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



Erica Bayley, P.Eng.

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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 77.81-hectare block with approximately 1,446 residential units comprised of 583 single detached, 663 townhomes, and 100 senior apartments.

Vehicle access is proposed via five new street connections:

- ▶ Street W-S to Irvine Street opposite Bricker Avenue;
- ▶ Street W-N to Irvine Street opposite the proposed Cachet Clayton subdivision connection;
- ▶ Street N-E to Nichol Road 15; and
- ▶ Street E-N and Street E-S 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 666 and 895 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);
  - Colborne Street and Irvine Street (from the 2035 total horizon);
  - East Mill Street (Wellington Road 18) and Irvine Street (from the 2035 total horizon); and
  - Colborne Street and Gerrie Road (from the 2035 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;
- Northbound on Irvine Street at Cachet Clayton/Street W-N under total traffic conditions;
- Southbound on Irvine Street at Cachet Clayton/Street W-N under 2040 total traffic conditions;
- Westbound on Nichol Road 15 at Street N-W under total traffic conditions; and
- Westbound on Nichol Road 15 at Street N-E under total traffic conditions.

## Recommendations

Based on the findings of this study it is 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;



- Northbound on Irvine Street at Cachet Clayton/Street W-N with 15 metres of storage upon the completion of the subject site;
- Southbound on Irvine Street at Cachet Clayton/Street W-N with 15 metres of storage upon the completion of the subject site;
- Westbound on Nichol Road 15 at Street N-W with 15 metres of storage upon completion of the subject site; and
- Westbound on Nichol Road 15 at Street N-E with 15 metres of storage upon completion of the subject site.



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# 1 Introduction

## 1.1 Overview

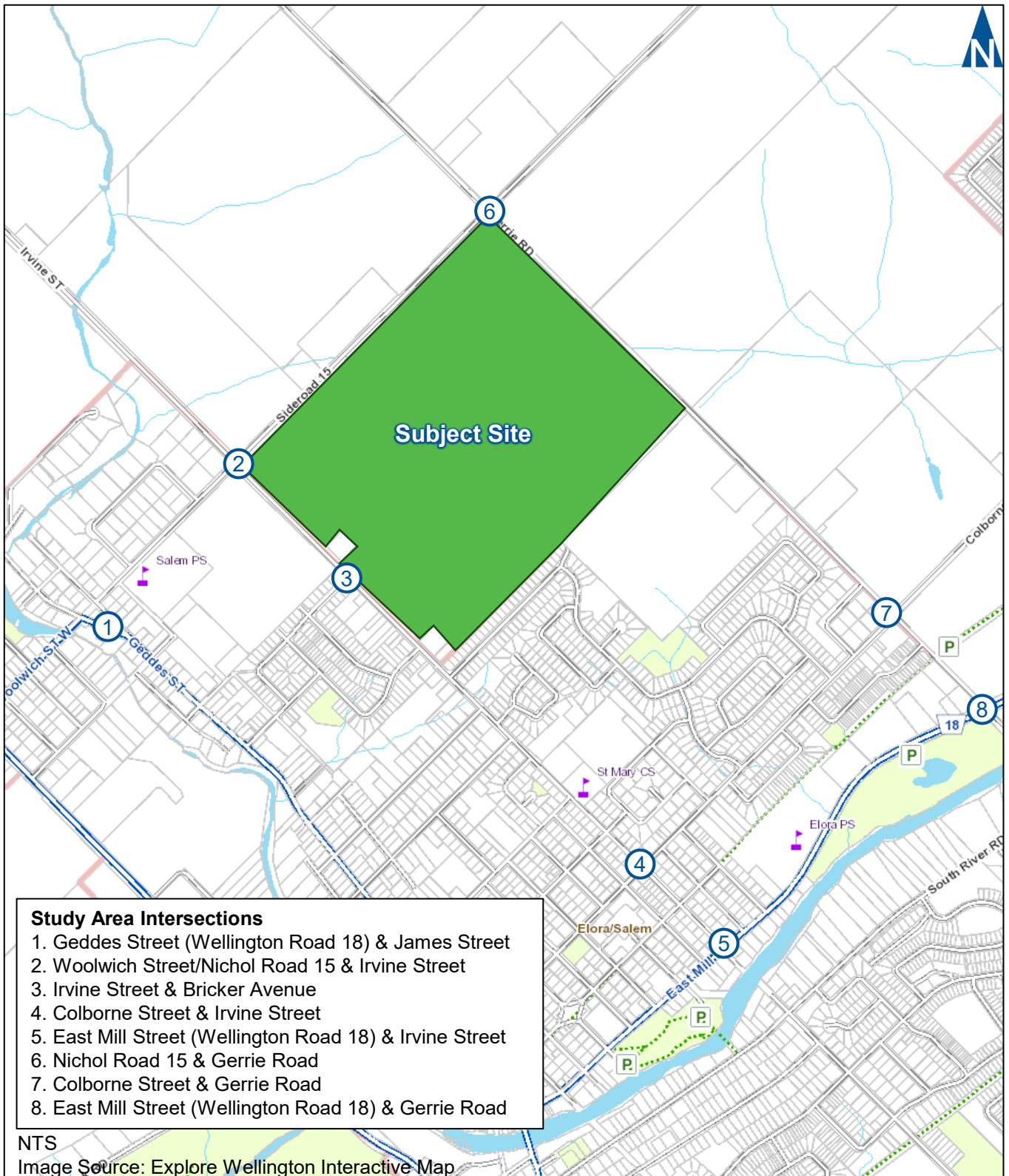
Cachet Developments (Elora) Inc. retained Paradigm Transportation Solutions Limited (Paradigm) to conduct this Transportation Impact Study (TIS) for a residential development located in the southeast corner of Nichol Road 15 and Irvine Street in the community of Elora, Township of Centre Wellington, 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 Wellington<sup>1</sup> and Township of Centre Wellington<sup>2</sup> 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

<sup>1</sup> County of Wellington Official Plan, Schedule A1 Centre Wellington

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

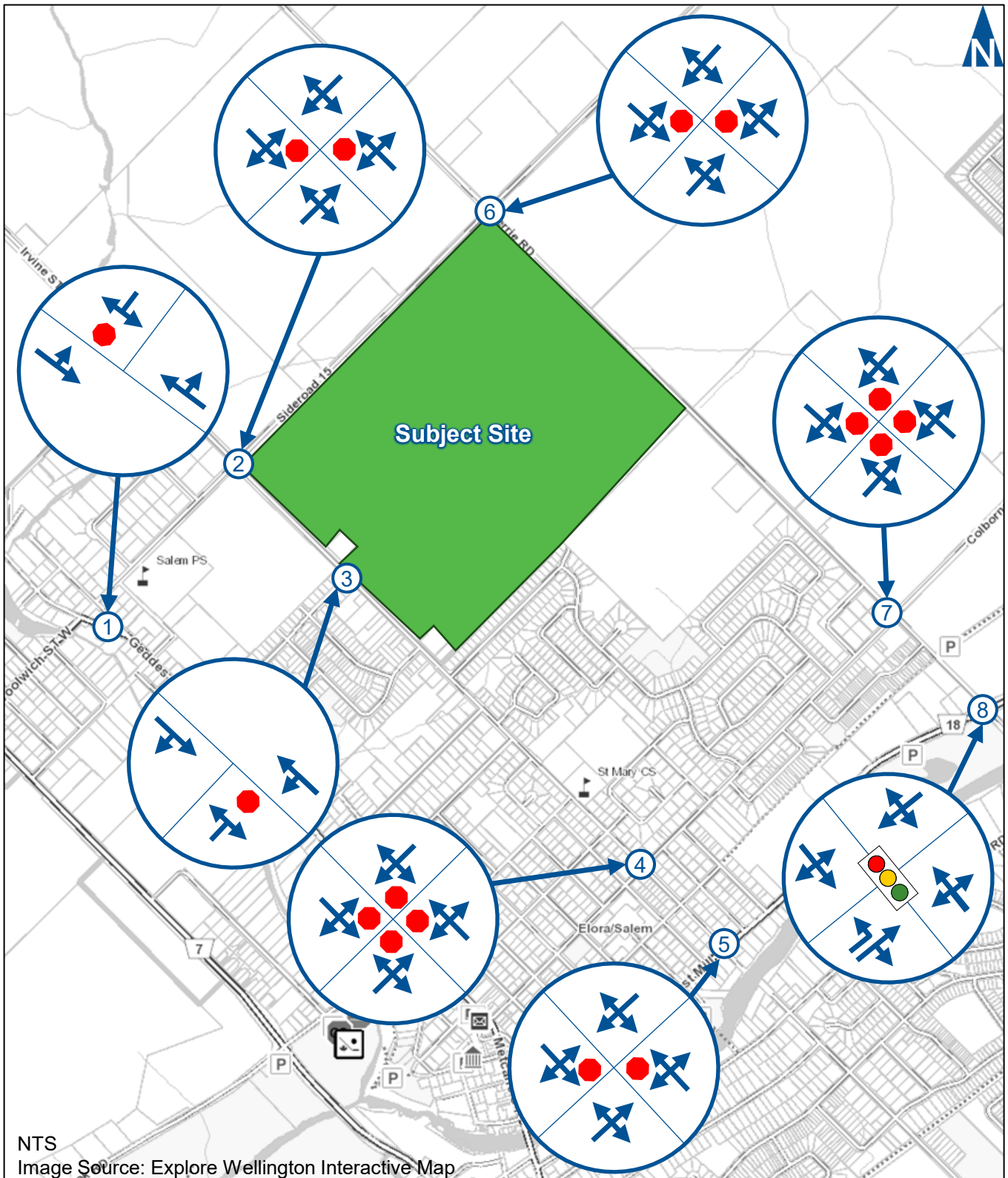


speed limit of 50 km/h. A sidewalk is provided on the east side of the roadway within the study area.

- ▶ **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





## 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.

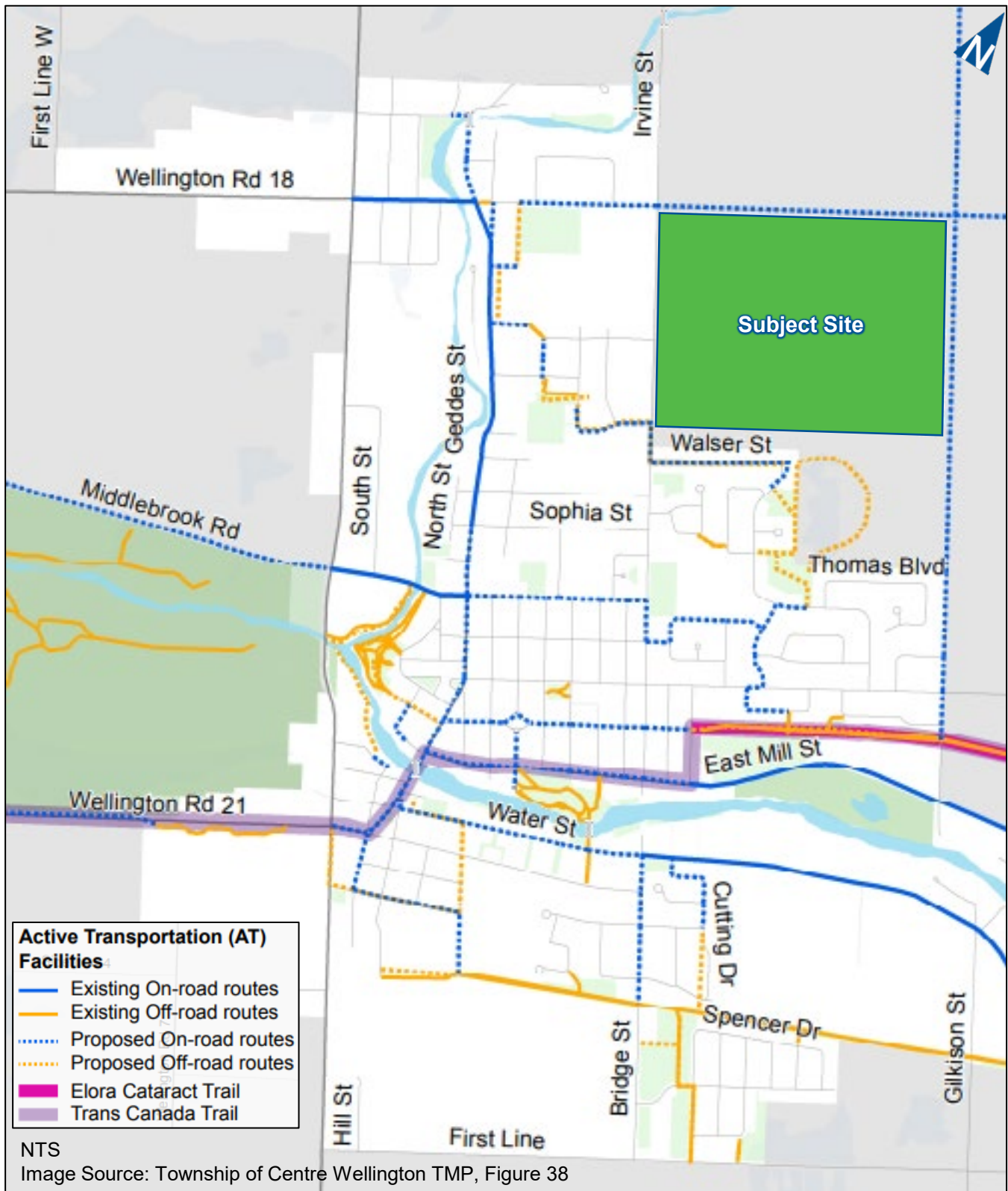
## 2.3 Traffic Volumes

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.

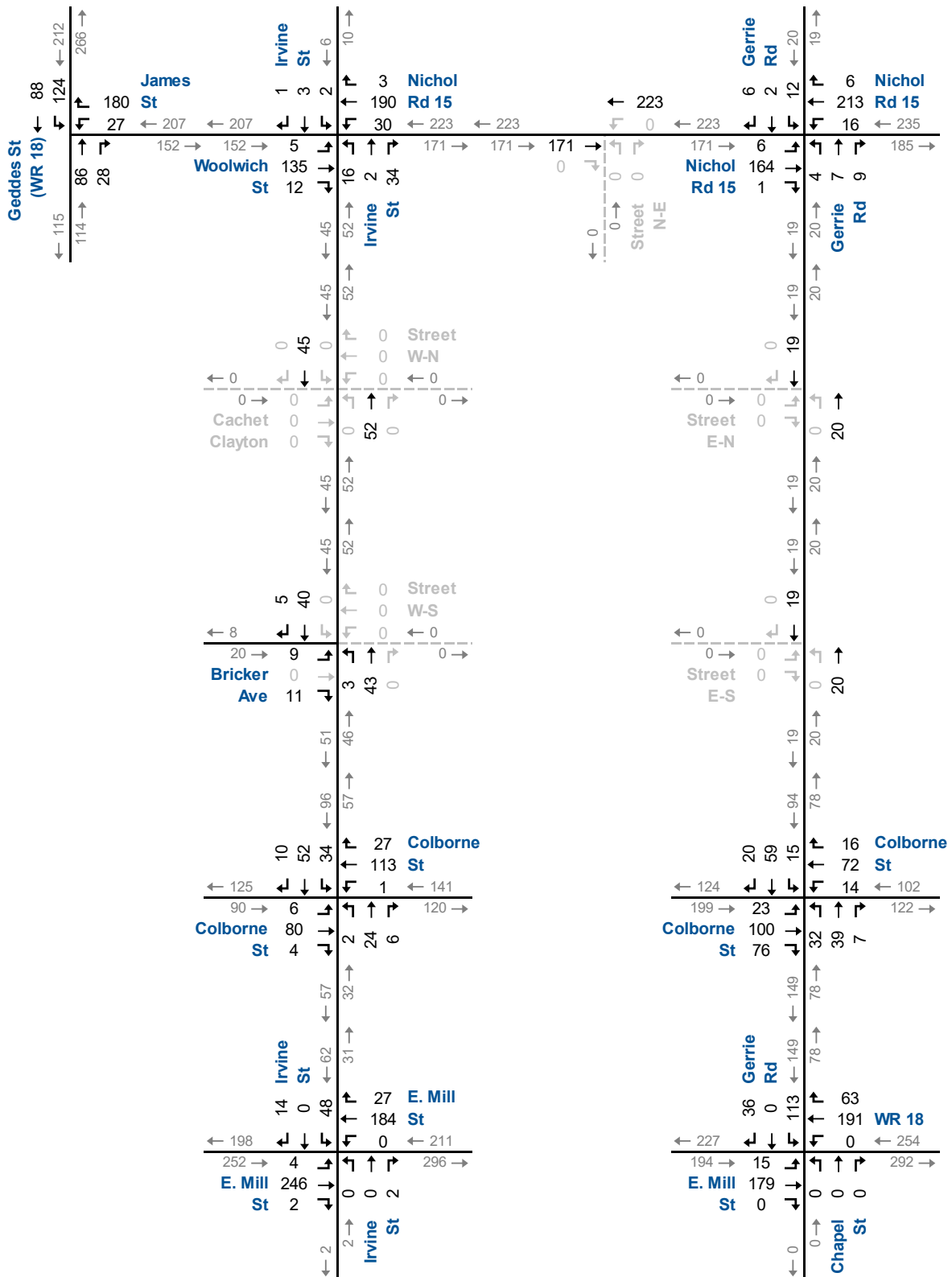
**Figure 2.3A-B** displays the factored base year weekday AM and PM peak hour traffic volumes respectively.

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

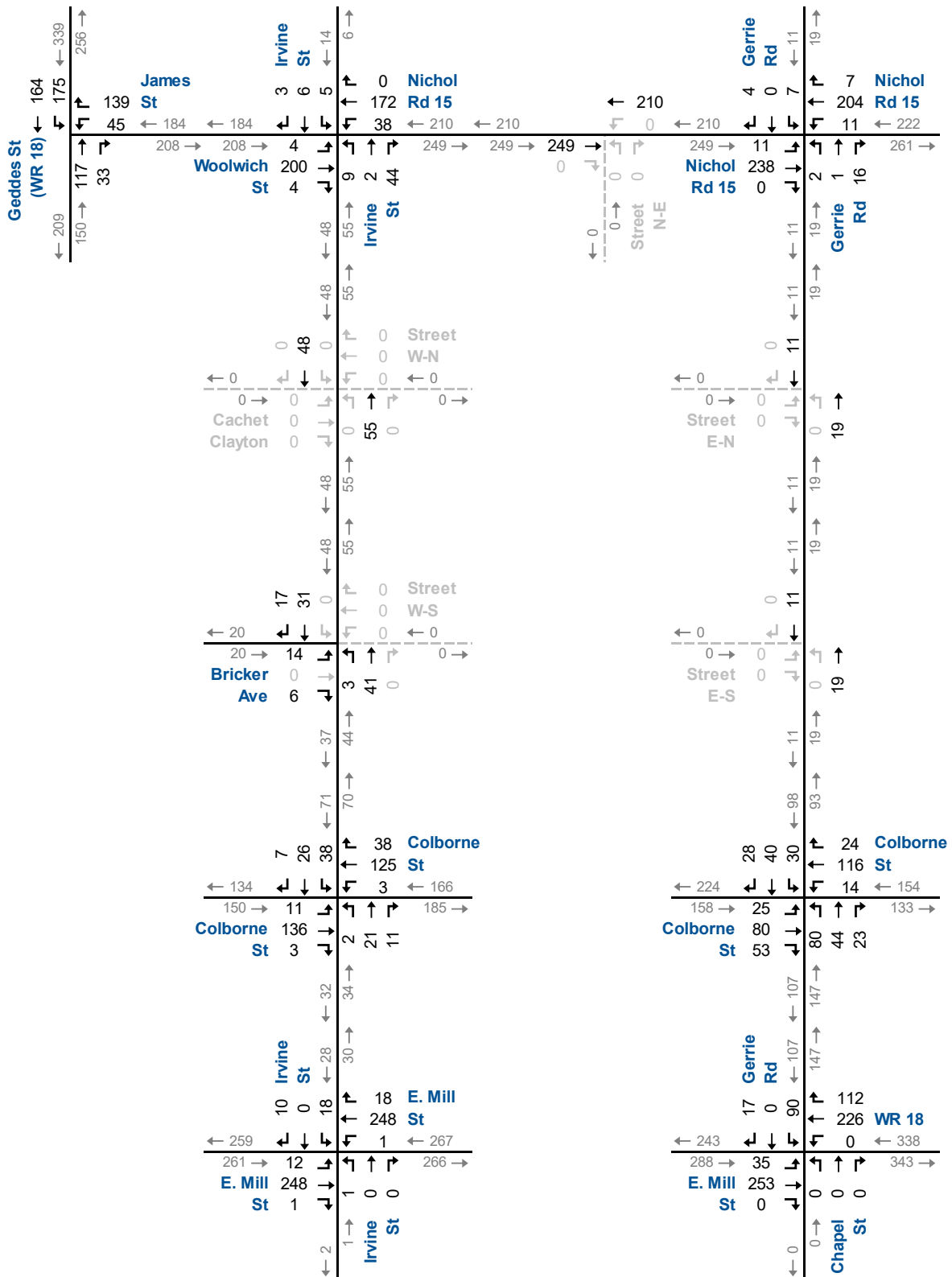




## Cycle and Pedestrian Network



## Base Year Traffic Volumes (AM Peak Hour)



## 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																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 11 0.27 9 -					>	>	>	>	B 11					A 0 0.07 0 -	>	>	>	>	A 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 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 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	<	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	<	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 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	<	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					A 8 0.14 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	<	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 0	>	A 0	A 2	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	<	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	<	B 13	>	B 13	<	B 13	>	B 13	<	B 13	>	B 13	A 1	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	<	B 12	>	B 12	<	B 12	>	B 12	<	B 12	>	B 12	A 1	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	<	A 9	>	A 9	<	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 4 30 26	A 4 0.21 21 -	>	A 4	<	A 4 0.28 25 -	>	A 4	<	A 0 0.00 0 -	>	A 0	<	A 0	<	A 0	<	C 22 0.24 16 -	>	C 22	<	C 22	<	C 22	<	C 22	<	C 22	A 6	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

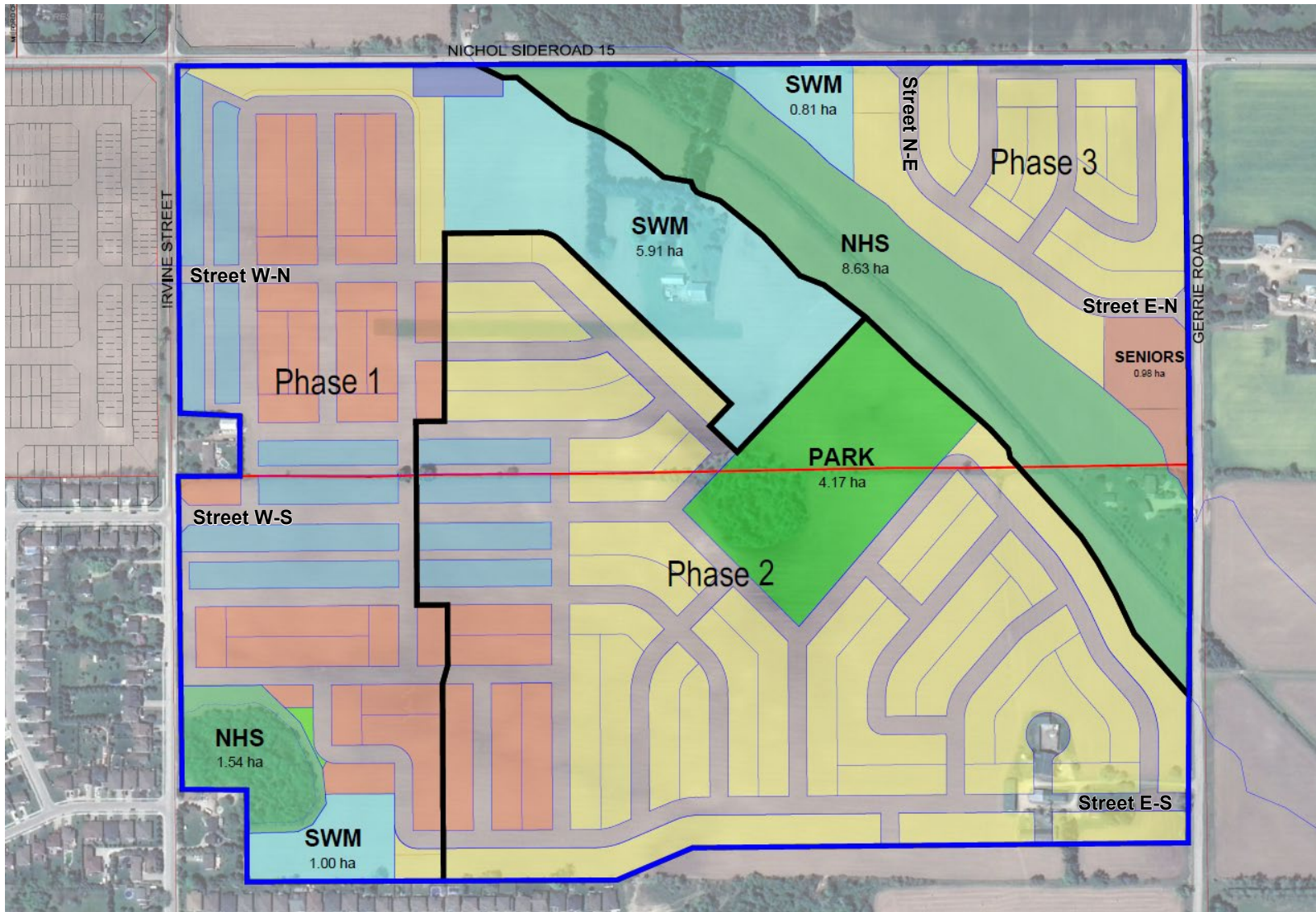
The subject site is in the southeast corner of Nichol Road 15 and Irvine Street in the community of Elora, Township of Centre Wellington. The property owner is proposing to develop the 77.81-hectare block with approximately 1,446 residential units comprised of 583 single detached, 663 townhomes, and 100 senior apartments.

Vehicle access is proposed via six new street connections:

- ▶ Street W-S to Irvine Street opposite Bricker Avenue;
- ▶ Street W-N to Irvine Street opposite the proposed Cachet Clayton subdivision connection;
- ▶ Street N-E to Nichol Road 15; and
- ▶ Street E-N and Street E-S to Gerrie Road.

**Figure 3.1** shows the proposed development concept.





NTS



## Concept Plan

### 3.2 Site Trip Generation & Distribution

The Institute of Transportation Engineers (ITE) Trip Generation<sup>3</sup> 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 666 AM peak hour trips and 895 PM peak hour trips. No reductions for alternative modes of transportation were used in the calculation.

**TABLE 3.1: TRIP GENERATION**

ITE Land Use	Units	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
<b>Phase 1</b>							
210 - Single-Family, Detached Housing (Dwelling Units)	28	6	17	23	19	11	30
220 - Multifamily Housing, Low-Rise (Dwelling Units)	495	44	132	176	144	89	233
<i>Phase 1 Trip Generation</i>	<i>623</i>	<i>50</i>	<i>149</i>	<i>199</i>	<i>163</i>	<i>100</i>	<i>263</i>
<b>Phase 2</b>							
210 - Single-Family, Detached Housing (Dwelling Units)	432	73	209	282	248	145	393
220 - Multifamily Housing, Low-Rise (Dwelling Units)	168	19	56	75	58	35	93
<i>Phase 2 Trip Generation</i>	<i>600</i>	<i>92</i>	<i>265</i>	<i>357</i>	<i>306</i>	<i>180</i>	<i>486</i>
<b>Phase 3</b>							
210 - Single-Family, Detached Housing (Dwelling Units)	123	23	67	90	76	45	121
252 - Senior Adult Housing, Multifamily (Dwelling Units)	100	7	13	20	14	11	25
<i>Phase 3 Trip Generation</i>	<i>223</i>	<i>30</i>	<i>80</i>	<i>110</i>	<i>90</i>	<i>56</i>	<i>146</i>
<b>Total Trip Generation</b>	<b>1,446</b>	<b>172</b>	<b>494</b>	<b>666</b>	<b>559</b>	<b>336</b>	<b>895</b>

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.

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

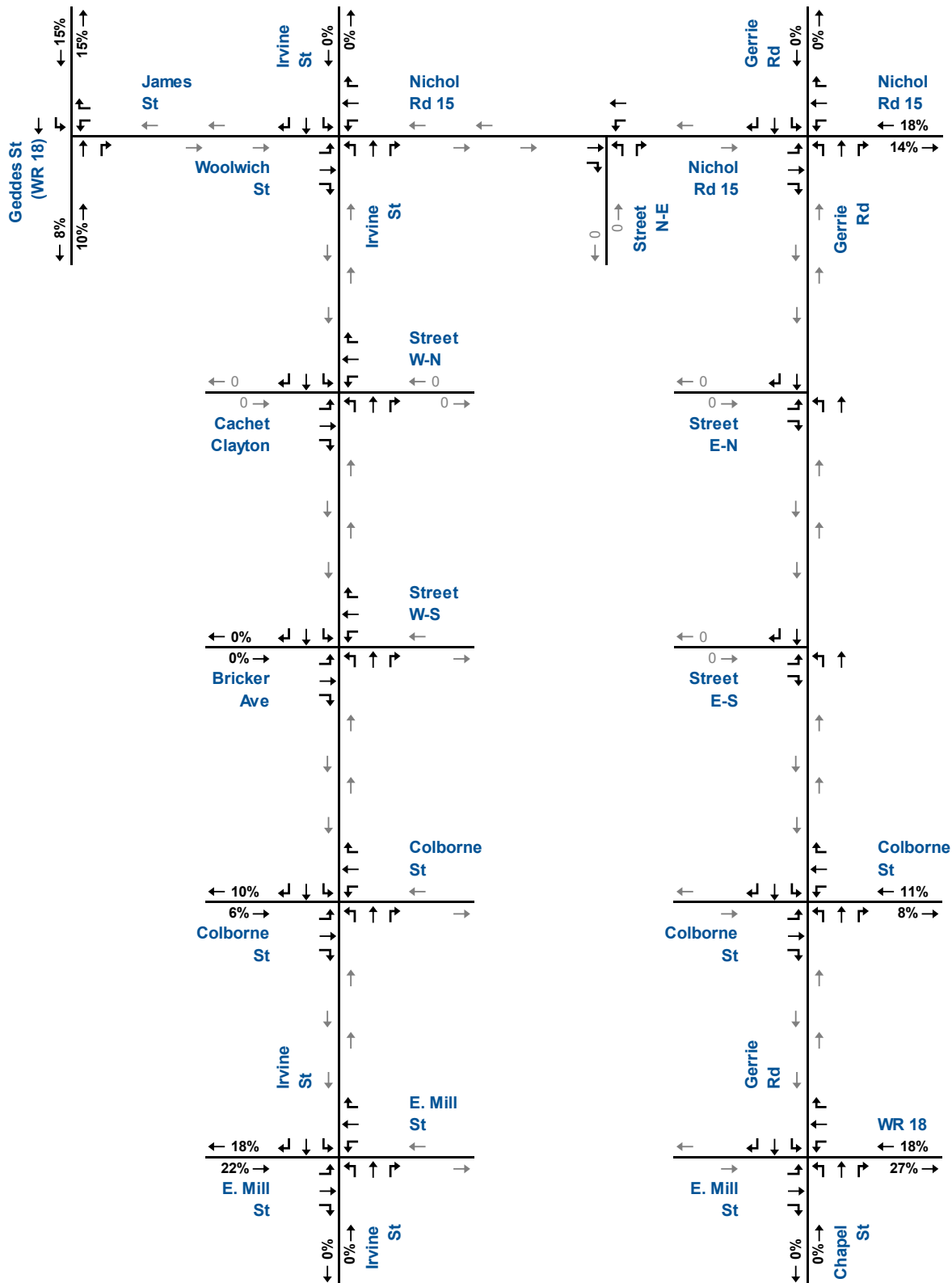


**TABLE 3.2: TRIP DISTRIBUTION**

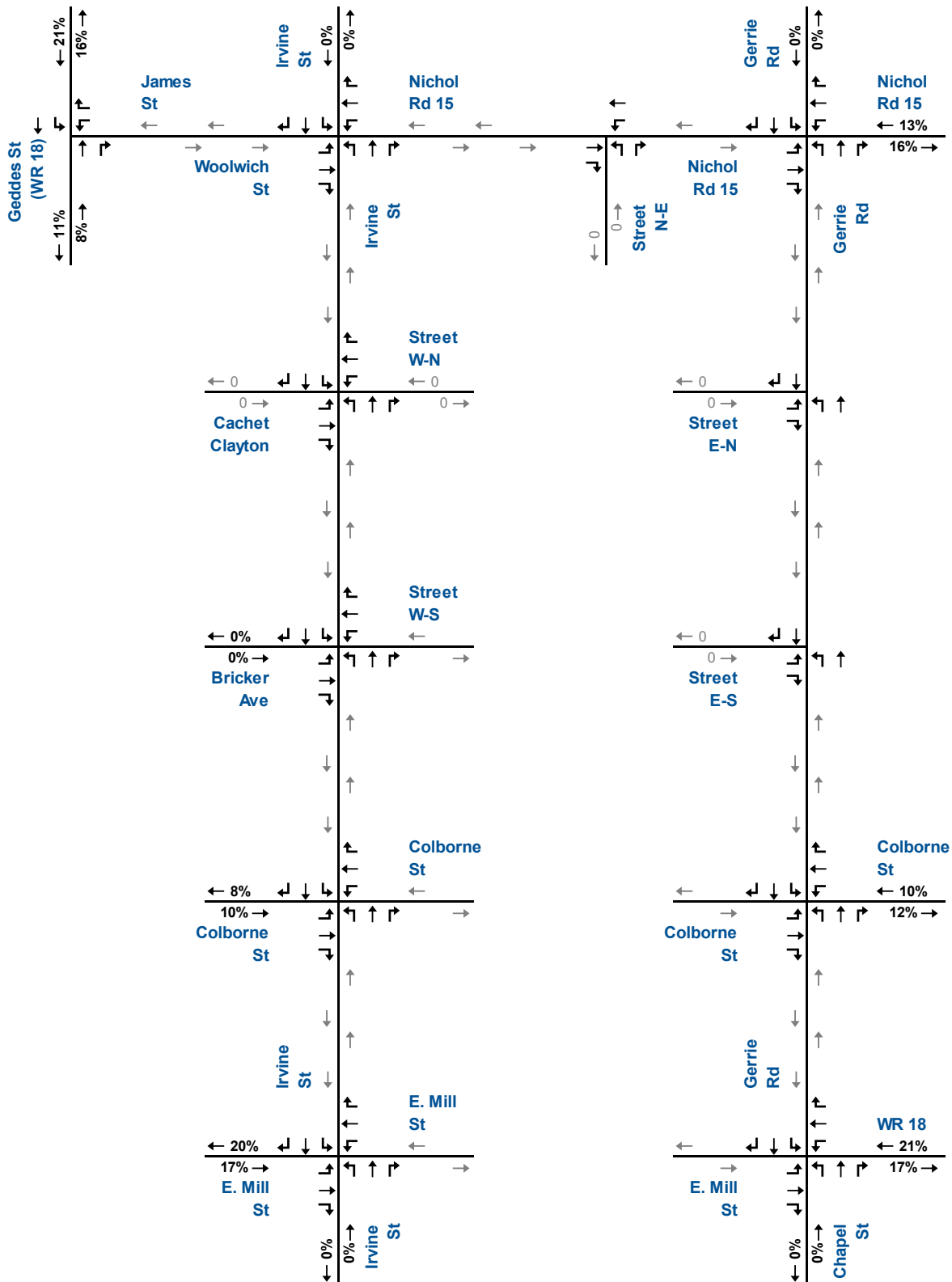
Direction	Route	AM Peak Hour		PM Peak Hour	
		In	Out	In	Out
North	Geddes Street (WR18)	15%	15%	21%	16%
	Irvine Street	0%	0%	0%	0%
	Gerrie Road	0%	0%	0%	0%
South	Geddes Street (WR18)	10%	8%	8%	11%
	Irvine Street	0%	0%	0%	0%
	Chapel Street	0%	0%	0%	0%
East	Nichol Road 15	18%	14%	13%	16%
	Colborne Street	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%
<b>Total</b>		<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

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

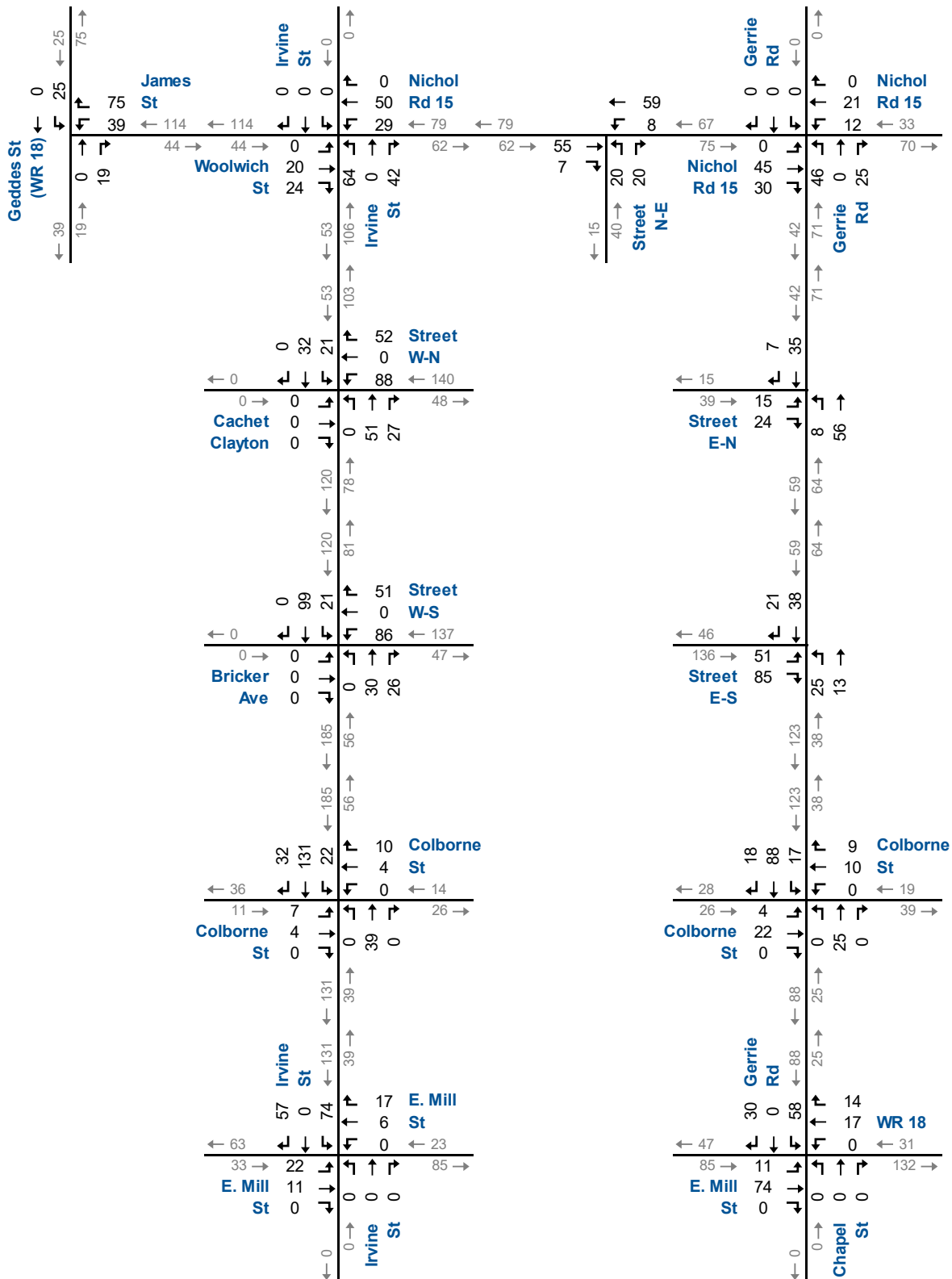




## Trip Distribution (AM Peak Hour)

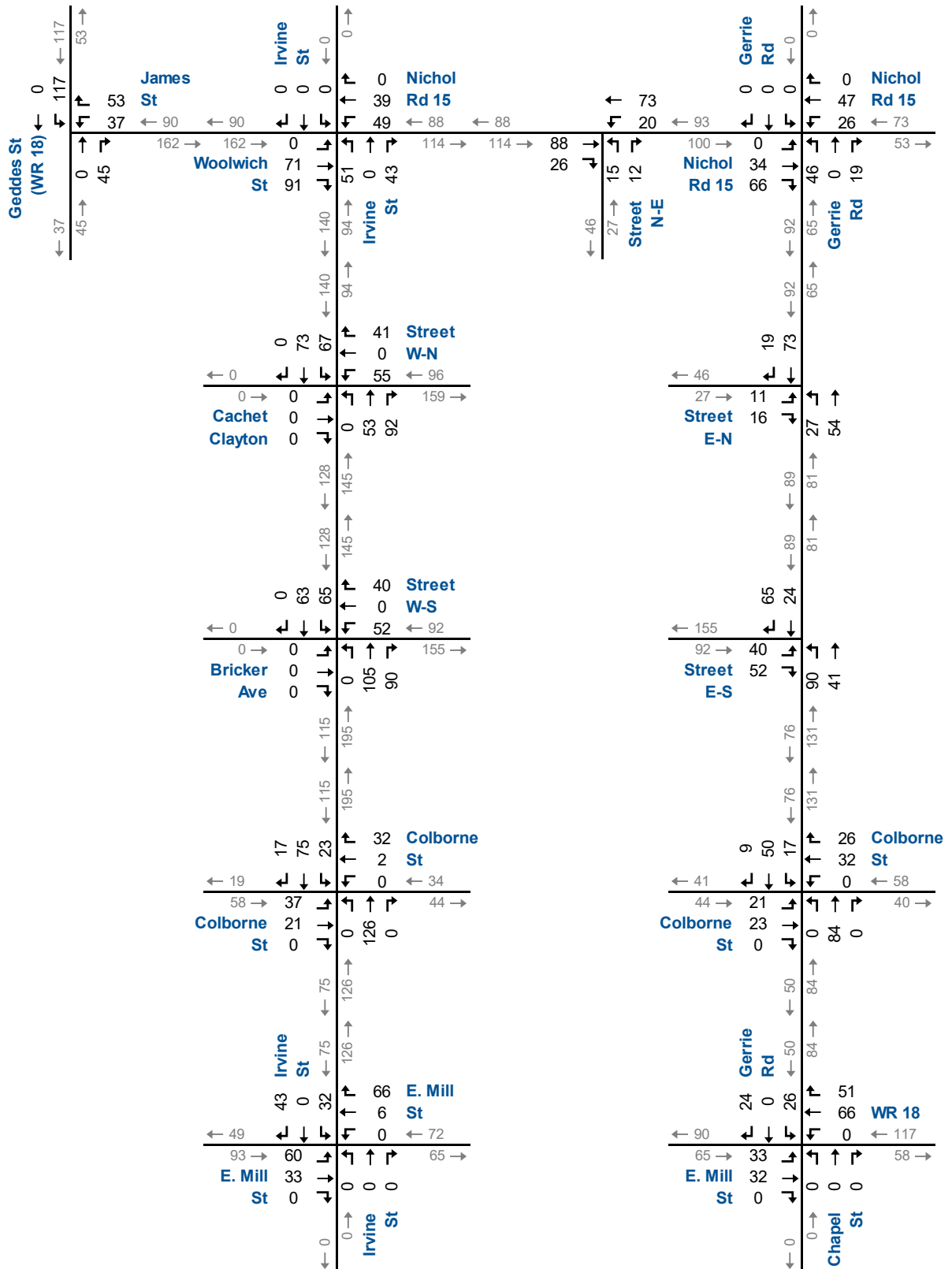


## Trip Distribution (PM Peak Hour)



# Site Generated Traffic Volumes (AM Peak Hour)

Figure 3.3A



# Site Generated Traffic Volumes (PM Peak Hour)

## 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, Elora<sup>4</sup> - 251 residential units comprised of 126 single detached, 63 apartments, and 62 townhouse units; and
  - North West Fergus Secondary Plan<sup>5</sup> - a mixed-use site situated in the Colborne Street and Beatty Line area of the community of Fergus.
  - Cachet Clayton Subdivision<sup>6</sup> – 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**

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

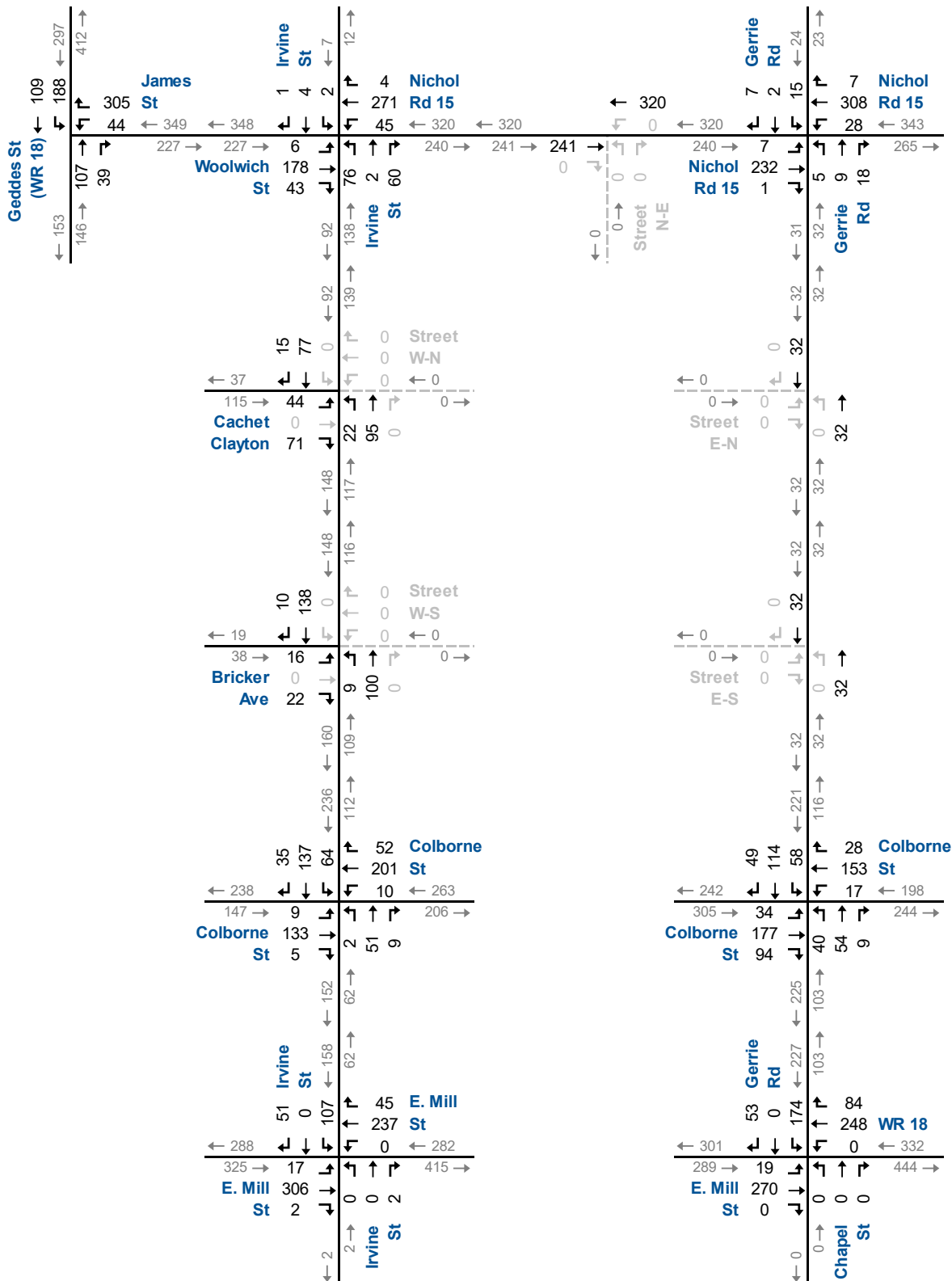
<sup>5</sup> Traffic Impact Study in support of Draft Plan Approval (Phases 2 & 3), Township of Centre Wellington North West Fergus Secondary Plan, RJ Burnside & Associates Limited, December 2016

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

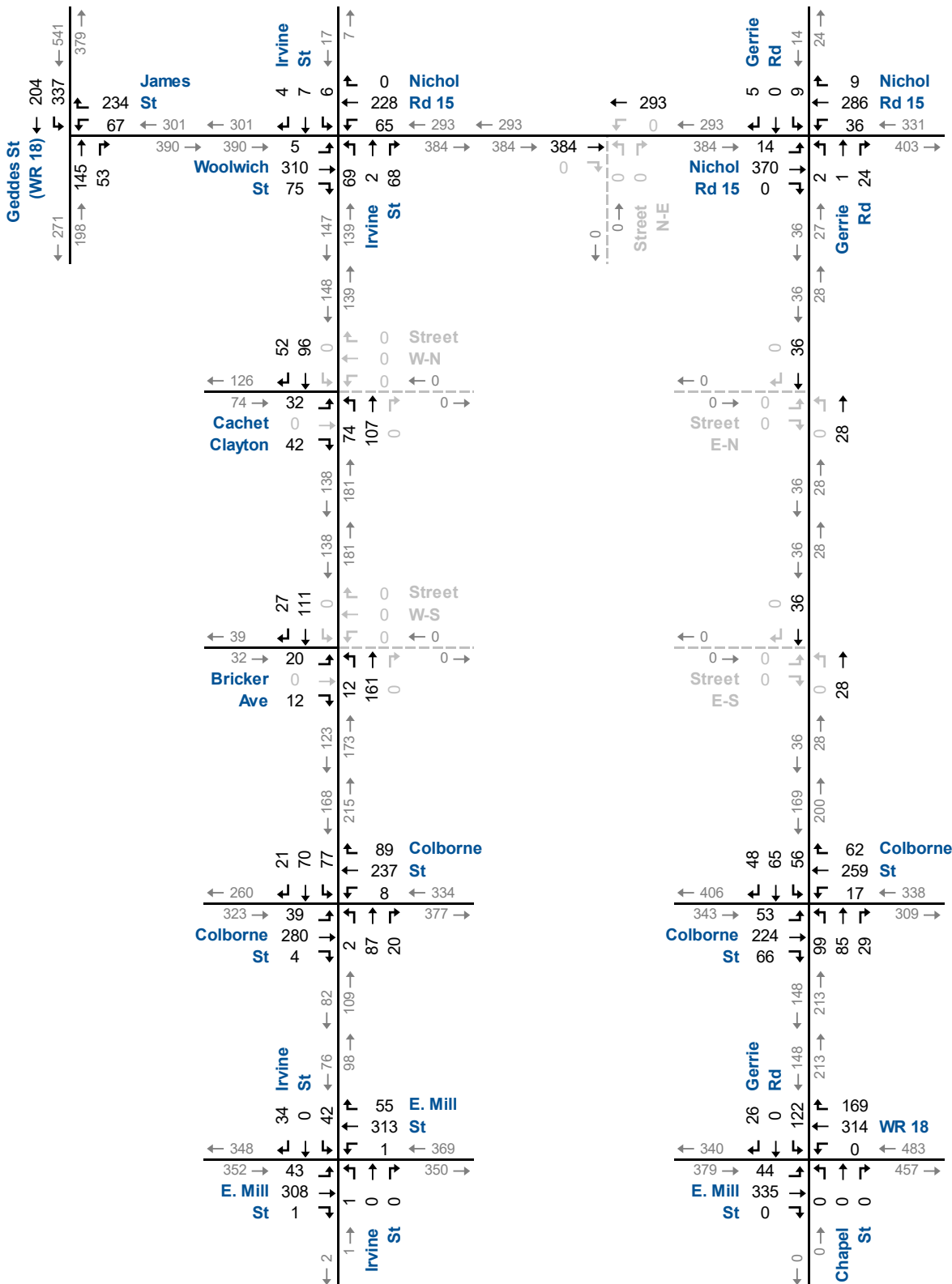


details the forecast 2040 background traffic volumes for the weekday AM and PM peak hours, respectively. **Figure 4.3A-B** details the forecast 2035 total traffic volumes for the weekday AM and PM peak hours, respectively. **Figure 4.4A-B** details the forecast 2040 total traffic volumes for the weekday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



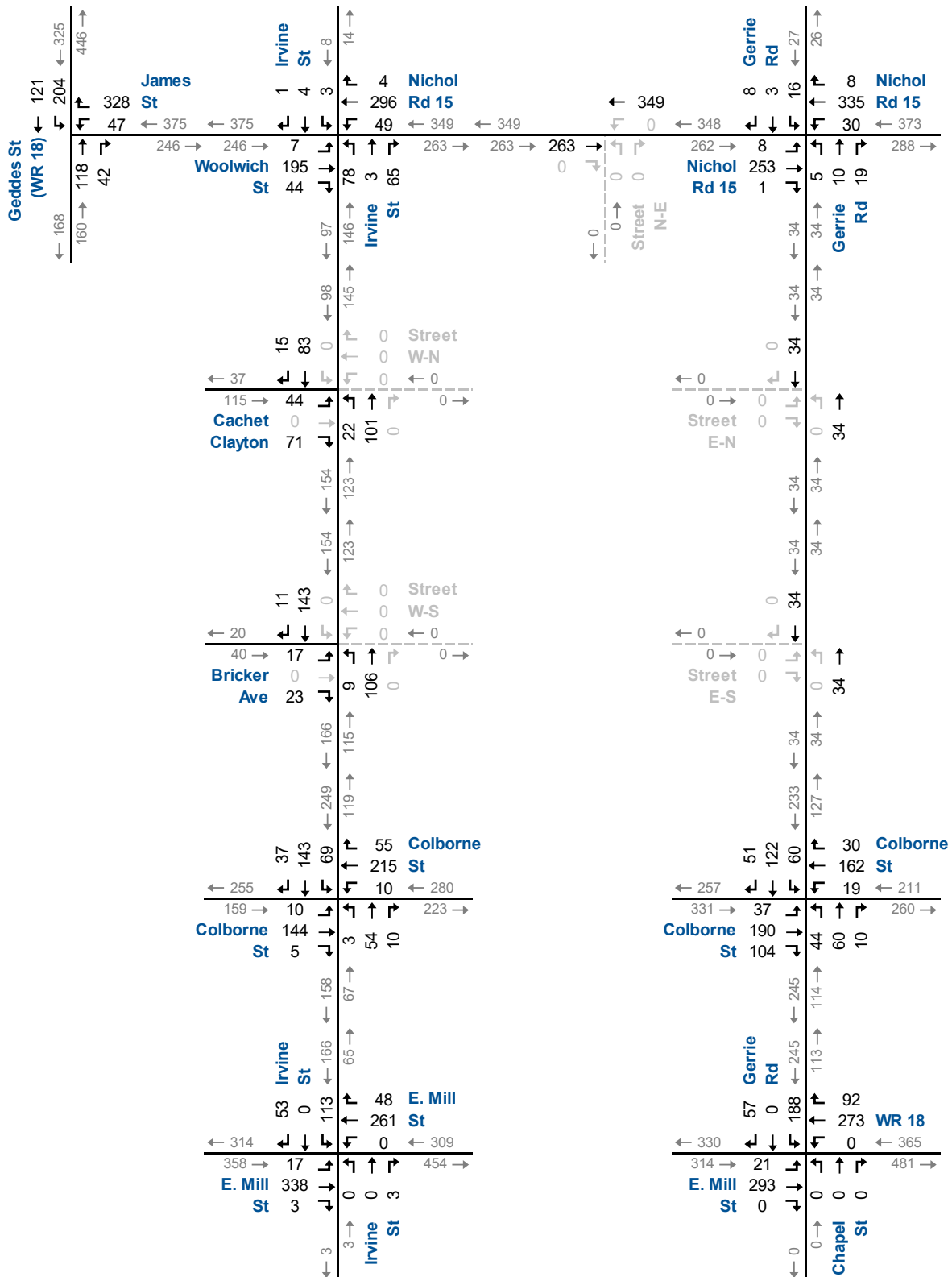


## 2035 Background Traffic Volumes (AM Peak Hour)



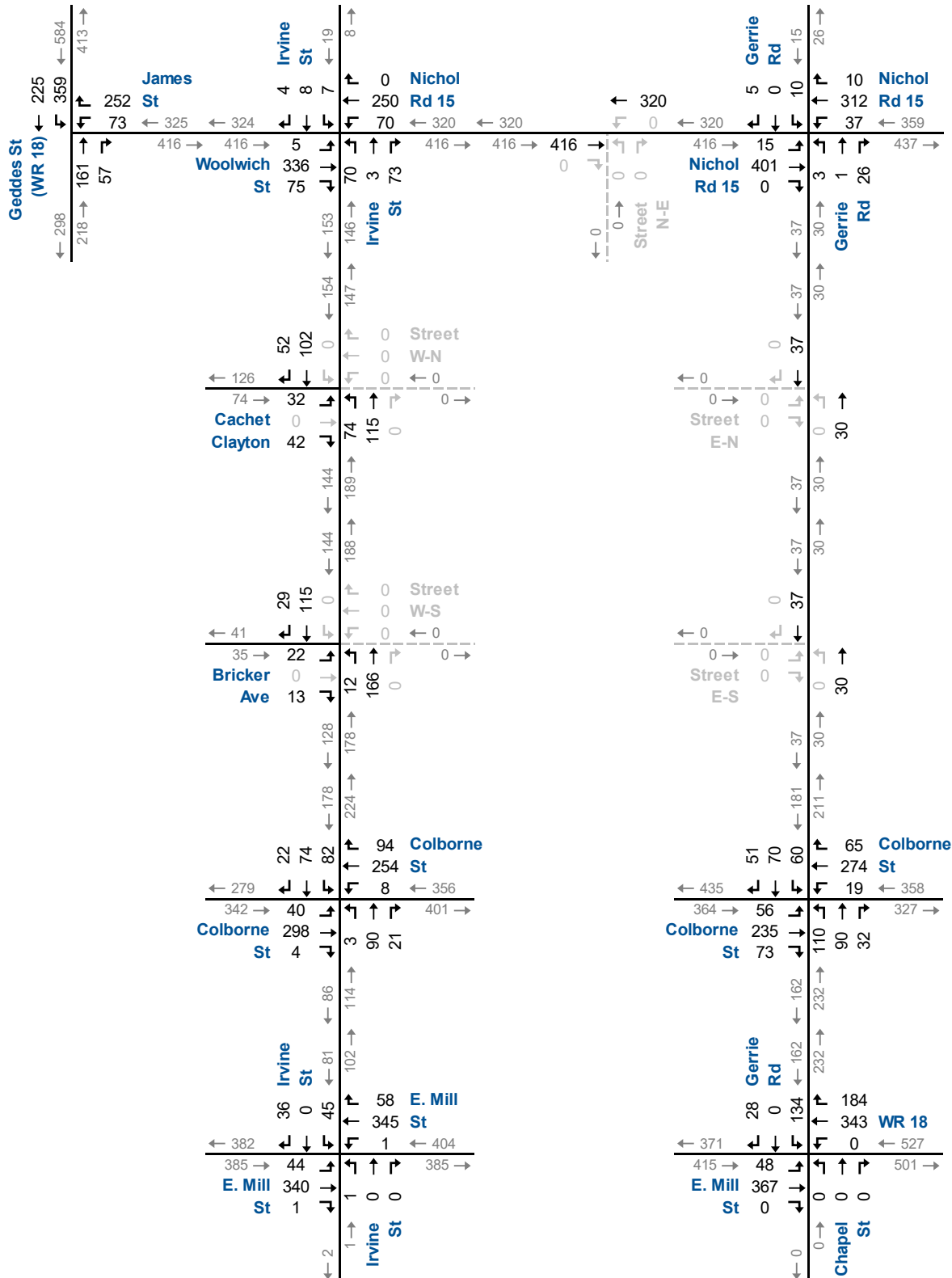
## 2035 Background Traffic Volumes (PM Peak Hour)





## 2040 Background Traffic Volumes (AM Peak Hour)

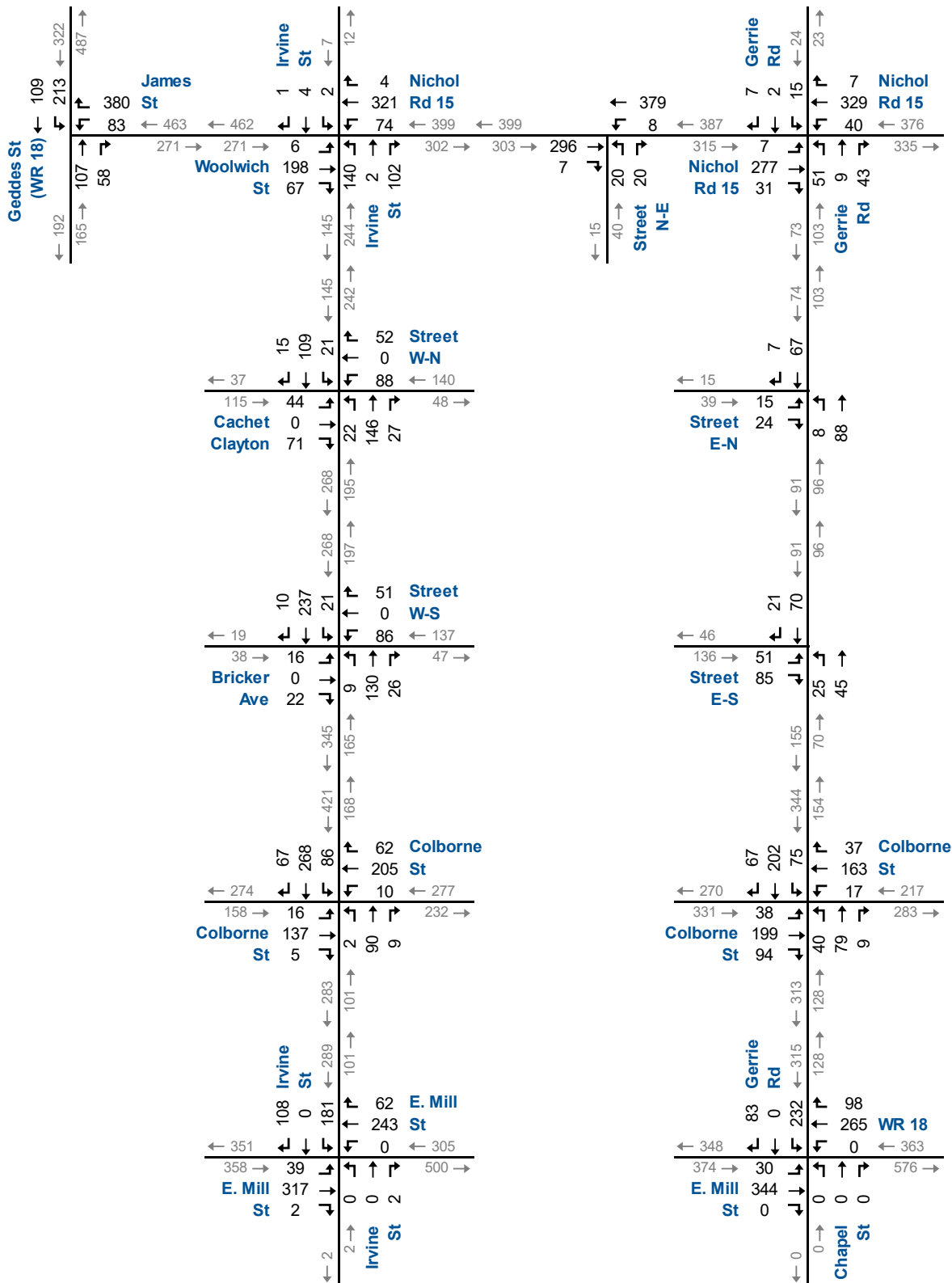
Figure 4.2A



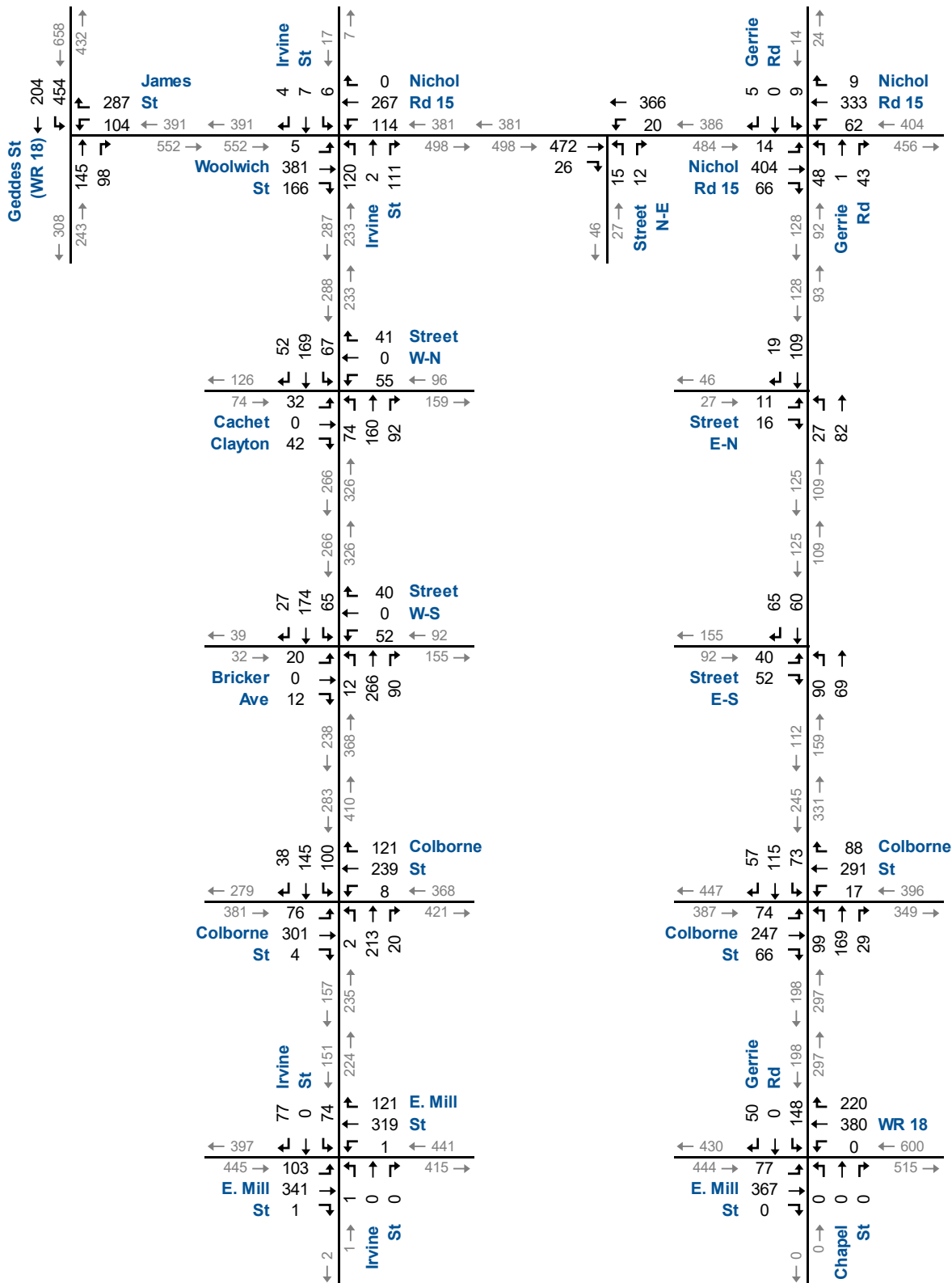
## 2040 Background Traffic Volumes (PM Peak Hour)



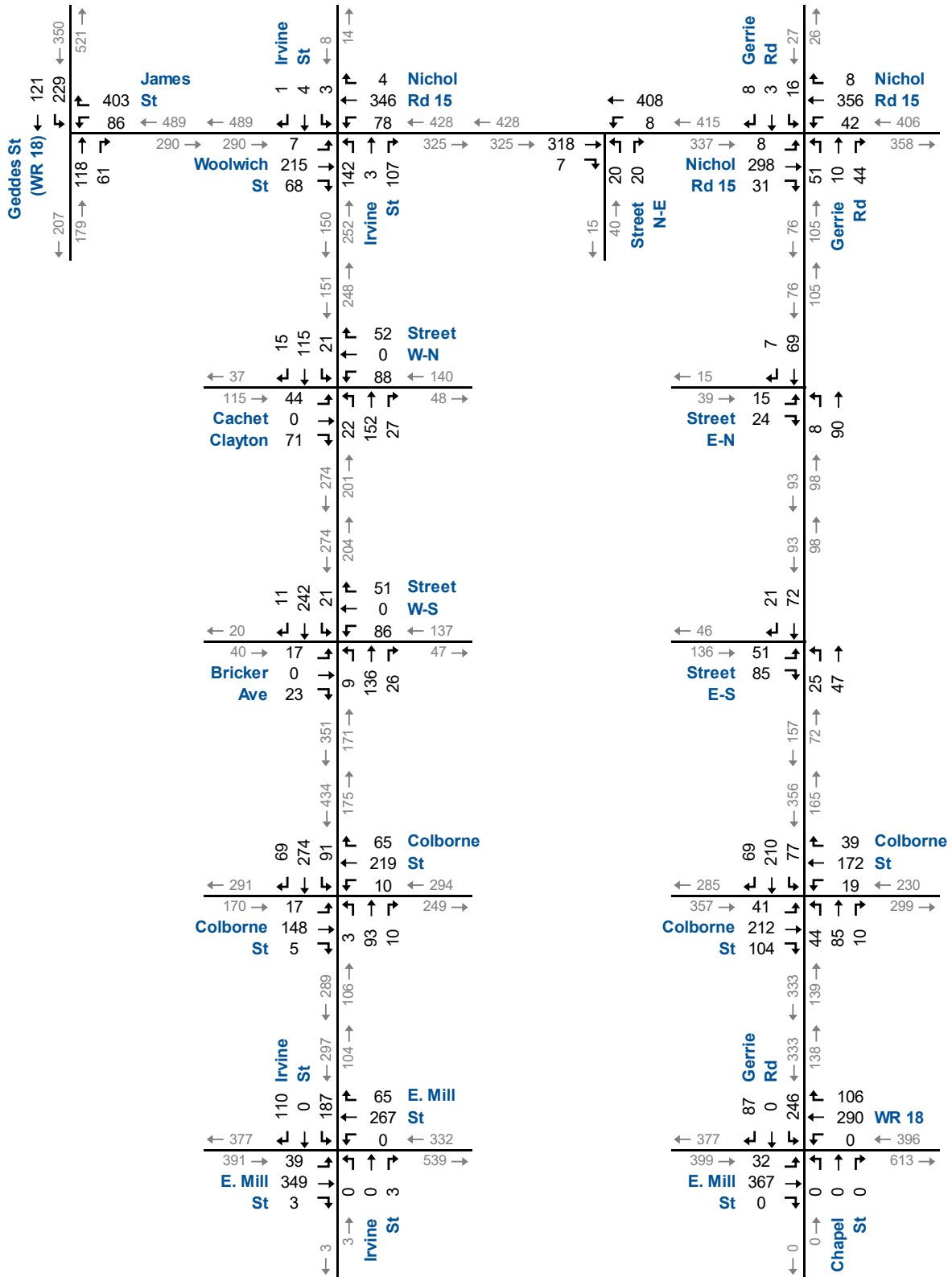
Figure 4.2B



## 2035 Total Traffic Volumes (AM Peak Hour)

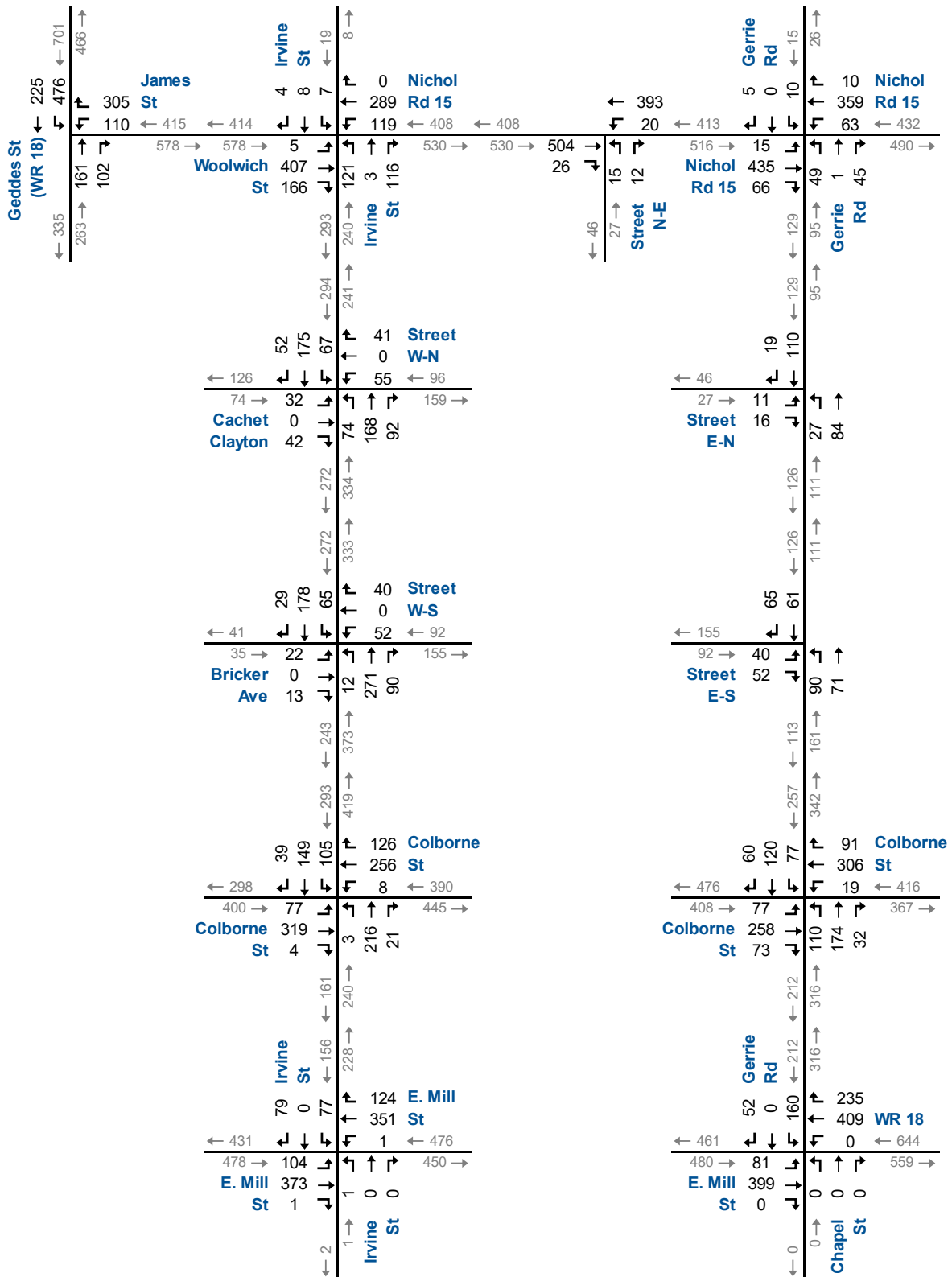


## 2035 Total Traffic Volumes (PM Peak Hour)



## 2040 Total Traffic Volumes (AM Peak Hour)

Figure 4.4A



## 2040 Total Traffic Volumes (PM Peak Hour)

## 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 18	>	C 18	<	C 18	>	C 18	<	C 18	>	C 18	A 4
	Irvine Street & Bricker Avenue	TWSC	LOS Delay V/C Q Ex Avail.	B 10 0.05 2 -	>	B 10		>	>	>	>	>	>	>	>	>	>	>	>	A 1	<	<	<	<	A 0 0.09 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 12	>	B 12	<	B 12	>	B 12	<	B 12	>	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 17	>	C 17	<	C 17	>	C 17	<	C 17	>	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 16	>	C 16	<	C 16	>	C 16	<	C 16	>	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 13	>	B 13	<	B 13	>	B 13	<	B 13	>	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 23	<	C 23	>	C 23	<	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 0.09 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 0.57 29 ->	<	<	<	<	>	>	>	>	C 16	<	<	<	<	A 0 0.10 0 ->	<	<	<	<	>	>	>	>	A 0	<	<	<	<	A 8 0.16 5 ->	<	<	<	<	>	>	>	>	A 5	A 9
	Woolwich Street/Nichol Road 15 & Irvine Street	TWSC	LOS Delay V/C Q Ex Avail.	<	A	>	A	<	8	>	A	<	8	>	A	<	1	>	A	<	<	<	<	>	C	>	C	<	20	>	C	<	<	<	<	>	C	>	C	17	A 5					
	Irvine Street & Bricker Avenue	TWSC	LOS Delay V/C Q Ex Avail.	B	<	>	B	10	<	>	B	10	<	>	B	<	<	<	<	>	A	>	A	<	8	>	A	<	0.01	>	A	<	<	<	<	>	A	>	A	0	A 2					
	Colborne Street & Irvine Street	AWSC	LOS Delay V/C Q Ex Avail.	<	B	>	B	<	10	>	B	<	12	>	B	<	0.43	>	B	<	12	>	B	<	9	>	A	<	0.11	>	A	<	<	<	<	>	B	>	B	12	B 11					
	East Mill Street (WR18) & Irvine Street	TWSC	LOS Delay V/C Q Ex Avail.	<	A	>	A	<	8	>	A	<	0	>	A	<	0.00	>	A	<	0	>	A	<	0	>	B	<	0.01	>	B	<	<	<	<	>	C	>	C	24	A 5					
	Nichol Road 15 & Gerrie Road	TWSC	LOS Delay V/C Q Ex Avail.	<	A	>	A	<	8	>	A	<	8	>	A	<	0.03	>	A	<	1	>	A	<	15	>	B	<	0.09	>	B	<	<	<	<	>	C	>	C	16	A 2					
	Colborne Street & Gerrie Road	AWSC	LOS Delay V/C Q Ex Avail.	<	B	>	B	<	15	>	B	<	12	>	B	<	0.36	>	B	<	12	>	B	<	11	>	B	<	0.22	>	B	<	<	<	<	>	B	>	B	13	B 13					
	East Mill Street (WR18) & Gerrie Road	TCS	LOS Delay V/C Q Ex Avail.	A	A	>	A	5	6	>	A	<	7	>	A	<	0.36	>	A	<	7	>	A	<	0	>	A	<	0.00	>	A	<	<	<	<	>	C	>	C	23	B 11					
	Irvine Street & Cachet Clayton	TWSC	LOS Delay V/C Q Ex Avail.	B	<	>	B	10	<	>	B	10	<	>	B	<	<	<	<	>	A	>	A	<	8	>	A	<	0.02	>	A	<	<	<	<	>	A	>	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 8	>	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 8	>	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 0.79 during the AM peak hour and LOS F and v/c ratio of 0.98 during the PM peak hour.
- ▶ Colborne Street and Irvine Street:
  - The eastbound left/through/right-turn movement with LOS E and v/c ratio of 0.85 during the PM peak hour; and
  - The westbound left/through/right-turn movement with LOS E and v/c ratio of 0.81 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 0.84 during the AM peak hour.
- ▶ Colborne Street and Gerrie Road:
  - The eastbound left/through/right-turn movement with LOS F and v/c ratio of 0.96 during the PM peak hour;
  - The westbound left/through/right-turn movement with LOS F and v/c ratio of 0.97 during the PM peak hour; and
  - The northbound left/through/right-turn movement with LOS E and v/c ratio of 0.80 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 0.28 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					D 25 0.76 56					D 25					A 0 0.11 0					A 0					A 5	B 14	
	Woolwich Street/Nichol Road 15 & Irvine Street	TWSC	LOS Delay V/C Q	<	A 8	>	A 0	<	A 8	>	A 2	<	E 46	>	E 46	<	C 20	>	C 20	<	0.03	>	1	<	A 1	>	A 1	C 20	B 13	
	Irvine Street & Bricker Avenue/Street W-S	TWSC	LOS Delay V/C Q	<	B 12	>	B 12	<	B 14	>	B 14	<	A 8	>	A 0	<	A 8	>	A 1	<	0.02	>	0	<	A 1	>	A 1	A 1	A 4	
	Colborne Street & Irvine Street	AWSC	LOS Delay V/C Q	<	B 12	>	B 12	<	B 14	>	B 14	<	B 11	>	B 11	<	C 22	>	C 22	<	0.72	>	48	<	C 22	>	C 22	C 22	C 17	
	East Mill Street (WR18) & Irvine Street	TWSC	LOS Delay V/C Q	<	A 8	>	A 1	<	A 0	>	A 0	<	B 10	>	B 10	<	E 49	>	E 49	<	0.84	>	62	<	E 49	>	E 49	E 49	C 15	
	Nichol Road 15 & Gerrie Road	TWSC	LOS Delay V/C Q	<	A 8	>	A 0	<	A 8	>	A 1	<	C 21	>	C 21	<	C 18	>	C 18	<	0.08	>	2	<	C 18	>	C 18	C 18	A 4	
	Colborne Street & Gerrie Road	AWSC	LOS Delay V/C Q	<	C 18	>	C 18	<	B 14	>	B 14	<	B 13	>	B 13	<	C 19	>	C 19	<	0.63	>	34	<	C 19	>	C 19	C 19	C 17	
	East Mill Street (WR18) & Gerrie Road	TCS	LOS Delay V/C Q Ex Avail.	B 10 0.06 5 30 25	A 8 0.38 41 - -	>	A 8	<	A 7 0.36 39 - -	>	A 7	<	A 0 0.00 0 - -	>	A 0	<	C 28 0.74 70 - -	>	C 28	<	-	>	-	<	C 28	>	C 28	C 28	B 14	
	Irvine Street & Cachet Clayton/Street W-N	TWSC	LOS Delay V/C Q	<	B 11	>	B 11	<	B 14	>	B 14	<	A 8	>	A 1	<	A 8	>	A 1	<	0.02	>	1	<	A 1	>	A 1	A 1	A 6	
	Nichol Road 15 & Street N-E	TWSC	LOS Delay V/C Q		A 0 0.19 0	>	A 0	<	A 8 0.01 0	>	A 0	B 13 0.09 2																	A 1	A 1
	Gerrie Road & Street E-N	TWSC	LOS Delay V/C Q	A 9 0.05 1		>	A 9																					A 0	A 1	
	Gerrie Road & Street E-S	TWSC	LOS Delay V/C Q	A 10 0.17 5		>	A 10																					A 0	A 5	

