



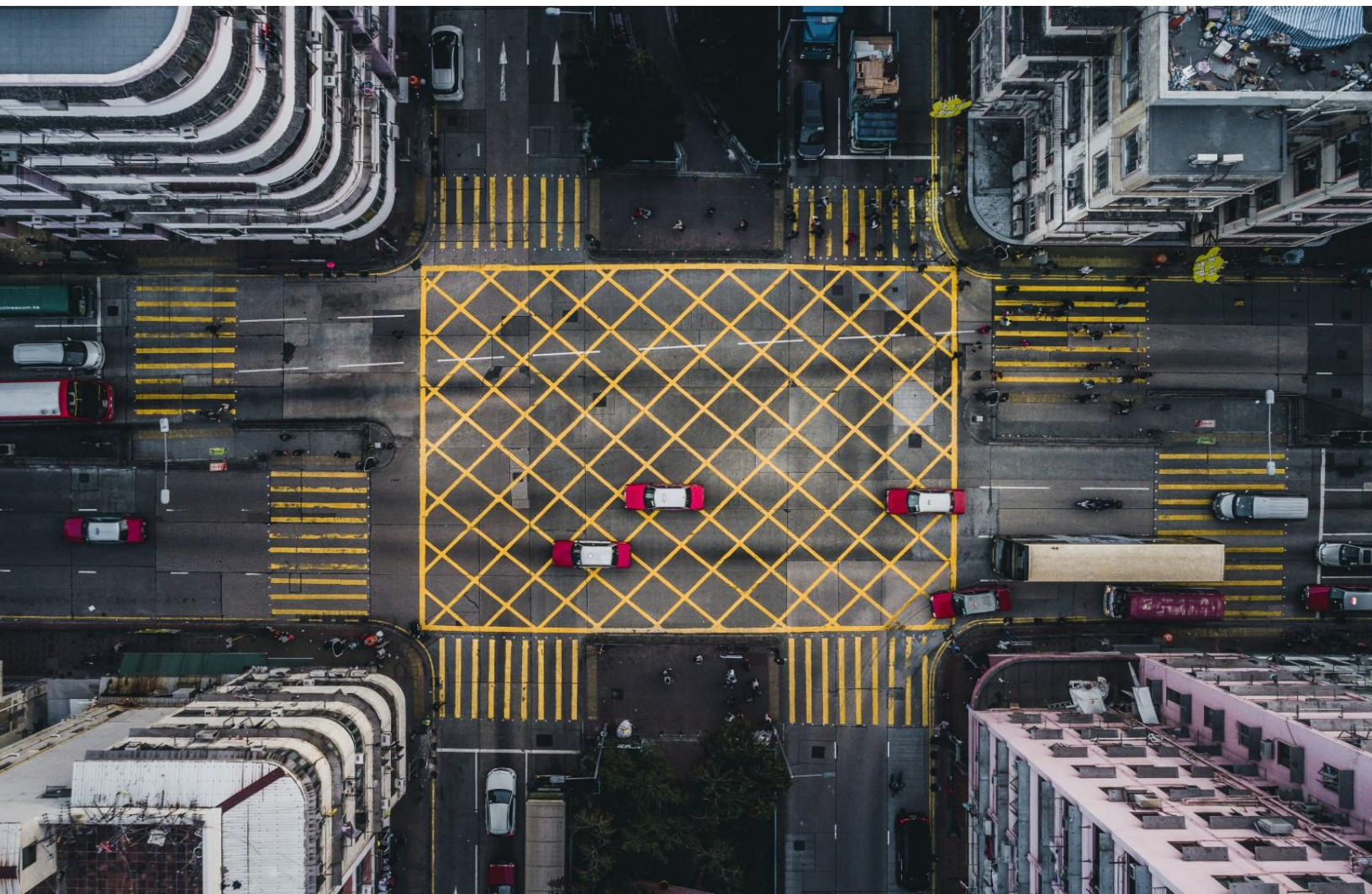
# Traffic Impact Study

**138 Robert Street**

138 Robert Street LP

21 December 2022

→ **The Power of Commitment**



# Executive summary

GHD Limited was retained by 138 Robert Street LP to prepare a Traffic Impact Study report for the proposed subdivision located at 138 Robert Street East in the Town of Penetanguishene.

This report determines the site related traffic and subsequent traffic related impacts on the adjacent road network during the weekday a.m. and p.m. peak hours. These impacts are based on the projected future background traffic and road network conditions derived for a 2025, 2030 and 2035 future planning horizon year.

The proposed draft plan of subdivision was prepared by Innovative Planning Solutions and consists of a total of 555 dwelling units (407 townhouse units and 148 mid-rise dwelling units) and 8.087 hectares of employment lands.

Access to the proposed subdivision is proposed via a several new roads and intersections connecting onto existing municipal roads including Robert Street East, Thompsons Road, and Edward Street.

As directed by Town staff, a two percent per annum growth rate was applied to all study area roadways for all future horizons. Staff has also directed GHD to include the following developments as background developments: 40 Thompsons Road East Subdivision Development, St. Andrews Village Development, 51 Dunlop Street, 123 Robert Street East, 200 Fox Street (Champlain Shore Development), 77 Fox Street, 221 Fox Street, and Phase 4 Harbour Pointe Subdivision (West of Beausoleil Drive).

The existing study intersections included in the study are:

- Fuller Avenue and Robert Street East
- Robert Street East and Thompson Road/Centennial Drive
- Robert Street East and Dufferin Street/Burke Street
- Main Street and Thompsons Road
- Main Street and Edward Street
- Dunlop Street and Robert Street East
- Dunlop Street and Edward Drive

The study also included capacity analysis of several proposed internal study intersections.

The proposed subdivision residential and employment uses are expected to generate a total of 623 new two-way trips consisting of 368 inbound and 255 outbound trips during weekday a.m. peak hour and 951 new two-way trips consisting of 409 inbound and 542 outbound trips during the weekday p.m. peak hour.

The overall impact of the development generated traffic is negligible to the operation of the study area intersections and traffic flow along the existing municipal roads of Robert Street East, Fuller Avenue, Main Street, Thompsons Road Street and the internal road network.

Town of Penetanguishene staff has requested GHD review the current and future operation of the intersection of Robert Street East and Burke Street/Dufferin Streets as a result of the existing non-standard intersection configuration, complaints from local residents and the proposed introduction of Street A on the south leg of this intersection providing access to the subject site.

GHD analyzed this intersection under the existing geometric design and also prepared concept drawings for two options to modify the geometry of the intersection including introducing a roundabout or signalization. The assessment concluded that any option besides the existing stop control would require Burke Street to be terminated with a cul-de-sac to improve lane geometry and operation.

GHD completed a capacity analysis of future total traffic conditions for existing and both alternatives and determined that the intersection is expected to continue to operate with acceptable delays and queuing under the intersection geometry and stop control and under both the roundabout and traffic signal options.

Improvements to the geometry of the intersection are based on existing conditions and not triggered or made worse by the proposed development. In reviewing this intersection for potential improvement, the Town will have to consider the land requirements and environmental impacts of both options in their evaluation.

Proposed Streets A-K will be constructed with 20 metre right-of-ways as outlined in the Town of Penetanguishene's Land Development Engineering Policy. Within the 20-metre right-of-way, sidewalks will be provided on either the north or west side of the proposed roads.

The Town of Penetanguishene's Land Development Engineering Policy DWG. No. 1., Standard Urban Residential Road Section has outlined that the right-of-way width for residential streets must be a minimum of 20 metres. Proposed Streets A-K all have a 20-metre right-of-way, satisfying the Town's Policy for residential streets. Within the 20-metre right-of-way, sidewalks are required to be provided on either the north or west side of the road depending on the orientation of the road. Sidewalks are required to have a width of 2.5 metres and be located 3.25 metres from the edge of pavement of the road.

A private laneway, identified as Lane L on the proposed Draft Plan of Subdivision, is provided between the townhomes located in the southeast corner of the subdivision with an 8 metre right-of-way. Although the Town does not provide a typical cross-section, the 8 metre right-of-way typically allows for a 6.0-6.4 metre roadway plus a 1.5 sidewalk and is consistent with other plans approved by the Town.

We trust that this satisfies your requirements, but do not hesitate to contact the undersigned if you have any questions.

Sincerely,

GHD

William Maria, P. Eng.

Transportation Planning Lead



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# 1. Introduction

## 1.1 Retainer and Objective

GHD Limited was retained by 138 Robert Street LP to prepare a Transportation Impact Study in support of a proposed subdivision that includes residential and employment uses on land municipally known as 138 Robert Street East in the Town of Penetanguishene.

The site location is illustrated in **Figure 1**.

The purpose of this study is to:

- Establish baseline traffic conditions for the study area in 2022 and determine future background operating conditions for a future planning horizon in 2025, 2030 and 2035.
- Utilizing Institute of Transportation Engineer's (ITE) Trip Generation data and first principles to estimate the site trips generated by the proposed development and distribute the traffic to the adjacent road network.
- Determine future operating traffic conditions during the weekday peak periods through intersection capacity analysis.
- Assess options to revise the existing configuration of the Robert Street East and Burke Street/Dufferin Street intersection.

The scope of work and terms of reference for the traffic study were confirmed with the Town of Penetanguishene via email correspondence. A copy of the correspondence is provided in **Appendix A**.

## 1.2 Study Team

The GHD team involved in the preparation of the study are:

- William Maria, P. Eng., Transportation Planning Lead
- Rafael Andrenacci, B.Eng., Transportation Planner

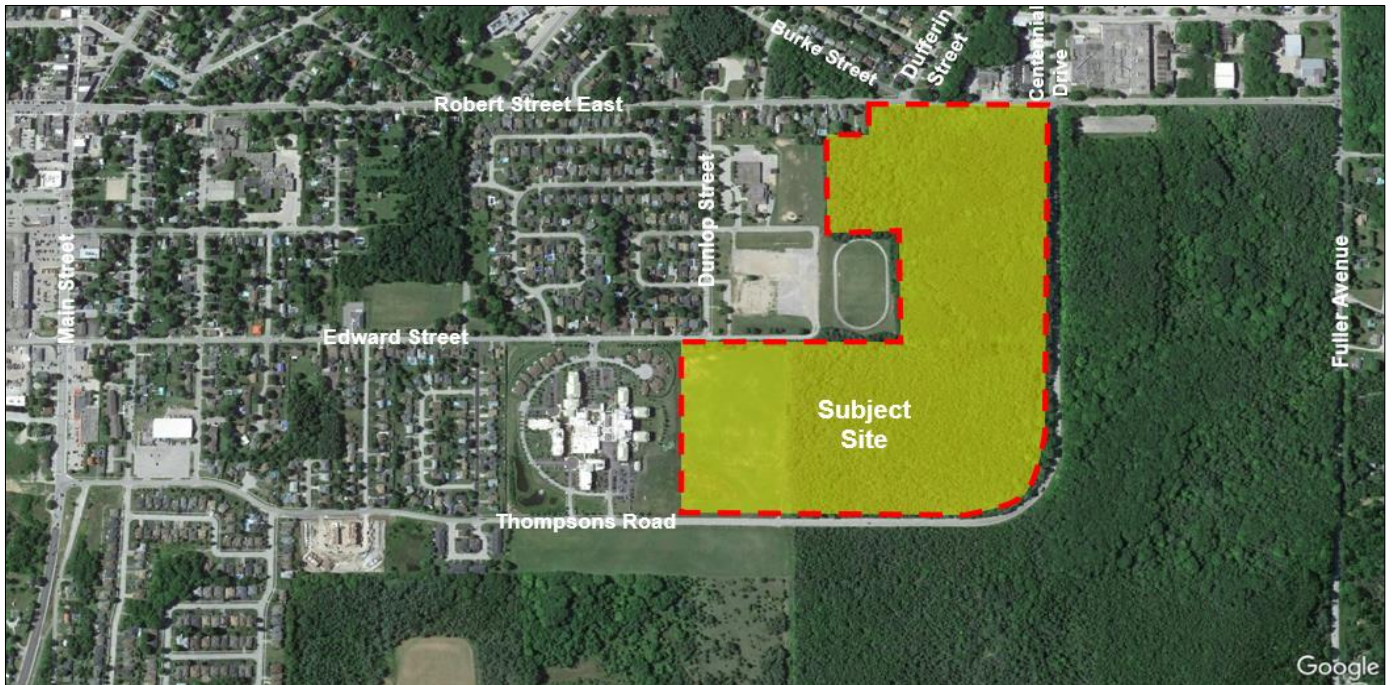


Figure 1 Site Location

## 2. Site Characteristics

### 2.1 Study Area

The study intersections reflect the agreed terms of reference for the study and include:

- Fuller Avenue and Robert Street East
- Robert Street East and Thompson Road/Centennial Drive
- Robert Street East and Dufferin Street/Burke Street
- Main Street and Thompsons Road
- Main Street and Edward Street
- Dunlop Street and Robert Street East
- Dunlop Street and Edward Drive

The study also included the following internal intersections:

- Street A and Gauthier Drive Extension
- Thompson Road and Gauthier Drive Extension
- Street I and Edward Street
- Street A and Edward Street
- Thompson Road and Edward Street
- Thompson Road and Dunlop Street

- Thompson Road and Street I

## 2.2 Proposed Development Content

The draft plan of subdivision shown in **Figure 2** was prepared by Innovative Planning Solutions and is dated July 2022.

In total, the development proposes 555 residential dwelling units and 8.087 hectares of employment lands. The 555 residential dwelling units are broken down into 281 single lots, 126 rear lane townhouse units and 148 units within a proposed mid-rise building.

Access to the subject site is proposed via a combination of new streets and extensions of existing streets that connect to the surrounding road network, with the following proposed intersections included within the analysis:

- Street A and Gauthier Drive Extension
- Thompson Road and Gauthier Drive Extension
- Street I and Edward Street
- Street A and Edward Street
- Thompson Road and Edward Street
- Thompson Road and Dunlop Street
- Thompson Road and Street I



Figure 2 Draft Plan of Subdivision

## 3. Existing Conditions

### 3.1 Existing Road Network

**Fuller Avenue** is a north/south major road under the jurisdiction of the Town of Penetanguishene. Within the study area it has a two-lane cross-section. Its intersection with Robert Street East is unsignalized with the stop control provided only along the minor approach. The posted speed limit along Fuller Avenue is 60 km/h

**Robert Street East** is an east/west major road under the jurisdiction of the Town of Penetanguishene. Within the study area it has a two-lane cross-section. Within the study area, its intersections with Fuller Avenue, Thompsons Road/Centennial Drive, Dufferin Street/Burke Street, and Dunlop Street are all unsignalized with the stop-control being provided only along the minor approach. The posted speed limit along Robert Street East is 50 km/h

**Thompsons Road** is a major road that operates in both the north/south and east/west directions and is under the jurisdiction of the Town of Penetanguishene. Within the study area it has a two-lane cross-section. Its intersection with Main Street is a signalized T-intersection while its intersection with Robert Street East is unsignalized T-intersection with the stop-control provided only along the minor approach. Additionally, its approach onto Main Street has both a left-turn and a right-turn lane. The posted speed limit along Thompsons Road is 50 km/h.

**Main Street** is a north/south major road under the jurisdiction of the Town of Penetanguishene. Within the study area it has a four-lane cross-section. Its intersection Edward Street is signalized, with no provision of auxiliary turning lanes. Its intersection with Thompsons Road is also signalized with an auxiliary right-turn lane in the northbound direction only. The posted speed limit along Main Street is 50 km/h.

**Centennial Drive** is north/south local road under the jurisdiction of the Town of Penetanguishene. Within the study area it has a two-lane cross-section. Its intersection with Robert Street East is unsignalized with the stop control being provided only along the minor approach. South of Robert Street East, Centennial Drive becomes Thompsons Road. The assumed posted speed limit along Centennial Drive is 50 km/h

**Dufferin Street** is a north/south local road under the jurisdiction of the Town of Penetanguishene. Within the study area it has a two-lane cross-section. Its intersection with Burke Street and Robert Street East is unsignalized, with the stop-control only being provided along Dufferin Street and Burke Street. The assumed posted speed limit along Dufferin Street is 50 km/h

**Burke Street** is a north/south local road under the jurisdiction of the Town of Penetanguishene. Within the study area it has a two-lane cross-section. Its intersection with Dufferin Street and Robert Street East is unsignalized, with the stop-control only being provided along Dufferin Street and Burke Street. The assumed posted speed limit along Burke Street is 50 km/h.

**Edward Street** is a east/west local road under the jurisdiction of the Town of Penetanguishene. Within the study area it has a two-lane cross-section. Its intersection with Main Street is signalized with pavement markings provided in the westbound direction for a through-left approach and a right-turn approach. The west leg of the intersection of Edward Street and Main Street consists of a commercial access. Its intersection with Dunlop Street is unsignalized with the stop-control only being provided along the minor approach. The assumed posted speed limit along Edward Street is 50 km/h.

**Dunlop Street** is a north/south local road under the jurisdiction of the Town of Penetanguishene. Within the study area it has a two-lane cross-section. Both its intersection with Robert Street East and Edward Street are unsignalized with the stop control only being provided on the minor approach. The assumed posted speed along Dunlop Street is 50 km/h.

### 3.2 Pedestrian and Bicycle Routes

Pedestrian sidewalks are available on at least one side of the road for all the study area roads with the exception of Burke Street, Fuller Avenue and Centennial Drive. Sidewalks are provided on both sides of Main Street north of the intersection with Thompsons Road, on at least one side of Robert Street East (from Burke Street/Dufferin Street

towards the west), a short portion on the west side of Dufferin Street, Thompsons Drive (from Main Street to the medical site to the east), on the north side of Edward Street, and on the east side of Dunlop Street.

Existing cycling infrastructure within the study area, as identified on the Town of Penetanguishene Recreational Trails map, includes the bike lane provided along Fuller Avenue in addition to the Tom Coffin Trail and Trans Canada Trail, both located between Main Street and Dunlop Street)

### 3.3 Transit Services

The subject site is currently serviced by the Penetanguishene Route operated by the Mid-Pen Transit Service (MPTS). The route operates in a clockwise direction throughout the Town of Penetanguishene, as shown in the figure below. South of Penetanguishene, the route operates in a north/south direction along County Road 93 towards the Georgian Bay General Hospital. The route operates with a headway of one hour with the time located beside the stops on the map indicating the approximate arrival time in minutes past the hour. It is to be noted that the MPTS operates with a “Flag Down Service”, where bus stops have been placed along the routes but passengers standing in a safe location are able to flag down a bus in order to board.

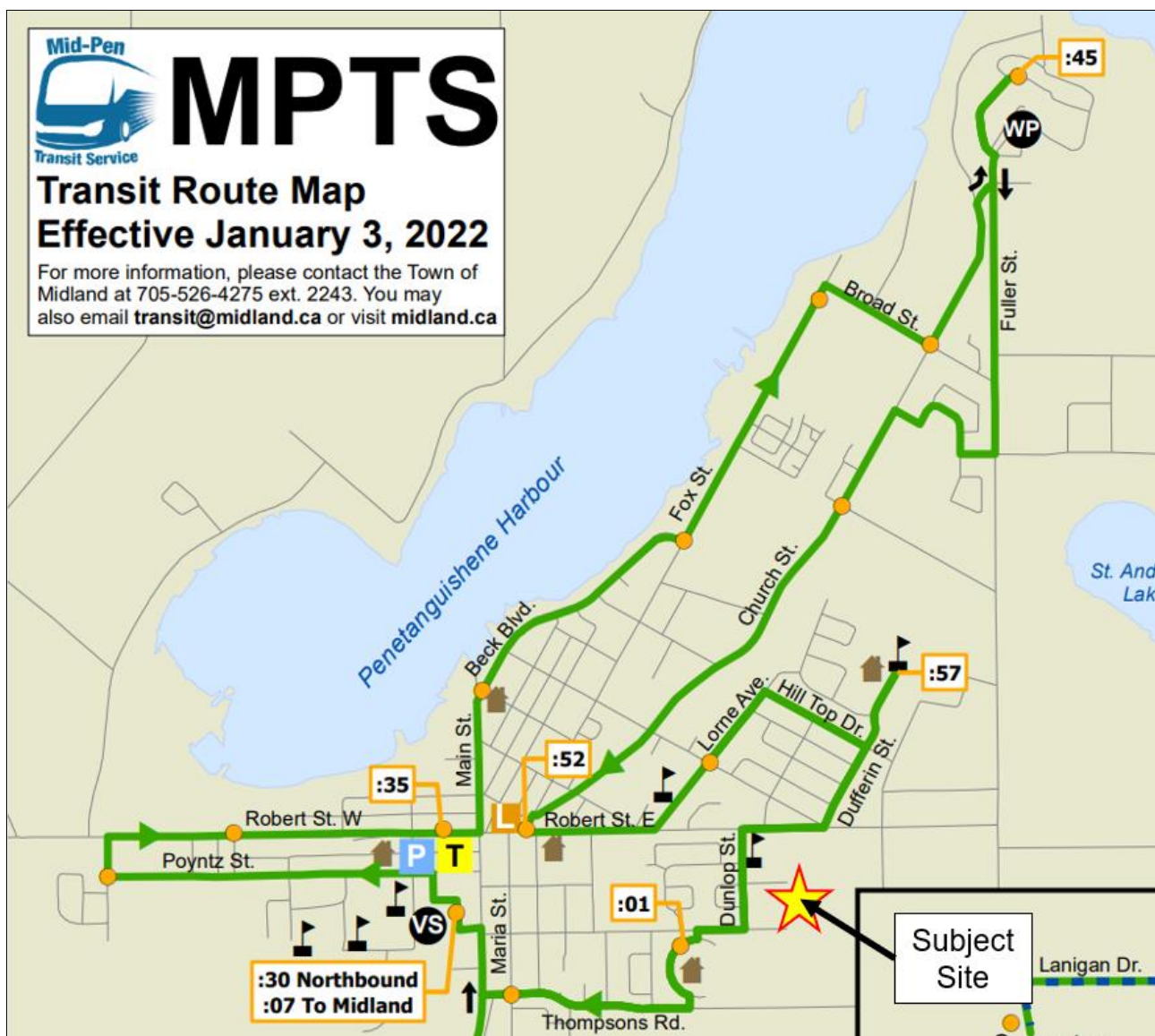


Figure 3 Transit Map (www.midland.ca)

## 3.4 Existing Traffic Data

GHD contracted Ontario Traffic Inc. to conduct updated turning movement counts at all the study intersections in September 2022.

