0	5	0	4	0	0	9	73
9:45 AM	0	49	0	0	0	49	0	31	6	0	0	37	0	0	0	0	0	0	10	0	1	0	2	11	97
Hourly Total	1	151	0	0	0	152	1	128	11	0	0	140	0	0	0	0	0	0	28	0	9	0	7	37	329
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:30 AM	0	35	1	0	0	36	0	42	1	0	0	43	0	0	0	0	0	0	4	0	1	0	0	5	84
11:45 AM	0	40	0	0	0	40	0	46	4	0	0	50	1	1	0	0	0	2	7	0	1	0	0	8	100
Hourly Total	0	75	1	0	0	76	0	88	5	0	0	93	1	1	0	0	0	2	11	0	2	0	0	13	184
12:00 PM	0	27	0	0	0	27	0	58	7	0	0	65	2	0	0	0	0	2	6	0	2	0	3	8	102
12:15 PM	2	47	0	0	0	49	0	45	5	0	0	50	0	0	0	0	0	0	3	0	2	0	0	5	104
12:30 PM	0	48	1	0	1	49	0	53	3	0	0	56	0	0	0	0	0	0	5	0	3	0	1	8	113
12:45 PM	1	42	0	0	0	43	1	54	2	0	0	57	0	0	0	0	0	0	10	0	4	0	1	14	114
Hourly Total	3	164	1	0	1	168	1	210	17	0	0	228	2	0	0	0	0	2	24	0	11	0	5	35	433
1:00 PM	0	50	0	0	1	50	0	48	3	0	0	51	0	0	0	0	0	0	3	0	3	0	2	6	107
1:15 PM	1	43	0	0	0	44	0	52	8	0	0	60	0	0	0	0	0	0	7	0	1	0	0	8	112
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	1	93	0	0	1	94	0	100	11	0	0	111	0	0	0	0	0	0	10	0	4	0	2	14	219
3:00 PM	2	49	1	0	0	52	1	52	7	0	0	60	0	0	0	0	0	0	7	0	2	0	3	9	121
3:15 PM	0	49	0	0	0	49	0	79	15	0	0	94	0	0	0	0	0	0	12	0	1	0	35	13	156
3:30 PM	0	48	0	0	0	48	0	52	9	0	0	61	0	0	1	0	0	1	9	0	2	0	1	11	121
3:45 PM	3	43	0	0	0	46	0	57	7	0	0	64	0	0	0	0	0	0	6	0	1	0	1	7	117
Hourly Total	5	189	1	0	0	195	1	240	38	0	0	279	0	0	1	0	0	1	34	0	6	0	40	40	515
4:00 PM	2	57	1	0	0	60	0	51	8	0	0	59	0	0	0	0	0	0	6	0	4	0	0	10	129
4:15 PM	3	54	1	0	0	58	0	47	5	0	0	52	1	0	0	0	0	1	5	0	4	0	2	9	120

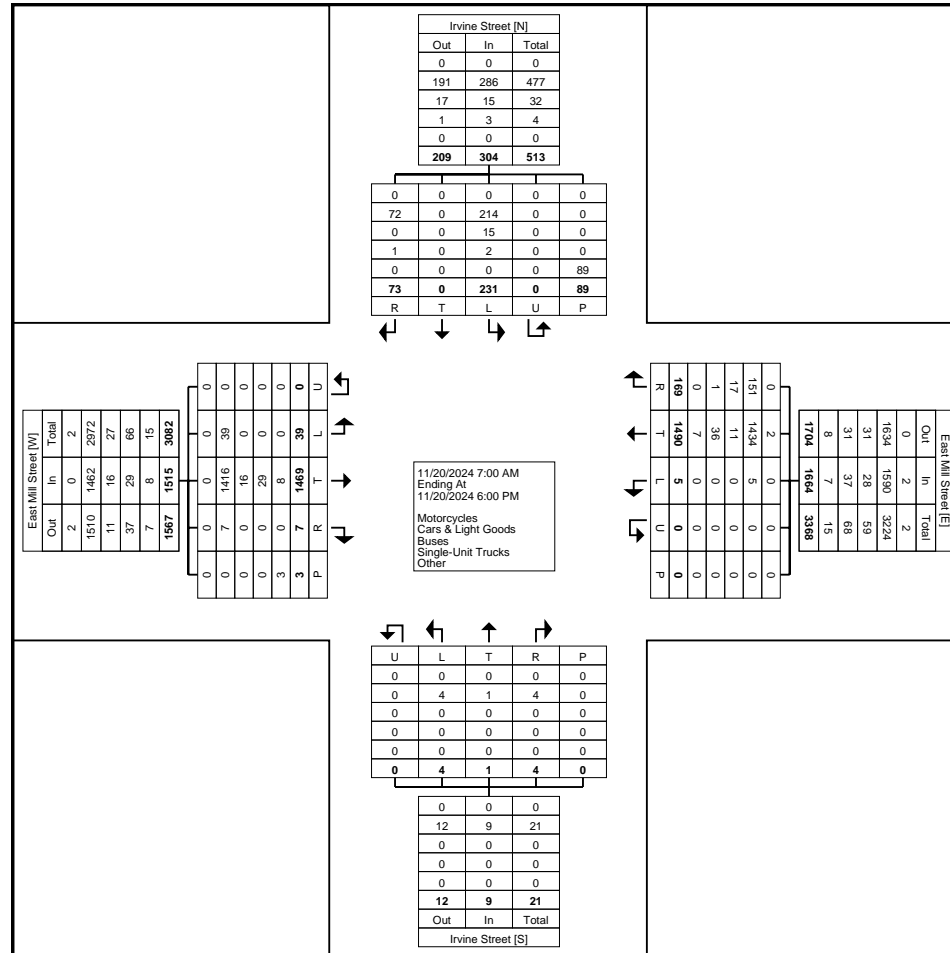
4:30 PM	1	64	0	0	0	65	0	69	5	0	0	74	0	0	0	0	0	6	0	2	0	1	8	147
4:45 PM	6	74	0	0	0	80	1	65	3	0	0	69	0	0	0	0	0	3	0	2	0	1	5	154
Hourly Total	12	249	2	0	0	263	1	232	21	0	0	254	1	0	0	0	1	20	0	12	0	4	32	550
5:00 PM	2	56	0	0	0	58	0	67	5	0	0	72	0	0	0	0	0	4	0	2	0	1	6	136
5:15 PM	3	47	0	0	1	50	0	52	7	0	0	59	0	0	0	0	0	5	0	5	0	1	10	119
5:30 PM	1	63	0	0	0	64	0	53	7	0	0	60	0	0	1	0	1	5	0	1	0	1	6	131
5:45 PM	5	34	0	0	0	39	0	38	7	0	0	45	0	0	0	0	0	10	0	2	0	1	12	96
Hourly Total	11	200	0	0	1	211	0	210	26	0	0	236	0	0	1	0	1	24	0	10	0	4	34	482
Grand Total	39	1469	7	0	3	1515	5	1490	169	0	0	1664	4	1	4	0	9	231	0	73	0	89	304	3492
Approach %	2.6	97.0	0.5	0.0	-	-	0.3	89.5	10.2	0.0	-	-	44.4	11.1	44.4	0.0	-	76.0	0.0	24.0	0.0	-	-	-
Total %	1.1	42.1	0.2	0.0	-	43.4	0.1	42.7	4.8	0.0	-	47.7	0.1	0.0	0.1	0.0	-	6.6	0.0	2.1	0.0	-	8.7	-
Motorcycles	0	0	0	0	-	0	0	2	0	0	-	2	0	0	0	0	-	0	0	0	0	-	0	2
% Motorcycles	0.0	0.0	0.0	-	-	0.0	0.0	0.1	0.0	-	-	0.1	0.0	0.0	0.0	-	-	0.0	-	0.0	-	-	0.0	0.1
Cars & Light Goods	39	1416	7	0	-	1462	5	1434	151	0	-	1590	4	1	4	0	-	214	0	72	0	-	286	3347
% Cars & Light Goods	100.0	96.4	100.0	-	-	96.5	100.0	96.2	89.3	-	-	95.6	100.0	100.0	100.0	-	-	92.6	-	98.6	-	-	94.1	95.8
Buses	0	16	0	0	-	16	0	11	17	0	-	28	0	0	0	0	-	15	0	0	0	-	15	59
% Buses	0.0	1.1	0.0	-	-	1.1	0.0	0.7	10.1	-	-	1.7	0.0	0.0	0.0	-	-	6.5	-	0.0	-	-	4.9	1.7
Single-Unit Trucks	0	29	0	0	-	29	0	36	1	0	-	37	0	0	0	0	-	2	0	1	0	-	3	69
% Single-Unit Trucks	0.0	2.0	0.0	-	-	1.9	0.0	2.4	0.6	-	-	2.2	0.0	0.0	0.0	-	-	0.9	-	1.4	-	-	1.0	2.0
Articulated Trucks	0	8	0	0	-	8	0	7	0	0	-	7	0	0	0	0	-	0	0	0	0	-	0	15
% Articulated Trucks	0.0	0.5	0.0	-	-	0.5	0.0	0.5	0.0	-	-	0.4	0.0	0.0	0.0	-	-	0.0	-	0.0	-	-	0.0	0.4
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	-	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	14	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15.7	-	-
Pedestrians	-	-	-	-	3	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	75	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	84.3	-	-



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
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Count Name: East Mill Street & Irvine Street
Site Code: 240695
Start Date: 11/20/2024
Page No: 3



Turning Movement Data Plot



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
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Count Name: East Mill Street & Irvine Street
Site Code: 240695
Start Date: 11/20/2024
Page No: 4

Turning Movement Peak Hour Data (8:00 AM)

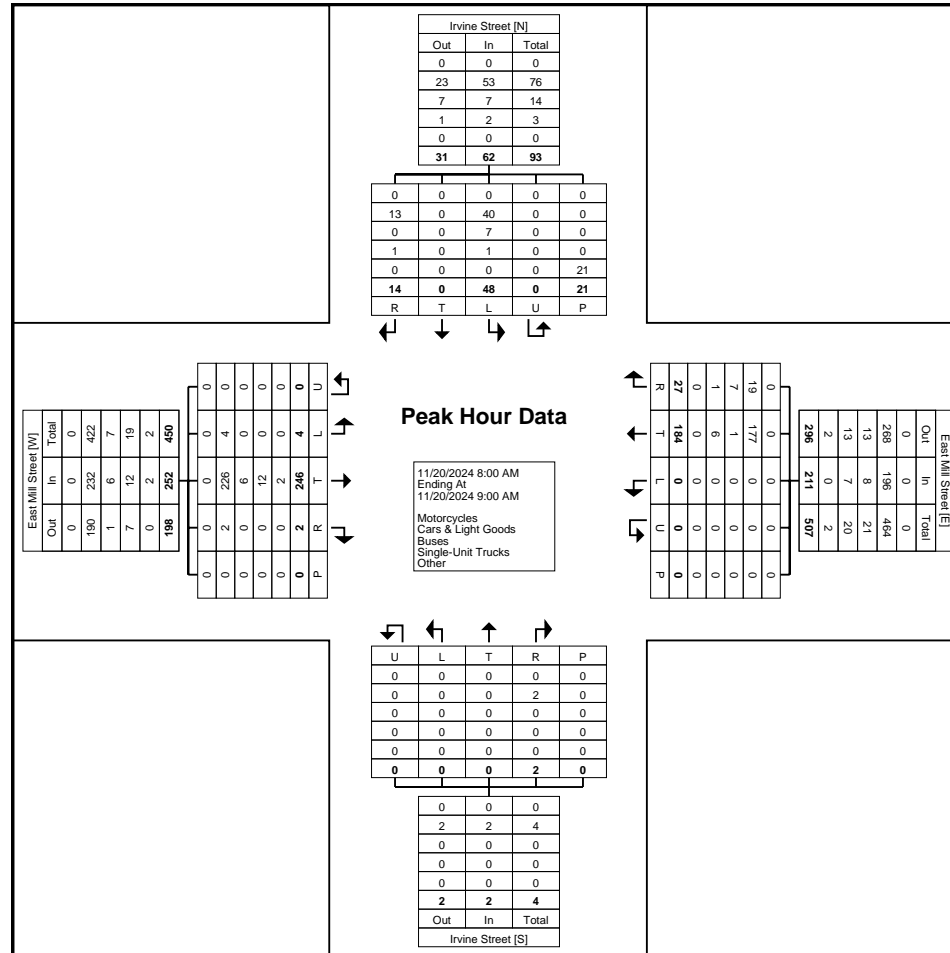
Start Time	East Mill Street Eastbound						East Mill Street Westbound						Irvine Street Northbound						Irvine Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
8:00 AM	0	44	0	0	0	44	0	39	5	0	0	44	0	0	0	0	0	0	4	0	4	0	0	8	96
8:15 AM	2	61	2	0	0	65	0	33	4	0	0	37	0	0	2	0	0	2	15	0	4	0	0	19	123
8:30 AM	2	70	0	0	0	72	0	38	11	0	0	49	0	0	0	0	0	0	18	0	2	0	11	20	141
8:45 AM	0	71	0	0	0	71	0	74	7	0	0	81	0	0	0	0	0	0	11	0	4	0	10	15	167
Total	4	246	2	0	0	252	0	184	27	0	0	211	0	0	2	0	0	2	48	0	14	0	21	62	527
Approach %	1.6	97.6	0.8	0.0	-	-	0.0	87.2	12.8	0.0	-	-	0.0	0.0	100.0	0.0	-	-	77.4	0.0	22.6	0.0	-	-	-
Total %	0.8	46.7	0.4	0.0	-	47.8	0.0	34.9	5.1	0.0	-	40.0	0.0	0.0	0.4	0.0	-	0.4	9.1	0.0	2.7	0.0	-	11.8	-
PHF	0.500	0.866	0.250	0.000	-	0.875	0.000	0.622	0.614	0.000	-	0.651	0.000	0.000	0.250	0.000	-	0.250	0.667	0.000	0.875	0.000	-	0.775	0.789
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	0.0	-	-	0.0	-	0.0	0.0	-	-	0.0	-	-	0.0	-	-	0.0	0.0	-	0.0	-	-	0.0	0.0
Cars & Light Goods	4	226	2	0	-	232	0	177	19	0	-	196	0	0	2	0	-	2	40	0	13	0	-	53	483
% Cars & Light Goods	100.0	91.9	100.0	-	-	92.1	-	96.2	70.4	-	-	92.9	-	-	100.0	-	-	100.0	83.3	-	92.9	-	-	85.5	91.7
Buses	0	6	0	0	-	6	0	1	7	0	-	8	0	0	0	0	-	0	7	0	0	0	-	7	21
% Buses	0.0	2.4	0.0	-	-	2.4	-	0.5	25.9	-	-	3.8	-	-	0.0	-	-	0.0	14.6	-	0.0	-	-	11.3	4.0
Single-Unit Trucks	0	12	0	0	-	12	0	6	1	0	-	7	0	0	0	0	-	0	1	0	1	0	-	2	21
% Single-Unit Trucks	0.0	4.9	0.0	-	-	4.8	-	3.3	3.7	-	-	3.3	-	-	0.0	-	-	0.0	2.1	-	7.1	-	-	3.2	4.0
Articulated Trucks	0	2	0	0	-	2	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	2
% Articulated Trucks	0.0	0.8	0.0	-	-	0.8	-	0.0	0.0	-	-	0.0	-	-	0.0	-	-	0.0	0.0	-	0.0	-	-	0.0	0.4
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	-	0.0	0.0	-	-	0.0	-	-	0.0	-	-	0.0	0.0	-	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	6	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	28.6	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	15	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	71.4	-	-



Paradigm Transportation Solutions Limited
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Count Name: East Mill Street & Irvine Street
Site Code: 240695
Start Date: 11/20/2024
Page No: 5



Turning Movement Peak Hour Data Plot (8:00 AM)



Paradigm Transportation Solutions Limited
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Count Name: East Mill Street & Irvine Street
Site Code: 240695
Start Date: 11/20/2024
Page No: 6

Turning Movement Peak Hour Data (12:30 PM)

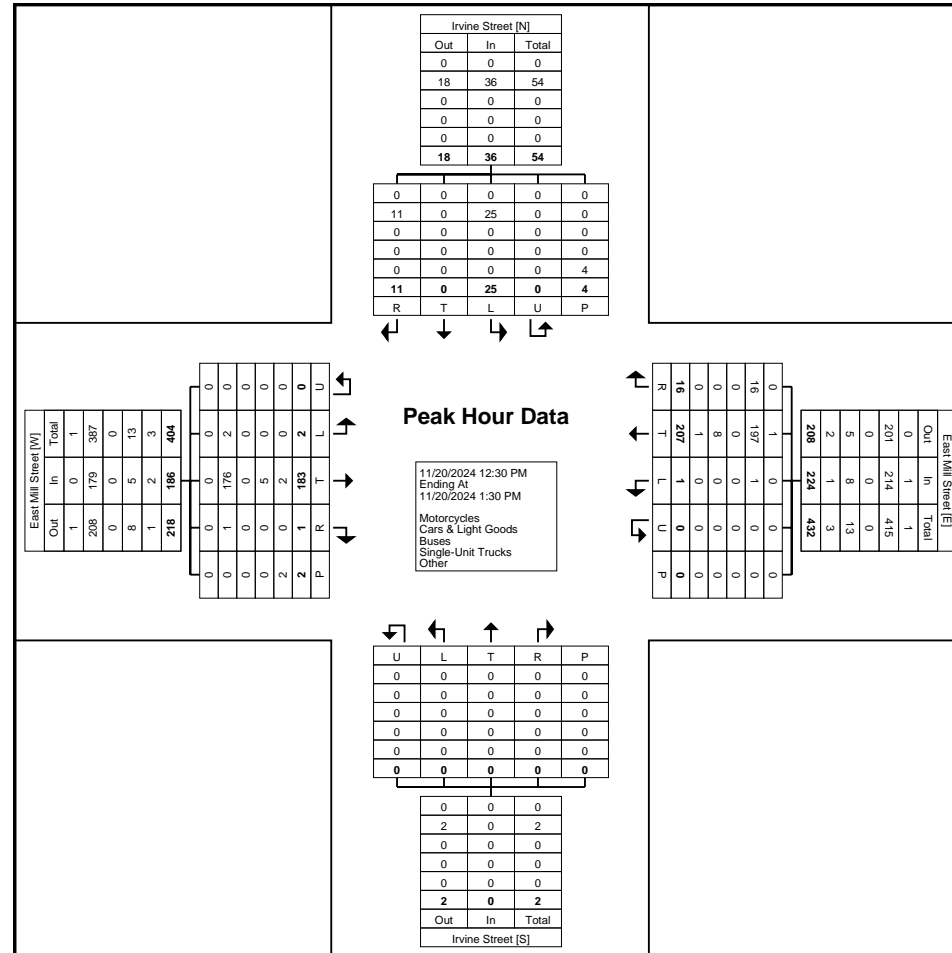
Start Time	East Mill Street Eastbound						East Mill Street Westbound						Irvine Street Northbound						Irvine Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
12:30 PM	0	48	1	0	1	49	0	53	3	0	0	56	0	0	0	0	0	0	5	0	3	0	1	8	113
12:45 PM	1	42	0	0	0	43	1	54	2	0	0	57	0	0	0	0	0	0	10	0	4	0	1	14	114
1:00 PM	0	50	0	0	1	50	0	48	3	0	0	51	0	0	0	0	0	0	3	0	3	0	2	6	107
1:15 PM	1	43	0	0	0	44	0	52	8	0	0	60	0	0	0	0	0	0	7	0	1	0	0	8	112
Total	2	183	1	0	2	186	1	207	16	0	0	224	0	0	0	0	0	0	25	0	11	0	4	36	446
Approach %	1.1	98.4	0.5	0.0	-	-	0.4	92.4	7.1	0.0	-	-	0.0	0.0	0.0	0.0	-	-	69.4	0.0	30.6	0.0	-	-	-
Total %	0.4	41.0	0.2	0.0	-	41.7	0.2	46.4	3.6	0.0	-	50.2	0.0	0.0	0.0	0.0	-	0.0	5.6	0.0	2.5	0.0	-	8.1	-
PHF	0.500	0.915	0.250	0.000	-	0.930	0.250	0.958	0.500	0.000	-	0.933	0.000	0.000	0.000	0.000	-	0.000	0.625	0.000	0.688	0.000	-	0.643	0.978
Motorcycles	0	0	0	0	-	0	0	1	0	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	1
% Motorcycles	0.0	0.0	0.0	-	-	0.0	0.0	0.5	0.0	-	-	0.4	-	-	-	-	-	-	0.0	-	0.0	-	-	0.0	0.2
Cars & Light Goods	2	176	1	0	-	179	1	197	16	0	-	214	0	0	0	0	-	0	25	0	11	0	-	36	429
% Cars & Light Goods	100.0	96.2	100.0	-	-	96.2	100.0	95.2	100.0	-	-	95.5	-	-	-	-	-	-	100.0	-	100.0	-	-	100.0	96.2
Buses	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Buses	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	-	-	-	-	-	-	0.0	-	0.0	-	-	0.0	0.0
Single-Unit Trucks	0	5	0	0	-	5	0	8	0	0	-	8	0	0	0	0	-	0	0	0	0	0	-	0	13
% Single-Unit Trucks	0.0	2.7	0.0	-	-	2.7	0.0	3.9	0.0	-	-	3.6	-	-	-	-	-	-	0.0	-	0.0	-	-	0.0	2.9
Articulated Trucks	0	2	0	0	-	2	0	1	0	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	3
% Articulated Trucks	0.0	1.1	0.0	-	-	1.1	0.0	0.5	0.0	-	-	0.4	-	-	-	-	-	-	0.0	-	0.0	-	-	0.0	0.7
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	-	-	-	-	-	-	0.0	-	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	4	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-



Paradigm Transportation Solutions Limited
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Count Name: East Mill Street & Irvine Street
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Start Date: 11/20/2024
Page No: 7



Turning Movement Peak Hour Data Plot (12:30 PM)



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
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Count Name: East Mill Street & Irvine Street
Site Code: 240695
Start Date: 11/20/2024
Page No: 8

Turning Movement Peak Hour Data (4:15 PM)

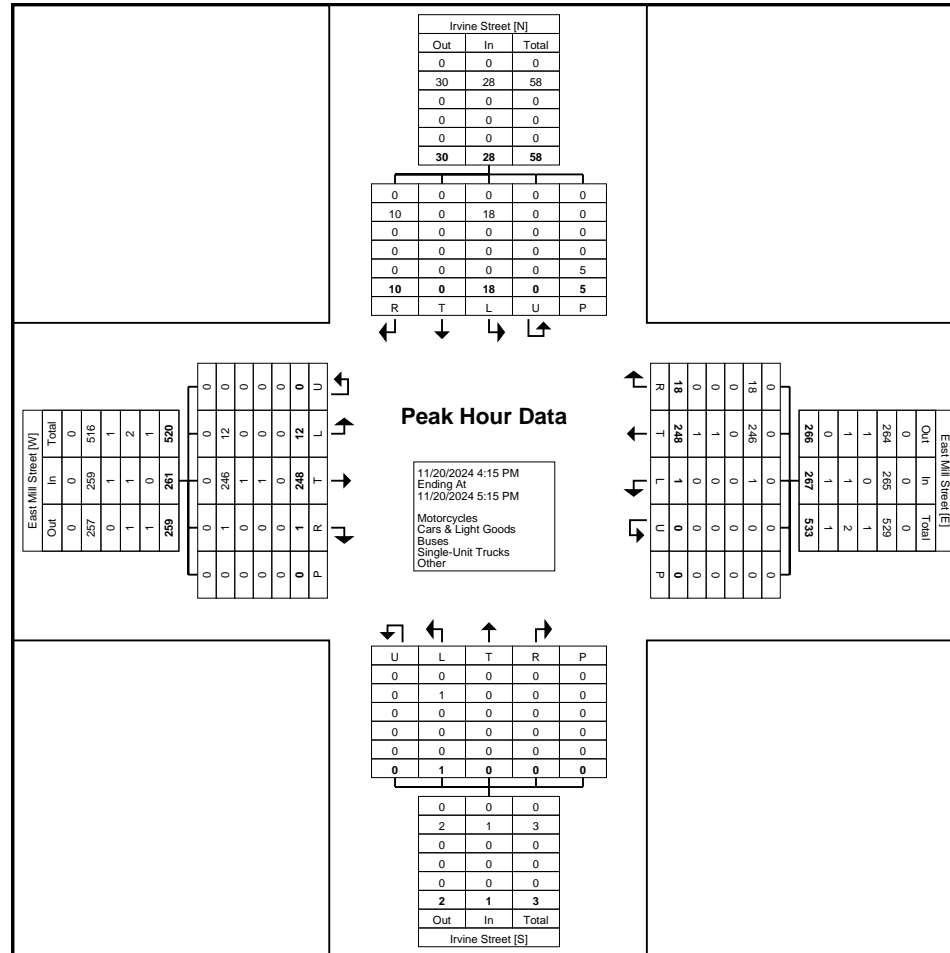
Start Time	East Mill Street Eastbound						East Mill Street Westbound						Irvine Street Northbound						Irvine Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
4:15 PM	3	54	1	0	0	58	0	47	5	0	0	52	1	0	0	0	0	1	5	0	4	0	2	9	120
4:30 PM	1	64	0	0	0	65	0	69	5	0	0	74	0	0	0	0	0	0	6	0	2	0	1	8	147
4:45 PM	6	74	0	0	0	80	1	65	3	0	0	69	0	0	0	0	0	0	3	0	2	0	1	5	154
5:00 PM	2	56	0	0	0	58	0	67	5	0	0	72	0	0	0	0	0	0	4	0	2	0	1	6	136
Total	12	248	1	0	0	261	1	248	18	0	0	267	1	0	0	0	0	1	18	0	10	0	5	28	557
Approach %	4.6	95.0	0.4	0.0	-	-	0.4	92.9	6.7	0.0	-	-	100.0	0.0	0.0	0.0	-	-	64.3	0.0	35.7	0.0	-	-	-
Total %	2.2	44.5	0.2	0.0	-	46.9	0.2	44.5	3.2	0.0	-	47.9	0.2	0.0	0.0	0.0	-	0.2	3.2	0.0	1.8	0.0	-	5.0	-
PHF	0.500	0.838	0.250	0.000	-	0.816	0.250	0.899	0.900	0.000	-	0.902	0.250	0.000	0.000	0.000	-	0.250	0.750	0.000	0.625	0.000	-	0.778	0.904
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	-	-	-	-	0.0	0.0	-	0.0	-	-	0.0	0.0
Cars & Light Goods	12	246	1	0	-	259	1	246	18	0	-	265	1	0	0	0	-	1	18	0	10	0	-	28	553
% Cars & Light Goods	100.0	99.2	100.0	-	-	99.2	100.0	99.2	100.0	-	-	99.3	100.0	-	-	-	-	100.0	100.0	-	100.0	-	-	100.0	99.3
Buses	0	1	0	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	1
% Buses	0.0	0.4	0.0	-	-	0.4	0.0	0.0	0.0	-	-	0.0	0.0	-	-	-	-	0.0	0.0	-	0.0	-	-	0.0	0.2
Single-Unit Trucks	0	1	0	0	-	1	0	1	0	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	2
% Single-Unit Trucks	0.0	0.4	0.0	-	-	0.4	0.0	0.4	0.0	-	-	0.4	0.0	-	-	-	-	0.0	0.0	-	0.0	-	-	0.0	0.4
Articulated Trucks	0	0	0	0	-	0	0	1	0	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	1
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.4	0.0	-	-	0.4	0.0	-	-	-	-	0.0	0.0	-	0.0	-	-	0.0	0.2
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	-	-	-	-	0.0	0.0	-	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	5	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

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Count Name: East Mill Street & Irvine Street
Site Code: 240695
Start Date: 11/20/2024
Page No: 9



Turning Movement Peak Hour Data Plot (4:15 PM)



Paradigm Transportation Solutions Limited
22 King Street South, Suite 300

Waterloo, Ontario, Canada N2J 1N8
519-896-3163 cbowness@ptsl.com

Count Name: Colborne Street & Gerrie Road
Site Code:
Start Date: 06/06/2017
Page No: 1

Turning Movement Data

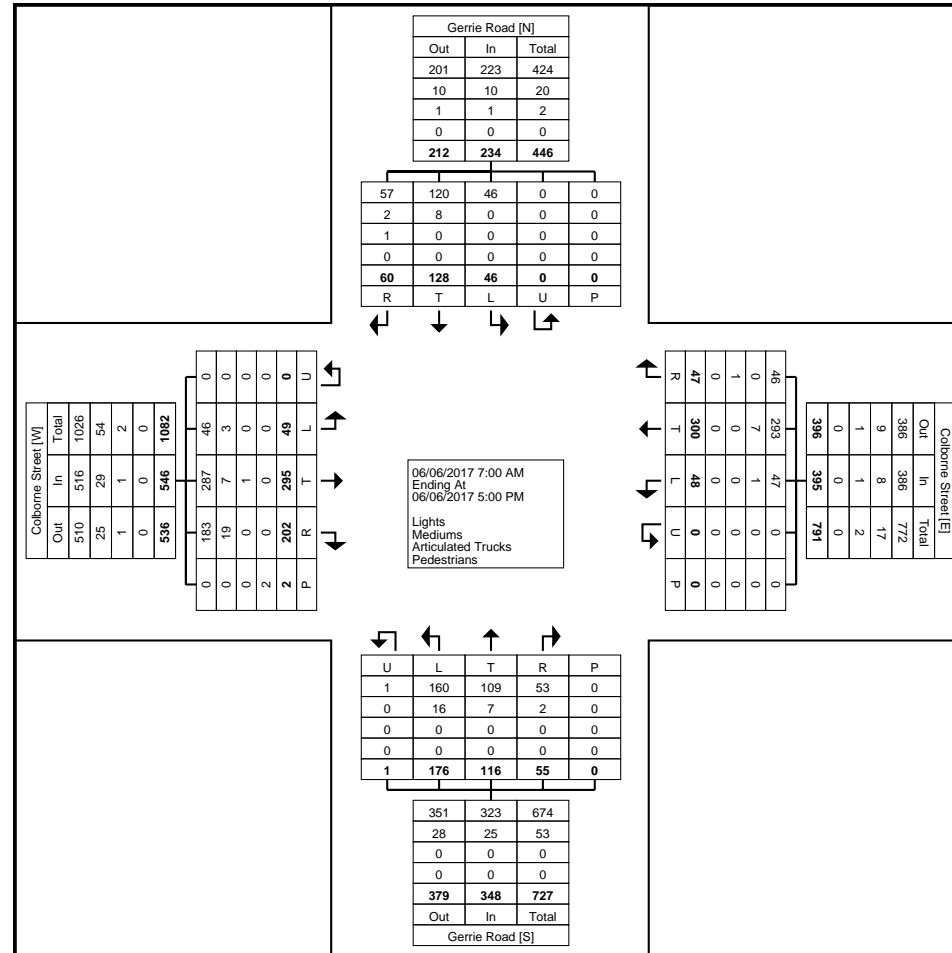
Start Time	Colborne Street Eastbound						Colborne Street Westbound						Gerrie Road Northbound						Gerrie Road Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:00 AM	0	8	5	0	2	13	3	8	0	0	0	11	3	2	2	0	0	7	0	4	0	0	0	4	35
7:15 AM	2	11	8	0	0	21	0	9	1	0	0	10	3	1	2	0	0	6	0	1	4	0	0	5	42
7:30 AM	1	15	13	0	0	29	1	6	1	0	0	8	4	6	3	0	0	13	0	6	3	0	0	9	59
7:45 AM	0	16	13	0	0	29	3	11	4	0	0	18	5	7	2	0	0	14	1	10	1	0	0	12	73
Hourly Total	3	50	39	0	2	92	7	34	6	0	0	47	15	16	9	0	0	40	1	21	8	0	0	30	209
8:00 AM	5	21	19	0	0	45	2	17	2	0	0	21	4	8	1	1	0	14	3	17	4	0	0	24	104
8:15 AM	6	19	14	0	0	39	3	17	4	0	0	24	4	6	2	0	0	12	4	8	1	0	0	13	88
8:30 AM	3	26	24	0	0	53	3	9	4	0	0	16	9	11	2	0	0	22	4	11	5	0	0	20	111
8:45 AM	6	21	9	0	0	36	4	20	4	0	0	28	11	8	1	0	0	20	2	15	7	0	0	24	108
Hourly Total	20	87	66	0	0	173	12	63	14	0	0	89	28	33	6	1	0	68	13	51	17	0	0	81	411
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	5	18	9	0	0	32	3	18	10	0	0	31	8	7	5	0	0	20	5	8	9	0	0	22	105
3:15 PM	6	20	16	0	0	42	2	21	4	0	0	27	20	9	6	0	0	35	8	6	2	0	0	16	120
3:30 PM	7	18	11	0	0	36	5	40	5	0	0	50	17	13	5	0	0	35	7	11	9	0	0	27	148
3:45 PM	4	14	10	0	0	28	2	22	2	0	0	26	25	9	4	0	0	38	6	10	4	0	0	20	112
Hourly Total	22	70	46	0	0	138	12	101	21	0	0	134	70	38	20	0	0	128	26	35	24	0	0	85	485
4:00 PM	3	20	11	0	0	34	3	27	0	0	0	30	16	6	5	0	0	27	2	8	2	0	0	12	103
4:15 PM	1	18	8	0	0	27	4	27	0	0	0	31	17	9	4	0	0	30	3	6	5	0	0	14	102
4:30 PM	0	26	17	0	0	43	2	24	3	0	0	29	13	9	5	0	0	27	1	2	1	0	0	4	103
4:45 PM	0	24	15	0	0	39	8	24	3	0	0	35	17	5	6	0	0	28	0	5	3	0	0	8	110
Hourly Total	4	88	51	0	0	143	17	102	6	0	0	125	63	29	20	0	0	112	6	21	11	0	0	38	418
Grand Total	49	295	202	0	2	546	48	300	47	0	0	395	176	116	55	1	0	348	46	128	60	0	0	234	1523
Approach %	9.0	54.0	37.0	0.0	-	-	12.2	75.9	11.9	0.0	-	-	50.6	33.3	15.8	0.3	-	-	19.7	54.7	25.6	0.0	-	-	-
Total %	3.2	19.4	13.3	0.0	-	35.9	3.2	19.7	3.1	0.0	-	25.9	11.6	7.6	3.6	0.1	-	22.8	3.0	8.4	3.9	0.0	-	15.4	-
Lights	46	287	183	0	-	516	47	293	46	0	-	386	160	109	53	1	-	323	46	120	57	0	-	223	1448
% Lights	93.9	97.3	90.6	-	-	94.5	97.9	97.7	97.9	-	-	97.7	90.9	94.0	96.4	100.0	-	92.8	100.0	93.8	95.0	-	-	95.3	95.1
Mediums	3	7	19	0	-	29	1	7	0	0	-	8	16	7	2	0	-	25	0	8	2	0	-	10	72
% Mediums	6.1	2.4	9.4	-	-	5.3	2.1	2.3	0.0	-	-	2.0	9.1	6.0	3.6	0.0	-	7.2	0.0	6.3	3.3	-	-	4.3	4.7
Articulated Trucks	0	1	0	0	-	1	0	0	1	0	-	1	0	0	0	0	-	0	0	0	1	0	-	1	3
% Articulated Trucks	0.0	0.3	0.0	-	-	0.2	0.0	0.0	2.1	-	-	0.3	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	1.7	-	-	0.4	0.2
Pedestrians	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Paradigm Transportation Solutions Limited
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Count Name: Colborne Street & Gerrie Road
Site Code:
Start Date: 06/06/2017
Page No: 2



Turning Movement Data Plot



Paradigm Transportation Solutions Limited
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Count Name: Colborne Street & Gerrie Road
Site Code:
Start Date: 06/06/2017
Page No: 3

Turning Movement Peak Hour Data (8:00 AM)

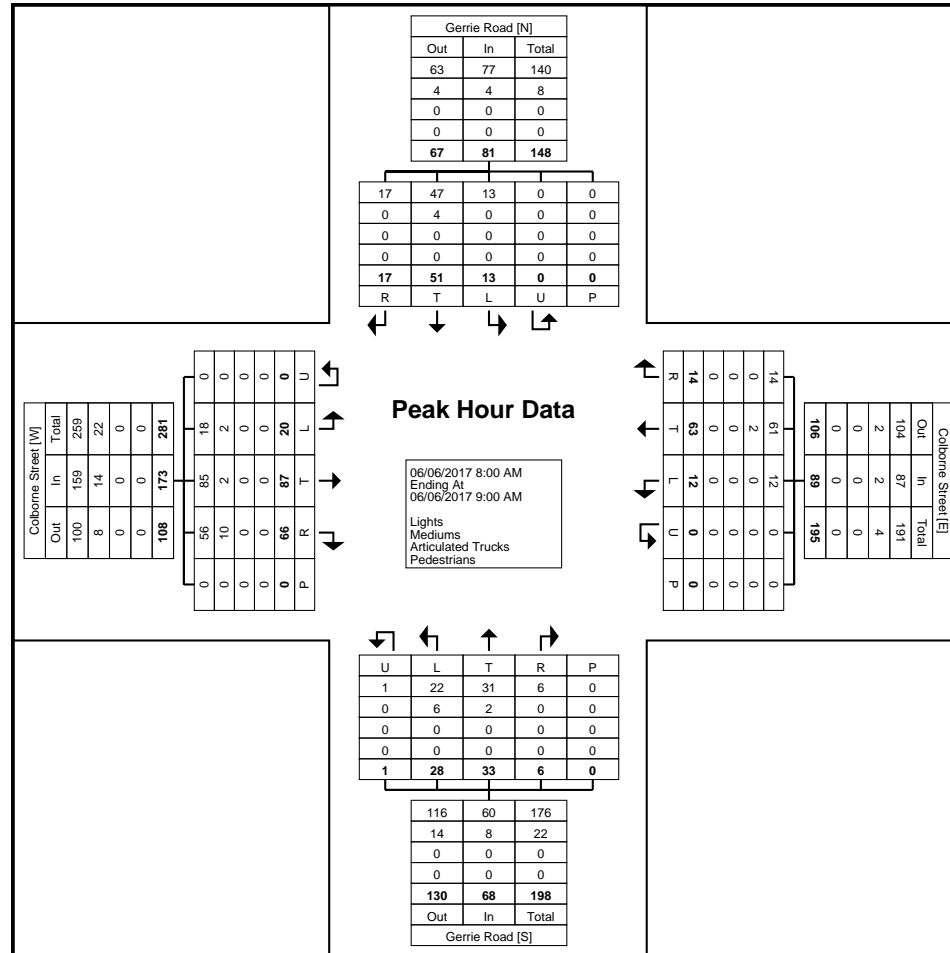
Start Time	Colborne Street Eastbound						Colborne Street Westbound						Gerrie Road Northbound						Gerrie Road Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
8:00 AM	5	21	19	0	0	45	2	17	2	0	0	21	4	8	1	1	0	14	3	17	4	0	0	24	104
8:15 AM	6	19	14	0	0	39	3	17	4	0	0	24	4	6	2	0	0	12	4	8	1	0	0	13	88
8:30 AM	3	26	24	0	0	53	3	9	4	0	0	16	9	11	2	0	0	22	4	11	5	0	0	20	111
8:45 AM	6	21	9	0	0	36	4	20	4	0	0	28	11	8	1	0	0	20	2	15	7	0	0	24	108
Total	20	87	66	0	0	173	12	63	14	0	0	89	28	33	6	1	0	68	13	51	17	0	0	81	411
Approach %	11.6	50.3	38.2	0.0	-	-	13.5	70.8	15.7	0.0	-	-	41.2	48.5	8.8	1.5	-	-	16.0	63.0	21.0	0.0	-	-	-
Total %	4.9	21.2	16.1	0.0	-	42.1	2.9	15.3	3.4	0.0	-	21.7	6.8	8.0	1.5	0.2	-	16.5	3.2	12.4	4.1	0.0	-	19.7	-
PHF	0.833	0.837	0.688	0.000	-	0.816	0.750	0.788	0.875	0.000	-	0.795	0.636	0.750	0.750	0.250	-	0.773	0.813	0.750	0.607	0.000	-	0.844	0.926
Lights	18	85	56	0	-	159	12	61	14	0	-	87	22	31	6	1	-	60	13	47	17	0	-	77	383
% Lights	90.0	97.7	84.8	-	-	91.9	100.0	96.8	100.0	-	-	97.8	78.6	93.9	100.0	100.0	-	88.2	100.0	92.2	100.0	-	-	95.1	93.2
Mediums	2	2	10	0	-	14	0	2	0	0	-	2	6	2	0	0	-	8	0	4	0	0	-	4	28
% Mediums	10.0	2.3	15.2	-	-	8.1	0.0	3.2	0.0	-	-	2.2	21.4	6.1	0.0	0.0	-	11.8	0.0	7.8	0.0	-	-	4.9	6.8
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



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Count Name: Colborne Street & Gerrie Road
Site Code:
Start Date: 06/06/2017
Page No: 4



Turning Movement Peak Hour Data Plot (8:00 AM)



Paradigm Transportation Solutions Limited
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Count Name: Colborne Street & Gerrie Road
Site Code:
Start Date: 06/06/2017
Page No: 5

Turning Movement Peak Hour Data (3:00 PM)

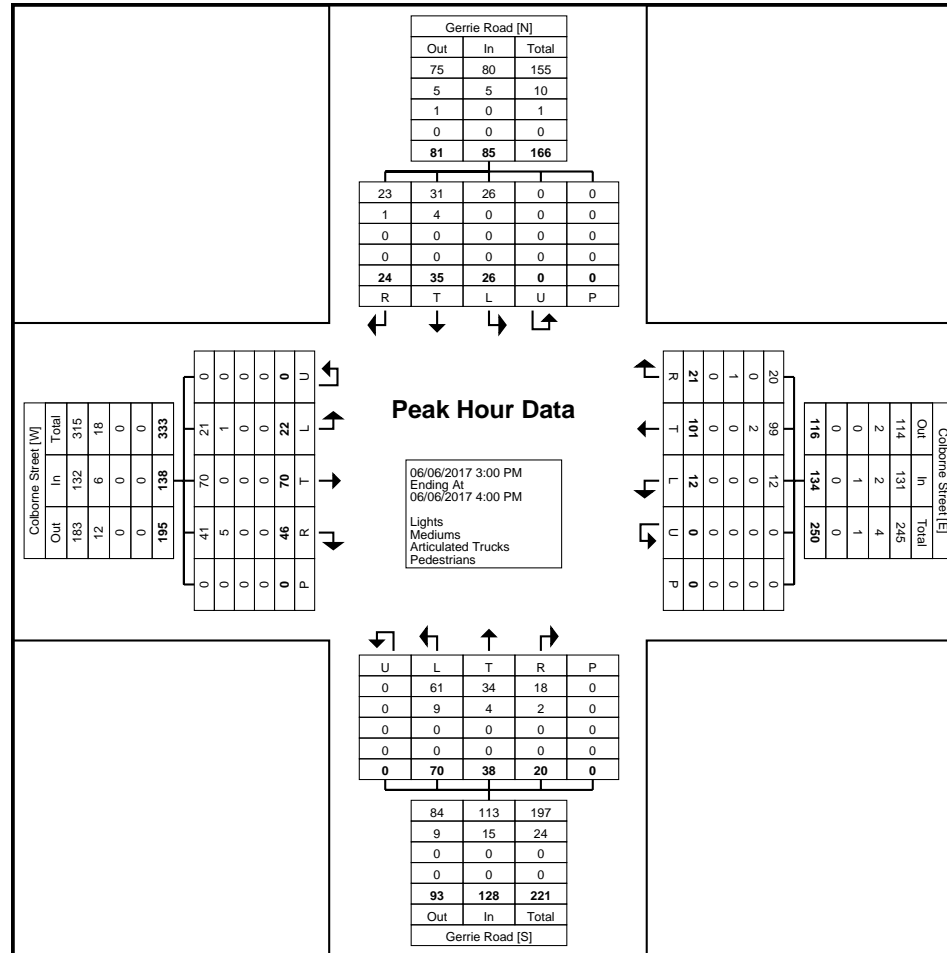
Start Time	Colborne Street Eastbound						Colborne Street Westbound						Gerrie Road Northbound						Gerrie Road Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
3:00 PM	5	18	9	0	0	32	3	18	10	0	0	31	8	7	5	0	0	20	5	8	9	0	0	22	105
3:15 PM	6	20	16	0	0	42	2	21	4	0	0	27	20	9	6	0	0	35	8	6	2	0	0	16	120
3:30 PM	7	18	11	0	0	36	5	40	5	0	0	50	17	13	5	0	0	35	7	11	9	0	0	27	148
3:45 PM	4	14	10	0	0	28	2	22	2	0	0	26	25	9	4	0	0	38	6	10	4	0	0	20	112
Total	22	70	46	0	0	138	12	101	21	0	0	134	70	38	20	0	0	128	26	35	24	0	0	85	485
Approach %	15.9	50.7	33.3	0.0	-	-	9.0	75.4	15.7	0.0	-	-	54.7	29.7	15.6	0.0	-	-	30.6	41.2	28.2	0.0	-	-	-
Total %	4.5	14.4	9.5	0.0	-	28.5	2.5	20.8	4.3	0.0	-	27.6	14.4	7.8	4.1	0.0	-	26.4	5.4	7.2	4.9	0.0	-	17.5	-
PHF	0.786	0.875	0.719	0.000	-	0.821	0.600	0.631	0.525	0.000	-	0.670	0.700	0.731	0.833	0.000	-	0.842	0.813	0.795	0.667	0.000	-	0.787	0.819
Lights	21	70	41	0	-	132	12	99	20	0	-	131	61	34	18	0	-	113	26	31	23	0	-	80	456
% Lights	95.5	100.0	89.1	-	-	95.7	100.0	98.0	95.2	-	-	97.8	87.1	89.5	90.0	-	-	88.3	100.0	88.6	95.8	-	-	94.1	94.0
Mediums	1	0	5	0	-	6	0	2	0	0	-	2	9	4	2	0	-	15	0	4	1	0	-	5	28
% Mediums	4.5	0.0	10.9	-	-	4.3	0.0	2.0	0.0	-	-	1.5	12.9	10.5	10.0	-	-	11.7	0.0	11.4	4.2	-	-	5.9	5.8
Articulated Trucks	0	0	0	0	-	0	0	0	1	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	1
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.0	4.8	-	-	0.7	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.2
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



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Count Name: Colborne Street & Gerrie Road
Site Code:
Start Date: 06/06/2017
Page No: 6



Turning Movement Peak Hour Data Plot (3:00 PM)



Paradigm Transportation Solutions Limited
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Count Name: Colborne Street & Gerrie Road
Site Code:
Start Date: 06/06/2017
Page No: 7



Paradigm Transportation Solutions Limited
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8
519-896-3163 cbowness@ptsI.com

Count Name: Wellington Road 18 & Gerrie Road
Site Code: 240695
Start Date: 11/20/2024
Page No: 1

Turning Movement Data

Start Time	Wellington Road 18 Eastbound						Wellington Road 18 Westbound						Chapel Street Northbound						Gerrie Road Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:00 AM	1	22	0	0	0	23	0	13	2	0	0	15	0	0	0	0	0	0	8	0	2	0	0	10	48
7:15 AM	4	17	0	0	0	21	0	25	5	0	0	30	0	0	0	0	0	0	12	0	4	0	0	16	67
7:30 AM	1	35	0	0	0	36	0	38	8	0	0	46	0	0	0	0	0	0	21	0	4	0	0	25	107
7:45 AM	0	35	0	0	0	35	0	32	12	0	0	44	0	0	0	0	0	0	21	0	2	0	0	23	102
Hourly Total	6	109	0	0	0	115	0	108	27	0	0	135	0	0	0	0	0	0	62	0	12	0	0	74	324
8:00 AM	1	40	0	0	0	41	0	46	14	0	0	60	0	0	0	0	0	0	17	0	5	0	1	22	123
8:15 AM	4	49	0	0	0	53	0	44	15	0	0	59	0	0	0	0	0	0	25	0	8	0	0	33	145
8:30 AM	3	37	0	0	0	40	0	48	15	0	0	63	0	0	0	0	0	0	26	0	8	0	0	34	137
8:45 AM	6	58	0	0	0	64	0	50	16	0	0	66	0	0	0	0	0	0	23	0	12	0	0	35	165
Hourly Total	14	184	0	0	0	198	0	188	60	0	0	248	0	0	0	0	0	0	91	0	33	0	1	124	570
9:00 AM	2	35	0	0	0	37	0	49	17	0	0	66	0	0	0	0	0	0	19	0	2	0	0	21	124
9:15 AM	4	48	0	0	0	52	0	28	12	0	0	40	0	0	0	0	0	0	14	0	1	0	0	15	107
9:30 AM	1	42	0	0	0	43	0	37	14	0	0	51	0	0	0	0	0	0	13	0	0	0	0	13	107
9:45 AM	3	44	0	0	0	47	0	30	20	0	0	50	0	0	0	0	0	0	19	0	4	0	0	23	120
Hourly Total	10	169	0	0	0	179	0	144	63	0	0	207	0	0	0	0	0	0	65	0	7	0	0	72	458
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:30 AM	7	37	0	0	0	44	0	44	15	0	0	59	0	0	0	0	0	0	11	0	4	0	0	15	118
11:45 AM	2	41	0	0	0	43	0	48	24	0	0	72	0	0	0	0	0	0	23	0	0	0	0	23	138
Hourly Total	9	78	0	0	0	87	0	92	39	0	0	131	0	0	0	0	0	0	34	0	4	0	0	38	256
12:00 PM	2	38	0	0	0	40	0	58	22	0	0	80	0	0	0	0	0	0	14	0	3	0	0	17	137
12:15 PM	3	50	0	0	0	53	0	47	19	0	0	66	0	0	0	0	0	0	25	0	2	0	0	27	146
12:30 PM	3	42	0	0	0	45	0	57	20	0	0	77	0	0	0	0	0	0	27	0	6	0	0	33	155
12:45 PM	5	51	0	0	0	56	1	54	18	0	0	73	0	0	0	0	0	0	17	0	6	0	0	23	152
Hourly Total	13	181	0	0	0	194	1	216	79	0	0	296	0	0	0	0	0	0	83	0	17	0	0	100	590
1:00 PM	2	54	0	0	0	56	0	51	19	0	0	70	0	0	0	0	0	0	16	0	1	0	0	17	143
1:15 PM	2	43	0	0	0	45	0	52	17	0	0	69	0	0	0	0	0	0	12	0	4	0	0	16	130
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	4	97	0	0	0	101	0	103	36	0	0	139	0	0	0	0	0	0	28	0	5	0	0	33	273
3:00 PM	6	38	0	0	0	44	0	62	27	0	0	89	0	0	0	0	0	0	19	0	7	0	0	26	159
3:15 PM	9	55	0	0	0	64	0	46	31	0	0	77	0	0	0	0	0	0	21	0	2	0	0	23	164
3:30 PM	6	65	0	0	0	71	0	52	25	0	1	77	0	0	0	0	0	0	15	0	2	0	2	17	165
3:45 PM	3	45	0	0	0	48	0	55	22	0	0	77	0	0	0	0	0	0	19	0	4	0	0	23	148
Hourly Total	24	203	0	0	0	227	0	215	105	0	1	320	0	0	0	0	0	0	74	0	15	0	2	89	636
4:00 PM	2	55	0	0	0	57	0	53	31	0	0	84	0	0	0	0	0	0	17	0	1	0	0	18	159
4:15 PM	7	58	0	0	0	65	0	53	33	0	0	86	0	0	0	0	0	0	26	0	3	0	0	29	180

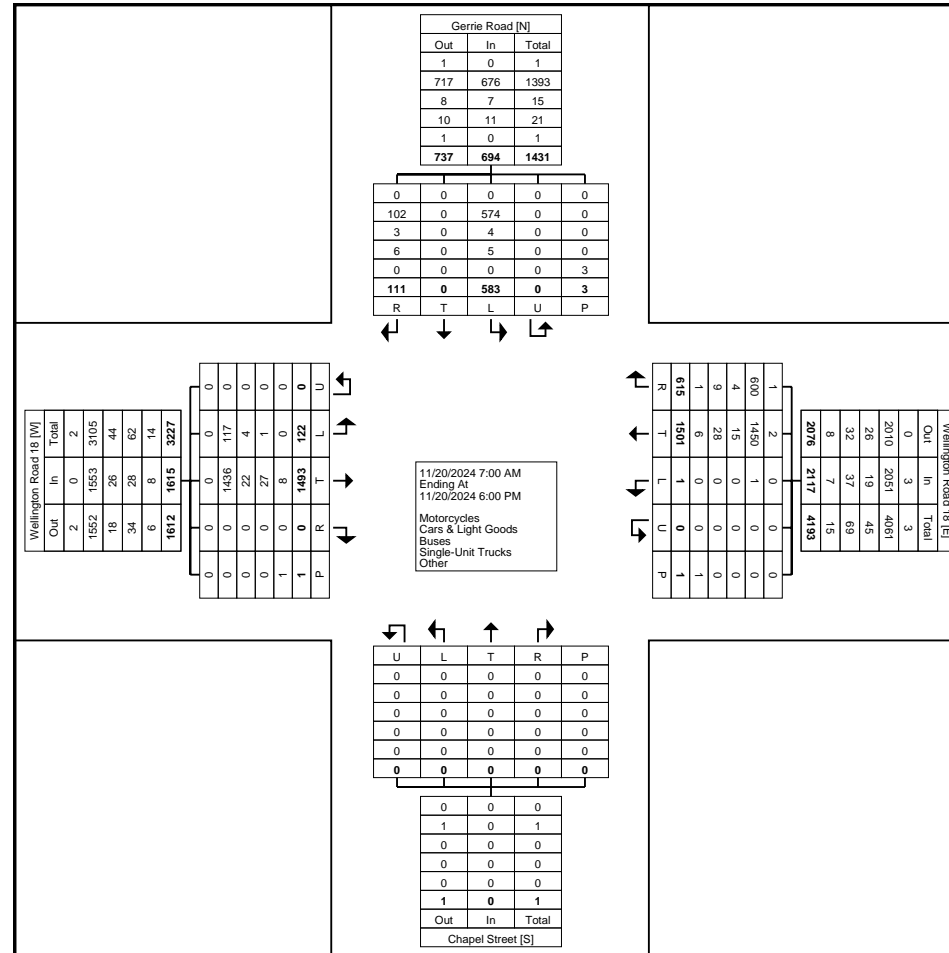
4:30 PM	7	70	0	0	1	77	0	66	23	0	0	89	0	0	0	0	0	0	11	0	5	0	0	16	182
4:45 PM	10	65	0	0	0	75	0	60	21	0	0	81	0	0	0	0	0	0	21	0	4	0	0	25	181
Hourly Total	26	248	0	0	1	274	0	232	108	0	0	340	0	0	0	0	0	0	75	0	13	0	0	88	702
5:00 PM	8	60	0	0	0	68	0	47	27	0	0	74	0	0	0	0	0	0	18	0	2	0	0	20	162
5:15 PM	2	48	0	0	0	50	0	49	29	0	0	78	0	0	0	0	0	0	18	0	2	0	0	20	148
5:30 PM	4	66	0	0	0	70	0	53	16	0	0	69	0	0	0	0	0	0	18	0	1	0	0	19	158
5:45 PM	2	50	0	0	0	52	0	54	26	0	0	80	0	0	0	0	0	0	17	0	0	0	0	17	149
Hourly Total	16	224	0	0	0	240	0	203	98	0	0	301	0	0	0	0	0	0	71	0	5	0	0	76	617
Grand Total	122	1493	0	0	1	1615	1	1501	615	0	1	2117	0	0	0	0	0	0	583	0	111	0	3	694	4426
Approach %	7.6	92.4	0.0	0.0	-	-	0.0	70.9	29.1	0.0	-	-	0.0	0.0	0.0	0.0	-	-	84.0	0.0	16.0	0.0	-	-	-
Total %	2.8	33.7	0.0	0.0	-	36.5	0.0	33.9	13.9	0.0	-	47.8	0.0	0.0	0.0	0.0	-	0.0	13.2	0.0	2.5	0.0	-	15.7	-
Motorcycles	0	0	0	0	-	0	0	2	1	0	-	3	0	0	0	0	-	0	0	0	0	0	-	0	3
% Motorcycles	0.0	0.0	-	-	-	0.0	0.0	0.1	0.2	-	-	0.1	-	-	-	-	-	-	0.0	-	0.0	-	-	0.0	0.1
Cars & Light Goods	117	1436	0	0	-	1553	1	1450	600	0	-	2051	0	0	0	0	-	0	574	0	102	0	-	676	4280
% Cars & Light Goods	95.9	96.2	-	-	-	96.2	100.0	96.6	97.6	-	-	96.9	-	-	-	-	-	-	98.5	-	91.9	-	-	97.4	96.7
Buses	4	22	0	0	-	26	0	15	4	0	-	19	0	0	0	0	-	0	4	0	3	0	-	7	52
% Buses	3.3	1.5	-	-	-	1.6	0.0	1.0	0.7	-	-	0.9	-	-	-	-	-	-	0.7	-	2.7	-	-	1.0	1.2
Single-Unit Trucks	1	27	0	0	-	28	0	28	9	0	-	37	0	0	0	0	-	0	5	0	6	0	-	11	76
% Single-Unit Trucks	0.8	1.8	-	-	-	1.7	0.0	1.9	1.5	-	-	1.7	-	-	-	-	-	-	0.9	-	5.4	-	-	1.6	1.7
Articulated Trucks	0	6	0	0	-	6	0	6	0	0	-	6	0	0	0	0	-	0	0	0	0	0	-	0	12
% Articulated Trucks	0.0	0.4	-	-	-	0.4	0.0	0.4	0.0	-	-	0.3	-	-	-	-	-	-	0.0	-	0.0	-	-	0.0	0.3
Bicycles on Road	0	2	0	0	-	2	0	0	1	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	3
% Bicycles on Road	0.0	0.1	-	-	-	0.1	0.0	0.0	0.2	-	-	0.0	-	-	-	-	-	-	0.0	-	0.0	-	-	0.0	0.1
Bicycles on Crosswalk	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-
% Bicycles on Crosswalk	-	-	-	-	100.0	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	33.3	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	2	-	-
% Pedestrians	-	-	-	-	0.0	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	66.7	-	-



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Count Name: Wellington Road 18 & Gerrie Road
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Start Date: 11/20/2024
Page No: 3



Turning Movement Data Plot



Paradigm Transportation Solutions Limited
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Count Name: Wellington Road 18 & Gerrie Road
Site Code: 240695
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Page No: 4

Turning Movement Peak Hour Data (8:15 AM)

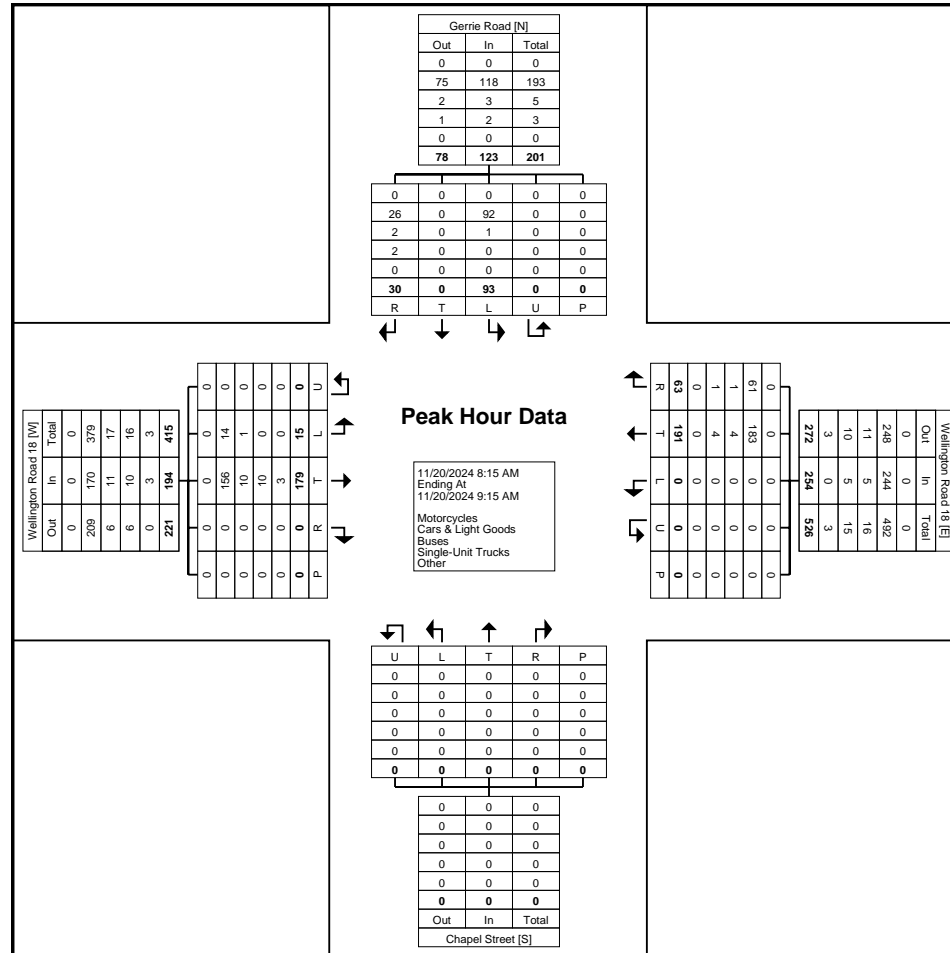
Start Time	Wellington Road 18 Eastbound						Wellington Road 18 Westbound						Chapel Street Northbound						Gerrie Road Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
8:15 AM	4	49	0	0	0	53	0	44	15	0	0	59	0	0	0	0	0	0	25	0	8	0	0	33	145
8:30 AM	3	37	0	0	0	40	0	48	15	0	0	63	0	0	0	0	0	0	26	0	8	0	0	34	137
8:45 AM	6	58	0	0	0	64	0	50	16	0	0	66	0	0	0	0	0	0	23	0	12	0	0	35	165
9:00 AM	2	35	0	0	0	37	0	49	17	0	0	66	0	0	0	0	0	0	19	0	2	0	0	21	124
Total	15	179	0	0	0	194	0	191	63	0	0	254	0	0	0	0	0	0	93	0	30	0	0	123	571
Approach %	7.7	92.3	0.0	0.0	-	-	0.0	75.2	24.8	0.0	-	-	0.0	0.0	0.0	0.0	-	-	75.6	0.0	24.4	0.0	-	-	-
Total %	2.6	31.3	0.0	0.0	-	34.0	0.0	33.5	11.0	0.0	-	44.5	0.0	0.0	0.0	0.0	-	0.0	16.3	0.0	5.3	0.0	-	21.5	-
PHF	0.625	0.772	0.000	0.000	-	0.758	0.000	0.955	0.926	0.000	-	0.962	0.000	0.000	0.000	0.000	-	0.000	0.894	0.000	0.625	0.000	-	0.879	0.865
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	-	-	-	0.0	-	0.0	0.0	-	-	0.0	-	-	-	-	-	-	0.0	-	0.0	-	-	0.0	0.0
Cars & Light Goods	14	156	0	0	-	170	0	183	61	0	-	244	0	0	0	0	-	0	92	0	26	0	-	118	532
% Cars & Light Goods	93.3	87.2	-	-	-	87.6	-	95.8	96.8	-	-	96.1	-	-	-	-	-	-	98.9	-	86.7	-	-	95.9	93.2
Buses	1	10	0	0	-	11	0	4	1	0	-	5	0	0	0	0	-	0	1	0	2	0	-	3	19
% Buses	6.7	5.6	-	-	-	5.7	-	2.1	1.6	-	-	2.0	-	-	-	-	-	-	1.1	-	6.7	-	-	2.4	3.3
Single-Unit Trucks	0	10	0	0	-	10	0	4	1	0	-	5	0	0	0	0	-	0	0	0	2	0	-	2	17
% Single-Unit Trucks	0.0	5.6	-	-	-	5.2	-	2.1	1.6	-	-	2.0	-	-	-	-	-	-	0.0	-	6.7	-	-	1.6	3.0
Articulated Trucks	0	2	0	0	-	2	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	2
% Articulated Trucks	0.0	1.1	-	-	-	1.0	-	0.0	0.0	-	-	0.0	-	-	-	-	-	-	0.0	-	0.0	-	-	0.0	0.4
Bicycles on Road	0	1	0	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	1
% Bicycles on Road	0.0	0.6	-	-	-	0.5	-	0.0	0.0	-	-	0.0	-	-	-	-	-	-	0.0	-	0.0	-	-	0.0	0.2
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Paradigm Transportation Solutions Limited
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Count Name: Wellington Road 18 & Gerrie Road
Site Code: 240695
Start Date: 11/20/2024
Page No: 5



Turning Movement Peak Hour Data Plot (8:15 AM)



Paradigm Transportation Solutions Limited
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Count Name: Wellington Road 18 & Gerrie Road
Site Code: 240695
Start Date: 11/20/2024
Page No: 6

Turning Movement Peak Hour Data (12:15 PM)

Start Time	Wellington Road 18 Eastbound						Wellington Road 18 Westbound						Chapel Street Northbound						Gerrie Road Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
12:15 PM	3	50	0	0	0	53	0	47	19	0	0	66	0	0	0	0	0	0	25	0	2	0	0	27	146
12:30 PM	3	42	0	0	0	45	0	57	20	0	0	77	0	0	0	0	0	0	27	0	6	0	0	33	155
12:45 PM	5	51	0	0	0	56	1	54	18	0	0	73	0	0	0	0	0	0	17	0	6	0	0	23	152
1:00 PM	2	54	0	0	0	56	0	51	19	0	0	70	0	0	0	0	0	0	16	0	1	0	0	17	143
Total	13	197	0	0	0	210	1	209	76	0	0	286	0	0	0	0	0	0	85	0	15	0	0	100	596
Approach %	6.2	93.8	0.0	0.0	-	-	0.3	73.1	26.6	0.0	-	-	0.0	0.0	0.0	0.0	-	-	85.0	0.0	15.0	0.0	-	-	-
Total %	2.2	33.1	0.0	0.0	-	35.2	0.2	35.1	12.8	0.0	-	48.0	0.0	0.0	0.0	0.0	-	0.0	14.3	0.0	2.5	0.0	-	16.8	-
PHF	0.650	0.912	0.000	0.000	-	0.938	0.250	0.917	0.950	0.000	-	0.929	0.000	0.000	0.000	0.000	-	0.000	0.787	0.000	0.625	0.000	-	0.758	0.961
Motorcycles	0	0	0	0	-	0	0	1	0	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	1
% Motorcycles	0.0	0.0	-	-	-	0.0	0.0	0.5	0.0	-	-	0.3	-	-	-	-	-	-	0.0	-	0.0	-	-	0.0	0.2
Cars & Light Goods	13	191	0	0	-	204	1	202	75	0	-	278	0	0	0	0	-	0	85	0	14	0	-	99	581
% Cars & Light Goods	100.0	97.0	-	-	-	97.1	100.0	96.7	98.7	-	-	97.2	-	-	-	-	-	-	100.0	-	93.3	-	-	99.0	97.5
Buses	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Buses	0.0	0.0	-	-	-	0.0	0.0	0.0	0.0	-	-	0.0	-	-	-	-	-	-	0.0	-	0.0	-	-	0.0	0.0
Single-Unit Trucks	0	5	0	0	-	5	0	5	1	0	-	6	0	0	0	0	-	0	0	0	1	0	-	1	12
% Single-Unit Trucks	0.0	2.5	-	-	-	2.4	0.0	2.4	1.3	-	-	2.1	-	-	-	-	-	-	0.0	-	6.7	-	-	1.0	2.0
Articulated Trucks	0	1	0	0	-	1	0	1	0	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	2
% Articulated Trucks	0.0	0.5	-	-	-	0.5	0.0	0.5	0.0	-	-	0.3	-	-	-	-	-	-	0.0	-	0.0	-	-	0.0	0.3
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	-	-	-	0.0	0.0	0.0	0.0	-	-	0.0	-	-	-	-	-	-	0.0	-	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



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Start Date: 11/20/2024
Page No: 8

Turning Movement Peak Hour Data (4:15 PM)

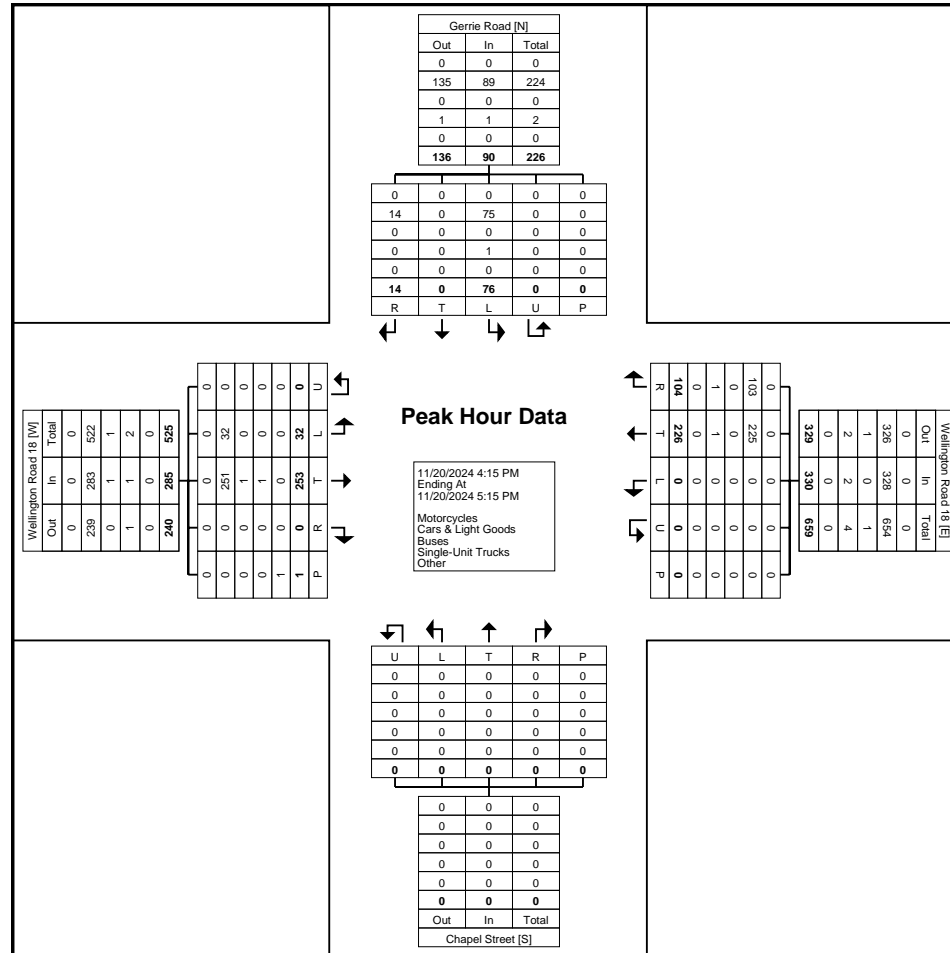
Start Time	Wellington Road 18 Eastbound						Wellington Road 18 Westbound						Chapel Street Northbound						Gerrie Road Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
4:15 PM	7	58	0	0	0	65	0	53	33	0	0	86	0	0	0	0	0	0	26	0	3	0	0	29	180
4:30 PM	7	70	0	0	1	77	0	66	23	0	0	89	0	0	0	0	0	0	11	0	5	0	0	16	182
4:45 PM	10	65	0	0	0	75	0	60	21	0	0	81	0	0	0	0	0	0	21	0	4	0	0	25	181
5:00 PM	8	60	0	0	0	68	0	47	27	0	0	74	0	0	0	0	0	0	18	0	2	0	0	20	162
Total	32	253	0	0	1	285	0	226	104	0	0	330	0	0	0	0	0	0	76	0	14	0	0	90	705
Approach %	11.2	88.8	0.0	0.0	-	-	0.0	68.5	31.5	0.0	-	-	0.0	0.0	0.0	0.0	-	-	84.4	0.0	15.6	0.0	-	-	-
Total %	4.5	35.9	0.0	0.0	-	40.4	0.0	32.1	14.8	0.0	-	46.8	0.0	0.0	0.0	0.0	-	0.0	10.8	0.0	2.0	0.0	-	12.8	-
PHF	0.800	0.904	0.000	0.000	-	0.925	0.000	0.856	0.788	0.000	-	0.927	0.000	0.000	0.000	0.000	-	0.000	0.731	0.000	0.700	0.000	-	0.776	0.968
Motorcycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Motorcycles	0.0	0.0	-	-	-	0.0	-	0.0	0.0	-	-	0.0	-	-	-	-	-	-	0.0	-	0.0	-	-	0.0	0.0
Cars & Light Goods	32	251	0	0	-	283	0	225	103	0	-	328	0	0	0	0	-	0	75	0	14	0	-	89	700
% Cars & Light Goods	100.0	99.2	-	-	-	99.3	-	99.6	99.0	-	-	99.4	-	-	-	-	-	-	98.7	-	100.0	-	-	98.9	99.3
Buses	0	1	0	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	1
% Buses	0.0	0.4	-	-	-	0.4	-	0.0	0.0	-	-	0.0	-	-	-	-	-	-	0.0	-	0.0	-	-	0.0	0.1
Single-Unit Trucks	0	1	0	0	-	1	0	1	1	0	-	2	0	0	0	0	-	0	1	0	0	0	-	1	4
% Single-Unit Trucks	0.0	0.4	-	-	-	0.4	-	0.4	1.0	-	-	0.6	-	-	-	-	-	-	1.3	-	0.0	-	-	1.1	0.6
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Articulated Trucks	0.0	0.0	-	-	-	0.0	-	0.0	0.0	-	-	0.0	-	-	-	-	-	-	0.0	-	0.0	-	-	0.0	0.0
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	-	-	-	0.0	-	0.0	0.0	-	-	0.0	-	-	-	-	-	-	0.0	-	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-



Paradigm Transportation Solutions Limited
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Count Name: Wellington Road 18 & Gerrie Road
Site Code: 240695
Start Date: 11/20/2024
Page No: 9



Turning Movement Peak Hour Data Plot (4:15 PM)

Appendix C

Base Year Operations Synchro Reports



Lanes, Volumes, Timings
101: Geddes St & James St

Base Year - 2024
AM Peak Hour

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	27	180	86	28	124	88
Future Volume (vph)	27	180	86	28	124	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.882	0.967				
Fit Protected	0.994				0.972	
Satd. Flow (prot)	1615	0	1755	0	0	1772
Fit Permitted	0.994				0.972	
Satd. Flow (perm)	1615	0	1755	0	0	1772
Link Speed (k/h)	50		50		50	
Link Distance (m)	120.4		303.1		136.1	
Travel Time (s)	8.7		21.8		9.8	
Confl. Peds. (#/hr)	1			3	3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	11%	2%	2%	13%	3%	6%
Adj. Flow (vph)	29	196	93	30	135	96
Shared Lane Traffic (%)						
Lane Group Flow (vph)	225	0	123	0	0	231
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0		0.0	
Link Offset(m)	0.0		0.0		0.0	
Crosswalk Width(m)	4.8		4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free		Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	37.4%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis
101: Geddes St & James St

Base Year - 2024
AM Peak Hour

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	27	180	86	28	124	88
Future Volume (Veh/h)	27	180	86	28	124	88
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	29	196	93	30	135	96
Pedestrians	3		1			
Lane Width (m)	3.6		3.6			
Walking Speed (m/s)	1.2		1.2			
Percent Blockage	0		0			
Right turn flare (veh)						
Median type			None		None	
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	478	111			126	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	478	111			126	
tC, single (s)	6.5	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.6	3.3			2.2	
p0 queue free %	94	79			91	
cM capacity (veh/h)	479	940			1451	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	225	123	231
Volume Left	29	0	135
Volume Right	196	30	0
eSH	836	1700	1451
Volume to Capacity	0.27	0.07	0.09
Queue Length 95th (m)	8.7	0.0	2.5
Control Delay (s)	10.9	0.0	4.8
Lane LOS	B		A
Approach Delay (s)	10.9	0.0	4.8
Approach LOS	B		

Intersection Summary

Average Delay		6.2	
Intersection Capacity Utilization	37.4%		ICU Level of Service A
Analysis Period (min)		15	

HCM 6th TWSC
101: Geddes St & James St

Base Year - 2024
AM Peak Hour

Intersection						
Int Delay, s/veh	6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔		↔	↔
Traffic Vol, veh/h	27	180	86	28	124	88
Future Vol, veh/h	27	180	86	28	124	88
Conflicting Peds, #/hr	1	0	0	3	3	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, %	11	2	2	13	3	6
Mvmt Flow	29	196	93	30	135	96
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	478	111	0	0	126	0
Stage 1	111	-	-	-	-	-
Stage 2	367	-	-	-	-	-
Critical Hdwy	6.51	6.22	-	-	4.13	-
Critical Hdwy Stg 1	5.51	-	-	-	-	-
Critical Hdwy Stg 2	5.51	-	-	-	-	-
Follow-up Hdwy	3.599	3.318	-	-	2.227	-
Pot Cap-1 Maneuver	530	942	-	-	1454	-
Stage 1	892	-	-	-	-	-
Stage 2	681	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	476	940	-	-	1450	-
Mov Cap-2 Maneuver	476	-	-	-	-	-
Stage 1	889	-	-	-	-	-
Stage 2	614	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	10.9	0	4.5			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	834	1450		
HCM Lane V/C Ratio	-	-	0.27	0.093		
HCM Control Delay (s)	-	-	10.9	7.7	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	1.1	0.3		

Lanes, Volumes, Timings
102: Irvine St & Woolwich St/Nichol Rd 15

Base Year - 2024
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	5	135	12	30	190	3	16	2	34	2	3	1
Future Volume (vph)	5	135	12	30	190	3	16	2	34	2	3	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt	0.989				0.998				0.911		0.977	
Fit Protected	0.998				0.993				0.985		0.984	
Satd. Flow (prot)	0	1734	0	0	1805	0	0	1408	0	0	1216	0
Fit Permitted	0.998				0.993				0.985		0.984	
Satd. Flow (perm)	0	1734	0	0	1805	0	0	1408	0	0	1216	0
Link Speed (k/h)	40				40				50		50	
Link Distance (m)	556.2				1016.6				448.2		704.4	
Travel Time (s)	50.1				91.5				32.3		50.7	
Confl. Peds. (#/hr)	2								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 (%)	20%	7%	17%	13%	3%	0%	50%	0%	9%	0%	67%	100%
Adj. Flow (vph)	5	147	13	33	207	3	17	2	37	2	3	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	165	0	0	243	0	0	56	0	0	6	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	0.0				0.0				0.0		0.0	
Link Offset(m)	0.0				0.0				0.0		0.0	
Crosswalk Width(m)	4.8				4.8				4.8		4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15		25		15		25		15	
Sign Control	Free				Free				Stop		Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	34.0%						ICU Level of Service A					
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis
102: Irvine St & Woolwich St/Nichol Rd 15

Base Year - 2024
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations		↕			↕			↕			↕			
Traffic Volume (veh/h)	5	135	12	30	190	3	16	2	34	2	3	1		
Future Volume (Veh/h)	5	135	12	30	190	3	16	2	34	2	3	1		
Sign Control	Free			Free			Stop			Stop				
Grade	0%			0%			0%			0%				
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		
Hourly flow rate (vph)	5	147	13	33	207	3	17	2	37	2	3	1		
Pedestrians												2		
Lane Width (m)												3.6		
Walking Speed (m/s)												1.2		
Percent Blockage												0		
Right turn flare (veh)														
Median type	None				None									
Median storage (veh)														
Upstream signal (m)														
pX, platoon unblocked														
vC, conflicting volume	212				160				440	442	154	478	446	210
vC1, stage 1 conf vol														
vC2, stage 2 conf vol														
vCu, unblocked vol	212				160				440	442	154	478	446	210
tC, single (s)	4.3				4.2				7.6	6.5	6.3	7.1	7.2	7.2
tC, 2 stage (s)														
tF (s)	2.4				2.3				4.0	4.0	3.4	3.5	4.6	4.2
p0 queue free %	100				98				96	100	96	100	99	100
cM capacity (veh/h)	1256				1355				440	498	874	467	409	633
Direction, Lane #	EB 1	WB 1	NB 1	SB 1										
Volume Total	165	243	56	6										
Volume Left	5	33	17	2										
Volume Right	13	3	37	1										
eSH	1256	1355	659	455										
Volume to Capacity	0.00	0.02	0.08	0.01										
Queue Length 95th (m)	0.1	0.6	2.2	0.3										
Control Delay (s)	0.3	1.2	11.0	13.0										
Lane LOS	A	A	B	B										
Approach Delay (s)	0.3	1.2	11.0	13.0										
Approach LOS			B	B										
Intersection Summary														
Average Delay				2.2										
Intersection Capacity Utilization				34.0%	ICU Level of Service			A						
Analysis Period (min)				15										

HCM 6th TWSC
102: Irvine St & Woolwich St/Nichol Rd 15

Base Year - 2024
AM Peak Hour

Intersection												
Int Delay, s/veh	2.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	135	12	30	190	3	16	2	34	2	3	1
Future Vol, veh/h	5	135	12	30	190	3	16	2	34	2	3	1
Conflicting Peds, #/hr	2	0	0	0	0	2	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	20	7	17	13	3	0	50	0	9	0	67	100
Mvmt Flow	5	147	13	33	207	3	17	2	37	2	3	1
Major/Minor	Major1	Major2		Minor1		Minor2						
Conflicting Flow All	212	0	0	160	0	0	441	442	154	460	447	211
Stage 1	-	-	-	-	-	-	164	164	-	277	277	-
Stage 2	-	-	-	-	-	-	277	278	-	183	170	-
Critical Hdwy	4.3	-	-	4.23	-	-	7.6	6.5	6.29	7.1	7.17	7.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.6	5.5	-	6.1	6.17	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.6	5.5	-	6.1	6.17	-
Follow-up Hdwy	2.38	-	-	2.317	-	-	3.95	4	3.381	3.5	4.603	4.2
Pot Cap-1 Maneuver	1258	-	-	1355	-	-	453	513	874	515	422	634
Stage 1	-	-	-	-	-	-	737	766	-	734	578	-
Stage 2	-	-	-	-	-	-	636	684	-	823	650	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1256	-	-	1355	-	-	439	496	874	479	408	633
Mov Cap-2 Maneuver	-	-	-	-	-	-	439	496	-	479	408	-
Stage 1	-	-	-	-	-	-	734	763	-	730	561	-
Stage 2	-	-	-	-	-	-	614	663	-	783	647	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	0.3		1		11		13					
HCM LOS					B		B					
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	655	1256	-	-	1355	-	-	458				
HCM Lane V/C Ratio	0.086	0.004	-	-	0.024	-	-	0.014				
HCM Control Delay (s)	11	7.9	0	-	7.7	0	-	13				
HCM Lane LOS	B	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	0.3	0	-	-	0.1	-	-	0				

Lanes, Volumes, Timings
103: Irvine St & Bricker Ave

Base Year - 2024
AM Peak Hour

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	9	11	3	43	40	5
Future Volume (vph)	9	11	3	43	40	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.926				0.986	
Flt Protected	0.978			0.997		
Satd. Flow (prot)	1500	0	0	1522	1577	0
Flt Permitted	0.978			0.997		
Satd. Flow (perm)	1500	0	0	1522	1577	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	361.7			908.3	448.2	
Travel Time (s)	26.0			65.4	32.3	
Confl. Peds. (#/hr)			3			3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	27%	0%	26%	21%	0%
Adj. Flow (vph)	10	12	3	47	43	5
Shared Lane Traffic (%)						
Lane Group Flow (vph)	22	0	0	50	48	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	14.7%				ICU Level of Service A	
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis
103: Irvine St & Bricker Ave

Base Year - 2024
AM Peak Hour

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	9	11	3	43	40	5
Future Volume (Veh/h)	9	11	3	43	40	5
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	10	12	3	47	43	5
Pedestrians	3					
Lane Width (m)	3.6					
Walking Speed (m/s)	1.2					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	102	48	51			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	102	48	51			
tC, single (s)	6.4	6.5	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.5	2.2			
p0 queue free %	99	99	100			
cM capacity (veh/h)	898	951	1564			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	22	50	48			
Volume Left	10	3	0			
Volume Right	12	0	5			
eSH	926	1564	1700			
Volume to Capacity	0.02	0.00	0.03			
Queue Length 95th (m)	0.6	0.0	0.0			
Control Delay (s)	9.0	0.5	0.0			
Lane LOS	A	A				
Approach Delay (s)	9.0	0.5	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			1.8			
Intersection Capacity Utilization	14.7%		ICU Level of Service		A	
Analysis Period (min)	15					

HCM 6th TWSC
103: Irvine St & Bricker Ave

Base Year - 2024
AM Peak Hour

Intersection						
Int Delay, s/veh	1.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔		↕		↕	
Traffic Vol, veh/h	9	11	3	43	40	5
Future Vol, veh/h	9	11	3	43	40	5
Conflicting Peds, #/hr	0	0	3	0	0	3
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, %	0	27	0	26	21	0
Mvmt Flow	10	12	3	47	43	5
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	102	49	51	0	-	0
Stage 1	49	-	-	-	-	-
Stage 2	53	-	-	-	-	-
Critical Hdwy	6.4	6.47	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.543	2.2	-	-	-
Pot Cap-1 Maneuver	901	953	1568	-	-	-
Stage 1	979	-	-	-	-	-
Stage 2	975	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	894	951	1564	-	-	-
Mov Cap-2 Maneuver	894	-	-	-	-	-
Stage 1	974	-	-	-	-	-
Stage 2	972	-	-	-	-	-
Approach	EB	NB	SB			
HCM Control Delay, s	9	0.5	0			
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1564	-	924	-	-	
HCM Lane V/C Ratio	0.002	-	0.024	-	-	
HCM Control Delay (s)	7.3	0	9	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0	-	0.1	-	-	


Lanes, Volumes, Timings
104: Irvine St & Colborne St

Base Year - 2024
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	6	80	4	1	113	27	2	24	6	34	52	10
Future Volume (vph)	6	80	4	1	113	27	2	24	6	34	52	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt	0.994		0.974		0.973		0.986					
Fit Protected	0.996				0.997		0.983					
Satd. Flow (prot)	0	1801	0	0	1745	0	0	1554	0	0	1655	0
Fit Permitted	0.996				0.997		0.983					
Satd. Flow (perm)	0	1801	0	0	1745	0	0	1554	0	0	1655	0
Link Speed (k/h)	40		40		40		40					
Link Distance (m)	619.9		1021.3		327.0		274.5					
Travel Time (s)	55.8		91.9		29.4		24.7					
Confl. Peds. (#/hr)	7			7	1	7	7	7	7	11	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%	5%	0%	0%	4%	15%	0%	25%	0%	12%	13%	0%
Adj. Flow (vph)	7	87	4	1	123	29	2	26	7	37	57	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	98	0	0	153	0	0	35	0	0	105	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	0.0		0.0		0.0		0.0					
Link Offset(m)	0.0		0.0		0.0		0.0					
Crosswalk Width(m)	4.8		4.8		4.8		4.8					
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25	15	25	15	25	15	25	15	25	15
Sign Control	Stop		Stop		Stop		Stop					
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	27.7%						ICU Level of Service A					
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis
104: Irvine St & Colborne St

Base Year - 2024
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↕			↕			↕			↕		
Sign Control	Stop			Stop			Stop			Stop		
Traffic Volume (vph)	6	80	4	1	113	27	2	24	6	34	52	10
Future Volume (vph)	6	80	4	1	113	27	2	24	6	34	52	10
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
Hourly flow rate (vph)	7	87	4	1	123	29	2	26	7	37	57	11
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	98	153	35	105								
Volume Left (vph)	7	1	2	37								
Volume Right (vph)	4	29	7	11								
Hadj (s)	0.07	-0.01	0.21	0.20								
Departure Headway (s)	4.5	4.4	4.8	4.7								
Degree Utilization, x	0.12	0.19	0.05	0.14								
Capacity (veh/h)	770	788	698	715								
Control Delay (s)	8.1	8.3	8.1	8.5								
Approach Delay (s)	8.1	8.3	8.1	8.5								
Approach LOS	A	A	A	A								
Intersection Summary												
Delay	8.3											
Level of Service	A											
Intersection Capacity Utilization	27.7%		ICU Level of Service	A								
Analysis Period (min)	15											

HCM 6th AWSC
104: Irvine St & Colborne St

Base Year - 2024
AM Peak Hour

Intersection												
Intersection Delay, s/veh	8.2											
Intersection LOS	A											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	80	4	1	113	27	2	24	6	34	52	10
Future Vol, veh/h	6	80	4	1	113	27	2	24	6	34	52	10
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	5	0	0	4	15	0	25	0	12	13	0
Mvmt Flow	7	87	4	1	123	29	2	26	7	37	57	11
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Approach	EB	WB	NB	SB								
Opposing Approach	WB	EB	SB	NB								
Opposing Lanes	1	1	1	1								
Conflicting Approach Left	SB	NB	EB	WB								
Conflicting Lanes Left	1	1	1	1								
Conflicting Approach Right	NB	SB	WB	EB								
Conflicting Lanes Right	1	1	1	1								
HCM Control Delay	8	8.2	7.7	8.5								
HCM LOS	A	A	A	A								
Lane	NBLn1	EBLn1	WBLn1	SBLn1								
Vol Left, %	6%	7%	1%	35%								
Vol Thru, %	75%	89%	80%	54%								
Vol Right, %	19%	4%	19%	10%								
Sign Control	Stop	Stop	Stop	Stop								
Traffic Vol by Lane	32	90	141	96								
LT Vol	2	6	1	34								
Through Vol	24	80	113	52								
RT Vol	6	4	27	10								
Lane Flow Rate	35	98	153	104								
Geometry Grp	1	1	1	1								
Degree of Util (X)	0.043	0.119	0.18	0.136								
Departure Headway (Hd)	4.483	4.384	4.228	4.709								
Convergence, Y/N	Yes	Yes	Yes	Yes								
Cap	800	820	851	763								
Service Time	2.504	2.398	2.242	2.727								
HCM Lane V/C Ratio	0.044	0.12	0.18	0.136								
HCM Control Delay	7.7	8	8.2	8.5								
HCM Lane LOS	A	A	A	A								
HCM 95th-tile Q	0.1	0.4	0.7	0.5								

Lanes, Volumes, Timings
105: Irvine St & East Mill St

Base Year - 2024
AM Peak Hour

	↖	→	↘	↙	←	↖	↘	↙	↖	↘	↙	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	4	246	2	0	184	27	0	0	2	48	0	14
Future Volume (vph)	4	246	2	0	184	27	0	0	2	48	0	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.999			0.983			0.865			0.970	
Flt Protected		0.999									0.963	
Satd. Flow (prot)	0	1759	0	0	1741	0	0	1644	0	0	1547	0
Flt Permitted		0.999									0.963	
Satd. Flow (perm)	0	1759	0	0	1741	0	0	1644	0	0	1547	0
Link Speed (k/h)		40			40			40			40	
Link Distance (m)		212.3			172.2			54.2			327.0	
Travel Time (s)		19.1			15.5			4.9			29.4	
Confl. Peds. (#/hr)	21					21						
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%	8%	0%	0%	4%	30%	0%	0%	0%	17%	0%	7%
Adj. Flow (vph)	4	267	2	0	200	29	0	0	2	52	0	15
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	273	0	0	229	0	0	2	0	0	67	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	33.1%				ICU Level of Service A							
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis
105: Irvine St & East Mill St

Base Year - 2024
AM Peak Hour

	↖	→	↘	↙	←	↖	↘	↙	↖	↘	↙	↖
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	4	246	2	0	184	27	0	0	2	48	0	14
Future Volume (Veh/h)	4	246	2	0	184	27	0	0	2	48	0	14
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	4	267	2	0	200	29	0	0	2	52	0	15
Pedestrians												21
Lane Width (m)												3.6
Walking Speed (m/s)												1.2
Percent Blockage												2
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	250			269			506	526	268	514	512	236
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	250			269			506	526	268	514	512	236
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.3	6.5	6.3
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.7	4.0	3.4
p0 queue free %	100			100			100	100	100	88	100	98
cM capacity (veh/h)	1304			1306			464	450	776	432	458	777
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	273	229	2	67								
Volume Left	4	0	0	52								
Volume Right	2	29	2	15								
eSH	1304	1306	776	480								
Volume to Capacity	0.00	0.00	0.00	0.14								
Queue Length 95th (m)	0.1	0.0	0.1	3.9								
Control Delay (s)	0.1	0.0	9.7	13.7								
Lane LOS	A		A	B								
Approach Delay (s)	0.1	0.0	9.7	13.7								
Approach LOS			A	B								
Intersection Summary												
Average Delay				1.7								
Intersection Capacity Utilization			33.1%	ICU Level of Service						A		
Analysis Period (min)			15									

HCM 6th TWSC
105: Irvine St & East Mill St

Base Year - 2024
AM Peak Hour

Intersection												
Int Delay, s/veh	1.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔		↔		↔		↔		↔		↔	
Traffic Vol, veh/h	4	246	2	0	184	27	0	0	2	48	0	14
Future Vol, veh/h	4	246	2	0	184	27	0	0	2	48	0	14
Conflicting Peds, #/hr	21	0	0	0	0	21	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	8	0	0	4	30	0	0	0	17	0	7
Mvmt Flow	4	267	2	0	200	29	0	0	2	52	0	15

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	250	0	269	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	4.1	-	4.1	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	2.2	-	2.2	-
Pot Cap-1 Maneuver	1327	-	1306	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	1303	-	1306	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0	9.7	13.6
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	776	1303	-	-	1306	-	-	486
HCM Lane V/C Ratio	0.003	0.003	-	-	-	-	-	0.139
HCM Control Delay (s)	9.7	7.8	0	-	0	-	-	13.6
HCM Lane LOS	A	A	A	-	A	-	-	B
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.5

Lanes, Volumes, Timings
106: Gerrie Rd & Nichol Rd 15

Base Year - 2024
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	6	164	1	16	213	6	4	7	9	12	2	6
Future Volume (vph)	6	164	1	16	213	6	4	7	9	12	2	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.996			0.939			0.957	
Fit Protected		0.998			0.997			0.991			0.971	
Satd. Flow (prot)	0	1729	0	0	1837	0	0	1091	0	0	1603	0
Fit Permitted		0.998			0.997			0.991			0.971	
Satd. Flow (perm)	0	1729	0	0	1837	0	0	1091	0	0	1603	0
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		1016.6			999.6			1630.3			439.6	
Travel Time (s)		45.7			45.0			117.4			31.7	
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%	10%	0%	0%	3%	0%	25%	33%	100%	8%	0%	17%
Adj. Flow (vph)	7	178	1	17	232	7	4	8	10	13	2	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	186	0	0	256	0	0	22	0	0	22	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	Free	15	25	Free	15	25	Free	15	25	Free	15
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	28.2%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
106: Gerrie Rd & Nichol Rd 15

Base Year - 2024
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations		↔			↔			↔			↔			
Traffic Volume (veh/h)	6	164	1	16	213	6	4	7	9	12	2	6		
Future Volume (Veh/h)	6	164	1	16	213	6	4	7	9	12	2	6		
Sign Control	Free			Free			Stop			Stop				
Grade	0%			0%			0%			0%				
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		
Hourly flow rate (vph)	7	178	1	17	232	7	4	8	10	13	2	7		
Pedestrians														
Lane Width (m)														
Walking Speed (m/s)														
Percent Blockage														
Right turn flare (veh)														
Median type	None				None									
Median storage (veh)														
Upstream signal (m)														
pX, platoon unblocked														
vC, conflicting volume	239				179				470	466	178	476	462	236
vC1, stage 1 conf vol														
vC2, stage 2 conf vol														
vCu, unblocked vol	239				179				470	466	178	476	462	236
tC, single (s)	4.1				4.1				7.3	6.8	7.2	7.2	6.5	6.4
tC, 2 stage (s)														
tF (s)	2.2				2.2				3.7	4.3	4.2	3.6	4.0	3.5
p0 queue free %	99				99				99	98	98	97	100	99
cM capacity (veh/h)	1340				1409				456	444	664	469	491	768
Direction, Lane #	EB 1	WB 1	NB 1	SB 1										
Volume Total	186	256	22	22										
Volume Left	7	17	4	13										
Volume Right	1	7	10	7										
cSH	1340	1409	526	538										
Volume to Capacity	0.01	0.01	0.04	0.04										
Queue Length 95th (m)	0.1	0.3	1.0	1.0										
Control Delay (s)	0.3	0.6	12.1	12.0										
Lane LOS	A	A	B	B										
Approach Delay (s)	0.3	0.6	12.1	12.0										
Approach LOS			B	B										
Intersection Summary														
Average Delay				1.5										
Intersection Capacity Utilization				28.2%	ICU Level of Service	A								
Analysis Period (min)				15										