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 4.3B: 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 392					F 392					A 0					A 0					A 7	F 122
	Woolwich Street/Nichol Road 15 & Irvine Street	TWSC	LOS Delay V/C Q	<	A 8	>	A 0	<	A 9	>	A 3	<	F 93	>	F 93	<	D 29	>	D 29	<	0.98	>	<	D 3	>	D 29	C 20		
	Irvine Street & Bricker Avenue/Street W-S	TWSC	LOS Delay V/C Q	<	C 15	>	C 15	<	C 16	>	C 16	<	A 8	>	A 0	<	A 8	>	A 2	<	0.09	>	<	0.06	>	A 2	A 4		
	Colborne Street & Irvine Street	AWSC	LOS Delay V/C Q	<	E 42	>	E 42	<	E 35	>	E 35	<	C 22	>	C 22	<	D 26	>	D 26	<	0.85	>	<	0.68	>	D 26	D 33		
	East Mill Street (WR18) & Irvine Street	TWSC	LOS Delay V/C Q	<	A 9	>	A 2	<	A 8	>	A 0	<	D 28	>	D 28	<	D 30	>	D 30	<	0.10	>	<	0.54	>	D 30	A 5		
	Nichol Road 15 & Gerrie Road	TWSC	LOS Delay V/C Q	<	A 8	>	A 0	<	A 9	>	A 1	<	C 23	>	C 23	<	C 21	>	C 21	<	0.01	>	<	0.06	>	C 21	A 3		
	Colborne Street & Gerrie Road	AWSC	LOS Delay V/C Q	<	F 66	>	F 66	<	F 66	>	F 66	<	E 41	>	E 41	<	D 28	>	D 28	<	0.96	>	<	0.67	>	D 28	F 54		
	East Mill Street (WR18) & Gerrie Road	TCS	LOS Delay V/C Q Ex Avail.	B 11	A 5	>	A 6	<	A 7	>	A 7	<	A 0	>	A 0	<	C 21	>	C 21	<	0.18	>	<	0.47	>	C 21	A 9		
	Irvine Street & Cachet Clayton/Street W-N	TWSC	LOS Delay V/C Q	<	C 15	>	C 15	<	C 18	>	C 18	<	A 8	>	A 2	<	A 8	>	A 2	<	0.18	>	<	0.06	>	A 2	A 5		
	Nichol Road 15 & Street N-E	TWSC	LOS Delay V/C Q		A 0	>	A 0	<	A 9	>	A 0	C 16			C 16					<	0.32	>	<	0.02	>		A 1		
	Gerrie Road & Street E-N	TWSC	LOS Delay V/C Q	A 10		>	A 10					<	A 8	>	A 2		A 0	>	A 0	<	0.04	>	<	0.08	>	A 0	A 2		
	Gerrie Road & Street E-S	TWSC	LOS Delay V/C Q	B 11		>	B 11					<	A 8	>	A 4		A 0	>	A 0	<	0.13	>	<	0.08	>	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

#### 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 F and v/c ratio of 0.88 during the AM peak hour and LOS F and v/c ratio greater than 1.00 during the PM peak hour; and
  - The southbound left/through/right-turn movement with LOS E and v/c ratio of 0.16 during the PM peak hour.
- ▶ Colborne Street and Irvine Street:
  - The eastbound left/through/right-turn movement with LOS F and v/c ratio of 0.96 during the PM peak hour; and
  - The westbound left/through/right-turn movement with LOS F and v/c ratio of 0.92 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 0.95 during the AM peak hour and LOS E and v/c ratio of 0.63 during the PM peak hour.
- ▶ Colborne Street and Gerrie Road:
  - The eastbound left/through/right-turn movement with LOS F and v/c ratio greater than 1.00 during the PM peak hour;
  - The westbound left/through/right-turn movement with LOS F and v/c ratio greater than 1.00 during the PM peak hour; and
  - The northbound left/through/right-turn movement with LOS E and v/c ratio of 0.89 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 0.28 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					D 33 0.84 73		>	D 33					A 0 0.11 0	>	A 0	<	<	A 8 0.18 6	A 5	C 18
	Woolwich Street/Nichol Road 15 & Irvine Street	TWSC	LOS Delay V/C Q	<	A 8 0.01 0	>	A 0	<	A 8 0.07 2	>	A 2	<	F 63 0.88 65	>	F 63	<	<	C 22	>	>	C 0.04 1	C 22	C 17
	Irvine Street & Bricker Avenue/Street W-S	TWSC	LOS Delay V/C Q	<	B 12 0.08 2	>	B 12	<	B 14 0.27 9	>	B 14	<	A 8 0.01 0	>	A 0	<	<	A 1	>	>	A 7 0.02 0	A 1	A 4
	Colborne Street & Irvine Street	AWSC	LOS Delay V/C Q	<	B 13 0.33 11	>	B 13	<	C 16 0.53 25	>	C 16	<	B 11 0.21 6	>	B 11	<	<	D 26	>	>	D 0.76 58	D 26	C 19
	East Mill Street (WR18) & Irvine Street	TWSC	LOS Delay V/C Q	<	A 8 0.04 1	>	A 1	<	A 0 0.00 0	>	A 0	<	B 10 0.01 0	>	B 10	<	<	F 72	>	>	F 0.95 79	F 72	C 21
	Nichol Road 15 & Gerrie Road	TWSC	LOS Delay V/C Q	<	A 8 0.01 0	>	A 0	<	A 8 0.04 1	>	A 1	<	C 23 0.37 13	>	C 23	<	<	C 19	>	>	C 0.10 2	C 19	A 4
	Colborne Street & Gerrie Road	AWSC	LOS Delay V/C Q	<	C 22 0.68 42	>	C 22	<	B 15 0.46 18	>	B 15	<	B 14 0.31 10	>	B 14	<	<	C 21	>	>	C 0.67 41	C 21	C 19
	East Mill Street (WR18) & Gerrie Road	TCS	LOS Delay V/C Q Ex Avail.	B 11 0.07 6 30 24	A 8 0.41 45 -	>	A 9	<	A 9 0.43 43 -	>	A 9	<	A 0 0.00 0 -	>	A 0	<	<	C 29	>	>	C 0.74 77 -	C 29	B 15
	Irvine Street & Cachet Clayton/Street W-N	TWSC	LOS Delay V/C Q	<	B 12 0.18 6	>	B 12	<	B 14 0.27 9	>	B 14	<	A 8 0.02 1	>	A 1	<	<	A 1	>	>	A 0.02 1	A 1	A 6
	Nichol Road 15 & Street N-E	TWSC	LOS Delay V/C Q		A 0 0.21 0	>	A 0	<	A 8 0.01 0	>	A 0	B 14 0.09 2		B 14								A 1	A 1
	Gerrie Road & Street E-N	TWSC	LOS Delay V/C Q	A 9 0.05 1		>	A 9							A 1			A 0 0.05 0	>	>	A 0		A 2	A 2
	Gerrie Road & Street E-S	TWSC	LOS Delay V/C Q	A 10 0.17 5		>	A 10							A 3			A 0 0.06 0	>	>	A 0		A 5	A 5

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 4.4B: 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	579		>	F	579		A	>	A	<	A	<	A	>	A	7	F	178	
	Woolwich Street/Nichol Road 15 & Irvine Street	TWSC	LOS Delay V/C Q	<	A	>	A	<	A	>	A	<	A	>	F	>	F	<	D	>	D	>	D	33	D	28	
	Irvine Street & Bricker Avenue/Street W-S	TWSC	LOS Delay V/C Q	<	C	>	C	<	C	>	C	<	C	>	A	>	A	<	A	>	A	>	A	2	A	4	
	Colborne Street & Irvine Street	AWSC	LOS Delay V/C Q	<	F	>	F	<	F	>	F	<	F	>	D	>	D	<	D	>	D	>	D	34	D	47	
	East Mill Street (WR18) & Irvine Street	TWSC	LOS Delay V/C Q	<	A	>	A	<	A	>	A	<	A	>	D	>	D	<	E	>	E	>	E	38	A	6	
	Nichol Road 15 & Gerrie Road	TWSC	LOS Delay V/C Q	<	A	>	A	<	A	>	A	<	A	>	D	>	D	<	C	>	C	>	C	23	A	3	
	Colborne Street & Gerrie Road	AWSC	LOS Delay V/C Q	<	F	>	F	<	F	>	F	<	F	>	E	>	E	<	D	>	D	>	D	33	F	69	
	East Mill Street (WR18) & Gerrie Road	TCS	LOS Delay V/C Q Ex Avail.	B	A	>	A	<	A	>	A	<	A	>	A	>	A	<	C	>	C	>	C	24	B	10	
	Irvine Street & Cachet Clayton/Street W-N	TWSC	LOS Delay V/C Q	<	C	>	C	<	C	>	C	<	C	>	A	>	A	<	A	>	A	>	A	2	A	5	
	Nichol Road 15 & Street N-E	TWSC	LOS Delay V/C Q		A	>	A	<	A		A	C	17													A	1
	Gerrie Road & Street E-N	TWSC	LOS Delay V/C Q	A		>	A								A		A		A	>	A	>	A	0	A	2	
	Gerrie Road & Street E-S	TWSC	LOS Delay V/C Q	B		>	B								A		A		A	>	A	>	A	0	A	4	

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 7<sup>7</sup> 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.

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<sup>7</sup> 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	78%	136%	30%	330%	No	No
	Background 2040	69%	126%	24%	306%	No	No
	Total 2040	83%	146%	31%	354%	No	No
Woolwich Street/Nichol Road 15 & Irvine Street	Background 2035	53%	44%	43%	58%	No	No
	Total 2035	73%	74%	56%	96%	No	No
	Background 2040	57%	47%	46%	60%	No	No
	Total 2040	77%	76%	59%	98%	No	No
Colborne Street & Irvine Street	Background 2035	56%	80%	37%	124%	No	No
	Total 2035	77%	153%	41%	208%	No	No
	Background 2040	61%	89%	39%	131%	No	No
	Total 2040	81%	158%	44%	215%	No	No
East Mill Street (WR18) & Irvine Street	Background 2035	54%	35%	46%	57%	No	No
	Total 2035	69%	65%	54%	92%	No	No
	Background 2040	59%	37%	51%	60%	No	No
	Total 2040	74%	67%	58%	95%	No	No
Colborne Street & Gerrie Road	Background 2035	66%	104%	41%	151%	No	No
	Total 2035	81%	149%	46%	208%	No	No
	Background 2040	70%	112%	44%	162%	No	No
	Total 2040	86%	157%	49%	219%	No	No
Nichol Road 15 & Gerrie Road	Background 2035	73%	20%	68%	21%	No	No
	Total 2035	94%	49%	82%	67%	No	No
	Background 2040	79%	22%	73%	23%	No	No
	Total 2040	101%	50%	88%	69%	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*<sup>8</sup>.

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.

<sup>8</sup> 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/Street W-S

**Table 5.2** summarizes the left-turn lane warrant for a southbound left-turn lane on Irvine Street at the proposed Street W-S. It indicates that a southbound left-turn lane is not warranted under future total traffic conditions.

**TABLE 5.2: LEFT-TURN LANE WARRANT (IRVINE STREET & STREET W-S)**

Roadway	Irvine Street			
Intersection	Street W-S			
Approach Direction	Southbound			
Design Speed	60 km/h			
Horizon	TT (2035)		TT (2040)	
Peak Hour	AM	PM	AM	PM
Advancing Volume	268	266	274	272
Opposing Volumes	165	368	171	373
Left Turning Traffic	21	65	21	65
% of Left Turning Traffic	7.8%	24.4%	7.7%	23.9%
Figure Used*	9A-6	9A-8	9A-6	9A-8
Warranted	No	No	No	No
Storage Length Required	-	-	-	-

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

**Table 5.3** 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 5.3: 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	165	368	115	178	171	373
Opposing Volumes	148	138	268	266	154	144	274	272
Left Turning Traffic	9	12	9	12	9	12	9	12
% of Left Turning Traffic	8.3%	6.9%	5.5%	3.3%	7.8%	6.7%	5.3%	3.2%
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 W-N

**Table 5.4** summarizes the left-turn lane warrant for a southbound left-turn lane on Irvine Street at the proposed Street W-N. It indicates that a southbound left-turn lane with 15 metres of storage is warranted under future 2040 total traffic conditions.

**TABLE 5.4: LEFT-TURN LANE WARRANT (IRVINE STREET & STREET W-N)**

Roadway	Irvine Street			
Intersection	Street W-N			
Approach Direction	Southbound			
Design Speed	60 km/h			
Horizon	TT (2035)		TT (2040)	
Peak Hour	AM	PM	AM	PM
Advancing Volume	145	288	151	294
Opposing Volumes	195	326	201	334
Left Turning Traffic	21	67	21	67
% of Left Turning Traffic	14.5%	23.3%	13.9%	22.8%
Figure Used*	9A-6	9A-8	9A-6	9A-8
Warranted	No	No	No	Yes
Storage Length Required	-	-	-	15m

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

**Table 5.5** 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 with 15 metres of storage is warranted under future 2035 and 2040 total traffic conditions.

**TABLE 5.5: 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	195	326	123	189	201	334
Opposing Volumes	92	148	145	288	98	154	151	294
Left Turning Traffic	22	74	22	74	22	74	22	74
% of Left Turning Traffic	18.8%	40.9%	11.3%	22.7%	17.9%	39.2%	10.9%	22.2%
Figure Used*	9A-7	9A-9	9A-6	9A-8	9A-7	9A-9	9A-6	9A-8
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



### 5.2.3 Nichol Road 15 and Street N-E

**Table 5.6** summarizes the left-turn lane warrant for a westbound left-turn lane on Nichol Road 15 at the proposed Street N-E. It indicates that a westbound left-turn lane with 15 metres of storage is warranted under future 2035 and 2040 total traffic conditions.

**TABLE 5.6: LEFT-TURN LANE WARRANT (NICHOL ROAD 15 & STREET N-E)**

Roadway	Nichol Road 15			
Intersection	Street N-E			
Approach Direction	Westbound			
Design Speed	90 km/h			
Horizon	TT (2035)		TT (2040)	
Peak Hour	AM	PM	AM	PM
Advancing Volume	387	366	415	413
Opposing Volumes	303	498	325	530
Left Turning Traffic	8	20	8	20
% of Left Turning Traffic	2.1%	5.5%	1.9%	4.8%
Figure Used*	9A-18	9A-18	9A-18	9A-18
Warranted	No	Yes	Yes	Yes
Storage Length Required	-	15m	15m	15m

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

### 5.2.4 Gerrie Road and Street E-N

**Table 5.7** summarizes the left-turn lane warrant for a northbound left-turn lane on Irvine Street at the proposed Street E-N. 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 E-N)**

Roadway	Gerrie Road			
Intersection	Street E-N			
Approach Direction	Northbound			
Design Speed	60 km/h			
Horizon	TT (2035)		TT (2040)	
Peak Hour	AM	PM	AM	PM
Advancing Volume	96	109	98	111
Opposing Volumes	74	128	76	129
Left Turning Traffic	8	27	8	27
% of Left Turning Traffic	8.3%	24.8%	8.2%	24.3%
Figure Used*	9A-6	9A-8	9A-6	9A-8
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 E-S**

**Table 5.8** summarizes the left-turn lane warrant for a northbound left-turn lane on Irvine Street at the proposed Street E-S. It indicates a northbound left-turn lane is not warranted under future total traffic conditions.

**TABLE 5.8: LEFT-TURN LANE WARRANT (GERRIE ROAD & STREET E-S)**

Roadway	Gerrie Road			
Intersection	Street E-S			
Approach Direction	Northbound			
Design Speed	60 km/h			
Horizon	TT (2035)		TT (2040)	
Peak Hour	AM	PM	AM	PM
Advancing Volume	70	159	72	161
Opposing Volumes	91	125	93	126
Left Turning Traffic	25	90	25	90
% of Left Turning Traffic	35.7%	56.6%	34.7%	55.9%
Figure Used*	9A-9	9A-9	9A-9	9A-9
Warranted	No	No	No	No
Storage Length Required	-	-	-	-

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



### 5.2.6 Geddes Street (Wellington Road 18) & James Street

**Table 5.9** 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 total horizon and increases a further 10 metres to 40 metres during the 2040 total horizon.

**TABLE 5.9: 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	322	658	325	584	350	701
Opposing Volumes	146	198	165	243	160	218	179	263
Left Turning Traffic	188	337	213	454	204	359	229	476
% of Left Turning Traffic	63.3%	62.3%	66.1%	69.0%	62.8%	61.5%	65.4%	67.9%
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	40m

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 5.10** 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 both the 2035 and 2040 total traffic horizons.



**TABLE 5.10: 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	399	381	349	320	428	408
Opposing Volumes	227	390	271	552	246	416	290	578
Left Turning Traffic	45	65	74	114	49	70	78	119
% of Left Turning Traffic	14.1%	22.2%	18.5%	29.9%	14.0%	21.9%	18.2%	29.2%
Figure Used*	9A-3	9A-3	9A-3	9A-4	9A-3	9A-3	9A-3	9A-4
Warranted	No	No	Yes	Yes	No	Yes	Yes	Yes
Storage Length Required	-	-	15m	25m	-	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 5.11** 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 25 metres of storage is warranted under 2035 and 2040 total traffic conditions.

**TABLE 5.11: LEFT-TURN LANE WARRANT (EAST MILL STREET & IRVINE STREET)**

Roadway	East Mill 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	358	445	358	385	391	478
Opposing Volumes	282	369	305	441	309	404	332	476
Left Turning Traffic	17	43	39	103	17	44	39	104
% of Left Turning Traffic	5.2%	12.2%	10.9%	23.1%	4.7%	11.4%	10.0%	21.8%
Figure Used*	9A-2	9A-2	9A-2	9A-4	9A-2	9A-2	9A-2	9A-2
Warranted	No	No	No	Yes	No	No	No	Yes
Storage Length Required	-	-	-	25m	-	-	-	25m

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 5.12** 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 increases to 25 metres under 2035 and 2040 total traffic conditions.

**TABLE 5.12: 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	376	404	373	359	406	432
Opposing Volumes	240	384	315	484	262	416	337	516
Left Turning Traffic	28	36	40	62	30	37	42	63
% of Left Turning Traffic	8.2%	10.9%	10.6%	15.3%	8.0%	10.3%	10.3%	14.6%
Figure Used*	9A-18	9A-18	9A-18	9A-19	9A-18	9A-18	9A-18	9A-19
Warranted	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Storage Length Required	15m	15m	15m	25m	15m	15m	15m	25m

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 666 and 895 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);
  - Colborne Street and Irvine Street (from the 2035 total horizon);
  - East Mill Street (Wellington Road 18) and Irvine Street (from the 2035 total horizon); and
  - Colborne Street and Gerrie Road (from the 2035 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;
  - Northbound on Irvine Street at Cachet Clayton/Street W-N under total traffic conditions;
  - Southbound on Irvine Street at Cachet Clayton/Street W-N under 2040 total traffic conditions;
  - Westbound on Nichol Road 15 at Street N-W under total traffic conditions; and
  - Westbound on Nichol Road 15 at Street N-E under total traffic conditions.

## 6.2 Recommendations

Based on the findings of this study it is 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;
  - Northbound on Irvine Street at Cachet Clayton/Street W-N with 15 metres of storage upon the completion of the subject site;
  - Southbound on Irvine Street at Cachet Clayton/Street W-N with 15 metres of storage upon the completion of the subject site;
  - Westbound on Nichol Road 15 at Street N-W with 15 metres of storage upon completion of the subject site; and
  - Westbound on Nichol Road 15 at Street N-E with 15 metres of storage upon 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](#)

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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 11<sup>th</sup> 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**

5A-150 Pinebush Road Cambridge ON N1R 8J8

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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

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

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

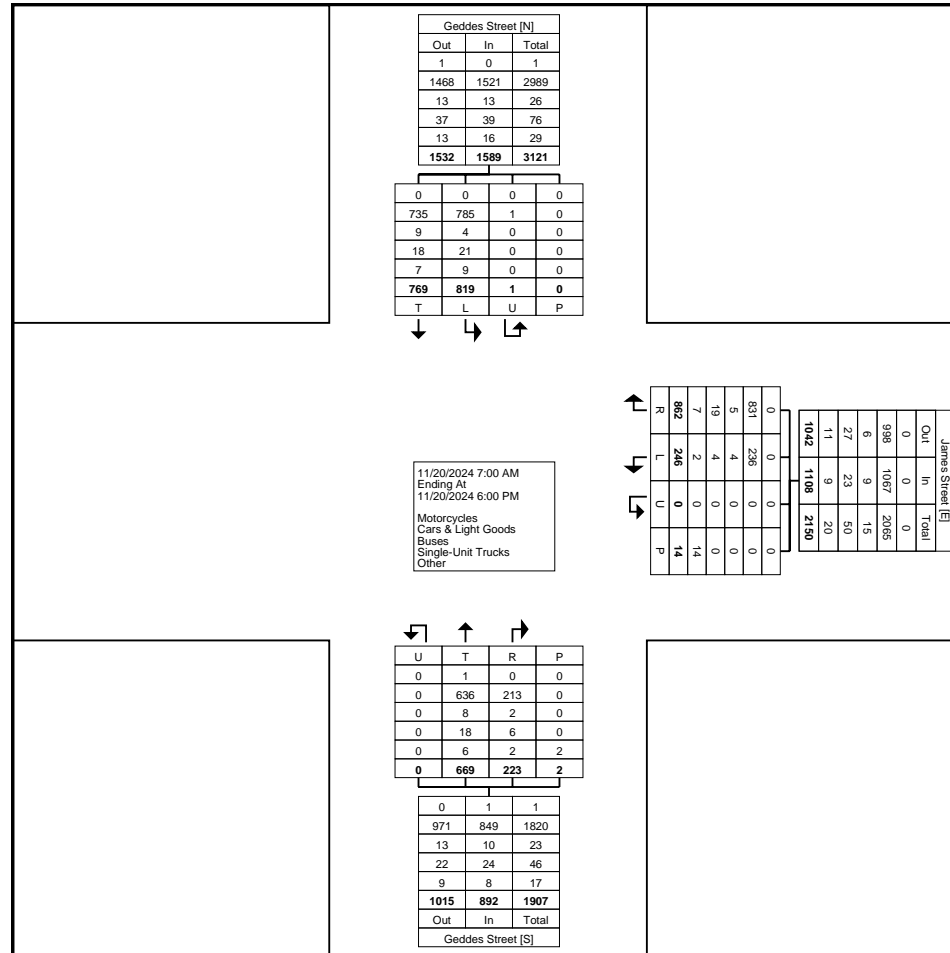
4:45 PM	12	33	0	1	45	21	5	0	0	26	42	50	0	0	92	163
Hourly Total	40	133	0	3	173	99	34	0	0	133	146	160	0	0	306	612
5:00 PM	7	34	0	0	41	45	12	0	0	57	50	31	0	0	81	179
5:15 PM	6	28	0	0	34	18	9	0	0	27	41	33	0	0	74	135
5:30 PM	8	22	0	0	30	19	4	0	0	23	48	30	0	0	78	131
5:45 PM	8	15	0	0	23	17	1	0	0	18	27	16	0	0	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	-	-	-	-	-	-	-



Paradigm Transportation Solutions Limited  
5A-150 Pinebush Rd

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

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  
5A-150 Pinebush Rd

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

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)

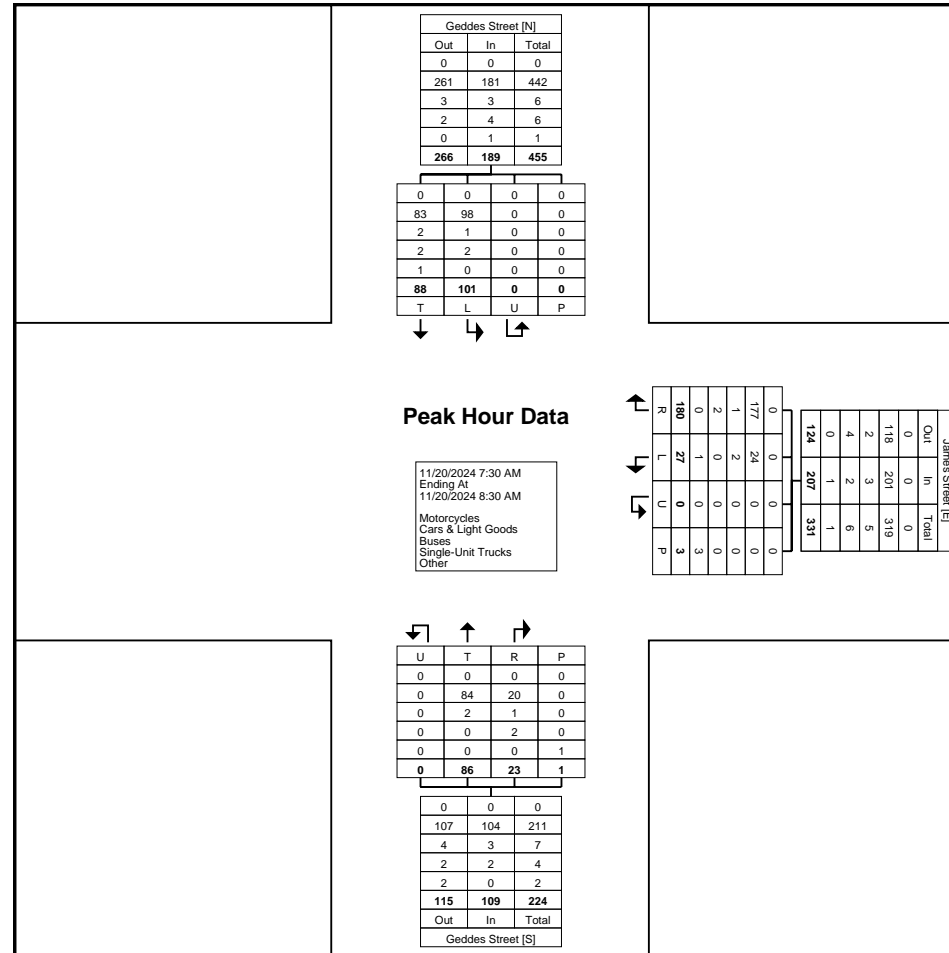
Start Time	James Street Westbound					Geddes Street Northbound					Geddes Street Southbound					Int. Total
	Left	Right	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	
7:30 AM	11	50	0	2	61	21	4	0	0	25	21	21	0	0	42	128
7:45 AM	7	43	0	0	50	26	2	0	0	28	30	23	0	0	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

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

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)

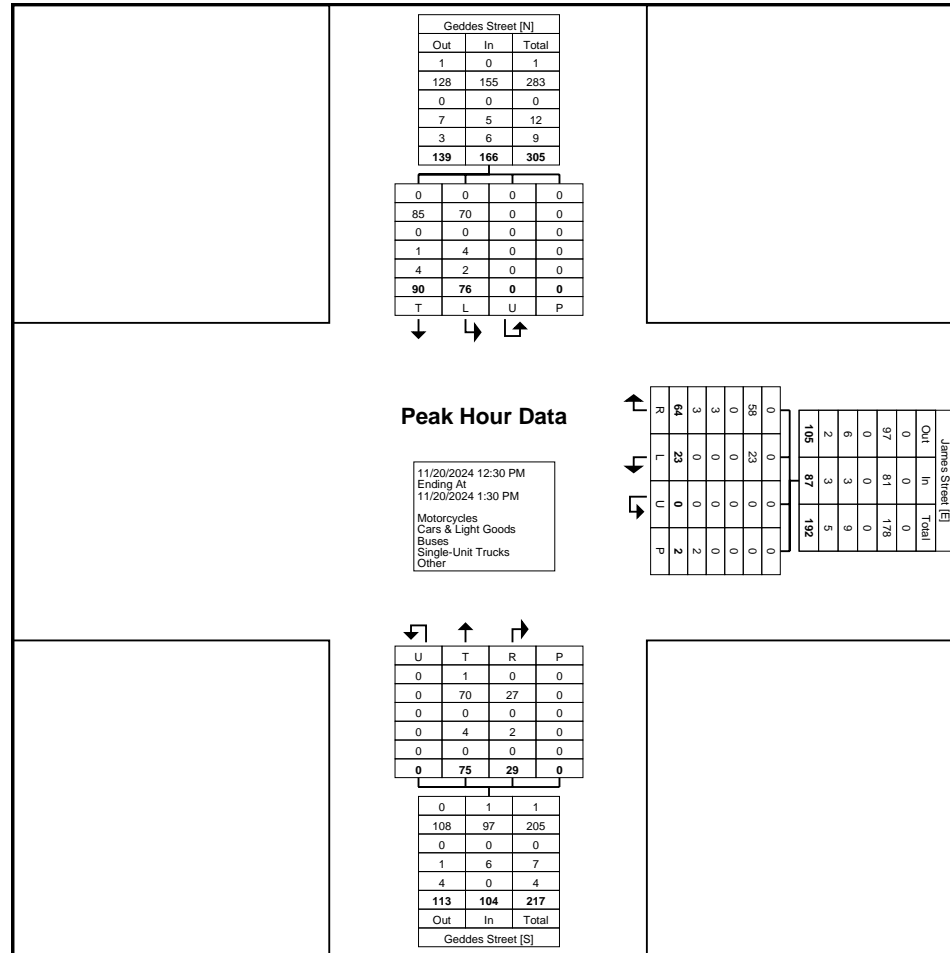




Paradigm Transportation Solutions Limited  
5A-150 Pinebush Rd

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

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)

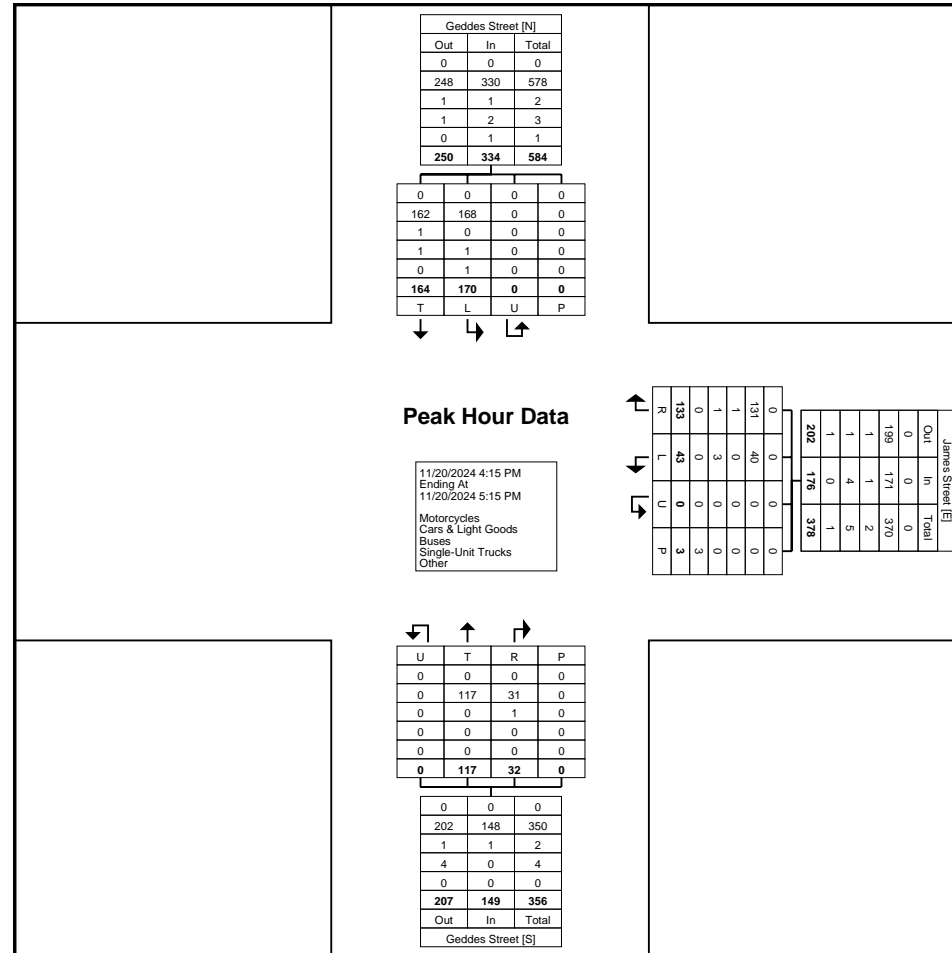




Paradigm Transportation Solutions Limited  
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8  
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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  
5A-150 Pinebush Rd

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

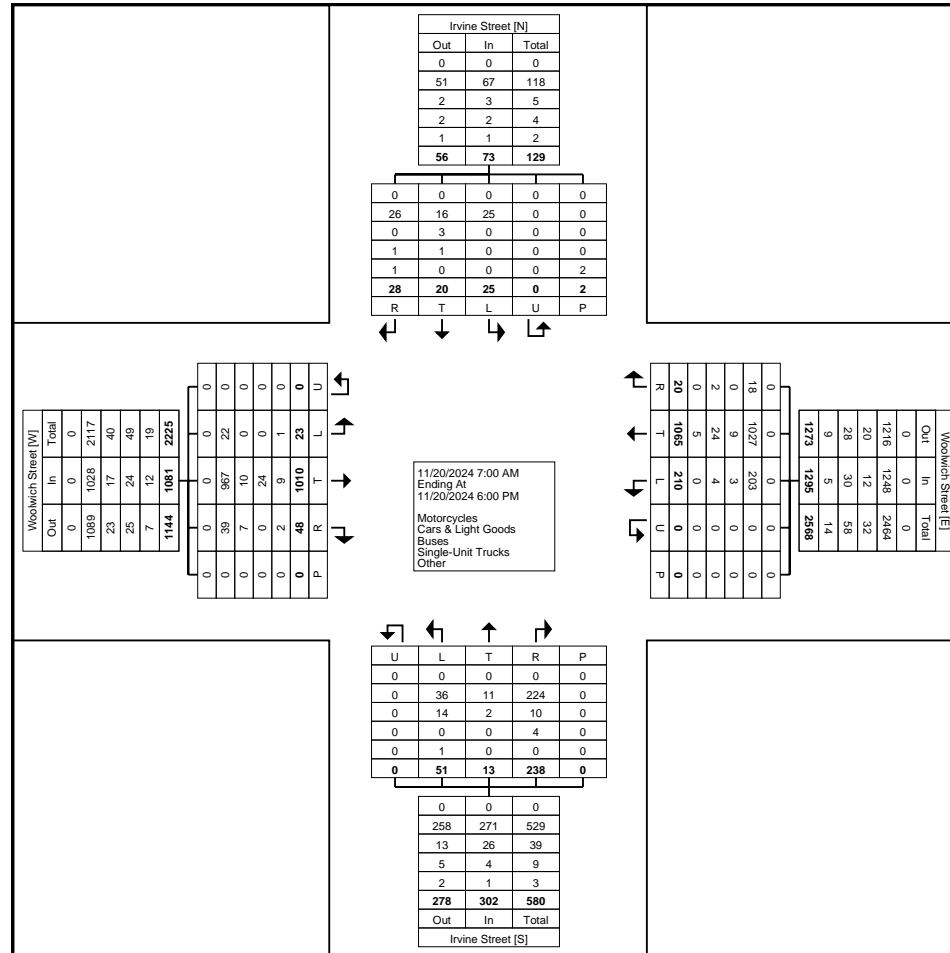
4:30 PM	0	51	1	0	0	52	7	52	0	0	0	59	3	1	9	0	0	13	2	2	0	0	0	4	128
4:45 PM	1	44	0	0	0	45	12	36	0	0	0	48	3	0	10	0	0	13	2	0	1	0	0	3	109
Hourly Total	3	176	2	0	0	181	43	168	1	0	0	212	7	2	39	0	0	48	8	4	3	0	0	15	456
5:00 PM	1	62	2	0	0	65	7	38	0	0	0	45	1	0	10	0	0	11	0	3	1	0	0	4	125
5:15 PM	0	54	0	0	0	54	11	36	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  
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Count Name: Woolwich 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  
519-896-3163 cbowness@ptsI.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)

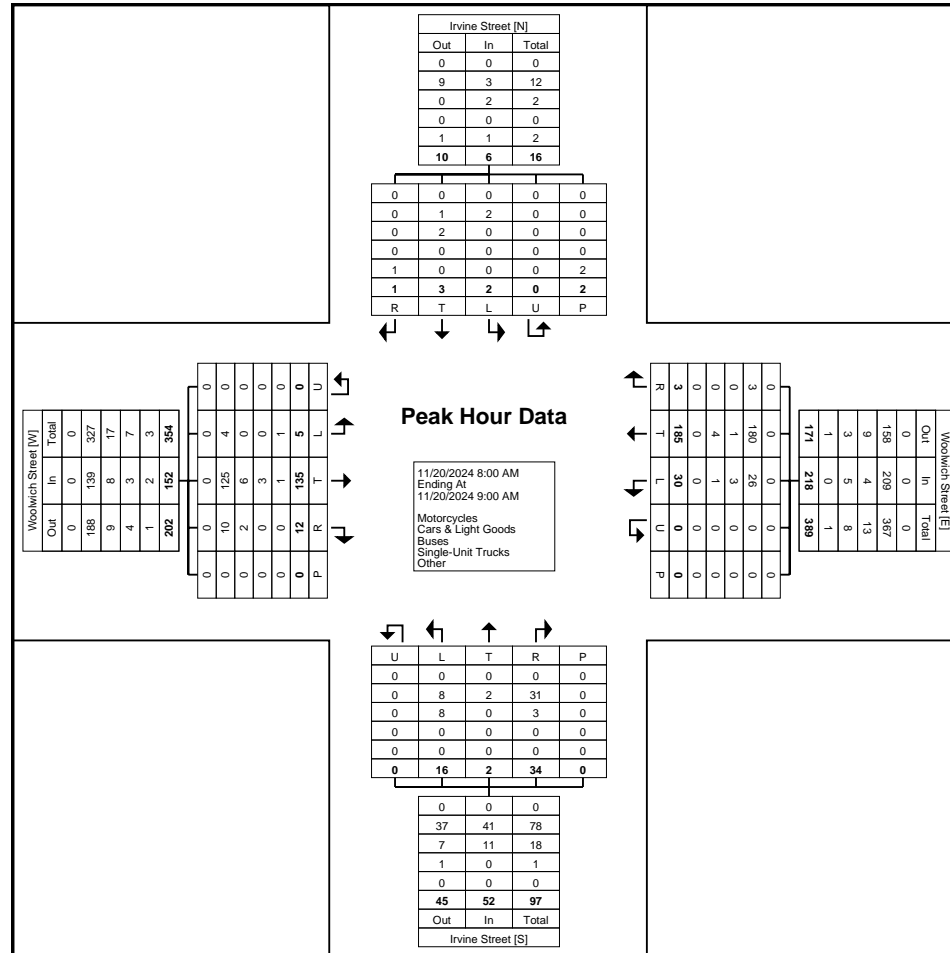
Start Time	Woolwich Street Eastbound						Woolwich Street Westbound						Irvine Street Northbound						Irvine Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
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
<b>Total</b>	<b>5</b>	<b>135</b>	<b>12</b>	<b>0</b>	<b>0</b>	<b>152</b>	<b>30</b>	<b>185</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>218</b>	<b>16</b>	<b>2</b>	<b>34</b>	<b>0</b>	<b>0</b>	<b>52</b>	<b>2</b>	<b>3</b>	<b>1</b>	<b>0</b>	<b>2</b>	<b>6</b>	<b>428</b>
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  
519-896-3163 cbowness@pts1.com

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)

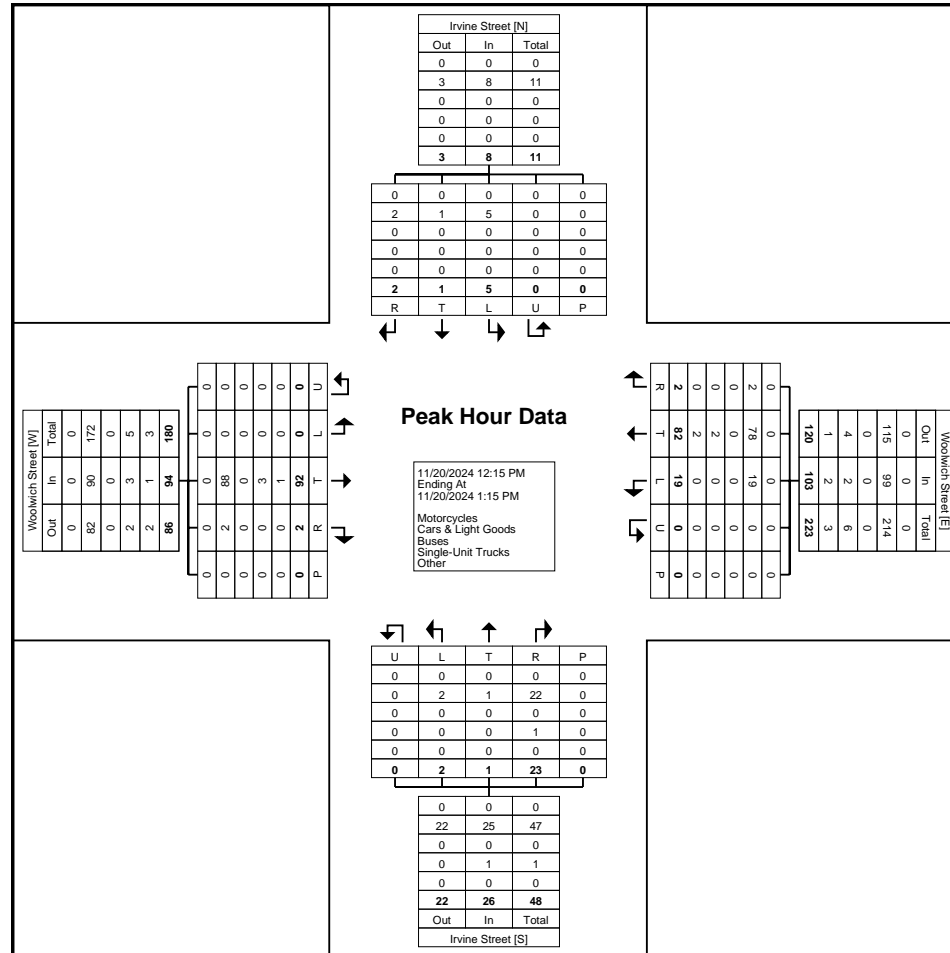
Start Time	Woolwich Street Eastbound						Woolwich Street Westbound						Irvine Street Northbound						Irvine Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
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@pts.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)

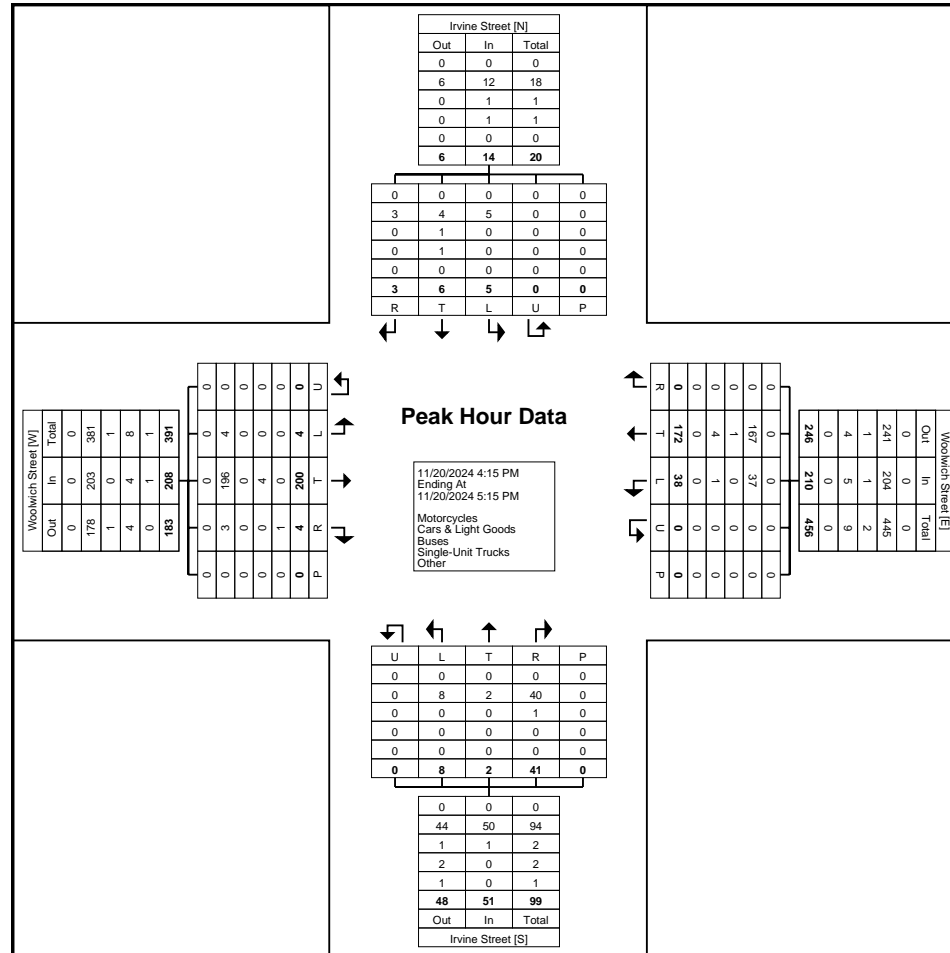
Start Time	Woolwich Street Eastbound						Woolwich Street Westbound						Irvine Street Northbound						Irvine Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
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
<b>Total</b>	<b>4</b>	<b>200</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>208</b>	<b>38</b>	<b>172</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>210</b>	<b>8</b>	<b>2</b>	<b>41</b>	<b>0</b>	<b>0</b>	<b>51</b>	<b>5</b>	<b>6</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>14</b>	<b>483</b>
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@ptsl.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

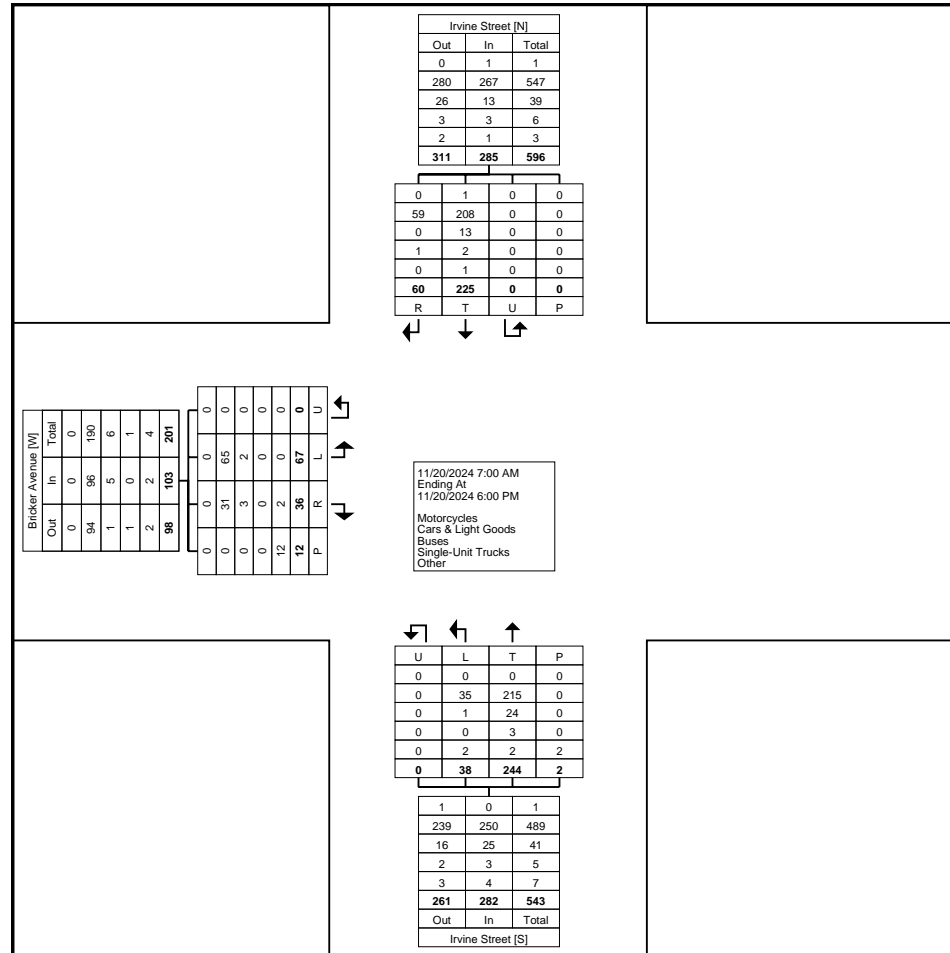
4:45 PM	4	0	0	0	4	1	9	0	0	10	7	5	0	0	12	26
Hourly Total	12	2	0	2	14	3	38	0	1	41	30	21	0	0	51	106
5:00 PM	3	4	0	3	7	1	10	0	0	11	12	0	0	0	12	30
5:15 PM	1	0	0	0	1	2	7	0	0	9	8	4	0	0	12	22
5:30 PM	3	0	0	0	3	2	9	0	0	11	8	3	0	0	11	25
5:45 PM	3	0	0	1	3	3	1	0	0	4	8	2	0	0	10	17
Hourly Total	10	4	0	4	14	8	27	0	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  
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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

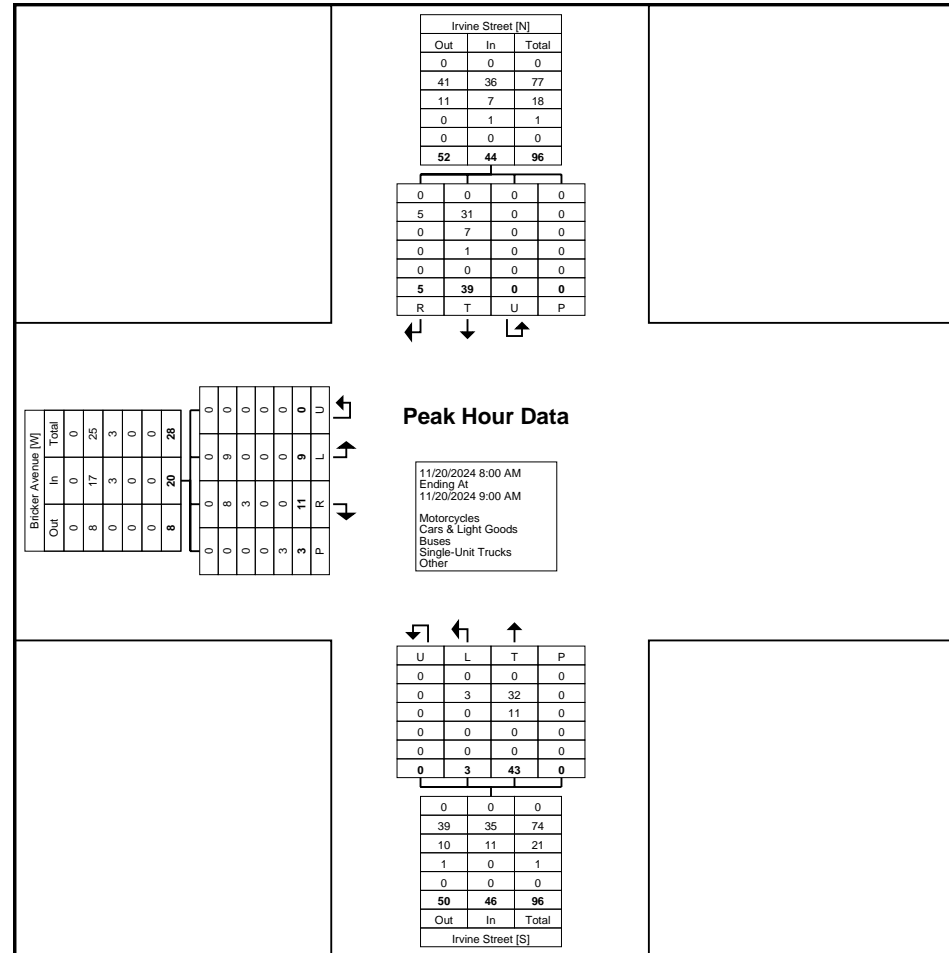




Paradigm Transportation Solutions Limited  
5A-150 Pinebush Rd

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: 5



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

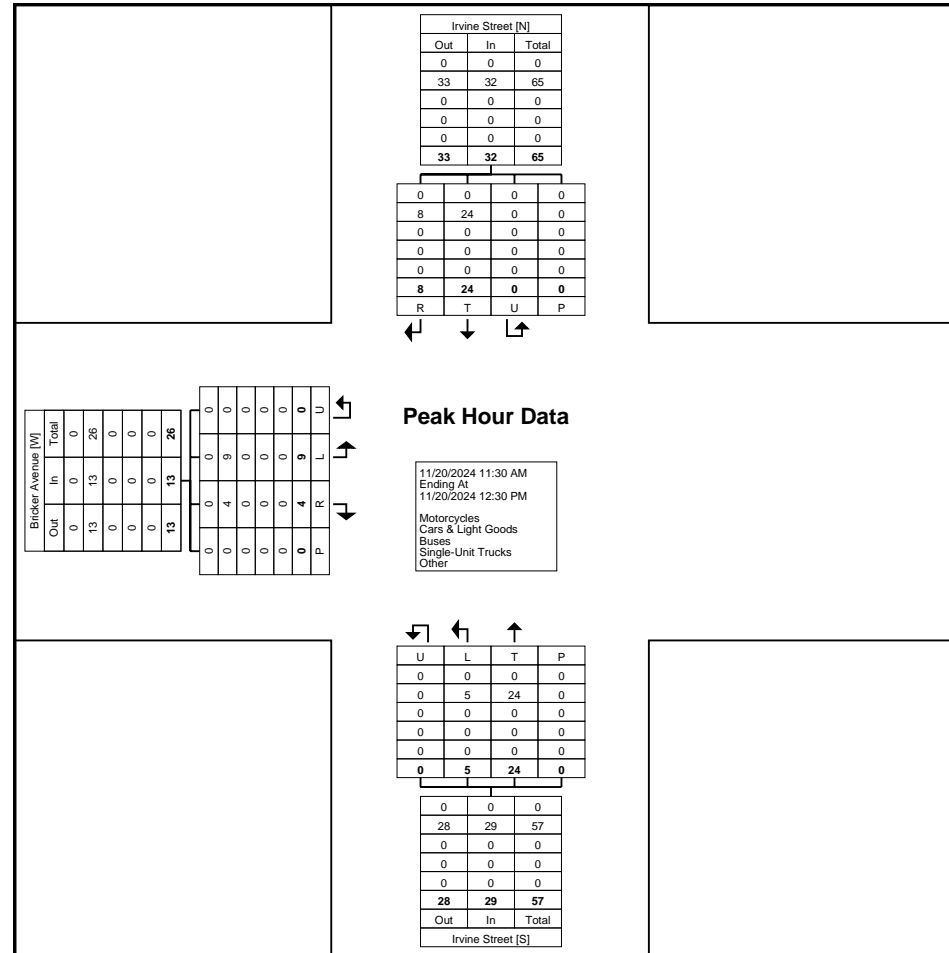




Paradigm Transportation Solutions Limited  
5A-150 Pinebush Rd

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)

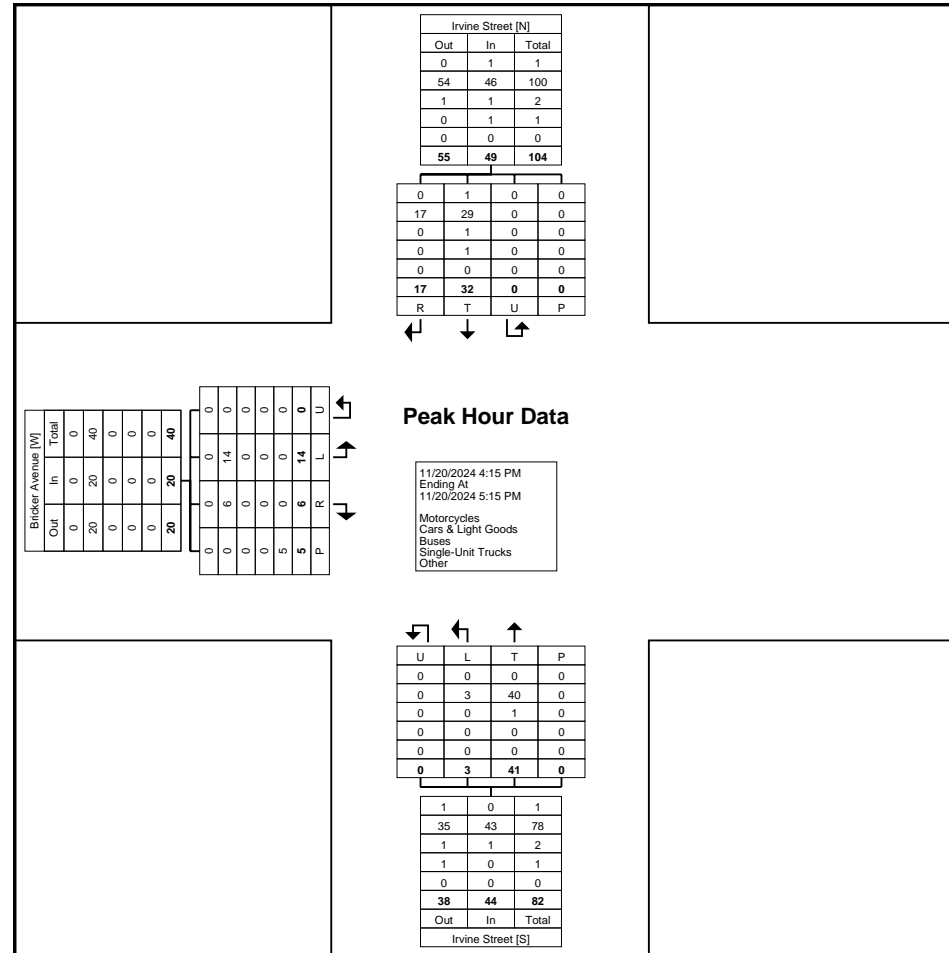




Paradigm Transportation Solutions Limited  
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519-896-3163 cbowness@ptsI.com

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  
519-896-3163 cbowness@ptsI.com

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
<b>Total</b>	<b>6</b>	<b>80</b>	<b>4</b>	<b>0</b>	<b>1</b>	<b>90</b>	<b>1</b>	<b>113</b>	<b>27</b>	<b>0</b>	<b>7</b>	<b>141</b>	<b>2</b>	<b>24</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>32</b>	<b>34</b>	<b>52</b>	<b>10</b>	<b>0</b>	<b>7</b>	<b>96</b>	<b>359</b>
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  
519-896-3163 cbowness@ptsll.com

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)

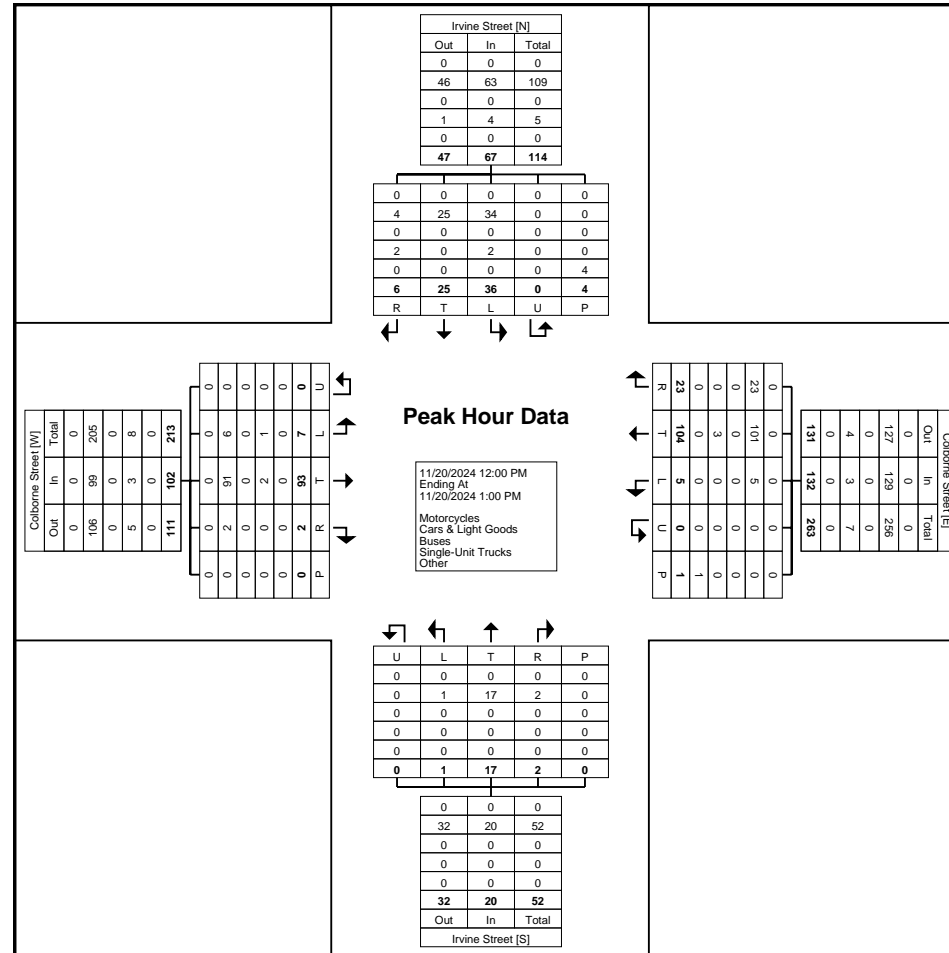
Start Time	Colborne Street Eastbound						Colborne Street Westbound						Irvine Street Northbound						Irvine Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
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
<b>Total</b>	<b>7</b>	<b>93</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>102</b>	<b>5</b>	<b>104</b>	<b>23</b>	<b>0</b>	<b>1</b>	<b>132</b>	<b>1</b>	<b>17</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>20</b>	<b>36</b>	<b>25</b>	<b>6</b>	<b>0</b>	<b>4</b>	<b>67</b>	<b>321</b>
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  
519-896-3163 cbowness@ptsI.com

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)

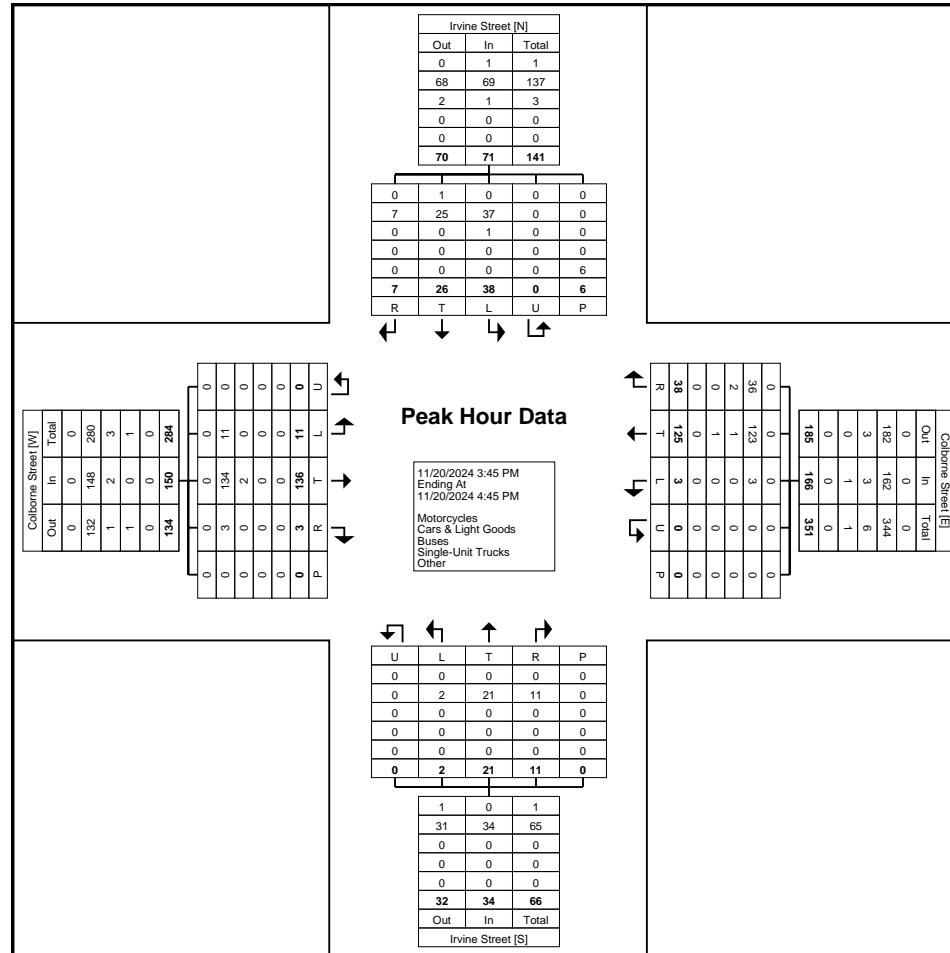
Start Time	Colborne Street Eastbound						Colborne Street Westbound						Irvine Street Northbound						Irvine Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
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
<b>Total</b>	<b>11</b>	<b>136</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>150</b>	<b>3</b>	<b>125</b>	<b>38</b>	<b>0</b>	<b>0</b>	<b>166</b>	<b>2</b>	<b>21</b>	<b>11</b>	<b>0</b>	<b>0</b>	<b>34</b>	<b>38</b>	<b>26</b>	<b>7</b>	<b>0</b>	<b>6</b>	<b>71</b>	<b>421</b>
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

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

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  
519-896-3163 cbowness@pts.com

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

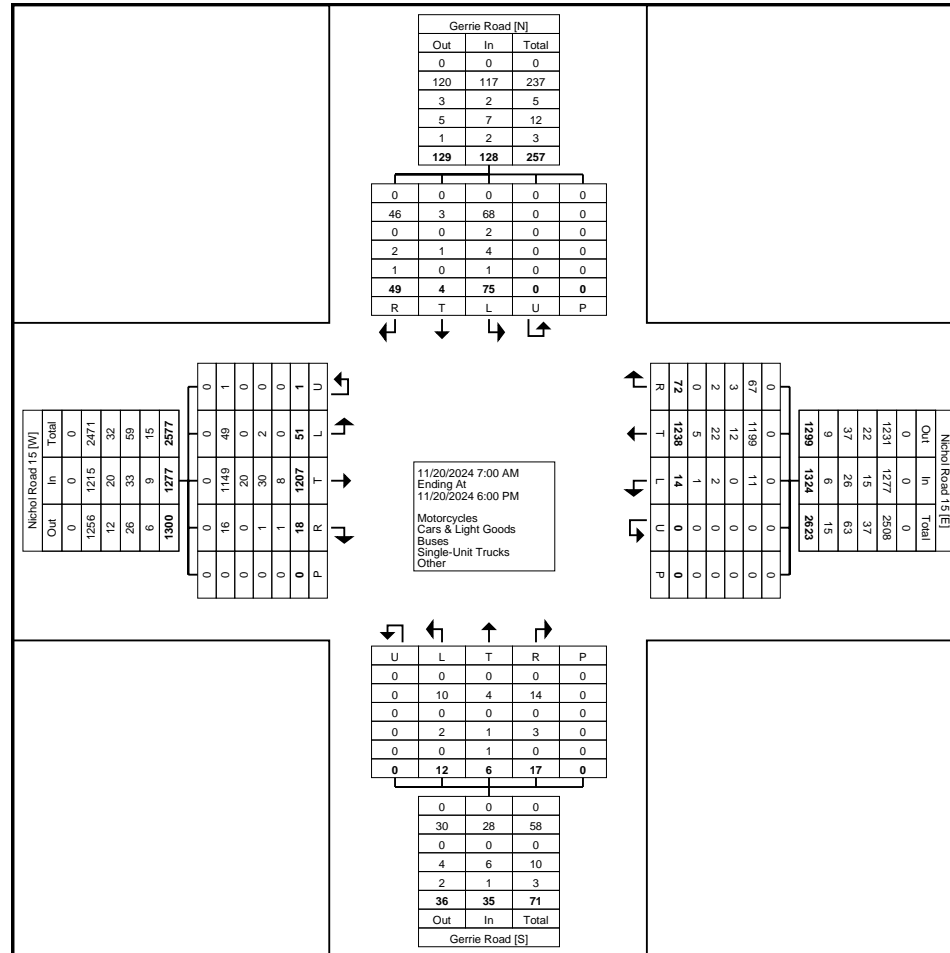




Paradigm Transportation Solutions Limited  
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8  
519-896-3163 cbonness@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)