The baseline 2022 traffic volumes for the a.m. and p.m. peak hours are summarized in **Figure 4**. Some historic traffic data was obtained from the Town for review, these counts along the updated counts conducted by Ontario Traffic Inc. are provided in **Appendix B**.

Signal timing plans provided by the Town of Penetanguishene are included in **Appendix B**.

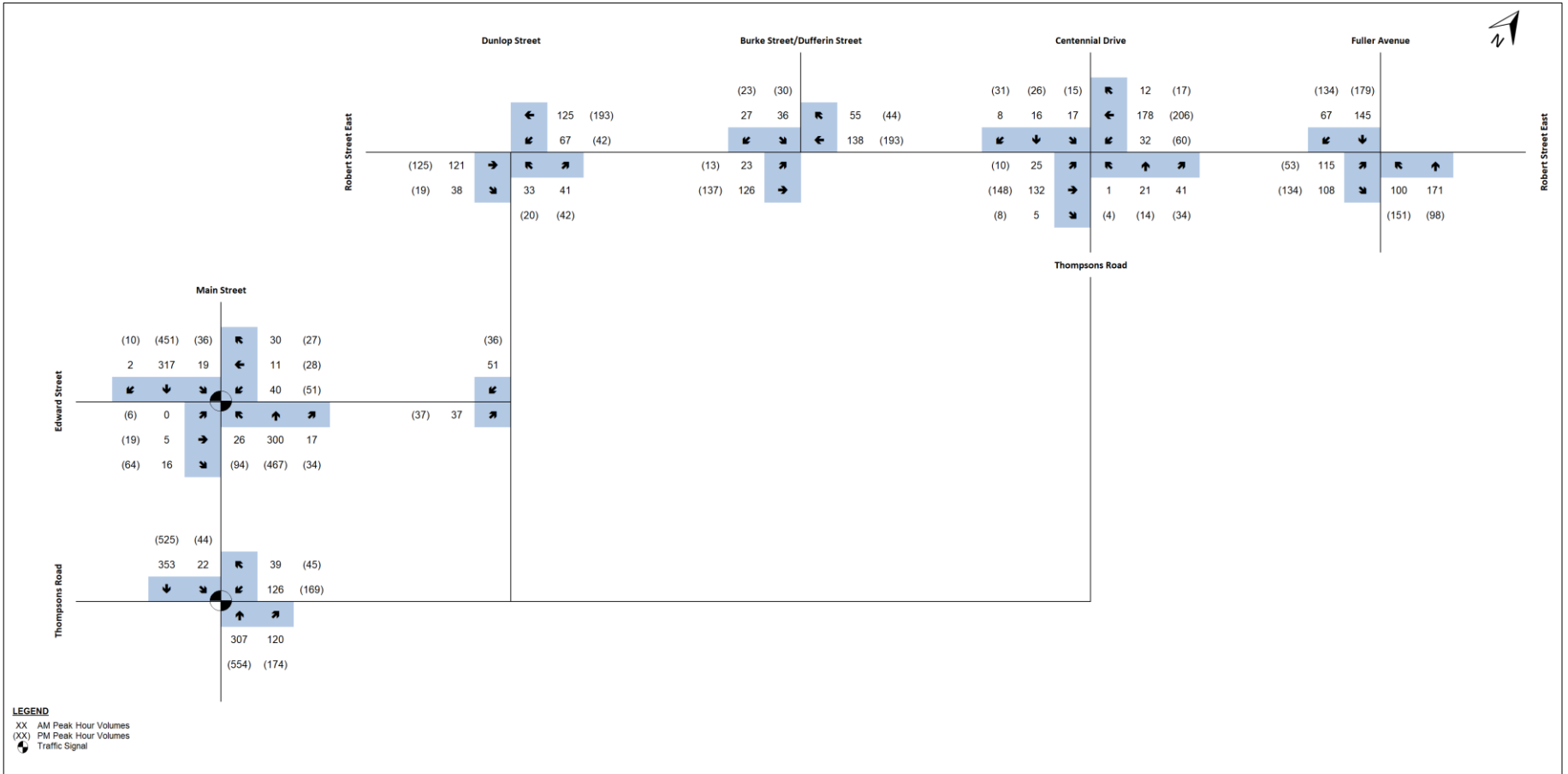


Figure 4 2022 Existing Traffic Volumes



## **4. Network Improvements**

### **4.1 Robert Street East and Fuller Avenue**

The Town of Penetanguishene is in detailed design phase for the signalization of the intersection of Robert Street East and Fuller Avenue. The construction phase for the project is currently scheduled in 2024, however this may be brought forward to 2023. As a result, the new control type and updated lane configuration has been included in the 2025 horizon year and beyond. The updated lane configuration includes eastbound left-turn and right-turn lanes along Robert Street East, a through lane in both the northbound and southbound directions along Fuller Avenue, a northbound left-turn lane, and a southbound right-turn lane. The preliminary signal timings for the intersection were obtained from the Town and are included in the appendix.

## **5. Future Background Traffic**

### **5.1 Study Horizon Year**

As agreed upon with Town staff, future horizon years of 2025 (full build-out), 2030 (5-years post build-out) and 2035 (10-years post build-out) were selected for the analysis of future traffic conditions, corresponding with the Town's Transportation Impact Study Guidelines.

### **5.2 Corridor Growth**

GHD applied a 2% per annum growth rate to all study area roadways. This growth rate is consistent with recent studies prepared in the area and was discussed and agreed to with Town staff.

### **5.3 Background Development Traffic**

As directed by Town staff, GHD included the following background developments located near the subject site that would contribute traffic volumes at the study intersections:

- 40 Thompsons Road East Subdivision Development (36 residential units – houses currently being built);
- St. Andrews Village Development (126 single detached units, 47 townhouse units and approximately 30 medium density units – in detailed design phase);
- 51 Dunlop Street – Recently purchased by the Town, school demolished early 2022 – use of site unknown and is in public consultation phase currently for future land use/development);
- 123 Robert Street East (development has been appealed to the OLT but may consist of approximately 31 townhouse units);
- 200 Fox Street – Champlain Shore Development (includes a Marina, 22 Townhouse units, 28 single detached units and 12 medium density units) – being developed in phases with the initial phases at subdivision agreement stage;
- 77 Fox Street – 56 rental units (Site Plan approval – awaiting construction);
- 221 Fox Street – 88 townhouse units – in beginning stages of planning application process;

- Phase 4 Harbour Pointe Subdivision (West of Beausoleil Drive) – 31 single detached units – pre-servicing phase.

The proposed trip generation from each background development is summarized in the table below, with the trip distribution for each site provided in **Appendix E**. The total site trips from all of the background developments are provided in **Figure 5**.

**Table 1** Background Development Traffic

Background Development	GFA	Peak Hour Trips					
		Weekday AM			Weekday PM		
		In	Out	Total	In	Out	Total
40 Thompsons Road East Subdivision Development	36 residential units – houses currently being built	5	12	17	12	9	21
St. Andrews Village Development	105 single-family detached units, 106 low-rise units	38	103	140	114	72	186
123 Robert Street East	Development has been appealed to the OLT but may consist of approximately 31 townhouse units	5	10	15	10	8	18
200 Fox Street – Champlain Shore Development	Includes a Marina, 22 Townhouse units, 28 single detached units and 12 medium density units)	31	29	60	30	27	57
77 Fox Street	57 rental units	6	22	28	23	13	36
221 Fox Street	87 residential lots, 1 medium density residential block containing 28 units	-	-	-	120	75	195
Phase 4 Harbour Pointe Subdivision (West of Beausoleil Drive)	30 mid-rise units	3	8	11	9	5	14

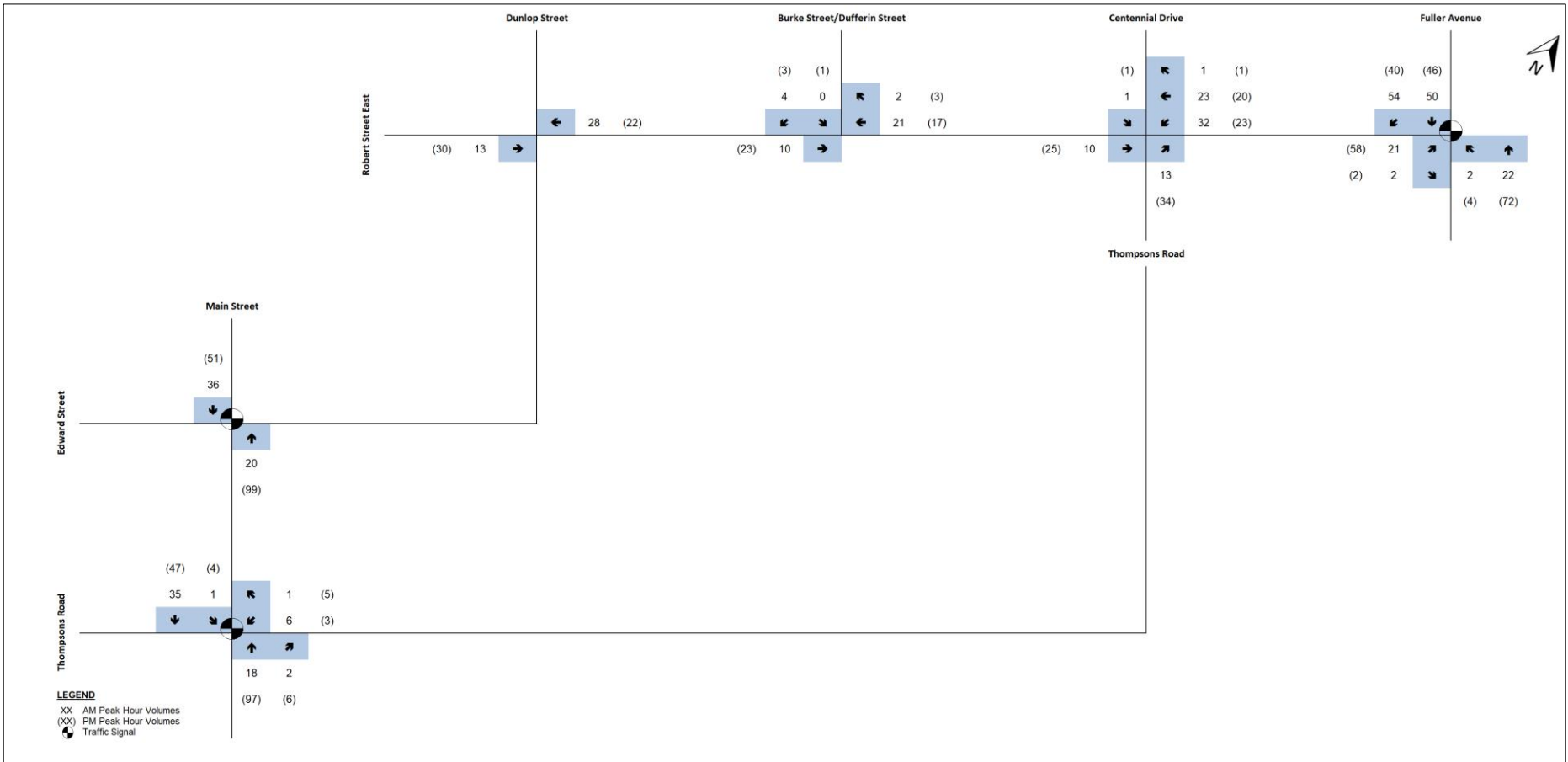


Figure 5 Total Background Development Site Traffic

## 5.4 Future Background Traffic Volumes

The background traffic volumes for the 2025, 2030 and 2035 horizon years were derived by applying the respective growth rates to the study area road network and adding the total background development site traffic from **Figure 5**. The resulting 2025, 2030 and 2035 horizon future background traffic volumes are summarized in **Figure 6**, **Figure 7** and **Figure 8**.

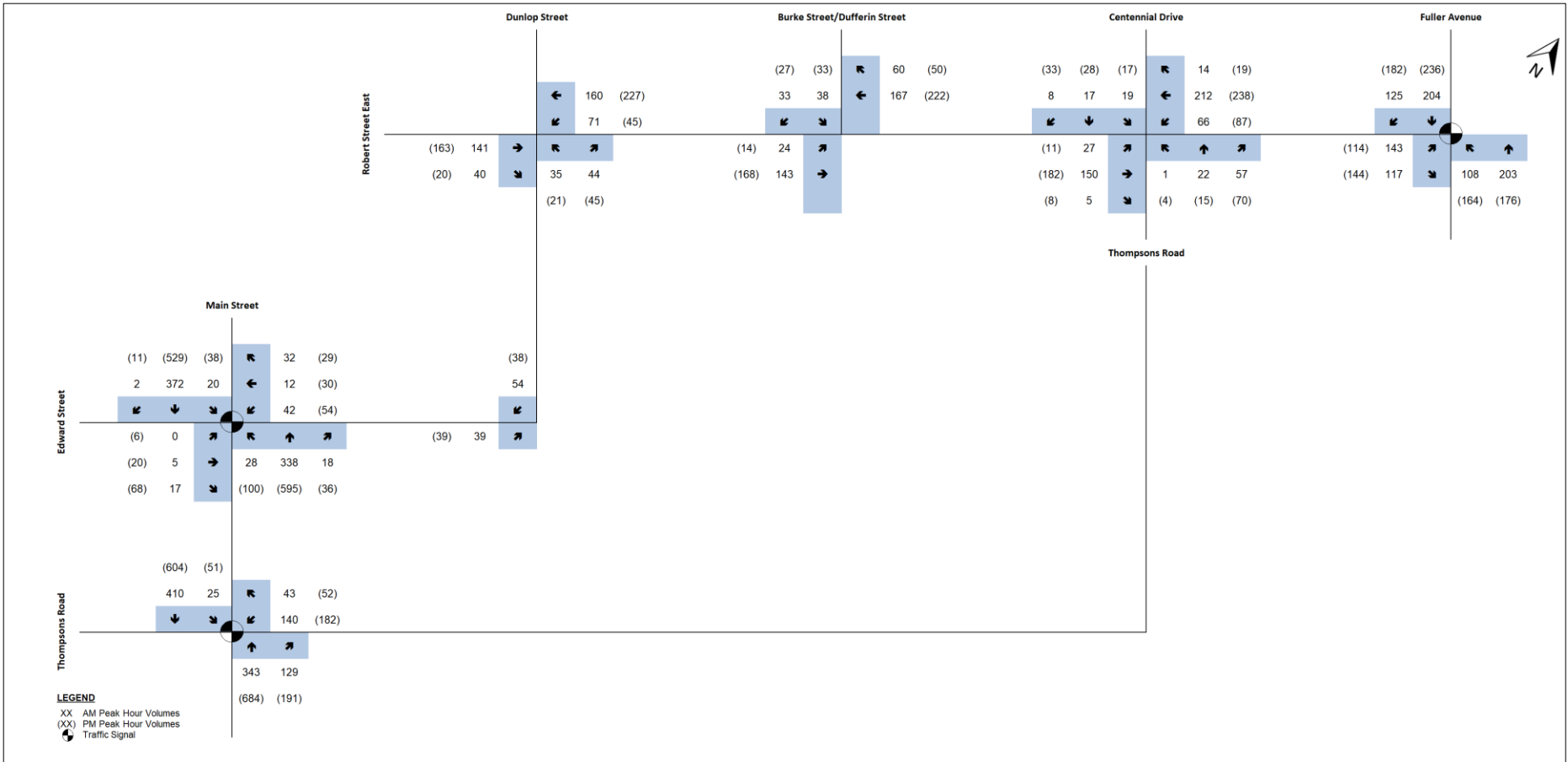


Figure 6 2025 Future Background Traffic Volumes

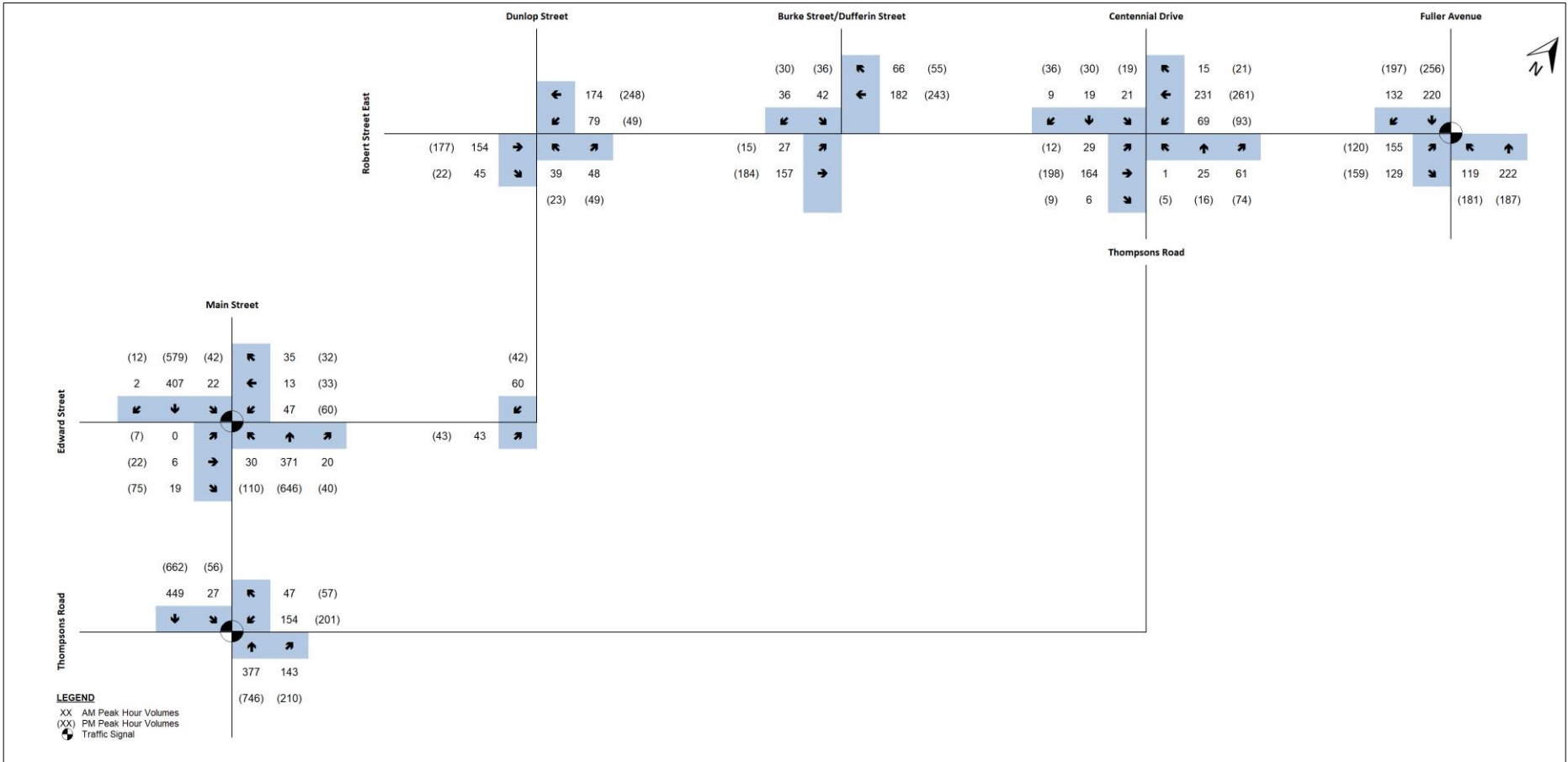
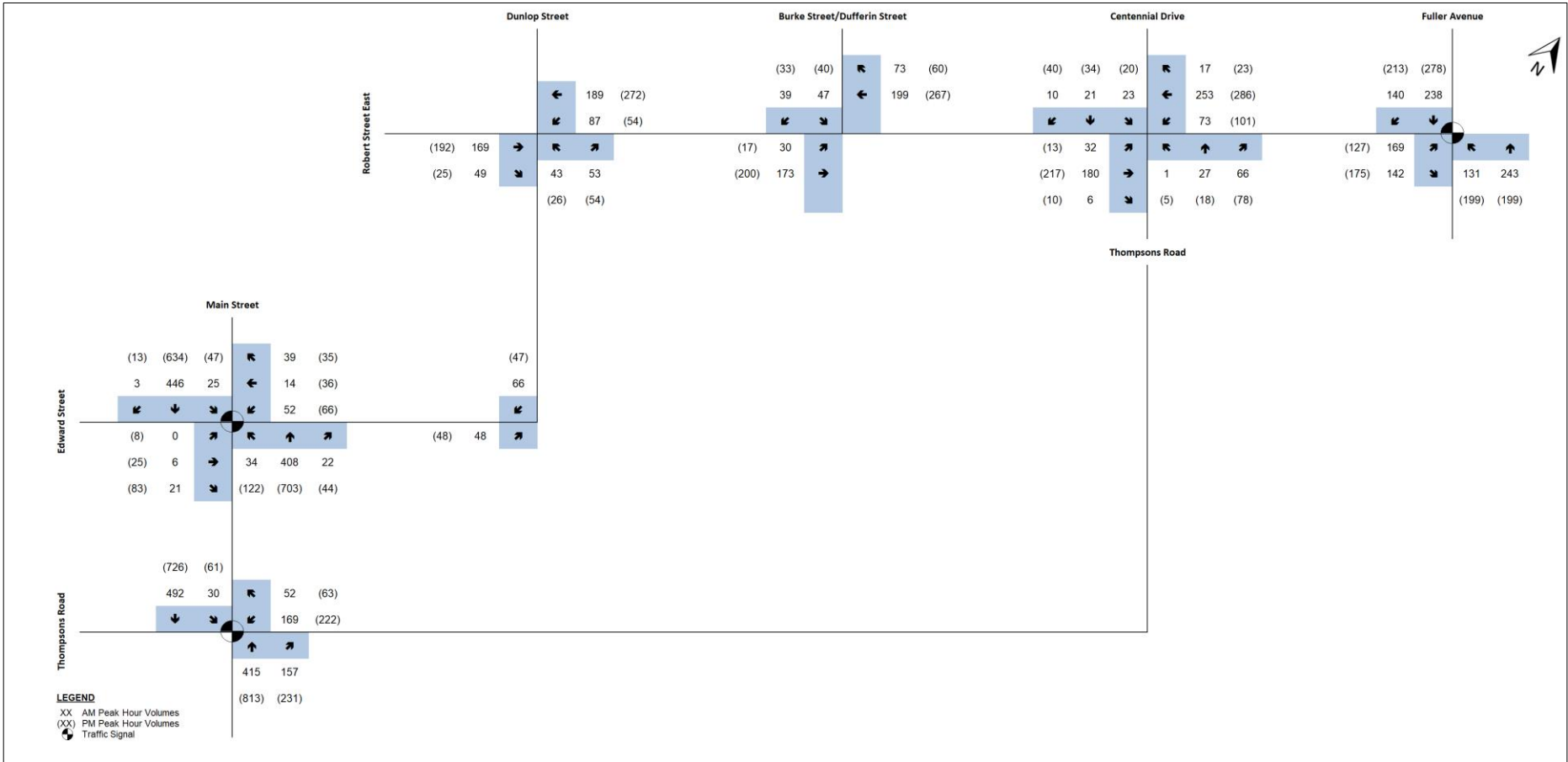