HCM 6th TWSC
106: Gerrie Rd & Nichol Rd 15

Base Year - 2024
AM Peak Hour

Intersection												
Int Delay, s/veh	1.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	6	164	1	16	213	6	4	7	9	12	2	6
Future Vol, veh/h	6	164	1	16	213	6	4	7	9	12	2	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	10	0	0	3	0	25	33	100	8	0	17
Mvmt Flow	7	178	1	17	232	7	4	8	10	13	2	7
Major/Minor	Major1	Major2	Minor1	Minor2								
Conflicting Flow All	239	0	0	179	0	0	467	466	179	472	463	236
Stage 1	-	-	-	-	-	193	193	-	270	270	-	-
Stage 2	-	-	-	-	-	274	273	-	202	193	-	-
Critical Hdwy	4.1	-	-	4.1	-	7.35	6.83	7.2	7.18	6.5	6.37	-
Critical Hdwy Stg 1	-	-	-	-	-	6.35	5.83	-	6.18	5.5	-	-
Critical Hdwy Stg 2	-	-	-	-	-	6.35	5.83	-	6.18	5.5	-	-
Follow-up Hdwy	2.2	-	-	2.2	-	3.725	4.297	4.2	3.572	4	3.453	-
Pot Cap-1 Maneuver	1340	-	-	1409	-	470	451	664	492	499	767	-
Stage 1	-	-	-	-	-	759	686	-	723	690	-	-
Stage 2	-	-	-	-	-	685	631	-	786	745	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1340	-	-	1409	-	457	442	664	471	489	767	-
Mov Cap-2 Maneuver	-	-	-	-	-	457	442	-	471	489	-	-
Stage 1	-	-	-	-	-	754	682	-	719	680	-	-
Stage 2	-	-	-	-	-	668	622	-	761	741	-	-
Approach	EB	WB	NB	SB								
HCM Control Delay, s	0.3	0.5	12.2	12								
HCM LOS			B	B								
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	524	1340	-	-	1409	-	-	535				
HCM Lane V/C Ratio	0.041	0.005	-	-	0.012	-	-	0.041				
HCM Control Delay (s)	12.2	7.7	0	-	7.6	0	-	12				
HCM Lane LOS	B	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1				

Lanes, Volumes, Timings
107: Gerrie Rd & Colborne St

Base Year - 2024
AM Peak Hour

	↖	→	↘	↙	←	↖	↙	↑	↘	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	23	100	76	14	72	16	32	39	7	15	59	20
Future Volume (vph)	23	100	76	14	72	16	32	39	7	15	59	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.948			0.979			0.987			0.971	
Fit Protected		0.994			0.993			0.980			0.992	
Satd. Flow (prot)	0	1659	0	0	1809	0	0	1647	0	0	1743	0
Fit Permitted		0.994			0.993			0.980			0.992	
Satd. Flow (perm)	0	1659	0	0	1809	0	0	1647	0	0	1743	0
Link Speed (k/h)		40			50			50			50	
Link Distance (m)		1021.3			906.6			376.2			1630.3	
Travel Time (s)		91.9			65.3			27.1			117.4	
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 (%)	10%	2%	15%	0%	3%	0%	21%	6%	0%	0%	8%	0%
Adj. Flow (vph)	25	109	83	15	78	17	35	42	8	16	64	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	217	0	0	110	0	0	85	0	0	102	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	30.0%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
107: Gerrie Rd & Colborne St

Base Year - 2024
AM Peak Hour

	↖	→	↘	↙	←	↖	↙	↑	↘	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	23	100	76	14	72	16	32	39	7	15	59	20
Future Volume (vph)	23	100	76	14	72	16	32	39	7	15	59	20
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
Hourly flow rate (vph)	25	109	83	15	78	17	35	42	8	16	64	22
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	217	110	85	102								
Volume Left (vph)	25	15	35	16								
Volume Right (vph)	83	17	8	22								
Hadj (s)	-0.07	-0.03	0.22	-0.01								
Departure Headway (s)	4.4	4.6	5.0	4.8								
Degree Utilization, x	0.27	0.14	0.12	0.14								
Capacity (veh/h)	768	734	665	696								
Control Delay (s)	9.1	8.4	8.7	8.5								
Approach Delay (s)	9.1	8.4	8.7	8.5								
Approach LOS	A	A	A	A								
Intersection Summary												
Delay				8.7								
Level of Service				A								
Intersection Capacity Utilization			30.0%		ICU Level of Service					A		
Analysis Period (min)			15									

HCM 6th AWSC
107: Gerrie Rd & Colborne St

Base Year - 2024
AM Peak Hour

Intersection	
Intersection Delay, s/veh	8.8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	23	100	76	14	72	16	32	39	7	15	59	20
Future Vol, veh/h	23	100	76	14	72	16	32	39	7	15	59	20
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, %	10	2	15	0	3	0	21	6	0	0	8	0
Mvmt Flow	25	109	83	15	78	17	35	42	8	16	64	22
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.1	8.3	8.9	8.4
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	41%	12%	14%	16%
Vol Thru, %	50%	50%	71%	63%
Vol Right, %	9%	38%	16%	21%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	78	199	102	94
LT Vol	32	23	14	15
Through Vol	39	100	72	59
RT Vol	7	76	16	20
Lane Flow Rate	85	216	111	102
Geometry Grp	1	1	1	1
Degree of Util (X)	0.122	0.268	0.14	0.132
Departure Headway (Hd)	5.16	4.455	4.542	4.664
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	694	807	788	766
Service Time	3.2	2.485	2.577	2.705
HCM Lane V/C Ratio	0.122	0.268	0.141	0.133
HCM Control Delay	8.9	9.1	8.3	8.4
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.4	1.1	0.5	0.5

Lanes, Volumes, Timings
108: Chapel St/Gerrie Rd & East Mill St

Base Year - 2024
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↕	↕			↕			↕			↕	
Traffic Volume (vph)	15	179	0	0	191	63	0	0	0	113	0	36
Future Volume (vph)	15	179	0	0	191	63	0	0	0	113	0	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	0.0		0.0		0.0		0.0	0.0	
Storage Lanes	1		0	0		0		0		0	0	
Taper Length (m)	60.0			7.5				7.5			7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr					0.967						0.967	
Fit Protected	0.950											0.963
Satd. Flow (prot)	1687	1681	0	0	1771	0	0	1900	0	0	1703	0
Fit Permitted	0.590											0.778
Satd. Flow (perm)	1048	1681	0	0	1771	0	0	1900	0	0	1376	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					41							67
Link Speed (k/h)		60			60			50				50
Link Distance (m)		314.9			327.9			115.3				376.2
Travel Time (s)		18.9			19.7			8.3				27.1
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 (%)	7%	13%	0%	0%	4%	3%	0%	0%	0%	1%	0%	13%
Adj. Flow (vph)	16	195	0	0	208	68	0	0	0	123	0	39
Shared Lane Traffic (%)												
Lane Group Flow (vph)	16	195	0	0	276	0	0	0	0	0	162	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			0.0				0.0
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		4.8			4.8			4.8				4.8
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	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	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		NA	NA			Perm		NA	NA	
Protected Phases		2			6			4			8	

Lanes, Volumes, Timings
108: Chapel St/Gerrie Rd & East Mill St

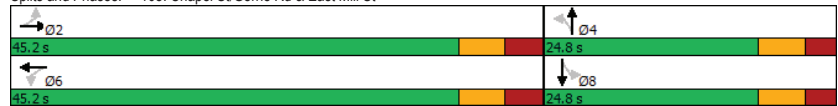
Base Year - 2024
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2			6			4			8		
Detector Phase	2	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	35.0	35.0		35.0	35.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	42.3	42.3		42.3	42.3		24.7	24.7		24.7	24.7	
Total Split (s)	45.2	45.2		45.2	45.2		24.8	24.8		24.8	24.8	
Total Split (%)	64.6%	64.6%		64.6%	64.6%		35.4%	35.4%		35.4%	35.4%	
Maximum Green (s)	37.9	37.9		37.9	37.9		18.1	18.1		18.1	18.1	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.3	3.3		3.3	3.3		2.7	2.7		2.7	2.7	
Lost Time Adjust (s)	-3.3	-3.3			-3.3			-2.7			-2.7	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		Min	Min		None	None		None	None	
Walk Time (s)	23.0	23.0		23.0	23.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0		7.0	7.0		7.0	7.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	42.3	42.3		42.3	42.3						14.1	
Actuated g/C Ratio	0.70	0.70		0.70	0.70						0.23	
v/c Ratio	0.02	0.16		0.22	0.22						0.43	
Control Delay	4.9	5.2		4.7	4.7						16.0	
Queue Delay	0.0	0.0		0.0	0.0						0.0	
Total Delay	4.9	5.2		4.7	4.7						16.0	
LOS	A	A		A	A						B	
Approach Delay		5.2		4.7	4.7						16.0	
Approach LOS		A		A	A						B	

Intersection Summary

Area Type:	Other
Cycle Length: 70	
Actuated Cycle Length: 60.1	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.43	
Intersection Signal Delay: 7.7	Intersection LOS: A
Intersection Capacity Utilization 44.3%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 108: Chapel St/Gerrie Rd & East Mill St



Queues
108: Chapel St/Gerrie Rd & East Mill St

Base Year - 2024
AM Peak Hour

Lane Group	EBL	EBT	WBT	SBT
Lane Group Flow (vph)	16	195	276	162
v/c Ratio	0.02	0.16	0.22	0.43
Control Delay	4.9	5.2	4.7	16.0
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	4.9	5.2	4.7	16.0
Queue Length 50th (m)	0.5	7.2	8.9	9.2
Queue Length 95th (m)	2.8	18.4	22.5	23.8
Internal Link Dist (m)		290.9	303.9	352.2
Turn Bay Length (m)	30.0			
Base Capacity (vph)	778	1248	1326	520
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.02	0.16	0.21	0.31

Intersection Summary

HCM Signalized Intersection Capacity Analysis
108: Chapel St/Gerrie Rd & East Mill St

Base Year - 2024
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔			↔		↔	↔	
Traffic Volume (vph)	15	179	0	0	191	63	0	0	0	113	0	36
Future Volume (vph)	15	179	0	0	191	63	0	0	0	113	0	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0					4.0		
Lane Util. Factor	1.00	1.00			1.00					1.00		
Fr't	1.00	1.00			0.97					0.97		
Flt Protected	0.95	1.00			1.00					0.96		
Sat'd. Flow (prot)	1687	1681			1770					1705		
Flt Permitted	0.59	1.00			1.00					0.78		
Sat'd. Flow (perm)	1047	1681			1770					1376		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	195	0	0	208	68	0	0	0	123	0	39
RTOR Reduction (vph)	0	0	0	0	13	0	0	0	0	0	54	0
Lane Group Flow (vph)	16	195	0	0	263	0	0	0	0	108	0	0
Heavy Vehicles (%)	7%	13%	0%	0%	4%	3%	0%	0%	0%	1%	0%	13%
Turn Type	Perm	NA			NA					Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	38.2	38.2			38.2					9.3		
Effective Green, g (s)	41.5	41.5			41.5					12.0		
Actuated g/C Ratio	0.67	0.67			0.67					0.20		
Clearance Time (s)	7.3	7.3			7.3					6.7		
Vehicle Extension (s)	3.0	3.0			3.0					3.0		
Lane Grp Cap (vph)	706	1134			1194					268		
v/s Ratio Prot		0.12			c0.15							
v/s Ratio Perm	0.02									c0.08		
v/c Ratio	0.02	0.17			0.22					0.40		
Uniform Delay, d1	3.3	3.7			3.8					21.6		
Progression Factor	1.00	1.00			1.00					1.00		
Incremental Delay, d2	0.0	0.1			0.1					1.0		
Delay (s)	3.3	3.8			3.9					22.6		
Level of Service	A	A			A					C		
Approach Delay (s)		3.7			3.9		0.0			22.6		
Approach LOS		A			A		A			C		
Intersection Summary												
HCM 2000 Control Delay	8.5		HCM 2000 Level of Service				A					
HCM 2000 Volume to Capacity ratio	0.26											
Actuated Cycle Length (s)	61.5		Sum of lost time (s)				8.0					
Intersection Capacity Utilization	44.3%		ICU Level of Service				A					
Analysis Period (min)	15											
c Critical Lane Group												

HCM 6th Signalized Intersection Summary
108: Chapel St/Gerrie Rd & East Mill St

Base Year - 2024
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔			↔		↔	↔	
Traffic Volume (veh/h)	15	179	0	0	191	63	0	0	0	113	0	36
Future Volume (veh/h)	15	179	0	0	191	63	0	0	0	113	0	36
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No		No		No		No		No	
Adj Sat Flow, veh/h/ln	1796	1707	1900	1900	1841	1856	1900	1900	1900	1885	1900	1707
Adj Flow Rate, veh/h	16	195	0	0	208	68	0	0	0	123	0	39
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
Percent Heavy Veh, %	7	13	0	0	4	3	0	0	0	1	0	13
Cap, veh/h	750	1122	0	0	873	285	0	390	0	328	14	74
Arrive On Green	0.66	0.66	0.00	0.00	0.66	0.60	0.00	0.00	0.00	0.16	0.00	0.16
Sat Flow, veh/h	1060	1707	0	0	1328	434	0	1900	0	1066	69	360
Grp Volume(v), veh/h	16	195	0	0	0	276	0	0	0	162	0	0
Grp Sat Flow(s),veh/h/ln	1060	1707	0	0	0	1763	0	1900	0	1495	0	0
Q Serve(g_s), s	0.4	2.6	0.0	0.0	0.0	3.8	0.0	0.0	0.0	5.5	0.0	0.0
Cycle Q Clear(g_c), s	4.2	2.6	0.0	0.0	0.0	3.8	0.0	0.0	0.0	5.9	0.0	0.0
Prop In Lane	1.00		0.00	0.00		0.25	0.00		0.00	0.76		0.24
Lane Grp Cap(c), veh/h	750	1122	0	0	0	1158	0	390	0	347	0	0
V/C Ratio(X)	0.02	0.17	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.47	0.00	0.00
Avail Cap(c_a), veh/h	803	1207	0	0	0	1246	0	678	0	570	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	4.9	3.9	0.0	0.0	0.0	4.2	0.0	0.0	0.0	21.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	1.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.0	3.9	0.0	0.0	0.0	4.4	0.0	0.0	0.0	22.9	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	A	A	A	C	A	A
Approach Vol, veh/h	211						276		0		162	
Approach Delay, s/veh	4.0						4.4		0.0		22.9	
Approach LOS	A						A				C	
Timer - Assigned Phs												
Phs Duration (G+Y+Rc), s	42.3		16.0		42.3		16.0					
Change Period (Y+Rc), s	* 7.3		* 6.7		* 7.3		* 6.7					
Max Green Setting (Gmax), s	* 38		* 18		* 38		* 18					
Max Q Clear Time (g_c+1), s	6.2		0.0		5.8		7.9					
Green Ext Time (p_c), s	1.5		0.0		2.1		0.7					
Intersection Summary												
HCM 6th Ctrl Delay	8.9											
HCM 6th LOS	A											
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Lanes, Volumes, Timings
101: Geddes St & James St

Base Year - 2024
PM Peak Hour

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	R	T	R	L	R
Traffic Volume (vph)	45	139	117	33	175	164
Future Volume (vph)	45	139	117	33	175	164
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.898	0.970				
Fit Protected	0.988				0.975	
Satd. Flow (prot)	1633	0	1831	0	0	1834
Fit Permitted	0.988				0.975	
Satd. Flow (perm)	1633	0	1831	0	0	1834
Link Speed (k/h)	50	50		50		
Link Distance (m)	120.4	303.1		136.1		
Travel Time (s)	8.7	21.8		9.8		
Confl. Peds. (#/hr)				3	3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	7%	2%	0%	3%	1%	1%
Adj. Flow (vph)	49	151	127	36	190	178
Shared Lane Traffic (%)						
Lane Group Flow (vph)	200	0	163	0	0	368
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6	0.0		0.0		
Link Offset(m)	0.0	0.0		0.0		
Crosswalk Width(m)	4.8	4.8		4.8		
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	15		25	
Sign Control	Stop		Free		Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	48.1%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis
101: Geddes St & James St

Base Year - 2024
PM Peak Hour

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		R			
Traffic Volume (veh/h)	45	139	117	33	175	164
Future Volume (Veh/h)	45	139	117	33	175	164
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	49	151	127	36	190	178
Pedestrians	3					
Lane Width (m)	3.6					
Walking Speed (m/s)	1.2					
Percent Blockage	0					
Right turn flare (veh)						
Median type			None		None	
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	706	148			166	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	706	148			166	
tC, single (s)	6.5	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.6	3.3			2.2	
p0 queue free %	86	83			87	
cM capacity (veh/h)	341	897			1415	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	200	163	368			
Volume Left	49	0	190			
Volume Right	151	36	0			
eSH	641	1700	1415			
Volume to Capacity	0.31	0.10	0.13			
Queue Length 95th (m)	10.6	0.0	3.7			
Control Delay (s)	13.1	0.0	4.7			
Lane LOS	B		A			
Approach Delay (s)	13.1	0.0	4.7			
Approach LOS	B		A			
Intersection Summary						
Average Delay			6.0			
Intersection Capacity Utilization		48.1%		ICU Level of Service	A	
Analysis Period (min)		15				

HCM 6th TWSC
101: Geddes St & James St

Base Year - 2024
PM Peak Hour

Intersection						
Int Delay, s/veh	5.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		R			
Traffic Vol, veh/h	45	139	117	33	175	164
Future Vol, veh/h	45	139	117	33	175	164
Conflicting Peds, #/hr	0	0	0	3	3	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, %	7	2	0	3	1	1
Mvmt Flow	49	151	127	36	190	178
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	706	148	0	0	166	0
Stage 1	148	-	-	-	-	-
Stage 2	558	-	-	-	-	-
Critical Hdwy	6.47	6.22	-	-	4.11	-
Critical Hdwy Stg 1	5.47	-	-	-	-	-
Critical Hdwy Stg 2	5.47	-	-	-	-	-
Follow-up Hdwy	3.563	3.318	-	-	2.209	-
Pot Cap-1 Maneuver	395	899	-	-	1418	-
Stage 1	867	-	-	-	-	-
Stage 2	563	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	335	897	-	-	1414	-
Mov Cap-2 Maneuver	335	-	-	-	-	-
Stage 1	864	-	-	-	-	-
Stage 2	479	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	13.2	0	4.1			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	636	1414	-	-
HCM Lane V/C Ratio	-	-	0.314	0.135	-	-
HCM Control Delay (s)	-	-	13.2	7.9	0	-
HCM Lane LOS	-	-	B	A	A	-
HCM 95th %tile Q(veh)	-	-	1.3	0.5	-	-

Lanes, Volumes, Timings

102: Irvine St & Woolwich St/Nichol Rd 15

Base Year - 2024

PM Peak Hour

	↖	→	↘	↙	←	↖	↙	↘	↙	↘	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	4	200	4	38	172	0	9	2	44	5	6	3
Future Volume (vph)	4	200	4	38	172	0	9	2	44	5	6	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998						0.892			0.973	
Fit Protected		0.999			0.991			0.992			0.984	
Satd. Flow (prot)	0	1850	0	0	1828	0	0	1655	0	0	1576	0
Fit Permitted		0.999			0.991			0.992			0.984	
Satd. Flow (perm)	0	1850	0	0	1828	0	0	1655	0	0	1576	0
Link Speed (k/h)		40			40			50			50	
Link Distance (m)		556.2			1016.6			448.2			704.4	
Travel Time (s)		50.1			91.5			32.3			50.7	
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%	2%	25%	3%	3%	0%	0%	0%	2%	0%	33%	0%
Adj. Flow (vph)	4	217	4	41	187	0	10	2	48	5	7	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	225	0	0	228	0	0	60	0	0	15	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	35.8%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis

102: Irvine St & Woolwich St/Nichol Rd 15

Base Year - 2024

PM Peak Hour

	↖	→	↘	↙	←	↖	↙	↘	↙	↘	↙	↘
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	4	200	4	38	172	0	9	2	44	5	6	3
Future Volume (Veh/h)	4	200	4	38	172	0	9	2	44	5	6	3
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	4	217	4	41	187	0	10	2	48	5	7	3
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	187			221			502	496	219	545	498	187
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	187			221			502	496	219	545	498	187
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.8	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.3	3.3
p0 queue free %	100			97			98	100	94	99	98	100
cM capacity (veh/h)	1399			1342			463	462	821	414	418	860

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	225	228	60	15
Volume Left	4	41	10	5
Volume Right	4	0	48	3
cSH	1399	1342	711	464
Volume to Capacity	0.00	0.03	0.08	0.03
Queue Length 95th (m)	0.1	0.8	2.2	0.8
Control Delay (s)	0.2	1.6	10.5	13.0
Lane LOS	A	A	B	B
Approach Delay (s)	0.2	1.6	10.5	13.0
Approach LOS			B	B

Intersection Summary

Average Delay	2.3
Intersection Capacity Utilization	35.8%
Analysis Period (min)	15
	ICU Level of Service A

Intersection												
Int Delay, s/veh	2.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↕		↕		↕		↕		↕		↕	
Traffic Vol, veh/h	4	200	4	38	172	0	9	2	44	5	6	3
Future Vol, veh/h	4	200	4	38	172	0	9	2	44	5	6	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	2	25	3	3	0	0	0	2	0	33	0
Mvmt Flow	4	217	4	41	187	0	10	2	48	5	7	3
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	187	0	0	221	0	0	501	496	219	521	498	187
Stage 1	-	-	-	-	-	-	227	227	-	269	269	-
Stage 2	-	-	-	-	-	-	274	269	-	252	229	-
Critical Hdwy	4.1	-	-	4.13	-	-	7.1	6.5	6.22	7.1	6.83	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.83	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.83	-
Follow-up Hdwy	2.2	-	-	2.227	-	-	3.5	4	3.318	3.5	4.297	3.3
Pot Cap-1 Maneuver	1399	-	-	1342	-	-	484	478	821	469	432	860
Stage 1	-	-	-	-	-	-	780	720	-	741	634	-
Stage 2	-	-	-	-	-	-	736	690	-	757	661	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1399	-	-	1342	-	-	463	460	821	428	416	860
Mov Cap-2 Maneuver	-	-	-	-	-	-	463	460	-	428	416	-
Stage 1	-	-	-	-	-	-	778	718	-	739	612	-
Stage 2	-	-	-	-	-	-	701	667	-	709	659	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	0.1		1.4			10.5			12.9			
HCM LOS						B			B			
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	711	1399	-	-	1342	-	-	473				
HCM Lane V/C Ratio	0.084	0.003	-	-	0.031	-	-	0.032				
HCM Control Delay (s)	10.5	7.6	0	-	7.8	0	-	12.9				
HCM Lane LOS	B	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	0.3	0	-	-	0.1	-	-	0.1				

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↕			↕	↕	
Traffic Volume (vph)	14	6	3	41	31	17
Future Volume (vph)	14	6	3	41	31	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.957			0.953		
Fit Protected	0.967			0.997		
Satd. Flow (prot)	1758			1859		
Fit Permitted	0.967			0.997		
Satd. Flow (perm)	1758			1859		
Link Speed (k/h)	50			50		
Link Distance (m)	361.7			908.3		448.2
Travel Time (s)	26.0			65.4		32.3
Confl. Peds. (#/hr)				5		5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	2%	6%	0%
Adj. Flow (vph)	15	7	3	45	34	18
Shared Lane Traffic (%)						
Lane Group Flow (vph)	22	0	0	48	52	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0		0.0
Link Offset(m)	0.0			0.0		0.0
Crosswalk Width(m)	4.8			4.8		4.8
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15		25	
Sign Control	Stop			Free		Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	14.9%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis
103: Irvine St & Bricker Ave

Base Year - 2024
PM Peak Hour

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			T	T	
Traffic Volume (veh/h)	14	6	3	41	31	17
Future Volume (Veh/h)	14	6	3	41	31	17
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	15	7	3	45	34	18
Pedestrians	5					
Lane Width (m)	3.6					
Walking Speed (m/s)	1.2					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	99	48	57			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	99	48	57			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	99	100			
cM capacity (veh/h)	899	1022	1554			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	22	48	52			
Volume Left	15	3	0			
Volume Right	7	0	18			
cSH	935	1554	1700			
Volume to Capacity	0.02	0.00	0.03			
Queue Length 95th (m)	0.6	0.0	0.0			
Control Delay (s)	8.9	0.5	0.0			
Lane LOS	A	A				
Approach Delay (s)	8.9	0.5	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			1.8			
Intersection Capacity Utilization		14.9%		ICU Level of Service	A	
Analysis Period (min)		15				

HCM 6th TWSC
103: Irvine St & Bricker Ave

Base Year - 2024
PM Peak Hour

Intersection						
Int Delay, s/veh	1.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			T	T	
Traffic Vol, veh/h	14	6	3	41	31	17
Future Vol, veh/h	14	6	3	41	31	17
Conflicting Peds, #/hr	0	0	5	0	0	5
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, %	0	0	0	2	6	0
Mvmt Flow	15	7	3	45	34	18
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	99	48	57	0	-	0
Stage 1	48	-	-	-	-	-
Stage 2	51	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	905	1027	1560	-	-	-
Stage 1	980	-	-	-	-	-
Stage 2	977	-	-	-	-	-
Platoon blocked, %						
Mov Cap-1 Maneuver	896	1023	1553	-	-	-
Mov Cap-2 Maneuver	896	-	-	-	-	-
Stage 1	974	-	-	-	-	-
Stage 2	973	-	-	-	-	-
Approach	EB	NB	SB			
HCM Control Delay, s	9	0.5	0			
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1553	-	931	-	-	
HCM Lane V/C Ratio	0.002	-	0.023	-	-	
HCM Control Delay (s)	7.3	0	9	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0	-	0.1	-	-	

Lanes, Volumes, Timings
104: Irvine St & Colborne St

Base Year - 2024
PM Peak Hour

	↖	→	↘	↙	←	↖	↙	↑	↘	↙	↓	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	11	136	3	3	125	38	2	21	11	38	26	7
Future Volume (vph)	11	136	3	3	125	38	2	21	11	38	26	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.998			0.969			0.956			0.986	
Flt Protected		0.996			0.999			0.997			0.974	
Satd. Flow (prot)	0	1872	0	0	1792	0	0	1811	0	0	1796	0
Flt Permitted		0.996			0.999			0.997			0.974	
Satd. Flow (perm)	0	1872	0	0	1792	0	0	1811	0	0	1796	0
Link Speed (k/h)		40			40			40			40	
Link Distance (m)		619.9			1021.3			327.0			274.5	
Travel Time (s)		55.8			91.9			29.4			24.7	
Confl. Peds. (#/hr)	6					6						
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%	1%	0%	0%	2%	5%	0%	0%	0%	3%	0%	0%
Adj. Flow (vph)	12	148	3	3	136	41	2	23	12	41	28	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	163	0	0	180	0	0	37	0	0	77	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Right	Left	Left	Right	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	30.6%					ICU Level of Service A						
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis
104: Irvine St & Colborne St

Base Year - 2024
PM Peak Hour

	↖	→	↘	↙	←	↖	↙	↑	↘	↙	↓	↘
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	11	136	3	3	125	38	2	21	11	38	26	7
Future Volume (vph)	11	136	3	3	125	38	2	21	11	38	26	7
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
Hourly flow rate (vph)	12	148	3	3	136	41	2	23	12	41	28	8
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	163	180	37	77								
Volume Left (vph)	12	3	2	41								
Volume Right (vph)	3	41	12	8								
Hadj (s)	0.02	-0.09	-0.18	0.07								
Departure Headway (s)	4.4	4.3	4.6	4.8								
Degree Utilization, x	0.20	0.21	0.05	0.10								
Capacity (veh/h)	791	806	719	693								
Control Delay (s)	8.5	8.4	7.8	8.3								
Approach Delay (s)	8.5	8.4	7.8	8.3								
Approach LOS	A	A	A	A								
Intersection Summary												
Delay	8.4											
Level of Service	A											
Intersection Capacity Utilization	30.6%				ICU Level of Service A							
Analysis Period (min)	15											

HCM 6th AWSC
104: Irvine St & Colborne St

Base Year - 2024
PM Peak Hour

Intersection	
Intersection Delay, s/veh	8.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↕			↕			↔	
Traffic Vol, veh/h	11	136	3	3	125	38	2	21	11	38	26	7
Future Vol, veh/h	11	136	3	3	125	38	2	21	11	38	26	7
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	1	0	0	2	5	0	0	0	3	0	0
Mvmt Flow	12	148	3	3	136	41	2	23	12	41	28	8
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.5	8.4	7.8	8.4
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	6%	7%	2%	54%
Vol Thru, %	62%	91%	75%	37%
Vol Right, %	32%	2%	23%	10%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	34	150	166	71
LT Vol	2	11	3	38
Through Vol	21	136	125	26
RT Vol	11	3	38	7
Lane Flow Rate	37	163	180	77
Geometry Grp	1	1	1	1
Degree of Util (X)	0.047	0.198	0.211	0.103
Departure Headway (Hd)	4.57	4.366	4.218	4.797
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	784	823	853	748
Service Time	2.597	2.384	2.235	2.822
HCM Lane V/C Ratio	0.047	0.198	0.211	0.103
HCM Control Delay	7.8	8.5	8.4	8.4
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.7	0.8	0.3

Lanes, Volumes, Timings
105: Irvine St & East Mill St

Base Year - 2024
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↔	
Traffic Volume (vph)	12	248	1	1	248	18	1	0	0	18	0	10
Future Volume (vph)	12	248	1	1	248	18	1	0	0	18	0	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt					0.991							0.952
Fit Protected		0.998						0.950				0.969
Satd. Flow (prot)	0	1878	0	0	1866	0	0	1805	0	0	0	1753
Fit Permitted		0.998						0.950				0.969
Satd. Flow (perm)	0	1878	0	0	1866	0	0	1805	0	0	0	1753
Link Speed (k/h)		40			40			40				40
Link Distance (m)		212.3			172.2			54.2				327.0
Travel Time (s)		19.1			15.5			4.9				29.4
Confl. Peds. (#/hr)	5					5						
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%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	13	270	1	1	270	20	1	0	0	20	0	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	284	0	0	291	0	0	1	0	0	31	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0				0.0
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		4.8			4.8			4.8				4.8
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop				Stop

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	31.9%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
105: Irvine St & East Mill St

Base Year - 2024
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	12	248	1	1	248	18	1	0	0	18	0	10
Future Volume (Veh/h)	12	248	1	1	248	18	1	0	0	18	0	10
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
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
Hourly flow rate (vph)	13	270	1	1	270	20	1	0	0	20	0	11
Pedestrians												5
Lane Width (m)												3.6
Walking Speed (m/s)												1.2
Percent Blockage												0
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	295	271			590			594	270	584	584	285
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	295	271			590			594	270	584	584	285
tC, single (s)	4.1	4.1			7.1			6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2	2.2			3.5			4.0	3.3	3.5	4.0	3.3
p0 queue free %	99	100			100			100	100	95	100	99
cM capacity (veh/h)	1273	1304			412			415	773	420	420	756
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	284	291	1	31								
Volume Left	13	1	1	20								
Volume Right	1	20	0	11								
eSH	1273	1304	412	498								
Volume to Capacity	0.01	0.00	0.00	0.06								
Queue Length 95th (m)	0.2	0.0	0.1	1.6								
Control Delay (s)	0.5	0.0	13.8	12.7								
Lane LOS	A	A	B	B								
Approach Delay (s)	0.5	0.0	13.8	12.7								
Approach LOS			B	B								
Intersection Summary												
Average Delay	0.9											
Intersection Capacity Utilization	31.9%			ICU Level of Service			A					
Analysis Period (min)	15											

HCM 6th TWSC
105: Irvine St & East Mill St

Base Year - 2024
PM Peak Hour

Intersection												
Int Delay, s/veh	0.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	12	248	1	1	248	18	1	0	0	18	0	10
Future Vol, veh/h	12	248	1	1	248	18	1	0	0	18	0	10
Conflicting Peds, #/hr	5	0	0	0	0	5	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	1	0	0	1	0	0	0	0	0	0	0
Mvmt Flow	13	270	1	1	270	20	1	0	0	20	0	11
Major/Minor	Major1	Major2	Minor1	Minor2								
Conflicting Flow All	295	0	0	271	0	0	585	594	271	584	584	285
Stage 1	-	-	-	-	-	-	297	297	-	287	287	-
Stage 2	-	-	-	-	-	-	288	297	-	297	297	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1278	-	-	1304	-	-	425	421	773	426	426	759
Stage 1	-	-	-	-	-	-	716	671	-	725	678	-
Stage 2	-	-	-	-	-	-	724	671	-	716	671	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1273	-	-	1304	-	-	415	414	773	420	419	756
Mov Cap-2 Maneuver	-	-	-	-	-	-	415	414	-	420	419	-
Stage 1	-	-	-	-	-	-	707	663	-	713	675	-
Stage 2	-	-	-	-	-	-	713	668	-	707	663	-
Approach	EB	WB	NB	SB								
HCM Control Delay, s	0.4	0	13.7	12.7								
HCM LOS			B	B								
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	415	1273	-	-	1304	-	-	499				
HCM Lane V/C Ratio	0.003	0.01	-	-	0.001	-	-	0.061				
HCM Control Delay (s)	13.7	7.9	0	-	7.8	0	-	12.7				
HCM Lane LOS	B	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.2				

Lanes, Volumes, Timings
106: Gerrie Rd & Nichol Rd 15

Base Year - 2024
PM Peak Hour

	↖	→	↘	↙	←	↖	↙	↑	↘	↙	↓	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	11	238	0	11	204	7	2	1	16	7	0	4
Future Volume (vph)	11	238	0	11	204	7	2	1	16	7	0	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.996			0.885			0.955	
Fit Protected		0.998			0.998			0.995			0.968	
Satd. Flow (prot)	0	1878	0	0	1871	0	0	1673	0	0	1621	0
Fit Permitted		0.998			0.998			0.995			0.968	
Satd. Flow (perm)	0	1878	0	0	1871	0	0	1673	0	0	1621	0
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		1016.6			999.6			1630.3			439.6	
Travel Time (s)		45.7			45.0			117.4			31.7	
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%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	25%
Adj. Flow (vph)	12	259	0	12	222	8	2	1	17	8	0	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	271	0	0	242	0	0	20	0	0	12	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	26.2%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis
106: Gerrie Rd & Nichol Rd 15

Base Year - 2024
PM Peak Hour

	↖	→	↘	↙	←	↖	↙	↑	↘	↙	↓	↘
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	11	238	0	11	204	7	2	1	16	7	0	4
Future Volume (Veh/h)	11	238	0	11	204	7	2	1	16	7	0	4
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	12	259	0	12	222	8	2	1	17	8	0	4
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	230			259			537	537	259	550	533	226
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	230			259			537	537	259	550	533	226
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.5
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.5
p0 queue free %	99			99			100	100	98	98	100	99
cM capacity (veh/h)	1350			1317			449	445	785	432	447	759
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	271	242	20	12								
Volume Left	12	12	2	8								
Volume Right	0	8	17	4								
eSH	1350	1317	705	505								
Volume to Capacity	0.01	0.01	0.03	0.02								
Queue Length 95th (m)	0.2	0.2	0.7	0.6								
Control Delay (s)	0.4	0.5	10.3	12.3								
Lane LOS	A	A	B	B								
Approach Delay (s)	0.4	0.5	10.3	12.3								
Approach LOS			B	B								


Intersection Summary	
Average Delay	1.1
Intersection Capacity Utilization	26.2%
Analysis Period (min)	15
	ICU Level of Service A

Intersection												
Int Delay, s/veh	1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↕			↕			↕			↕		
Traffic Vol, veh/h	11	238	0	11	204	7	2	1	16	7	0	4
Future Vol, veh/h	11	238	0	11	204	7	2	1	16	7	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	1	0	0	1	0	0	0	0	0	0	25
Mvmt Flow	12	259	0	12	222	8	2	1	17	8	0	4

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	230	0	259	0
Stage 1	-	-	283	250
Stage 2	-	-	252	283
Critical Hdwy	4.1	-	4.1	-
Critical Hdwy Stg 1	-	-	6.1	5.5
Critical Hdwy Stg 2	-	-	6.1	5.5
Follow-up Hdwy	2.2	-	2.2	-
Pot Cap-1 Maneuver	1350	-	1317	-
Stage 1	-	-	728	681
Stage 2	-	-	757	701
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	1350	-	1317	-
Mov Cap-2 Maneuver	-	-	449	444
Stage 1	-	-	721	674
Stage 2	-	-	745	694

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.4	10.3	12.1
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	701	1350	-	-	1317	-	-	516
HCM Lane V/C Ratio	0.029	0.009	-	-	0.009	-	-	0.023
HCM Control Delay (s)	10.3	7.7	0	-	7.8	0	-	12.1
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1




Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	25	80	53	14	116	24	80	44	23	30	40	28
Future Volume (vph)	25	80	53	14	116	24	80	44	23	30	40	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Friction	0.954			0.979			0.979			0.962		
Fit Protected	0.992			0.996			0.974			0.985		
Satd. Flow (prot)	0	1721	0	0	1811	0	0	1603	0	0	1705	0
Fit Permitted	0.992			0.996			0.974			0.985		
Satd. Flow (perm)	0	1721	0	0	1811	0	0	1603	0	0	1705	0
Link Speed (k/h)	40			50			50			50		
Link Distance (m)	1021.3			906.6			376.2			1630.3		
Travel Time (s)	91.9			65.3			27.1			117.4		
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 (%)	5%	0%	11%	0%	2%	5%	15%	11%	10%	0%	11%	4%
Adj. Flow (vph)	27	87	58	15	126	26	87	48	25	33	43	30
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	172	0	0	167	0	0	160	0	0	106	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	0.0			0.0			0.0			0.0		
Link Offset(m)	0.0			0.0			0.0			0.0		
Crosswalk Width(m)	4.8			4.8			4.8			4.8		
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25	25	15	25	15	25	15	25	15	25
Sign Control	Stop			Stop			Stop			Stop		

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	35.0%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
107: Gerrie Rd & Colborne St

Base Year - 2024
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↕			↕			↕			↕		
Sign Control	Stop			Stop			Stop			Stop		
Traffic Volume (vph)	25	80	53	14	116	24	80	44	23	30	40	28
Future Volume (vph)	25	80	53	14	116	24	80	44	23	30	40	28
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
Hourly flow rate (vph)	27	87	58	15	126	26	87	48	25	33	43	30
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	172	167	160	106								
Volume Left (vph)	27	15	87	33								
Volume Right (vph)	58	26	25	30								
Hadj (s)	-0.09	-0.04	0.24	-0.01								
Departure Headway (s)	4.7	4.8	5.1	5.0								
Degree Utilization, x	0.23	0.22	0.23	0.15								
Capacity (veh/h)	709	702	657	664								
Control Delay (s)	9.1	9.1	9.6	8.8								
Approach Delay (s)	9.1	9.1	9.6	8.8								
Approach LOS	A	A	A	A								
Intersection Summary												
Delay				9.2								
Level of Service				A								
Intersection Capacity Utilization			35.0%	ICU Level of Service	A							
Analysis Period (min)				15								

HCM 6th AWSC
107: Gerrie Rd & Colborne St

Base Year - 2024
PM Peak Hour

Intersection												
Intersection Delay, s/veh	9.2											
Intersection LOS	A											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	25	80	53	14	116	24	80	44	23	30	40	28
Future Vol, veh/h	25	80	53	14	116	24	80	44	23	30	40	28
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, %	5	0	11	0	2	5	15	11	10	0	11	4
Mvmt Flow	27	87	58	15	126	26	87	48	25	33	43	30
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Approach	EB	WB	NB	SB								
Opposing Approach	WB	EB	SB	NB								
Opposing Lanes	1	1	1	1								
Conflicting Approach Left	SB	NB	EB	WB								
Conflicting Lanes Left	1	1	1	1								
Conflicting Approach Right	NB	SB	WB	EB								
Conflicting Lanes Right	1	1	1	1								
HCM Control Delay	9.1	9.1	9.7	8.7								
HCM LOS	A	A	A	A								
Lane	NBLn1	EBLn1	WBLn1	SBLn1								
Vol Left, %	54%	16%	9%	31%								
Vol Thru, %	30%	51%	75%	41%								
Vol Right, %	16%	34%	16%	29%								
Sign Control	Stop	Stop	Stop	Stop								
Traffic Vol by Lane	147	158	154	98								
LT Vol	80	25	14	30								
Through Vol	44	80	116	40								
RT Vol	23	53	24	28								
Lane Flow Rate	160	172	167	107								
Geometry Grp	1	1	1	1								
Degree of Util (X)	0.226	0.223	0.218	0.142								
Departure Headway (Hd)	5.098	4.685	4.699	4.801								
Convergence, Y/N	Yes	Yes	Yes	Yes								
Cap	701	763	760	742								
Service Time	3.155	2.737	2.751	2.862								
HCM Lane V/C Ratio	0.228	0.225	0.22	0.144								
HCM Control Delay	9.7	9.1	9.1	8.7								
HCM Lane LOS	A	A	A	A								
HCM 95th-tile Q	0.9	0.9	0.8	0.5								

Lanes, Volumes, Timings
108: Chapel St/Gerrie Rd & East Mill St

Base Year - 2024
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔			↔			↔			↔	
Traffic Volume (vph)	35	253	0	0	226	112	0	0	0	90	0	17
Future Volume (vph)	35	253	0	0	226	112	0	0	0	90	0	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	0.0		0.0		0.0	0.0		0.0	0.0
Storage Lanes	1		0	0		0		0	0		0	0
Taper Length (m)	60.0			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor											1.00	
Frt					0.955						0.979	
Flt Protected	0.950										0.959	
Satd. Flow (prot)	1805	1881	0	0	1809	0	0	1900	0	0	1763	0
Flt Permitted	0.531										0.759	
Satd. Flow (perm)	1009	1881	0	0	1809	0	0	1900	0	0	1395	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					62						67	
Link Speed (k/h)		60						50				50
Link Distance (m)		314.9			327.9			115.3				376.2
Travel Time (s)		18.9			19.7			8.3				27.1
Confl. Peds. (#/hr)							1					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%	1%	0%	0%	0%	1%	0%	0%	0%	1%	0%	0%
Adj. Flow (vph)	38	275	0	0	246	122	0	0	0	98	0	18
Shared Lane Traffic (%)												
Lane Group Flow (vph)	38	275	0	0	368	0	0	0	0	0	116	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6						0.0	0.0
Link Offset(m)		0.0			0.0						0.0	0.0
Crosswalk Width(m)		4.8			4.8						4.8	4.8
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	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	
Detector 1 Queue (s)	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	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
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	

Lanes, Volumes, Timings
108: Chapel St/Gerrie Rd & East Mill St

Base Year - 2024
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA			NA						Perm	NA
Protected Phases		2			6			4				8
Permitted Phases	2			6			4				8	
Detector Phase	2	2		6	6		4	4			8	8
Switch Phase												
Minimum Initial (s)	35.0	35.0		35.0	35.0		10.0	10.0			10.0	10.0
Minimum Split (s)	42.3	42.3		42.3	42.3		24.7	24.7			24.7	24.7
Total Split (s)	45.2	45.2		45.2	45.2		24.8	24.8			24.8	24.8
Total Split (%)	64.6%	64.6%		64.6%	64.6%		35.4%	35.4%			35.4%	35.4%
Maximum Green (s)	37.9	37.9		37.9	37.9		18.1	18.1			18.1	18.1
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	4.0
All-Red Time (s)	3.3	3.3		3.3	3.3		2.7	2.7			2.7	2.7
Lost Time Adjust (s)	-3.3	-3.3			-3.3			-2.7				-2.7
Total Lost Time (s)	4.0	4.0			4.0			4.0				4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Recall Mode	Min	Min		Min	Min		None	None			None	None
Walk Time (s)	23.0	23.0		23.0	23.0		7.0	7.0			7.0	7.0
Flash Dont Walk (s)	12.0	12.0		12.0	12.0		7.0	7.0			7.0	7.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	0
Act Effct Green (s)	42.2	42.2			42.2							13.0
Actuated g/C Ratio	0.72	0.72			0.72							0.22
v/c Ratio	0.05	0.20			0.28							0.32
Control Delay	4.3	4.7			4.3							12.6
Queue Delay	0.0	0.0			0.0							0.0
Total Delay	4.3	4.7			4.3							12.6
LOS	A	A			A							B
Approach Delay		4.6			4.3							12.6
Approach LOS		A			A							B
Intersection Summary												
Area Type:	Other											
Cycle Length:	70											
Actuated Cycle Length:	59											
Natural Cycle:	70											
Control Type:	Actuated-Uncoordinated											
Maximum v/c Ratio:	0.32											
Intersection Signal Delay:	5.6						Intersection LOS: A					
Intersection Capacity Utilization	44.3%						ICU Level of Service A					
Analysis Period (min)	15											
Spits and Phases:	108: Chapel St/Gerrie Rd & East Mill St											

Queues
108: Chapel St/Gerrie Rd & East Mill St

Base Year - 2024
PM Peak Hour

Lane Group	EBL	EBT	WBT	SBT
Lane Group Flow (vph)	38	275	368	116
v/c Ratio	0.05	0.20	0.28	0.32
Control Delay	4.3	4.7	4.3	12.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	4.3	4.7	4.3	12.6
Queue Length 50th (m)	1.3	10.5	12.0	4.6
Queue Length 95th (m)	4.2	20.9	24.6	16.2
Internal Link Dist (m)		290.9	303.9	352.2
Turn Bay Length (m)	30.0			
Base Capacity (vph)	761	1419	1379	535
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.05	0.19	0.27	0.22
Intersection Summary				

HCM Signalized Intersection Capacity Analysis
108: Chapel St/Gerrie Rd & East Mill St

Base Year - 2024
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	253	0	0	226	112	0	0	0	90	0	17
Future Volume (vph)	35	253	0	0	226	112	0	0	0	90	0	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0					4.0		
Lane Util. Factor	1.00	1.00			1.00					1.00		
Frpb, ped/bikes	1.00	1.00			1.00					1.00		
Flpb, ped/bikes	1.00	1.00			1.00					1.00		
Frt	1.00	1.00			0.96					0.98		
Flt Protected	0.95	1.00			1.00					0.96		
Satd. Flow (prot)	1805	1881			1809					1764		
Flt Permitted	0.53	1.00			1.00					0.76		
Satd. Flow (perm)	1008	1881			1809					1395		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	275	0	0	246	122	0	0	0	98	0	18
RTOR Reduction (vph)	0	0	0	0	20	0	0	0	0	0	55	0
Lane Group Flow (vph)	38	275	0	0	348	0	0	0	0	0	61	0
Confl. Peds. (#/hr)							1					1
Heavy Vehicles (%)	0%	1%	0%	0%	0%	1%	0%	0%	0%	1%	0%	0%
Turn Type	Perm	NA			NA					Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	38.1	38.1			38.1						8.3	
Effective Green, g (s)	41.4	41.4			41.4						11.0	
Actuated g/C Ratio	0.69	0.69			0.69						0.18	
Clearance Time (s)	7.3	7.3			7.3						6.7	
Vehicle Extension (s)	3.0	3.0			3.0						3.0	
Lane Grp Cap (vph)	690	1289			1239						254	
v/s Ratio Prot		0.15			c0.19							
v/s Ratio Perm	0.04										c0.04	
v/c Ratio	0.06	0.21			0.28						0.24	
Uniform Delay, d1	3.1	3.5			3.7						21.1	
Progression Factor	1.00	1.00			1.00						1.00	
Incremental Delay, d2	0.0	0.1			0.1						0.5	
Delay (s)	3.1	3.6			3.8						21.6	
Level of Service	A	A			A						C	
Approach Delay (s)		3.5			3.8			0.0			21.6	
Approach LOS		A			A			A			C	
Intersection Summary												
HCM 2000 Control Delay			6.3							A		
HCM 2000 Volume to Capacity ratio			0.27									
Actuated Cycle Length (s)			60.4					Sum of lost time (s)		8.0		
Intersection Capacity Utilization			44.3%					ICU Level of Service		A		
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary
108: Chapel St/Gerrie Rd & East Mill St

Base Year - 2024
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗			↕			↕			↕	
Traffic Volume (veh/h)	35	253	0	0	226	112	0	0	0	90	0	17
Future Volume (veh/h)	35	253	0	0	226	112	0	0	0	90	0	17
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No		No		No		No		No	
Adj Sat Flow, veh/h/ln	1900	1885	1900	1900	1900	1885	1900	1900	1900	1885	1900	1900
Adj Flow Rate, veh/h	38	275	0	0	246	122	0	0	0	98	0	18
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
Percent Heavy Veh, %	0	1	0	0	0	1	0	0	0	1	0	0
Cap, veh/h	718	1255	0	0	798	396	0	371	0	346	13	45
Arrive On Green	0.67	0.67	0.00	0.00	0.67	0.61	0.00	0.00	0.00	0.15	0.00	0.15
Sat Flow, veh/h	1030	1885	0	0	1199	594	0	1900	0	1180	67	229
Grp Volume(v), veh/h	38	275	0	0	0	368	0	0	0	116	0	0
Grp Sat Flow(s),veh/h/ln	1030	1885	0	0	0	1793	0	1900	0	1476	0	0
Q Serve(g_s), s	0.9	3.3	0.0	0.0	0.0	5.2	0.0	0.0	0.0	3.8	0.0	0.0
Cycle Q Clear(g_c), s	6.1	3.3	0.0	0.0	0.0	5.2	0.0	0.0	0.0	4.1	0.0	0.0
Prop In Lane	1.00		0.00	0.00		0.33	0.00		0.00	0.84		0.16
Lane Grp Cap(c), veh/h	718	1255	0	0	0	1194	0	371	0	334	0	0
V/C Ratio(X)	0.05	0.22	0.00	0.00	0.00	0.31	0.00	0.00	0.00	0.35	0.00	0.00
Avail Cap(c_a), veh/h	770	1350	0	0	0	1284	0	687	0	577	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	5.4	3.8	0.0	0.0	0.0	4.3	0.0	0.0	0.0	21.4	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.4	3.8	0.0	0.0	0.0	4.5	0.0	0.0	0.0	22.1	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	A	A	A	C	A	A
Approach Vol, veh/h		313			368			0			116	
Approach Delay, s/veh		4.0			4.5			0.0			22.1	
Approach LOS		A			A						C	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		42.3		15.2		42.3		15.2				
Change Period (Y+Rc), s		* 7.3		* 6.7		* 7.3		* 6.7				
Max Green Setting (Gmax), s		* 38		* 18		* 38		* 18				
Max Q Clear Time (g_c+I1), s		8.1		0.0		7.2		6.1				
Green Ext Time (p_c), s		2.2		0.0		2.9		0.5				

Intersection Summary		
HCM 6th Ctrl Delay		6.9
HCM 6th LOS		A

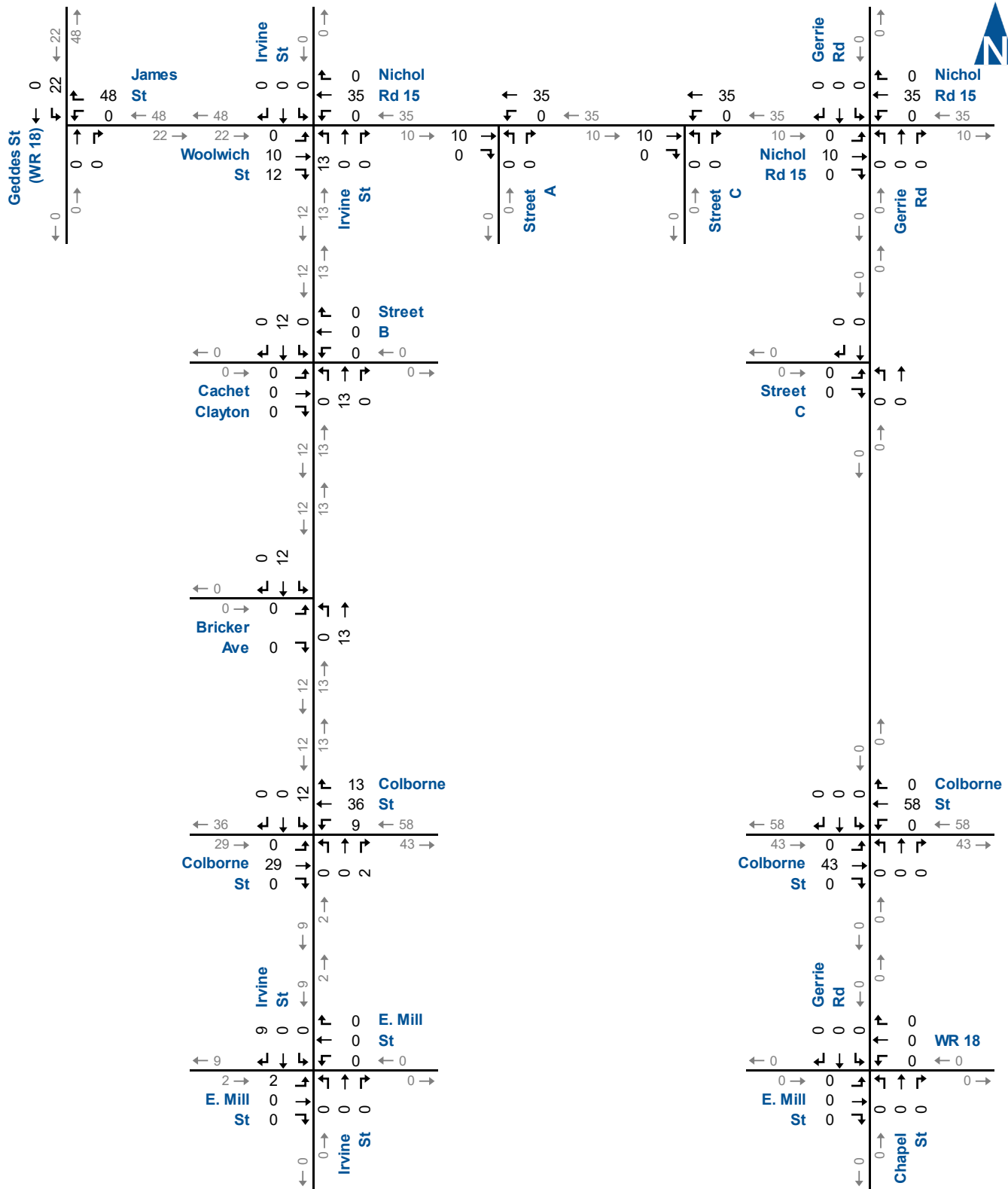
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Appendix D

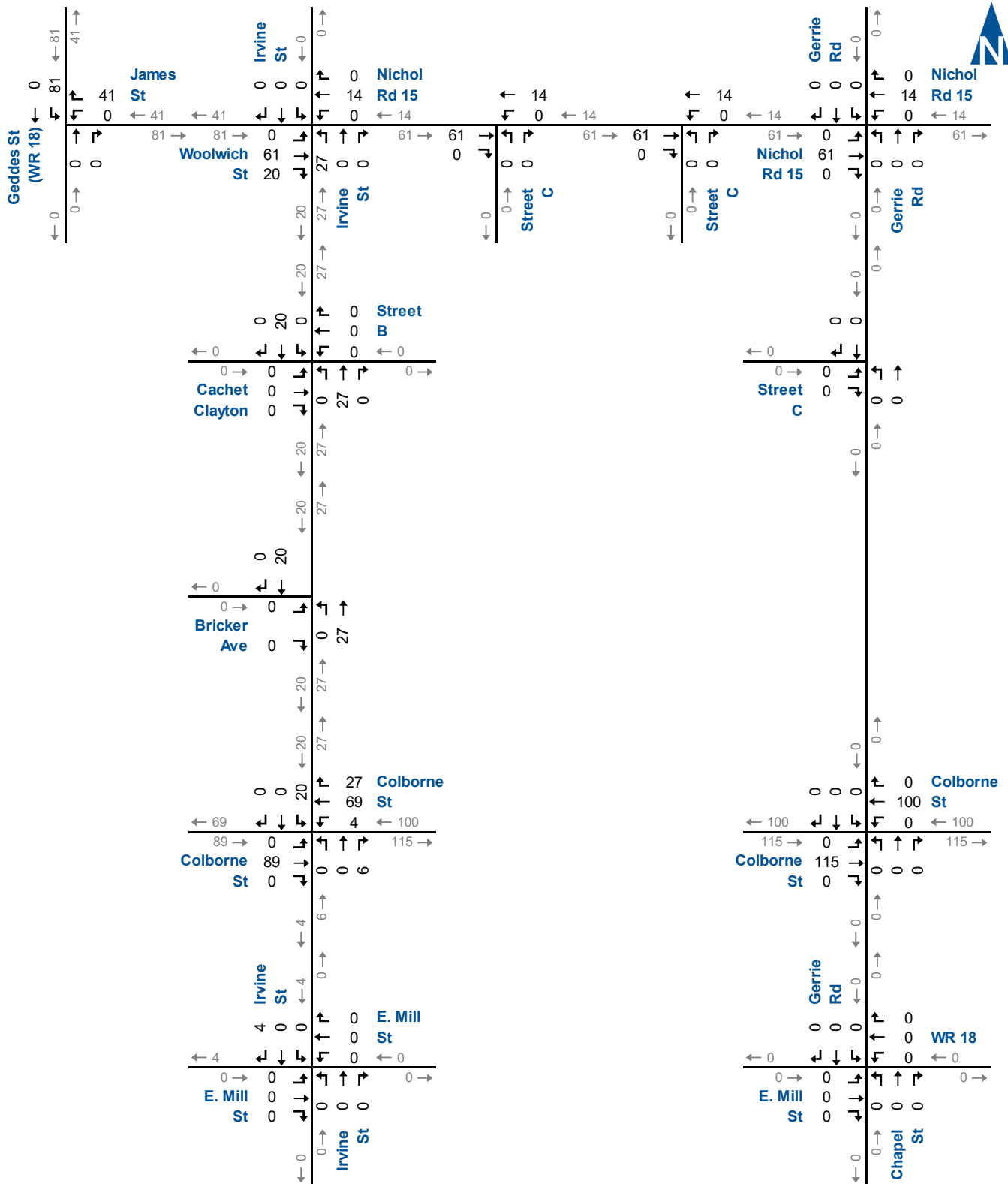
Background Development Traffic Volumes



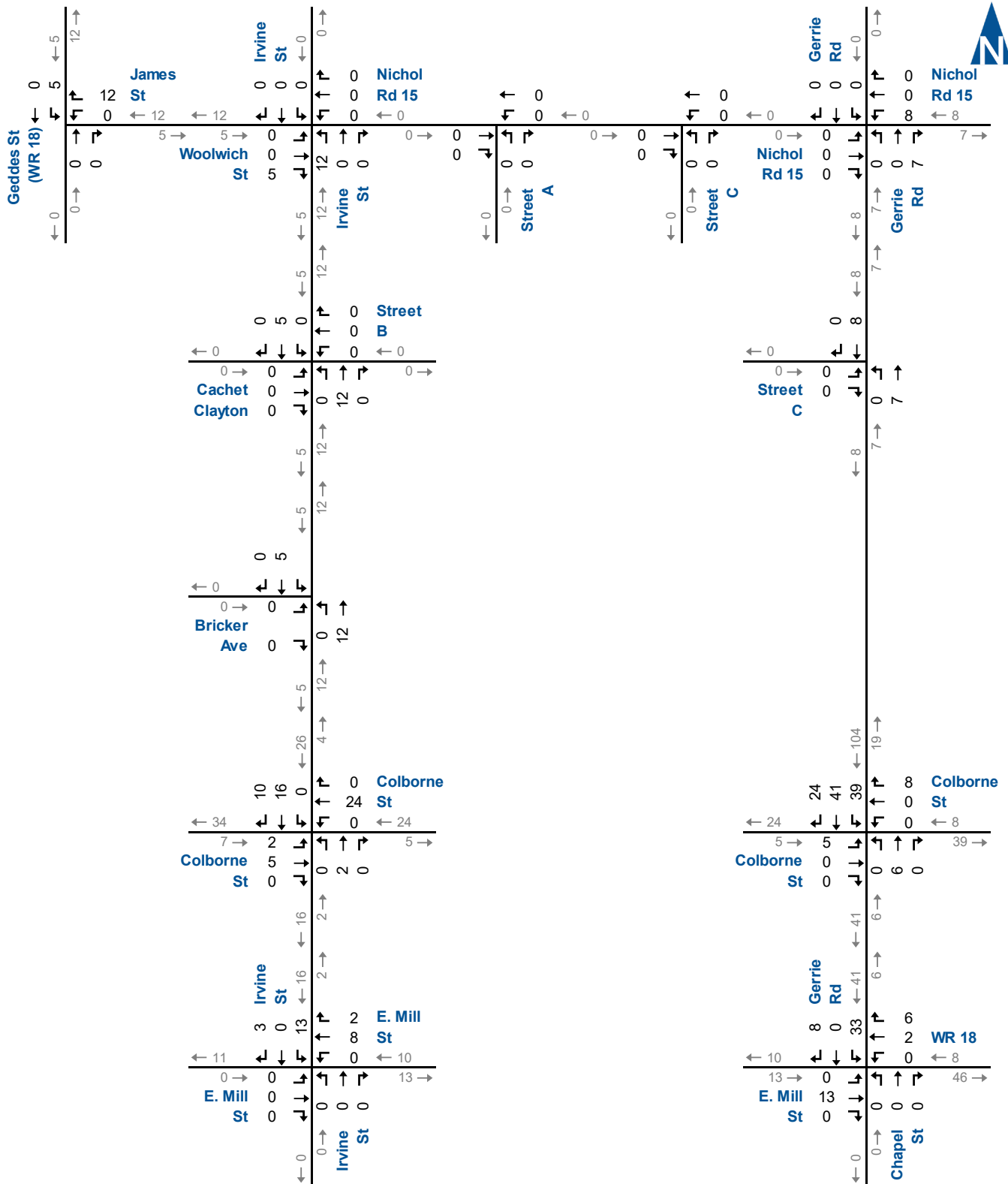


NWFSP Traffic Volumes (AM Peak Hour)

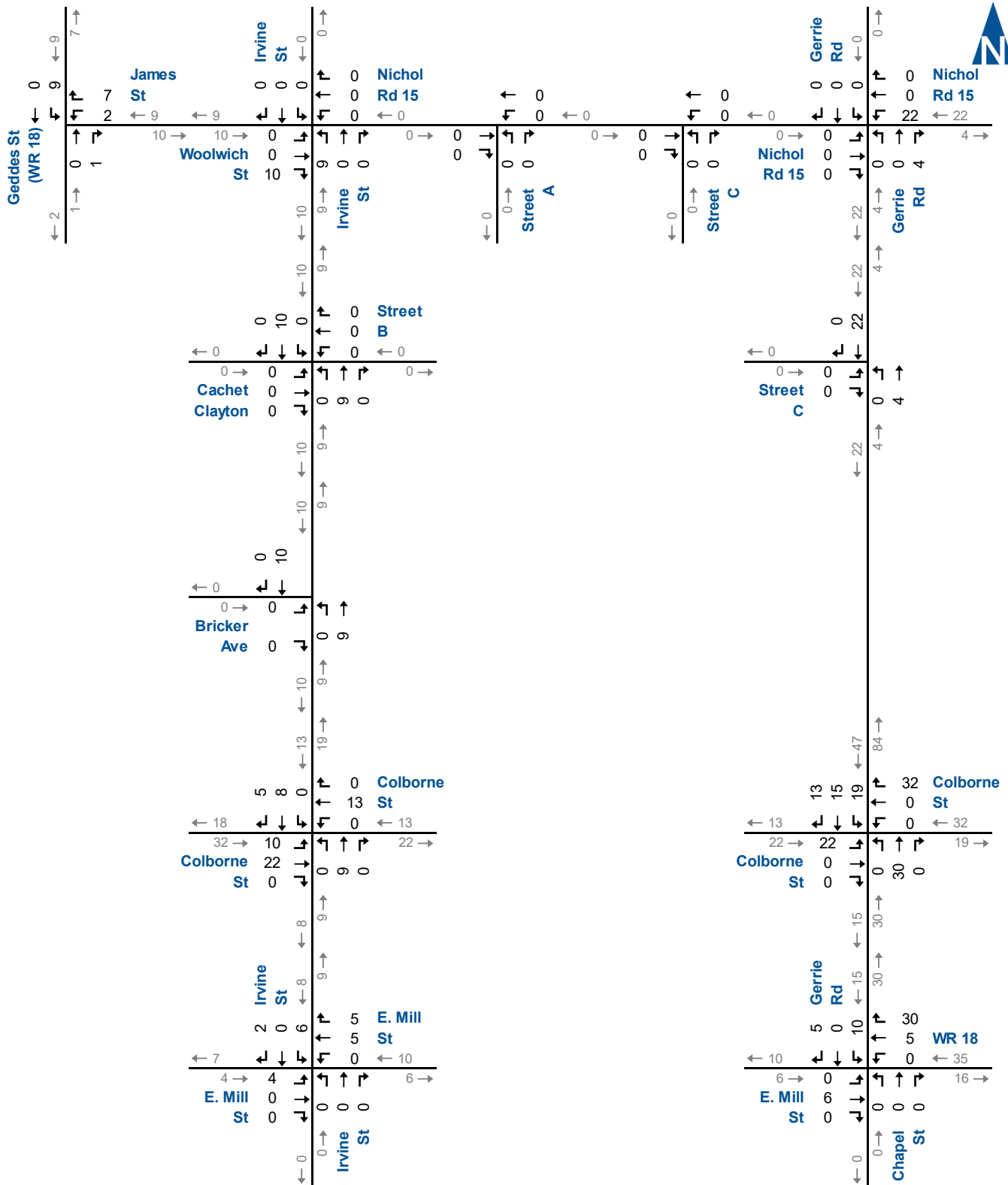
Figure 1A



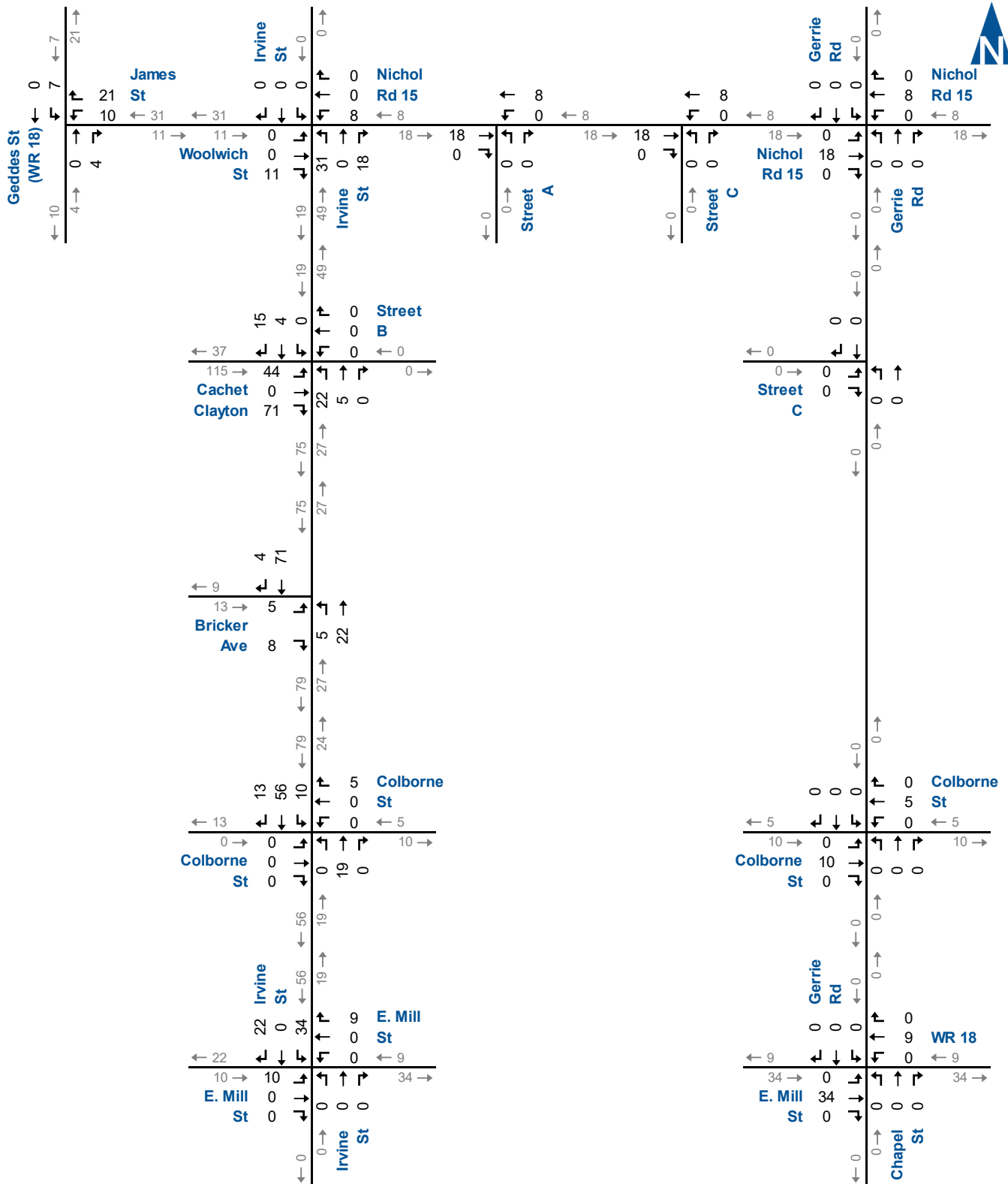
NWFSF Traffic Volumes (PM Peak Hour)



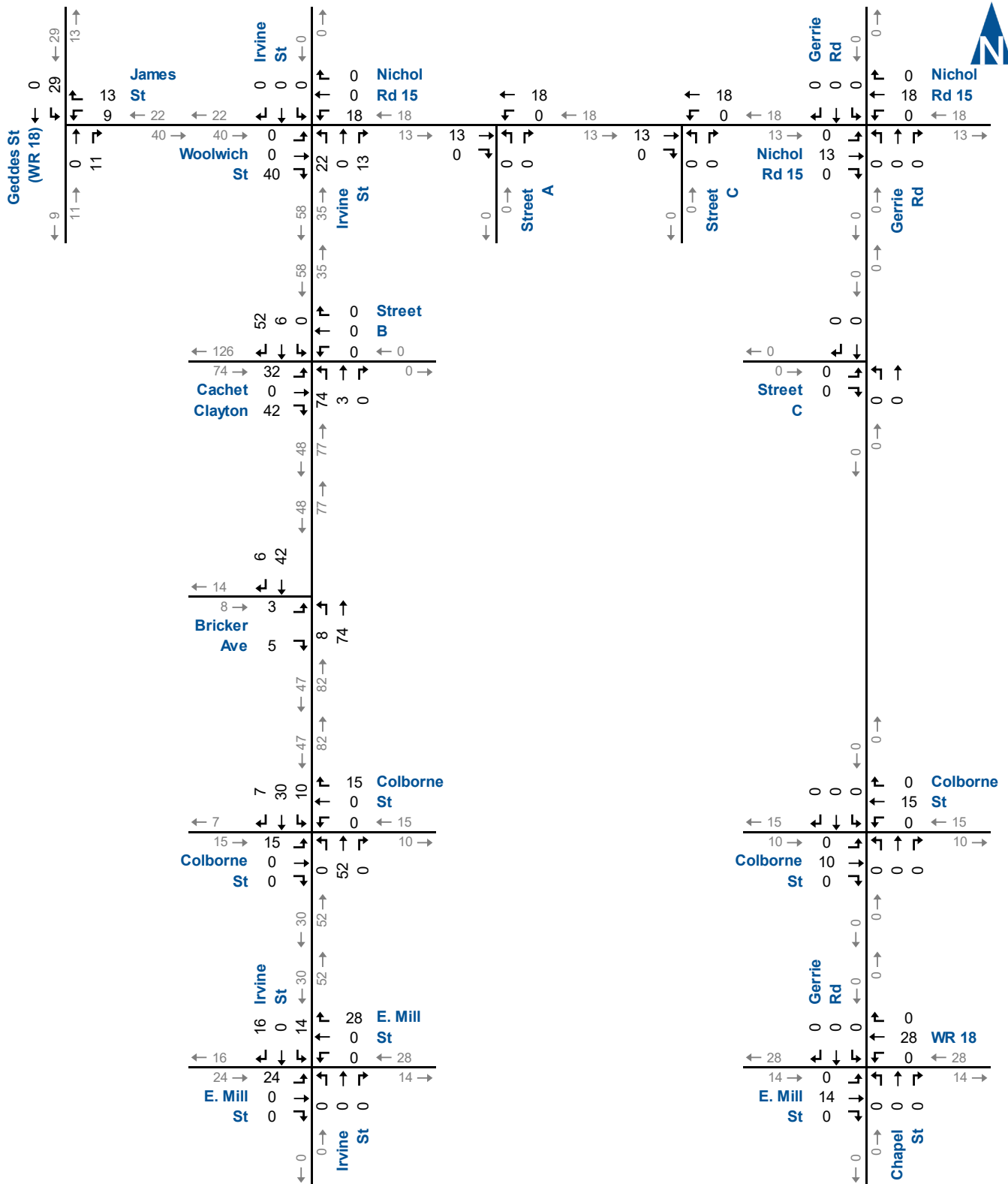
Ainley Traffic Volumes (AM Peak Hour)



Ainley Traffic Volumes (PM Peak Hour)



Cachet Clayton Traffic Volumes (AM Peak Hour)



Cachet Clayton Traffic Volumes (PM Peak Hour)

Appendix E

Background Operations Synchro Reports



Lanes, Volumes, Timings
101: Geddes St & James St

Background - 2035
AM Peak Hour

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	R	T	T	L	R
Traffic Volume (vph)	44	305	107	39	188	109
Future Volume (vph)	44	305	107	39	188	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.882	0.964				
Flt Protected	0.994				0.969	
Satd. Flow (prot)	1615	0	1746	0	0	1769
Flt Permitted	0.994				0.969	
Satd. Flow (perm)	1615	0	1746	0	0	1769
Link Speed (k/h)	50	50		50		
Link Distance (m)	120.4	303.1		136.1		
Travel Time (s)	8.7	21.8		9.8		
Confl. Peds. (#/hr)	1			3	3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	11%	2%	2%	13%	3%	6%
Adj. Flow (vph)	48	332	116	42	204	118
Shared Lane Traffic (%)						
Lane Group Flow (vph)	380	0	158	0	0	322
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6	0.0		0.0		
Link Offset(m)	0.0	0.0		0.0		
Crosswalk Width(m)	4.8	4.8		4.8		
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop	Free		Free		

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	56.0%
Analysis Period (min)	15
	ICU Level of Service B

HCM Unsignalized Intersection Capacity Analysis
101: Geddes St & James St

Background - 2035
AM Peak Hour

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	R	T	T	L	R
Traffic Volume (veh/h)	44	305	107	39	188	109
Future Volume (Veh/h)	44	305	107	39	188	109
Sign Control	Stop	Free		Free		
Grade	0%	0%		0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	48	332	116	42	204	118
Pedestrians	3	1				
Lane Width (m)	3.6	3.6				
Walking Speed (m/s)	1.2	1.2				
Percent Blockage	0	0				
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	667	140			161	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	667	140			161	
tC, single (s)	6.5	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.6	3.3			2.2	
p0 queue free %	86	63			86	
cM capacity (veh/h)	350	906			1408	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	380	158	322
Volume Left	48	0	204
Volume Right	332	42	0
eSH	754	1700	1408
Volume to Capacity	0.50	0.09	0.14
Queue Length 95th (m)	23.0	0.0	4.1
Control Delay (s)	14.5	0.0	5.5
Lane LOS	B	A	
Approach Delay (s)	14.5	0.0	5.5
Approach LOS	B		

Intersection Summary

Average Delay	8.5
Intersection Capacity Utilization	56.0%
Analysis Period (min)	15
	ICU Level of Service B

Intersection						
Int Delay, s/veh	8.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔		↔	
Traffic Vol, veh/h	44	305	107	39	188	109
Future Vol, veh/h	44	305	107	39	188	109
Conflicting Peds, #/hr	1	0	0	3	3	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, %	11	2	2	13	3	6
Mvmt Flow	48	332	116	42	204	118
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	667	140	0	0	161	0
Stage 1	140	-	-	-	-	-
Stage 2	527	-	-	-	-	-
Critical Hdwy	6.51	6.22	-	-	4.13	-
Critical Hdwy Stg 1	5.51	-	-	-	-	-
Critical Hdwy Stg 2	5.51	-	-	-	-	-
Follow-up Hdwy	3.599	3.318	-	-	2.227	-
Pot Cap-1 Maneuver	410	908	-	-	1412	-
Stage 1	865	-	-	-	-	-
Stage 2	574	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	345	906	-	-	1408	-
Mov Cap-2 Maneuver	345	-	-	-	-	-
Stage 1	862	-	-	-	-	-
Stage 2	484	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	14.6	0	5.1			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	752	1408		
HCM Lane V/C Ratio	-	-	0.504	0.145		
HCM Control Delay (s)	-	-	14.6	8	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	2.9	0.5		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	6	178	43	45	271	4	76	2	60	2	4	1
Future Volume (vph)	6	178	43	45	271	4	76	2	60	2	4	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt	0.974		0.998		0.941		0.981					
Fit Protected	0.999		0.993		0.973		0.986					
Satd. Flow (prot)	0	1692	0	0	1804	0	0	1322	0	0	1205	0
Fit Permitted	0.999		0.993		0.973		0.986					
Satd. Flow (perm)	0	1692	0	0	1804	0	0	1322	0	0	1205	0
Link Speed (k/h)	40		40		50		50					
Link Distance (m)	556.2		1016.6		201.5		704.4					
Travel Time (s)	50.1		91.5		14.5		50.7					
Confl. Peds. (#/hr)	2		2		2		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 (%)	20%	7%	17%	13%	3%	0%	50%	0%	9%	0%	67%	100%
Adj. Flow (vph)	7	193	47	49	295	4	83	2	65	2	4	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	247	0	0	348	0	0	150	0	0	7	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	0.0		0.0		0.0		0.0					
Link Offset(m)	0.0		0.0		0.0		0.0					
Crosswalk Width(m)	4.8		4.8		4.8		4.8					
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15		25		15		25		15	
Sign Control	Free		Free		Stop		Stop					
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	54.0%						ICU Level of Service A					
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis
102: Irvine St & Woolwich St/Nichol Rd 15

Background - 2035
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (veh/h)	6	178	43	45	271	4	76	2	60	2	4	1
Future Volume (Veh/h)	6	178	43	45	271	4	76	2	60	2	4	1
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
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
Hourly flow rate (vph)	7	193	47	49	295	4	83	2	65	2	4	1
Pedestrians	2											
Lane Width (m)	3.6											
Walking Speed (m/s)	1.2											
Percent Blockage	0											
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	301	240			628		630	216	694	651	299	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	301	240			628		630	216	694	651	299	
tC, single (s)	4.3	4.2			7.6		6.5	6.3	7.1	7.2	7.2	
tC, 2 stage (s)												
tF (s)	2.4	2.3			4.0		4.0	3.4	3.5	4.6	4.2	
p0 queue free %	99	96			74		99	92	99	99	100	
cM capacity (veh/h)	1162	1265			319		383	806	318	301	557	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	247	348	150	7								
Volume Left	7	49	83	2								
Volume Right	47	4	65	1								
eSH	1162	1265	434	327								
Volume to Capacity	0.01	0.04	0.35	0.02								
Queue Length 95th (m)	0.1	1.0	12.2	0.5								
Control Delay (s)	0.3	1.4	17.6	16.2								
Lane LOS	A	A	C	C								
Approach Delay (s)	0.3	1.4	17.6	16.2								
Approach LOS			C	C								
Intersection Summary												
Average Delay	4.4											
Intersection Capacity Utilization	54.0%			ICU Level of Service			A					
Analysis Period (min)	15											

HCM 6th TWSC
102: Irvine St & Woolwich St/Nichol Rd 15

Background - 2035
AM Peak Hour

Intersection												
Int Delay, s/veh	4.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	6	178	43	45	271	4	76	2	60	2	4	1
Future Vol, veh/h	6	178	43	45	271	4	76	2	60	2	4	1
Conflicting Peds, #/hr	2	0	0	0	0	2	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	20	7	17	13	3	0	50	0	9	0	67	100
Mvmt Flow	7	193	47	49	295	4	83	2	65	2	4	1
Major/Minor												
	Major1	Major2		Minor1		Minor2						
Conflicting Flow All	301	0	0	240	0	0	629	630	217	661	651	299
Stage 1	-	-	-	-	-	-	231	231	-	397	397	-
Stage 2	-	-	-	-	-	-	398	399	-	264	254	-
Critical Hdwy	4.3	-	-	4.23	-	-	7.6	6.5	6.29	7.1	7.17	7.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.6	5.5	-	6.1	6.17	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.6	5.5	-	6.1	6.17	-
Follow-up Hdwy	2.38	-	-	2.317	-	-	3.95	4	3.381	3.5	4.603	4.2
Pot Cap-1 Maneuver	1164	-	-	1265	-	-	334	401	806	379	315	558
Stage 1	-	-	-	-	-	-	676	717	-	633	505	-
Stage 2	-	-	-	-	-	-	542	606	-	746	593	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1162	-	-	1265	-	-	316	379	806	332	298	557
Mov Cap-2 Maneuver	-	-	-	-	-	-	316	379	-	332	298	-
Stage 1	-	-	-	-	-	-	671	712	-	627	481	-
Stage 2	-	-	-	-	-	-	511	577	-	679	589	-
Approach												
	EB	WB		NB		SB						
HCM Control Delay, s	0.2	1.1		17.7		16.2						
HCM LOS				C		C						
Minor Lane/Major Mvmt												
	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	431	1162	-	-	1265	-	-	330				
HCM Lane V/C Ratio	0.348	0.006	-	-	0.039	-	-	0.023				
HCM Control Delay (s)	17.7	8.1	0	-	8	0	-	16.2				
HCM Lane LOS	C	A	A	-	A	A	-	C				
HCM 95th %tile Q(veh)	1.5	0	-	-	0.1	-	-	0.1				

Lanes, Volumes, Timings
103: Irvine St & Bricker Ave

Background - 2035
AM Peak Hour

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	16	22	9	100	138	10
Future Volume (vph)	16	22	9	100	138	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.921				0.991	
Flt Protected	0.980			0.996		
Satd. Flow (prot)	1481	0	0	1528	1575	0
Flt Permitted	0.980			0.996		
Satd. Flow (perm)	1481	0	0	1528	1575	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	361.7			908.3	246.8	
Travel Time (s)	26.0			65.4	17.8	
Confl. Peds. (#/hr)			3			3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	27%	0%	26%	21%	0%
Adj. Flow (vph)	17	24	10	109	150	11
Shared Lane Traffic (%)						
Lane Group Flow (vph)	41	0	0	119	161	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	22.7%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis
103: Irvine St & Bricker Ave

Background - 2035
AM Peak Hour

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	16	22	9	100	138	10
Future Volume (Veh/h)	16	22	9	100	138	10
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	17	24	10	109	150	11
Pedestrians	3					
Lane Width (m)	3.6					
Walking Speed (m/s)	1.2					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	288	158	164			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	288	158	164			
tC, single (s)	6.4	6.5	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.5	2.2			
p0 queue free %	98	97	99			
cM capacity (veh/h)	700	823	1423			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	41	119	161
Volume Left	17	10	0
Volume Right	24	0	11
eSH	768	1423	1700
Volume to Capacity	0.05	0.01	0.09
Queue Length 95th (m)	1.4	0.2	0.0
Control Delay (s)	10.0	0.7	0.0
Lane LOS	A	A	
Approach Delay (s)	10.0	0.7	0.0
Approach LOS	A		


Intersection Summary			
Average Delay		1.5	
Intersection Capacity Utilization	22.7%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection						
Int Delay, s/veh	1.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔		↕		↕	
Traffic Vol, veh/h	16	22	9	100	138	10
Future Vol, veh/h	16	22	9	100	138	10
Conflicting Peds, #/hr	0	0	3	0	0	3
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, %	0	27	0	26	21	0
Mvmt Flow	17	24	10	109	150	11
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	288	159	164	0	-	0
Stage 1	159	-	-	-	-	-
Stage 2	129	-	-	-	-	-
Critical Hdwy	6.4	6.47	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.543	2.2	-	-	-
Pot Cap-1 Maneuver	707	825	1427	-	-	-
Stage 1	875	-	-	-	-	-
Stage 2	902	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	698	823	1423	-	-	-
Mov Cap-2 Maneuver	698	-	-	-	-	-
Stage 1	866	-	-	-	-	-
Stage 2	899	-	-	-	-	-
Approach	EB	NB	SB			
HCM Control Delay, s	10	0.6	0			
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1423	-	765	-	-	
HCM Lane V/C Ratio	0.007	-	0.054	-	-	
HCM Control Delay (s)	7.5	0	10	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0	-	0.2	-	-	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	9	133	5	10	201	52	2	51	9	64	137	35
Future Volume (vph)	9	133	5	10	201	52	2	51	9	64	137	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt	0.996				0.973				0.980		0.980	
Fit Protected	0.997				0.998				0.999		0.987	
Satd. Flow (prot)	0	1805	0	0	1740	0	0	1543	0	0	1659	0
Fit Permitted	0.997				0.998				0.999		0.987	
Satd. Flow (perm)	0	1805	0	0	1740	0	0	1543	0	0	1659	0
Link Speed (k/h)	40				40				40		40	
Link Distance (m)	619.9				1021.3				327.0		274.5	
Travel Time (s)	55.8				91.9				29.4		24.7	
Confl. Peds. (#/hr)	7					7	1			7	7	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%	5%	0%	0%	4%	15%	0%	25%	0%	12%	13%	0%
Adj. Flow (vph)	10	145	5	11	218	57	2	55	10	70	149	38
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	160	0	0	286	0	0	67	0	0	257	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	0.0				0.0				0.0		0.0	
Link Offset(m)	0.0				0.0				0.0		0.0	
Crosswalk Width(m)	4.8				4.8				4.8		4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15		25	15		25	15		25	15	
Sign Control	Stop				Stop				Stop		Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	43.1%						ICU Level of Service A					
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis
104: Irvine St & Colborne St

Background - 2035
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↕			↕			↕			↕		
Sign Control	Stop			Stop			Stop			Stop		
Traffic Volume (vph)	9	133	5	10	201	52	2	51	9	64	137	35
Future Volume (vph)	9	133	5	10	201	52	2	51	9	64	137	35
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
Hourly flow rate (vph)	10	145	5	11	218	57	2	55	10	70	149	38
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	160	286	67	257								
Volume Left (vph)	10	11	2	70								
Volume Right (vph)	5	57	10	38								
Hadj (s)	0.07	-0.01	0.27	0.15								
Departure Headway (s)	5.3	5.1	5.8	5.3								
Degree Utilization, x	0.24	0.40	0.11	0.38								
Capacity (veh/h)	623	670	545	628								
Control Delay (s)	10.0	11.4	9.5	11.6								
Approach Delay (s)	10.0	11.4	9.5	11.6								
Approach LOS	A	B	A	B								
Intersection Summary												
Delay				11.0								
Level of Service				B								
Intersection Capacity Utilization			43.1%	ICU Level of Service	A							
Analysis Period (min)				15								

HCM 6th AWSC
104: Irvine St & Colborne St

Background - 2035
AM Peak Hour

Intersection												
Intersection Delay, s/veh	10.8											
Intersection LOS	B											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	9	133	5	10	201	52	2	51	9	64	137	35
Future Vol, veh/h	9	133	5	10	201	52	2	51	9	64	137	35
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	5	0	0	4	15	0	25	0	12	13	0
Mvmt Flow	10	145	5	11	218	57	2	55	10	70	149	38
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Approach	EB	WB	NB	SB								
Opposing Approach	WB	EB	SB	NB								
Opposing Lanes	1	1	1	1								
Conflicting Approach Left	SB	NB	EB	WB								
Conflicting Lanes Left	1	1	1	1								
Conflicting Approach Right	NB	SB	WB	EB								
Conflicting Lanes Right	1	1	1	1								
HCM Control Delay	9.8	11	9	11.6								
HCM LOS	A	B	A	B								
Lane	NBLn1	EBLn1	WBLn1	SBLn1								
Vol Left, %	3%	6%	4%	27%								
Vol Thru, %	82%	90%	76%	58%								
Vol Right, %	15%	3%	20%	15%								
Sign Control	Stop	Stop	Stop	Stop								
Traffic Vol by Lane	62	147	263	236								
LT Vol	2	9	10	64								
Through Vol	51	133	201	137								
RT Vol	9	5	52	35								
Lane Flow Rate	67	160	286	257								
Geometry Grp	1	1	1	1								
Degree of Util (X)	0.101	0.231	0.385	0.38								
Departure Headway (Hd)	5.399	5.205	4.953	5.337								
Convergence, Y/N	Yes	Yes	Yes	Yes								
Cap	666	692	732	677								
Service Time	3.415	3.224	2.953	3.337								
HCM Lane V/C Ratio	0.101	0.231	0.391	0.38								
HCM Control Delay	9	9.8	11	11.6								
HCM Lane LOS	A	A	B	B								
HCM 95th-tile Q	0.3	0.9	1.8	1.8								

Lanes, Volumes, Timings
105: Irvine St & East Mill St

Background - 2035
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	17	306	2	0	237	45	0	0	2	107	0	51
Future Volume (vph)	17	306	2	0	237	45	0	0	2	107	0	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.999			0.978			0.865			0.957	
Flt Protected		0.997									0.967	
Satd. Flow (prot)	0	1760	0	0	1718	0	0	1644	0	0	1545	0
Flt Permitted		0.997									0.967	
Satd. Flow (perm)	0	1760	0	0	1718	0	0	1644	0	0	1545	0
Link Speed (k/h)		40			40			40			40	
Link Distance (m)		212.3			172.2			54.2			327.0	
Travel Time (s)		19.1			15.5			4.9			29.4	
Confl. Peds. (#/hr)	21					21						
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%	8%	0%	0%	4%	30%	0%	0%	0%	17%	0%	7%
Adj. Flow (vph)	18	333	2	0	258	49	0	0	2	116	0	55
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	353	0	0	307	0	0	2	0	0	171	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	52.5%				ICU Level of Service A							
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis
105: Irvine St & East Mill St

Background - 2035
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations		↔			↔			↔			↔			
Traffic Volume (veh/h)	17	306	2	0	237	45	0	0	2	107	0	51		
Future Volume (Veh/h)	17	306	2	0	237	45	0	0	2	107	0	51		
Sign Control	Free			Free			Stop			Stop				
Grade	0%			0%			0%			0%				
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		
Hourly flow rate (vph)	18	333	2	0	258	49	0	0	2	116	0	55		
Pedestrians												21		
Lane Width (m)												3.6		
Walking Speed (m/s)												1.2		
Percent Blockage												2		
Right turn flare (veh)														
Median type	None			None										
Median storage (veh)														
Upstream signal (m)														
pX, platoon unblocked														
vC, conflicting volume	328				335				708	698	334	676	674	304
vC1, stage 1 conf vol														
vC2, stage 2 conf vol														
vCu, unblocked vol	328				335				708	698	334	676	674	304
tC, single (s)	4.1				4.1				7.1	6.5	6.2	7.3	6.5	6.3
tC, 2 stage (s)														
tF (s)	2.2				2.2				3.5	4.0	3.3	3.7	4.0	3.4
p0 queue free %	99				100				100	100	100	65	100	92
cM capacity (veh/h)	1221				1236				317	355	712	333	366	712

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	353	307	2	171
Volume Left	18	0	0	116
Volume Right	2	49	2	55
eSH	1221	1236	712	401
Volume to Capacity	0.01	0.00	0.00	0.43
Queue Length 95th (m)	0.4	0.0	0.1	16.6
Control Delay (s)	0.5	0.0	10.1	20.5
Lane LOS	A		B	C
Approach Delay (s)	0.5	0.0	10.1	20.5
Approach LOS			B	C


Intersection Summary			
Average Delay	4.5		
Intersection Capacity Utilization	52.5%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection												
Int Delay, s/veh	4.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔		↔		↔		↔		↔		↔	
Traffic Vol, veh/h	17	306	2	0	237	45	0	0	2	107	0	51
Future Vol, veh/h	17	306	2	0	237	45	0	0	2	107	0	51
Conflicting Peds, #/hr	21	0	0	0	0	21	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	-	0	-	-	0
Grade, %	-	0	-	-	0	-	-	-	0	-	-	0
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	8	0	0	4	30	0	0	0	17	0	7
Mvmt Flow	18	333	2	0	258	49	0	0	2	116	0	55

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	328	0	0	335
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	4.1	-	-	4.1
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	2.2	-	-	2.2
Pot Cap-1 Maneuver	1243	-	-	1236
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	1221	-	-	1236
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0	10.1	20.3
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	712	1221	-	-	1236	-	-	405
HCM Lane V/C Ratio	0.003	0.015	-	-	-	-	-	0.424
HCM Control Delay (s)	10.1	8	0	-	0	-	-	20.3
HCM Lane LOS	B	A	A	-	A	-	-	C
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	2.1



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	7	232	1	28	308	7	5	9	18	15	2	7
Future Volume (vph)	7	232	1	28	308	7	5	9	18	15	2	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Friction	0.999			0.997			0.923			0.958		
Fit Protected	0.998			0.996			0.993			0.970		
Satd. Flow (prot)	0	1728	0	0	1837	0	0	1024	0	0	1603	0
Fit Permitted	0.998			0.996			0.993			0.970		
Satd. Flow (perm)	0	1728	0	0	1837	0	0	1024	0	0	1603	0
Link Speed (k/h)	80			80			50			50		
Link Distance (m)	1016.6			999.6			1630.3			439.6		
Travel Time (s)	45.7			45.0			117.4			31.7		
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%	10%	0%	0%	3%	0%	25%	33%	100%	8%	0%	17%
Adj. Flow (vph)	8	252	1	30	335	8	5	10	20	16	2	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	261	0	0	373	0	0	35	0	0	26	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	0.0			0.0			0.0			0.0		
Link Offset(m)	0.0			0.0			0.0			0.0		
Crosswalk Width(m)	4.8			4.8			4.8			4.8		
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	Free	15	25	15	25	15	25	15	25	15	25
Sign Control	Free			Free			Stop			Stop		

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	40.3%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
106: Gerrie Rd & Nichol Rd 15

Background - 2035
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (veh/h)	7	232	1	28	308	7	5	9	18	15	2	7
Future Volume (Veh/h)	7	232	1	28	308	7	5	9	18	15	2	7
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
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
Hourly flow rate (vph)	8	252	1	30	335	8	5	10	20	16	2	8
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None				None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	343	253			676		672	252	692	668	339	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	343	253			676		672	252	692	668	339	
tC, single (s)	4.1	4.1			7.3		6.8	7.2	7.2	6.5	6.4	
tC, 2 stage (s)												
tF (s)	2.2	2.2			3.7		4.3	4.2	3.6	4.0	3.5	
p0 queue free %	99	98			98		97	97	95	99	99	
cM capacity (veh/h)	1227	1324			325		331	597	323	371	670	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	261	373	35	26								
Volume Left	8	30	5	16								
Volume Right	1	8	20	8								
eSH	1227	1324	442	389								
Volume to Capacity	0.01	0.02	0.08	0.07								
Queue Length 95th (m)	0.2	0.6	2.1	1.7								
Control Delay (s)	0.3	0.8	13.8	14.9								
Lane LOS	A	A	B	B								
Approach Delay (s)	0.3	0.8	13.8	14.9								
Approach LOS			B	B								
Intersection Summary												
Average Delay	1.8											
Intersection Capacity Utilization	40.3%			ICU Level of Service			A					
Analysis Period (min)	15											

HCM 6th TWSC
106: Gerrie Rd & Nichol Rd 15

Background - 2035
AM Peak Hour

Intersection												
Int Delay, s/veh	1.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	7	232	1	28	308	7	5	9	18	15	2	7
Future Vol, veh/h	7	232	1	28	308	7	5	9	18	15	2	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	10	0	0	3	0	25	33	100	8	0	17
Mvmt Flow	8	252	1	30	335	8	5	10	20	16	2	8
Major/Minor	Major1	Major2	Minor1	Minor2								
Conflicting Flow All	343	0	0	253	0	0	673	672	253	683	668	339
Stage 1	-	-	-	-	-	269	269	-	399	399	-	-
Stage 2	-	-	-	-	-	404	403	-	284	269	-	-
Critical Hdwy	4.1	-	-	4.1	-	7.35	6.83	7.2	7.18	6.5	6.37	-
Critical Hdwy Stg 1	-	-	-	-	-	6.35	5.83	-	6.18	5.5	-	-
Critical Hdwy Stg 2	-	-	-	-	-	6.35	5.83	-	6.18	5.5	-	-
Follow-up Hdwy	2.2	-	-	2.2	-	3.725	4.297	4.2	3.572	4	3.453	-
Pot Cap-1 Maneuver	1227	-	-	1324	-	340	340	597	355	382	670	-
Stage 1	-	-	-	-	-	689	634	-	615	606	-	-
Stage 2	-	-	-	-	-	580	550	-	710	690	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1227	-	-	1324	-	325	328	597	327	368	670	-
Mov Cap-2 Maneuver	-	-	-	-	-	325	328	-	327	368	-	-
Stage 1	-	-	-	-	-	683	629	-	610	589	-	-
Stage 2	-	-	-	-	-	555	535	-	671	684	-	-
Approach	EB	WB	NB	SB								
HCM Control Delay, s	0.2	0.6	13.9	14.9								
HCM LOS			B	B								
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	439	1227	-	-	1324	-	-	389				
HCM Lane V/C Ratio	0.079	0.006	-	-	0.023	-	-	0.067				
HCM Control Delay (s)	13.9	8	0	-	7.8	0	-	14.9				
HCM Lane LOS	B	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	0.3	0	-	-	0.1	-	-	0.2				