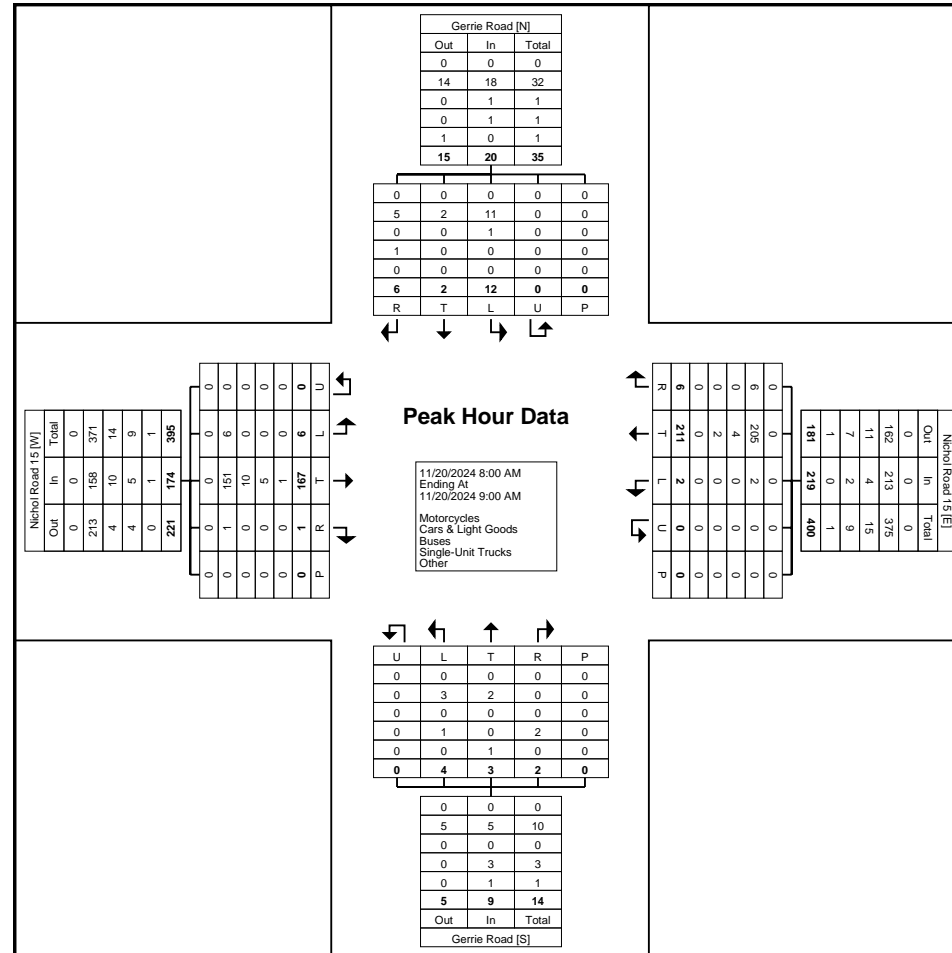
Start Time	Nichol Road 15 Eastbound						Nichol Road 15 Westbound						Gerrie Road Northbound						Gerrie Road Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
8:00 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  
519-896-3163 cbowness@ptsI.com

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  
519-896-3163 cbowness@ptsI.com

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)

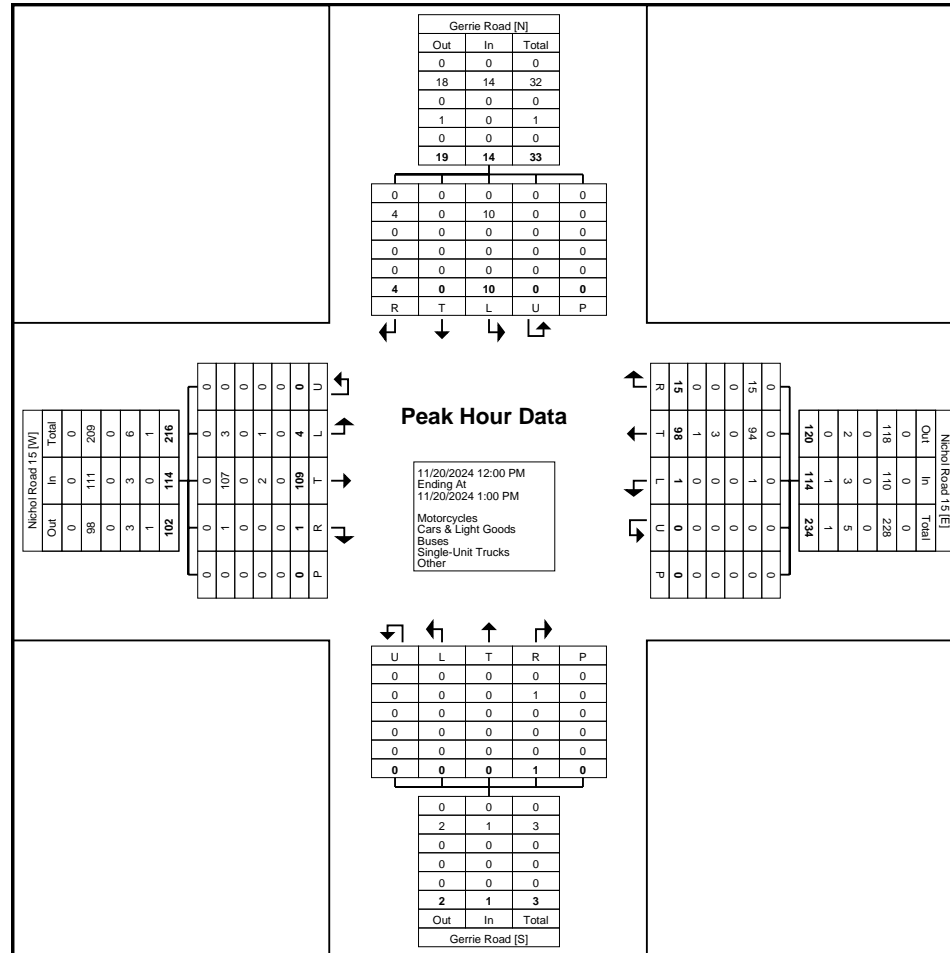
Start Time	Nichol Road 15 Eastbound						Nichol Road 15 Westbound						Gerrie Road Northbound						Gerrie Road Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
12:00 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
<b>Total</b>	<b>4</b>	<b>109</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>114</b>	<b>1</b>	<b>98</b>	<b>15</b>	<b>0</b>	<b>0</b>	<b>114</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>10</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>14</b>	<b>243</b>
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  
519-896-3163 cbowness@ptsI.com

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)

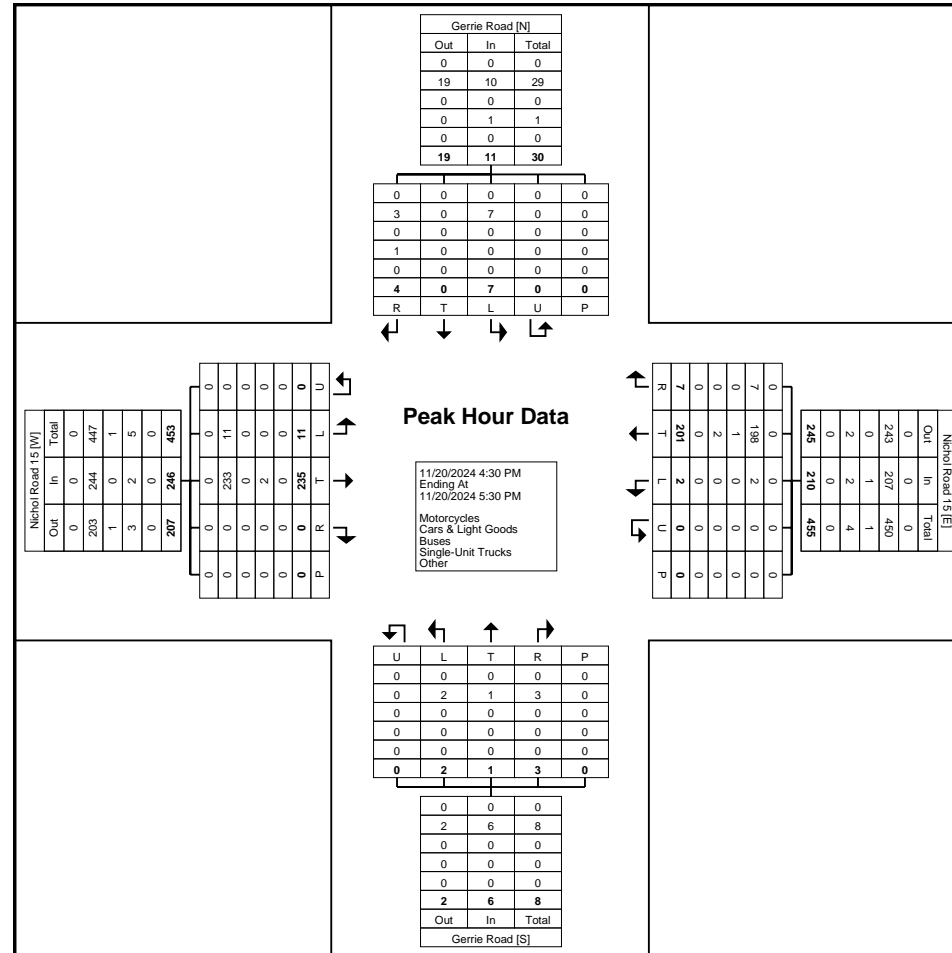
Start Time	Nichol Road 15 Eastbound						Nichol Road 15 Westbound						Gerrie Road Northbound						Gerrie Road Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
4:30 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

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: 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 cdowness@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	-	0.0	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

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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)

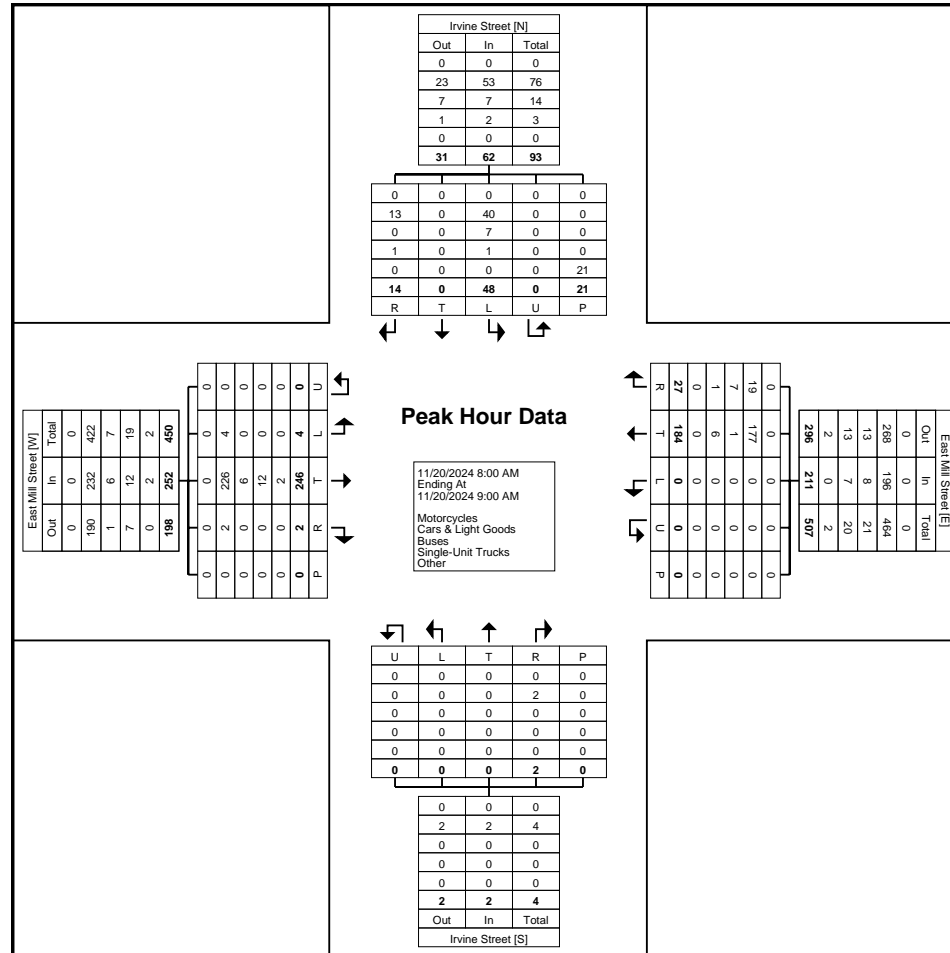
Start Time	East Mill Street Eastbound						East Mill Street Westbound						Irvine Street Northbound						Irvine Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
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  
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: 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: 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
<b>Total</b>	<b>2</b>	<b>183</b>	<b>1</b>	<b>0</b>	<b>2</b>	<b>186</b>	<b>1</b>	<b>207</b>	<b>16</b>	<b>0</b>	<b>0</b>	<b>224</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>25</b>	<b>0</b>	<b>11</b>	<b>0</b>	<b>4</b>	<b>36</b>	<b>446</b>
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  
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: 8

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

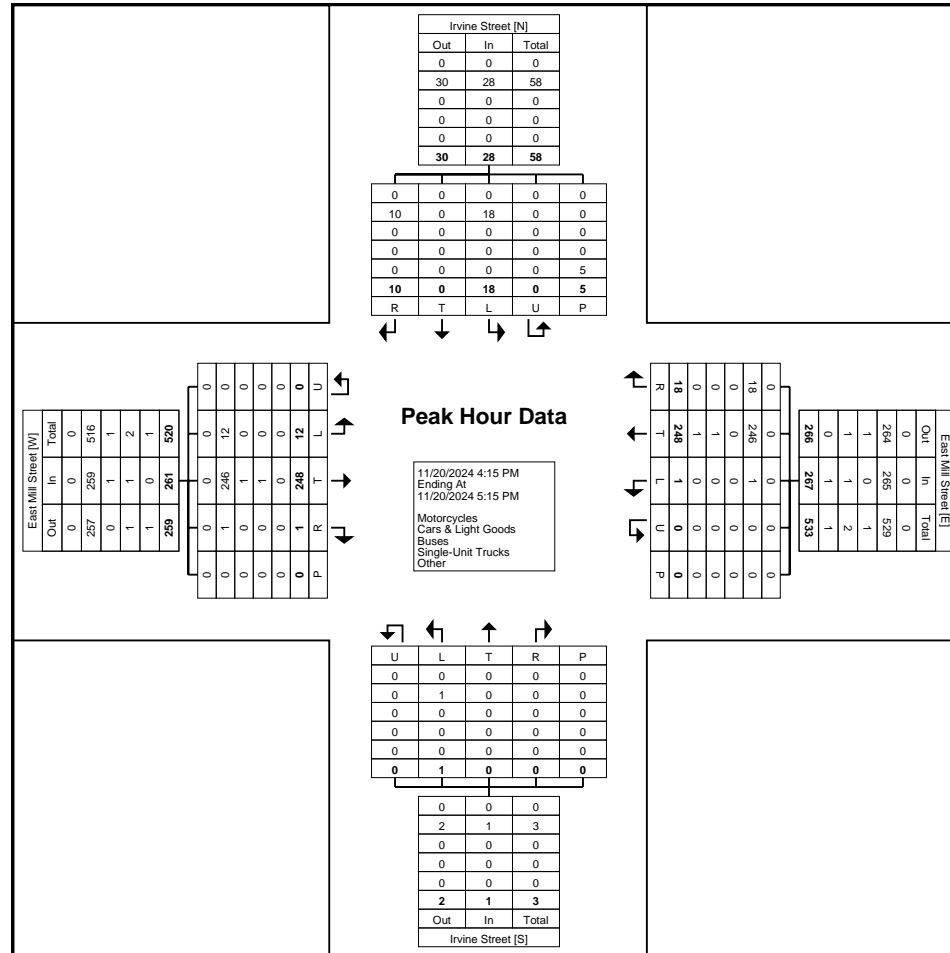
Start Time	East Mill Street Eastbound						East Mill Street Westbound						Irvine Street Northbound						Irvine Street Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
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
<b>Total</b>	<b>12</b>	<b>248</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>261</b>	<b>1</b>	<b>248</b>	<b>18</b>	<b>0</b>	<b>0</b>	<b>267</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>18</b>	<b>0</b>	<b>10</b>	<b>0</b>	<b>5</b>	<b>28</b>	<b>557</b>
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

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

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

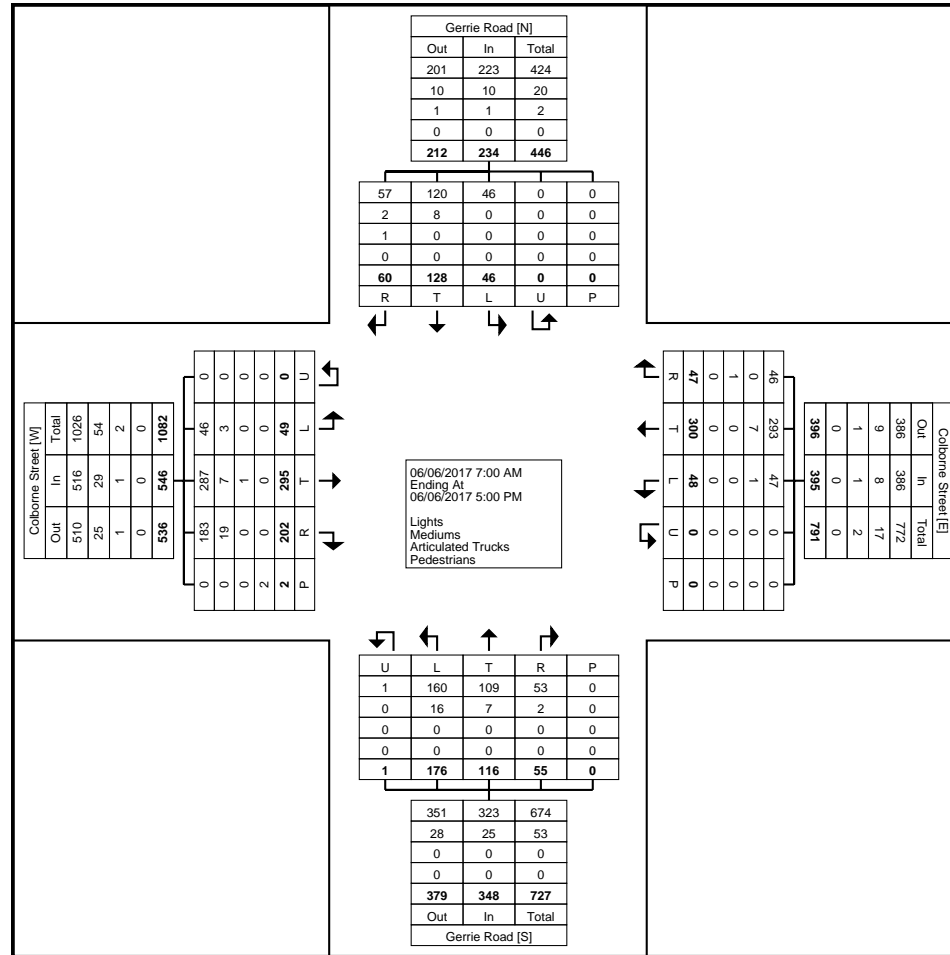
Start Time	Colborne Street Eastbound						Colborne Street Westbound						Gerrie Road Northbound						Gerrie Road Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:00 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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



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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: 2



Turning Movement Data Plot



Paradigm Transportation Solutions Limited  
22 King Street South, Suite 300

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

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

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

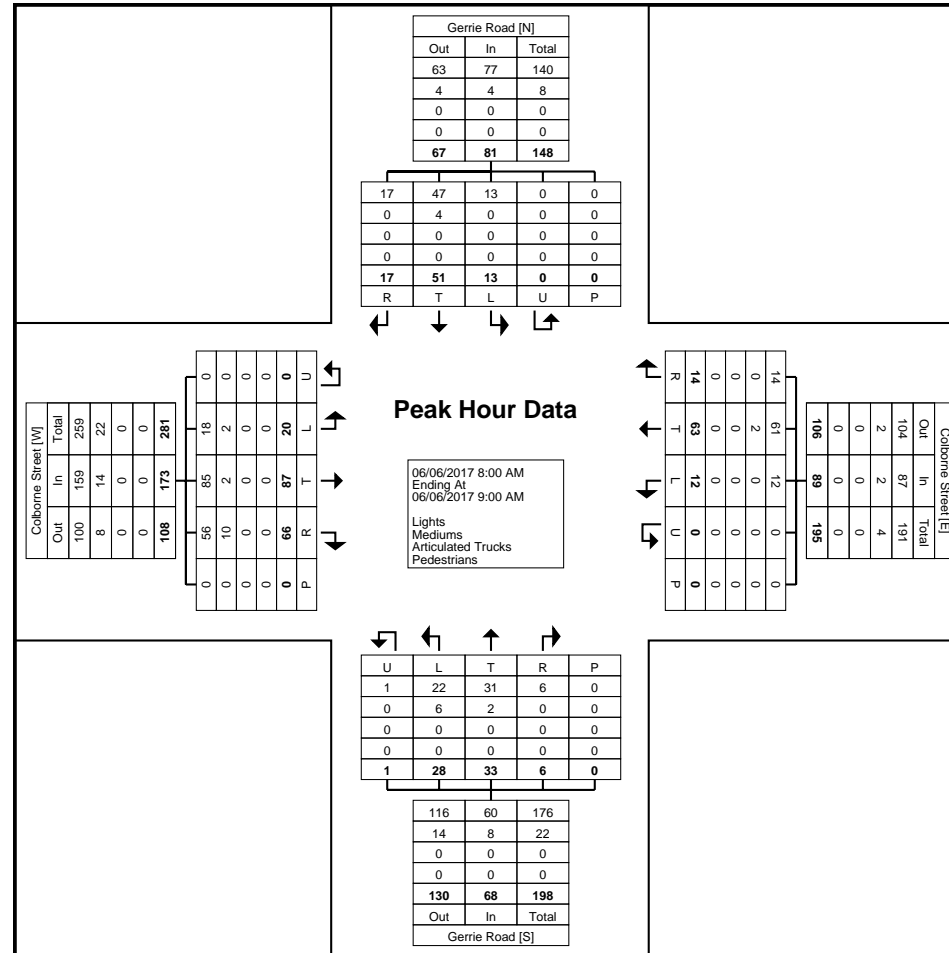
Start Time	Colborne Street Eastbound						Colborne Street Westbound						Gerrie Road Northbound						Gerrie Road Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
8:00 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: 7



Paradigm Transportation Solutions Limited  
5A-150 Pinebush Rd

Cambridge, Ontario, Canada N1R 8J8  
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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

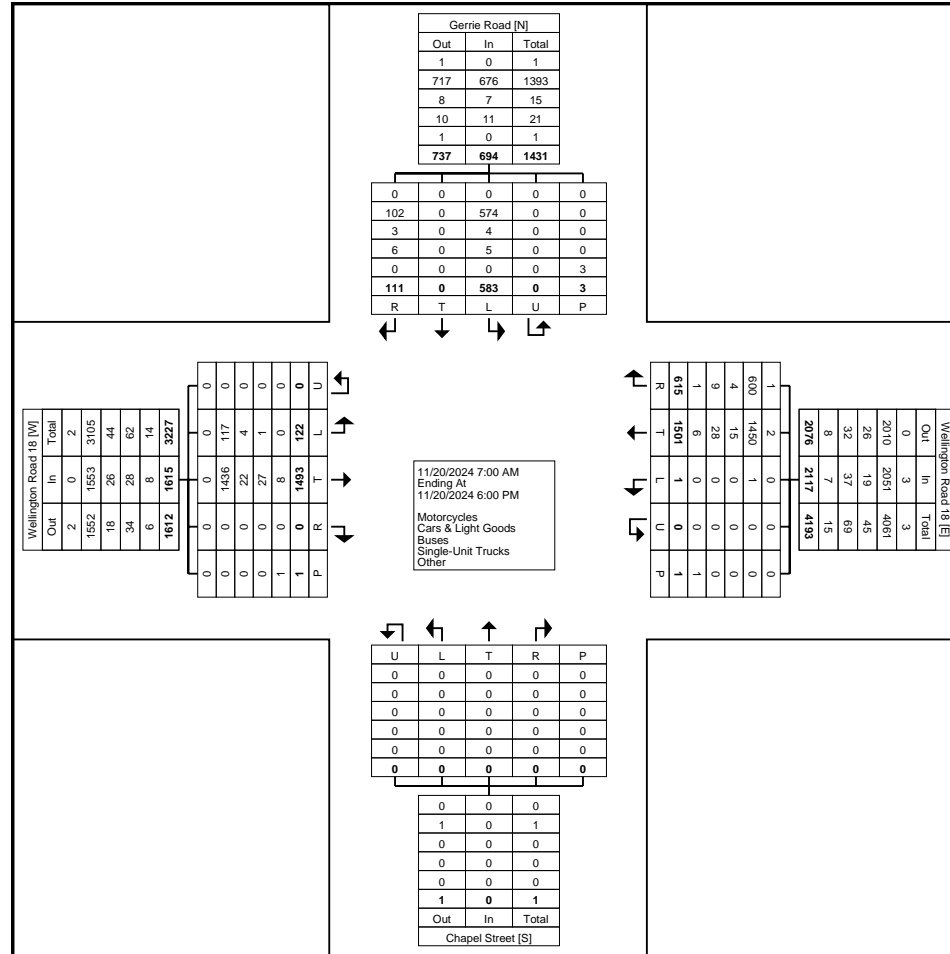
4:30 PM	7	70	0	0	1	77	0	66	23	0	0	89	0	0	0	0	0	0	11	0	5	0	0	16	182
4:45 PM	10	65	0	0	0	75	0	60	21	0	0	81	0	0	0	0	0	0	21	0	4	0	0	25	181
Hourly Total	26	248	0	0	1	274	0	232	108	0	0	340	0	0	0	0	0	0	75	0	13	0	0	88	702
5:00 PM	8	60	0	0	0	68	0	47	27	0	0	74	0	0	0	0	0	0	18	0	2	0	0	20	162
5:15 PM	2	48	0	0	0	50	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	-	-



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: 3



Turning Movement Data Plot



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5A-150 Pinebush Rd

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Count Name: Wellington Road 18 & Gerrie Road  
Site Code: 240695  
Start Date: 11/20/2024  
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  
5A-150 Pinebush Rd

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

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
<b>Total</b>	<b>13</b>	<b>197</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>210</b>	<b>1</b>	<b>209</b>	<b>76</b>	<b>0</b>	<b>0</b>	<b>286</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>85</b>	<b>0</b>	<b>15</b>	<b>0</b>	<b>0</b>	<b>100</b>	<b>596</b>
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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-





Paradigm Transportation Solutions Limited  
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### Turning Movement Peak Hour Data (4:15 PM)

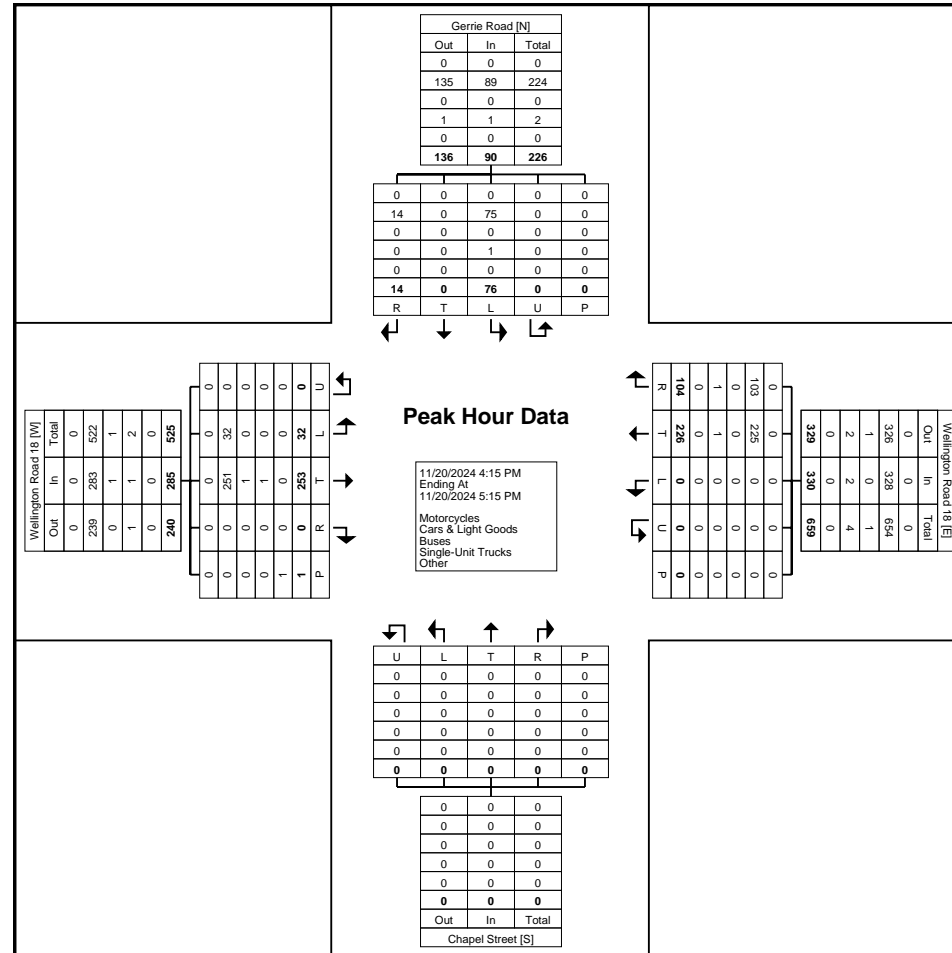
Start Time	Wellington Road 18 Eastbound						Wellington Road 18 Westbound						Chapel Street Northbound						Gerrie Road Southbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
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
<b>Total</b>	<b>32</b>	<b>253</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>285</b>	<b>0</b>	<b>226</b>	<b>104</b>	<b>0</b>	<b>0</b>	<b>330</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>76</b>	<b>0</b>	<b>14</b>	<b>0</b>	<b>0</b>	<b>90</b>	<b>705</b>
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  
5A-150 Pinebush Rd

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Count Name: Wellington Road 18 & Gerrie Road  
Site Code: 240695  
Start Date: 11/20/2024  
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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	W	R	T	T	L	R
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		
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	37.4%		ICU Level of Service A			
Analysis Period (min)	15					

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	W	R	T	T	L	R
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	
<b>Direction, Lane #</b>						
	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	A				
<b>Intersection Summary</b>						
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		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								
cSH	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								
<b>Intersection Summary</b>												
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

<b>Intersection</b>												
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%
Analysis Period (min)	15
	ICU Level of Service A

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			
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	
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								
<b>Intersection Summary</b>												
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

<b>Intersection</b>												
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	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	0	269	0	0	498	526	268	513	513	236
Stage 1	-	-	-	-	-	-	276	276	-	236	236	-
Stage 2	-	-	-	-	-	-	222	250	-	277	277	-
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	1327	-	-	1306	-	-	486	460	776	449	468	791
Stage 1	-	-	-	-	-	-	735	685	-	735	713	-
Stage 2	-	-	-	-	-	-	785	704	-	698	685	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1303	-	-	1306	-	-	475	450	776	438	458	777
Mov Cap-2 Maneuver	-	-	-	-	-	-	475	450	-	438	458	-
Stage 1	-	-	-	-	-	-	732	682	-	719	700	-
Stage 2	-	-	-	-	-	-	770	691	-	693	682	-
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
Friction	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		
Fit Permitted	0.998			0.997			0.991			0.971		
Satd. Flow (perm)	0 1729			0 0 1837			0 0 1091			0 0 1603		
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		15		25		15		25		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								
sSH	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								
<b>Intersection Summary</b>												
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

<b>Intersection</b>												
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	
Flt Protected		0.994			0.993			0.980			0.992	
Satd. Flow (prot)	0	1659	0	0	1809	0	0	1647	0	0	1743	0
Flt 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

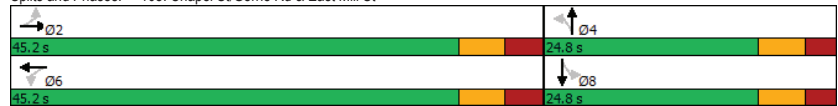
Base Year - 2024  
AM Peak Hour

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 Capacity Utilization:	44.3%
Intersection LOS:	A
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		
Satd. Flow (prot)	1687	1681			1770					1705		
Flt Permitted	0.59	1.00			1.00					0.78		
Satd. 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		
<b>Intersection Summary</b>												
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		
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	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+1), s	6.2		0.0				5.8		7.9			
Green Ext Time (p_c), s	1.5		0.0				2.1		0.7			

<b>Intersection Summary</b>												
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	25
Sign Control	Stop		Free		Free	
<b>Intersection Summary</b>						
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	↔		↔			↔
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			
<b>Intersection Summary</b>						
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	↔		↔			↔
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		A			
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	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	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		0		1859	
Fit Permitted	0.967		0.997			
Satd. Flow (perm)	1758		0		1859	
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)			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			↑	↑	
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

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			↑	↑	
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	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	0	0	0	2	6	0
Mvmt Flow	15	7	3	45	34	18
Intersection						
Int Delay, s/veh	1.8					
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	
<b>Intersection Summary</b>												
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									
<b>Intersection Summary</b>													
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								
sSH	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								
<b>Intersection Summary</b>												
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

<b>Intersection</b>												
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	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	0	259
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	1350	-	-	1317
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	1350	-	-	1317
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

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
Frt		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		15	25		15	25		15
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								
<b>Intersection Summary</b>												
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

<b>Intersection</b>												
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				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
<b>Intersection Summary</b>				

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	
<b>Intersection Summary</b>												
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				
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				

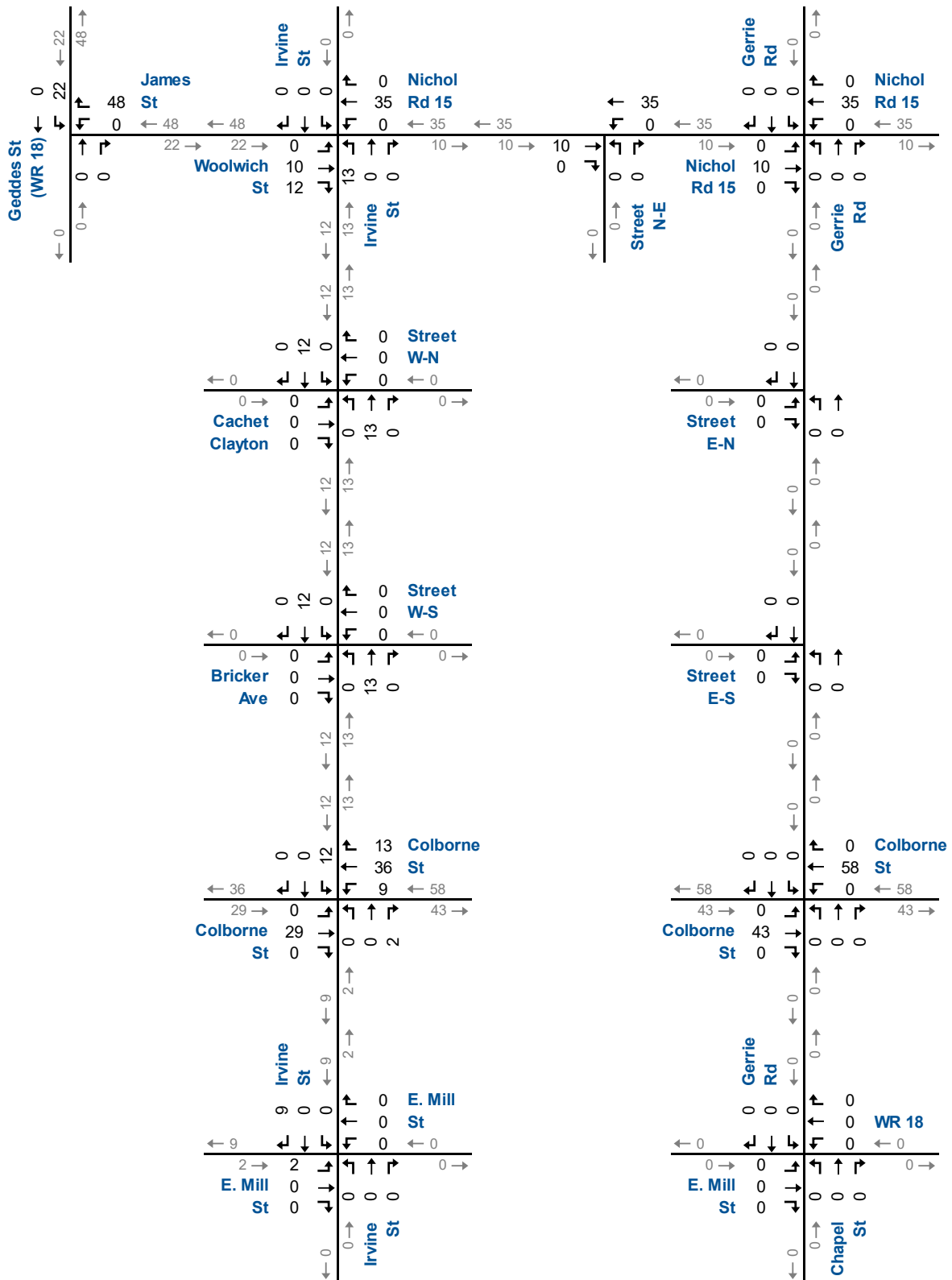
Intersection Summary		
HCM 6th Ctrl Delay		6.9
HCM 6th LOS		A

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

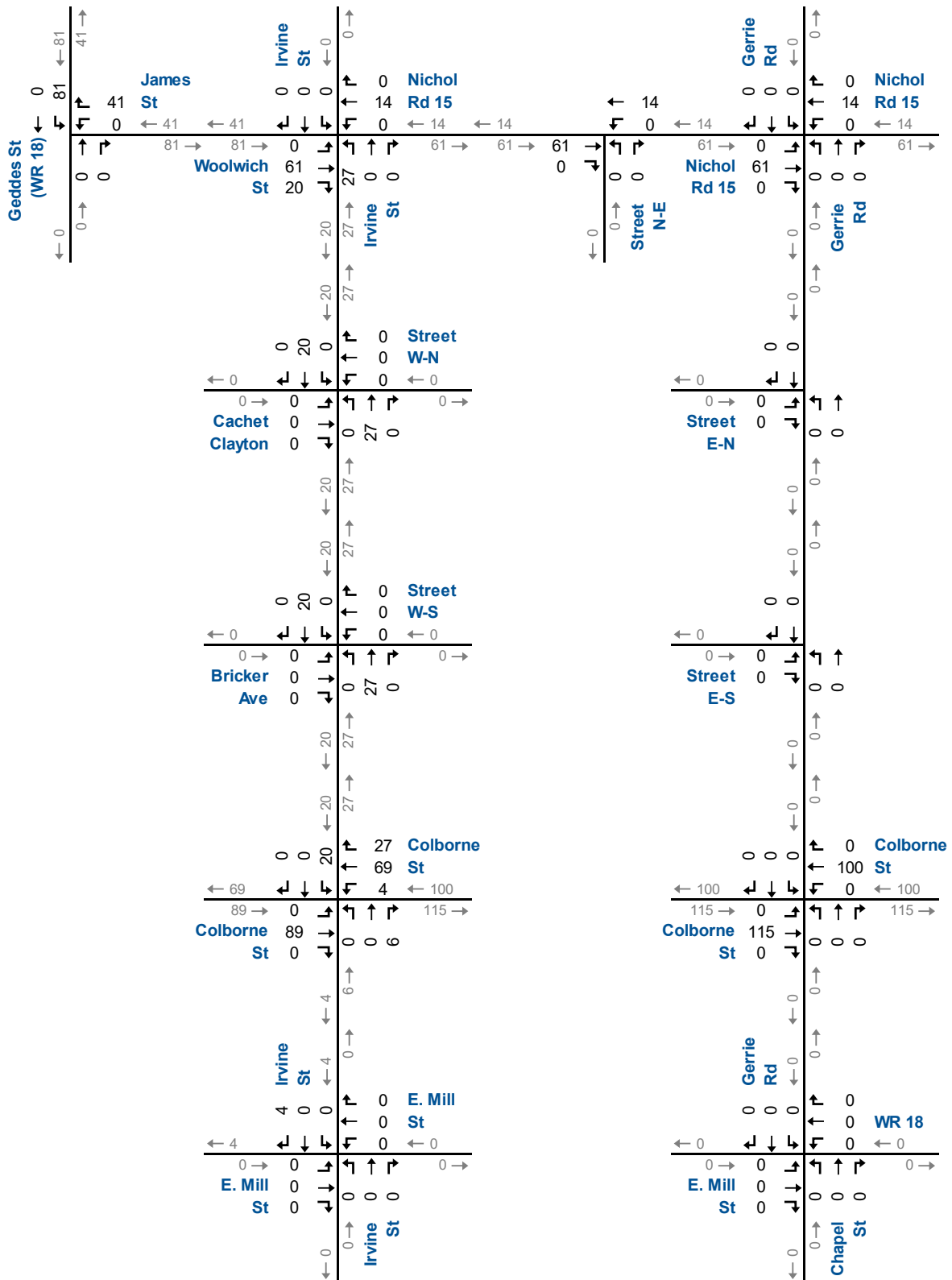
# Appendix D

## Background Development Traffic Volumes

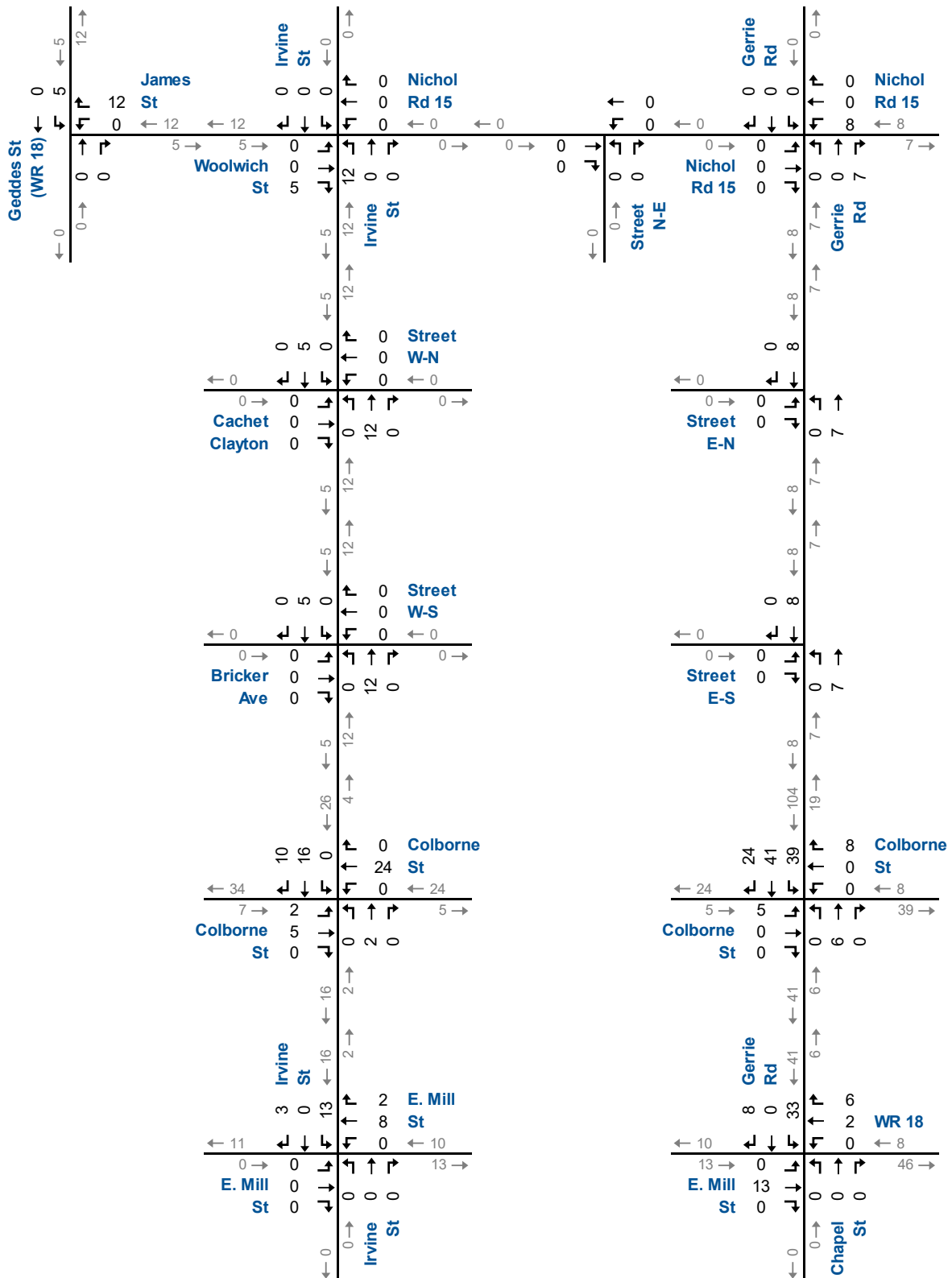




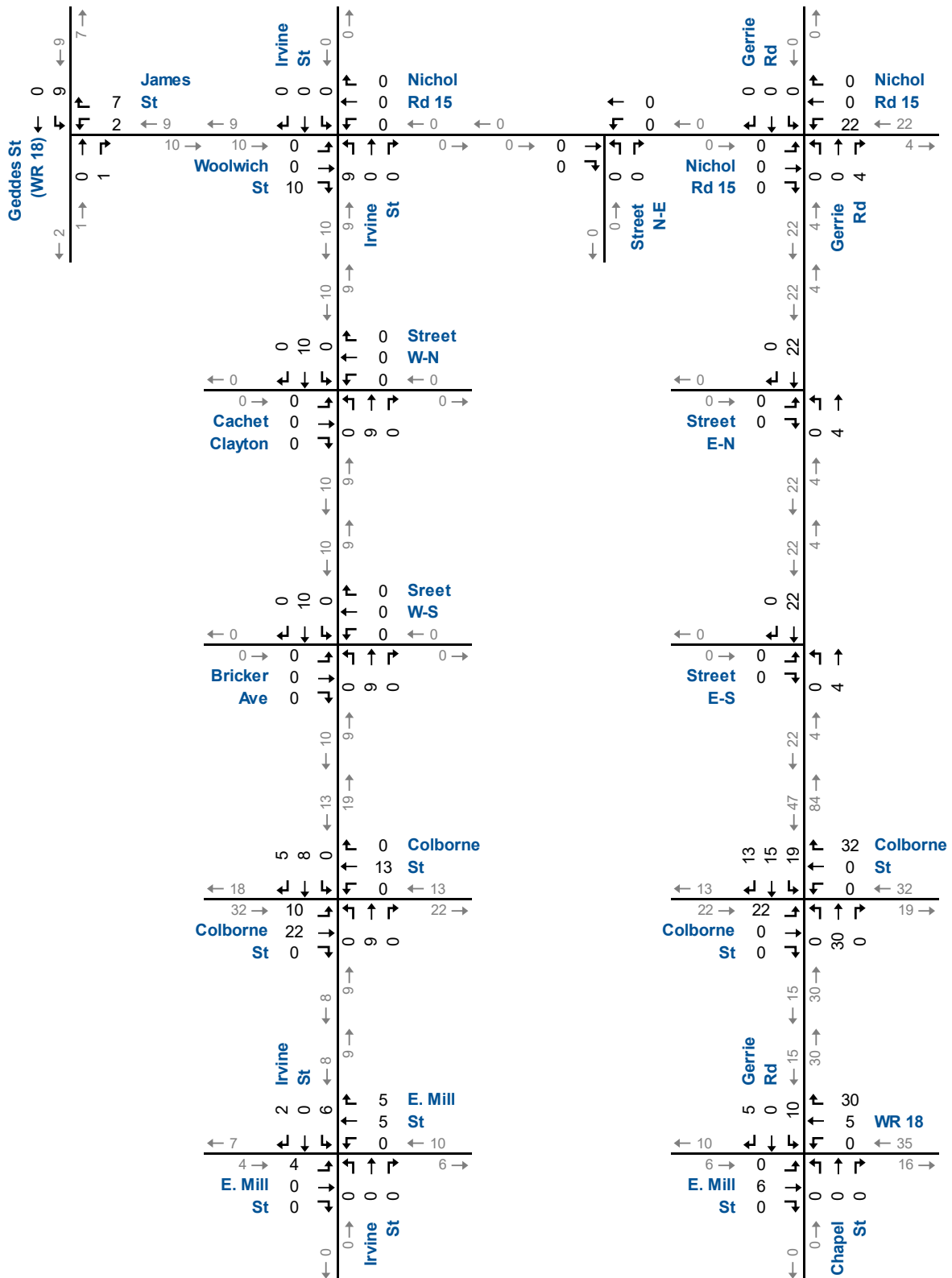
# NWFSP Traffic Volumes (AM Peak Hour)



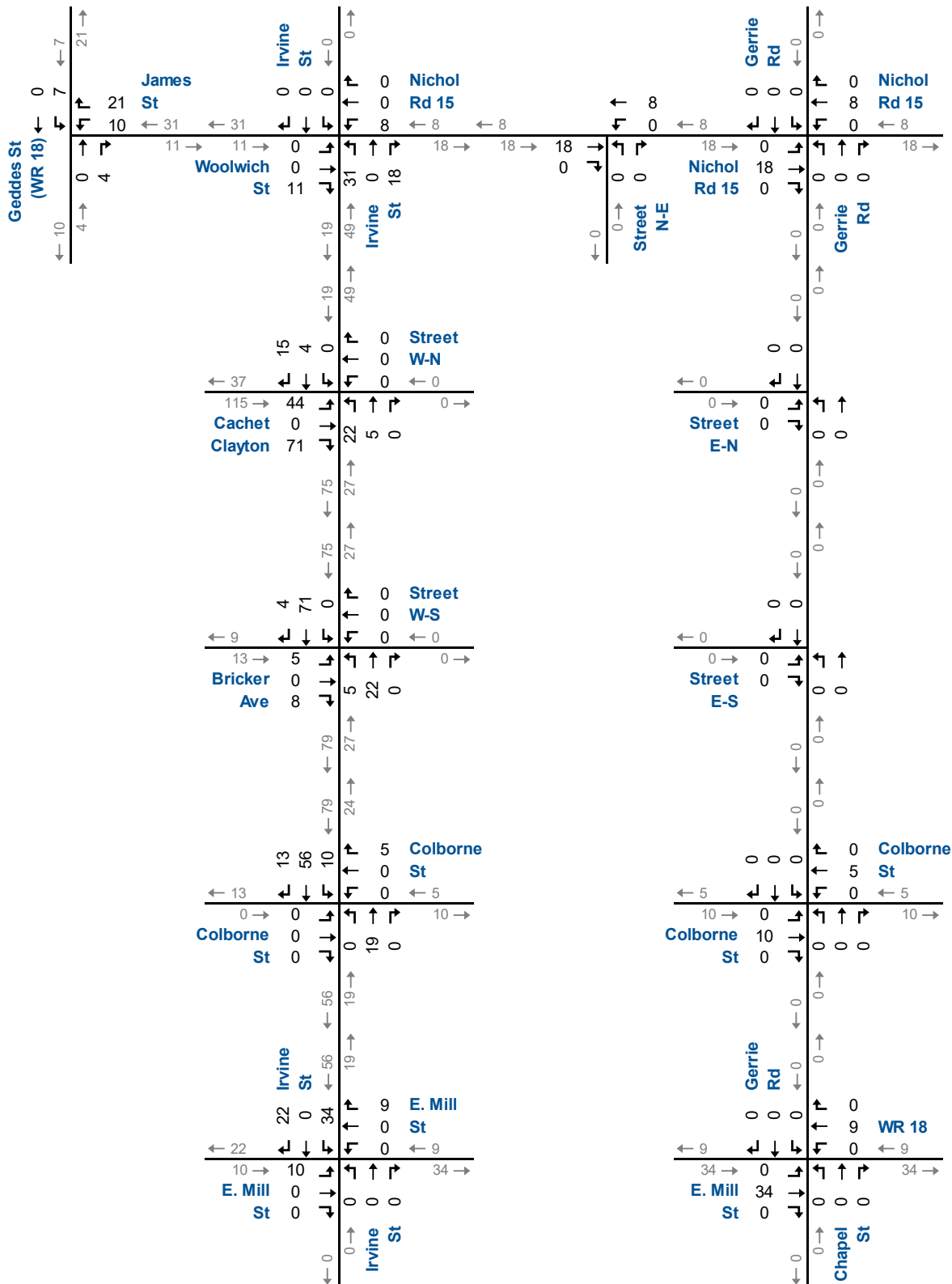
# NWFSP Traffic Volumes (PM Peak Hour)



# Ainley Traffic Volumes (AM Peak Hour)

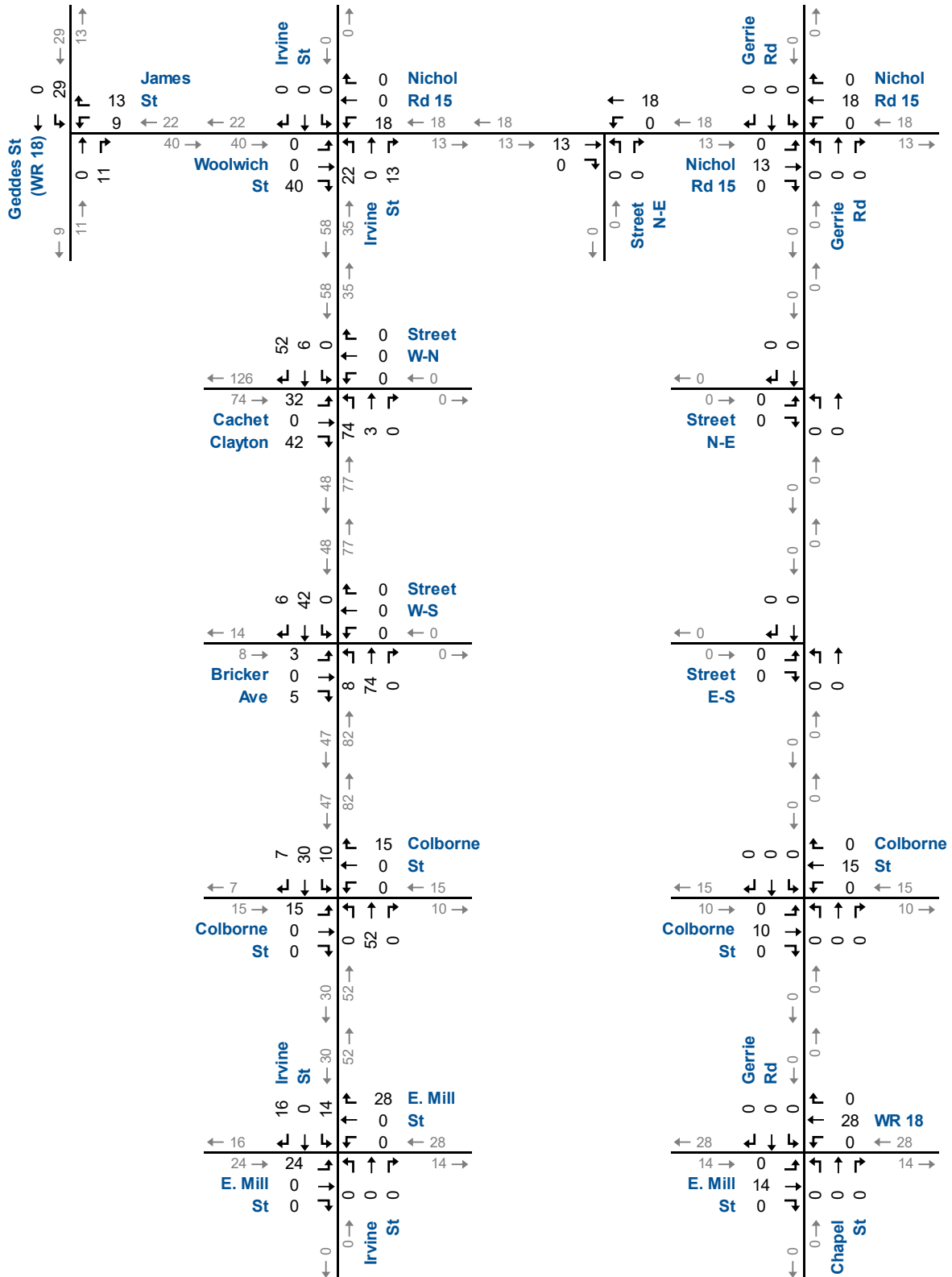


# Ainley Traffic Volumes (PM Peak Hour)



**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				
Fit Protected	0.994				0.969	
Satd. Flow (prot)	1615	0	1746	0	0	1769
Fit 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		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								
<b>Intersection Summary</b>												
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

<b>Intersection</b>												
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% ICU Level of Service A
Analysis Period (min)	15

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	
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	
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								
<b>Intersection Summary</b>												
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

<b>Intersection</b>												
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%
Analysis Period (min)	15
	ICU Level of Service A

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
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	328				335			708	698	334	676	674
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 %	99				100			100	100	100	65	100
cM capacity (veh/h)	1221				1236			317	355	712	333	366

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%
Analysis Period (min)	15
	ICU Level of Service A

Intersection												
Int Delay, s/veh	4.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↕		↕		↕		↕		↕		↕	
Traffic Vol, veh/h	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	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	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			1603		
Fit Permitted	0.998			0.996			0.993			0.970		
Satd. Flow (perm)	0			1728			0			1603		
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		15		25		15		25		15	
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								
<b>Intersection Summary</b>												
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

<b>Intersection</b>												
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
Fr					0.966							0.968
Fit Protected	0.950											0.963
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	NA			Perm		NA	NA	
Protected Phases		2			6			4			8	

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

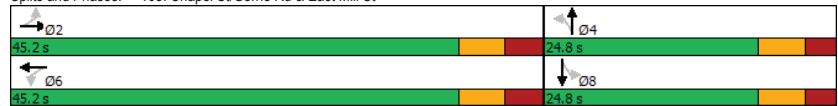
Background - 2035  
AM Peak Hour

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	58
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	
<b>Intersection Summary</b>												
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		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
<b>Unsig. Movement Delay, s/veh</b>												
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		
<b>Timer - Assigned Phs</b>												
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		
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay	10.6											
HCM 6th LOS	B											
<b>Notes</b>												
* 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	
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	26.4%		ICU Level of Service A			
Analysis Period (min)	15					

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			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
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					
<b>Intersection Summary</b>						
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		R			
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			
<b>Intersection Summary</b>						
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

Intersection						
Int Delay, s/veh	14.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		R			
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	92	92	92	92	92	92
Heavy Vehicles, %	7	2	0	3	1	1
Mvmt Flow	73	254	158	58	366	222
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1144	190	0	0	219	0
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	WB	NB	SB			
HCM Control Delay, s	39.2	0	5.4			
HCM LOS	E		A			
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	415	1353	-	
HCM Lane V/C Ratio	-	-	0.788	0.271	-	
HCM Control Delay (s)	-	-	39.2	8.6	0	
HCM Lane LOS	-	-	E	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	0	419	0	0	784	778	378	816	819	248
Stage 1	-	-	-	-	-	-	388	388	-	390	390	-
Stage 2	-	-	-	-	-	-	396	390	-	426	429	-
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	1330	-	-	1135	-	-	313	330	669	298	278	796
Stage 1	-	-	-	-	-	-	640	612	-	638	557	-
Stage 2	-	-	-	-	-	-	633	611	-	610	534	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1330	-	-	1135	-	-	286	304	669	248	256	796
Mov Cap-2 Maneuver	-	-	-	-	-	-	286	304	-	248	256	-
Stage 1	-	-	-	-	-	-	637	609	-	635	516	-
Stage 2	-	-	-	-	-	-	575	566	-	538	531	-
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	
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					
<b>Intersection Summary</b>						
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	
<b>Intersection Summary</b>												
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								
<b>Intersection Summary</b>												
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												0.940
Fit Protected	0.994		0.980					0.950			0.973	
Satd. Flow (prot)	0	1872	0	0	1846	0	0	1805	0	0	1738	0
Fit Permitted	0.994											
Satd. Flow (perm)	0	1872	0	0	1846	0	0	1805	0	0	1738	0
Link Speed (k/h)	40											
Link Distance (m)	212.3				172.2				54.2			
Travel Time (s)	19.1				15.5				4.9			
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%	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											
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	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	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	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								
<b>Intersection Summary</b>												
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

<b>Intersection</b>												
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

	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

	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	0	0	829	831	402	840	826	316
Stage 1	-	-	-	-	-	-	432	432	-	394	394	-
Stage 2	-	-	-	-	-	-	397	399	-	446	432	-
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	1250	-	-	1168	-	-	292	307	653	287	310	674
Stage 1	-	-	-	-	-	-	606	586	-	635	609	-
Stage 2	-	-	-	-	-	-	633	606	-	595	586	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1250	-	-	1168	-	-	277	290	653	263	293	674
Mov Cap-2 Maneuver	-	-	-	-	-	-	277	290	-	263	293	-
Stage 1	-	-	-	-	-	-	597	577	-	625	584	-
Stage 2	-	-	-	-	-	-	602	581	-	562	577	-
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
Frts	0.974		0.975		0.981		0.962					
Fit Protected	0.992		0.998		0.977		0.984					
Satd. Flow (prot)	0 1784		0 0 1805		0 0 1615		0 0 1707					
Fit Permitted	0.992		0.998		0.977		0.984					
Satd. Flow (perm)	0 1784		0 0 1805		0 0 1615		0 0 1707					
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)	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					
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	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								
<b>Intersection Summary</b>												
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

<b>Intersection</b>												
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		
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
<b>Intersection Summary</b>				

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%	0%	1%	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						9.2	
Effective Green, g (s)	41.5	41.5			41.5						11.9	
Actuated g/C Ratio	0.68	0.68			0.68						0.19	
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)	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	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			7.1								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		
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			
cSH	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					
<b>Intersection Summary</b>						
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

Intersection						
Int Delay, s/veh	3.4					
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
Major/Minor	Minor2	Major1	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	W	R	T	T	L	R
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	W	R	T	T	L	R
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								
<b>Intersection Summary</b>												
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

<b>Intersection</b>												
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	
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	
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								
<b>Intersection Summary</b>												
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

<b>Intersection</b>												
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

Lane Group	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	
Flt Protected		0.998									0.967	
Satd. Flow (prot)	0	1761	0	0	1722	0	0	1644	0	0	1545	0
Flt 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	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  
105: Irvine St & 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)	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
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								
<b>Intersection Summary</b>												
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

<b>Intersection</b>												
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

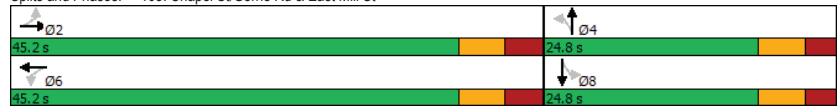
Background - 2040  
AM Peak Hour

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		
<b>Intersection Summary</b>												
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		
<b>Timer - Assigned Phs</b>												
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		
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay	11.0											
HCM 6th LOS	B											
<b>Notes</b>												
* 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% ICU Level of Service A
Analysis Period (min)	15

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
cSH	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%	ICU Level of Service	A
Analysis Period (min)	15		

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					
<b>Intersection Summary</b>						
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
<b>Intersection</b>						
Int Delay, s/veh	23.8					
<b>Major/Minor</b>						
	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	-	-	-	-	-
<b>Approach</b>						
	WB	NB	SB			
HCM Control Delay, s	72.8	0	5.4			
HCM LOS	F					
<b>Minor Lane/Major Mvmt</b>						
	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

	↖	→	↗	↙	←	↖	↗	↙	↘	↖	↗	↙	↘
Lane Group	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

	↖	→	↗	↙	←	↖	↗	↙	↘	↖	↗	↙	↘
Movement	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					
<b>Intersection Summary</b>						
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

Intersection						
Int Delay, s/veh	1.3					
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	-	-	0	0	-
Grade, %	0					
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	2	6	0
Mvmt Flow	24	14	13	180	125	32
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	352	146	162	0	-	0
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	EB	NB	SB			
HCM Control Delay, s	10.3	0.5	0			
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1423	-	716	-	-	
HCM Lane V/C Ratio	0.009	-	0.053	-	-	
HCM Control Delay (s)	7.6	0	10.3	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	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												0.940
Fit Protected	0.994		0.981					0.950			0.973	
Satd. Flow (prot)	0	1872	0	0	1848	0	0	1805	0	0	1738	0
Fit Permitted	0.994							0.950			0.973	
Satd. Flow (perm)	0	1872	0	0	1848	0	0	1805	0	0	1738	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)	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	
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								
<b>Intersection Summary</b>												
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
<b>Major/Minor</b>												
	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	-
<b>Approach</b>												
	EB	WB		NB		SB						
HCM Control Delay, s	1	0		20.2		18.7						
HCM LOS				C		C						
<b>Minor Lane/Major Mvmt</b>												
	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
Frnt	0.973		0.975		0.981		0.962		0.984		0.984	
Fit Protected	0.992		0.997		0.977		0.984		0.984		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		0.984		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		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)	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		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	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	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								
<b>Intersection Summary</b>												
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

<b>Intersection</b>												
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	
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	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	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											
Spits 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
<b>Intersection Summary</b>				

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	
<b>Intersection Summary</b>												
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					
<b>Intersection Summary</b>						
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	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	0	0	0	2	2	0
Mvmt Flow	35	46	80	125	111	57
<b>Intersection</b>						
Int Delay, s/veh	3.3					
<b>Major/Minor</b>						
Conflicting Flow All	Minor2	Major1	Major2			
Stage 1	430	145	173	0	-	0
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	-	-	-	-	-
<b>Approach</b>						
Approach	EB	NB	SB			
HCM Control Delay, s	10.8	3	0			
HCM LOS	B					
<b>Minor Lane/Major Mvmt</b>						
Capacity (veh/h)	NBL	NBT EBLn1	SBT	SBR		
HCM Lane V/C Ratio	1410	- 704	-	-		
HCM Control Delay (s)	0.057	- 0.114	-	-		
HCM Lane LOS	7.7	0 10.8	-	-		
HCM 95th %tile Q(veh)	A	A B	-	-		
	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						
Traffic Volume (vph)	83	380	107	58	213	109
Future Volume (vph)	83	380	107	58	213	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	0.889		0.952			
Flt Protected	0.991					0.968
Satd. Flow (prot)	1616	0	1708	0	0	1768
Flt Permitted	0.991					0.968
Satd. Flow (perm)	1616	0	1708	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)	90	413	116	63	232	118
Shared Lane Traffic (%)						
Lane Group Flow (vph)	503	0	179	0	0	350
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	65.2% ICU Level of Service C
Analysis Period (min)	15

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

Total - 2035  
AM Peak Hour

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	83	380	107	58	213	109
Future Volume (Veh/h)	83	380	107	58	213	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)	90	413	116	63	232	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	734	151			182	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	734	151			182	
tC, single (s)	6.5	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.6	3.3			2.2	
p0 queue free %	71	54			83	
cM capacity (veh/h)	311	894			1384	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	503	179	350
Volume Left	90	0	232
Volume Right	413	63	0
eSH	669	1700	1384
Volume to Capacity	0.75	0.11	0.17
Queue Length 95th (m)	54.7	0.0	4.8
Control Delay (s/veh)	24.8	0.0	5.9
Lane LOS	C		A
Approach Delay (s/veh)	24.8	0.0	5.9
Approach LOS	C		

Intersection Summary	
Average Delay	14.1
Intersection Capacity Utilization	65.2% ICU Level of Service C
Analysis Period (min)	15

Intersection						
Int Delay, s/veh	14.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔	↔	↔	↔	↔	↔
Traffic Vol, veh/h	83	380	107	58	213	109
Future Vol, veh/h	83	380	107	58	213	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	90	413	116	63	232	118

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	734	151	0 0 182 0
Stage 1	151	-	- - - -
Stage 2	583	-	- - - -
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	374	895	- - 1387 -
Stage 1	855	-	- - - -
Stage 2	541	-	- - - -
Platoon blocked, %	-	-	- - - -
Mov Cap-1 Maneuver	306	893	- - 1383 -
Mov Cap-2 Maneuver	306	-	- - - -
Stage 1	852	-	- - - -
Stage 2	443	-	- - - -

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	25.4	0	5.4
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	664	1383
HCM Lane V/C Ratio	-	-	0.758	0.167
HCM Ctrl Dly (s/v)	-	-	25.4	8.1
HCM Lane LOS	-	-	D	A
HCM 95th %tile Q (veh)	-	-	7	0.6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	6	198	67	74	321	4	140	2	102	2	4	1
Future Volume (vph)	6	198	67	74	321	4	140	2	102	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		0.967			0.999			0.943			0.981	
Fit Protected		0.999			0.991			0.972			0.986	
Satd. Flow (prot)	0	1672	0	0	1795	0	0	1315	0	0	1205	0
Fit Permitted		0.999			0.991			0.972			0.986	
Satd. Flow (perm)	0	1672	0	0	1795	0	0	1315	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	215	73	80	349	4	152	2	111	2	4	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	295	0	0	433	0	0	265	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	66.8%
ICU Level of Service	C
Analysis Period (min)	15

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

Total - 2035  
 AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (veh/h)	6	198	67	74	321	4	140	2	102	2	4	1
Future Volume (Veh/h)	6	198	67	74	321	4	140	2	102	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	215	73	80	349	4	152	2	111	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	355	288			780			781	252	891	815	353
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	355	288			780			781	252	891	815	353
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	93			37			99	86	99	98	100
cM capacity (veh/h)	1109	1214			243			305	770	213	230	515
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	295	433	265	7								
Volume Left	7	80	152	2								
Volume Right	73	4	111	1								
eSH	1109	1214	342	244								
Volume to Capacity	0.01	0.07	0.78	0.03								
Queue Length 95th (m)	0.2	1.7	50.2	0.7								
Control Delay (s/veh)	0.3	2.1	44.0	20.2								
Lane LOS	A	A	E	C								
Approach Delay (s/veh)	0.3	2.1	44.0	20.2								
Approach LOS			E	C								
<b>Intersection Summary</b>												
Average Delay	12.8											
Intersection Capacity Utilization	66.8%			ICU Level of Service			C					
Analysis Period (min)	15											

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

Total - 2035  
 AM Peak Hour

<b>Intersection</b>												
Int Delay, s/veh	13											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	6	198	67	74	321	4	140	2	102	2	4	1
Future Vol, veh/h	6	198	67	74	321	4	140	2	102	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	215	73	80	349	4	152	2	111	2	4	1
Major/Minor	Major1	Major2	Minor1	Minor2								
Conflicting Flow All	355	0	0	288	0	0	780	781	252	835	815	353
Stage 1	-	-	-	-	-	-	266	266	-	513	513	-
Stage 2	-	-	-	-	-	-	514	515	-	322	302	-
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	1111	-	-	1214	-	-	261	329	770	289	248	516
Stage 1	-	-	-	-	-	-	645	692	-	548	443	-
Stage 2	-	-	-	-	-	-	465	538	-	694	562	-
Platoon blocked, %												
Mov Cap-1 Maneuver	1109	-	-	1214	-	-	239	299	770	229	225	515
Mov Cap-2 Maneuver	-	-	-	-	-	-	239	299	-	229	225	-
Stage 1	-	-	-	-	-	-	640	686	-	543	406	-
Stage 2	-	-	-	-	-	-	421	493	-	587	558	-
Approach	EB	WB	NB	SB								
HCM Ctrl Dly, s/v	0.2	1.5	45.7	20.1								
HCM LOS			E	C								
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	337	1109	-	-	1214	-	-	246				
HCM Lane V/C Ratio	0.787	0.006	-	-	0.066	-	-	0.031				
HCM Ctrl Dly (s/v)	45.7	8.3	0	-	8.2	0	-	20.1				
HCM Lane LOS	E	A	A	-	A	A	-	C				
HCM 95th %tile Q (veh)	6.4	0	-	-	0.2	-	-	0.1				

Lanes, Volumes, Timings  
103: Irvine St & Bricker Ave/Street W-S

Total - 2035  
AM Peak Hour

	↖	→	↘	↙	←	↖	↙	↑	↘	↙	↓	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	16	0	22	86	0	51	9	130	26	21	237	10
Future Volume (vph)	16	0	22	86	0	51	9	130	26	21	237	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		0.921			0.950			0.979			0.995	
Flt Protected		0.980			0.970			0.997			0.996	
Satd. Flow (prot)	0	1481	0	0	1717	0	0	1535	0	0	1586	0
Flt Permitted		0.980			0.970			0.997			0.996	
Satd. Flow (perm)	0	1481	0	0	1717	0	0	1535	0	0	1586	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		361.7			175.7			908.3			246.8	
Travel Time (s)		26.0			12.7			65.4			17.8	
Confl. Peds. (#/hr)							3					3
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%	27%	2%	2%	2%	0%	26%	2%	2%	21%	0%
Adj. Flow (vph)	17	0	24	93	0	55	10	141	28	23	258	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	41	0	0	148	0	0	179	0	0	292	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	38.9%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis  
103: Irvine St & Bricker Ave/Street W-S

Total - 2035  
AM Peak Hour

	↖	→	↘	↙	←	↖	↙	↑	↘	↙	↓	↘
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	16	0	22	86	0	51	9	130	26	21	237	10
Future Volume (Veh/h)	16	0	22	86	0	51	9	130	26	21	237	10
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)	17	0	24	93	0	55	10	141	28	23	258	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	543	502	267	509	493	155	272				169	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	543	502	267	509	493	155	272				169	
tC, single (s)	7.1	6.5	6.5	7.1	6.5	6.2	4.1				4.1	
tC, 2 stage (s)												
fF (s)	3.5	4.0	3.5	3.5	4.0	3.3	2.2				2.2	
p0 queue free %	96	100	97	79	100	94	99				98	
cM capacity (veh/h)	416	459	714	450	464	891	1300				1409	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	41	148	179	292								
Volume Left	17	93	10	23								
Volume Right	24	55	28	11								
eSH	551	551	1300	1409								
Volume to Capacity	0.07	0.27	0.01	0.02								
Queue Length 95th (m)	1.9	8.6	0.2	0.4								
Control Delay (s/veh)	12.1	13.9	0.5	0.7								
Lane LOS	B	B	A	A								
Approach Delay (s/veh)	12.1	13.9	0.5	0.7								
Approach LOS	B	B										

Intersection Summary	
Average Delay	4.3
Intersection Capacity Utilization	38.9%
Analysis Period (min)	15
	ICU Level of Service A

HCM 6th TWSC  
103: Irvine St & Bricker Ave/Street W-S

Total - 2035  
AM Peak Hour

Intersection												
Int Delay, s/veh	4.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔		↔		↔		↔		↔		↔	
Traffic Vol, veh/h	16	0	22	86	0	51	9	130	26	21	237	10
Future Vol, veh/h	16	0	22	86	0	51	9	130	26	21	237	10
Conflicting Peds, #/hr	0	0	0	0	0	0	3	0	0	0	0	3
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	27	2	2	0	26	2	2	21	0	0
Mvmt Flow	17	0	24	93	0	55	10	141	28	23	258	11
Major/Minor	Minor2	Minor1	Major1	Major2								
Conflicting Flow All	516	502	267	497	493	155	272	0	0	169	0	0
Stage 1	313	313	-	175	175	-	-	-	-	-	-	-
Stage 2	203	189	-	322	318	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.52	6.47	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	3.543	3.518	4.018	3.318	2.2	-	-	2.218	-	-
Pot Cap-1 Maneuver	473	471	715	483	477	891	1303	-	-	1409	-	-
Stage 1	702	657	-	827	754	-	-	-	-	-	-	-
Stage 2	804	744	-	690	654	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	433	456	713	457	462	891	1300	-	-	1409	-	-
Mov Cap-2 Maneuver	433	456	-	457	462	-	-	-	-	-	-	-
Stage 1	694	643	-	820	747	-	-	-	-	-	-	-
Stage 2	747	737	-	654	640	-	-	-	-	-	-	-
Approach	EB	WB	NB	SB								
HCM Ctrf Dly, s/v	11.9	13.8	0.4	0.6								
HCM LOS	B	B										
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1300	-	-	560	558	1409	-	-				
HCM Lane V/C Ratio	0.008	-	-	0.074	0.267	0.016	-	-				
HCM Ctrf Dly (s/v)	7.8	0	-	11.9	13.8	7.6	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile Q (veh)	0	-	-	0.2	1.1	0	-	-				