Figure 7 2030 Future Background Traffic Volumes



**Figure 8** 2035 Future Background Traffic Volumes

## 6. Site Generated Traffic

### 6.1 Site Traffic Generation

The subject site consists of both residential and employment land uses. A total of 555 dwelling units are proposed consisting of 407 townhouse units and 148 mid-rise units. The employment lands, located in the northern portion of the property, has a total of 8.067 hectares with the GFA consisting of 50% lot coverage. The exact land uses have yet to be determined, however they will likely be zoned as M1 within the Town's new Zoning By-law.

Trip generation for the residential component was calculated using rates provided in the Institute of Transportation Engineer's (ITE) Trip Generation Manual, 11th Edition using Land Use Code (LUC) 215 (Single-Family Attached Housing) for the townhouse units and LUC 221 (Multifamily Housing, Mid-Rise) for the mid-rise units.

As the exact land uses for the employment lands have not been determined, GHD used both the rates provided in the Institute of Transportation Engineer's (ITE) Trip Generation Manual, 11th Edition and first principles to estimate the trip generation for those lands. Based on the land uses found within Zone M1 of the Town's Zoning By-law and typical employment land uses, GHD assumed the following land uses are potential employment uses for these lands:

- LUC 110 (General Light Industrial)
- LUC 150 (Warehousing)
- LUC 710 (General Office Building)
- LUC 820 (Shopping Center (>150k))

Based on the four land uses identified, Table 2 below summarizes the calculated trip generation for each land use based on 434,162 ft<sup>2</sup> of GFA (50% coverage of 8.067 hectares) and then average calculated from the total number of trips generated for each for the a.m. and p.m. peak hours. This method assumes the likelihood that the employment lands will develop with a mix of different employment uses which is consistent with the expectation at this time.



**Table 2 Employment Lands Estimate Trip Generation**

Land Uses	GFA (per 1,000 sq. ft.)	Parameters	Peak Hour					
			Weekday AM			Weekday PM		
			In	Out	Total	In	Out	Total
General Light Industrial (LUC 110)	434	Trip Ratio	88%	12%	100%	14%	86%	100%
		<b>Total New Trips</b>	282	39	321	39	243	282
Warehousing (LUC 150)	434	Trip Ratio	77%	23%	100%	28%	72%	100%
		<b>Total New Trips</b>	59	17	76	22	57	79
General Office (LUC 710)	434	Trip Ratio	88%	12%	100%	17%	83%	100%
		<b>Total New Trips</b>	581	79	660	106	519	625
Shopping Center (LUC 820)	434	Trip Ratio	62%	38%	100%	48%	52%	100%
		<b>Total New Trips</b>	242	148	390	780	844	1624
<b>Average Total Primary Trips</b>			<b>291</b>	<b>71</b>	<b>362</b>	<b>237</b>	<b>416</b>	<b>653</b>

No transit modal splits were applied to provide a conservative estimate on site generated traffic.

**Table 3** below summarizes the estimated trip generation for the proposed development.

**Table 3 Total Estimated Site Trips**

Land Uses	Dwelling Units or GFA	Parameters	Peak Hour					
			Weekday AM			Weekday PM		
			In	Out	Total	In	Out	Total
Single-Family Attached Housing (LUC 215)	407 units	Trip Ratio	31%	69%	100%	65%	35%	100%
		<b>Total New Trips</b>	<b>64</b>	<b>142</b>	<b>206</b>	<b>137</b>	<b>103</b>	<b>240</b>
Multifamily Housing (Mid-Rise) (LUC 221)	148 units	Trip Ratio	23%	77%	100%	61%	39%	100%
		<b>Total New Trips</b>	<b>13</b>	<b>42</b>	<b>55</b>	<b>35</b>	<b>23</b>	<b>58</b>
Employment Land (Table 2)	8.067 ha	<b>Total New Trips</b>	<b>291</b>	<b>71</b>	<b>362</b>	<b>237</b>	<b>416</b>	<b>653</b>
<b>Total Primary Trips</b>			<b>368</b>	<b>255</b>	<b>623</b>	<b>409</b>	<b>542</b>	<b>951</b>

The proposed development is expected to generate a total of 623 new two-way trips consisting of 368 inbound and 255 outbound trips during weekday a.m. peak hour and 951 new two-way trips consisting of 409 inbound and 542 outbound trips during the weekday p.m. peak hour.

## 6.2 Site Traffic Distribution and Assignment

Site generated traffic for the residential development was distributed based on a review of the 2016 Transportation Tomorrow Survey (TTS) and the existing traffic patterns. Trips were assigned to the study area intersections based on reasonable routes for vehicles to minimize the travel time and distance under the existing road network and taking into consideration peak hour turn restrictions.

The directional split for the site traffic is provided in **Table 4** with the full 2016 TTS data calculation sheets provided in **Appendix C**. Site traffic was distributed between various intersections based on direction of traffic and the type of intersection control, with a greater number of trips assigned to signalized intersections or based on existing capacity constraints.

The site generated traffic assignment to the study area road network for the weekday a.m. and p.m. peak hours provided in **Figure 9**.

**Table 4** Directional Trip Distribution of Site Traffic

Peak Period	Direction	South (Main Street)	South (Fuller Avenue)	West (Robert Street)	North (Fuller Avenue)	North (Main Street)	
AM	Inbound	35%	15%	15%	15%	15%	5%
	Outbound	50%	15%	10%	10%	10%	5%
PM	Inbound	50%	15%	10%	10%	10%	5%
	Outbound	35%	15%	15%	15%	15%	5%

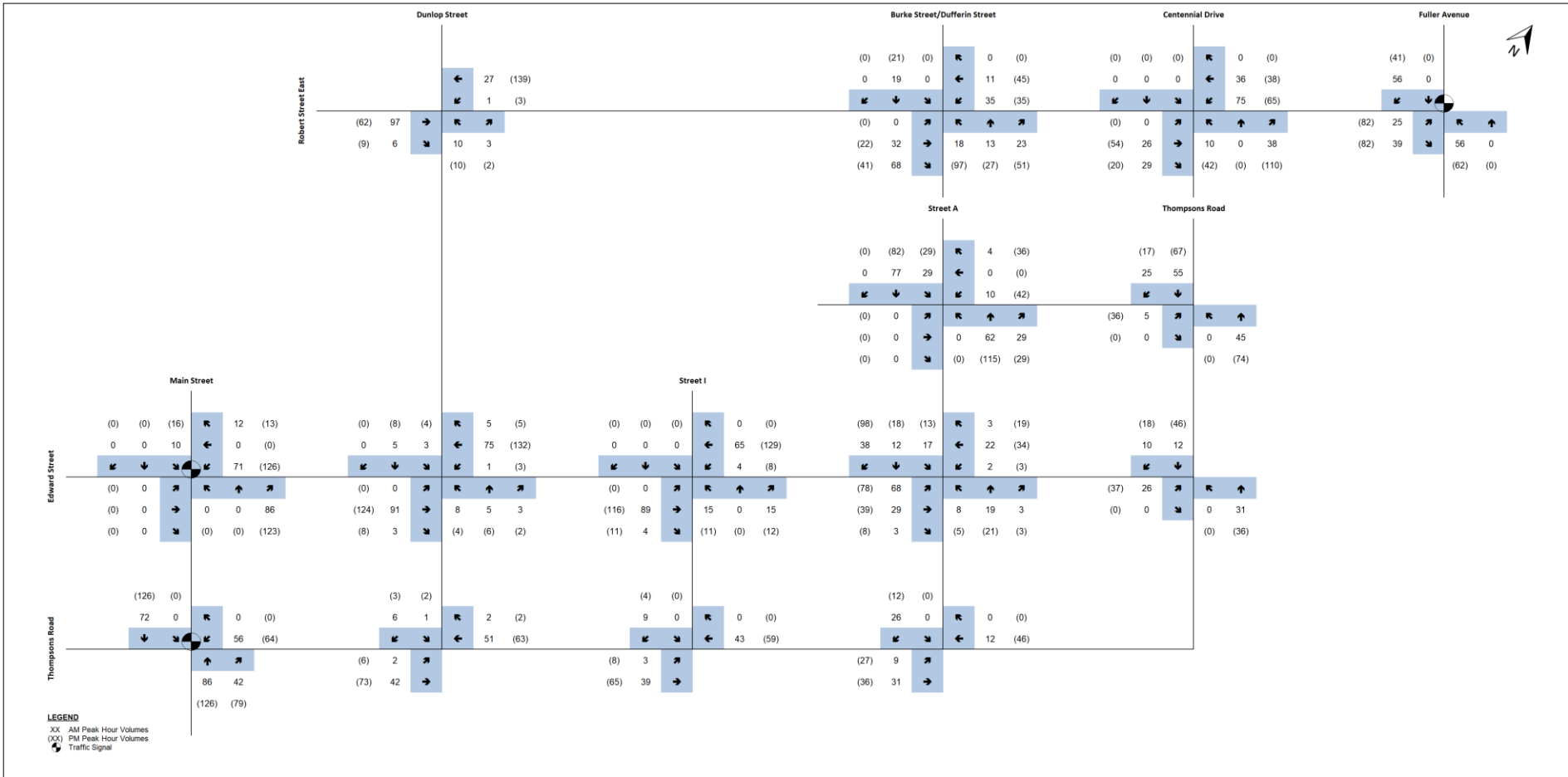
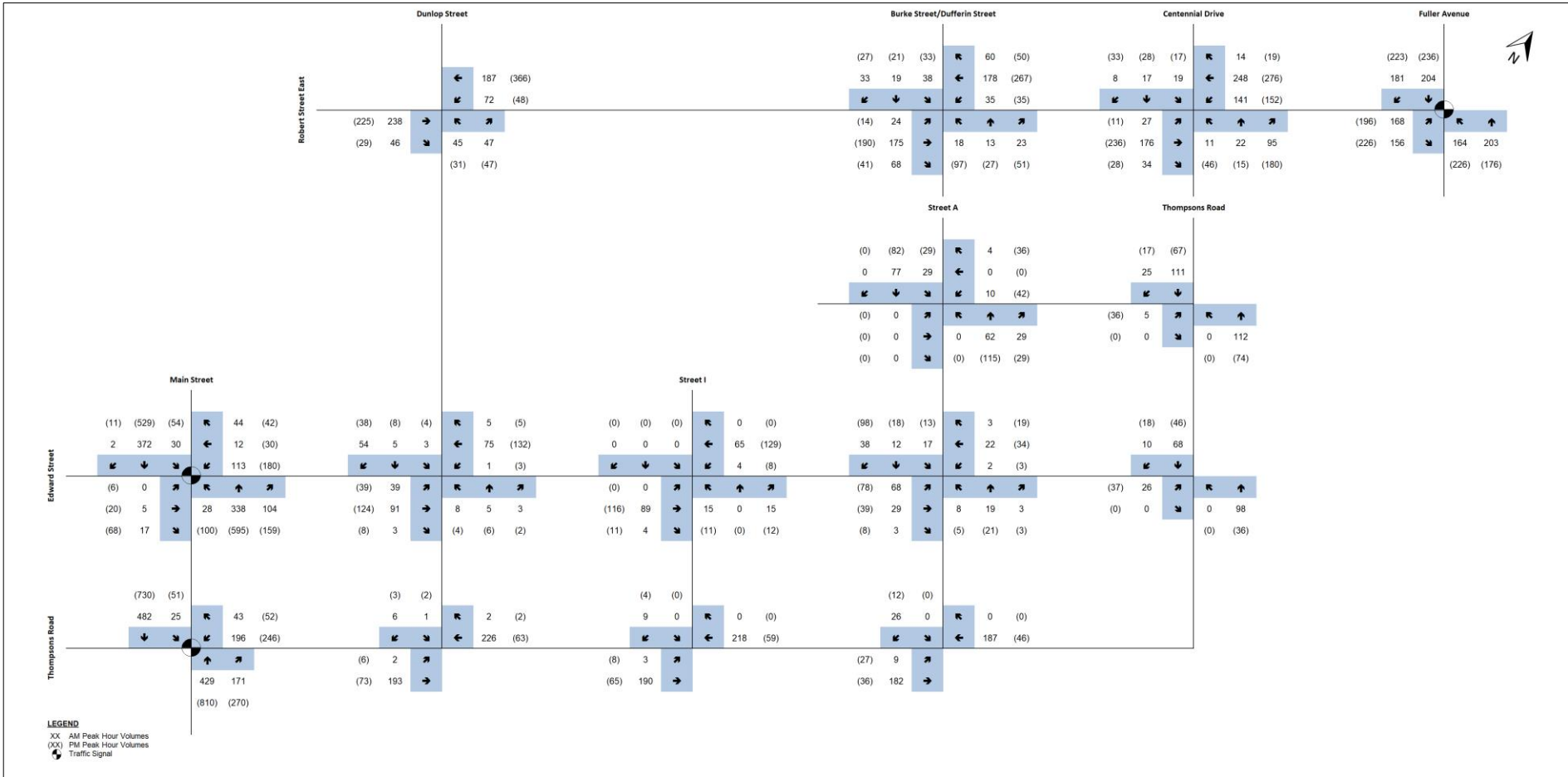


Figure 9 Total Site Trips

## 7. Future Total Traffic

The future total traffic conditions in the weekday a.m. and p.m. peak hours for the 2025, 2030, and 2035 planning horizon years were derived by combining the projected future background traffic with the corresponding estimated site generated traffic. The resulting traffic volumes are presented in **Figure 10**, **Figure 11** and **Figure 12**.