Lanes, Volumes, Timings
107: Gerrie Rd & Colborne St

Background - 2035
AM Peak Hour

	↖	→	↘	↙	←	↖	↙	↑	↗	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	34	177	94	17	153	28	40	54	9	58	114	49
Future Volume (vph)	34	177	94	17	153	28	40	54	9	58	114	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.958			0.981			0.988			0.970	
Fit Protected		0.994			0.996			0.981			0.987	
Satd. Flow (prot)	0	1692	0	0	1814	0	0	1656	0	0	1747	0
Fit Permitted		0.994			0.996			0.981			0.987	
Satd. Flow (perm)	0	1692	0	0	1814	0	0	1656	0	0	1747	0
Link Speed (k/h)		40			50			50			50	
Link Distance (m)		1021.3			906.6			376.2			1630.3	
Travel Time (s)		91.9			65.3			27.1			117.4	
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 (%)	10%	2%	15%	0%	3%	0%	21%	6%	0%	0%	8%	0%
Adj. Flow (vph)	37	192	102	18	166	30	43	59	10	63	124	53
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	331	0	0	214	0	0	112	0	0	240	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	44.8%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
107: Gerrie Rd & Colborne St

Background - 2035
AM Peak Hour

	↖	→	↘	↙	←	↖	↙	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	34	177	94	17	153	28	40	54	9	58	114	49
Future Volume (vph)	34	177	94	17	153	28	40	54	9	58	114	49
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
Hourly flow rate (vph)	37	192	102	18	166	30	43	59	10	63	124	53
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	331	214	112	240								
Volume Left (vph)	37	18	43	63								
Volume Right (vph)	102	30	10	53								
Hadj (s)	-0.05	-0.03	0.21	-0.01								
Departure Headway (s)	5.3	5.5	6.1	5.6								
Degree Utilization, x	0.48	0.32	0.19	0.37								
Capacity (veh/h)	645	608	517	590								
Control Delay (s)	13.1	11.0	10.5	11.9								
Approach Delay (s)	13.1	11.0	10.5	11.9								
Approach LOS	B	B	B	B								
Intersection Summary												
Delay				11.9								
Level of Service				B								
Intersection Capacity Utilization				44.8%				ICU Level of Service				A
Analysis Period (min)				15								

Intersection	
Intersection Delay, s/veh	12
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↕			↕			↔	
Traffic Vol, veh/h	34	177	94	17	153	28	40	54	9	58	114	49
Future Vol, veh/h	34	177	94	17	153	28	40	54	9	58	114	49
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, %	10	2	15	0	3	0	21	6	0	0	8	0
Mvmt Flow	37	192	102	18	166	30	43	59	10	63	124	53
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	13.3	11	10.7	11.7
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	39%	11%	9%	26%
Vol Thru, %	52%	58%	77%	52%
Vol Right, %	9%	31%	14%	22%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	103	305	198	221
LT Vol	40	34	17	58
Through Vol	54	177	153	114
RT Vol	9	94	28	49
Lane Flow Rate	112	332	215	240
Geometry Grp	1	1	1	1
Degree of Util (X)	0.193	0.487	0.322	0.367
Departure Headway (Hd)	6.2	5.283	5.389	5.505
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	577	680	665	651
Service Time	4.257	3.325	3.438	3.553
HCM Lane V/C Ratio	0.194	0.488	0.323	0.369
HCM Control Delay	10.7	13.3	11	11.7
HCM Lane LOS	B	B	B	B
HCM 95th-tile Q	0.7	2.7	1.4	1.7



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔			↕			↕			↔	
Traffic Volume (vph)	19	270	0	0	248	84	0	0	0	174	0	53
Future Volume (vph)	19	270	0	0	248	84	0	0	0	174	0	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	0.0		0.0		0.0		0.0	0.0	
Storage Lanes	1		0	0		0		0		0	0	
Taper Length (m)	60.0			7.5				7.5			7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fit Protected	0.950				0.966						0.968	
Satd. Flow (prot)	1687	1681	0	0	1769	0	0	1900	0	0	1706	0
Fit Permitted	0.515										0.776	
Satd. Flow (perm)	914	1681	0	0	1769	0	0	1900	0	0	1375	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					42						67	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		314.9			327.9			115.3			376.2	
Travel Time (s)		18.9			19.7			8.3			27.1	
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 (%)	7%	13%	0%	0%	4%	3%	0%	0%	0%	1%	0%	13%
Adj. Flow (vph)	21	293	0	0	270	91	0	0	0	189	0	58
Shared Lane Traffic (%)												
Lane Group Flow (vph)	21	293	0	0	361	0	0	0	0	0	247	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	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	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA			NA			Perm			NA	
Protected Phases		2			6			4			8	

Lanes, Volumes, Timings
108: Chapel St/Gerrie Rd & East Mill St

Background - 2035
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2			6			4			8		
Detector Phase	2	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	35.0	35.0		35.0	35.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	42.3	42.3		42.3	42.3		24.7	24.7		24.7	24.7	
Total Split (s)	45.2	45.2		45.2	45.2		24.8	24.8		24.8	24.8	
Total Split (%)	64.6%	64.6%		64.6%	64.6%		35.4%	35.4%		35.4%	35.4%	
Maximum Green (s)	37.9	37.9		37.9	37.9		18.1	18.1		18.1	18.1	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.3	3.3		3.3	3.3		2.7	2.7		2.7	2.7	
Lost Time Adjust (s)	-3.3	-3.3			-3.3			-2.7			-2.7	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		Min	Min		None	None		None	None	
Walk Time (s)	23.0	23.0		23.0	23.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0		7.0	7.0		7.0	7.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	38.4	38.4		38.4	38.4						16.5	
Actuated g/C Ratio	0.61	0.61		0.61	0.61						0.26	
v/c Ratio	0.04	0.29		0.33	0.33						0.60	
Control Delay	6.3	7.3		6.8	6.8						21.2	
Queue Delay	0.0	0.0		0.0	0.0						0.0	
Total Delay	6.3	7.3		6.8	6.8						21.2	
LOS	A	A		A	A						C	
Approach Delay		7.3		6.8	6.8						21.2	
Approach LOS		A		A	A						C	

Intersection Summary

Area Type:	Other
Cycle Length:	70
Actuated Cycle Length:	62.9
Natural Cycle:	70
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.60
Intersection Signal Delay:	10.8
Intersection Capacity Utilization:	48.7%
Analysis Period (min):	15
Intersection LOS:	B
ICU Level of Service:	A

Splits and Phases: 108: Chapel St/Gerrie Rd & East Mill St



Queues
108: Chapel St/Gerrie Rd & East Mill St

Background - 2035
AM Peak Hour

Lane Group	EBL	EBT	WBT	SBT
Lane Group Flow (vph)	21	293	361	247
v/c Ratio	0.04	0.29	0.33	0.60
Control Delay	6.3	7.3	6.8	21.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	6.3	7.3	6.8	21.2
Queue Length 50th (m)	0.9	14.6	15.9	18.5
Queue Length 95th (m)	3.7	31.0	34.7	39.5
Internal Link Dist (m)		290.9	303.9	352.2
Turn Bay Length (m)	30.0			
Base Capacity (vph)	600	1104	1176	500
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.04	0.27	0.31	0.49

Intersection Summary

HCM Signalized Intersection Capacity Analysis
108: Chapel St/Gerrie Rd & East Mill St

Background - 2035
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔	↔		↔		↔	↔	↔
Traffic Volume (vph)	19	270	0	0	248	84	0	0	0	174	0	53
Future Volume (vph)	19	270	0	0	248	84	0	0	0	174	0	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0					4.0		
Lane Util. Factor	1.00	1.00			1.00					1.00		
Fr't	1.00	1.00			0.97					0.97		
Flt Protected	0.95	1.00			1.00					0.96		
Satd. Flow (prot)	1687	1681			1769					1707		
Flt Permitted	0.52	1.00			1.00					0.78		
Satd. Flow (perm)	915	1681			1769					1376		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	21	293	0	0	270	91	0	0	0	189	0	58
RTOR Reduction (vph)	0	0	0	0	16	0	0	0	0	0	49	0
Lane Group Flow (vph)	21	293	0	0	345	0	0	0	0	198	0	0
Heavy Vehicles (%)	7%	13%	0%	0%	4%	3%	0%	0%	0%	1%	0%	13%
Turn Type	Perm	NA			NA					Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	35.1	35.1			35.1						13.8	
Effective Green, g (s)	38.4	38.4			38.4						16.5	
Actuated g/C Ratio	0.61	0.61			0.61						0.26	
Clearance Time (s)	7.3	7.3			7.3						6.7	
Vehicle Extension (s)	3.0	3.0			3.0						3.0	
Lane Grp Cap (vph)	558	1026			1079						360	
v/s Ratio Prot		0.17			c0.19							
v/s Ratio Perm	0.02										c0.14	
v/c Ratio	0.04	0.29			0.32						0.55	
Uniform Delay, d1	4.9	5.8			5.9						20.0	
Progression Factor	1.00	1.00			1.00						1.00	
Incremental Delay, d2	0.0	0.2			0.2						1.7	
Delay (s)	4.9	5.9			6.1						21.7	
Level of Service	A	A			A						C	
Approach Delay (s)		5.9			6.1		0.0				21.7	
Approach LOS		A			A		A				C	
Intersection Summary												
HCM 2000 Control Delay	10.2			HCM 2000 Level of Service			B					
HCM 2000 Volume to Capacity ratio	0.39											
Actuated Cycle Length (s)	62.9			Sum of lost time (s)			8.0					
Intersection Capacity Utilization	48.7%			ICU Level of Service			A					
Analysis Period (min)	15											
c Critical Lane Group												

HCM 6th Signalized Intersection Summary
108: Chapel St/Gerrie Rd & East Mill St

Background - 2035
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔	↔		↔		↔	↔	↔
Traffic Volume (veh/h)	19	270	0	0	248	84	0	0	0	174	0	53
Future Volume (veh/h)	19	270	0	0	248	84	0	0	0	174	0	53
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1796	1707	1900	1900	1841	1856	1900	1900	1900	1885	1900	1707
Adj Flow Rate, veh/h	21	293	0	0	270	91	0	0	0	189	0	58
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
Percent Heavy Veh, %	7	13	0	0	4	3	0	0	0	1	0	13
Cap, veh/h	630	1064	0	0	821	277	0	468	0	380	2	86
Arrive On Green	0.62	0.62	0.00	0.00	0.62	0.57	0.00	0.00	0.00	0.20	0.00	0.20
Sat Flow, veh/h	980	1707	0	0	1317	444	0	1900	0	1124	7	347
Grp Volume(v), veh/h	21	293	0	0	0	361	0	0	0	247	0	0
Grp Sat Flow(s),veh/h/ln	980	1707	0	0	0	1761	0	1900	0	1478	0	0
Q Serve(g_s), s	0.6	4.8	0.0	0.0	0.0	6.1	0.0	0.0	0.0	9.8	0.0	0.0
Cycle Q Clear(g_c), s	6.8	4.8	0.0	0.0	0.0	6.1	0.0	0.0	0.0	9.8	0.0	0.0
Prop In Lane	1.00		0.00	0.00		0.25	0.00		0.00	0.77		0.23
Lane Grp Cap(c), veh/h	630	1064	0	0	0	1098	0	468	0	403	0	0
V/C Ratio(X)	0.03	0.28	0.00	0.00	0.00	0.33	0.00	0.00	0.00	0.61	0.00	0.00
Avail Cap(c_a), veh/h	676	1145	0	0	0	1181	0	643	0	539	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.1	5.3	0.0	0.0	0.0	5.7	0.0	0.0	0.0	22.4	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	0.0	0.2	0.0	0.0	0.0	1.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	2.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.2	5.4	0.0	0.0	0.0	5.9	0.0	0.0	0.0	23.9	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	A	A	A	C	A	A
Approach Vol, veh/h	314			361			0			247		
Approach Delay, s/veh	5.5			5.9			0.0			23.9		
Approach LOS	A			A						C		
Timer - Assigned Phs												
Phs Duration (G+Y+Rc), s	42.3			19.1			42.3			19.1		
Change Period (Y+Rc), s	* 7.3			* 6.7			* 7.3			* 6.7		
Max Green Setting (Gmax), s	* 38			* 18			* 38			* 18		
Max Q Clear Time (g_c+1), s	8.8			0.0			8.1			11.8		
Green Ext Time (p_c), s	2.3			0.0			2.8			0.8		
Intersection Summary												
HCM 6th Ctrl Delay	10.6											
HCM 6th LOS	B											
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Lanes, Volumes, Timings
201: Irvine St & Cachet Clayton

Background - 2035
AM Peak Hour

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	44	71	22	95	77	15
Future Volume (vph)	44	71	22	95	77	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.917				0.978	
Fit Protected	0.981			0.991		
Satd. Flow (prot)	1709	0	0	1853	1827	0
Fit Permitted	0.981			0.991		
Satd. Flow (perm)	1709	0	0	1853	1827	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	141.5			246.8	201.5	
Travel Time (s)	10.2			17.8	14.5	
Confl. Peds. (#/hr)			5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	2%	2%	0%
Adj. Flow (vph)	48	77	24	103	84	16
Shared Lane Traffic (%)						
Lane Group Flow (vph)	125	0	0	127	100	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	26.4%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis
201: Irvine St & Cachet Clayton

Background - 2035
AM Peak Hour

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	44	71	22	95	77	15
Future Volume (Veh/h)	44	71	22	95	77	15
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	48	77	24	103	84	16
Pedestrians	5					
Lane Width (m)	3.6					
Walking Speed (m/s)	1.2					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	248	97	105			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	248	97	105			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	93	92	98			
cM capacity (veh/h)	730	961	1493			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	125	127	100
Volume Left	48	24	0
Volume Right	77	0	16
eSH	857	1493	1700
Volume to Capacity	0.15	0.02	0.06
Queue Length 95th (m)	4.1	0.4	0.0
Control Delay (s)	9.9	1.5	0.0
Lane LOS	A	A	
Approach Delay (s)	9.9	1.5	0.0
Approach LOS	A		

Intersection Summary

Average Delay		4.1	
Intersection Capacity Utilization	26.4%	ICU Level of Service	A
Analysis Period (min)		15	

Intersection						
Int Delay, s/veh	4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔			↕	↕	
Traffic Vol, veh/h	44	71	22	95	77	15
Future Vol, veh/h	44	71	22	95	77	15
Conflicting Peds, #/hr	0	0	5	0	0	5
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, %	0	0	0	2	2	0
Mvmt Flow	48	77	24	103	84	16
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	248	97	105	0	-	0
Stage 1	97	-	-	-	-	-
Stage 2	151	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	745	965	1499	-	-	-
Stage 1	932	-	-	-	-	-
Stage 2	882	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	726	961	1493	-	-	-
Mov Cap-2 Maneuver	726	-	-	-	-	-
Stage 1	912	-	-	-	-	-
Stage 2	878	-	-	-	-	-
Approach	EB	NB	SB			
HCM Control Delay, s	9.9	1.4	0			
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1493	-	855	-	-	
HCM Lane V/C Ratio	0.016	-	0.146	-	-	
HCM Control Delay (s)	7.5	0	9.9	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0	-	0.5	-	-	

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↕	↕		↕
Traffic Volume (vph)	67	234	145	53	337	204
Future Volume (vph)	67	234	145	53	337	204
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.895	0.964				
Fit Protected	0.989					0.970
Satd. Flow (prot)	1631	0	1817	0	0	1825
Fit Permitted	0.989					0.970
Satd. Flow (perm)	1631	0	1817	0	0	1825
Link Speed (k/h)	50	50		50		
Link Distance (m)	120.4	303.1		136.1		
Travel Time (s)	8.7	21.8		9.8		
Confl. Peds. (#/hr)				3	3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	7%	2%	0%	3%	1%	1%
Adj. Flow (vph)	73	254	158	58	366	222
Shared Lane Traffic (%)						
Lane Group Flow (vph)	327	0	216	0	0	588
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6	0.0		0.0		
Link Offset(m)	0.0	0.0		0.0		
Crosswalk Width(m)	4.8	4.8		4.8		
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	15	15	25	
Sign Control	Stop	Free		Free		
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	68.7%			ICU Level of Service C		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis
101: Geddes St & James St

Background - 2035
PM Peak Hour

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Volume (veh/h)	67	234	145	53	337	204
Future Volume (Veh/h)	67	234	145	53	337	204
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	73	254	158	58	366	222
Pedestrians	3					
Lane Width (m)	3.6					
Walking Speed (m/s)	1.2					
Percent Blockage	0					
Right turn flare (veh)						
Median type			None		None	
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1144	190			219	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1144	190			219	
tC, single (s)	6.5	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.6	3.3			2.2	
p0 queue free %	54	70			73	
cM capacity (veh/h)	157	850			1353	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	327	216	588			
Volume Left	73	0	366			
Volume Right	254	58	0			
eSH	428	1700	1353			
Volume to Capacity	0.76	0.13	0.27			
Queue Length 95th (m)	51.4	0.0	8.8			
Control Delay (s)	35.8	0.0	6.4			
Lane LOS	E		A			
Approach Delay (s)	35.8	0.0	6.4			
Approach LOS	E		A			
Intersection Summary						
Average Delay			13.7			
Intersection Capacity Utilization			68.7%		ICU Level of Service	C
Analysis Period (min)			15			

HCM 6th TWSC
101: Geddes St & James St

Background - 2035
PM Peak Hour

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	67	234	145	53	337	204
Future Vol, veh/h	67	234	145	53	337	204
Conflicting Peds, #/hr	0	0	0	3	3	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	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	7	2	0	3	1	1
Mvmt Flow	73	254	158	58	366	222
Intersection						
Int Delay, s/veh	14.2					
Major/Minor						
Conflicting Flow All	Minor1	Major1	Major2			
Stage 1	190	-	-	-	-	-
Stage 2	954	-	-	-	-	-
Critical Hdwy	6.47	6.22	-	-	4.11	-
Critical Hdwy Stg 1	5.47	-	-	-	-	-
Critical Hdwy Stg 2	5.47	-	-	-	-	-
Follow-up Hdwy	3.563	3.318	-	-	2.209	-
Pot Cap-1 Maneuver	216	852	-	-	1356	-
Stage 1	830	-	-	-	-	-
Stage 2	366	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	149	850	-	-	1353	-
Mov Cap-2 Maneuver	149	-	-	-	-	-
Stage 1	828	-	-	-	-	-
Stage 2	253	-	-	-	-	-
Approach						
HCM Control Delay, s	WB	NB	SB			
HCM LOS	E	0	5.4			
Minor Lane/Major Mvmt						
Capacity (veh/h)	NBT	NBRWBLn1	SBL	SBT		
HCM Lane V/C Ratio	-	-	415	1353	-	-
HCM Control Delay (s)	-	-	0.788	0.271	-	-
HCM Lane LOS	-	-	E	A	A	A
HCM 95th %tile Q(veh)	-	-	6.9	1.1	-	-

Lanes, Volumes, Timings
102: Irvine St & Woolwich St/Nichol Rd 15

Background - 2035
PM Peak Hour

	↖	→	↘	↙	←	↖	↙	↘	↙	↘	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	5	310	75	65	228	0	69	2	68	6	7	4
Future Volume (vph)	5	310	75	65	228	0	69	2	68	6	7	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.974						0.934			0.972	
Fit Protected		0.999			0.989			0.976			0.982	
Satd. Flow (prot)	0	1737	0	0	1824	0	0	1715	0	0	1592	0
Fit Permitted		0.999			0.989			0.976			0.982	
Satd. Flow (perm)	0	1737	0	0	1824	0	0	1715	0	0	1592	0
Link Speed (k/h)		40			40			50			50	
Link Distance (m)		556.2			1016.6			220.4			704.4	
Travel Time (s)		50.1			91.5			15.9			50.7	
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%	2%	25%	3%	3%	0%	0%	0%	2%	0%	33%	0%
Adj. Flow (vph)	5	337	82	71	248	0	75	2	74	7	8	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	424	0	0	319	0	0	151	0	0	19	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	59.0%
Analysis Period (min)	15
	ICU Level of Service B

HCM Unsignalized Intersection Capacity Analysis
102: Irvine St & Woolwich St/Nichol Rd 15

Background - 2035
PM Peak Hour

	↖	→	↘	↙	←	↖	↙	↘	↙	↘	↙	↘
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	5	310	75	65	228	0	69	2	68	6	7	4
Future Volume (Veh/h)	5	310	75	65	228	0	69	2	68	6	7	4
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	5	337	82	71	248	0	75	2	74	7	8	4
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	248			419			786	778	378	853	819	248
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	248			419			786	778	378	853	819	248
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.8	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.3	3.3
p0 queue free %	100			94			74	99	89	97	97	99
cM capacity (veh/h)	1330			1135			288	308	669	236	259	796

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	424	319	151	19
Volume Left	5	71	75	7
Volume Right	82	0	74	4
eSH	1330	1135	400	290
Volume to Capacity	0.00	0.06	0.38	0.07
Queue Length 95th (m)	0.1	1.6	13.8	1.7
Control Delay (s)	0.1	2.3	19.4	18.3
Lane LOS	A	A	C	C
Approach Delay (s)	0.1	2.3	19.4	18.3
Approach LOS			C	C

Intersection Summary	
Average Delay	4.5
Intersection Capacity Utilization	59.0%
Analysis Period (min)	15
	ICU Level of Service B

Intersection												
Int Delay, s/veh	4.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↕		↕		↕		↕		↕		↕	
Traffic Vol, veh/h	5	310	75	65	228	0	69	2	68	6	7	4
Future Vol, veh/h	5	310	75	65	228	0	69	2	68	6	7	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	2	25	3	3	0	0	0	2	0	33	0
Mvmt Flow	5	337	82	71	248	0	75	2	74	7	8	4

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	248	0	419	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	4.1	-	4.13	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	2.2	-	2.227	-
Pot Cap-1 Maneuver	1330	-	1135	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	1330	-	1135	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	1.9	19.5	17.7
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	398	1330	-	-	1135	-	-	301
HCM Lane V/C Ratio	0.38	0.004	-	-	0.062	-	-	0.061
HCM Control Delay (s)	19.5	7.7	0	-	8.4	0	-	17.7
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	1.7	0	-	-	0.2	-	-	0.2

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↕	↕	↕	↕	↕	↕
Traffic Volume (vph)	20	12	12	161	111	27
Future Volume (vph)	20	12	12	161	111	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.950		0.974			
Fit Protected	0.970			0.997		
Satd. Flow (prot)	1751	0	0	1860	1765	0
Fit Permitted	0.970			0.997		
Satd. Flow (perm)	1751	0	0	1860	1765	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	361.7			908.3	227.8	
Travel Time (s)	26.0			65.4	16.4	
Confl. Peds. (#/hr)			5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	2%	6%	0%
Adj. Flow (vph)	22	13	13	175	121	29
Shared Lane Traffic (%)						
Lane Group Flow (vph)	35	0	0	188	150	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25	15		
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	28.4%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
103: Irvine St & Bricker Ave

Background - 2035
PM Peak Hour

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	20	12	12	161	111	27
Future Volume (Veh/h)	20	12	12	161	111	27
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	13	13	175	121	29
Pedestrians	5					
Lane Width (m)	3.6					
Walking Speed (m/s)	1.2					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	342	140	155			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	342	140	155			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	99	99			
cM capacity (veh/h)	650	909	1432			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	35	188	150			
Volume Left	22	13	0			
Volume Right	13	0	29			
eSH	727	1432	1700			
Volume to Capacity	0.05	0.01	0.09			
Queue Length 95th (m)	1.2	0.2	0.0			
Control Delay (s)	10.2	0.6	0.0			
Lane LOS	B	A				
Approach Delay (s)	10.2	0.6	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay			1.3			
Intersection Capacity Utilization		28.4%		ICU Level of Service	A	
Analysis Period (min)		15				

HCM 6th TWSC
103: Irvine St & Bricker Ave

Background - 2035
PM Peak Hour

Intersection						
Int Delay, s/veh	1.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	20	12	12	161	111	27
Future Vol, veh/h	20	12	12	161	111	27
Conflicting Peds, #/hr	0	0	5	0	0	5
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, %	0	0	0	2	6	0
Mvmt Flow	22	13	13	175	121	29
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	342	141	155	0	-	0
Stage 1	141	-	-	-	-	-
Stage 2	201	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	658	912	1438	-	-	-
Stage 1	891	-	-	-	-	-
Stage 2	838	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	646	908	1432	-	-	-
Mov Cap-2 Maneuver	646	-	-	-	-	-
Stage 1	879	-	-	-	-	-
Stage 2	835	-	-	-	-	-
Approach	EB	NB	SB			
HCM Control Delay, s	10.2	0.5	0			
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1432	-	724	-	-	
HCM Lane V/C Ratio	0.009	-	0.048	-	-	
HCM Control Delay (s)	7.5	0	10.2	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0	-	0.2	-	-	

Lanes, Volumes, Timings
104: Irvine St & Colborne St

Background - 2035
PM Peak Hour

	↖	→	↘	↙	←	↖	↙	↑	↘	↙	↓	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	39	280	4	8	237	89	2	87	20	77	70	21
Future Volume (vph)	39	280	4	8	237	89	2	87	20	77	70	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.998			0.964			0.975			0.983	
Flt Protected		0.994			0.999			0.999			0.978	
Satd. Flow (prot)	0	1869	0	0	1781	0	0	1851	0	0	1802	0
Flt Permitted		0.994			0.999			0.999			0.978	
Satd. Flow (perm)	0	1869	0	0	1781	0	0	1851	0	0	1802	0
Link Speed (k/h)		40			40			40			40	
Link Distance (m)		619.9			1021.3			327.0			274.5	
Travel Time (s)		55.8			91.9			29.4			24.7	
Confl. Peds. (#/hr)	6					6						
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%	1%	0%	0%	2%	5%	0%	0%	0%	3%	0%	0%
Adj. Flow (vph)	42	304	4	9	258	97	2	95	22	84	76	23
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	350	0	0	364	0	0	119	0	0	183	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Right	Left	Left	Right	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	57.6%				ICU Level of Service B							
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis
104: Irvine St & Colborne St

Background - 2035
PM Peak Hour

	↖	→	↘	↙	←	↖	↙	↑	↘	↙	↓	↘
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	39	280	4	8	237	89	2	87	20	77	70	21
Future Volume (vph)	39	280	4	8	237	89	2	87	20	77	70	21
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
Hourly flow rate (vph)	42	304	4	9	258	97	2	95	22	84	76	23
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	350	364	119	183								
Volume Left (vph)	42	9	2	84								
Volume Right (vph)	4	97	22	23								
Hadj (s)	0.03	-0.11	-0.11	0.04								
Departure Headway (s)	5.5	5.3	6.1	6.1								
Degree Utilization, x	0.53	0.54	0.20	0.31								
Capacity (veh/h)	621	641	494	520								
Control Delay (s)	14.5	14.3	10.7	11.9								
Approach Delay (s)	14.5	14.3	10.7	11.9								
Approach LOS	B	B	B	B								
Intersection Summary												
Delay	13.5											
Level of Service	B											
Intersection Capacity Utilization	57.6%				ICU Level of Service				B			
Analysis Period (min)	15											

HCM 6th AWSC
104: Irvine St & Colborne St

Background - 2035
PM Peak Hour

Intersection	
Intersection Delay, s/veh	13.4
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	39	280	4	8	237	89	2	87	20	77	70	21
Future Vol, veh/h	39	280	4	8	237	89	2	87	20	77	70	21
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	1	0	0	2	5	0	0	0	3	0	0
Mvmt Flow	42	304	4	9	258	97	2	95	22	84	76	23
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	14.4	14	10.7	11.9
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	12%	2%	46%
Vol Thru, %	80%	87%	71%	42%
Vol Right, %	18%	1%	27%	12%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	109	323	334	168
LT Vol	2	39	8	77
Through Vol	87	280	237	70
RT Vol	20	4	89	21
Lane Flow Rate	118	351	363	183
Geometry Grp	1	1	1	1
Degree of Util (X)	0.2	0.527	0.527	0.309
Departure Headway (Hd)	6.066	5.4	5.225	6.082
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	588	664	686	588
Service Time	4.147	3.459	3.285	4.155
HCM Lane V/C Ratio	0.201	0.529	0.529	0.311
HCM Control Delay	10.7	14.4	14	11.9
HCM Lane LOS	B	B	B	B
HCM 95th-tile Q	0.7	3.1	3.1	1.3

Lanes, Volumes, Timings
105: Irvine St & East Mill St

Background - 2035
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	43	308	1	1	313	55	1	0	0	42	0	34
Future Volume (vph)	43	308	1	1	313	55	1	0	0	42	0	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt					0.980							0.940
Fit Protected		0.994						0.950				0.973
Satd. Flow (prot)	0	1872	0	0	1846	0	0	1805	0	0	0	1738
Fit Permitted		0.994						0.950				0.973
Satd. Flow (perm)	0	1872	0	0	1846	0	0	1805	0	0	0	1738
Link Speed (k/h)		40			40			40				40
Link Distance (m)		212.3			172.2			54.2				327.0
Travel Time (s)		19.1			15.5			4.9				29.4
Confl. Peds. (#/hr)	5					5						
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%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	47	335	1	1	340	60	1	0	0	46	0	37
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	383	0	0	401	0	0	1	0	0	83	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0				0.0
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		4.8			4.8			4.8				4.8
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop				Stop

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	52.5%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
105: Irvine St & East Mill St

Background - 2035
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	43	308	1	1	313	55	1	0	0	42	0	34
Future Volume (Veh/h)	43	308	1	1	313	55	1	0	0	42	0	34
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
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
Hourly flow rate (vph)	47	335	1	1	340	60	1	0	0	46	0	37
Pedestrians	5											
Lane Width (m)	3.6											
Walking Speed (m/s)	1.2											
Percent Blockage	0											
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	405	336			838		836	336	806	807	375	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	405	336			838		836	336	806	807	375	
tC, single (s)	4.1	4.1			7.1		6.5	6.2	7.1	6.5	6.2	
tC, 2 stage (s)												
tF (s)	2.2	2.2			3.5		4.0	3.3	3.5	4.0	3.3	
p0 queue free %	96	100			100		100	84	100	95		
cM capacity (veh/h)	1160	1235			263		291	711	291	303	673	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	383	401	1	83								
Volume Left	47	1	1	46								
Volume Right	1	60	0	37								
eSH	1160	1235	263	389								
Volume to Capacity	0.04	0.00	0.00	0.21								
Queue Length 95th (m)	1.0	0.0	0.1	6.4								
Control Delay (s)	1.4	0.0	18.8	16.7								
Lane LOS	A	A	C	C								
Approach Delay (s)	1.4	0.0	18.8	16.7								
Approach LOS			C	C								
Intersection Summary												
Average Delay	2.2											
Intersection Capacity Utilization	52.5%			ICU Level of Service			A					
Analysis Period (min)	15											

HCM 6th TWSC
105: Irvine St & East Mill St

Background - 2035
PM Peak Hour

Intersection												
Int Delay, s/veh	2.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	43	308	1	1	313	55	1	0	0	42	0	34
Future Vol, veh/h	43	308	1	1	313	55	1	0	0	42	0	34
Conflicting Peds, #/hr	5	0	0	0	0	5	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	1	0	0	1	0	0	0	0	0	0	0
Mvmt Flow	47	335	1	1	340	60	1	0	0	46	0	37
Major/Minor	Major1	Major2	Minor1	Minor2								
Conflicting Flow All	405	0	0	336	0	0	821	837	336	807	807	375
Stage 1	-	-	-	-	-	-	430	430	-	377	377	-
Stage 2	-	-	-	-	-	-	391	407	-	430	430	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1165	-	-	1235	-	-	296	305	711	302	317	676
Stage 1	-	-	-	-	-	-	607	587	-	649	619	-
Stage 2	-	-	-	-	-	-	637	601	-	607	587	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1160	-	-	1235	-	-	269	288	711	289	300	673
Mov Cap-2 Maneuver	-	-	-	-	-	-	269	288	-	289	300	-
Stage 1	-	-	-	-	-	-	577	558	-	614	616	-
Stage 2	-	-	-	-	-	-	601	598	-	577	558	-
Approach	EB	WB	NB	SB								
HCM Control Delay, s	1	0	18.4	16.8								
HCM LOS			C	C								
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	269	1160	-	-	1235	-	-	388				
HCM Lane V/C Ratio	0.004	0.04	-	-	0.001	-	-	0.213				
HCM Control Delay (s)	18.4	8.2	0	-	7.9	0	-	16.8				
HCM Lane LOS	C	A	A	-	A	A	-	C				
HCM 95th %tile Q(veh)	0	0.1	-	-	0	-	-	0.8				

Lanes, Volumes, Timings
106: Gerrie Rd & Nichol Rd 15

Background - 2035
PM Peak Hour

	↖	→	↘	↙	←	↖	↙	↑	↘	↙	↓	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	14	370	0	36	286	9	2	1	24	9	0	5
Future Volume (vph)	14	370	0	36	286	9	2	1	24	9	0	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.996			0.879			0.955	
Fit Protected		0.998			0.995			0.997			0.968	
Satd. Flow (prot)	0	1878	0	0	1867	0	0	1665	0	0	1621	0
Fit Permitted		0.998			0.995			0.997			0.968	
Satd. Flow (perm)	0	1878	0	0	1867	0	0	1665	0	0	1621	0
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		1016.6			999.6			1630.3			439.6	
Travel Time (s)		45.7			45.0			117.4			31.7	
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%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	25%
Adj. Flow (vph)	15	402	0	39	311	10	2	1	26	10	0	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	417	0	0	360	0	0	29	0	0	15	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	41.4%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
106: Gerrie Rd & Nichol Rd 15

Background - 2035
PM Peak Hour

	↖	→	↘	↙	←	↖	↙	↑	↘	↙	↓	↘
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	14	370	0	36	286	9	2	1	24	9	0	5
Future Volume (Veh/h)	14	370	0	36	286	9	2	1	24	9	0	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	15	402	0	39	311	10	2	1	26	10	0	5
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	321			402			831	831	402	852	826	316
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	321			402			831	831	402	852	826	316
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.5
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.5
p0 queue free %	99			97			99	100	96	96	100	99
cM capacity (veh/h)	1250			1168			279	294	653	260	296	674

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	417	360	29	15
Volume Left	15	39	2	10
Volume Right	0	10	26	5
eSH	1250	1168	575	327
Volume to Capacity	0.01	0.03	0.05	0.05
Queue Length 95th (m)	0.3	0.8	1.3	1.1
Control Delay (s)	0.4	1.2	11.6	16.5
Lane LOS	A	A	B	C
Approach Delay (s)	0.4	1.2	11.6	16.5
Approach LOS			B	C

Intersection Summary	
Average Delay	1.4
Intersection Capacity Utilization	41.4%
ICU Level of Service	A
Analysis Period (min)	15

Intersection												
Int Delay, s/veh	1.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔		↔		↔		↔		↔		↔	
Traffic Vol, veh/h	14	370	0	36	286	9	2	1	24	9	0	5
Future Vol, veh/h	14	370	0	36	286	9	2	1	24	9	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	1	0	0	1	0	0	0	0	0	0	25
Mvmt Flow	15	402	0	39	311	10	2	1	26	10	0	5

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	321	0	0	402
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	4.1	-	-	4.1
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	2.2	-	-	2.2
Pot Cap-1 Maneuver	1250	-	-	1168
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	1250	-	-	1168
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.9	11.7	16.2
HCM LOS			B	C


Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	569	1250	-	-	1168	-	-	336
HCM Lane V/C Ratio	0.052	0.012	-	-	0.034	-	-	0.045
HCM Control Delay (s)	11.7	7.9	0	-	8.2	0	-	16.2
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.2	0	-	-	0.1	-	-	0.1

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	53	224	66	17	259	62	99	85	29	56	65	48
Future Volume (vph)	53	224	66	17	259	62	99	85	29	56	65	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.974		0.975		0.981		0.962		0.984		0.962	
Fit Protected	0.992		0.998		0.977		0.984		0.977		0.984	
Satd. Flow (prot)	0	1784	0	0	1805	0	0	1615	0	0	1707	0
Fit Permitted	0.992		0.998		0.977		0.984		0.977		0.984	
Satd. Flow (perm)	0	1784	0	0	1805	0	0	1615	0	0	1707	0
Link Speed (k/h)	40		50		50		50		50		50	
Link Distance (m)	1021.3		906.6		376.2		1630.3		1630.3		1630.3	
Travel Time (s)	91.9		65.3		27.1		117.4		117.4		117.4	
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 (%)	5%	0%	11%	0%	2%	5%	15%	11%	10%	0%	11%	4%
Adj. Flow (vph)	58	243	72	18	282	67	108	92	32	61	71	52
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	373	0	0	367	0	0	232	0	0	184	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	0.0		0.0		0.0		0.0		0.0		0.0	
Link Offset(m)	0.0		0.0		0.0		0.0		0.0		0.0	
Crosswalk Width(m)	4.8		4.8		4.8		4.8		4.8		4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15		25		15		25		15	
Sign Control	Stop		Stop		Stop		Stop		Stop		Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	60.4%
ICU Level of Service	B
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
107: Gerrie Rd & Colborne St

Background - 2035
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↕			↕			↕			↕		
Sign Control	Stop			Stop			Stop			Stop		
Traffic Volume (vph)	53	224	66	17	259	62	99	85	29	56	65	48
Future Volume (vph)	53	224	66	17	259	62	99	85	29	56	65	48
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
Hourly flow rate (vph)	58	243	72	18	282	67	108	92	32	61	71	52
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	373	367	232	184								
Volume Left (vph)	58	18	108	61								
Volume Right (vph)	72	67	32	52								
Hadj (s)	-0.04	-0.06	0.23	-0.01								
Departure Headway (s)	6.1	6.1	6.9	6.8								
Degree Utilization, x	0.63	0.62	0.44	0.35								
Capacity (veh/h)	555	548	463	449								
Control Delay (s)	19.0	18.6	15.3	13.4								
Approach Delay (s)	19.0	18.6	15.3	13.4								
Approach LOS	C	C	C	B								
Intersection Summary												
Delay				17.2								
Level of Service				C								
Intersection Capacity Utilization			60.4%	ICU Level of Service				B				
Analysis Period (min)				15								

HCM 6th AWSC
107: Gerrie Rd & Colborne St

Background - 2035
PM Peak Hour

Intersection												
Intersection Delay, s/veh	17.1											
Intersection LOS	C											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	53	224	66	17	259	62	99	85	29	56	65	48
Future Vol, veh/h	53	224	66	17	259	62	99	85	29	56	65	48
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, %	5	0	11	0	2	5	15	11	10	0	11	4
Mvmt Flow	58	243	72	18	282	67	108	92	32	61	71	52
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Approach	EB	WB		NB		SB						
Opposing Approach	WB	EB		SB		NB						
Opposing Lanes	1	1		1		1						
Conflicting Approach Left	SB	NB		EB		WB						
Conflicting Lanes Left	1	1		1		1						
Conflicting Approach Right	NB	SB		WB		EB						
Conflicting Lanes Right	1	1		1		1						
HCM Control Delay	19	18.1		15.3		13.2						
HCM LOS	C	C		C		B						
Lane	NBLn1	EBLn1	WBLn1	SBLn1								
Vol Left, %	46%	15%	5%	33%								
Vol Thru, %	40%	65%	77%	38%								
Vol Right, %	14%	19%	18%	28%								
Sign Control	Stop	Stop	Stop	Stop								
Traffic Vol by Lane	213	343	338	169								
LT Vol	99	53	17	56								
Through Vol	85	224	259	65								
RT Vol	29	66	62	48								
Lane Flow Rate	232	373	367	184								
Geometry Grp	1	1	1	1								
Degree of Util (X)	0.442	0.63	0.612	0.34								
Departure Headway (Hd)	6.869	6.08	5.999	6.661								
Convergence, Y/N	Yes	Yes	Yes	Yes								
Cap	523	593	599	538								
Service Time	4.934	4.136	4.057	4.732								
HCM Lane V/C Ratio	0.444	0.629	0.613	0.342								
HCM Control Delay	15.3	19	18.1	13.2								
HCM Lane LOS	C	C	C	B								
HCM 95th-tile Q	2.2	4.4	4.1	1.5								

Lanes, Volumes, Timings
108: Chapel St/Gerrie Rd & East Mill St

Background - 2035
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔		↔	↔		↔	↔	
Traffic Volume (vph)	44	335	0	0	314	169	0	0	0	122	0	26
Future Volume (vph)	44	335	0	0	314	169	0	0	0	122	0	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	0		0	0		0	0		0
Taper Length (m)	60.0			7.5		7.5		7.5		7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor											1.00	
Frt					0.953						0.977	
Flt Protected	0.950										0.960	
Satd. Flow (prot)	1805	1881	0	0	1804	0	0	1900	0	0	1761	0
Flt Permitted	0.422										0.763	
Satd. Flow (perm)	802	1881	0	0	1804	0	0	1900	0	0	1399	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					67						67	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		314.9			327.9			115.3			376.2	
Travel Time (s)		18.9			19.7			8.3			27.1	
Confl. Peds. (#/hr)							1					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%	1%	0%	0%	0%	1%	0%	0%	0%	1%	0%	0%
Adj. Flow (vph)	48	364	0	0	341	184	0	0	0	133	0	28
Shared Lane Traffic (%)												
Lane Group Flow (vph)	48	364	0	0	525	0	0	0	0	0	161	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	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	
Detector 1 Queue (s)	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	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
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	

Lanes, Volumes, Timings
108: Chapel St/Gerrie Rd & East Mill St

Background - 2035
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA			NA						Perm	NA
Protected Phases		2			6			4			8	8
Permitted Phases	2			6			4			8		
Detector Phase	2	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	35.0	35.0		35.0	35.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	42.3	42.3		42.3	42.3		24.7	24.7		24.7	24.7	
Total Split (s)	45.2	45.2		45.2	45.2		24.8	24.8		24.8	24.8	
Total Split (%)	64.6%	64.6%		64.6%	64.6%		35.4%	35.4%		35.4%	35.4%	
Maximum Green (s)	37.9	37.9		37.9	37.9		18.1	18.1		18.1	18.1	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.3	3.3		3.3	3.3		2.7	2.7		2.7	2.7	
Lost Time Adjust (s)	-3.3	-3.3			-3.3			-2.7			-2.7	
Total Lost Time (s)	4.0	4.0			4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		Min	Min		None	None		None	None	
Walk Time (s)	23.0	23.0		23.0	23.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0		7.0	7.0		7.0	7.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	42.3	42.3			42.3						14.0	
Actuated g/C Ratio	0.70	0.70			0.70						0.23	
v/c Ratio	0.08	0.27			0.41						0.43	
Control Delay	5.3	5.6			5.9						15.8	
Queue Delay	0.0	0.0			0.0						0.0	
Total Delay	5.3	5.6			5.9						15.8	
LOS	A	A			A						B	
Approach Delay		5.6			5.9						15.8	
Approach LOS		A			A						B	
Intersection Summary												
Area Type:	Other											
Cycle Length:	70											
Actuated Cycle Length:	60											
Natural Cycle:	70											
Control Type:	Actuated-Uncoordinated											
Maximum v/c Ratio:	0.43											
Intersection Signal Delay:	7.2						Intersection LOS: A					
Intersection Capacity Utilization	51.7%						ICU Level of Service A					
Analysis Period (min)	15											
Spits and Phases:	108: Chapel St/Gerrie Rd & East Mill St											

Queues

108: Chapel St/Gerrie Rd & East Mill St

Background - 2035

PM Peak Hour

Lane Group	EBL	EBT	WBT	SBT
Lane Group Flow (vph)	48	364	525	161
v/c Ratio	0.08	0.27	0.41	0.43
Control Delay	5.3	5.6	5.9	15.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	5.3	5.6	5.9	15.8
Queue Length 50th (m)	1.7	14.8	20.1	9.1
Queue Length 95th (m)	6.2	33.2	47.1	23.4
Internal Link Dist (m)		290.9	303.9	352.2
Turn Bay Length (m)	30.0			
Base Capacity (vph)	596	1399	1358	529
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.08	0.26	0.39	0.30

Intersection Summary

Turn Type	Perm	NA	NA	Perm	NA
Protected Phases		2		6	4
Permitted Phases	2		6		4
Actuated Green, G (s)	38.2	38.2		38.2	
Effective Green, g (s)	41.5	41.5		41.5	
Actuated g/C Ratio	0.68	0.68		0.68	
Clearance Time (s)	7.3	7.3		7.3	
Vehicle Extension (s)	3.0	3.0		3.0	
Lane Grp Cap (vph)	541	1271		1219	270
v/s Ratio Prot		0.19		c0.28	
v/s Ratio Perm	0.06				c0.08
v/c Ratio	0.09	0.29		0.41	0.40
Uniform Delay, d1	3.4	4.0		4.5	21.6
Progression Factor	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.1	0.1		0.2	1.0
Delay (s)	3.5	4.1		4.7	22.6
Level of Service	A	A		A	C
Approach Delay (s)		4.1		4.7	0.0
Approach LOS		A		A	C

Intersection Summary

HCM 2000 Control Delay		7.1		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio		0.41			
Actuated Cycle Length (s)		61.4		Sum of lost time (s)	8.0
Intersection Capacity Utilization		51.7%		ICU Level of Service	A
Analysis Period (min)		15			

HCM Signalized Intersection Capacity Analysis

108: Chapel St/Gerrie Rd & East Mill St

Background - 2035

PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	335	0	0	314	169	0	0	0	122	0	26
Future Volume (vph)	44	335	0	0	314	169	0	0	0	122	0	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0							4.0
Lane Util. Factor	1.00	1.00			1.00							1.00
Frbp, ped/bikes	1.00	1.00			1.00							1.00
Flpb, ped/bikes	1.00	1.00			1.00							1.00
Frt	1.00	1.00			0.95							0.98
Flt Protected	0.95	1.00			1.00							0.96
Satd. Flow (prot)	1805	1881			1804							1760
Flt Permitted	0.42	1.00			1.00							0.76
Satd. Flow (perm)	801	1881			1804							1398
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	48	364	0	0	341	184	0	0	0	133	0	28
RTOR Reduction (vph)	0	0	0	0	22	0	0	0	0	0	54	0
Lane Group Flow (vph)	48	364	0	0	503	0	0	0	0	0	107	0
Confl. Peds. (#/hr)							1					1
Heavy Vehicles (%)	0%	1%	0%	0%	0%	1%	0%	0%	0%	1%	0%	0%
Turn Type	Perm	NA			NA					Perm	NA	
Protected Phases		2			6				4		8	
Permitted Phases	2				6				4		8	
Actuated Green, G (s)	38.2	38.2			38.2						38.2	9.2
Effective Green, g (s)	41.5	41.5			41.5						41.5	11.9
Actuated g/C Ratio	0.68	0.68			0.68						0.68	0.19
Clearance Time (s)	7.3	7.3			7.3						7.3	6.7
Vehicle Extension (s)	3.0	3.0			3.0						3.0	3.0
Lane Grp Cap (vph)	541	1271			1219						270	
v/s Ratio Prot		0.19			c0.28							
v/s Ratio Perm	0.06											c0.08
v/c Ratio	0.09	0.29			0.41							0.40
Uniform Delay, d1	3.4	4.0			4.5							21.6
Progression Factor	1.00	1.00			1.00							1.00
Incremental Delay, d2	0.1	0.1			0.2							1.0
Delay (s)	3.5	4.1			4.7							22.6
Level of Service	A	A			A							C
Approach Delay (s)		4.1			4.7			0.0				22.6
Approach LOS		A			A			A				C

Intersection Summary

HCM 2000 Control Delay		7.1		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio		0.41			
Actuated Cycle Length (s)		61.4		Sum of lost time (s)	8.0
Intersection Capacity Utilization		51.7%		ICU Level of Service	A
Analysis Period (min)		15			

c Critical Lane Group

HCM 6th Signalized Intersection Summary
108: Chapel St/Gerrie Rd & East Mill St

Background - 2035
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔		↔	↔		↔	↔	
Traffic Volume (veh/h)	44	335	0	0	314	169	0	0	0	122	0	26
Future Volume (veh/h)	44	335	0	0	314	169	0	0	0	122	0	26
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No		No		No		No		No	
Adj Sat Flow, veh/h/ln	1900	1885	1900	1900	1900	1885	1900	1900	1900	1885	1900	1900
Adj Flow Rate, veh/h	48	364	0	0	341	184	0	0	0	133	0	28
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
Percent Heavy Veh, %	0	1	0	0	0	1	0	0	0	1	0	0
Cap, veh/h	576	1238	0	0	762	411	0	392	0	354	11	53
Arrive On Green	0.66	0.66	0.00	0.00	0.66	0.60	0.00	0.00	0.00	0.16	0.00	0.16
Sat Flow, veh/h	892	1885	0	0	1161	626	0	1900	0	1167	52	257
Grp Volume(v), veh/h	48	364	0	0	0	525	0	0	0	161	0	0
Grp Sat Flow(s),veh/h/ln	892	1885	0	0	0	1787	0	1900	0	1475	0	0
Q Serve(g_s), s	1.6	4.8	0.0	0.0	0.0	8.7	0.0	0.0	0.0	5.7	0.0	0.0
Cycle Q Clear(g_c), s	10.3	4.8	0.0	0.0	0.0	8.7	0.0	0.0	0.0	6.0	0.0	0.0
Prop In Lane	1.00		0.00	0.00		0.35	0.00		0.00	0.83		0.17
Lane Grp Cap(c), veh/h	576	1238	0	0	0	1173	0	392	0	349	0	0
V/C Ratio(X)	0.08	0.29	0.00	0.00	0.00	0.45	0.00	0.00	0.00	0.46	0.00	0.00
Avail Cap(c_a), veh/h	620	1331	0	0	0	1262	0	677	0	568	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.5	4.3	0.0	0.0	0.0	5.2	0.0	0.0	0.0	21.9	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.1	0.0	0.0	0.0	0.3	0.0	0.0	0.0	1.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	0.1	0.0	0.0	0.0	0.2	0.0	0.0	0.0	1.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.5	4.4	0.0	0.0	0.0	5.5	0.0	0.0	0.0	22.9	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	A	A	A	C	A	A
Approach Vol, veh/h		412			525			0		161		
Approach Delay, s/veh		4.8			5.5			0.0		22.9		
Approach LOS		A			A					C		
Timer - Assigned Phs	2		4		6			8				
Phs Duration (G+Y+Rc), s	42.3		16.0		42.3			16.0				
Change Period (Y+Rc), s	* 7.3		* 6.7		* 7.3			* 6.7				
Max Green Setting (Gmax), s	* 38		* 18		* 38			* 18				
Max Q Clear Time (g_c+I1), s	12.3		0.0		10.7			8.0				
Green Ext Time (p_c), s	3.0		0.0		4.4			0.6				

Intersection Summary		
HCM 6th Ctrl Delay	7.8	
HCM 6th LOS	A	

Notes
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lanes, Volumes, Timings
201: Irvine St & Cachet Clayton

Background - 2035
PM Peak Hour

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔	↔		↔	↔	
Traffic Volume (vph)	32	42	74	107	96	52
Future Volume (vph)	32	42	74	107	96	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frnt	0.923				0.952	
Fit Protected	0.979			0.980		
Satd. Flow (prot)	1717	0	0	1840	1786	0
Fit Permitted	0.979			0.980		
Satd. Flow (perm)	1717	0	0	1840	1786	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	158.0			227.8	220.4	
Travel Time (s)	11.4			16.4	15.9	
Confl. Peds. (#/hr)			5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	2%	2%	0%
Adj. Flow (vph)	35	46	80	116	104	57
Shared Lane Traffic (%)						
Lane Group Flow (vph)	81	0	0	196	161	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	33.2%
ICU Level of Service A	
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
201: Irvine St & Cachet Clayton

Background - 2035
PM Peak Hour

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔			↑	↑	
Traffic Volume (veh/h)	32	42	74	107	96	52
Future Volume (Veh/h)	32	42	74	107	96	52
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	35	46	80	116	104	57
Pedestrians	5					
Lane Width (m)	3.6					
Walking Speed (m/s)	1.2					
Percent Blockage	0					
Right turn flare (veh)						
Median type			None	None		
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	414	138	166			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	414	138	166			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	94	95	94			
cM capacity (veh/h)	563	912	1418			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	81	196	161			
Volume Left	35	80	0			
Volume Right	46	0	57			
eSH	719	1418	1700			
Volume to Capacity	0.11	0.06	0.09			
Queue Length 95th (m)	3.0	1.4	0.0			
Control Delay (s)	10.6	3.4	0.0			
Lane LOS	B	A				
Approach Delay (s)	10.6	3.4	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay			3.5			
Intersection Capacity Utilization		33.2%		ICU Level of Service	A	
Analysis Period (min)		15				

HCM 6th TWSC
201: Irvine St & Cachet Clayton

Background - 2035
PM Peak Hour

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔			↑	↑	
Traffic Vol, veh/h	32	42	74	107	96	52
Future Vol, veh/h	32	42	74	107	96	52
Conflicting Peds, #/hr	0	0	5	0	0	5
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, %	0	0	0	2	2	0
Mvmt Flow	35	46	80	116	104	57
Intersection						
Int Delay, s/veh	3.4					
Major/Minor						
Minor2	Minor1	Major2				
Conflicting Flow All	414	138	166	0	-	0
Stage 1	138	-	-	-	-	-
Stage 2	276	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	599	916	1424	-	-	-
Stage 1	894	-	-	-	-	-
Stage 2	775	-	-	-	-	-
Platoon blocked, %						
Mov Cap-1 Maneuver	558	912	1418	-	-	-
Mov Cap-2 Maneuver	558	-	-	-	-	-
Stage 1	837	-	-	-	-	-
Stage 2	772	-	-	-	-	-
Approach						
EB	NB	SB				
HCM Control Delay, s	10.7	3.1	0			
HCM LOS	B					
Minor Lane/Major Mvmt						
NBL	NBT EBLn1	SBT	SBR			
Capacity (veh/h)	1418	-	716	-	-	-
HCM Lane V/C Ratio	0.057	-	0.112	-	-	-
HCM Control Delay (s)	7.7	0	10.7	-	-	-
HCM Lane LOS	A	A	B	-	-	-
HCM 95th %tile Q(veh)	0.2	-	0.4	-	-	-

Lanes, Volumes, Timings
101: Geddes St & James St

Background - 2040
AM Peak Hour

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	47	328	118	42	204	121
Future Volume (vph)	47	328	118	42	204	121
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.882	0.964				
Fit Protected	0.994				0.970	
Satd. Flow (prot)	1615	0	1746	0	0	1770
Fit Permitted	0.994				0.970	
Satd. Flow (perm)	1615	0	1746	0	0	1770
Link Speed (k/h)	50		50		50	
Link Distance (m)	120.4		303.1		136.1	
Travel Time (s)	8.7		21.8		9.8	
Confl. Peds. (#/hr)	1			3	3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	11%	2%	2%	13%	3%	6%
Adj. Flow (vph)	51	357	128	46	222	132
Shared Lane Traffic (%)						
Lane Group Flow (vph)	408	0	174	0	0	354
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0		0.0	
Link Offset(m)	0.0		0.0		0.0	
Crosswalk Width(m)	4.8		4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free		Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	59.8%
Analysis Period (min)	15
	ICU Level of Service B

HCM Unsignalized Intersection Capacity Analysis
101: Geddes St & James St

Background - 2040
AM Peak Hour

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	47	328	118	42	204	121
Future Volume (Veh/h)	47	328	118	42	204	121
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	51	357	128	46	222	132
Pedestrians	3		1			
Lane Width (m)	3.6		3.6			
Walking Speed (m/s)	1.2		1.2			
Percent Blockage	0		0			
Right turn flare (veh)						
Median type			None		None	
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	731	154			177	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	731	154			177	
tC, single (s)	6.5	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.6	3.3			2.2	
p0 queue free %	84	60			84	
cM capacity (veh/h)	315	890			1390	

Direction, Lane #

	WB 1	NB 1	SB 1
Volume Total	408	174	354
Volume Left	51	0	222
Volume Right	357	46	0
eSH	724	1700	1390
Volume to Capacity	0.56	0.10	0.16
Queue Length 95th (m)	28.4	0.0	4.5
Control Delay (s)	16.2	0.0	5.6
Lane LOS	C		A
Approach Delay (s)	16.2	0.0	5.6
Approach LOS	C		

Intersection Summary

Average Delay		9.2	
Intersection Capacity Utilization	59.8%		ICU Level of Service B
Analysis Period (min)		15	

Intersection						
Int Delay, s/veh	9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔	↔	↔	↔	↔	↔
Traffic Vol, veh/h	47	328	118	42	204	121
Future Vol, veh/h	47	328	118	42	204	121
Conflicting Peds, #/hr	1	0	0	3	3	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, %	11	2	2	13	3	6
Mvmt Flow	51	357	128	46	222	132
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	731	154	0	0	177	0
Stage 1	154	-	-	-	-	-
Stage 2	577	-	-	-	-	-
Critical Hdwy	6.51	6.22	-	-	4.13	-
Critical Hdwy Stg 1	5.51	-	-	-	-	-
Critical Hdwy Stg 2	5.51	-	-	-	-	-
Follow-up Hdwy	3.599	3.318	-	-	2.227	-
Pot Cap-1 Maneuver	376	892	-	-	1393	-
Stage 1	853	-	-	-	-	-
Stage 2	544	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	310	890	-	-	1389	-
Mov Cap-2 Maneuver	310	-	-	-	-	-
Stage 1	850	-	-	-	-	-
Stage 2	450	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	16.3	0	5.1			
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	721	1389		
HCM Lane V/C Ratio	-	-	0.565	0.16		
HCM Control Delay (s)	-	-	16.3	8.1	0	
HCM Lane LOS	-	-	C	A	A	
HCM 95th %tile Q(veh)	-	-	3.6	0.6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	7	195	44	49	296	4	78	3	65	3	4	1
Future Volume (vph)	7	195	44	49	296	4	78	3	65	3	4	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.976			0.999			0.940			0.983	
Fit Protected		0.999			0.993			0.974			0.982	
Satd. Flow (prot)	0	1697	0	0	1806	0	0	1330	0	0	1256	0
Fit Permitted		0.999			0.993			0.974			0.982	
Satd. Flow (perm)	0	1697	0	0	1806	0	0	1330	0	0	1256	0
Link Speed (k/h)		40			40			50			50	
Link Distance (m)		556.2			1016.6			201.5			704.4	
Travel Time (s)		50.1			91.5			14.5			50.7	
Confl. Peds. (#/hr)		2						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 (%)	20%	7%	17%	13%	3%	0%	50%	0%	9%	0%	67%	100%
Adj. Flow (vph)	8	212	48	53	322	4	85	3	71	3	4	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	268	0	0	379	0	0	159	0	0	8	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	54.7%						ICU Level of Service A					
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis
102: Irvine St & Woolwich St/Nichol Rd 15

Background - 2040
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (veh/h)	7	195	44	49	296	4	78	3	65	3	4	1
Future Volume (Veh/h)	7	195	44	49	296	4	78	3	65	3	4	1
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
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
Hourly flow rate (vph)	8	212	48	53	322	4	85	3	71	3	4	1
Pedestrians												2
Lane Width (m)												3.6
Walking Speed (m/s)												1.2
Percent Blockage												0
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	328	260			685		686	236	756	708	326	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	328	260			685		686	236	756	708	326	
tC, single (s)	4.3	4.2			7.6		6.5	6.3	7.1	7.2	7.2	
tC, 2 stage (s)												
tF (s)	2.4	2.3			4.0		4.0	3.4	3.5	4.6	4.2	
p0 queue free %	99	96			71		99	91	99	99	100	
cM capacity (veh/h)	1135	1243			290		354	786	283	275	536	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	268	379	159	8								
Volume Left	8	53	85	3								
Volume Right	48	4	71	1								
eSH	1135	1243	405	297								
Volume to Capacity	0.01	0.04	0.39	0.03								
Queue Length 95th (m)	0.2	1.1	14.6	0.7								
Control Delay (s)	0.3	1.5	19.5	17.5								
Lane LOS	A	A	C	C								
Approach Delay (s)	0.3	1.5	19.5	17.5								
Approach LOS	C			C								
Intersection Summary												
Average Delay	4.8											
Intersection Capacity Utilization	54.7%			ICU Level of Service	A							
Analysis Period (min)	15											

HCM 6th TWSC
102: Irvine St & Woolwich St/Nichol Rd 15

Background - 2040
AM Peak Hour

Intersection												
Int Delay, s/veh	4.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	7	195	44	49	296	4	78	3	65	3	4	1
Future Vol, veh/h	7	195	44	49	296	4	78	3	65	3	4	1
Conflicting Peds, #/hr	2	0	0	0	0	2	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	20	7	17	13	3	0	50	0	9	0	67	100
Mvmt Flow	8	212	48	53	322	4	85	3	71	3	4	1
Major/Minor	Major1	Major2	Minor1	Minor2								
Conflicting Flow All	328	0	0	260	0	0	685	686	236	721	708	326
Stage 1	-	-	-	-	-	-	252	252	-	432	432	-
Stage 2	-	-	-	-	-	-	433	434	-	289	276	-
Critical Hdwy	4.3	-	-	4.23	-	-	7.6	6.5	6.29	7.1	7.17	7.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.6	5.5	-	6.1	6.17	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.6	5.5	-	6.1	6.17	-
Follow-up Hdwy	2.38	-	-	2.317	-	-	3.95	4	3.381	3.5	4.603	4.2
Pot Cap-1 Maneuver	1137	-	-	1243	-	-	305	373	786	345	290	537
Stage 1	-	-	-	-	-	-	657	702	-	606	485	-
Stage 2	-	-	-	-	-	-	518	585	-	723	578	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1135	-	-	1243	-	-	287	350	786	297	272	536
Mov Cap-2 Maneuver	-	-	-	-	-	-	287	350	-	297	272	-
Stage 1	-	-	-	-	-	-	652	696	-	600	459	-
Stage 2	-	-	-	-	-	-	485	553	-	650	573	-
Approach	EB	WB	NB	SB								
HCM Control Delay, s	0.2	1.1	19.7	17.4								
HCM LOS	C			C								
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	402	1135	-	-	1243	-	-	300				
HCM Lane V/C Ratio	0.395	0.007	-	-	0.043	-	-	0.029				
HCM Control Delay (s)	19.7	8.2	0	-	8	0	-	17.4				
HCM Lane LOS	C	A	A	-	A	A	-	C				
HCM 95th %tile Q(veh)	1.8	0	-	-	0.1	-	-	0.1				

Lanes, Volumes, Timings
103: Irvine St & Bricker Ave

Background - 2040
AM Peak Hour

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	17	23	9	106	143	11
Future Volume (vph)	17	23	9	106	143	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.922				0.990	
Flt Protected	0.979			0.996		
Satd. Flow (prot)	1482	0	0	1527	1574	0
Flt Permitted	0.979			0.996		
Satd. Flow (perm)	1482	0	0	1527	1574	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	361.7			908.3	246.8	
Travel Time (s)	26.0			65.4	17.8	
Confl. Peds. (#/hr)			3			3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	27%	0%	26%	21%	0%
Adj. Flow (vph)	18	25	10	115	155	12
Shared Lane Traffic (%)						
Lane Group Flow (vph)	43	0	0	125	167	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	23.0%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis
103: Irvine St & Bricker Ave

Background - 2040
AM Peak Hour

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	17	23	9	106	143	11
Future Volume (Veh/h)	17	23	9	106	143	11
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	18	25	10	115	155	12
Pedestrians	3					
Lane Width (m)	3.6					
Walking Speed (m/s)	1.2					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	299	164	170			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	299	164	170			
tC, single (s)	6.4	6.5	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.5	2.2			
p0 queue free %	97	97	99			
cM capacity (veh/h)	690	817	1416			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	43	125	167
Volume Left	18	10	0
Volume Right	25	0	12
eSH	759	1416	1700
Volume to Capacity	0.06	0.01	0.10
Queue Length 95th (m)	1.4	0.2	0.0
Control Delay (s)	10.0	0.7	0.0
Lane LOS	B	A	
Approach Delay (s)	10.0	0.7	0.0
Approach LOS	B		


Intersection Summary			
Average Delay		1.5	
Intersection Capacity Utilization	23.0%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection						
Int Delay, s/veh	1.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔			↕	↕	
Traffic Vol, veh/h	17	23	9	106	143	11
Future Vol, veh/h	17	23	9	106	143	11
Conflicting Peds, #/hr	0	0	3	0	0	3
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, %	0	27	0	26	21	0
Mvmt Flow	18	25	10	115	155	12
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	299	164	170	0	-	0
Stage 1	164	-	-	-	-	-
Stage 2	135	-	-	-	-	-
Critical Hdwy	6.4	6.47	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.543	2.2	-	-	-
Pot Cap-1 Maneuver	697	819	1420	-	-	-
Stage 1	870	-	-	-	-	-
Stage 2	896	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	687	817	1416	-	-	-
Mov Cap-2 Maneuver	687	-	-	-	-	-
Stage 1	860	-	-	-	-	-
Stage 2	893	-	-	-	-	-
Approach	EB	NB	SB			
HCM Control Delay, s	10.1	0.6	0			
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1416	-	756	-	-	
HCM Lane V/C Ratio	0.007	-	0.058	-	-	
HCM Control Delay (s)	7.6	0	10.1	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0	-	0.2	-	-	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	10	144	5	10	215	55	3	54	10	69	143	37
Future Volume (vph)	10	144	5	10	215	55	3	54	10	69	143	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt	0.996				0.973				0.980		0.980	
Fit Protected	0.997				0.998				0.998		0.986	
Satd. Flow (prot)	0	1805	0	0	1740	0	0	1546	0	0	1657	0
Fit Permitted	0.997				0.998				0.998		0.986	
Satd. Flow (perm)	0	1805	0	0	1740	0	0	1546	0	0	1657	0
Link Speed (k/h)	40				40				40		40	
Link Distance (m)	619.9				1021.3				327.0		274.5	
Travel Time (s)	55.8				91.9				29.4		24.7	
Confl. Peds. (#/hr)	7					7	1			7	7	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%	5%	0%	0%	4%	15%	0%	25%	0%	12%	13%	0%
Adj. Flow (vph)	11	157	5	11	234	60	3	59	11	75	155	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	173	0	0	305	0	0	73	0	0	270	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	0.0				0.0				0.0		0.0	
Link Offset(m)	0.0				0.0				0.0		0.0	
Crosswalk Width(m)	4.8				4.8				4.8		4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15		25	15		25	15		25	15	
Sign Control	Stop				Stop				Stop		Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	44.7%						ICU Level of Service A					
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis
104: Irvine St & Colborne St

Background - 2040
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↕			↕			↕			↕		
Sign Control	Stop			Stop			Stop			Stop		
Traffic Volume (vph)	10	144	5	10	215	55	3	54	10	69	143	37
Future Volume (vph)	10	144	5	10	215	55	3	54	10	69	143	37
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
Hourly flow rate (vph)	11	157	5	11	234	60	3	59	11	75	155	40
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	173	305	73	270								
Volume Left (vph)	11	11	3	75								
Volume Right (vph)	5	60	11	40								
Hadj (s)	0.07	-0.01	0.26	0.15								
Departure Headway (s)	5.4	5.2	5.9	5.5								
Degree Utilization, x	0.26	0.44	0.12	0.41								
Capacity (veh/h)	608	656	526	613								
Control Delay (s)	10.4	12.1	9.8	12.2								
Approach Delay (s)	10.4	12.1	9.8	12.2								
Approach LOS	B	B	A	B								
Intersection Summary												
Delay				11.6								
Level of Service				B								
Intersection Capacity Utilization			44.7%	ICU Level of Service				A				
Analysis Period (min)				15								

HCM 6th AWSC
104: Irvine St & Colborne St

Background - 2040
AM Peak Hour

Intersection												
Intersection Delay, s/veh	11.4											
Intersection LOS	B											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	144	5	10	215	55	3	54	10	69	143	37
Future Vol, veh/h	10	144	5	10	215	55	3	54	10	69	143	37
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	5	0	0	4	15	0	25	0	12	13	0
Mvmt Flow	11	157	5	11	234	60	3	59	11	75	155	40
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Approach	EB	WB		NB		SB						
Opposing Approach	WB	EB		SB		NB						
Opposing Lanes	1	1		1		1						
Conflicting Approach Left	SB	NB		EB		WB						
Conflicting Lanes Left	1	1		1		1						
Conflicting Approach Right	NB	SB		WB		EB						
Conflicting Lanes Right	1	1		1		1						
HCM Control Delay	10.2	11.8		9.3		12.2						
HCM LOS	B	B		A		B						
Lane	NBLn1	EBLn1	WBLn1	SBLn1								
Vol Left, %	4%	6%	4%	28%								
Vol Thru, %	81%	91%	77%	57%								
Vol Right, %	15%	3%	20%	15%								
Sign Control	Stop	Stop	Stop	Stop								
Traffic Vol by Lane	67	159	280	249								
LT Vol	3	10	10	69								
Through Vol	54	144	215	143								
RT Vol	10	5	55	37								
Lane Flow Rate	73	173	304	271								
Geometry Grp	1	1	1	1								
Degree of Util (X)	0.112	0.255	0.428	0.409								
Departure Headway (Hd)	5.543	5.318	5.059	5.441								
Convergence, Y/N	Yes	Yes	Yes	Yes								
Cap	645	674	715	660								
Service Time	3.587	3.356	3.059	3.474								
HCM Lane V/C Ratio	0.113	0.257	0.425	0.411								
HCM Control Delay	9.3	10.2	11.8	12.2								
HCM Lane LOS	A	B	B	B								
HCM 95th-tile Q	0.4	1	2.2	2								

Lanes, Volumes, Timings
105: Irvine St & East Mill St

Background - 2040
AM Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	17	338	3	0	261	48	0	0	3	113	0	53
Future Volume (vph)	17	338	3	0	261	48	0	0	3	113	0	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.999			0.979			0.865			0.957	
Fit Protected		0.998									0.967	
Satd. Flow (prot)	0	1761	0	0	1722	0	0	1644	0	0	1545	0
Fit Permitted		0.998									0.967	
Satd. Flow (perm)	0	1761	0	0	1722	0	0	1644	0	0	1545	0
Link Speed (k/h)		40			40			40			40	
Link Distance (m)		212.3			172.2			54.2			327.0	
Travel Time (s)		19.1			15.5			4.9			29.4	
Confl. Peds. (#/hr)	21					21						
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%	8%	0%	0%	4%	30%	0%	0%	0%	17%	0%	7%
Adj. Flow (vph)	18	367	3	0	284	52	0	0	3	123	0	58
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	388	0	0	336	0	0	3	0	0	181	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Right	Left	Left	Right	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	54.7%				ICU Level of Service A							
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis
105: Irvine St & East Mill St

Background - 2040
AM Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (veh/h)	17	338	3	0	261	48	0	0	3	113	0	53
Future Volume (Veh/h)	17	338	3	0	261	48	0	0	3	113	0	53
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	18	367	3	0	284	52	0	0	3	123	0	58
Pedestrians												21
Lane Width (m)												3.6
Walking Speed (m/s)												1.2
Percent Blockage												2
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	357				370			772	762	368	738	737
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	357				370			772	762	368	738	737
tC, single (s)	4.1				4.1			7.1	6.5	6.2	7.3	6.5
tC, 2 stage (s)												
tF (s)	2.2				2.2			3.5	4.0	3.3	3.7	4.0
p0 queue free %	98				100			100	100	100	59	100
cM capacity (veh/h)	1192				1200			285	326	681	301	337
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	388	336	3	181								
Volume Left	18	0	0	123								
Volume Right	3	52	3	58								
eSH	1192	1200	681	367								
Volume to Capacity	0.02	0.00	0.00	0.49								
Queue Length 95th (m)	0.4	0.0	0.1	21.0								
Control Delay (s)	0.5	0.0	10.3	24.0								
Lane LOS	A		B	C								
Approach Delay (s)	0.5	0.0	10.3	24.0								
Approach LOS			B	C								
Intersection Summary												
Average Delay				5.0								
Intersection Capacity Utilization			54.7%	ICU Level of Service A							A	
Analysis Period (min)			15									

HCM 6th TWSC
105: Irvine St & East Mill St

Background - 2040
AM Peak Hour

Intersection												
Int Delay, s/veh	4.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔		↔		↔		↔		↔		↔	
Traffic Vol, veh/h	17	338	3	0	261	48	0	0	3	113	0	53
Future Vol, veh/h	17	338	3	0	261	48	0	0	3	113	0	53
Conflicting Peds, #/hr	21	0	0	0	0	21	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	8	0	0	4	30	0	0	0	17	0	7
Mvmt Flow	18	367	3	0	284	52	0	0	3	123	0	58
Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	357	0	0	370	0	0	744	762	369	737	737	331
Stage 1	-	-	-	-	-	-	405	405	-	331	331	-
Stage 2	-	-	-	-	-	-	339	357	-	406	406	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.27	6.5	6.27
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.27	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.27	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.653	4	3.363
Pot Cap-1 Maneuver	1213	-	-	1200	-	-	333	337	681	316	348	699
Stage 1	-	-	-	-	-	-	626	602	-	652	649	-
Stage 2	-	-	-	-	-	-	680	632	-	593	601	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1191	-	-	1200	-	-	301	325	681	304	335	687
Mov Cap-2 Maneuver	-	-	-	-	-	-	301	325	-	304	335	-
Stage 1	-	-	-	-	-	-	614	591	-	629	637	-
Stage 2	-	-	-	-	-	-	623	621	-	579	590	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	0.4		0		10.3		23.6					
HCM LOS					B		C					
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	681	1191	-	-	1200	-	-	370				
HCM Lane V/C Ratio	0.005	0.016	-	-	-	-	-	0.488				
HCM Control Delay (s)	10.3	8.1	0	-	0	-	-	23.6				
HCM Lane LOS	B	A	A	-	A	-	-	C				
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	2.6				

Lanes, Volumes, Timings
106: Gerrie Rd & Nichol Rd 15

Background - 2040
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	8	253	1	30	335	8	5	10	19	16	3	8
Future Volume (vph)	8	253	1	30	335	8	5	10	19	16	3	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Friction				0.997			0.923			0.958		
Fit Protected	0.998			0.996			0.993			0.972		
Satd. Flow (prot)	0 1729			0 0 1837			0 0 1025			0 0 1609		
Fit Permitted	0.998			0.996			0.993			0.972		
Satd. Flow (perm)	0 1729			0 0 1837			0 0 1025			0 0 1609		
Link Speed (k/h)	80			80			50			50		
Link Distance (m)	1016.6			999.6			1630.3			439.6		
Travel Time (s)	45.7			45.0			117.4			31.7		
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%	10%	0%	0%	3%	0%	25%	33%	100%	8%	0%	17%
Adj. Flow (vph)	9	275	1	33	364	9	5	11	21	17	3	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	285	0	0	406	0	0	37	0	0	29	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	0.0			0.0			0.0			0.0		
Link Offset(m)	0.0			0.0			0.0			0.0		
Crosswalk Width(m)	4.8			4.8			4.8			4.8		
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15		25		15		25		15	
Sign Control	Free			Free			Stop			Stop		
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	42.9%						ICU Level of Service A					
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis
106: Gerrie Rd & Nichol Rd 15

Background - 2040
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (veh/h)	8	253	1	30	335	8	5	10	19	16	3	8
Future Volume (Veh/h)	8	253	1	30	335	8	5	10	19	16	3	8
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
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
Hourly flow rate (vph)	9	275	1	33	364	9	5	11	21	17	3	9
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	373	276			738			732	276	754	728	368
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	373	276			738			732	276	754	728	368
tC, single (s)	4.1	4.1			7.3			6.8	7.2	7.2	6.5	6.4
tC, 2 stage (s)												
tF (s)	2.2	2.2			3.7			4.3	4.2	3.6	4.0	3.5
p0 queue free %	99	97			98			96	96	94	99	99
cM capacity (veh/h)	1197	1299			292			303	578	290	341	645
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	285	406	37	29								
Volume Left	9	33	5	17								
Volume Right	1	9	21	9								
cSH	1197	1299	412	357								
Volume to Capacity	0.01	0.03	0.09	0.08								
Queue Length 95th (m)	0.2	0.6	2.4	2.1								
Control Delay (s)	0.3	0.9	14.6	16.0								
Lane LOS	A	A	B	C								
Approach Delay (s)	0.3	0.9	14.6	16.0								
Approach LOS			B	C								
Intersection Summary												
Average Delay	1.9											
Intersection Capacity Utilization	42.9%			ICU Level of Service			A					
Analysis Period (min)	15											

HCM 6th TWSC
106: Gerrie Rd & Nichol Rd 15

Background - 2040
AM Peak Hour

Intersection												
Int Delay, s/veh	1.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	8	253	1	30	335	8	5	10	19	16	3	8
Future Vol, veh/h	8	253	1	30	335	8	5	10	19	16	3	8
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	10	0	0	3	0	25	33	100	8	0	17
Mvmt Flow	9	275	1	33	364	9	5	11	21	17	3	9
Major/Minor	Major1	Major2	Minor1	Minor2								
Conflicting Flow All	373	0	0	276	0	0	735	733	276	745	729	369
Stage 1	-	-	-	-	-	-	294	294	-	435	435	-
Stage 2	-	-	-	-	-	-	441	439	-	310	294	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.35	6.83	7.2	7.18	6.5	6.37
Critical Hdwy Stg 1	-	-	-	-	-	-	6.35	5.83	-	6.18	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.35	5.83	-	6.18	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.725	4.297	4.2	3.572	4	3.453
Pot Cap-1 Maneuver	1197	-	-	1299	-	-	308	313	577	323	352	644
Stage 1	-	-	-	-	-	-	667	617	-	588	584	-
Stage 2	-	-	-	-	-	-	553	529	-	688	673	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1197	-	-	1299	-	-	292	300	577	294	338	644
Mov Cap-2 Maneuver	-	-	-	-	-	-	292	300	-	294	338	-
Stage 1	-	-	-	-	-	-	661	611	-	583	565	-
Stage 2	-	-	-	-	-	-	525	512	-	646	667	-
Approach	EB	WB	NB	SB								
HCM Control Delay, s	0.2	0.6	14.7	16								
HCM LOS			B	C								
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	408	1197	-	-	1299	-	-	357				
HCM Lane V/C Ratio	0.091	0.007	-	-	0.025	-	-	0.082				
HCM Control Delay (s)	14.7	8	0	-	7.8	0	-	16				
HCM Lane LOS	B	A	A	-	A	A	-	C				
HCM 95th %tile Q(veh)	0.3	0	-	-	0.1	-	-	0.3				

Lanes, Volumes, Timings
107: Gerrie Rd & Colborne St

Background - 2040
AM Peak Hour

	↖	→	↘	↙	←	↖	↙	↑	↗	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	37	190	104	19	162	32	44	60	10	60	122	51
Future Volume (vph)	37	190	104	19	162	32	44	60	10	60	122	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.958			0.980			0.988			0.971	
Fit Protected		0.994			0.995			0.981			0.987	
Satd. Flow (prot)	0	1691	0	0	1811	0	0	1655	0	0	1747	0
Fit Permitted		0.994			0.995			0.981			0.987	
Satd. Flow (perm)	0	1691	0	0	1811	0	0	1655	0	0	1747	0
Link Speed (k/h)		40			50			50			50	
Link Distance (m)		1021.3			906.6			376.2			1630.3	
Travel Time (s)		91.9			65.3			27.1			117.4	
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 (%)	10%	2%	15%	0%	3%	0%	21%	6%	0%	0%	8%	0%
Adj. Flow (vph)	40	207	113	21	176	35	48	65	11	65	133	55
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	360	0	0	232	0	0	124	0	0	253	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	47.4%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
107: Gerrie Rd & Colborne St

Background - 2040
AM Peak Hour

	↖	→	↘	↙	←	↖	↙	↑	↗	↘	↓	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	37	190	104	19	162	32	44	60	10	60	122	51
Future Volume (vph)	37	190	104	19	162	32	44	60	10	60	122	51
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
Hourly flow rate (vph)	40	207	113	21	176	35	48	65	11	65	133	55
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	360	232	124	253								
Volume Left (vph)	40	21	48	65								
Volume Right (vph)	113	35	11	55								
Hadj (s)	-0.05	-0.03	0.22	-0.01								
Departure Headway (s)	5.4	5.6	6.3	5.8								
Degree Utilization, x	0.54	0.36	0.22	0.41								
Capacity (veh/h)	627	584	494	565								
Control Delay (s)	14.6	11.8	11.0	12.7								
Approach Delay (s)	14.6	11.8	11.0	12.7								
Approach LOS	B	B	B	B								
Intersection Summary												
Delay			13.0									
Level of Service			B									
Intersection Capacity Utilization			47.4%									A
ICU Level of Service												
Analysis Period (min)			15									

HCM 6th AWSC
107: Gerrie Rd & Colborne St


Background - 2040
AM Peak Hour

Intersection												
Intersection Delay, s/veh	13											
Intersection LOS	B											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔			↕			↕			↔		
Traffic Vol, veh/h	37	190	104	19	162	32	44	60	10	60	122	51
Future Vol, veh/h	37	190	104	19	162	32	44	60	10	60	122	51
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, %	10	2	15	0	3	0	21	6	0	0	8	0
Mvmt Flow	40	207	113	21	176	35	48	65	11	65	133	55
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Approach	EB			WB			NB			SB		
Opposing Approach	WB			EB			SB			NB		
Opposing Lanes	1			1			1			1		
Conflicting Approach Left	SB			NB			EB			WB		
Conflicting Lanes Left	1			1			1			1		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	1			1			1			1		
HCM Control Delay	14.8			11.7			11.3			12.6		
HCM LOS	B			B			B			B		

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	39%	11%	9%	26%
Vol Thru, %	53%	57%	76%	52%
Vol Right, %	9%	31%	15%	22%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	114	331	213	233
LT Vol	44	37	19	60
Through Vol	60	190	162	122
RT Vol	10	104	32	51
Lane Flow Rate	124	360	232	253
Geometry Grp	1	1	1	1
Degree of Util (X)	0.221	0.542	0.358	0.401
Departure Headway (Hd)	6.408	5.428	5.563	5.696
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	556	662	644	628
Service Time	4.485	3.488	3.629	3.761
HCM Lane V/C Ratio	0.223	0.544	0.36	0.403
HCM Control Delay	11.3	14.8	11.7	12.6
HCM Lane LOS	B	B	B	B
HCM 95th-tile Q	0.8	3.3	1.6	1.9

Lanes, Volumes, Timings
108: Chapel St/Gerrie Rd & East Mill St

Background - 2040
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔			↕			↕			↔	
Traffic Volume (vph)	21	293	0	0	273	92	0	0	0	188	0	57
Future Volume (vph)	21	293	0	0	273	92	0	0	0	188	0	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	0.0		0.0		0.0		0.0	0.0	
Storage Lanes	1		0	0		0		0		0	0	
Taper Length (m)	60.0			7.5				7.5			7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr					0.966						0.969	
Fit Protected	0.950											0.963
Satd. Flow (prot)	1687	1681	0	0	1769	0	0	1900	0	0	1708	0
Fit Permitted	0.486											0.776
Satd. Flow (perm)	863	1681	0	0	1769	0	0	1900	0	0	1376	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					42							67
Link Speed (k/h)		60			60			50				50
Link Distance (m)		314.9			327.9			115.3				376.2
Travel Time (s)		18.9			19.7			8.3				27.1
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 (%)	7%	13%	0%	0%	4%	3%	0%	0%	0%	1%	0%	13%
Adj. Flow (vph)	23	318	0	0	297	100	0	0	0	204	0	62
Shared Lane Traffic (%)												
Lane Group Flow (vph)	23	318	0	0	397	0	0	0	0	0	266	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			0.0				0.0
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		4.8			4.8			4.8				4.8
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	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	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		NA	NA			Perm		NA	NA	
Protected Phases		2			6			4			8	

Lanes, Volumes, Timings
108: Chapel St/Gerrie Rd & East Mill St

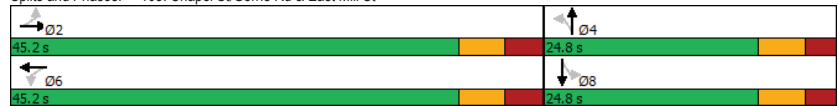
Background - 2040
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2			6			4			8		
Detector Phase	2	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	35.0	35.0		35.0	35.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	42.3	42.3		42.3	42.3		24.7	24.7		24.7	24.7	
Total Split (s)	45.2	45.2		45.2	45.2		24.8	24.8		24.8	24.8	
Total Split (%)	64.6%	64.6%		64.6%	64.6%		35.4%	35.4%		35.4%	35.4%	
Maximum Green (s)	37.9	37.9		37.9	37.9		18.1	18.1		18.1	18.1	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.3	3.3		3.3	3.3		2.7	2.7		2.7	2.7	
Lost Time Adjust (s)	-3.3	-3.3			-3.3			-2.7			-2.7	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		Min	Min		None	None		None	None	
Walk Time (s)	23.0	23.0		23.0	23.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0		7.0	7.0		7.0	7.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	38.4	38.4		38.4	38.4						17.1	
Actuated g/C Ratio	0.60	0.60		0.60	0.60						0.27	
v/c Ratio	0.04	0.31			0.37						0.64	
Control Delay	6.5	7.8			7.4						22.5	
Queue Delay	0.0	0.0			0.0						0.0	
Total Delay	6.5	7.8			7.4						22.5	
LOS	A	A			A						C	
Approach Delay		7.7			7.4						22.5	
Approach LOS		A			A						C	

Intersection Summary

Area Type:	Other
Cycle Length:	70
Actuated Cycle Length:	63.5
Natural Cycle:	70
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.64
Intersection Signal Delay:	11.5
Intersection Capacity Utilization:	49.7%
Analysis Period (min):	15
Intersection LOS:	B
ICU Level of Service:	A

Splits and Phases: 108: Chapel St/Gerrie Rd & East Mill St



Queues
108: Chapel St/Gerrie Rd & East Mill St

Background - 2040
AM Peak Hour

Lane Group	EBL	EBT	WBT	SBT
Lane Group Flow (vph)	23	318	397	266
v/c Ratio	0.04	0.31	0.37	0.64
Control Delay	6.5	7.8	7.4	22.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	6.5	7.8	7.4	22.5
Queue Length 50th (m)	1.0	16.9	19.1	21.0
Queue Length 95th (m)	4.0	34.1	39.0	43.7
Internal Link Dist (m)		290.9	303.9	352.2
Turn Bay Length (m)	30.0			
Base Capacity (vph)	561	1094	1165	497
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.04	0.29	0.34	0.54

Intersection Summary

HCM Signalized Intersection Capacity Analysis
108: Chapel St/Gerrie Rd & East Mill St

Background - 2040
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔		↔	↔		↔	↔	↔
Traffic Volume (vph)	21	293	0	0	273	92	0	0	0	188	0	57
Future Volume (vph)	21	293	0	0	273	92	0	0	0	188	0	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0					4.0		
Lane Util. Factor	1.00	1.00			1.00					1.00		
Flt	1.00	1.00			0.97					0.97		
Flt Protected	0.95	1.00			1.00					0.96		
Satd. Flow (prot)	1687	1681			1769					1707		
Flt Permitted	0.49	1.00			1.00					0.78		
Satd. Flow (perm)	862	1681			1769					1376		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	23	318	0	0	297	100	0	0	0	204	0	62
RTOR Reduction (vph)	0	0	0	0	17	0	0	0	0	0	49	0
Lane Group Flow (vph)	23	318	0	0	380	0	0	0	0	217	0	0
Heavy Vehicles (%)	7%	13%	0%	0%	4%	3%	0%	0%	0%	1%	0%	13%
Turn Type	Perm	NA			NA					Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	35.1	35.1			35.1					14.3		
Effective Green, g (s)	38.4	38.4			38.4					17.0		
Actuated g/C Ratio	0.61	0.61			0.61					0.27		
Clearance Time (s)	7.3	7.3			7.3					6.7		
Vehicle Extension (s)	3.0	3.0			3.0					3.0		
Lane Grp Cap (vph)	522	1018			1071					368		
v/s Ratio Prot		0.19			c0.22							
v/s Ratio Perm	0.03									c0.16		
v/c Ratio	0.04	0.31			0.36					0.59		
Uniform Delay, d1	5.1	6.1			6.3					20.2		
Progression Factor	1.00	1.00			1.00					1.00		
Incremental Delay, d2	0.0	0.2			0.2					2.4		
Delay (s)	5.1	6.3			6.5					22.6		
Level of Service	A	A			A					C		
Approach Delay (s)		6.2			6.5		0.0			22.6		
Approach LOS		A			A		A			C		
Intersection Summary												
HCM 2000 Control Delay	10.6			HCM 2000 Level of Service			B					
HCM 2000 Volume to Capacity ratio	0.43											
Actuated Cycle Length (s)	63.4			Sum of lost time (s)			8.0					
Intersection Capacity Utilization	49.7%			ICU Level of Service			A					
Analysis Period (min)	15											
c Critical Lane Group												

HCM 6th Signalized Intersection Summary
108: Chapel St/Gerrie Rd & East Mill St

Background - 2040
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔		↔	↔		↔	↔	↔
Traffic Volume (veh/h)	21	293	0	0	273	92	0	0	0	188	0	57
Future Volume (veh/h)	21	293	0	0	273	92	0	0	0	188	0	57
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1707	1900	1900	1841	1856	1900	1900	1900	1885	1900	1707
Adj Flow Rate, veh/h	23	318	0	0	297	100	0	0	0	204	0	62
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
Percent Heavy Veh, %	7	13	0	0	4	3	0	0	0	1	0	13
Cap, veh/h	588	1048	0	0	808	272	0	491	0	394	0	89
Arrive On Green	0.61	0.61	0.00	0.00	0.61	0.56	0.00	0.00	0.00	0.21	0.00	0.21
Sat Flow, veh/h	948	1707	0	0	1317	444	0	1900	0	1132	0	344
Grp Volume(v), veh/h	23	318	0	0	0	397	0	0	0	266	0	0
Grp Sat Flow(s),veh/h/ln	948	1707	0	0	0	1761	0	1900	0	1476	0	0
Q Serve(g_s), s	0.8	5.5	0.0	0.0	0.0	7.2	0.0	0.0	0.0	10.8	0.0	0.0
Cycle Q Clear(g_c), s	8.0	5.5	0.0	0.0	0.0	7.2	0.0	0.0	0.0	10.8	0.0	0.0
Prop In Lane	1.00		0.00	0.00		0.25	0.00		0.00	0.77		0.23
Lane Grp Cap(c), veh/h	588	1048	0	0	0	1080	0	491	0	419	0	0
V/C Ratio(X)	0.04	0.30	0.00	0.00	0.00	0.37	0.00	0.00	0.00	0.63	0.00	0.00
Avail Cap(c_a), veh/h	632	1127	0	0	0	1162	0	633	0	530	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	8.1	5.7	0.0	0.0	0.0	6.3	0.0	0.0	0.0	22.4	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	0.0	0.2	0.0	0.0	0.0	1.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	2.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.1	5.9	0.0	0.0	0.0	6.5	0.0	0.0	0.0	24.0	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	A	A	A	C	A	A
Approach Vol, veh/h	341			397			0			266		
Approach Delay, s/veh	6.0			6.5			0.0			24.0		
Approach LOS	A			A						C		
Timer - Assigned Phs												
Phs Duration (G+Y+Rc), s	42.3			20.1			42.3			20.1		
Change Period (Y+Rc), s	* 7.3			* 6.7			* 7.3			* 6.7		
Max Green Setting (Gmax), s	* 38			* 18			* 38			* 18		
Max Q Clear Time (g_c+1), s	10.0			0.0			9.2			12.8		
Green Ext Time (p_c), s	2.6			0.0			3.1			0.8		
Intersection Summary												
HCM 6th Ctrl Delay	11.0											
HCM 6th LOS	B											
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Lanes, Volumes, Timings
201: Irvine St & Cachet Clayton

Background - 2040
AM Peak Hour

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	44	71	22	101	83	15
Future Volume (vph)	44	71	22	101	83	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.917				0.980	
Flt Protected	0.981			0.991		
Satd. Flow (prot)	1709	0	0	1852	1831	0
Flt Permitted	0.981			0.991		
Satd. Flow (perm)	1709	0	0	1852	1831	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	141.5			246.8	201.5	
Travel Time (s)	10.2			17.8	14.5	
Confl. Peds. (#/hr)			5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	2%	2%	0%
Adj. Flow (vph)	48	77	24	110	90	16
Shared Lane Traffic (%)						
Lane Group Flow (vph)	125	0	0	134	106	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	26.7%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis
201: Irvine St & Cachet Clayton

Background - 2040
AM Peak Hour

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	44	71	22	101	83	15
Future Volume (Veh/h)	44	71	22	101	83	15
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	48	77	24	110	90	16
Pedestrians	5					
Lane Width (m)	3.6					
Walking Speed (m/s)	1.2					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	261	103	111			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	261	103	111			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	93	92	98			
cM capacity (veh/h)	717	953	1485			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	125	134	106
Volume Left	48	24	0
Volume Right	77	0	16
eSH	846	1485	1700
Volume to Capacity	0.15	0.02	0.06
Queue Length 95th (m)	4.1	0.4	0.0
Control Delay (s)	10.0	1.4	0.0
Lane LOS	A	A	
Approach Delay (s)	10.0	1.4	0.0
Approach LOS	A		

Intersection Summary	
Average Delay	4.0
Intersection Capacity Utilization	26.7%
Analysis Period (min)	15
	ICU Level of Service A

Intersection						
Int Delay, s/veh	3.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔		↔	↕	↕	
Traffic Vol, veh/h	44	71	22	101	83	15
Future Vol, veh/h	44	71	22	101	83	15
Conflicting Peds, #/hr	0	0	5	0	0	5
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, %	0	0	0	2	2	0
Mvmt Flow	48	77	24	110	90	16
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	261	103	111	0	-	0
Stage 1	103	-	-	-	-	-
Stage 2	158	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	732	957	1492	-	-	-
Stage 1	926	-	-	-	-	-
Stage 2	875	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	714	953	1486	-	-	-
Mov Cap-2 Maneuver	714	-	-	-	-	-
Stage 1	907	-	-	-	-	-
Stage 2	872	-	-	-	-	-
Approach	EB	NB	SB			
HCM Control Delay, s	10	1.3	0			
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1486	-	845	-	-	
HCM Lane V/C Ratio	0.016	-	0.148	-	-	
HCM Control Delay (s)	7.5	0	10	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0	-	0.5	-	-	

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔	↕	↕	↕
Traffic Volume (vph)	73	252	161	57	359	225
Future Volume (vph)	73	252	161	57	359	225
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.895	0.965				
Fit Protected	0.989			0.970		
Satd. Flow (prot)	1631	0	1819	0	0	1825
Fit Permitted	0.989			0.970		
Satd. Flow (perm)	1631	0	1819	0	0	1825
Link Speed (k/h)	50	50		50		
Link Distance (m)	120.4	303.1		136.1		
Travel Time (s)	8.7	21.8		9.8		
Confl. Peds. (#/hr)				3	3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	7%	2%	0%	3%	1%	1%
Adj. Flow (vph)	79	274	175	62	390	245
Shared Lane Traffic (%)						
Lane Group Flow (vph)	353	0	237	0	0	635
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6	0.0		0.0		
Link Offset(m)	0.0	0.0		0.0		
Crosswalk Width(m)	4.8	4.8		4.8		
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	15	15	25	
Sign Control	Stop	Free		Free		
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	73.4%			ICU Level of Service D		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis
101: Geddes St & James St

Background - 2040
PM Peak Hour

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Volume (veh/h)	73	252	161	57	359	225
Future Volume (Veh/h)	73	252	161	57	359	225
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	79	274	175	62	390	245
Pedestrians	3					
Lane Width (m)	3.6					
Walking Speed (m/s)	1.2					
Percent Blockage	0					
Right turn flare (veh)						
Median type			None		None	
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1234	209			240	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1234	209			240	
tC, single (s)	6.5	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.6	3.3			2.2	
p0 queue free %	41	67			71	
cM capacity (veh/h)	134	829			1329	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	353	237	635			
Volume Left	79	0	390			
Volume Right	274	62	0			
eSH	384	1700	1329			
Volume to Capacity	0.92	0.14	0.29			
Queue Length 95th (m)	77.8	0.0	9.9			
Control Delay (s)	61.0	0.0	6.6			
Lane LOS	F		A			
Approach Delay (s)	61.0	0.0	6.6			
Approach LOS	F					
Intersection Summary						
Average Delay			21.0			
Intersection Capacity Utilization			73.4%	ICU Level of Service	D	
Analysis Period (min)			15			

HCM 6th TWSC
101: Geddes St & James St

Background - 2040
PM Peak Hour

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	73	252	161	57	359	225
Future Vol, veh/h	73	252	161	57	359	225
Conflicting Peds, #/hr	0	0	0	3	3	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, %	7	2	0	3	1	1
Mvmt Flow	79	274	175	62	390	245
Intersection						
Int Delay, s/veh	23.8					
Major/Minor						
	Minor1	Major1	Major2			
Conflicting Flow All	1234	209	0	0	240	0
Stage 1	209	-	-	-	-	-
Stage 2	1025	-	-	-	-	-
Critical Hdwy	6.47	6.22	-	-	4.11	-
Critical Hdwy Stg 1	5.47	-	-	-	-	-
Critical Hdwy Stg 2	5.47	-	-	-	-	-
Follow-up Hdwy	3.563	3.318	-	-	2.209	-
Pot Cap-1 Maneuver	190	831	-	-	1333	-
Stage 1	814	-	-	-	-	-
Stage 2	339	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	125	829	-	-	1330	-
Mov Cap-2 Maneuver	125	-	-	-	-	-
Stage 1	812	-	-	-	-	-
Stage 2	224	-	-	-	-	-
Approach						
	WB	NB	SB			
HCM Control Delay, s	72.8	0	5.4			
HCM LOS	F					
Minor Lane/Major Mvmt						
	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	366	1330	-	-
HCM Lane V/C Ratio	-	-	0.965	0.293	-	-
HCM Control Delay (s)	-	-	72.8	8.8	0	-
HCM Lane LOS	-	-	F	A	A	-
HCM 95th %tile Q(veh)	-	-	10.7	1.2	-	-