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

Total - 2035  
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)	16	137	5	10	205	62	2	90	9	86	268	67
Future Volume (vph)	16	137	5	10	205	62	2	90	9	86	268	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	0.996		0.970		0.988		0.978					
Fit Protected	0.995		0.998		0.999		0.990					
Satd. Flow (prot)	0	1804	0	0	1730	0	0	1534	0	0	1662	0
Fit Permitted	0.995		0.998		0.999		0.990					
Satd. Flow (perm)	0	1804	0	0	1730	0	0	1534	0	0	1662	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)	17	149	5	11	223	67	2	98	10	93	291	73
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	171	0	0	301	0	0	110	0	0	457	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	53.1%				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)	16	137	5	10	205	62	2	90	9	86	268	67
Future Volume (vph)	16	137	5	10	205	62	2	90	9	86	268	67
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)	17	149	5	11	223	67	2	98	10	93	291	73
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	171	301	110	457								
Volume Left (vph)	17	11	2	93								
Volume Right (vph)	5	67	10	73								
Hadj (s)	0.08	-0.02	0.33	0.13								
Departure Headway (s)	6.4	6.0	6.7	5.8								
Degree Utilization, x	0.30	0.50	0.20	0.73								
Capacity (veh/h)	496	557	466	605								
Control Delay (s/veh)	12.1	14.9	11.3	22.7								
Approach Delay (s/veh)	12.1	14.9	11.3	22.7								
Approach LOS	B	B	B	C								
<b>Intersection Summary</b>												
Delay	17.5											
Level of Service	C											
Intersection Capacity Utilization	53.1%		ICU Level of Service		A							
Analysis Period (min)	15											

HCM 6th AWSC  
104: Irvine St & Colborne St

Total - 2035  
AM Peak Hour

<b>Intersection</b>												
Intersection Delay, s/veh	16.8											
Intersection LOS	C											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	16	137	5	10	205	62	2	90	9	86	268	67
Future Vol, veh/h	16	137	5	10	205	62	2	90	9	86	268	67
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	17	149	5	11	223	67	2	98	10	93	291	73
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	11.8	14.2		10.6		21.9						
HCM LOS	B	B		B		C						
Lane	NBLn1	EBLn1	WBLn1	SBLn1								
Vol Left, %	2%	10%	4%	20%								
Vol Thru, %	89%	87%	74%	64%								
Vol Right, %	9%	3%	22%	16%								
Sign Control	Stop	Stop	Stop	Stop								
Traffic Vol by Lane	101	158	277	421								
LT Vol	2	16	10	86								
Through Vol	90	137	205	268								
RT Vol	9	5	62	67								
Lane Flow Rate	110	172	301	458								
Geometry Grp	1	1	1	1								
Degree of Util (X)	0.186	0.293	0.482	0.718								
Departure Headway (Hd)	6.11	6.143	5.769	5.65								
Convergence, Y/N	Yes	Yes	Yes	Yes								
Cap	582	580	620	636								
Service Time	4.209	4.234	3.847	3.716								
HCM Lane V/C Ratio	0.189	0.297	0.485	0.72								
HCM Control Delay, s/veh	10.6	11.8	14.2	21.9								
HCM Lane LOS	B	B	B	C								
HCM 95th-tile Q	0.7	1.2	2.6	6								

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

Total - 2035  
AM Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	39	317	2	0	242	62	0	0	2	181	0	108
Future Volume (vph)	39	317	2	0	242	62	0	0	2	181	0	108
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			0.973			0.865			0.950	
Flt Protected		0.995									0.970	
Satd. Flow (prot)	0	1763	0	0	1692	0	0	1644	0	0	1546	0
Flt Permitted		0.995									0.970	
Satd. Flow (perm)	0	1763	0	0	1692	0	0	1644	0	0	1546	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)	42	345	2	0	263	67	0	0	2	197	0	117
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	389	0	0	330	0	0	2	0	0	314	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	69.2% 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

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (veh/h)	39	317	2	0	242	62	0	0	2	181	0	108
Future Volume (Veh/h)	39	317	2	0	242	62	0	0	2	181	0	108
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)	42	345	2	0	263	67	0	0	2	197	0	117
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	351				347			844	781	346	750	749
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	351				347			844	781	346	750	749
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 %	96				100			100	100	100	32	100
cM capacity (veh/h)	1198				1223			228	312	702	291	325

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	389	330	2	314
Volume Left	42	0	0	197
Volume Right	2	67	2	117
eSH	1198	1223	702	372
Volume to Capacity	0.04	0.00	0.00	0.84
Queue Length 95th (m)	0.9	0.0	0.1	62.4
Control Delay (s/veh)	1.2	0.0	10.1	49.5
Lane LOS	A		B	E
Approach Delay (s/veh)	1.2	0.0	10.1	49.5
Approach LOS			B	E

Intersection Summary	
Average Delay	15.5
Intersection Capacity Utilization	69.2% 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	15.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔		↔		↔		↔		↔		↔	
Traffic Vol, veh/h	39	317	2	0	242	62	0	0	2	181	0	108
Future Vol, veh/h	39	317	2	0	242	62	0	0	2	181	0	108
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	42	345	2	0	263	67	0	0	2	197	0	117

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	351	0	0	347	0	0	785	781	346	749	749	318
Stage 1	-	-	-	-	-	-	430	430	-	318	318	-
Stage 2	-	-	-	-	-	-	355	351	-	431	431	-
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	1219	-	-	1223	-	-	313	329	702	310	343	711
Stage 1	-	-	-	-	-	-	607	587	-	663	657	-
Stage 2	-	-	-	-	-	-	666	636	-	574	586	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1197	-	-	1223	-	-	252	309	702	294	322	698
Mov Cap-2 Maneuver	-	-	-	-	-	-	252	309	-	294	322	-
Stage 1	-	-	-	-	-	-	581	562	-	623	645	-
Stage 2	-	-	-	-	-	-	554	625	-	548	561	-

Approach	EB	WB	NB	SB
HCM Ctrf Dly, s/v	0.9	0	10.1	48.5
HCM LOS			B	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	702	1197	-	-	1223	-	-	375
HCM Lane V/C Ratio	0.003	0.035	-	-	-	-	-	0.838
HCM Ctrf Dly (s/v)	10.1	8.1	0	-	0	-	-	48.5
HCM Lane LOS	B	A	A	-	A	-	-	E
HCM 95th %tile Q (veh)	0	0.1	-	-	0	-	-	7.7

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	277	31	40	329	7	51	9	43	15	2	7
Future Volume (vph)	7	277	31	40	329	7	51	9	43	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	0.987			0.997			0.943			0.958		
Fit Protected	0.999			0.995			0.976			0.970		
Satd. Flow (prot)	0	1722	0	0	1837	0	0	1112	0	0	1603	0
Fit Permitted	0.999			0.995			0.976			0.970		
Satd. Flow (perm)	0	1722	0	0	1837	0	0	1112	0	0	1603	0
Link Speed (k/h)	80			80			50			50		
Link Distance (m)	329.6			999.6			224.9			439.6		
Travel Time (s)	14.8			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	301	34	43	358	8	55	10	47	16	2	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	343	0	0	409	0	0	112	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	52.0%
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	277	31	40	329	7	51	9	43	15	2	7												
Future Volume (Veh/h)	7	277	31	40	329	7	51	9	43	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	301	34	43	358	8	55	10	47	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	366			335			791			786			318			834			799			362		
vC1, stage 1 conf vol																								
vC2, stage 2 conf vol																								
vCu, unblocked vol	366			335			791			786			318			834			799			362		
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			79			96			91			93			99			99		
cM capacity (veh/h)	1204			1236			268			279			543			242			308			650		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1																				
Volume Total	343	409	112	26																				
Volume Left	8	43	55	16																				
Volume Right	34	8	47	8																				
cSH	1204	1236	342	306																				
Volume to Capacity	0.01	0.03	0.33	0.09																				
Queue Length 95th (m)	0.2	0.9	11.2	2.2																				
Control Delay (s/veh)	0.3	1.2	20.6	17.9																				
Lane LOS	A	A	C	C																				
Approach Delay (s/veh)	0.3	1.2	20.6	17.9																				
Approach LOS			C	C																				
Intersection Summary																								
Average Delay				3.7																				
Intersection Capacity Utilization				52.0%			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	3.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	7	277	31	40	329	7	51	9	43	15	2	7
Future Vol, veh/h	7	277	31	40	329	7	51	9	43	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	301	34	43	358	8	55	10	47	16	2	8
Major/Minor	Major1	Major2	Minor1	Minor2								
Conflicting Flow All	366	0	0	335	0	0	787	786	318	811	799	362
Stage 1	-	-	-	-	-	-	334	334	-	448	448	-
Stage 2	-	-	-	-	-	-	453	452	-	363	351	-
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	1204	-	-	1236	-	-	283	291	543	291	321	650
Stage 1	-	-	-	-	-	-	634	591	-	579	576	-
Stage 2	-	-	-	-	-	-	544	521	-	644	636	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1204	-	-	1236	-	-	267	276	543	249	304	650
Mov Cap-2 Maneuver	-	-	-	-	-	-	267	276	-	249	304	-
Stage 1	-	-	-	-	-	-	629	586	-	574	551	-
Stage 2	-	-	-	-	-	-	512	498	-	574	631	-
Approach	EB	WB	NB	SB								
HCM Ctrl Dly, s/v	0.2	0.9	20.7	17.7								
HCM LOS			C	C								
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	340	1204	-	-	1236	-	-	309				
HCM Lane V/C Ratio	0.329	0.006	-	-	0.035	-	-	0.084				
HCM Ctrl Dly (s/v)	20.7	8	0	-	8	0	-	17.7				
HCM Lane LOS	C	A	A	-	A	A	-	C				
HCM 95th %tile Q (veh)	1.4	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)	38	199	94	17	163	37	40	79	9	75	202	67
Future Volume (vph)	38	199	94	17	163	37	40	79	9	75	202	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
Frt		0.962			0.977			0.990			0.974	
Fit Protected		0.994			0.996			0.985			0.989	
Satd. Flow (prot)	0	1704	0	0	1808	0	0	1681	0	0	1748	0
Fit Permitted		0.994			0.996			0.985			0.989	
Satd. Flow (perm)	0	1704	0	0	1808	0	0	1681	0	0	1748	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	216	102	18	177	40	43	86	10	82	220	73
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	359	0	0	235	0	0	139	0	0	375	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	56.0%
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)	38	199	94	17	163	37	40	79	9	75	202	67
Future Volume (vph)	38	199	94	17	163	37	40	79	9	75	202	67
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	216	102	18	177	40	43	86	10	82	220	73
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	359	235	139	375								
Volume Left (vph)	41	18	43	82								
Volume Right (vph)	102	40	10	73								
Hadj (s)	-0.04	-0.05	0.19	0.01								
Departure Headway (s)	6.1	6.3	6.8	6.1								
Degree Utilization, x	0.60	0.41	0.26	0.63								
Capacity (veh/h)	550	508	444	556								
Control Delay (s/veh)	17.8	13.6	12.3	19.1								
Approach Delay (s/veh)	17.8	13.6	12.3	19.1								
Approach LOS	C	B	B	C								
Intersection Summary												
Delay			16.7									
Level of Service			C									
Intersection Capacity Utilization			56.0%		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	16.7											
Intersection LOS	C											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↕			↕			↕	
Traffic Vol, veh/h	38	199	94	17	163	37	40	79	9	75	202	67
Future Vol, veh/h	38	199	94	17	163	37	40	79	9	75	202	67
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	216	102	18	177	40	43	86	10	82	220	73
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	18.2			13.6			12.6			18.6		
HCM LOS	C			B			B			C		

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	31%	11%	8%	22%
Vol Thru, %	62%	60%	75%	59%
Vol Right, %	7%	28%	17%	19%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	128	331	217	344
LT Vol	40	38	17	75
Through Vol	79	199	163	202
RT Vol	9	94	37	67
Lane Flow Rate	139	360	236	374
Geometry Grp	1	1	1	1
Degree of Util (X)	0.27	0.608	0.409	0.624
Departure Headway (Hd)	6.993	6.08	6.239	6.011
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	512	594	576	598
Service Time	5.054	4.125	4.289	4.056
HCM Lane V/C Ratio	0.271	0.606	0.41	0.625
HCM Control Delay, s/veh	12.6	18.2	13.6	18.6
HCM Lane LOS	B	C	B	C
HCM 95th-tile Q	1.1	4.1	2	4.3

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)	30	344	0	0	265	98	0	0	0	232	0	83
Future Volume (vph)	30	344	0	0	265	98	0	0	0	232	0	83
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
Flt Protected	0.950				0.963						0.964	
Satd. Flow (prot)	1687	1681	0	0	1764	0	0	1900	0	0	1695	0
Flt Permitted	0.480										0.783	
Satd. Flow (perm)	852	1681	0	0	1764	0	0	1900	0	0	1377	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					46						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)	33	374	0	0	288	107	0	0	0	252	0	90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	33	374	0	0	395	0	0	0	0	0	342	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	

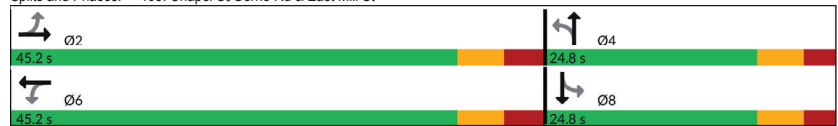
Lanes, Volumes, Timings  
108: Chapel St/Gerrie Rd & East Mill St

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						18.8	
Actuated g/C Ratio	0.59	0.59		0.59	0.59						0.29	
v/c Ratio	0.07	0.38		0.37	0.37						0.77	
Control Delay (s/veh)	6.9	9.0		7.8	7.8						30.2	
Queue Delay	0.0	0.0		0.0	0.0						0.0	
Total Delay (s/veh)	6.9	9.0		7.8	7.8						30.2	
LOS	A	A		A	A						C	
Approach Delay (s/veh)		8.8		7.8	7.8						30.2	
Approach LOS		A		A	A						C	

Intersection Summary	
Area Type:	Other
Cycle Length: 70	
Actuated Cycle Length: 65.2	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay (s/veh): 14.9	Intersection LOS: B
Intersection Capacity Utilization 53.8%	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)	33	374	395	342
v/c Ratio	0.07	0.38	0.37	0.77
Control Delay (s/veh)	6.9	9.0	7.8	30.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	6.9	9.0	7.8	30.2
Queue Length 50th (m)	1.7	24.4	22.1	31.6
Queue Length 95th (m)	5.2	41.1	38.5	#69.9
Internal Link Dist (m)		290.9	303.9	352.2
Turn Bay Length (m)	30.0			
Base Capacity (vph)	539	1064	1133	485
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	0.06	0.35	0.35	0.71

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 - 2035  
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔			↔		↔	↔	
Traffic Volume (vph)	30	344	0	0	265	98	0	0	0	232	0	83
Future Volume (vph)	30	344	0	0	265	98	0	0	0	232	0	83
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					0.96		
Flt Protected	0.95	1.00			1.00					0.96		
Satd. Flow (prot)	1687	1681			1765					1697		
Flt Permitted	0.48	1.00			1.00					0.78		
Satd. Flow (perm)	853	1681			1765					1377		
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)	33	374	0	0	288	107	0	0	0	252	0	90
RTOR Reduction (vph)	0	0	0	0	19	0	0	0	0	0	48	0
Lane Group Flow (vph)	33	374	0	0	376	0	0	0	0	294	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					16.1		
Effective Green, g (s)	38.4	38.4			38.4					18.8		
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)	502	990			1039					397		
v/s Ratio Prot		c0.22			0.21							
v/s Ratio Perm	0.04									c0.21		
v/c Ratio	0.07	0.38			0.36					0.74		
Uniform Delay, d1	5.7	7.1			7.0					21.0		
Progression Factor	1.00	1.00			1.00					1.00		
Incremental Delay, d2	0.1	0.2			0.2					7.3		
Delay (s)	5.8	7.3			7.2					28.3		
Level of Service	A	A			A					C		
Approach Delay (s/veh)		7.2			7.2		0.0			28.3		
Approach LOS		A			A		A			C		
<b>Intersection Summary</b>												
HCM 2000 Control Delay (s/veh)	13.5			HCM 2000 Level of Service			B					
HCM 2000 Volume to Capacity ratio	0.50											
Actuated Cycle Length (s)	65.2			Sum of lost time (s)			8.0					
Intersection Capacity Utilization	53.8%			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)	30	344	0	0	265	98	0	0	0	232	0	83
Future Volume (veh/h)	30	344	0	0	265	98	0	0	0	232	0	83
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	33	374	0	0	288	107	0	0	0	252	0	90
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	542	991	0	0	743	276	0	567	0	421	0	116
Arrive On Green	0.58	0.58	0.00	0.00	0.58	0.53	0.00	0.00	0.00	0.26	0.00	0.26
Sat Flow, veh/h	950	1707	0	0	1280	475	0	1900	0	1091	0	390
Grp Volume(v), veh/h	33	374	0	0	0	395	0	0	0	342	0	0
Grp Sat Flow(s),veh/h/ln	950	1707	0	0	0	1755	0	1900	0	1481	0	0
Q Serve(g_s), s	1.3	7.8	0.0	0.0	0.0	8.3	0.0	0.0	0.0	14.7	0.0	0.0
Cycle Q Clear(g_c), s	9.5	7.8	0.0	0.0	0.0	8.3	0.0	0.0	0.0	14.7	0.0	0.0
Prop In Lane	1.00		0.00	0.00		0.27	0.00		0.00	0.74		0.26
Lane Grp Cap(c), veh/h	542	991	0	0	0	1018	0	567	0	476	0	0
V/C Ratio(X)	0.06	0.38	0.00	0.00	0.00	0.39	0.00	0.00	0.00	0.72	0.00	0.00
Avail Cap(c_a), veh/h	583	1066	0	0	0	1095	0	599	0	501	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	10.1	7.4	0.0	0.0	0.0	7.8	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	0.2	0.0	0.0	0.0	4.7	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	3.7	0.0	0.0
<b>Unsig. Movement Delay, s/veh</b>												
LnGrp Delay(d), s/veh	10.2	7.7	0.0	0.0	0.0	8.0	0.0	0.0	0.0	27.3	0.0	0.0
LnGrp LOS	B	A			A					C		
Approach Vol, veh/h	407			395			0			342		
Approach Delay, s/veh	7.9			8.0			0.0			27.3		
Approach LOS	A			A						C		
<b>Timer - Assigned Phs</b>												
Phs Duration (G+Y+Rc), s	42.3			23.7			42.3			23.7		
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	11.5			0.0			10.3			16.7		
Green Ext Time (p_c), s	3.1			0.0			3.1			0.3		
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay, s/veh	13.7											
HCM 6th LOS	B											

Lanes, Volumes, Timings  
 201: Irvine St & Cachet Clayton/Street W-N  
 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	88	0	52	22	146	27	21	109	15
Future Volume (vph)	44	0	71	88	0	52	22	146	27	21	109	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			0.950			0.982			0.986	
Flt Protected		0.981			0.970			0.994			0.993	
Satd. Flow (prot)	0	1709	0	0	1717	0	0	1822	0	0	1827	0
Flt Permitted		0.981			0.970			0.994			0.993	
Satd. Flow (perm)	0	1709	0	0	1717	0	0	1822	0	0	1827	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	96	0	57	24	159	29	23	118	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	125	0	0	153	0	0	212	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	
<b>Intersection Summary</b>												
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  
 201: Irvine St & Cachet Clayton/Street W-N  
 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	88	0	52	22	146	27	21	109	15
Future Volume (Veh/h)	44	0	71	88	0	52	22	146	27	21	109	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	96	0	57	24	159	29	23	118	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	456	413	131	471	407	174	139				188	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	456	413	131	471	407	174	139				188	
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	92	79	100	93	98				98	
cM capacity (veh/h)	469	510	920	448	514	870	1451				1386	
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>								
Volume Total	125	153	212	157								
Volume Left	48	96	24	23								
Volume Right	77	57	29	16								
eSH	672	547	1451	1386								
Volume to Capacity	0.19	0.28	0.02	0.02								
Queue Length 95th (m)	5.4	9.1	0.4	0.4								
Control Delay (s/veh)	11.6	14.1	1.0	1.2								
Lane LOS	B	B	A	A								
Approach Delay (s/veh)	11.6	14.1	1.0	1.2								
Approach LOS	B	B										
<b>Intersection Summary</b>												
Average Delay					6.2							
Intersection Capacity Utilization	33.1%				ICU Level of Service				A			
Analysis Period (min)	15											

HCM 6th TWSC  
201: Irvine St & Cachet Clayton/Street W-N

Total - 2035  
AM Peak Hour

Intersection												
Int Delay, s/veh	5.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔		↔		↔		↔		↔		↔	
Traffic Vol, veh/h	44	0	71	88	0	52	22	146	27	21	109	15
Future Vol, veh/h	44	0	71	88	0	52	22	146	27	21	109	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	0	2	2	2	2	2	0
Mvmt Flow	48	0	77	96	0	57	24	159	29	23	118	16
Major/Minor	Minor2	Minor1	Major1	Major2								
Conflicting Flow All	427	413	131	433	407	174	139	0	0	188	0	0
Stage 1	177	177	-	222	222	-	-	-	-	-	-	-
Stage 2	250	236	-	211	185	-	-	-	-	-	-	-
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	541	529	924	533	533	869	1457	-	-	1386	-	-
Stage 1	829	753	-	780	720	-	-	-	-	-	-	-
Stage 2	759	710	-	791	747	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	490	507	920	474	511	869	1451	-	-	1386	-	-
Mov Cap-2 Maneuver	490	507	-	474	511	-	-	-	-	-	-	-
Stage 1	810	736	-	765	706	-	-	-	-	-	-	-
Stage 2	696	697	-	712	731	-	-	-	-	-	-	-
Approach	EB	WB	NB	SB								
HCM Ctrf Dly, s/v	11.4	13.6	0.8	1.1								
HCM LOS	B	B										
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1451	-	-	689	570	1386	-	-				
HCM Lane V/C Ratio	0.016	-	-	0.181	0.267	0.016	-	-				
HCM Ctrf Dly (s/v)	7.5	0	-	11.4	13.6	7.6	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile Q (veh)	0.1	-	-	0.7	1.1	0.1	-	-				

Lanes, Volumes, Timings  
203: Street N-E & Nichol Rd 15

Total - 2035  
AM Peak Hour

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	296	7	8	379	20	20
Future Volume (vph)	296	7	8	379	20	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	0.997				0.932	
Fit Protected				0.999	0.976	
Satd. Flow (prot)	1858	0	0	1862	1728	0
Fit Permitted				0.999	0.976	
Satd. Flow (perm)	1858	0	0	1862	1728	0
Link Speed (k/h)	80			80	50	
Link Distance (m)	430.6			329.6	182.1	
Travel Time (s)	19.4			14.8	13.1	
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)	322	8	9	412	22	22
Shared Lane Traffic (%)						
Lane Group Flow (vph)	330	0	0	421	44	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	36.4%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis  
203: Street N-E & Nichol Rd 15

Total - 2035  
AM Peak Hour

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	
Traffic Volume (veh/h)	296	7	8	379	20	20
Future Volume (Veh/h)	296	7	8	379	20	20
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)	322	8	9	412	22	22
<b>Pedestrians</b>						
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			330			326
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			330			326
tC, single (s)			4.1			6.2
tC, 2 stage (s)						
tF (s)			2.2			3.3
p0 queue free %			99			97
cM capacity (veh/h)			1241			720
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>NB 1</b>			
Volume Total	330	421	44			
Volume Left	0	9	22			
Volume Right	8	0	22			
cSH	1700	1241	494			
Volume to Capacity	0.19	0.01	0.09			
Queue Length 95th (m)	0.0	0.2	2.3			
Control Delay (s/veh)	0.0	0.2	13.0			
Lane LOS	A		B			
Approach Delay (s/veh)	0.0	0.2	13.0			
Approach LOS	A		B			
<b>Intersection Summary</b>						
Average Delay			0.8			
Intersection Capacity Utilization			36.4%	ICU Level of Service		A
Analysis Period (min)			15			

HCM 6th TWSC  
203: Street N-E & Nichol Rd 15

Total - 2035  
AM Peak Hour

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	
Traffic Vol, veh/h	296	7	8	379	20	20
Future Vol, veh/h	296	7	8	379	20	20
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	322	8	9	412	22	22
<b>Intersection</b>						
Int Delay, s/veh	0.8					
<b>Major/Minor</b>						
	Major1	Major2	Minor1			
Conflicting Flow All	0	0	330	0	756	326
Stage 1	-	-	-	-	326	-
Stage 2	-	-	-	-	430	-
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	-	-	1241	-	379	720
Stage 1	-	-	-	-	736	-
Stage 2	-	-	-	-	660	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1241	-	376	720
Mov Cap-2 Maneuver	-	-	-	-	376	-
Stage 1	-	-	-	-	736	-
Stage 2	-	-	-	-	654	-
<b>Approach</b>						
	EB	WB	NB			
HCM Ctrl Dly, s/v	0	0.2	13			
HCM LOS			B			
<b>Minor Lane/Major Mvmt</b>						
	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	494	-	-	1241	-	
HCM Lane V/C Ratio	0.088	-	-	0.007	-	
HCM Ctrl Dly (s/v)	13	-	-	7.9	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q (veh)	0.3	-	-	0	-	

Lanes, Volumes, Timings  
204: Gerrie Rd & Street E-N

Total - 2035  
AM Peak Hour


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	15	24	8	88	67	7
Future Volume (vph)	15	24	8	88	67	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
Frt	0.916				0.987	
Fit Protected	0.981			0.996		
Satd. Flow (prot)	1707	0	0	1858	1842	0
Fit Permitted	0.981			0.996		
Satd. Flow (perm)	1707	0	0	1858	1842	0
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)	16	26	9	96	73	8
Shared Lane Traffic (%)						
Lane Group Flow (vph)	42	0	0	105	81	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	
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	21.3%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis  
204: Gerrie Rd & Street E-N

Total - 2035  
AM Peak Hour

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	15	24	8	88	67	7
Future Volume (Veh/h)	15	24	8	88	67	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)	16	26	9	96	73	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	191	77	81			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	191	77	81			
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)	798	990	1529			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	42	105	81			
Volume Left	16	9	0			
Volume Right	26	0	8			
eSH	907	1529	1700			
Volume to Capacity	0.05	0.01	0.05			
Queue Length 95th (m)	1.2	0.1	0.0			
Control Delay (s/veh)	9.2	0.7	0.0			
Lane LOS	A	A				
Approach Delay (s/veh)	9.2	0.7	0.0			
Approach LOS	A					
<b>Intersection Summary</b>						
Average Delay			2.0			
Intersection Capacity Utilization		21.3%		ICU Level of Service		A
Analysis Period (min)			15			

Intersection						
Int Delay, s/veh	2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔		↕		↕	
Traffic Vol, veh/h	15	24	8	88	67	7
Future Vol, veh/h	15	24	8	88	67	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	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	2	2	0
Mvmt Flow	16	26	9	96	73	8
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	191	77	81	0	-	0
Stage 1	77	-	-	-	-	-
Stage 2	114	-	-	-	-	-
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	803	990	1529	-	-	-
Stage 1	951	-	-	-	-	-
Stage 2	916	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	798	990	1529	-	-	-
Mov Cap-2 Maneuver	798	-	-	-	-	-
Stage 1	945	-	-	-	-	-
Stage 2	916	-	-	-	-	-
Approach	EB	NB	SB			
HCM Ctr Dly, s/v	9.2	0.6	0			
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1529	-	906	-	-	
HCM Lane V/C Ratio	0.006	-	0.047	-	-	
HCM Ctr Dly (s/v)	7.4	0	9.2	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q (veh)	0	-	0.1	-	-	



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔		↕		↕	
Traffic Volume (vph)	51	85	25	45	70	21
Future Volume (vph)	51	85	25	45	70	21
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			0.969		
Fit Protected	0.982		0.983			
Satd. Flow (prot)	1709	0	0	1844	1813	0
Fit Permitted	0.982		0.983			
Satd. Flow (perm)	1709	0	0	1844	1813	0
Link Speed (k/h)	50		50			
Link Distance (m)	229.4		1165.2		240.2	
Travel Time (s)	16.5		83.9		17.3	
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)	55	92	27	49	76	23
Shared Lane Traffic (%)						
Lane Group Flow (vph)	147	0	0	76	99	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		Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	25.1%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis  
205: Gerrie Rd & Street E-S

Total - 2035  
AM Peak Hour

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔			↑	↑	
Traffic Volume (veh/h)	51	85	25	45	70	21
Future Volume (Veh/h)	51	85	25	45	70	21
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)	55	92	27	49	76	23
<b>Pedestrians</b>						
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	191	88	99			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	191	88	99			
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	91	98			
cM capacity (veh/h)	789	976	1507			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	147	76	99			
Volume Left	55	27	0			
Volume Right	92	0	23			
cSH	897	1507	1700			
Volume to Capacity	0.16	0.02	0.06			
Queue Length 95th (m)	4.7	0.4	0.0			
Control Delay (s/veh)	9.8	2.7	0.0			
Lane LOS	A	A				
Approach Delay (s/veh)	9.8	2.7	0.0			
Approach LOS	A					
<b>Intersection Summary</b>						
Average Delay			5.1			
Intersection Capacity Utilization		25.1%		ICU Level of Service	A	
Analysis Period (min)		15				

HCM 6th TWSC  
205: Gerrie Rd & Street E-S

Total - 2035  
AM Peak Hour

<b>Intersection</b>						
Int Delay, s/veh	5.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔			↑	↑	
Traffic Vol, veh/h	51	85	25	45	70	21
Future Vol, veh/h	51	85	25	45	70	21
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	55	92	27	49	76	23
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	191	88	99	0	-	0
Stage 1	88	-	-	-	-	-
Stage 2	103	-	-	-	-	-
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	803	976	1507	-	-	-
Stage 1	940	-	-	-	-	-
Stage 2	926	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	789	976	1507	-	-	-
Mov Cap-2 Maneuver	789	-	-	-	-	-
Stage 1	923	-	-	-	-	-
Stage 2	926	-	-	-	-	-
Approach	EB	NB	SB			
HCM Ctrl Dly, s/v	9.8	2.7	0			
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT EBLn1	SBT	SBR		
Capacity (veh/h)	1507	-	896	-	-	-
HCM Lane V/C Ratio	0.018	-	0.165	-	-	-
HCM Ctrl Dly (s/v)	7.4	0	9.8	-	-	-
HCM Lane LOS	A	A	A	-	-	-
HCM 95th %tile Q (veh)	0.1	-	0.6	-	-	-

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

Total - 2035  
PM Peak Hour

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	R	T	R	L	T
Traffic Volume (vph)	104	287	145	98	454	204
Future Volume (vph)	104	287	145	98	454	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	0.901	0.945				
Flt Protected	0.987					0.967
Satd. Flow (prot)	1635	0	1774	0	0	1819
Flt Permitted	0.987					0.967
Satd. Flow (perm)	1635	0	1774	0	0	1819
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)	113	312	158	107	493	222
Shared Lane Traffic (%)						
Lane Group Flow (vph)	425	0	265	0	0	715
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	25
Sign Control	Stop	Free		Free		

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	83.1% ICU Level of Service E
Analysis Period (min)	15

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

Total - 2035  
PM Peak Hour

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	R	T	R	L	T
Traffic Volume (veh/h)	104	287	145	98	454	204
Future Volume (Veh/h)	104	287	145	98	454	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)	113	312	158	107	493	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	1423	215				268
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1423	215				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				62
cM capacity (veh/h)	90	823				1298

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	425	265	715
Volume Left	113	0	493
Volume Right	312	107	0
eSH	261	1700	1298
Volume to Capacity	1.63	0.16	0.38
Queue Length 95th (m)	212.2	0.0	14.4
Control Delay (s/veh)	334.0	0.0	7.8
Lane LOS	F	A	
Approach Delay (s/veh)	334.0	0.0	7.8
Approach LOS	F		

Intersection Summary			
Average Delay	105.0		
Intersection Capacity Utilization	83.1%	ICU Level of Service	E
Analysis Period (min)	15		

Intersection						
Int Delay, s/veh	121.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔		↔	
Traffic Vol, veh/h	104	287	145	98	454	204
Future Vol, veh/h	104	287	145	98	454	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	92	92	92	92	92	92
Heavy Vehicles, %	7	2	0	3	1	1
Mvmt Flow	113	312	158	107	493	222

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1423	215	0 268 0
Stage 1	215	-	-
Stage 2	1208	-	-
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	146	825	- 1302 -
Stage 1	809	-	-
Stage 2	276	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	~ 82	823	- 1299 -
Mov Cap-2 Maneuver	~ 82	-	-
Stage 1	807	-	-
Stage 2	156	-	-

Approach	WB	NB	SB
HCM Ctr Dly, s/v	\$ 391.8	0	6.5
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	- 242	1299	-
HCM Lane V/C Ratio	-	- 1.756	0.38	-
HCM Ctr Dly (s/v)	-	- \$ 391.8	9.5	0
HCM Lane LOS	-	- F	A	A
HCM 95th %tile Q (veh)	-	- 28.5	1.8	-

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

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	5	381	166	114	267	0	120	2	111	6	7	4
Future Volume (vph)	5	381	166	114	267	0	120	2	111	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	0.959						0.935		0.972			
Fit Protected					0.985		0.975		0.982			
Satd. Flow (prot)	0	1673	0	0	1817	0	0	1716	0	0	1592	0
Fit Permitted					0.985		0.975		0.982			
Satd. Flow (perm)	0	1673	0	0	1817	0	0	1716	0	0	1592	0
Link Speed (k/h)	40		40		50		50		50		50	
Link Distance (m)	556.2		313.2		220.4		704.4		704.4		704.4	
Travel Time (s)	50.1		28.2		15.9		50.7		50.7		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	414	180	124	290	0	130	2	121	7	8	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	599	0	0	414	0	0	253	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		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	Free	15	25	15	25	15	25	15	25	15	25
Sign Control	Free		Free		Stop		Stop		Stop		Stop	

Intersection Summary  
 Area Type: Other  
 Control Type: Unsignalized  
 Intersection Capacity Utilization 81.0%    ICU Level of Service D  
 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	381	166	114	267	0	120	2	111	6	7	4				
Future Volume (Veh/h)	5	381	166	114	267	0	120	2	111	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	414	180	124	290	0	130	2	121	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	290		594		1060		1052		504		1174		1142		290	
vC1, stage 1 conf vol																
vC2, stage 2 conf vol																
vCu, unblocked vol	290		594		1060		1052		504		1174		1142		290	
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		87		26		99		79		94		95		99	
cM capacity (veh/h)	1283		977		175		199		568		120		153		754	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1												
Volume Total	599	414	253	19												
Volume Left	5	124	130	7												
Volume Right	180	0	121	4												
cSH	1283	977	262	164												
Volume to Capacity	0.00	0.13	0.96	0.12												
Queue Length 95th (m)	0.1	3.5	73.5	3.1												
Control Delay (s/veh)	0.1	3.7	88.4	29.9												
Lane LOS	A	A	F	D												
Approach Delay (s/veh)	0.1	3.7	88.4	29.9												
Approach LOS			F	D												
<b>Intersection Summary</b>																
Average Delay	19.1															
Intersection Capacity Utilization	81.0%			ICU Level of Service			D									
Analysis Period (min)	15															

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

Total - 2035  
PM Peak Hour

<b>Intersection</b>												
Int Delay, s/veh	19.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	5	381	166	114	267	0	120	2	111	6	7	4
Future Vol, veh/h	5	381	166	114	267	0	120	2	111	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	414	180	124	290	0	130	2	121	7	8	4
Major/Minor	Major1	Major2	Minor1	Minor2								
Conflicting Flow All	290	0	0	594	0	0	1058	1052	504	1114	1142	290
Stage 1	-	-	-	-	-	-	514	514	-	538	538	-
Stage 2	-	-	-	-	-	-	544	538	-	576	604	-
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	1283	-	-	977	-	-	204	228	568	187	176	754
Stage 1	-	-	-	-	-	-	547	539	-	531	475	-
Stage 2	-	-	-	-	-	-	527	526	-	506	442	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1283	-	-	977	-	-	172	192	568	128	149	754
Mov Cap-2 Maneuver	-	-	-	-	-	-	172	192	-	128	149	-
Stage 1	-	-	-	-	-	-	544	536	-	528	403	-
Stage 2	-	-	-	-	-	-	436	447	-	395	439	-
Approach	EB	WB	NB	SB								
HCM Ctrl Dly, s/v	0.1	2.8	93.4	28.6								
HCM LOS			F	D								
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	258	1283	-	-	977	-	-	171				
HCM Lane V/C Ratio	0.982	0.004	-	-	0.127	-	-	0.108				
HCM Ctrl Dly (s/v)	93.4	7.8	0	-	9.2	0	-	28.6				
HCM Lane LOS	F	A	A	-	A	A	-	D				
HCM 95th %tile Q (veh)	9.5	0	-	-	0.4	-	-	0.4				

Lanes, Volumes, Timings  
 103: Irvine St & Bricker Ave/Street W-S Total - 2035  
 PM Peak Hour

	↖	→	↘	↙	←	↖	↙	↑	↘	↙	↓	↘
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	20	0	12	52	0	40	12	266	90	65	174	27
Future Volume (vph)	20	0	12	52	0	40	12	266	90	65	174	27
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		0.950			0.942			0.967			0.986	
Flt Protected		0.970			0.972			0.998			0.988	
Satd. Flow (prot)	0	1751	0	0	1706	0	0	1799	0	0	1773	0
Flt Permitted		0.970			0.972			0.998			0.988	
Satd. Flow (perm)	0	1751	0	0	1706	0	0	1799	0	0	1773	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		361.7			260.7			908.3			227.8	
Travel Time (s)		26.0			18.8			65.4			16.4	
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%	2%	0%	2%	2%	2%	0%	2%	2%	2%	6%	0%
Adj. Flow (vph)	22	0	13	57	0	43	13	289	98	71	189	29
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	35	0	0	100	0	0	400	0	0	289	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	50.7% ICU Level of Service A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis  
 103: Irvine St & Bricker Ave/Street W-S Total - 2035  
 PM Peak Hour

	↖	→	↘	↙	←	↖	↙	↑	↘	↙	↓	↘
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	20	0	12	52	0	40	12	266	90	65	174	27
Future Volume (Veh/h)	20	0	12	52	0	40	12	266	90	65	174	27
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)	22	0	13	57	0	43	13	289	98	71	189	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	758	764	209	723	729	338	223				387	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	758	764	209	723	729	338	223				387	
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 %	92	100	98	82	100	94	99				94	
cM capacity (veh/h)	288	309	833	318	324	704	1352				1171	

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	35	100	400	289
Volume Left	22	57	13	71
Volume Right	13	43	98	29
eSH	380	416	1352	1171
Volume to Capacity	0.09	0.24	0.01	0.06
Queue Length 95th (m)	2.4	7.4	0.2	1.5
Control Delay (s/veh)	15.4	16.4	0.3	2.5
Lane LOS	C	C	A	A
Approach Delay (s/veh)	15.4	16.4	0.3	2.5
Approach LOS	C	C		

Intersection Summary	
Average Delay	3.7
Intersection Capacity Utilization	50.7% ICU Level of Service A
Analysis Period (min)	15

HCM 6th TWSC  
103: Irvine St & Bricker Ave/Street W-S

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	20	0	12	52	0	40	12	266	90	65	174	27
Future Vol, veh/h	20	0	12	52	0	40	12	266	90	65	174	27
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	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	2	0	2	2	0	2	2	2	2	6	0
Mvmt Flow	22	0	13	57	0	43	13	289	98	71	189	29

Major/Minor	Minor2	Minor1	Major1	Major2
Conflicting Flow All	737	764	209	716
Stage 1	351	351	-	364
Stage 2	386	413	-	352
Critical Hdwy	7.1	6.52	6.2	7.12
Critical Hdwy Stg 1	6.1	5.52	-	6.12
Critical Hdwy Stg 2	6.1	5.52	-	6.12
Follow-up Hdwy	3.5	4.018	3.3	3.518
Pot Cap-1 Maneuver	337	334	836	345
Stage 1	670	632	-	655
Stage 2	641	594	-	665
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	296	306	832	319
Mov Cap-2 Maneuver	296	306	-	319
Stage 1	659	586	-	647
Stage 2	594	587	-	609

Approach	EB	WB	NB	SB
HCM Ctrf Dly, s/v	15.1	16.3	0.3	2
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1352	-	-	390	419	1171	-	-
HCM Lane V/C Ratio	0.01	-	-	0.089	0.239	0.06	-	-
HCM Ctrf Dly (s/v)	7.7	0	-	15.1	16.3	8.3	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q (veh)	0	-	-	0.3	0.9	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)	76	301	4	8	239	121	2	213	20	100	145	38
Future Volume (vph)	76	301	4	8	239	121	2	213	20	100	145	38
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				0.956				0.988		0.982	
Fit Protected	0.990				0.999						0.983	
Satd. Flow (prot)	0	1864	0	0	1763	0	0	1877	0	0	1815	0
Fit Permitted	0.990				0.999						0.983	
Satd. Flow (perm)	0	1864	0	0	1763	0	0	1877	0	0	1815	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)	83	327	4	9	260	132	2	232	22	109	158	41
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	414	0	0	401	0	0	256	0	0	308	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	82.2%
ICU Level of Service	E
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)	76	301	4	8	239	121	2	213	20	100	145	38
Future Volume (vph)	76	301	4	8	239	121	2	213	20	100	145	38
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)	83	327	4	9	260	132	2	232	22	109	158	41
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	414	401	256	308								
Volume Left (vph)	83	9	2	109								
Volume Right (vph)	4	132	22	41								
Hadj (s)	0.05	-0.14	-0.05	0.01								
Departure Headway (s)	7.6	7.5	8.2	8.0								
Degree Utilization, x	0.87	0.83	0.58	0.69								
Capacity (veh/h)	414	463	393	410								
Control Delay (s/veh)	43.5	37.5	22.0	26.8								
Approach Delay (s/veh)	43.5	37.5	22.0	26.8								
Approach LOS	E	E	C	D								
<b>Intersection Summary</b>												
Delay	34.1											
Level of Service	D											
Intersection Capacity Utilization	82.2%		ICU Level of Service	E								
Analysis Period (min)	15											

HCM 6th AWSC  
104: Irvine St & Colborne St

Total - 2035  
PM Peak Hour

<b>Intersection</b>												
Intersection Delay, s/veh	32.6											
Intersection LOS	D											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↕			↕			↕			↕		
Traffic Vol, veh/h	76	301	4	8	239	121	2	213	20	100	145	38
Future Vol, veh/h	76	301	4	8	239	121	2	213	20	100	145	38
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	83	327	4	9	260	132	2	232	22	109	158	41
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	41.6		35.2		21.6		26.4					
HCM LOS	E		E		C		D					
Lane	NBLn1	EBLn1	WBLn1	SBLn1								
Vol Left, %	1%	20%	2%	35%								
Vol Thru, %	91%	79%	65%	51%								
Vol Right, %	9%	1%	33%	13%								
Sign Control	Stop	Stop	Stop	Stop								
Traffic Vol by Lane	235	381	368	283								
LT Vol	2	76	8	100								
Through Vol	213	301	239	145								
RT Vol	20	4	121	38								
Lane Flow Rate	255	414	400	308								
Geometry Grp	1	1	1	1								
Degree of Util (X)	0.573	0.86	0.813	0.679								
Departure Headway (Hd)	8.076	7.474	7.32	7.942								
Convergence, Y/N	Yes	Yes	Yes	Yes								
Cap	444	485	492	452								
Service Time	6.161	5.544	5.392	6.018								
HCM Lane V/C Ratio	0.574	0.854	0.813	0.681								
HCM Control Delay, s/veh	21.6		41.6		35.2		26.4					
HCM Lane LOS	C		E		E		D					
HCM 95th-tile Q	3.5		8.9		7.8		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)	103	341	1	1	319	121	1	0	0	74	0	77
Future Volume (vph)	103	341	1	1	319	121	1	0	0	74	0	77
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				0.963							0.931	
Flt Protected		0.989						0.950			0.976	
Satd. Flow (prot)	0	1865	0	0	1817	0	0	1805	0	0	1726	0
Flt Permitted		0.989						0.950			0.976	
Satd. Flow (perm)	0	1865	0	0	1817	0	0	1805	0	0	1726	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)	112	371	1	1	347	132	1	0	0	80	0	84
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	484	0	0	480	0	0	1	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	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	
<b>Intersection Summary</b>												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	65.9%				ICU Level of Service C							
Analysis Period (min)	15											

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)	103	341	1	1	319	121	1	0	0	74	0	77
Future Volume (Veh/h)	103	341	1	1	319	121	1	0	0	74	0	77
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)	112	371	1	1	347	132	1	0	0	80	0	84
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	484			372			1095	1082	372	1016	1016	418
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	484			372			1095	1082	372	1016	1016	418
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 %	90			100			99	100	100	60	100	87
cM capacity (veh/h)	1085			1198			154	196	679	200	214	637
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	484	480	1	164								
Volume Left	112	1	1	80								
Volume Right	1	132	0	84								
eSH	1085	1198	154	308								
Volume to Capacity	0.10	0.00	0.01	0.53								
Queue Length 95th (m)	2.8	0.0	0.2	23.5								
Control Delay (s/veh)	2.9	0.0	28.6	29.3								
Lane LOS	A	A	D	D								
Approach Delay (s/veh)	2.9	0.0	28.6	29.3								
Approach LOS			D	D								
<b>Intersection Summary</b>												
Average Delay				5.5								
Intersection Capacity Utilization			65.9%				ICU Level of Service			C		
Analysis Period (min)			15									

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

Total - 2035  
PM 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	103	341	1	1	319	121	1	0	0	74	0	77
Future Vol, veh/h	103	341	1	1	319	121	1	0	0	74	0	77
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	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
Mvmt Flow	112	371	1	1	347	132	1	0	0	80	0	84


Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	484	0	0	372
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	1089	-	-	1198
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	1084	-	-	1198
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrf Dly, s/v	2	0	27.5	30.2
HCM LOS			D	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	161	1084	-	-	1198	-	-	302
HCM Lane V/C Ratio	0.007	0.103	-	-	0.001	-	-	0.543
HCM Ctrf Dly (s/v)	27.5	8.7	0	-	8	0	-	30.2
HCM Lane LOS	D	A	A	-	A	A	-	D
HCM 95th %tile Q (veh)	0	0.3	-	-	0	-	-	3

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	404	66	62	333	9	48	1	43	9	0	5
Future Volume (vph)	14	404	66	62	333	9	48	1	43	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		0.982			0.997			0.937			0.955	
Fit Protected		0.999			0.992			0.975			0.968	
Satd. Flow (prot)	0	1849	0	0	1864	0	0	1736	0	0	1621	0
Fit Permitted		0.999			0.992			0.975			0.968	
Satd. Flow (perm)	0	1849	0	0	1864	0	0	1736	0	0	1621	0
Link Speed (k/h)		80			80			50			50	
Link Distance (m)		284.2			999.6			256.5			439.6	
Travel Time (s)		12.8			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	439	72	67	362	10	52	1	47	10	0	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	526	0	0	439	0	0	100	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	60.9%
ICU Level of Service	B
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	404	66	62	333	9	48	1	43	9	0	5
Future Volume (Veh/h)	14	404	66	62	333	9	48	1	43	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	439	72	67	362	10	52	1	47	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	372	511			1011			1011	475	1054	1042	367
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	372	511			1011			1011	475	1054	1042	367
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	94			75			100	92	94	100	99
cM capacity (veh/h)	1198	1065			206			223	594	178	214	630
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	526	439	100	15								
Volume Left	15	67	52	10								
Volume Right	72	10	47	5								
eSH	1198	1065	297	234								
Volume to Capacity	0.01	0.06	0.34	0.06								
Queue Length 95th (m)	0.3	1.6	11.5	1.6								
Control Delay (s/veh)	0.4	1.9	23.1	21.4								
Lane LOS	A	A	C	C								
Approach Delay (s/veh)	0.4	1.9	23.1	21.4								
Approach LOS			C	C								
Intersection Summary												
Average Delay	3.4											
Intersection Capacity Utilization	60.9%			ICU Level of Service			B					
Analysis Period (min)	15											

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

Total - 2035  
PM Peak Hour

Intersection												
Int Delay, s/veh	3.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	14	404	66	62	333	9	48	1	43	9	0	5
Future Vol, veh/h	14	404	66	62	333	9	48	1	43	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	439	72	67	362	10	52	1	47	10	0	5
Major/Minor	Major1	Major2	Minor1	Minor2								
Conflicting Flow All	372	0	0	511	0	0	1009	1011	475	1030	1042	367
Stage 1	-	-	-	-	-	-	505	505	-	501	501	-
Stage 2	-	-	-	-	-	-	504	506	-	529	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	1198	-	-	1065	-	-	221	241	594	214	232	630
Stage 1	-	-	-	-	-	-	553	544	-	556	546	-
Stage 2	-	-	-	-	-	-	554	543	-	537	524	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1198	-	-	1065	-	-	203	218	594	182	210	630
Mov Cap-2 Maneuver	-	-	-	-	-	-	203	218	-	182	210	-
Stage 1	-	-	-	-	-	-	543	534	-	546	503	-
Stage 2	-	-	-	-	-	-	506	500	-	485	515	-
Approach	EB	WB	NB	SB								
HCM Ctrl Dly, s/v	0.2	1.3	23.4	20.7								
HCM LOS			C	C								
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	294	1198	-	-	1065	-	-	244				
HCM Lane V/C Ratio	0.34	0.013	-	-	0.063	-	-	0.062				
HCM Ctrl Dly (s/v)	23.4	8	0	-	8.6	0	-	20.7				
HCM Lane LOS	C	A	A	-	A	A	-	C				
HCM 95th %tile Q (veh)	1.5	0	-	-	0.2	-	-	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)	74	247	66	17	291	88	99	169	29	73	115	57
Future Volume (vph)	74	247	66	17	291	88	99	169	29	73	115	57
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			0.970			0.987			0.969	
Fit Protected		0.991			0.998			0.984			0.985	
Satd. Flow (prot)	0	1789	0	0	1793	0	0	1644	0	0	1709	0
Fit Permitted		0.991			0.998			0.984			0.985	
Satd. Flow (perm)	0	1789	0	0	1793	0	0	1644	0	0	1709	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)	80	268	72	18	316	96	108	184	32	79	125	62
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	420	0	0	430	0	0	324	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)		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	75.0%
Analysis Period (min)	15
	ICU Level of Service D

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)	74	247	66	17	291	88	99	169	29	73	115	57
Future Volume (vph)	74	247	66	17	291	88	99	169	29	73	115	57
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)	80	268	72	18	316	96	108	184	32	79	125	62
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	420	430	324	266								
Volume Left (vph)	80	18	108	79								
Volume Right (vph)	72	96	32	62								
Hadj (s)	-0.02	-0.08	0.22	0.02								
Departure Headway (s)	8.4	8.3	9.1	9.2								
Degree Utilization, x	0.98	0.99	0.82	0.68								
Capacity (veh/h)	430	430	395	380								
Control Delay (s/veh)	67.7	70.2	41.6	29.7								
Approach Delay (s/veh)	67.7	70.2	41.6	29.7								
Approach LOS	F	F	E	D								
Intersection Summary												
Delay				55.6								
Level of Service				F								
Intersection Capacity Utilization				75.0%	ICU Level of Service		D					
Analysis Period (min)				15								

HCM 6th AWSC  
107: Gerrie Rd & Colborne St

Total - 2035  
PM Peak Hour

Intersection												
Intersection Delay, s/veh	53.5											
Intersection LOS	F											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↕			↕			↕	
Traffic Vol, veh/h	74	247	66	17	291	88	99	169	29	73	115	57
Future Vol, veh/h	74	247	66	17	291	88	99	169	29	73	115	57
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	80	268	72	18	316	96	108	184	32	79	125	62
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	66.2	66.4	40.7	28.3
HCM LOS	F	F	E	D

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	33%	19%	4%	30%
Vol Thru, %	57%	64%	73%	47%
Vol Right, %	10%	17%	22%	23%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	297	387	396	245
LT Vol	99	74	17	73
Through Vol	169	247	291	115
RT Vol	29	66	88	57
Lane Flow Rate	323	421	430	266
Geometry Grp	1	1	1	1
Degree of Util (X)	0.808	0.973	0.977	0.665
Departure Headway (Hd)	9.007	8.328	8.169	8.987
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	404	437	443	399
Service Time	7.064	6.382	6.223	7.077
HCM Lane V/C Ratio	0.8	0.963	0.971	0.667
HCM Control Delay, s/veh	40.7	66.2	66.4	28.3
HCM Lane LOS	E	F	F	D
HCM 95th-tile Q	7.2	11.8	12.1	4.7

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)	77	367	0	0	380	220	0	0	0	148	0	50
Future Volume (vph)	77	367	0	0	380	220	0	0	0	148	0	50
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												0.99
Fit Protected	0.950				0.951							0.966
Satd. Flow (prot)	1805	1881	0	0	1800	0	0	1900	0	0	1746	0
Fit Permitted	0.317											0.780
Satd. Flow (perm)	602	1881	0	0	1800	0	0	1900	0	0	1413	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					72							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)	84	399	0	0	413	239	0	0	0	161	0	54
Shared Lane Traffic (%)												
Lane Group Flow (vph)	84	399	0	0	652	0	0	0	0	0	215	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	

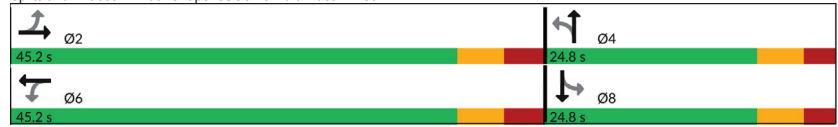
Lanes, Volumes, Timings  
108: Chapel St/Gerrie Rd & East Mill St

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)	38.9	38.9			38.9						15.5	
Actuated g/C Ratio	0.62	0.62			0.62						0.25	
v/c Ratio	0.22	0.34			0.57						0.54	
Control Delay (s/veh)	7.9	7.1			8.9						19.1	
Queue Delay	0.0	0.0			0.0						0.0	
Total Delay (s/veh)	7.9	7.1			8.9						19.1	
LOS	A	A			A						B	
Approach Delay (s/veh)		7.3			8.9						19.1	
Approach LOS		A			A						B	

Intersection Summary	
Area Type:	Other
Cycle Length:	70
Actuated Cycle Length:	62.4
Natural Cycle:	70
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.57
Intersection Signal Delay (s/veh):	10.0
Intersection LOS:	A
Intersection Capacity Utilization:	81.9%
ICU Level of Service:	D
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)	84	399	652	215
v/c Ratio	0.22	0.34	0.57	0.54
Control Delay (s/veh)	7.9	7.1	8.9	19.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	7.9	7.1	8.9	19.1
Queue Length 50th (m)	3.6	18.6	32.0	14.8
Queue Length 95th (m)	12.4	41.6	74.8	34.5
Internal Link Dist (m)		290.9	303.9	352.2
Turn Bay Length (m)	30.0			
Base Capacity (vph)	399	1247	1217	517
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	0.21	0.32	0.54	0.42

Intersection Summary

Intersection Summary	
Area Type:	Other
Cycle Length:	70
Actuated Cycle Length:	62.4
Natural Cycle:	70
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.57
Intersection Signal Delay (s/veh):	10.0
Intersection LOS:	A
Intersection Capacity Utilization:	81.9%
ICU Level of Service:	D
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)	77	367	0	0	380	220	0	0	0	148	0	50
Future Volume (vph)	77	367	0	0	380	220	0	0	0	148	0	50
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					0.99		
Flpb, ped/bikes	1.00	1.00			1.00					1.00		
Frt	1.00	1.00			0.95					0.97		
Flt Protected	0.95	1.00			1.00					0.96		
Satd. Flow (prot)	1805	1881			1799					1746		
Flt Permitted	0.32	1.00			1.00					0.78		
Satd. Flow (perm)	602	1881			1799					1413		
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)	84	399	0	0	413	239	0	0	0	161	0	54
RTOR Reduction (vph)	0	0	0	0	27	0	0	0	0	0	50	0
Lane Group Flow (vph)	84	399	0	0	625	0	0	0	0	165	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)	35.5	35.5			35.5							12.8
Effective Green, g (s)	38.8	38.8			38.8							15.5
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)	374	1171			1120							351
v/s Ratio Prot		0.21			c0.35							
v/s Ratio Perm	0.14											c0.12
v/c Ratio	0.22	0.34			0.56							0.47
Uniform Delay, d1	5.2	5.6			6.8							19.9
Progression Factor	1.00	1.00			1.00							1.00
Incremental Delay, d2	0.3	0.2			0.6							1.0
Delay (s)	5.5	5.8			7.4							20.9
Level of Service	A	A			A							C
Approach Delay (s/veh)		5.7			7.4			0.0				20.9
Approach LOS		A			A			A				C
<b>Intersection Summary</b>												
HCM 2000 Control Delay (s/veh)		9.0			HCM 2000 Level of Service			A				
HCM 2000 Volume to Capacity ratio		0.53										
Actuated Cycle Length (s)		62.3			Sum of lost time (s)			8.0				
Intersection Capacity Utilization		81.9%			ICU Level of Service			D				
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)	77	367	0	0	380	220	0	0	0	148	0	50
Future Volume (veh/h)	77	367	0	0	380	220	0	0	0	148	0	50
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	84	399	0	0	413	239	0	0	0	161	0	54
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	457	1207	0	0	723	418	0	430	0	351	6	84
Arrive On Green	0.64	0.64	0.00	0.00	0.64	0.58	0.00	0.00	0.00	0.18	0.00	0.18
Sat Flow, veh/h	793	1885	0	0	1129	653	0	1900	0	1085	24	372
Grp Volume(v), veh/h	84	399	0	0	0	652	0	0	0	215	0	0
Grp Sat Flow(s),veh/h/ln	793	1885	0	0	0	1782	0	1900	0	1481	0	0
Q Serve(g_s), s	4.1	5.8	0.0	0.0	0.0	12.9	0.0	0.0	0.0	8.1	0.0	0.0
Cycle Q Clear(g_c), s	17.0	5.8	0.0	0.0	0.0	12.9	0.0	0.0	0.0	8.3	0.0	0.0
Prop In Lane	1.00		0.00	0.00		0.37	0.00			0.00	0.75	0.25
Lane Grp Cap(c), veh/h	457	1207	0	0	0	1141	0	430	0	374	0	0
V/C Ratio(X)	0.18	0.33	0.00	0.00	0.00	0.57	0.00	0.00	0.00	0.58	0.00	0.00
Avail Cap(c_a), veh/h	495	1298	0	0	0	1227	0	660	0	552	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	11.1	4.9	0.0	0.0	0.0	6.5	0.0	0.0	0.0	22.3	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.2	0.0	0.0	0.0	0.6	0.0	0.0	0.0	1.4	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
<b>Unsig. Movement Delay, s/veh</b>												
LnGrp Delay(d), s/veh	11.3	5.1	0.0	0.0	0.0	7.1	0.0	0.0	0.0	23.7	0.0	0.0
LnGrp LOS	B	A				A				C		
Approach Vol, veh/h		483			652			0				215
Approach Delay, s/veh		6.2			7.1			0.0				23.7
Approach LOS		A			A			C				C
<b>Timer - Assigned Phs</b>												
Phs Duration (G+Y+Rc), s		42.3			17.5			42.3		17.5		
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		19.0			0.0			14.9		10.3		
Green Ext Time (p_c), s		3.4			0.0			5.6		0.8		
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay, s/veh		9.4										
HCM 6th LOS		A										

Lanes, Volumes, Timings

201: Irvine St & Cachet Clayton/Street W-N

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	55	0	41	74	160	92	67	169	52
Future Volume (vph)	32	0	42	55	0	41	74	160	92	67	169	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			0.942			0.962			0.975	
Flt Protected		0.979			0.972			0.989			0.989	
Satd. Flow (prot)	0	1717	0	0	1706	0	0	1780	0	0	1803	0
Flt Permitted		0.979			0.972			0.989			0.989	
Satd. Flow (perm)	0	1717	0	0	1706	0	0	1780	0	0	1803	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	60	0	45	80	174	100	73	184	57
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	81	0	0	105	0	0	354	0	0	314	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	38.7% ICU Level of Service A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis

201: Irvine St & Cachet Clayton/Street W-N

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	55	0	41	74	160	92	67	169	52
Future Volume (Veh/h)	32	0	42	55	0	41	74	160	92	67	169	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	60	0	45	80	174	100	73	184	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	793	798	218	789	776	224	246			274		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	793	798	218	789	776	224	246			274		
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 %	87	100	94	77	100	94	94			94		
cM capacity (veh/h)	265	282	824	265	290	815	1326			1289		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	81	105	354	314								
Volume Left	35	60	80	73								
Volume Right	46	45	100	57								
cSH	431	373	1326	1289								
Volume to Capacity	0.19	0.28	0.06	0.06								
Queue Length 95th (m)	5.5	9.1	1.5	1.4								
Control Delay (s/veh)	15.3	18.4	2.2	2.3								
Lane LOS	C	C	A	A								
Approach Delay (s/veh)	15.3	18.4	2.2	2.3								
Approach LOS	C	C										

Intersection Summary	
Average Delay	5.5
Intersection Capacity Utilization	38.7% ICU Level of Service A
Analysis Period (min)	15

HCM 6th TWSC  
201: Irvine St & Cachet Clayton/Street W-N

Total - 2035  
PM Peak Hour

Intersection												
Int Delay, s/veh	5.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔		↔		↔		↔		↔		↔	
Traffic Vol, veh/h	32	0	42	55	0	41	74	160	92	67	169	52
Future Vol, veh/h	32	0	42	55	0	41	74	160	92	67	169	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	0	2	2	2	2	2	0
Mvmt Flow	35	0	46	60	0	45	80	174	100	73	184	57

Major/Minor	Minor2	Minor1	Major1	Major2
Conflicting Flow All	771	798	218	766
Stage 1	364	364	-	384
Stage 2	407	434	-	382
Critical Hdwy	7.1	6.52	6.2	7.12
Critical Hdwy Stg 1	6.1	5.52	-	6.12
Critical Hdwy Stg 2	6.1	5.52	-	6.12
Follow-up Hdwy	3.5	4.018	3.3	3.518
Pot Cap-1 Maneuver	320	319	827	320
Stage 1	659	624	-	639
Stage 2	625	581	-	640
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	270	275	823	271
Mov Cap-2 Maneuver	270	275	-	271
Stage 1	609	580	-	593
Stage 2	548	539	-	565

Approach	EB	WB	NB	SB
HCM Ctrf Dly, s/v	15.1	18.1	1.8	1.9
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1326	-	-	436	379	1289	-	-
HCM Lane V/C Ratio	0.061	-	-	0.184	0.275	0.056	-	-
HCM Ctrf Dly (s/v)	7.9	0	-	15.1	18.1	8	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q (veh)	0.2	-	-	0.7	1.1	0.2	-	-

Lanes, Volumes, Timings  
203: Street N-E & Nichol Rd 15

Total - 2035  
PM Peak Hour

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	472	26	20	366	15	12
Future Volume (vph)	472	26	20	366	15	12
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	0.993				0.939	
Fit Protected				0.997	0.973	
Satd. Flow (prot)	1852	0	0	1859	1736	0
Fit Permitted				0.997	0.973	
Satd. Flow (perm)	1852	0	0	1859	1736	0
Link Speed (k/h)	80			80	50	
Link Distance (m)	419.2			284.2	150.6	
Travel Time (s)	18.9			12.8	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)	513	28	22	398	16	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	541	0	0	420	29	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	45.6%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis  
203: Street N-E & Nichol Rd 15

Total - 2035  
PM Peak Hour

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	
Traffic Volume (veh/h)	472	26	20	366	15	12
Future Volume (Veh/h)	472	26	20	366	15	12
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)	513	28	22	398	16	13
<b>Pedestrians</b>						
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			541			969 527
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			541			969 527
tC, single (s)			4.1			6.4 6.2
tC, 2 stage (s)						
tF (s)			2.2			3.5 3.3
p0 queue free %			98			94 98
cM capacity (veh/h)			1038			278 555
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>NB 1</b>			
Volume Total	541	420	29			
Volume Left	0	22	16			
Volume Right	28	0	13			
cSH	1700	1038	358			
Volume to Capacity	0.32	0.02	0.08			
Queue Length 95th (m)	0.0	0.5	2.1			
Control Delay (s/veh)	0.0	0.7	15.9			
Lane LOS	A		C			
Approach Delay (s/veh)	0.0	0.7	15.9			
Approach LOS	A		C			
<b>Intersection Summary</b>						
Average Delay			0.8			
Intersection Capacity Utilization			45.6%	ICU Level of Service		A
Analysis Period (min)			15			

HCM 6th TWSC  
203: Street N-E & Nichol Rd 15

Total - 2035  
PM Peak Hour

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	
Traffic Vol, veh/h	472	26	20	366	15	12
Future Vol, veh/h	472	26	20	366	15	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	0	0	2	0	0
Mvmt Flow	513	28	22	398	16	13
<b>Intersection</b>						
Int Delay, s/veh	0.6					
<b>Major/Minor</b>						
	Major1	Major2	Minor1			
Conflicting Flow All	0	0	541	0	969	527
Stage 1	-	-	-	-	527	-
Stage 2	-	-	-	-	442	-
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	-	-	1038	-	284	555
Stage 1	-	-	-	-	596	-
Stage 2	-	-	-	-	652	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1038	-	276	555
Mov Cap-2 Maneuver	-	-	-	-	276	-
Stage 1	-	-	-	-	596	-
Stage 2	-	-	-	-	634	-
<b>Approach</b>						
	EB	WB	NB			
HCM Ctrl Dly, s/v	0	0.4	16.1			
HCM LOS			C			
<b>Minor Lane/Major Mvmt</b>						
	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	355	-	-	1038	-	
HCM Lane V/C Ratio	0.083	-	-	0.021	-	
HCM Ctrl Dly (s/v)	16.1	-	-	8.5	0	
HCM Lane LOS	C	-	-	A	A	
HCM 95th %tile Q (veh)	0.3	-	-	0.1	-	

Lanes, Volumes, Timings  
204: Gerrie Rd & Street E-N

Total - 2035  
PM Peak Hour

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	11	16	27	82	109	19
Future Volume (vph)	11	16	27	82	109	19
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	0.921				0.980	
Fit Protected	0.980			0.988		
Satd. Flow (prot)	1715	0	0	1849	1831	0
Fit Permitted	0.980			0.988		
Satd. Flow (perm)	1715	0	0	1849	1831	0
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)	12	17	29	89	118	21
Shared Lane Traffic (%)						
Lane Group Flow (vph)	29	0	0	118	139	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	26.0%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis  
204: Gerrie Rd & Street E-N

Total - 2035  
PM Peak Hour

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	11	16	27	82	109	19
Future Volume (Veh/h)	11	16	27	82	109	19
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)	12	17	29	89	118	21
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	276	129	139			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	276	129	139			
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)	704	927	1457			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	29	118	139
Volume Left	12	29	0
Volume Right	17	0	21
sSH	820	1457	1700
Volume to Capacity	0.04	0.02	0.08
Queue Length 95th (m)	0.9	0.5	0.0
Control Delay (s/veh)	9.6	2.0	0.0
Lane LOS	A	A	
Approach Delay (s/veh)	9.6	2.0	0.0
Approach LOS	A		

Intersection Summary	
Average Delay	1.8
Intersection Capacity Utilization	26.0%
ICU Level of Service	A
Analysis Period (min)	15

Intersection						
Int Delay, s/veh	1.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔		↕		↕	
Traffic Vol, veh/h	11	16	27	82	109	19
Future Vol, veh/h	11	16	27	82	109	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
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	12	17	29	89	118	21
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	276	129	139	0	-	0
Stage 1	129	-	-	-	-	-
Stage 2	147	-	-	-	-	-
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	718	926	1457	-	-	-
Stage 1	902	-	-	-	-	-
Stage 2	885	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	703	926	1457	-	-	-
Mov Cap-2 Maneuver	703	-	-	-	-	-
Stage 1	883	-	-	-	-	-
Stage 2	885	-	-	-	-	-
Approach	EB	NB	SB			
HCM Ctrf Dly, s/v	9.6	1.9	0			
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1457	-	820	-	-	
HCM Lane V/C Ratio	0.02	-	0.036	-	-	
HCM Ctrf Dly (s/v)	7.5	0	9.6	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q (veh)	0.1	-	0.1	-	-	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔		↕		↕	
Traffic Volume (vph)	40	52	90	69	60	65
Future Volume (vph)	40	52	90	69	60	65
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	0.923				0.930	
Fit Protected	0.979		0.972			
Satd. Flow (prot)	1717		0		1831	
Fit Permitted	0.979		0.972			
Satd. Flow (perm)	1717		0		1831	
Link Speed (k/h)	50		50		50	
Link Distance (m)	243.5		1159.4		214.3	
Travel Time (s)	17.5		83.5		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)	43	57	98	75	65	71
Shared Lane Traffic (%)						
Lane Group Flow (vph)	100	0	0	173	136	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	31.2%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis  
205: Gerrie Rd & Street E-S

Total - 2035  
PM Peak Hour

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			↑	↑	
Traffic Volume (veh/h)	40	52	90	69	60	65
Future Volume (Veh/h)	40	52	90	69	60	65
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)	43	57	98	75	65	71
<b>Pedestrians</b>						
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	372	101	136			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	372	101	136			
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	94	93			
cM capacity (veh/h)	591	960	1461			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	100	173	136			
Volume Left	43	98	0			
Volume Right	57	0	71			
eSH	757	1461	1700			
Volume to Capacity	0.13	0.07	0.08			
Queue Length 95th (m)	3.6	1.7	0.0			
Control Delay (s/veh)	10.5	4.6	0.0			
Lane LOS	B	A				
Approach Delay (s/veh)	10.5	4.6	0.0			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			4.5			
Intersection Capacity Utilization		31.2%		ICU Level of Service	A	
Analysis Period (min)		15				

HCM 6th TWSC  
205: Gerrie Rd & Street E-S

Total - 2035  
PM Peak Hour

<b>Intersection</b>						
Int Delay, s/veh	4.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			↑	↑	
Traffic Vol, veh/h	40	52	90	69	60	65
Future Vol, veh/h	40	52	90	69	60	65
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	43	57	98	75	65	71
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	372	101	136	0	-	0
Stage 1	101	-	-	-	-	-
Stage 2	271	-	-	-	-	-
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	633	960	1461	-	-	-
Stage 1	928	-	-	-	-	-
Stage 2	779	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	589	960	1461	-	-	-
Mov Cap-2 Maneuver	589	-	-	-	-	-
Stage 1	863	-	-	-	-	-
Stage 2	779	-	-	-	-	-
Approach	EB	NB	SB			
HCM Ctrl Dly, s/v	10.5	4.3	0			
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1461	-	754	-	-	
HCM Lane V/C Ratio	0.067	-	0.133	-	-	
HCM Ctrl Dly (s/v)	7.6	0	10.5	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q (veh)	0.2	-	0.5	-	-	

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)	86	403	118	61	229	121
Future Volume (vph)	86	403	118	61	229	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	0.889	0.954				
Fit Protected	0.991				0.968	
Satd. Flow (prot)	1616	0	1714	0	0	1768
Fit Permitted	0.991				0.968	
Satd. Flow (perm)	1616	0	1714	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)	93	438	128	66	249	132
Shared Lane Traffic (%)						
Lane Group Flow (vph)	531	0	194	0	0	381
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	69.0%
Analysis Period (min)	15
	ICU Level of Service C

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)	86	403	118	61	229	121
Future Volume (Veh/h)	86	403	118	61	229	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)	93	438	128	66	249	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	795	164			197	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	795	164			197	
tC, single (s)	6.5	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.6	3.3			2.2	
p0 queue free %	67	50			82	
cM capacity (veh/h)	281	878			1366	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	531	194	381
Volume Left	93	0	249
Volume Right	438	66	0
eSH	640	1700	1366
Volume to Capacity	0.83	0.11	0.18
Queue Length 95th (m)	70.9	0.0	5.3
Control Delay (s/veh)	32.1	0.0	5.9
Lane LOS	D		A
Approach Delay (s/veh)	32.1	0.0	5.9
Approach LOS	D		

Intersection Summary	
Average Delay	17.4
Intersection Capacity Utilization	69.0%
Analysis Period (min)	15
	ICU Level of Service C

HCM 6th TWSC  
101: Geddes St & James St

Total - 2040  
AM Peak Hour

Intersection						
Int Delay, s/veh	17.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔		↔	
Traffic Vol, veh/h	86	403	118	61	229	121
Future Vol, veh/h	86	403	118	61	229	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	93	438	128	66	249	132
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	795	164	0	0	197	0
Stage 1	164	-	-	-	-	-
Stage 2	631	-	-	-	-	-
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	344	881	-	-	1370	-
Stage 1	844	-	-	-	-	-
Stage 2	513	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	275	879	-	-	1367	-
Mov Cap-2 Maneuver	275	-	-	-	-	-
Stage 1	841	-	-	-	-	-
Stage 2	411	-	-	-	-	-
Approach	WB	NB	SB			
HCM Ctr Dly, s/v	33.2	0	5.4			
HCM LOS	D					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	634	1367		
HCM Lane V/C Ratio	-	-	0.838	0.182		
HCM Ctr Dly (s/v)	-	-	33.2	8.2	0	
HCM Lane LOS	-	-	D	A	A	
HCM 95th %tile Q (veh)	-	-	9.1	0.7		

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	215	68	78	346	4	142	3	107	3	4	1
Future Volume (vph)	7	215	68	78	346	4	142	3	107	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	0.968		0.999		0.943		0.983					
Fit Protected	0.999		0.991		0.973		0.982					
Satd. Flow (prot)	0	1675	0	0	1795	0	0	1320	0	0	1256	0
Fit Permitted	0.999		0.991		0.973		0.982					
Satd. Flow (perm)	0	1675	0	0	1795	0	0	1320	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	234	74	85	376	4	154	3	116	3	4	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	316	0	0	465	0	0	273	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	69.8%						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	215	68	78	346	4	142	3	107	3	4	1
Future Volume (Veh/h)	7	215	68	78	346	4	142	3	107	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	234	74	85	376	4	154	3	116	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	382	308			838			839	271	955	874	380
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	382	308			838			839	271	955	874	380
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	93			30			99	85	98	98	100
cM capacity (veh/h)	1083	1193			219			280	751	189	210	495
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	316	465	273	8								
Volume Left	8	85	154	3								
Volume Right	74	4	116	1								
cSH	1083	1193	315	216								
Volume to Capacity	0.01	0.07	0.87	0.04								
Queue Length 95th (m)	0.2	1.8	62.6	0.9								
Control Delay (s/veh)	0.3	2.1	59.7	22.3								
Lane LOS	A	A	F	C								
Approach Delay (s/veh)	0.3	2.1	59.7	22.3								
Approach LOS			F	C								
<b>Intersection Summary</b>												
Average Delay	16.5											
Intersection Capacity Utilization	69.8%			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

<b>Intersection</b>												
Int Delay, s/veh	17											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	7	215	68	78	346	4	142	3	107	3	4	1
Future Vol, veh/h	7	215	68	78	346	4	142	3	107	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	234	74	85	376	4	154	3	116	3	4	1
Major/Minor	Major1	Major2	Minor1	Minor2								
Conflicting Flow All	382	0	0	308	0	0	838	839	271	897	874	380
Stage 1	-	-	-	-	-	-	287	287	-	550	550	-
Stage 2	-	-	-	-	-	-	551	552	-	347	324	-
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	1085	-	-	1193	-	-	238	304	751	263	228	496
Stage 1	-	-	-	-	-	-	628	678	-	523	424	-
Stage 2	-	-	-	-	-	-	442	518	-	673	548	-
Platoon blocked, %												
Mov Cap-1 Maneuver	1083	-	-	1193	-	-	216	274	751	203	205	495
Mov Cap-2 Maneuver	-	-	-	-	-	-	216	274	-	203	205	-
Stage 1	-	-	-	-	-	-	622	672	-	517	385	-
Stage 2	-	-	-	-	-	-	397	470	-	561	543	-
Approach	EB	WB	NB	SB								
HCM Ctrl Dly, s/v	0.2	1.5	62.6	22								
HCM LOS			F	C								
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	311	1083	-	-	1193	-	-	220				
HCM Lane V/C Ratio	0.881	0.007	-	-	0.071	-	-	0.04				
HCM Ctrl Dly (s/v)	62.6	8.3	0	-	8.2	0	-	22				
HCM Lane LOS	F	A	A	-	A	A	-	C				
HCM 95th %tile Q (veh)	8.1	0	-	-	0.2	-	-	0.1				