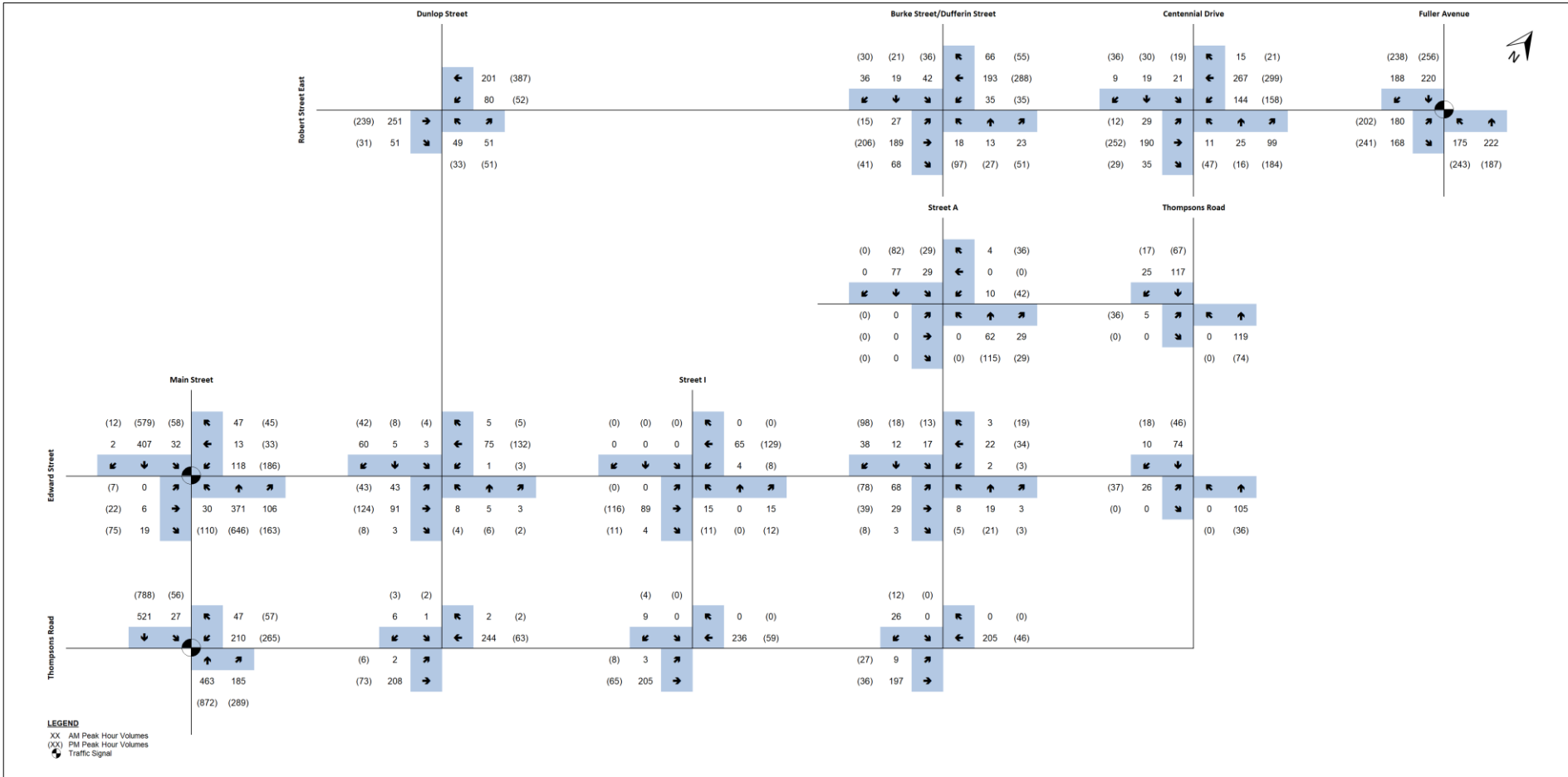


Figure 11 2030 Future Total Traffic Volumes

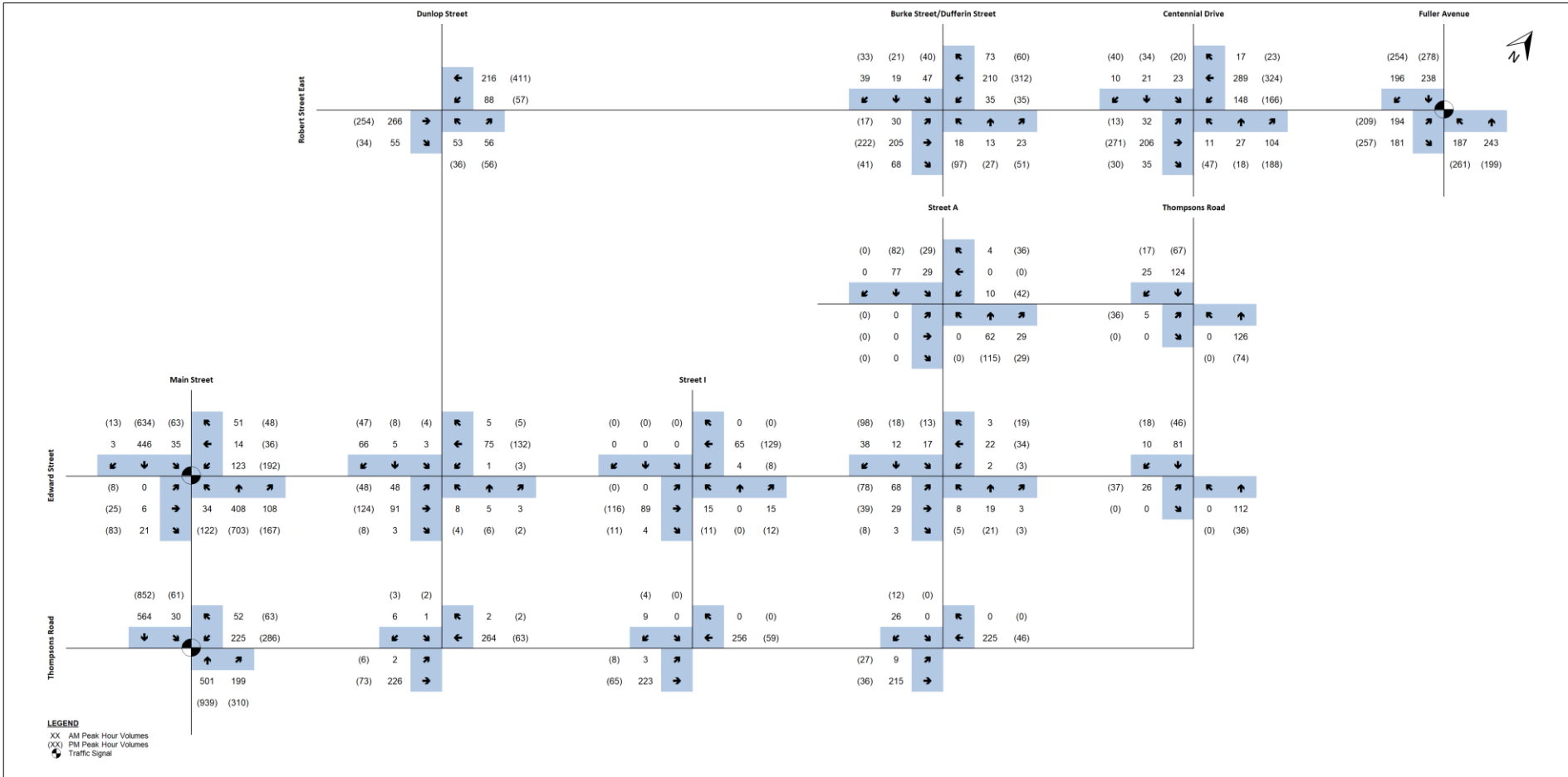


Figure 12 2035 Future Total Traffic Volumes

# 8. Capacity Analysis

The capacity analysis identifies how well the intersections and driveways are operating. The analysis contained within this report utilized the Highway Capacity Manual (HCM) 2000 procedure within the Synchro Version 10 Software package. The reported intersection volume-to-capacity ratios (v/c) are a measure of the saturation volume for each turning movement, while the levels-of-service (LOS) are a measure of the average delay for each turning movement. Queuing characteristics are reported as the predicted 95th percentile queue for each turning movement. Both pedestrian crossing volumes and heavy vehicle proportions are included in the analyses. The peak hour factors from the existing turning movement counts were used to analyze existing and future traffic conditions.

The analysis includes identification and required modifications and improvements (if any) at intersections where the addition of background growth or background growth plus site-generated traffic volumes causes the following:

'Critical' intersections and movements for a signalized intersection include:

- V/C ratios for overall intersections operations, through movements, or shared through/turning movements increase to 0.85 or above;
- V/C ratios for exclusive movements increase to 0.90 or above; or
- 95<sup>th</sup> percentile queue length for individual movements that are projected to, or exceed, the storage length.

'Critical' intersections and movements for an unsignalized intersection include:

- Level of Services (LOS), based on average delay per vehicle, on individual movements is LOS "E" or greater; or
- Queue length for individual movements that exceeds the lesser of 5 vehicles or the available queue storage.

The following tables summarize the HCM capacity results for the study intersections during the weekday a.m. and p.m. peak hours under existing (2022), future background (2025, 2030 and 2035) and future total (2025, 2030 and 2035) traffic conditions. The detailed calculation sheets are provided in **Appendix D**.

## 8.1 Fuller Avenue and Robert Street East

Capacity analysis at this intersection during the weekday a.m. and p.m. peak hours for the existing, future background, and future total traffic conditions are summarized in the following table.

**Table 5 Capacity analysis of Fuller Avenue and Robert Street East**

Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95 <sup>th</sup> % Que.	V/C (LOS) seconds	95 <sup>th</sup> % Que
Existing 2022	EBLR = 0.56 (C) 21 NBTL = 0.10 (A) 4 SBTR = 0.15 (A) 0	EBLR = 25 m NBTL = 5 m SBTR = 0 m	EBLR = 0.36 (B) 15 NBTL = 0.13 (A) 6 SBTR = 0.20 (A) 0	EBLR = 15 m NBTL = 5 m SBTR = 0 m
Future Background 2025	<u>Overall: 0.34 (B) 14</u> EBL = 0.61 (C) 33 EBR = 0.09 (C) 26 NBL = 0.18 (A) 5 NBT = 0.20 (A) 5 SBT = 0.27 (B) 11 SBR = 0.11 (B) 10	EBL = 40 m EBR = 10 m NBL = 15 m NBT = 25 m SBT = 35 m SBR = 10 m	<u>Overall: 0.29 (B) 13</u> EBL = 0.47 (C) 31 EBR = 0.10 (C) 28 NBL = 0.22 (A) 4 NBT = 0.15 (A) 4 SBT = 0.25 (B) 10 SBR = 0.12 (A) 9	EBL = 35 m EBR = 15 m NBL = 15 m NBT = 20 m SBT = 40 m SBR = 10 m



Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95 <sup>th</sup> % Que.	V/C (LOS) seconds	95 <sup>th</sup> % Que
Future Total 2025	Overall: <u>0.39 (B) 16</u> EBL = 0.66 (C) 34 EBR = 0.12 (C) 26 NBL = 0.28 (A) 6 NBT = 0.21 (A) 6 SBT = 0.28 (B) 13 SBR = 0.17 (B) 12	EBL = 45 m EBR = 10 m NBL = 20 m NBT = 25 m SBT = 40 m SBR = 10 m	Overall: <u>0.42 (B) 16</u> EBL = 0.65 (C) 34 EBR = 0.15 (C) 28 NBL = 0.32 (A) 6 NBT = 0.15 (A) 5 SBT = 0.28 (B) 13 SBR = 0.15 (B) 12	EBL = 50 m EBR = 20 m NBL = 25 m NBT = 20 m SBT = 45 m SBR = 15 m
Future Background 2030	Overall: <u>0.37 (B) 15</u> EBL = 0.63 (C) 32 EBR = 0.10 (C) 25 NBL = 0.21 (A) 5 NBT = 0.23 (A) 6 SBT = 0.30 (B) 12 SBR = 0.12 (B) 11	EBL = 40 m EBR = 10 m NBL = 15 m NBT = 25 m SBT = 40 m SBR = 10 m	Overall: <u>0.32 (B) 13</u> EBL = 0.48 (C) 31 EBR = 0.11 (C) 28 NBL = 0.25 (A) 4 NBT = 0.16 (A) 4 SBT = 0.28 (B) 11 SBR = 0.13 (A) 9	EBL = 35 m EBR = 15 m NBL = 15 m NBT = 20 m SBT = 40 m SBR = 10 m
Future Total 2030	Overall: <u>0.42 (B) 16</u> EBL = 0.68 (C) 34 EBR = 0.13 (C) 25 NBL = 0.31 (A) 6 NBT = 0.23 (A) 6 SBT = 0.32 (B) 14 SBR = 0.17 (B) 12	EBL = 45 m EBR = 10 m NBL = 20 m NBT = 30 m SBT = 45 m SBR = 10 m	Overall: <u>0.45 (B) 16</u> EBL = 0.65 (C) 34 EBR = 0.16 (C) 27 NBL = 0.36 (A) 6 NBT = 0.17 (A) 6 SBT = 0.31 (B) 14 SBR = 0.16 (B) 12	EBL = 55 m EBR = 20 m NBL = 30 m NBT = 25 m SBT = 55 m SBR = 15 m
Future Background 2035	Overall: <u>0.41 (B) 15</u> EBL = 0.66 (C) 34 EBR = 0.11 (C) 26 NBL = 0.24 (A) 6 NBT = 0.25 (A) 6 SBT = 0.33 (B) 13 SBR = 0.13 (B) 11	EBL = 45 m EBR = 10 m NBL = 15 m NBT = 30 m SBT = 45 m SBR = 10 m	Overall: <u>0.35 (B) 13</u> EBL = 0.51 (C) 31 EBR = 0.12 (C) 28 NBL = 0.29 (A) 5 NBT = 0.17 (A) 4 SBT = 0.30 (B) 11 SBR = 0.14 (A) 10	EBL = 35 m EBR = 15 m NBL = 20 m NBT = 20 m SBT = 45 m SBR = 10 m
Future Total 2035	Overall: <u>0.46 (B) 16</u> EBL = 0.70 (D) 35 EBR = 0.14 (C) 25 NBL = 0.34 (A) 7 NBT = 0.26 (A) 7 SBT = 0.35 (B) 15 SBR = 0.18 (B) 13	EBL = 50 m EBR = 10 m NBL = 25 m NBT = 35 m SBT = 50 m SBR = 10 m	Overall: <u>0.48 (B) 17</u> EBL = 0.66 (D) 35 EBR = 0.17 (C) 28 NBL = 0.40 (A) 6 NBT = 0.18 (A) 6 SBT = 0.34 (B) 14 SBR = 0.17 (B) 12	EBL = 55 m EBR = 20 m NBL = 30 m NBT = 25 m SBT = 60 m SBR = 15 m

Under existing traffic conditions, the unsignalized intersection operates at satisfactory levels with a maximum delay of 21 seconds and 15 seconds in the eastbound direction during the a.m. and p.m. peak hours. The intersection is also operating with a 95<sup>th</sup> percentile queue length of 25 metres and 15 metres in the eastbound direction during the morning and afternoon peak hours, respectively. The northbound direction is also operating with minimal delays and a 95<sup>th</sup> percentile queue length of 5 metres during both peak hours. This intersection is slated to be signalized and therefore all future traffic scenarios have been completed under signalized traffic control in addition to auxiliary turning lanes.

With the addition of corridor growth and the background development site traffic, in addition to the planned intersection improvements during the 2025 future background horizon period, the intersection is expected to operate with overall v/c ratios of 0.34 LOS B and 0.29 LOS B during the a.m. and p.m. peak hour, respectively.

Under the 2025 future total traffic condition, with the addition of site traffic, the intersection continues to operate at satisfactory levels with the overall v/c ratio of the intersection increasing to 0.39 LOS B and 0.42 LOS B during the a.m. and p.m. peak hour, respectively. A maximum increase of 2 seconds to the delay in the southbound approach

during the a.m. peak hour and of 3 seconds to the eastbound left-turn and both southbound movements during the p.m. peak hour is observed as a result of the proposed development. The intersection continues to operate without any critical movements.

With the assumed corridor growth and background development site traffic under the 2030 future background traffic scenario, the overall reported v/c of the intersection is expected to increase to 0.37 LOS B and 0.32 LOS B compared to the 2025 future background scenario. The intersection is reported to operate satisfactorily with minimum increase to the delay and queuing reported for each approach. The intersection is expected to operate without any critical movements.

Under the 2030 future total traffic condition, with the addition of site traffic, the intersection continues to operate at satisfactory levels with the overall v/c ratio of the intersection increasing to 0.42 LOS B during the a.m. peak hour and 0.45 LOS B during p.m. peak hour. A maximum increase of 2 seconds to the delay in the southbound approach during the a.m. peak hour and of 3 seconds to the eastbound left-turn and both southbound movements during the p.m. peak hour is expected as a result of the proposed development. The intersection continues to operate without any critical movements.

Including the assumed corridor growth and background development site traffic under the 2035 future background traffic scenario, the overall reported v/c of the intersection is expected to increase to 0.41 LOS B and 0.35 LOS B. The intersection continues to operate satisfactorily with minimum increases expected to the delay and queuing reported for each approach. The intersection is expected to continue to operate without any critical movements.

Under the 2035 future total traffic condition, with the addition of site traffic, the intersection continues to operate at satisfactory levels with the overall v/c ratio of the intersection increasing to 0.46 LOS B and 0.48 LOS B during the a.m. and p.m. peak hour, respectively. A maximum increase of 2 seconds to the delay in the southbound approach during the a.m. peak hour and of 3 seconds to the eastbound left-turn and both southbound movements during the p.m. peak hour is reported as a result of the proposed development. The intersection continues to operate without any critical movements.

No geometric improvements are recommended at this intersection to accommodate the proposed development, with only signal timing improvements proposed to optimize the cycle lengths and minimize delays.

## 8.2 Robert Street East and Thompson Road/Centennial Drive

Capacity analysis for this intersection during the weekday a.m. and p.m. peak hours for the existing, future background, and future total traffic conditions are summarized in the following table.

**Table 6 Capacity analysis of Robert Street East and Thompson Road/Centennial Drive**

Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95 <sup>th</sup> % Que.	V/C (LOS) seconds	95 <sup>th</sup> % Que
Existing 2022	EBTLR = 0.02 (A) 1 WBTLR = 0.03 (A) 1 NBTLR = 0.13 (B) 12 SBTLR = 0.12 (B) 15	EBTLR = 5 m WBTLR = 5 m NBTLR = 5 m SBTLR = 5 m	EBTLR = 0.01 (A) 0 WBTLR = 0.04 (A) 2 NBTLR = 0.09 (B) 11 SBTLR = 0.14 (B) 13	EBTLR = 5 m WBTLR = 5 m NBTLR = 5 m SBTLR = 5 m
Future Background 2025	EBTLR = 0.03 (A) 1 WBTLR = 0.07 (A) 2 NBTLR = 0.18 (B) 13 SBTLR = 0.17 (C) 19	EBTLR = 5 m WBTLR = 5 m NBTLR = 5 m SBTLR = 5 m	EBTLR = 0.01 (A) 0 WBTLR = 0.06 (A) 2 NBTLR = 0.14 (B) 11 SBTLR = 0.18 (B) 15	EBTLR = 5 m WBTLR = 5 m NBTLR = 5 m SBTLR = 5 m

Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95 <sup>th</sup> % Que.	V/C (LOS) seconds	95 <sup>th</sup> % Que
Future Total 2025	EBTLR = 0.03 (A) 1 WBTLR = 0.15 (A) 4 NBTLR = 0.37 (C) 18 SBTLR = 0.32 (E) 36	EBTLR = 5 m WBTLR = 5 m NBTLR = 15 m SBTLR = 10 m	EBTLR = 0.01 (A) 0 WBTLR = 0.12 (A) 4 NBTLR = 0.54 (C) 22 SBTLR = 0.28 (C) 23	EBTLR = 5 m WBTLR = 5 m NBTLR = 25 m SBTLR = 10 m
Future Background 2030	EBTLR = 0.03 (A) 1 WBTLR = 0.07 (A) 2 NBTLR = 0.20 (B) 14 SBTLR = 0.21 (C) 21	EBTLR = 5 m WBTLR = 5 m NBTLR = 5 m SBTLR = 5 m	EBTLR = 0.01 (A) 0 WBTLR = 0.07 (A) 2 NBTLR = 0.15 (B) 12 SBTLR = 0.22 (C) 16	EBTLR = 5 m WBTLR = 5 m NBTLR = 5 m SBTLR = 10 m
Future Total 2030	EBTLR = 0.03 (A) 1 WBTLR = 0.16 (A) 4 NBTLR = 0.42 (C) 20 <b>SBTLR = 0.39 (E) 43</b>	EBTLR = 5 m WBTLR = 5 m NBTLR = 15 m SBTLR = 15 m	EBTLR = 0.01 (A) 0 WBTLR = 0.13 (A) 4 NBTLR = 0.59 (D) 25 SBTLR = 0.36 (D) 28	EBTLR = 5 m WBTLR = 5 m NBTLR = 30 m SBTLR = 15 m
Future Background 2035	EBTLR = 0.03 (A) 2 WBTLR = 0.08 (A) 2 NBTLR = 0.24 (B) 15 SBTLR = 0.27 (C) 25	EBTLR = 5 m WBTLR = 5 m NBTLR = 10 m SBTLR = 10 m	EBTLR = 0.01 (A) 0 WBTLR = 0.08 (A) 2 NBTLR = 0.18 (B) 13 SBTLR = 0.26 (C) 18	EBTLR = 5 m WBTLR = 5 m NBTLR = 5 m SBTLR = 10 m
Future Total 2035	EBTLR = 0.04 (A) 1 WBTLR = 0.16 (A) 4 NBTLR = 0.49 (C) 24 <b>SBTLR = 0.50 (F) 57</b>	EBTLR = 5 m WBTLR = 5 m NBTLR = 20 m SBTLR = 20 m	EBTLR = 0.01 (A) 0 WBTLR = 0.14 (A) 4 NBTLR = 0.68 (D) 32 SBTLR = 0.44 (D) 34	EBTLR = 5 m WBTLR = 5 m NBTLR = 40 m SBTLR = 15 m

Under the existing condition, the intersection of Robert Street East and Thompson Road/Centennial Drive operates at satisfactory levels with the greatest delays observed in the southbound direction during both peak hours (15 seconds and 13 seconds during the a.m. and p.m. peak hours). All approaches are operating with a 95<sup>th</sup> percentile queue length of 5 metres.

With the addition of corridor growth and background traffic during the 2025 future background traffic condition, the intersection continues to operate satisfactorily with an increase of 4 seconds and 2 seconds observed in the southbound direction during the a.m. and p.m. peak hours, respectively. All approaches continue to operate with a 95<sup>th</sup> percentile queue length of 5 metres.

With the addition of site traffic under the 2025 future total traffic condition, the intersection continues to operate at a satisfactory level with an increase of 17 seconds during the a.m. peak hour and 8 seconds during the p.m. peak hour to the delay in the southbound direction, the northbound delay increases to 22 seconds from 11 seconds during the p.m. peak hour.

Including the assumed corridor growth rate and background development traffic during the 2030 future background traffic condition, the intersection operates at a satisfactory level with LOS of C or better and delays of 21 seconds and 16 second delay reported in the southbound direction during the a.m. and p.m. peak hours. All approaches continue to operate with a 95<sup>th</sup> percentile queue length of 5 metres with the exception of the southbound approach increasing to 10 metres during the p.m. peak hour.

With the addition of site traffic under the 2030 future total traffic condition, the intersection is expected to continue to operate at a satisfactory level with the delay in the southbound direction becoming critical with a LOS E 43 seconds and 28 seconds during the a.m. and p.m. peak hours, respectively. The 95<sup>th</sup> percentile queue length is expected to remain at 5 metres along Robert Street East, however the northbound and southbound approaches report an increase to 15 metres, with the northbound approach during the p.m. peak hour expected to increase to 30 metres.

With the addition of corridor growth and the background traffic during the 2035 future background traffic condition, the intersection operates at a satisfactory level with 25 seconds and 18 second delay observed in the southbound direction during the a.m. and p.m. peak hours. All approaches along Robert Street East are reported to continue to

operate with a 95<sup>th</sup> percentile queue length of 5 metres while the minor approaches are mostly showing a 10 metre 95<sup>th</sup> percentile queue length.

With the addition of site traffic under the 2035 future total traffic condition, the intersection continues to operate at a satisfactory level however the southbound delay increases to LOS F 57 seconds and LOS D 34 seconds during the a.m. and p.m. peak hours, respectively. The 95<sup>th</sup> percentile queue length is expected to remain at 5 metres along Robert Street East, however the minor approaches are expected to increase to 20 metres during the a.m. peak hour and 40 metres (northbound) and 15 metres (southbound) during the p.m. peak hour.

No improvements are recommended at this intersection as a result of the proposed development.

### 8.3 Robert Street East and Dufferin Street/Burke Street

Capacity analysis at this intersection during the weekday a.m. and p.m. peak hours for the existing, future background, and future total traffic conditions are summarized in the following table.