Lanes, Volumes, Timings

102: Irvine St & Woolwich St/Nichol Rd 15

Background - 2040

PM Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔				↔
Traffic Volume (vph)	5	336	75	70	250	0	70	3	73	7	8	4
Future Volume (vph)	5	336	75	70	250	0	70	3	73	7	8	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.976						0.932			0.974	
Fit Protected		0.999			0.989			0.977			0.981	
Satd. Flow (prot)	0	1745	0	0	1824	0	0	1713	0	0	1590	0
Fit Permitted		0.999			0.989			0.977			0.981	
Satd. Flow (perm)	0	1745	0	0	1824	0	0	1713	0	0	1590	0
Link Speed (k/h)		40			40			50			50	
Link Distance (m)		556.2			1016.6			220.4			704.4	
Travel Time (s)		50.1			91.5			15.9			50.7	
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%	2%	25%	3%	3%	0%	0%	0%	2%	0%	33%	0%
Adj. Flow (vph)	5	365	82	76	272	0	76	3	79	8	9	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	452	0	0	348	0	0	158	0	0	21	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	61.9%
Analysis Period (min)	15
ICU Level of Service	B

HCM Unsignalized Intersection Capacity Analysis

102: Irvine St & Woolwich St/Nichol Rd 15

Background - 2040

PM Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔				↔
Traffic Volume (veh/h)	5	336	75	70	250	0	70	3	73	7	8	4
Future Volume (Veh/h)	5	336	75	70	250	0	70	3	73	7	8	4
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	5	365	82	76	272	0	76	3	79	8	9	4
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	272			447			848	840	406	920	881	272
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	272			447			848	840	406	920	881	272
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.8	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.3	3.3
p0 queue free %	100			93			71	99	88	96	96	99
cM capacity (veh/h)	1303			1108			259	282	645	208	236	772

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	452	348	158	21
Volume Left	5	76	76	8
Volume Right	82	0	79	4
eSH	1303	1108	370	257
Volume to Capacity	0.00	0.07	0.43	0.08
Queue Length 95th (m)	0.1	1.8	16.6	2.1
Control Delay (s)	0.1	2.4	21.8	20.2
Lane LOS	A	A	C	C
Approach Delay (s)	0.1	2.4	21.8	20.2
Approach LOS			C	C

Intersection Summary

Average Delay	4.9
Intersection Capacity Utilization	61.9%
Analysis Period (min)	15
ICU Level of Service	B

Intersection												
Int Delay, s/veh	4.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔		↔		↔		↔		↔		↔	
Traffic Vol, veh/h	5	336	75	70	250	0	70	3	73	7	8	4
Future Vol, veh/h	5	336	75	70	250	0	70	3	73	7	8	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	2	25	3	3	0	0	0	2	0	33	0
Mvmt Flow	5	365	82	76	272	0	76	3	79	8	9	4
Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	272	0	0	447	0	0	847	840	406	881	881	272
Stage 1	-	-	-	-	-	-	416	416	-	424	424	-
Stage 2	-	-	-	-	-	-	431	424	-	457	457	-
Critical Hdwy	4.1	-	-	4.13	-	-	7.1	6.5	6.22	7.1	6.83	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.83	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.83	-
Follow-up Hdwy	2.2	-	-	2.227	-	-	3.5	4	3.318	3.5	4.297	3.3
Pot Cap-1 Maneuver	1303	-	-	1108	-	-	284	304	645	269	255	772
Stage 1	-	-	-	-	-	-	618	595	-	612	537	-
Stage 2	-	-	-	-	-	-	607	590	-	587	519	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1303	-	-	1108	-	-	256	278	645	218	233	772
Mov Cap-2 Maneuver	-	-	-	-	-	-	256	278	-	218	233	-
Stage 1	-	-	-	-	-	-	615	592	-	609	494	-
Stage 2	-	-	-	-	-	-	545	542	-	509	516	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	0.1		1.9		22.1		19.7					
HCM LOS					C		C					
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	367	1303	-	-	1108	-	-	265				
HCM Lane V/C Ratio	0.432	0.004	-	-	0.069	-	-	0.078				
HCM Control Delay (s)	22.1	7.8	0	-	8.5	0	-	19.7				
HCM Lane LOS	C	A	A	-	A	A	-	C				
HCM 95th %tile Q(veh)	2.1	0	-	-	0.2	-	-	0.3				

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	22	13	12	166	115	29
Future Volume (vph)	22	13	12	166	115	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.950				0.972	
Fit Protected	0.969		0.997			
Satd. Flow (prot)	1749		0		1860	
Fit Permitted	0.969		0.997			
Satd. Flow (perm)	1749		0		1860	
Link Speed (k/h)	50		50		50	
Link Distance (m)	361.7		908.3		227.8	
Travel Time (s)	26.0		65.4		16.4	
Confl. Peds. (#/hr)			5		5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	2%	6%	0%
Adj. Flow (vph)	24	14	13	180	125	32
Shared Lane Traffic (%)						
Lane Group Flow (vph)	38	0	0	193	157	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6		0.0		0.0	
Link Offset(m)	0.0		0.0		0.0	
Crosswalk Width(m)	4.8		4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15		25	
Sign Control	Stop		Free		Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	28.6%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis
103: Irvine St & Bricker Ave

Background - 2040
PM Peak Hour

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔			↑	↑	
Traffic Volume (veh/h)	22	13	12	166	115	29
Future Volume (Veh/h)	22	13	12	166	115	29
Sign Control	Stop		Free			
Grade	0%		0%			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	24	14	13	180	125	32
Pedestrians	5					
Lane Width (m)	3.6					
Walking Speed (m/s)	1.2					
Percent Blockage	0					
Right turn flare (veh)						
Median type			None		None	
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	352	146	162			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	352	146	162			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	98	99			
cM capacity (veh/h)	641	903	1423			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	38	193	157			
Volume Left	24	13	0			
Volume Right	14	0	32			
eSH	718	1423	1700			
Volume to Capacity	0.05	0.01	0.09			
Queue Length 95th (m)	1.3	0.2	0.0			
Control Delay (s)	10.3	0.6	0.0			
Lane LOS	B	A				
Approach Delay (s)	10.3	0.6	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay			1.3			
Intersection Capacity Utilization	28.6%		ICU Level of Service	A		
Analysis Period (min)	15					

HCM 6th TWSC
103: Irvine St & Bricker Ave

Background - 2040
PM Peak Hour

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔			↑	↑	
Traffic Vol, veh/h	22	13	12	166	115	29
Future Vol, veh/h	22	13	12	166	115	29
Conflicting Peds, #/hr	0	0	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	- None		- None			
Storage Length	0					
Veh in Median Storage, #	0					
Grade, %	0					
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0					
Mvmt Flow	24	14	13	180	125	32
Intersection						
Int Delay, s/veh	1.3					
Major/Minor						
Conflicting Flow All	Minor2	Major1	Major2			
Stage 1	146	-	-			
Stage 2	206	-	-			
Critical Hdwy	6.4	6.2	4.1			
Critical Hdwy Stg 1	5.4	-	-			
Critical Hdwy Stg 2	5.4	-	-			
Follow-up Hdwy	3.5	3.3	2.2			
Pot Cap-1 Maneuver	650	906	1429			
Stage 1	886	-	-			
Stage 2	833	-	-			
Platoon blocked, %						
Mov Cap-1 Maneuver	638	902	1423			
Mov Cap-2 Maneuver	638	-	-			
Stage 1	874	-	-			
Stage 2	830	-	-			
Approach						
Approach	EB	NB	SB			
HCM Control Delay, s	10.3	0.5	0			
HCM LOS	B					
Minor Lane/Major Mvmt						
Capacity (veh/h)	NBL	NBT EBLn1	SBT	SBR		
HCM Lane V/C Ratio	1423	- 716	-	-		
HCM Control Delay (s)	0.009	- 0.053	-	-		
HCM Lane LOS	7.6	0 10.3	-	-		
HCM 95th %tile Q(veh)	A	A B	-	-		
	0	- 0.2	-	-		

Lanes, Volumes, Timings
104: Irvine St & Colborne St

Background - 2040
PM Peak Hour

	↖	→	↘	↙	←	↖	↙	↑	↘	↙	↓	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	40	298	4	8	254	94	3	90	21	82	74	22
Future Volume (vph)	40	298	4	8	254	94	3	90	21	82	74	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.999			0.964			0.975			0.983	
Flt Protected		0.994			0.999			0.999			0.977	
Satd. Flow (prot)	0	1870	0	0	1781	0	0	1851	0	0	1800	0
Flt Permitted		0.994			0.999			0.999			0.977	
Satd. Flow (perm)	0	1870	0	0	1781	0	0	1851	0	0	1800	0
Link Speed (k/h)		40			40			40			40	
Link Distance (m)		619.9			1021.3			327.0			274.5	
Travel Time (s)		55.8			91.9			29.4			24.7	
Confl. Peds. (#/hr)	6					6						
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%	1%	0%	0%	2%	5%	0%	0%	0%	3%	0%	0%
Adj. Flow (vph)	43	324	4	9	276	102	3	98	23	89	80	24
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	371	0	0	387	0	0	124	0	0	193	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	60.1% ICU Level of Service B
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
104: Irvine St & Colborne St

Background - 2040
PM Peak Hour

	↖	→	↘	↙	←	↖	↙	↑	↘	↙	↓	↘
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	40	298	4	8	254	94	3	90	21	82	74	22
Future Volume (vph)	40	298	4	8	254	94	3	90	21	82	74	22
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
Hourly flow rate (vph)	43	324	4	9	276	102	3	98	23	89	80	24
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	371	387	124	193								
Volume Left (vph)	43	9	3	89								
Volume Right (vph)	4	102	23	24								
Hadj (s)	0.03	-0.11	-0.11	0.04								
Departure Headway (s)	5.6	5.5	6.4	6.3								
Degree Utilization, x	0.58	0.59	0.22	0.34								
Capacity (veh/h)	607	626	470	500								
Control Delay (s)	16.0	15.9	11.1	12.5								
Approach Delay (s)	16.0	15.9	11.1	12.5								
Approach LOS	C	C	B	B								
Intersection Summary												
Delay				14.8								
Level of Service				B								
Intersection Capacity Utilization			60.1%	ICU Level of Service						B		
Analysis Period (min)			15									

HCM 6th AWSC
104: Irvine St & Colborne St

Background - 2040
PM Peak Hour

Intersection	
Intersection Delay, s/veh	14.6
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	40	298	4	8	254	94	3	90	21	82	74	22
Future Vol, veh/h	40	298	4	8	254	94	3	90	21	82	74	22
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	1	0	0	2	5	0	0	0	3	0	0
Mvmt Flow	43	324	4	9	276	102	3	98	23	89	80	24
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	15.8	15.5	11.1	12.5
HCM LOS	C	C	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	3%	12%	2%	46%
Vol Thru, %	79%	87%	71%	42%
Vol Right, %	18%	1%	26%	12%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	114	342	356	178
LT Vol	3	40	8	82
Through Vol	90	298	254	74
RT Vol	21	4	94	22
Lane Flow Rate	124	372	387	193
Geometry Grp	1	1	1	1
Degree of Util (X)	0.216	0.571	0.576	0.336
Departure Headway (Hd)	6.268	5.533	5.356	6.258
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	568	647	669	571
Service Time	4.367	3.607	3.428	4.348
HCM Lane V/C Ratio	0.218	0.575	0.578	0.338
HCM Control Delay	11.1	15.8	15.5	12.5
HCM Lane LOS	B	C	C	B
HCM 95th-tile Q	0.8	3.6	3.7	1.5

Lanes, Volumes, Timings
105: Irvine St & East Mill St

Background - 2040
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	44	340	1	1	345	58	1	0	0	45	0	36
Future Volume (vph)	44	340	1	1	345	58	1	0	0	45	0	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt					0.981							0.940
Fit Protected		0.994						0.950				0.973
Satd. Flow (prot)	0	1872	0	0	1848	0	0	1805	0	0	0	1738
Fit Permitted		0.994						0.950				0.973
Satd. Flow (perm)	0	1872	0	0	1848	0	0	1805	0	0	0	1738
Link Speed (k/h)		40			40			40				40
Link Distance (m)		212.3			172.2			54.2				327.0
Travel Time (s)		19.1			15.5			4.9				29.4
Confl. Peds. (#/hr)	5					5						
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%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	48	370	1	1	375	63	1	0	0	49	0	39
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	419	0	0	439	0	0	1	0	0	88	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0				0.0
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		4.8			4.8			4.8				4.8
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop				Stop

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	56.4%
ICU Level of Service	B
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
105: Irvine St & East Mill St

Background - 2040
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (veh/h)	44	340	1	1	345	58	1	0	0	45	0	36
Future Volume (Veh/h)	44	340	1	1	345	58	1	0	0	45	0	36
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
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
Hourly flow rate (vph)	48	370	1	1	375	63	1	0	0	49	0	39
Pedestrians												5
Lane Width (m)												3.6
Walking Speed (m/s)												1.2
Percent Blockage												0
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	443	371			914			912	370	880	880	412
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	443	371			914			912	370	880	880	412
tC, single (s)	4.1	4.1			7.1			6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2	2.2			3.5			4.0	3.3	3.5	4.0	3.3
p0 queue free %	96	100			100			100	100	81	100	94
cM capacity (veh/h)	1123	1199			232			263	680	259	274	642
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	419	439	1	88								
Volume Left	48	1	1	49								
Volume Right	1	63	0	39								
eSH	1123	1199	232	352								
Volume to Capacity	0.04	0.00	0.00	0.25								
Queue Length 95th (m)	1.1	0.0	0.1	7.8								
Control Delay (s)	1.4	0.0	20.6	18.6								
Lane LOS	A	A	C	C								
Approach Delay (s)	1.4	0.0	20.6	18.6								
Approach LOS			C	C								
Intersection Summary												
Average Delay	2.4											
Intersection Capacity Utilization	56.4%			ICU Level of Service			B					
Analysis Period (min)	15											

HCM 6th TWSC
105: Irvine St & East Mill St

Background - 2040
PM Peak Hour

Intersection												
Int Delay, s/veh	2.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	44	340	1	1	345	58	1	0	0	45	0	36
Future Vol, veh/h	44	340	1	1	345	58	1	0	0	45	0	36
Conflicting Peds, #/hr	5	0	0	0	0	5	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	1	0	0	1	0	0	0	0	0	0	0
Mvmt Flow	48	370	1	1	375	63	1	0	0	49	0	39
Major/Minor												
	Major1	Major2		Minor1		Minor2						
Conflicting Flow All	443	0	0	371	0	0	895	912	371	881	881	412
Stage 1	-	-	-	-	-	-	467	467	-	414	414	-
Stage 2	-	-	-	-	-	-	428	445	-	467	467	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1128	-	-	1199	-	-	264	276	679	269	288	644
Stage 1	-	-	-	-	-	-	580	565	-	620	597	-
Stage 2	-	-	-	-	-	-	609	578	-	580	565	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1123	-	-	1199	-	-	238	260	679	257	271	641
Mov Cap-2 Maneuver	-	-	-	-	-	-	238	260	-	257	271	-
Stage 1	-	-	-	-	-	-	549	534	-	584	594	-
Stage 2	-	-	-	-	-	-	571	575	-	549	534	-
Approach												
	EB	WB		NB		SB						
HCM Control Delay, s	1	0		20.2		18.7						
HCM LOS				C		C						
Minor Lane/Major Mvmt												
	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	238	1123	-	-	1199	-	-	350				
HCM Lane V/C Ratio	0.005	0.043	-	-	0.001	-	-	0.252				
HCM Control Delay (s)	20.2	8.3	0	-	8	0	-	18.7				
HCM Lane LOS	C	A	A	-	A	A	-	C				
HCM 95th %tile Q(veh)	0	0.1	-	-	0	-	-	1				

Lanes, Volumes, Timings
106: Gerrie Rd & Nichol Rd 15

Background - 2040
PM Peak Hour

	↖	→	↘	↙	←	↖	↙	↘	↙	↘	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	15	401	0	37	312	10	3	1	26	10	0	5
Future Volume (vph)	15	401	0	37	312	10	3	1	26	10	0	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.996			0.882			0.958	
Fit Protected		0.998			0.995			0.995			0.967	
Satd. Flow (prot)	0	1878	0	0	1867	0	0	1667	0	0	1633	0
Fit Permitted		0.998			0.995			0.995			0.967	
Satd. Flow (perm)	0	1878	0	0	1867	0	0	1667	0	0	1633	0
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		1016.6			999.6			1630.3			439.6	
Travel Time (s)		45.7			45.0			117.4			31.7	
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%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	25%
Adj. Flow (vph)	16	436	0	40	339	11	3	1	28	11	0	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	452	0	0	390	0	0	32	0	0	16	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	43.0%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis
106: Gerrie Rd & Nichol Rd 15

Background - 2040
PM Peak Hour

	↖	→	↘	↙	←	↖	↙	↘	↙	↘	↙	↘
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	15	401	0	37	312	10	3	1	26	10	0	5
Future Volume (Veh/h)	15	401	0	37	312	10	3	1	26	10	0	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	16	436	0	40	339	11	3	1	28	11	0	5
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	350			436			898	898	436	921	892	344
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	350			436			898	898	436	921	892	344
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.5
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.5
p0 queue free %	99			96			99	100	96	95	100	99
cM capacity (veh/h)	1220			1134			251	268	625	232	270	649

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	452	390	32	16
Volume Left	16	40	3	11
Volume Right	0	11	28	5
eSH	1220	1134	529	291
Volume to Capacity	0.01	0.04	0.06	0.06
Queue Length 95th (m)	0.3	0.9	1.5	1.4
Control Delay (s)	0.4	1.2	12.2	18.1
Lane LOS	A	A	B	C
Approach Delay (s)	0.4	1.2	12.2	18.1
Approach LOS			B	C

Intersection Summary	
Average Delay	1.5
Intersection Capacity Utilization	43.0%
Analysis Period (min)	15
	ICU Level of Service A

Intersection												
Int Delay, s/veh	1.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔		↔		↔		↔		↔		↔	
Traffic Vol, veh/h	15	401	0	37	312	10	3	1	26	10	0	5
Future Vol, veh/h	15	401	0	37	312	10	3	1	26	10	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	1	0	0	1	0	0	0	0	0	0	25
Mvmt Flow	16	436	0	40	339	11	3	1	28	11	0	5

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	350	0	0	436
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	4.1	-	-	4.1
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	2.2	-	-	2.2
Pot Cap-1 Maneuver	1220	-	-	1134
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	1220	-	-	1134
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.9	12.3	17.8
HCM LOS			B	C


Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	523	1220	-	-	1134	-	-	297
HCM Lane V/C Ratio	0.062	0.013	-	-	0.035	-	-	0.055
HCM Control Delay (s)	12.3	8	0	-	8.3	0	-	17.8
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.2	0	-	-	0.1	-	-	0.2

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	56	235	73	19	274	65	110	90	32	60	70	51
Future Volume (vph)	56	235	73	19	274	65	110	90	32	60	70	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Friction	0.973			0.975			0.981			0.962		
Fit Protected	0.992			0.997			0.977			0.984		
Satd. Flow (prot)	0	1781	0	0	1803	0	0	1615	0	0	1707	0
Fit Permitted	0.992			0.997			0.977			0.984		
Satd. Flow (perm)	0	1781	0	0	1803	0	0	1615	0	0	1707	0
Link Speed (k/h)	40			50			50			50		
Link Distance (m)	1021.3			906.6			376.2			1630.3		
Travel Time (s)	91.9			65.3			27.1			117.4		
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 (%)	5%	0%	11%	0%	2%	5%	15%	11%	10%	0%	11%	4%
Adj. Flow (vph)	61	255	79	21	298	71	120	98	35	65	76	55
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	395	0	0	390	0	0	253	0	0	196	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	0.0			0.0			0.0			0.0		
Link Offset(m)	0.0			0.0			0.0			0.0		
Crosswalk Width(m)	4.8			4.8			4.8			4.8		
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25	25	15	25	15	25	15	25	15	25
Sign Control	Stop			Stop			Stop			Stop		

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	63.7%
ICU Level of Service	B
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
107: Gerrie Rd & Colborne St

Background - 2040
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↕			↕			↕			↕		
Sign Control	Stop			Stop			Stop			Stop		
Traffic Volume (vph)	56	235	73	19	274	65	110	90	32	60	70	51
Future Volume (vph)	56	235	73	19	274	65	110	90	32	60	70	51
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
Hourly flow rate (vph)	61	255	79	21	298	71	120	98	35	65	76	55
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	395	390	253	196								
Volume Left (vph)	61	21	120	65								
Volume Right (vph)	79	71	35	55								
Hadj (s)	-0.04	-0.06	0.23	-0.01								
Departure Headway (s)	6.5	6.5	7.3	7.3								
Degree Utilization, x	0.71	0.70	0.51	0.40								
Capacity (veh/h)	530	525	434	420								
Control Delay (s)	23.7	23.2	17.7	14.9								
Approach Delay (s)	23.7	23.2	17.7	14.9								
Approach LOS	C	C	C	B								
Intersection Summary												
Delay	20.9											
Level of Service	C											
Intersection Capacity Utilization	63.7%		ICU Level of Service		B							
Analysis Period (min)	15											

HCM 6th AWSC
107: Gerrie Rd & Colborne St

Background - 2040
PM Peak Hour

Intersection												
Intersection Delay, s/veh	20.3											
Intersection LOS	C											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	56	235	73	19	274	65	110	90	32	60	70	51
Future Vol, veh/h	56	235	73	19	274	65	110	90	32	60	70	51
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, %	5	0	11	0	2	5	15	11	10	0	11	4
Mvmt Flow	61	255	79	21	298	71	120	98	35	65	76	55
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Approach	EB	WB	NB	SB								
Opposing Approach	WB	EB	SB	NB								
Opposing Lanes	1	1	1	1								
Conflicting Approach Left	SB	NB	EB	WB								
Conflicting Lanes Left	1	1	1	1								
Conflicting Approach Right	NB	SB	WB	EB								
Conflicting Lanes Right	1	1	1	1								
HCM Control Delay	23.2	22	17.7	14.6								
HCM LOS	C	C	C	B								
Lane	NBLn1	EBLn1	WBLn1	SBLn1								
Vol Left, %	47%	15%	5%	33%								
Vol Thru, %	39%	65%	77%	39%								
Vol Right, %	14%	20%	18%	28%								
Sign Control	Stop	Stop	Stop	Stop								
Traffic Vol by Lane	232	364	358	181								
LT Vol	110	56	19	60								
Through Vol	90	235	274	70								
RT Vol	32	73	65	51								
Lane Flow Rate	252	396	389	197								
Geometry Grp	1	1	1	1								
Degree of Util (X)	0.511	0.7	0.681	0.389								
Departure Headway (Hd)	7.288	6.486	6.417	7.123								
Convergence, Y/N	Yes	Yes	Yes	Yes								
Cap	497	562	568	508								
Service Time	5.288	4.486	4.417	5.138								
HCM Lane V/C Ratio	0.507	0.705	0.685	0.388								
HCM Control Delay	17.7	23.2	22	14.6								
HCM Lane LOS	C	C	C	B								
HCM 95th-tile Q	2.9	5.5	5.2	1.8								

Lanes, Volumes, Timings
108: Chapel St/Gerrie Rd & East Mill St

Background - 2040
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔			↔		↔	↔	
Traffic Volume (vph)	48	367	0	0	343	184	0	0	0	134	0	29
Future Volume (vph)	48	367	0	0	343	184	0	0	0	134	0	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	0		0	0		0	0		0
Taper Length (m)	60.0			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor											1.00	
Frt					0.953							0.976
Flt Protected	0.950											0.961
Satd. Flow (prot)	1805	1881	0	0	1804	0	0	1900	0	0	1760	0
Flt Permitted	0.374											0.764
Satd. Flow (perm)	711	1881	0	0	1804	0	0	1900	0	0	1400	0
Right Turn on Red			Yes			Yes		Yes			Yes	
Satd. Flow (RTOR)					67							67
Link Speed (k/h)		60						50				50
Link Distance (m)		314.9			327.9			115.3				376.2
Travel Time (s)		18.9			19.7			8.3				27.1
Confl. Peds. (#/hr)							1					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%	1%	0%	0%	0%	1%	0%	0%	0%	1%	0%	0%
Adj. Flow (vph)	52	399	0	0	373	200	0	0	0	146	0	32
Shared Lane Traffic (%)												
Lane Group Flow (vph)	52	399	0	0	573	0	0	0	0	0	178	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6					0.0		0.0
Link Offset(m)		0.0			0.0					0.0		0.0
Crosswalk Width(m)		4.8			4.8					4.8		4.8
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	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	
Detector 1 Queue (s)	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	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
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	

Lanes, Volumes, Timings
108: Chapel St/Gerrie Rd & East Mill St

Background - 2040
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA			NA						Perm	NA
Protected Phases		2			6			4				8
Permitted Phases	2			6			4				8	
Detector Phase	2	2		6	6		4	4			8	8
Switch Phase												
Minimum Initial (s)	35.0	35.0		35.0	35.0		10.0	10.0			10.0	10.0
Minimum Split (s)	42.3	42.3		42.3	42.3		24.7	24.7			24.7	24.7
Total Split (s)	45.2	45.2		45.2	45.2		24.8	24.8			24.8	24.8
Total Split (%)	64.6%	64.6%		64.6%	64.6%		35.4%	35.4%			35.4%	35.4%
Maximum Green (s)	37.9	37.9		37.9	37.9		18.1	18.1			18.1	18.1
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	4.0
All-Red Time (s)	3.3	3.3		3.3	3.3		2.7	2.7			2.7	2.7
Lost Time Adjust (s)	-3.3	-3.3			-3.3			-2.7				-2.7
Total Lost Time (s)	4.0	4.0			4.0			4.0				4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Recall Mode	Min	Min		Min	Min		None	None			None	None
Walk Time (s)	23.0	23.0		23.0	23.0		7.0	7.0			7.0	7.0
Flash Dont Walk (s)	12.0	12.0		12.0	12.0		7.0	7.0			7.0	7.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	0
Act Effct Green (s)	38.9	38.9			38.9							14.4
Actuated g/C Ratio	0.63	0.63			0.63							0.23
v/c Ratio	0.12	0.33			0.49							0.47
Control Delay	6.0	6.6			7.4							16.8
Queue Delay	0.0	0.0			0.0							0.0
Total Delay	6.0	6.6			7.4							16.8
LOS	A	A			A							B
Approach Delay		6.5			7.4							16.8
Approach LOS		A			A							B
Intersection Summary												
Area Type:	Other											
Cycle Length:	70											
Actuated Cycle Length:	61.3											
Natural Cycle:	70											
Control Type:	Actuated-Uncoordinated											
Maximum v/c Ratio:	0.49											
Intersection Signal Delay:	8.5						Intersection LOS: A					
Intersection Capacity Utilization	55.8%						ICU Level of Service B					
Analysis Period (min)	15											
Splits and Phases:	108: Chapel St/Gerrie Rd & East Mill St											

Queues
108: Chapel St/Gerrie Rd & East Mill St

Background - 2040
PM Peak Hour

	↖	→	←	↓
Lane Group	EBL	EBT	WBT	SBT
Lane Group Flow (vph)	52	399	573	178
v/c Ratio	0.12	0.33	0.49	0.47
Control Delay	6.0	6.6	7.4	16.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	6.0	6.6	7.4	16.8
Queue Length 50th (m)	1.9	16.6	23.2	10.8
Queue Length 95th (m)	7.2	39.2	57.3	26.4
Internal Link Dist (m)		290.9	303.9	352.2
Turn Bay Length (m)	30.0			
Base Capacity (vph)	478	1265	1235	519
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.11	0.32	0.46	0.34
Intersection Summary				

HCM Signalized Intersection Capacity Analysis
108: Chapel St/Gerrie Rd & East Mill St

Background - 2040
PM Peak Hour

	↖	→	↘	↙	←	↖	↙	↑	↗	↘	↓	↗
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖			↖			↖			↖	↖
Traffic Volume (vph)	48	367	0	0	343	184	0	0	0	134	0	29
Future Volume (vph)	48	367	0	0	343	184	0	0	0	134	0	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0						4.0	
Lane Util. Factor	1.00	1.00			1.00						1.00	
Frbp, ped/bikes	1.00	1.00			1.00						1.00	
Flpb, ped/bikes	1.00	1.00			1.00						1.00	
Frt	1.00	1.00			0.95						0.98	
Flt Protected	0.95	1.00			1.00						0.96	
Satd. Flow (prot)	1805	1881			1804						1759	
Flt Permitted	0.37	1.00			1.00						0.76	
Satd. Flow (perm)	711	1881			1804						1399	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	52	399	0	0	373	200	0	0	0	146	0	32
RTOR Reduction (vph)	0	0	0	0	24	0	0	0	0	0	51	0
Lane Group Flow (vph)	52	399	0	0	549	0	0	0	0	0	127	0
Confl. Peds. (#/hr)							1					1
Heavy Vehicles (%)	0%	1%	0%	0%	0%	1%	0%	0%	0%	1%	0%	0%
Turn Type	Perm	NA			NA					Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	35.6	35.6			35.6						11.7	
Effective Green, g (s)	38.9	38.9			38.9						14.4	
Actuated g/C Ratio	0.63	0.63			0.63						0.23	
Clearance Time (s)	7.3	7.3			7.3						6.7	
Vehicle Extension (s)	3.0	3.0			3.0						3.0	
Lane Grp Cap (vph)	451	1193			1144						328	
v/s Ratio Prot		0.21			c0.30							
v/s Ratio Perm	0.07										c0.09	
v/c Ratio	0.12	0.33			0.48						0.39	
Uniform Delay, d1	4.4	5.2			5.9						19.7	
Progression Factor	1.00	1.00			1.00						1.00	
Incremental Delay, d2	0.1	0.2			0.3						0.8	
Delay (s)	4.5	5.4			6.2						20.5	
Level of Service	A	A			A						C	
Approach Delay (s)		5.3			6.2			0.0			20.5	
Approach LOS		A			A			A			C	
Intersection Summary												
HCM 2000 Control Delay			8.0								A	
HCM 2000 Volume to Capacity ratio			0.45									
Actuated Cycle Length (s)			61.3					Sum of lost time (s)			8.0	
Intersection Capacity Utilization			55.8%					ICU Level of Service			B	
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary
108: Chapel St/Gerrie Rd & East Mill St

Background - 2040
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔			↔		↔	↔	
Traffic Volume (veh/h)	48	367	0	0	343	184	0	0	0	134	0	29
Future Volume (veh/h)	48	367	0	0	343	184	0	0	0	134	0	29
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No		No		No		No		No	
Adj Sat Flow, veh/h/ln	1900	1885	1900	1900	1900	1885	1900	1900	1900	1885	1900	1900
Adj Flow Rate, veh/h	52	399	0	0	373	200	0	0	0	146	0	32
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
Percent Heavy Veh, %	0	1	0	0	0	1	0	0	0	1	0	0
Cap, veh/h	536	1234	0	0	762	408	0	397	0	358	5	55
Arrive On Green	0.65	0.65	0.00	0.00	0.65	0.60	0.00	0.00	0.00	0.16	0.00	0.16
Sat Flow, veh/h	853	1885	0	0	1164	624	0	1900	0	1180	26	264
Grp Volume(v), veh/h	52	399	0	0	0	573	0	0	0	178	0	0
Grp Sat Flow(s),veh/h/ln	853	1885	0	0	0	1788	0	1900	0	1470	0	0
Q Serve(g_s), s	2.0	5.4	0.0	0.0	0.0	9.9	0.0	0.0	0.0	6.6	0.0	0.0
Cycle Q Clear(g_c), s	11.9	5.4	0.0	0.0	0.0	9.9	0.0	0.0	0.0	6.7	0.0	0.0
Prop In Lane	1.00		0.00	0.00		0.35	0.00		0.00	0.82		0.18
Lane Grp Cap(c), veh/h	536	1234	0	0	0	1170	0	397	0	351	0	0
V/C Ratio(X)	0.10	0.32	0.00	0.00	0.00	0.49	0.00	0.00	0.00	0.51	0.00	0.00
Avail Cap(c_a), veh/h	579	1327	0	0	0	1259	0	675	0	566	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	8.3	4.4	0.0	0.0	0.0	5.5	0.0	0.0	0.0	22.2	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.2	0.0	0.0	0.0	0.3	0.0	0.0	0.0	1.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	0.1	0.0	0.0	0.0	0.2	0.0	0.0	0.0	1.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.4	4.6	0.0	0.0	0.0	5.8	0.0	0.0	0.0	23.3	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	A	A	A	C	A	A
Approach Vol, veh/h		451			573			0			178	
Approach Delay, s/veh		5.0			5.8			0.0			23.3	
Approach LOS		A			A						C	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		42.3		16.2		42.3		16.2				
Change Period (Y+Rc), s		* 7.3		* 6.7		* 7.3		* 6.7				
Max Green Setting (Gmax), s		* 38		* 18		* 38		* 18				
Max Q Clear Time (g_c+I1), s		13.9		0.0		11.9		8.7				
Green Ext Time (p_c), s		3.3		0.0		4.9		0.7				

Intersection Summary		
HCM 6th Ctrl Delay		8.1
HCM 6th LOS		A

Notes
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lanes, Volumes, Timings
201: Irvine St & Cachet Clayton

Background - 2040
PM Peak Hour

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔	↔		↔	↔	
Traffic Volume (vph)	32	42	74	115	102	52
Future Volume (vph)	32	42	74	115	102	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.923				0.954	
Fit Protected	0.979			0.981		
Satd. Flow (prot)	1717	0	0	1841	1789	0
Fit Permitted	0.979			0.981		
Satd. Flow (perm)	1717	0	0	1841	1789	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	158.0			227.8	220.4	
Travel Time (s)	11.4			16.4	15.9	
Confl. Peds. (#/hr)			5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	2%	2%	0%
Adj. Flow (vph)	35	46	80	125	111	57
Shared Lane Traffic (%)						
Lane Group Flow (vph)	81	0	0	205	168	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization 33.9%	ICU Level of Service A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
201: Irvine St & Cachet Clayton

Background - 2040
PM Peak Hour

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔			↑	↑	
Traffic Volume (veh/h)	32	42	74	115	102	52
Future Volume (Veh/h)	32	42	74	115	102	52
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	35	46	80	125	111	57
Pedestrians	5					
Lane Width (m)	3.6					
Walking Speed (m/s)	1.2					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	430	144	173			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	430	144	173			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	94	95	94			
cM capacity (veh/h)	551	904	1410			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	81	205	168			
Volume Left	35	80	0			
Volume Right	46	0	57			
eSH	708	1410	1700			
Volume to Capacity	0.11	0.06	0.10			
Queue Length 95th (m)	3.1	1.4	0.0			
Control Delay (s)	10.7	3.3	0.0			
Lane LOS	B	A				
Approach Delay (s)	10.7	3.3	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay		3.4				
Intersection Capacity Utilization		33.9%		ICU Level of Service	A	
Analysis Period (min)		15				

HCM 6th TWSC
201: Irvine St & Cachet Clayton

Background - 2040
PM Peak Hour

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔			↑	↑	
Traffic Vol, veh/h	32	42	74	115	102	52
Future Vol, veh/h	32	42	74	115	102	52
Conflicting Peds, #/hr	0	0	5	0	0	5
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, %	0	0	0	2	2	0
Mvmt Flow	35	46	80	125	111	57
Intersection						
Int Delay, s/veh	3.3					
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	430	145	173	0	-	0
Stage 1	145	-	-	-	-	-
Stage 2	285	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	586	908	1416	-	-	-
Stage 1	887	-	-	-	-	-
Stage 2	768	-	-	-	-	-
Platoon blocked, %						
Mov Cap-1 Maneuver	546	904	1410	-	-	-
Mov Cap-2 Maneuver	546	-	-	-	-	-
Stage 1	829	-	-	-	-	-
Stage 2	765	-	-	-	-	-
Approach	EB	NB	SB			
HCM Control Delay, s	10.8	3	0			
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1410	-	704	-	-	
HCM Lane V/C Ratio	0.057	-	0.114	-	-	
HCM Control Delay (s)	7.7	0	10.8	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0.2	-	0.4	-	-	

Appendix F

Total Operations Synchro Reports



Lanes, Volumes, Timings
101: Geddes St & James St

Total - 2035
AM Peak Hour

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	R	T	T	L	R
Traffic Volume (vph)	68	348	107	49	203	109
Future Volume (vph)	68	348	107	49	203	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.887	0.958				
Fit Protected	0.992				0.968	
Satd. Flow (prot)	1616	0	1726	0	0	1768
Fit Permitted	0.992				0.968	
Satd. Flow (perm)	1616	0	1726	0	0	1768
Link Speed (k/h)	50	50		50		
Link Distance (m)	120.4	303.1		136.1		
Travel Time (s)	8.7	21.8		9.8		
Confl. Peds. (#/hr)	1			3	3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	11%	2%	2%	13%	3%	6%
Adj. Flow (vph)	74	378	116	53	221	118
Shared Lane Traffic (%)						
Lane Group Flow (vph)	452	0	169	0	0	339
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6	0.0		0.0		
Link Offset(m)	0.0	0.0		0.0		
Crosswalk Width(m)	4.8	4.8		4.8		
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop	Free		Free		

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	61.4%
Analysis Period (min)	15
	ICU Level of Service B

HCM Unsignalized Intersection Capacity Analysis
101: Geddes St & James St

Total - 2035
AM Peak Hour

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	R	T	T	L	R
Traffic Volume (veh/h)	68	348	107	49	203	109
Future Volume (Veh/h)	68	348	107	49	203	109
Sign Control	Stop	Free		Free		
Grade	0%	0%		0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	74	378	116	53	221	118
Pedestrians	3	1				
Lane Width (m)	3.6	3.6				
Walking Speed (m/s)	1.2	1.2				
Percent Blockage	0	0				
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	707	146			172	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	707	146			172	
tC, single (s)	6.5	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.6	3.3			2.2	
p0 queue free %	77	58			84	
cM capacity (veh/h)	326	899			1395	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	452	169	339
Volume Left	74	0	221
Volume Right	378	53	0
eSH	698	1700	1395
Volume to Capacity	0.65	0.10	0.16
Queue Length 95th (m)	38.1	0.0	4.5
Control Delay (s/veh)	19.1	0.0	5.7
Lane LOS	C		A
Approach Delay (s/veh)	19.1	0.0	5.7
Approach LOS	C		

Intersection Summary			
Average Delay		11.0	
Intersection Capacity Utilization	61.4%	ICU Level of Service	B
Analysis Period (min)	15		

HCM 6th TWSC
101: Geddes St & James St

Total - 2035
AM Peak Hour

Intersection						
Int Delay, s/veh	10.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔	↔	↔	↔	↔	↔
Traffic Vol, veh/h	68	348	107	49	203	109
Future Vol, veh/h	68	348	107	49	203	109
Conflicting Peds, #/hr	1	0	0	3	3	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	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	11	2	2	13	3	6
Mvmt Flow	74	378	116	53	221	118

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	707	146	0
Stage 1	146	-	-
Stage 2	561	-	-
Critical Hdwy	6.51	6.22	4.13
Critical Hdwy Stg 1	5.51	-	-
Critical Hdwy Stg 2	5.51	-	-
Follow-up Hdwy	3.599	3.318	2.227
Pot Cap-1 Maneuver	388	901	1399
Stage 1	860	-	-
Stage 2	554	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	321	899	1395
Mov Cap-2 Maneuver	321	-	-
Stage 1	857	-	-
Stage 2	459	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	19.3	0	5.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	695	1395
HCM Lane V/C Ratio	-	-	0.651	0.158
HCM Ctrl Dly (s/v)	-	-	19.3	8.1
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q (veh)	-	-	4.8	0.6

Lanes, Volumes, Timings
102: Irvine St & Woolwich St/Nichol Rd 15

Total - 2035
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	6	195	51	108	330	4	84	2	79	2	4	1
Future Volume (vph)	6	195	51	108	330	4	84	2	79	2	4	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.973			0.999			0.935			0.981	
Fit Protected		0.999			0.988			0.975			0.986	
Satd. Flow (prot)	0	1689	0	0	1779	0	0	1335	0	0	1205	0
Fit Permitted		0.999			0.988			0.975			0.986	
Satd. Flow (perm)	0	1689	0	0	1779	0	0	1335	0	0	1205	0
Link Speed (k/h)		40			40			50			50	
Link Distance (m)		556.2			256.4			201.5			704.4	
Travel Time (s)		50.1			23.1			14.5			50.7	
Confl. Peds. (#/hr)		2						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 (%)	20%	7%	17%	13%	3%	0%	50%	0%	9%	0%	67%	100%
Adj. Flow (vph)	7	212	55	117	359	4	91	2	86	2	4	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	274	0	0	480	0	0	179	0	0	7	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	63.5%
ICU Level of Service	B
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
 102: Irvine St & Woolwich St/Nichol Rd 15

Total - 2035
 AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (veh/h)	6	195	51	108	330	4	84	2	79	2	4	1
Future Volume (Veh/h)	6	195	51	108	330	4	84	2	79	2	4	1
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
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
Hourly flow rate (vph)	7	212	55	117	359	4	91	2	86	2	4	1
Pedestrians												2
Lane Width (m)												3.6
Walking Speed (m/s)												1.2
Percent Blockage												0
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	365	267			852			853	240	938	878	363
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	365	267			852			853	240	938	878	363
tC, single (s)	4.3	4.2			7.6			6.5	6.3	7.1	7.2	7.2
tC, 2 stage (s)												
tF (s)	2.4	2.3			4.0			4.0	3.4	3.5	4.6	4.2
p0 queue free %	99	91			57			99	89	99	98	100
cM capacity (veh/h)	1099	1236			211			268	782	201	203	508
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	274	480	179	7								
Volume Left	7	117	91	2								
Volume Right	55	4	86	1								
cSH	1099	1236	326	222								
Volume to Capacity	0.01	0.09	0.55	0.03								
Queue Length 95th (m)	0.2	2.5	25.0	0.8								
Control Delay (s/veh)	0.3	2.8	28.7	21.8								
Lane LOS	A	A	D	C								
Approach Delay (s/veh)	0.3	2.8	28.7	21.8								
Approach LOS			D	C								
Intersection Summary												
Average Delay	7.1											
Intersection Capacity Utilization	63.5%			ICU Level of Service	B							
Analysis Period (min)	15											











HCM 6th TWSC
 102: Irvine St & Woolwich St/Nichol Rd 15

Total - 2035
 AM Peak Hour

Intersection												
Int Delay, s/veh	6.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	6	195	51	108	330	4	84	2	79	2	4	1
Future Vol, veh/h	6	195	51	108	330	4	84	2	79	2	4	1
Conflicting Peds, #/hr	2	0	0	0	0	2	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	20	7	17	13	3	0	50	0	9	0	67	100
Mvmt Flow	7	212	55	117	359	4	91	2	86	2	4	1
Major/Minor	Major1	Major2	Minor1	Minor2								
Conflicting Flow All	365	0	0	267	0	0	852	853	240	895	878	363
Stage 1	-	-	-	-	-	-	254	254	-	597	597	-
Stage 2	-	-	-	-	-	-	598	599	-	298	281	-
Critical Hdwy	4.3	-	-	4.23	-	-	7.6	6.5	6.29	7.1	7.17	7.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.6	5.5	-	6.1	6.17	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.6	5.5	-	6.1	6.17	-
Follow-up Hdwy	2.38	-	-	2.317	-	-	3.95	4	3.381	3.5	4.603	4.2
Pot Cap-1 Maneuver	1101	-	-	1236	-	-	232	299	782	264	226	509
Stage 1	-	-	-	-	-	-	656	701	-	493	402	-
Stage 2	-	-	-	-	-	-	415	494	-	715	575	-
Platoon blocked, %												
Mov Cap-1 Maneuver	1099	-	-	1236	-	-	206	261	782	211	197	508
Mov Cap-2 Maneuver	-	-	-	-	-	-	206	261	-	211	197	-
Stage 1	-	-	-	-	-	-	651	695	-	488	353	-
Stage 2	-	-	-	-	-	-	360	434	-	629	570	-
Approach	EB	WB	NB	SB								
HCM Ctrl Dly, s/v	0.2		2				29.8			21.9		
HCM LOS							D			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	319	1099	-	-	1236	-	-	220				
HCM Lane V/C Ratio	0.562	0.006	-	-	0.095	-	-	0.035				
HCM Ctrl Dly (s/v)	29.8	8.3	0	-	8.2	0	-	21.9				
HCM Lane LOS	D	A	A	-	A	A	-	C				
HCM 95th %tile Q (veh)	3.2	0	-	-	0.3	-	-	0.1				











Lanes, Volumes, Timings
103: Irvine St & Bricker Ave

Total - 2035
AM Peak Hour

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	16	22	9	133	239	10
Future Volume (vph)	16	22	9	133	239	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.921				0.995	
Flt Protected	0.980			0.997		
Satd. Flow (prot)	1481	0	0	1524	1573	0
Flt Permitted	0.980			0.997		
Satd. Flow (perm)	1481	0	0	1524	1573	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	361.7			908.3	246.8	
Travel Time (s)	26.0			65.4	17.8	
Confl. Peds. (#/hr)			3			3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	27%	0%	26%	21%	0%
Adj. Flow (vph)	17	24	10	145	260	11
Shared Lane Traffic (%)						
Lane Group Flow (vph)	41	0	0	155	271	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	24.4%				ICU Level of Service A	
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis
103: Irvine St & Bricker Ave

Total - 2035
AM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	16	22	9	133	239	10
Future Volume (Veh/h)	16	22	9	133	239	10
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	17	24	10	145	260	11
Pedestrians	3					
Lane Width (m)	3.6					
Walking Speed (m/s)	1.2					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	434	269	274			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	434	269	274			
tC, single (s)	6.4	6.5	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.5	2.2			
p0 queue free %	97	97	99			
cM capacity (veh/h)	577	712	1298			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	41	155	271			
Volume Left	17	10	0			
Volume Right	24	0	11			
eSH	649	1298	1700			
Volume to Capacity	0.06	0.01	0.16			
Queue Length 95th (m)	1.6	0.2	0.0			
Control Delay (s/veh)	10.9	0.6	0.0			
Lane LOS	B	A				
Approach Delay (s/veh)	10.9	0.6	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay			1.1			
Intersection Capacity Utilization	24.4%		ICU Level of Service		A	
Analysis Period (min)	15					

HCM 6th TWSC
103: Irvine St & Bricker Ave

Total - 2035
AM Peak Hour

Intersection						
Int Delay, s/veh	1.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔			↔	↔	
Traffic Vol, veh/h	16	22	9	133	239	10
Future Vol, veh/h	16	22	9	133	239	10
Conflicting Peds, #/hr	0	0	3	0	0	3
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, %	0	27	0	26	21	0
Mvmt Flow	17	24	10	145	260	11
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	434	269	274	0	-	0
Stage 1	269	-	-	-	-	-
Stage 2	165	-	-	-	-	-
Critical Hdwy	6.4	6.47	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.543	2.2	-	-	-
Pot Cap-1 Maneuver	583	713	1301	-	-	-
Stage 1	781	-	-	-	-	-
Stage 2	869	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	575	711	1298	-	-	-
Mov Cap-2 Maneuver	575	-	-	-	-	-
Stage 1	772	-	-	-	-	-
Stage 2	866	-	-	-	-	-
Approach	EB	NB	SB			
HCM Ctr Dly, s/v	10.9	0.5	0			
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1298	-	647	-	-	
HCM Lane V/C Ratio	0.008	-	0.064	-	-	
HCM Ctr Dly (s/v)	7.8	0	10.9	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q (veh)	0	-	0.2	-	-	

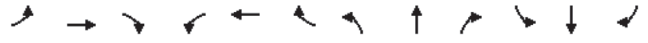
Lanes, Volumes, Timings
104: Irvine St & Colborne St

Total - 2035
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	14	134	5	10	205	56	2	75	9	72	206	59
Future Volume (vph)	14	134	5	10	205	56	2	75	9	72	206	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt	0.996				0.972				0.986		0.976	
Fit Protected	0.996				0.998				0.999		0.989	
Satd. Flow (prot)	0	1805	0	0	1737	0	0	1536	0	0	1660	0
Fit Permitted	0.996				0.998				0.999		0.989	
Satd. Flow (perm)	0	1805	0	0	1737	0	0	1536	0	0	1660	0
Link Speed (k/h)	40				40				40		40	
Link Distance (m)	619.9				1021.3				327.0			
Travel Time (s)	55.8				91.9				29.4			
Confl. Peds. (#/hr)	7						7		1		7	
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%	5%	0%	0%	4%	15%	0%	25%	0%	12%	13%	0%
Adj. Flow (vph)	15	146	5	11	223	61	2	82	10	78	224	64
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	166	0	0	295	0	0	94	0	0	366	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	0.0				0.0				0.0		0.0	
Link Offset(m)	0.0				0.0				0.0		0.0	
Crosswalk Width(m)	4.8				4.8				4.8		4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15		25		15		25		15	
Sign Control	Stop				Stop				Stop		Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	48.4%						ICU Level of Service A					
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis
104: Irvine St & Colborne St

Total - 2035
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↕			↕			↕			↕		
Sign Control	Stop			Stop			Stop			Stop		
Traffic Volume (vph)	14	134	5	10	205	56	2	75	9	72	206	59
Future Volume (vph)	14	134	5	10	205	56	2	75	9	72	206	59
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
Hourly flow rate (vph)	15	146	5	11	223	61	2	82	10	78	224	64
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	166	295	94	366								
Volume Left (vph)	15	11	2	78								
Volume Right (vph)	5	61	10	64								
Hadj (s)	0.07	-0.01	0.31	0.12								
Departure Headway (s)	5.9	5.6	6.2	5.5								
Degree Utilization, x	0.27	0.46	0.16	0.56								
Capacity (veh/h)	553	605	501	616								
Control Delay (s/veh)	11.0	13.1	10.4	15.4								
Approach Delay (s/veh)	11.0	13.1	10.4	15.4								
Approach LOS	B	B	B	C								
Intersection Summary												
Delay	13.4											
Level of Service	B											
Intersection Capacity Utilization	48.4%		ICU Level of Service		A							
Analysis Period (min)	15											

HCM 6th AWSC
104: Irvine St & Colborne St

Total - 2035
AM Peak Hour

Intersection												
Intersection Delay, s/veh	13.1											
Intersection LOS	B											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	14	134	5	10	205	56	2	75	9	72	206	59
Future Vol, veh/h	14	134	5	10	205	56	2	75	9	72	206	59
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	5	0	0	4	15	0	25	0	12	13	0
Mvmt Flow	15	146	5	11	223	61	2	82	10	78	224	64
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Approach	EB	WB			NB			SB				
Opposing Approach	WB	EB			SB			NB				
Opposing Lanes	1	1			1			1				
Conflicting Approach Left	SB	NB			EB			WB				
Conflicting Lanes Left	1	1			1			1				
Conflicting Approach Right	NB	SB			WB			EB				
Conflicting Lanes Right	1	1			1			1				
HCM Control Delay, s/veh	10.8	12.7			9.9			15.3				
HCM LOS	B	B			A			C				
Lane	NBLn1	EBLn1	WBLn1	SBLn1								
Vol Left, %	2%	9%	4%	21%								
Vol Thru, %	87%	88%	76%	61%								
Vol Right, %	10%	3%	21%	18%								
Sign Control	Stop	Stop	Stop	Stop								
Traffic Vol by Lane	86	153	271	337								
LT Vol	2	14	10	72								
Through Vol	75	134	205	206								
RT Vol	9	5	56	59								
Lane Flow Rate	93	166	295	366								
Geometry Grp	1	1	1	1								
Degree of Util (X)	0.15	0.264	0.441	0.558								
Departure Headway (Hd)	5.777	5.71	5.385	5.488								
Convergence, Y/N	Yes	Yes	Yes	Yes								
Cap	618	627	666	656								
Service Time	3.841	3.767	3.434	3.533								
HCM Lane V/C Ratio	0.15	0.265	0.443	0.558								
HCM Control Delay, s/veh	9.9	10.8	12.7	15.3								
HCM Lane LOS	A	B	B	C								
HCM 95th-ile Q	0.5	1.1	2.3	3.5								

Lanes, Volumes, Timings
105: Irvine St & East Mill St

Total - 2035
AM Peak Hour

	↖	→	↗	↙	←	↖	↗	↙	↘	↖	↗	↙	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↕			↕			↕				↕	
Traffic Volume (vph)	35	310	2	0	245	51	0	0	2	133	0	94	
Future Volume (vph)	35	310	2	0	245	51	0	0	2	133	0	94	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor													
Frt		0.999			0.977			0.865				0.944	
Flt Protected		0.995										0.971	
Satd. Flow (prot)	0	1763	0	0	1712	0	0	1644	0	0	1543	0	
Flt Permitted		0.995										0.971	
Satd. Flow (perm)	0	1763	0	0	1712	0	0	1644	0	0	1543	0	
Link Speed (k/h)		40			40			40			40		
Link Distance (m)		212.3			172.2			54.2			327.0		
Travel Time (s)		19.1			15.5			4.9			29.4		
Confl. Peds. (#/hr)	21					21							
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%	8%	0%	0%	4%	30%	0%	0%	0%	17%	0%	7%	
Adj. Flow (vph)	38	337	2	0	266	55	0	0	2	145	0	102	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	377	0	0	321	0	0	2	0	0	247	0	
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No	
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Right	Left	Left	Right	Right	
Median Width(m)		0.0			0.0			0.0			0.0		
Link Offset(m)		0.0			0.0			0.0			0.0		
Crosswalk Width(m)		4.8			4.8			4.8			4.8		
Two way Left Turn Lane													
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (k/h)	25	15	15	25	25	15	25	25	15	25	25	15	
Sign Control		Free			Free			Stop			Stop		

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	64.5% ICU Level of Service C
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
105: Irvine St & East Mill St

Total - 2035
AM Peak Hour

	↖	→	↗	↙	←	↖	↗	↙	↘	↖	↗	↙	↘
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↕			↕			↕				↕	
Traffic Volume (veh/h)	35	310	2	0	245	51	0	0	2	133	0	94	
Future Volume (Veh/h)	35	310	2	0	245	51	0	0	2	133	0	94	
Sign Control		Free			Free			Stop			Stop		
Grade		0%			0%			0%			0%		
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	
Hourly flow rate (vph)	38	337	2	0	266	55	0	0	2	145	0	102	
Pedestrians													21
Lane Width (m)													3.6
Walking Speed (m/s)													1.2
Percent Blockage													2
Right turn flare (veh)													
Median type		None			None								
Median storage (veh)													
Upstream signal (m)													
pX, platoon unblocked													
vC, conflicting volume	342				339			810	756	338	731	730	315
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	342				339			810	756	338	731	730	315
tC, single (s)	4.1				4.1			7.1	6.5	6.2	7.3	6.5	6.3
tC, 2 stage (s)													
tF (s)	2.2				2.2			3.5	4.0	3.3	3.7	4.0	3.4
p0 queue free %	97				100			100	100	100	52	100	85
cM capacity (veh/h)	1207				1231			248	323	709	301	335	702

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	377	321	2	247
Volume Left	38	0	0	145
Volume Right	2	55	2	102
eSH	1207	1231	709	394
Volume to Capacity	0.03	0.00	0.00	0.63
Queue Length 95th (m)	0.8	0.0	0.1	32.9
Control Delay (s/veh)	1.1	0.0	10.1	28.3
Lane LOS	A		B	D
Approach Delay (s/veh)	1.1	0.0	10.1	28.3
Approach LOS			B	D

Intersection Summary	
Average Delay	7.8
Intersection Capacity Utilization	64.5% ICU Level of Service C
Analysis Period (min)	15

HCM 6th TWSC
105: Irvine St & East Mill St

Total - 2035
AM Peak Hour

Intersection												
Int Delay, s/veh	7.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔		↔		↔		↔		↔		↔	
Traffic Vol, veh/h	35	310	2	0	245	51	0	0	2	133	0	94
Future Vol, veh/h	35	310	2	0	245	51	0	0	2	133	0	94
Conflicting Peds, #/hr	21	0	0	0	0	21	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	8	0	0	4	30	0	0	0	17	0	7
Mvmt Flow	38	337	2	0	266	55	0	0	2	145	0	102

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	342	0	0	339
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	4.1	-	-	4.1
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	2.2	-	-	2.2
Pot Cap-1 Maneuver	1228	-	-	1231
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	1206	-	-	1231
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrf Dly, s/v	0.8	0	10.1	28
HCM LOS			B	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	709	1206	-	-	1231	-	-	396
HCM Lane V/C Ratio	0.003	0.032	-	-	-	-	-	0.623
HCM Ctrf Dly (s/v)	10.1	8.1	0	-	0	-	-	28
HCM Lane LOS	B	A	A	-	A	-	-	D
HCM 95th %tile Q (veh)	0	0.1	-	-	0	-	-	4.1

Lanes, Volumes, Timings
106: Gerrie Rd & Nichol Rd 15

Total - 2035
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	7	264	56	31	323	7	31	9	24	15	2	7
Future Volume (vph)	7	264	56	31	323	7	31	9	24	15	2	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.977			0.997			0.950			0.958	
Fit Protected		0.999			0.996			0.976			0.970	
Satd. Flow (prot)	0	1716	0	0	1837	0	0	1144	0	0	1603	0
Fit Permitted		0.999			0.996			0.976			0.970	
Satd. Flow (perm)	0	1716	0	0	1837	0	0	1144	0	0	1603	0
Link Speed (k/h)		60			80			50			50	
Link Distance (m)		329.6			999.6			224.9			439.6	
Travel Time (s)		19.8			45.0			16.2			31.7	
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%	10%	0%	0%	3%	0%	25%	33%	100%	8%	0%	17%
Adj. Flow (vph)	8	287	61	34	351	8	34	10	26	16	2	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	356	0	0	393	0	0	70	0	0	26	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	44.4%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
106: Gerrie Rd & Nichol Rd 15

Total - 2035
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (veh/h)	7	264	56	31	323	7	31	9	24	15	2	7
Future Volume (Veh/h)	7	264	56	31	323	7	31	9	24	15	2	7
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
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
Hourly flow rate (vph)	8	287	61	34	351	8	34	10	26	16	2	8
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None				None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	359	348			766		761	318	788	787	355	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	359	348			766		761	318	788	787	355	
tC, single (s)	4.1	4.1			7.4		6.8	7.2	7.2	6.5	6.4	
tC, 2 stage (s)												
tF (s)	2.2	2.2			3.7		4.3	4.2	3.6	4.0	3.5	
p0 queue free %	99	97			88		97	95	94	99	99	
cM capacity (veh/h)	1211	1222			281		291	544	273	315	656	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	356	393	70	26								
Volume Left	8	34	34	16								
Volume Right	61	8	26	8								
cSH	1211	1222	344	337								
Volume to Capacity	0.01	0.03	0.20	0.08								
Queue Length 95th (m)	0.2	0.7	6.0	2.0								
Control Delay (s/veh)	0.2	1.0	18.1	16.6								
Lane LOS	A	A	C	C								
Approach Delay (s/veh)	0.2	1.0	18.1	16.6								
Approach LOS			C	C								
Intersection Summary												
Average Delay	2.6											
Intersection Capacity Utilization	44.4%			ICU Level of Service			A					
Analysis Period (min)	15											

HCM 6th TWSC
106: Gerrie Rd & Nichol Rd 15

Total - 2035
AM Peak Hour

Intersection												
Int Delay, s/veh	2.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	7	264	56	31	323	7	31	9	24	15	2	7
Future Vol, veh/h	7	264	56	31	323	7	31	9	24	15	2	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	10	0	0	3	0	25	33	100	8	0	17
Mvmt Flow	8	287	61	34	351	8	34	10	26	16	2	8
Major/Minor	Major1	Major2		Minor1		Minor2						
Conflicting Flow All	359	0	0	348	0	0	762	761	318	775	787	355
Stage 1	-	-	-	-	-	-	334	334	-	423	423	-
Stage 2	-	-	-	-	-	-	428	427	-	352	364	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.35	6.83	7.2	7.18	6.5	6.37
Critical Hdwy Stg 1	-	-	-	-	-	-	6.35	5.83	-	6.18	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.35	5.83	-	6.18	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.725	4.297	4.2	3.572	4	3.453
Pot Cap-1 Maneuver	1211	-	-	1222	-	-	295	301	543	308	326	656
Stage 1	-	-	-	-	-	-	634	591	-	597	591	-
Stage 2	-	-	-	-	-	-	562	536	-	653	627	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1211	-	-	1222	-	-	281	288	543	276	312	656
Mov Cap-2 Maneuver	-	-	-	-	-	-	281	288	-	276	312	-
Stage 1	-	-	-	-	-	-	629	586	-	592	570	-
Stage 2	-	-	-	-	-	-	534	517	-	606	622	-
Approach	EB		WB		NB		SB					
HCM Ctrl Dly, s/v	0.2		0.7		18.1		16.6					
HCM LOS					C		C					
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	345	1211	-	-	1222	-	-	336				
HCM Lane V/C Ratio	0.202	0.006	-	-	0.028	-	-	0.078				
HCM Ctrl Dly (s/v)	18.1	8	0	-	8	0	-	16.6				
HCM Lane LOS	C	A	A	-	A	A	-	C				
HCM 95th %tile Q (veh)	0.7	0	-	-	0.1	-	-	0.3				

Lanes, Volumes, Timings
107: Gerrie Rd & Colborne St

Total - 2035
AM Peak Hour

	↖	→	↘	↙	←	↖	↙	↑	↘	↙	↓	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	35	185	94	17	157	36	40	70	90	74	173	53
Future Volume (vph)	35	185	94	17	157	36	40	70	90	74	173	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.960			0.977			0.939			0.976	
Fit Protected		0.994			0.996			0.990			0.988	
Satd. Flow (prot)	0	1698	0	0	1808	0	0	1662	0	0	1751	0
Fit Permitted		0.994			0.996			0.990			0.988	
Satd. Flow (perm)	0	1698	0	0	1808	0	0	1662	0	0	1751	0
Link Speed (k/h)		40			50			50			50	
Link Distance (m)		1021.3			906.6			376.2			1165.2	
Travel Time (s)		91.9			65.3			27.1			83.9	
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 (%)	10%	2%	15%	0%	3%	0%	21%	6%	0%	0%	8%	0%
Adj. Flow (vph)	38	201	102	18	171	39	43	76	98	80	188	58
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	341	0	0	228	0	0	217	0	0	326	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	55.5%
Analysis Period (min)	15
ICU Level of Service	B

HCM Unsignalized Intersection Capacity Analysis
107: Gerrie Rd & Colborne St

Total - 2035
AM Peak Hour

	↖	→	↘	↙	←	↖	↙	↑	↘	↙	↓	↘
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	35	185	94	17	157	36	40	70	90	74	173	53
Future Volume (vph)	35	185	94	17	157	36	40	70	90	74	173	53
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
Hourly flow rate (vph)	38	201	102	18	171	39	43	76	98	80	188	58
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	341	228	217	326								
Volume Left (vph)	38	18	43	80								
Volume Right (vph)	102	39	98	58								
Hadj (s)	-0.04	-0.05	-0.12	0.02								
Departure Headway (s)	6.1	6.4	6.3	6.2								
Degree Utilization, x	0.58	0.40	0.38	0.56								
Capacity (veh/h)	539	499	498	528								
Control Delay (s/veh)	17.2	13.6	13.2	16.9								
Approach Delay (s/veh)	17.2	13.6	13.2	16.9								
Approach LOS	C	B	B	C								
Intersection Summary												
Delay	15.6											
Level of Service	C											
Intersection Capacity Utilization	55.5%			ICU Level of Service			B					
Analysis Period (min)	15											

HCM 6th AWSC
107: Gerrie Rd & Colborne St

Total - 2035
AM Peak Hour

Intersection												
Intersection Delay, s/veh	15.8											
Intersection LOS	C											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↕			↕			↕	
Traffic Vol, veh/h	35	185	94	17	157	36	40	70	90	74	173	53
Future Vol, veh/h	35	185	94	17	157	36	40	70	90	74	173	53
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, %	10	2	15	0	3	0	21	6	0	0	8	0
Mvmt Flow	38	201	102	18	171	39	43	76	98	80	188	58
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Approach	EB			WB			NB			SB		
Opposing Approach	WB			EB			SB			NB		
Opposing Lanes	1			1			1			1		
Conflicting Approach Left	SB			NB			EB			WB		
Conflicting Lanes Left	1			1			1			1		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	1			1			1			1		
HCM Control Delay, s/veh	17.6			13.6			13.9			16.7		
HCM LOS	C			B			B			C		

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	20%	11%	8%	25%
Vol Thru, %	35%	59%	75%	58%
Vol Right, %	45%	30%	17%	18%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	200	314	210	300
LT Vol	40	35	17	74
Through Vol	70	185	157	173
RT Vol	90	94	36	53
Lane Flow Rate	217	341	228	326
Geometry Grp	1	1	1	1
Degree of Util (X)	0.397	0.584	0.401	0.557
Departure Headway (Hd)	6.568	6.163	6.323	6.148
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	546	584	568	587
Service Time	4.627	4.216	4.382	4.201
HCM Lane V/C Ratio	0.397	0.584	0.401	0.555
HCM Control Delay, s/veh	13.9	17.6	13.6	16.7
HCM Lane LOS	B	C	B	C
HCM 95th-tile Q	1.9	3.7	1.9	3.4

Lanes, Volumes, Timings
108: Chapel St/Gerrie Rd & East Mill St

Total - 2035
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔			↕			↕			↕	
Traffic Volume (vph)	23	296	0	0	254	96	0	0	0	225	0	61
Future Volume (vph)	23	296	0	0	254	96	0	0	0	225	0	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	0.0		0.0		0.0		0.0	0.0	
Storage Lanes	1		0	0		0		0		0	0	
Taper Length (m)	60.0			7.5				7.5			7.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr					0.963						0.971	
Flt Protected	0.950											0.962
Satd. Flow (prot)	1687	1681	0	0	1764	0	0	1900	0	0	1714	0
Flt Permitted	0.495										0.771	
Satd. Flow (perm)	879	1681	0	0	1764	0	0	1900	0	0	1374	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					47						67	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		314.9			327.9			115.3			376.2	
Travel Time (s)		18.9			19.7			8.3			27.1	
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 (%)	7%	13%	0%	0%	4%	3%	0%	0%	0%	1%	0%	13%
Adj. Flow (vph)	25	322	0	0	276	104	0	0	0	245	0	66
Shared Lane Traffic (%)												
Lane Group Flow (vph)	25	322	0	0	380	0	0	0	0	0	311	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	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	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		NA	NA			Perm		NA	NA	
Protected Phases		2			6			4			8	

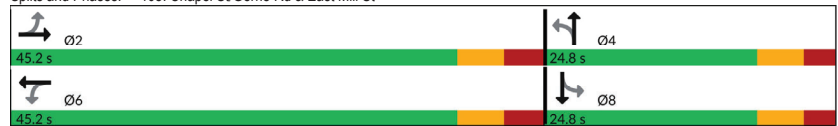
Lanes, Volumes, Timings
108: Chapel St/Gerrie Rd & East Mill St

Total - 2035
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2			6			4			8		
Detector Phase	2	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	35.0	35.0		35.0	35.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	42.3	42.3		42.3	42.3		24.7	24.7		24.7	24.7	
Total Split (s)	45.2	45.2		45.2	45.2		24.8	24.8		24.8	24.8	
Total Split (%)	64.6%	64.6%		64.6%	64.6%		35.4%	35.4%		35.4%	35.4%	
Maximum Green (s)	37.9	37.9		37.9	37.9		18.1	18.1		18.1	18.1	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.3	3.3		3.3	3.3		2.7	2.7		2.7	2.7	
Lost Time Adjust (s)	-3.3	-3.3			-3.3			-2.7			-2.7	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		Min	Min		None	None		None	None	
Walk Time (s)	23.0	23.0		23.0	23.0		7.0	7.0		7.0	7.0	
Flash Don't Walk (s)	12.0	12.0		12.0	12.0		7.0	7.0		7.0	7.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	38.4	38.4		38.4	38.4						18.1	
Actuated g/C Ratio	0.60	0.60		0.60	0.60						0.28	
v/c Ratio	0.05	0.32		0.36	0.36						0.72	
Control Delay (s/veh)	6.7	8.2		7.5	7.5						26.5	
Queue Delay	0.0	0.0		0.0	0.0						0.0	
Total Delay (s/veh)	6.7	8.2		7.5	7.5						26.5	
LOS	A	A		A	A						C	
Approach Delay (s/veh)		8.1		7.5	7.5						26.5	
Approach LOS		A		A	A						C	

Intersection Summary	
Area Type:	Other
Cycle Length: 70	
Actuated Cycle Length: 64.5	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay (s/veh): 13.4	Intersection LOS: B
Intersection Capacity Utilization 52.0%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 108: Chapel St/Gerrie Rd & East Mill St



Queues
108: Chapel St/Gerrie Rd & East Mill St

Total - 2035
AM Peak Hour

Lane Group	EBL	EBT	WBT	SBT
Lane Group Flow (vph)	25	322	380	311
v/c Ratio	0.05	0.32	0.36	0.72
Control Delay (s/veh)	6.7	8.2	7.5	26.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	6.7	8.2	7.5	26.5
Queue Length 50th (m)	1.3	19.8	20.4	27.2
Queue Length 95th (m)	4.3	34.5	36.6	53.8
Internal Link Dist (m)		290.9	303.9	352.2
Turn Bay Length (m)	30.0			
Base Capacity (vph)	562	1076	1146	489
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.04	0.30	0.33	0.64

Intersection Summary

Intersection Summary	
Area Type:	Other
Cycle Length: 70	
Actuated Cycle Length: 64.5	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay (s/veh): 13.4	Intersection LOS: B
Intersection Capacity Utilization 52.0%	ICU Level of Service A
Analysis Period (min) 15	

HCM Signalized Intersection Capacity Analysis
108: Chapel St/Gerrie Rd & East Mill St

Total - 2035
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔		↔	↔		↔	↔	↔
Traffic Volume (vph)	23	296	0	0	254	96	0	0	0	225	0	61
Future Volume (vph)	23	296	0	0	254	96	0	0	0	225	0	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0					4.0		
Lane Util. Factor	1.00	1.00			1.00					1.00		
Fr't	1.00	1.00			0.96					0.97		
Flt Protected	0.95	1.00			1.00					0.96		
Satd. Flow (prot)	1687	1681			1764					1715		
Flt Permitted	0.49	1.00			1.00					0.77		
Satd. Flow (perm)	878	1681			1764					1375		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	25	322	0	0	276	104	0	0	0	245	0	66
RTOR Reduction (vph)	0	0	0	0	19	0	0	0	0	0	48	0
Lane Group Flow (vph)	25	322	0	0	361	0	0	0	0	263	0	61
Heavy Vehicles (%)	7%	13%	0%	0%	4%	3%	0%	0%	0%	1%	0%	13%
Turn Type	Perm	NA			NA					Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	35.1	35.1			35.1					15.4		
Effective Green, g (s)	38.4	38.4			38.4					18.1		
Actuated g/C Ratio	0.60	0.60			0.60					0.28		
Clearance Time (s)	7.3	7.3			7.3					6.7		
Vehicle Extension (s)	3.0	3.0			3.0					3.0		
Lane Grp Cap (vph)	522	1000			1050					385		
v/s Ratio Prot		0.19			0.20							
v/s Ratio Perm	0.03									0.19		
v/c Ratio	0.05	0.32			0.34					0.68		
Uniform Delay, d1	5.4	6.5			6.6					20.6		
Progression Factor	1.00	1.00			1.00					1.00		
Incremental Delay, d2	0.0	0.2			0.2					4.9		
Delay (s)	5.5	6.7			6.8					25.6		
Level of Service	A	A			A					C		
Approach Delay (s/veh)		6.6			6.8			0.0		25.6		
Approach LOS		A			A			A		C		
Intersection Summary												
HCM 2000 Control Delay (s/veh)	12.4			HCM 2000 Level of Service			B					
HCM 2000 Volume to Capacity ratio	0.45											
Actuated Cycle Length (s)	64.5			Sum of lost time (s)			8.0					
Intersection Capacity Utilization	52.0%			ICU Level of Service			A					
Analysis Period (min)	15											
c Critical Lane Group												

HCM 6th Signalized Intersection Summary
108: Chapel St/Gerrie Rd & East Mill St

Total - 2035
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔		↔	↔		↔	↔	↔
Traffic Volume (veh/h)	23	296	0	0	254	96	0	0	0	225	0	61
Future Volume (veh/h)	23	296	0	0	254	96	0	0	0	225	0	61
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No		No		No		No		No	
Adj Sat Flow, veh/h/ln	1796	1707	1900	1900	1841	1856	1900	1900	1900	1885	1900	1707
Adj Flow Rate, veh/h	25	322	0	0	276	104	0	0	0	245	0	66
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
Percent Heavy Veh, %	7	13	0	0	4	3	0	0	0	1	0	13
Cap, veh/h	571	1012	0	0	755	284	0	539	0	429	0	89
Arrive On Green	0.59	0.59	0.00	0.00	0.59	0.54	0.00	0.00	0.00	0.24	0.00	0.24
Sat Flow, veh/h	963	1707	0	0	1274	480	0	1900	0	1160	0	313
Grp Volume(v), veh/h	25	322	0	0	0	380	0	0	0	311	0	0
Grp Sat Flow(s),veh/h/ln	963	1707	0	0	0	1754	0	1900	0	1473	0	0
Q Serve(g_s), s	0.9	6.1	0.0	0.0	0.0	7.5	0.0	0.0	0.0	13.1	0.0	0.0
Cycle Q Clear(g_c), s	8.4	6.1	0.0	0.0	0.0	7.5	0.0	0.0	0.0	13.1	0.0	0.0
Prop In Lane	1.00		0.00	0.00		0.27	0.00		0.00	0.79		0.21
Lane Grp Cap(c), veh/h	571	1012	0	0	0	1039	0	539	0	456	0	0
V/C Ratio(X)	0.04	0.32	0.00	0.00	0.00	0.37	0.00	0.00	0.00	0.68	0.00	0.00
Avail Cap(c_a), veh/h	614	1088	0	0	0	1118	0	611	0	512	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	9.1	6.6	0.0	0.0	0.0	7.1	0.0	0.0	0.0	22.5	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	0.0	0.2	0.0	0.0	0.0	3.2	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	3.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	9.1	6.8	0.0	0.0	0.0	7.3	0.0	0.0	0.0	25.7	0.0	0.0
LnGrp LOS	A	A			A					C		
Approach Vol, veh/h	347			380			0			311		
Approach Delay, s/veh	7.0			7.3			0.0			25.7		
Approach LOS	A			A						C		
Timer - Assigned Phs												
Phs Duration (G+Y+Rc), s	42.3			22.3			42.3			22.3		
Change Period (Y+Rc), s	7.3			6.7			7.3			6.7		
Max Green Setting (Gmax), s	37.9			18.1			37.9			18.1		
Max Q Clear Time (g_c+1), s	10.4			0.0			9.5			15.1		
Green Ext Time (p_c), s	2.6			0.0			3.0			0.6		
Intersection Summary												
HCM 6th Ctrl Delay, s/veh	12.7											
HCM 6th LOS	B											

Lanes, Volumes, Timings
 201: Irvine St & Cachet Clayton/Street B Total - 2035
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	0	71	62	0	35	22	109	19	14	116	15
Future Volume (vph)	44	0	71	62	0	35	22	109	19	14	116	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.917			0.951			0.983			0.986	
Flt Protected		0.981			0.969			0.993			0.995	
Satd. Flow (prot)	0	1709	0	0	1717	0	0	1824	0	0	1831	0
Flt Permitted		0.981			0.969			0.993			0.995	
Satd. Flow (perm)	0	1709	0	0	1717	0	0	1824	0	0	1831	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		141.5			185.7			246.8			201.5	
Travel Time (s)		10.2			13.4			17.8			14.5	
Confl. Peds. (#/hr)							5					5
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%	2%	0%	2%	2%	2%	0%	2%	2%	2%	2%	0%
Adj. Flow (vph)	48	0	77	67	0	38	24	118	21	15	126	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	125	0	0	105	0	0	163	0	0	157	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Right	Left	Left	Right	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	28.2%				ICU Level of Service A							
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis
 201: Irvine St & Cachet Clayton/Street B Total - 2035
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	44	0	71	62	0	35	22	109	19	14	116	15
Future Volume (Veh/h)	44	0	71	62	0	35	22	109	19	14	116	15
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	48	0	77	67	0	38	24	118	21	15	126	16
Pedestrians		5										
Lane Width (m)		3.6										
Walking Speed (m/s)		1.2										
Percent Blockage		0										
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	384	356	139	418	354	129	147				139	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	384	356	139	418	354	129	147				139	
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1				4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				2.2	
p0 queue free %	91	100	92	86	100	96	98				99	
cM capacity (veh/h)	539	552	911	488	554	921	1441				1445	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	125	105	163	157								
Volume Left	48	67	24	15								
Volume Right	77	38	21	16								
eSH	720	588	1441	1445								
Volume to Capacity	0.17	0.18	0.02	0.01								
Queue Length 95th (m)	5.0	5.2	0.4	0.3								
Control Delay (s/veh)	11.0	12.4	1.2	0.8								
Lane LOS	B	B	A	A								
Approach Delay (s/veh)	11.0	12.4	1.2	0.8								
Approach LOS	B	B										
Intersection Summary												
Average Delay				5.5								
Intersection Capacity Utilization			28.2%	ICU Level of Service							A	
Analysis Period (min)			15									

Intersection													
Int Delay, s/veh	5.3												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↔		↔		↔		↔		↔		↔		
Traffic Vol, veh/h	44	0	71	62	0	35	22	109	19	14	116	15	
Future Vol, veh/h	44	0	71	62	0	35	22	109	19	14	116	15	
Conflicting Peds, #/hr	0	0	0	0	0	0	5	0	0	0	0	5	
Sign Control	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None	
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-	
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-	
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-	
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	2	0	2	2	2	0	2	2	2	2	0	
Mvmt Flow	48	0	77	67	0	38	24	118	21	15	126	16	
Major/Minor	Minor2	Minor1		Major1		Major2							
Conflicting Flow All	365	356	139	380	354	129	147	0	0	139	0	0	
Stage 1	169	169	-	177	177	-	-	-	-	-	-	-	
Stage 2	196	187	-	203	177	-	-	-	-	-	-	-	
Critical Hdwy	7.1	6.52	6.2	7.12	6.52	6.22	4.1	-	-	4.12	-	-	
Critical Hdwy Stg 1	6.1	5.52	-	6.12	5.52	-	-	-	-	-	-	-	
Critical Hdwy Stg 2	6.1	5.52	-	6.12	5.52	-	-	-	-	-	-	-	
Follow-up Hdwy	3.5	4.018	3.3	3.518	4.018	3.318	2.2	-	-	2.218	-	-	
Pot Cap-1 Maneuver	595	570	915	578	571	921	1447	-	-	1445	-	-	
Stage 1	838	759	-	825	753	-	-	-	-	-	-	-	
Stage 2	810	745	-	799	753	-	-	-	-	-	-	-	
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-	
Mov Cap-1 Maneuver	556	551	911	517	552	921	1441	-	-	1445	-	-	
Mov Cap-2 Maneuver	556	551	-	517	552	-	-	-	-	-	-	-	
Stage 1	820	748	-	810	739	-	-	-	-	-	-	-	
Stage 2	763	732	-	723	742	-	-	-	-	-	-	-	
Approach	EB	WB		NB		SB							
HCM Ctrf Dly, s/v	10.9	12.1		1.1		0.7							
HCM LOS	B	B											
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1441	-	-	732	614	1445	-	-					
HCM Lane V/C Ratio	0.017	-	-	0.171	0.172	0.011	-	-					
HCM Ctrf Dly (s/v)	7.5	0	-	10.9	12.1	7.5	0	-					
HCM Lane LOS	A	A	-	B	B	A	A	-					
HCM 95th %tile Q (veh)	0.1	-	-	0.6	0.6	0	-	-					

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	268	17	16	360	49	48
Future Volume (vph)	268	17	16	360	49	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frts	0.992				0.933	
Fit Protected			0.998		0.975	
Satd. Flow (prot)	1848		0		1859	
Fit Permitted			0.998		0.975	
Satd. Flow (perm)	1848		0		1859	
Link Speed (k/h)	60		60		60	
Link Distance (m)	256.4		430.6		145.7	
Travel Time (s)	15.4		25.8		8.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	291	18	17	391	53	52
Shared Lane Traffic (%)						
Lane Group Flow (vph)	309	0	0	408	105	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0		0.0		3.6	
Link Offset(m)	0.0		0.0		0.0	
Crosswalk Width(m)	4.8		4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	15		25		25	
Sign Control	Free		Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	44.3%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis
202: Street A & Nichol Rd 15

Total - 2035
AM Peak Hour

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	
Traffic Volume (veh/h)	268	17	16	360	49	48
Future Volume (Veh/h)	268	17	16	360	49	48
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	291	18	17	391	53	52
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					None
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			309			300
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			309			300
tC, single (s)			4.1			6.2
tC, 2 stage (s)						
tF (s)			2.2			3.3
p0 queue free %			99			93
cM capacity (veh/h)			1252			740
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	309	408	105			
Volume Left	0	17	53			
Volume Right	18	0	52			
eSH	1700	1252	506			
Volume to Capacity	0.18	0.01	0.21			
Queue Length 95th (m)	0.0	0.3	6.2			
Control Delay (s/veh)	0.0	0.5	14.0			
Lane LOS	A		B			
Approach Delay (s/veh)	0.0	0.5	14.0			
Approach LOS	A		B			
Intersection Summary						
Average Delay			2.0			
Intersection Capacity Utilization			44.3%	ICU Level of Service		A
Analysis Period (min)			15			

HCM 6th TWSC
202: Street A & Nichol Rd 15

Total - 2035
AM Peak Hour

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	
Traffic Vol, veh/h	268	17	16	360	49	48
Future Vol, veh/h	268	17	16	360	49	48
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	2	2	2	2	2
Mvmt Flow	291	18	17	391	53	52
Intersection						
Int Delay, s/veh	1.9					
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	309	0	725	300
Stage 1	-	-	-	-	300	-
Stage 2	-	-	-	-	425	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1252	-	392	740
Stage 1	-	-	-	-	752	-
Stage 2	-	-	-	-	659	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1252	-	385	740
Mov Cap-2 Maneuver	-	-	-	-	385	-
Stage 1	-	-	-	-	752	-
Stage 2	-	-	-	-	648	-
Approach						
Approach	EB	WB	NB			
HCM Ctrl Dly, s/v	0	0.3	14			
HCM LOS			B			
Minor Lane/Major Mvmt						
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	505	-	-	1252	-	
HCM Lane V/C Ratio	0.209	-	-	0.014	-	
HCM Ctrl Dly (s/v)	14	-	-	7.9	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q (veh)	0.8	-	-	0	-	

Lanes, Volumes, Timings
203: Street C & Nichol Rd 15

Total - 2035
AM Peak Hour

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗			↖	↗	↖
Traffic Volume (vph)	306	10	8	353	23	22
Future Volume (vph)	306	10	8	353	23	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.996				0.934	
Fit Protected				0.999	0.975	
Satd. Flow (prot)	1856	0	0	1862	1730	0
Fit Permitted				0.999	0.975	
Satd. Flow (perm)	1856	0	0	1862	1730	0
Link Speed (k/h)	60			60	40	
Link Distance (m)	430.6			329.6	182.1	
Travel Time (s)	25.8			19.8	16.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	0%	0%	2%	0%	0%
Adj. Flow (vph)	333	11	9	384	25	24
Shared Lane Traffic (%)						
Lane Group Flow (vph)	344	0	0	393	49	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	35.0%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
203: Street C & Nichol Rd 15


Total - 2035
AM Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗			↖	↗	↖
Traffic Volume (veh/h)	306	10	8	353	23	22
Future Volume (Veh/h)	306	10	8	353	23	22
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	333	11	9	384	25	24
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			344		741	339
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			344		741	339
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		93	97
cM capacity (veh/h)			1226		384	708

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	344	393	49
Volume Left	0	9	25
Volume Right	11	0	24
eSH	1700	1226	495
Volume to Capacity	0.20	0.01	0.10
Queue Length 95th (m)	0.0	0.2	2.6
Control Delay (s/veh)	0.0	0.3	13.1
Lane LOS		A	B
Approach Delay (s/veh)	0.0	0.3	13.1
Approach LOS			B

Intersection Summary			
Average Delay		0.9	
Intersection Capacity Utilization	35.0%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection						
Int Delay, s/veh	0.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗	↘	↖	↙	↗	↘
Traffic Vol, veh/h	306	10	8	353	23	22
Future Vol, veh/h	306	10	8	353	23	22
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	333	11	9	384	25	24
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	344	0	741	339
Stage 1	-	-	-	-	339	-
Stage 2	-	-	-	-	402	-
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	-	-	1226	-	387	708
Stage 1	-	-	-	-	726	-
Stage 2	-	-	-	-	680	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1226	-	384	708
Mov Cap-2 Maneuver	-	-	-	-	384	-
Stage 1	-	-	-	-	726	-
Stage 2	-	-	-	-	674	-
Approach	EB	WB	NB			
HCM Ctr Dly, s/v	0	0.2	13.1			
HCM LOS				B		
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	495	-	-	1226	-	
HCM Lane V/C Ratio	0.099	-	-	0.007	-	
HCM Ctr Dly (s/v)	13.1	-	-	8	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q (veh)	0.3	-	-	0	-	



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↗	↘	↖	↙	↗	↘
Traffic Volume (vph)	17	28	10	47	83	7
Future Volume (vph)	17	28	10	47	83	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frts	0.916				0.989	
Fit Protected	0.982		0.991			
Satd. Flow (prot)	1709		0		1852	
Fit Permitted	0.982		0.991			
Satd. Flow (perm)	1709		0		1852	
Link Speed (k/h)	50		50		50	
Link Distance (m)	261.2		240.2		224.9	
Travel Time (s)	18.8		17.3		16.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	2%	2%	0%
Adj. Flow (vph)	18	30	11	51	90	8
Shared Lane Traffic (%)						
Lane Group Flow (vph)	48	0	0	62	98	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6		0.0		0.0	
Link Offset(m)	0.0		0.0		0.0	
Crosswalk Width(m)	4.8		4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop		Free		Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	19.7%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis
204: Gerrie Rd & Street C

Total - 2035
AM Peak Hour

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			↑	↑	
Traffic Volume (veh/h)	17	28	10	47	83	7
Future Volume (Veh/h)	17	28	10	47	83	7
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	18	30	11	51	90	8
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	167	94	98			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	167	94	98			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	97	99			
cM capacity (veh/h)	822	968	1508			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	48	62	98			
Volume Left	18	11	0			
Volume Right	30	0	8			
eSH	908	1508	1700			
Volume to Capacity	0.05	0.01	0.06			
Queue Length 95th (m)	1.3	0.2	0.0			
Control Delay (s/veh)	9.2	1.4	0.0			
Lane LOS	A	A				
Approach Delay (s/veh)	9.2	1.4	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			2.5			
Intersection Capacity Utilization		19.7%		ICU Level of Service	A	
Analysis Period (min)		15				

HCM 6th TWSC
204: Gerrie Rd & Street C

Total - 2035
AM Peak Hour

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			↑	↑	
Traffic Vol, veh/h	17	28	10	47	83	7
Future Vol, veh/h	17	28	10	47	83	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	0	0	0	2	2	0
Mvmt Flow	18	30	11	51	90	8
Intersection						
Int Delay, s/veh				2.5		
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	167	94	98	0	-	0
Stage 1	94	-	-	-	-	-
Stage 2	73	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	828	968	1508	-	-	-
Stage 1	935	-	-	-	-	-
Stage 2	955	-	-	-	-	-
Platoon blocked, %						
Mov Cap-1 Maneuver	821	968	1508	-	-	-
Mov Cap-2 Maneuver	821	-	-	-	-	-
Stage 1	928	-	-	-	-	-
Stage 2	955	-	-	-	-	-
Approach	EB	NB	SB			
HCM Ctrl Dly, s/v	9.2	1.3	0			
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT EBLn1	SBT	SBR		
Capacity (veh/h)	1508	- 907	-	-		
HCM Lane V/C Ratio	0.007	- 0.054	-	-		
HCM Ctrl Dly (s/v)	7.4	0 9.2	-	-		
HCM Lane LOS	A	A A	-	-		
HCM 95th %tile Q (veh)	0	- 0.2	-	-		

Lanes, Volumes, Timings
101: Geddes St & James St

Total - 2035
PM Peak Hour

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	87	264	145	79	402	204
Future Volume (vph)	87	264	145	79	402	204
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.899		0.952			
Flt Protected	0.988					0.968
Satd. Flow (prot)	1635	0	1790	0	0	1821
Flt Permitted	0.988					0.968
Satd. Flow (perm)	1635	0	1790	0	0	1821
Link Speed (k/h)	50		50			50
Link Distance (m)	120.4		303.1			136.1
Travel Time (s)	8.7		21.8			9.8
Confl. Peds. (#/hr)				3	3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	7%	2%	0%	3%	1%	1%
Adj. Flow (vph)	95	287	158	86	437	222
Shared Lane Traffic (%)						
Lane Group Flow (vph)	382	0	244	0	0	659
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	76.7%
Analysis Period (min)	15
	ICU Level of Service D

HCM Unsignalized Intersection Capacity Analysis
101: Geddes St & James St

Total - 2035
PM Peak Hour

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	87	264	145	79	402	204
Future Volume (Veh/h)	87	264	145	79	402	204
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	95	287	158	86	437	222
Pedestrians	3					
Lane Width (m)	3.6					
Walking Speed (m/s)	1.2					
Percent Blockage	0					
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1300	204			247	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1300	204			247	
tC, single (s)	6.5	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.6	3.3			2.2	
p0 queue free %	18	66			67	
cM capacity (veh/h)	116	835			1321	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	382	244	659
Volume Left	95	0	437
Volume Right	287	86	0
eSH	328	1700	1321
Volume to Capacity	1.16	0.14	0.33
Queue Length 95th (m)	126.3	0.0	11.7
Control Delay (s/veh)	136.9	0.0	7.2
Lane LOS	F		A
Approach Delay (s/veh)	136.9	0.0	7.2
Approach LOS	F		

Intersection Summary	
Average Delay	44.4
Intersection Capacity Utilization	76.7%
Analysis Period (min)	15
	ICU Level of Service D

Intersection						
Int Delay, s/veh	50.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔	↔	↔	↔	↔	↔
Traffic Vol, veh/h	87	264	145	79	402	204
Future Vol, veh/h	87	264	145	79	402	204
Conflicting Peds, #/hr	0	0	0	3	3	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	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	7	2	0	3	1	1
Mvmt Flow	95	287	158	86	437	222

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1300	204	0
Stage 1	204	-	-
Stage 2	1096	-	-
Critical Hdwy	6.47	6.22	4.11
Critical Hdwy Stg 1	5.47	-	-
Critical Hdwy Stg 2	5.47	-	-
Follow-up Hdwy	3.563	3.318	2.209
Pot Cap-1 Maneuver	174	837	1325
Stage 1	818	-	-
Stage 2	313	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	108	835	1322
Mov Cap-2 Maneuver	108	-	-
Stage 1	816	-	-
Stage 2	195	-	-

Approach	WB	NB	SB
HCM Ctrf Dly, s/v	159.2	0	6
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	313	1322
HCM Lane V/C Ratio	-	-	1.219	0.331
HCM Ctrf Dly (s/v)	-	-	159.2	9.1
HCM Lane LOS	-	-	F	A
HCM 95th %tile Q (veh)	-	-	17	1.5

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	5	370	106	104	261	0	86	2	121	6	7	4
Future Volume (vph)	5	370	106	104	261	0	86	2	121	6	7	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frts		0.970						0.921			0.972	
Fit Protected					0.986			0.980			0.982	
Satd. Flow (prot)	0	1722	0	0	1819	0	0	1695	0	0	1592	0
Fit Permitted					0.986			0.980			0.982	
Satd. Flow (perm)	0	1722	0	0	1819	0	0	1695	0	0	1592	0
Link Speed (k/h)		40			40			50			50	
Link Distance (m)		556.2			313.2			220.4			704.4	
Travel Time (s)		50.1			28.2			15.9			50.7	
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%	2%	25%	3%	3%	0%	0%	0%	2%	0%	33%	0%
Adj. Flow (vph)	5	402	115	113	284	0	93	2	132	7	8	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	522	0	0	397	0	0	227	0	0	19	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	72.8%
ICU Level of Service	C
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
 102: Irvine St & Woolwich St/Nichol Rd 15

Total - 2035
 PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (veh/h)	5	370	106	104	261	0	86	2	121	6	7	4
Future Volume (Veh/h)	5	370	106	104	261	0	86	2	121	6	7	4
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
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
Hourly flow rate (vph)	5	402	115	113	284	0	93	2	132	7	8	4
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	284	517			988			980	460	1113	1037	284
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	284	517			988			980	460	1113	1037	284
tC, single (s)	4.1	4.1			7.1			6.5	6.2	7.1	6.8	6.2
tC, 2 stage (s)												
tF (s)	2.2	2.2			3.5			4.0	3.3	3.5	4.3	3.3
p0 queue free %	100	89			54			99	78	95	96	99
cM capacity (veh/h)	1290	1044			201			224	602	133	181	760
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	522	397	227	19								
Volume Left	5	113	93	7								
Volume Right	115	0	132	4								
cSH	1290	1044	328	186								
Volume to Capacity	0.00	0.11	0.69	0.10								
Queue Length 95th (m)	0.1	2.9	38.9	2.7								
Control Delay (s/veh)	0.1	3.3	37.3	26.5								
Lane LOS	A	A	E	D								
Approach Delay (s/veh)	0.1	3.3	37.3	26.5								
Approach LOS			E	D								
Intersection Summary												
Average Delay	8.9											
Intersection Capacity Utilization	72.8%			ICU Level of Service			C					
Analysis Period (min)	15											

HCM 6th TWSC
 102: Irvine St & Woolwich St/Nichol Rd 15

Total - 2035
 PM Peak Hour

Intersection												
Int Delay, s/veh	8.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	5	370	106	104	261	0	86	2	121	6	7	4
Future Vol, veh/h	5	370	106	104	261	0	86	2	121	6	7	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	2	25	3	3	0	0	0	2	0	33	0
Mvmt Flow	5	402	115	113	284	0	93	2	132	7	8	4
Major/Minor	Major1	Major2	Minor1	Minor2								
Conflicting Flow All	284	0	0	517	0	0	986	980	460	1047	1037	284
Stage 1	-	-	-	-	-	-	470	470	-	510	510	-
Stage 2	-	-	-	-	-	-	516	510	-	537	527	-
Critical Hdwy	4.1	-	-	4.13	-	-	7.1	6.5	6.22	7.1	6.83	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.83	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.83	-
Follow-up Hdwy	2.2	-	-	2.227	-	-	3.5	4	3.318	3.5	4.297	3.3
Pot Cap-1 Maneuver	1290	-	-	1044	-	-	229	252	601	208	204	760
Stage 1	-	-	-	-	-	-	578	563	-	550	490	-
Stage 2	-	-	-	-	-	-	546	541	-	532	481	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1290	-	-	1044	-	-	198	218	601	145	177	760
Mov Cap-2 Maneuver	-	-	-	-	-	-	198	218	-	145	177	-
Stage 1	-	-	-	-	-	-	575	560	-	547	427	-
Stage 2	-	-	-	-	-	-	465	472	-	411	478	-
Approach	EB	WB	NB	SB								
HCM Ctrl Dly, s/v	0.1	2.5	38.5	25.2								
HCM LOS			E	D								
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	324	1290	-	-	1044	-	-	197				
HCM Lane V/C Ratio	0.701	0.004	-	-	0.108	-	-	0.094				
HCM Ctrl Dly (s/v)	38.5	7.8	0	-	8.9	0	-	25.2				
HCM Lane LOS	E	A	A	-	A	A	-	D				
HCM 95th %tile Q (veh)	5	0	-	-	0.4	-	-	0.3				

Lanes, Volumes, Timings
103: Irvine St & Bricker Ave

Total - 2035
PM Peak Hour

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	20	12	12	266	173	27
Future Volume (vph)	20	12	12	266	173	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.950				0.982	
Flt Protected	0.970			0.998		
Satd. Flow (prot)	1751	0	0	1861	1774	0
Flt Permitted	0.970			0.998		
Satd. Flow (perm)	1751	0	0	1861	1774	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	361.7			908.3	227.8	
Travel Time (s)	26.0			65.4	16.4	
Confl. Peds. (#/hr)			5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	2%	6%	0%
Adj. Flow (vph)	22	13	13	289	188	29
Shared Lane Traffic (%)						
Lane Group Flow (vph)	35	0	0	302	217	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	33.7%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis
103: Irvine St & Bricker Ave

Total - 2035
PM Peak Hour

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	20	12	12	266	173	27
Future Volume (Veh/h)	20	12	12	266	173	27
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	13	13	289	188	29
Pedestrians	5					
Lane Width (m)	3.6					
Walking Speed (m/s)	1.2					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	523	208	222			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	523	208	222			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	98	99			
cM capacity (veh/h)	511	834	1353			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	35	302	217			
Volume Left	22	13	0			
Volume Right	13	0	29			
eSH	597	1353	1700			
Volume to Capacity	0.06	0.01	0.13			
Queue Length 95th (m)	1.5	0.2	0.0			
Control Delay (s/veh)	11.4	0.4	0.0			
Lane LOS	B	A				
Approach Delay (s/veh)	11.4	0.4	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay				0.9		
Intersection Capacity Utilization	33.7%			ICU Level of Service		A
Analysis Period (min)	15					