Lanes, Volumes, Timings  
103: Irvine St & Bricker Ave/Street W-S

Total - 2040  
AM Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔				↔
Traffic Volume (vph)	17	0	23	86	0	51	9	136	26	21	242	11
Future Volume (vph)	17	0	23	86	0	51	9	136	26	21	242	11
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		0.922			0.950			0.980			0.995	
Flt Protected		0.979			0.970			0.997			0.996	
Satd. Flow (prot)	0	1482	0	0	1717	0	0	1534	0	0	1586	0
Flt Permitted		0.979			0.970			0.997			0.996	
Satd. Flow (perm)	0	1482	0	0	1717	0	0	1534	0	0	1586	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		361.7			175.7			908.3			246.8	
Travel Time (s)		26.0			12.7			65.4			17.8	
Confl. Peds. (#/hr)							3					3
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%	27%	2%	2%	2%	0%	26%	2%	2%	21%	0%
Adj. Flow (vph)	18	0	25	93	0	55	10	148	28	23	263	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	43	0	0	148	0	0	186	0	0	298	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	39.2%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis  
103: Irvine St & Bricker Ave/Street W-S

Total - 2040  
AM Peak Hour

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔				↔
Traffic Volume (veh/h)	17	0	23	86	0	51	9	136	26	21	242	11
Future Volume (Veh/h)	17	0	23	86	0	51	9	136	26	21	242	11
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)	18	0	25	93	0	55	10	148	28	23	263	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	555	514	272	522	506	162	278			176		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	555	514	272	522	506	162	278			176		
tC, single (s)	7.1	6.5	6.5	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.5	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	96	100	96	79	100	94	99			98		
cM capacity (veh/h)	408	452	709	440	457	883	1293			1400		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	43	148	186	298								
Volume Left	18	93	10	23								
Volume Right	25	55	28	12								
eSH	542	541	1293	1400								
Volume to Capacity	0.08	0.27	0.01	0.02								
Queue Length 95th (m)	2.1	8.8	0.2	0.4								
Control Delay (s/veh)	12.2	14.2	0.5	0.7								
Lane LOS	B	B	A	A								
Approach Delay (s/veh)	12.2	14.2	0.5	0.7								
Approach LOS	B	B										

Intersection Summary	
Average Delay	4.3
Intersection Capacity Utilization	39.2%
Analysis Period (min)	15
	ICU Level of Service A

HCM 6th TWSC  
103: Irvine St & Bricker Ave/Street W-S

Total - 2040  
AM Peak Hour

Intersection												
Int Delay, s/veh	4.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔		↔		↔		↔		↔		↔	
Traffic Vol, veh/h	17	0	23	86	0	51	9	136	26	21	242	11
Future Vol, veh/h	17	0	23	86	0	51	9	136	26	21	242	11
Conflicting Peds, #/hr	0	0	0	0	0	0	3	0	0	0	0	3
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	27	2	2	2	0	26	2	2	21	0
Mvmt Flow	18	0	25	93	0	55	10	148	28	23	263	12

Major/Minor	Minor2	Minor1	Major1	Major2
Conflicting Flow All	528	514	272	510
Stage 1	318	318	-	182
Stage 2	210	196	-	328
Critical Hdwy	7.1	6.52	6.47	7.12
Critical Hdwy Stg 1	6.1	5.52	-	6.12
Critical Hdwy Stg 2	6.1	5.52	-	6.12
Follow-up Hdwy	3.5	4.018	3.543	3.518
Pot Cap-1 Maneuver	464	464	710	474
Stage 1	698	654	-	820
Stage 2	797	739	-	685
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	425	450	708	447
Mov Cap-2 Maneuver	425	450	-	447
Stage 1	690	640	-	813
Stage 2	740	732	-	648

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	12.1	14	0.4	0.6
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1293	-	-	552	548	1400	-	-
HCM Lane V/C Ratio	0.008	-	-	0.079	0.272	0.016	-	-
HCM Ctrl Dly (s/v)	7.8	0	-	12.1	14	7.6	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q (veh)	0	-	-	0.3	1.1	0.1	-	-

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

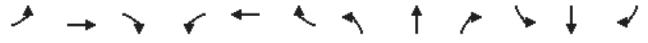
Total - 2040  
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔		↔		↔		↔		↔		↔	
Traffic Volume (vph)	17	148	5	10	219	65	3	93	10	91	274	69
Future Volume (vph)	17	148	5	10	219	65	3	93	10	91	274	69
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		0.970		0.987		0.979					
Fit Protected	0.995		0.998		0.999		0.990					
Satd. Flow (prot)	0	1804	0	0	1730	0	0	1536	0	0	1663	0
Fit Permitted	0.995		0.998		0.999		0.990					
Satd. Flow (perm)	0	1804	0	0	1730	0	0	1536	0	0	1663	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)	18	161	5	11	238	71	3	101	11	99	298	75
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	184	0	0	320	0	0	115	0	0	472	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	54.8%
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)	17	148	5	10	219	65	3	93	10	91	274	69
Future Volume (vph)	17	148	5	10	219	65	3	93	10	91	274	69
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	161	5	11	238	71	3	101	11	99	298	75
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	184	320	115	472								
Volume Left (vph)	18	11	3	99								
Volume Right (vph)	5	71	11	75								
Hadj (s)	0.08	-0.02	0.32	0.13								
Departure Headway (s)	6.6	6.2	6.9	5.9								
Degree Utilization, x	0.34	0.55	0.22	0.78								
Capacity (veh/h)	485	544	456	472								
Control Delay (s/veh)	12.9	16.4	11.8	26.4								
Approach Delay (s/veh)	12.9	16.4	11.8	26.4								
Approach LOS	B	C	B	D								
<b>Intersection Summary</b>												
Delay	19.6											
Level of Service	C											
Intersection Capacity Utilization	54.8%		ICU Level of Service	A								
Analysis Period (min)	15											

HCM 6th AWSC  
104: Irvine St & Colborne St

Total - 2040  
AM Peak Hour

<b>Intersection</b>												
Intersection Delay, s/veh	19.2											
Intersection LOS	C											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	17	148	5	10	219	65	3	93	10	91	274	69
Future Vol, veh/h	17	148	5	10	219	65	3	93	10	91	274	69
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	18	161	5	11	238	71	3	101	11	99	298	75
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	12.6	15.7		11.2		26.2						
HCM LOS	B	C		B		D						
Lane	NBLn1	EBLn1	WBLn1	SBLn1								
Vol Left, %	3%	10%	3%	21%								
Vol Thru, %	88%	87%	74%	63%								
Vol Right, %	9%	3%	22%	16%								
Sign Control	Stop	Stop	Stop	Stop								
Traffic Vol by Lane	106	170	294	434								
LT Vol	3	17	10	91								
Through Vol	93	148	219	274								
RT Vol	10	5	65	69								
Lane Flow Rate	115	185	320	472								
Geometry Grp	1	1	1	1								
Degree of Util (X)	0.206	0.329	0.533	0.774								
Departure Headway (Hd)	6.427	6.413	6.001	5.905								
Convergence, Y/N	Yes	Yes	Yes	Yes								
Cap	558	560	601	618								
Service Time	4.482	4.466	4.047	3.905								
HCM Lane V/C Ratio	0.206	0.33	0.532	0.764								
HCM Control Delay, s/veh	11.2	12.6	15.7	26.2								
HCM Lane LOS	B	B	C	D								
HCM 95th-tile Q	0.8	1.4	3.1	7.2								

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)	39	349	3	0	267	65	0	0	3	187	0	110
Future Volume (vph)	39	349	3	0	267	65	0	0	3	187	0	110
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			0.973			0.865			0.950	
Flt Protected		0.995									0.970	
Satd. Flow (prot)	0	1763	0	0	1694	0	0	1644	0	0	1546	0
Flt Permitted		0.995									0.970	
Satd. Flow (perm)	0	1763	0	0	1694	0	0	1644	0	0	1546	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)	42	379	3	0	290	71	0	0	3	203	0	120
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	424	0	0	361	0	0	3	0	0	323	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	
<b>Intersection Summary</b>												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	72.9%				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)	39	349	3	0	267	65	0	0	3	187	0	110
Future Volume (Veh/h)	39	349	3	0	267	65	0	0	3	187	0	110
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)	42	379	3	0	290	71	0	0	3	203	0	120
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	382				382			910	847	381	814	813
vC1, stage 1 conf vol												347
vC2, stage 2 conf vol												
vCu, unblocked vol	382				382			910	847	381	814	813
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 %	96				100			100	100	100	23	100
cM capacity (veh/h)	1167				1188			203	285	671	263	298
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	424	361	3	323								
Volume Left	42	0	0	203								
Volume Right	3	71	3	120								
eSH	1167	1188	671	340								
Volume to Capacity	0.04	0.00	0.00	0.95								
Queue Length 95th (m)	0.9	0.0	0.1	80.2								
Control Delay (s/veh)	1.2	0.0	10.4	72.9								
Lane LOS	A		B	F								
Approach Delay (s/veh)	1.2	0.0	10.4	72.9								
Approach LOS			B	F								
<b>Intersection Summary</b>												
Average Delay				21.7								
Intersection Capacity Utilization			72.9%	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	21.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔		↔		↔		↔		↔		↔	
Traffic Vol, veh/h	39	349	3	0	267	65	0	0	3	187	0	110
Future Vol, veh/h	39	349	3	0	267	65	0	0	3	187	0	110
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	42	379	3	0	290	71	0	0	3	203	0	120
Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	382	0	0	382	0	0	851	847	381	813	813	347
Stage 1	-	-	-	-	-	-	465	465	-	347	347	-
Stage 2	-	-	-	-	-	-	386	382	-	466	466	-
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	1188	-	-	1188	-	-	282	301	671	280	315	685
Stage 1	-	-	-	-	-	-	581	566	-	639	638	-
Stage 2	-	-	-	-	-	-	641	616	-	549	566	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1167	-	-	1188	-	-	224	282	671	264	295	673
Mov Cap-2 Maneuver	-	-	-	-	-	-	224	282	-	264	295	-
Stage 1	-	-	-	-	-	-	554	540	-	599	627	-
Stage 2	-	-	-	-	-	-	527	605	-	521	540	-
Approach	EB		WB		NB		SB					
HCM Ctrf Dly, s/v	0.8		0		10.4		71.7					
HCM LOS					B		F					
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	671	1167	-	-	1188	-	-	341				
HCM Lane V/C Ratio	0.005	0.036	-	-	-	-	-	0.947				
HCM Ctrf Dly (s/v)	10.4	8.2	0	-	0	-	-	71.7				
HCM Lane LOS	B	A	A	-	A	-	-	F				
HCM 95th %tile Q (veh)	0	0.1	-	-	0	-	-	9.9				

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	298	31	42	356	8	51	10	44	16	3	8
Future Volume (vph)	8	298	31	42	356	8	51	10	44	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
Frt	0.987		0.997		0.943		0.958					
Fit Protected	0.999		0.995		0.976		0.972					
Satd. Flow (prot)	0	1721	0	0	1837	0	0	1111	0	0	1609	0
Fit Permitted	0.999		0.995		0.976		0.972					
Satd. Flow (perm)	0	1721	0	0	1837	0	0	1111	0	0	1609	0
Link Speed (k/h)	80		80		50		50					
Link Distance (m)	329.6		999.6		224.9		439.6					
Travel Time (s)	14.8		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)	9	324	34	46	387	9	55	11	48	17	3	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	367	0	0	442	0	0	114	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	54.2%					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	298	31	42	356	8	51	10	44	16	3	8
Future Volume (Veh/h)	8	298	31	42	356	8	51	10	44	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	324	34	46	387	9	55	11	48	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	396	358			853			847	341	896	860	392
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	396	358			853			847	341	896	860	392
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	96			77			96	91	92	99	99
cM capacity (veh/h)	1174	1212			241			255	525	216	283	626
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	367	442	114	29								
Volume Left	9	46	55	17								
Volume Right	34	9	48	9								
cSH	1174	1212	314	280								
Volume to Capacity	0.01	0.04	0.36	0.10								
Queue Length 95th (m)	0.2	0.9	12.9	2.7								
Control Delay (s/veh)	0.3	1.2	22.9	19.3								
Lane LOS	A	A	C	C								
Approach Delay (s/veh)	0.3	1.2	22.9	19.3								
Approach LOS			C	C								
Intersection Summary												
Average Delay	4.0											
Intersection Capacity Utilization	54.2%			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	3.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	8	298	31	42	356	8	51	10	44	16	3	8
Future Vol, veh/h	8	298	31	42	356	8	51	10	44	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	324	34	46	387	9	55	11	48	17	3	9
Major/Minor	Major1	Major2	Minor1	Minor2								
Conflicting Flow All	396	0	0	358	0	0	849	847	341	873	860	392
Stage 1	-	-	-	-	-	-	359	359	-	484	484	-
Stage 2	-	-	-	-	-	-	490	488	-	389	376	-
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	1174	-	-	1212	-	-	257	267	525	264	296	625
Stage 1	-	-	-	-	-	-	614	576	-	553	555	-
Stage 2	-	-	-	-	-	-	519	502	-	623	620	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1174	-	-	1212	-	-	240	251	525	222	279	625
Mov Cap-2 Maneuver	-	-	-	-	-	-	240	251	-	222	279	-
Stage 1	-	-	-	-	-	-	608	570	-	547	528	-
Stage 2	-	-	-	-	-	-	484	477	-	550	614	-
Approach	EB	WB	NB	SB								
HCM Ctrl Dly, s/v	0.2	0.8	23	19.2								
HCM LOS			C	C								
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	312	1174	-	-	1212	-	-	282				
HCM Lane V/C Ratio	0.366	0.007	-	-	0.038	-	-	0.104				
HCM Ctrl Dly (s/v)	23	8.1	0	-	8.1	0	-	19.2				
HCM Lane LOS	C	A	A	-	A	A	-	C				
HCM 95th %tile Q (veh)	1.6	0	-	-	0.1	-	-	0.3				

Lanes, Volumes, Timings  
107: Gerrie Rd & 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)	41	212	104	19	172	39	44	85	10	77	210	69
Future Volume (vph)	41	212	104	19	172	39	44	85	10	77	210	69
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		0.961			0.977			0.990			0.974	
Fit Protected		0.994			0.996			0.984			0.989	
Satd. Flow (prot)	0	1701	0	0	1808	0	0	1678	0	0	1748	0
Fit Permitted		0.994			0.996			0.984			0.989	
Satd. Flow (perm)	0	1701	0	0	1808	0	0	1678	0	0	1748	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)	45	230	113	21	187	42	48	92	11	84	228	75
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	388	0	0	250	0	0	151	0	0	387	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	58.4%
ICU Level of Service	B
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis  
107: Gerrie Rd & 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)	41	212	104	19	172	39	44	85	10	77	210	69
Future Volume (vph)	41	212	104	19	172	39	44	85	10	77	210	69
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)	45	230	113	21	187	42	48	92	11	84	228	75
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	388	250	151	387								
Volume Left (vph)	45	21	48	84								
Volume Right (vph)	113	42	11	75								
Hadj (s)	-0.04	-0.05	0.20	0.01								
Departure Headway (s)	6.3	6.6	7.2	6.4								
Degree Utilization, x	0.68	0.46	0.30	0.68								
Capacity (veh/h)	535	485	414	534								
Control Delay (s/veh)	21.4	15.0	13.2	22.1								
Approach Delay (s/veh)	21.4	15.0	13.2	22.1								
Approach LOS	C	C	B	C								
Intersection Summary												
Delay				19.2								
Level of Service				C								
Intersection Capacity Utilization				58.4%	ICU Level of Service			B				
Analysis Period (min)				15								

HCM 6th AWSC  
107: Gerrie Rd & Colborne St

Total - 2040  
AM Peak Hour

<b>Intersection</b>												
Intersection Delay, s/veh	19.1											
Intersection LOS	C											


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	41	212	104	19	172	39	44	85	10	77	210	69
Future Vol, veh/h	41	212	104	19	172	39	44	85	10	77	210	69
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	45	230	113	21	187	42	48	92	11	84	228	75
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	21.7	14.9	13.6	21.4
HCM LOS	C	B	B	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	32%	11%	8%	22%
Vol Thru, %	61%	59%	75%	59%
Vol Right, %	7%	29%	17%	19%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	139	357	230	356
LT Vol	44	41	19	77
Through Vol	85	212	172	210
RT Vol	10	104	39	69
Lane Flow Rate	151	388	250	387
Geometry Grp	1	1	1	1
Degree of Util (X)	0.306	0.678	0.452	0.673
Departure Headway (Hd)	7.294	6.29	6.503	6.259
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	490	574	550	577
Service Time	5.381	4.354	4.577	4.324
HCM Lane V/C Ratio	0.308	0.676	0.455	0.671
HCM Control Delay, s/veh	13.6	21.7	14.9	21.4
HCM Lane LOS	B	C	B	C
HCM 95th-tile Q	1.3	5.2	2.3	5.1

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

Total - 2040  
AM Peak Hour



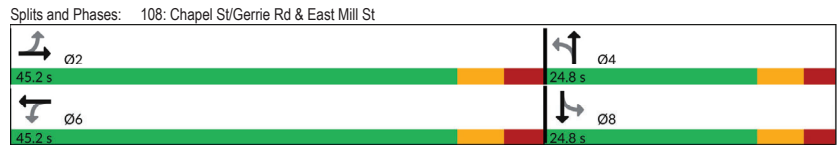
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔			↔			↔			↔	
Traffic Volume (vph)	32	367	0	0	290	106	0	0	0	246	0	87
Future Volume (vph)	32	367	0	0	290	106	0	0	0	246	0	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	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
Fit Protected	0.950				0.964							0.965
Satd. Flow (prot)	1687	1681	0	0	1766	0	0	1900	0	0	1697	0
Fit Permitted	0.451											0.783
Satd. Flow (perm)	801	1681	0	0	1766	0	0	1900	0	0	1378	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					46							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)	35	399	0	0	315	115	0	0	0	267	0	95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	35	399	0	0	430	0	0	0	0	0	362	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		Perm	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						19.3	
Actuated g/C Ratio	0.58	0.58		0.58	0.58						0.29	
v/c Ratio	0.07	0.41		0.41	0.41						0.80	
Control Delay (s/veh)	7.0	9.4		8.4	8.4						32.8	
Queue Delay	0.0	0.0		0.0	0.0						0.0	
Total Delay (s/veh)	7.0	9.4		8.4	8.4						32.8	
LOS	A	A		A	A						C	
Approach Delay (s/veh)		9.2		8.4	8.4						32.8	
Approach LOS		A		A	A						C	

**Intersection Summary**  
 Area Type: Other  
 Cycle Length: 70  
 Actuated Cycle Length: 65.7  
 Natural Cycle: 70  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.80  
 Intersection Signal Delay (s/veh): 15.9      Intersection LOS: B  
 Intersection Capacity Utilization 54.8%      ICU Level of Service A  
 Analysis Period (min) 15



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

Total - 2040  
AM Peak Hour

Lane Group	EBL	EBT	WBT	SBT
Lane Group Flow (vph)	35	399	430	362
v/c Ratio	0.07	0.41	0.41	0.80
Control Delay (s/veh)	7.0	9.4	8.4	32.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	7.0	9.4	8.4	32.8
Queue Length 50th (m)	1.9	26.6	24.9	34.7
Queue Length 95th (m)	5.5	44.5	43.1	#76.5
Internal Link Dist (m)		290.9	303.9	352.2
Turn Bay Length (m)	30.0			
Base Capacity (vph)	502	1056	1126	482
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	0.07	0.38	0.38	0.75

**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)	32	367	0	0	290	106	0	0	0	246	0	87
Future Volume (vph)	32	367	0	0	290	106	0	0	0	246	0	87
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					0.96		
Flt Protected	0.95	1.00			1.00					0.96		
Satd. Flow (prot)	1687	1681			1766					1697		
Flt Permitted	0.45	1.00			1.00					0.78		
Satd. Flow (perm)	801	1681			1766					1377		
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)	35	399	0	0	315	115	0	0	0	267	0	95
RTOR Reduction (vph)	0	0	0	0	19	0	0	0	0	0	47	0
Lane Group Flow (vph)	35	399	0	0	411	0	0	0	0	315	0	315
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					16.6		
Effective Green, g (s)	38.4	38.4			38.4					19.3		
Actuated g/C Ratio	0.58	0.58			0.58					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)	468	982			1032					404		
v/s Ratio Prot		c0.24			0.23							
v/s Ratio Perm	0.04									c0.23		
v/c Ratio	0.07	0.41			0.40					0.78		
Uniform Delay, d1	5.9	7.4			7.4					21.2		
Progression Factor	1.00	1.00			1.00					1.00		
Incremental Delay, d2	0.1	0.3			0.3					9.2		
Delay (s)	6.0	7.7			7.6					30.4		
Level of Service	A	A			A					C		
Approach Delay (s/veh)		7.6			7.6		0.0			30.4		
Approach LOS		A			A		A			C		
<b>Intersection Summary</b>												
HCM 2000 Control Delay (s/veh)	14.3			HCM 2000 Level of Service			B					
HCM 2000 Volume to Capacity ratio	0.53											
Actuated Cycle Length (s)	65.7			Sum of lost time (s)			8.0					
Intersection Capacity Utilization	54.8%			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)	32	367	0	0	290	106	0	0	0	246	0	87
Future Volume (veh/h)	32	367	0	0	290	106	0	0	0	246	0	87
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	35	399	0	0	315	115	0	0	0	267	0	95
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	504	977	0	0	737	269	0	585	0	430	0	120
Arrive On Green	0.57	0.57	0.00	0.00	0.57	0.52	0.00	0.00	0.00	0.27	0.00	0.27
Sat Flow, veh/h	920	1707	0	0	1287	470	0	1900	0	1092	0	389
Grp Volume(v), veh/h	35	399	0	0	430	0	0	0	0	362	0	0
Grp Sat Flow(s),veh/h/ln	920	1707	0	0	1756	0	1900	0	1481	0	0	0
Q Serve(g_s), s	1.5	8.7	0.0	0.0	0.0	9.5	0.0	0.0	0.0	15.9	0.0	0.0
Cycle Q Clear(g_c), s	11.0	8.7	0.0	0.0	0.0	9.5	0.0	0.0	0.0	15.9	0.0	0.0
Prop In Lane	1.00		0.00	0.00		0.27	0.00		0.00	0.74		0.26
Lane Grp Cap(c), veh/h	504	977	0	0	1005	0	585	0	490	0	0	0
V/C Ratio(X)	0.07	0.41	0.00	0.00	0.00	0.43	0.00	0.00	0.00	0.74	0.00	0.00
Avail Cap(c_a), veh/h	544	1052	0	0	1082	0	591	0	494	0	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	11.3	8.0	0.0	0.0	0.0	8.4	0.0	0.0	0.0	22.8	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.3	0.0	0.0	0.0	0.3	0.0	0.0	0.0	5.8	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	4.3	0.0	0.0
<b>Unsig. Movement Delay, s/veh</b>												
LnGrp Delay(d), s/veh	11.3	8.3	0.0	0.0	0.0	8.7	0.0	0.0	0.0	28.5	0.0	0.0
LnGrp LOS	B	A			A					C		
Approach Vol, veh/h	434			430			0			362		
Approach Delay, s/veh	8.5			8.7			0.0			28.5		
Approach LOS	A			A						C		
<b>Timer - Assigned Phs</b>												
Phs Duration (G+Y+Rc), s	42.3			24.6			42.3			24.6		
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	13.0			0.0			11.5			17.9		
Green Ext Time (p_c), s	3.3			0.0			3.4			0.1		
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay, s/veh	14.5											
HCM 6th LOS	B											

Lanes, Volumes, Timings  
 201: Irvine St & Cachet Clayton/Street W-N 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	88	0	52	22	152	27	21	115	15
Future Volume (vph)	44	0	71	88	0	52	22	152	27	21	115	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			0.950			0.982			0.987	
Flt Protected		0.981			0.970			0.995			0.993	
Satd. Flow (prot)	0	1709	0	0	1717	0	0	1824	0	0	1829	0
Flt Permitted		0.981			0.970			0.995			0.993	
Satd. Flow (perm)	0	1709	0	0	1717	0	0	1824	0	0	1829	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	96	0	57	24	165	29	23	125	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	125	0	0	153	0	0	218	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	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	
<b>Intersection Summary</b>												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	33.5%				ICU Level of Service A							
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis  
 201: Irvine St & Cachet Clayton/Street W-N 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	88	0	52	22	152	27	21	115	15
Future Volume (Veh/h)	44	0	71	88	0	52	22	152	27	21	115	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	96	0	57	24	165	29	23	125	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	469	426	138	484	420	180	146				194	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	469	426	138	484	420	180	146				194	
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	92	78	100	93	98				98	
cM capacity (veh/h)	459	501	912	439	505	863	1442				1379	
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>								
Volume Total	125	153	218	164								
Volume Left	48	96	24	23								
Volume Right	77	57	29	16								
eSH	662	537	1442	1379								
Volume to Capacity	0.19	0.28	0.02	0.02								
Queue Length 95th (m)	5.5	9.3	0.4	0.4								
Control Delay (s/veh)	11.7	14.3	1.0	1.2								
Lane LOS	B	B	A	A								
Approach Delay (s/veh)	11.7	14.3	1.0	1.2								
Approach LOS	B	B										
<b>Intersection Summary</b>												
Average Delay				6.2								
Intersection Capacity Utilization	33.5%				ICU Level of Service				A			
Analysis Period (min)	15											

HCM 6th TWSC  
201: Irvine St & Cachet Clayton/Street W-N

Total - 2040  
AM Peak Hour

Intersection													
Int Delay, s/veh	5.9												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↔		↔		↔		↔		↔		↔		
Traffic Vol, veh/h	44	0	71	88	0	52	22	152	27	21	115	15	
Future Vol, veh/h	44	0	71	88	0	52	22	152	27	21	115	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	96	0	57	24	165	29	23	125	16	
Major/Minor	Minor2	Minor1		Major1		Major2							
Conflicting Flow All	440	426	138	446	420	180	146	0	0	194	0	0	
Stage 1	184	184	-	228	228	-	-	-	-	-	-	-	
Stage 2	256	242	-	218	192	-	-	-	-	-	-	-	
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	531	520	916	523	525	863	1448	-	-	1379	-	-	
Stage 1	822	747	-	775	715	-	-	-	-	-	-	-	
Stage 2	753	705	-	784	742	-	-	-	-	-	-	-	
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-	
Mov Cap-1 Maneuver	481	499	912	465	503	863	1442	-	-	1379	-	-	
Mov Cap-2 Maneuver	481	499	-	465	503	-	-	-	-	-	-	-	
Stage 1	803	731	-	760	701	-	-	-	-	-	-	-	
Stage 2	690	692	-	705	726	-	-	-	-	-	-	-	
Approach	EB	WB		NB		SB							
HCM Ctrf Dly, s/v	11.5	13.8		0.8		1.1							
HCM LOS	B	B											
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1442	-	-	679	561	1379	-	-					
HCM Lane V/C Ratio	0.017	-	-	0.184	0.271	0.017	-	-					
HCM Ctrf Dly (s/v)	7.5	0	-	11.5	13.8	7.7	0	-					
HCM Lane LOS	A	A	-	B	B	A	A	-					
HCM 95th %tile Q (veh)	0.1	-	-	0.7	1.1	0.1	-	-					

Lanes, Volumes, Timings  
203: Street N-E & Nichol Rd 15

Total - 2040  
AM Peak Hour

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	318	7	8	408	20	20
Future Volume (vph)	318	7	8	408	20	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	0.997			0.932		
Fit Protected				0.999 0.976		
Satd. Flow (prot)	1858			1862 1728 0		
Fit Permitted				0.999 0.976		
Satd. Flow (perm)	1858			1862 1728 0		
Link Speed (k/h)	80			80 50		
Link Distance (m)	430.6			329.6 182.1		
Travel Time (s)	19.4			14.8 13.1		
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)	346	8	9	443	22	22
Shared Lane Traffic (%)						
Lane Group Flow (vph)	354	0	0	452	44	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	37.9%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis  
203: Street N-E & Nichol Rd 15

Total - 2040  
AM Peak Hour

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	
Traffic Volume (veh/h)	318	7	8	408	20	20
Future Volume (Veh/h)	318	7	8	408	20	20
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)	346	8	9	443	22	22
<b>Pedestrians</b>						
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			354			811 350
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			354			811 350
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			94 97
cM capacity (veh/h)			1216			349 698
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>NB 1</b>			
Volume Total	354	452	44			
Volume Left	0	9	22			
Volume Right	8	0	22			
eSH	1700	1216	465			
Volume to Capacity	0.21	0.01	0.09			
Queue Length 95th (m)	0.0	0.2	2.5			
Control Delay (s/veh)	0.0	0.2	13.5			
Lane LOS	A		B			
Approach Delay (s/veh)	0.0	0.2	13.5			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			0.8			
Intersection Capacity Utilization			37.9%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM 6th TWSC  
203: Street N-E & Nichol Rd 15

Total - 2040  
AM Peak Hour

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	
Traffic Vol, veh/h	318	7	8	408	20	20
Future Vol, veh/h	318	7	8	408	20	20
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	346	8	9	443	22	22
<b>Intersection</b>						
Int Delay, s/veh	0.8					
<b>Major/Minor</b>						
	Major1	Major2	Minor1			
Conflicting Flow All	0	0	354	0	811	350
Stage 1	-	-	-	-	350	-
Stage 2	-	-	-	-	461	-
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	-	-	1216	-	352	698
Stage 1	-	-	-	-	718	-
Stage 2	-	-	-	-	639	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1216	-	348	698
Mov Cap-2 Maneuver	-	-	-	-	348	-
Stage 1	-	-	-	-	718	-
Stage 2	-	-	-	-	633	-
<b>Approach</b>						
	EB	WB	NB			
HCM Ctrl Dly, s/v	0	0.2	13.6			
HCM LOS			B			
<b>Minor Lane/Major Mvmt</b>						
	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	464	-	-	1216	-	
HCM Lane V/C Ratio	0.094	-	-	0.007	-	
HCM Ctrl Dly (s/v)	13.6	-	-	8	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q (veh)	0.3	-	-	0	-	

Lanes, Volumes, Timings  
204: Gerrie Rd & Street E-N

Total - 2040  
AM Peak Hour

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	15	24	8	90	69	7
Future Volume (vph)	15	24	8	90	69	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
Frt	0.916				0.987	
Fit Protected	0.981			0.996		
Satd. Flow (prot)	1707	0	0	1858	1842	0
Fit Permitted	0.981			0.996		
Satd. Flow (perm)	1707	0	0	1858	1842	0
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)	16	26	9	98	75	8
Shared Lane Traffic (%)						
Lane Group Flow (vph)	42	0	0	107	83	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	
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	21.4%				ICU Level of Service A	
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis  
204: Gerrie Rd & Street E-N

Total - 2040  
AM Peak Hour

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	15	24	8	90	69	7
Future Volume (Veh/h)	15	24	8	90	69	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)	16	26	9	98	75	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	195	79	83			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	195	79	83			
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)	794	987	1527			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	42	107	83			
Volume Left	16	9	0			
Volume Right	26	0	8			
eSH	903	1527	1700			
Volume to Capacity	0.05	0.01	0.05			
Queue Length 95th (m)	1.2	0.1	0.0			
Control Delay (s/veh)	9.2	0.7	0.0			
Lane LOS	A	A				
Approach Delay (s/veh)	9.2	0.7	0.0			
Approach LOS	A					
<b>Intersection Summary</b>						
Average Delay			2.0			
Intersection Capacity Utilization	21.4%		ICU Level of Service		A	
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔		↕		↕	
Traffic Vol, veh/h	15	24	8	90	69	7
Future Vol, veh/h	15	24	8	90	69	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	16	26	9	98	75	8
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	195	79	83	0	-	0
Stage 1	79	-	-	-	-	-
Stage 2	116	-	-	-	-	-
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	798	987	1527	-	-	-
Stage 1	949	-	-	-	-	-
Stage 2	914	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	793	987	1527	-	-	-
Mov Cap-2 Maneuver	793	-	-	-	-	-
Stage 1	943	-	-	-	-	-
Stage 2	914	-	-	-	-	-
Approach	EB	NB	SB			
HCM Ctr Dly, s/v	9.2	0.6	0			
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1527	-	902	-	-	
HCM Lane V/C Ratio	0.006	-	0.047	-	-	
HCM Ctr Dly (s/v)	7.4	0	9.2	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q (veh)	0	-	0.1	-	-	

Lanes, Volumes, Timings						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔		↕		↕	
Traffic Volume (vph)	51	85	25	47	72	21
Future Volume (vph)	51	85	25	47	72	21
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				0.969	
Fit Protected	0.982		0.983			
Satd. Flow (prot)	1709	0	0	1844	1813	0
Fit Permitted	0.982		0.983			
Satd. Flow (perm)	1709	0	0	1844	1813	0
Link Speed (k/h)	50		50		50	
Link Distance (m)	229.4		1165.2		240.2	
Travel Time (s)	16.5		83.9		17.3	
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)	55	92	27	51	78	23
Shared Lane Traffic (%)						
Lane Group Flow (vph)	147	0	0	78	101	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	25.2%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis  
205: Gerrie Rd & Street E-S

Total - 2040  
AM Peak Hour

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔			↑	↑	
Traffic Volume (veh/h)	51	85	25	47	72	21
Future Volume (Veh/h)	51	85	25	47	72	21
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)	55	92	27	51	78	23
<b>Pedestrians</b>						
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	195	90	101			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	195	90	101			
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	91	98			
cM capacity (veh/h)	785	974	1504			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	147	78	101			
Volume Left	55	27	0			
Volume Right	92	0	23			
cSH	893	1504	1700			
Volume to Capacity	0.16	0.02	0.06			
Queue Length 95th (m)	4.7	0.4	0.0			
Control Delay (s/veh)	9.8	2.7	0.0			
Lane LOS	A	A				
Approach Delay (s/veh)	9.8	2.7	0.0			
Approach LOS	A					
<b>Intersection Summary</b>						
Average Delay			5.1			
Intersection Capacity Utilization		25.2%		ICU Level of Service		A
Analysis Period (min)		15				

HCM 6th TWSC  
205: Gerrie Rd & Street E-S

Total - 2040  
AM Peak Hour

<b>Intersection</b>						
Int Delay, s/veh	5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔			↑	↑	
Traffic Vol, veh/h	51	85	25	47	72	21
Future Vol, veh/h	51	85	25	47	72	21
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	55	92	27	51	78	23
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	195	90	101	0	-	0
Stage 1	90	-	-	-	-	-
Stage 2	105	-	-	-	-	-
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	798	973	1504	-	-	-
Stage 1	939	-	-	-	-	-
Stage 2	924	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	784	973	1504	-	-	-
Mov Cap-2 Maneuver	784	-	-	-	-	-
Stage 1	922	-	-	-	-	-
Stage 2	924	-	-	-	-	-
Approach	EB	NB	SB			
HCM Ctrl Dly, s/v	9.8	2.6	0			
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT EBLn1	SBT	SBR		
Capacity (veh/h)	1504	-	892	-	-	-
HCM Lane V/C Ratio	0.018	-	0.166	-	-	-
HCM Ctrl Dly (s/v)	7.4	0	9.8	-	-	-
HCM Lane LOS	A	A	A	-	-	-
HCM 95th %tile Q (veh)	0.1	-	0.6	-	-	-

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

Total - 2040  
PM Peak Hour

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	110	305	161	102	476	225
Future Volume (vph)	110	305	161	102	476	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	0.901		0.948			
Flt Protected	0.987					0.967
Satd. Flow (prot)	1635	0	1780	0	0	1819
Flt Permitted	0.987					0.967
Satd. Flow (perm)	1635	0	1780	0	0	1819
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)	120	332	175	111	517	245
Shared Lane Traffic (%)						
Lane Group Flow (vph)	452	0	286	0	0	762
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	87.9% ICU Level of Service E
Analysis Period (min)	15

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

Total - 2040  
PM Peak Hour

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	110	305	161	102	476	225
Future Volume (Veh/h)	110	305	161	102	476	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)	120	332	175	111	517	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	1513	234			289	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1513	234			289	
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	59			59	
cM capacity (veh/h)	76	804			1275	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	452	286	762
Volume Left	120	0	517
Volume Right	332	111	0
eSH	228	1700	1275
Volume to Capacity	1.99	0.17	0.41
Queue Length 95th (m)	265.3	0.0	16.0
Control Delay (s/veh)	494.6	0.0	8.1
Lane LOS	F		A
Approach Delay (s/veh)	494.6	0.0	8.1
Approach LOS	F		

Intersection Summary			
Average Delay		153.1	
Intersection Capacity Utilization	87.9%	ICU Level of Service	E
Analysis Period (min)	15		

HCM 6th TWSC  
101: Geddes St & James St

Total - 2040  
PM Peak Hour

Intersection						
Int Delay, s/veh	177.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔		↔	
Traffic Vol, veh/h	110	305	161	102	476	225
Future Vol, veh/h	110	305	161	102	476	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	120	332	175	111	517	245

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1513	234	0 289 0
Stage 1	234	-	-
Stage 2	1279	-	-
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	128	805	- 1279 -
Stage 1	793	-	-
Stage 2	255	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	~68	803	- 1276 -
Mov Cap-2 Maneuver	~68	-	-
Stage 1	791	-	-
Stage 2	135	-	-


Approach	WB	NB	SB
HCM Ctrf Dly, s/v	\$ 578.6	0	6.6
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	- 208	1276	-
HCM Lane V/C Ratio	-	- 2.169	0.405	-
HCM Ctrf Dly (s/v)	-	- \$ 578.6	9.7	0
HCM Lane LOS	-	- F	A	A
HCM 95th %tile Q (veh)	-	- 35.2	2	-

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	407	166	119	289	0	121	3	116	7	8	4
Future Volume (vph)	5	407	166	119	289	0	121	3	116	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		0.961						0.935			0.974	
Fit Protected					0.986			0.975			0.981	
Satd. Flow (prot)	0	1682	0	0	1819	0	0	1716	0	0	1590	0
Fit Permitted					0.986			0.975			0.981	
Satd. Flow (perm)	0	1682	0	0	1819	0	0	1716	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	442	180	129	314	0	132	3	126	8	9	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	627	0	0	443	0	0	261	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 84.2%    ICU Level of Service E  
 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	407	166	119	289	0	121	3	116	7	8	4
Future Volume (Veh/h)	5	407	166	119	289	0	121	3	116	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	442	180	129	314	0	132	3	126	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	314	622			1123			1114	532	1242	1204	314
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	314	622			1123			1114	532	1242	1204	314
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	86			15			98	77	92	94	99
cM capacity (veh/h)	1258	954			156			181	547	104	139	731
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	627	443	261	21								
Volume Left	5	129	132	8								
Volume Right	180	0	126	4								
cSH	1258	954	239	143								
Volume to Capacity	0.00	0.14	1.09	0.15								
Queue Length 95th (m)	0.1	3.7	90.9	4.0								
Control Delay (s/veh)	0.1	3.8	129.2	34.6								
Lane LOS	A	A	F	D								
Approach Delay (s/veh)	0.1	3.8	129.2	34.6								
Approach LOS		F	D									
Intersection Summary												
Average Delay	26.8											
Intersection Capacity Utilization	84.2%			ICU Level of Service			E					
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	28											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	5	407	166	119	289	0	121	3	116	7	8	4
Future Vol, veh/h	5	407	166	119	289	0	121	3	116	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	442	180	129	314	0	132	3	126	8	9	4
Major/Minor	Major1	Major2	Minor1	Minor2								
Conflicting Flow All	314	0	0	622	0	0	1121	1114	532	1179	1204	314
Stage 1	-	-	-	-	-	-	542	542	-	572	572	-
Stage 2	-	-	-	-	-	-	579	572	-	607	632	-
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	1258	-	-	954	-	-	185	210	547	169	161	731
Stage 1	-	-	-	-	-	-	528	523	-	509	458	-
Stage 2	-	-	-	-	-	-	504	508	-	487	429	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1258	-	-	954	-	-	152	175	547	112	134	731
Mov Cap-2 Maneuver	-	-	-	-	-	-	152	175	-	112	134	-
Stage 1	-	-	-	-	-	-	525	520	-	506	383	-
Stage 2	-	-	-	-	-	-	409	425	-	370	426	-
Approach	EB	WB	NB	SB								
HCM Ctrl Dly, s/v	0.1	2.7	137.8	33								
HCM LOS			F	D								
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	234	1258	-	-	954	-	-	149				
HCM Lane V/C Ratio	1.115	0.004	-	-	0.136	-	-	0.139				
HCM Ctrl Dly (s/v)	137.8	7.9	0	-	9.4	0	-	33				
HCM Lane LOS	F	A	A	-	A	A	-	D				
HCM 95th %tile Q (veh)	11.7	0	-	-	0.5	-	-	0.5				

Lanes, Volumes, Timings  
 103: Irvine St & Bricker Ave/Street W-S Total - 2040  
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	0	13	52	0	40	12	271	90	65	178	29
Future Volume (vph)	22	0	13	52	0	40	12	271	90	65	178	29
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		0.950			0.942			0.967			0.985	
Flt Protected		0.969			0.972			0.998			0.988	
Satd. Flow (prot)	0	1749	0	0	1706	0	0	1799	0	0	1771	0
Flt Permitted		0.969			0.972			0.998			0.988	
Satd. Flow (perm)	0	1749	0	0	1706	0	0	1799	0	0	1771	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		361.7			260.7			908.3			227.8	
Travel Time (s)		26.0			18.8			65.4			16.4	
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%	2%	0%	2%	2%	2%	0%	2%	2%	2%	6%	0%
Adj. Flow (vph)	24	0	14	57	0	43	13	295	98	71	193	32
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	38	0	0	100	0	0	406	0	0	296	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	51.3% ICU Level of Service A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis  
 103: Irvine St & Bricker Ave/Street W-S Total - 2040  
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	0	13	52	0	40	12	271	90	65	178	29
Future Volume (Veh/h)	22	0	13	52	0	40	12	271	90	65	178	29
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)	24	0	14	57	0	43	13	295	98	71	193	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	769	775	214	735	742	344	230				393	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	769	775	214	735	742	344	230				393	
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 %	92	100	98	82	100	94	99				94	
cM capacity (veh/h)	283	305	828	311	318	699	1344				1166	

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	38	100	406	296
Volume Left	24	57	13	71
Volume Right	14	43	98	32
eSH	373	408	1344	1166
Volume to Capacity	0.10	0.24	0.01	0.06
Queue Length 95th (m)	2.7	7.6	0.2	1.6
Control Delay (s/veh)	15.7	16.6	0.3	2.4
Lane LOS	C	C	A	A
Approach Delay (s/veh)	15.7	16.6	0.3	2.4
Approach LOS	C	C		

Intersection Summary	
Average Delay	3.7
Intersection Capacity Utilization	51.3% ICU Level of Service A
Analysis Period (min)	15

HCM 6th TWSC  
103: Irvine St & Bricker Ave/Street W-S

Total - 2040  
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	22	0	13	52	0	40	12	271	90	65	178	29
Future Vol, veh/h	22	0	13	52	0	40	12	271	90	65	178	29
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	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	2	0	2	2	0	2	2	2	2	6	0
Mvmt Flow	24	0	14	57	0	43	13	295	98	71	193	32

Major/Minor	Minor2	Minor1	Major1	Major2
Conflicting Flow All	748	775	214	728
Stage 1	356	356	-	370
Stage 2	392	419	-	358
Critical Hdwy	7.1	6.52	6.2	7.12
Critical Hdwy Stg 1	6.1	5.52	-	6.12
Critical Hdwy Stg 2	6.1	5.52	-	6.12
Follow-up Hdwy	3.5	4.018	3.3	3.518
Pot Cap-1 Maneuver	331	329	831	339
Stage 1	666	629	-	650
Stage 2	637	590	-	660
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	290	301	827	312
Mov Cap-2 Maneuver	290	301	-	312
Stage 1	655	582	-	642
Stage 2	590	582	-	603

Approach	EB	WB	NB	SB
HCM Ctrf Dly, s/v	15.5	16.6	0.2	2
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1344	-	-	382	411	1166	-	-
HCM Lane V/C Ratio	0.01	-	-	0.1	0.243	0.061	-	-
HCM Ctrf Dly (s/v)	7.7	0	-	15.5	16.6	8.3	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q (veh)	0	-	-	0.3	0.9	0.2	-	-

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

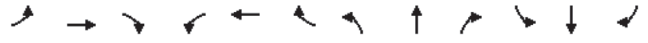
Total - 2040  
PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔		↔		↔		↔		↔		↔	
Traffic Volume (vph)	77	319	4	8	256	126	3	216	21	105	149	39
Future Volume (vph)	77	319	4	8	256	126	3	216	21	105	149	39
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				0.956				0.988		0.982	
Fit Protected	0.990				0.999				0.999		0.982	
Satd. Flow (prot)	0	1864	0	0	1763	0	0	1875	0	0	1813	0
Fit Permitted	0.990				0.999				0.999		0.982	
Satd. Flow (perm)	0	1864	0	0	1763	0	0	1875	0	0	1813	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)	84	347	4	9	278	137	3	235	23	114	162	42
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	435	0	0	424	0	0	261	0	0	318	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	85.3%
ICU Level of Service	E
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)	77	319	4	8	256	126	3	216	21	105	149	39
Future Volume (vph)	77	319	4	8	256	126	3	216	21	105	149	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
Hourly flow rate (vph)	84	347	4	9	278	137	3	235	23	114	162	42
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	435	424	261	318								
Volume Left (vph)	84	9	3	114								
Volume Right (vph)	4	137	23	42								
Hadj (s)	0.05	-0.14	-0.05	0.01								
Departure Headway (s)	8.1	8.0	8.9	8.6								
Degree Utilization, x	0.98	0.94	0.64	0.76								
Capacity (veh/h)	441	444	390	402								
Control Delay (s/veh)	67.0	57.8	26.6	34.5								
Approach Delay (s/veh)	67.0	57.8	26.6	34.5								
Approach LOS	F	F	D	D								
<b>Intersection Summary</b>												
Delay	49.8											
Level of Service	E											
Intersection Capacity Utilization	85.3%		ICU Level of Service		E							
Analysis Period (min)	15											

HCM 6th AWSC  
104: Irvine St & Colborne St

Total - 2040  
PM Peak Hour

<b>Intersection</b>												
Intersection Delay, s/veh	47.3											
Intersection LOS	E											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↕			↕			↕			↕		
Traffic Vol, veh/h	77	319	4	8	256	126	3	216	21	105	149	39
Future Vol, veh/h	77	319	4	8	256	126	3	216	21	105	149	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
Heavy Vehicles, %	0	1	0	0	2	5	0	0	0	3	0	0
Mvmt Flow	84	347	4	9	278	137	3	235	23	114	162	42
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	63.4		53.9		25.9		33.9					
HCM LOS	F		F		D		D					
Lane	NBLn1	EBLn1	WBLn1	SBLn1								
Vol Left, %	1%	19%	2%	36%								
Vol Thru, %	90%	80%	66%	51%								
Vol Right, %	9%	1%	32%	13%								
Sign Control	Stop	Stop	Stop	Stop								
Traffic Vol by Lane	240	400	390	293								
LT Vol	3	77	8	105								
Through Vol	216	319	256	149								
RT Vol	21	4	126	39								
Lane Flow Rate	261	435	424	318								
Geometry Grp	1	1	1	1								
Degree of Util (X)	0.634	0.967	0.925	0.756								
Departure Headway (Hd)	8.747	8.004	7.853	8.544								
Convergence, Y/N	Yes	Yes	Yes	Yes								
Cap	412	452	462	420								
Service Time	6.839	6.083	5.932	6.629								
HCM Lane V/C Ratio	0.633	0.962	0.918	0.757								
HCM Control Delay, s/veh	25.9		63.4		53.9		33.9					
HCM Lane LOS	D		F		F		D					
HCM 95th-ile Q	4.2	11.8	10.6	6.2								

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)	104	373	1	1	351	124	1	0	0	77	0	79
Future Volume (vph)	104	373	1	1	351	124	1	0	0	77	0	79
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				0.965							0.932	
Flt Protected		0.989						0.950			0.976	
Satd. Flow (prot)	0	1865	0	0	1820	0	0	1805	0	0	1728	0
Flt Permitted		0.989						0.950			0.976	
Satd. Flow (perm)	0	1865	0	0	1820	0	0	1805	0	0	1728	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)	113	405	1	1	382	135	1	0	0	84	0	86
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	519	0	0	518	0	0	1	0	0	170	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	69.8%
Analysis Period (min)	15
	ICU Level of Service C

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)	104	373	1	1	351	124	1	0	0	77	0	79
Future Volume (Veh/h)	104	373	1	1	351	124	1	0	0	77	0	79
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)	113	405	1	1	382	135	1	0	0	84	0	86
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	522			406			1169	1156	406	1088	1089	455
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	522			406			1169	1156	406	1088	1089	455
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 %	89			100			99	100	100	53	100	86
cM capacity (veh/h)	1050			1164			135	176	650	177	193	607

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	519	518	1	170
Volume Left	113	1	1	84
Volume Right	1	135	0	86
eSH	1050	1164	135	276
Volume to Capacity	0.11	0.00	0.01	0.61
Queue Length 95th (m)	2.9	0.0	0.2	29.9
Control Delay (s/veh)	2.9	0.0	31.9	36.8
Lane LOS	A	A	D	E
Approach Delay (s/veh)	2.9	0.0	31.9	36.8
Approach LOS			D	E

Intersection Summary	
Average Delay	6.5
Intersection Capacity Utilization	69.8%
Analysis Period (min)	15
	ICU Level of Service C

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

Total - 2040  
PM Peak Hour

Intersection												
Int Delay, s/veh	6.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔		↔		↔		↔		↔		↔	
Traffic Vol, veh/h	104	373	1	1	351	124	1	0	0	77	0	79
Future Vol, veh/h	104	373	1	1	351	124	1	0	0	77	0	79
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	113	405	1	1	382	135	1	0	0	84	0	86
Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	522	0	0	406	0	0	1127	1156	406	1089	1089	455
Stage 1	-	-	-	-	-	-	632	632	-	457	457	-
Stage 2	-	-	-	-	-	-	495	524	-	632	632	-
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	1055	-	-	1164	-	-	183	198	649	195	217	609
Stage 1	-	-	-	-	-	-	472	477	-	587	571	-
Stage 2	-	-	-	-	-	-	560	533	-	472	477	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1051	-	-	1164	-	-	140	170	649	173	186	606
Mov Cap-2 Maneuver	-	-	-	-	-	-	140	170	-	173	186	-
Stage 1	-	-	-	-	-	-	406	411	-	503	568	-
Stage 2	-	-	-	-	-	-	480	530	-	406	411	-
Approach	EB		WB		NB		SB					
HCM Ctrf Dly, s/v	1.9		0		30.9		38.1					
HCM LOS					D		E					
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	140	1051	-	-	1164	-	-	271				
HCM Lane V/C Ratio	0.008	0.108	-	-	0.001	-	-	0.626				
HCM Ctrf Dly (s/v)	30.9	8.8	0	-	8.1	0	-	38.1				
HCM Lane LOS	D	A	A	-	A	A	-	E				
HCM 95th %tile Q (veh)	0	0.4	-	-	0	-	-	3.8				

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	435	66	63	359	10	49	1	45	10	0	5
Future Volume (vph)	15	435	66	63	359	10	49	1	45	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	0.983				0.997				0.936		0.958	
Fit Protected	0.999				0.993				0.975		0.967	
Satd. Flow (prot)	0		1850		0		1866		0		1734	
Fit Permitted	0.999				0.993				0.975		0.967	
Satd. Flow (perm)	0		1850		0		1866		0		1734	
Link Speed (k/h)	80				80				50		50	
Link Distance (m)	284.2				999.6				256.5		439.6	
Travel Time (s)	12.8				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	473	72	68	390	11	53	1	49	11	0	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	561	0	0	469	0	0	103	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	62.7%						ICU Level of Service B					
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	435	66	63	359	10	49	1	45	10	0	5
Future Volume (Veh/h)	15	435	66	63	359	10	49	1	45	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	473	72	68	390	11	53	1	49	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	401	545			1078		1078	509	1122	1109	396	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	401	545			1078		1078	509	1122	1109	396	
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	93			71		100	91	93	100	99	
cM capacity (veh/h)	1169	1034			185		203	568	158	195	606	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	561	469	103	16								
Volume Left	16	68	53	11								
Volume Right	72	11	49	5								
eSH	1169	1034	272	206								
Volume to Capacity	0.01	0.07	0.38	0.08								
Queue Length 95th (m)	0.3	1.7	13.5	2.0								
Control Delay (s/veh)	0.4	1.9	26.0	24.0								
Lane LOS	A	A	D	C								
Approach Delay (s/veh)	0.4	1.9	26.0	24.0								
Approach LOS			D	C								
Intersection Summary												
Average Delay	3.6											
Intersection Capacity Utilization	62.7%			ICU Level of Service			B					
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	435	66	63	359	10	49	1	45	10	0	5
Future Vol, veh/h	15	435	66	63	359	10	49	1	45	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	473	72	68	390	11	53	1	49	11	0	5
Major/Minor	Major1	Major2	Minor1	Minor2								
Conflicting Flow All	401	0	0	545	0	0	1075	1078	509	1098	1109	396
Stage 1	-	-	-	-	-	-	541	541	-	532	532	-
Stage 2	-	-	-	-	-	-	534	537	-	566	577	-
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	1169	-	-	1034	-	-	199	220	568	192	211	606
Stage 1	-	-	-	-	-	-	529	524	-	535	529	-
Stage 2	-	-	-	-	-	-	534	526	-	513	505	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1169	-	-	1034	-	-	182	197	568	161	189	606
Mov Cap-2 Maneuver	-	-	-	-	-	-	182	197	-	161	189	-
Stage 1	-	-	-	-	-	-	518	514	-	524	484	-
Stage 2	-	-	-	-	-	-	484	481	-	458	495	-
Approach	EB	WB	NB	SB								
HCM Ctrl Dly, s/v	0.2	1.3	26.5	23.3								
HCM LOS			D	C								
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	269	1169	-	-	1034	-	-	213				
HCM Lane V/C Ratio	0.384	0.014	-	-	0.066	-	-	0.077				
HCM Ctrl Dly (s/v)	26.5	8.1	0	-	8.7	0	-	23.3				
HCM Lane LOS	D	A	A	-	A	A	-	C				
HCM 95th %tile Q (veh)	1.7	0	-	-	0.2	-	-	0.2				

Lanes, Volumes, Timings  
107: Gerrie Rd & 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)	77	258	73	19	306	91	110	174	32	77	120	60
Future Volume (vph)	77	258	73	19	306	91	110	174	32	77	120	60
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			0.970			0.986			0.969	
Flt Protected		0.991			0.998			0.983			0.985	
Satd. Flow (prot)	0	1786	0	0	1793	0	0	1640	0	0	1710	0
Flt Permitted		0.991			0.998			0.983			0.985	
Satd. Flow (perm)	0	1786	0	0	1793	0	0	1640	0	0	1710	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)	84	280	79	21	333	99	120	189	35	84	130	65
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	443	0	0	453	0	0	344	0	0	279	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	79.1% ICU Level of Service D
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis  
107: Gerrie Rd & 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)	77	258	73	19	306	91	110	174	32	77	120	60
Future Volume (vph)	77	258	73	19	306	91	110	174	32	77	120	60
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)	84	280	79	21	333	99	120	189	35	84	130	65
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	443	453	344	279								
Volume Left (vph)	84	21	120	84								
Volume Right (vph)	79	99	35	65								
Hadj (s)	-0.02	-0.08	0.22	0.02								
Departure Headway (s)	8.5	8.4	9.0	9.2								
Degree Utilization, x	1.05	1.06	0.86	0.72								
Capacity (veh/h)	421	428	384	377								
Control Delay (s/veh)	86.2	90.8	48.3	32.4								
Approach Delay (s/veh)	86.2	90.8	48.3	32.4								
Approach LOS	F	F	E	D								
Intersection Summary												
Delay	69.1											
Level of Service	F											
Intersection Capacity Utilization	79.1%			ICU Level of Service			D					
Analysis Period (min)	15											

HCM 6th AWSC  
107: Gerrie Rd & Colborne St

Total - 2040  
PM Peak Hour

Intersection	
Intersection Delay, s/veh	69.4
Intersection LOS	F


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↕			↕			↕	
Traffic Vol, veh/h	77	258	73	19	306	91	110	174	32	77	120	60
Future Vol, veh/h	77	258	73	19	306	91	110	174	32	77	120	60
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	84	280	79	21	333	99	120	189	35	84	130	65
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	88.1	88.6	49.7	32.6
HCM LOS	F	F	E	D

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	35%	19%	5%	30%
Vol Thru, %	55%	63%	74%	47%
Vol Right, %	10%	18%	22%	23%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	316	408	416	257
LT Vol	110	77	19	77
Through Vol	174	258	306	120
RT Vol	32	73	91	60
Lane Flow Rate	343	443	452	279
Geometry Grp	1	1	1	1
Degree of Util (X)	0.862	1.049	1.053	0.706
Departure Headway (Hd)	9.514	8.78	8.628	9.592
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	385	417	425	380
Service Time	7.514	6.78	6.628	7.592
HCM Lane V/C Ratio	0.891	1.062	1.064	0.734
HCM Control Delay, s/veh	49.7	88.1	88.6	32.6
HCM Lane LOS	E	F	F	D
HCM 95th-tile Q	8.3	14	14.3	5.2

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

Total - 2040  
PM Peak Hour



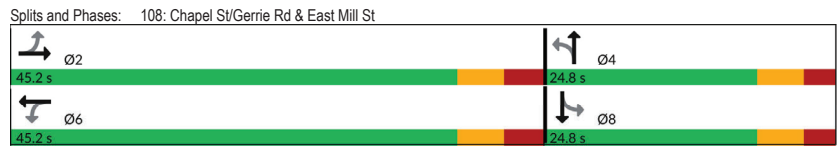
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔			↕			↕			↕	
Traffic Volume (vph)	81	399	0	0	409	235	0	0	0	160	0	52
Future Volume (vph)	81	399	0	0	409	235	0	0	0	160	0	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	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												0.99
Fit Protected	0.950				0.951							0.967
Satd. Flow (prot)	1805	1881	0	0	1800	0	0	1900	0	0	1748	0
Fit Permitted	0.285											0.779
Satd. Flow (perm)	542	1881	0	0	1800	0	0	1900	0	0	1413	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					72							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)	88	434	0	0	445	255	0	0	0	174	0	57
Shared Lane Traffic (%)												
Lane Group Flow (vph)	88	434	0	0	700	0	0	0	0	0	231	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		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)	39.0	39.0			39.0						15.8	
Actuated g/C Ratio	0.62	0.62			0.62						0.25	
v/c Ratio	0.26	0.37			0.61						0.57	
Control Delay (s/veh)	8.9	7.6			9.9						20.4	
Queue Delay	0.0	0.0			0.0						0.0	
Total Delay (s/veh)	8.9	7.6			9.9						20.4	
LOS	A	A			A						C	
Approach Delay (s/veh)		7.8			9.9						20.4	
Approach LOS		A			A						C	

Intersection Summary	
Area Type:	Other
Cycle Length:	70
Actuated Cycle Length:	62.8
Natural Cycle:	70
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.61
Intersection Signal Delay (s/veh):	10.8
Intersection LOS:	B
Intersection Capacity Utilization:	86.0%
ICU Level of Service:	E
Analysis Period (min):	15



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

Total - 2040  
PM Peak Hour

Lane Group	EBL	EBT	WBT	SBT
Lane Group Flow (vph)	88	434	700	231
v/c Ratio	0.26	0.37	0.61	0.57
Control Delay (s/veh)	8.9	7.6	9.9	20.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay (s/veh)	8.9	7.6	9.9	20.4
Queue Length 50th (m)	4.1	21.7	38.0	16.6
Queue Length 95th (m)	13.5	45.9	84.4	38.1
Internal Link Dist (m)		290.9	303.9	352.2
Turn Bay Length (m)	30.0			
Base Capacity (vph)	356	1238	1209	514
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	0.25	0.35	0.58	0.45

Intersection Summary

Intersection Summary	
Area Type:	Other
Cycle Length:	70
Actuated Cycle Length:	62.8
Natural Cycle:	70
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.61
Intersection Signal Delay (s/veh):	10.8
Intersection LOS:	B
Intersection Capacity Utilization:	86.0%
ICU Level of Service:	E
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)	81	399	0	0	409	235	0	0	0	160	0	52
Future Volume (vph)	81	399	0	0	409	235	0	0	0	160	0	52
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					0.99		
Flpb, ped/bikes	1.00	1.00			1.00					1.00		
Frt	1.00	1.00			0.95					0.97		
Flt Protected	0.95	1.00			1.00					0.96		
Satd. Flow (prot)	1805	1881			1800					1747		
Flt Permitted	0.28	1.00			1.00					0.78		
Satd. Flow (perm)	541	1881			1800					1412		
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)	88	434	0	0	445	255	0	0	0	174	0	57
RTOR Reduction (vph)	0	0	0	0	27	0	0	0	0	0	50	0
Lane Group Flow (vph)	88	434	0	0	673	0	0	0	0	181	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)	35.7	35.7			35.7							13.1
Effective Green, g (s)	39.0	39.0			39.0							15.8
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)	335	1168			1117							355
v/s Ratio Prot		0.23			c0.37							
v/s Ratio Perm	0.16									c0.13		
v/c Ratio	0.26	0.37			0.60					0.51		
Uniform Delay, d1	5.4	5.9			7.2					20.2		
Progression Factor	1.00	1.00			1.00					1.00		
Incremental Delay, d2	0.4	0.2			0.9					1.2		
Delay (s)	5.8	6.1			8.1					21.3		
Level of Service	A	A			A					C		
Approach Delay (s/veh)		6.0			8.1			0.0		21.3		
Approach LOS		A			A			A		C		
<b>Intersection Summary</b>												
HCM 2000 Control Delay (s/veh)		9.5			HCM 2000 Level of Service			A				
HCM 2000 Volume to Capacity ratio		0.58										
Actuated Cycle Length (s)		62.8			Sum of lost time (s)			8.0				
Intersection Capacity Utilization		86.0%			ICU Level of Service			E				
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)	81	399	0	0	409	235	0	0	0	160	0	52
Future Volume (veh/h)	81	399	0	0	409	235	0	0	0	160	0	52
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	88	434	0	0	445	255	0	0	0	174	0	57
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	411	1190	0	0	716	410	0	450	0	364	4	86
Arrive On Green	0.63	0.63	0.00	0.00	0.63	0.58	0.00	0.00	0.00	0.19	0.00	0.19
Sat Flow, veh/h	758	1885	0	0	1134	650	0	1900	0	1097	17	365
Grp Volume(v), veh/h	88	434	0	0	0	700	0	0	0	231	0	0
Grp Sat Flow(s),veh/h/ln	758	1885	0	0	0	1783	0	1900	0	1479	0	0
Q Serve(g_s), s	4.9	6.7	0.0	0.0	0.0	14.9	0.0	0.0	0.0	8.9	0.0	0.0
Cycle Q Clear(g_c), s	19.8	6.7	0.0	0.0	0.0	14.9	0.0	0.0	0.0	9.1	0.0	0.0
Prop In Lane	1.00		0.00	0.00		0.36	0.00		0.00	0.75		0.25
Lane Grp Cap(c), veh/h	411	1190	0	0	0	1126	0	450	0	389	0	0
V/C Ratio(X)	0.21	0.36	0.00	0.00	0.00	0.62	0.00	0.00	0.00	0.59	0.00	0.00
Avail Cap(c_a), veh/h	447	1280	0	0	0	1211	0	651	0	545	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	13.0	5.4	0.0	0.0	0.0	7.2	0.0	0.0	0.0	22.3	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.2	0.0	0.0	0.0	0.9	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	0.1	0.1	0.0	0.0	0.0	0.5	0.0	0.0	0.0	1.9	0.0	0.0
<b>Unsig. Movement Delay, s/veh</b>												
LnGrp Delay(d), s/veh	13.2	5.5	0.0	0.0	0.0	8.1	0.0	0.0	0.0	23.8	0.0	0.0
LnGrp LOS	B	A				A				C		
Approach Vol, veh/h		522			700			0		231		
Approach Delay, s/veh		6.8			8.1			0.0		23.8		
Approach LOS		A			A			C		C		
<b>Timer - Assigned Phs</b>												
Phs Duration (G+Y+Rc), s		42.3			18.4			42.3		18.4		
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		21.8			0.0			16.9		11.1		
Green Ext Time (p_c), s		3.5			0.0			6.0		0.8		
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay, s/veh		10.2										
HCM 6th LOS		B										

Lanes, Volumes, Timings  
 201: Irvine St & Cachet Clayton/Street W-N  
 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	55	0	41	74	168	92	67	175	52
Future Volume (vph)	32	0	42	55	0	41	74	168	92	67	175	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			0.942			0.963			0.976	
Flt Protected		0.979			0.972			0.989			0.989	
Satd. Flow (prot)	0	1717	0	0	1706	0	0	1782	0	0	1804	0
Flt Permitted		0.979			0.972			0.989			0.989	
Satd. Flow (perm)	0	1717	0	0	1706	0	0	1782	0	0	1804	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	60	0	45	80	183	100	73	190	57
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	81	0	0	105	0	0	363	0	0	320	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	39.3% ICU Level of Service A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis  
 201: Irvine St & Cachet Clayton/Street W-N  
 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	55	0	41	74	168	92	67	175	52
Future Volume (Veh/h)	32	0	42	55	0	41	74	168	92	67	175	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	60	0	45	80	183	100	73	190	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	808	813	224	804	791	233	252				283	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	808	813	224	804	791	233	252				283	
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 %	86	100	94	77	100	94	94				94	
cM capacity (veh/h)	258	276	818	259	284	806	1320				1279	

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	81	105	363	320
Volume Left	35	60	80	73
Volume Right	46	45	100	57
eSH	422	365	1320	1279
Volume to Capacity	0.19	0.29	0.06	0.06
Queue Length 95th (m)	5.6	9.4	1.5	1.5
Control Delay (s/veh)	15.5	18.8	2.2	2.2
Lane LOS	C	C	A	A
Approach Delay (s/veh)	15.5	18.8	2.2	2.2
Approach LOS	C	C		

Intersection Summary	
Average Delay	5.5
Intersection Capacity Utilization	39.3% ICU Level of Service A
Analysis Period (min)	15

HCM 6th TWSC  
201: Irvine St & Cachet Clayton/Street W-N

Total - 2040  
PM Peak Hour

Intersection												
Int Delay, s/veh	5.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔		↔		↔		↔		↔		↔	
Traffic Vol, veh/h	32	0	42	55	0	41	74	168	92	67	175	52
Future Vol, veh/h	32	0	42	55	0	41	74	168	92	67	175	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	60	0	45	80	183	100	73	190	57

Major/Minor	Minor2	Minor1	Major1	Major2
Conflicting Flow All	786	813	224	781
Stage 1	370	370	-	393
Stage 2	416	443	-	388
Critical Hdwy	7.1	6.52	6.2	7.12
Critical Hdwy Stg 1	6.1	5.52	-	6.12
Critical Hdwy Stg 2	6.1	5.52	-	6.12
Follow-up Hdwy	3.5	4.018	3.3	3.518
Pot Cap-1 Maneuver	312	313	820	312
Stage 1	654	620	-	632
Stage 2	618	576	-	636
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	263	269	817	264
Mov Cap-2 Maneuver	263	269	-	264
Stage 1	604	576	-	586
Stage 2	541	534	-	560

Approach	EB	WB	NB	SB
HCM Ctrf Dly, s/v	15.3	18.5	1.8	1.8
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1319	-	-	428	370	1279	-	-
HCM Lane V/C Ratio	0.061	-	-	0.188	0.282	0.057	-	-
HCM Ctrf Dly (s/v)	7.9	0	-	15.3	18.5	8	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q (veh)	0.2	-	-	0.7	1.1	0.2	-	-

Lanes, Volumes, Timings  
203: Street N-E & Nichol Rd 15

Total - 2040  
PM Peak Hour

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔		↔	
Traffic Volume (vph)	504	26	20	393	15	12
Future Volume (vph)	504	26	20	393	15	12
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	0.993			0.939		
Fit Protected				0.998	0.973	
Satd. Flow (prot)	1851	0	0	1861	1736	0
Fit Permitted				0.998	0.973	
Satd. Flow (perm)	1851	0	0	1861	1736	0
Link Speed (k/h)	80		80		50	
Link Distance (m)	419.2		284.2		150.6	
Travel Time (s)	18.9		12.8		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)	548	28	22	427	16	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	576	0	0	449	29	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	47.0%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis  
203: Street N-E & Nichol Rd 15

Total - 2040  
PM Peak Hour

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔		↔	
Traffic Volume (veh/h)	504	26	20	393	15	12
Future Volume (Veh/h)	504	26	20	393	15	12
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)	548	28	22	427	16	13
<b>Pedestrians</b>						
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			576		1033 562	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			576		1033 562	
tC, single (s)			4.1		6.4 6.2	
tC, 2 stage (s)						
tF (s)			2.2		3.5 3.3	
p0 queue free %			98		94 98	
cM capacity (veh/h)			1007		254 530	
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>NB 1</b>			
Volume Total	576	449	29			
Volume Left	0	22	16			
Volume Right	28	0	13			
sSH	1700	1007	332			
Volume to Capacity	0.34	0.02	0.09			
Queue Length 95th (m)	0.0	0.5	2.3			
Control Delay (s/veh)	0.0	0.7	16.9			
Lane LOS	A		C			
Approach Delay (s/veh)	0.0	0.7	16.9			
Approach LOS	A		C			
<b>Intersection Summary</b>						
Average Delay			0.7			
Intersection Capacity Utilization			47.0%		ICU Level of Service A	
Analysis Period (min)			15			

HCM 6th TWSC  
203: Street N-E & Nichol Rd 15

Total - 2040  
PM Peak Hour

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔		↔	
Traffic Vol, veh/h	504	26	20	393	15	12
Future Vol, veh/h	504	26	20	393	15	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free		Free		Stop	
RT Channelized	- 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	548	28	22	427	16	13
<b>Intersection</b>						
Int Delay, s/veh	0.6					
<b>Major/Minor</b>	<b>Major1</b>	<b>Major2</b>	<b>Minor1</b>			
Conflicting Flow All	0	0	576	0	1033	562
Stage 1	-	-	-	-	562	-
Stage 2	-	-	-	-	471	-
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	-	-	1007	-	260	530
Stage 1	-	-	-	-	575	-
Stage 2	-	-	-	-	632	-
Platoon blocked, %	-					
Mov Cap-1 Maneuver	-	-	1007	-	252	530
Mov Cap-2 Maneuver	-	-	-	-	252	-
Stage 1	-	-	-	-	575	-
Stage 2	-	-	-	-	614	-
<b>Approach</b>						
Approach	<b>EB</b>	<b>WB</b>	<b>NB</b>			
HCM Ctrl Dly, s/v	0	0.4	17			
HCM LOS	C		C			
<b>Minor Lane/Major Mvmt</b>	<b>NBLn1</b>	<b>EBT</b>	<b>EBR</b>	<b>WBL</b>	<b>WBT</b>	
Capacity (veh/h)	329	-	-	1007	-	
HCM Lane V/C Ratio	0.089	-	-	0.022	-	
HCM Ctrl Dly (s/v)	17	-	-	8.7	0	
HCM Lane LOS	C	-	-	A	A	
HCM 95th %tile Q (veh)	0.3	-	-	0.1	-	

Lanes, Volumes, Timings  
204: Gerrie Rd & Street E-N

Total - 2040  
PM Peak Hour

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	11	16	27	84	110	19
Future Volume (vph)	11	16	27	84	110	19
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	0.921				0.980	
Fit Protected	0.980			0.988		
Satd. Flow (prot)	1715	0	0	1849	1831	0
Fit Permitted	0.980			0.988		
Satd. Flow (perm)	1715	0	0	1849	1831	0
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)	12	17	29	91	120	21
Shared Lane Traffic (%)						
Lane Group Flow (vph)	29	0	0	120	141	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	26.2%
ICU Level of Service A	
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis  
204: Gerrie Rd & Street E-N

Total - 2040  
PM Peak Hour

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	11	16	27	84	110	19
Future Volume (Veh/h)	11	16	27	84	110	19
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)	12	17	29	91	120	21
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	280	131	141			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	280	131	141			
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)	700	924	1455			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	29	120	141
Volume Left	12	29	0
Volume Right	17	0	21
cSH	816	1455	1700
Volume to Capacity	0.04	0.02	0.08
Queue Length 95th (m)	0.9	0.5	0.0
Control Delay (s/veh)	9.6	1.9	0.0
Lane LOS	A	A	
Approach Delay (s/veh)	9.6	1.9	0.0
Approach LOS	A		

Intersection Summary

Average Delay		1.8	
Intersection Capacity Utilization	26.2%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection						
Int Delay, s/veh	1.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			↑	↑	
Traffic Vol, veh/h	11	16	27	84	110	19
Future Vol, veh/h	11	16	27	84	110	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
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	12	17	29	91	120	21

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	280	131	141
Stage 1	131	-	-
Stage 2	149	-	-
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	714	924	1455
Stage 1	900	-	-
Stage 2	884	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	699	924	1455
Mov Cap-2 Maneuver	699	-	-
Stage 1	881	-	-
Stage 2	884	-	-

Approach	EB	NB	SB
HCM Ctrf Dly, s/v	9.6	1.8	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1455	-	817	-	-
HCM Lane V/C Ratio	0.02	-	0.036	-	-
HCM Ctrf Dly (s/v)	7.5	0	9.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q (veh)	0.1	-	0.1	-	-

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			↑	↑	
Traffic Volume (vph)	40	52	90	71	61	65
Future Volume (vph)	40	52	90	71	61	65
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	0.923				0.930	
Fit Protected	0.979			0.973		
Satd. Flow (prot)	1717	0	0	1833	1750	0
Fit Permitted	0.979			0.973		
Satd. Flow (perm)	1717	0	0	1833	1750	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	243.5			1159.4	214.3	
Travel Time (s)	17.5			83.5	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)	43	57	98	77	66	71
Shared Lane Traffic (%)						
Lane Group Flow (vph)	100	0	0	175	137	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	31.3%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis  
205: Gerrie Rd & Street E-S

Total - 2040  
PM Peak Hour

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔			↑	↑	
Traffic Volume (veh/h)	40	52	90	71	61	65
Future Volume (Veh/h)	40	52	90	71	61	65
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)	43	57	98	77	66	71
<b>Pedestrians</b>						
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	375	102	137			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	375	102	137			
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	94	93			
cM capacity (veh/h)	588	959	1459			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	100	175	137			
Volume Left	43	98	0			
Volume Right	57	0	71			
cSH	755	1459	1700			
Volume to Capacity	0.13	0.07	0.08			
Queue Length 95th (m)	3.6	1.7	0.0			
Control Delay (s/veh)	10.5	4.5	0.0			
Lane LOS	B	A				
Approach Delay (s/veh)	10.5	4.5	0.0			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			4.5			
Intersection Capacity Utilization		31.3%		ICU Level of Service	A	
Analysis Period (min)		15				

HCM 6th TWSC  
205: Gerrie Rd & Street E-S

Total - 2040  
PM Peak Hour

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔			↑	↑	
Traffic Vol, veh/h	40	52	90	71	61	65
Future Vol, veh/h	40	52	90	71	61	65
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	43	57	98	77	66	71
<b>Intersection</b>						
Int Delay, s/veh	4.4					
<b>Major/Minor</b>						
Conflicting Flow All	Minor2	Major1	Major2			
Stage 1	102	-	-	-	-	-
Stage 2	273	-	-	-	-	-
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	630	959	1459	-	-	-
Stage 1	927	-	-	-	-	-
Stage 2	778	-	-	-	-	-
Platoon blocked, %						
Mov Cap-1 Maneuver	586	959	1459	-	-	-
Mov Cap-2 Maneuver	586	-	-	-	-	-
Stage 1	862	-	-	-	-	-
Stage 2	778	-	-	-	-	-
<b>Approach</b>						
HCM Ctrl Dly, s/v	EB	NB	SB			
HCM LOS	10.5	4.3	0			
HCM LOS	B					
<b>Minor Lane/Major Mvmt</b>						
Capacity (veh/h)	NBL	NBT EBLn1	SBT	SBR		
HCM Lane V/C Ratio	1459	- 751	-	-		
HCM Ctrl Dly (s/v)	0.067	- 0.133	-	-		
HCM Lane LOS	7.6	0 10.5	-	-		
HCM 95th %tile Q (veh)	A	A B	-	-		
	0.2	- 0.5	-	-		