**Table 7 Capacity analysis of Robert Street East and Dufferin Street/Burke Street**

Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95 <sup>th</sup> % Que.	V/C (LOS) seconds	95 <sup>th</sup> % Que
Existing 2022	EBTL = 0.03 (A) 1 WBTR = 0.17 (A) 0 SBLR = 0.16 (B) 12	EBTL = 5 m WBTR = 0 m SBLR = 5 m	EBTL = 0.01 (A) 1 WBTR = 0.15 (A) 0 SBLR = 0.08 (B) 11	EBTL = 5 m WBTR = 0 m SBLR = 5 m
Future Background 2025	EBTLR = 0.03 (A) 1 WBTLR = 0 (A) 0 SBTLR = 0.21 (B) 14	EBTLR = 5 m WBTLR = 0 m SBTLR = 5 m	EBTLR = 0.01 (A) 1 WBTLR = 0 (A) 0 SBTLR = 0.10 (B) 12	EBTLR = 5 m WBTLR = 0 m SBTLR = 5 m
Future Total 2025	EBTLR = 0.03 (A) 1 WBTLR = 0.04 (A) 1 NBTLR = 0.24 (C) 19 SBTLR = 0.41 (C) 24	EBTLR = 5 m WBTLR = 5 m NBTLR = 10 m SBTLR = 15 m	EBTLR = 0.01 (A) 0 WBTLR = 0.03 (A) 1 NBTLR = 0.45 (C) 21 SBTLR = 0.21 (C) 16	EBTLR = 5 m WBTLR = 5 m NBTLR = 20 m SBTLR = 5 m
Future Background 2030	EBTLR = 0.03 (A) 2 WBTLR = 0 (A) 0 SBTLR = 0.25 (C) 15	EBTLR = 5 m WBTLR = 0 m SBTLR = 10 m	EBTLR = 0.01 (A) 1 WBTLR = 0 (A) 0 SBTLR = 0.12 (B) 12	EBTLR = 5 m WBTLR = 0 m SBTLR = 5 m
Future Total 2030	EBTLR = 0.03 (A) 1 WBTLR = 0.04 (A) 1 NBTLR = 0.26 (C) 21 SBTLR = 0.48 (D) 28	EBTLR = 5 m WBTLR = 5 m NBTLR = 10 m SBTLR = 20 m	EBTLR = 0.01 (A) 1 WBTLR = 0.03 (A) 1 NBTLR = 0.48 (C) 23 SBTLR = 0.24 (C) 18	EBTLR = 5 m WBTLR = 5 m NBTLR = 20 m SBTLR = 10 m
Future Background 2035	EBTLR = 0.04 (A) 2 WBTLR = 0 (A) 0 SBTLR = 0.29 (C) 17	EBTLR = 5 m WBTLR = 0 m SBTLR = 10 m	EBTLR = 0.01 (A) 1 WBTLR = 0 (A) 0 SBTLR = 0.14 (B) 13	EBTLR = 5 m WBTLR = 0 m SBTLR = 5 m
Future Total 2035	EBTLR = 0.04 (A) 1 WBTLR = 0.05 (A) 1 NBTLR = 0.28 (C) 23 SBTLR = 0.56 (D) 34	EBTLR = 5 m WBTLR = 5 m NBTLR = 10 m SBTLR = 25 m	EBTLR = 0.01 (A) 1 WBTLR = 0.03 (A) 1 NBTLR = 0.52 (D) 26 SBTLR = 0.28 (C) 19	EBTLR = 5 m WBTLR = 5 m NBTLR = 25 m SBTLR = 10 m

Under the existing condition, the intersection of Robert Street East and Dufferin Street/Burke Street operates at satisfactory levels with the greatest delays observed in the southbound direction during both peak hours (12 seconds and 11 seconds during the a.m. and p.m. peak hours). The eastbound and southbound approaches are operating with a 95<sup>th</sup> percentile queue length of 5 metres while no queueing occurs in the westbound approach.

With the addition of corridor growth, background traffic, and the addition of a south approach during the 2025 future background traffic condition, the intersection continues to operate satisfactorily with an increase of 2 seconds and 1 second observed in the southbound direction during the a.m. and p.m. peak hours, respectively. All approaches

continue to operate with the same 95<sup>th</sup> percentile queue length as observed under existing conditions and with no critical movements.

With the addition of site traffic under the 2025 future total traffic condition, the intersection is expected to continue to operate at a satisfactory level with an increase of 10 seconds during the a.m. peak hour and 4 seconds during the p.m. peak hour to the delay in the southbound direction. With the addition of traffic to the northbound approach, it begins to operate with a delay of 10 seconds during the a.m. peak hour and 21 seconds during the p.m. peak hour however all movements continue to operate at less than critical levels.

With the addition of corridor growth and the background traffic during the 2030 future background traffic condition, the intersection operates at a satisfactory level with a marginal increase of 1 second and no increase during the a.m. and p.m. peak hour, respectively, in comparison to the 2025 future background condition.

With the addition of site traffic under the 2030 future total traffic condition, the intersection continues to operate at a satisfactory level with the delay in the southbound direction increasing to 28 seconds and 18 seconds during the a.m. and p.m. peak hours, respectively while the northbound approach reports delays of 21 seconds during the a.m. peak hour and 23 seconds during the p.m. peak hour.

With the addition of corridor growth and the background traffic during the 2035 future background traffic condition, the intersection continues to operate at a satisfactory level with 17 seconds and 3 second delay observed in the southbound direction during the a.m. and p.m. peak hours.

With the addition of site traffic under the 2035 future total traffic condition, the intersection continues to operate at a satisfactory level with the delay in the southbound direction increasing to 34 seconds and 19 seconds during the a.m. and p.m. peak hours, respectively. The northbound approach reports delays of 23 seconds and 26 seconds during the a.m. and p.m. peak hours, respectively.

This intersection is expected to continue to operate with acceptable v/c ratios and delays under the existing intersection geometry despite the addition of the south leg as part of the proposed development.

No improvements are recommended at this intersection as a result of the proposed development.

## 8.4 Main Street and Thompsons Road

Capacity analysis at this intersection during the weekday a.m. and p.m. peak hours for the existing, future background, and future total traffic conditions are summarized in the following table.

**Table 8 Capacity analysis of Main Street and Thompsons Road**

Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95 <sup>th</sup> % Que.	V/C (LOS) seconds	95 <sup>th</sup> % Que
Existing 2022	Overall: 0.31 (A) 8 WBL = 0.58 (C) 27 WBR = 0.03 (C) 22 NBT = 0.16 (A) 4 NBR = 0.09 (A) 4 SBTL = 0.22 (A) 4	WBL = 25 m WBR = 5 m NBT = 15 m NBR = 5 m SBTL = 20 m	Overall: 0.39 (A) 8 WBL = 0.62 (C) 27 WBR = 0.03 (C) 21 NBT = 0.25 (A) 4 NBR = 0.12 (A) 4 SBTL = 0.30 (A) 5	WBL = 35 m WBR = 10 m NBT = 25 m NBR = 10 m SBTL = 25 m
Future Background 2025	Overall: 0.35 (A) 8 WBL = 0.62 (C) 29 WBR = 0.04 (C) 22 NBT = 0.18 (A) 4 NBR = 0.10 (A) 4 SBTL = 0.25 (A) 4	WBL = 30 m WBR = 10 m NBT = 15 m NBR = 5 m SBTL = 20 m	Overall: 0.44 (A) 8 WBL = 0.57 (C) 26 WBR = 0.04 (C) 21 NBT = 0.31 (A) 6 NBR = 0.14 (A) 5 SBTL = 0.36 (A) 6	WBL = 35 m WBR = 10 m NBT = 30 m NBR = 10 m SBTL = 35 m

Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95 <sup>th</sup> % Que.	V/C (LOS) seconds	95 <sup>th</sup> % Que
Future Total 2025	Overall: 0.43 (A) 10 WBL = 0.66 (C) 28 WBR = 0.04 (C) 21 NBT = 0.24 (A) 6 NBR = 0.13 (A) 5 SBTL = 0.32 (A) 6	WBL = 40 m WBR = 10 m NBT = 20 m NBR = 5 m SBTL = 25 m	Overall: 0.55 (A) 9 WBL = 0.68 (C) 28 WBR = 0.04 (C) 20 NBT = 0.38 (A) 7 NBR = 0.22 (A) 6 SBTL = 0.45 (A) 7	WBL = 50 m WBR = 10 m NBT = 40 m NBR = 15 m SBTL = 40 m
Future Background 2030	Overall: 0.38 (A) 8 WBL = 0.57 (C) 26 WBR = 0.04 (C) 21 NBT = 0.21 (A) 5 NBR = 0.11 (A) 5 SBTL = 0.29 (A) 6	WBL = 35 m WBR = 10 m NBT = 20 m NBR = 5 m SBTL = 25 m	Overall: 0.49 (A) 8 WBL = 0.60 (C) 26 WBR = 0.04 (C) 21 NBT = 0.34 (A) 6 NBR = 0.16 (A) 5 SBTL = 0.40 (A) 6	WBL = 40 m WBR = 10 m NBT = 35 m NBR = 15 m SBTL = 35 m
Future Total 2030	Overall: 0.47 (A) 10 WBL = 0.68 (C) 29 WBR = 0.04 (C) 20 NBT = 0.27 (A) 6 NBR = 0.15 (A) 6 SBTL = 0.35 (A) 6	WBL = 45 m WBR = 10 m NBT = 20 m NBR = 10 m SBTL = 30 m	Overall: 0.60 (A) 10 WBL = 0.71 (C) 29 WBR = 0.04 (B) 20 NBT = 0.41 (A) 7 NBR = 0.24 (A) 6 SBTL = 0.49 (A) 8	WBL = 50 m WBR = 10 m NBT = 40 m NBR = 20 m SBTL = 45 m
Future Background 2035	Overall: 0.43 (A) 9 WBL = 0.58 (C) 25 WBR = 0.05 (C) 20 NBT = 0.24 (A) 5 NBR = 0.12 (A) 5 SBTL = 0.33 (A) 6	WBL = 35 m WBR = 10 m NBT = 20 m NBR = 5 m SBTL = 30 m	Overall: 0.54 (A) 9 WBL = 0.64 (C) 27 WBR = 0.04 (C) 21 NBT = 0.38 (A) 6 NBR = 0.19 (A) 5 SBTL = 0.46 (A) 7	WBL = 45 m WBR = 10 m NBT = 40 m NBR = 15 m SBTL = 40 m
Future Total 2035	Overall: 0.51 (B) 10 WBL = 0.68 (C) 26 WBR = 0.05 (B) 19 NBT = 0.30 (A) 7 NBR = 0.17 (A) 6 SBTL = 0.39 (A) 7	WBL = 45 m WBR = 10 m NBT = 25 m NBR = 10 m SBTL = 35 m	Overall: 0.66 (B) 11 WBL = 0.74 (C) 30 WBR = 0.06 (B) 20 NBT = 0.45 (A) 8 NBR = 0.26 (A) 7 SBTL = 0.56 (A) 8	WBL = 55 m WBR = 10 m NBT = 45 m NBR = 20 m SBTL = 50 m

Under existing conditions, the intersection of Main Street and Thompsons Road is operating with an overall v/c ratio of 0.31 LOS A and 0.39 LOS A during the a.m. and p.m. peak hours respectively. The intersection is operating with acceptable levels of delay for all individual movements with no critical movements reported.

Under the 2025 future background scenario, with the addition of corridor growth and background development site traffic, the overall v/c ratio of the intersection increases to 0.35 LOS A and 0.44 LOS A during the a.m. and p.m. peak hours. The intersection continues to operate without any critical movements.

With the addition of site traffic under the 2025 future total condition, the overall v/c ratio of the intersection is expected to increase to 0.43 LOS A and 0.55 LOS A during the a.m. and p.m. peak hours. The intersection continues to operate without any critical movements.

Under the 2030 future background scenario, with the addition of corridor growth and background development site traffic, the overall v/c ratio of the intersection increases to 0.38 LOS A and 0.49 LOS A during the a.m. and p.m. peak hours. The intersection continues to operate without critical movements.

With the addition of site traffic under the 2030 future total condition, the overall v/c ratio of the intersection is expected to increase to 0.47 LOS A and 0.60 LOS A during the a.m. and p.m. peak hours. The intersection continues to operate without any critical movements.

Under the 2035 future background scenario, with the addition of corridor growth and background development site traffic, the overall v/c ratio of the intersection increases to 0.43 LOS A and 0.54 LOS A during the a.m. and p.m. peak hours. The intersection continues to operate without any critical movements.

With the addition of site traffic under the 2035 future total condition, the overall v/c ratio of the intersection is expected to increase to 0.51 LOS A and 0.66 LOS B during the a.m. and p.m. peak hours and with no critical movements.

There are no improvements recommended at this intersection as a result of the proposed development.

## 8.5 Main Street and Edward Street

Capacity analysis for this intersection during the weekday a.m. and p.m. peak hours for the existing, future background, and future total traffic conditions are summarized in the following table.

**Table 9 Capacity analysis of Main Street and Edward Street**

Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95 <sup>th</sup> % Que.	V/C (LOS) seconds	95 <sup>th</sup> % Que
Existing 2022	Overall: 0.25 (A) 6 EBTLR = 0.05 (C) 24 WBTL = 0.45 (C) 27 WBR = 0.02 (C) 24 NBTLR = 0.21 (A) 3 SBTLR = 0.19 (A) 3	EBTLR = 5 m WBTL = 15 m WBR = 5 m NBTLR = 15 m SBTLR = 15 m	Overall: 0.38 (A) 8 EBTLR = 0.15 (C) 22 WBTL = 0.41 (C) 24 WBR = 0.02 (C) 22 NBTLR = 0.34 (A) 5 SBTLR = 0.26 (A) 4	EBTLR = 15 m WBTL = 20 m WBR = 0 m NBTLR = 25 m SBTLR = 20 m
Future Background 2025	Overall: 0.27 (A) 6 EBTLR = 0.04 (C) 25 WBTL = 0.37 (C) 27 WBR = 0.02 (C) 25 NBTLR = 0.24 (A) 4 SBTLR = 0.23 (A) 4	EBTLR = 5 m WBTL = 15 m WBR = 5 m NBTLR = 15 m SBTLR = 15 m	Overall: 0.44 (A) 8 EBTLR = 0.16 (C) 25 WBTL = 0.42 (C) 27 WBR = 0.02 (C) 24 NBTLR = 0.41 (A) 5 SBTLR = 0.29 (A) 4	EBTLR = 15 m WBTL = 20 m WBR = 0 m NBTLR = 35 m SBTLR = 25 m
Future Total 2025	Overall: 0.40 (A) 10 EBTLR = 0.03 (C) 23 WBTL = 0.68 (C) 33 WBR = 0.03 (C) 23 NBTLR = 0.30 (A) 5 SBTLR = 0.26 (A) 5	EBTLR = 5 m WBTL = 30 m WBR = 5 m NBTLR = 25 m SBTLR = 20 m	Overall: 0.63 (B) 12 EBTLR = 0.11 (C) 21 WBTL = 0.72 (C) 32 WBR = 0.03 (C) 20 NBTLR = 0.54 (A) 10 SBTLR = 0.37 (A) 7	EBTLR = 15 m WBTL = 50 m WBR = 5 m NBTLR = 55 m SBTLR = 35 m
Future Background 2030	Overall: 0.30 (A) 7 EBTLR = 0.04 (C) 24 WBTL = 0.40 (C) 27 WBR = 0.03 (C) 24 NBTLR = 0.26 (A) 4 SBTLR = 0.25 (A) 4	EBTLR = 5 m WBTL = 15 m WBR = 5 m NBTLR = 15 m SBTLR = 20 m	Overall: 0.49 (A) 8 EBTLR = 0.18 (C) 25 WBTL = 0.44 (C) 27 WBR = 0.02 (C) 24 NBTLR = 0.46 (A) 6 SBTLR = 0.32 (A) 4	EBTLR = 15 m WBTL = 25 m WBR = 5 m NBTLR = 40 m SBTLR = 30 m
Future Total 2030	Overall: 0.43 (A) 10 EBTLR = 0.03 (C) 23 WBTL = 0.69 (C) 34 WBR = 0.04 (C) 23 NBTLR = 0.33 (A) 6 SBTLR = 0.28 (A) 5	EBTLR = 5 m WBTL = 30 m WBR = 5 m NBTLR = 25 m SBTLR = 25 m	Overall: 0.67 (B) 12 EBTLR = 0.12 (C) 21 WBTL = 0.70 (C) 30 WBR = 0.03 (C) 20 NBTLR = 0.60 (B) 10 SBTLR = 0.41 (A) 8	EBTLR = 15 m WBTL = 50 m WBR = 5 m NBTLR = 60 m SBTLR = 40 m

Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95 <sup>th</sup> % Que.	V/C (LOS) seconds	95 <sup>th</sup> % Que
Future Background 2035	Overall: <u>0.34 (A) 7</u> EBTLR = 0.05 (C) 24 WBTL = 0.43 (C) 27 WBR = 0.03 (C) 24 NBTLR = 0.29 (A) 4 SBTLR = 0.28 (A) 4	EBTLR = 5 m WBTL = 20 m WBR = 5 m NBTLR = 20 m SBTLR = 20 m	Overall: <u>0.54 (A) 8</u> EBTLR = 0.19 (C) 25 WBTL = 0.49 (C) 27 WBR = 0.02 (C) 24 NBTLR = 0.52 (A) 6 SBTLR = 0.36 (A) 5	EBTLR = 15 m WBTL = 25 m WBR = 5 m NBTLR = 45 m SBTLR = 35 m
Future Total 2035	Overall: <u>0.46 (A) 10</u> EBTLR = 0.04 (C) 22 WBTL = 0.61 (C) 28 WBR = 0.04 (C) 22 NBTLR = 0.38 (A) 7 SBTLR = 0.33 (A) 6	EBTLR = 5 m WBTL = 30 m WBR = 5 m NBTLR = 30 m SBTLR = 30 m	Overall: <u>0.73 (B) 13</u> EBTLR = 0.13 (C) 21 WBTL = 0.72 (C) 31 WBR = 0.03 (C) 20 NBTLR = 0.68 (B) 12 SBTLR = 0.46 (A) 8	EBTLR = 15 m WBTL = 50 m WBR = 5 m NBTLR = 70 m SBTLR = 45 m

Under existing conditions, the intersection of Main Street and Edward Street is operating with an overall v/c ratio of 0.25 LOS A and 0.38 LOS A during the a.m. and p.m. peak hours respectively. The intersection is operating with acceptable levels of delay for all individual movements with no critical movements reported.

Under the 2025 future background scenario, with the addition of corridor growth, background development site traffic, and signal optimization, the overall v/c ratio of the intersection increases to 0.27 LOS A and 0.44 LOS A during the a.m. and p.m. peak hours. The intersection continues to report no critical movements.

With the addition of site traffic under the 2025 future total condition, the overall v/c ratio of the intersection is expected to increase to 0.40 LOS A and 0.63 LOS B during the a.m. and p.m. peak hours. The intersection continues to operate without a critical approach.

Under the 2030 future background scenario, with the addition of corridor growth, background development site traffic, and signal optimization, the overall v/c ratio of the intersection increases to 0.30 LOS A and 0.49 LOS A during the a.m. and p.m. peak hours. The intersection continues to report no critical movements.

With the addition of site traffic under the 2030 future total condition, the overall v/c ratio of the intersection is expected to increase to 0.43 LOS A and 0.67 LOS B during the a.m. and p.m. peak hours. The intersection continues to operate without a critical approach.

Under the 2035 future background scenario, with the addition of corridor growth, background development site traffic, and signal optimization, the overall v/c ratio of the intersection increases to 0.34 LOS A and 0.54 LOS A during the a.m. and p.m. peak hours. The intersection continues to report no critical movements.

With the addition of site traffic under the 2035 future total condition, the overall v/c ratio of the intersection is expected to increase to 0.46 LOS A and 0.73 LOS B during the a.m. and p.m. peak hours. The intersection continues to report no critical movements.

There are no improvements recommended at this intersection as a result of the proposed development.

## 8.6 Dunlop Street and Robert Street East

Capacity analysis at this intersection during the weekday a.m. and p.m. peak hours for the existing, future background, and future total traffic conditions are summarized in the following table.



**Table 10 Capacity analysis of Dunlop Street and Robert Street East**

Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95 <sup>th</sup> % Que.	V/C (LOS) seconds	95 <sup>th</sup> % Que
Existing 2022	EBTR = 0.15 (A) 0 WBTL = 0.08 (A) 3 NBLR = 0.21 (B) 13	EBTR = 0 m WBTL = 5 m NBLR = 5 m	EBTL = 0.01 (A) 1 WBTR = 0.15 (A) 0 SBLR = 0.08 (B) 11	EBTL = 5 m WBTR = 0 m SBLR = 5 m
Future Background 2025	EBTR = 0.17 (A) 0 WBTL = 0.09 (A) 3 NBLR = 0.25 (B) 15	EBTR = 0 m WBTL = 5 m NBLR = 10 m	EBTR = 0.12 (A) 0 WBTL = 0.04 (A) 2 NBLR = 0.11 (B) 11	EBTR = 0 m WBTL = 5 m NBLR = 5 m
Future Total 2025	EBTR = 0.27 (A) 0 WBTL = 0.10 (A) 3 NBLR = 0.39 (C) 21	EBTR = 0 m WBTL = 5 m NBLR = 15 m	EBTR = 0.17 (A) 0 WBTL = 0.04 (A) 1 NBLR = 0.17 (B) 13	EBTR = 0 m WBTL = 5 m NBLR = 5 m
Future Background 2030	EBTR = 0.18 (A) 0 WBTL = 0.10 (A) 3 NBLR = 0.29 (C) 16	EBTR = 0 m WBTL = 5 m NBLR = 10 m	EBTR = 0.13 (A) 0 WBTL = 0.04 (A) 2 NBLR = 0.13 (B) 11	EBTR = 0 m WBTL = 5 m NBLR = 5 m
Future Total 2030	EBTR = 0.28 (A) 0 WBTL = 0.12 (A) 3 NBLR = 0.46 (C) 24	EBTR = 0 m WBTL = 5 m NBLR = 20 m	EBTR = 0.18 (A) 0 WBTL = 0.05 (A) 1 NBLR = 0.20 (B) 14	EBTR = 0 m WBTL = 5 m NBLR = 5 m
Future Background 2035	EBTR = 0.20 (A) 0 WBTL = 0.11 (A) 3 NBLR = 0.36 (C) 18	EBTR = 0 m WBTL = 5 m NBLR = 15 m	EBTR = 0.14 (A) 0 WBTL = 0.05 (A) 2 NBLR = 0.14 (B) 12	EBTR = 0 m WBTL = 5 m NBLR = 5 m
Future Total 2035	EBTR = 0.30 (A) 0 WBTL = 0.13 (A) 4 NBLR = 0.55 (D) 30	EBTR = 0 m WBTL = 5 m NBLR = 25 m	EBTR = 0.19 (A) 0 WBTL = 0.05 (A) 2 NBLR = 0.22 (B) 15	EBTR = 0 m WBTL = 5 m NBLR = 10 m

Under existing, future background and future total traffic conditions, the intersection of Dunlop Street and Robert Street East is reporting acceptable v/c ratios, low levels of delay and minimal queueing along Robert Street East. All intersection movements under all future scenarios are reporting LOS of D or better.