HCM 6th TWSC
103: Irvine St & Bricker Ave

Total - 2035
PM Peak Hour

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔		↕		↕	
Traffic Vol, veh/h	20	12	12	266	173	27
Future Vol, veh/h	20	12	12	266	173	27
Conflicting Peds, #/hr	0	0	5	0	0	5
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, %	0	0	0	2	6	0
Mvmt Flow	22	13	13	289	188	29

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	523	208	222
Stage 1	208	-	-
Stage 2	315	-	-
Critical Hdwy	6.4	6.2	4.1
Critical Hdwy Stg 1	5.4	-	-
Critical Hdwy Stg 2	5.4	-	-
Follow-up Hdwy	3.5	3.3	2.2
Pot Cap-1 Maneuver	518	837	1359
Stage 1	832	-	-
Stage 2	744	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	508	833	1353
Mov Cap-2 Maneuver	508	-	-
Stage 1	820	-	-
Stage 2	741	-	-

Approach	EB	NB	SB
HCM Ctr Dly, s/v	11.4	0.3	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1353	-	595	-	-
HCM Lane V/C Ratio	0.01	-	0.058	-	-
HCM Ctr Dly (s/v)	7.7	0	11.4	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q (veh)	0	-	0.2	-	-

Lanes, Volumes, Timings
104: Irvine St & Colborne St

Total - 2035
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	66	285	4	8	239	100	2	154	20	85	112	33
Future Volume (vph)	66	285	4	8	239	100	2	154	20	85	112	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.999			0.961			0.984			0.981	
Fit Protected		0.991			0.999			0.999			0.982	
Satd. Flow (prot)	0	1866	0	0	1774	0	0	1868	0	0	1810	0
Fit Permitted		0.991			0.999			0.999			0.982	
Satd. Flow (perm)	0	1866	0	0	1774	0	0	1868	0	0	1810	0
Link Speed (k/h)		40			40			40			40	
Link Distance (m)		619.9			1021.3			327.0			274.5	
Travel Time (s)		55.8			91.9			29.4			24.7	
Confl. Peds. (#/hr)		6						6				
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%	1%	0%	0%	2%	5%	0%	0%	0%	3%	0%	0%
Adj. Flow (vph)	72	310	4	9	260	109	2	167	22	92	122	36
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	386	0	0	378	0	0	191	0	0	250	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	73.6%
ICU Level of Service	D
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
104: Irvine St & Colborne St

Total - 2035
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔			↔			↔			↔		
Sign Control	Stop			Stop			Stop			Stop		
Traffic Volume (vph)	66	285	4	8	239	100	2	154	20	85	112	33
Future Volume (vph)	66	285	4	8	239	100	2	154	20	85	112	33
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
Hourly flow rate (vph)	72	310	4	9	260	109	2	167	22	92	122	36
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	386	378	191	250								
Volume Left (vph)	72	9	2	92								
Volume Right (vph)	4	109	22	36								
Hadj (s)	0.04	-0.12	-0.07	0.01								
Departure Headway (s)	6.3	6.2	7.0	6.8								
Degree Utilization, x	0.68	0.65	0.37	0.48								
Capacity (veh/h)	537	540	436	463								
Control Delay (s/veh)	21.7	20.0	14.0	15.9								
Approach Delay (s/veh)	21.7	20.0	14.0	15.9								
Approach LOS	C	C	B	C								
Intersection Summary												
Delay	18.7											
Level of Service	C											
Intersection Capacity Utilization	73.6%		ICU Level of Service		D							
Analysis Period (min)	15											

HCM 6th AWSC
104: Irvine St & Colborne St

Total - 2035
PM Peak Hour

Intersection												
Intersection Delay, s/veh	18.4											
Intersection LOS	C											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	66	285	4	8	239	100	2	154	20	85	112	33
Future Vol, veh/h	66	285	4	8	239	100	2	154	20	85	112	33
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	1	0	0	2	5	0	0	0	3	0	0
Mvmt Flow	72	310	4	9	260	109	2	167	22	92	122	36
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Approach	EB	WB		NB		SB						
Opposing Approach	WB	EB		SB		NB						
Opposing Lanes	1	1		1		1						
Conflicting Approach Left	SB	NB		EB		WB						
Conflicting Lanes Left	1	1		1		1						
Conflicting Approach Right	NB	SB		WB		EB						
Conflicting Lanes Right	1	1		1		1						
HCM Control Delay, s/veh	21.2	19.4		13.9		15.9						
HCM LOS	C	C		B		C						
Lane	NBLn1	EBLn1	WBLn1	SBLn1								
Vol Left, %	1%	19%	2%	37%								
Vol Thru, %	88%	80%	69%	49%								
Vol Right, %	11%	1%	29%	14%								
Sign Control	Stop	Stop	Stop	Stop								
Traffic Vol by Lane	176	355	347	230								
LT Vol	2	66	8	85								
Through Vol	154	285	239	112								
RT Vol	20	4	100	33								
Lane Flow Rate	191	386	377	250								
Geometry Grp	1	1	1	1								
Degree of Util (X)	0.365	0.67	0.638	0.472								
Departure Headway (Hd)	6.871	6.252	6.092	6.792								
Convergence, Y/N	Yes	Yes	Yes	Yes								
Cap	520	575	588	528								
Service Time	4.956	4.322	4.163	4.87								
HCM Lane V/C Ratio	0.367	0.671	0.641	0.473								
HCM Control Delay, s/veh	13.9	21.2	19.4	15.9								
HCM Lane LOS	B	C	C	C								
HCM 95th-tile Q	1.7	5	4.5	2.5								

Lanes, Volumes, Timings
105: Irvine St & East Mill St

Total - 2035
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔				↔
Traffic Volume (vph)	88	316	1	1	319	77	1	0	0	53	0	65
Future Volume (vph)	88	316	1	1	319	77	1	0	0	53	0	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt					0.974							0.926
Flt Protected		0.989						0.950				0.978
Satd. Flow (prot)	0	1865	0	0	1836	0	0	1805	0	0	1721	0
Flt Permitted		0.989						0.950				0.978
Satd. Flow (perm)	0	1865	0	0	1836	0	0	1805	0	0	1721	0
Link Speed (k/h)		40			40			40				40
Link Distance (m)		212.3			172.2			54.2				327.0
Travel Time (s)		19.1			15.5			4.9				29.4
Confl. Peds. (#/hr)	5					5						
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%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	96	343	1	1	347	84	1	0	0	58	0	71
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	440	0	0	432	0	0	1	0	0	129	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Right	Left	Left	Right	Right
Median Width(m)		0.0			0.0			0.0				0.0
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		4.8			4.8			4.8				4.8
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop				Stop

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	59.4%
Analysis Period (min)	15
	ICU Level of Service B

HCM Unsignalized Intersection Capacity Analysis
105: Irvine St & East Mill St

Total - 2035
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔				↔
Traffic Volume (veh/h)	88	316	1	1	319	77	1	0	0	53	0	65
Future Volume (Veh/h)	88	316	1	1	319	77	1	0	0	53	0	65
Sign Control		Free			Free			Stop				Stop
Grade		0%			0%			0%				0%
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
Hourly flow rate (vph)	96	343	1	1	347	84	1	0	0	58	0	71
Pedestrians												5
Lane Width (m)												3.6
Walking Speed (m/s)												1.2
Percent Blockage												0
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	436			344			998	974	344	932	932	394
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	436			344			998	974	344	932	932	394
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	92			100			99	100	100	75	100	89
cM capacity (veh/h)	1130			1226			187	231	704	231	245	657

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	440	432	1	129
Volume Left	96	1	1	58
Volume Right	1	84	0	71
eSH	1130	1226	187	359
Volume to Capacity	0.08	0.00	0.01	0.36
Queue Length 95th (m)	2.2	0.0	0.1	12.7
Control Delay (s/veh)	2.6	0.0	24.4	20.5
Lane LOS	A	A	C	C
Approach Delay (s/veh)	2.6	0.0	24.4	20.5
Approach LOS			C	C

Intersection Summary	
Average Delay	3.8
Intersection Capacity Utilization	59.4%
Analysis Period (min)	15
	ICU Level of Service B

HCM 6th TWSC
105: Irvine St & East Mill St

Total - 2035
PM Peak Hour

Intersection												
Int Delay, s/veh	3.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔		↔		↔		↔		↔		↔	
Traffic Vol, veh/h	88	316	1	1	319	77	1	0	0	53	0	65
Future Vol, veh/h	88	316	1	1	319	77	1	0	0	53	0	65
Conflicting Peds, #/hr	5	0	0	0	0	5	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	1	0	0	1	0	0	0	0	0	0	0
Mvmt Flow	96	343	1	1	347	84	1	0	0	58	0	71


Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	436	0	0	344
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	4.1	-	-	4.1
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	2.2	-	-	2.2
Pot Cap-1 Maneuver	1134	-	-	1226
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	1129	-	-	1226
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrf Dly, s/v	1.8	0	23.7	20.7
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	194	1129	-	-	1226	-	-	356
HCM Lane V/C Ratio	0.006	0.085	-	-	0.001	-	-	0.36
HCM Ctrf Dly (s/v)	23.7	8.5	0	-	7.9	0	-	20.7
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q (veh)	0	0.3	-	-	0	-	-	1.6

Lanes, Volumes, Timings
106: Gerrie Rd & Nichol Rd 15

Total - 2035
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	14	395	42	42	321	9	59	1	29	9	0	5
Future Volume (vph)	14	395	42	42	321	9	59	1	29	9	0	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.987			0.997			0.955			0.955	
Fit Protected		0.998			0.994			0.968			0.968	
Satd. Flow (prot)	0	1855	0	0	1867	0	0	1756	0	0	1621	0
Fit Permitted		0.998			0.994			0.968			0.968	
Satd. Flow (perm)	0	1855	0	0	1867	0	0	1756	0	0	1621	0
Link Speed (k/h)		60			80			50			50	
Link Distance (m)		284.2			999.6			256.5			439.6	
Travel Time (s)		17.1			45.0			18.5			31.7	
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%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	25%
Adj. Flow (vph)	15	429	46	46	349	10	64	1	32	10	0	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	490	0	0	405	0	0	97	0	0	15	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	49.5%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
106: Gerrie Rd & Nichol Rd 15

Total - 2035
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	14	395	42	42	321	9	59	1	29	9	0	5
Future Volume (Veh/h)	14	395	42	42	321	9	59	1	29	9	0	5
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
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
Hourly flow rate (vph)	15	429	46	46	349	10	64	1	32	10	0	5
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None				None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	359			475			933	933	452	961	951	354
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	359			475			933	933	452	961	951	354
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.4
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.5
p0 queue free %	99			96			73	100	95	95	100	99
cM capacity (veh/h)	1211			1098			236	254	612	216	248	641
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	490	405	97	15								
Volume Left	15	46	64	10								
Volume Right	46	10	32	5								
cSH	1211	1098	297	277								
Volume to Capacity	0.01	0.04	0.33	0.05								
Queue Length 95th (m)	0.3	1.0	11.0	1.4								
Control Delay (s/veh)	0.4	1.4	22.9	18.7								
Lane LOS	A	A	C	C								
Approach Delay (s/veh)	0.4	1.4	22.9	18.7								
Approach LOS			C	C								
Intersection Summary												
Average Delay				3.2								
Intersection Capacity Utilization				49.5%	ICU Level of Service	A						
Analysis Period (min)				15								

HCM 6th TWSC
106: Gerrie Rd & Nichol Rd 15

Total - 2035
PM Peak Hour

Intersection												
Int Delay, s/veh	3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	14	395	42	42	321	9	59	1	29	9	0	5
Future Vol, veh/h	14	395	42	42	321	9	59	1	29	9	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	1	0	0	1	0	0	0	0	0	0	25
Mvmt Flow	15	429	46	46	349	10	64	1	32	10	0	5
Major/Minor												
	Major1	Major2		Minor1		Minor2						
Conflicting Flow All	359	0	0	475	0	0	931	933	452	945	951	354
Stage 1	-	-	-	-	-	-	482	482	-	446	446	-
Stage 2	-	-	-	-	-	-	449	451	-	499	505	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.45
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.525
Pot Cap-1 Maneuver	1211	-	-	1098	-	-	249	268	612	244	262	641
Stage 1	-	-	-	-	-	-	569	557	-	595	577	-
Stage 2	-	-	-	-	-	-	593	574	-	557	544	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1211	-	-	1098	-	-	234	250	612	219	244	641
Mov Cap-2 Maneuver	-	-	-	-	-	-	234	250	-	219	244	-
Stage 1	-	-	-	-	-	-	559	548	-	585	547	-
Stage 2	-	-	-	-	-	-	557	544	-	518	535	-
Approach												
	EB	WB		NB		SB						
HCM Ctrl Dly, s/v	0.2	1		23.2		18.3						
HCM LOS				C		C						
Minor Lane/Major Mvmt												
	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	293	1211	-	-	1098	-	-	286				
HCM Lane V/C Ratio	0.33	0.013	-	-	0.042	-	-	0.053				
HCM Ctrl Dly (s/v)	23.2	8	0	-	8.4	0	-	18.3				
HCM Lane LOS	C	A	A	-	A	A	-	C				
HCM 95th %tile Q (veh)	1.4	0	-	-	0.1	-	-	0.2				

Lanes, Volumes, Timings
107: Gerrie Rd & Colborne St

Total - 2035
PM Peak Hour

	↖	→	↘	↙	←	↖	↙	↑	↘	↙	↓	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	58	232	66	17	270	83	99	136	29	72	92	50
Future Volume (vph)	58	232	66	17	270	83	99	136	29	72	92	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.975			0.970			0.985			0.969	
Flt Protected		0.992			0.998			0.982			0.983	
Satd. Flow (prot)	0	1787	0	0	1793	0	0	1635	0	0	1713	0
Flt Permitted		0.992			0.998			0.982			0.983	
Satd. Flow (perm)	0	1787	0	0	1793	0	0	1635	0	0	1713	0
Link Speed (k/h)		40			50			50			50	
Link Distance (m)		1021.3			906.6			376.2			1159.4	
Travel Time (s)		91.9			65.3			27.1			83.5	
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 (%)	5%	0%	11%	0%	2%	5%	15%	11%	10%	0%	11%	4%
Adj. Flow (vph)	63	252	72	18	293	90	108	148	32	78	100	54
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	387	0	0	401	0	0	288	0	0	232	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	65.9%
Analysis Period (min)	15
	ICU Level of Service C

HCM Unsignalized Intersection Capacity Analysis
107: Gerrie Rd & Colborne St

Total - 2035
PM Peak Hour

	↖	→	↘	↙	←	↖	↙	↑	↘	↙	↓	↘
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	58	232	66	17	270	83	99	136	29	72	92	50
Future Volume (vph)	58	232	66	17	270	83	99	136	29	72	92	50
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
Hourly flow rate (vph)	63	252	72	18	293	90	108	148	32	78	100	54
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	387	401	288	232								
Volume Left (vph)	63	18	108	78								
Volume Right (vph)	72	90	32	54								
Hadj (s)	-0.03	-0.08	0.22	0.02								
Departure Headway (s)	7.1	7.0	7.7	7.7								
Degree Utilization, x	0.76	0.78	0.62	0.50								
Capacity (veh/h)	481	489	422	397								
Control Delay (s/veh)	28.9	30.1	22.3	18.2								
Approach Delay (s/veh)	28.9	30.1	22.3	18.2								
Approach LOS	D	D	C	C								
Intersection Summary												
Delay	25.9											
Level of Service	D											
Intersection Capacity Utilization	65.9%			ICU Level of Service			C					
Analysis Period (min)	15											

HCM 6th AWSC
107: Gerrie Rd & Colborne St

Total - 2035
PM Peak Hour

Intersection												
Intersection Delay, s/veh	25.4											
Intersection LOS	D											


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↕			↕			↕	
Traffic Vol, veh/h	58	232	66	17	270	83	99	136	29	72	92	50
Future Vol, veh/h	58	232	66	17	270	83	99	136	29	72	92	50
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, %	5	0	11	0	2	5	15	11	10	0	11	4
Mvmt Flow	63	252	72	18	293	90	108	148	32	78	100	54
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	28.6	29	22.2	17.8
HCM LOS	D	D	C	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	38%	16%	5%	34%
Vol Thru, %	52%	65%	73%	43%
Vol Right, %	11%	19%	22%	23%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	264	356	370	214
LT Vol	99	58	17	72
Through Vol	136	232	270	92
RT Vol	29	66	83	50
Lane Flow Rate	287	387	402	233
Geometry Grp	1	1	1	1
Degree of Util (X)	0.611	0.753	0.765	0.489
Departure Headway (Hd)	7.669	7.002	6.848	7.564
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	468	515	527	475
Service Time	5.751	5.079	4.925	5.653
HCM Lane V/C Ratio	0.613	0.751	0.763	0.491
HCM Control Delay, s/veh	22.2	28.6	29	17.8
HCM Lane LOS	C	D	D	C
HCM 95th-tile Q	4	6.5	6.8	2.6

Lanes, Volumes, Timings
108: Chapel St/Gerrie Rd & East Mill St

Total - 2035
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔			↕			↕			↕	
Traffic Volume (vph)	52	346	0	0	336	212	0	0	0	143	0	32
Future Volume (vph)	52	346	0	0	336	212	0	0	0	143	0	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	0		0	0		0	0		0
Taper Length (m)	60.0			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												1.00
Fit Protected	0.950											0.961
Satd. Flow (prot)	1805	1881	0	0	1794	0	0	1900	0	0	1759	0
Fit Permitted	0.357											0.765
Satd. Flow (perm)	678	1881	0	0	1794	0	0	1900	0	0	1400	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					79							67
Link Speed (k/h)		60			60			50				50
Link Distance (m)		314.9			327.9			115.3				376.2
Travel Time (s)		18.9			19.7			8.3				27.1
Confl. Peds. (#/hr)							1					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%	1%	0%	0%	0%	1%	0%	0%	0%	1%	0%	0%
Adj. Flow (vph)	57	376	0	0	365	230	0	0	0	155	0	35
Shared Lane Traffic (%)												
Lane Group Flow (vph)	57	376	0	0	595	0	0	0	0	0	190	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			0.0		0.0		0.0
Link Offset(m)		0.0			0.0			0.0		0.0		0.0
Crosswalk Width(m)		4.8			4.8			4.8		4.8		4.8
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	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	
Detector 1 Queue (s)	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	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
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	

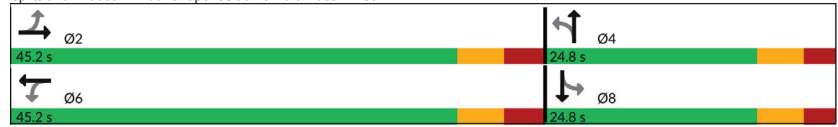
Lanes, Volumes, Timings
108: Chapel St/Gerrie Rd & East Mill St

Total - 2035
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA			NA					Perm	NA	
Protected Phases		2				6			4			8
Permitted Phases	2			6				4		8		
Detector Phase	2	2		6	6			4	4	8	8	
Switch Phase												
Minimum Initial (s)	35.0	35.0		35.0	35.0			10.0	10.0	10.0	10.0	
Minimum Split (s)	42.3	42.3		42.3	42.3			24.7	24.7	24.7	24.7	
Total Split (s)	45.2	45.2		45.2	45.2			24.8	24.8	24.8	24.8	
Total Split (%)	64.6%	64.6%		64.6%	64.6%			35.4%	35.4%	35.4%	35.4%	
Maximum Green (s)	37.9	37.9		37.9	37.9			18.1	18.1	18.1	18.1	
Yellow Time (s)	4.0	4.0		4.0	4.0			4.0	4.0	4.0	4.0	
All-Red Time (s)	3.3	3.3		3.3	3.3			2.7	2.7	2.7	2.7	
Lost Time Adjust (s)	-3.3	-3.3			-3.3			-2.7	-2.7		-2.7	
Total Lost Time (s)	4.0	4.0			4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0	3.0	3.0	
Recall Mode	Min	Min		Min	Min			None	None	None	None	
Walk Time (s)	23.0	23.0		23.0	23.0			7.0	7.0	7.0	7.0	
Flash Don't Walk (s)	12.0	12.0		12.0	12.0			7.0	7.0	7.0	7.0	
Pedestrian Calls (#/hr)	0	0		0	0			0	0	0	0	
Act Effct Green (s)	38.4	38.4			38.4						14.8	
Actuated g/C Ratio	0.63	0.63			0.63						0.24	
v/c Ratio	0.13	0.32			0.52						0.49	
Control Delay (s/veh)	6.4	6.7			7.8						17.4	
Queue Delay	0.0	0.0			0.0						0.0	
Total Delay (s/veh)	6.4	6.7			7.8						17.4	
LOS	A	A			A						B	
Approach Delay (s/veh)		6.7			7.8						17.4	
Approach LOS		A			A						B	

Intersection Summary	
Area Type:	Other
Cycle Length:	70
Actuated Cycle Length:	61.2
Natural Cycle:	70
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.52
Intersection Signal Delay (s/veh):	8.9
Intersection LOS:	A
Intersection Capacity Utilization:	59.8%
ICU Level of Service:	B
Analysis Period (min):	15

Splits and Phases: 108: Chapel St/Gerrie Rd & East Mill St



Queues
108: Chapel St/Gerrie Rd & East Mill St

Total - 2035
PM Peak Hour

Lane Group	EBL	EBT	WBT	SBT
Lane Group Flow (vph)	57	376	595	190
v/c Ratio	0.13	0.32	0.52	0.49
Control Delay (s/veh)	6.4	6.7	7.8	17.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	6.4	6.7	7.8	17.4
Queue Length 50th (m)	2.1	16.1	24.9	12.1
Queue Length 95th (m)	8.2	38.1	62.2	28.4
Internal Link Dist (m)		290.9	303.9	352.2
Turn Bay Length (m)	30.0			
Base Capacity (vph)	457	1267	1234	520
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.12	0.30	0.48	0.37

Intersection Summary

Intersection Summary	
Area Type:	Other
Cycle Length:	70
Actuated Cycle Length:	61.2
Natural Cycle:	70
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.52
Intersection Signal Delay (s/veh):	8.9
Intersection LOS:	A
Intersection Capacity Utilization:	59.8%
ICU Level of Service:	B
Analysis Period (min):	15

HCM Signalized Intersection Capacity Analysis
108: Chapel St/Gerrie Rd & East Mill St

Total - 2035
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔		↔	↔		↔	↔	↔
Traffic Volume (vph)	52	346	0	0	336	212	0	0	0	143	0	32
Future Volume (vph)	52	346	0	0	336	212	0	0	0	143	0	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0					4.0		
Lane Util. Factor	1.00	1.00			1.00					1.00		
Frbp, ped/bikes	1.00	1.00			1.00					1.00		
Flpb, ped/bikes	1.00	1.00			1.00					1.00		
Frt	1.00	1.00			0.95					0.98		
Flt Protected	0.95	1.00			1.00					0.96		
Satd. Flow (prot)	1805	1881			1794					1759		
Flt Permitted	0.36	1.00			1.00					0.77		
Satd. Flow (perm)	678	1881			1794					1400		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	57	376	0	0	365	230	0	0	0	155	0	35
RTOR Reduction (vph)	0	0	0	0	29	0	0	0	0	0	51	0
Lane Group Flow (vph)	57	376	0	0	566	0	0	0	0	139	0	0
Confl. Peds. (#/hr)							1					1
Heavy Vehicles (%)	0%	1%	0%	0%	0%	1%	0%	0%	0%	1%	0%	0%
Turn Type	Perm	NA			NA					Perm	NA	
Protected Phases		2			6			4				8
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	35.1	35.1			35.1							12.1
Effective Green, g (s)	38.4	38.4			38.4							14.8
Actuated g/C Ratio	0.63	0.63			0.63							0.24
Clearance Time (s)	7.3	7.3			7.3							6.7
Vehicle Extension (s)	3.0	3.0			3.0							3.0
Lane Grp Cap (vph)	425	1180			1125							338
v/s Ratio Prot		0.20			c0.32							
v/s Ratio Perm	0.08											c0.10
v/c Ratio	0.13	0.32			0.50							0.41
Uniform Delay, d1	4.6	5.3			6.2							19.5
Progression Factor	1.00	1.00			1.00							1.00
Incremental Delay, d2	0.1	0.2			0.4							0.8
Delay (s)	4.8	5.5			6.6							20.4
Level of Service	A	A			A							C
Approach Delay (s/veh)		5.4			6.6			0.0				20.4
Approach LOS		A			A			A				C
Intersection Summary												
HCM 2000 Control Delay (s/veh)		8.3			HCM 2000 Level of Service			A				
HCM 2000 Volume to Capacity ratio		0.48										
Actuated Cycle Length (s)		61.2			Sum of lost time (s)			8.0				
Intersection Capacity Utilization		59.8%			ICU Level of Service			B				
Analysis Period (min)		15										
c Critical Lane Group												

HCM 6th Signalized Intersection Summary
108: Chapel St/Gerrie Rd & East Mill St

Total - 2035
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔		↔	↔		↔	↔	↔
Traffic Volume (veh/h)	52	346	0	0	336	212	0	0	0	143	0	32
Future Volume (veh/h)	52	346	0	0	336	212	0	0	0	143	0	32
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No		No		No			No		No
Adj Sat Flow, veh/h/ln	1900	1885	1900	1900	1900	1885	1900	1900	1900	1885	1900	1900
Adj Flow Rate, veh/h	57	376	0	0	365	230	0	0	0	155	0	35
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
Percent Heavy Veh, %	0	1	0	0	0	1	0	0	0	1	0	0
Cap, veh/h	516	1231	0	0	712	449	0	400	0	361	2	57
Arrive On Green	0.65	0.65	0.00	0.00	0.65	0.60	0.00	0.00	0.00	0.16	0.00	0.16
Sat Flow, veh/h	836	1885	0	0	1090	687	0	1900	0	1186	10	270
Grp Volume(v), veh/h	57	376	0	0	0	595	0	0	0	190	0	0
Grp Sat Flow(s),veh/h/ln	836	1885	0	0	0	1776	0	1900	0	1467	0	0
Q Serve(g_s), s	2.3	5.1	0.0	0.0	0.0	10.7	0.0	0.0	0.0	7.2	0.0	0.0
Cycle Q Clear(g_c), s	13.0	5.1	0.0	0.0	0.0	10.7	0.0	0.0	0.0	7.3	0.0	0.0
Prop In Lane	1.00		0.00	0.00		0.39	0.00			0.00	0.82	0.18
Lane Grp Cap(c), veh/h	516	1231	0	0	0	1160	0	400	0	353	0	0
V/C Ratio(X)	0.11	0.31	0.00	0.00	0.00	0.51	0.00	0.00	0.00	0.54	0.00	0.00
Avail Cap(c_a), veh/h	557	1325	0	0	0	1248	0	674	0	564	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	8.8	4.4	0.0	0.0	0.0	5.7	0.0	0.0	0.0	22.4	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.1	0.0	0.0	0.0	0.4	0.0	0.0	0.0	1.3	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	0.1	0.0	0.0	0.0	0.2	0.0	0.0	0.0	1.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	8.9	4.5	0.0	0.0	0.0	6.1	0.0	0.0	0.0	23.7	0.0	0.0
LnGrp LOS	A	A				A				C		
Approach Vol, veh/h		433			595			0		190		
Approach Delay, s/veh		5.1			6.1			0.0		23.7		
Approach LOS		A			A			C		C		
Timer - Assigned Phs												
Phs Duration (G+Y+Rc), s		42.3			16.3			42.3		16.3		
Change Period (Y+Rc), s		7.3			6.7			7.3		6.7		
Max Green Setting (Gmax), s		37.9			18.1			37.9		18.1		
Max Q Clear Time (g_c+1), s		15.0			0.0			12.7		9.3		
Green Ext Time (p_c), s		3.2			0.0			5.1		0.7		
Intersection Summary												
HCM 6th Ctrl Delay, s/veh		8.5										
HCM 6th LOS		A										

Lanes, Volumes, Timings
 201: Irvine St & Cachet Clayton/Street B Total - 2035
 PM Peak Hour

	↖	→	↘	↙	←	↖	↘	↙	↖	↘	↙	↖
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	32	0	42	37	0	27	74	150	62	45	121	52
Future Volume (vph)	32	0	42	37	0	27	74	150	62	45	121	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.923			0.943			0.971			0.968	
Flt Protected		0.979			0.972			0.987			0.990	
Satd. Flow (prot)	0	1717	0	0	1707	0	0	1794	0	0	1794	0
Flt Permitted		0.979			0.972			0.987			0.990	
Satd. Flow (perm)	0	1717	0	0	1707	0	0	1794	0	0	1794	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		158.0			186.9			227.8			220.4	
Travel Time (s)		11.4			13.5			16.4			15.9	
Confl. Peds. (#/hr)							5					5
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%	2%	0%	2%	2%	2%	0%	2%	2%	2%	2%	0%
Adj. Flow (vph)	35	0	46	40	0	29	80	163	67	49	132	57
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	81	0	0	69	0	0	310	0	0	238	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Right	Left	Left	Right	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	35.0% ICU Level of Service A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
 201: Irvine St & Cachet Clayton/Street B Total - 2035
 PM Peak Hour

	↖	→	↘	↙	←	↖	↘	↙	↖	↘	↙	↖
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	32	0	42	37	0	27	74	150	62	45	121	52
Future Volume (Veh/h)	32	0	42	37	0	27	74	150	62	45	121	52
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	35	0	46	40	0	29	80	163	67	49	132	57
Pedestrians		5										
Lane Width (m)		3.6										
Walking Speed (m/s)		1.2										
Percent Blockage		0										
Right turn flare (veh)												
Median type							None				None	
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	649	654	166	661	649	197	194				230	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	649	654	166	661	649	197	194				230	
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1				4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				2.2	
p0 queue free %	90	100	95	88	100	97	94				96	
cM capacity (veh/h)	344	349	880	330	352	845	1385				1338	

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	81	69	310	238
Volume Left	35	40	80	49
Volume Right	46	29	67	57
eSH	526	444	1385	1338
Volume to Capacity	0.15	0.16	0.06	0.04
Queue Length 95th (m)	4.3	4.4	1.5	0.9
Control Delay (s/veh)	13.1	14.6	2.4	1.9
Lane LOS	B	B	A	A
Approach Delay (s/veh)	13.1	14.6	2.4	1.9
Approach LOS	B	B		

Intersection Summary	
Average Delay	4.7
Intersection Capacity Utilization	35.0% ICU Level of Service A
Analysis Period (min)	15

Intersection												
Int Delay, s/veh	4.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔		↔		↔		↔		↔		↔	
Traffic Vol, veh/h	32	0	42	37	0	27	74	150	62	45	121	52
Future Vol, veh/h	32	0	42	37	0	27	74	150	62	45	121	52
Conflicting Peds, #/hr	0	0	0	0	0	0	5	0	0	0	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
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	2	0	2	2	2	0	2	2	2	2	0
Mvmt Flow	35	0	46	40	0	29	80	163	67	49	132	57
Major/Minor	Minor2	Minor1	Major1	Major2								
Conflicting Flow All	635	654	166	639	649	197	194	0	0	230	0	0
Stage 1	264	264	-	357	357	-	-	-	-	-	-	-
Stage 2	371	390	-	282	292	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.52	6.2	7.12	6.52	6.22	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.018	3.3	3.518	4.018	3.318	2.2	-	-	2.218	-	-
Pot Cap-1 Maneuver	394	386	884	389	389	844	1391	-	-	1338	-	-
Stage 1	746	690	-	661	628	-	-	-	-	-	-	-
Stage 2	653	608	-	725	671	-	-	-	-	-	-	-
Platoon blocked, %	-											
Mov Cap-1 Maneuver	348	344	880	339	347	844	1385	-	-	1338	-	-
Mov Cap-2 Maneuver	348	344	-	339	347	-	-	-	-	-	-	-
Stage 1	693	659	-	617	586	-	-	-	-	-	-	-
Stage 2	588	567	-	659	641	-	-	-	-	-	-	-
Approach	EB	WB	NB	SB								
HCM Ctrf Dly, s/v	13	14.4	2	1.6								
HCM LOS	B	B										
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1385	-	-	530	453	1338	-	-				
HCM Lane V/C Ratio	0.058	-	-	0.152	0.154	0.037	-	-				
HCM Ctrf Dly (s/v)	7.8	0	-	13	14.4	7.8	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile Q (veh)	0.2	-	-	0.5	0.5	0.1	-	-				

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	437	60	47	331	34	29
Future Volume (vph)	437	60	47	331	34	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frts	0.984			0.937		
Fit Protected				0.994	0.974	
Satd. Flow (prot)	1833	0	0	1852	1700	0
Fit Permitted				0.994	0.974	
Satd. Flow (perm)	1833	0	0	1852	1700	0
Link Speed (k/h)	60		60		50	
Link Distance (m)	313.2		419.2		195.2	
Travel Time (s)	18.8		25.2		14.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	475	65	51	360	37	32
Shared Lane Traffic (%)						
Lane Group Flow (vph)	540	0	0	411	69	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0		0.0		3.6	
Link Offset(m)	0.0		0.0		0.0	
Crosswalk Width(m)	4.8		4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	15		25		15	
Sign Control	Free		Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	60.3%			ICU Level of Service B		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis
202: Street A & Nichol Rd 15

Total - 2035
PM Peak Hour

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	
Traffic Volume (veh/h)	437	60	47	331	34	29
Future Volume (Veh/h)	437	60	47	331	34	29
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	475	65	51	360	37	32
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					None
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			540			970 508
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			540			970 508
tC, single (s)			4.1			6.4 6.2
tC, 2 stage (s)						
tF (s)			2.2			3.5 3.3
p0 queue free %			95			86 94
cM capacity (veh/h)			1028			267 565
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	540	411	69			
Volume Left	0	51	37			
Volume Right	65	0	32			
eSH	1700	1028	354			
Volume to Capacity	0.32	0.05	0.20			
Queue Length 95th (m)	0.0	1.3	5.7			
Control Delay (s/veh)	0.0	1.6	17.6			
Lane LOS	A		C			
Approach Delay (s/veh)	0.0	1.6	17.6			
Approach LOS	C		C			
Intersection Summary						
Average Delay			1.8			
Intersection Capacity Utilization			60.3%	ICU Level of Service		B
Analysis Period (min)			15			



HCM 6th TWSC
202: Street A & Nichol Rd 15

Total - 2035
PM Peak Hour

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	
Traffic Vol, veh/h	437	60	47	331	34	29
Future Vol, veh/h	437	60	47	331	34	29
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	2	2	2	2	2
Mvmt Flow	475	65	51	360	37	32
Intersection						
Int Delay, s/veh	1.6					
Major/Minor						
Major1	Major2		Minor1			
Conflicting Flow All	0	0	540	0	970	508
Stage 1	-	-	-	-	508	-
Stage 2	-	-	-	-	462	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1028	-	281	565
Stage 1	-	-	-	-	604	-
Stage 2	-	-	-	-	634	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1028	-	264	565
Mov Cap-2 Maneuver	-	-	-	-	264	-
Stage 1	-	-	-	-	604	-
Stage 2	-	-	-	-	595	-
Approach						
EB	WB		NB			
HCM Ctrl Dly, s/v	0	1.1		17.8		
HCM LOS			C			
Minor Lane/Major Mvmt						
NBLn1	EBT	EBR	WBL	WBT		
Capacity (veh/h)	350	-	-	1028	-	
HCM Lane V/C Ratio	0.196	-	-	0.05	-	
HCM Ctrl Dly (s/v)	17.8	-	-	8.7	0	
HCM Lane LOS	C	-	-	A	A	
HCM 95th %tile Q (veh)	0.7	-	-	0.2	-	

Lanes, Volumes, Timings
203: Street C & Nichol Rd 15



Total - 2035
PM Peak Hour

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	437	29	23	362	16	14
Future Volume (vph)	437	29	23	362	16	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.991			0.937		
Fit Protected				0.997	0.974	
Satd. Flow (prot)	1848	0	0	1859	1734	0
Fit Permitted				0.997	0.974	
Satd. Flow (perm)	1848	0	0	1859	1734	0
Link Speed (k/h)	60		60		50	
Link Distance (m)	419.2		284.2		150.6	
Travel Time (s)	25.2		17.1		10.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	0%	0%	2%	0%	0%
Adj. Flow (vph)	475	32	25	393	17	15
Shared Lane Traffic (%)						
Lane Group Flow (vph)	507	0	0	418	32	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0		0.0		3.6	
Link Offset(m)	0.0		0.0		0.0	
Crosswalk Width(m)	4.8		4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	15		25		25	
Sign Control	Free		Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	47.9%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
203: Street C & Nichol Rd 15

Total - 2035
PM Peak Hour

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	437	29	23	362	16	14
Future Volume (Veh/h)	437	29	23	362	16	14
Sign Control	Free			Free Stop		
Grade	0%					
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	475	32	25	393	17	15
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume				507	934	491
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol				507	934	491
tC, single (s)				4.1	6.4	6.2
tC, 2 stage (s)						
tF (s)				2.2	3.5	3.3
pD queue free %				98	94	97
cM capacity (veh/h)				1068	291	582

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	507	418	32
Volume Left	0	25	17
Volume Right	32	0	15
eSH	1700	1068	380
Volume to Capacity	0.30	0.02	0.08
Queue Length 95th (m)	0.0	0.6	2.2
Control Delay (s/veh)	0.0	0.7	15.4
Lane LOS	A C		
Approach Delay (s/veh)	0.0	0.7	15.4
Approach LOS	C		

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	47.9%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection						
Int Delay, s/veh	0.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗ ↘ ↙ ↚ ↛ ↜					
Traffic Vol, veh/h	437	29	23	362	16	14
Future Vol, veh/h	437	29	23	362	16	14
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	475	32	25	393	17	15
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	507	0	934	491
Stage 1	-	-	-	-	491	-
Stage 2	-	-	-	-	443	-
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	-	-	1068	-	297	582
Stage 1	-	-	-	-	619	-
Stage 2	-	-	-	-	651	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1068	-	288	582
Mov Cap-2 Maneuver	-	-	-	-	288	-
Stage 1	-	-	-	-	619	-
Stage 2	-	-	-	-	631	-
Approach	EB	WB	NB			
HCM Ctrf Dly, s/v	0	0.5	15.5			
HCM LOS				C		
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	377	-	-	1068	-	
HCM Lane V/C Ratio	0.086	-	-	0.023	-	
HCM Ctrf Dly (s/v)	15.5	-	-	8.5	0	
HCM Lane LOS	C	-	-	A	A	
HCM 95th %tile Q (veh)	0.3	-	-	0.1	-	

Lanes, Volumes, Timings						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖ ↗ ↘ ↙ ↚ ↛ ↜					
Traffic Volume (vph)	13	17	28	77	64	20
Future Volume (vph)	13	17	28	77	64	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frts	0.924		0.968			
Fit Protected	0.979		0.987			
Satd. Flow (prot)	1719		1848			
Fit Permitted	0.979		0.987			
Satd. Flow (perm)	1719		1848			
Link Speed (k/h)	50		50			
Link Distance (m)	287.7		214.3			
Travel Time (s)	20.7		15.4			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	2%	2%	0%
Adj. Flow (vph)	14	18	30	84	70	22
Shared Lane Traffic (%)						
Lane Group Flow (vph)	32	0	0	114	92	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6		0.0			
Link Offset(m)	0.0		0.0			
Crosswalk Width(m)	4.8		4.8			
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25	15		
Sign Control	Stop		Free			
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	22.3%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis
204: Gerrie Rd & Street C

Total - 2035
PM Peak Hour

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			↑	↑	
Traffic Volume (veh/h)	13	17	28	77	64	20
Future Volume (Veh/h)	13	17	28	77	64	20
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	18	30	84	70	22
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	225	81	92			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	225	81	92			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	98	98			
cM capacity (veh/h)	752	985	1515			
Direction, Lane #						
	EB 1	NB 1	SB 1			
Volume Total	32	114	92			
Volume Left	14	30	0			
Volume Right	18	0	22			
cSH	867	1515	1700			
Volume to Capacity	0.04	0.02	0.05			
Queue Length 95th (m)	0.9	0.5	0.0			
Control Delay (s/veh)	9.3	2.1	0.0			
Lane LOS	A	A				
Approach Delay (s/veh)	9.3	2.1	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			2.2			
Intersection Capacity Utilization		22.3%		ICU Level of Service	A	
Analysis Period (min)		15				

HCM 6th TWSC
204: Gerrie Rd & Street C

Total - 2035
PM Peak Hour

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			↑	↑	
Traffic Vol, veh/h	13	17	28	77	64	20
Future Vol, veh/h	13	17	28	77	64	20
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	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	0	0	0	2	2	0
Mvmt Flow	14	18	30	84	70	22
Intersection						
Int Delay, s/veh	2.2					
Major/Minor						
	Minor2	Major1		Major2		
Conflicting Flow All	225	81	92	0	-	0
Stage 1	81	-	-	-	-	-
Stage 2	144	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	768	985	1515	-	-	-
Stage 1	947	-	-	-	-	-
Stage 2	888	-	-	-	-	-
Platoon blocked, %						
Mov Cap-1 Maneuver	752	985	1515	-	-	-
Mov Cap-2 Maneuver	752	-	-	-	-	-
Stage 1	927	-	-	-	-	-
Stage 2	888	-	-	-	-	-
Approach						
	EB	NB		SB		
HCM Ctrl Dly, s/v	9.3	2		0		
HCM LOS	A					
Minor Lane/Major Mvmt						
	NBL	NBT EBLn1	SBT	SBR		
Capacity (veh/h)	1515	-	868	-		
HCM Lane V/C Ratio	0.02	-	0.038	-		
HCM Ctrl Dly (s/v)	7.4	0	9.3	-		
HCM Lane LOS	A	A	A	-		
HCM 95th %tile Q (veh)	0.1	-	0.1	-		

Lanes, Volumes, Timings
101: Geddes St & James St

Total - 2040
AM Peak Hour

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	71	370	118	52	219	121
Future Volume (vph)	71	370	118	52	219	121
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.887		0.958			
Flt Protected	0.992					0.969
Satd. Flow (prot)	1616	0	1727	0	0	1769
Flt Permitted	0.992					0.969
Satd. Flow (perm)	1616	0	1727	0	0	1769
Link Speed (k/h)	50		50			50
Link Distance (m)	120.4		303.1			136.1
Travel Time (s)	8.7		21.8			9.8
Confl. Peds. (#/hr)	1			3	3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	11%	2%	2%	13%	3%	6%
Adj. Flow (vph)	77	402	128	57	238	132
Shared Lane Traffic (%)						
Lane Group Flow (vph)	479	0	185	0	0	370
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	4.8		4.8			4.8
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	65.1% ICU Level of Service C
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
101: Geddes St & James St

Total - 2040
AM Peak Hour

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	71	370	118	52	219	121
Future Volume (Veh/h)	71	370	118	52	219	121
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	77	402	128	57	238	132
Pedestrians	3		1			
Lane Width (m)	3.6		3.6			
Walking Speed (m/s)	1.2		1.2			
Percent Blockage	0		0			
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	769	160			188	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	769	160			188	
tC, single (s)	6.5	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.6	3.3			2.2	
p0 queue free %	74	54			83	
cM capacity (veh/h)	294	883			1377	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	479	185	370
Volume Left	77	0	238
Volume Right	402	57	0
eSH	668	1700	1377
Volume to Capacity	0.72	0.11	0.17
Queue Length 95th (m)	48.3	0.0	5.0
Control Delay (s/veh)	22.8	0.0	5.8
Lane LOS	C		A
Approach Delay (s/veh)	22.8	0.0	5.8
Approach LOS	C		

Intersection Summary	
Average Delay	12.6
Intersection Capacity Utilization	65.1% ICU Level of Service C
Analysis Period (min)	15

HCM 6th TWSC
101: Geddes St & James St

Total - 2040
AM Peak Hour

Intersection						
Int Delay, s/veh	12.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔	↔	↔	↔	↔	↔
Traffic Vol, veh/h	71	370	118	52	219	121
Future Vol, veh/h	71	370	118	52	219	121
Conflicting Peds, #/hr	1	0	0	3	3	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, %	11	2	2	13	3	6
Mvmt Flow	77	402	128	57	238	132
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	769	160	0	0	188	0
Stage 1	160	-	-	-	-	-
Stage 2	609	-	-	-	-	-
Critical Hdwy	6.51	6.22	-	-	4.13	-
Critical Hdwy Stg 1	5.51	-	-	-	-	-
Critical Hdwy Stg 2	5.51	-	-	-	-	-
Follow-up Hdwy	3.599	3.318	-	-	2.227	-
Pot Cap-1 Maneuver	357	885	-	-	1380	-
Stage 1	847	-	-	-	-	-
Stage 2	526	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	289	883	-	-	1376	-
Mov Cap-2 Maneuver	289	-	-	-	-	-
Stage 1	844	-	-	-	-	-
Stage 2	427	-	-	-	-	-
Approach	WB	NB	SB			
HCM Ctr Dly, s/v	23.3	0	5.3			
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	663	1376		
HCM Lane V/C Ratio	-	-	0.723	0.173		
HCM Ctr Dly (s/v)	-	-	23.3	8.2	0	
HCM Lane LOS	-	-	C	A	A	
HCM 95th %tile Q (veh)	-	-	6.2	0.6		

Lanes, Volumes, Timings
102: Irvine St & Woolwich St/Nichol Rd 15

Total - 2040
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	7	212	52	94	340	4	100	3	92	3	4	1
Future Volume (vph)	7	212	52	94	340	4	100	3	92	3	4	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt	0.974		0.999		0.936		0.983					
Fit Protected	0.999		0.989		0.975		0.982					
Satd. Flow (prot)	0	1692	0	0	1786	0	0	1334	0	0	1256	0
Fit Permitted	0.999		0.989		0.975		0.982					
Satd. Flow (perm)	0	1692	0	0	1786	0	0	1334	0	0	1256	0
Link Speed (k/h)	40		40		50		50					
Link Distance (m)	556.2		256.4		201.5		704.4					
Travel Time (s)	50.1		23.1		14.5		50.7					
Confl. Peds. (#/hr)	2		2		2		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 (%)	20%	7%	17%	13%	3%	0%	50%	0%	9%	0%	67%	100%
Adj. Flow (vph)	8	230	57	102	370	4	109	3	100	3	4	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	295	0	0	476	0	0	212	0	0	8	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	0.0		0.0		0.0		0.0					
Link Offset(m)	0.0		0.0		0.0		0.0					
Crosswalk Width(m)	4.8		4.8		4.8		4.8					
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15		25		15		25		15	
Sign Control	Free		Free		Stop		Stop					
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	64.9%						ICU Level of Service C					
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis
102: Irvine St & Woolwich St/Nichol Rd 15

Total - 2040
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (veh/h)	7	212	52	94	340	4	100	3	92	3	4	1
Future Volume (Veh/h)	7	212	52	94	340	4	100	3	92	3	4	1
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
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
Hourly flow rate (vph)	8	230	57	102	370	4	109	3	100	3	4	1
Pedestrians												2
Lane Width (m)												3.6
Walking Speed (m/s)												1.2
Percent Blockage												0
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	376	287			854			855	259	954	881	374
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	376	287			854			855	259	954	881	374
tC, single (s)	4.3	4.2			7.6			6.5	6.3	7.1	7.2	7.2
tC, 2 stage (s)												
tF (s)	2.4	2.3			4.0			4.0	3.4	3.5	4.6	4.2
p0 queue free %	99	92			49			99	87	98	98	100
cM capacity (veh/h)	1088	1215			212			270	763	192	205	500
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	295	476	212	8								
Volume Left	8	102	109	3								
Volume Right	57	4	100	1								
eSH	1088	1215	323	215								
Volume to Capacity	0.01	0.08	0.66	0.04								
Queue Length 95th (m)	0.2	2.2	34.9	0.9								
Control Delay (s/veh)	0.3	2.5	35.2	22.4								
Lane LOS	A	A	E	C								
Approach Delay (s/veh)	0.3	2.5	35.2	22.4								
Approach LOS			E	C								
Intersection Summary												
Average Delay	9.0											
Intersection Capacity Utilization	64.9%			ICU Level of Service			C					
Analysis Period (min)	15											

HCM 6th TWSC
102: Irvine St & Woolwich St/Nichol Rd 15

Total - 2040
AM Peak Hour

Intersection												
Int Delay, s/veh	8.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	7	212	52	94	340	4	100	3	92	3	4	1
Future Vol, veh/h	7	212	52	94	340	4	100	3	92	3	4	1
Conflicting Peds, #/hr	2	0	0	0	0	2	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	20	7	17	13	3	0	50	0	9	0	67	100
Mvmt Flow	8	230	57	102	370	4	109	3	100	3	4	1
Major/Minor	Major1	Major2	Minor1	Minor2								
Conflicting Flow All	376	0	0	287	0	0	854	855	259	904	881	374
Stage 1	-	-	-	-	-	-	275	275	-	578	578	-
Stage 2	-	-	-	-	-	-	579	580	-	326	303	-
Critical Hdwy	4.3	-	-	4.23	-	-	7.6	6.5	6.29	7.1	7.17	7.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.6	5.5	-	6.1	6.17	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.6	5.5	-	6.1	6.17	-
Follow-up Hdwy	2.38	-	-	2.317	-	-	3.95	4	3.381	3.5	4.603	4.2
Pot Cap-1 Maneuver	1090	-	-	1215	-	-	231	298	763	260	225	501
Stage 1	-	-	-	-	-	-	638	686	-	505	411	-
Stage 2	-	-	-	-	-	-	426	503	-	691	561	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1088	-	-	1215	-	-	207	263	763	204	199	500
Mov Cap-2 Maneuver	-	-	-	-	-	-	207	263	-	204	199	-
Stage 1	-	-	-	-	-	-	632	680	-	499	367	-
Stage 2	-	-	-	-	-	-	376	449	-	592	556	-
Approach	EB	WB	NB	SB								
HCM Ctrl Dly, s/v	0.2	1.8	36.5	22.3								
HCM LOS			E	C								
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	317	1088	-	-	1215	-	-	217				
HCM Lane V/C Ratio	0.669	0.007	-	-	0.084	-	-	0.04				
HCM Ctrl Dly (s/v)	36.5	8.3	0	-	8.2	0	-	22.3				
HCM Lane LOS	E	A	A	-	A	A	-	C				
HCM 95th %tile Q (veh)	4.5	0	-	-	0.3	-	-	0.1				

Lanes, Volumes, Timings
103: Irvine St & Bricker Ave

Total - 2040
AM Peak Hour

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	17	23	9	139	244	10
Future Volume (vph)	17	23	9	139	244	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.922				0.995	
Flt Protected	0.979			0.997		
Satd. Flow (prot)	1482	0	0	1523	1573	0
Flt Permitted	0.979			0.997		
Satd. Flow (perm)	1482	0	0	1523	1573	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	361.7			908.3	246.8	
Travel Time (s)	26.0			65.4	17.8	
Confl. Peds. (#/hr)			3			3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	27%	0%	26%	21%	0%
Adj. Flow (vph)	18	25	10	151	265	11
Shared Lane Traffic (%)						
Lane Group Flow (vph)	43	0	0	161	276	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	24.7%				ICU Level of Service A	
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis
103: Irvine St & Bricker Ave

Total - 2040
AM Peak Hour

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	17	23	9	139	244	10
Future Volume (Veh/h)	17	23	9	139	244	10
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	18	25	10	151	265	11
Pedestrians	3					
Lane Width (m)	3.6					
Walking Speed (m/s)	1.2					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	445	274	279			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	445	274	279			
tC, single (s)	6.4	6.5	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.5	2.2			
p0 queue free %	97	96	99			
cM capacity (veh/h)	569	707	1292			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	43	161	276			
Volume Left	18	10	0			
Volume Right	25	0	11			
eSH	642	1292	1700			
Volume to Capacity	0.07	0.01	0.16			
Queue Length 95th (m)	1.7	0.2	0.0			
Control Delay (s/veh)	11.0	0.5	0.0			
Lane LOS	B	A				
Approach Delay (s/veh)	11.0	0.5	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay			1.2			
Intersection Capacity Utilization	24.7%		ICU Level of Service		A	
Analysis Period (min)	15					

HCM 6th TWSC
103: Irvine St & Bricker Ave

Total - 2040
AM Peak Hour

Intersection						
Int Delay, s/veh	1.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔			↔	↔	
Traffic Vol, veh/h	17	23	9	139	244	10
Future Vol, veh/h	17	23	9	139	244	10
Conflicting Peds, #/hr	0	0	3	0	0	3
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, %	0	27	0	26	21	0
Mvmt Flow	18	25	10	151	265	11

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	445	274	279
Stage 1	274	-	-
Stage 2	171	-	-
Critical Hdwy	6.4	6.47	4.1
Critical Hdwy Stg 1	5.4	-	-
Critical Hdwy Stg 2	5.4	-	-
Follow-up Hdwy	3.5	3.543	2.2
Pot Cap-1 Maneuver	574	708	1295
Stage 1	777	-	-
Stage 2	864	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	566	706	1292
Mov Cap-2 Maneuver	566	-	-
Stage 1	768	-	-
Stage 2	861	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	11	0.5	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1292	-	639	-	-
HCM Lane V/C Ratio	0.008	-	0.068	-	-
HCM Ctrl Dly (s/v)	7.8	0	11	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q (veh)	0	-	0.2	-	-

Lanes, Volumes, Timings
104: Irvine St & Colborne St

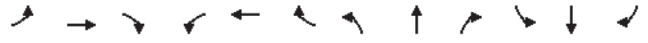
Total - 2040
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	15	145	5	10	219	59	3	78	10	77	212	61
Future Volume (vph)	15	145	5	10	219	59	3	78	10	77	212	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.996			0.972			0.985			0.977	
Fit Protected		0.996			0.998			0.998			0.989	
Satd. Flow (prot)	0	1805	0	0	1737	0	0	1538	0	0	1661	0
Fit Permitted		0.996			0.998			0.998			0.989	
Satd. Flow (perm)	0	1805	0	0	1737	0	0	1538	0	0	1661	0
Link Speed (k/h)		40			40			40			40	
Link Distance (m)		619.9			1021.3			327.0			274.5	
Travel Time (s)		55.8			91.9			29.4			24.7	
Confl. Peds. (#/hr)		7					7	1		7	7	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%	5%	0%	0%	4%	15%	0%	25%	0%	12%	13%	0%
Adj. Flow (vph)	16	158	5	11	238	64	3	85	11	84	230	66
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	179	0	0	313	0	0	99	0	0	380	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	50.0%
ICU Level of Service A	
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
104: Irvine St & Colborne St

Total - 2040
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↕			↕			↕			↕		
Sign Control	Stop			Stop			Stop			Stop		
Traffic Volume (vph)	15	145	5	10	219	59	3	78	10	77	212	61
Future Volume (vph)	15	145	5	10	219	59	3	78	10	77	212	61
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
Hourly flow rate (vph)	16	158	5	11	238	64	3	85	11	84	230	66
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	179	313	99	380								
Volume Left (vph)	16	11	3	84								
Volume Right (vph)	5	64	11	66								
Hadj (s)	0.08	-0.01	0.30	0.12								
Departure Headway (s)	6.0	5.7	6.4	5.7								
Degree Utilization, x	0.30	0.49	0.18	0.60								
Capacity (veh/h)	538	592	484	601								
Control Delay (s/veh)	11.6	14.1	10.8	16.8								
Approach Delay (s/veh)	11.6	14.1	10.8	16.8								
Approach LOS	B	B	B	C								
Intersection Summary												
Delay	14.3											
Level of Service	B											
Intersection Capacity Utilization	50.0%		ICU Level of Service	A								
Analysis Period (min)	15											

HCM 6th AWSC
104: Irvine St & Colborne St

Total - 2040
AM Peak Hour

Intersection												
Intersection Delay, s/veh	14											
Intersection LOS	B											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	15	145	5	10	219	59	3	78	10	77	212	61
Future Vol, veh/h	15	145	5	10	219	59	3	78	10	77	212	61
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	5	0	0	4	15	0	25	0	12	13	0
Mvmt Flow	16	158	5	11	238	64	3	85	11	84	230	66
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Approach	EB	WB		NB		SB						
Opposing Approach	WB	EB		SB		NB						
Opposing Lanes	1	1		1		1						
Conflicting Approach Left	SB	NB		EB		WB						
Conflicting Lanes Left	1	1		1		1						
Conflicting Approach Right	NB	SB		WB		EB						
Conflicting Lanes Right	1	1		1		1						
HCM Control Delay, s/veh	11.3	13.6		10.2		16.6						
HCM LOS	B	B		B		C						
Lane	NBLn1	EBLn1	WBLn1	SBLn1								
Vol Left, %	3%	9%	3%	22%								
Vol Thru, %	86%	88%	76%	61%								
Vol Right, %	11%	3%	20%	17%								
Sign Control	Stop	Stop	Stop	Stop								
Traffic Vol by Lane	91	165	288	350								
LT Vol	3	15	10	77								
Through Vol	78	145	219	212								
RT Vol	10	5	59	61								
Lane Flow Rate	99	179	313	380								
Geometry Grp	1	1	1	1								
Degree of Util (X)	0.163	0.291	0.479	0.593								
Departure Headway (Hd)	5.945	5.846	5.503	5.615								
Convergence, Y/N	Yes	Yes	Yes	Yes								
Cap	599	612	651	639								
Service Time	4.025	3.916	3.562	3.671								
HCM Lane V/C Ratio	0.165	0.292	0.481	0.595								
HCM Control Delay, s/veh	10.2	11.3	13.6	16.6								
HCM Lane LOS	B	B	B	C								
HCM 95th-tile Q	0.6	1.2	2.6	3.9								

Lanes, Volumes, Timings
105: Irvine St & East Mill St

Total - 2040
AM Peak Hour

	↖	→	↗	↙	←	↖	↗	↙	↘	↖	↗	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕				↕
Traffic Volume (vph)	35	342	3	0	269	54	0	0	3	139	0	96
Future Volume (vph)	35	342	3	0	269	54	0	0	3	139	0	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.999			0.977			0.865				0.945
Flt Protected		0.995										0.971
Satd. Flow (prot)	0	1762	0	0	1713	0	0	1644	0	0	1544	0
Flt Permitted		0.995										0.971
Satd. Flow (perm)	0	1762	0	0	1713	0	0	1644	0	0	1544	0
Link Speed (k/h)		40			40			40				40
Link Distance (m)		212.3			172.2			54.2				327.0
Travel Time (s)		19.1			15.5			4.9				29.4
Confl. Peds. (#/hr)	21					21						
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%	8%	0%	0%	4%	30%	0%	0%	0%	17%	0%	7%
Adj. Flow (vph)	38	372	3	0	292	59	0	0	3	151	0	104
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	413	0	0	351	0	0	3	0	0	255	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Right	Left	Left	Right	Right
Median Width(m)		0.0			0.0			0.0				0.0
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		4.8			4.8			4.8				4.8
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop				Stop

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	68.1% ICU Level of Service C
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
105: Irvine St & East Mill St

Total - 2040
AM Peak Hour

	↖	→	↗	↙	←	↖	↗	↙	↘	↖	↗	↙
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕				↕
Traffic Volume (veh/h)	35	342	3	0	269	54	0	0	3	139	0	96
Future Volume (Veh/h)	35	342	3	0	269	54	0	0	3	139	0	96
Sign Control		Free			Free			Stop				Stop
Grade		0%			0%			0%				0%
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
Hourly flow rate (vph)	38	372	3	0	292	59	0	0	3	151	0	104
Pedestrians												21
Lane Width (m)												3.6
Walking Speed (m/s)												1.2
Percent Blockage												2
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	372			375			875	822	374	795	794	343
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	372			375			875	822	374	795	794	343
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.3	6.5	6.3
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.7	4.0	3.4
p0 queue free %	97			100			100	100	100	44	100	85
cM capacity (veh/h)	1177			1195			222	296	677	271	307	677

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	413	351	3	255
Volume Left	38	0	0	151
Volume Right	3	59	3	104
eSH	1177	1195	677	359
Volume to Capacity	0.03	0.00	0.00	0.71
Queue Length 95th (m)	0.8	0.0	0.1	41.9
Control Delay (s/veh)	1.1	0.0	10.3	36.1
Lane LOS	A		B	E
Approach Delay (s/veh)	1.1	0.0	10.3	36.1
Approach LOS			B	E

Intersection Summary	
Average Delay	9.5
Intersection Capacity Utilization	68.1% ICU Level of Service C
Analysis Period (min)	15

HCM 6th TWSC
105: Irvine St & East Mill St

Total - 2040
AM Peak Hour

Intersection												
Int Delay, s/veh	9.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↕		↕		↕		↕		↕		↕	
Traffic Vol, veh/h	35	342	3	0	269	54	0	0	3	139	0	96
Future Vol, veh/h	35	342	3	0	269	54	0	0	3	139	0	96
Conflicting Peds, #/hr	21	0	0	0	0	21	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	8	0	0	4	30	0	0	0	17	0	7
Mvmt Flow	38	372	3	0	292	59	0	0	3	151	0	104
Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	372	0	0	375	0	0	824	822	374	794	794	343
Stage 1	-	-	-	-	-	-	450	450	-	343	343	-
Stage 2	-	-	-	-	-	-	374	372	-	451	451	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.27	6.5	6.27
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.27	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.27	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.653	4	3.363
Pot Cap-1 Maneuver	1198	-	-	1195	-	-	294	311	677	289	323	688
Stage 1	-	-	-	-	-	-	592	575	-	642	641	-
Stage 2	-	-	-	-	-	-	651	622	-	560	574	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1177	-	-	1195	-	-	241	293	677	274	304	676
Mov Cap-2 Maneuver	-	-	-	-	-	-	241	293	-	274	304	-
Stage 1	-	-	-	-	-	-	568	551	-	605	629	-
Stage 2	-	-	-	-	-	-	551	611	-	534	550	-
Approach	EB		WB		NB		SB					
HCM Ctrf Dly, s/v	0.8		0		10.3		35.6					
HCM LOS					B		E					
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	677	1177	-	-	1195	-	-	362				
HCM Lane V/C Ratio	0.005	0.032	-	-	-	-	-	0.706				
HCM Ctrf Dly (s/v)	10.3	8.2	0	-	0	-	-	35.6				
HCM Lane LOS	B	A	A	-	A	-	-	E				
HCM 95th %tile Q (veh)	0	0.1	-	-	0	-	-	5.2				

Lanes, Volumes, Timings
106: Gerrie Rd & Nichol Rd 15

Total - 2040
AM Peak Hour

Lanes, Volumes, Timings												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↕		↕		↕		↕		↕		↕	
Traffic Volume (vph)	8	285	56	33	350	8	31	10	25	16	3	8
Future Volume (vph)	8	285	56	33	350	8	31	10	25	16	3	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frts	0.978		0.997		0.949		0.972		0.958		0.972	
Fit Protected	0.999		0.996		0.977		0.972		0.972		0.972	
Satd. Flow (prot)	0	1716	0	0	1837	0	0	1141	0	0	1609	0
Fit Permitted	0.999		0.996		0.977		0.972		0.972		0.972	
Satd. Flow (perm)	0	1716	0	0	1837	0	0	1141	0	0	1609	0
Link Speed (k/h)	60		80		50		50		50		50	
Link Distance (m)	329.6		999.6		224.9		439.6		439.6		439.6	
Travel Time (s)	19.8		45.0		16.2		31.7		31.7		31.7	
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%	10%	0%	0%	3%	0%	25%	33%	100%	8%	0%	17%
Adj. Flow (vph)	9	310	61	36	380	9	34	11	27	17	3	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	380	0	0	425	0	0	72	0	0	29	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	0.0		0.0		0.0		0.0		0.0		0.0	
Link Offset(m)	0.0		0.0		0.0		0.0		0.0		0.0	
Crosswalk Width(m)	4.8		4.8		4.8		4.8		4.8		4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15		25		15		25		15	
Sign Control	Free		Free		Stop		Stop		Stop		Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	46.6%						ICU Level of Service A					
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis
106: Gerrie Rd & Nichol Rd 15

Total - 2040
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (veh/h)	8	285	56	33	350	8	31	10	25	16	3	8
Future Volume (Veh/h)	8	285	56	33	350	8	31	10	25	16	3	8
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
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
Hourly flow rate (vph)	9	310	61	36	380	9	34	11	27	17	3	9
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None				None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	389			371			826	820	341	848	846	385
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	389			371			826	820	341	848	846	385
tC, single (s)	4.1			4.1			7.4	6.8	7.2	7.2	6.5	6.4
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.7	4.3	4.2	3.6	4.0	3.5
p0 queue free %	99			97			87	96	95	93	99	99
cM capacity (veh/h)	1181			1199			253	267	526	245	290	631
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	380	425	72	29								
Volume Left	9	36	34	17								
Volume Right	61	9	27	9								
eSH	1181	1199	317	309								
Volume to Capacity	0.01	0.03	0.23	0.09								
Queue Length 95th (m)	0.2	0.7	6.9	2.5								
Control Delay (s/veh)	0.3	1.0	19.6	17.9								
Lane LOS	A	A	C	C								
Approach Delay (s/veh)	0.3	1.0	19.6	17.9								
Approach LOS			C	C								
Intersection Summary												
Average Delay				2.7								
Intersection Capacity Utilization				46.6%	ICU Level of Service	A						
Analysis Period (min)				15								

HCM 6th TWSC
106: Gerrie Rd & Nichol Rd 15

Total - 2040
AM Peak Hour

Intersection												
Int Delay, s/veh	2.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	8	285	56	33	350	8	31	10	25	16	3	8
Future Vol, veh/h	8	285	56	33	350	8	31	10	25	16	3	8
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	10	0	0	3	0	25	33	100	8	0	17
Mvmt Flow	9	310	61	36	380	9	34	11	27	17	3	9
Major/Minor	Major1	Major2	Minor1	Minor2								
Conflicting Flow All	389	0	0	371	0	0	822	820	341	835	846	385
Stage 1	-	-	-	-	-	-	359	359	-	457	457	-
Stage 2	-	-	-	-	-	-	463	461	-	378	389	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.35	6.83	7.2	7.18	6.5	6.37
Critical Hdwy Stg 1	-	-	-	-	-	-	6.35	5.83	-	6.18	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.35	5.83	-	6.18	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.725	4.297	4.2	3.572	4	3.453
Pot Cap-1 Maneuver	1181	-	-	1199	-	-	268	277	525	280	301	631
Stage 1	-	-	-	-	-	-	614	576	-	572	571	-
Stage 2	-	-	-	-	-	-	538	516	-	632	612	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1181	-	-	1199	-	-	252	264	525	248	287	631
Mov Cap-2 Maneuver	-	-	-	-	-	-	252	264	-	248	287	-
Stage 1	-	-	-	-	-	-	608	570	-	566	549	-
Stage 2	-	-	-	-	-	-	507	496	-	582	606	-
Approach	EB	WB	NB	SB								
HCM Ctrl Dly, s/v	0.2		0.7				19.6			17.9		
HCM LOS							C			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	317	1181	-	-	1199	-	-	308				
HCM Lane V/C Ratio	0.226	0.007	-	-	0.03	-	-	0.095				
HCM Ctrl Dly (s/v)	19.6	8.1	0	-	8.1	0	-	17.9				
HCM Lane LOS	C	A	A	-	A	A	-	C				
HCM 95th %tile Q (veh)	0.9	0	-	-	0.1	-	-	0.3				

Lanes, Volumes, Timings
107: Gerrie Rd & Colborne St

Total - 2040
AM Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	38	198	104	19	166	38	44	76	10	76	181	55
Future Volume (vph)	38	198	104	19	166	38	44	76	10	76	181	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.959			0.977			0.990			0.976	
Fit Protected		0.994			0.996			0.983			0.988	
Satd. Flow (prot)	0	1695	0	0	1809	0	0	1672	0	0	1751	0
Fit Permitted		0.994			0.996			0.983			0.988	
Satd. Flow (perm)	0	1695	0	0	1809	0	0	1672	0	0	1751	0
Link Speed (k/h)		40			50			50			50	
Link Distance (m)		1021.3			906.6			376.2			1165.2	
Travel Time (s)		91.9			65.3			27.1			83.9	
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 (%)	10%	2%	15%	0%	3%	0%	21%	6%	0%	0%	8%	0%
Adj. Flow (vph)	41	215	113	21	180	41	48	83	11	83	197	60
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	369	0	0	242	0	0	142	0	0	340	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	53.8%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
107: Gerrie Rd & Colborne St

Total - 2040
AM Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	38	198	104	19	166	38	44	76	10	76	181	55
Future Volume (vph)	38	198	104	19	166	38	44	76	10	76	181	55
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
Hourly flow rate (vph)	41	215	113	21	180	41	48	83	11	83	197	60
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	369	242	142	340								
Volume Left (vph)	41	21	48	83								
Volume Right (vph)	113	41	11	60								
Hadj (s)	-0.04	-0.05	0.20	0.02								
Departure Headway (s)	5.9	6.2	6.8	6.1								
Degree Utilization, x	0.61	0.42	0.27	0.58								
Capacity (veh/h)	562	518	449	547								
Control Delay (s/veh)	17.8	13.6	12.3	17.3								
Approach Delay (s/veh)	17.8	13.6	12.3	17.3								
Approach LOS	C	B	B	C								
Intersection Summary												
Delay			16.0									
Level of Service			C									
Intersection Capacity Utilization			53.8%									
ICU Level of Service												A
Analysis Period (min)			15									

HCM 6th AWSC
107: Gerrie Rd & Colborne St


Total - 2040
AM Peak Hour

Intersection												
Intersection Delay, s/veh	16											
Intersection LOS	C											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↕			↕			↕	
Traffic Vol, veh/h	38	198	104	19	166	38	44	76	10	76	181	55
Future Vol, veh/h	38	198	104	19	166	38	44	76	10	76	181	55
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, %	10	2	15	0	3	0	21	6	0	0	8	0
Mvmt Flow	41	215	113	21	180	41	48	83	11	83	197	60
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Approach	EB			WB			NB			SB		
Opposing Approach	WB			EB			SB			NB		
Opposing Lanes	1			1			1			1		
Conflicting Approach Left	SB			NB			EB			WB		
Conflicting Lanes Left	1			1			1			1		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	1			1			1			1		
HCM Control Delay, s/veh	18.1			13.5			12.6			16.9		
HCM LOS	C			B			B			C		

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	34%	11%	9%	24%
Vol Thru, %	58%	58%	74%	58%
Vol Right, %	8%	31%	17%	18%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	130	340	223	312
LT Vol	44	38	19	76
Through Vol	76	198	166	181
RT Vol	10	104	38	55
Lane Flow Rate	141	370	242	339
Geometry Grp	1	1	1	1
Degree of Util (X)	0.272	0.613	0.413	0.57
Departure Headway (Hd)	6.936	5.968	6.135	6.049
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	517	606	587	597
Service Time	4.992	4.009	4.183	4.092
HCM Lane V/C Ratio	0.273	0.611	0.412	0.568
HCM Control Delay, s/veh	12.6	18.1	13.5	16.9
HCM Lane LOS	B	C	B	C
HCM 95th-tile Q	1.1	4.2	2	3.6

Lanes, Volumes, Timings
108: Chapel St/Gerrie Rd & East Mill St

Total - 2040
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↕			↕			↕	
Traffic Volume (vph)	25	319	0	0	279	104	0	0	0	239	0	65
Future Volume (vph)	25	319	0	0	279	104	0	0	0	239	0	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	0		0	0		0	0		0
Taper Length (m)	60.0			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt Protected	0.950				0.963							0.971
Satd. Flow (prot)	1687	1681	0	0	1764	0	0	1900	0	0	1714	0
Flt Permitted	0.465											0.772
Satd. Flow (perm)	826	1681	0	0	1764	0	0	1900	0	0	1375	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					47							67
Link Speed (k/h)		60			60			50				50
Link Distance (m)		314.9			327.9			115.3				376.2
Travel Time (s)		18.9			19.7			8.3				27.1
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 (%)	7%	13%	0%	0%	4%	3%	0%	0%	0%	1%	0%	13%
Adj. Flow (vph)	27	347	0	0	303	113	0	0	0	260	0	71
Shared Lane Traffic (%)												
Lane Group Flow (vph)	27	347	0	0	416	0	0	0	0	0	331	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			0.0				0.0
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		4.8			4.8			4.8				4.8
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	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	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		NA				Perm		NA		NA
Protected Phases		2			6			4				8

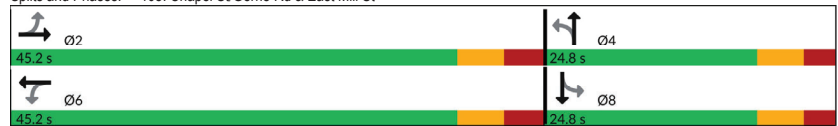
Lanes, Volumes, Timings
108: Chapel St/Gerrie Rd & East Mill St

Total - 2040
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	2			6			4			8		
Detector Phase	2	2		6	6		4	4		8	8	
Switch Phase												
Minimum Initial (s)	35.0	35.0		35.0	35.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	42.3	42.3		42.3	42.3		24.7	24.7		24.7	24.7	
Total Split (s)	45.2	45.2		45.2	45.2		24.8	24.8		24.8	24.8	
Total Split (%)	64.6%	64.6%		64.6%	64.6%		35.4%	35.4%		35.4%	35.4%	
Maximum Green (s)	37.9	37.9		37.9	37.9		18.1	18.1		18.1	18.1	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	3.3	3.3		3.3	3.3		2.7	2.7		2.7	2.7	
Lost Time Adjust (s)	-3.3	-3.3			-3.3			-2.7			-2.7	
Total Lost Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		Min	Min		None	None		None	None	
Walk Time (s)	23.0	23.0		23.0	23.0		7.0	7.0		7.0	7.0	
Flash Don't Walk (s)	12.0	12.0		12.0	12.0		7.0	7.0		7.0	7.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)	38.4	38.4		38.4	38.4						18.5	
Actuated g/C Ratio	0.59	0.59		0.59	0.59						0.29	
v/c Ratio	0.06	0.35		0.39	0.39						0.75	
Control Delay (s/veh)	6.8	8.6		8.0	8.0						28.9	
Queue Delay	0.0	0.0		0.0	0.0						0.0	
Total Delay (s/veh)	6.8	8.6		8.0	8.0						28.9	
LOS	A	A		A	A						C	
Approach Delay (s/veh)		8.5		8.0	8.0						28.9	
Approach LOS		A		A	A						C	

Intersection Summary	
Area Type:	Other
Cycle Length: 70	
Actuated Cycle Length: 64.9	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.75	
Intersection Signal Delay (s/veh): 14.3	Intersection LOS: B
Intersection Capacity Utilization 53.0%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 108: Chapel St/Gerrie Rd & East Mill St



Queues
108: Chapel St/Gerrie Rd & East Mill St

Total - 2040
AM Peak Hour

Lane Group	EBL	EBT	WBT	SBT
Lane Group Flow (vph)	27	347	416	331
v/c Ratio	0.06	0.35	0.39	0.75
Control Delay (s/veh)	6.8	8.6	8.0	28.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	6.8	8.6	8.0	28.9
Queue Length 50th (m)	1.4	22.2	23.7	30.0
Queue Length 95th (m)	4.6	37.5	41.2	#65.9
Internal Link Dist (m)		290.9	303.9	352.2
Turn Bay Length (m)	30.0			
Base Capacity (vph)	525	1069	1138	486
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.05	0.32	0.37	0.68

Intersection Summary
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
108: Chapel St/Gerrie Rd & East Mill St

Total - 2040
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔			↔			↔	↔
Traffic Volume (vph)	25	319	0	0	279	104	0	0	0	239	0	65
Future Volume (vph)	25	319	0	0	279	104	0	0	0	239	0	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0						4.0	
Lane Util. Factor	1.00	1.00			1.00						1.00	
Fr't	1.00	1.00			0.96						0.97	
Flt Protected	0.95	1.00			1.00						0.96	
Satd. Flow (prot)	1687	1681			1765						1714	
Flt Permitted	0.47	1.00			1.00						0.77	
Satd. Flow (perm)	826	1681			1765						1375	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	347	0	0	303	113	0	0	0	260	0	71
RTOR Reduction (vph)	0	0	0	0	19	0	0	0	0	0	48	0
Lane Group Flow (vph)	27	347	0	0	397	0	0	0	0	0	283	0
Heavy Vehicles (%)	7%	13%	0%	0%	4%	3%	0%	0%	0%	1%	0%	13%
Turn Type	Perm	NA			NA					Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	35.1	35.1			35.1						15.8	
Effective Green, g (s)	38.4	38.4			38.4						18.5	
Actuated g/C Ratio	0.59	0.59			0.59						0.29	
Clearance Time (s)	7.3	7.3			7.3						6.7	
Vehicle Extension (s)	3.0	3.0			3.0						3.0	
Lane Grp Cap (vph)	488	994			1044						391	
v/s Ratio Prot		0.21			0.22							
v/s Ratio Perm	0.03										0.21	
v/c Ratio	0.06	0.35			0.38						0.72	
Uniform Delay, d1	5.6	6.8			7.0						20.9	
Progression Factor	1.00	1.00			1.00						1.00	
Incremental Delay, d2	0.0	0.2			0.2						6.5	
Delay (s)	5.6	7.0			7.2						27.4	
Level of Service	A	A			A						C	
Approach Delay (s/veh)		6.9			7.2		0.0				27.4	
Approach LOS		A			A		A				C	
Intersection Summary												
HCM 2000 Control Delay (s/veh)	13.1			HCM 2000 Level of Service				B				
HCM 2000 Volume to Capacity ratio	0.49											
Actuated Cycle Length (s)	64.9			Sum of lost time (s)				8.0				
Intersection Capacity Utilization	53.0%			ICU Level of Service				A				
Analysis Period (min)	15											
c Critical Lane Group												

HCM 6th Signalized Intersection Summary
108: Chapel St/Gerrie Rd & East Mill St

Total - 2040
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔			↔			↔	↔
Traffic Volume (veh/h)	25	319	0	0	279	104	0	0	0	239	0	65
Future Volume (veh/h)	25	319	0	0	279	104	0	0	0	239	0	65
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1796	1707	1900	1900	1841	1856	1900	1900	1900	1885	1900	1707
Adj Flow Rate, veh/h	27	347	0	0	303	113	0	0	0	260	0	71
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
Percent Heavy Veh, %	7	13	0	0	4	3	0	0	0	1	0	13
Cap, veh/h	531	997	0	0	746	278	0	559	0	438	0	93
Arrive On Green	0.58	0.58	0.00	0.00	0.58	0.53	0.00	0.00	0.00	0.25	0.00	0.25
Sat Flow, veh/h	932	1707	0	0	1278	477	0	1900	0	1157	0	316
Grp Volume(v), veh/h	27	347	0	0	0	416	0	0	0	331	0	0
Grp Sat Flow(s),veh/h/ln	932	1707	0	0	0	1755	0	1900	0	1473	0	0
Q Serve(g_s), s	1.1	7.0	0.0	0.0	0.0	8.7	0.0	0.0	0.0	14.2	0.0	0.0
Cycle Q Clear(g_c), s	9.8	7.0	0.0	0.0	0.0	8.7	0.0	0.0	0.0	14.2	0.0	0.0
Prop In Lane	1.00		0.00	0.00		0.27	0.00		0.00	0.79		0.21
Lane Grp Cap(c), veh/h	531	997	0	0	0	1025	0	559	0	471	0	0
V/C Ratio(X)	0.05	0.35	0.00	0.00	0.00	0.41	0.00	0.00	0.00	0.70	0.00	0.00
Avail Cap(c_a), veh/h	572	1073	0	0	0	1102	0	603	0	505	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	10.2	7.1	0.0	0.0	0.0	7.7	0.0	0.0	0.0	22.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	0.0	0.3	0.0	0.0	0.0	4.1	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	3.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	10.2	7.3	0.0	0.0	0.0	8.0	0.0	0.0	0.0	26.7	0.0	0.0
LnGrp LOS	B	A				A				C		
Approach Vol, veh/h	374			416			0			331		
Approach Delay, s/veh	7.5			8.0			0.0			26.7		
Approach LOS	A			A						C		
Timer - Assigned Phs												
Phs Duration (G+Y+Rc), s	42.3			23.3			42.3			23.3		
Change Period (Y+Rc), s	7.3			6.7			7.3			6.7		
Max Green Setting (Gmax), s	37.9			18.1			37.9			18.1		
Max Q Clear Time (g_c+1), s	11.8			0.0			10.7			16.2		
Green Ext Time (p_c), s	2.8			0.0			3.3			0.4		
Intersection Summary												
HCM 6th Ctrl Delay, s/veh	13.3											
HCM 6th LOS	B											

Lanes, Volumes, Timings
 201: Irvine St & Cachet Clayton/Street B Total - 2040
AM Peak Hour

	↖	→	↘	↙	←	↖	↙	↑	↘	↙	↓	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	44	0	71	62	0	35	22	115	19	14	122	15
Future Volume (vph)	44	0	71	62	0	35	22	115	19	14	122	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.917			0.951			0.983			0.987	
Flt Protected		0.981			0.969			0.993			0.995	
Satd. Flow (prot)	0	1709	0	0	1717	0	0	1823	0	0	1833	0
Flt Permitted		0.981			0.969			0.993			0.995	
Satd. Flow (perm)	0	1709	0	0	1717	0	0	1823	0	0	1833	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		141.5			185.7			246.8			201.5	
Travel Time (s)		10.2			13.4			17.8			14.5	
Confl. Peds. (#/hr)							5					5
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%	2%	0%	2%	2%	2%	0%	2%	2%	2%	2%	0%
Adj. Flow (vph)	48	0	77	67	0	38	24	125	21	15	133	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	125	0	0	105	0	0	170	0	0	164	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	28.7%				ICU Level of Service A							
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis
 201: Irvine St & Cachet Clayton/Street B Total - 2040
AM Peak Hour

	↖	→	↘	↙	←	↖	↙	↑	↘	↙	↓	↘
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	44	0	71	62	0	35	22	115	19	14	122	15
Future Volume (Veh/h)	44	0	71	62	0	35	22	115	19	14	122	15
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	48	0	77	67	0	38	24	125	21	15	133	16
Pedestrians		5										
Lane Width (m)		3.6										
Walking Speed (m/s)		1.2										
Percent Blockage		0										
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	398	370	146	432	368	136	154				146	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	398	370	146	432	368	136	154				146	
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1				4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				2.2	
p0 queue free %	91	100	91	86	100	96	98				99	
cM capacity (veh/h)	528	542	903	477	544	913	1433				1436	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	125	105	170	164								
Volume Left	48	67	24	15								
Volume Right	77	38	21	16								
eSH	709	577	1433	1436								
Volume to Capacity	0.18	0.18	0.02	0.01								
Queue Length 95th (m)	5.1	5.3	0.4	0.3								
Control Delay (s/veh)	11.2	12.6	1.2	0.8								
Lane LOS	B	B	A	A								
Approach Delay (s/veh)	11.2	12.6	1.2	0.8								
Approach LOS	B	B										
Intersection Summary												
Average Delay				5.4								
Intersection Capacity Utilization			28.7%	ICU Level of Service							A	
Analysis Period (min)			15									

HCM 6th TWSC
201: Irvine St & Cachet Clayton/Street B

Total - 2040
AM Peak Hour

Intersection													
Int Delay, s/veh	5.3												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↔		↔		↔		↔		↔		↔		
Traffic Vol, veh/h	44	0	71	62	0	35	22	115	19	14	122	15	
Future Vol, veh/h	44	0	71	62	0	35	22	115	19	14	122	15	
Conflicting Peds, #/hr	0	0	0	0	0	0	5	0	0	0	0	5	
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None	
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-	
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-	
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-	
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	2	0	2	2	2	0	2	2	2	2	0	
Mvmt Flow	48	0	77	67	0	38	24	125	21	15	133	16	
Major/Minor	Minor2	Minor1		Major1		Major2							
Conflicting Flow All	379	370	146	394	368	136	154	0	0	146	0	0	
Stage 1	176	176	-	184	184	-	-	-	-	-	-	-	
Stage 2	203	194	-	210	184	-	-	-	-	-	-	-	
Critical Hdwy	7.1	6.52	6.2	7.12	6.52	6.22	4.1	-	-	4.12	-	-	
Critical Hdwy Stg 1	6.1	5.52	-	6.12	5.52	-	-	-	-	-	-	-	
Critical Hdwy Stg 2	6.1	5.52	-	6.12	5.52	-	-	-	-	-	-	-	
Follow-up Hdwy	3.5	4.018	3.3	3.518	4.018	3.318	2.2	-	-	2.218	-	-	
Pot Cap-1 Maneuver	582	560	906	566	561	913	1439	-	-	1436	-	-	
Stage 1	831	753	-	818	747	-	-	-	-	-	-	-	
Stage 2	804	740	-	792	747	-	-	-	-	-	-	-	
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-	
Mov Cap-1 Maneuver	543	542	902	506	542	913	1433	-	-	1436	-	-	
Mov Cap-2 Maneuver	543	542	-	506	542	-	-	-	-	-	-	-	
Stage 1	813	742	-	803	734	-	-	-	-	-	-	-	
Stage 2	757	727	-	716	736	-	-	-	-	-	-	-	
Approach	EB	WB		NB		SB							
HCM Ctrf Dly, s/v	11	12.2		1.1		0.7							
HCM LOS	B	B											
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1433	-	-	720	603	1436	-	-					
HCM Lane V/C Ratio	0.017	-	-	0.174	0.175	0.011	-	-					
HCM Ctrf Dly (s/v)	7.6	0	-	11	12.2	7.5	0	-					
HCM Lane LOS	A	A	-	B	B	A	A	-					
HCM 95th %tile Q (veh)	0.1	-	-	0.6	0.6	0	-	-					

Lanes, Volumes, Timings
202: Street A & Nichol Rd 15

Total - 2040
AM Peak Hour

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔		↔	
Traffic Volume (vph)	290	17	16	389	49	48
Future Volume (vph)	290	17	16	389	49	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t	0.993			0.933		
Fit Protected				0.998	0.975	
Satd. Flow (prot)	1850	0	0	1859	1694	0
Fit Permitted				0.998	0.975	
Satd. Flow (perm)	1850	0	0	1859	1694	0
Link Speed (k/h)	60		60		60	
Link Distance (m)	256.4		430.6		145.7	
Travel Time (s)	15.4		25.8		8.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	315	18	17	423	53	52
Shared Lane Traffic (%)						
Lane Group Flow (vph)	333	0	0	440	105	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0		0.0		3.6	
Link Offset(m)	0.0		0.0		0.0	
Crosswalk Width(m)	4.8		4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	15		25		25	
Sign Control	Free		Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	45.8%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis
202: Street A & Nichol Rd 15

Total - 2040
AM Peak Hour

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔		↔	
Traffic Volume (veh/h)	290	17	16	389	49	48
Future Volume (Veh/h)	290	17	16	389	49	48
Sign Control	Free		Free		Stop	
Grade	0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	315	18	17	423	53	52
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			333		781	324
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			333		781	324
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		85	93
cM capacity (veh/h)			1226		358	717
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	333	440	105			
Volume Left	0	17	53			
Volume Right	18	0	52			
eSH	1700	1226	476			
Volume to Capacity	0.20	0.01	0.22			
Queue Length 95th (m)	0.0	0.3	6.7			
Control Delay (s/veh)	0.0	0.4	14.7			
Lane LOS	A		B			
Approach Delay (s/veh)	0.0	0.4	14.7			
Approach LOS	B					
Intersection Summary						
Average Delay			2.0			
Intersection Capacity Utilization			45.8%	ICU Level of Service	A	
Analysis Period (min)			15			

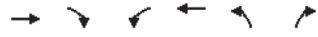
HCM 6th TWSC
202: Street A & Nichol Rd 15

Total - 2040
AM Peak Hour

Intersection						
Int Delay, s/veh	1.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔		↔	
Traffic Vol, veh/h	290	17	16	389	49	48
Future Vol, veh/h	290	17	16	389	49	48
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	- None		- None			
Storage Length	-		-			
Veh in Median Storage, #	0		-			
Grade, %	0		-			
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	315	18	17	423	53	52
Major/Minor						
Conflicting Flow All	0	0	333	0	781	324
Stage 1	-	-	-	-	324	-
Stage 2	-	-	-	-	457	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1226	-	363	717
Stage 1	-	-	-	-	733	-
Stage 2	-	-	-	-	638	-
Platoon blocked, %	-					
Mov Cap-1 Maneuver	-	-	1226	-	356	717
Mov Cap-2 Maneuver	-	-	-	-	356	-
Stage 1	-	-	-	-	733	-
Stage 2	-	-	-	-	627	-
Approach						
EB	WB		NB			
HCM Ctrl Dly, s/v	0	0.3	14.8			
HCM LOS	B					
Minor Lane/Major Mvmt						
NBLn1	EBT	EBR	WBL	WBT		
Capacity (veh/h)	474	-	-	1226	-	
HCM Lane V/C Ratio	0.222	-	-	0.014	-	
HCM Ctrl Dly (s/v)	14.8	-	-	8	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q (veh)	0.8	-	-	0	-	

Lanes, Volumes, Timings
203: Street C & Nichol Rd 15


Total - 2040
AM Peak Hour

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	↔
Traffic Volume (vph)	328	10	8	382	23	22
Future Volume (vph)	328	10	8	382	23	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.996				0.934	
Fit Protected				0.999	0.975	
Satd. Flow (prot)	1856	0	0	1862	1730	0
Fit Permitted				0.999	0.975	
Satd. Flow (perm)	1856	0	0	1862	1730	0
Link Speed (k/h)	60			60	40	
Link Distance (m)	430.6			329.6	182.1	
Travel Time (s)	25.8			19.8	16.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	0%	0%	2%	0%	0%
Adj. Flow (vph)	357	11	9	415	25	24
Shared Lane Traffic (%)						
Lane Group Flow (vph)	368	0	0	424	49	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	36.5%
ICU Level of Service A	
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
203: Street C & Nichol Rd 15

Total - 2040
AM Peak Hour

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	↔
Traffic Volume (veh/h)	328	10	8	382	23	22
Future Volume (Veh/h)	328	10	8	382	23	22
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	357	11	9	415	25	24
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			368		796	363
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			368		796	363
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		93	97
cM capacity (veh/h)			1202		356	687

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	368	424	49
Volume Left	0	9	25
Volume Right	11	0	24
eSH	1700	1202	466
Volume to Capacity	0.22	0.01	0.11
Queue Length 95th (m)	0.0	0.2	2.8
Control Delay (s/veh)	0.0	0.2	13.6
Lane LOS		A	B
Approach Delay (s/veh)	0.0	0.2	13.6
Approach LOS			B

Intersection Summary			
Average Delay		0.9	
Intersection Capacity Utilization	36.5%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection						
Int Delay, s/veh	0.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗			↖	↗	↖
Traffic Vol, veh/h	328	10	8	382	23	22
Future Vol, veh/h	328	10	8	382	23	22
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	357	11	9	415	25	24

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	0	0	368	0
Stage 1	-	-	-	363
Stage 2	-	-	-	433
Critical Hdwy	-	-	4.1	-
Critical Hdwy Stg 1	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	5.4
Follow-up Hdwy	-	-	2.2	-
Pot Cap-1 Maneuver	-	-	1202	-
Stage 1	-	-	-	708
Stage 2	-	-	-	658
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	1202	-
Mov Cap-2 Maneuver	-	-	-	355
Stage 1	-	-	-	708
Stage 2	-	-	-	651

Approach	EB	WB	NB
HCM Ctr Dly, s/v	0	0.2	13.7
HCM LOS	B		

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	465	-	-	1202	-
HCM Lane V/C Ratio	0.105	-	-	0.007	-
HCM Ctr Dly (s/v)	13.7	-	-	8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q (veh)	0.4	-	-	0	-

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗	↖	↖	↖	↗
Traffic Volume (vph)	17	28	10	49	85	7
Future Volume (vph)	17	28	10	49	85	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frts	0.916				0.989	
Fit Protected	0.982		0.991			
Satd. Flow (prot)	1709		1852		1845	
Fit Permitted	0.982		0.991			
Satd. Flow (perm)	1709		1852		1845	
Link Speed (k/h)	50		50		50	
Link Distance (m)	261.2		240.2		224.9	
Travel Time (s)	18.8		17.3		16.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	2%	2%	0%
Adj. Flow (vph)	18	30	11	53	92	8
Shared Lane Traffic (%)						
Lane Group Flow (vph)	48	0	0	64	100	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6		0.0		0.0	
Link Offset(m)	0.0		0.0		0.0	
Crosswalk Width(m)	4.8		4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop		Free		Free	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	19.8%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
204: Gerrie Rd & Street C

Total - 2040
AM Peak Hour

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			↑	↑	
Traffic Volume (veh/h)	17	28	10	49	85	7
Future Volume (Veh/h)	17	28	10	49	85	7
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	18	30	11	53	92	8
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	171	96	100			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	171	96	100			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	97	99			
cM capacity (veh/h)	818	966	1505			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	48	64	100			
Volume Left	18	11	0			
Volume Right	30	0	8			
cSH	904	1505	1700			
Volume to Capacity	0.05	0.01	0.06			
Queue Length 95th (m)	1.3	0.2	0.0			
Control Delay (s/veh)	9.2	1.3	0.0			
Lane LOS	A	A				
Approach Delay (s/veh)	9.2	1.3	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			2.5			
Intersection Capacity Utilization		19.8%		ICU Level of Service	A	
Analysis Period (min)		15				

HCM 6th TWSC
204: Gerrie Rd & Street C

Total - 2040
AM Peak Hour

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			↑	↑	
Traffic Vol, veh/h	17	28	10	49	85	7
Future Vol, veh/h	17	28	10	49	85	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	0	0	0	2	2	0
Mvmt Flow	18	30	11	53	92	8
Intersection						
Int Delay, s/veh					2.5	
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	171	96	100	0	-	0
Stage 1	96	-	-	-	-	-
Stage 2	75	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	824	966	1505	-	-	-
Stage 1	933	-	-	-	-	-
Stage 2	953	-	-	-	-	-
Platoon blocked, %						
Mov Cap-1 Maneuver	817	966	1505	-	-	-
Mov Cap-2 Maneuver	817	-	-	-	-	-
Stage 1	926	-	-	-	-	-
Stage 2	953	-	-	-	-	-
Approach	EB	NB	SB			
HCM Ctrl Dly, s/v	9.2	1.3	0			
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT EBLn1	SBT	SBR		
Capacity (veh/h)	1505	- 904	-	-		
HCM Lane V/C Ratio	0.007	- 0.054	-	-		
HCM Ctrl Dly (s/v)	7.4	0 9.2	-	-		
HCM Lane LOS	A	A A	-	-		
HCM 95th %tile Q (veh)	0	- 0.2	-	-		

Lanes, Volumes, Timings
101: Geddes St & James St

Total - 2040
PM Peak Hour

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	R	T	T	L	R
Traffic Volume (vph)	93	282	161	83	424	225
Future Volume (vph)	93	282	161	83	424	225
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.898	0.954				
Fit Protected	0.988				0.968	
Satd. Flow (prot)	1633	0	1794	0	0	1821
Fit Permitted	0.988				0.968	
Satd. Flow (perm)	1633	0	1794	0	0	1821
Link Speed (k/h)	50		50		50	
Link Distance (m)	120.4		303.1		136.1	
Travel Time (s)	8.7		21.8		9.8	
Confl. Peds. (#/hr)				3	3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	7%	2%	0%	3%	1%	1%
Adj. Flow (vph)	101	307	175	90	461	245
Shared Lane Traffic (%)						
Lane Group Flow (vph)	408	0	265	0	0	706
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.6		0.0		0.0	
Link Offset(m)	0.0		0.0		0.0	
Crosswalk Width(m)	4.8		4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15		15	25	
Sign Control	Stop		Free		Free	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	81.5%
Analysis Period (min)	15
	ICU Level of Service D

HCM Unsignalized Intersection Capacity Analysis
101: Geddes St & James St

Total - 2040
PM Peak Hour

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	R	T	T	L	R
Traffic Volume (veh/h)	93	282	161	83	424	225
Future Volume (Veh/h)	93	282	161	83	424	225
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	101	307	175	90	461	245
Pedestrians	3					
Lane Width (m)	3.6					
Walking Speed (m/s)	1.2					
Percent Blockage	0					
Right turn flare (veh)						
Median type			None		None	
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1390	223			268	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1390	223			268	
tC, single (s)	6.5	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.6	3.3			2.2	
p0 queue free %	0	62			64	
cM capacity (veh/h)	98	814			1298	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	408	265	706
Volume Left	101	0	461
Volume Right	307	90	0
eSH	291	1700	1298
Volume to Capacity	1.40	0.16	0.36
Queue Length 95th (m)	173.7	0.0	13.0
Control Delay (s/veh)	234.9	0.0	7.4
Lane LOS	F		A
Approach Delay (s/veh)	234.9	0.0	7.4
Approach LOS	F		

Intersection Summary			
Average Delay		73.3	
Intersection Capacity Utilization	81.5%	ICU Level of Service	D
Analysis Period (min)	15		

HCM 6th TWSC
101: Geddes St & James St

Total - 2040
PM Peak Hour

Intersection						
Int Delay, s/veh	85.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔		↔	
Traffic Vol, veh/h	93	282	161	83	424	225
Future Vol, veh/h	93	282	161	83	424	225
Conflicting Peds, #/hr	0	0	0	3	3	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, %	7	2	0	3	1	1
Mvmt Flow	101	307	175	90	461	245