# 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: 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				83		380		107	58	213	109		5
PM Peak Hour				104		287		145	98	454	204		5
Average Hourly Volume	0	0	0	47	0	167	0	63	39	167	78	0	3

Warrant	AHV
1A - All	561
1B - Minor	347
2A - Major	214
2B - Cross	248

### 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	561
		% Fulfilled				77.8%

1B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Minor Street Approaches	180	255	180	255	347
		% Fulfilled				136.1%

### 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	214
		% Fulfilled				29.7%

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	248
		% Fulfilled				330.0%

# 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 - 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				86		403		118	61	229	121		5
PM Peak Hour				110		305		161	102	476	225		5
Average Hourly Volume	0	0	0	49	0	177	0	70	41	176	87	0	3

Warrant	AHV
1A - All	599
1B - Minor	373
2A - Major	226
2B - Cross	265

### 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				83.2%

1B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	Minor Street Approaches	180	255	180	255	
		% Fulfilled				146.4%

### 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				31.4%

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				353.7%

# 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	
			X			
All Approaches	480	720	600	900	383	
				% Fulfilled	53.2%	

1B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
Minor Street Approaches	120	170	120	170	75	
				% 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	
			X			
Major Street Approaches	480	720	600	900	308	
				% Fulfilled	42.7%	

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	44	
				% Fulfilled	58.0%	

# 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	198	67	74	321	4	140	2	102	2	4	1	5
PM Peak Hour	5	381	166	114	267	0	120	2	111	6	7	4	5
Average Hourly Volume	3	145	58	47	147	1	65	1	53	2	3	1	3

Warrant	AHV
1A - All	526
1B - Minor	125
2A - Major	401
2B - Cross	72

### 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	73.1%

1B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	Minor Street Approaches	120	170	120	170	
					% Fulfilled	73.7%

### 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	
					% Fulfilled	55.7%

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	96.3%

# 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	
			X			
All Approaches	480	720	600	900	413	
				% Fulfilled	57.3%	

1B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
Minor Street Approaches	120	170	120	170	80	
				% 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	
			X			
Major Street Approaches	480	720	600	900	333	
				% Fulfilled	46.2%	

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	45	
				% Fulfilled	60.0%	

# 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	215	68	78	346	4	142	3	107	3	4	1	5
PM Peak Hour	5	407	166	119	289	0	121	3	116	7	8	4	5
Average Hourly Volume	3	156	59	49	159	1	66	2	56	3	3	1	3

Warrant	AHV
1A - All	556
1B - Minor	130
2A - Major	426
2B - Cross	74

### 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	77.2%

1B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	Minor Street Approaches	120	170	120	170	
					% Fulfilled	76.3%

### 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	59.2%

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	98.3%

# 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	
			X			
	All Approaches	480	720	600	900	403
		% Fulfilled				56.0%

1B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
	Minor Street Approaches	120	170	120	170	136
		% 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	
			X			
	Major Street Approaches	480	720	600	900	267
		% Fulfilled				37.0%

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	93
		% 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	16	137	5	10	205	62	2	90	9	86	268	67	10
PM Peak Hour	76	301	4	8	239	121	2	213	20	100	145	38	10
Average Hourly Volume	23	110	2	5	111	46	1	76	7	47	103	26	5

Warrant	AHV
1A - All	556
1B - Minor	260
2A - Major	296
2B - Cross	156

### 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	556	% Fulfilled
						77.2%

1B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
			X			
Minor Street Approaches	120	170	120	170	260	% Fulfilled
						152.9%

### 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	296	% Fulfilled
						41.1%

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	156	% Fulfilled
						207.7%

# 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	17	148	5	10	219	65	3	93	10	91	274	69	10
PM Peak Hour	77	319	4	8	256	126	3	216	21	105	149	39	10
Average Hourly Volume	24	117	2	5	119	48	2	77	8	49	106	27	5

Warrant	AHV
1A - All	582
1B - Minor	268
2A - Major	314
2B - Cross	161

### 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		582
						% Fulfilled	80.8%

1B	Approach Lanes	1		2 or more		Average Hourly Volume	
	Flow Conditions	Free	Restricted	Free	Restricted		
	Minor Street Approaches	120	170	120	170		268
						% Fulfilled	157.8%

### 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		314
						% Fulfilled	43.5%

2B	Approach Lanes	1		2 or more		Average Hourly Volume	
	Flow Conditions	Free	Restricted	Free	Restricted		
	Traffic Crossing Major Street	50	75	50	75		161
						% Fulfilled	215.0%

# 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	
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	39	317	2	0	243	62	0	0	2	181	0	108	10
PM Peak Hour	103	341	1	1	319	121	1	0	0	74	0	77	10
Average Hourly Volume	36	165	1	0	141	46	0	0	1	64	0	46	5

Warrant	AHV
1A - All	498
1B - Minor	111
2A - Major	387
2B - Cross	69

### 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		498
						% Fulfilled	69.2%

1B	Approach Lanes	1		2 or more		Average Hourly Volume	
	Flow Conditions	Free	Restricted	Free	Restricted		
	Minor Street Approaches	120	170	120	170		111
						% Fulfilled	65.1%

### 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		387
						% Fulfilled	53.8%

2B	Approach Lanes	1		2 or more		Average Hourly Volume	
	Flow Conditions	Free	Restricted	Free	Restricted		
	Traffic Crossing Major Street	50	75	50	75		69
						% Fulfilled	92.0%

# 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	39	349	3	0	267	65	0	0	3	187	0	110	10
PM Peak Hour	104	373	1	1	351	124	1	0	0	77	0	79	10
Average Hourly Volume	36	181	1	0	155	47	0	0	1	66	0	47	5

Warrant	AHV
1A - All	534
1B - Minor	114
2A - Major	419
2B - Cross	71

### 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	74.1%

1B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	Minor Street Approaches	120	170	120	170	
					% Fulfilled	67.2%

### 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	58.2%

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	95.0%

# 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		473
						% 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		177
						% 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		296
						% 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		113
						% 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	38	199	94	17	163	37	40	79	9	75	202	67	10
PM Peak Hour	74	247	66	17	291	88	99	169	29	73	115	57	10
Average Hourly Volume	28	112	40	9	114	31	35	62	10	37	79	31	5

Warrant	AHV
1A - All	586
1B - Minor	254
2A - Major	333
2B - Cross	156

### 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		586
						% Fulfilled	81.4%

1B	Approach Lanes	1		2 or more		Average Hourly Volume	
	Flow Conditions	Free	Restricted	Free	Restricted		
	Minor Street Approaches	120	170	120	170		254
						% Fulfilled	149.1%

### 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		333
						% 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		156
						% Fulfilled	208.0%

# 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	41	212	104	19	172	39	44	85	10	77	210	69	10
PM Peak Hour	77	258	73	19	306	91	110	174	32	77	120	60	10
Average Hourly Volume	30	118	44	10	120	33	39	65	11	39	83	32	5

Warrant	AHV
1A - All	620
1B - Minor	267
2A - Major	353
2B - Cross	165

### 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	86.1%

1B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	Minor Street Approaches	120	170	120	170	
					% Fulfilled	157.1%

### 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	49.0%

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	219.3%

# 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	
	All Approaches	X				
		480	720	600	900	349
		% Fulfilled				72.7%

1B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	Minor Street Approaches	X				
		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	
	Major Street Approaches	X				
		480	720	600	900	325
		% Fulfilled				67.6%

2B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	Traffic Crossing Major Street	X				
		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	
	All Approaches	X				
		480	720	600	900	379
		% Fulfilled				79.0%

1B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	Minor Street Approaches	X				
		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	
	Major Street Approaches	X				
		480	720	600	900	353
		% Fulfilled				73.4%

2B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	Traffic Crossing Major Street	X				
		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	277	31	40	329	7	51	9	43	15	2	7	0
PM Peak Hour	14	404	66	62	333	9	48	1	43	9	0	5	0
Average Hourly Volume	5	170	24	26	166	4	25	3	22	6	1	3	0

Warrant	AHV
1A - All	453
1B - Minor	58
2A - Major	395
2B - Cross	33

### Warrant 1 - Minimum Vehicular Volume

1A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	All Approaches	X				
		480	720	600	900	453
		% Fulfilled				94.4%

1B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	Minor Street Approaches	X				
		120	170	120	170	58
		% Fulfilled				48.5%

### 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	X				
		480	720	600	900	395
		% Fulfilled				82.2%

2B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	Traffic Crossing Major Street	X				
		50	75	50	75	33
		% Fulfilled				66.5%

# 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	298	31	42	356	8	51	10	44	16	3	8	0
PM Peak Hour	15	435	66	63	359	10	49	1	45	10	0	5	0
Average Hourly Volume	6	183	24	26	179	5	25	3	22	7	1	3	0

Warrant	AHV
1A - All	483
1B - Minor	61
2A - Major	423
2B - Cross	34

### 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	483
		% Fulfilled				100.7%

1B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
		X				
Minor Street Approaches		120	170	120	170	61
		% Fulfilled				50.4%

### Warrant 2 - Delay To Cross Traffic

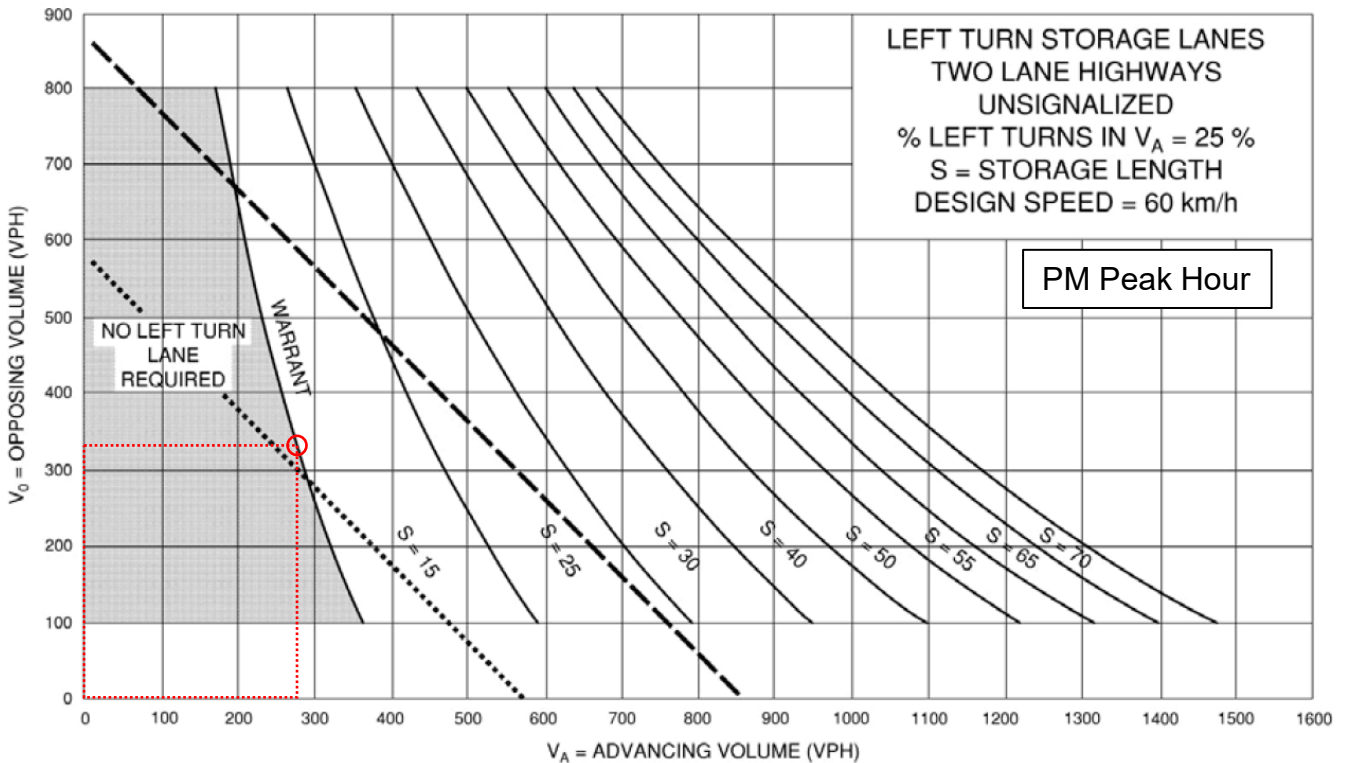
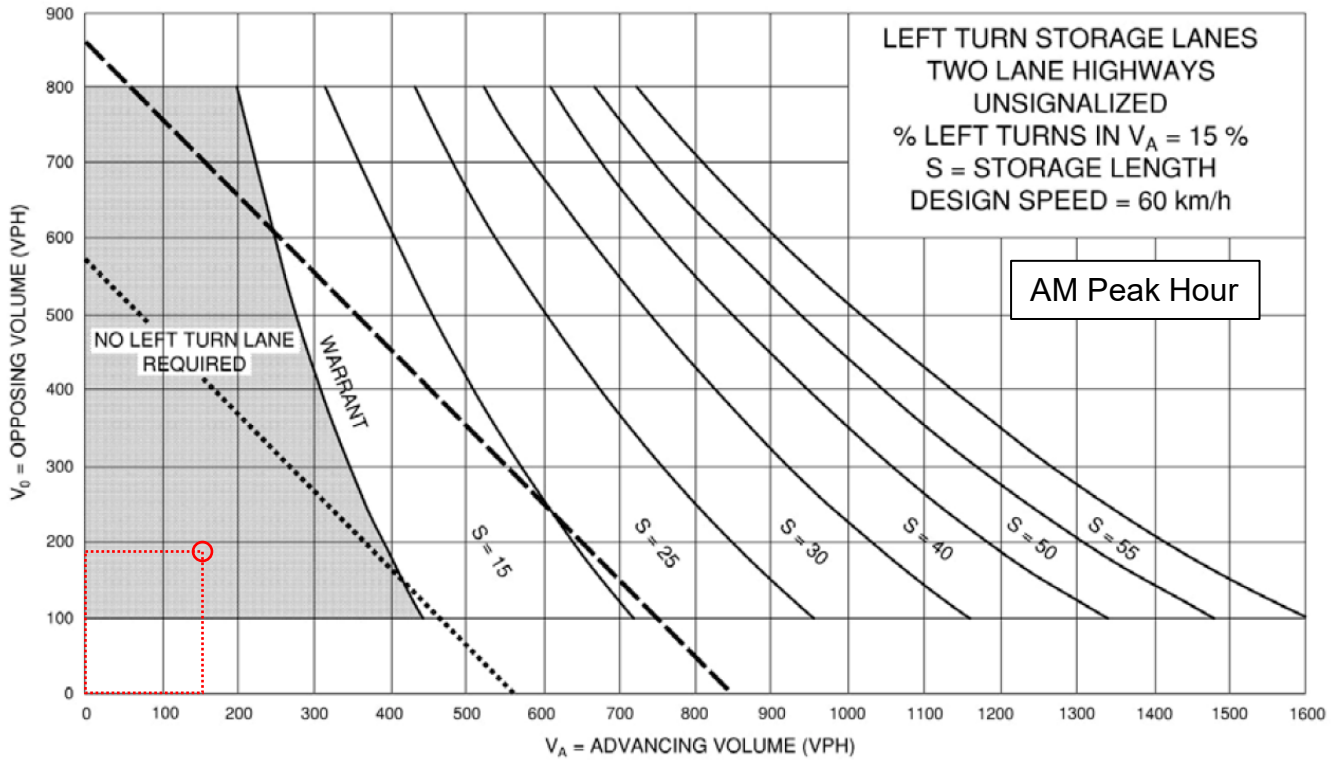
2A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
		X				
Major Street Approaches		480	720	600	900	423
		% Fulfilled				88.1%

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	34
		% Fulfilled				68.5%

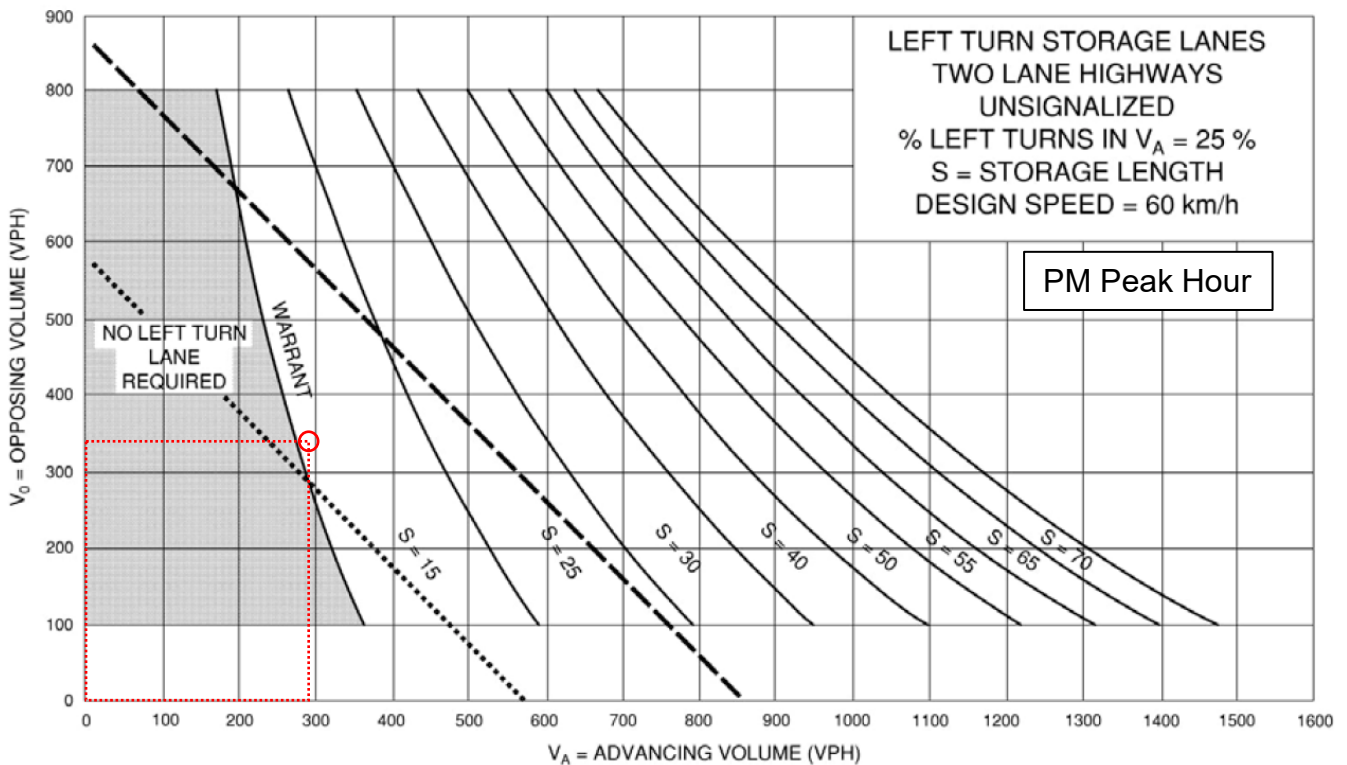
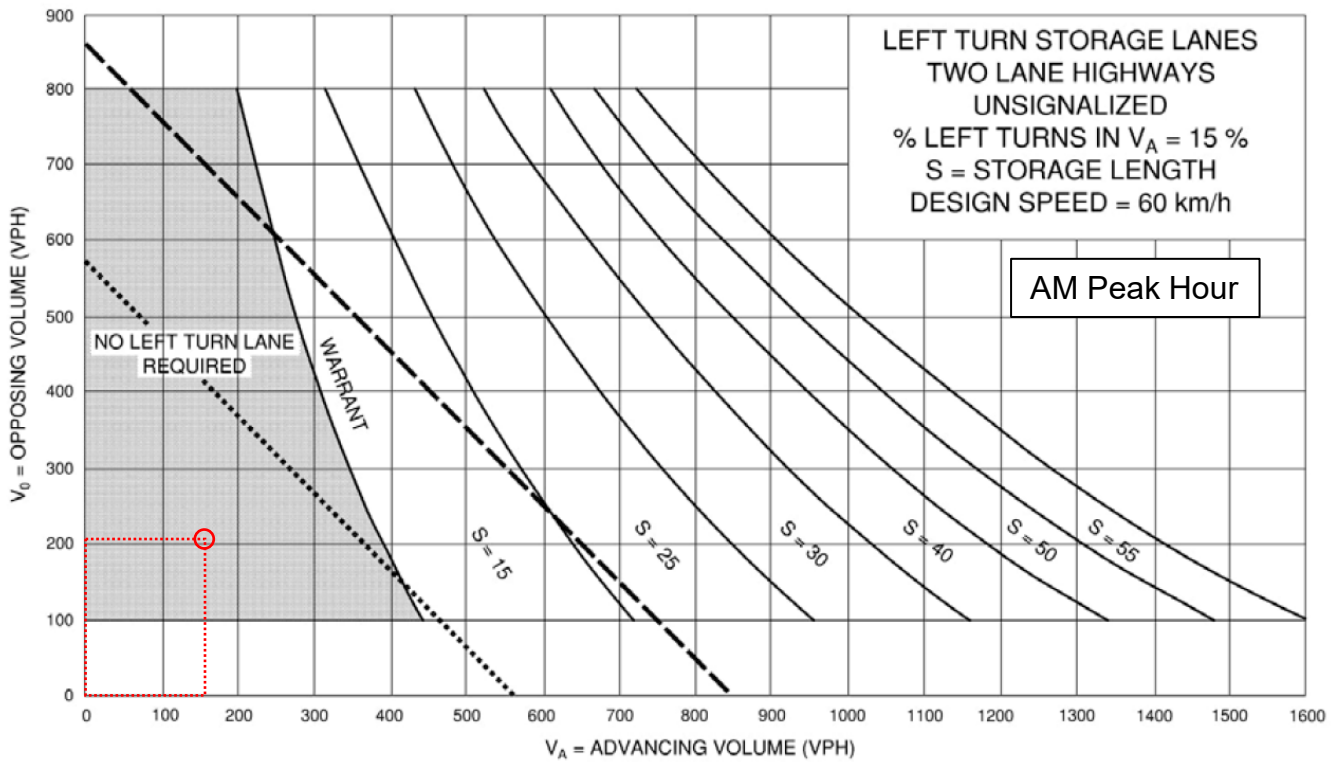
# Appendix H

## Left-Turn Lane Warrant Nomographs

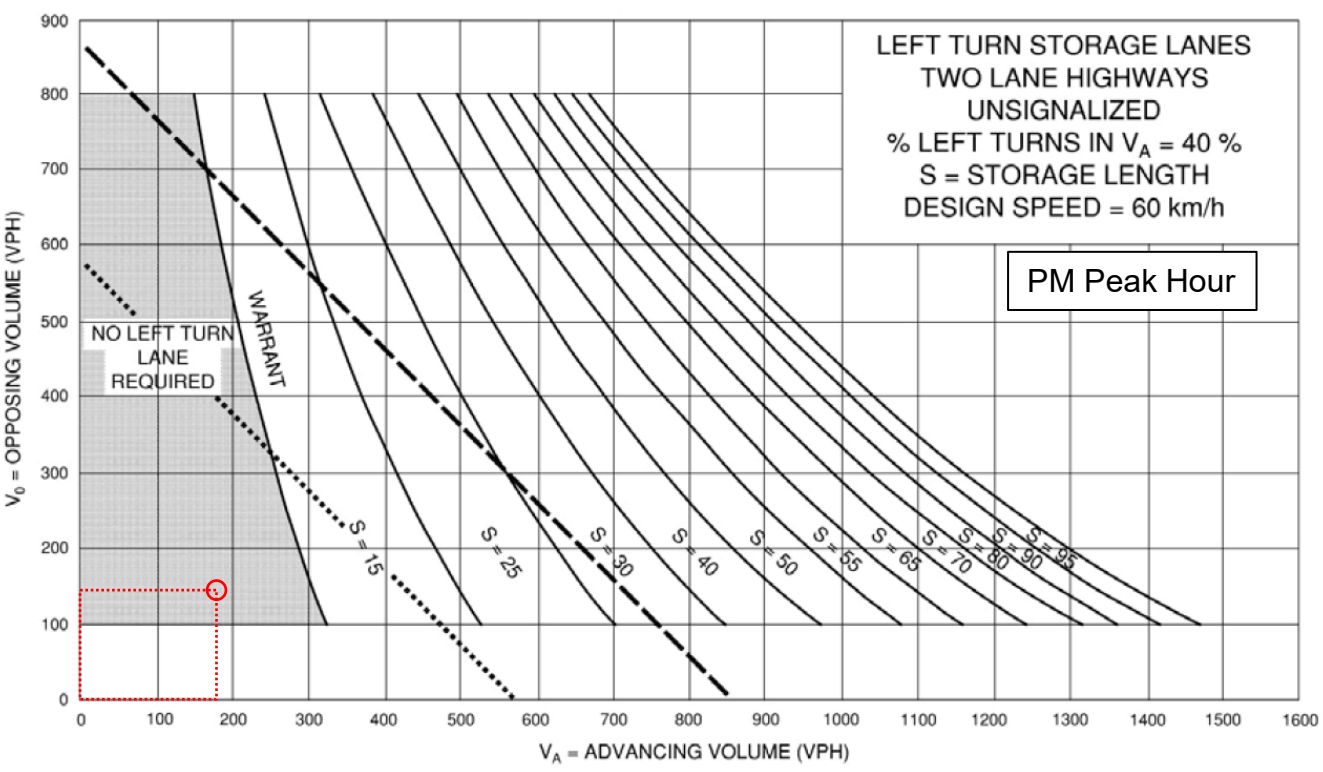
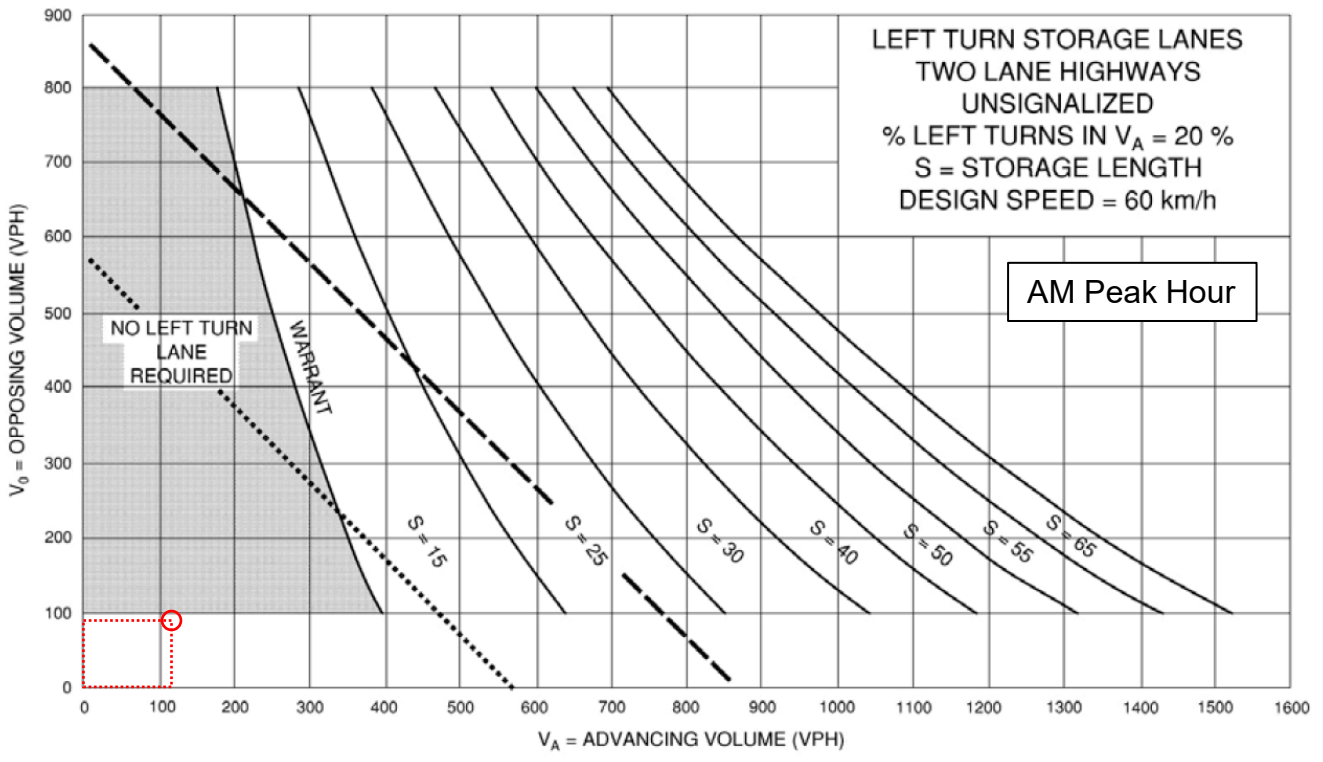




## Southbound Left-Turn Lane Warrant Irvine Street at Street W-N 2035 Total Horizon

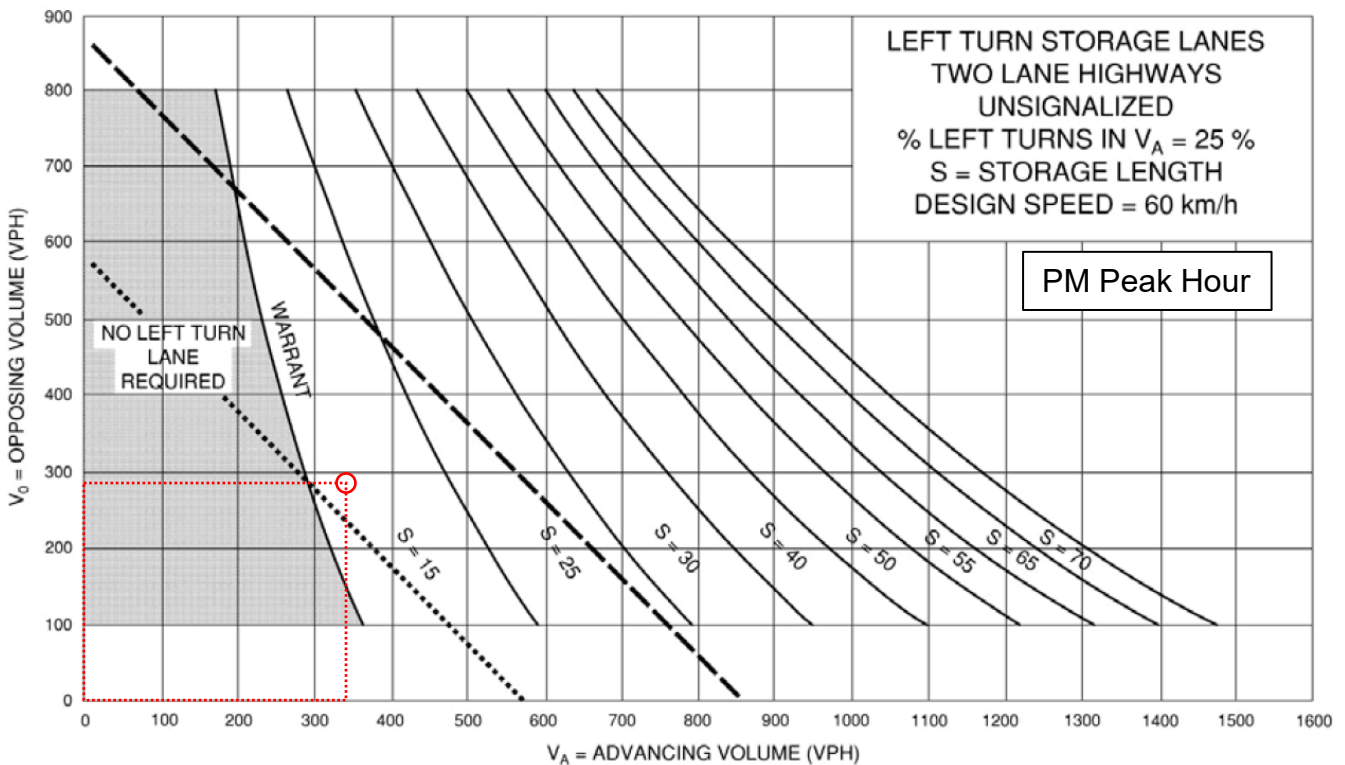
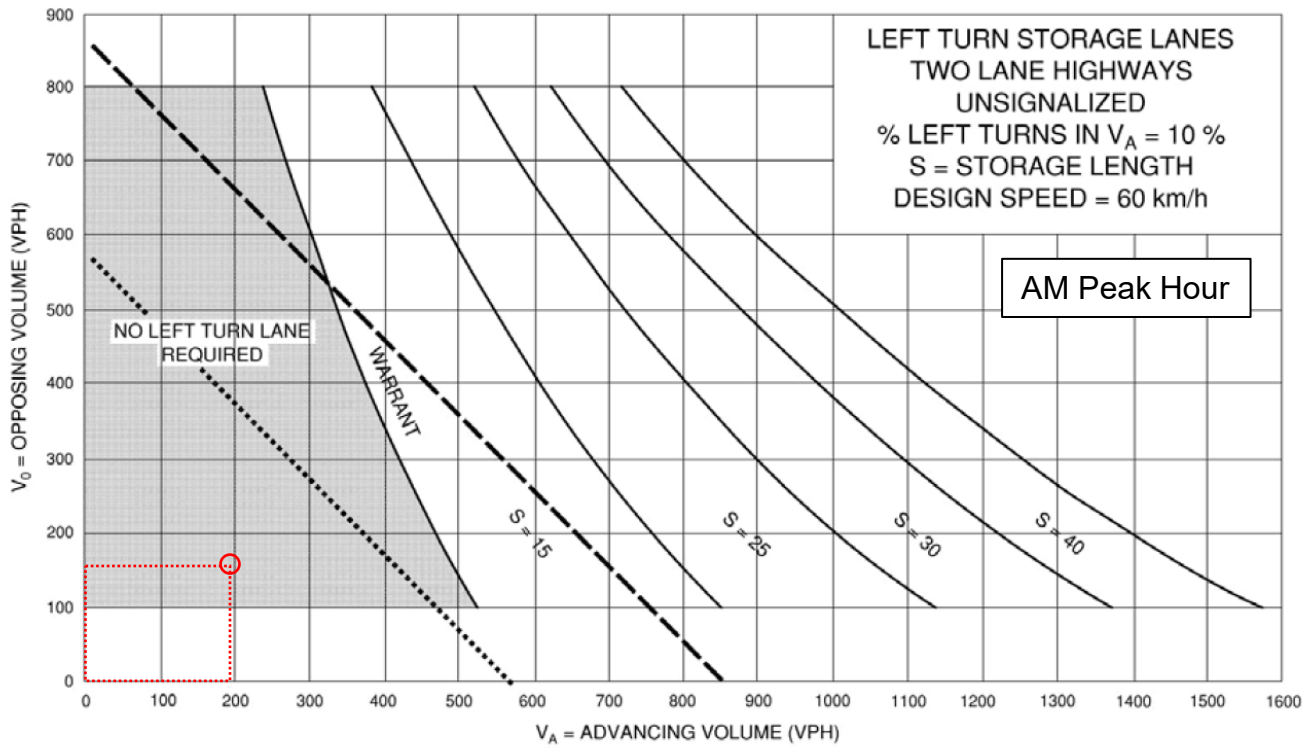


## Southbound Left-Turn Lane Warrant Irvine Street at Street W-N 2040 Total Horizon

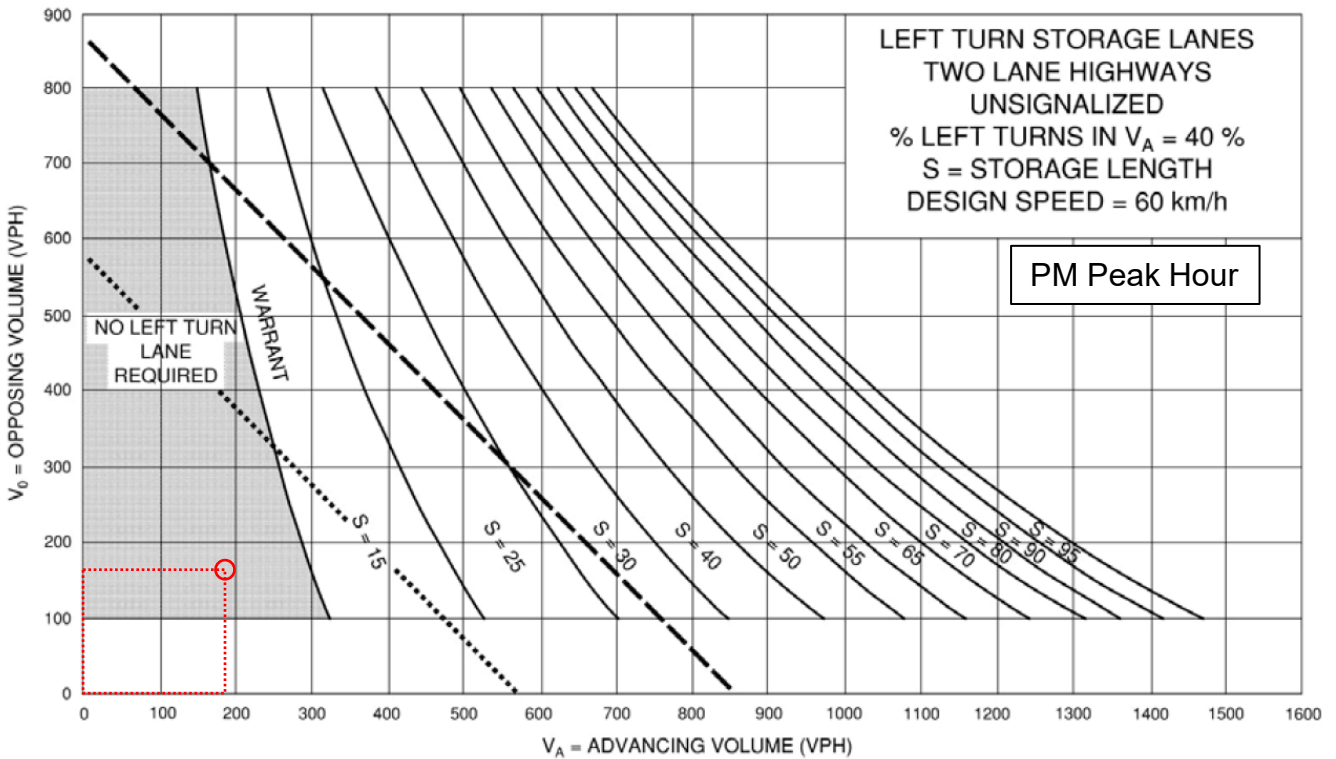
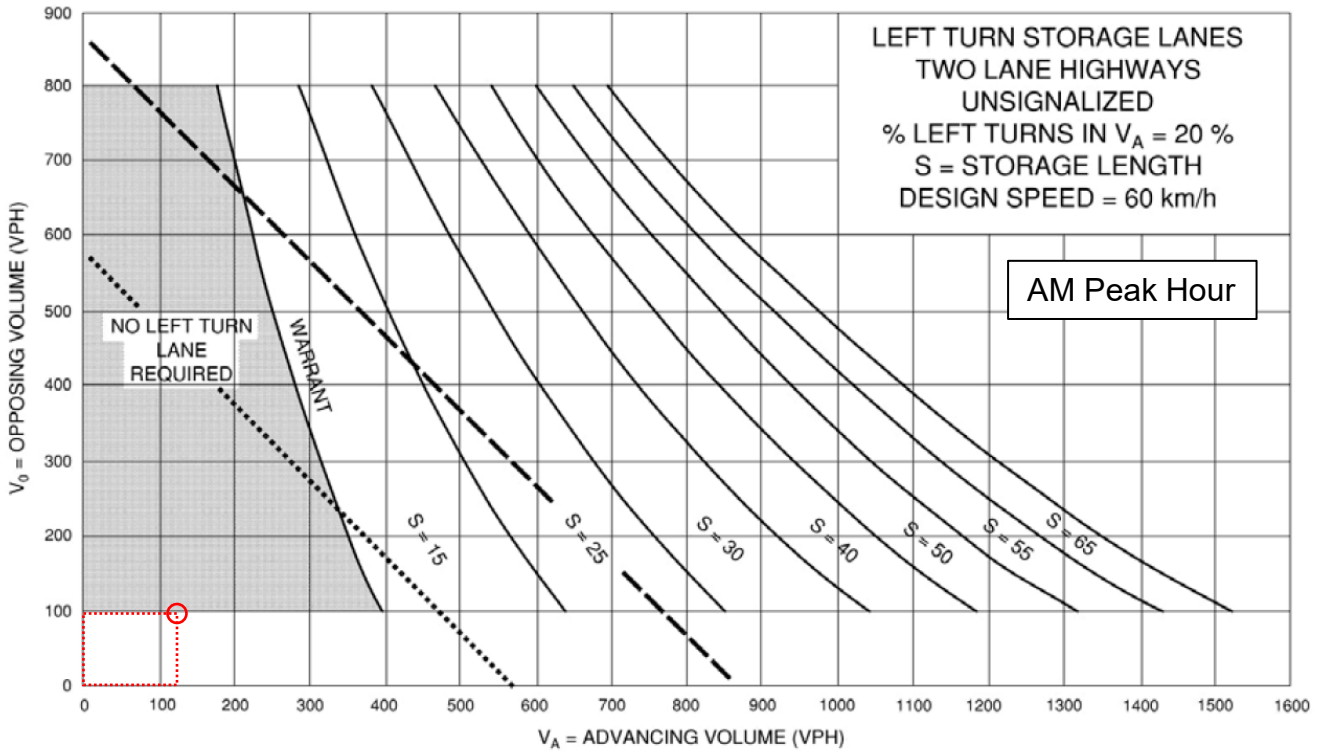


## Northbound Left-Turn Lane Warrant Irvine Street at Cachet Clayton 2035 Background Horizon

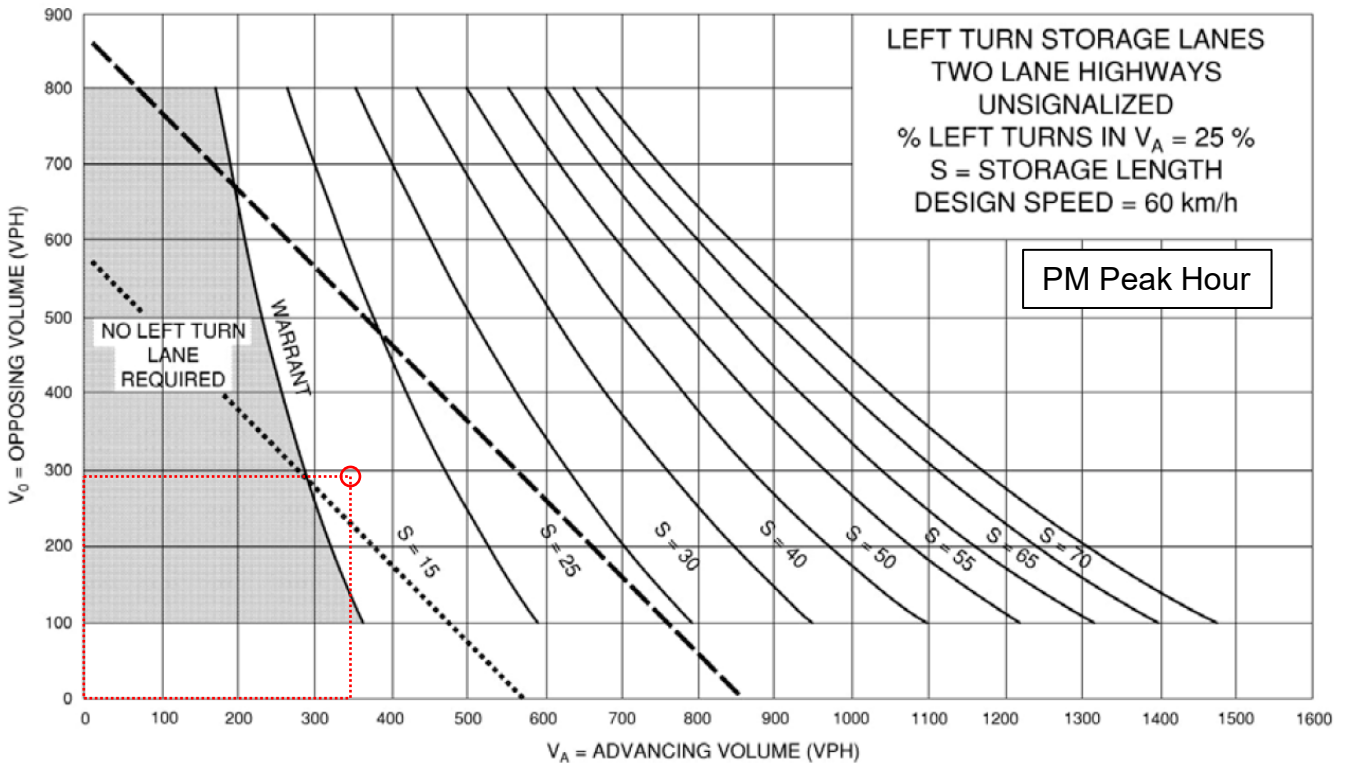
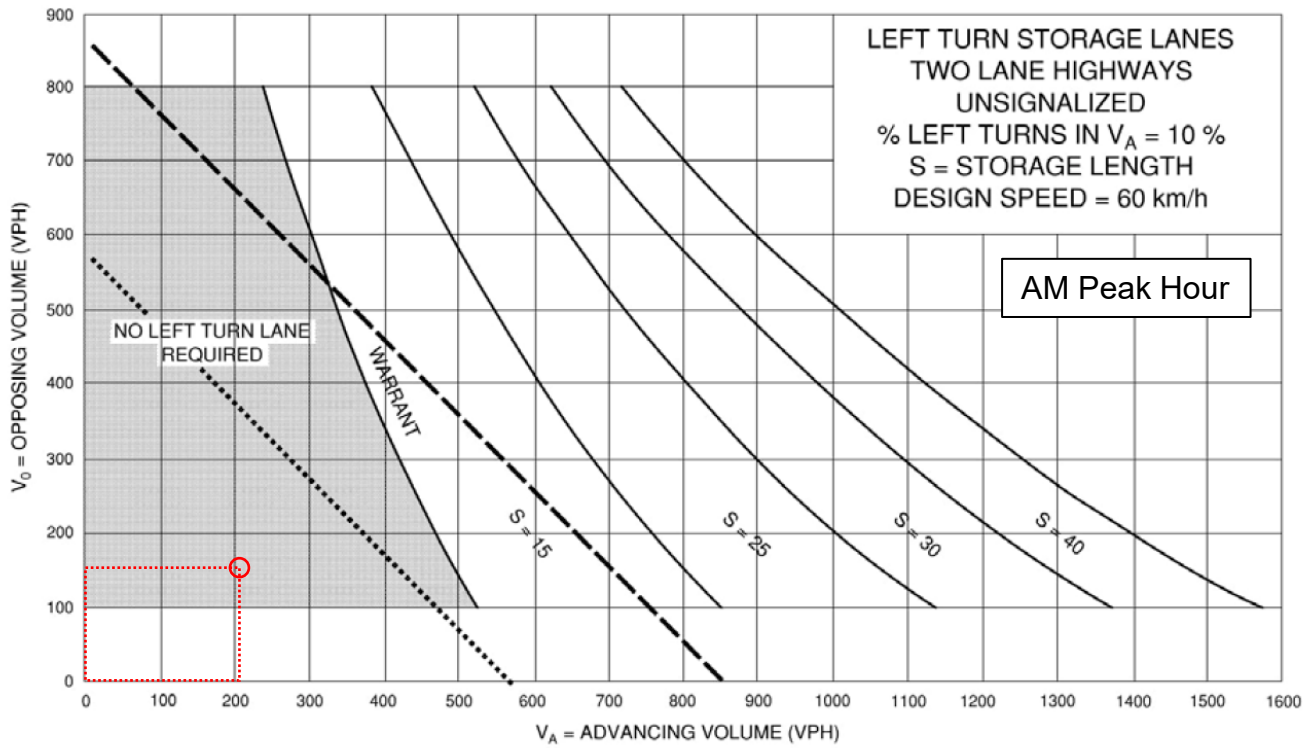




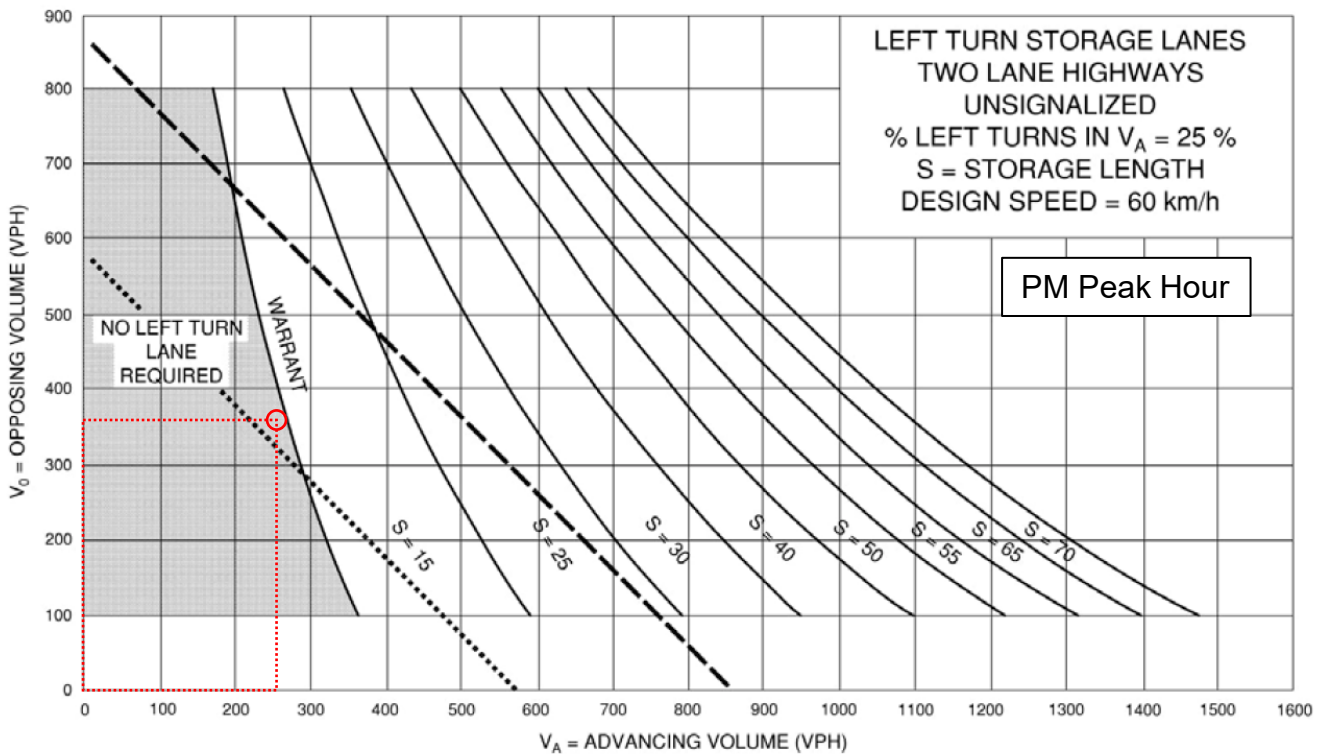
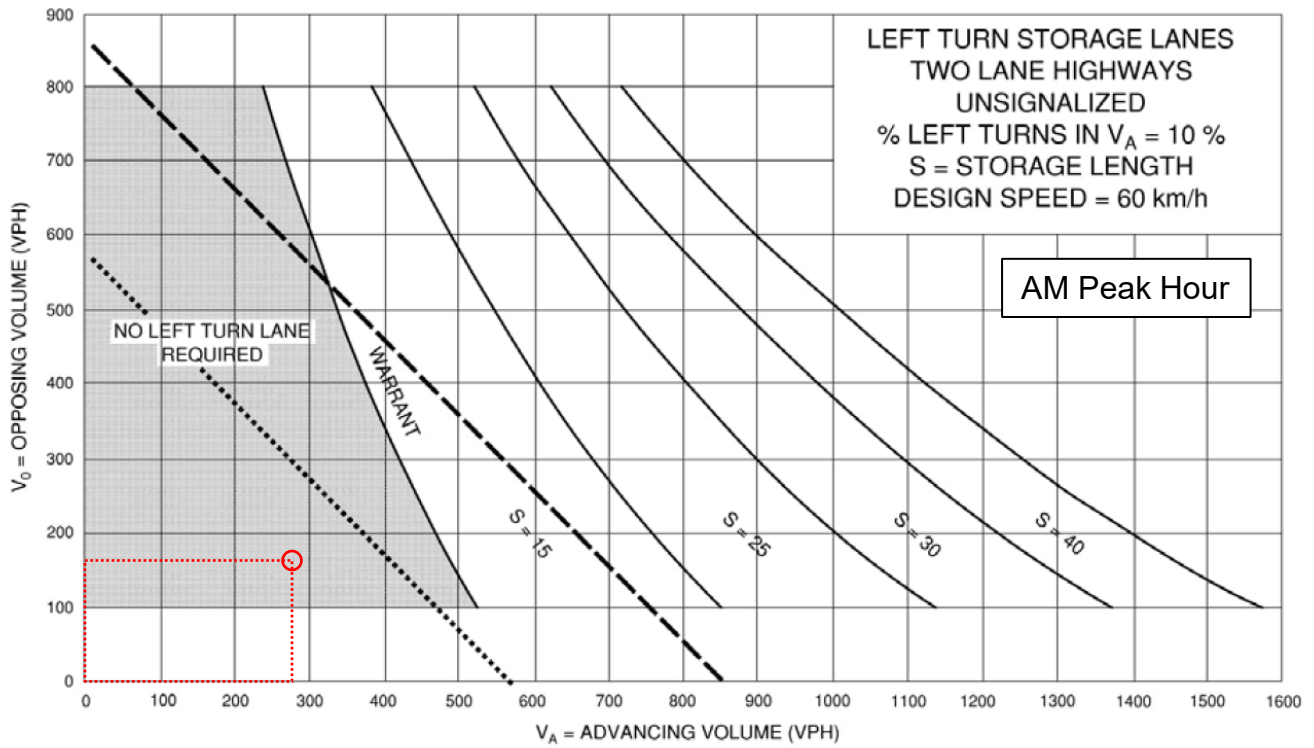
## Northbound Left-Turn Lane Warrant Irvine Street at Cachet Clayton 2035 Total Horizon



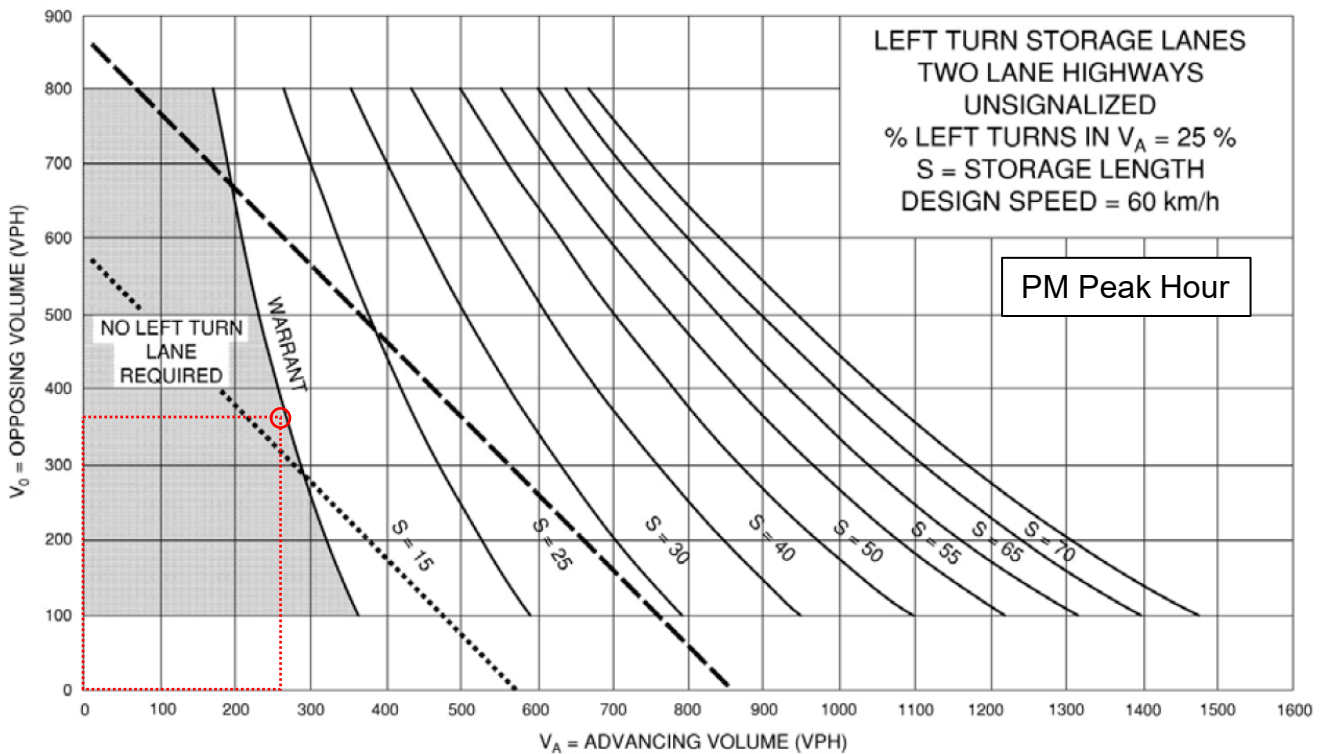
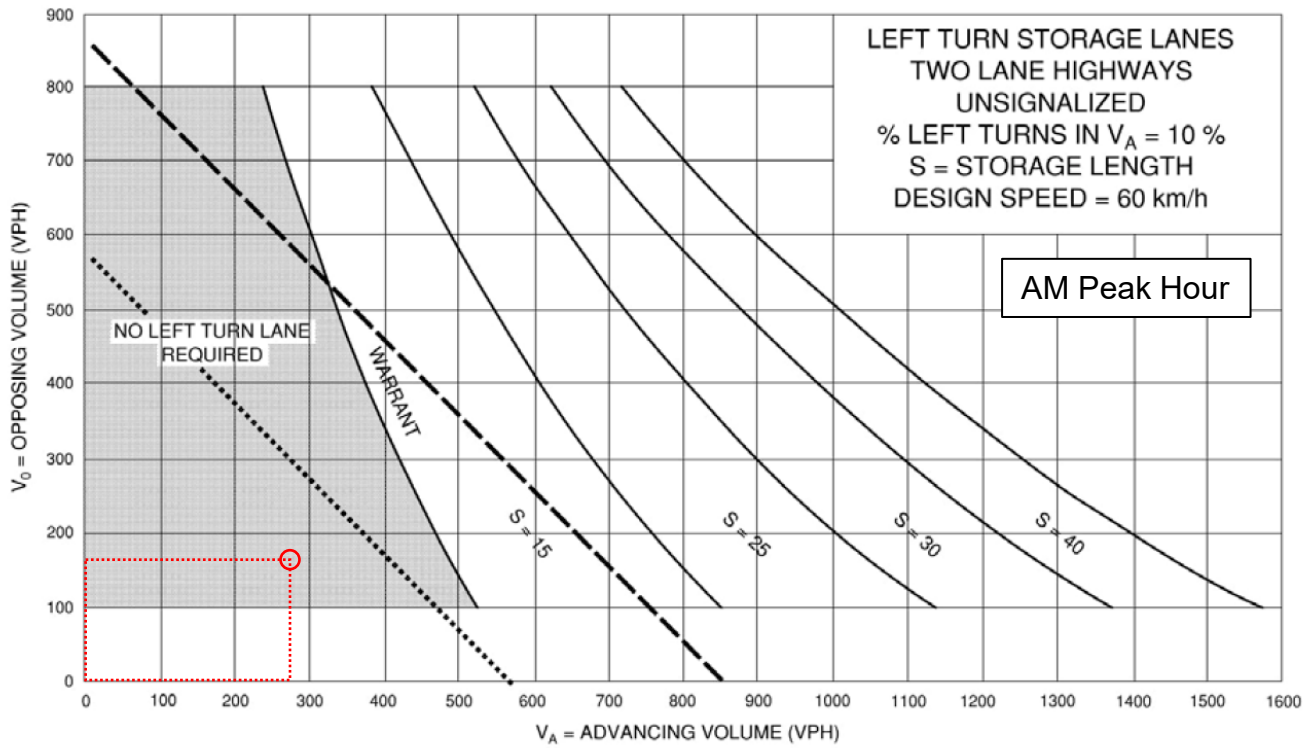
## Northbound Left-Turn Lane Warrant Irvine Street at Cachet Clayton 2040 Background Horizon



## Northbound Left-Turn Lane Warrant Irvine Street at Cachet Clayton 2040 Total Horizon

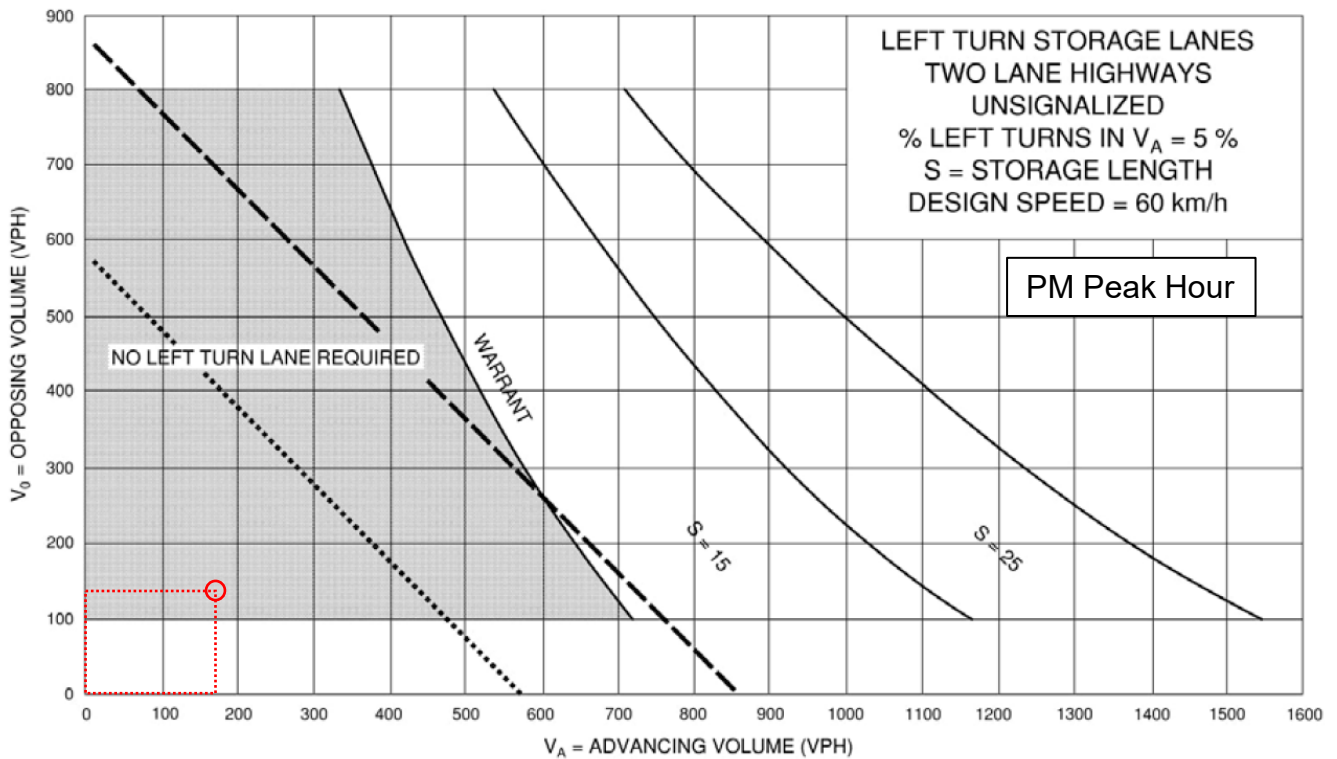
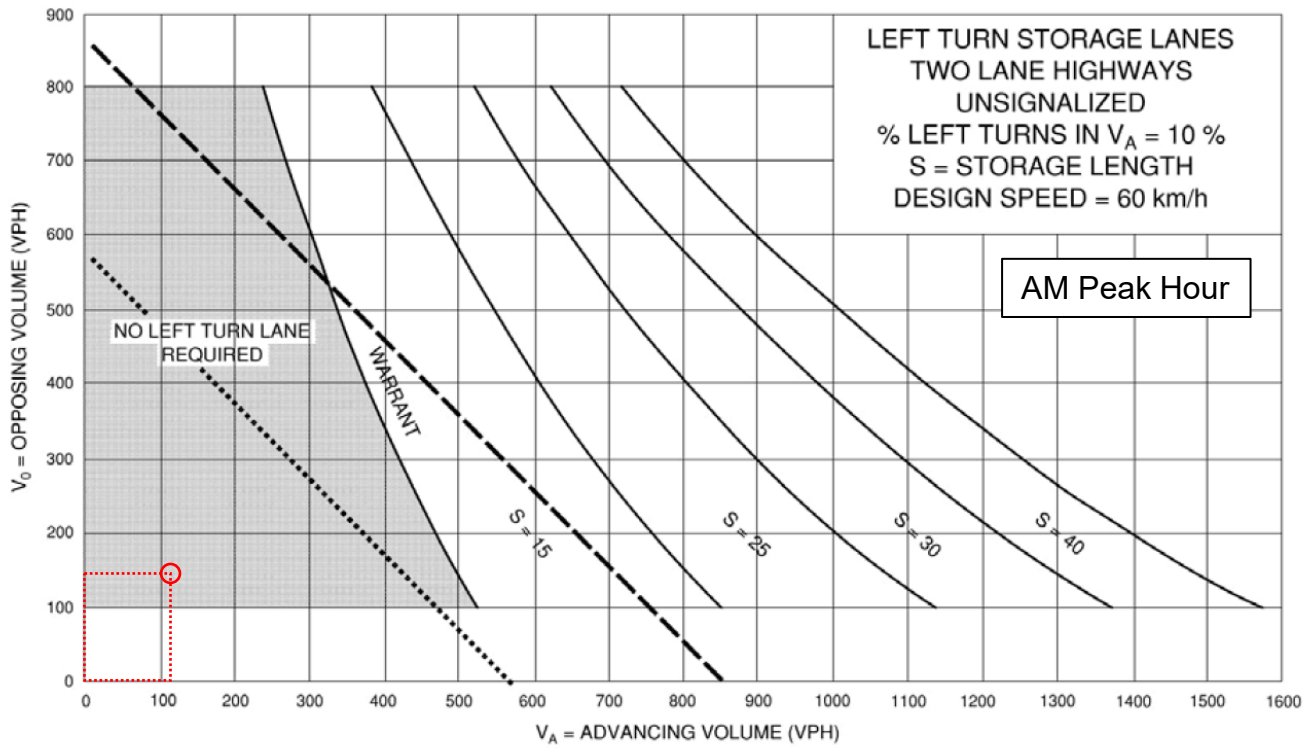


## Southbound Left-Turn Lane Warrant Irvine Street at Street W-S 2035 Total Horizon

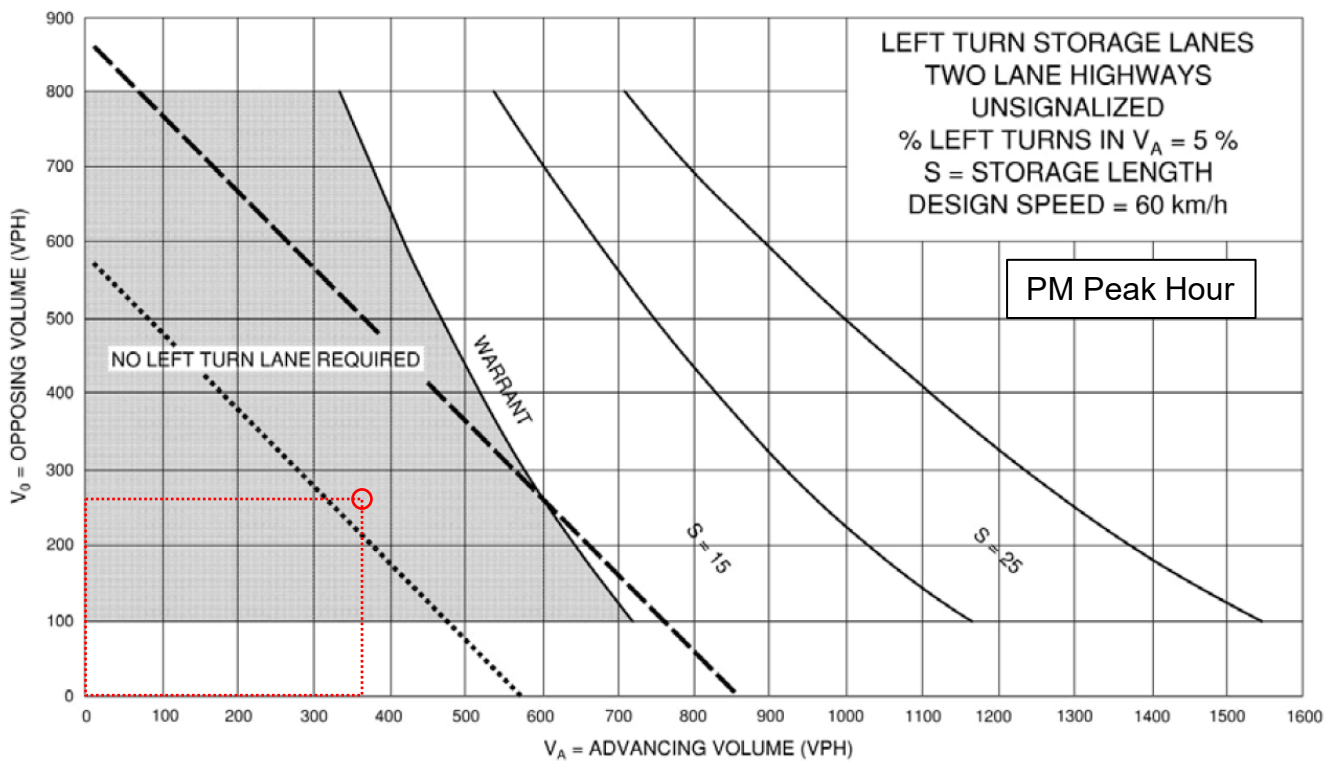
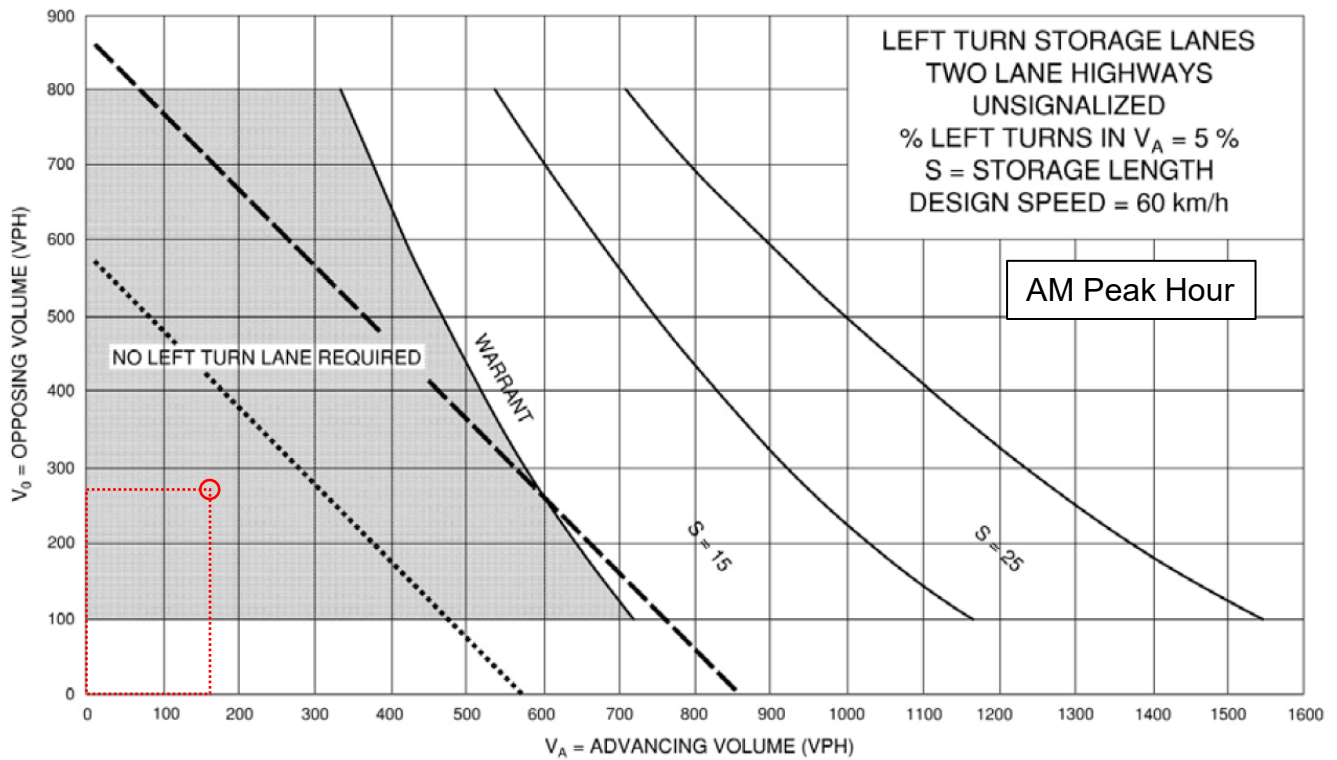