No geometric improvements were identified at this intersection to accommodate the proposed development.

## 8.7 Dunlop Street and Edward Street

Capacity analysis for this intersection during the weekday a.m. and p.m. peak hours for the existing, future background, and future total traffic conditions are summarized in the following table.

**Table 11 Capacity analysis of Dunlop Street and Edward Drive**

Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95 <sup>th</sup> % Que.	V/C (LOS) seconds	95 <sup>th</sup> % Que
Existing 2022	EBL = 0.03 (A) 7 SBR = 0.07 (A) 9	EBL = 0 m SBR = 0 m	EBL = 0.03 (A) 7 SBR = 0.04 (A) 9	EBL = 0 m SBR = 0 m
Future Background 2025	EBTLR = 0.04 (A) 7 WBTLR = 0 (A) 0 NBTLR = 0 (A) 0 SBTLR = 0.08 (A) 9	EBTLR = 5 m WBTLR = 0 m NBTLR = 0 m SBTLR = 5 m	EBTLR = 0.03 (A) 7 WBTLR = 0 (A) 0 NBTLR = 0 (A) 0 SBTLR = 0.04 (A) 8	EBTLR = 5 m WBTLR = 0 m NBTLR = 0 m SBTLR = 5 m
Future Total 2025	EBTLR = 0.04 (A) 2 WBTLR = 0 (A) 0 NBTLR = 0.04 (B) 12 SBTLR = 0.11 (A) 10	EBTLR = 5 m WBTLR = 0 m NBTLR = 5 m SBTLR = 5 m	EBTLR = 0.03 (A) 2 WBTLR = 0 (A) 0 NBTLR = 0.03 (B) 12 SBTLR = 0.08 (B) 10	EBTLR = 5 m WBTLR = 5 m NBTLR = 5 m SBTLR = 5 m

Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95 <sup>th</sup> % Que.	V/C (LOS) seconds	95 <sup>th</sup> % Que
Future Background 2030	EBTLR = 0.04 (A) 7 WBTLR = 0 (A) 0 NBTLR = 0 (A) 0 SBTLR = 0.08 (A) 9	EBTLR = 5 m WBTLR = 0 m NBTLR = 0 m SBTLR = 5 m	EBTLR = 0.03 (A) 7 WBTLR = 0 (A) 0 NBTLR = 0 (A) 0 SBTLR = 0.05 (A) 8	EBTLR = 5 m WBTLR = 0 m NBTLR = 0 m SBTLR = 5 m
Future Total 2030	EBTLR = 0.04 (A) 3 WBTLR = 0 (A) 0 NBTLR = 0.05 (B) 12 SBTLR = 0.12 (A) 10	EBTLR = 5 m WBTLR = 0 m NBTLR = 5 m SBTLR = 5 m	EBTLR = 0.04 (A) 2 WBTLR = 0 (A) 0 NBTLR = 0.03 (B) 12 SBTLR = 0.09 (B) 10	EBTLR = 5 m WBTLR = 5 m NBTLR = 5 m SBTLR = 5 m
Future Background 2035	EBTLR = 0.04 (A) 7 WBTLR = 0 (A) 0 NBTLR = 0 (A) 0 SBTLR = 0.09 (A) 9	EBTLR = 5 m WBTLR = 0 m NBTLR = 0 m SBTLR = 5 m	EBTLR = 0.03 (A) 7 WBTLR = 0 (A) 0 NBTLR = 0 (A) 0 SBTLR = 0.05 (A) 8	EBTLR = 5 m WBTLR = 0 m NBTLR = 0 m SBTLR = 5 m
Future Total 2035	EBTLR = 0.05 (A) 3 WBTLR = 0 (A) 0 NBTLR = 0.05 (B) 13 SBTLR = 0.13 (A) 10	EBTLR = 5 m WBTLR = 0 m NBTLR = 5 m SBTLR = 5 m	EBTLR = 0.04 (A) 2 WBTLR = 0 (A) 0 NBTLR = 0.03 (B) 12 SBTLR = 0.09 (B) 10	EBTLR = 5 m WBTLR = 5 m NBTLR = 5 m SBTLR = 5 m

Under existing, future background and future total traffic conditions, the intersection of Dunlop Street and Robert Street East reporting acceptable v/c ratios, low levels of delay and minimal queueing along Robert Street East. Under the future total 2035 traffic scenario, the intersection is reported to operate with all movements at LOS B or better and with minimal queueing.

No geometric improvements were identified at this intersection to accommodate the proposed development.

## 8.8 Street A and Gauthier Drive Extension

Capacity analysis for this intersection during the weekday a.m. and p.m. peak hours for the future total traffic conditions are summarized in the following table.

**Table 12 Capacity analysis of Street A and Gauthier Drive Extension**

Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95 <sup>th</sup> % Que.	V/C (LOS) seconds	95 <sup>th</sup> % Que
Future Total 2025	EBTLR = 0 (A) 0 WBTLR = 0.02 (B) 10 NBTLR = 0 (A) 0 SBTLR = 0.02 (A) 2	EBTLR = 0 m WBTLR = 5 m NBTLR = 0 m SBTLR = 5 m	EBTLR = 0 (A) 0 WBTLR = 0.11 (B) 10 NBTLR = 0 (A) 0 SBTLR = 0.02 (A) 2	EBTLR = 0 m WBTLR = 5 m NBTLR = 0 m SBTLR = 5 m
Future Total 2030	EBTLR = 0 (A) 0 WBTLR = 0.02 (B) 10 NBTLR = 0 (A) 0 SBTLR = 0.02 (A) 2	EBTLR = 0 m WBTLR = 5 m NBTLR = 0 m SBTLR = 5 m	EBTLR = 0 (A) 0 WBTLR = 0.11 (B) 10 NBTLR = 0 (A) 0 SBTLR = 0.02 (A) 2	EBTLR = 0 m WBTLR = 5 m NBTLR = 0 m SBTLR = 5 m
Future Total 2035	EBTLR = 0 (A) 0 WBTLR = 0.02 (B) 10 NBTLR = 0 (A) 0 SBTLR = 0.02 (A) 2	EBTLR = 0 m WBTLR = 5 m NBTLR = 0 m SBTLR = 5 m	EBTLR = 0 (A) 0 WBTLR = 0.11 (B) 10 NBTLR = 0 (A) 0 SBTLR = 0.02 (A) 2	EBTLR = 0 m WBTLR = 5 m NBTLR = 0 m SBTLR = 5 m

Under future total traffic conditions, the intersection is reporting good v/c ratios, low levels of delay (a maximum of 10 seconds being observed during both future total scenarios) and low queueing.

## 8.9 Thompson Road and Gauthier Drive Extension

Capacity analysis for this intersection during the weekday a.m. and p.m. peak hours for the future total traffic conditions are summarized in the following table.

**Table 13 Capacity analysis of Thompson Road and Gauthier Drive Extension**

Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95 <sup>th</sup> % Que.	V/C (LOS) seconds	95 <sup>th</sup> % Que
Future Total 2025	EBLR = 0.01 (B) 10 NBTL = 0 (A) 0 SBTR = 0.10 (A) 0	EBLR = 5 m NBTL = 0 m SBTR = 0 m	EBLR = 0.05 (A) 10 NBTL = 0 (A) 0 SBTR = 0.05 (A) 0	EBLR = 5 m NBTL = 0 m SBTR = 0 m
Future Total 2030	EBLR = 0.01 (B) 10 NBTL = 0 (A) 0 SBTR = 0.10 (A) 0	EBLR = 5 m NBTL = 0 m SBTR = 0 m	EBLR = 0.05 (A) 10 NBTL = 0 (A) 0 SBTR = 0.05 (A) 0	EBLR = 5 m NBTL = 0 m SBTR = 0 m
Future Total 2035	EBLR = 0.01 (B) 10 NBTL = 0 (A) 0 SBTR = 0.11 (A) 0	EBLR = 5 m NBTL = 0 m SBTR = 0 m	EBLR = 0.05 (A) 10 NBTL = 0 (A) 0 SBTR = 0.05 (A) 0	EBLR = 5 m NBTL = 0 m SBTR = 0 m

Under future total traffic conditions, the intersection is reporting good v/c ratios, low levels of delay (a maximum of 10 seconds reported) and little to no queueing.

## 8.10 Street I and Edward Street

Capacity analysis for this intersection during the weekday a.m. and p.m. peak hours for the future total traffic conditions are summarized in the following table.

**Table 14 Capacity analysis of Street I and Edward Street**

Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95 <sup>th</sup> % Que.	V/C (LOS) seconds	95 <sup>th</sup> % Que
Future Total 2025	EBTR = 0.07 (A) 0 WBTL = 0 (A) 0 NBLR = 0.04 (A) 9	EBTR = 0 m WBTL = 5 m NBLR = 5 m	EBTR = 0.08 (A) 0 WBTL = 0.01 (A) 0 NBLR = 0.03 (A) 10	EBTR = 0 m WBTL = 5 m NBLR = 5 m
Future Total 2030	EBTR = 0.07 (A) 0 WBTL = 0 (A) 0 NBLR = 0.04 (A) 9	EBTR = 0 m WBTL = 5 m NBLR = 5 m	EBTR = 0.08 (A) 0 WBTL = 0.01 (A) 0 NBLR = 0.03 (A) 10	EBTR = 0 m WBTL = 5 m NBLR = 5 m
Future Total 2035	EBTR = 0.07 (A) 0 WBTL = 0 (A) 0 NBLR = 0.04 (A) 9	EBTR = 0 m WBTL = 5 m NBLR = 5 m	EBTR = 0.08 (A) 0 WBTL = 0.01 (A) 0 NBLR = 0.03 (A) 10	EBTR = 0 m WBTL = 5 m NBLR = 5 m

Under future total traffic conditions, the intersection is reporting good v/c ratios, low levels of delay (a maximum of 9 seconds and 10 seconds reported during both the a.m. and p.m. peak hour) and little to no queueing.

## 8.11 Street A and Edward Street

Capacity analysis for this intersection during the weekday a.m. and p.m. peak hours for the future total traffic conditions are summarized in the following table.

**Table 15 Capacity analysis of Street A and Edward Street**

Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95 <sup>th</sup> % Que.	V/C (LOS) seconds	95 <sup>th</sup> % Que
Future Total 2025	EBTLR = 0.05 (A) 5 WBTLR = 0 (A) 1 NBTLR = 0.06 (B) 11 SBTLR = 0.10 (A) 10	EBTLR = 5 m WBTLR = 0 m NBTLR = 5 m SBTLR = 5 m	EBTLR = 0.05 (A) 5 WBTLR = 0 (A) 0 NBTLR = 0.05 (B) 11 SBTLR = 0.15 (A) 10	EBTLR = 5 m WBTLR = 0 m NBTLR = 5 m SBTLR = 5 m
Future Total 2030	EBTLR = 0.05 (A) 5 WBTLR = 0 (A) 1 NBTLR = 0.06 (B) 11 SBTLR = 0.10 (A) 10	EBTLR = 5 m WBTLR = 0 m NBTLR = 5 m SBTLR = 5 m	EBTLR = 0.05 (A) 5 WBTLR = 0 (A) 0 NBTLR = 0.05 (B) 11 SBTLR = 0.15 (A) 10	EBTLR = 5 m WBTLR = 0 m NBTLR = 5 m SBTLR = 5 m
Future Total 2035	EBTLR = 0.05 (A) 5 WBTLR = 0 (A) 1 NBTLR = 0.06 (B) 11 SBTLR = 0.10 (A) 10	EBTLR = 5 m WBTLR = 0 m NBTLR = 5 m SBTLR = 5 m	EBTLR = 0.05 (A) 5 WBTLR = 0 (A) 0 NBTLR = 0.05 (B) 11 SBTLR = 0.15 (A) 10	EBTLR = 5 m WBTLR = 0 m NBTLR = 5 m SBTLR = 5 m

Under future total traffic conditions, the intersection is reporting good v/c ratios, low levels of delay (a maximum of 11 seconds reported) and little to no queueing.

## 8.12 Thompson Road and Edward Street

Capacity analysis for this intersection during the weekday a.m. and p.m. peak hours for the future total traffic conditions are summarized in the following table.

**Table 16 Capacity analysis of Dunlop Street and Edward Drive**

Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95 <sup>th</sup> % Que.	V/C (LOS) seconds	95 <sup>th</sup> % Que
Future Total 2025	EBLR = 0.04 (A) 10 NBTL = 0 (A) 0 SBTR = 0.06 (A) 0	EBLR = 5 m NBTL = 0 m SBTR = 0 m	EBLR = 0.04 (A) 9 NBTL = 0 (A) 0 SBTR = 0.04 (A) 0	EBLR = 5 m NBTL = 0 m SBTR = 0 m
Future Total 2030	EBLR = 0.04 (A) 10 NBTL = 0 (A) 0 SBTR = 0.06 (A) 0	EBLR = 5 m NBTL = 0 m SBTR = 0 m	EBLR = 0.04 (A) 9 NBTL = 0 (A) 0 SBTR = 0.04 (A) 0	EBLR = 5 m NBTL = 0 m SBTR = 0 m
Future Total 2035	EBLR = 0.04 (B) 10 NBTL = 0 (A) 0 SBTR = 0.07 (A) 0	EBLR = 5 m NBTL = 0 m SBTR = 0 m	EBLR = 0.04 (A) 9 NBTL = 0 (A) 0 SBTR = 0.04 (A) 0	EBLR = 5 m NBTL = 0 m SBTR = 0 m

Under future total traffic conditions, the intersection is reporting good v/c ratios, low levels of delay (a maximum of 10 seconds and 9 seconds reported during the a.m. and p.m. peak hour) and little to no queueing.

## 8.13 Thompson Road and Dunlop Street

Capacity analysis for this intersection during the weekday a.m. and p.m. peak hours for the future total traffic conditions are summarized in the following table.

**Table 17 Capacity analysis of Thompson Road and Dunlop Street**

Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95 <sup>th</sup> % Que.	V/C (LOS) seconds	95 <sup>th</sup> % Que
Future Total 2025	EBTL = 0 (A) 0 WBTR = 0.17 (A) 0 SBLR = 0.01 (B) 10	EBTL = 5 m WBTR = 0 m SBLR = 5 m	EBTL = 0 (A) 1 WBTR = 0.04 (A) 0 SBLR = 0.01 (A) 9	EBTL = 5 m WBTR = 0 m SBLR = 5 m
Future Total 2030	EBTL = 0 (A) 0 WBTR = 0.18 (A) 0 SBLR = 0.01 (B) 10	EBTL = 5 m WBTR = 0 m SBLR = 5 m	EBTL = 0 (A) 1 WBTR = 0.04 (A) 0 SBLR = 0.01 (A) 9	EBTL = 5 m WBTR = 0 m SBLR = 5 m
Future Total 2035	EBTL = 0 (A) 0 WBTR = 0.20 (A) 0 SBLR = 0.01 (B) 10	EBTL = 5 m WBTR = 0 m SBLR = 5 m	EBTL = 0 (A) 1 WBTR = 0.04 (A) 0 SBLR = 0.01 (A) 9	EBTL = 5 m WBTR = 0 m SBLR = 5 m

Under future total traffic conditions, the intersection is reporting good v/c ratios, low levels of delay (a maximum of 10 seconds and 9 seconds reported during the a.m. and p.m. peak hour's) and little to no queuing.

## 8.14 Thompson Road and Street I

Capacity analysis for this intersection during the weekday a.m. and p.m. peak hours for the future total traffic conditions are summarized in the following table.

**Table 18 Capacity analysis of Thompson Road and Street I**

Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95 <sup>th</sup> % Que.	V/C (LOS) seconds	95 <sup>th</sup> % Que
Future Total 2025	EBTL = 0 (A) 0 WBTR = 0.16 (A) 0 SBLR = 0.01 (A) 10	EBTL = 5 m WBTR = 0 m SBLR = 5 m	EBTL = 0.01 (A) 1 WBTR = 0.04 (A) 0 SBLR = 0 (A) 9	EBTL = 5 m WBTR = 0 m SBLR = 5 m
Future Total 2030	EBTL = 0 (A) 0 WBTR = 0.17 (A) 0 SBLR = 0.01 (A) 10	EBTL = 5 m WBTR = 0 m SBLR = 5 m	EBTL = 0.01 (A) 1 WBTR = 0.04 (A) 0 SBLR = 0 (A) 9	EBTL = 5 m WBTR = 0 m SBLR = 5 m
Future Total 2035	EBTL = 0 (A) 0 WBTR = 0.19 (A) 0 SBLR = 0.02 (B) 10	EBTL = 5 m WBTR = 0 m SBLR = 5 m	EBTL = 0.01 (A) 1 WBTR = 0.04 (A) 0 SBLR = 0 (A) 9	EBTL = 5 m WBTR = 0 m SBLR = 5 m

Under future total traffic conditions, the intersection is reporting good v/c ratios, low levels of delay (a maximum of 10 seconds and 9 seconds reported during the a.m. and p.m. peak hour) and little to no queuing.

## 8.15 Thompson Road and Street A

Capacity analysis for this intersection during the weekday a.m. and p.m. peak hours for future total traffic conditions are summarized in the following table.

**Table 19 Capacity analysis of Thompson Road and Street A**

Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95 <sup>th</sup> % Que.	V/C (LOS) seconds	95 <sup>th</sup> % Que
Future Total 2025	EBTL = 0.01 (A) 0 WBTR = 0.14 (A) 0 SBLR = 0.04 (A) 10	EBTL = 5 m WBTR = 0 m SBLR = 5 m	EBTL = 0.02 (A) 3 WBTR = 0.03 (A) 0 SBLR = 0.01 (A) 9	EBTL = 5 m WBTR = 0 m SBLR = 5 m

Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95 <sup>th</sup> % Que.	V/C (LOS) seconds	95 <sup>th</sup> % Que
Future Total 2030	EBTL = 0.01 (A) 0 WBTR = 0.15 (A) 0 SBLR = 0.04 (A) 10	EBTL = 5 m WBTR = 0 m SBLR = 5 m	EBTL = 0.02 (A) 3 WBTR = 0.03 (A) 0 SBLR = 0.01 (A) 9	EBTL = 5 m WBTR = 0 m SBLR = 5 m
Future Total 2035	EBTL = 0.01 (A) 0 WBTR = 0.17 (A) 0 SBLR = 0.04 (A) 10	EBTL = 5 m WBTR = 0 m SBLR = 5 m	EBTL = 0.02 (A) 3 WBTR = 0.03 (A) 0 SBLR = 0.01 (A) 9	EBTL = 5 m WBTR = 0 m SBLR = 5 m

Under the future total traffic conditions, the intersection is reporting good v/c ratios, low levels of delay (a maximum of 10 seconds and 9 seconds being observed during the a.m. and p.m. peak hours) and little to no queueing.

## 9. Sensitivity Analysis for Robert Street East and Burke Street/Dufferin Street

Town staff requested GHD review the current configuration of the unsignalized intersection of Robert Street East and Burke Street/Dufferin Street as part of this study. Under existing conditions, Robert Street East and Burke Street/Dufferin Street is a four-leg intersection, with two of the four legs located within the north approach and intersecting Robert Street East on a skew. This request also stems from concerns raised by local residents on the safety of the intersection including complaints of speeding vehicles travelling westbound along Robert Street East and turning onto Burke Street. An photo of the existing intersection from Google Earth is provided in Figure 13.



Figure 13 Existing Configuration of Robert Street E and Burke St/Dufferin St

Under future conditions, the proposed development will introduce an additional leg to the south of Robert Street East. While the capacity analysis of the future traffic conditions confirmed that the stop controlled intersection would continue to operate with acceptable v/c ratios, delays and queuing, GHD assessed options for the reconfiguration of this intersection, including signalization of the intersection and introduction of a roundabout.