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1390	223	0 268 0
Stage 1	223	-	-
Stage 2	1167	-	-
Critical Hdwy	6.47	6.22	- 4.11 -
Critical Hdwy Stg 1	5.47	-	-
Critical Hdwy Stg 2	5.47	-	-
Follow-up Hdwy	3.563	3.318	- 2.209 -
Pot Cap-1 Maneuver	153	817	- 1302 -
Stage 1	802	-	-
Stage 2	289	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	~ 90	815	- 1299 -
Mov Cap-2 Maneuver	~ 90	-	-
Stage 1	800	-	-
Stage 2	170	-	-

Approach	WB	NB	SB
HCM Ctr Dly, s/v	277.1	0	6.1
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	- 272	1299	-
HCM Lane V/C Ratio	-	- 1.499	0.355	-
HCM Ctr Dly (s/v)	-	- 277.1	9.3	0
HCM Lane LOS	-	- F	A	A
HCM 95th %tile Q (veh)	-	- 23.5	1.6	-

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

Lanes, Volumes, Timings
102: Irvine St & Woolwich St/Nichol Rd 15

Total - 2040
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	5	396	106	109	283	0	87	3	126	7	8	4
Future Volume (vph)	5	396	106	109	283	0	87	3	126	7	8	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frts	0.972						0.921		0.974			
Fit Protected					0.986		0.980		0.981			
Satd. Flow (prot)	0	1729	0	0	1819	0	0	1695	0	0	1590	0
Fit Permitted					0.986		0.980		0.981			
Satd. Flow (perm)	0	1729	0	0	1819	0	0	1695	0	0	1590	0
Link Speed (k/h)	40				40		50		50			
Link Distance (m)	556.2				313.2		220.4		704.4			
Travel Time (s)	50.1				28.2		15.9		50.7			
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%	2%	25%	3%	3%	0%	0%	0%	2%	0%	33%	0%
Adj. Flow (vph)	5	430	115	118	308	0	95	3	137	8	9	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	550	0	0	426	0	0	235	0	0	21	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	0.0				0.0		0.0		0.0			
Link Offset(m)	0.0				0.0		0.0		0.0			
Crosswalk Width(m)	4.8				4.8		4.8		4.8			
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15		25		15		25		15	
Sign Control	Free				Free		Stop		Stop			

Intersection Summary
 Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 75.6% ICU Level of Service D
 Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis
 102: Irvine St & Woolwich St/Nichol Rd 15

Total - 2040
 PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (veh/h)	5	396	106	109	283	0	87	3	126	7	8	4
Future Volume (Veh/h)	5	396	106	109	283	0	87	3	126	7	8	4
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
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
Hourly flow rate (vph)	5	430	115	118	308	0	95	3	137	8	9	4
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	308	545			1050			1042	488	1180	1099	308
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	308	545			1050			1042	488	1180	1099	308
tC, single (s)	4.1	4.1			7.1			6.5	6.2	7.1	6.8	6.2
tC, 2 stage (s)												
tF (s)	2.2	2.2			3.5			4.0	3.3	3.5	4.3	3.3
p0 queue free %	100	88			47			99	76	93	95	99
cM capacity (veh/h)	1264	1019			179			204	580	116	165	737
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	550	426	235	21								
Volume Left	5	118	95	8								
Volume Right	115	0	137	4								
eSH	1264	1019	301	163								
Volume to Capacity	0.00	0.12	0.78	0.13								
Queue Length 95th (m)	0.1	3.1	49.0	3.5								
Control Delay (s/veh)	0.1	3.4	49.1	30.4								
Lane LOS	A	A	E	D								
Approach Delay (s/veh)	0.1	3.4	49.1	30.4								
Approach LOS			E	D								
Intersection Summary												
Average Delay	11.1											
Intersection Capacity Utilization	75.6%			ICU Level of Service			D					
Analysis Period (min)	15											

HCM 6th TWSC
 102: Irvine St & Woolwich St/Nichol Rd 15

Total - 2040
 PM Peak Hour

Intersection												
Int Delay, s/veh	11.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	5	396	106	109	283	0	87	3	126	7	8	4
Future Vol, veh/h	5	396	106	109	283	0	87	3	126	7	8	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	2	25	3	3	0	0	0	2	0	33	0
Mvmt Flow	5	430	115	118	308	0	95	3	137	8	9	4
Major/Minor	Major1	Major2	Minor1	Minor2								
Conflicting Flow All	308	0	0	545	0	0	1049	1042	488	1112	1099	308
Stage 1	-	-	-	-	-	-	498	498	-	544	544	-
Stage 2	-	-	-	-	-	-	551	544	-	568	555	-
Critical Hdwy	4.1	-	-	4.13	-	-	7.1	6.5	6.22	7.1	6.83	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.83	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.83	-
Follow-up Hdwy	2.2	-	-	2.227	-	-	3.5	4	3.318	3.5	4.297	3.3
Pot Cap-1 Maneuver	1264	-	-	1019	-	-	207	232	580	188	187	737
Stage 1	-	-	-	-	-	-	558	548	-	527	472	-
Stage 2	-	-	-	-	-	-	522	522	-	511	466	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1264	-	-	1019	-	-	176	198	580	126	160	737
Mov Cap-2 Maneuver	-	-	-	-	-	-	176	198	-	126	160	-
Stage 1	-	-	-	-	-	-	555	545	-	524	406	-
Stage 2	-	-	-	-	-	-	437	449	-	386	463	-
Approach	EB	WB	NB	SB								
HCM Ctrl Dly, s/v	0.1	2.5	50.8	28.9								
HCM LOS			F	D								
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	297	1264	-	-	1019	-	-	171				
HCM Lane V/C Ratio	0.791	0.004	-	-	0.116	-	-	0.121				
HCM Ctrl Dly (s/v)	50.8	7.9	0	-	9	0	-	28.9				
HCM Lane LOS	F	A	A	-	A	A	-	D				
HCM 95th %tile Q (veh)	6.3	0	-	-	0.4	-	-	0.4				

Lanes, Volumes, Timings
103: Irvine St & Bricker Ave

Total - 2040
PM Peak Hour

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	22	13	12	271	177	29
Future Volume (vph)	22	13	12	271	177	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.950				0.981	
Flt Protected	0.969			0.998		
Satd. Flow (prot)	1749	0	0	1861	1773	0
Flt Permitted	0.969			0.998		
Satd. Flow (perm)	1749	0	0	1861	1773	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	361.7			908.3	227.8	
Travel Time (s)	26.0			65.4	16.4	
Confl. Peds. (#/hr)			5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	2%	6%	0%
Adj. Flow (vph)	24	14	13	295	192	32
Shared Lane Traffic (%)						
Lane Group Flow (vph)	38	0	0	308	224	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	34.0%				ICU Level of Service A	
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis
103: Irvine St & Bricker Ave

Total - 2040
PM Peak Hour

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	22	13	12	271	177	29
Future Volume (Veh/h)	22	13	12	271	177	29
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	24	14	13	295	192	32
Pedestrians	5					
Lane Width (m)	3.6					
Walking Speed (m/s)	1.2					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	534	213	229			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	534	213	229			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	95	98	99			
cM capacity (veh/h)	503	829	1345			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	38	308	224			
Volume Left	24	13	0			
Volume Right	14	0	32			
eSH	588	1345	1700			
Volume to Capacity	0.06	0.01	0.13			
Queue Length 95th (m)	1.7	0.2	0.0			
Control Delay (s/veh)	11.5	0.4	0.0			
Lane LOS	B	A				
Approach Delay (s/veh)	11.5	0.4	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay					1.0	
Intersection Capacity Utilization	34.0%		ICU Level of Service		A	
Analysis Period (min)	15					

HCM 6th TWSC
103: Irvine St & Bricker Ave

Total - 2040
PM Peak Hour

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔		↕		↕	
Traffic Vol, veh/h	22	13	12	271	177	29
Future Vol, veh/h	22	13	12	271	177	29
Conflicting Peds, #/hr	0	0	5	0	0	5
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	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	0	0	0	2	6	0
Mvmt Flow	24	14	13	295	192	32
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	534	213	229	0	-	0
Stage 1	213	-	-	-	-	-
Stage 2	321	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	510	832	1351	-	-	-
Stage 1	827	-	-	-	-	-
Stage 2	740	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	500	828	1345	-	-	-
Mov Cap-2 Maneuver	500	-	-	-	-	-
Stage 1	814	-	-	-	-	-
Stage 2	737	-	-	-	-	-
Approach	EB	NB	SB			
HCM Ctrf Dly, s/v	11.6	0.3	0			
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1345	-	586	-	-	
HCM Lane V/C Ratio	0.01	-	0.065	-	-	
HCM Ctrf Dly (s/v)	7.7	0	11.6	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q (veh)	0	-	0.2	-	-	

Lanes, Volumes, Timings
104: Irvine St & Colborne St

Total - 2040
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔		↔		↔		↔		↔		↔	
Traffic Volume (vph)	67	303	4	8	256	105	3	157	21	90	116	34
Future Volume (vph)	67	303	4	8	256	105	3	157	21	90	116	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt	0.999				0.962				0.984		0.981	
Fit Protected	0.991				0.999				0.999		0.982	
Satd. Flow (prot)	0	1866	0	0	1776	0	0	1868	0	0	1810	0
Fit Permitted	0.991				0.999				0.999		0.982	
Satd. Flow (perm)	0	1866	0	0	1776	0	0	1868	0	0	1810	0
Link Speed (k/h)	40				40				40		40	
Link Distance (m)	619.9				1021.3				327.0		274.5	
Travel Time (s)	55.8				91.9				29.4		24.7	
Confl. Peds. (#/hr)	6								6			
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%	1%	0%	0%	2%	5%	0%	0%	0%	3%	0%	0%
Adj. Flow (vph)	73	329	4	9	278	114	3	171	23	98	126	37
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	406	0	0	401	0	0	197	0	0	261	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	0.0				0.0				0.0		0.0	
Link Offset(m)	0.0				0.0				0.0		0.0	
Crosswalk Width(m)	4.8				4.8				4.8		4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control	Stop				Stop				Stop		Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	76.6%						ICU Level of Service D					
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis
104: Irvine St & Colborne St

Total - 2040
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↕			↕			↕			↕		
Sign Control	Stop			Stop			Stop			Stop		
Traffic Volume (vph)	67	303	4	8	256	105	3	157	21	90	116	34
Future Volume (vph)	67	303	4	8	256	105	3	157	21	90	116	34
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
Hourly flow rate (vph)	73	329	4	9	278	114	3	171	23	98	126	37
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	406	401	197	261								
Volume Left (vph)	73	9	3	98								
Volume Right (vph)	4	114	23	37								
Hadj (s)	0.04	-0.12	-0.07	0.01								
Departure Headway (s)	6.6	6.5	7.3	7.2								
Degree Utilization, x	0.75	0.72	0.40	0.52								
Capacity (veh/h)	512	525	417	443								
Control Delay (s/veh)	26.5	24.5	15.2	17.7								
Approach Delay (s/veh)	26.5	24.5	15.2	17.7								
Approach LOS	D	C	C	C								
Intersection Summary												
Delay	22.3											
Level of Service	C											
Intersection Capacity Utilization	76.6%		ICU Level of Service		D							
Analysis Period (min)	15											

HCM 6th AWSC
104: Irvine St & Colborne St

Total - 2040
PM Peak Hour

Intersection												
Intersection Delay, s/veh	22.1											
Intersection LOS	C											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	67	303	4	8	256	105	3	157	21	90	116	34
Future Vol, veh/h	67	303	4	8	256	105	3	157	21	90	116	34
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	1	0	0	2	5	0	0	0	3	0	0
Mvmt Flow	73	329	4	9	278	114	3	171	23	98	126	37
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Approach	EB	WB		NB		SB						
Opposing Approach	WB	EB		SB		NB						
Opposing Lanes	1	1		1		1						
Conflicting Approach Left	SB	NB		EB		WB						
Conflicting Lanes Left	1	1		1		1						
Conflicting Approach Right	NB	SB		WB		EB						
Conflicting Lanes Right	1	1		1		1						
HCM Control Delay, s/veh	26.4	24		15.1		17.8						
HCM LOS	D	C		C		C						
Lane	NBLn1	EBLn1	WBLn1	SBLn1								
Vol Left, %	2%	18%	2%	38%								
Vol Thru, %	87%	81%	69%	48%								
Vol Right, %	12%	1%	28%	14%								
Sign Control	Stop	Stop	Stop	Stop								
Traffic Vol by Lane	181	374	369	240								
LT Vol	3	67	8	90								
Through Vol	157	303	256	116								
RT Vol	21	4	105	34								
Lane Flow Rate	197	407	401	261								
Geometry Grp	1	1	1	1								
Degree of Util (X)	0.398	0.744	0.716	0.519								
Departure Headway (Hd)	7.28	6.589	6.429	7.159								
Convergence, Y/N	Yes	Yes	Yes	Yes								
Cap	492	549	566	503								
Service Time	5.353	4.609	4.449	5.224								
HCM Lane V/C Ratio	0.4	0.741	0.708	0.519								
HCM Control Delay, s/veh	15.1	26.4	24	17.8								
HCM Lane LOS	C	D	C	C								
HCM 95th-tile Q	1.9	6.4	5.8	2.9								

Lanes, Volumes, Timings
105: Irvine St & East Mill St

Total - 2040
PM Peak Hour

	↖	→	↘	↙	←	↖	↙	↑	↘	↙	↓	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	89	348	1	1	351	80	1	0	0	56	0	67
Future Volume (vph)	89	348	1	1	351	80	1	0	0	56	0	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt				0.975							0.926	
Flt Protected		0.990						0.950			0.978	
Satd. Flow (prot)	0	1866	0	0	1838	0	0	1805	0	0	1721	0
Flt Permitted		0.990						0.950			0.978	
Satd. Flow (perm)	0	1866	0	0	1838	0	0	1805	0	0	1721	0
Link Speed (k/h)		40			40			40			40	
Link Distance (m)		212.3			172.2			54.2			327.0	
Travel Time (s)		19.1			15.5			4.9			29.4	
Confl. Peds. (#/hr)	5					5						
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%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	97	378	1	1	382	87	1	0	0	61	0	73
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	476	0	0	470	0	0	1	0	0	134	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Right	Left	Left	Right	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	63.2%
Analysis Period (min)	15
	ICU Level of Service B

HCM Unsignalized Intersection Capacity Analysis
105: Irvine St & East Mill St

Total - 2040
PM Peak Hour

	↖	→	↘	↙	←	↖	↙	↑	↘	↙	↓	↘
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	89	348	1	1	351	80	1	0	0	56	0	67
Future Volume (Veh/h)	89	348	1	1	351	80	1	0	0	56	0	67
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	97	378	1	1	382	87	1	0	0	61	0	73
Pedestrians												5
Lane Width (m)												3.6
Walking Speed (m/s)												1.2
Percent Blockage												0
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)												
pK, platoon unblocked												
vC, conflicting volume	474				379			1073	1049	379	1005	1006
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	474				379			1073	1049	379	1005	1006
tC, single (s)	4.1				4.1			7.1	6.5	6.2	7.1	6.5
tC, 2 stage (s)												
tF (s)	2.2				2.2			3.5	4.0	3.3	3.5	4.0
p0 queue free %	91				100			99	100	100	70	100
cM capacity (veh/h)	1094				1191			164	208	673	205	221

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	476	470	1	134
Volume Left	97	1	1	61
Volume Right	1	87	0	73
eSH	1094	1191	164	324
Volume to Capacity	0.09	0.00	0.01	0.41
Queue Length 95th (m)	2.3	0.0	0.1	15.6
Control Delay (s/veh)	2.5	0.0	27.1	23.7
Lane LOS	A	A	D	C
Approach Delay (s/veh)	2.5	0.0	27.1	23.7
Approach LOS			D	C

Intersection Summary	
Average Delay	4.1
Intersection Capacity Utilization	63.2%
Analysis Period (min)	15
	ICU Level of Service B

HCM 6th TWSC
105: Irvine St & East Mill St

Total - 2040
PM Peak Hour

Intersection												
Int Delay, s/veh	3.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔		↔		↔		↔		↔		↔	
Traffic Vol, veh/h	89	348	1	1	351	80	1	0	0	56	0	67
Future Vol, veh/h	89	348	1	1	351	80	1	0	0	56	0	67
Conflicting Peds, #/hr	5	0	0	0	0	5	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	1	0	0	1	0	0	0	0	0	0	0
Mvmt Flow	97	378	1	1	382	87	1	0	0	61	0	73
Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	474	0	0	379	0	0	1037	1049	379	1006	1006	431
Stage 1	-	-	-	-	-	-	573	573	-	433	433	-
Stage 2	-	-	-	-	-	-	464	476	-	573	573	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1099	-	-	1191	-	-	211	229	672	222	243	629
Stage 1	-	-	-	-	-	-	508	507	-	605	585	-
Stage 2	-	-	-	-	-	-	582	560	-	508	507	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1094	-	-	1191	-	-	170	202	672	202	215	626
Mov Cap-2 Maneuver	-	-	-	-	-	-	170	202	-	202	215	-
Stage 1	-	-	-	-	-	-	451	450	-	535	582	-
Stage 2	-	-	-	-	-	-	514	557	-	451	450	-
Approach	EB		WB		NB		SB					
HCM Ctrf Dly, s/v	1.7		0		26.3		24.1					
HCM LOS					D		C					
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	170	1094	-	-	1191	-	-	320				
HCM Lane V/C Ratio	0.006	0.088	-	-	0.001	-	-	0.418				
HCM Ctrf Dly (s/v)	26.3	8.6	0	-	8	0	-	24.1				
HCM Lane LOS	D	A	A	-	A	A	-	C				
HCM 95th %tile Q (veh)	0	0.3	-	-	0	-	-	2				

Lanes, Volumes, Timings
106: Gerrie Rd & Nichol Rd 15

Total - 2040
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	15	426	42	43	347	10	60	1	31	10	0	5
Future Volume (vph)	15	426	42	43	347	10	60	1	31	10	0	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.988				0.997				0.954		0.958	
Fit Protected	0.998				0.995				0.969		0.967	
Satd. Flow (prot)	0		1857		0		0		1756		0	
Fit Permitted	0.998				0.995				0.969		0.967	
Satd. Flow (perm)	0		1857		0		0		1756		0	
Link Speed (k/h)	60				80				50		50	
Link Distance (m)	284.2				999.6				256.5		439.6	
Travel Time (s)	17.1				45.0				18.5		31.7	
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%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	25%
Adj. Flow (vph)	16	463	46	47	377	11	65	1	34	11	0	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	525	0	0	435	0	0	100	0	0	16	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)	0.0				0.0				0.0		0.0	
Link Offset(m)	0.0				0.0				0.0		0.0	
Crosswalk Width(m)	4.8				4.8				4.8		4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15		25		15		25		15	
Sign Control	Free				Free				Stop		Stop	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	51.3%						ICU Level of Service A					
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis
106: Gerrie Rd & Nichol Rd 15

Total - 2040
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (veh/h)	15	426	42	43	347	10	60	1	31	10	0	5
Future Volume (Veh/h)	15	426	42	43	347	10	60	1	31	10	0	5
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
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
Hourly flow rate (vph)	16	463	46	47	377	11	65	1	34	11	0	5
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None				None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	388	509			1000		1000	486	1029	1018	383	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	388	509			1000		1000	486	1029	1018	383	
tC, single (s)	4.1	4.1			7.1		6.5	6.2	7.1	6.5	6.4	
tC, 2 stage (s)												
tF (s)	2.2	2.2			3.5		4.0	3.3	3.5	4.0	3.5	
p0 queue free %	99	96			69		100	94	94	100	99	
cM capacity (veh/h)	1182	1066			212		231	585	192	226	617	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	525	435	100	16								
Volume Left	16	47	65	11								
Volume Right	46	11	34	5								
cSH	1182	1066	271	245								
Volume to Capacity	0.01	0.04	0.37	0.07								
Queue Length 95th (m)	0.3	1.1	13.0	1.7								
Control Delay (s/veh)	0.4	1.4	25.8	20.7								
Lane LOS	A	A	D	C								
Approach Delay (s/veh)	0.4	1.4	25.8	20.7								
Approach LOS			D	C								
Intersection Summary												
Average Delay	3.4											
Intersection Capacity Utilization	51.3%			ICU Level of Service			A					
Analysis Period (min)	15											

HCM 6th TWSC
106: Gerrie Rd & Nichol Rd 15

Total - 2040
PM Peak Hour

Intersection												
Int Delay, s/veh	3.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	15	426	42	43	347	10	60	1	31	10	0	5
Future Vol, veh/h	15	426	42	43	347	10	60	1	31	10	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	-	0	-	-	0
Grade, %	-	0	-	-	0	-	-	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	1	0	0	1	0	0	0	0	0	0	25
Mvmt Flow	16	463	46	47	377	11	65	1	34	11	0	5
Major/Minor	Major1	Major2	Minor1	Minor2								
Conflicting Flow All	388	0	0	509	0	0	997	1000	486	1013	1018	383
Stage 1	-	-	-	-	-	-	518	518	-	477	477	-
Stage 2	-	-	-	-	-	-	479	482	-	536	541	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.45
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.525
Pot Cap-1 Maneuver	1182	-	-	1066	-	-	225	245	585	219	239	617
Stage 1	-	-	-	-	-	-	544	536	-	573	559	-
Stage 2	-	-	-	-	-	-	571	557	-	532	524	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1182	-	-	1066	-	-	210	227	585	194	221	617
Mov Cap-2 Maneuver	-	-	-	-	-	-	210	227	-	194	221	-
Stage 1	-	-	-	-	-	-	534	526	-	562	528	-
Stage 2	-	-	-	-	-	-	534	526	-	491	514	-
Approach	EB	WB	NB	SB								
HCM Ctrl Dly, s/v	0.3	0.9	26.2	20.3								
HCM LOS			D	C								
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	268	1182	-	-	1066	-	-	251				
HCM Lane V/C Ratio	0.373	0.014	-	-	0.044	-	-	0.065				
HCM Ctrl Dly (s/v)	26.2	8.1	0	-	8.5	0	-	20.3				
HCM Lane LOS	D	A	A	-	A	A	-	C				
HCM 95th %tile Q (veh)	1.7	0	-	-	0.1	-	-	0.2				

Lanes, Volumes, Timings
107: Gerrie Rd & Colborne St

Total - 2040
PM Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	61	243	73	19	285	86	110	141	32	76	97	53
Future Volume (vph)	61	243	73	19	285	86	110	141	32	76	97	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.974			0.970			0.985			0.968	
Fit Protected		0.992			0.998			0.981			0.983	
Satd. Flow (prot)	0	1784	0	0	1793	0	0	1633	0	0	1711	0
Fit Permitted		0.992			0.998			0.981			0.983	
Satd. Flow (perm)	0	1784	0	0	1793	0	0	1633	0	0	1711	0
Link Speed (k/h)		40			50			50			50	
Link Distance (m)		1021.3			906.6			376.2			1159.4	
Travel Time (s)		91.9			65.3			27.1			83.5	
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 (%)	5%	0%	11%	0%	2%	5%	15%	11%	10%	0%	11%	4%
Adj. Flow (vph)	66	264	79	21	310	93	120	153	35	83	105	58
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	409	0	0	424	0	0	308	0	0	246	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	69.1%
ICU Level of Service	C
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
107: Gerrie Rd & Colborne St

Total - 2040
PM Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	61	243	73	19	285	86	110	141	32	76	97	53
Future Volume (vph)	61	243	73	19	285	86	110	141	32	76	97	53
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
Hourly flow rate (vph)	66	264	79	21	310	93	120	153	35	83	105	58
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	409	424	308	246								
Volume Left (vph)	66	21	120	83								
Volume Right (vph)	79	93	35	58								
Hadj (s)	-0.03	-0.08	0.22	0.02								
Departure Headway (s)	7.7	7.6	8.4	8.5								
Degree Utilization, x	0.87	0.89	0.71	0.58								
Capacity (veh/h)	409	461	400	383								
Control Delay (s/veh)	43.6	46.7	29.7	22.4								
Approach Delay (s/veh)	43.6	46.7	29.7	22.4								
Approach LOS	E	E	D	C								
Intersection Summary												
Delay			37.7									
Level of Service			E									
Intersection Capacity Utilization			69.1%		ICU Level of Service						C	
Analysis Period (min)			15									

HCM 6th AWSC
107: Gerrie Rd & Colborne St

Total - 2040
PM Peak Hour

Intersection												
Intersection Delay, s/veh	36.3											
Intersection LOS	E											


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↕			↕			↕	
Traffic Vol, veh/h	61	243	73	19	285	86	110	141	32	76	97	53
Future Vol, veh/h	61	243	73	19	285	86	110	141	32	76	97	53
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, %	5	0	11	0	2	5	15	11	10	0	11	4
Mvmt Flow	66	264	79	21	310	93	120	153	35	83	105	58
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	42.7	43.8	29.2	21.6
HCM LOS	E	E	D	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	39%	16%	5%	34%
Vol Thru, %	50%	64%	73%	43%
Vol Right, %	11%	19%	22%	23%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	283	377	390	226
LT Vol	110	61	19	76
Through Vol	141	243	285	97
RT Vol	32	73	86	53
Lane Flow Rate	308	410	424	246
Geometry Grp	1	1	1	1
Degree of Util (X)	0.708	0.864	0.876	0.563
Departure Headway (Hd)	8.281	7.587	7.438	8.256
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	434	475	483	435
Service Time	6.367	5.667	5.518	6.351
HCM Lane V/C Ratio	0.71	0.863	0.878	0.566
HCM Control Delay, s/veh	29.2	42.7	43.8	21.6
HCM Lane LOS	D	E	E	C
HCM 95th-tile Q	5.4	9	9.4	3.4

Lanes, Volumes, Timings
108: Chapel St/Gerrie Rd & East Mill St

Total - 2040
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔			↕			↕			↕	
Traffic Volume (vph)	56	378	0	0	365	227	0	0	0	155	0	34
Future Volume (vph)	56	378	0	0	365	227	0	0	0	155	0	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0		0.0	0.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	0		0	0		0	0		0
Taper Length (m)	60.0			7.5			7.5			7.5		7.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												1.00
Fit Protected	0.950											0.976
Satd. Flow (prot)	1805	1881	0	0	1794	0	0	1900	0	0	1760	0
Fit Permitted	0.323											0.764
Satd. Flow (perm)	614	1881	0	0	1794	0	0	1900	0	0	1400	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					78							67
Link Speed (k/h)		60			60			50				50
Link Distance (m)		314.9			327.9			115.3				376.2
Travel Time (s)		18.9			19.7			8.3				27.1
Confl. Peds. (#/hr)							1					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%	1%	0%	0%	0%	1%	0%	0%	0%	1%	0%	0%
Adj. Flow (vph)	61	411	0	0	397	247	0	0	0	168	0	37
Shared Lane Traffic (%)												
Lane Group Flow (vph)	61	411	0	0	644	0	0	0	0	0	205	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			0.0		0.0		0.0
Link Offset(m)		0.0			0.0			0.0		0.0		0.0
Crosswalk Width(m)		4.8			4.8			4.8		4.8		4.8
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	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	
Detector 1 Queue (s)	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	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
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	

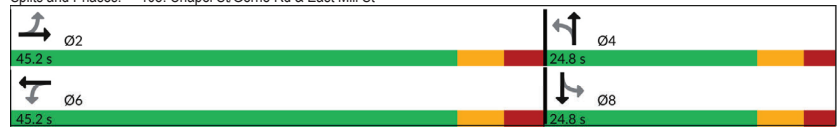
Lanes, Volumes, Timings
108: Chapel St/Gerrie Rd & East Mill St

Total - 2040
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA			NA					Perm	NA	
Protected Phases		2				6			4			8
Permitted Phases	2			6				4		8		
Detector Phase	2	2		6	6			4	4	8	8	
Switch Phase												
Minimum Initial (s)	35.0	35.0		35.0	35.0			10.0	10.0	10.0	10.0	
Minimum Split (s)	42.3	42.3		42.3	42.3			24.7	24.7	24.7	24.7	
Total Split (s)	45.2	45.2		45.2	45.2			24.8	24.8	24.8	24.8	
Total Split (%)	64.6%	64.6%		64.6%	64.6%			35.4%	35.4%	35.4%	35.4%	
Maximum Green (s)	37.9	37.9		37.9	37.9			18.1	18.1	18.1	18.1	
Yellow Time (s)	4.0	4.0		4.0	4.0			4.0	4.0	4.0	4.0	
All-Red Time (s)	3.3	3.3		3.3	3.3			2.7	2.7	2.7	2.7	
Lost Time Adjust (s)	-3.3	-3.3			-3.3			-2.7	-2.7		-2.7	
Total Lost Time (s)	4.0	4.0			4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0	3.0	3.0	
Recall Mode	Min	Min		Min	Min			None	None	None	None	
Walk Time (s)	23.0	23.0		23.0	23.0			7.0	7.0	7.0	7.0	
Flash Don't Walk (s)	12.0	12.0		12.0	12.0			7.0	7.0	7.0	7.0	
Pedestrian Calls (#/hr)	0	0		0	0			0	0	0	0	
Act Effct Green (s)	38.7	38.7			38.7						15.3	
Actuated g/C Ratio	0.62	0.62			0.62						0.25	
v/c Ratio	0.16	0.35			0.56						0.52	
Control Delay (s/veh)	7.0	7.2			8.7						18.4	
Queue Delay	0.0	0.0			0.0						0.0	
Total Delay (s/veh)	7.0	7.2			8.7						18.4	
LOS	A	A			A						B	
Approach Delay (s/veh)		7.2			8.7						18.4	
Approach LOS		A			A						B	

Intersection Summary	
Area Type:	Other
Cycle Length:	70
Actuated Cycle Length:	62
Natural Cycle:	70
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.56
Intersection Signal Delay (s/veh):	9.7
Intersection LOS:	A
Intersection Capacity Utilization:	63.9%
ICU Level of Service:	B
Analysis Period (min):	15

Splits and Phases: 108: Chapel St/Gerrie Rd & East Mill St



Queues
108: Chapel St/Gerrie Rd & East Mill St

Total - 2040
PM Peak Hour

Lane Group	EBL	EBT	WBT	SBT
Lane Group Flow (vph)	61	411	644	205
v/c Ratio	0.16	0.35	0.56	0.52
Control Delay (s/veh)	7.0	7.2	8.7	18.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	7.0	7.2	8.7	18.4
Queue Length 50th (m)	2.5	18.9	30.0	13.7
Queue Length 95th (m)	9.1	43.3	72.7	32.1
Internal Link Dist (m)		290.9	303.9	352.2
Turn Bay Length (m)	30.0			
Base Capacity (vph)	408	1253	1221	515
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.15	0.33	0.53	0.40

Intersection Summary

Intersection Summary	
Area Type:	Other
Cycle Length:	70
Actuated Cycle Length:	62
Natural Cycle:	70
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.56
Intersection Signal Delay (s/veh):	9.7
Intersection LOS:	A
Intersection Capacity Utilization:	63.9%
ICU Level of Service:	B
Analysis Period (min):	15

HCM Signalized Intersection Capacity Analysis
108: Chapel St/Gerrie Rd & East Mill St

Total - 2040
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔		↔	↔		↔	↔	↔
Traffic Volume (vph)	56	378	0	0	365	227	0	0	0	155	0	34
Future Volume (vph)	56	378	0	0	365	227	0	0	0	155	0	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0					4.0		
Lane Util. Factor	1.00	1.00			1.00					1.00		
Frbp, ped/bikes	1.00	1.00			1.00					1.00		
Flpb, ped/bikes	1.00	1.00			1.00					1.00		
Frt	1.00	1.00			0.95					0.98		
Flt Protected	0.95	1.00			1.00					0.96		
Satd. Flow (prot)	1805	1881			1795					1759		
Flt Permitted	0.32	1.00			1.00					0.76		
Satd. Flow (perm)	613	1881			1795					1399		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	61	411	0	0	397	247	0	0	0	168	0	37
RTOR Reduction (vph)	0	0	0	0	29	0	0	0	0	0	50	0
Lane Group Flow (vph)	61	411	0	0	615	0	0	0	0	155	0	0
Confl. Peds. (#/hr)							1					1
Heavy Vehicles (%)	0%	1%	0%	0%	0%	1%	0%	0%	0%	1%	0%	0%
Turn Type	Perm	NA			NA					Perm	NA	
Protected Phases		2			6			4				8
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	35.4	35.4			35.4							12.6
Effective Green, g (s)	38.7	38.7			38.7							15.3
Actuated g/C Ratio	0.62	0.62			0.62							0.25
Clearance Time (s)	7.3	7.3			7.3							6.7
Vehicle Extension (s)	3.0	3.0			3.0							3.0
Lane Grp Cap (vph)	382	1174			1120							345
v/s Ratio Prot		0.22			c0.34							
v/s Ratio Perm	0.10										c0.11	
v/c Ratio	0.16	0.35			0.55						0.45	
Uniform Delay, d1	4.9	5.6			6.7						19.8	
Progression Factor	1.00	1.00			1.00						1.00	
Incremental Delay, d2	0.2	0.2			0.6						0.9	
Delay (s)	5.1	5.8			7.2						20.7	
Level of Service	A	A			A						C	
Approach Delay (s/veh)		5.7			7.2			0.0			20.7	
Approach LOS		A			A			A			C	
Intersection Summary												
HCM 2000 Control Delay (s/veh)		8.8			HCM 2000 Level of Service			A				
HCM 2000 Volume to Capacity ratio		0.52										
Actuated Cycle Length (s)		62.0			Sum of lost time (s)			8.0				
Intersection Capacity Utilization		63.9%			ICU Level of Service			B				
Analysis Period (min)		15										
c Critical Lane Group												

HCM 6th Signalized Intersection Summary
108: Chapel St/Gerrie Rd & East Mill St

Total - 2040
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔		↔	↔		↔	↔	↔
Traffic Volume (veh/h)	56	378	0	0	365	227	0	0	0	155	0	34
Future Volume (veh/h)	56	378	0	0	365	227	0	0	0	155	0	34
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1885	1900	1900	1900	1885	1900	1900	1900	1885	1900	1900
Adj Flow Rate, veh/h	61	411	0	0	397	247	0	0	0	168	0	37
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
Percent Heavy Veh, %	0	1	0	0	0	1	0	0	0	1	0	0
Cap, veh/h	468	1215	0	0	706	439	0	420	0	374	1	58
Arrive On Green	0.64	0.64	0.00	0.00	0.64	0.59	0.00	0.00	0.00	0.18	0.00	0.18
Sat Flow, veh/h	798	1885	0	0	1096	682	0	1900	0	1195	5	264
Grp Volume(v), veh/h	61	411	0	0	0	644	0	0	0	205	0	0
Grp Sat Flow(s),veh/h/ln	798	1885	0	0	0	1777	0	1900	0	1465	0	0
Q Serve(g_s), s	2.8	5.9	0.0	0.0	0.0	12.5	0.0	0.0	0.0	7.9	0.0	0.0
Cycle Q Clear(g_c), s	15.3	5.9	0.0	0.0	0.0	12.5	0.0	0.0	0.0	8.0	0.0	0.0
Prop In Lane	1.00		0.00	0.00		0.38	0.00		0.00	0.82		0.18
Lane Grp Cap(c), veh/h	468	1215	0	0	0	1145	0	420	0	367	0	0
V/C Ratio(X)	0.13	0.34	0.00	0.00	0.00	0.56	0.00	0.00	0.00	0.56	0.00	0.00
Avail Cap(c_a), veh/h	507	1307	0	0	0	1232	0	665	0	556	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	10.3	4.8	0.0	0.0	0.0	6.3	0.0	0.0	0.0	22.4	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.2	0.0	0.0	0.0	0.5	0.0	0.0	0.0	1.3	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	0.1	0.0	0.0	0.0	0.3	0.0	0.0	0.0	1.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	10.4	5.0	0.0	0.0	0.0	6.8	0.0	0.0	0.0	23.7	0.0	0.0
LnGrp LOS	B	A				A				C		
Approach Vol, veh/h		472			644			0		205		
Approach Delay, s/veh		5.7			6.8			0.0		23.7		
Approach LOS		A			A			C		C		
Timer - Assigned Phs												
Phs Duration (G+Y+Rc), s		2		4		6		8				
Change Period (Y+Rc), s		42.3		17.1		42.3		17.1				
Max Green Setting (Gmax), s		7.3		6.7		7.3		6.7				
Max Q Clear Time (g_c+1), s		37.9		18.1		37.9		18.1				
Green Ext Time (p_c), s		17.3		0.0		14.5		10.0				
		3.4		0.0		5.6		0.8				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh		9.0										
HCM 6th LOS		A										

Lanes, Volumes, Timings
 201: Irvine St & Cachet Clayton/Street B Total - 2040
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	0	42	37	0	27	74	158	62	45	127	52
Future Volume (vph)	32	0	42	37	0	27	74	158	62	45	127	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.923			0.943			0.972			0.968	
Flt Protected		0.979			0.972			0.988			0.990	
Satd. Flow (prot)	0	1717	0	0	1707	0	0	1798	0	0	1793	0
Flt Permitted		0.979			0.972			0.988			0.990	
Satd. Flow (perm)	0	1717	0	0	1707	0	0	1798	0	0	1793	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		158.0			186.9			227.8			220.4	
Travel Time (s)		11.4			13.5			16.4			15.9	
Confl. Peds. (#/hr)							5					5
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%	2%	0%	2%	2%	2%	0%	2%	2%	2%	2%	0%
Adj. Flow (vph)	35	0	46	40	0	29	80	172	67	49	138	57
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	81	0	0	69	0	0	319	0	0	244	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Right	Left	Left	Right	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	35.6%				ICU Level of Service A							
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis
 201: Irvine St & Cachet Clayton/Street B Total - 2040
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	0	42	37	0	27	74	158	62	45	127	52
Future Volume (Veh/h)	32	0	42	37	0	27	74	158	62	45	127	52
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	35	0	46	40	0	29	80	172	67	49	138	57
Pedestrians		5										
Lane Width (m)		3.6										
Walking Speed (m/s)		1.2										
Percent Blockage		0										
Right turn flare (veh)												
Median type							None				None	
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	664	669	172	676	664	206	200				239	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	664	669	172	676	664	206	200				239	
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1				4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				2.2	
p0 queue free %	90	100	95	88	100	97	94				96	
cM capacity (veh/h)	335	342	874	322	345	835	1379				1328	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	81	69	319	244								
Volume Left	35	40	80	49								
Volume Right	46	29	67	57								
eSH	516	434	1379	1328								
Volume to Capacity	0.16	0.16	0.06	0.04								
Queue Length 95th (m)	4.4	4.5	1.5	0.9								
Control Delay (s/veh)	13.3	14.8	2.3	1.8								
Lane LOS	B	B	A	A								
Approach Delay (s/veh)	13.3	14.8	2.3	1.8								
Approach LOS	B	B										
Intersection Summary												
Average Delay				4.6								
Intersection Capacity Utilization			35.6%	ICU Level of Service							A	
Analysis Period (min)			15									

Intersection												
Int Delay, s/veh	4.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔		↔		↔		↔		↔		↔	
Traffic Vol, veh/h	32	0	42	37	0	27	74	158	62	45	127	52
Future Vol, veh/h	32	0	42	37	0	27	74	158	62	45	127	52
Conflicting Peds, #/hr	0	0	0	0	0	0	5	0	0	0	0	5
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
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	2	0	2	2	2	0	2	2	2	2	0
Mvmt Flow	35	0	46	40	0	29	80	172	67	49	138	57
Major/Minor	Minor2	Minor1	Major1	Major2								
Conflicting Flow All	650	669	172	654	664	206	200	0	0	239	0	0
Stage 1	270	270	-	366	366	-	-	-	-	-	-	-
Stage 2	380	399	-	288	298	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.52	6.2	7.12	6.52	6.22	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.018	3.3	3.518	4.018	3.318	2.2	-	-	2.218	-	-
Pot Cap-1 Maneuver	385	379	877	380	381	835	1384	-	-	1328	-	-
Stage 1	740	686	-	653	623	-	-	-	-	-	-	-
Stage 2	646	602	-	720	667	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	340	337	873	331	339	835	1378	-	-	1328	-	-
Mov Cap-2 Maneuver	340	337	-	331	339	-	-	-	-	-	-	-
Stage 1	687	654	-	609	581	-	-	-	-	-	-	-
Stage 2	581	561	-	654	636	-	-	-	-	-	-	-
Approach	EB	WB	NB	SB								
HCM Ctrf Dly, s/v	13.2	14.6	2	1.6								
HCM LOS	B	B										
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1378	-	-	520	444	1328	-	-				
HCM Lane V/C Ratio	0.058	-	-	0.155	0.157	0.037	-	-				
HCM Ctrf Dly (s/v)	7.8	0	-	13.2	14.6	7.8	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile Q (veh)	0.2	-	-	0.5	0.6	0.1	-	-				

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	469	60	47	358	34	29
Future Volume (vph)	469	60	47	358	34	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frts	0.985				0.937	
Fit Protected				0.994	0.974	
Satd. Flow (prot)	1835	0	0	1852	1700	0
Fit Permitted				0.994	0.974	
Satd. Flow (perm)	1835	0	0	1852	1700	0
Link Speed (k/h)	60			60	50	
Link Distance (m)	313.2			419.2	195.2	
Travel Time (s)	18.8			25.2	14.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	510	65	51	389	37	32
Shared Lane Traffic (%)						
Lane Group Flow (vph)	575	0	0	440	69	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	3.6	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.8			4.8	4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	63.4%			ICU Level of Service B		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis
202: Street A & Nichol Rd 15

Total - 2040
PM Peak Hour

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	
Traffic Volume (veh/h)	469	60	47	358	34	29
Future Volume (Veh/h)	469	60	47	358	34	29
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	510	65	51	389	37	32
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			575			1034 543
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			575			1034 543
tC, single (s)			4.1			6.4 6.2
tC, 2 stage (s)						
tF (s)			2.2			3.5 3.3
p0 queue free %			95			85 94
cM capacity (veh/h)			998			244 540
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	575	440	69			
Volume Left	0	51	37			
Volume Right	65	0	32			
cSH	1700	998	327			
Volume to Capacity	0.34	0.05	0.21			
Queue Length 95th (m)	0.0	1.3	6.3			
Control Delay (s/veh)	0.0	1.5	18.9			
Lane LOS	A		C			
Approach Delay (s/veh)	0.0	1.5	18.9			
Approach LOS	A		C			
Intersection Summary						
Average Delay			1.8			
Intersection Capacity Utilization			63.4%	ICU Level of Service	B	
Analysis Period (min)			15			



HCM 6th TWSC
202: Street A & Nichol Rd 15

Total - 2040
PM Peak Hour

Intersection						
Int Delay, s/veh	1.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	
Traffic Vol, veh/h	469	60	47	358	34	29
Future Vol, veh/h	469	60	47	358	34	29
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	2	2	2	2	2
Mvmt Flow	510	65	51	389	37	32
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	575	0	1034	543
Stage 1	-	-	-	-	543	-
Stage 2	-	-	-	-	491	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	998	-	257	540
Stage 1	-	-	-	-	582	-
Stage 2	-	-	-	-	615	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	998	-	240	540
Mov Cap-2 Maneuver	-	-	-	-	240	-
Stage 1	-	-	-	-	582	-
Stage 2	-	-	-	-	575	-
Approach	EB	WB	NB			
HCM Ctrl Dly, s/v	0	1	19.2			
HCM LOS			C			
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	322	-	-	998	-	
HCM Lane V/C Ratio	0.213	-	-	0.051	-	
HCM Ctrl Dly (s/v)	19.2	-	-	8.8	0	
HCM Lane LOS	C	-	-	A	A	
HCM 95th %tile Q (veh)	0.8	-	-	0.2	-	



Lanes, Volumes, Timings
203: Street C & Nichol Rd 15

Total - 2040
PM Peak Hour

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	469	29	23	389	16	14
Future Volume (vph)	469	29	23	389	16	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.992			0.937		
Fit Protected				0.997	0.974	
Satd. Flow (prot)	1850	0	0	1859	1734	
Fit Permitted				0.997	0.974	
Satd. Flow (perm)	1850	0	0	1859	1734	
Link Speed (k/h)	60		60		50	
Link Distance (m)	419.2		284.2		150.6	
Travel Time (s)	25.2		17.1		10.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	0%	0%	2%	0%	0%
Adj. Flow (vph)	510	32	25	423	17	15
Shared Lane Traffic (%)						
Lane Group Flow (vph)	542	0	0	448	32	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0		0.0		3.6	
Link Offset(m)	0.0		0.0		0.0	
Crosswalk Width(m)	4.8		4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	15		25		25	
Sign Control	Free		Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	49.3%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis
203: Street C & Nichol Rd 15

Total - 2040
PM Peak Hour

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	469	29	23	389	16	14
Future Volume (Veh/h)	469	29	23	389	16	14
Sign Control	Free			Free Stop		
Grade	0%					
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	510	32	25	423	17	15
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume				542	999	526
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol				542	999	526
tC, single (s)				4.1	6.4	6.2
tC, 2 stage (s)						
tF (s)				2.2	3.5	3.3
pD queue free %				98	94	97
cM capacity (veh/h)				1037	266	556
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	542	448	32			
Volume Left	0	25	17			
Volume Right	32	0	15			
eSH	1700	1037	352			
Volume to Capacity	0.32	0.02	0.09			
Queue Length 95th (m)	0.0	0.6	2.4			
Control Delay (s/veh)	0.0	0.7	16.3			
Lane LOS				A	C	
Approach Delay (s/veh)	0.0	0.7	16.3			
Approach LOS				C		
Intersection Summary						
Average Delay				0.8		
Intersection Capacity Utilization	49.3%			ICU Level of Service		A
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	0.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗	↘	↖	↙	↗	↘
Traffic Vol, veh/h	469	29	23	389	16	14
Future Vol, veh/h	469	29	23	389	16	14
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	510	32	25	423	17	15

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	0	0	542	999
Stage 1	-	-	-	526
Stage 2	-	-	-	473
Critical Hdwy	-	-	4.1	6.4
Critical Hdwy Stg 1	-	-	-	5.4
Critical Hdwy Stg 2	-	-	-	5.4
Follow-up Hdwy	-	-	2.2	3.5
Pot Cap-1 Maneuver	-	-	1037	272
Stage 1	-	-	-	597
Stage 2	-	-	-	631
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	1037	263
Mov Cap-2 Maneuver	-	-	-	263
Stage 1	-	-	-	597
Stage 2	-	-	-	611

Approach	EB	WB	NB
HCM Ctrf Dly, s/v	0	0.5	16.4
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	349	-	-	1037	-
HCM Lane V/C Ratio	0.093	-	-	0.024	-
HCM Ctrf Dly (s/v)	16.4	-	-	8.6	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q (veh)	0.3	-	-	0.1	-

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗	↖	↗	↖	↗
Traffic Volume (vph)	13	17	28	79	65	20
Future Volume (vph)	13	17	28	79	65	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frts	0.924				0.968	
Fit Protected	0.979		0.987			
Satd. Flow (prot)	1719		1848		1812	
Fit Permitted	0.979		0.987			
Satd. Flow (perm)	1719		1848		1812	
Link Speed (k/h)	50		50		50	
Link Distance (m)	287.7		214.3		256.5	
Travel Time (s)	20.7		15.4		18.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	2%	2%	0%
Adj. Flow (vph)	14	18	30	86	71	22
Shared Lane Traffic (%)						
Lane Group Flow (vph)	32	0	0	116	93	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.6		0.0		0.0	
Link Offset(m)	0.0		0.0		0.0	
Crosswalk Width(m)	4.8		4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25	15	25			15
Sign Control	Stop		Free		Free	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	22.4%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
204: Gerrie Rd & Street C

Total - 2040
PM Peak Hour

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔			↕	↕	
Traffic Volume (veh/h)	13	17	28	79	65	20
Future Volume (Veh/h)	13	17	28	79	65	20
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	18	30	86	71	22
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	228	82	93			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	228	82	93			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	98	98			
cM capacity (veh/h)	749	983	1514			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	32	116	93			
Volume Left	14	30	0			
Volume Right	18	0	22			
cSH	865	1514	1700			
Volume to Capacity	0.04	0.02	0.05			
Queue Length 95th (m)	0.9	0.5	0.0			
Control Delay (s/veh)	9.3	2.0	0.0			
Lane LOS	A	A				
Approach Delay (s/veh)	9.3	2.0	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			2.2			
Intersection Capacity Utilization		22.4%		ICU Level of Service	A	
Analysis Period (min)		15				

HCM 6th TWSC
204: Gerrie Rd & Street C

Total - 2040
PM Peak Hour

Intersection						
Int Delay, s/veh	2.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔			↕	↕	
Traffic Vol, veh/h	13	17	28	79	65	20
Future Vol, veh/h	13	17	28	79	65	20
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, %	0	0	0	2	2	0
Mvmt Flow	14	18	30	86	71	22
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	228	82	93	0	-	0
Stage 1	82	-	-	-	-	-
Stage 2	146	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	765	983	1514	-	-	-
Stage 1	946	-	-	-	-	-
Stage 2	886	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	749	983	1514	-	-	-
Mov Cap-2 Maneuver	749	-	-	-	-	-
Stage 1	926	-	-	-	-	-
Stage 2	886	-	-	-	-	-
Approach	EB	NB	SB			
HCM Ctrl Dly, s/v	9.3	1.9	0			
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT EBLn1	SBT	SBR		
Capacity (veh/h)	1514	-	866	-	-	-
HCM Lane V/C Ratio	0.02	-	0.038	-	-	-
HCM Ctrl Dly (s/v)	7.4	0	9.3	-	-	-
HCM Lane LOS	A	A	A	-	-	-
HCM 95th %tile Q (veh)	0.1	-	0.1	-	-	-

Appendix G

Traffic Control Signal Justification



Signal Justification Calculation for Forecasted Volumes (OTM Book 12 - Justification 7)



Horizon Year: Background - 2035
 Region/City/Township: Elora, Centre Wellington

Major Street: Geddes Street (WR18)
 Minor Street: James Street

North/South?: N

Number of Approach Lanes: 1
 Tee Intersection?: Y
 Flow Conditions: Restricted

PM Forecast Only? N

Warrant Results			
150% Satisfied	No	Justification for new intersections with forecast traffic	
120% Satisfied	No	Justification for existing intersections with forecast traffic	

Time Period	Major Street Geddes Street (WR18)						Minor Street James Street						Peds Crossing Main Road
	Eastbound			Westbound			Northbound			Southbound			
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	
AM Peak Hour				44		305		107	39	188	109		5
PM Peak Hour				67		234		145	53	337	204		5
Average Hourly Volume	0	0	0	28	0	135	0	63	23	131	78	0	3

Warrant	AHV
1A - All	458
1B - Minor	296
2A - Major	163
2B - Cross	212

Warrant 1 - Minimum Vehicular Volume

1A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	All Approaches	480	720	600	900	
					% Fulfilled	63.6%

1B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	Minor Street Approaches	180	255	180	255	
					% Fulfilled	115.9%

Warrant 2 - Delay To Cross Traffic

2A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	Major Street Approaches	480	720	600	900	
					% Fulfilled	22.6%

2B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	Traffic Crossing Major Street	50	75	50	75	
					% Fulfilled	282.7%

Signal Justification Calculation for Forecasted Volumes (OTM Book 12 - Justification 7)



Horizon Year: Background - 2040
 Region/City/Township: Elora, Centre Wellington

Major Street: Geddes Street (WR18)
 Minor Street: James Street

North/South?: N

Number of Approach Lanes: 1
 Tee Intersection?: Y
 Flow Conditions: Restricted

PM Forecast Only? N

Warrant Results		
150% Satisfied	No	Justification for new intersections with forecast traffic
120% Satisfied	No	Justification for existing intersections with forecast traffic

Time Period	Major Street Geddes Street (WR18)						Minor Street James Street						Peds Crossing Main Road
	Eastbound			Westbound			Northbound			Southbound			
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	
AM Peak Hour				47		328		118	42	204	121		5
PM Peak Hour				73		252		161	57	359	225		5
Average Hourly Volume	0	0	0	30	0	145	0	70	25	141	87	0	3

Warrant	AHV
1A - All	497
1B - Minor	322
2A - Major	175
2B - Cross	230

Warrant 1 - Minimum Vehicular Volume

1A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	All Approaches	480	720	600	900	
		% Fulfilled				69.0%

1B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	Minor Street Approaches	180	255	180	255	
		% Fulfilled				126.2%

Warrant 2 - Delay To Cross Traffic

2A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	Major Street Approaches	480	720	600	900	
		% Fulfilled				24.3%

2B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	Traffic Crossing Major Street	50	75	50	75	
		% Fulfilled				306.3%

Signal Justification Calculation for Forecasted Volumes (OTM Book 12 - Justification 7)



Horizon Year: Total - 2035
 Region/City/Township: Elora, Centre Wellington

Major Street: Geddes Street (WR18)
 Minor Street: James Street

North/South?: N

Number of Approach Lanes: 1
 Tee Intersection?: Y
 Flow Conditions: Restricted

PM Forecast Only? N

Warrant Results		
150% Satisfied	No	Justification for new intersections with forecast traffic
120% Satisfied	No	Justification for existing intersections with forecast traffic

Time Period	Major Street Geddes Street (WR18)						Minor Street James Street						Peds Crossing Main Road
	Eastbound			Westbound			Northbound			Southbound			
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	
AM Peak Hour				68		348		107	49	203	109		5
PM Peak Hour				87		264		145	79	402	204		5
Average Hourly Volume	0	0	0	39	0	153	0	63	32	151	78	0	3

Warrant	AHV
1A - All	516
1B - Minor	325
2A - Major	192
2B - Cross	232

Warrant 1 - Minimum Vehicular Volume

1A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	All Approaches	480	720	600	900	
		% Fulfilled				71.7%

1B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	Minor Street Approaches	180	255	180	255	
		% Fulfilled				127.3%

Warrant 2 - Delay To Cross Traffic

2A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	Major Street Approaches	480	720	600	900	
		% Fulfilled				26.6%

2B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	Traffic Crossing Major Street	50	75	50	75	
		% Fulfilled				309.3%

Signal Justification Calculation for Forecasted Volumes (OTM Book 12 - Justification 7)



Horizon Year: Total - 2040
 Region/City/Township: Elora, Centre Wellington

Major Street: Geddes Street (WR18)
 Minor Street: James Street

North/South?: N

Number of Approach Lanes: 1
 Tee Intersection?: Y
 Flow Conditions: Restricted

PM Forecast Only? N

Warrant Results		
150% Satisfied	No	Justification for new intersections with forecast traffic
120% Satisfied	No	Justification for existing intersections with forecast traffic

Time Period	Major Street Geddes Street (WR18)						Minor Street James Street						Peds Crossing Main Road
	Eastbound			Westbound			Northbound			Southbound			
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	
AM Peak Hour				71		371		118	52	219	121		5
PM Peak Hour				93		282		161	83	424	225		5
Average Hourly Volume	0	0	0	41	0	163	0	70	34	161	87	0	3

Warrant	AHV
1A - All	555
1B - Minor	351
2A - Major	204
2B - Cross	250

Warrant 1 - Minimum Vehicular Volume

1A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	All Approaches	480	720	600	900	
		% Fulfilled				77.1%

1B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	Minor Street Approaches	180	255	180	255	
		% Fulfilled				137.5%

Warrant 2 - Delay To Cross Traffic

2A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	Major Street Approaches	480	720	600	900	
		% Fulfilled				28.4%

2B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	Traffic Crossing Major Street	50	75	50	75	
		% Fulfilled				333.0%

Signal Justification Calculation for Forecasted Volumes (OTM Book 12 - Justification 7)



Horizon Year: Background - 2035
 Region/City/Township: Elora, Centre Wellington

Major Street: Woolwich Street/Nichol Road 15
 Minor Street: Irvine Street

North/South?: N

Number of Approach Lanes: 1
 Tee Intersection?: N
 Flow Conditions: Restricted

PM Forecast Only? N

Warrant Results		
150% Satisfied	No	Justification for new intersections with forecast traffic
120% Satisfied	No	Justification for existing intersections with forecast traffic

Time Period	Major Street Woolwich Street/Nichol Road 15						Minor Street Irvine Street						Peds Crossing Main Road
	Eastbound			Westbound			Northbound			Southbound			
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	
AM Peak Hour	6	178	43	45	271	4	76	2	60	2	4	1	5
PM Peak Hour	5	310	75	65	228	0	69	2	68	6	7	4	5
Average Hourly Volume	3	122	30	28	125	1	36	1	32	2	3	1	3

Warrant	AHV
1A - All	383
1B - Minor	75
2A - Major	308
2B - Cross	44

Warrant 1 - Minimum Vehicular Volume

1A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	All Approaches	480	720	600	900	
					% Fulfilled	53.2%

1B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	Minor Street Approaches	120	170	120	170	
					% Fulfilled	44.3%

Warrant 2 - Delay To Cross Traffic

2A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	Major Street Approaches	480	720	600	900	
					% Fulfilled	42.7%

2B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	Traffic Crossing Major Street	50	75	50	75	
					% Fulfilled	58.0%

Signal Justification Calculation for Forecasted Volumes (OTM Book 12 - Justification 7)



Horizon Year: Background - 2040
 Region/City/Township: Elora, Centre Wellington

Major Street: Woolwich Street/Nichol Road 15
 Minor Street: Irvine Street

North/South?: N

Number of Approach Lanes: 1
 Tee Intersection?: N
 Flow Conditions: Restricted

PM Forecast Only? N

Warrant Results		
150% Satisfied	No	Justification for new intersections with forecast traffic
120% Satisfied	No	Justification for existing intersections with forecast traffic

Time Period	Major Street Woolwich Street/Nichol Road 15						Minor Street Irvine Street						Peds Crossing Main Road
	Eastbound			Westbound			Northbound			Southbound			
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	
AM Peak Hour	7	195	44	49	296	4	78	3	65	3	4	1	5
PM Peak Hour	5	336	75	70	250	0	70	3	73	7	8	4	5
Average Hourly Volume	3	133	30	30	137	1	37	2	35	3	3	1	3

Warrant	AHV
1A - All	413
1B - Minor	80
2A - Major	333
2B - Cross	45

Warrant 1 - Minimum Vehicular Volume

1A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	All Approaches	480	720	600	900	
					% Fulfilled	57.3%

1B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	Minor Street Approaches	120	170	120	170	
					% Fulfilled	46.9%

Warrant 2 - Delay To Cross Traffic

2A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	Major Street Approaches	480	720	600	900	
					% Fulfilled	46.2%

2B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	Traffic Crossing Major Street	50	75	50	75	
					% Fulfilled	60.0%

Signal Justification Calculation for Forecasted Volumes (OTM Book 12 - Justification 7)



Horizon Year: Total - 2035
 Region/City/Township: Elora, Centre Wellington

Major Street: Woolwich Street/Nichol Road 15
 Minor Street: Irvine Street

North/South?: N

Number of Approach Lanes: 1
 Tee Intersection?: N
 Flow Conditions: Restricted

PM Forecast Only? N

Warrant Results		
150% Satisfied	No	Justification for new intersections with forecast traffic
120% Satisfied	No	Justification for existing intersections with forecast traffic

Time Period	Major Street Woolwich Street/Nichol Road 15						Minor Street Irvine Street						Peds Crossing Main Road
	Eastbound			Westbound			Northbound			Southbound			
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	
AM Peak Hour	6	195	51	108	330	4	84	2	79	2	4	1	5
PM Peak Hour	5	370	106	104	261	0	86	2	121	6	7	4	5
Average Hourly Volume	3	141	39	53	148	1	43	1	50	2	3	1	3

Warrant	AHV
1A - All	485
1B - Minor	100
2A - Major	385
2B - Cross	50

Warrant 1 - Minimum Vehicular Volume

1A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
All Approaches	480	720	600	900	485	
				% Fulfilled	67.3%	

1B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
Minor Street Approaches	120	170	120	170	100	
				% Fulfilled	58.5%	

Warrant 2 - Delay To Cross Traffic

2A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
Major Street Approaches	480	720	600	900	385	
				% Fulfilled	53.5%	

2B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
Traffic Crossing Major Street	50	75	50	75	50	
				% Fulfilled	66.3%	

Signal Justification Calculation for Forecasted Volumes (OTM Book 12 - Justification 7)



Horizon Year: Total - 2040
 Region/City/Township: Elora, Centre Wellington

Major Street: Woolwich Street/Nichol Road 15
 Minor Street: Irvine Street

North/South?: N

Number of Approach Lanes: 1
 Tee Intersection?: N
 Flow Conditions: Restricted

PM Forecast Only? N

Warrant Results		
150% Satisfied	No	Justification for new intersections with forecast traffic
120% Satisfied	No	Justification for existing intersections with forecast traffic

Time Period	Major Street Woolwich Street/Nichol Road 15						Minor Street Irvine Street						Peds Crossing Main Road
	Eastbound			Westbound			Northbound			Southbound			
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	
AM Peak Hour	7	212	52	112	355	4	86	3	84	3	4	1	5
PM Peak Hour	5	396	106	109	283	0	87	3	126	7	8	4	5
Average Hourly Volume	3	152	40	55	160	1	43	2	53	3	3	1	3

Warrant	AHV
1A - All	514
1B - Minor	104
2A - Major	410
2B - Cross	51

Warrant 1 - Minimum Vehicular Volume

1A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	All Approaches	480	720	600	900	
					% Fulfilled	71.4%

1B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	Minor Street Approaches	120	170	120	170	
					% Fulfilled	61.2%

Warrant 2 - Delay To Cross Traffic

2A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	Major Street Approaches	480	720	600	900	
					% Fulfilled	57.0%

2B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	Traffic Crossing Major Street	50	75	50	75	
					% Fulfilled	68.3%

Signal Justification Calculation for Forecasted Volumes (OTM Book 12 - Justification 7)



Horizon Year: Background - 2035
 Region/City/Township: Elora, Centre Wellington

Major Street: Colborne Street
 Minor Street: Irvine Street

North/South?: N

Number of Approach Lanes: 1
 Tee Intersection?: N
 Flow Conditions: Restricted

PM Forecast Only? N

Warrant Results		
150% Satisfied	No	Justification for new intersections with forecast traffic
120% Satisfied	No	Justification for existing intersections with forecast traffic

Time Period	Major Street Colborne Street						Minor Street Irvine Street						Peds Crossing Main Road
	Eastbound			Westbound			Northbound			Southbound			
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	
AM Peak Hour	9	133	5	10	201	52	2	51	9	64	137	5	10
PM Peak Hour	39	280	4	8	237	89	2	87	20	77	70	21	10
Average Hourly Volume	12	103	2	5	110	35	1	35	7	35	52	7	5

Warrant	AHV
1A - All	403
1B - Minor	136
2A - Major	267
2B - Cross	93

Warrant 1 - Minimum Vehicular Volume

1A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	All Approaches	480	720	600	900	
					% Fulfilled	56.0%

1B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	Minor Street Approaches	120	170	120	170	
					% Fulfilled	80.1%

Warrant 2 - Delay To Cross Traffic

2A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	Major Street Approaches	480	720	600	900	
					% Fulfilled	37.0%

2B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	Traffic Crossing Major Street	50	75	50	75	
					% Fulfilled	124.0%

Signal Justification Calculation for Forecasted Volumes (OTM Book 12 - Justification 7)



Horizon Year: Background - 2040
 Region/City/Township: Elora, Centre Wellington

Major Street: Colborne Street
 Minor Street: Irvine Street

North/South?: N

Number of Approach Lanes: 1
 Tee Intersection?: N
 Flow Conditions: Restricted

PM Forecast Only? N

Warrant Results			
150% Satisfied	No	Justification for new intersections with forecast traffic	
120% Satisfied	No	Justification for existing intersections with forecast traffic	

Time Period	Major Street Colborne Street						Minor Street Irvine Street						Peds Crossing Main Road
	Eastbound			Westbound			Northbound			Southbound			
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	
AM Peak Hour	10	144	5	10	215	55	3	54	10	69	143	37	10
PM Peak Hour	40	298	4	8	254	94	3	90	21	82	74	22	10
Average Hourly Volume	13	111	2	5	117	37	2	36	8	38	54	15	5

Warrant	AHV
1A - All	436
1B - Minor	152
2A - Major	284
2B - Cross	99

Warrant 1 - Minimum Vehicular Volume

1A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	All Approaches	480	720	600	900	
					% Fulfilled	60.6%

1B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	Minor Street Approaches	120	170	120	170	
					% Fulfilled	89.4%

Warrant 2 - Delay To Cross Traffic

2A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	Major Street Approaches	480	720	600	900	
					% Fulfilled	39.5%

2B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	Traffic Crossing Major Street	50	75	50	75	
					% Fulfilled	131.3%

Signal Justification Calculation for Forecasted Volumes (OTM Book 12 - Justification 7)



Horizon Year: Total - 2035
 Region/City/Township: Elora, Centre Wellington

Major Street: Colborne Street
 Minor Street: Irvine Street

North/South?: N

Number of Approach Lanes: 1
 Tee Intersection?: N
 Flow Conditions: Restricted

PM Forecast Only? N

Warrant Results		
150% Satisfied	No	Justification for new intersections with forecast traffic
120% Satisfied	No	Justification for existing intersections with forecast traffic

Time Period	Major Street Colborne Street						Minor Street Irvine Street						Peds Crossing Main Road
	Eastbound			Westbound			Northbound			Southbound			
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	
AM Peak Hour	14	134	5	10	205	56	2	75	9	67	190	58	10
PM Peak Hour	66	285	4	8	239	100	2	154	20	85	112	33	10
Average Hourly Volume	20	105	2	5	111	39	1	57	7	38	76	23	5

Warrant	AHV
1A - All	483
1B - Minor	202
2A - Major	282
2B - Cross	120

Warrant 1 - Minimum Vehicular Volume

1A	Approach Lanes	1		2 or more		Average Hourly Volume	
	Flow Conditions	Free	Restricted	Free	Restricted		
	All Approaches	480	720	600	900		483
						% Fulfilled	67.1%

1B	Approach Lanes	1		2 or more		Average Hourly Volume	
	Flow Conditions	Free	Restricted	Free	Restricted		
	Minor Street Approaches	120	170	120	170		202
						% Fulfilled	118.7%

Warrant 2 - Delay To Cross Traffic

2A	Approach Lanes	1		2 or more		Average Hourly Volume	
	Flow Conditions	Free	Restricted	Free	Restricted		
	Major Street Approaches	480	720	600	900		282
						% Fulfilled	39.1%

2B	Approach Lanes	1		2 or more		Average Hourly Volume	
	Flow Conditions	Free	Restricted	Free	Restricted		
	Traffic Crossing Major Street	50	75	50	75		120
						% Fulfilled	159.3%

Signal Justification Calculation for Forecasted Volumes (OTM Book 12 - Justification 7)



Horizon Year: Total - 2040
 Region/City/Township: Elora, Centre Wellington

Major Street: Colborne Street
 Minor Street: Irvine Street

North/South?: N

Number of Approach Lanes: 1
 Tee Intersection?: N
 Flow Conditions: Restricted

PM Forecast Only? N

Warrant Results		
150% Satisfied	No	Justification for new intersections with forecast traffic
120% Satisfied	No	Justification for existing intersections with forecast traffic

Time Period	Major Street Colborne Street						Minor Street Irvine Street						Peds Crossing Main Road
	Eastbound			Westbound			Northbound			Southbound			
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	
AM Peak Hour	15	145	5	10	219	59	3	78	10	72	196	60	10
PM Peak Hour	67	303	4	8	256	105	3	157	21	90	116	34	10
Average Hourly Volume	21	112	2	5	119	41	2	59	8	41	78	24	5

Warrant	AHV
1A - All	509
1B - Minor	210
2A - Major	299
2B - Cross	125

Warrant 1 - Minimum Vehicular Volume

1A	Approach Lanes	1		2 or more		Average Hourly Volume	
	Flow Conditions	Free	Restricted	Free	Restricted		
			X				
All Approaches	480	720	600	900	509	% Fulfilled	70.7%

1B	Approach Lanes	1		2 or more		Average Hourly Volume	
	Flow Conditions	Free	Restricted	Free	Restricted		
			X				
Minor Street Approaches	120	170	120	170	210	% Fulfilled	123.5%

Warrant 2 - Delay To Cross Traffic

2A	Approach Lanes	1		2 or more		Average Hourly Volume	
	Flow Conditions	Free	Restricted	Free	Restricted		
			X				
Major Street Approaches	480	720	600	900	299	% Fulfilled	41.5%

2B	Approach Lanes	1		2 or more		Average Hourly Volume	
	Flow Conditions	Free	Restricted	Free	Restricted		
			X				
Traffic Crossing Major Street	50	75	50	75	125	% Fulfilled	166.7%

Signal Justification Calculation for Forecasted Volumes (OTM Book 12 - Justification 7)



Horizon Year: Background - 2035
 Region/City/Township: Elora, Centre Wellington

Major Street: East Mill Street (WR18)
 Minor Street: Irvine Street

North/South?: N

Number of Approach Lanes: 1
 Tee Intersection?: N
 Flow Conditions: Restricted

PM Forecast Only? N

Warrant Results		
150% Satisfied	No	Justification for new intersections with forecast traffic
120% Satisfied	No	Justification for existing intersections with forecast traffic

Time Period	Major Street East Mill Street (WR18)						Minor Street Irvine Street						Peds Crossing Main Road
	Eastbound			Westbound			Northbound			Southbound			
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	
AM Peak Hour	17	306	2	0	237	45	0	0	2	107	0	51	10
PM Peak Hour	43	308	1	1	313	55	1	0	0	42	0	34	10
Average Hourly Volume	15	154	1	0	138	25	0	0	1	37	0	21	5

Warrant	AHV
1A - All	391
1B - Minor	59
2A - Major	332
2B - Cross	43

Warrant 1 - Minimum Vehicular Volume

1A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	All Approaches	480	720	600	900	
					% Fulfilled	54.3%

1B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	Minor Street Approaches	120	170	120	170	
					% Fulfilled	34.9%

Warrant 2 - Delay To Cross Traffic

2A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	Major Street Approaches	480	720	600	900	
					% Fulfilled	46.1%

2B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	Traffic Crossing Major Street	50	75	50	75	
					% Fulfilled	56.7%

Signal Justification Calculation for Forecasted Volumes (OTM Book 12 - Justification 7)



Horizon Year: Background - 2040
 Region/City/Township: Elora, Centre Wellington

Major Street: East Mill Street (WR18)
 Minor Street: Irvine Street

North/South?: N

Number of Approach Lanes: 1
 Tee Intersection?: N
 Flow Conditions: Restricted

PM Forecast Only? N

Warrant Results		
150% Satisfied	No	Justification for new intersections with forecast traffic
120% Satisfied	No	Justification for existing intersections with forecast traffic

Time Period	Major Street East Mill Street (WR18)						Minor Street Irvine Street						Peds Crossing Main Road
	Eastbound			Westbound			Northbound			Southbound			
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	
AM Peak Hour	17	338	3	0	261	48	0	0	3	113	0	53	10
PM Peak Hour	44	340	1	1	345	58	1	0	0	45	0	36	10
Average Hourly Volume	15	170	1	0	152	27	0	0	1	40	0	22	5

Warrant	AHV
1A - All	427
1B - Minor	63
2A - Major	364
2B - Cross	45

Warrant 1 - Minimum Vehicular Volume

1A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	All Approaches	480	720	600	900	
					% Fulfilled	59.3%

1B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	Minor Street Approaches	120	170	120	170	
					% Fulfilled	36.9%

Warrant 2 - Delay To Cross Traffic

2A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	Major Street Approaches	480	720	600	900	
					% Fulfilled	50.6%

2B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	Traffic Crossing Major Street	50	75	50	75	
					% Fulfilled	59.7%

Signal Justification Calculation for Forecasted Volumes (OTM Book 12 - Justification 7)



Horizon Year: Total - 2035
 Region/City/Township: Elora, Centre Wellington

Major Street: East Mill Street (WR18)
 Minor Street: Irvine Street

North/South?: N

Number of Approach Lanes: 1
 Tee Intersection?: N
 Flow Conditions: Restricted

PM Forecast Only? N

Warrant Results		
150% Satisfied	No	Justification for new intersections with forecast traffic
120% Satisfied	No	Justification for existing intersections with forecast traffic

Time Period	Major Street East Mill Street (WR18)						Minor Street Irvine Street						Peds Crossing Main Road
	Eastbound			Westbound			Northbound			Southbound			
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	
AM Peak Hour	35	310	2	0	245	21	0	0	2	116	0	95	10
PM Peak Hour	88	316	1	1	319	77	1	0	0	53	0	65	10
Average Hourly Volume	31	157	1	0	141	25	0	0	1	42	0	40	5

Warrant	AHV
1A - All	437
1B - Minor	83
2A - Major	354
2B - Cross	48

Warrant 1 - Minimum Vehicular Volume

1A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	All Approaches	480	720	600	900	437
		% Fulfilled				60.7%

1B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Minor Street Approaches	120	170	120	170	83
		% Fulfilled				48.8%

Warrant 2 - Delay To Cross Traffic

2A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Major Street Approaches	480	720	600	900	354
		% Fulfilled				49.1%

2B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Traffic Crossing Major Street	50	75	50	75	48
		% Fulfilled				63.3%

Signal Justification Calculation for Forecasted Volumes (OTM Book 12 - Justification 7)



Horizon Year: Total - 2040
 Region/City/Township: Elora, Centre Wellington

Major Street: East Mill Street (WR18)
 Minor Street: Irvine Street

North/South?: N

Number of Approach Lanes: 1
 Tee Intersection?: N
 Flow Conditions: Restricted

PM Forecast Only? N

Warrant Results		
150% Satisfied	No	Justification for new intersections with forecast traffic
120% Satisfied	No	Justification for existing intersections with forecast traffic

Time Period	Major Street East Mill Street (WR18)						Minor Street Irvine Street						Peds Crossing Main Road
	Eastbound			Westbound			Northbound			Southbound			
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	
AM Peak Hour	35	342	3	0	269	54	0	0	3	122	0	97	10
PM Peak Hour	89	348	1	1	351	80	1	0	0	56	0	67	10
Average Hourly Volume	31	173	1	0	155	34	0	0	1	45	0	41	5

Warrant	AHV
1A - All	480
1B - Minor	87
2A - Major	393
2B - Cross	50

Warrant 1 - Minimum Vehicular Volume

1A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	All Approaches	480	720	600	900	
					% Fulfilled	66.6%

1B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	Minor Street Approaches	120	170	120	170	
					% Fulfilled	50.9%

Warrant 2 - Delay To Cross Traffic

2A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	Major Street Approaches	480	720	600	900	
					% Fulfilled	54.6%

2B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	Traffic Crossing Major Street	50	75	50	75	
					% Fulfilled	66.3%

Signal Justification Calculation for Forecasted Volumes (OTM Book 12 - Justification 7)



Horizon Year: Background - 2035
 Region/City/Township: Elora, Centre Wellington

Major Street: Colborne Street
 Minor Street: Gerrie Road

North/South?: N

Number of Approach Lanes: 1
 Tee Intersection?: N
 Flow Conditions: Restricted

PM Forecast Only? N

Warrant Results		
150% Satisfied	No	Justification for new intersections with forecast traffic
120% Satisfied	No	Justification for existing intersections with forecast traffic

Time Period	Major Street Colborne Street						Minor Street Gerrie Road						Peds Crossing Main Road
	Eastbound			Westbound			Northbound			Southbound			
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	
AM Peak Hour	34	177	94	17	153	28	40	54	9	58	114	49	10
PM Peak Hour	53	224	66	17	259	62	99	85	29	56	65	48	10
Average Hourly Volume	22	100	40	9	103	23	35	35	10	29	45	24	5

Warrant	AHV
1A - All	473
1B - Minor	177
2A - Major	296
2B - Cross	113

Warrant 1 - Minimum Vehicular Volume

1A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	All Approaches	480	720	600	900	
					% Fulfilled	65.6%

1B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	Minor Street Approaches	120	170	120	170	
					% Fulfilled	103.8%

Warrant 2 - Delay To Cross Traffic

2A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	Major Street Approaches	480	720	600	900	
					% Fulfilled	41.1%

2B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	Traffic Crossing Major Street	50	75	50	75	
					% Fulfilled	150.7%

Signal Justification Calculation for Forecasted Volumes (OTM Book 12 - Justification 7)



Horizon Year: Background - 2040
 Region/City/Township: Elora, Centre Wellington

Major Street: Colborne Street
 Minor Street: Gerrie Road

North/South?: N

Number of Approach Lanes: 1
 Tee Intersection?: N
 Flow Conditions: Restricted

PM Forecast Only? N

Warrant Results			
150% Satisfied	No	Justification for new intersections with forecast traffic	
120% Satisfied	No	Justification for existing intersections with forecast traffic	

Time Period	Major Street Colborne Street						Minor Street Gerrie Road						Peds Crossing Main Road
	Eastbound			Westbound			Northbound			Southbound			
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	
AM Peak Hour	37	190	104	19	162	30	44	60	10	60	122	51	10
PM Peak Hour	56	235	73	19	274	65	110	90	32	60	70	51	10
Average Hourly Volume	23	106	44	10	109	24	39	38	11	30	48	26	5

Warrant	AHV
1A - All	506
1B - Minor	190
2A - Major	316
2B - Cross	122

Warrant 1 - Minimum Vehicular Volume

1A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	All Approaches	480	720	600	900	
					% Fulfilled	70.3%

1B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	Minor Street Approaches	120	170	120	170	
					% Fulfilled	111.8%

Warrant 2 - Delay To Cross Traffic

2A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	Major Street Approaches	480	720	600	900	
					% Fulfilled	43.9%

2B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	Traffic Crossing Major Street	50	75	50	75	
					% Fulfilled	162.0%

Signal Justification Calculation for Forecasted Volumes (OTM Book 12 - Justification 7)



Horizon Year: Total - 2035
 Region/City/Township: Elora, Centre Wellington

Major Street: Colborne Street
 Minor Street: Gerrie Road

North/South?: N

Number of Approach Lanes: 1
 Tee Intersection?: N
 Flow Conditions: Restricted

PM Forecast Only? N

Warrant Results		
150% Satisfied	No	Justification for new intersections with forecast traffic
120% Satisfied	No	Justification for existing intersections with forecast traffic

Time Period	Major Street Colborne Street						Minor Street Gerrie Road						Peds Crossing Main Road
	Eastbound			Westbound			Northbound			Southbound			
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	
AM Peak Hour	35	180	94	17	157	36	40	70	9	79	190	53	10
PM Peak Hour	58	232	66	17	270	83	99	136	29	72	92	50	10
Average Hourly Volume	23	103	40	9	107	30	35	52	10	38	71	26	5

Warrant	AHV
1A - All	541
1B - Minor	230
2A - Major	311
2B - Cross	148

Warrant 1 - Minimum Vehicular Volume

1A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	All Approaches	480	720	600	900	
					% Fulfilled	75.1%

1B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	Minor Street Approaches	120	170	120	170	
					% Fulfilled	135.1%

Warrant 2 - Delay To Cross Traffic

2A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	Major Street Approaches	480	720	600	900	
					% Fulfilled	43.2%

2B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	Traffic Crossing Major Street	50	75	50	75	
					% Fulfilled	197.3%

Signal Justification Calculation for Forecasted Volumes (OTM Book 12 - Justification 7)



Horizon Year: Total - 2040
 Region/City/Township: Elora, Centre Wellington

Major Street: Colborne Street
 Minor Street: Gerrie Road

North/South?: N

Number of Approach Lanes: 1
 Tee Intersection?: N
 Flow Conditions: Restricted

PM Forecast Only? N

Warrant Results		
150% Satisfied	No	Justification for new intersections with forecast traffic
120% Satisfied	No	Justification for existing intersections with forecast traffic

Time Period	Major Street Colborne Street						Minor Street Gerrie Road						Peds Crossing Main Road
	Eastbound			Westbound			Northbound			Southbound			
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	
AM Peak Hour	38	193	104	16	166	38	44	76	10	81	198	55	10
PM Peak Hour	61	243	73	19	285	86	110	141	32	76	97	53	10
Average Hourly Volume	25	109	44	9	113	31	39	54	11	39	74	27	5

Warrant	AHV
1A - All	574
1B - Minor	243
2A - Major	331
2B - Cross	157

Warrant 1 - Minimum Vehicular Volume

1A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
All Approaches	480	720	600	900	574	
				% Fulfilled	79.7%	

1B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
Minor Street Approaches	120	170	120	170	243	
				% Fulfilled	143.1%	

Warrant 2 - Delay To Cross Traffic

2A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
Major Street Approaches	480	720	600	900	331	
				% Fulfilled	45.9%	

2B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
Traffic Crossing Major Street	50	75	50	75	157	
				% Fulfilled	208.7%	

Signal Justification Calculation for Forecasted Volumes (OTM Book 12 - Justification 7)



Horizon Year: Background - 2035
 Region/City/Township: Elora, Centre Wellington

Major Street: Nichol Road 15
 Minor Street: Gerrie Road

North/South?: N

Number of Approach Lanes: 1
 Tee Intersection?: N
 Flow Conditions: Free

PM Forecast Only? N

Warrant Results			
150% Satisfied	No	Justification for new intersections with forecast traffic	
120% Satisfied	No	Justification for existing intersections with forecast traffic	

Time Period	Major Street Nichol Road 15						Minor Street Gerrie Road						Peds Crossing Main Road
	Eastbound			Westbound			Northbound			Southbound			
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	
AM Peak Hour	7	232	1	28	308	7	5	9	18	15	2	7	0
PM Peak Hour	14	370	0	36	286	9	2	1	24	9	0	5	0
Average Hourly Volume	5	151	0	16	149	4	2	3	11	6	1	3	0

Warrant	AHV
1A - All	349
1B - Minor	24
2A - Major	325
2B - Cross	10

Warrant 1 - Minimum Vehicular Volume

1A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
		X				
All Approaches	480	720	600	900	349	
					% Fulfilled	72.7%

1B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
		X				
Minor Street Approaches	120	170	120	170	24	
					% Fulfilled	20.2%

Warrant 2 - Delay To Cross Traffic

2A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
		X				
Major Street Approaches	480	720	600	900	325	
					% Fulfilled	67.6%

2B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
		X				
Traffic Crossing Major Street	50	75	50	75	10	
					% Fulfilled	20.5%

Signal Justification Calculation for Forecasted Volumes (OTM Book 12 - Justification 7)



Horizon Year: Background - 2040
 Region/City/Township: Elora, Centre Wellington

Major Street: Nichol Road 15
 Minor Street: Gerrie Road

North/South?: N

Number of Approach Lanes: 1
 Tee Intersection?: N
 Flow Conditions: Free

PM Forecast Only? N

Warrant Results		
150% Satisfied	No	Justification for new intersections with forecast traffic
120% Satisfied	No	Justification for existing intersections with forecast traffic

Time Period	Major Street Nichol Road 15						Minor Street Gerrie Road						Peds Crossing Main Road
	Eastbound			Westbound			Northbound			Southbound			
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	
AM Peak Hour	8	253	1	30	335	8	5	10	19	16	3	8	0
PM Peak Hour	15	401	0	37	312	10	3	1	26	10	0	5	0
Average Hourly Volume	6	164	0	17	162	5	2	3	11	7	1	3	0

Warrant	AHV
1A - All	379
1B - Minor	27
2A - Major	353
2B - Cross	11

Warrant 1 - Minimum Vehicular Volume

1A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
		X				
All Approaches		480	720	600	900	379
		% Fulfilled				79.0%

1B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
		X				
Minor Street Approaches		120	170	120	170	27
		% Fulfilled				22.1%

Warrant 2 - Delay To Cross Traffic

2A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
		X				
Major Street Approaches		480	720	600	900	353
		% Fulfilled				73.4%

2B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
		X				
Traffic Crossing Major Street		50	75	50	75	11
		% Fulfilled				22.5%

Signal Justification Calculation for Forecasted Volumes (OTM Book 12 - Justification 7)



Horizon Year: Total - 2035
 Region/City/Township: Elora, Centre Wellington

Major Street: Nichol Road 15
 Minor Street: Gerrie Road

North/South?: N

Number of Approach Lanes: 1
 Tee Intersection?: N
 Flow Conditions: Free

PM Forecast Only? N

Warrant Results		
150% Satisfied	No	Justification for new intersections with forecast traffic
120% Satisfied	No	Justification for existing intersections with forecast traffic

Time Period	Major Street Nichol Road 15						Minor Street Gerrie Road						Peds Crossing Main Road
	Eastbound			Westbound			Northbound			Southbound			
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	
AM Peak Hour	7	265	78	31	323	7	31	9	24	15	2	7	0
PM Peak Hour	14	395	42	42	321	9	59	1	29	9	0	5	0
Average Hourly Volume	5	165	30	18	161	4	23	3	13	6	1	3	0

Warrant	AHV
1A - All	431
1B - Minor	48
2A - Major	384
2B - Cross	31

Warrant 1 - Minimum Vehicular Volume

1A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
		X				
All Approaches		480	720	600	900	431
		% Fulfilled				89.8%

1B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
		X				
Minor Street Approaches		120	170	120	170	48
		% Fulfilled				39.8%

Warrant 2 - Delay To Cross Traffic

2A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
		X				
Major Street Approaches		480	720	600	900	384
		% Fulfilled				79.9%

2B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
		X				
Traffic Crossing Major Street		50	75	50	75	31
		% Fulfilled				62.0%

Signal Justification Calculation for Forecasted Volumes (OTM Book 12 - Justification 7)



Horizon Year: Total - 2040
 Region/City/Township: Elora, Centre Wellington

Major Street: Nichol Road 15
 Minor Street: Gerrie Road

North/South?: N

Number of Approach Lanes: 1
 Tee Intersection?: N
 Flow Conditions: Free

PM Forecast Only? N

Warrant Results		
150% Satisfied	No	Justification for new intersections with forecast traffic
120% Satisfied	No	Justification for existing intersections with forecast traffic

Time Period	Major Street Nichol Road 15						Minor Street Gerrie Road						Peds Crossing Main Road
	Eastbound			Westbound			Northbound			Southbound			
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	
AM Peak Hour	8	286	78	33	350	8	31	10	25	16	3	8	0
PM Peak Hour	15	426	42	43	347	10	60	1	31	10	0	5	0
Average Hourly Volume	6	178	30	19	174	5	23	3	14	7	1	3	0

Warrant	AHV
1A - All	462
1B - Minor	50
2A - Major	412
2B - Cross	32

Warrant 1 - Minimum Vehicular Volume

1A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
		X				
All Approaches	480	720	600	900	462	
					% Fulfilled	96.1%

1B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
		X				
Minor Street Approaches	120	170	120	170	50	
					% Fulfilled	41.7%

Warrant 2 - Delay To Cross Traffic

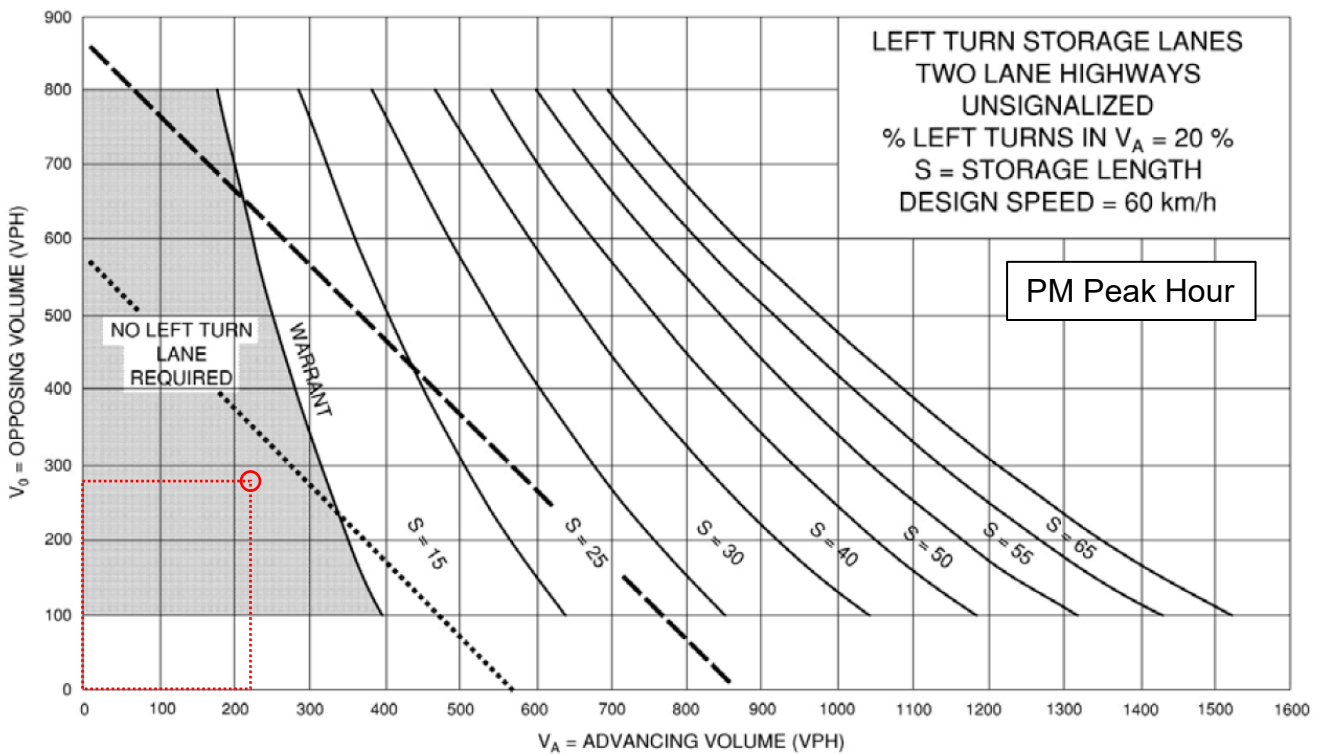
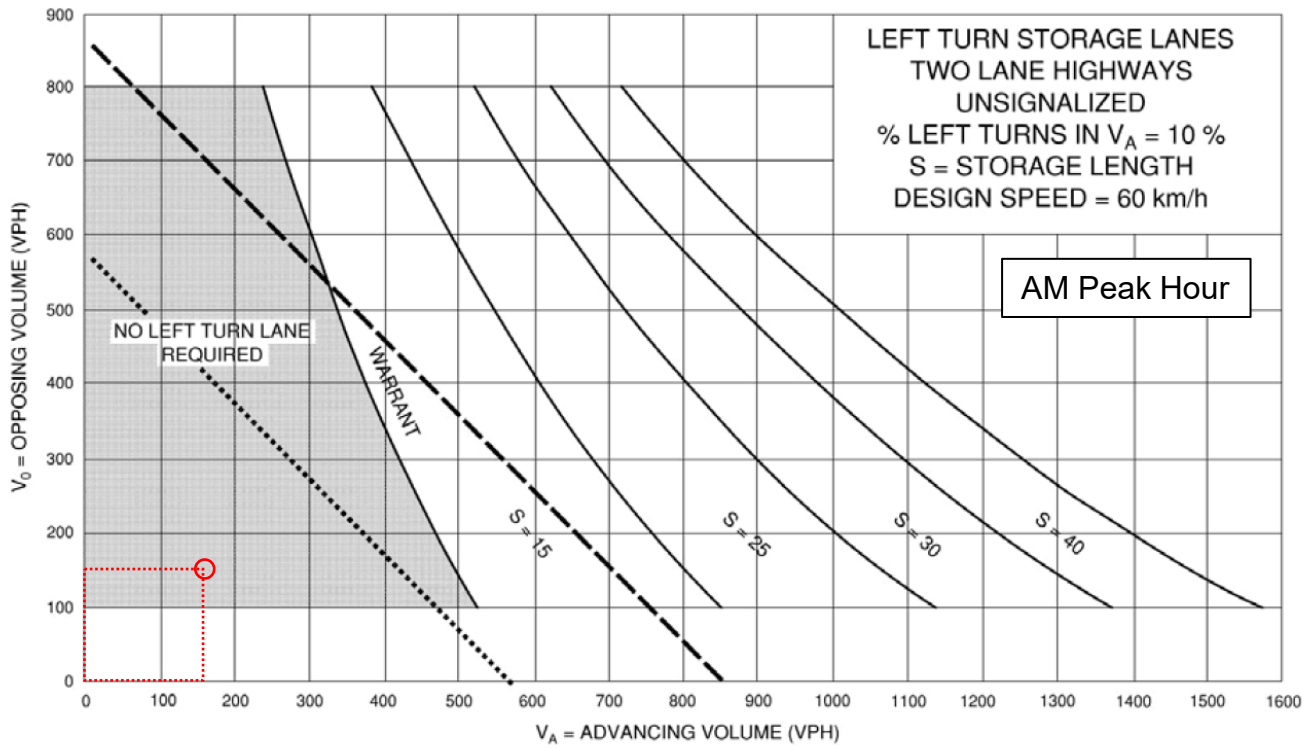
2A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
		X				
Major Street Approaches	480	720	600	900	412	
					% Fulfilled	85.7%

2B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
		X				
Traffic Crossing Major Street	50	75	50	75	32	
					% Fulfilled	64.0%

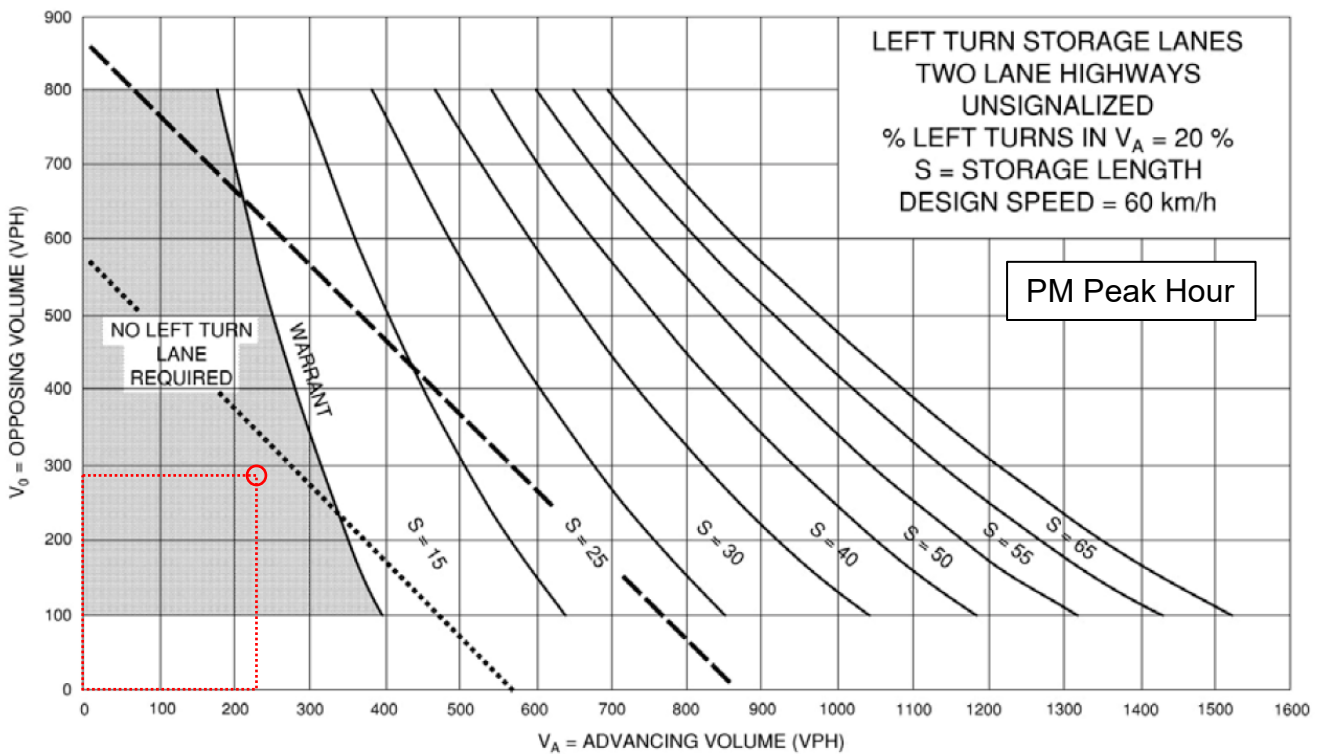
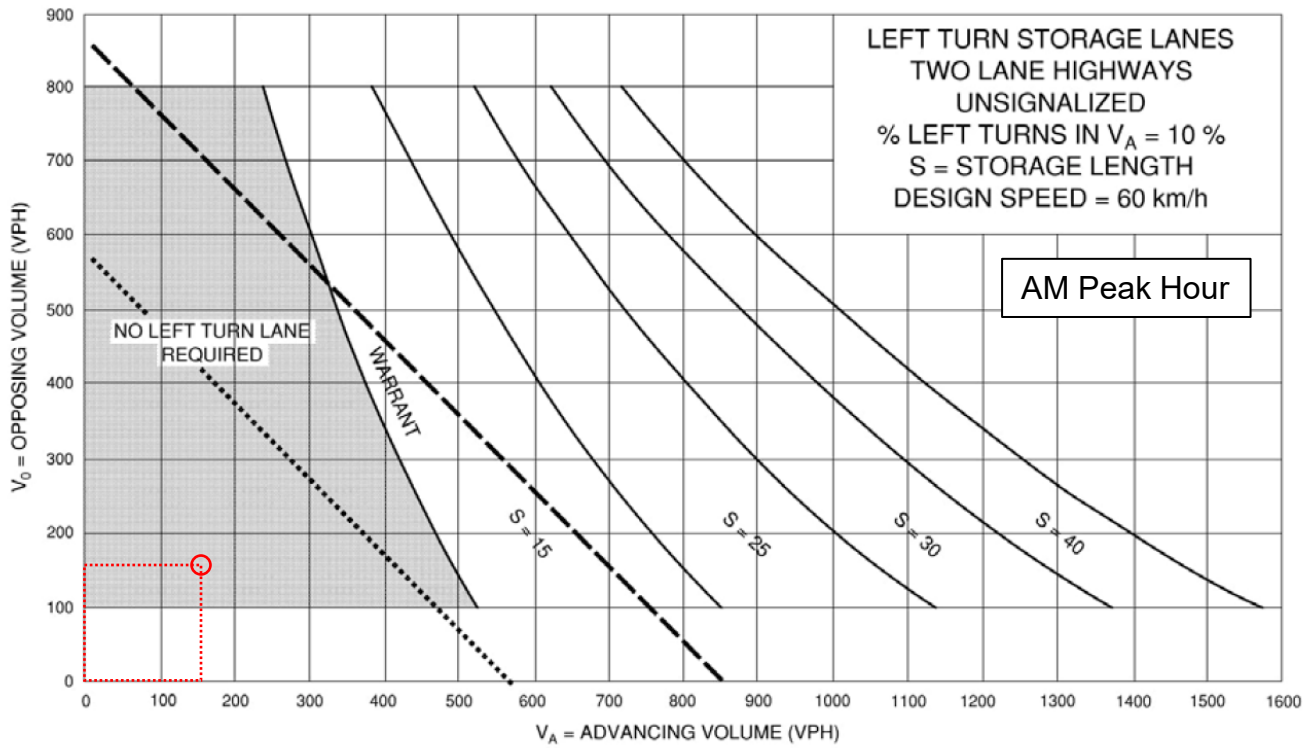
Appendix H