## Southbound Left-Turn Lane Warrant Irvine Street at Street W-S 2040 Total Horizon

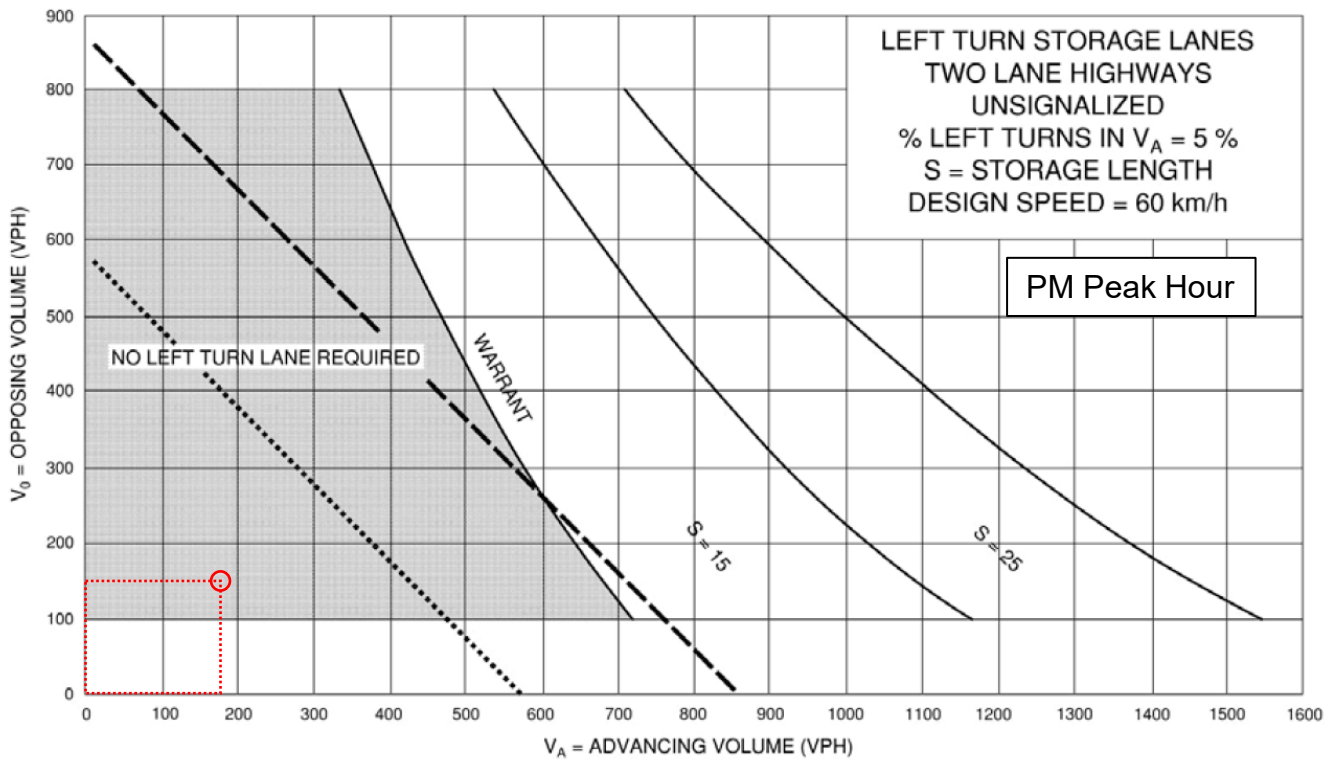
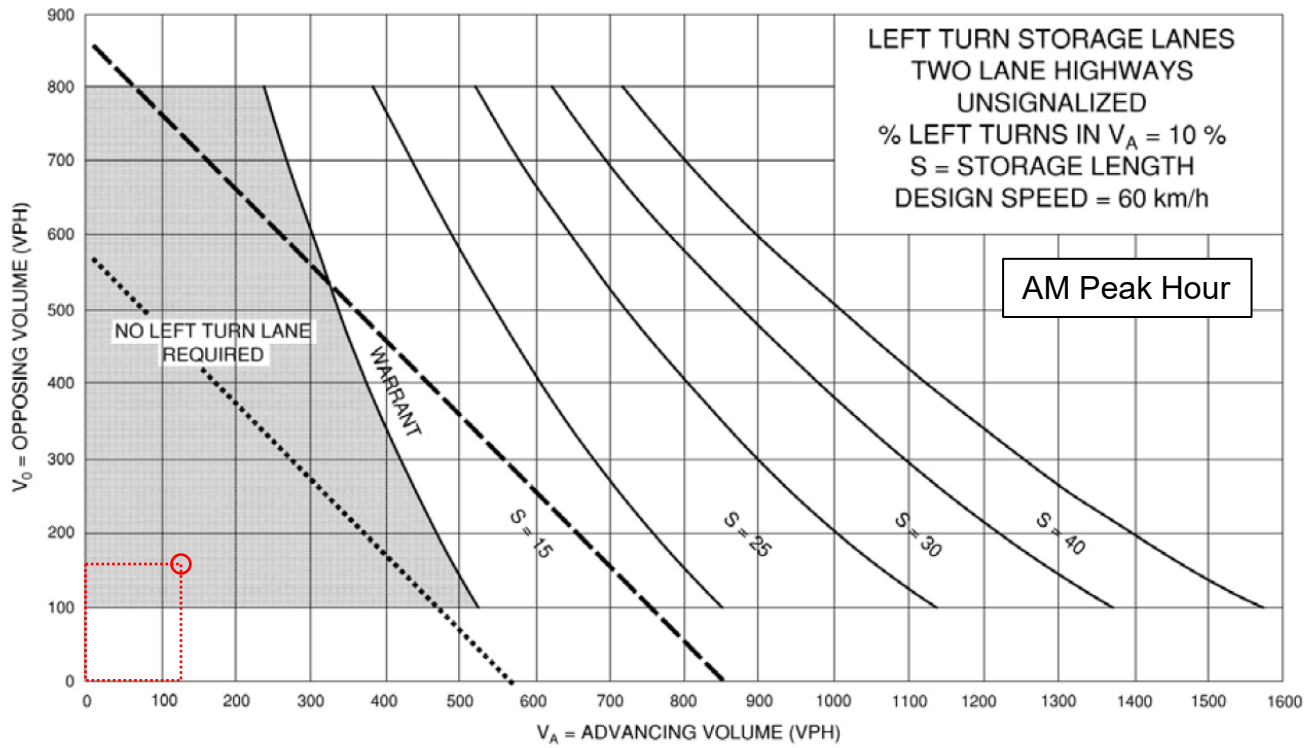




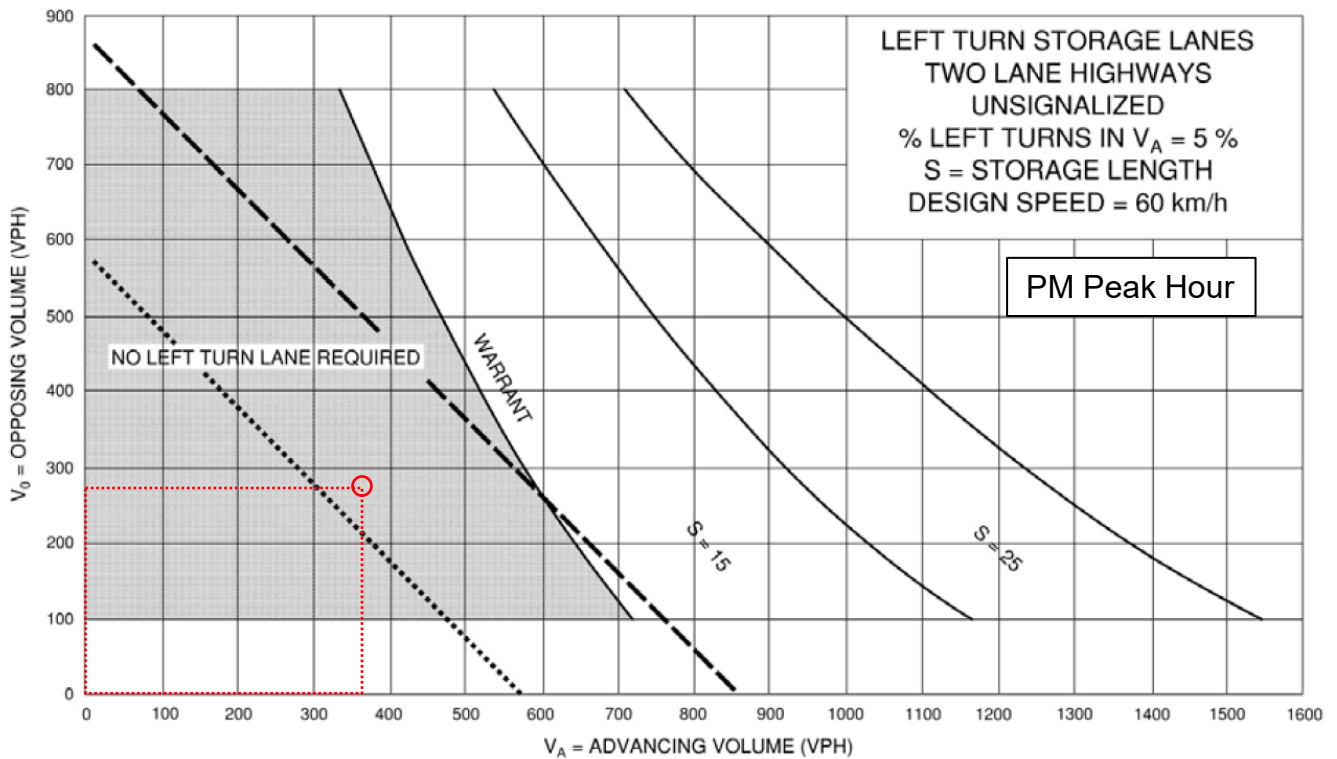
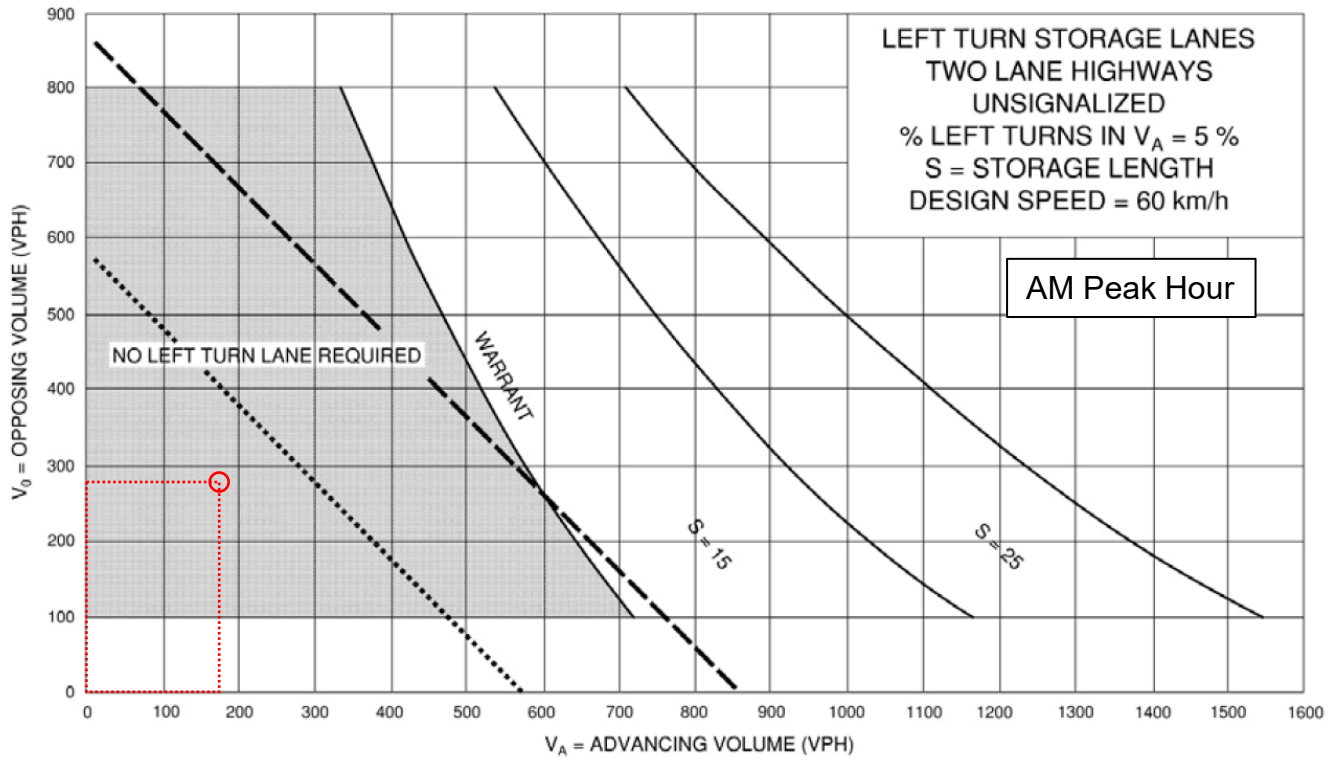
## Northbound Left-Turn Lane Warrant Irvine Street at Bricker Avenue 2035 Background Horizon



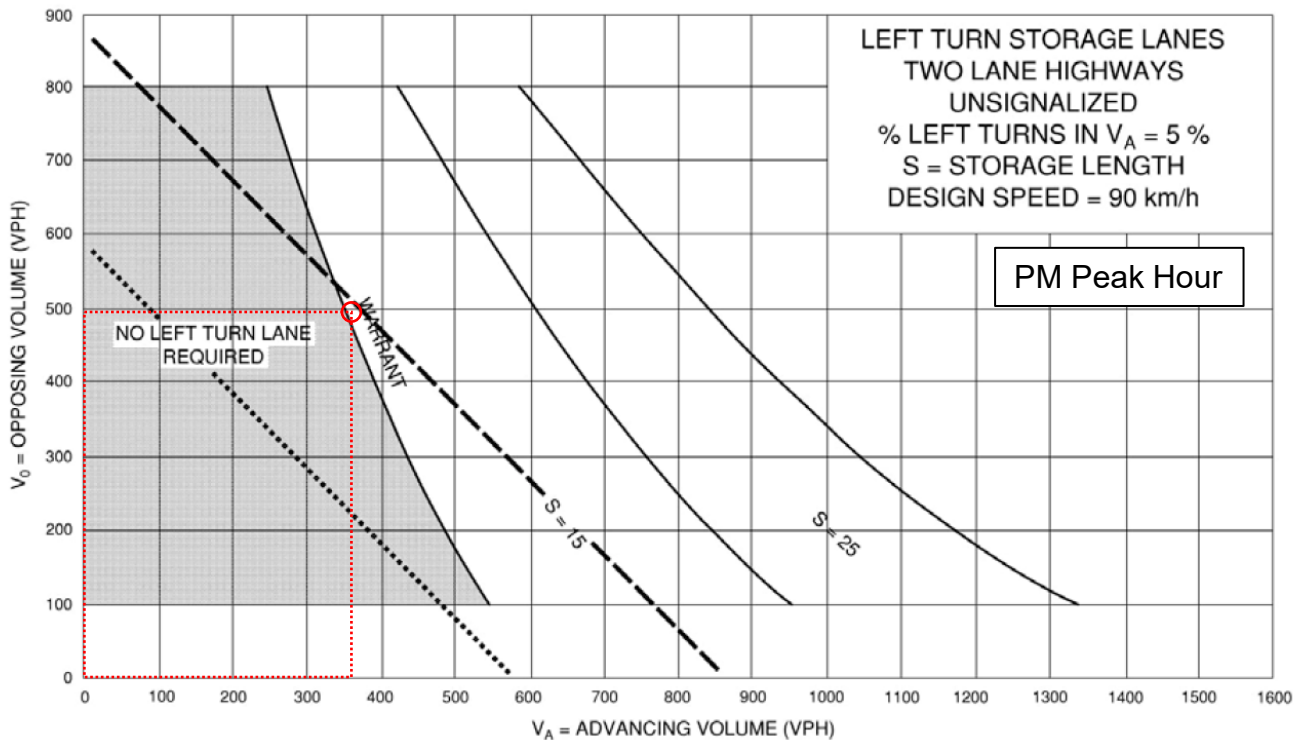
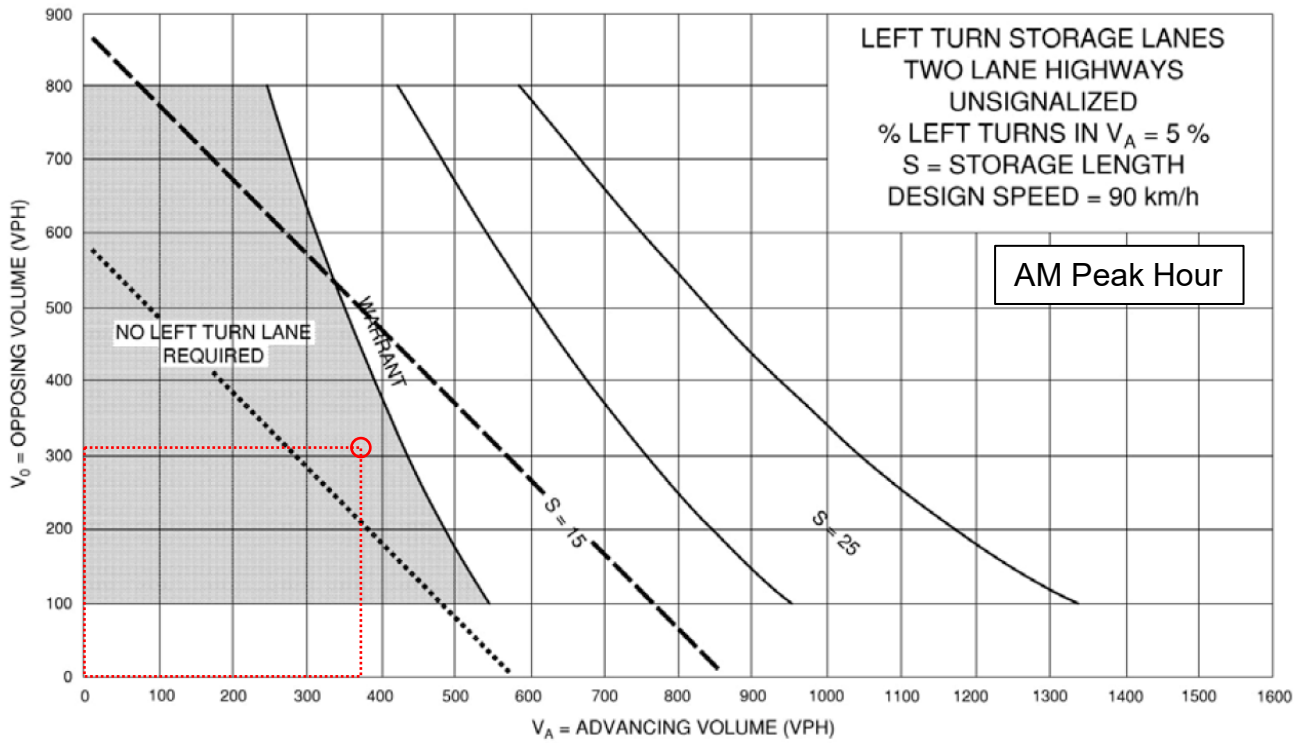
## Northbound Left-Turn Lane Warrant Irvine Street at Bricker Avenue 2035 Total Horizon



## Northbound Left-Turn Lane Warrant Irvine Street at Bricker Avenue 2040 Background Horizon

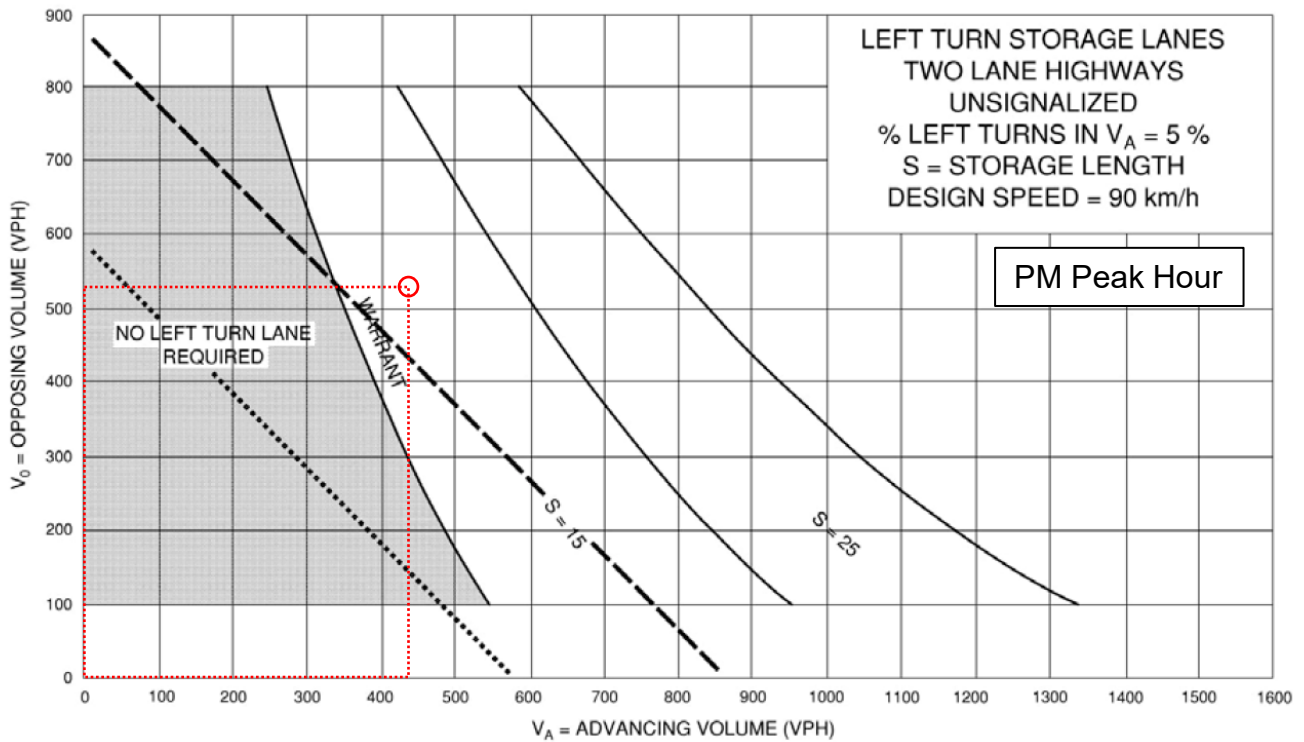
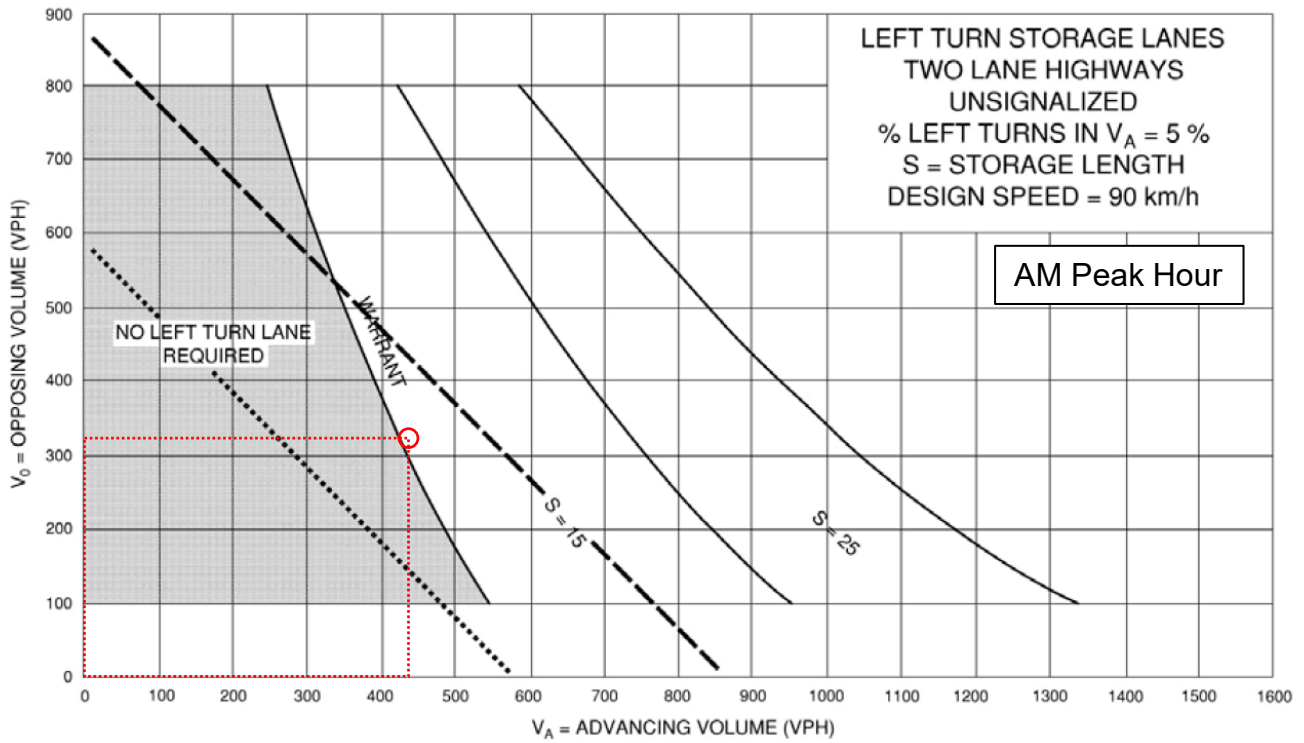


## Northbound Left-Turn Lane Warrant Irvine Street at Bricker Avenue 2040 Total Horizon

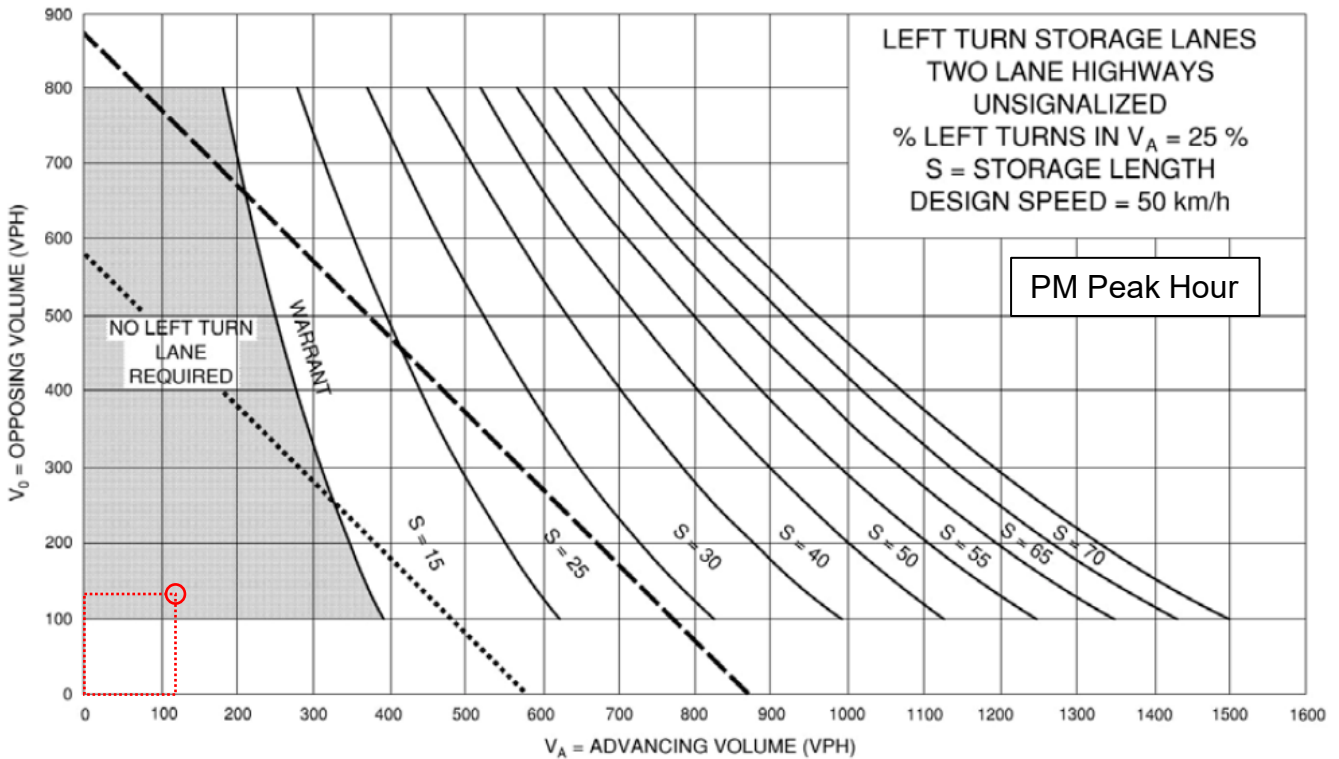
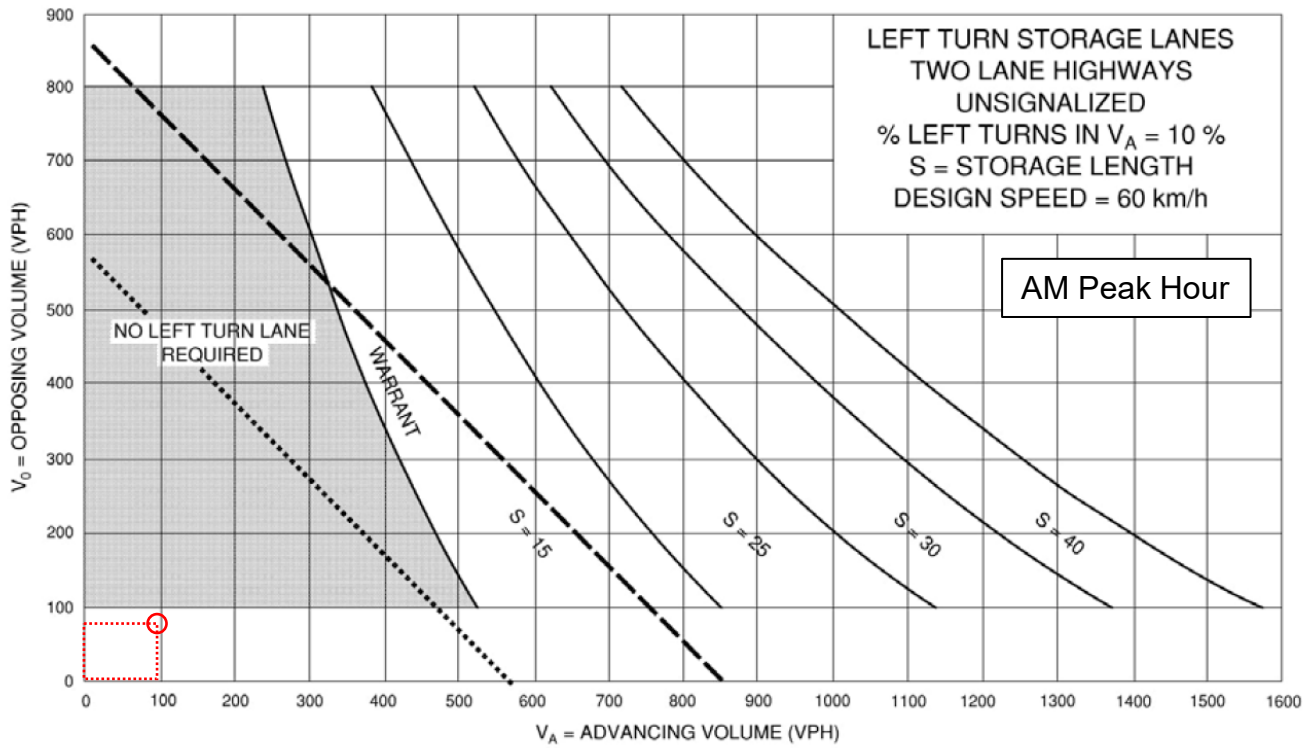


## Westbound Left-Turn Lane Warrant Nichol Road 15 at Street N-E 2035 Total Horizon



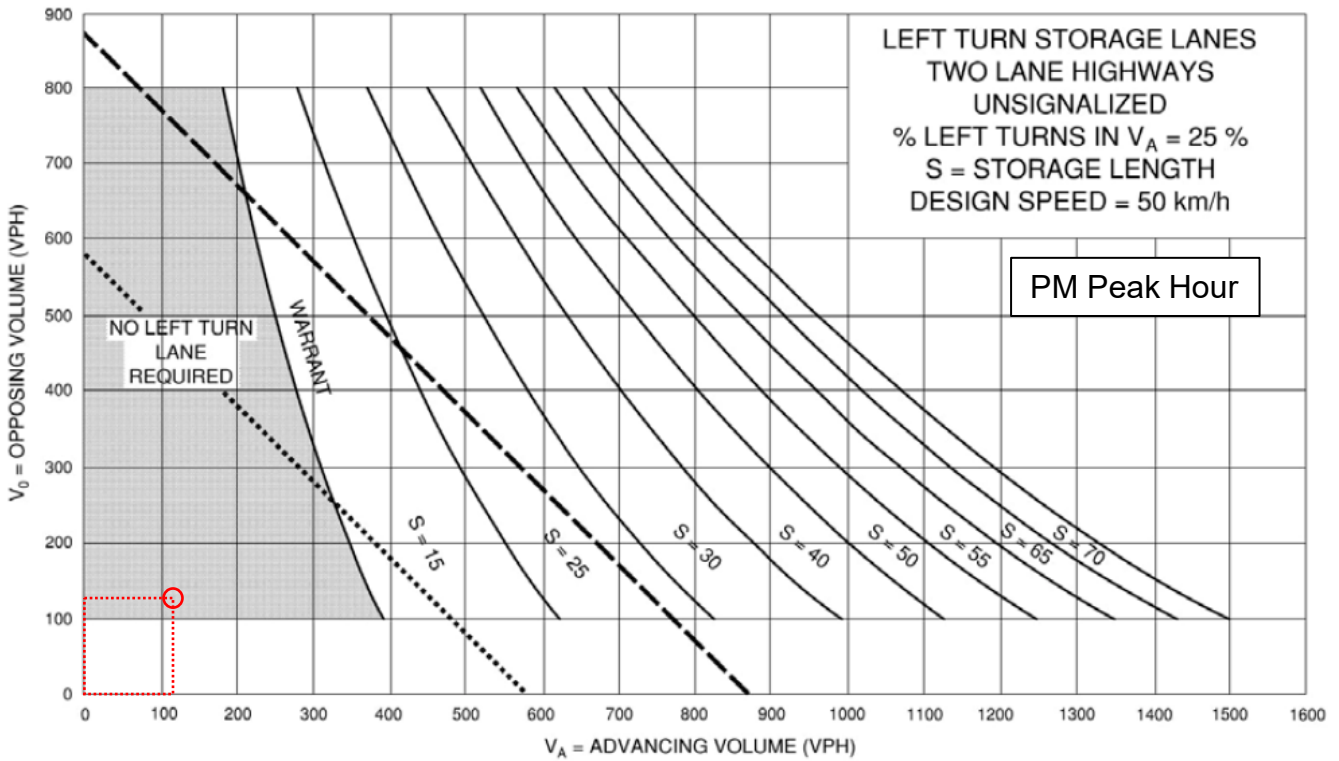
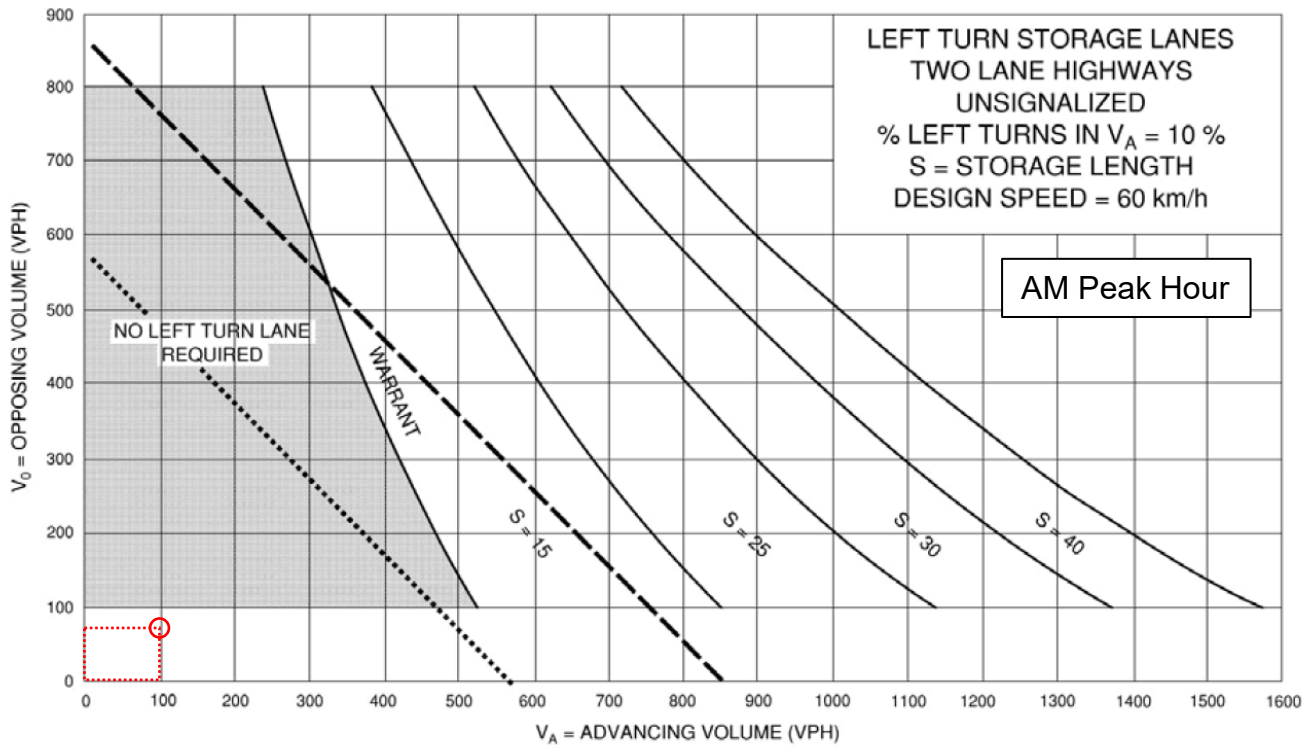


## Westbound Left-Turn Lane Warrant Nichol Road 15 at Street N-E 2040 Total Horizon



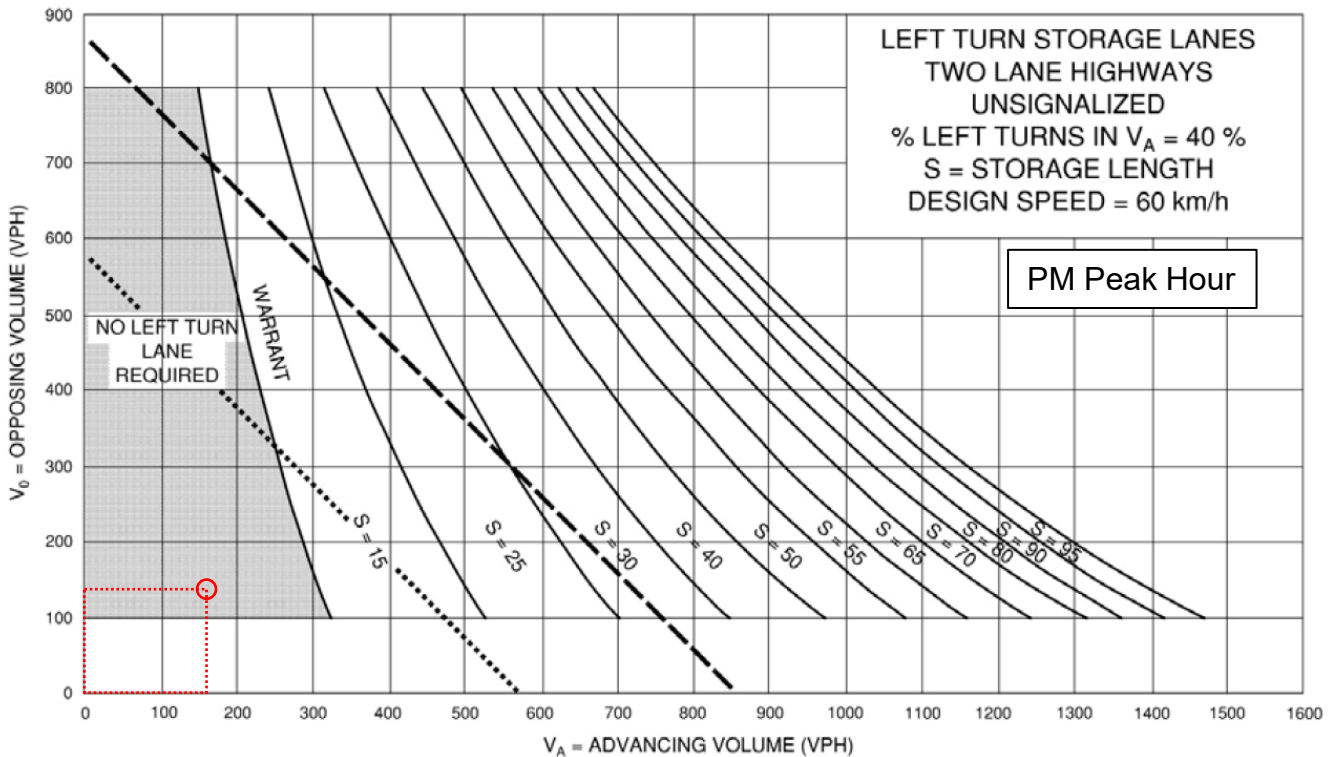
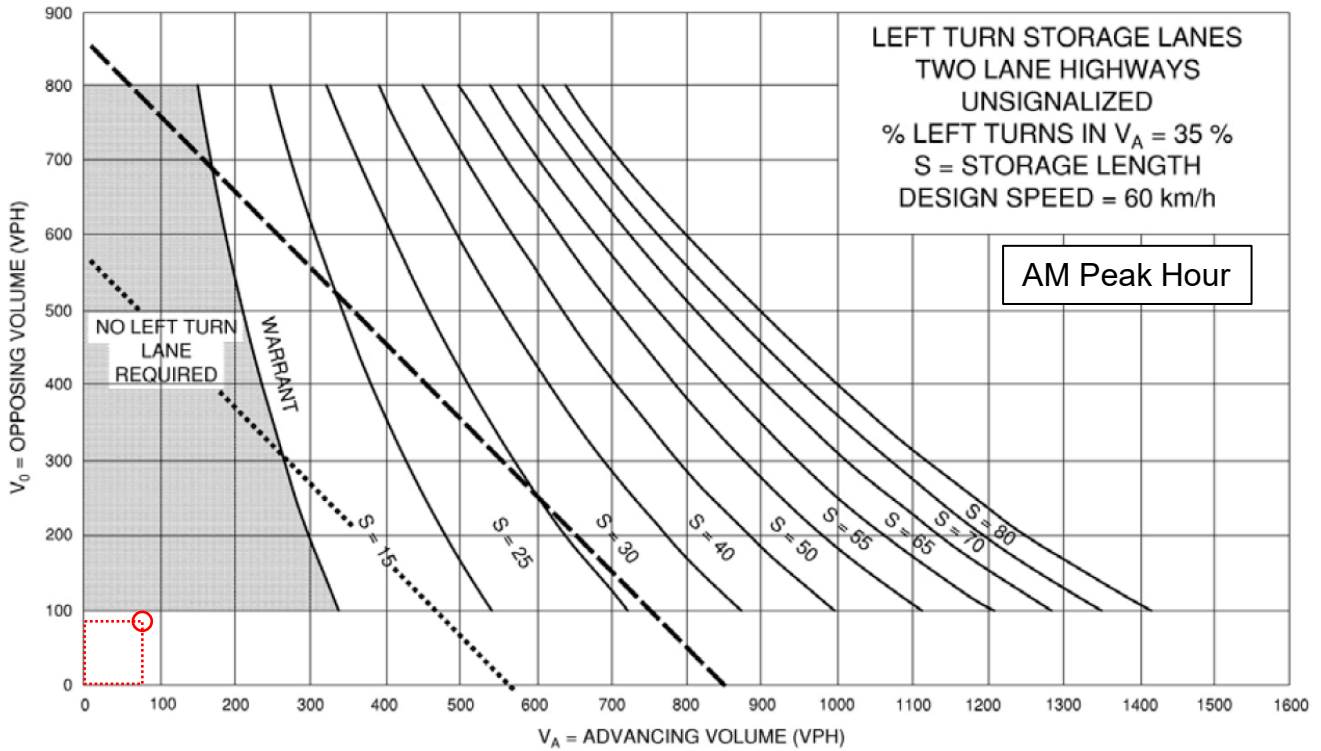
## Northbound Left-Turn Lane Warrant Gerrie Road at Street E-N 2035 Total Horizon



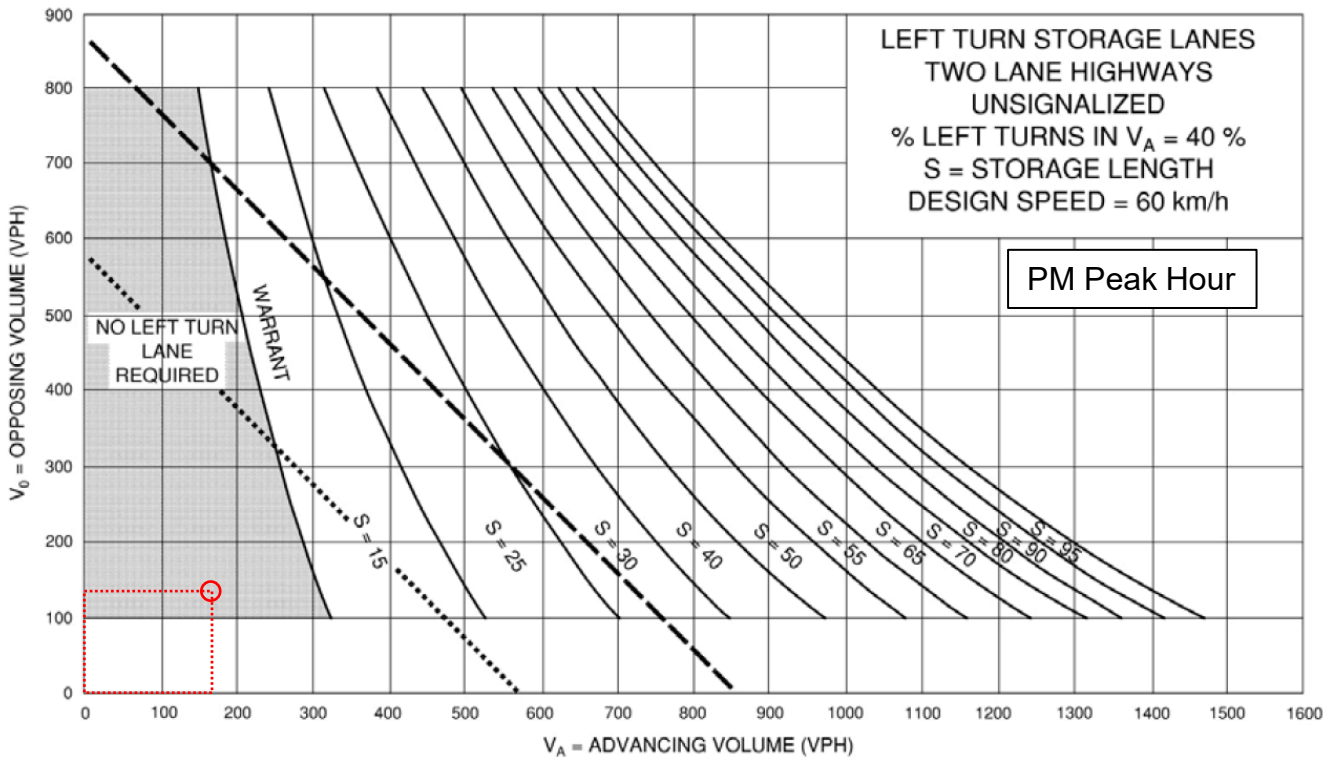
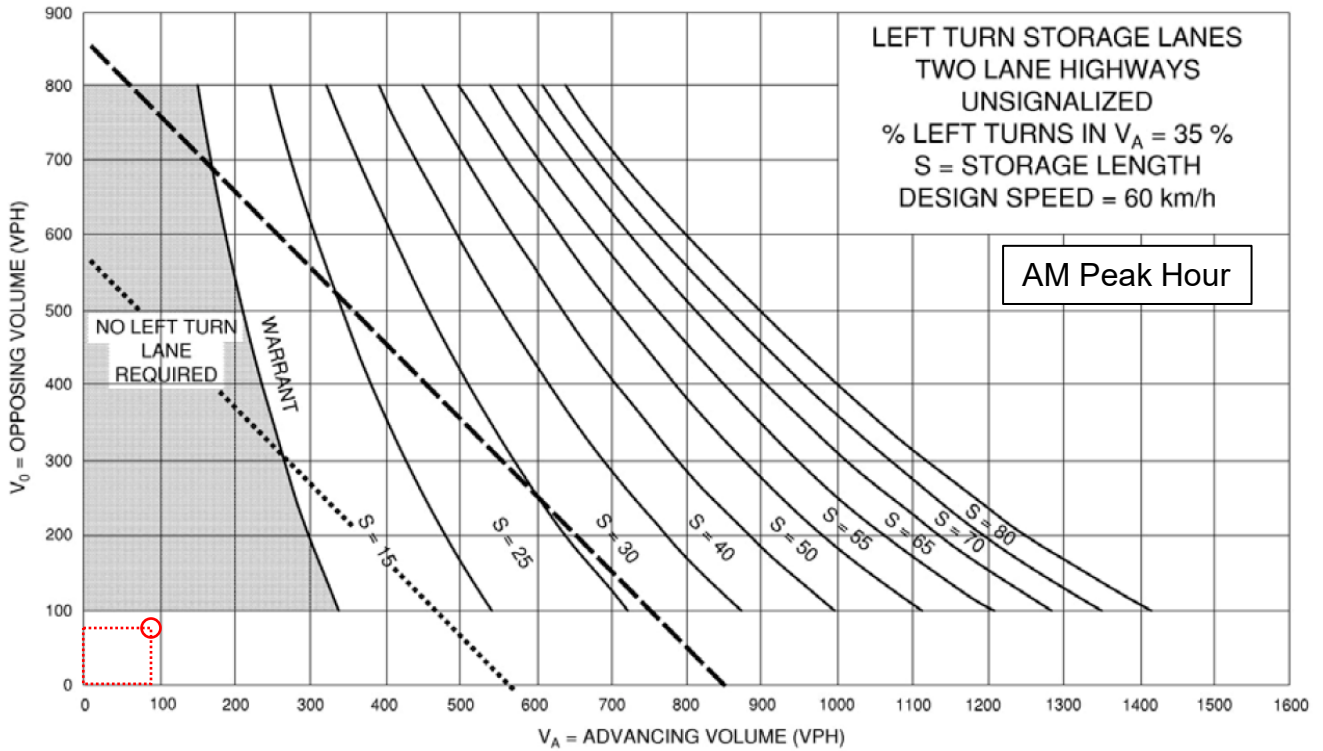


## Northbound Left-Turn Lane Warrant Gerrie Road at Street E-N 2040 Total Horizon

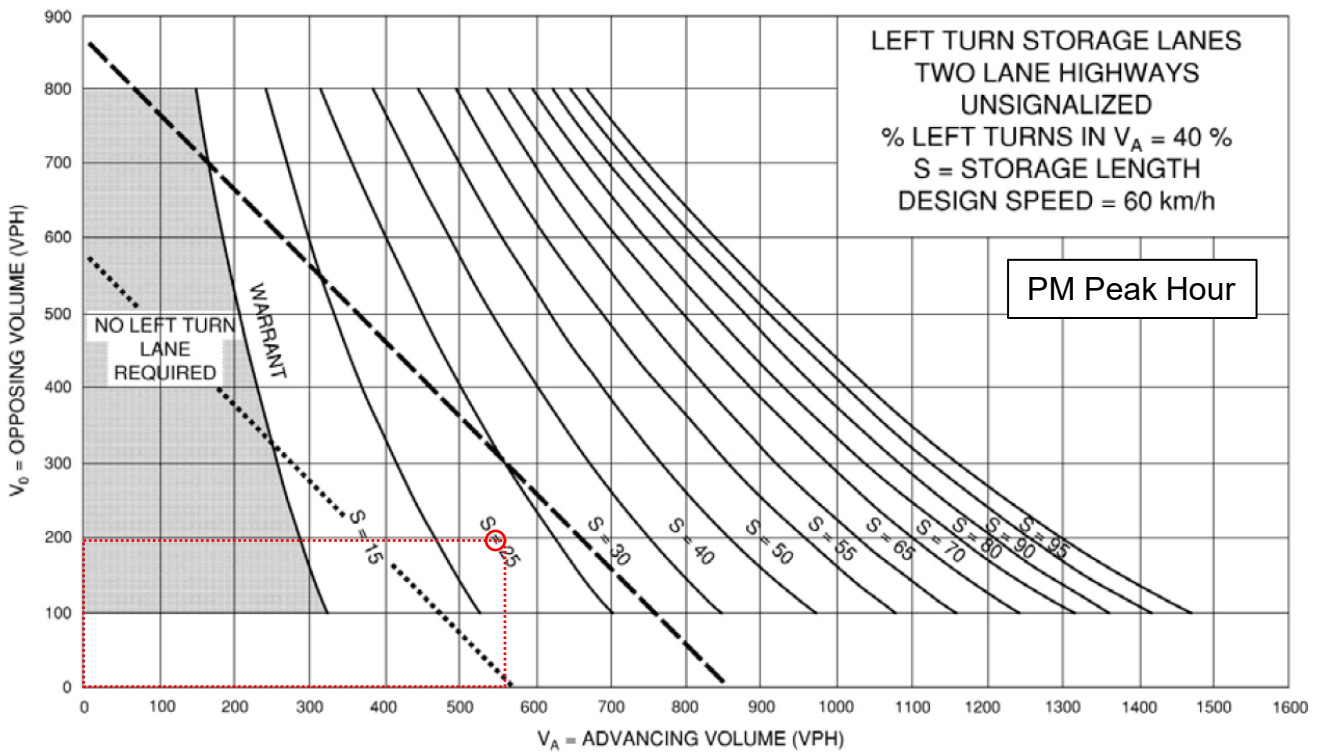
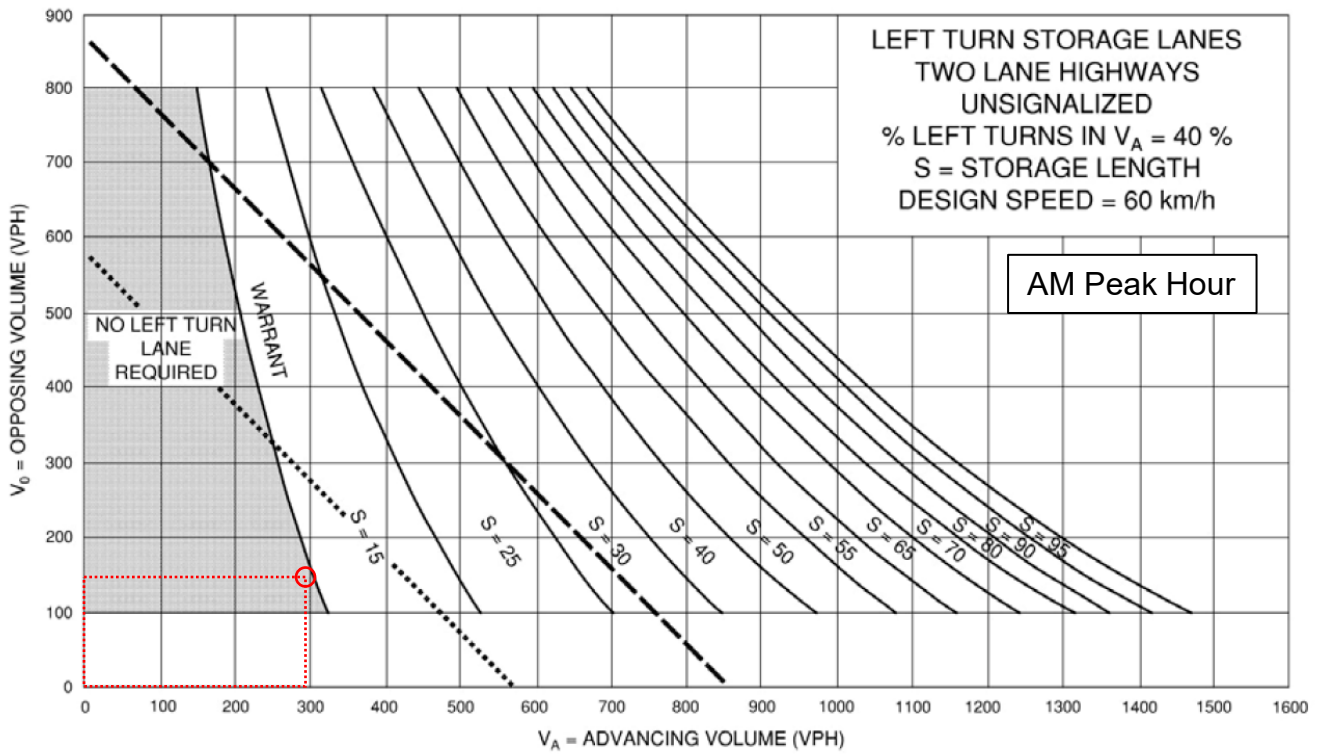




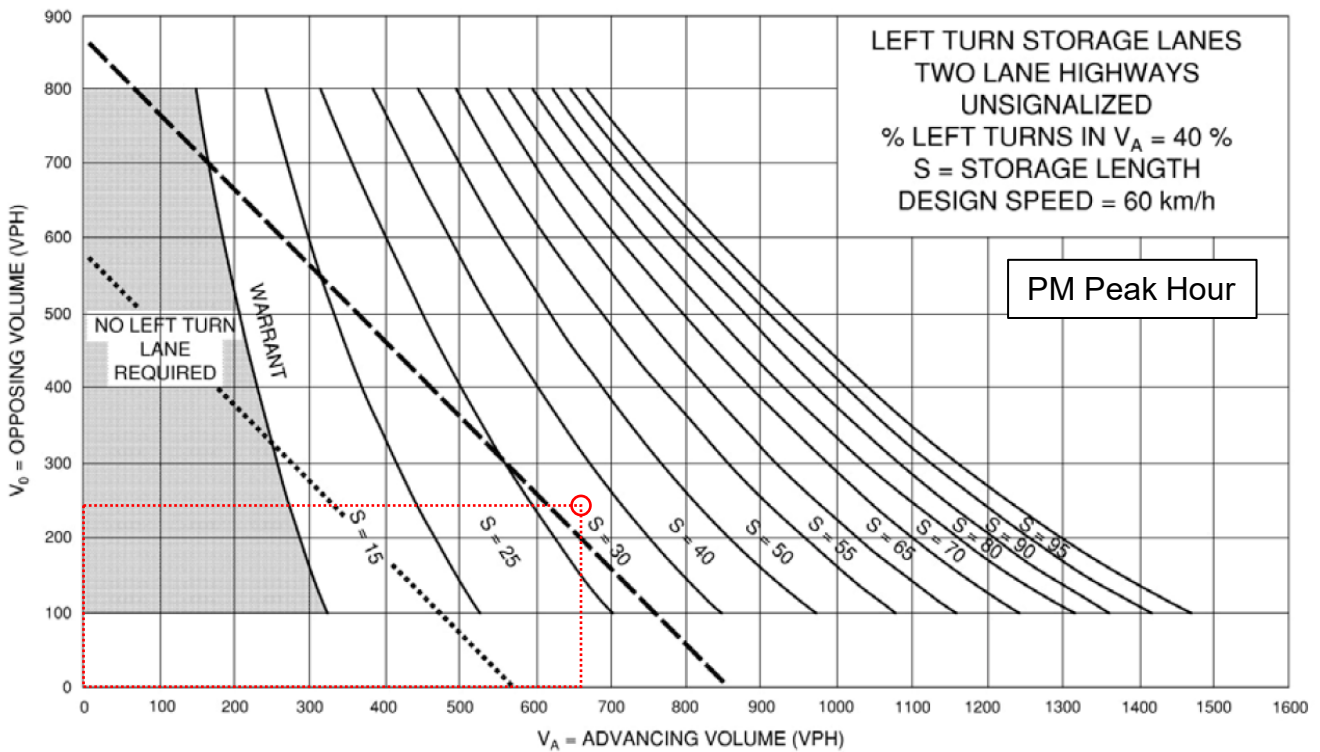
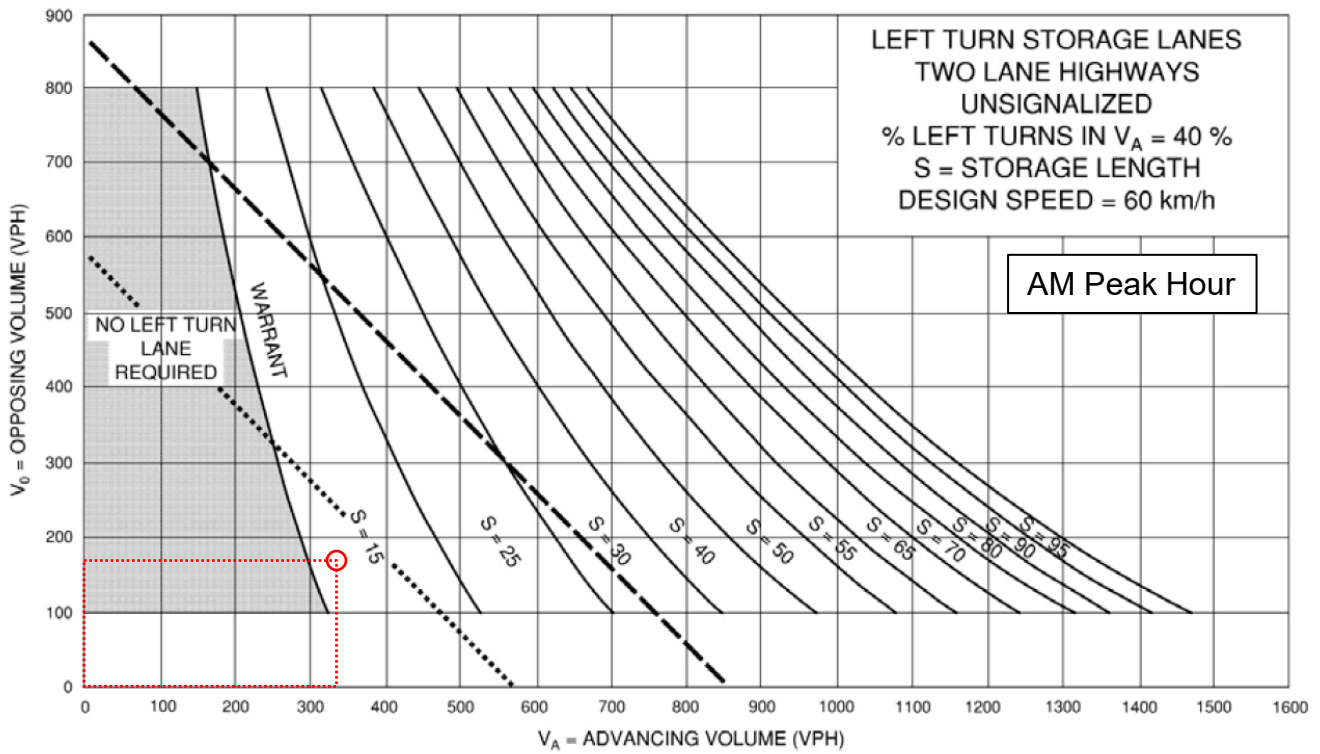
## Northbound Left-Turn Lane Warrant Gerrie Road at Street E-S 2035 Total Horizon



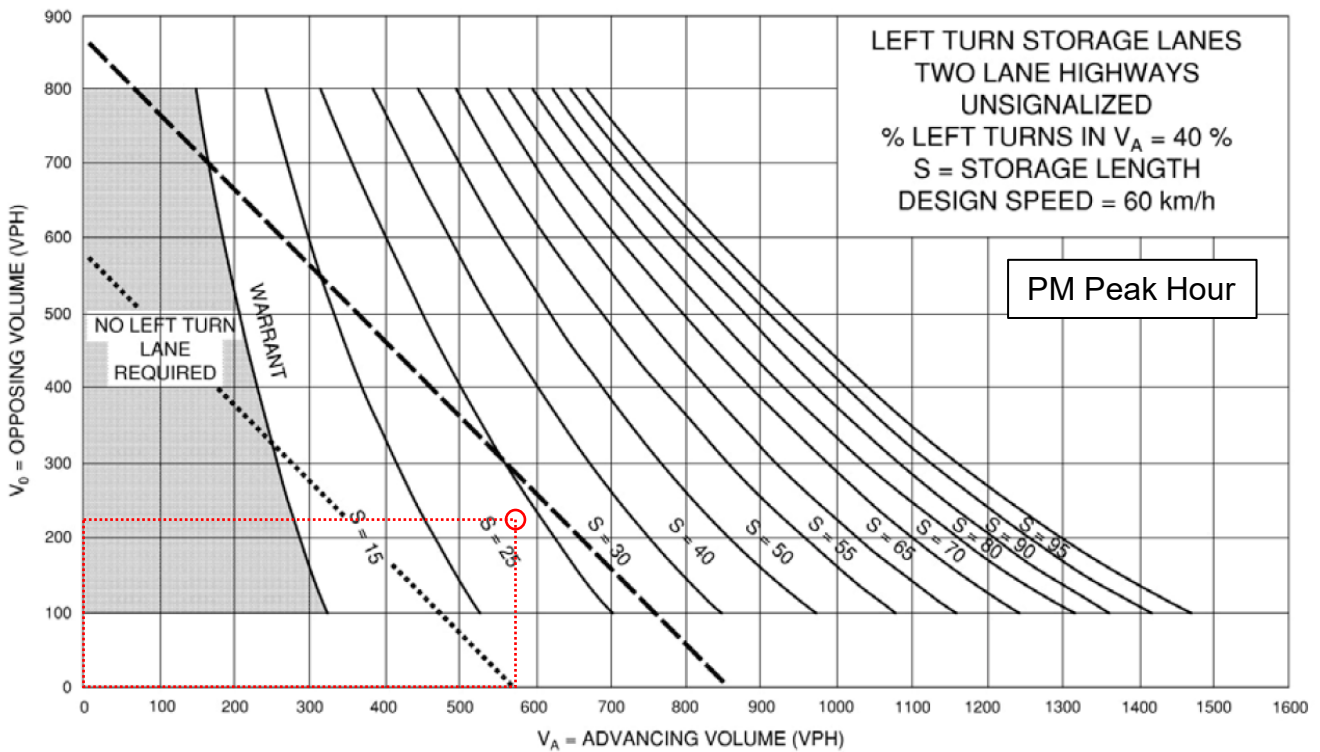
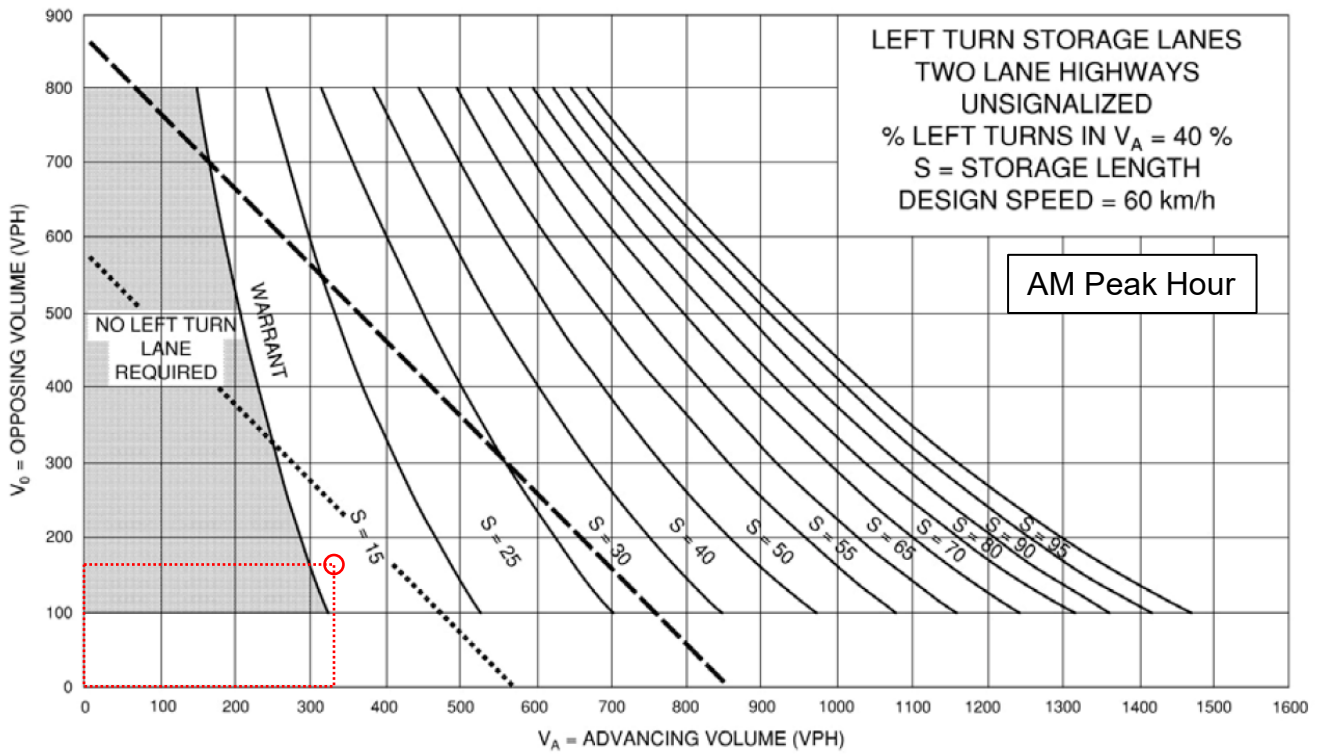
## Northbound Left-Turn Lane Warrant Gerrie Road at Street E-S 2040 Total Horizon



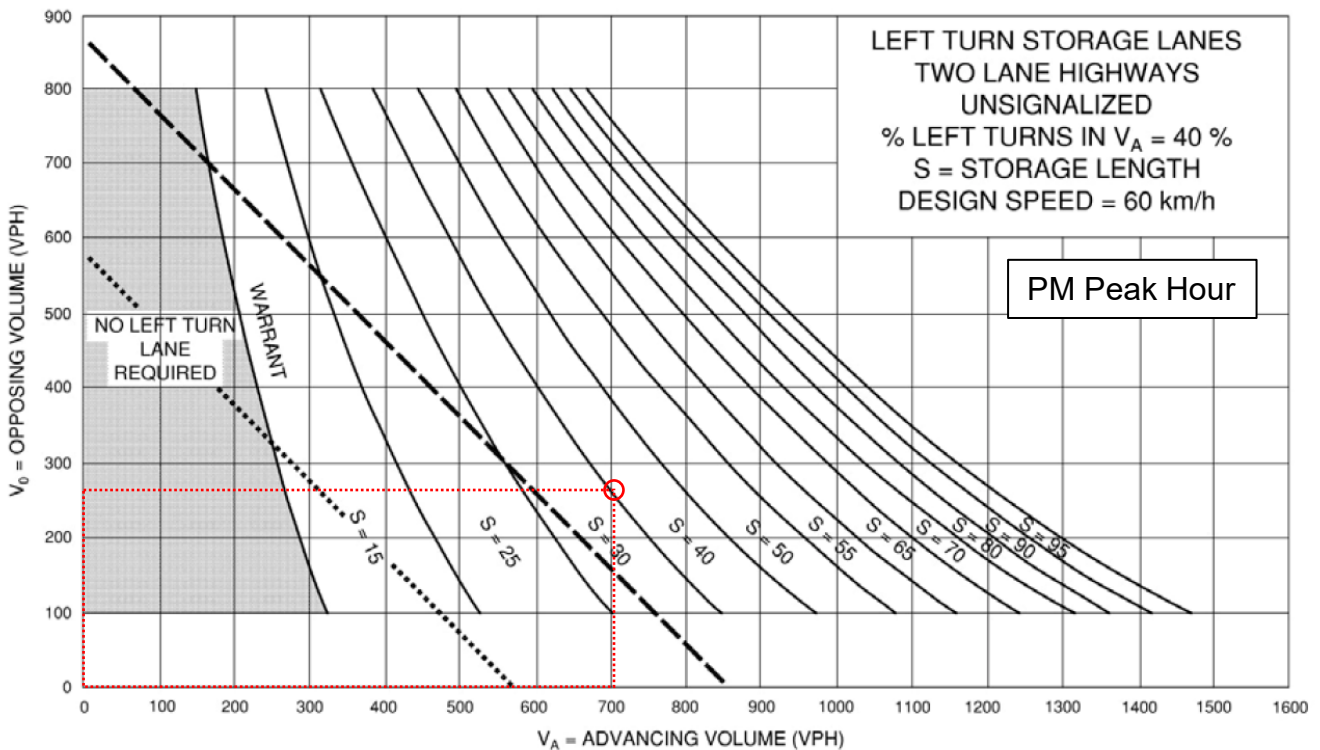
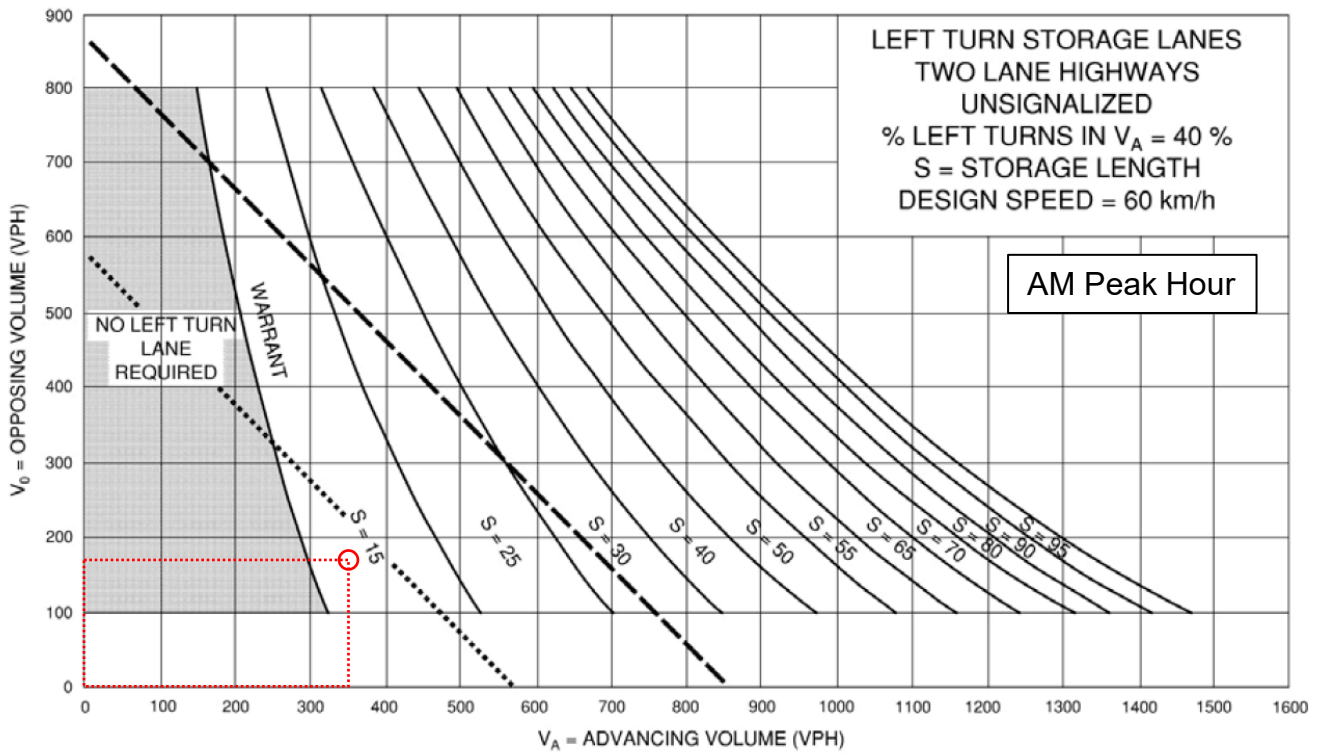
## Southbound Left-Turn Lane Warrant Geddes Street (WR18) at James Street 2035 Background Horizon