## 9.1 Signalized Intersection

As the fifth leg is added to the intersection, the intersection will operate with additional delays and queuing however, a signal warrant continues to not be warranted at this intersection under the future total traffic scenario. However, should the Town decide to signalize this intersection to address some of the concerns from local residents, it is proposed that the existing Burke Street connection to Dufferin Street be eliminated by introducing a cul-de-sac on Burke Street. There are a total of ten existing residential units with driveways on Burke Street which would be required to use Lecarron Avenue to access Robert Street East and other local streets to access Dufferin Street.

The concept drawing was prepared for the cul-de-sac along Burke Street and is provided in **Figure 14** below. The drawing is also provided in **Appendix F**. The cul-de-sac size and design is consistent with the Town of Penetanguishene's Drawing No. 6 – Permanent Urban Residential Cul-De-Sac.

A capacity analysis was completed for this intersection under signalized intersection and is provided in **Section 9.1.1**. The traffic volumes remained the same as the future total traffic volumes and assumed that there would not be a significant redistribution of traffic as a result of terminating Burke Street with a cul-de-sac.



**Figure 14** *Burke Street Cul-de-sac Concept Drawing*

### 9.1.1 Robert Street East and Dufferin Street/Street A

Capacity analysis for this intersection during the weekday a.m. and p.m. peak hours for future total traffic conditions are summarized in the following table.

**Table 20 Capacity analysis of Robert Street East and Dufferin Street/Street A - Signalized**

Scenario	AM Peak Hour		PM Peak Hour	
	V/C (LOS) seconds	95 <sup>th</sup> % Que.	V/C (LOS) seconds	95 <sup>th</sup> % Que
Future Total 2025	Overall: 0.36 (B) 11 EBTLR = 0.42 (A) 10 WBTLR = 0.46 (B) 10 NBTLR = 0.11 (B) 14 SBTLR = 0.22 (B) 16	EBTLR = 25 m WBTLR = 25 m NBTLR = 10 m SBTLR = 15 m	Overall: 0.36 (B) 12 EBTLR = 0.29 (B) 10 WBTLR = 0.42 (B) 12 NBTLR = 0.28 (B) 14 SBTLR = 0.11 (B) 12	EBTLR = 30 m WBTLR = 40 m NBTLR = 25 m SBTLR = 15 m
Future Total 2030	Overall: 0.39 (B) 12 EBTLR = 0.45 (B) 10 WBTLR = 0.49 (B) 11 NBTLR = 0.11 (B) 14 SBTLR = 0.24 (B) 16	EBTLR = 30 m WBTLR = 30 m NBTLR = 10 m SBTLR = 15 m	Overall: 0.38 (B) 12 EBTLR = 0.31 (B) 10 WBTLR = 0.45 (B) 12 NBTLR = 0.29 (B) 14 SBTLR = 0.13 (B) 12	EBTLR = 30 m WBTLR = 45 m NBTLR = 25 m SBTLR = 15 m
Future Total 2035	Overall: 0.43 (B) 12 EBTLR = 0.47 (A) 10 WBTLR = 0.51 (B) 11 NBTLR = 0.11 (B) 15 SBTLR = 0.28 (B) 17	EBTLR = 30 m WBTLR = 30 m NBTLR = 10 m SBTLR = 15 m	Overall: 0.4 (B) 12 EBTLR = 0.32 (A) 10 WBTLR = 0.47 (B) 12 NBTLR = 0.3 (B) 15 SBTLR = 0.14 (B) 13	EBTLR = 30 m WBTLR = 50 m NBTLR = 25 m SBTLR = 15 m

Under all future total traffic conditions, the intersection is reporting good v/c ratios, low levels of delay and low queueing. By the 2035 future horizon year, the intersection is expected to operate with an overall v/c ratio of 0.43 LOS B and 0.40 LOS B during the a.m. and p.m. peak hours, respectively.

Key considerations when considering the signalization of this intersection is the additional property required from the property south of Burke Street to construct the cul-de-sac. The initial costs of traffic signals is around \$300,000 to \$350,000 and will require general maintenance costs each year and electrical costs to operate the signals.

## 9.2 Roundabout

Town staff also requested a review to assess a potential roundabout for the intersection. The design of the roundabout looked at including all five approaches connecting to the intersection, but given constraints on the geometry and land, this design was not feasible.

GHD prepared a concept drawing showing a possible roundabout at the intersection of Robert Street East and Burke Street/Dufferin Street/Street A which is provided in **Figure 15** below. The concept drawing of the roundabout includes a slip lane serving as a right-out access from Burke Street onto the westbound lane of Robert Street East. This option will require a hammerhead turnaround spot be provided at the end of Burke Street to allow waste vehicles to turnaround when collecting waste from the end unit, or waste vehicle can back up and use the right turn lane to exit to Robert Street East.

A capacity analysis was completed for the proposed roundabout using ARCADY analysis tool and is provided in **Section 9.2.1**. The traffic volumes remained the same as the future total traffic volumes and assumed that there would not be a significant redistribution of traffic as a result of the roundabout.





Figure 15 Robert Street East and Burke Street/Dufferin Street/Street A Roundabout Concept Drawing

### 9.2.1 Robert Street East and Dufferin Street/Street A

Table 21 Capacity analysis of Robert Street East and Dufferin Street/Street A - Roundabout

Traffic Condition	Location	AM Peak Hour			PM Peak Hour		
		V/C Ratio	LOS	Que	V/C Ratio	LOS	Que
Future Total 2025 (85% y-intercept)	SB Dufferin Street	0.08	A	<25 m	0.08	A	<25 m
	EB Robert Street East	0.21	A	<25 m	0.19	A	<25 m
	NB Street A	0.05	A	<25 m	0.15	A	<25 m
	WB Robert Street East	0.21	A	<25 m	0.29	A	<25 m
Future Total 2025 (100% y-intercept)	SB Dufferin Street	0.06	A	<25 m	0.06	A	<25 m
	EB Robert Street East	0.18	A	<25 m	0.16	A	<25 m
	NB Street A	0.04	A	<25 m	0.12	A	<25 m
	WB Robert Street East	0.18	A	<25 m	0.24	A	<25 m
Future Total 2030	SB Dufferin Street	0.08	A	<25 m	0.08	A	<25 m

Traffic Condition	Location	AM Peak Hour			PM Peak Hour		
		V/C Ratio	LOS	Que	V/C Ratio	LOS	Que
(85% y-intercept)	EB Robert Street East	0.23	A	<25 m	0.21	A	<25 m
	NB Street A	0.05	A	<25 m	0.15	A	<25 m
	WB Robert Street East	0.23	A	<25 m	0.31	A	<25 m
Future Total 2030 (100% y-intercept)	SB Dufferin Street	0.07	A	<25 m	0.07	A	<25 m
	EB Robert Street East	0.19	A	<25 m	0.18	A	<25 m
	NB Street A	0.04	A	<25 m	0.13	A	<25 m
	WB Robert Street East	0.19	A	<25 m	0.26	A	<25 m
Future Total 2030 (85% y-intercept)	SB Dufferin Street	0.09	A	<25 m	0.09	A	<25 m
	EB Robert Street East	0.24	A	<25 m	0.22	A	<25 m
	NB Street A	0.05	A	<25 m	0.15	A	<25 m
	WB Robert Street East	0.25	A	<25 m	0.33	A	<25 m
Future Total 2030 (100% y-intercept)	SB Dufferin Street	0.08	A	<25 m	0.07	A	<25 m
	EB Robert Street East	0.20	A	<25 m	0.19	A	<25 m
	NB Street A	0.04	A	<25 m	0.13	A	<25 m
	WB Robert Street East	0.21	A	<25 m	0.28	A	<25 m

Under the 2025, 2030, and 2030 future total conditions, the roundabout is expected to operate satisfactorily using both a 15% y-intercept and 0% y-intercept. The 15% y-intercept is used to take into consideration a driver's unfamiliarity with a roundabout which would cause a minor delay. As drivers familiarize themselves with roundabouts, the operation of the intersection is represented by the 0% y-intercept analysis. Upon the 2035 future total scenario, the 95<sup>th</sup> percentile queue length remains below 25 metres using a 0% and 15% y-intercept.

Key considerations when assessing the feasibility of the roundabout option is the amount of land required to accommodate the roundabout design on the lands south of Burke Street for the right turn lane and from lands south of Robert Street East to provide the south leg and splitter islands. The initial cost of constructing a roundabout is also significantly higher than a signalized intersection (expected to be over \$1,000,000.00) but will require less maintenance costs over the years.

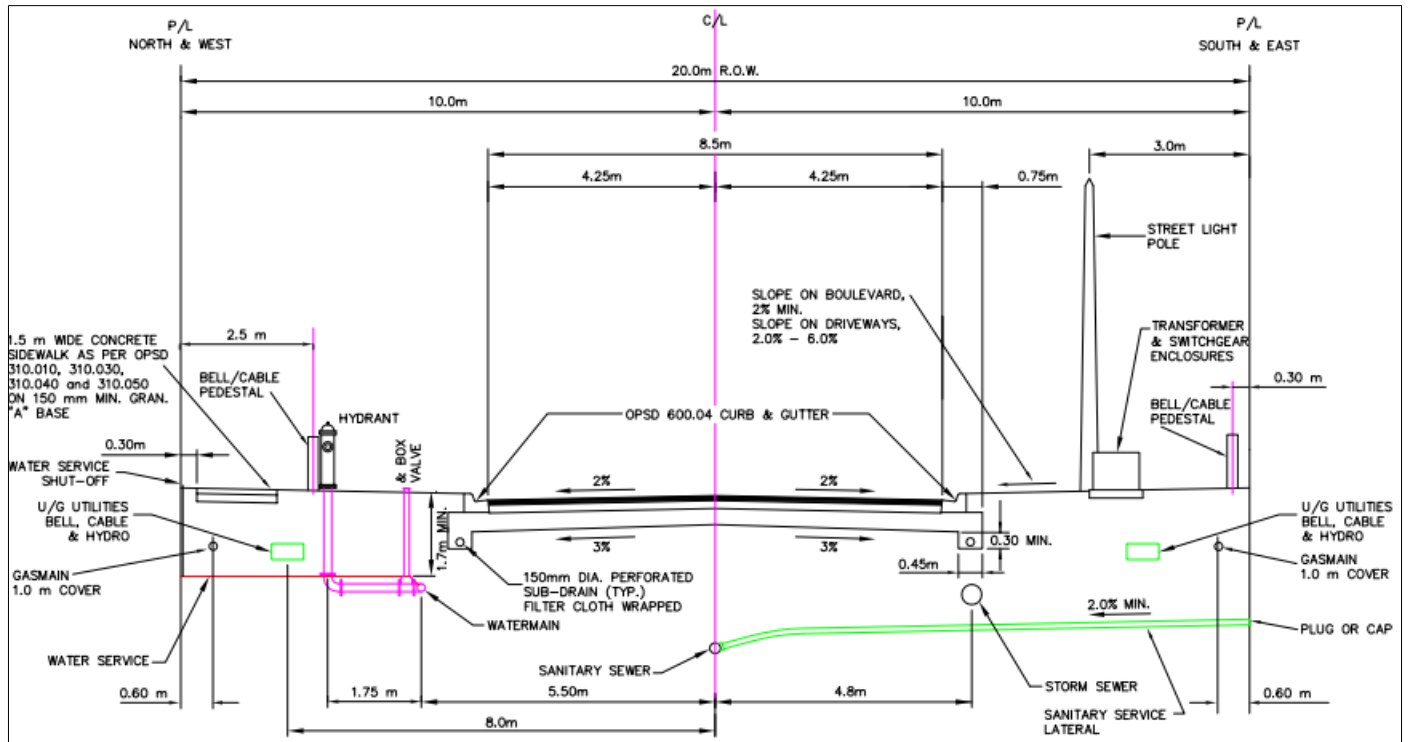
## 10. Internal Road Geometric Review

The Town of Penetanguishene's Land Development Engineering Policy provides guidance on the right-of-way width for residential streets must be a minimum of 20 metres. Proposed Streets A-K all have a 20 metre right-of-way, satisfying the Town's Policy for residential streets.

Within the 20-metre right-of-way, sidewalks are required to be placed on either the north or west side of the, depending on the direction of travel of the roadway. The sidewalks are required to have a width of 2.5 metres and be located 3.25 metres from the edge of pavement of the road.

These requirements are provided within the Town's Land Development Engineering Policy in DWG. No. 1., Standard Urban Residential Road Section, and outline the other requirements for residential roads.

The required cross-section for a 20 metre road is provided in **Figure 16**



**Figure 16** Town of Penetanguishene DWG. No. 1

A private laneway, identified as Lane L on the proposed Draft Plan of Subdivision, is provided between the townhomes located in the southeast corner of the subdivision with an 8 metre right-of-way. Although the Town does not provide a typical cross-section, the 8 metre right-of-way typically allows for a 6.0-6.4 metre roadway plus a 1.5 sidewalk and is consistent with other plans approved by the Town.

## 11. Conclusion

The proposed draft plan of subdivision consists of a total of 555 dwelling units and 8.087 hectares of employment lands.

Access to the proposed subdivision is proposed via a series of new roads connecting onto the municipal roads and includes Robert Street East, Thompsons Road, and Edward Street.

The proposed subdivision is expected to generate a total of 623 new two-way trips consisting of 368 inbound and 255 outbound trips during weekday a.m. peak hour and 951 new two-way trips consisting of 409 inbound and 542 outbound trips during the weekday p.m. peak hour. The trip generation for the employment lands were estimated based on the average trip generation of the possible land uses.

The overall impact of the development generated traffic is negligible to the operation of the study area intersections and traffic flow along the existing municipal roads of Robert Street East, Fuller Avenue, Main Street, Thompsons Road Street and all other study area roadways.

Concept drawings were prepared for alternative configurations to the intersection of Robert Street East and Burke Street/Dufferin Street. The two alternative scenarios included the addition of a cul-de-sac along Burke Street in order to signalize the remaining approaches to the intersections as well as reconfiguring the intersection into a four-legged roundabout.

GHD analyzed this intersection under the existing geometric design and also for two options to modify the geometry of the intersection including introducing a roundabout or signalization. The assessment concluded that any option besides the existing stop control would require Burke Street to be terminated with a cul-de-sac to improve lane geometry and operation.

GHD completed a capacity analysis of future total traffic conditions for existing and both alternatives and determined that the intersection is expected to continue to operate with acceptable delays and queuing under the intersection geometry and stop control and under both the roundabout and traffic signal options.

Improvements to the geometry of the intersection are based on existing conditions and not triggered or made worse by the proposed development. In reviewing this intersection for potential improvement, the Town will have to consider the land requirements and environmental impacts of both options in their evaluation.

Proposed Streets A-K will be constructed with 20 metre right-of-ways as outlined in the Town of Penetanguishene's Land Development Engineering Policy. Within the 20-metre right-of-way, sidewalks will be provided on either the north or west side

The Town of Penetanguishene's Land Development Engineering Policy DWG. No. 1., Standard Urban Residential Road Section has outlined that the right-of-way width for residential streets must be a minimum of 20 metres. Proposed Streets A-K all have a 20-metre right-of-way, satisfying the Town's Policy for residential streets. Within the 20-metre right-of-way, sidewalks are required to be placed on either the north or west side of the road depending on the orientation of the road. The sidewalks are required to have a width of 2.5 metres and be located 3.25 metres from the edge of pavement of the road.

A private laneway, identified as Lane L on the proposed Draft Plan of Subdivision, is provided between the townhomes located in the southeast corner of the subdivision with an 8 metre right-of-way. Although the Town does not provide a typical cross-section, the 8 metre right-of-way typically allows for a 6.0-6.4 metre roadway plus a 1.5 sidewalk and is consistent with other plans approved by the Town.

# Appendices

# **Appendix A**

**Terms of Reference**

**From:** [Bryan Murray](#)  
**To:** [Raf Andrenacci](#); [Andrea Betty](#)  
**Cc:** [Will Maria](#); [Brad Parker](#); [Andrew Jones](#); [Owen Taylor](#)  
**Subject:** RE: 138 Robert Street - Terms of Reference for Traffic Impact Study  
**Date:** Monday, August 8, 2022 3:55:07 PM  
**Attachments:** [image001.png](#)  
[image002.png](#)  
[image003.png](#)  
[image004.png](#)  
[image005.png](#)  
[Traffic Impact Study for Tonking Management Inc..pdf](#)

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Some people who received this message don't often get email from bmurray@penetanguishene.ca. [Learn why this is important](#)

Hi Raf,

My apologies on my late response to your email below.

The proposed scope appears to cover most of the items required, however please add the following to the TIS scope:

- All the newly proposed vehicular site entrances are to be documented/reviewed to meet minimum sightlines and distances per TAC standards.
- Although the intersection of Burke/Dufferin/Robert Street East is included in the scope for review, this intersection is of specific interest to the Town given its non-standard alignment and safety concerns that have been raised by residents in the immediate area. In addition to the usual traffic signalization warrant analysis please include a review of the application of a roundabout for this intersection.

For your awareness, the Town is in detailed design phase for the signalization of the Robert Street East/Fuller Avenue intersection. The construction phase for this project is scheduled in 2024 however this may be brought forward to 2023.

The signalization of this intersection was based primarily on the recommendations outlined within the TIS that was completed for the St. Andrews Village Development (1145 Fuller Avenue). This report also includes an analysis of the Centennial Drive/Robert Street East intersection. A copy of this report has been attached for your information.

Please reach out to Andrew Jones (Asset Management Coordinator), who is copied on this email, to obtain traffic count data that we may have on file. Please wait until mid-September to complete any traffic counts.

In the immediate area of the 138 Robert Street East development, the following developments are in various stages of completion:

- 40 Thompsons Road East Subdivision Development (36 residential units – houses currently being built);
- St. Andrews Village Development (126 single detached units, 47 townhouse units and approximately 30 medium density units – in detailed design phase);

51 Dunlop Street – Recently purchased by the Town, school demolished early 2022 – use of site unknown and is in public consultation phase currently for future land use/development);

- 123 Robert Street East (development has been appealed to the OLT but may consist of approximately 31 townhouse units);
- 200 Fox Street – Champlain Shore Development (includes a Marina, 22 Townhouse units, 28 single detached units and 12 medium density units) – being developed in phases with the initial phases at subdivision agreement stage;
- 77 Fox Street – 56 rental units (Site Plan approval – awaiting construction);
- 221 Fox Street – 88 townhouse units – in beginning stages of planning application process;
- Phase 4 Harbour Pointe Subdivision (West of Beausoliel Drive) – 31 single detached units – pre-servicing phase.

The Planning and Community Development staff, copied on this email, may know of other developments that are in works to include in the summary above.

If you have any questions regarding the above, please let me know.

Regards,



**Bryan Murray, P.Eng (he/him)**

Director of Public Works  
Town of Penetanguishene

P (705) 549-7992 or (705) 549-7453 ext. 107  
E [bmurray@penetanguishene.ca](mailto:bmurray@penetanguishene.ca)

Public Works Department, 24 Centennial Dr,  
Penetanguishene, ON L9M 1R7  
[www.penetanguishene.ca](http://www.penetanguishene.ca)



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**From:** Raf Andrenacci <Raf.Andrenacci@ghd.com>

**Sent:** Wednesday, July 6, 2022 1:17 PM

**To:** Andrea Betty <abetty@penetanguishene.ca>; Bryan Murray <bmurray@penetanguishene.ca>

**Cc:** Will Maria <William.Maria@ghd.com>

**Subject:** 138 Robert Street - Terms of Reference for Traffic Impact Study

Hi Andrea and Bryan,

GHD Inc. has been retained to prepare a Transportation Impact Study for the proposed residential and



industrial development located at the municipal address 138 Robert Street East in Penetanguishene. The proposed development consists of approximately 515 residential units and 7.3 hectares of industrial land uses.

Access to the subject site is proposed via a new Street A connection to Robert Street East and through several intersection connections to Edward Drive and Thompson Road.



In order to properly scope this project we ask that the Town review and provide comments on the following scope and confirm if there are any additional items required as part of the study.

### Study intersections

- Fuller Avenue and Robert Street East
- Robert Street East and Thompson Road/Centennial Drive
- Robert Street East and Dufferin Street/Burke Street
- Main Street and Thompsons Road
- Main Street and Edward Street
- Dunlop Street and Robert Street East
- Dunlop Street and Edward Drive

### Traffic Data

GHD will consult with Town staff to determine if there are any historic counts available. Please let us know who we could contact from the Town to confirm if any historic counts are available. If none are available, updated traffic counts at the existing study intersections will

be undertaken during the a.m. and p.m. peak hours. Please confirm if the collection of traffic data must be postponed until mid-September when school reopen.

**Study Peak Hours**

Weekday a.m. and p.m. peak hours

**Study Horizon Year**

2022 (existing), 2025 (build-out year), 2030 (5 years post build-out), and 2035 (10 years post build-out)

**Background Growth Rate**

Based on the review of historical data and through consultation with staff after reviewing traffic data.

**Background Development Traffic**

Future background traffic volumes will include other developments (under construction or planned). Please advise developments to include as background traffic.

**Trip Generation**

Will be completed using rates published by the ITE Trip Generation 11<sup>th</sup> Edition

The directional distribution of traffic approaching and departing the site will be determined based on TTS 2016 data, existing local patterns and first principles.

The analysis will identify the transportation system requirements and other measures required to ensure the acceptable operation of the study intersections, including auxiliary turning lanes and other transportation infrastructure improvements.