Left-Turn Lane Warrant Nomographs

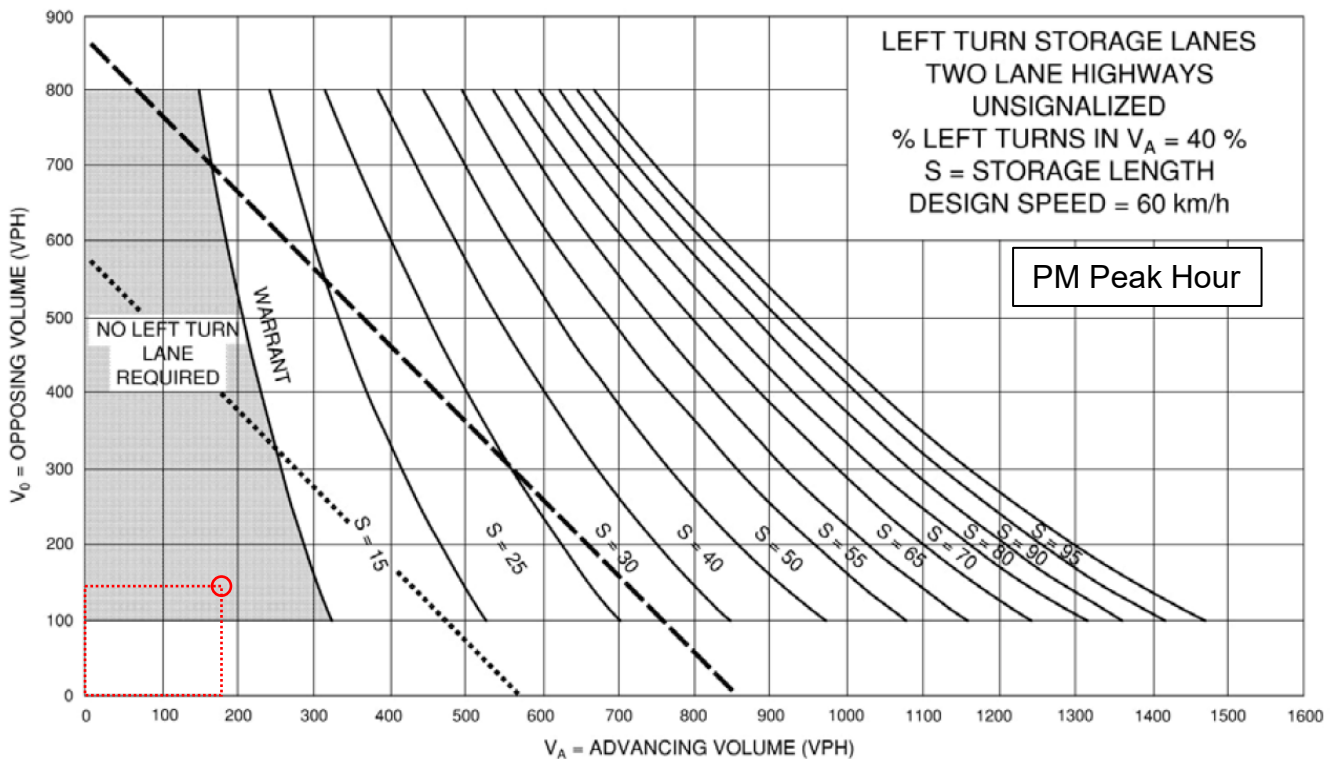
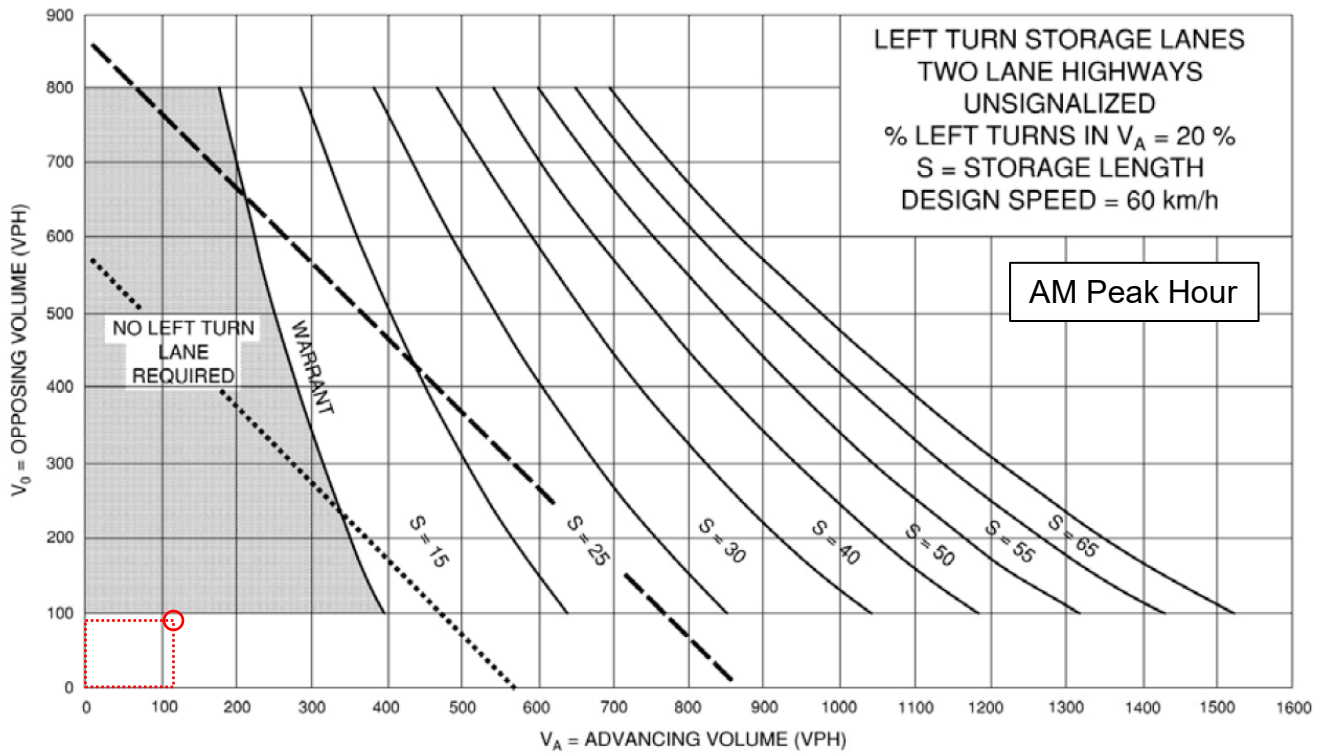




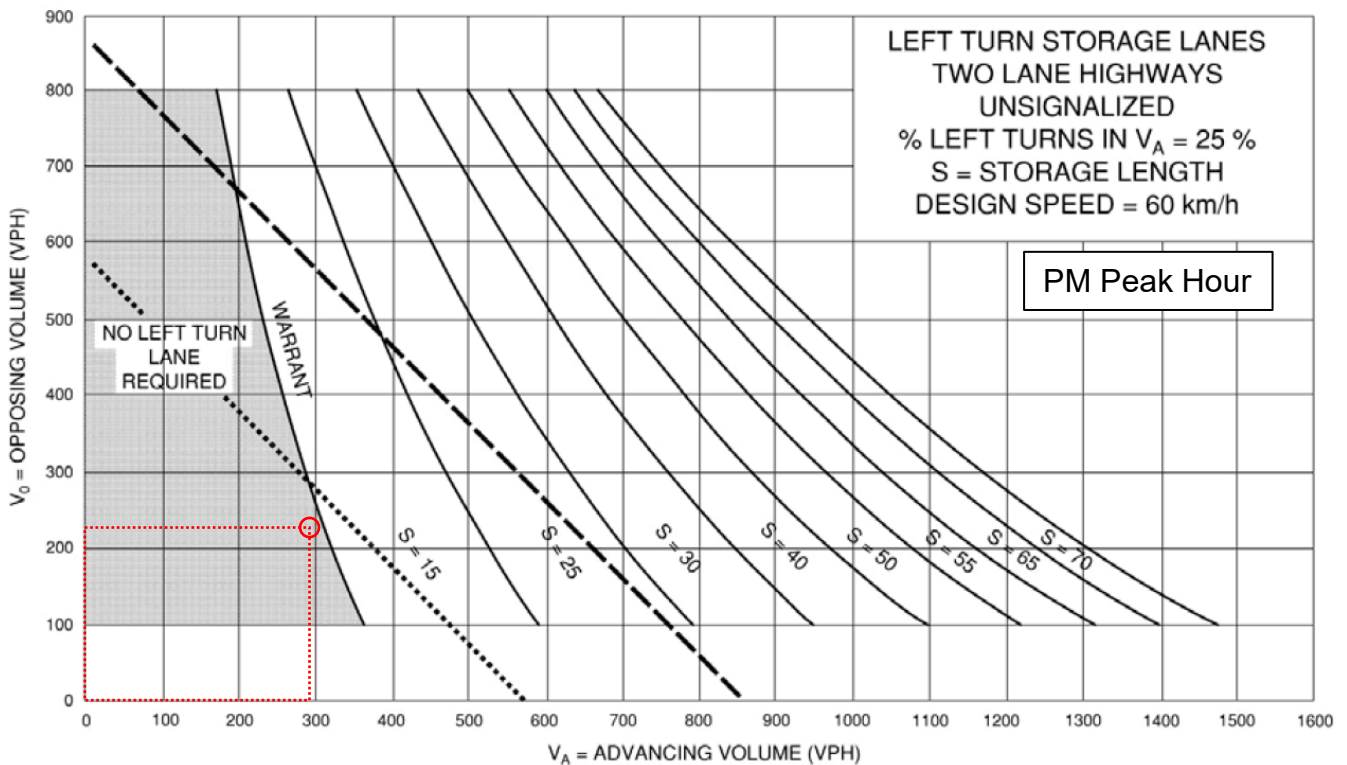
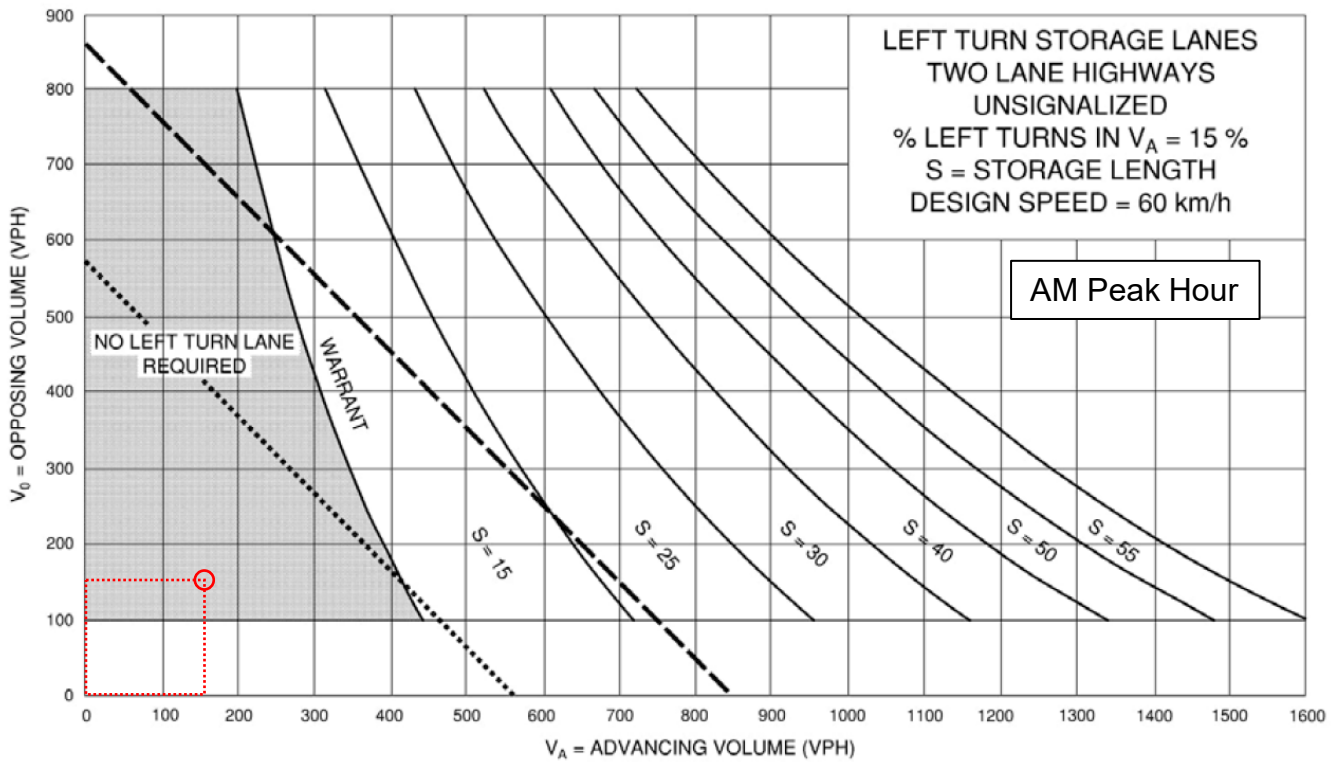
Southbound Left-Turn Lane Warrant Irvine Street at Street B 2035 Total Horizon



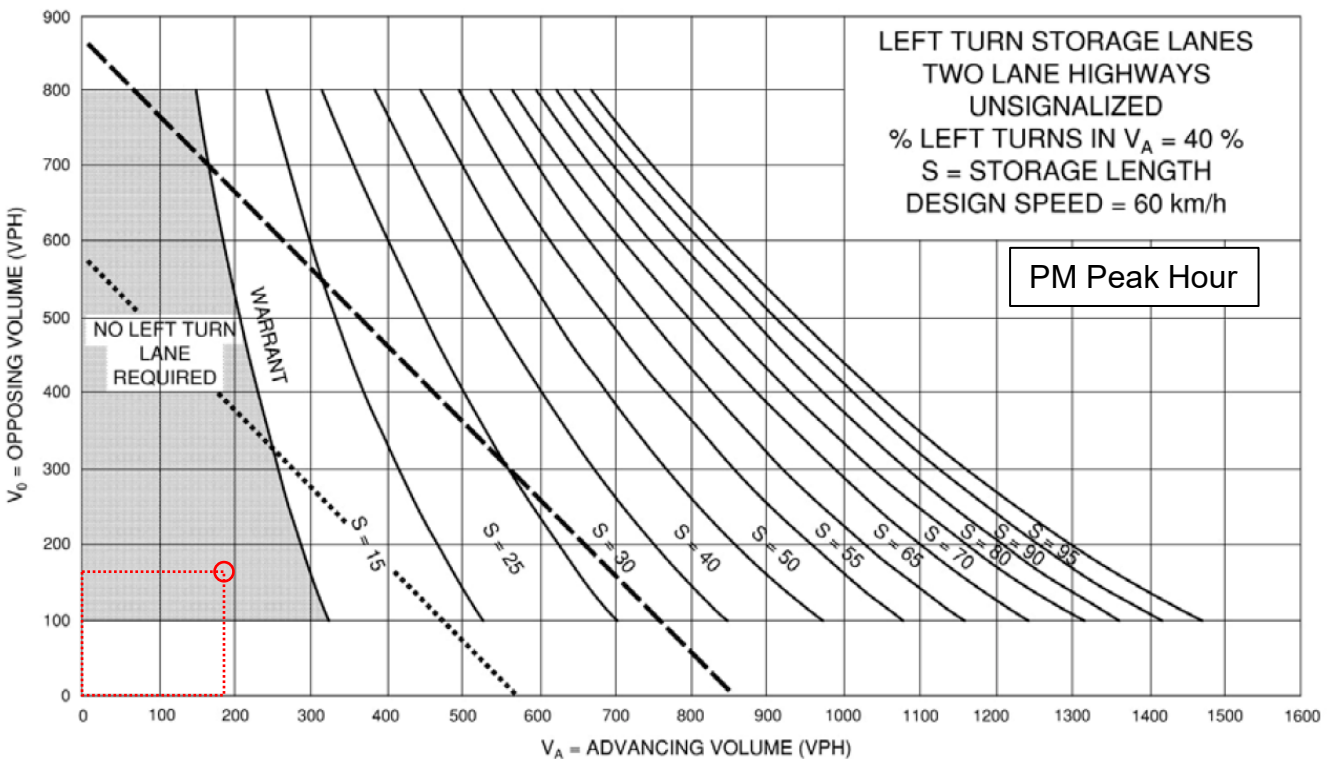
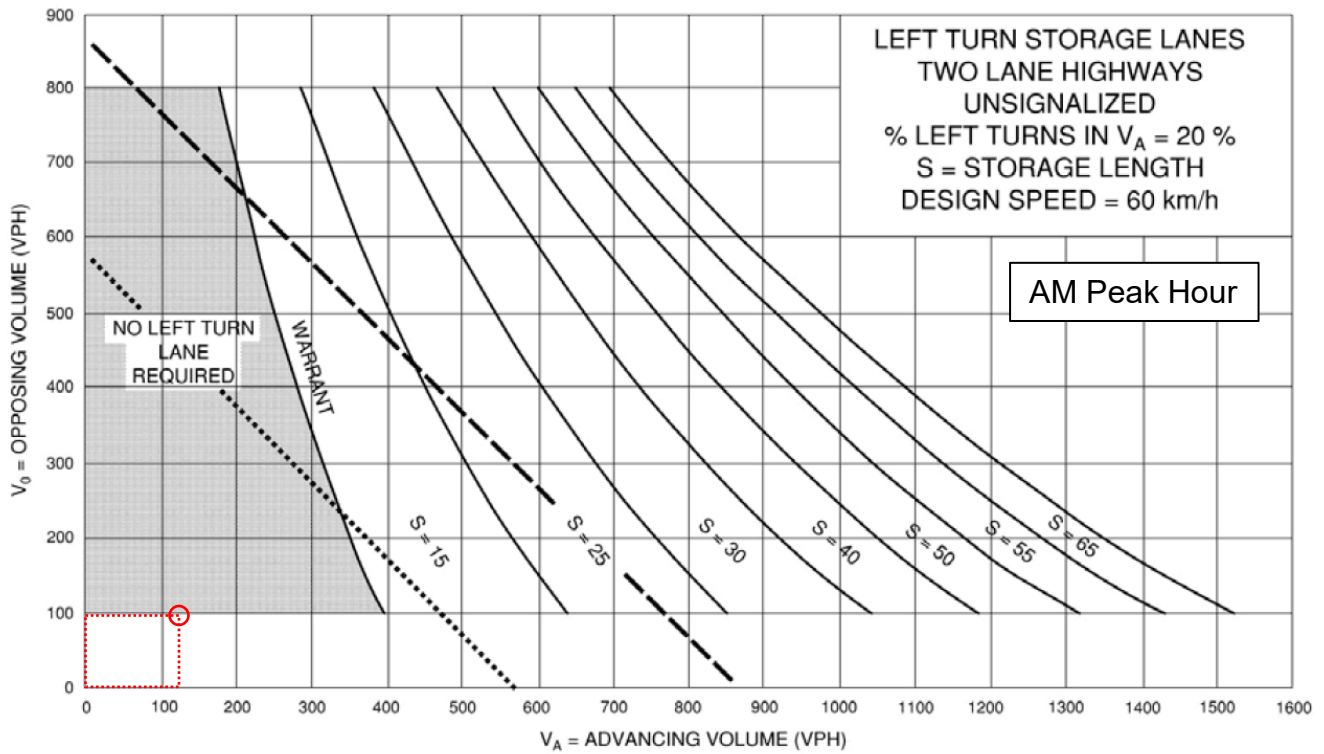
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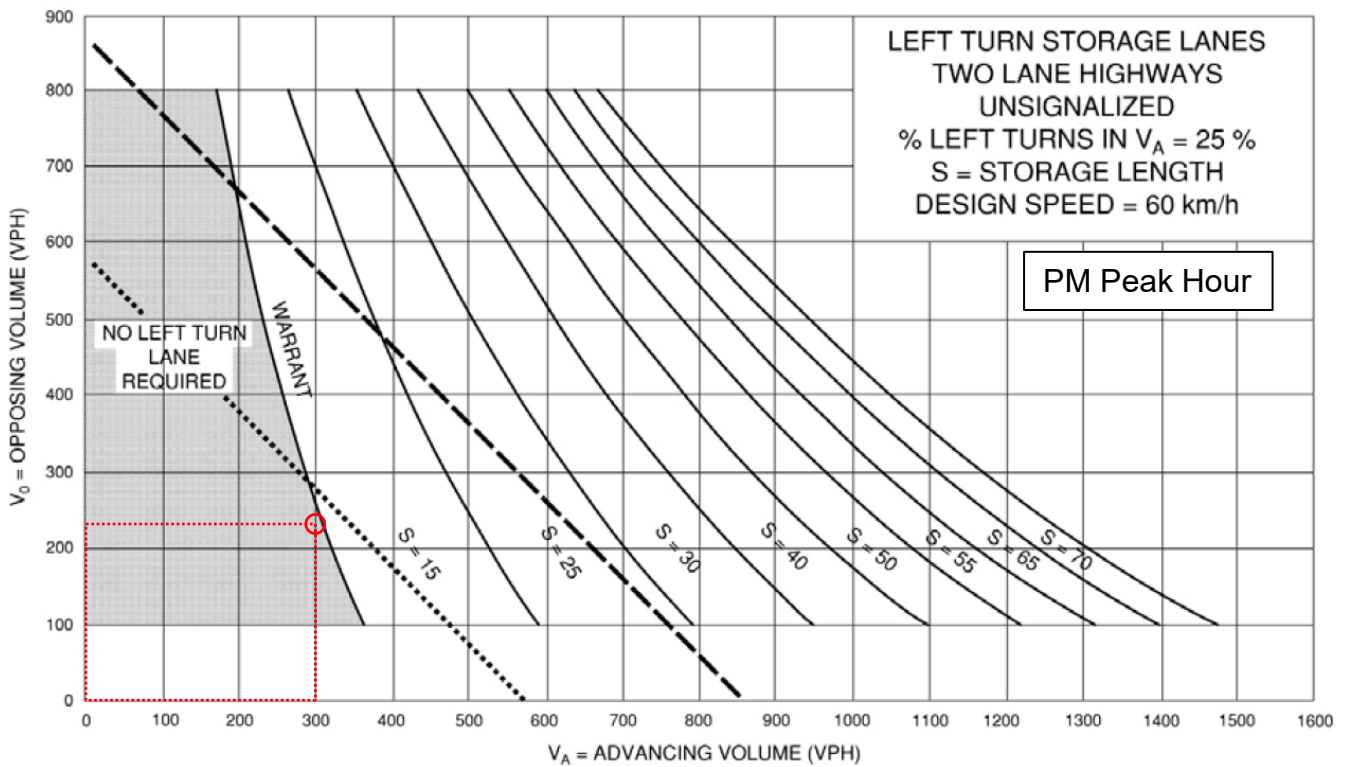
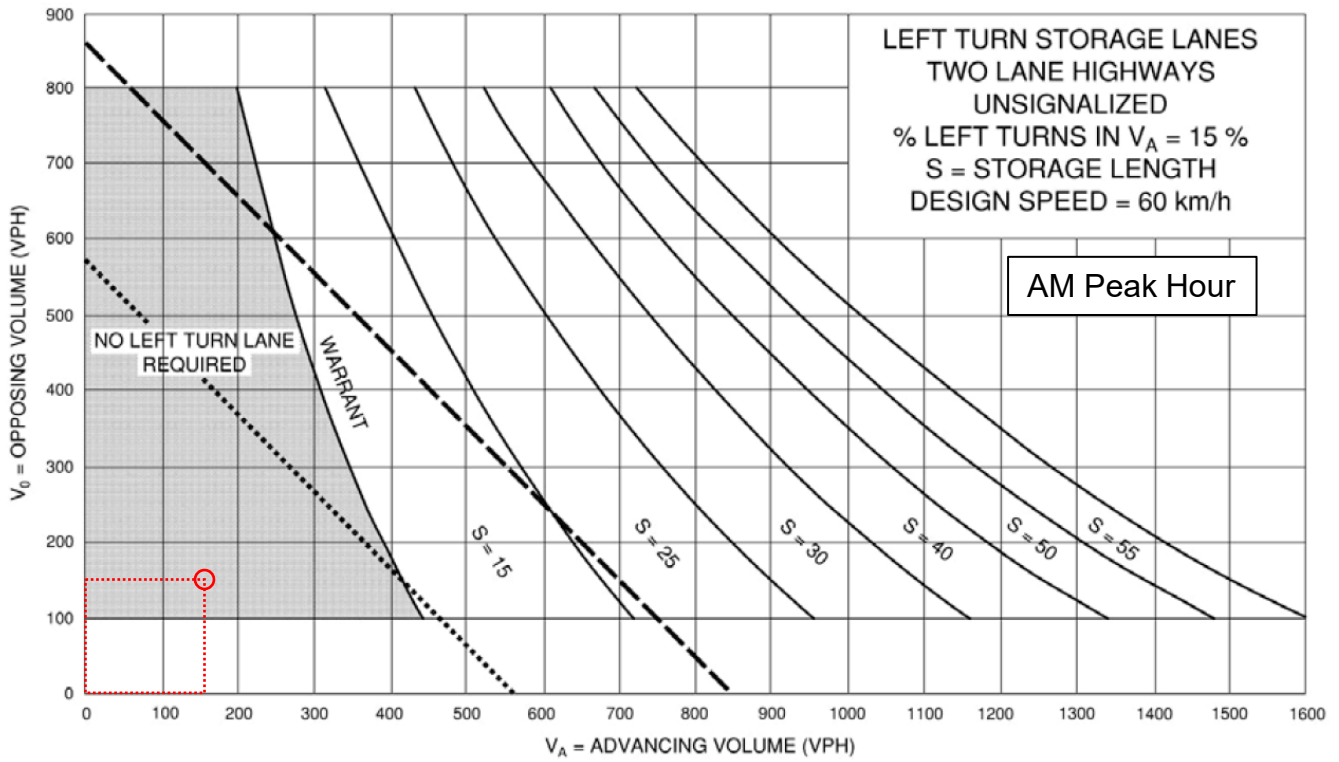
Northbound Left-Turn Lane Warrant Irvine Street at Cachet Clayton 2035 Background Horizon



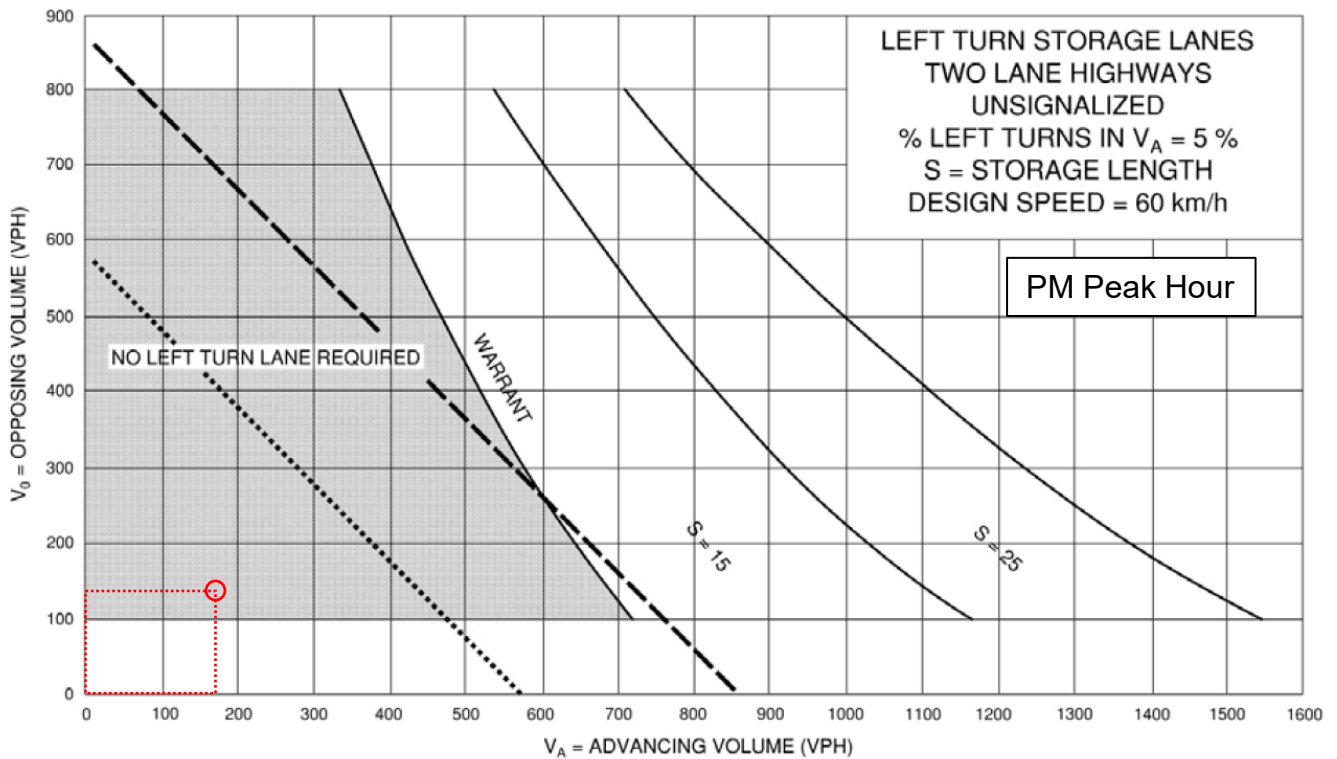
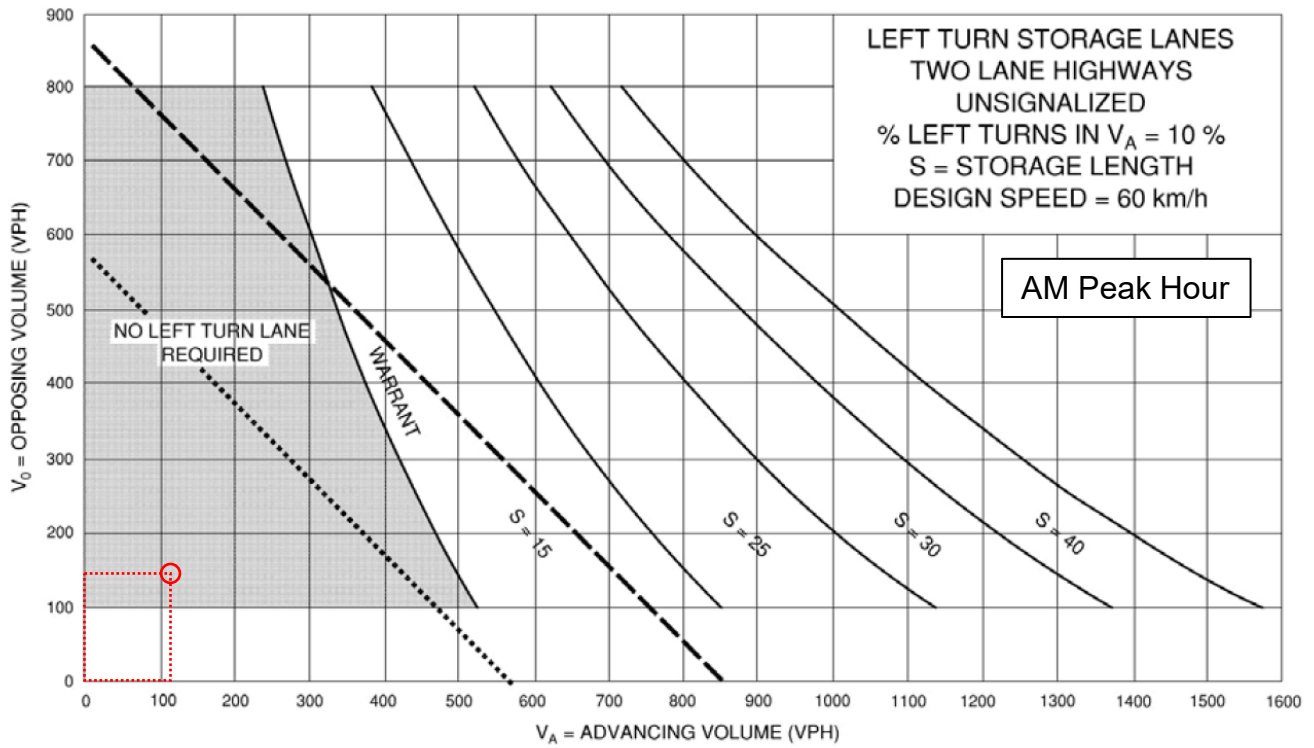
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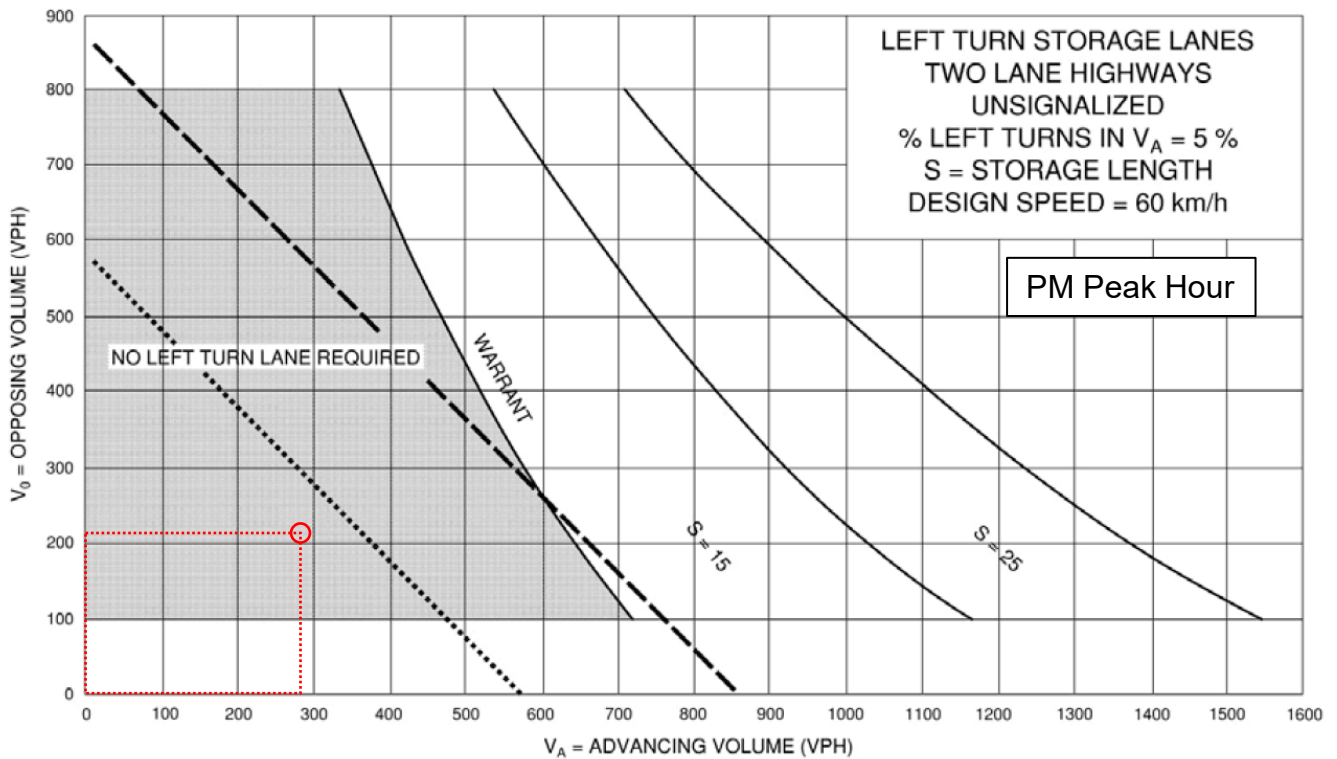
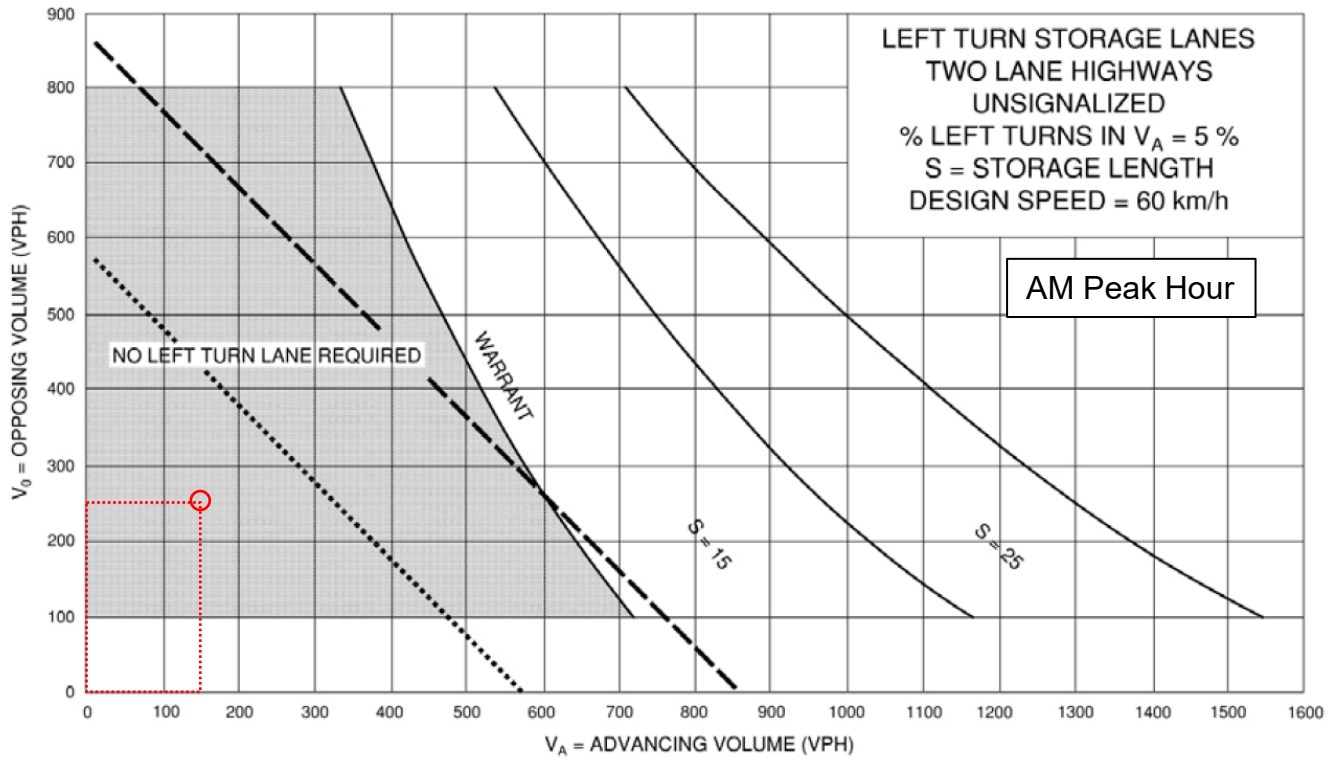
Northbound Left-Turn Lane Warrant Irvine Street at Cachet Clayton 2040 Background Horizon



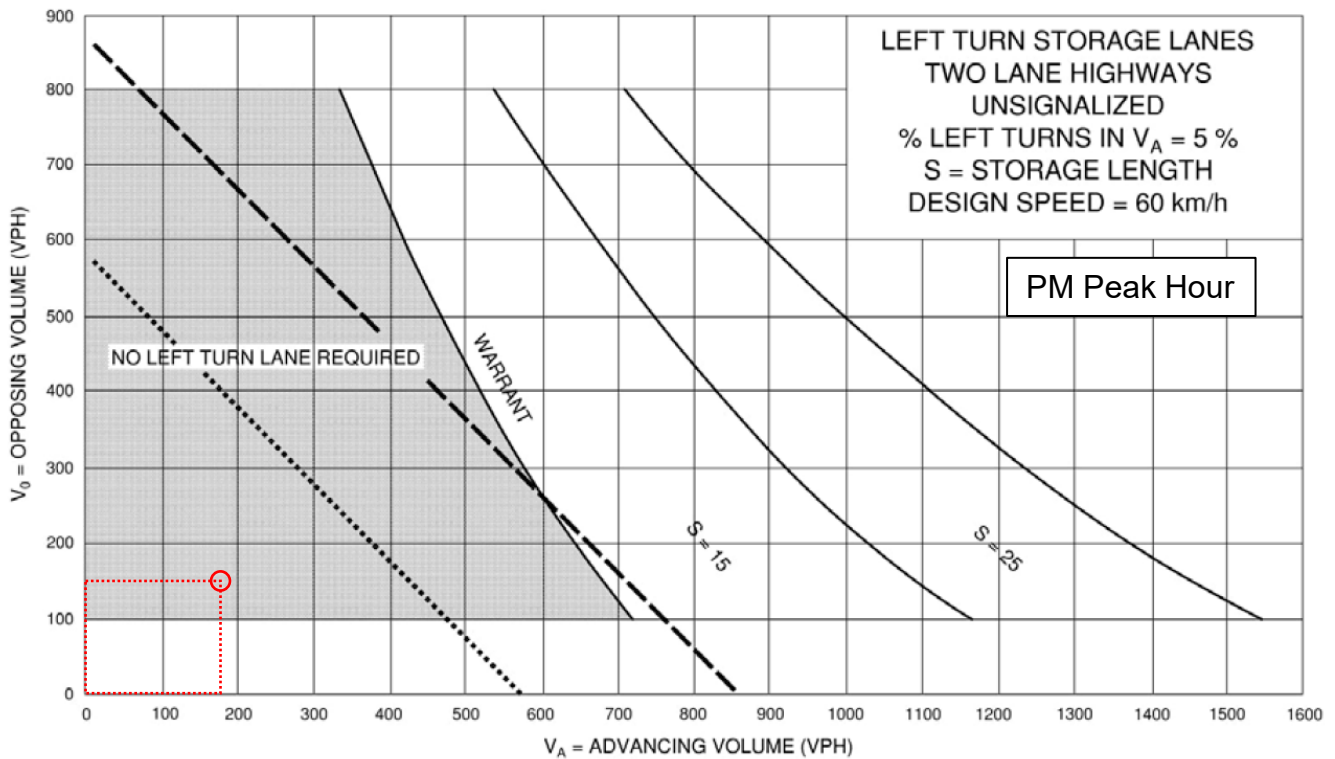
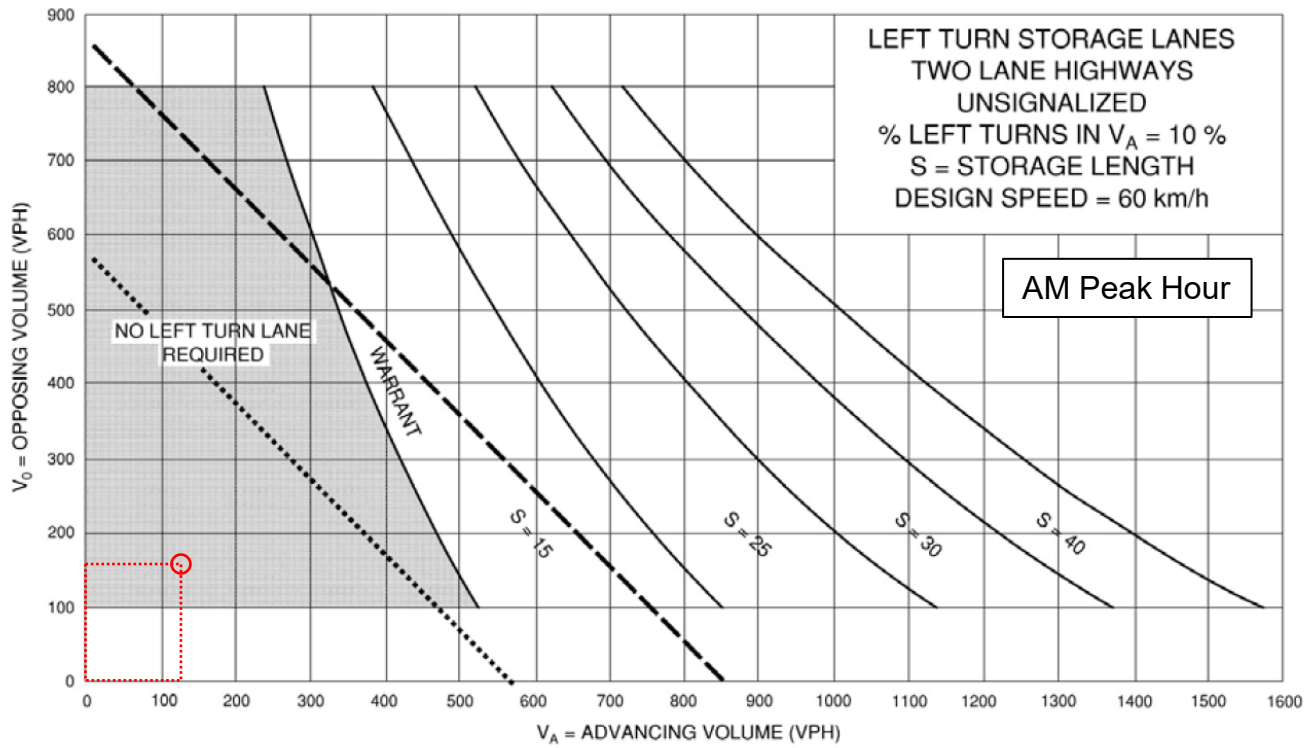
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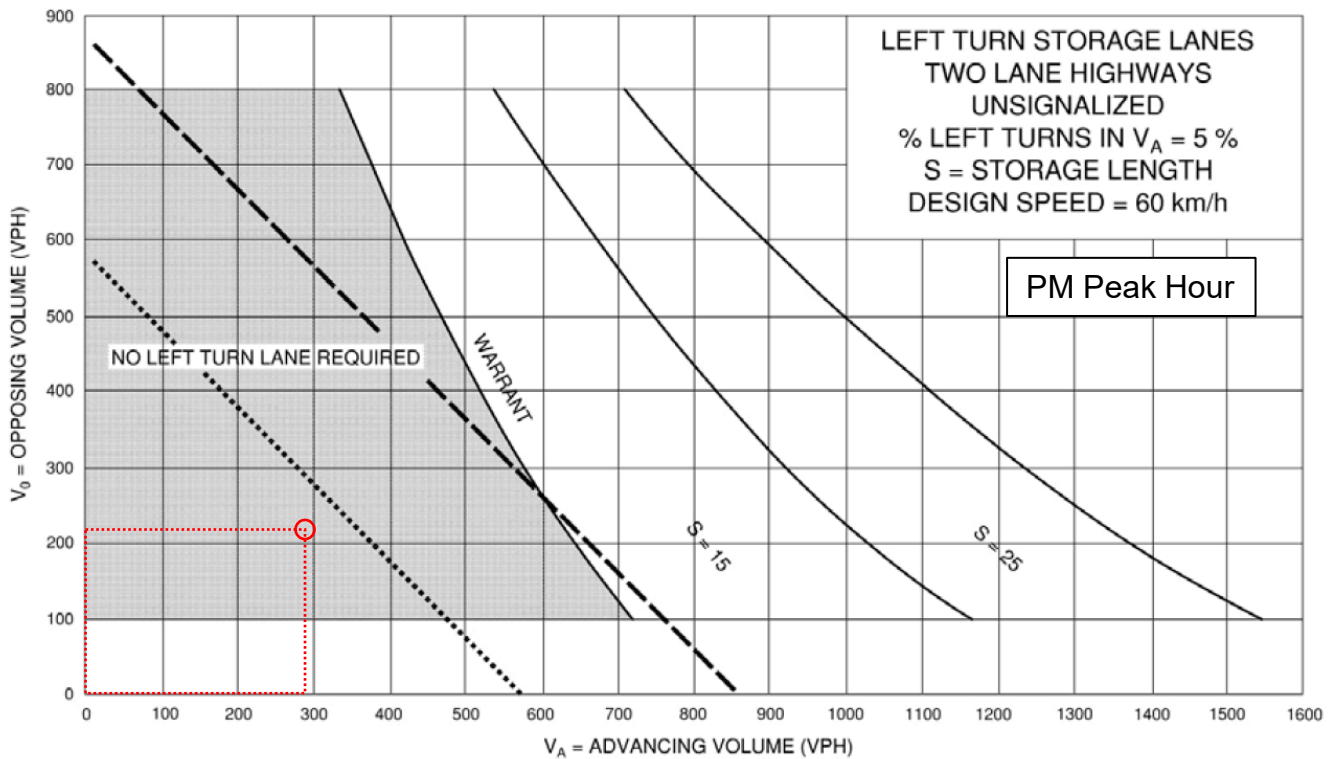
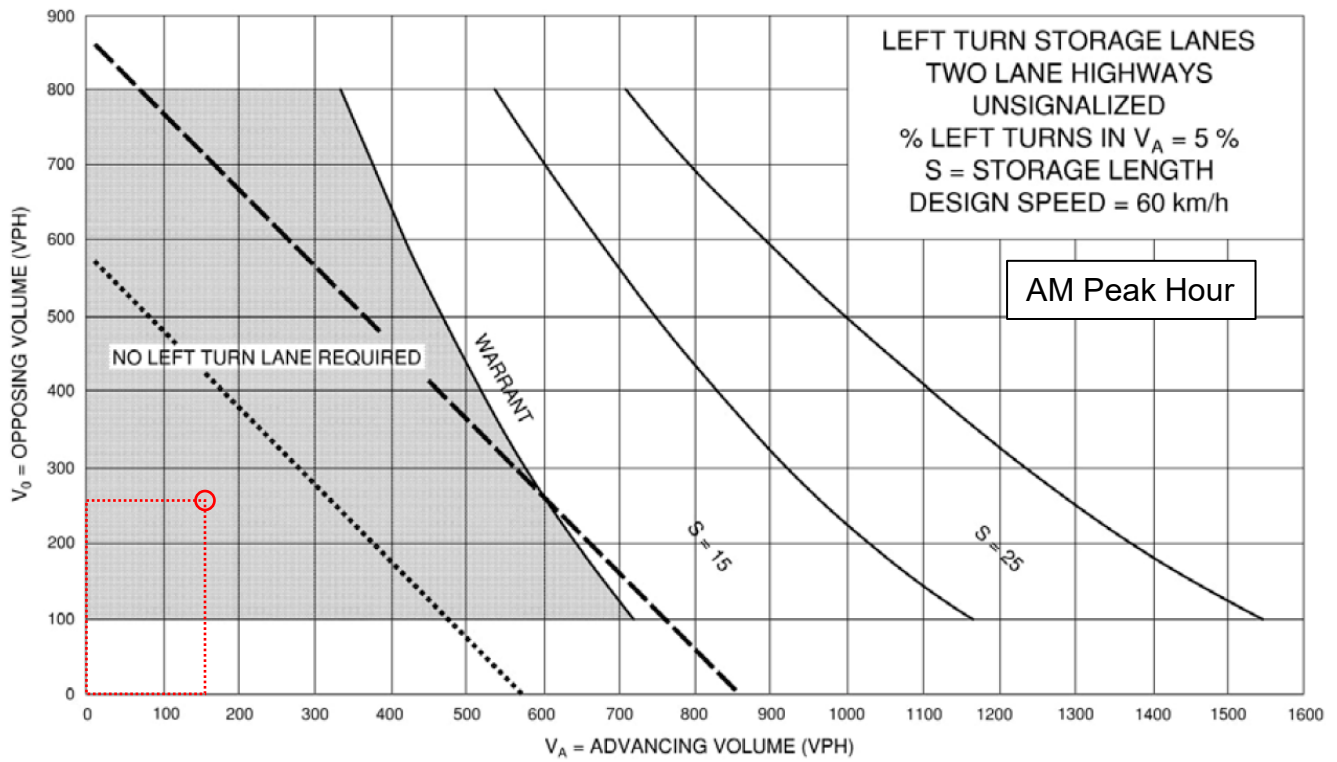
Northbound Left-Turn Lane Warrant Irvine Street at Bricker Avenue 2035 Background Horizon



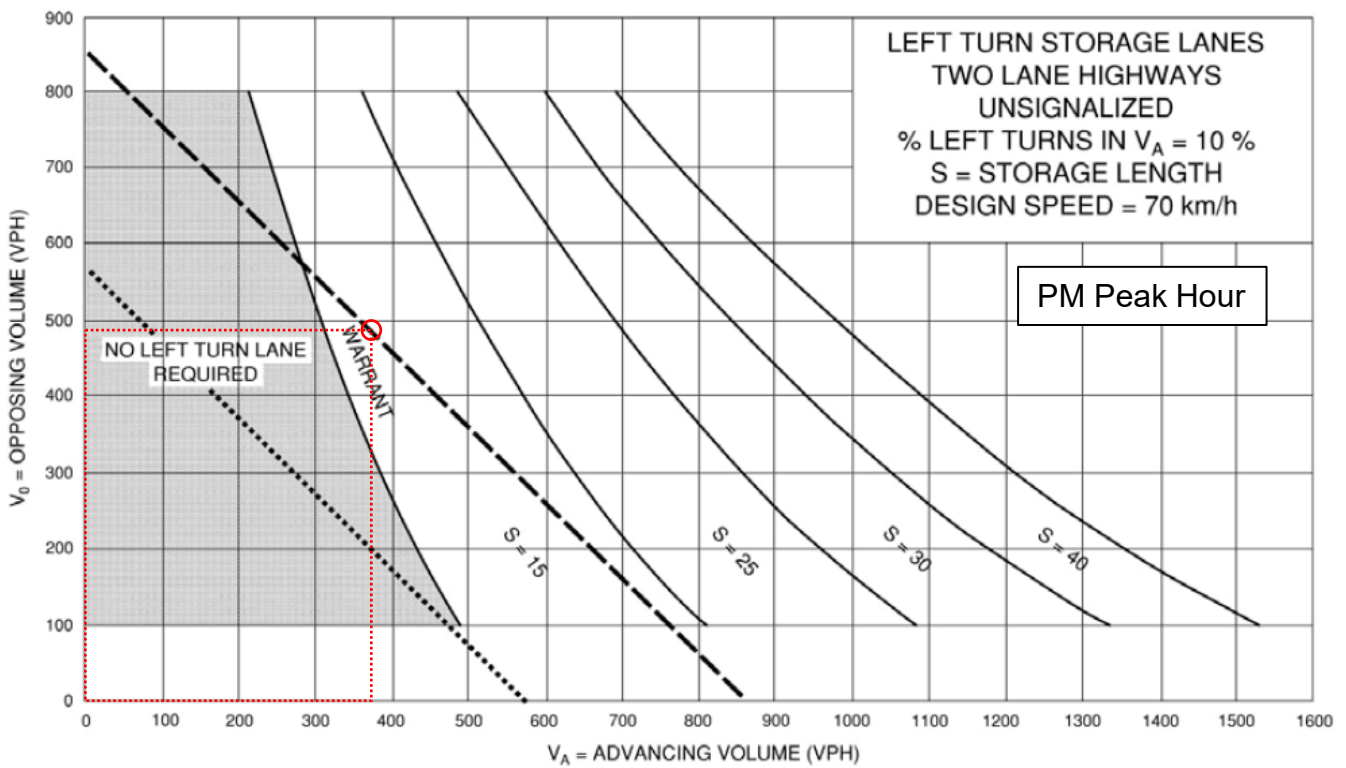
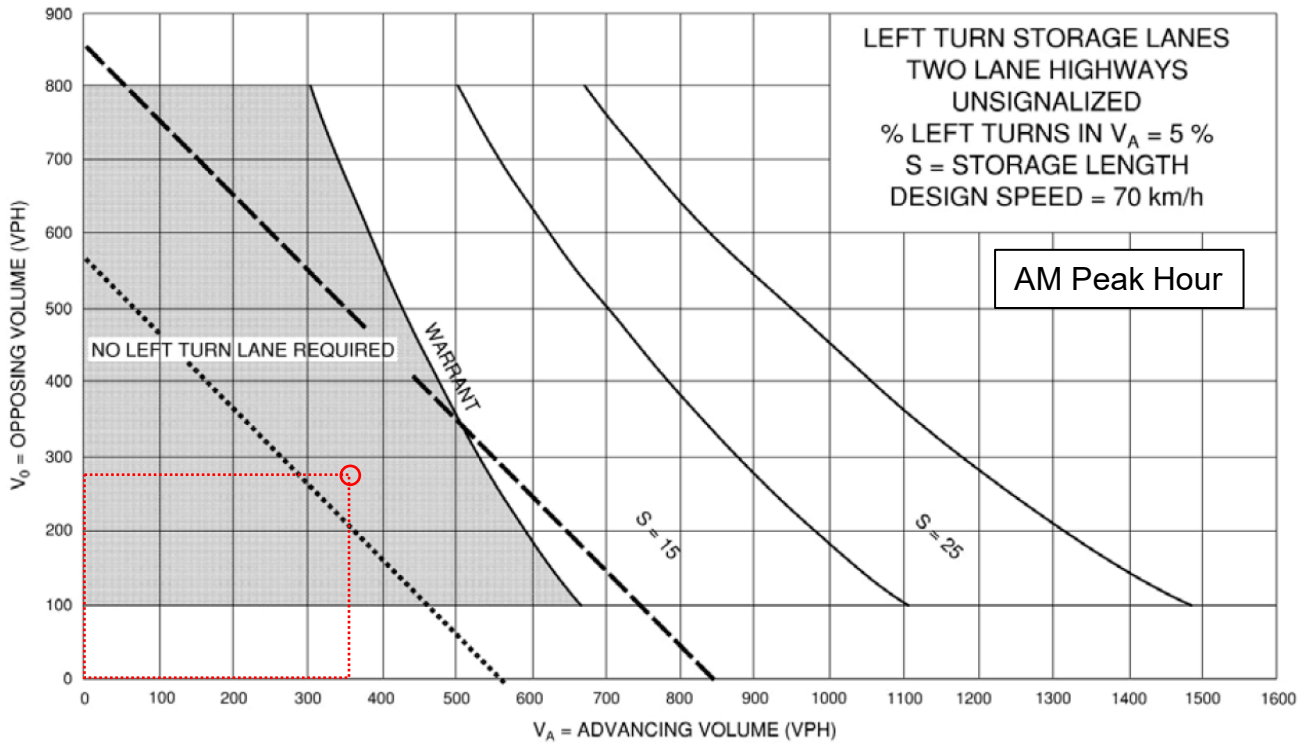
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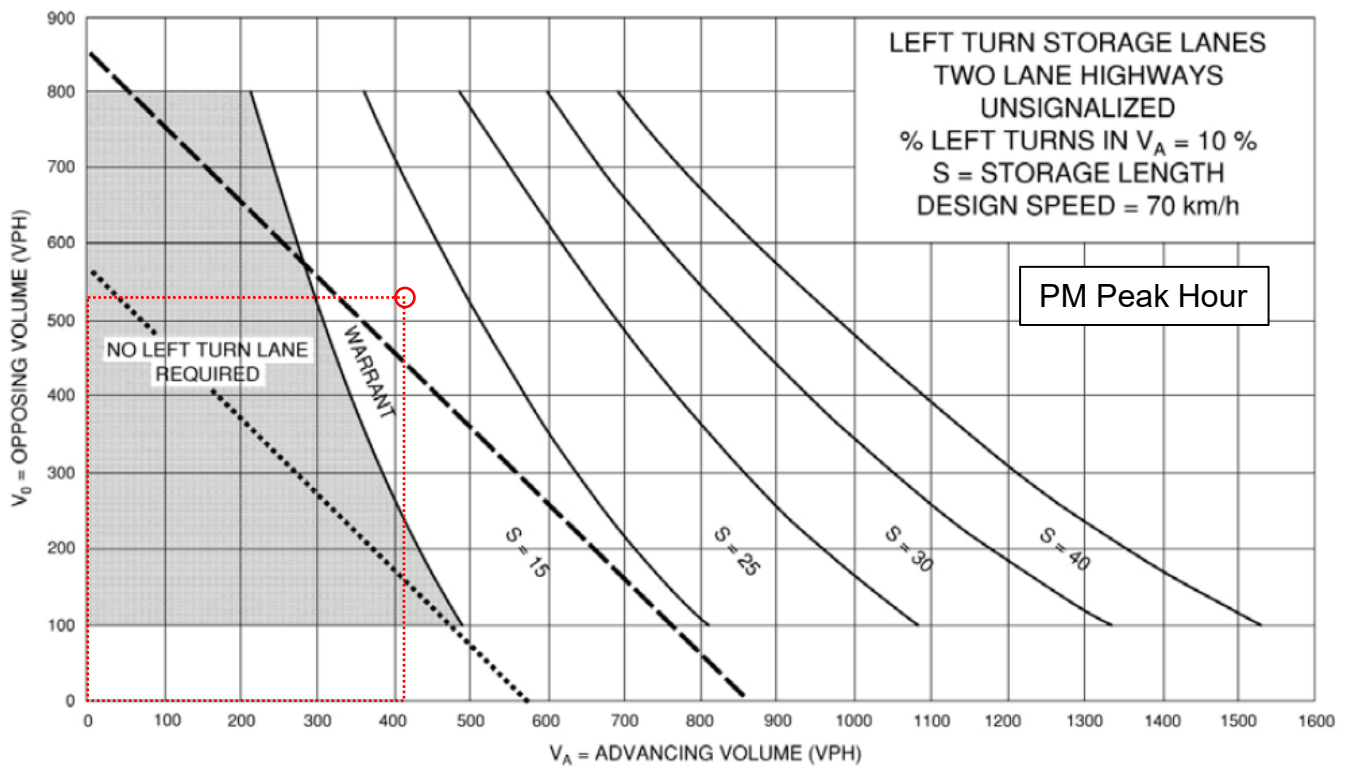
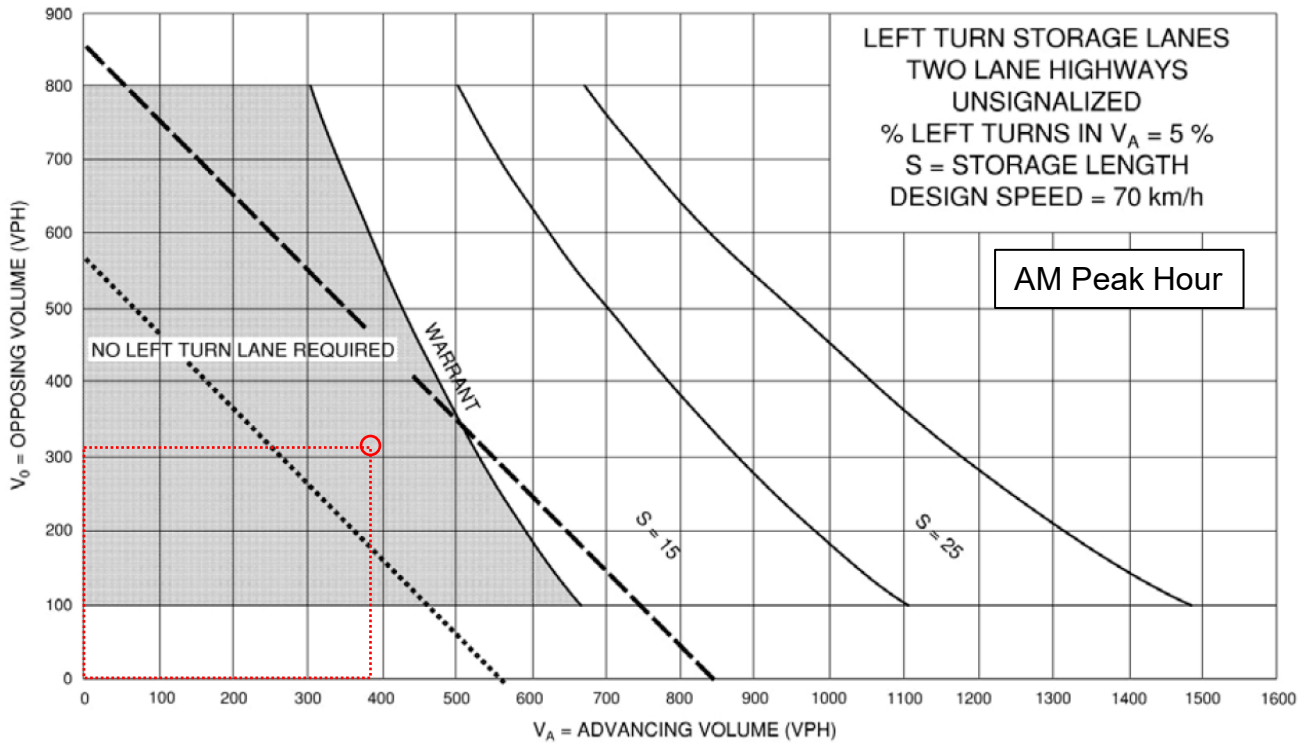
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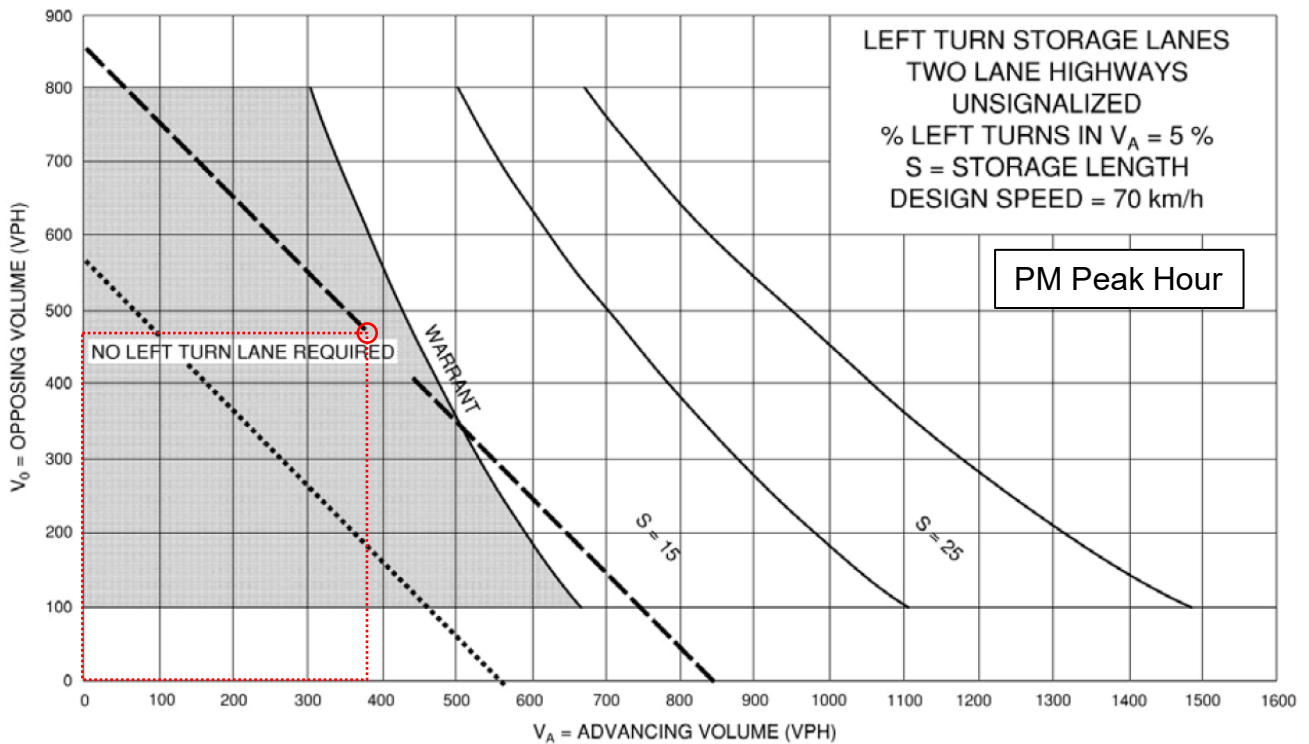
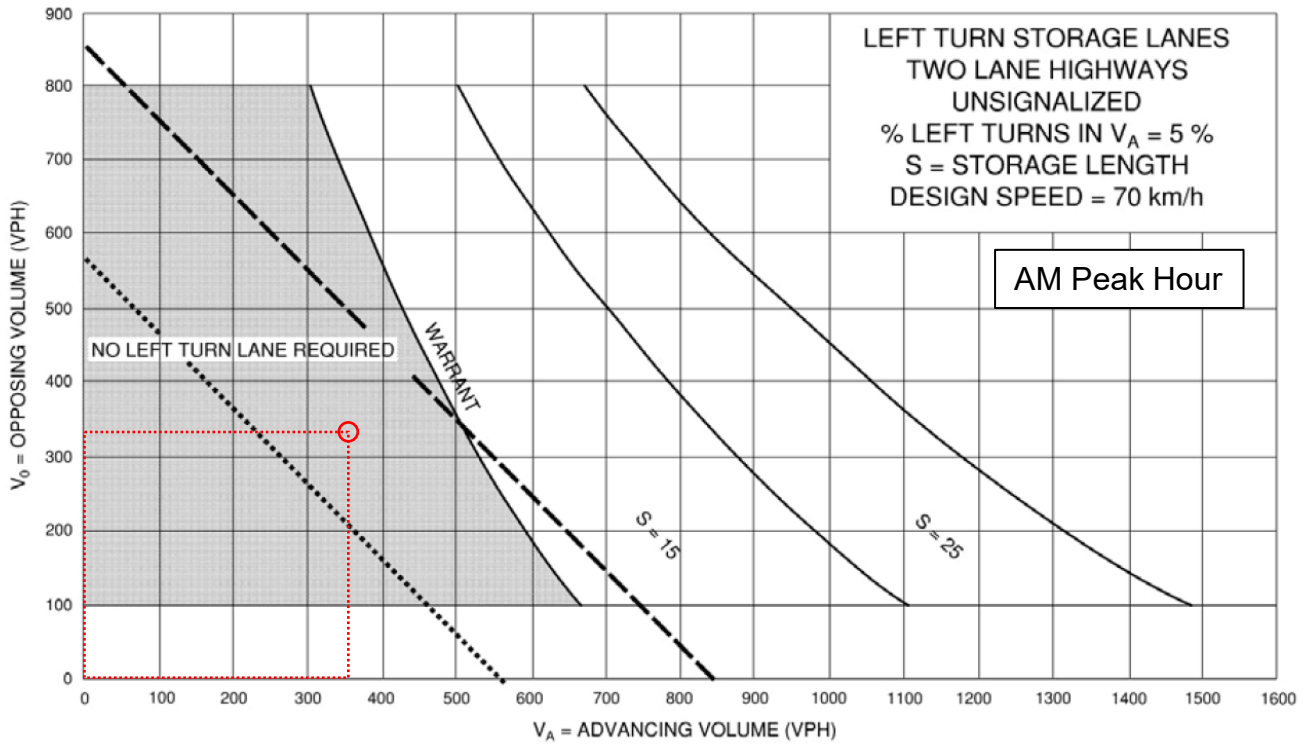
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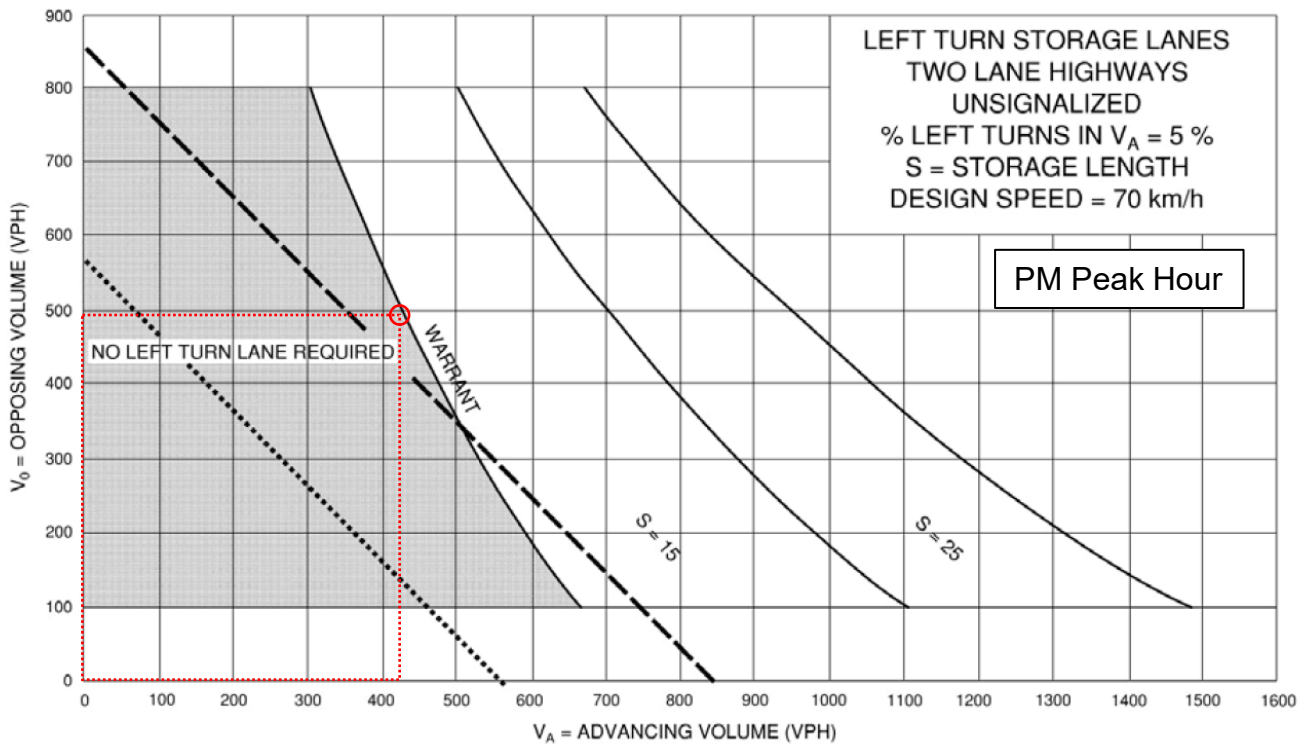
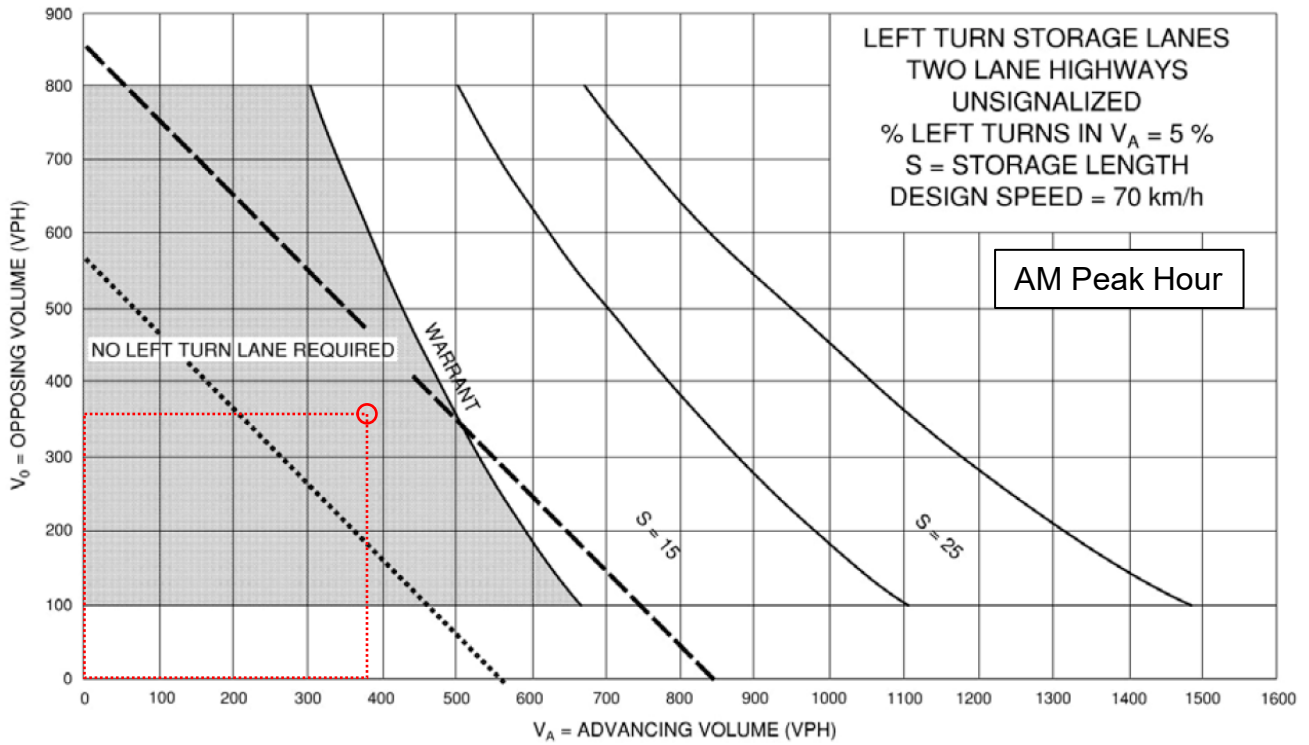
Westbound Left-Turn Lane Warrant Nichol Road 15 at Street A 2035 Total Horizon



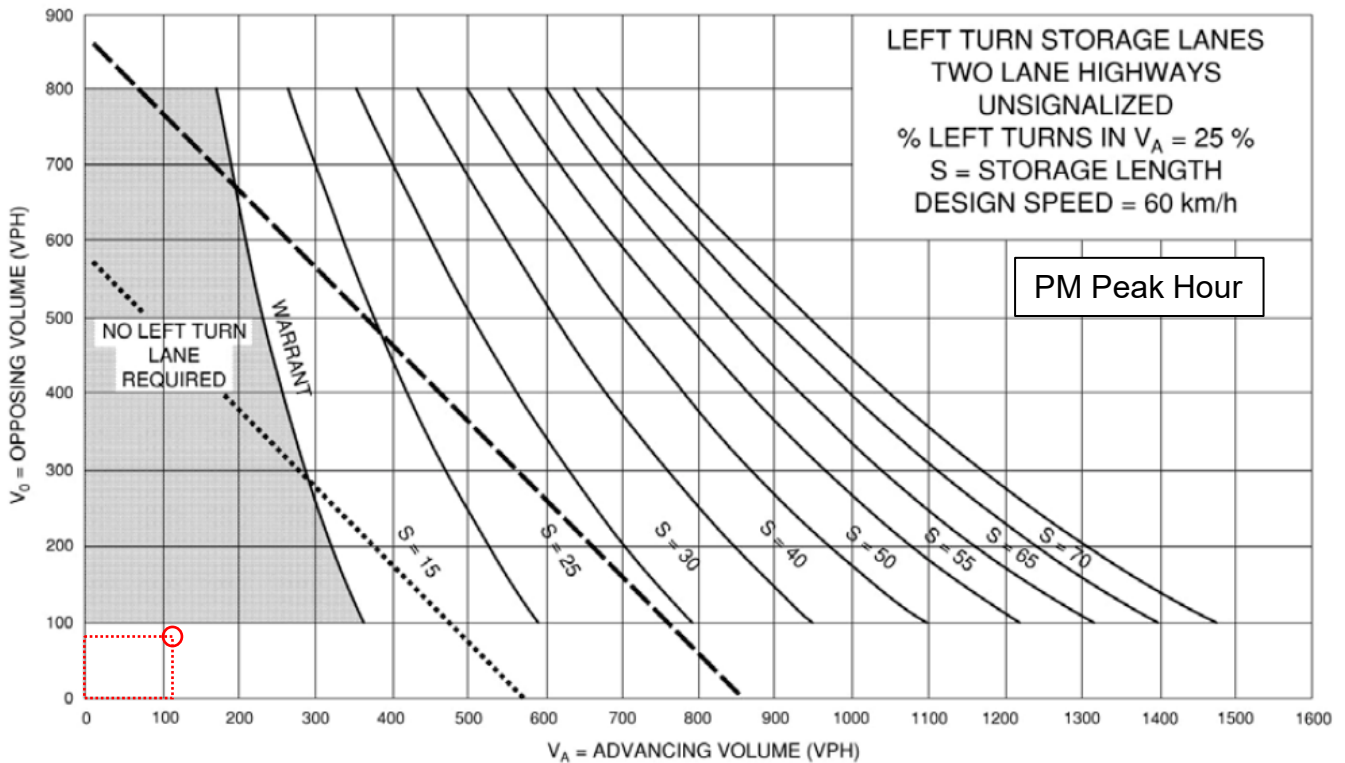
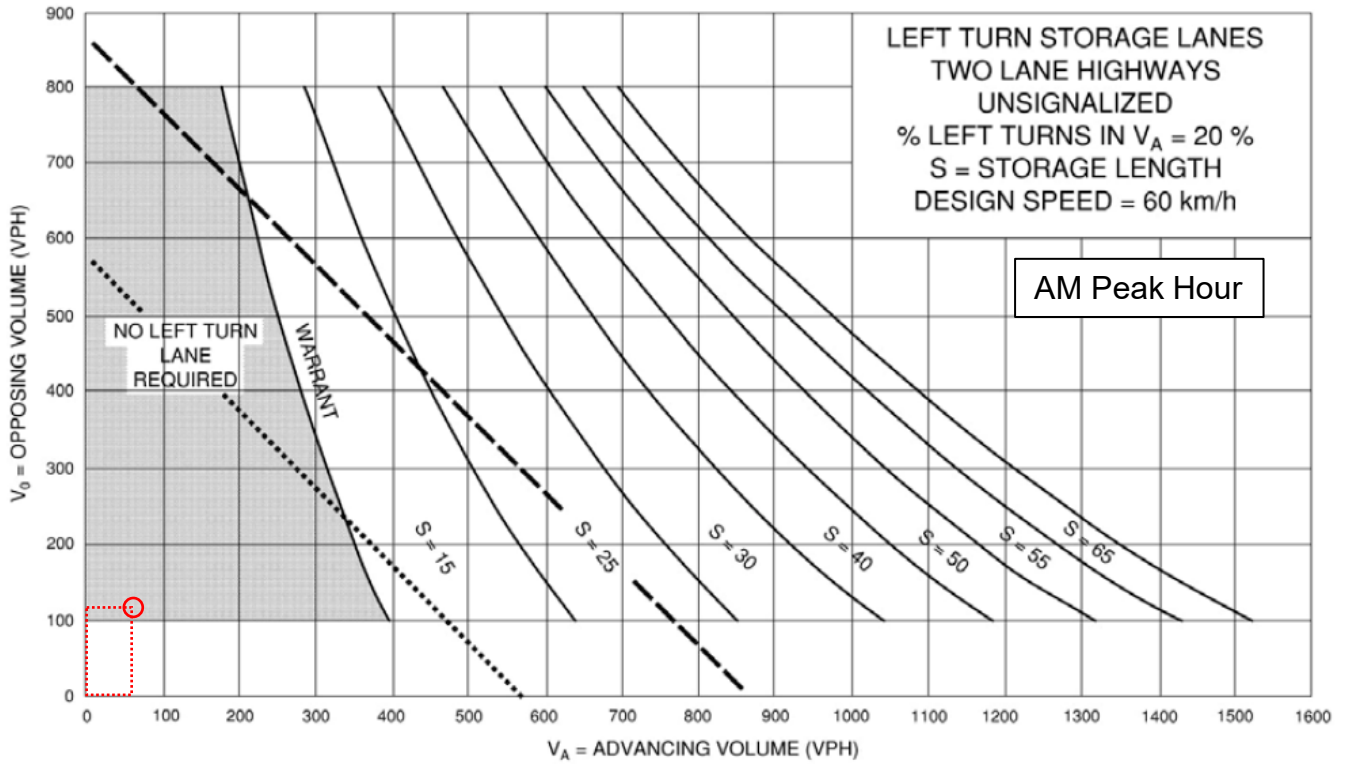
Westbound Left-Turn Lane Warrant Nichol Road 15 at Street A 2040 Total Horizon



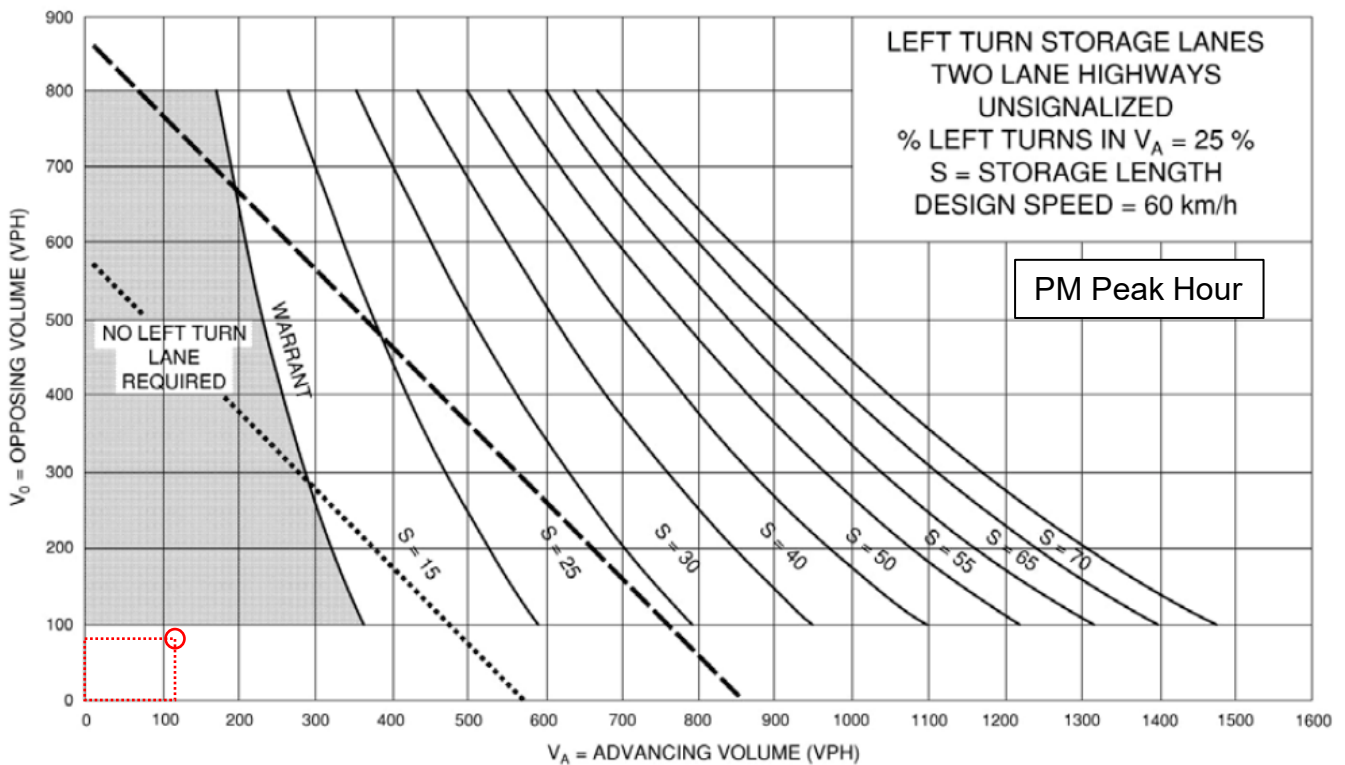
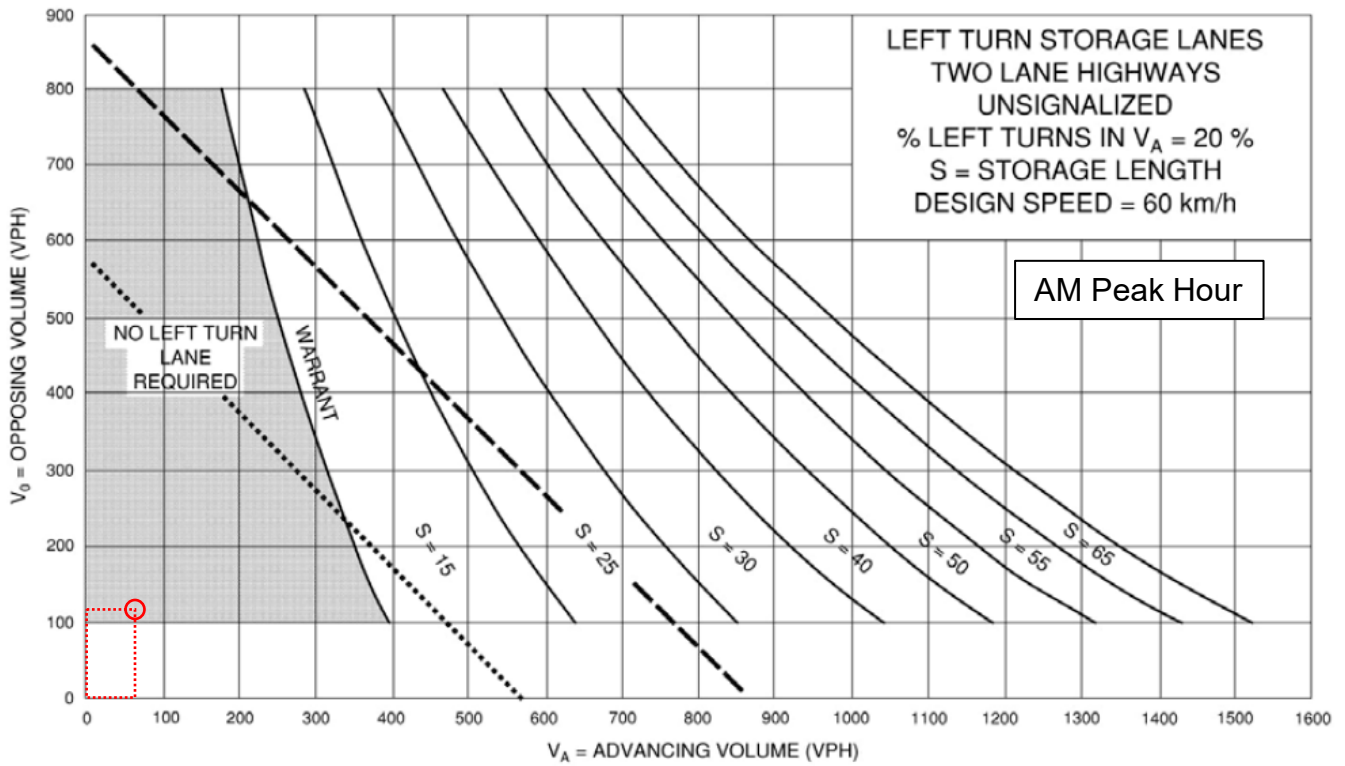
Westbound Left-Turn Lane Warrant Nichol Road 15 at Street C 2035 Total Horizon



Westbound Left-Turn Lane Warrant Nichol Road 15 at Street C 2040 Total Horizon

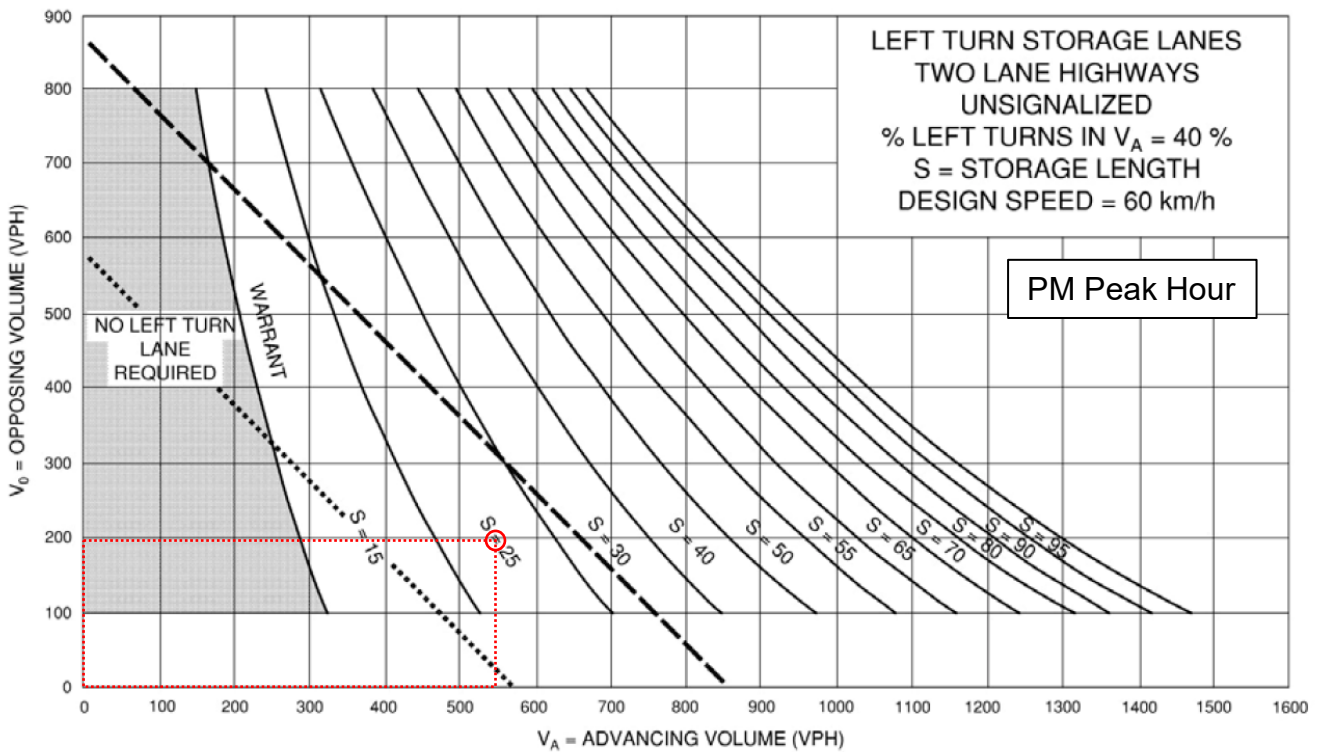
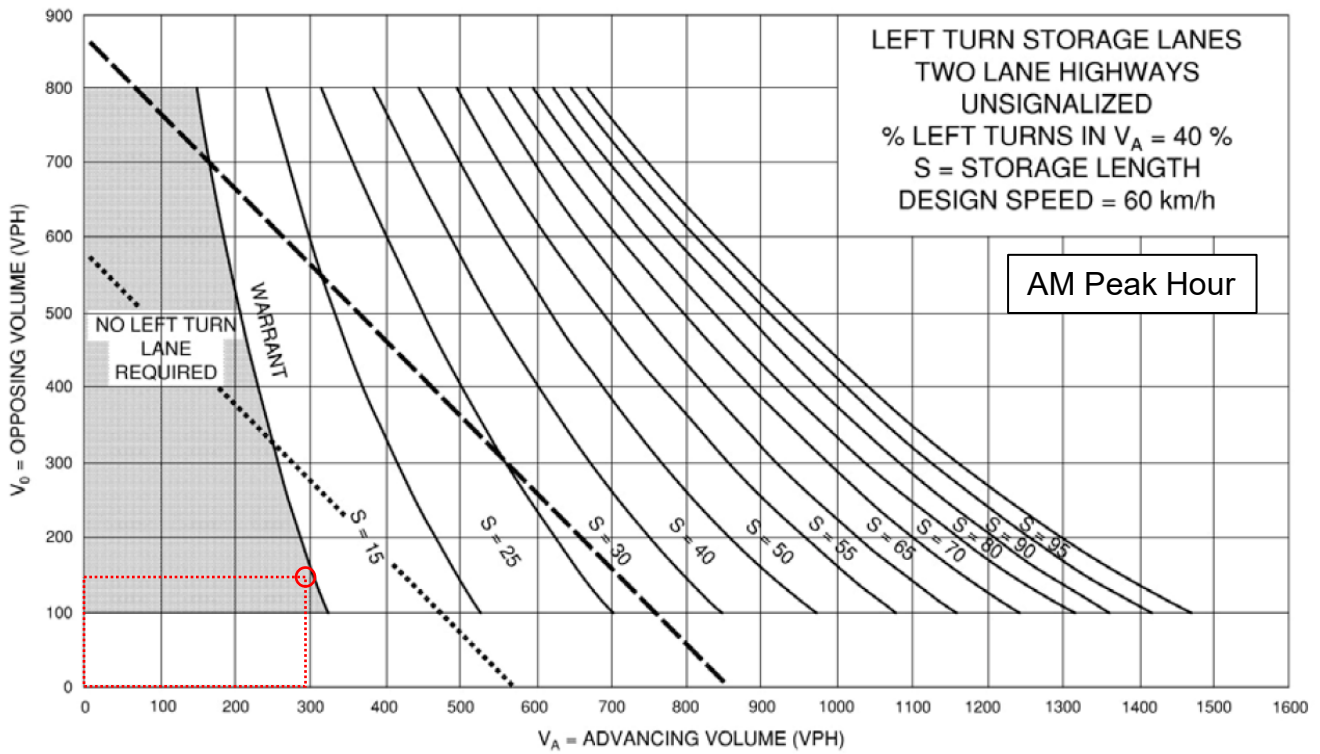