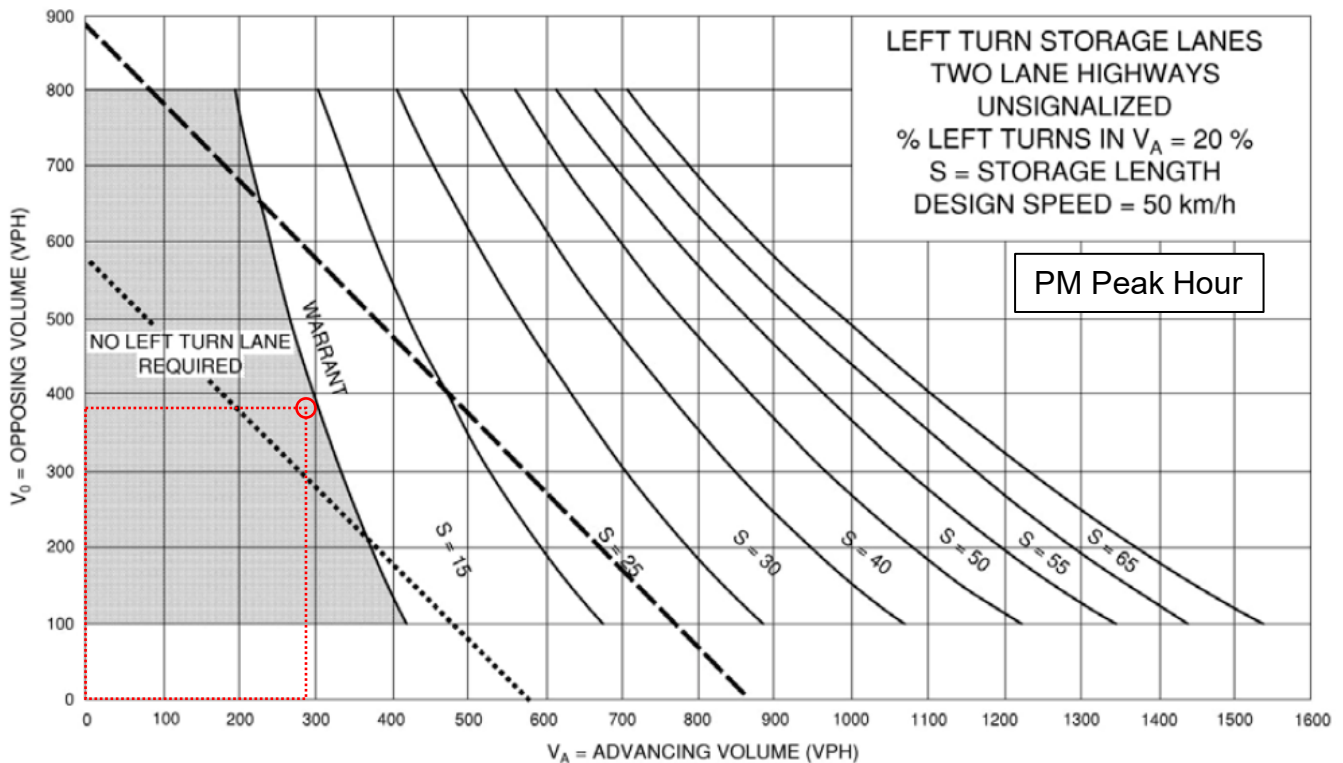
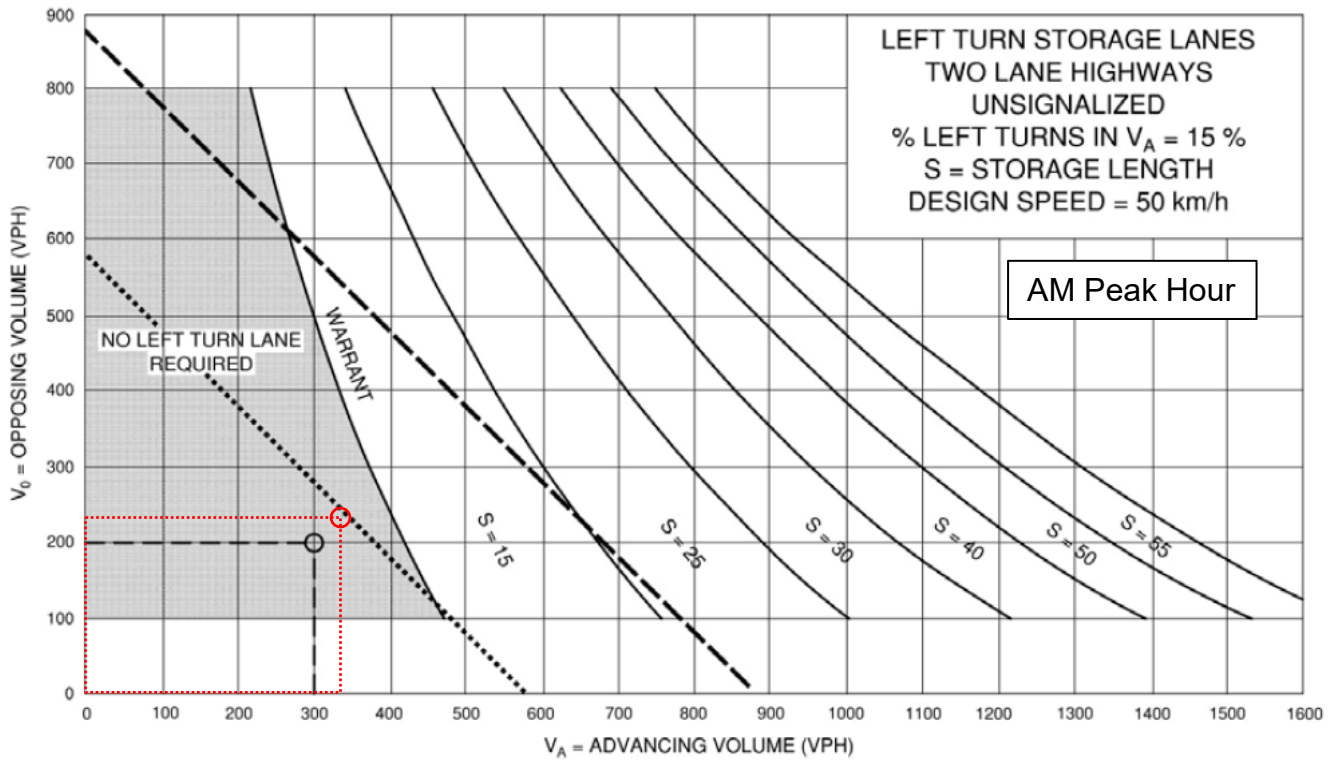
## Southbound Left-Turn Lane Warrant Geddes Street (WR18) at James Street 2035 Total Horizon



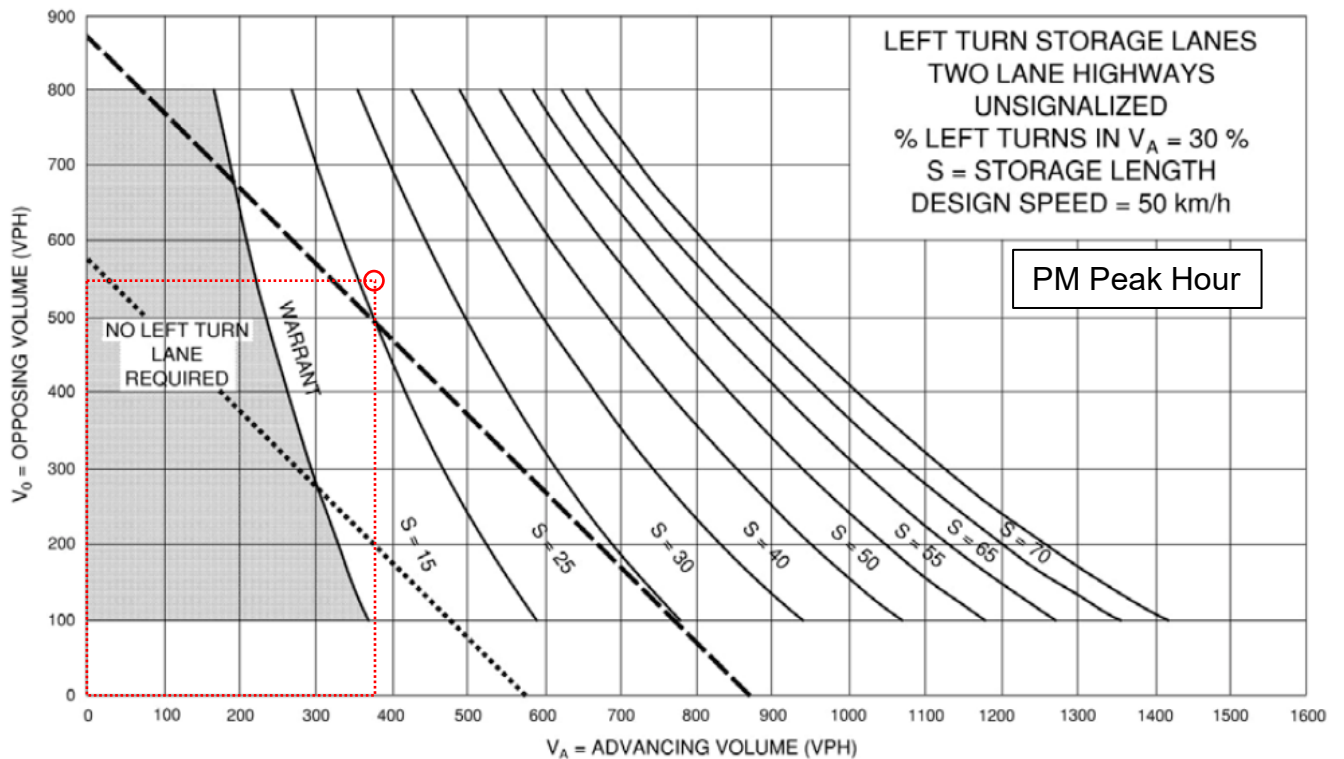
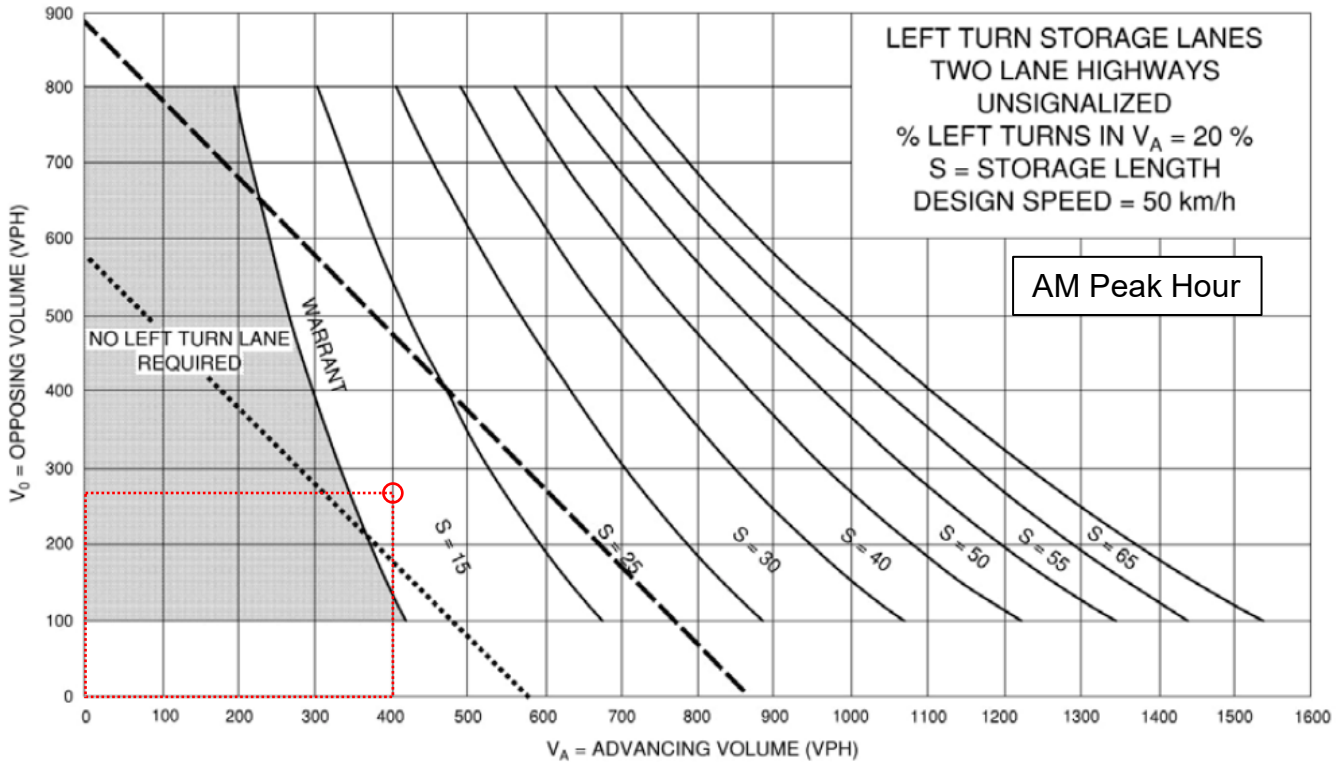
## Southbound Left-Turn Lane Warrant Geddes Street (WR18) at James Street 2040 Background Horizon



## Southbound Left-Turn Lane Warrant Geddes Street (WR18) at James Street 2040 Total Horizon

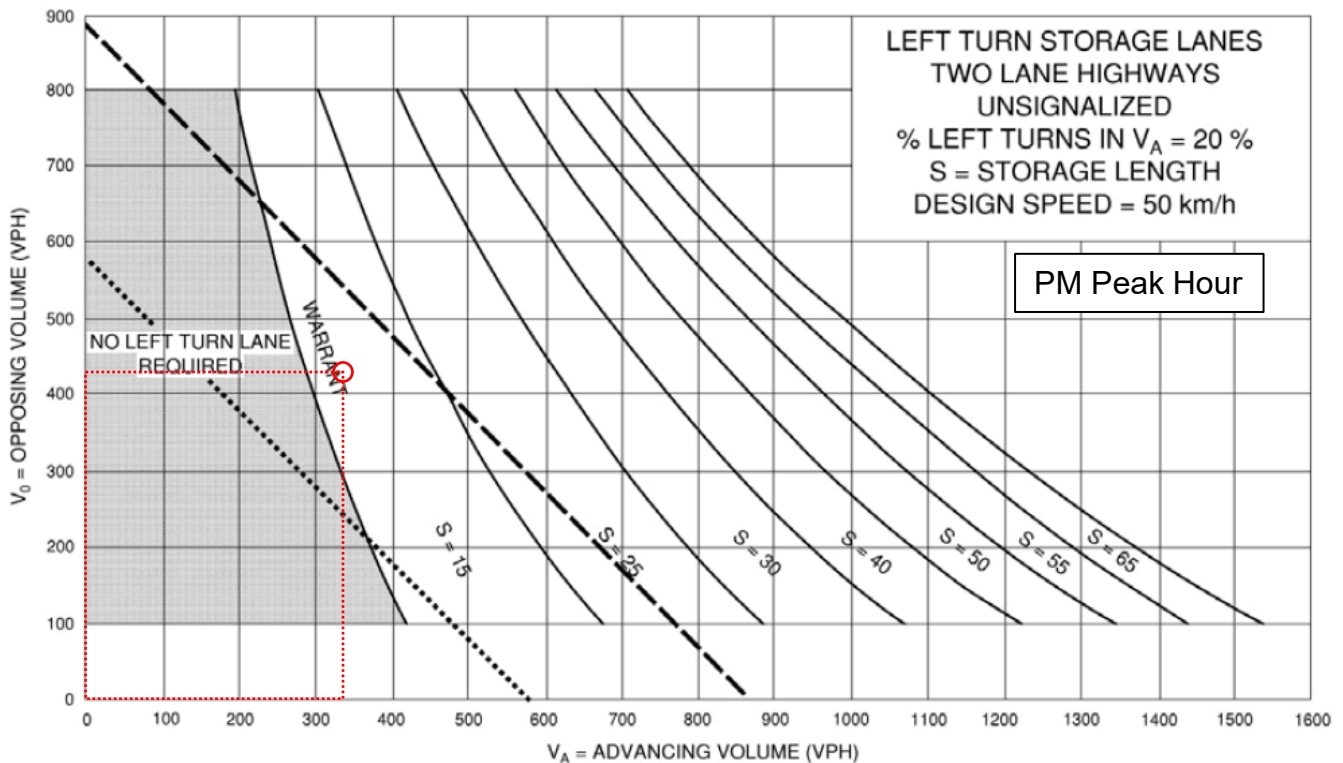
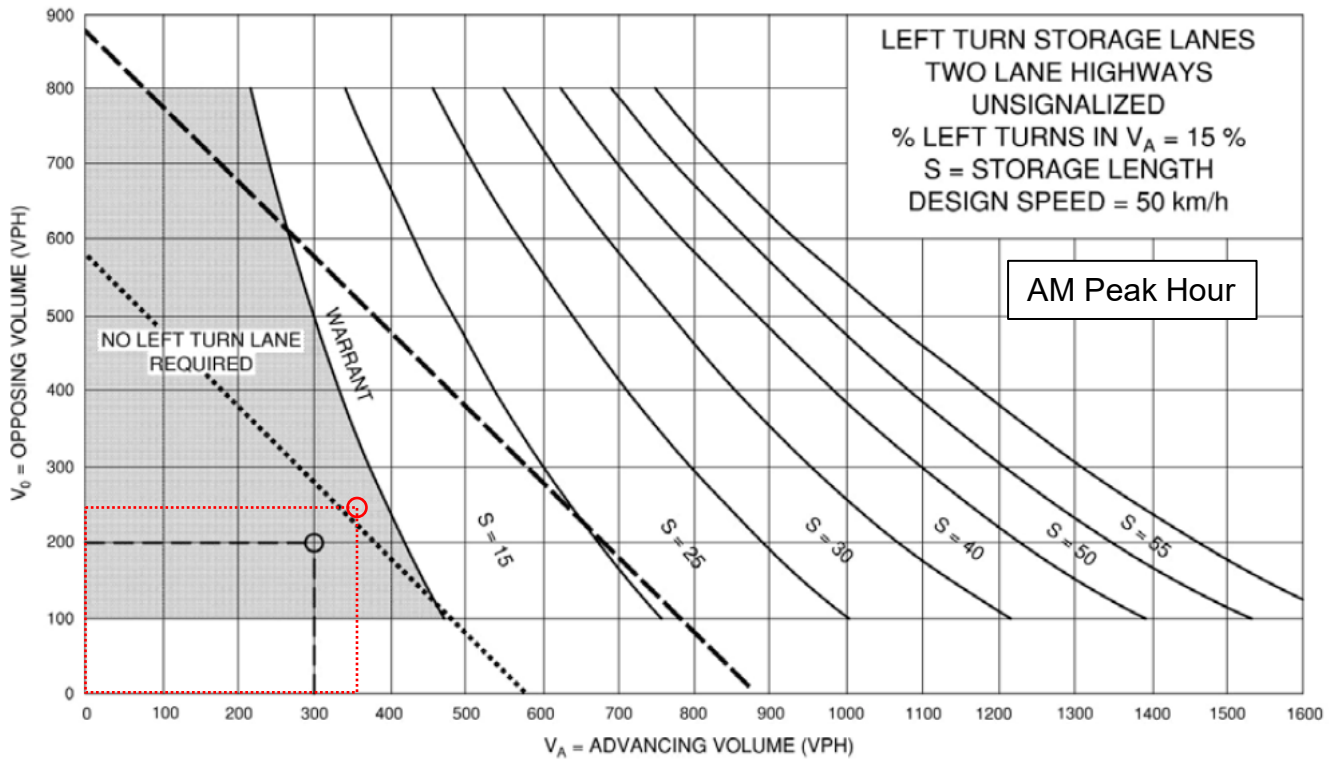


## Westbound Left-Turn Lane Warrant Nichol Road 15 at Irvine Street 2035 Background Horizon

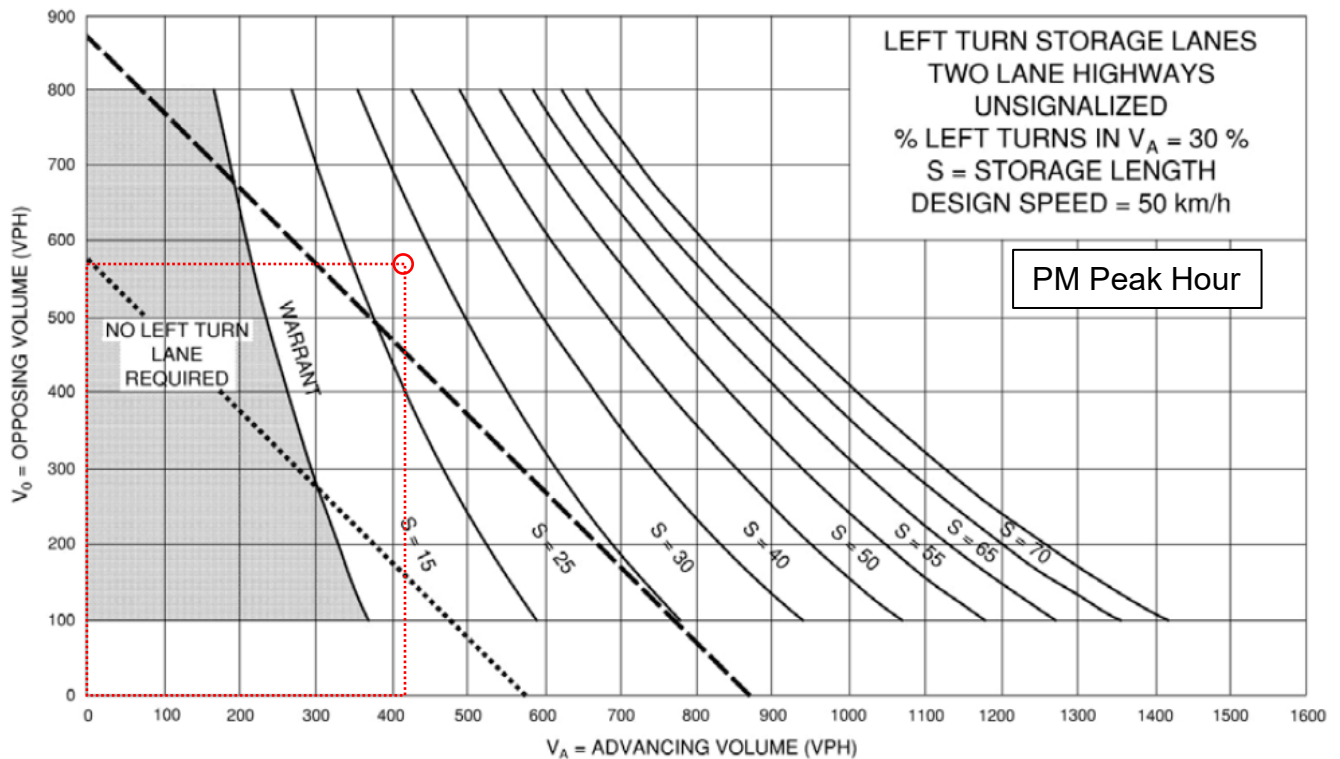
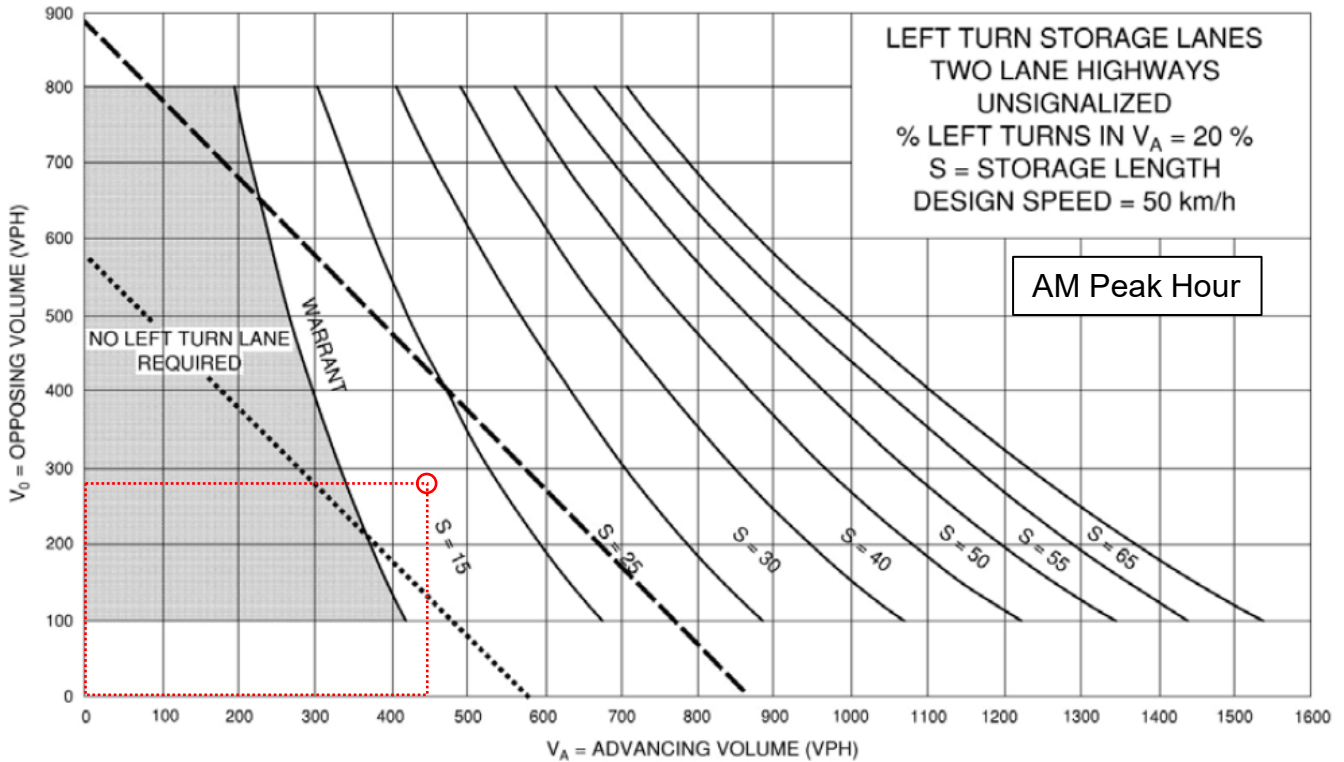


## Westbound Left-Turn Lane Warrant Nichol Road 15 at Irvine Street 2035 Total Horizon

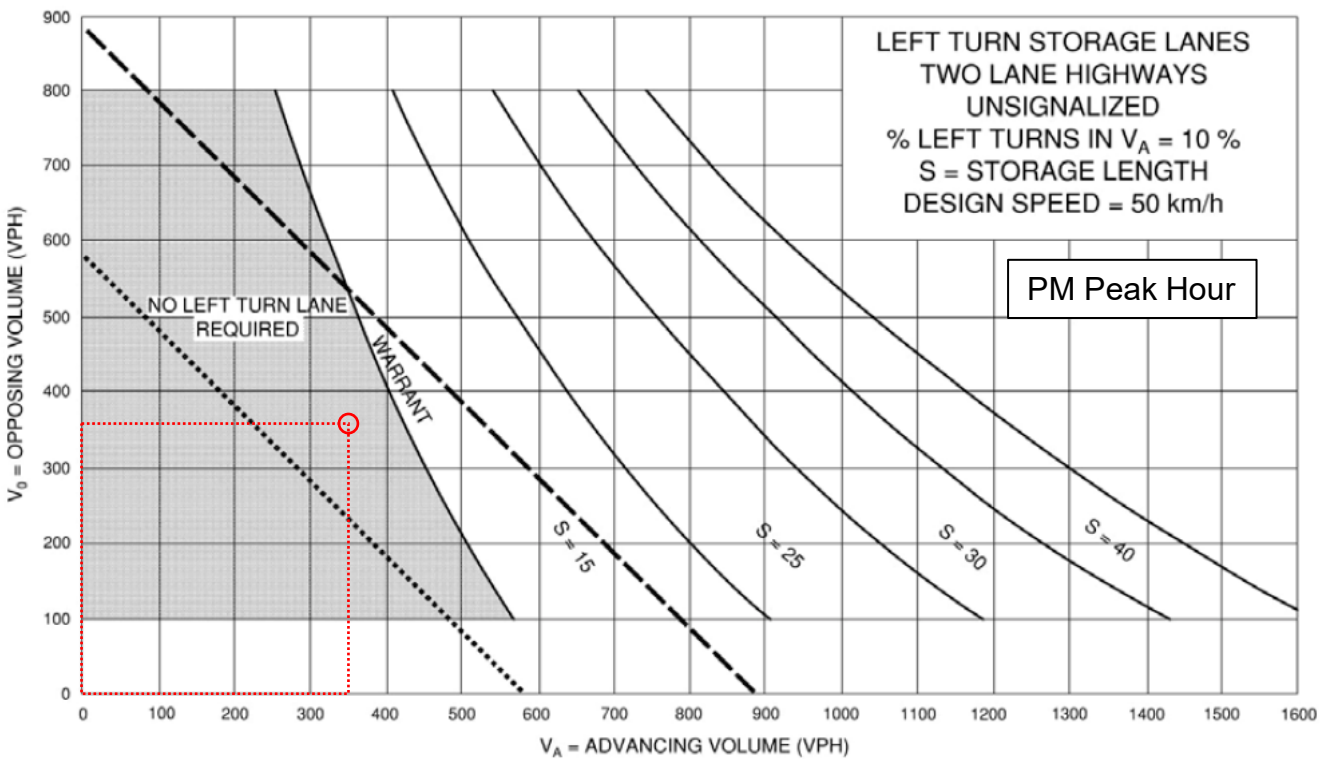
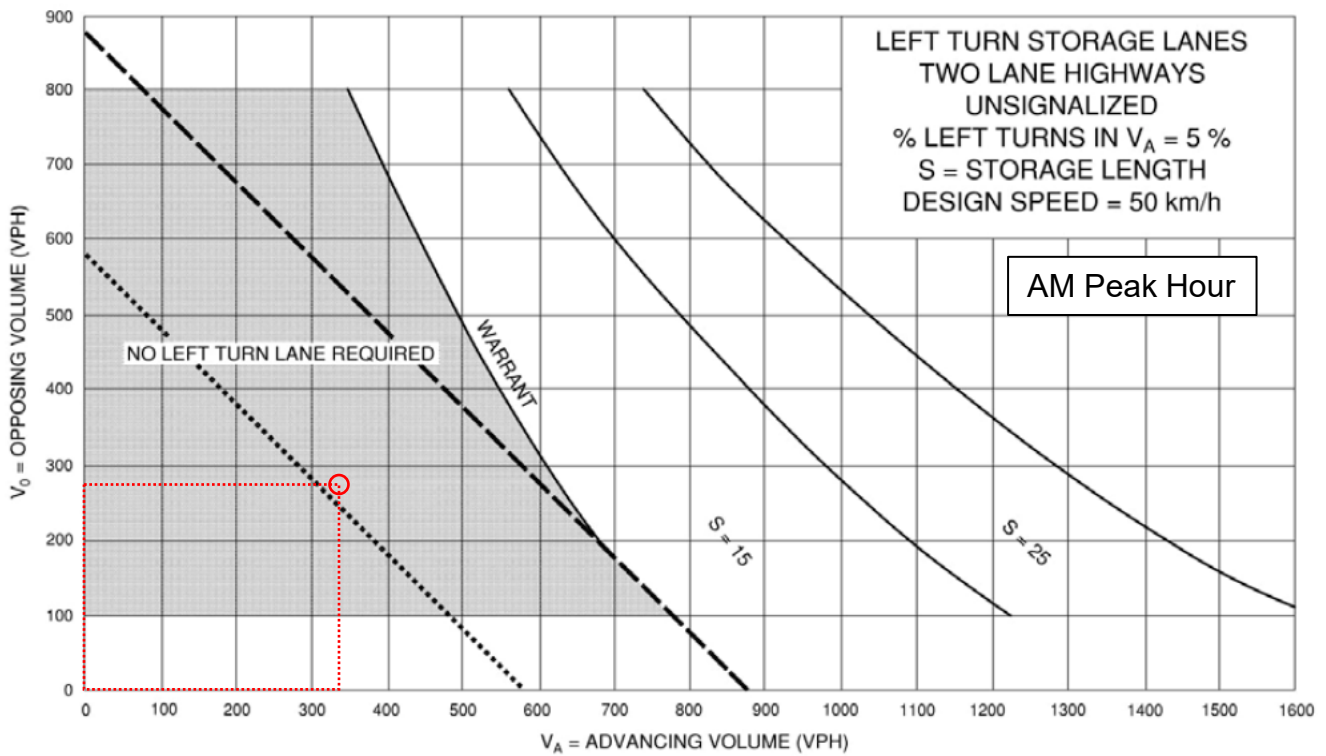




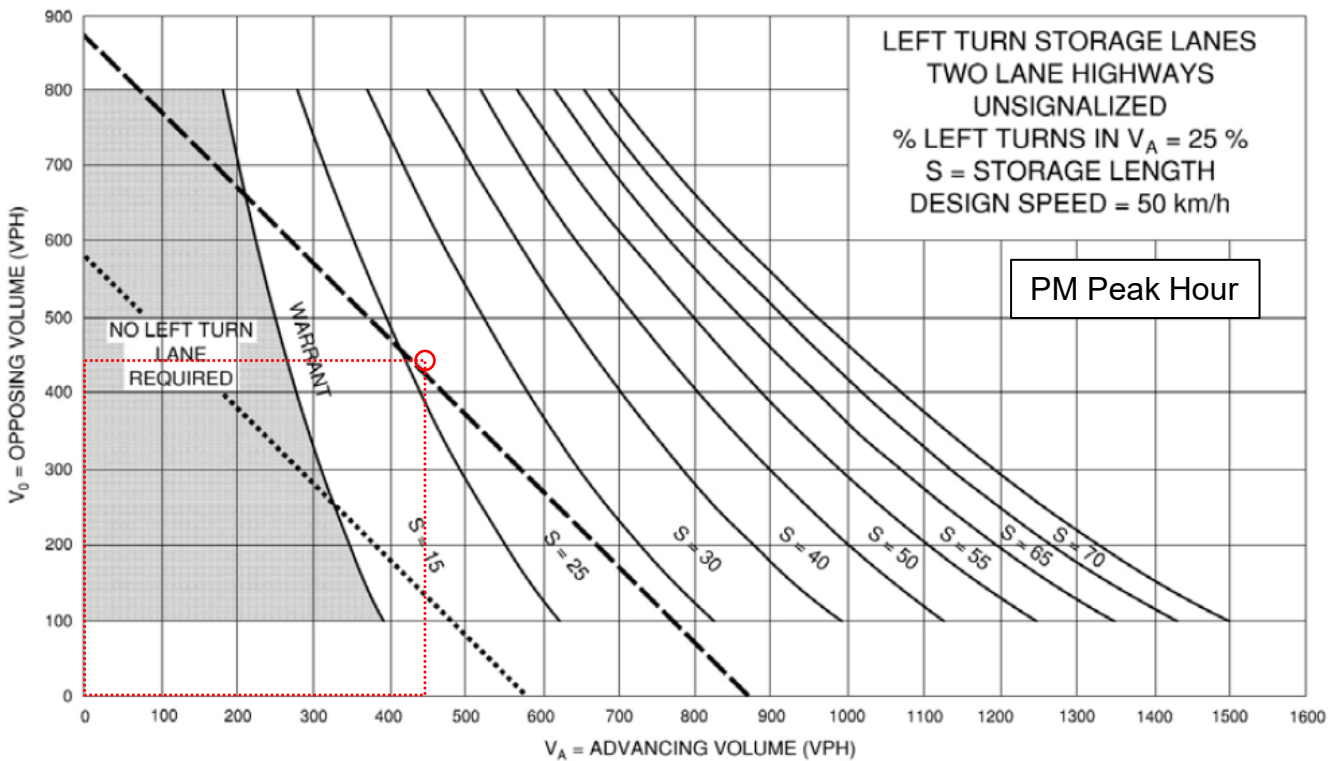
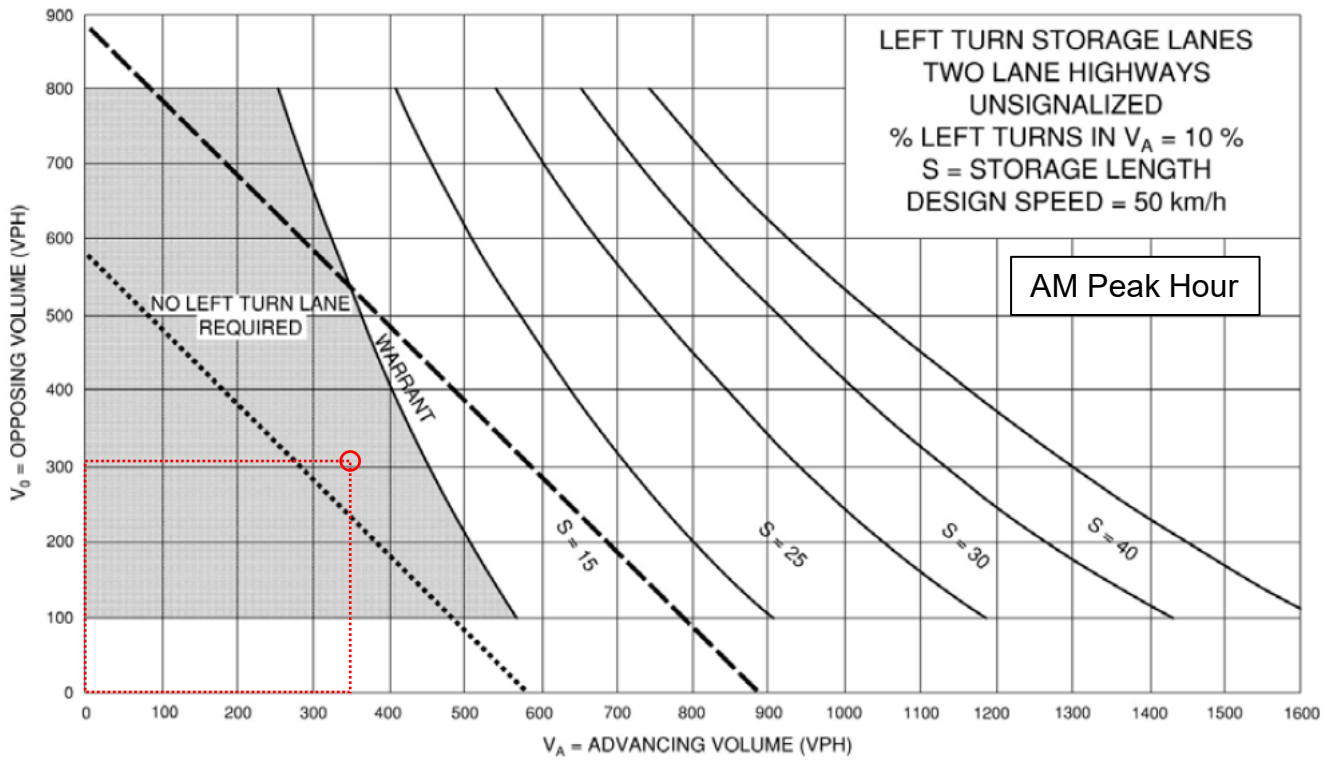
## Westbound Left-Turn Lane Warrant Nichol Road 15 at Irvine Street 2040 Background Horizon



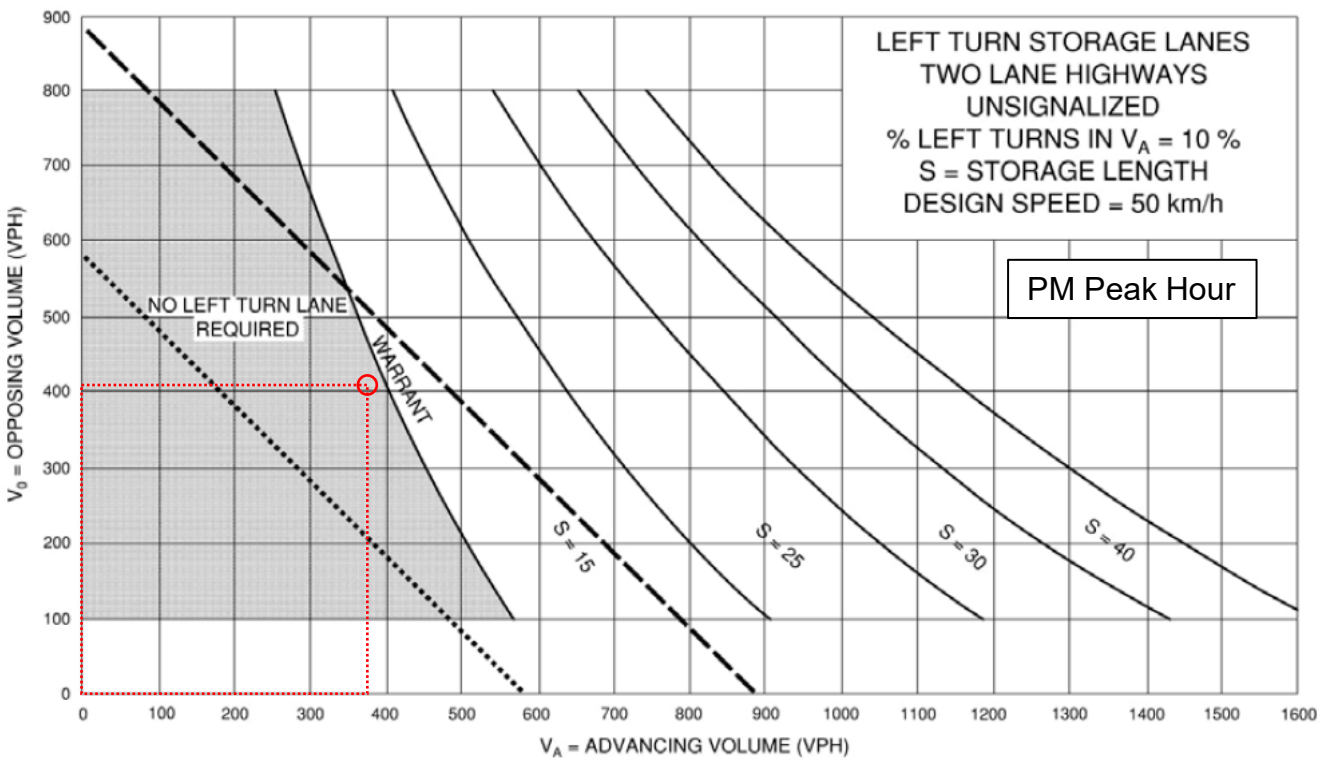
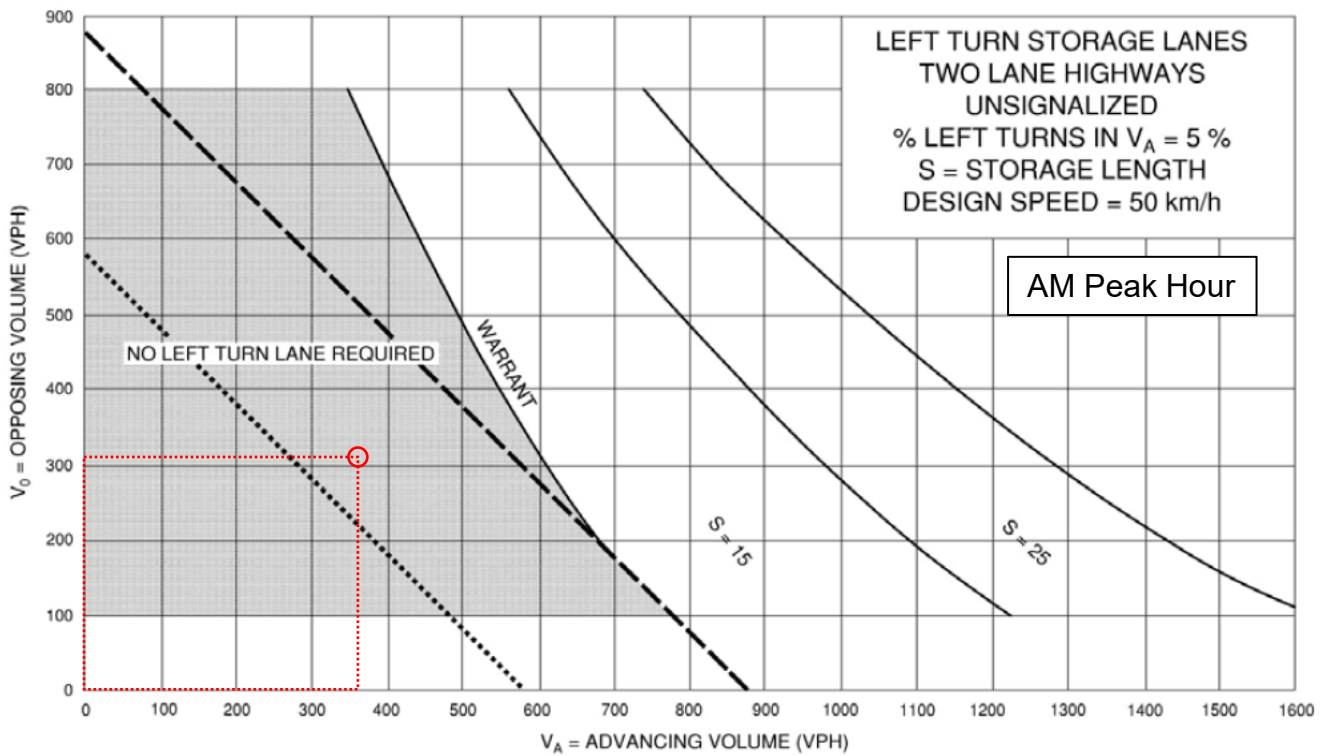
## Westbound Left-Turn Lane Warrant Nichol Road 15 at Irvine Street 2040 Total Horizon



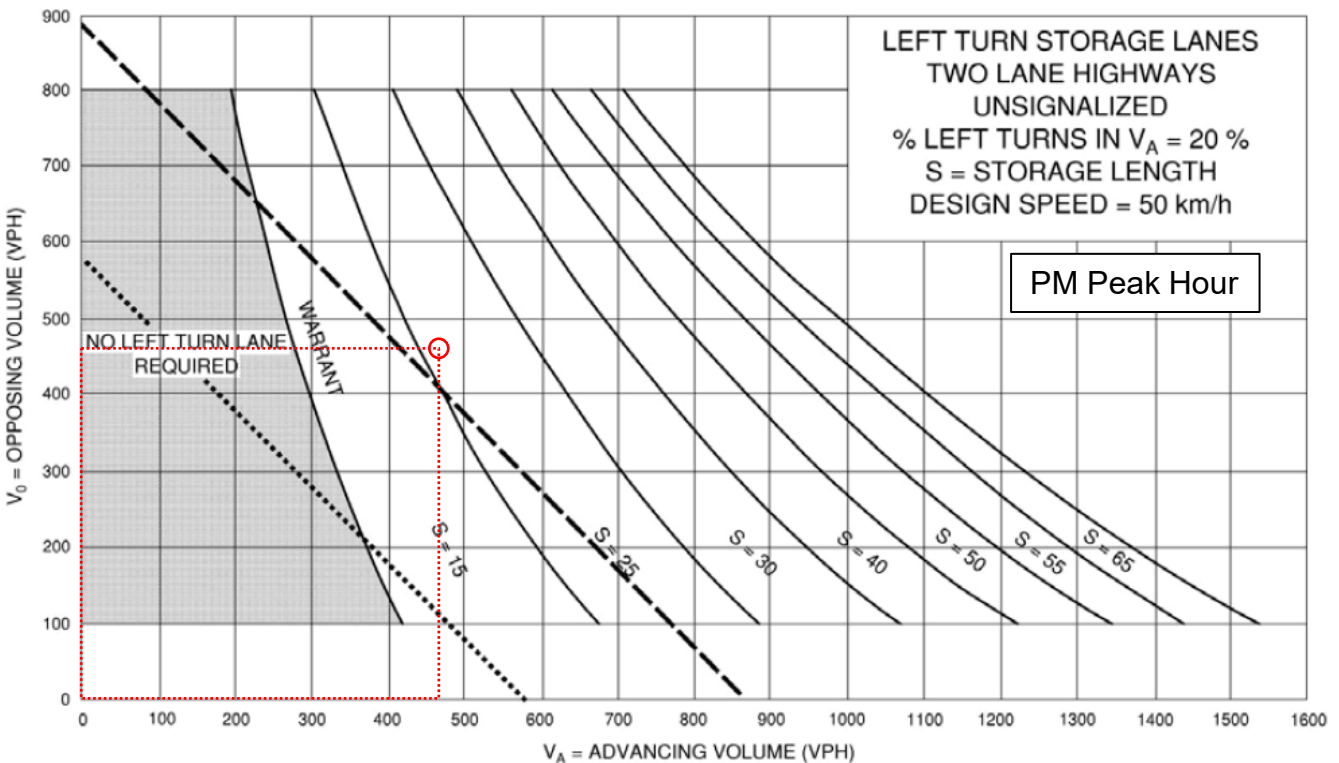
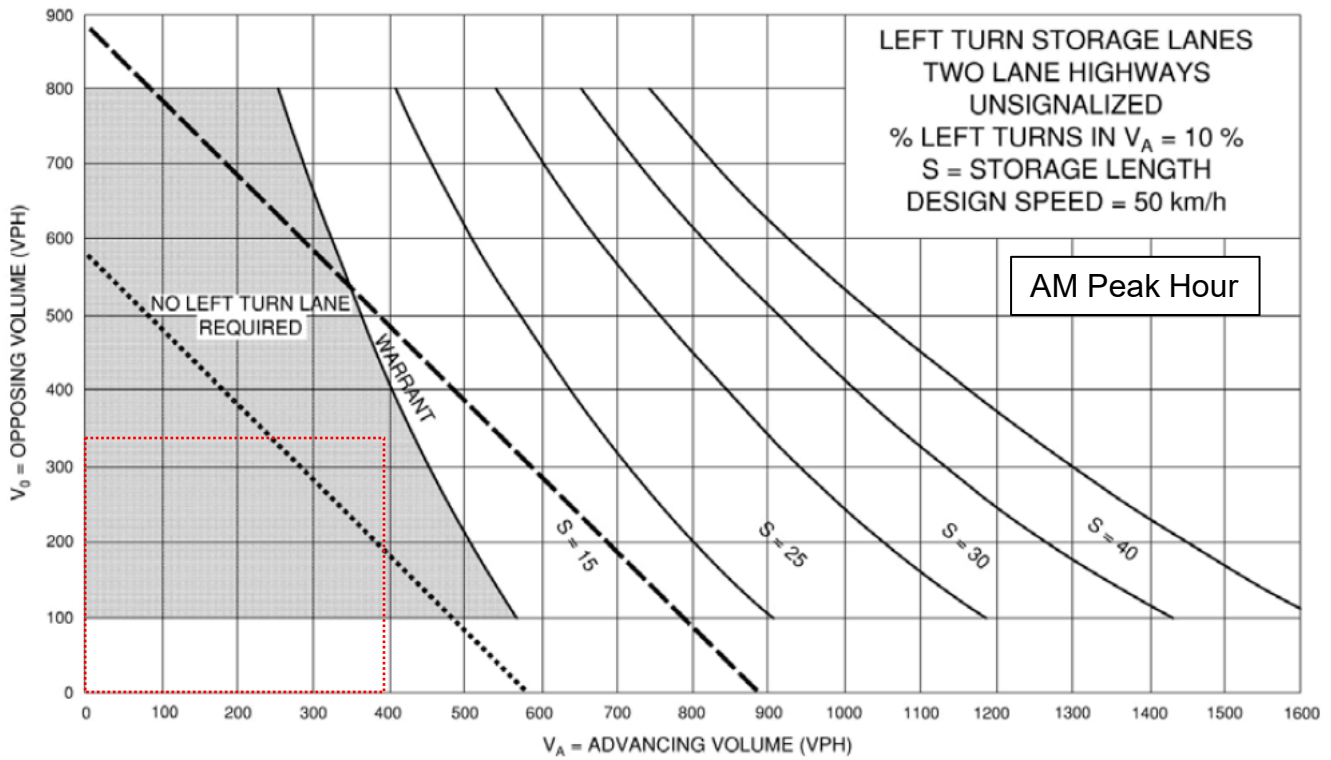
## Eastbound Left-Turn Lane Warrant East Mill Street (WR18) at Irvine Street 2035 Background Horizon



## Eastbound Left-Turn Lane Warrant East Mill Street (WR18) at Irvine Street 2035 Total Horizon

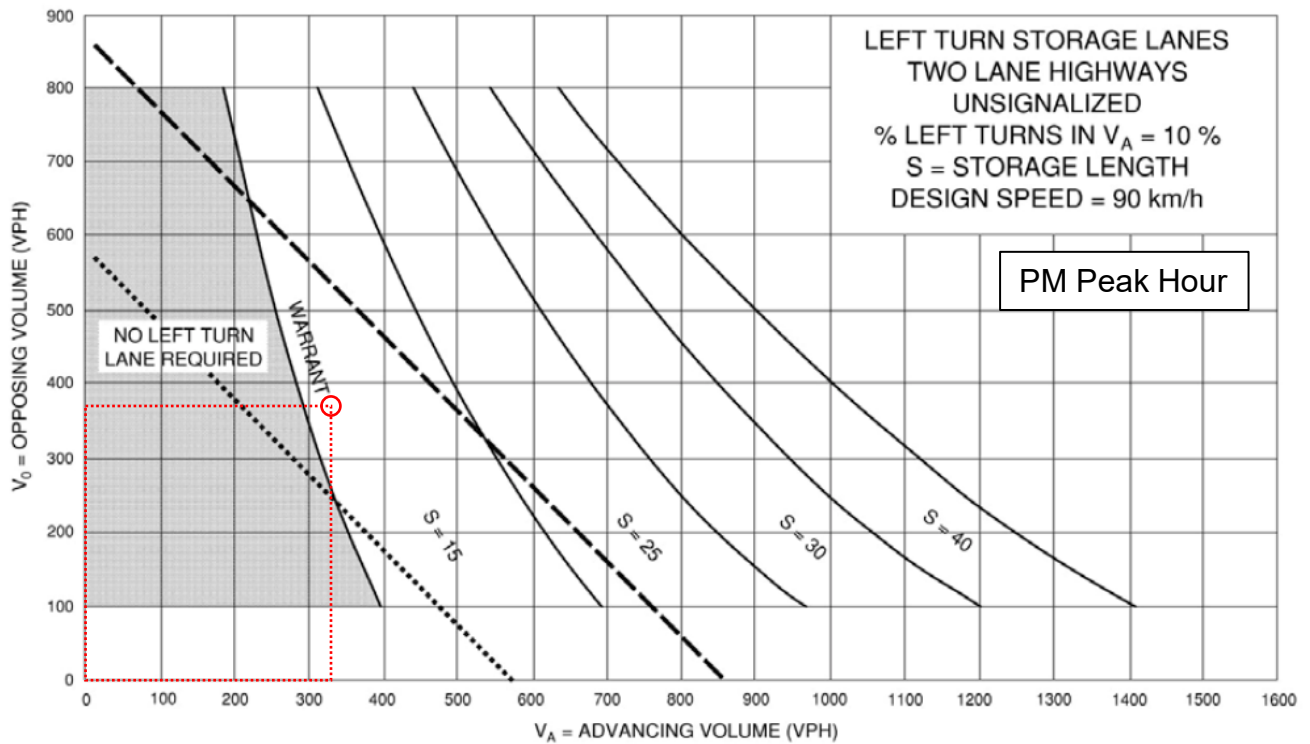
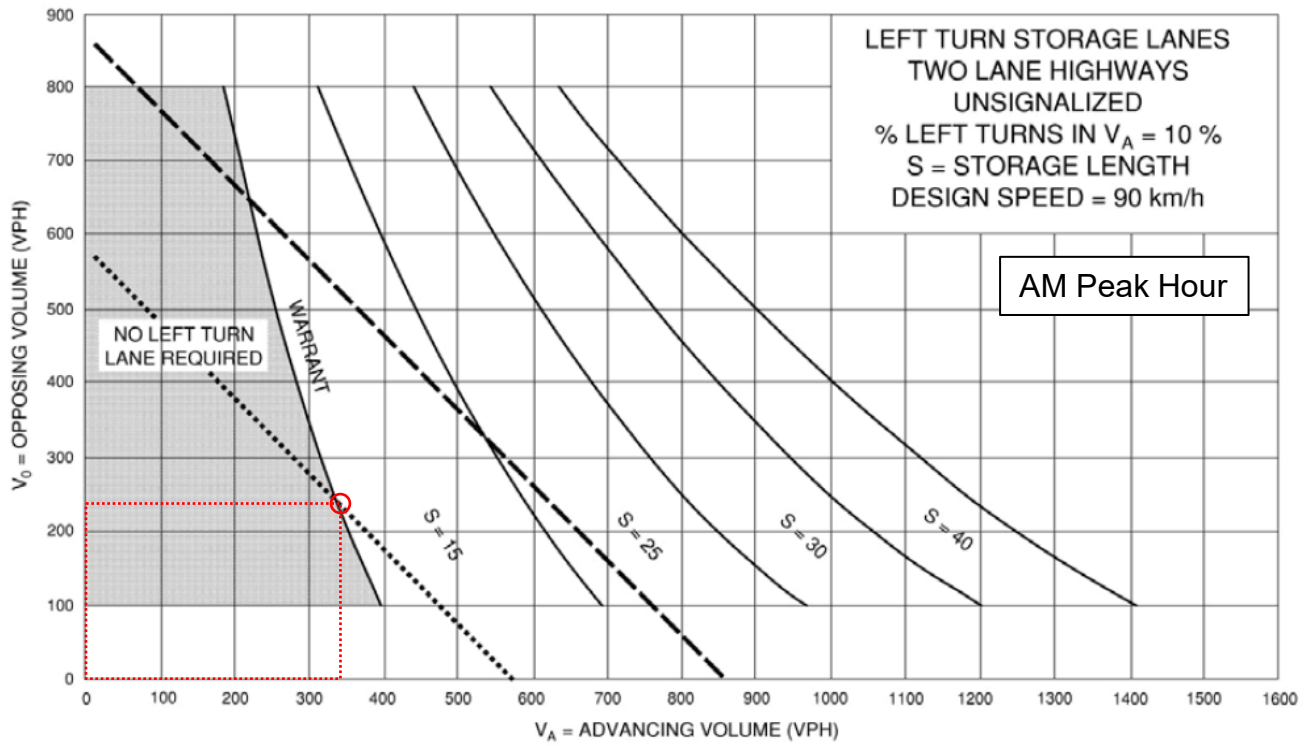


## Eastbound Left-Turn Lane Warrant East Mill Street (WR18) at Irvine Street 2040 Background Horizon

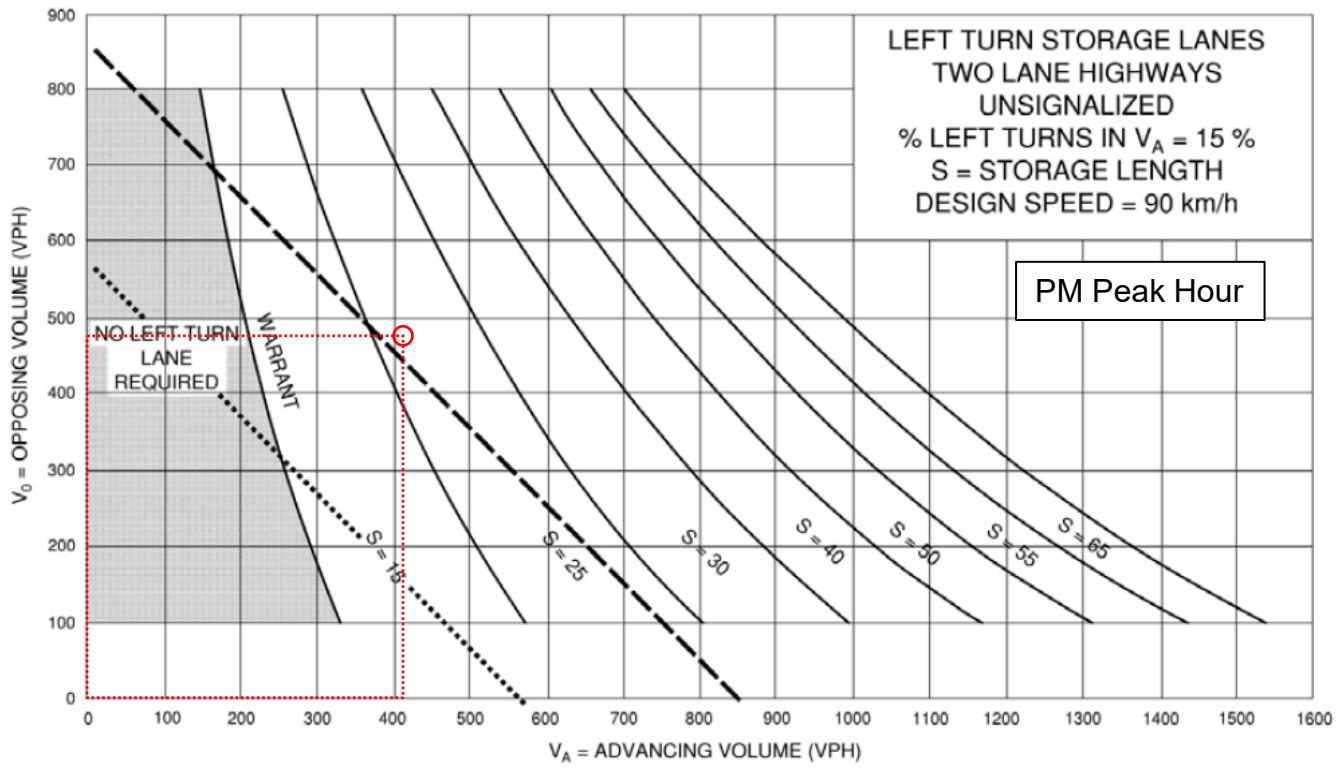
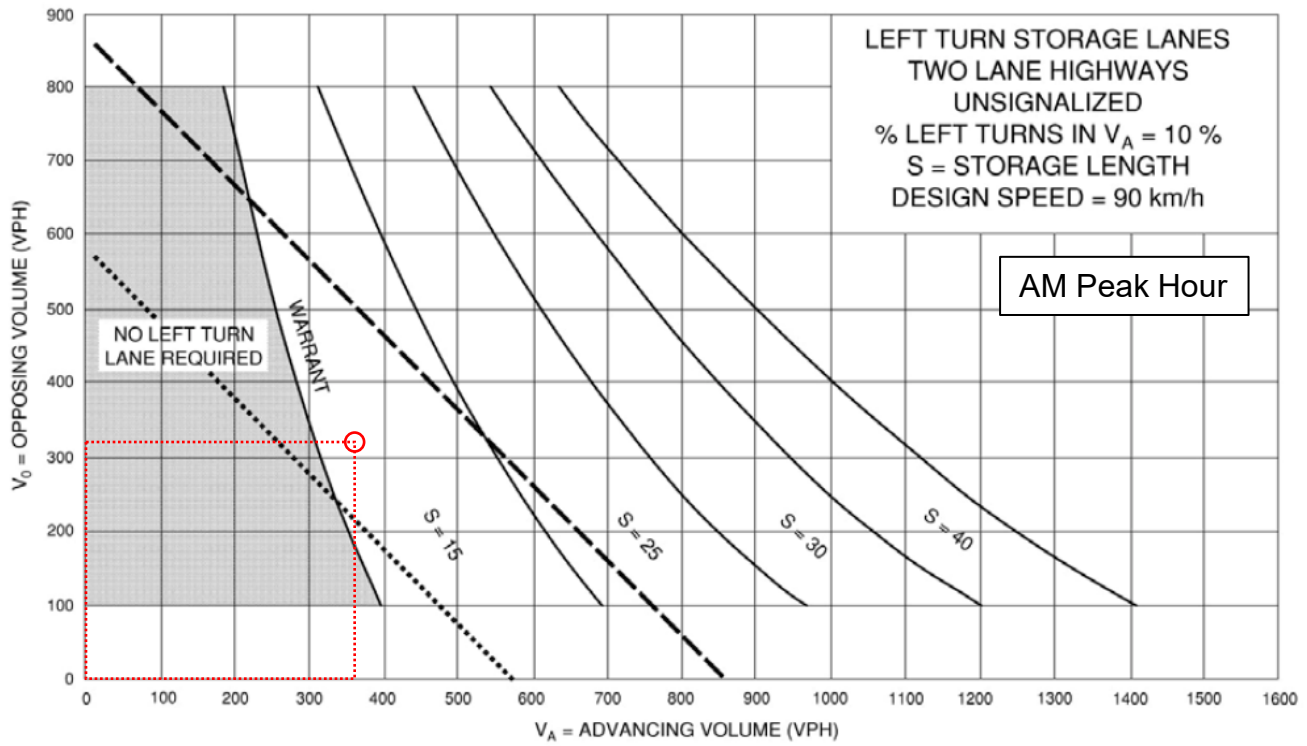


## Eastbound Left-Turn Lane Warrant East Mill Street (WR18) at Irvine Street 2040 Total Horizon

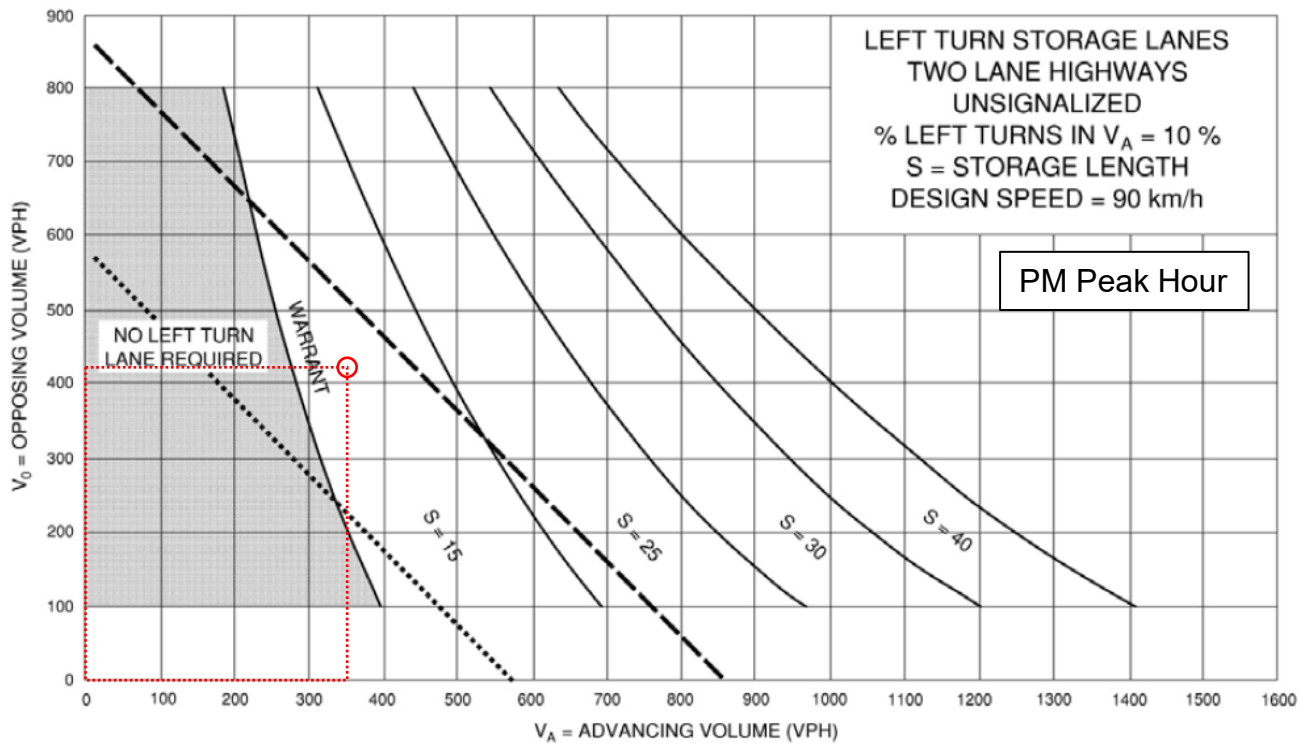
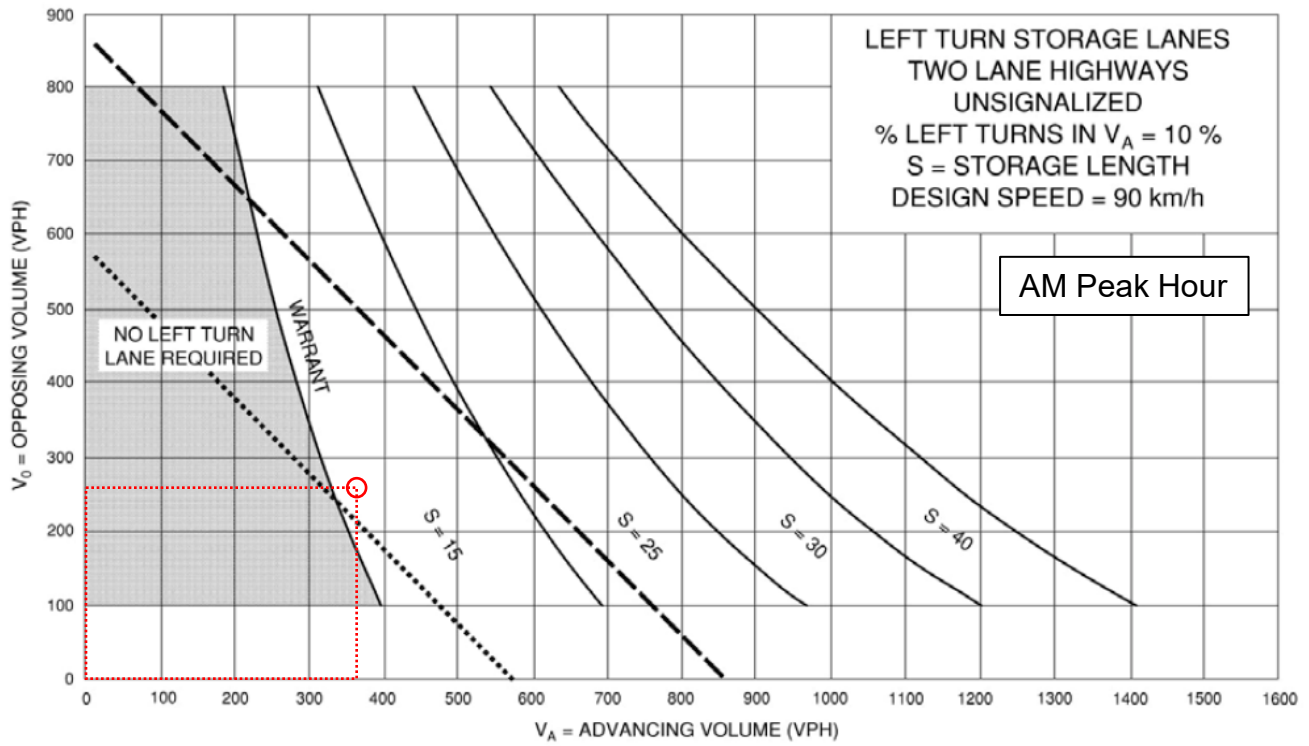




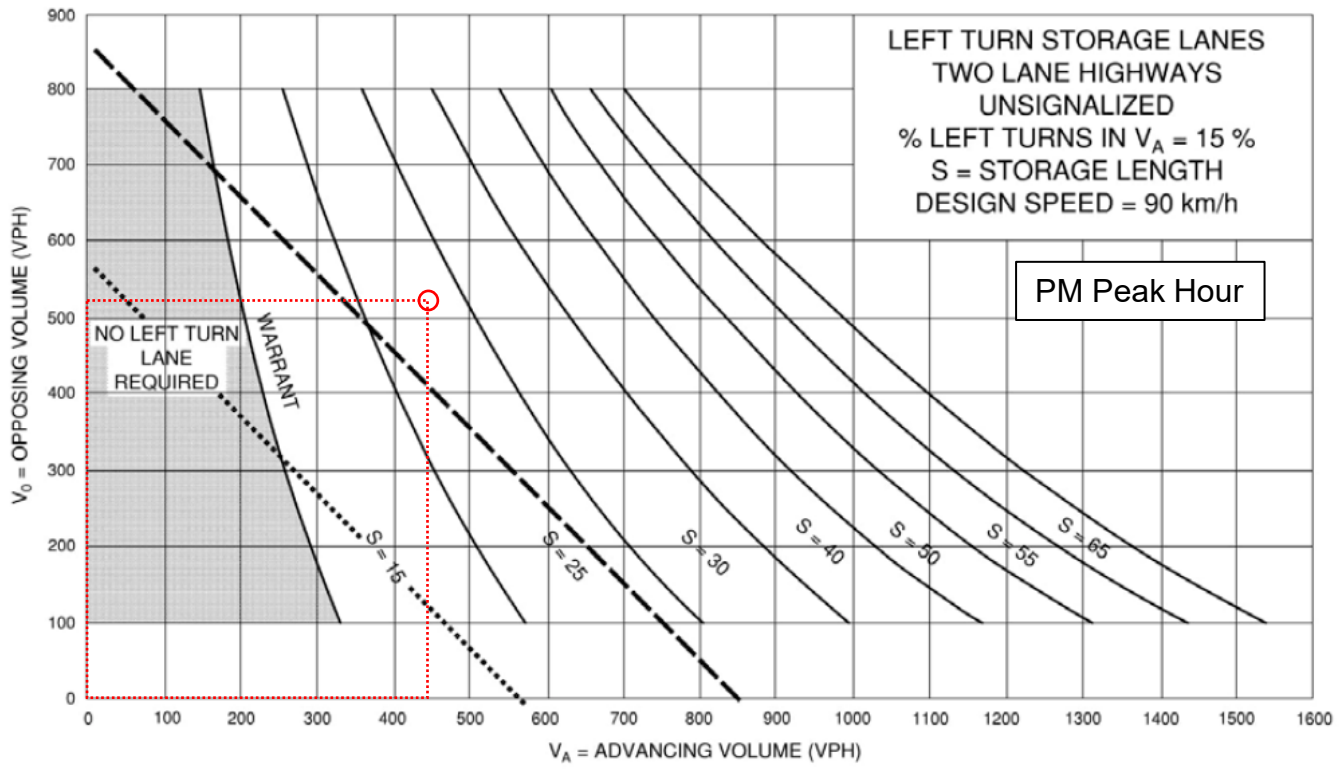
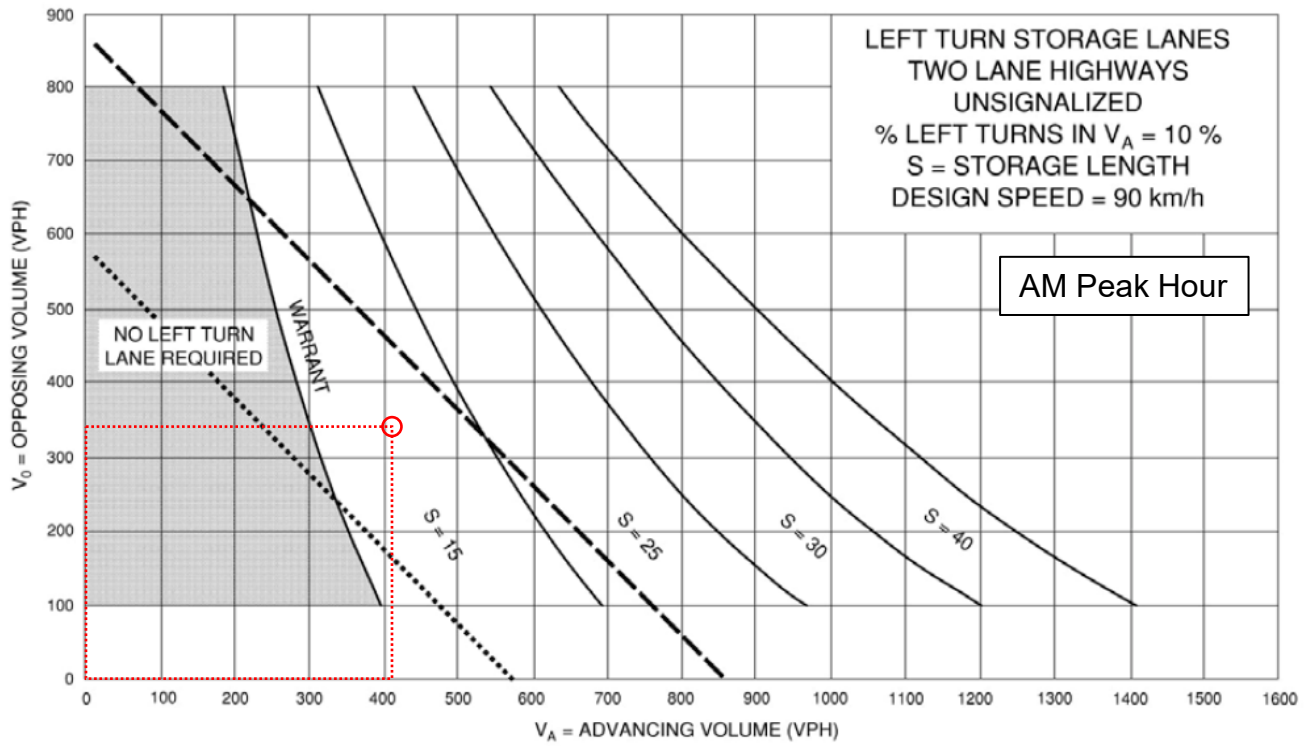
## Westbound Left-Turn Lane Warrant Nichol Road 15 at Gerrie Road 2035 Background Horizon



## 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