Northbound Left-Turn Lane Warrant Gerrie Road at Street C 2035 Total Horizon

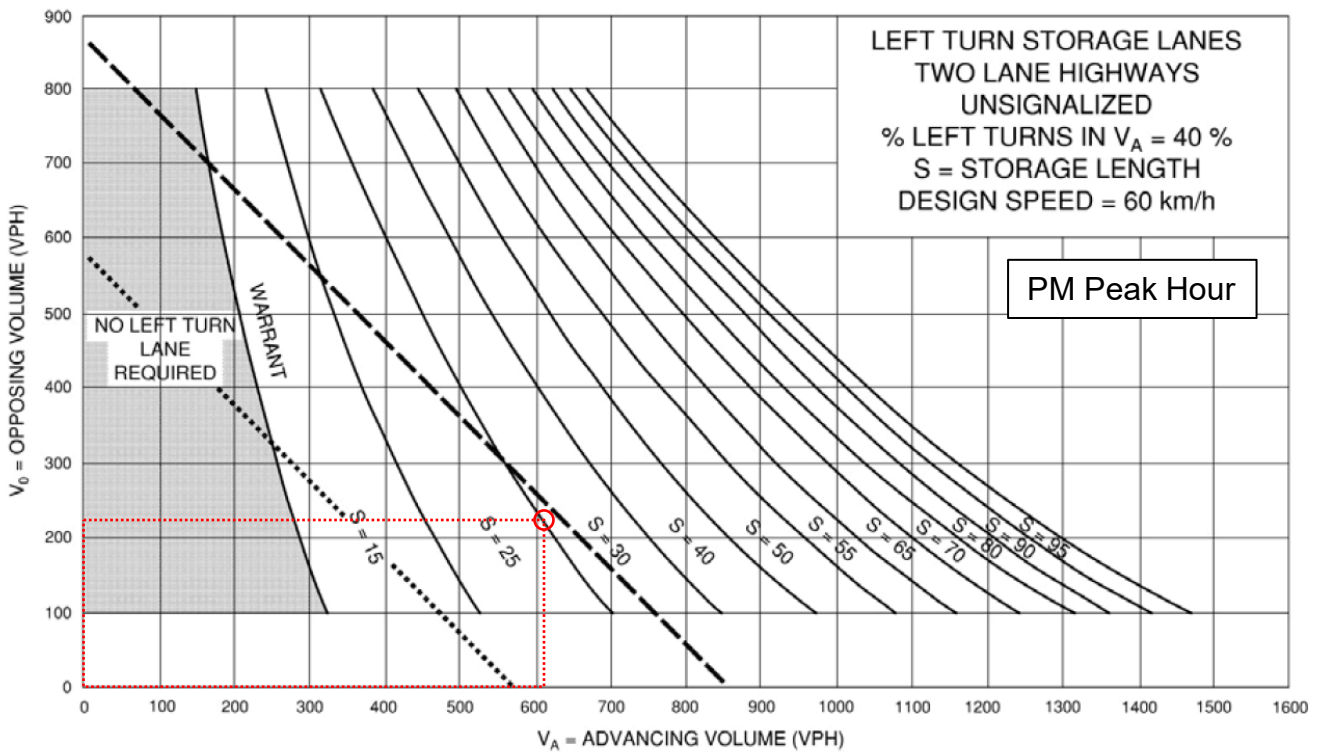
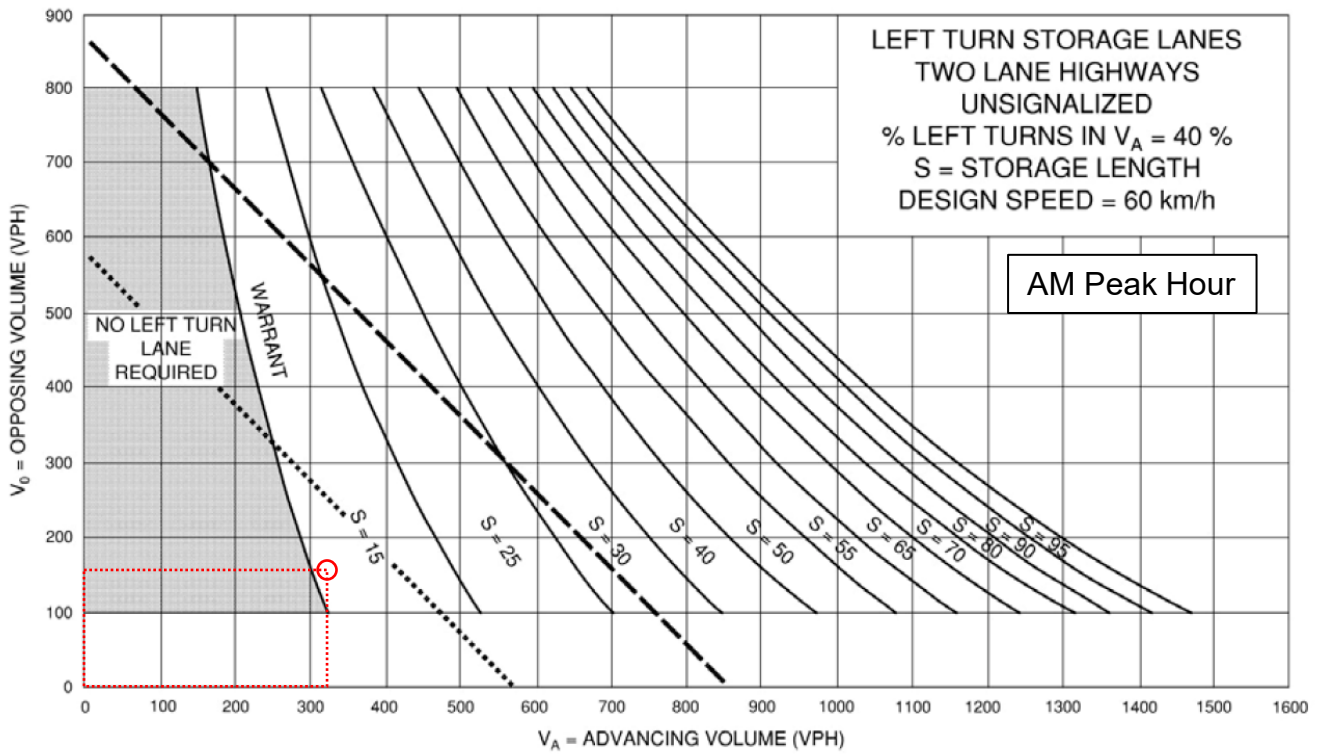


Northbound Left-Turn Lane Warrant Gerrie Road at Street C 2040 Total Horizon

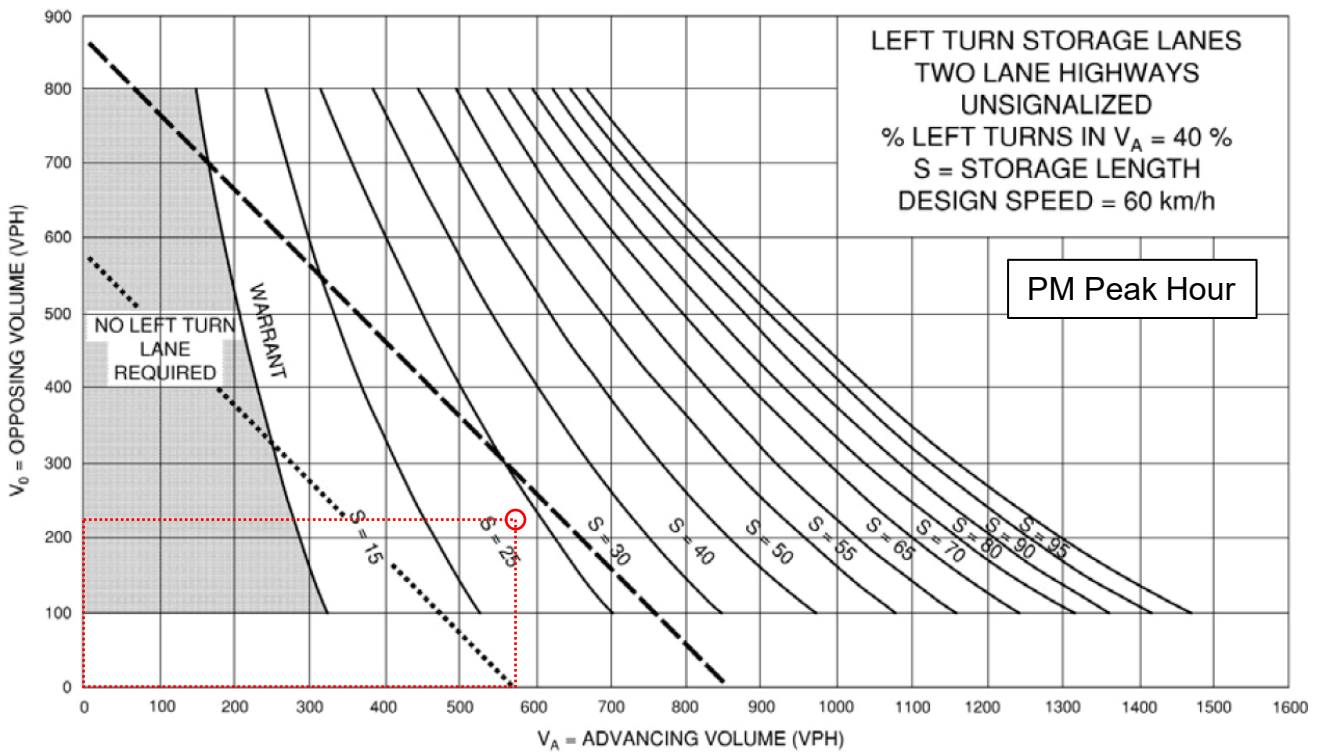
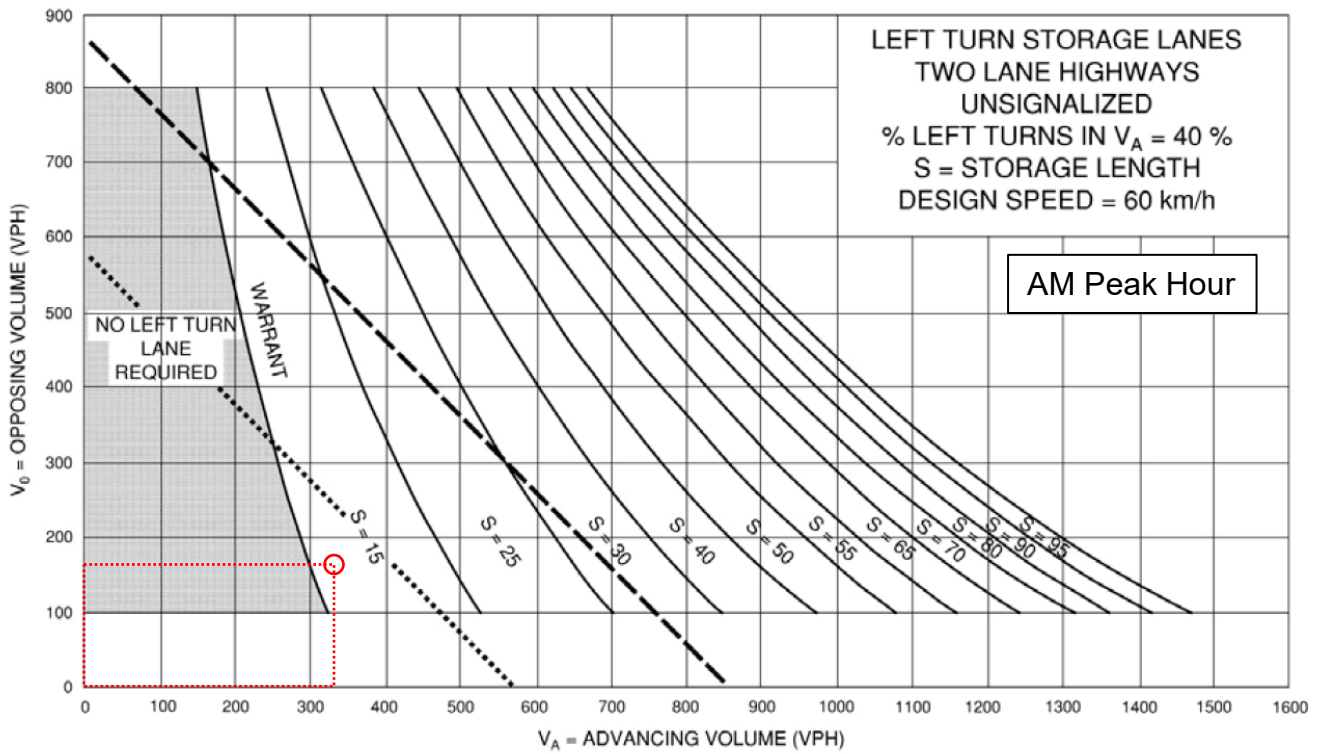




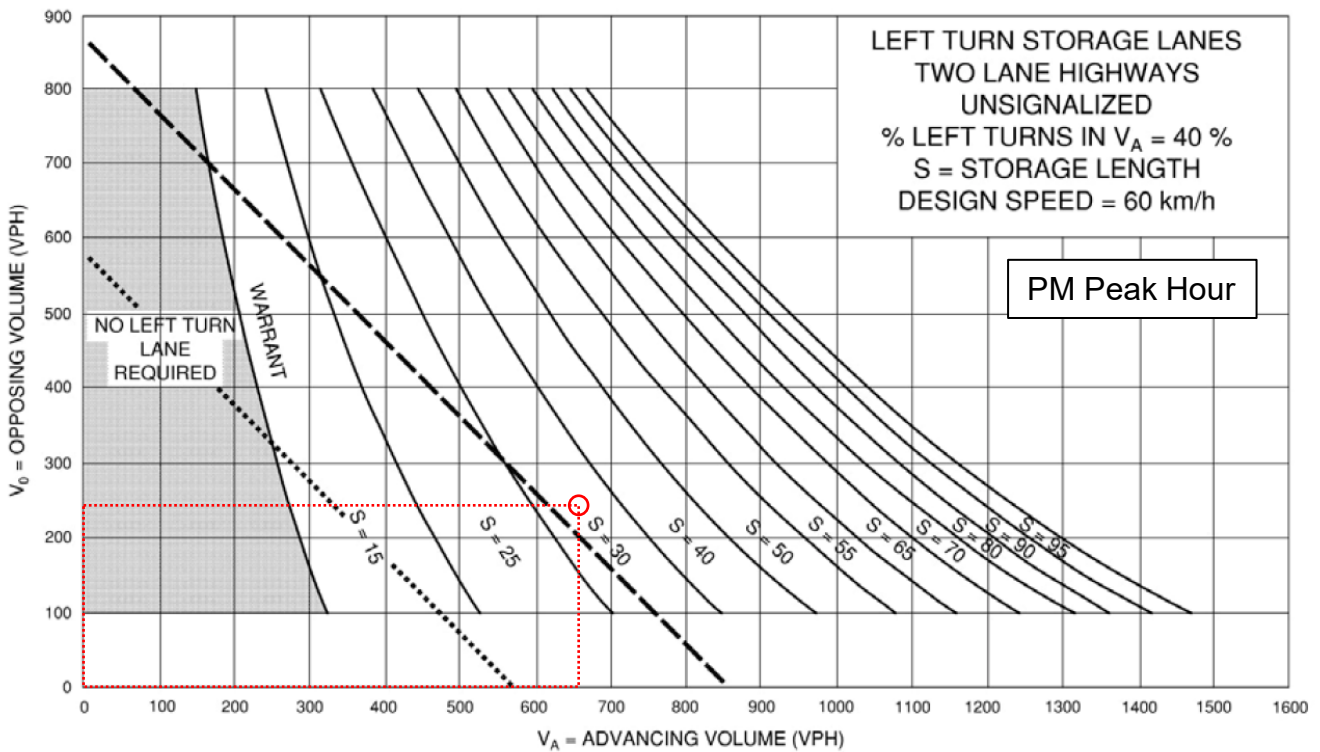
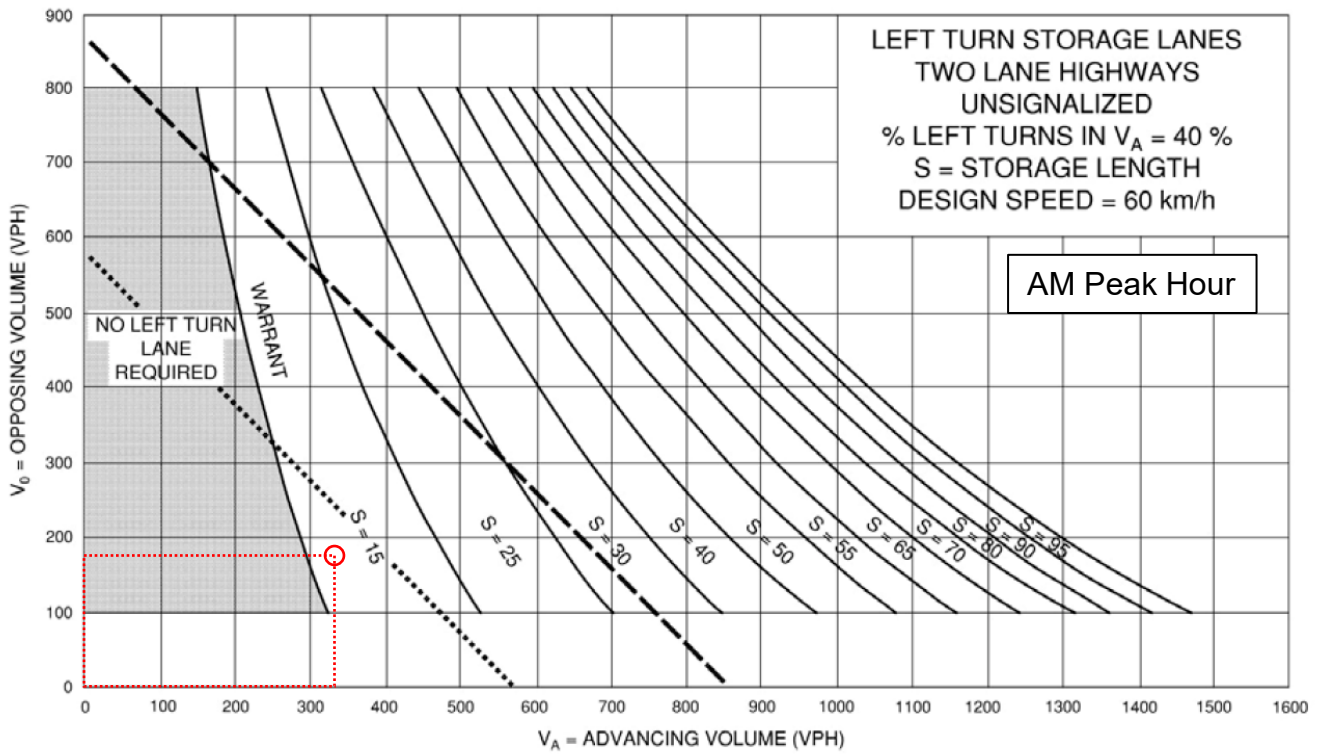
Southbound Left-Turn Lane Warrant Geddes Street (WR18) at James Street 2035 Background Horizon



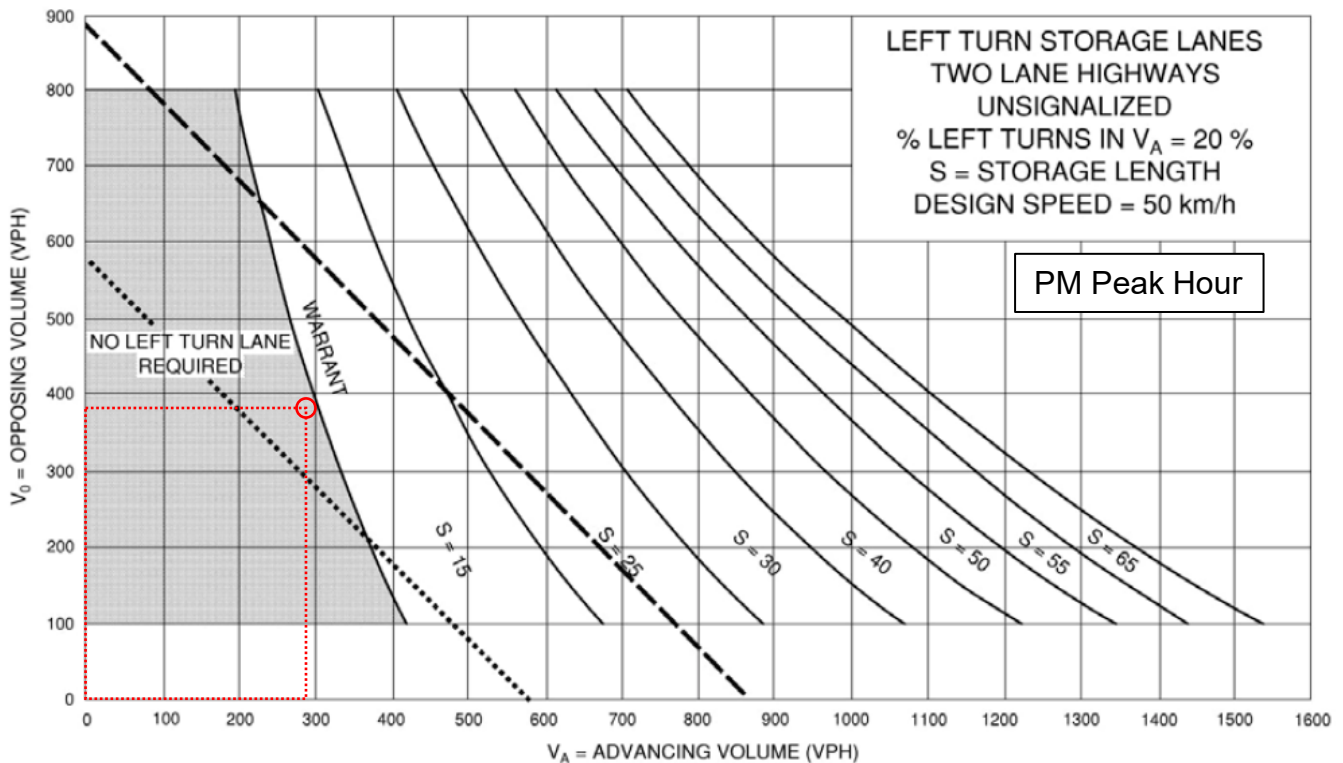
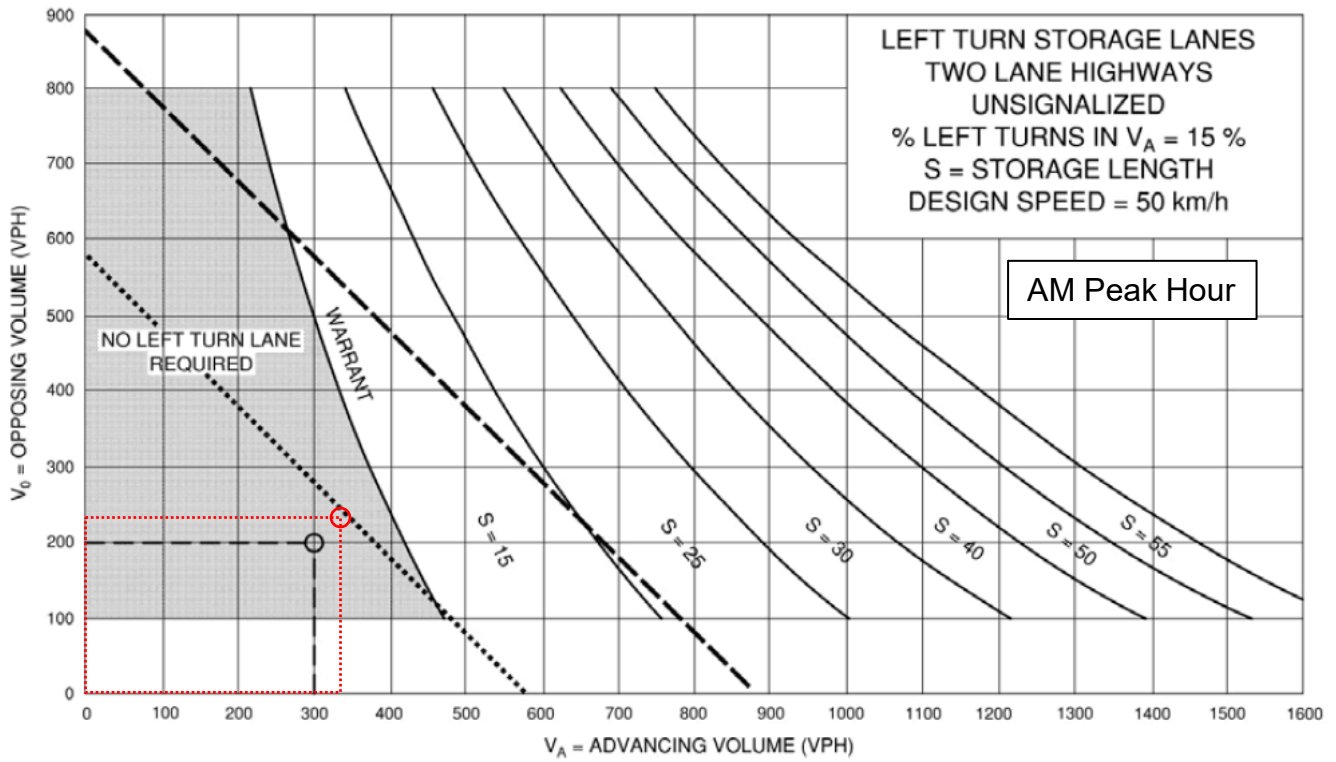
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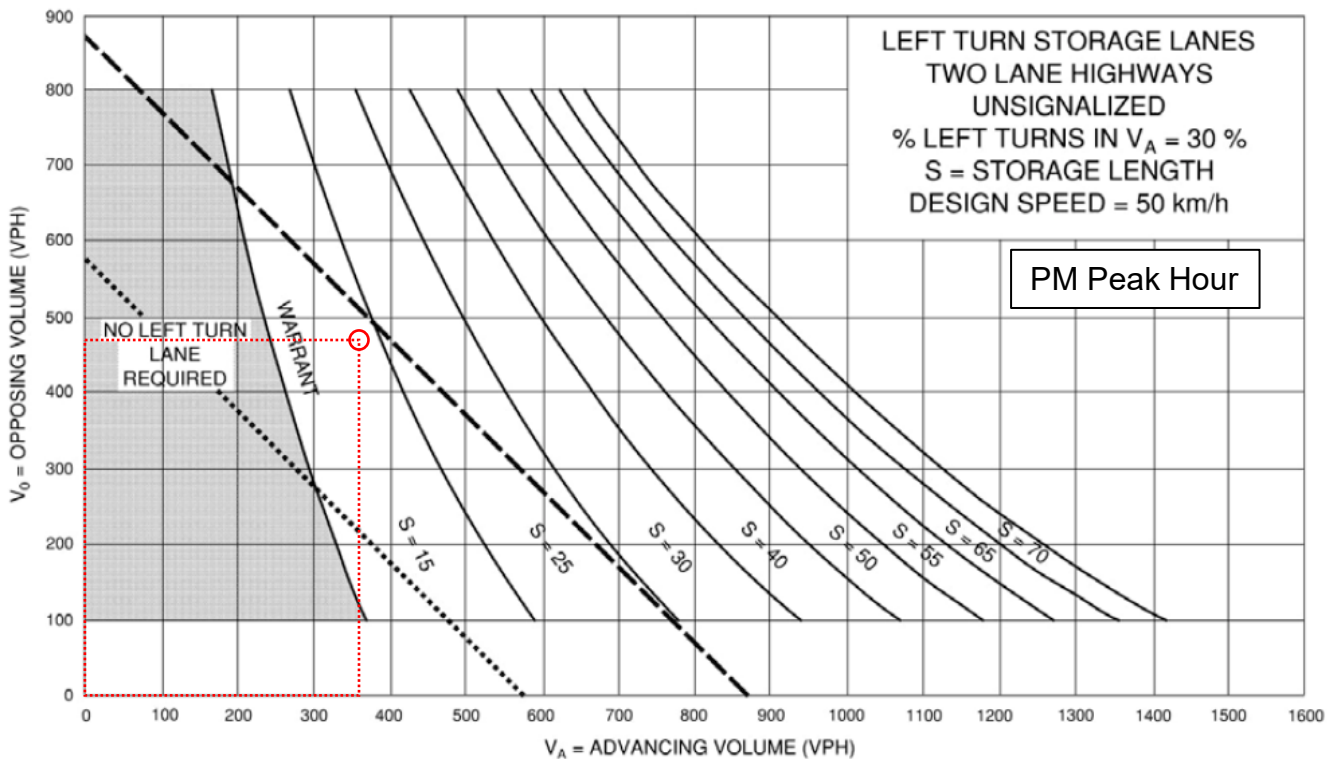
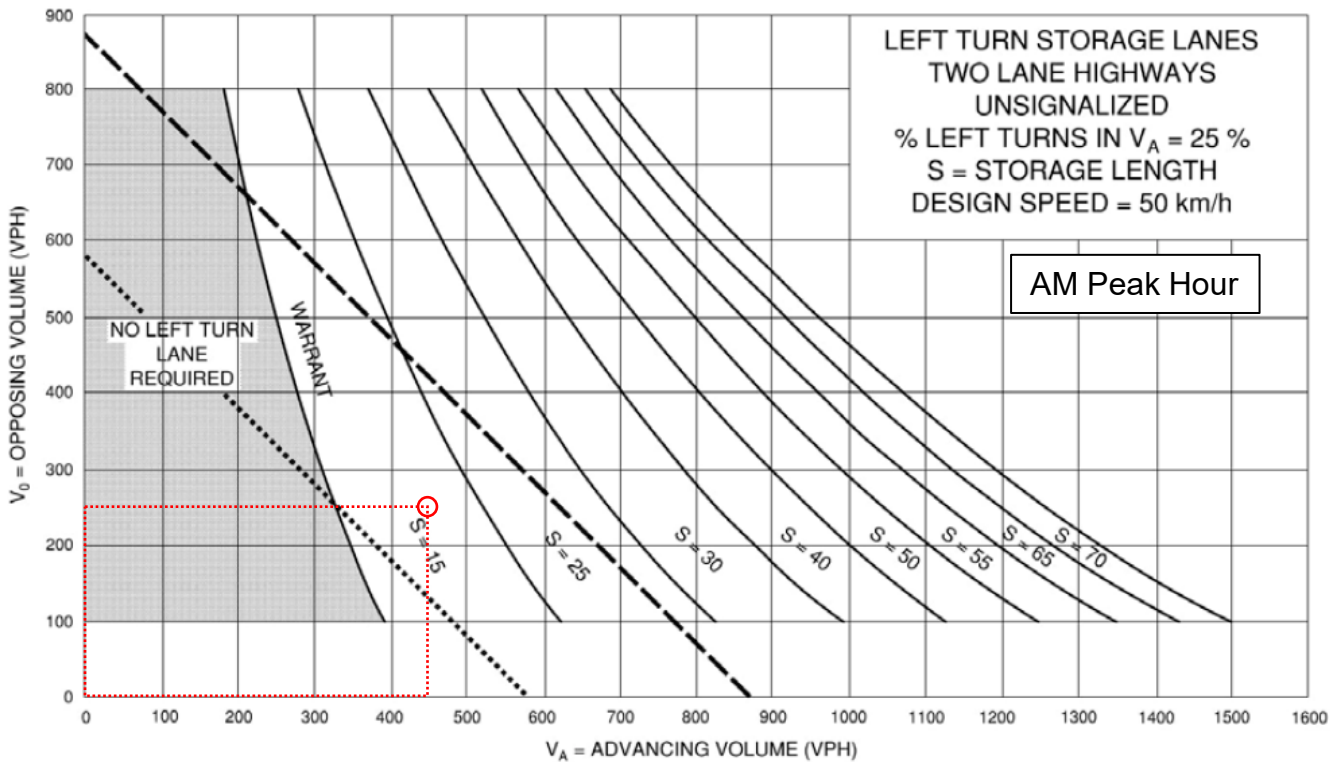
Southbound Left-Turn Lane Warrant Geddes Street (WR18) at James Street 2040 Background Horizon



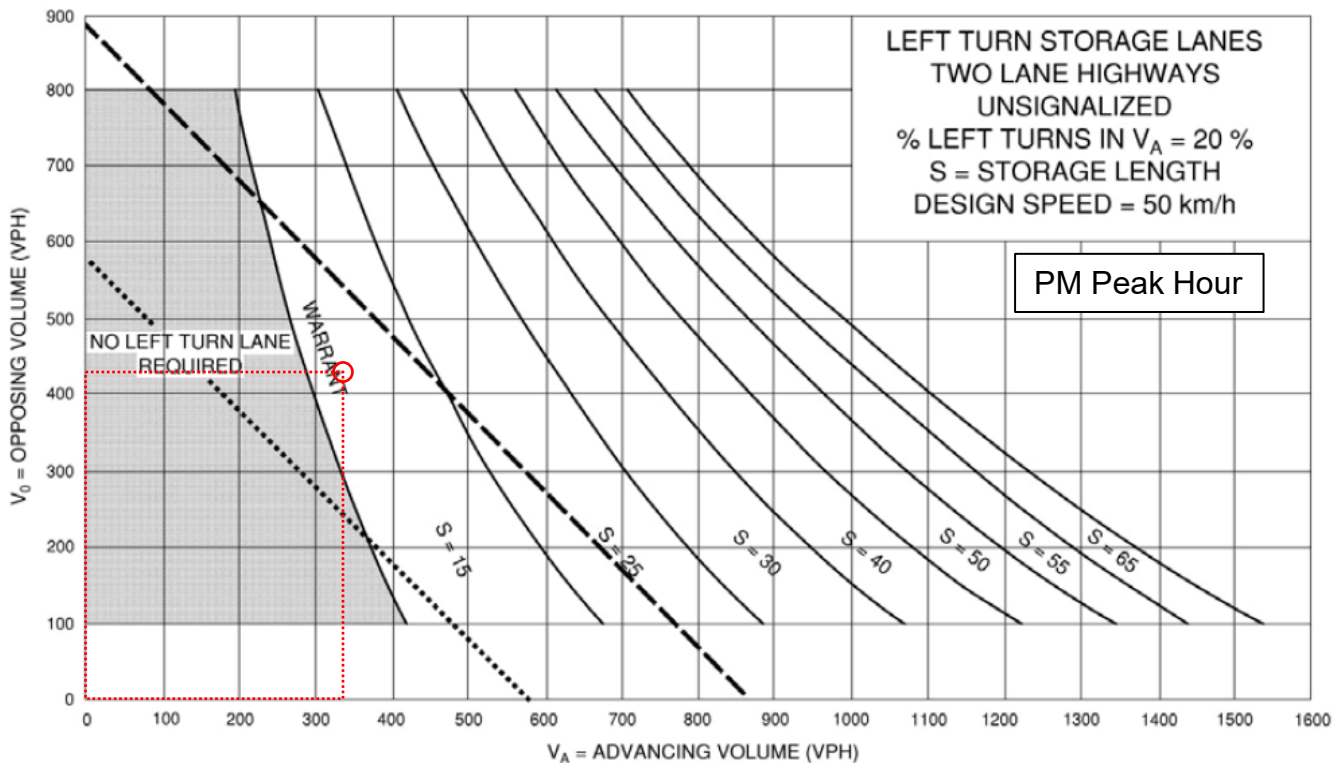
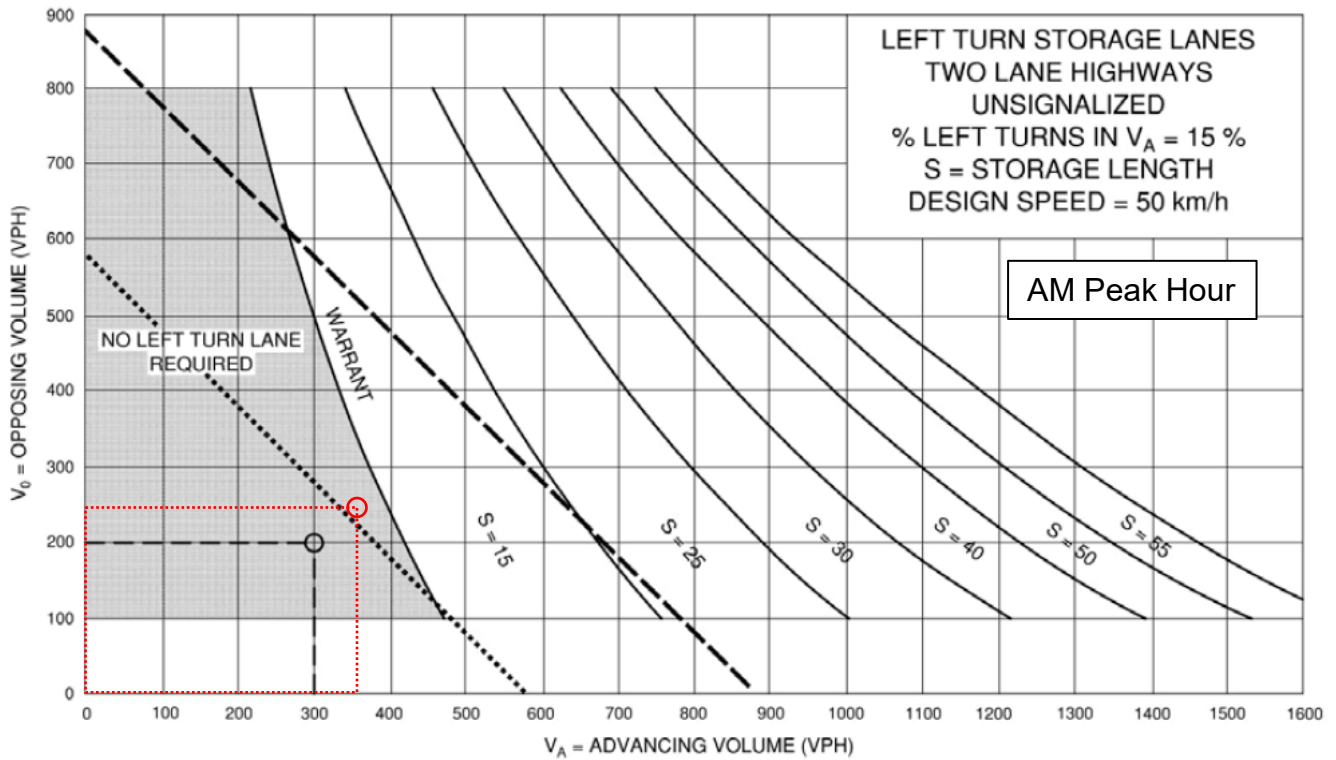
Southbound Left-Turn Lane Warrant Geddes Street (WR18) at James Street 2040 Total Horizon



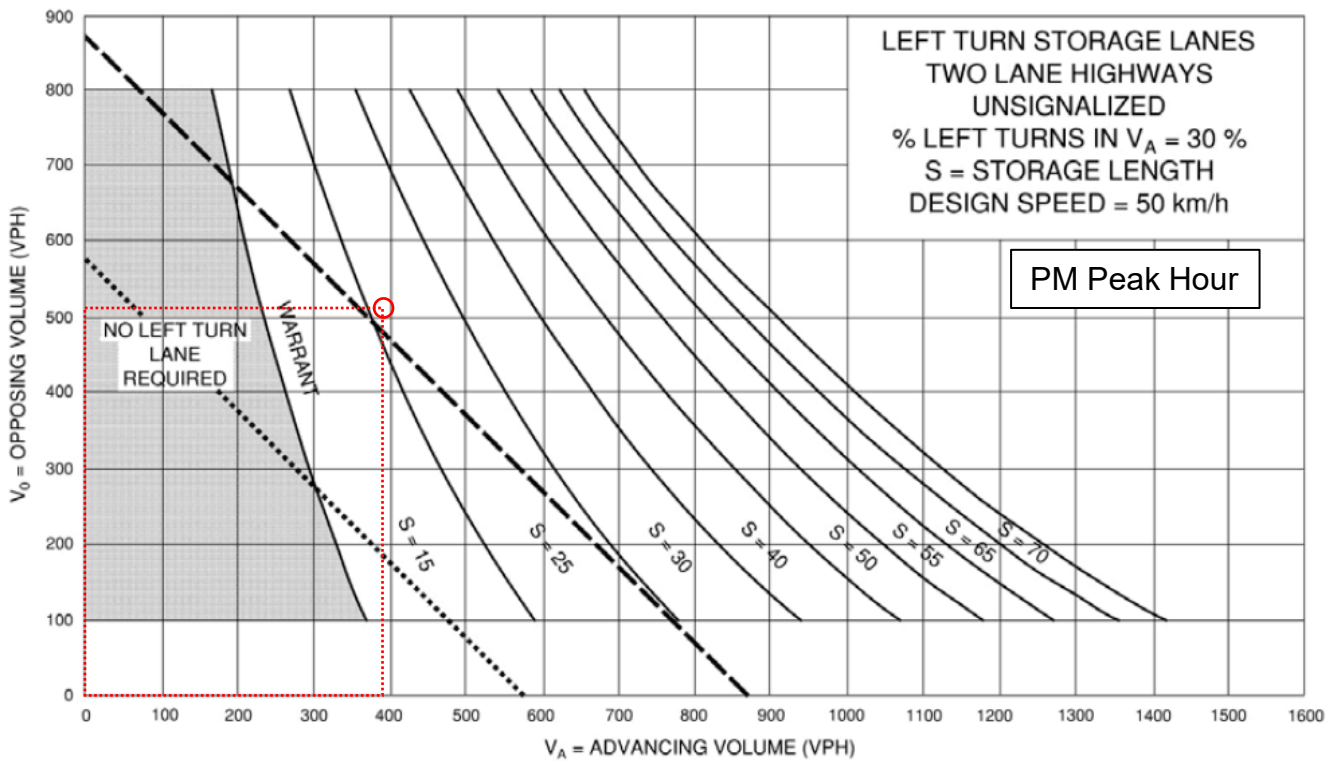
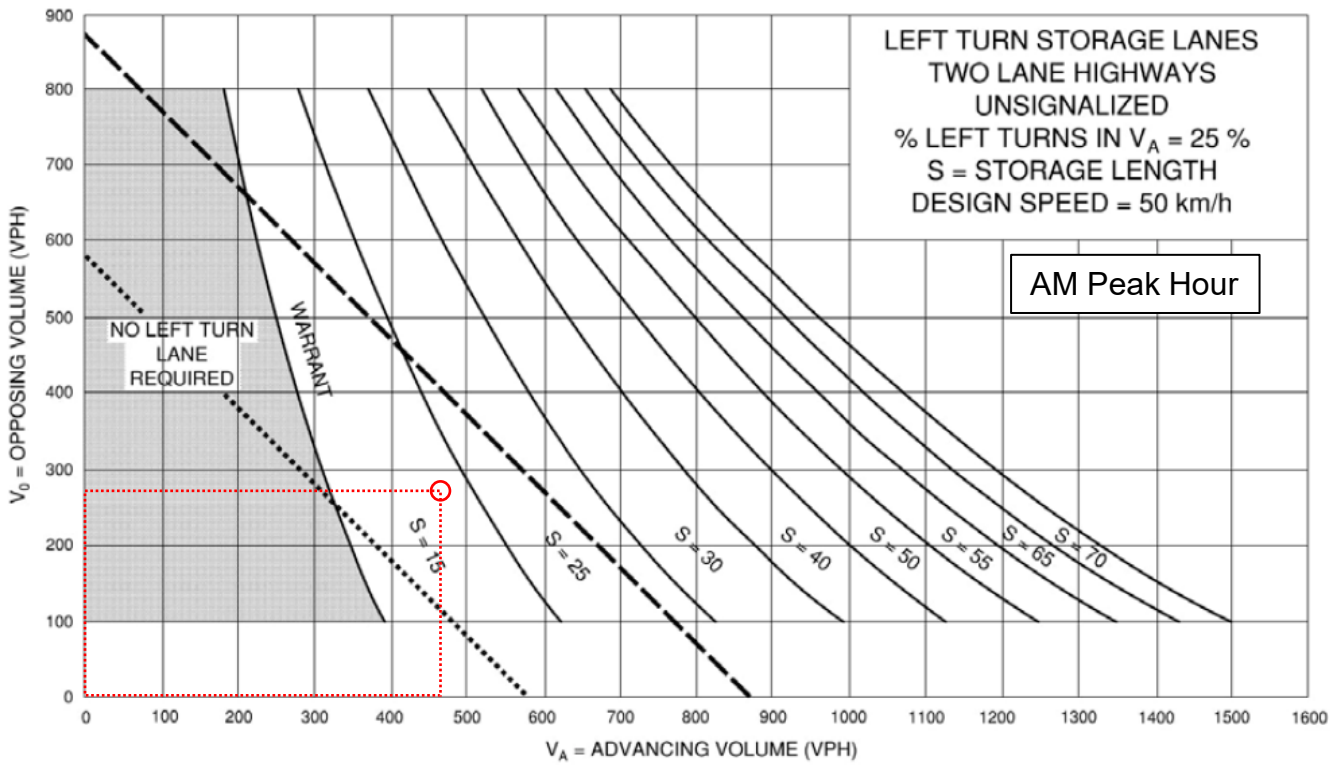
Westbound Left-Turn Lane Warrant Nichol Road 15 at Irvine Street 2035 Background Horizon



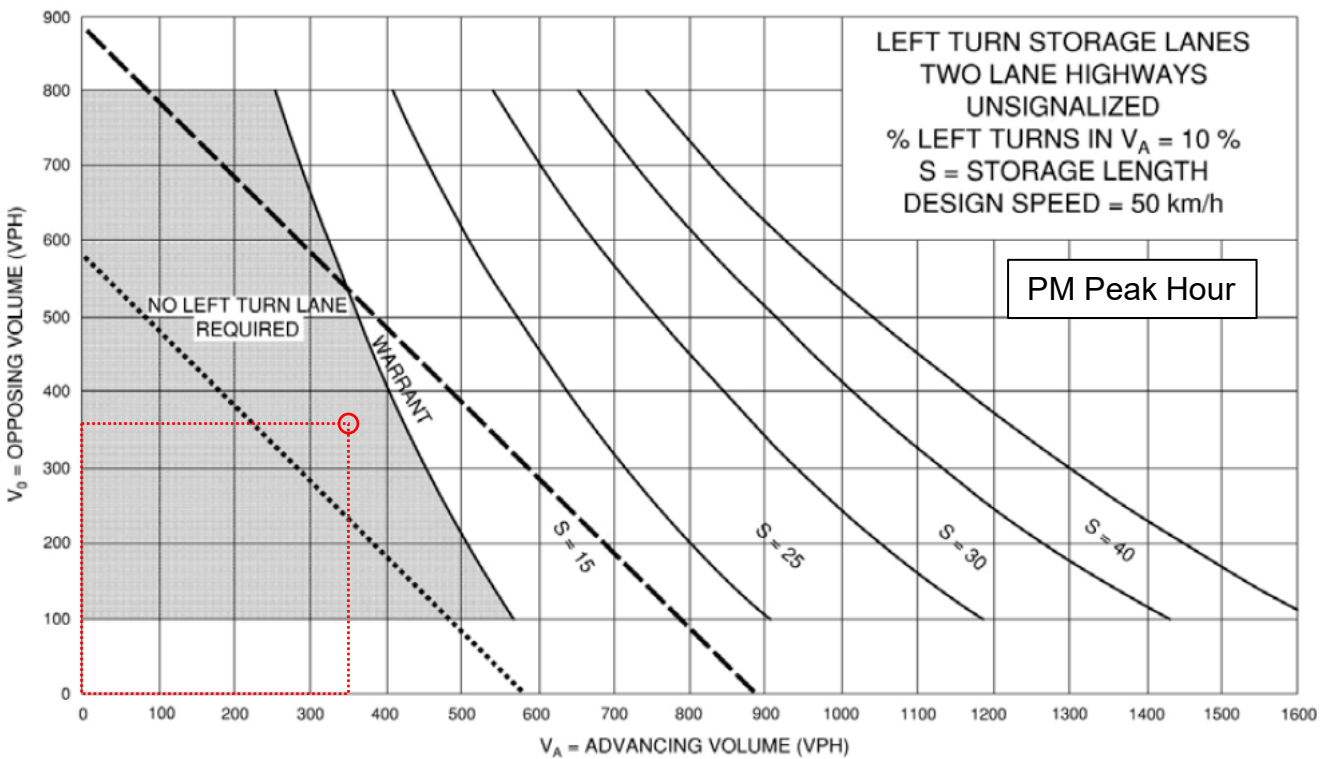
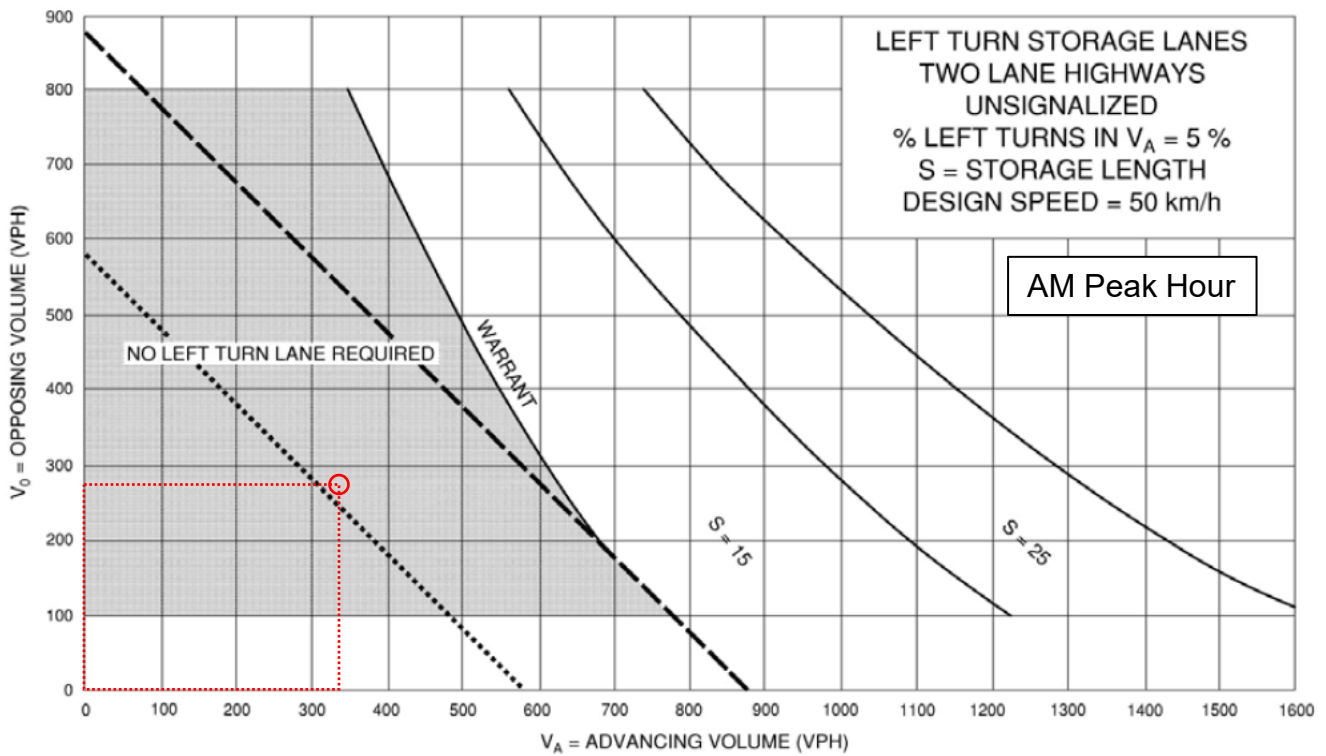
Westbound Left-Turn Lane Warrant Nichol Road 15 at Irvine Street 2035 Total Horizon



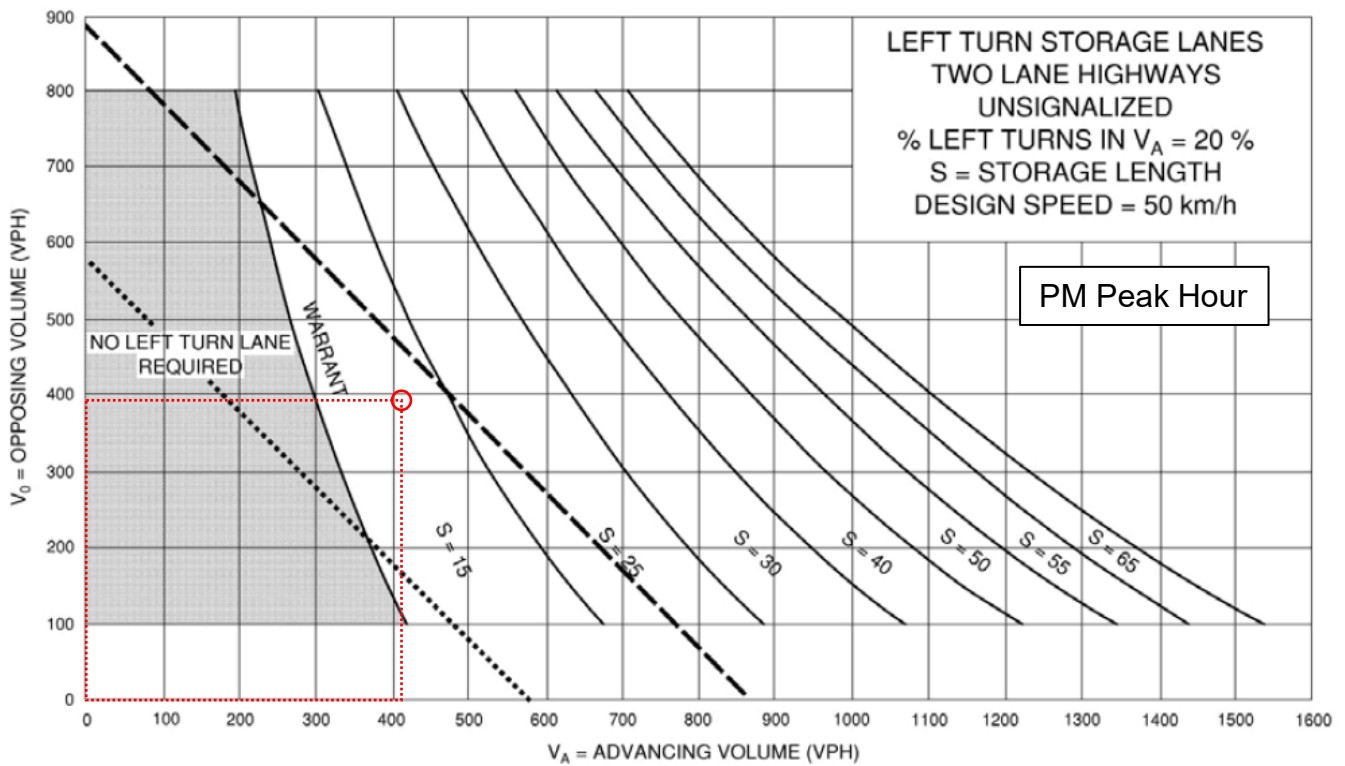
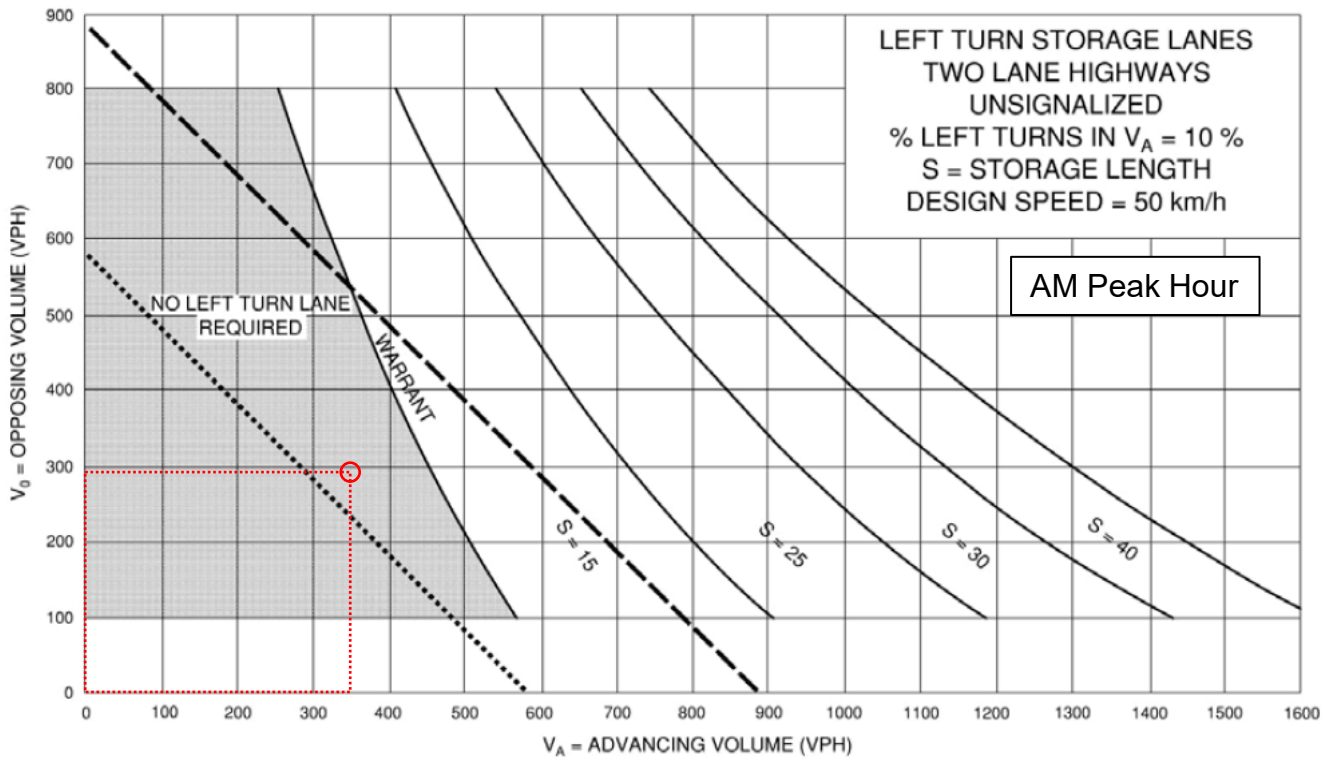
Westbound Left-Turn Lane Warrant Nichol Road 15 at Irvine Street 2040 Background Horizon



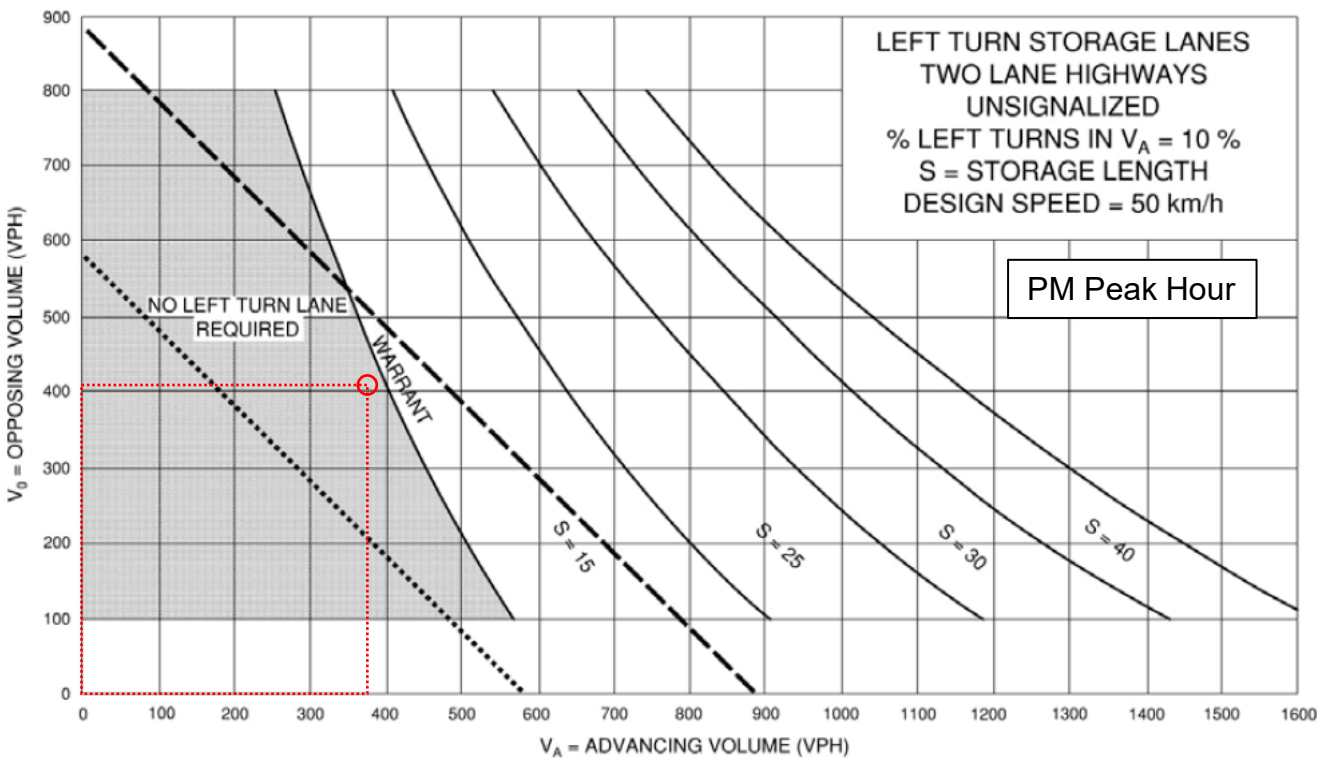
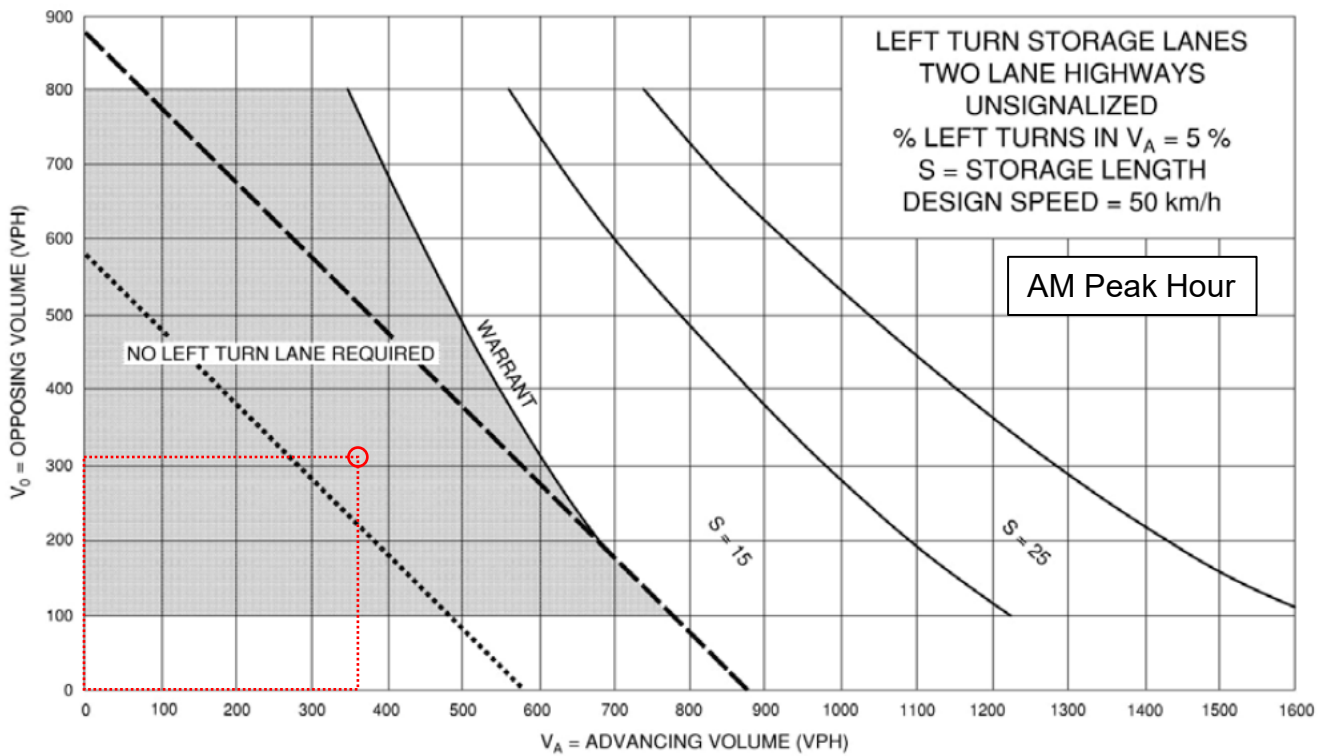
Westbound Left-Turn Lane Warrant Nichol Road 15 at Irvine Street 2040 Total Horizon



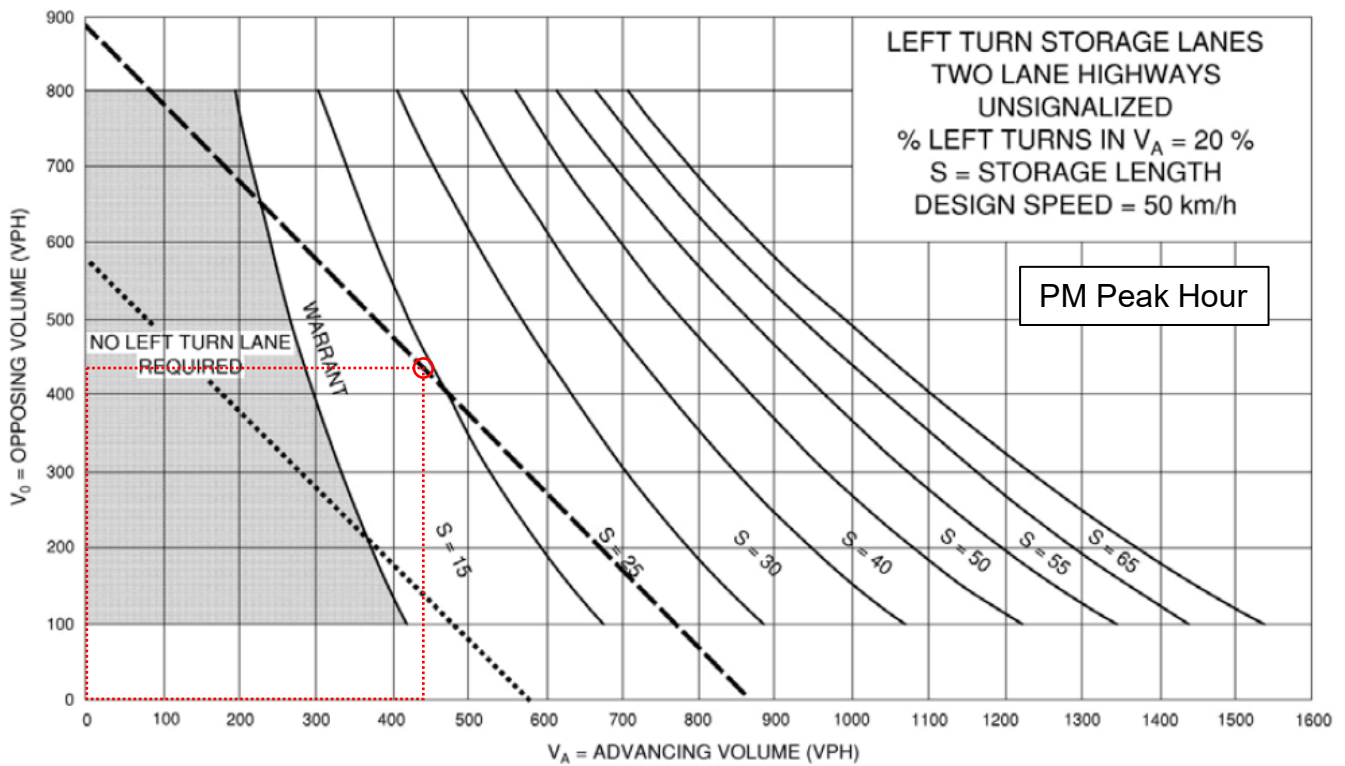
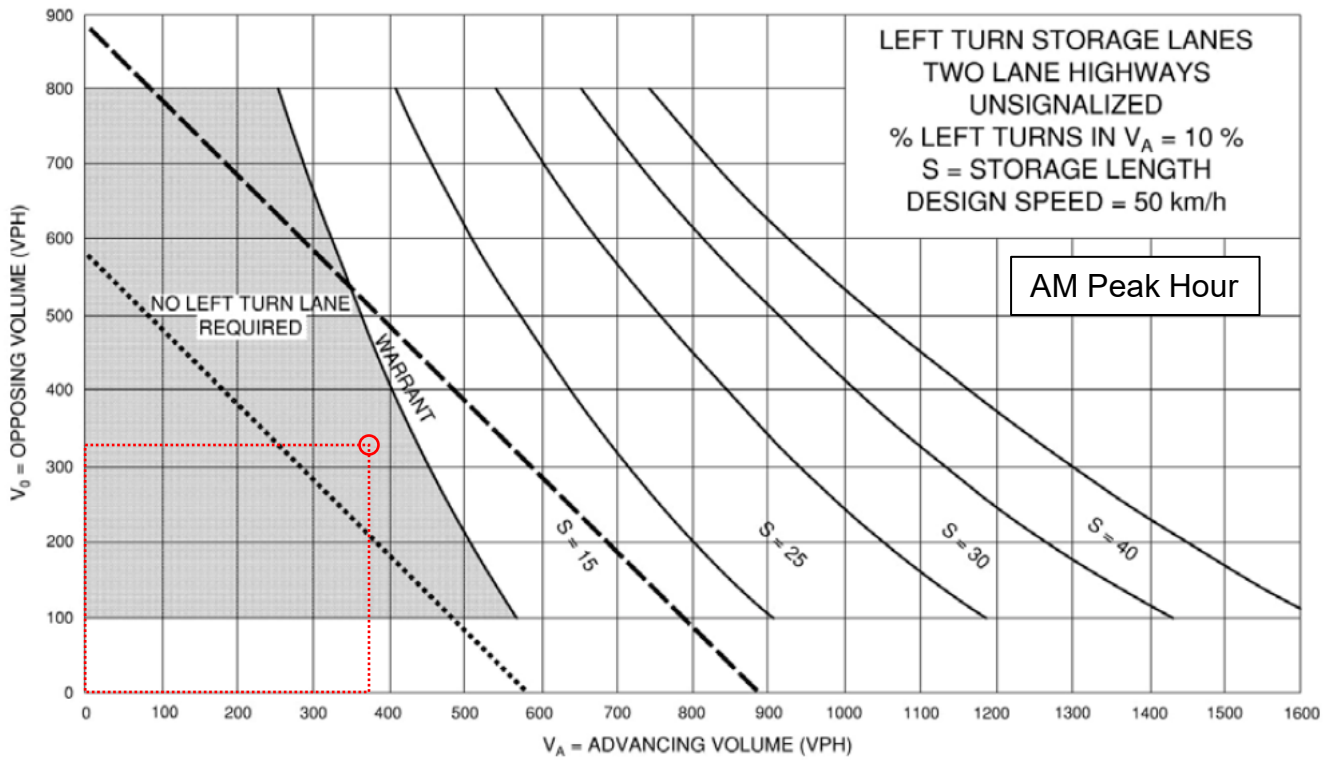
Eastbound Left-Turn Lane Warrant East Mill Street (WR18) at Irvine Street 2035 Background Horizon



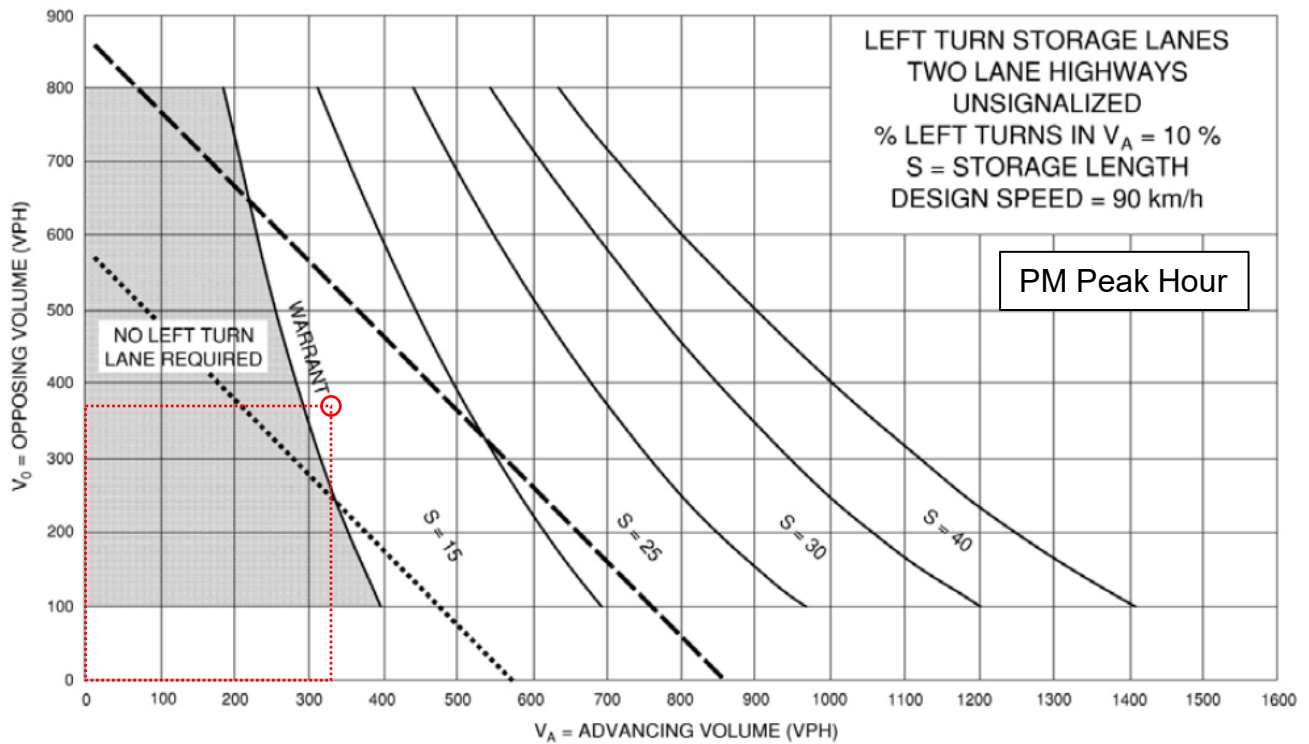
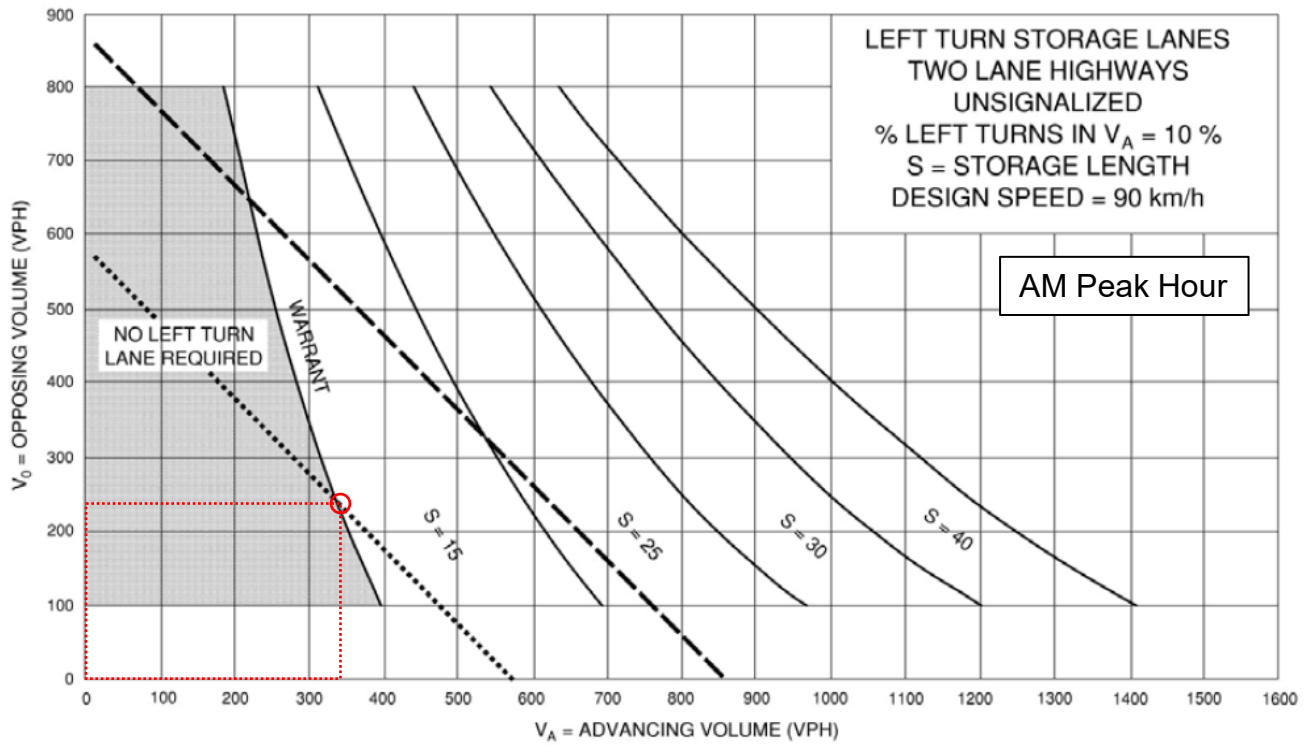
Eastbound Left-Turn Lane Warrant East Mill Street (WR18) at Irvine Street 2035 Total Horizon



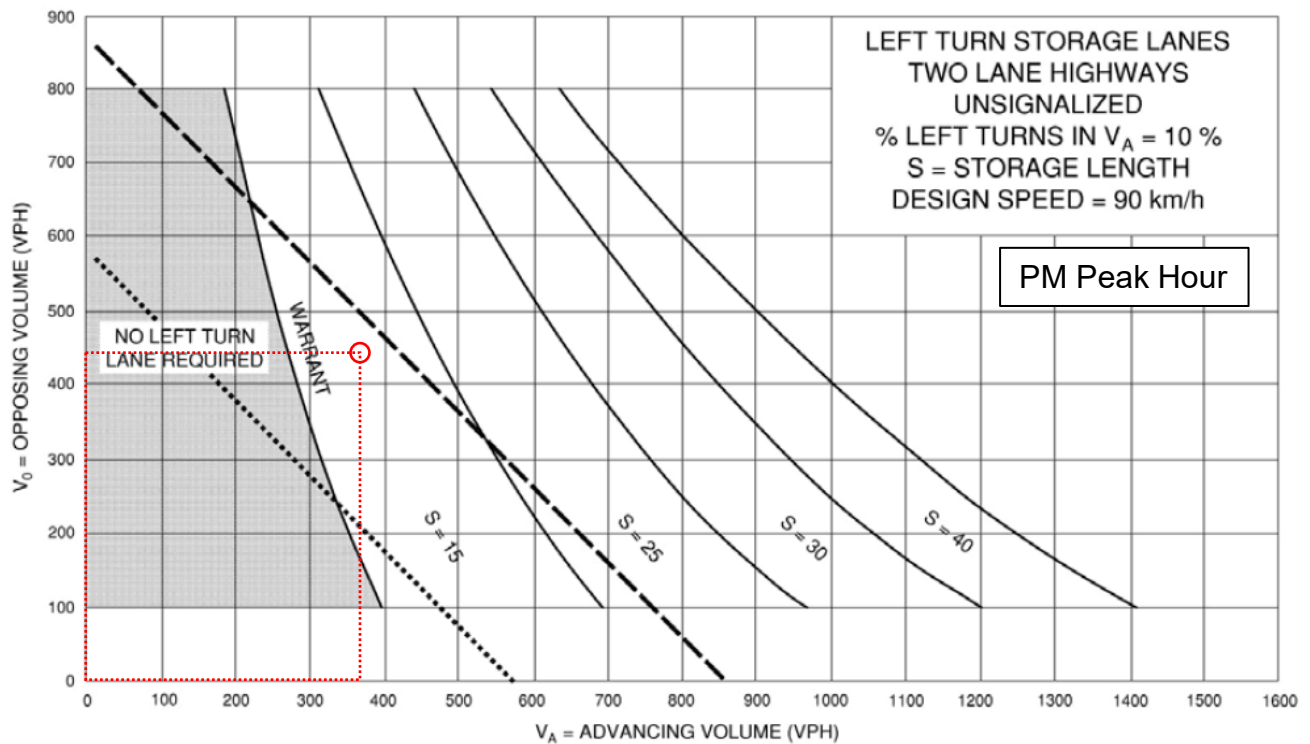
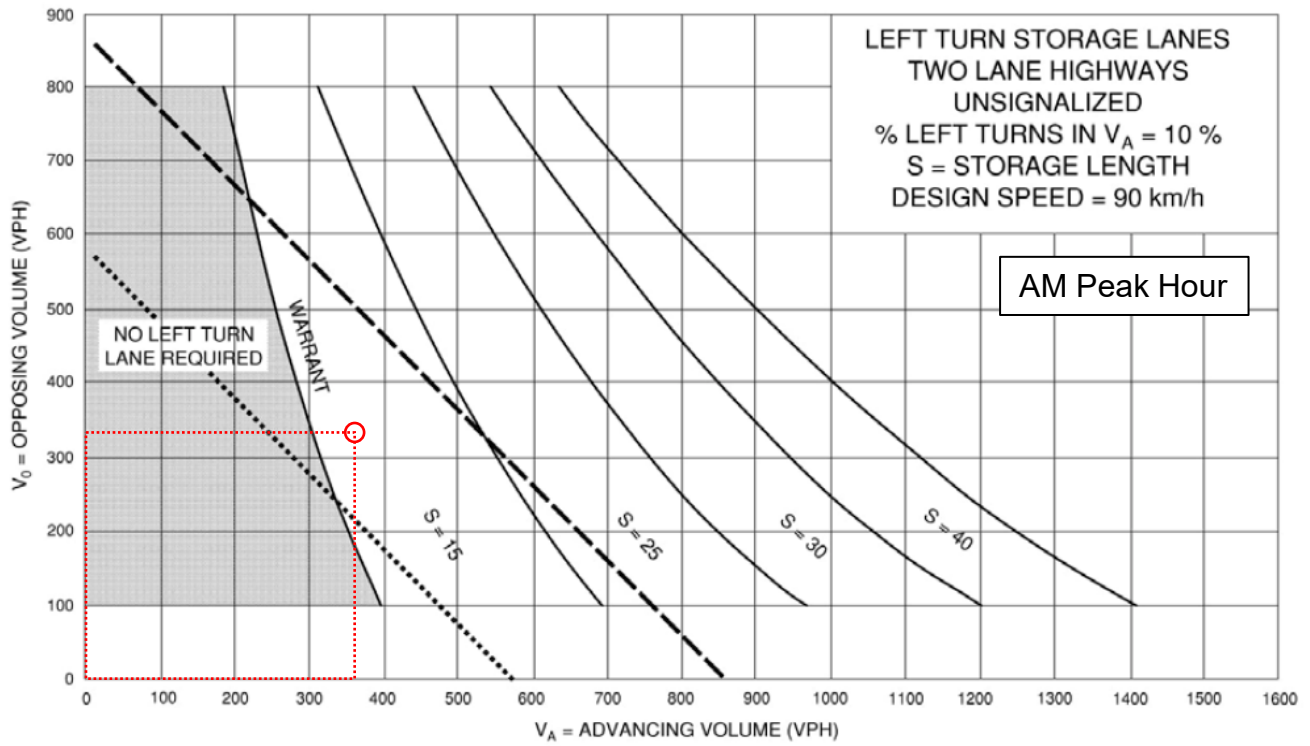
Eastbound Left-Turn Lane Warrant East Mill Street (WR18) at Irvine Street 2040 Background Horizon



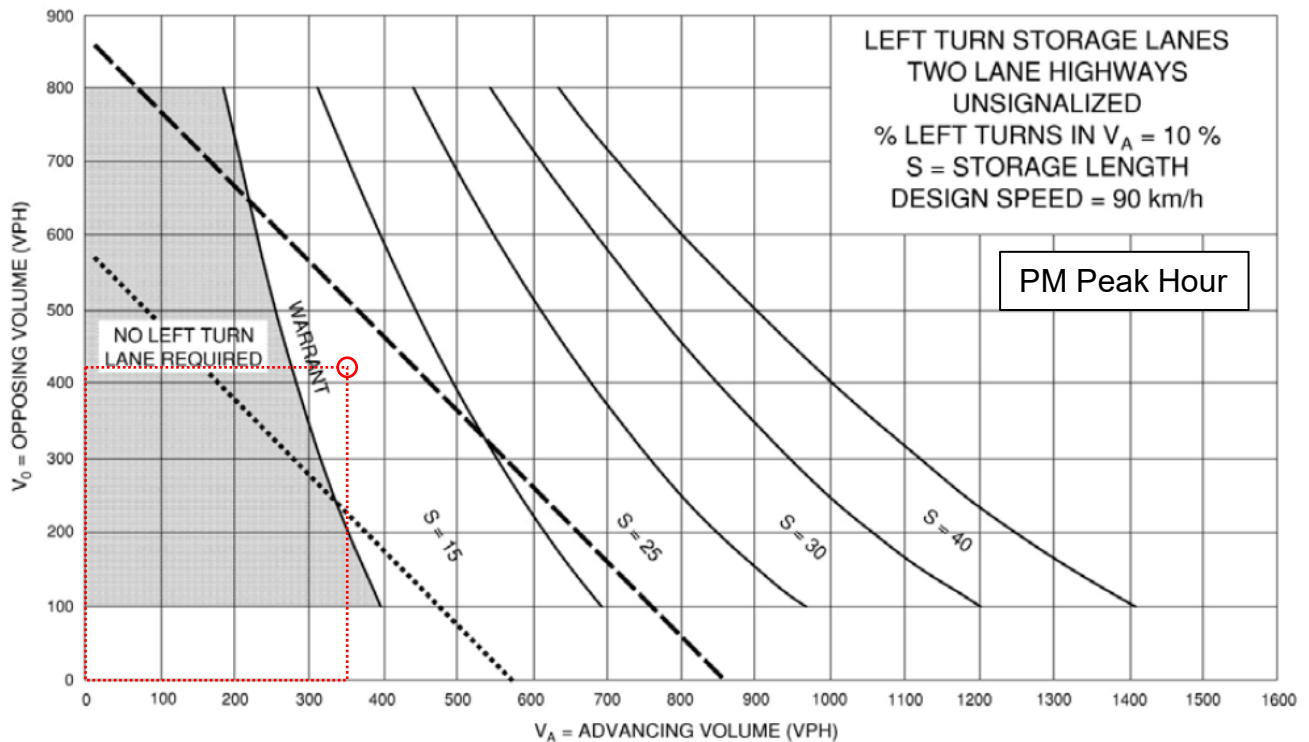
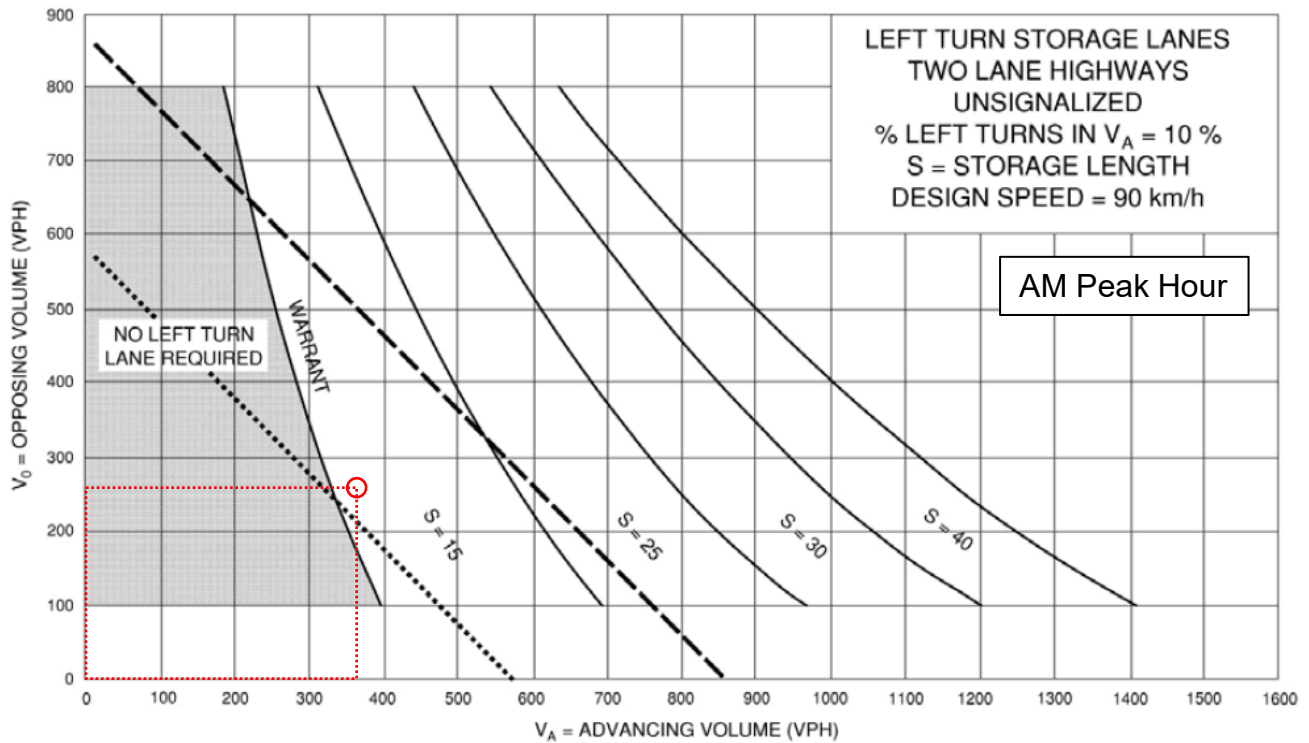
Eastbound Left-Turn Lane Warrant East Mill Street (WR18) at Irvine Street 2040 Total Horizon



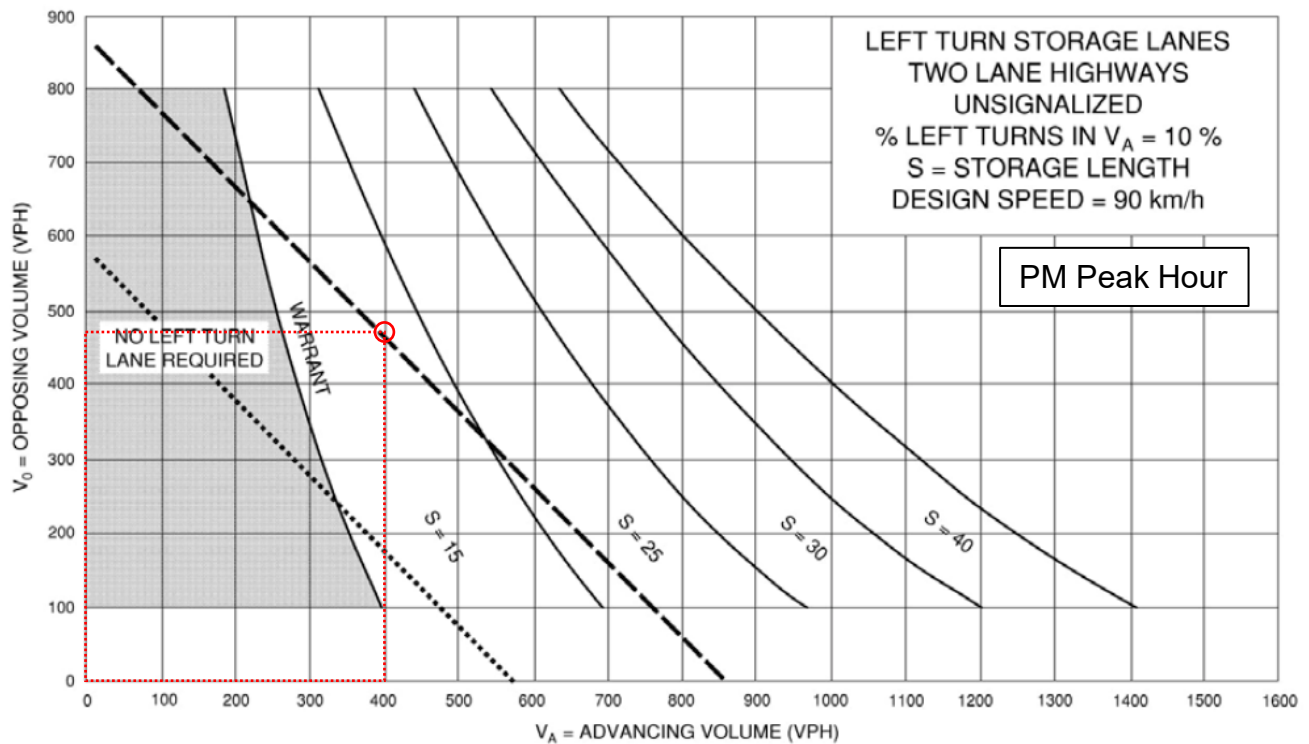
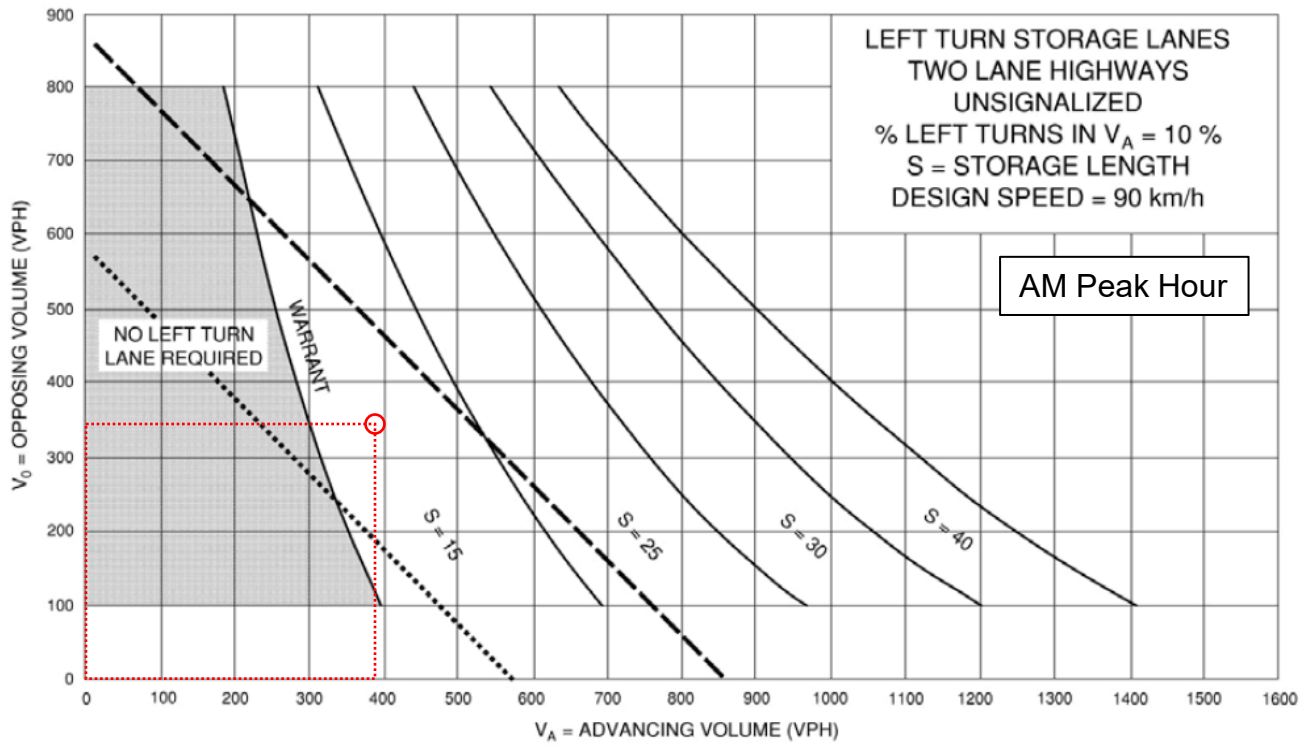
Westbound Left-Turn Lane Warrant Nichol Road 15 at Gerrie Road 2035 Background Horizon



Westbound Left-Turn Lane Warrant Nichol Road 15 at Gerrie Road 2035 Total Horizon



Westbound Left-Turn Lane Warrant Nichol Road 15 at Gerrie Road 2040 Background Horizon



Westbound Left-Turn Lane Warrant Nichol Road 15 at Gerrie Road 2040 Total Horizon