TAC, Town, and County guidelines will be reviewed in order to complete an access management

Review for the site access that reviews corner clearance, driveway spacing, auxiliary lanes, corner radii, and clear throat distance.

Existing and future TDM opportunities will be reviewed.

The parking supply will be reviewed in accordance with the Town's Zoning By-law

If the above scope is acceptable to the Town, it will form the basis of our scope of work.

Thank you,  
Raf

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# Appendix B

Traffic Data



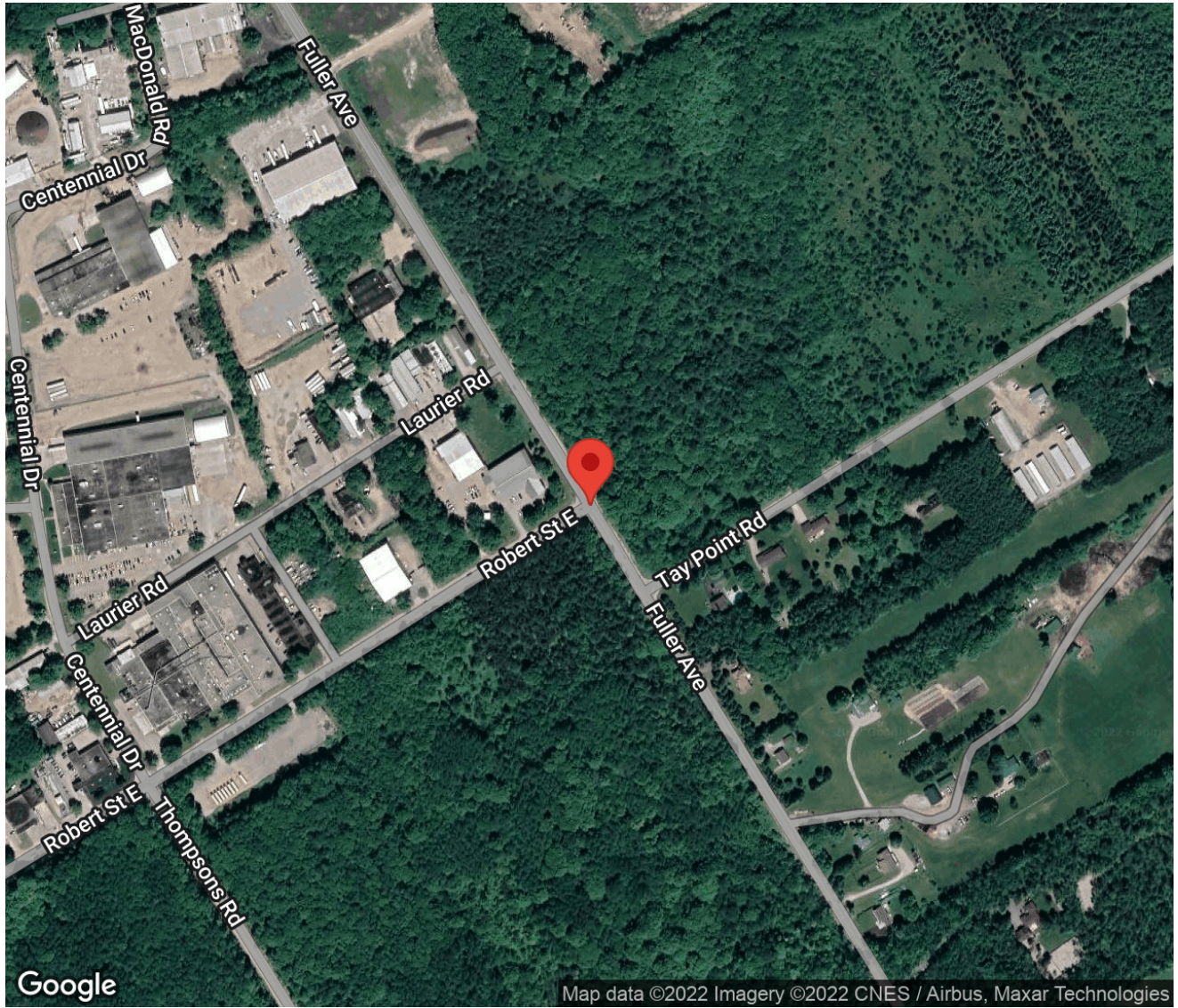
## Project #22-301 - GHD

### Intersection Count Report

**Intersection:** Fuller Ave & Robert St E  
**Municipality:** Penetanguishene  
**Count Date:** Thursday, Sep 15, 2022  
**Site Code:** 2230100001  
**Count Categories:** Cars, Trucks, Bicycles, Pedestrians  
**Count Period:** 07:00-09:00, 16:00-18:00  
**Weather:** Clear  
**Comments:**

## Traffic Count Map

Intersection: Fuller Ave & Robert St E  
Site Code: 2230100001  
Municipality: Penetanguishene  
Count Date: Sep 15, 2022





## Traffic Count Summary

Intersection: Fuller Ave & Robert St E  
 Site Code: 2230100001  
 Municipality: Penetanguishene  
 Count Date: Sep 15, 2022

### Fuller Ave - Traffic Summary

Hour	North Approach Totals						South Approach Totals						Total
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	
<b>07:00 - 08:00</b>	0	137	74	0	211	0	84	158	0	0	242	0	453
<b>08:00 - 09:00</b>	0	121	61	0	182	0	165	118	0	0	283	0	465
BREAK													
<b>16:00 - 17:00</b>	0	179	134	0	313	0	151	98	0	0	249	0	562
<b>17:00 - 18:00</b>	0	78	62	0	140	0	137	91	0	0	228	0	368
<b>GRAND TOTAL</b>	<b>0</b>	<b>515</b>	<b>331</b>	<b>0</b>	<b>846</b>	<b>0</b>	<b>537</b>	<b>465</b>	<b>0</b>	<b>0</b>	<b>1002</b>	<b>0</b>	<b>1848</b>



## Traffic Count Summary

Intersection: Fuller Ave & Robert St E  
 Site Code: 2230100001  
 Municipality: Penetanguishene  
 Count Date: Sep 15, 2022

### Robert St E - Traffic Summary

Hour	East Approach Totals						West Approach Totals						Total
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	
07:00 - 08:00	0	0	0	0	0	0	107	0	108	0	215	0	215
08:00 - 09:00	0	0	0	0	0	0	63	0	122	0	185	0	185
BREAK													
16:00 - 17:00	0	0	0	0	0	0	53	0	134	0	187	0	187
17:00 - 18:00	0	0	0	0	0	0	80	0	100	0	180	0	180
<b>GRAND TOTAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>303</b>	<b>0</b>	<b>464</b>	<b>0</b>	<b>767</b>	<b>0</b>	<b>767</b>





## Traffic Count Data

Intersection: Fuller Ave & Robert St E  
 Site Code: 2230100001  
 Municipality: Penetanguishene  
 Count Date: Sep 15, 2022

### North Approach - Fuller Ave

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:00	0	33	21	0	54	0	0	1	0	1	0	0	0	0	0	0
07:15	0	28	16	0	44	0	1	5	0	6	0	0	0	0	0	0
07:30	0	25	15	0	40	0	4	2	0	6	0	0	0	0	0	0
07:45	0	44	10	0	54	0	2	4	0	6	0	0	0	0	0	0
08:00	0	40	11	0	51	0	1	4	0	5	0	0	0	0	0	0
08:15	0	18	9	0	27	0	3	1	0	4	0	0	0	0	0	0
08:30	0	25	12	0	37	0	2	4	0	6	0	0	0	0	0	0
08:45	0	30	18	0	48	0	2	2	0	4	0	0	0	0	0	0
<b>SUBTOTAL</b>	0	243	112	0	355	0	15	23	0	38	0	0	0	0	0	0



## Traffic Count Data

Intersection: Fuller Ave & Robert St E  
 Site Code: 2230100001  
 Municipality: Penetanguishene  
 Count Date: Sep 15, 2022

### North Approach - Fuller Ave

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
16:00	0	60	50	0	110	0	1	1	0	2	0	0	0	0	0	0
16:15	0	48	29	0	77	0	1	0	0	1	0	0	0	0	0	0
16:30	0	43	31	0	74	0	1	0	0	1	0	0	0	0	0	0
16:45	0	24	22	0	46	0	1	1	0	2	0	0	0	0	0	0
17:00	0	24	21	0	45	0	1	0	0	1	0	0	0	0	0	0
17:15	0	13	20	0	33	0	1	0	0	1	0	0	0	0	0	0
17:30	0	17	8	0	25	0	0	0	0	0	0	0	0	0	0	0
17:45	0	22	12	0	34	0	0	1	0	1	0	0	0	0	0	0
<b>SUBTOTAL</b>	0	251	193	0	444	0	6	3	0	9	0	0	0	0	0	0
<b>GRAND TOTAL</b>	0	494	305	0	799	0	21	26	0	47	0	0	0	0	0	0



## Traffic Count Data

Intersection: Fuller Ave & Robert St E  
 Site Code: 2230100001  
 Municipality: Penetanguishene  
 Count Date: Sep 15, 2022

### South Approach - Fuller Ave

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:00	19	23	0	0	42	0	5	0	0	5	0	0	0	0	0	0
07:15	21	25	0	0	46	1	4	0	0	5	0	0	0	0	0	0
07:30	14	34	0	0	48	0	1	0	0	1	0	0	0	0	0	0
07:45	28	65	0	0	93	1	1	0	0	2	0	0	0	0	0	0
08:00	32	40	0	0	72	3	1	0	0	4	0	0	0	0	0	0
08:15	39	24	0	0	63	0	4	0	0	4	0	0	0	0	0	0
08:30	37	21	0	0	58	3	2	0	0	5	0	0	0	0	0	0
08:45	42	26	0	0	68	9	0	0	0	9	0	0	0	0	0	0
<b>SUBTOTAL</b>	232	258	0	0	490	17	18	0	0	35	0	0	0	0	0	0



## Traffic Count Data

Intersection: Fuller Ave & Robert St E  
 Site Code: 2230100001  
 Municipality: Penetanguishene  
 Count Date: Sep 15, 2022

### South Approach - Fuller Ave

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
16:00	26	20	0	0	46	2	0	0	0	2	0	0	0	0	0	0
16:15	42	31	0	0	73	1	2	0	0	3	0	0	0	0	0	0
16:30	33	23	0	0	56	0	0	0	0	0	0	0	0	0	0	0
16:45	47	21	0	0	68	0	1	0	0	1	0	0	0	0	0	0
17:00	45	17	0	0	62	0	0	0	0	0	0	0	0	0	0	0
17:15	34	35	0	0	69	0	0	0	0	0	0	0	0	0	0	0
17:30	33	25	0	0	58	0	0	0	0	0	1	0	0	0	1	0
17:45	24	14	0	0	38	0	0	0	0	0	0	0	0	0	0	0
<b>SUBTOTAL</b>	284	186	0	0	470	3	3	0	0	6	1	0	0	0	1	0
<b>GRAND TOTAL</b>	516	444	0	0	960	20	21	0	0	41	1	0	0	0	1	0



## Traffic Count Data

Intersection: Fuller Ave & Robert St E  
 Site Code: 2230100001  
 Municipality: Penetanguishene  
 Count Date: Sep 15, 2022

### West Approach - Robert St E

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:00	15	0	18	0	33	1	0	2	0	3	0	0	0	0	0	0
07:15	21	0	28	0	49	7	0	0	0	7	0	0	0	0	0	0
07:30	26	0	30	0	56	1	0	2	0	3	0	0	0	0	0	0
07:45	33	0	27	0	60	3	0	1	0	4	0	0	0	0	0	0
08:00	19	0	19	0	38	5	0	1	0	6	0	0	0	0	0	0
08:15	12	0	26	0	38	1	0	1	0	2	0	0	0	0	0	0
08:30	6	0	25	0	31	3	0	0	0	3	0	0	0	0	0	0
08:45	14	0	48	0	62	3	0	2	0	5	0	0	0	0	0	0
<b>SUBTOTAL</b>	146	0	221	0	367	24	0	9	0	33	0	0	0	0	0	0



## Traffic Count Data

Intersection: Fuller Ave & Robert St E  
 Site Code: 2230100001  
 Municipality: Penetanguishene  
 Count Date: Sep 15, 2022

### West Approach - Robert St E

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
16:00	9	0	32	0	41	0	0	2	0	2	0	0	0	0	0	0
16:15	13	0	29	0	42	1	0	0	0	1	0	0	0	0	0	0
16:30	17	0	33	0	50	0	0	1	0	1	0	0	1	0	1	0
16:45	12	0	36	0	48	1	0	0	0	1	0	0	0	0	0	0
17:00	13	0	31	0	44	1	0	1	0	2	0	0	0	0	0	0
17:15	15	0	25	0	40	0	0	1	0	1	0	0	0	0	0	0
17:30	18	0	27	0	45	0	0	1	0	1	0	0	0	0	0	0
17:45	32	0	14	0	46	1	0	0	0	1	0	0	0	0	0	0
<b>SUBTOTAL</b>	129	0	227	0	356	4	0	6	0	10	0	0	1	0	1	0
<b>GRAND TOTAL</b>	<b>275</b>	<b>0</b>	<b>448</b>	<b>0</b>	<b>723</b>	<b>28</b>	<b>0</b>	<b>15</b>	<b>0</b>	<b>43</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>0</b>

## Peak Hour Diagram

### Specified Period

From: 07:00:00  
To: 09:00:00

### One Hour Peak

From: 07:15:00  
To: 08:15:00

**Intersection:** Fuller Ave & Robert St E  
**Site Code:** 2230100001  
**Count Date:** Sep 15, 2022

**Weather conditions:** Clear

**\*\* Unsignalized Intersection \*\***

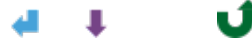
**Major Road:** Fuller Ave runs N/S

### North Approach

	Out	In	Total
	189	263	452
	23	23	46
	0	0	0
<b>Totals</b>	<b>212</b>	<b>286</b>	<b>498</b>

### Fuller Ave

	0	0	0
	15	8	0
	52	137	0
<b>Totals</b>	<b>67</b>	<b>145</b>	<b>0</b>



Peds: 0

### Robert St E

			Totals	
0	0	0	0	
0	16	99	115	
0	4	104	108	

Peds: 0



Peds: 0

Peds: 0

### West Approach

	Out	In	Total
	203	147	350
	20	20	40
	0	0	0
<b>Totals</b>	<b>223</b>	<b>167</b>	<b>390</b>

Totals			
	100	171	0
	95	164	0
	5	7	0
	0	0	0

Fuller Ave

### South Approach

	Out	In	Total
	259	241	500
	12	12	24
	0	0	0
<b>Totals</b>	<b>271</b>	<b>253</b>	<b>524</b>

- Cars

- Trucks

- Bicycles

### Comments



## Peak Hour Summary

Intersection: Fuller Ave & Robert St E  
 Site Code: 2230100001  
 Count Date: Sep 15, 2022  
 Period: 07:00 - 09:00

### Peak Hour Data (07:15 - 08:15)

Start Time	North Approach Fuller Ave						South Approach Fuller Ave						East Approach						West Approach Robert St E						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
07:15		29	21	0	0	50	22	29		0	0	51					0		28		28	0	0	56	157
07:30		29	17	0	0	46	14	35		0	0	49					0		27		32	0	0	59	154
07:45		46	14	0	0	60	29	66		0	0	95					0		36		28	0	0	64	219
08:00		41	15	0	0	56	35	41		0	0	76					0		24		20	0	0	44	176
<b>Grand Total</b>		<b>145</b>	<b>67</b>	<b>0</b>	<b>0</b>	<b>212</b>	<b>100</b>	<b>171</b>		<b>0</b>	<b>0</b>	<b>271</b>					<b>0</b>	<b>0</b>	<b>115</b>		<b>108</b>	<b>0</b>	<b>0</b>	<b>223</b>	<b>706</b>
<b>Approach %</b>		68.4	31.6	0	-	-	36.9	63.1	0	-	-	-	-	51.6	48.4	0	-	-	16.3	15.3	0	-	31.6	-	-
<b>Totals %</b>		20.5	9.5	0	30	14.2	24.2	0	38.4	0	0	16.3	15.3	0	31.6										
<b>PHF</b>		<b>0.79</b>	<b>0.8</b>	<b>0</b>	<b>0.88</b>	<b>0.71</b>	<b>0.65</b>	<b>0</b>	<b>0.71</b>	<b>0</b>	<b>0</b>	<b>0.8</b>	<b>0.84</b>	<b>0</b>	<b>0.87</b>	<b>0.81</b>									
<b>Cars</b>		137	52	0	189	95	164	0	259	0	0	99	104	0	203	651									
<b>% Cars</b>		94.5	77.6	0	89.2	95	95.9	0	95.6	0	0	86.1	96.3	0	91	92.2									
<b>Trucks</b>		8	15	0	23	5	7	0	12	0	0	16	4	0	20	55									
<b>% Trucks</b>		5.5	22.4	0	10.8	5	4.1	0	4.4	0	0	13.9	3.7	0	9	7.8									
<b>Bicycles</b>		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0									
<b>% Bicycles</b>		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0									
<b>Peds</b>					0	-			0	-				0	-						0	-			0
<b>% Peds</b>					0	-			0	-				0	-						0	-			0



## Peak Hour Diagram

### Specified Period

From: 16:00:00  
To: 18:00:00

### One Hour Peak

From: 16:00:00  
To: 17:00:00




**Intersection:** Fuller Ave & Robert St E  
**Site Code:** 2230100001  
**Count Date:** Sep 15, 2022

**Weather conditions:** Clear




**\*\* Unsignalized Intersection \*\***

**Major Road:** Fuller Ave runs N/S

### North Approach

	Out	In	Total
	307	146	453
	6	5	11
	0	0	0
<b>Totals</b>	<b>313</b>	<b>151</b>	<b>464</b>







### Fuller Ave

	0	0	0
	2	4	0
	132	175	0
<b>Totals</b>	<b>134</b>	<b>179</b>	<b>0</b>



Peds: 0

### Robert St E

			Totals	
0	0	0	0	
0	2	51	53	
1	3	130	134	




Peds: 0






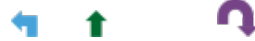
Peds: 0

Peds: 0

### West Approach




	Out	In	Total
	181	280	461
	5	5	10
	1	0	1
<b>Totals</b>	<b>187</b>	<b>285</b>	<b>472</b>

Totals	151	98	0
	148	95	0
	3	3	0
	0	0	0




Fuller Ave

### South Approach

	Out	In	Total
	243	305	548
	6	7	13
	0	1	1
<b>Totals</b>	<b>249</b>	<b>313</b>	<b>562</b>

 - Cars

 - Trucks

 - Bicycles

### Comments

## Peak Hour Summary

Intersection: Fuller Ave & Robert St E  
 Site Code: 2230100001  
 Count Date: Sep 15, 2022  
 Period: 16:00 - 18:00

### Peak Hour Data (16:00 - 17:00)

Start Time	North Approach Fuller Ave						South Approach Fuller Ave						East Approach						West Approach Robert St E						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
16:00		61	51	0	0	112	28	20		0	0	48					0		9		34	0	0	43	203
16:15		49	29	0	0	78	43	33		0	0	76					0		14		29	0	0	43	197
16:30		44	31	0	0	75	33	23		0	0	56					0		17		35	0	0	52	183
16:45		25	23	0	0	48	47	22		0	0	69					0		13		36	0	0	49	166
<b>Grand Total</b>		<b>179</b>	<b>134</b>	<b>0</b>	<b>0</b>	<b>313</b>	<b>151</b>	<b>98</b>		<b>0</b>	<b>0</b>	<b>249</b>					<b>0</b>	<b>0</b>	<b>53</b>		<b>134</b>	<b>0</b>	<b>0</b>	<b>187</b>	<b>749</b>
Approach %		57.2	42.8	0	-	-	60.6	39.4		0	-	-					-	-	28.3		71.7	0	-	-	
Totals %		23.9	17.9	0	-	41.8	20.2	13.1		0	-	33.2					0	-	7.1		17.9	0	-	25	
<b>PHF</b>		<b>0.73</b>	<b>0.66</b>	<b>0</b>	<b>0</b>	<b>0.7</b>	<b>0.8</b>	<b>0.74</b>		<b>0</b>	<b>0</b>	<b>0.82</b>					<b>0</b>	<b>0</b>	<b>0.78</b>		<b>0.93</b>	<b>0</b>	<b>0</b>	<b>0.9</b>	<b>0.92</b>
Cars		175	132	0	-	307	148	95		0	-	243					0	-	51		130	0	-	181	731
% Cars		97.8	98.5	0	-	98.1	98	96.9		0	-	97.6					0	-	96.2		97	0	-	96.8	97.6
Trucks		4	2	0	-	6	3	3		0	-	6					0	-	2		3	0	-	5	17
% Trucks		2.2	1.5	0	-	1.9	2	3.1		0	-	2.4					0	-	3.8		2.2	0	-	2.7	2.3
Bicycles		0	0	0	-	0	0	0		0	-	0					0	-	0		1	0	-	1	1
% Bicycles		0	0	0	-	0	0	0		0	-	0					0	-	0		0.7	0	-	0.5	0.1
Peds					0	-				0	-						0	-				0	-		0
% Peds					0	-				0	-						0	-				0	-		



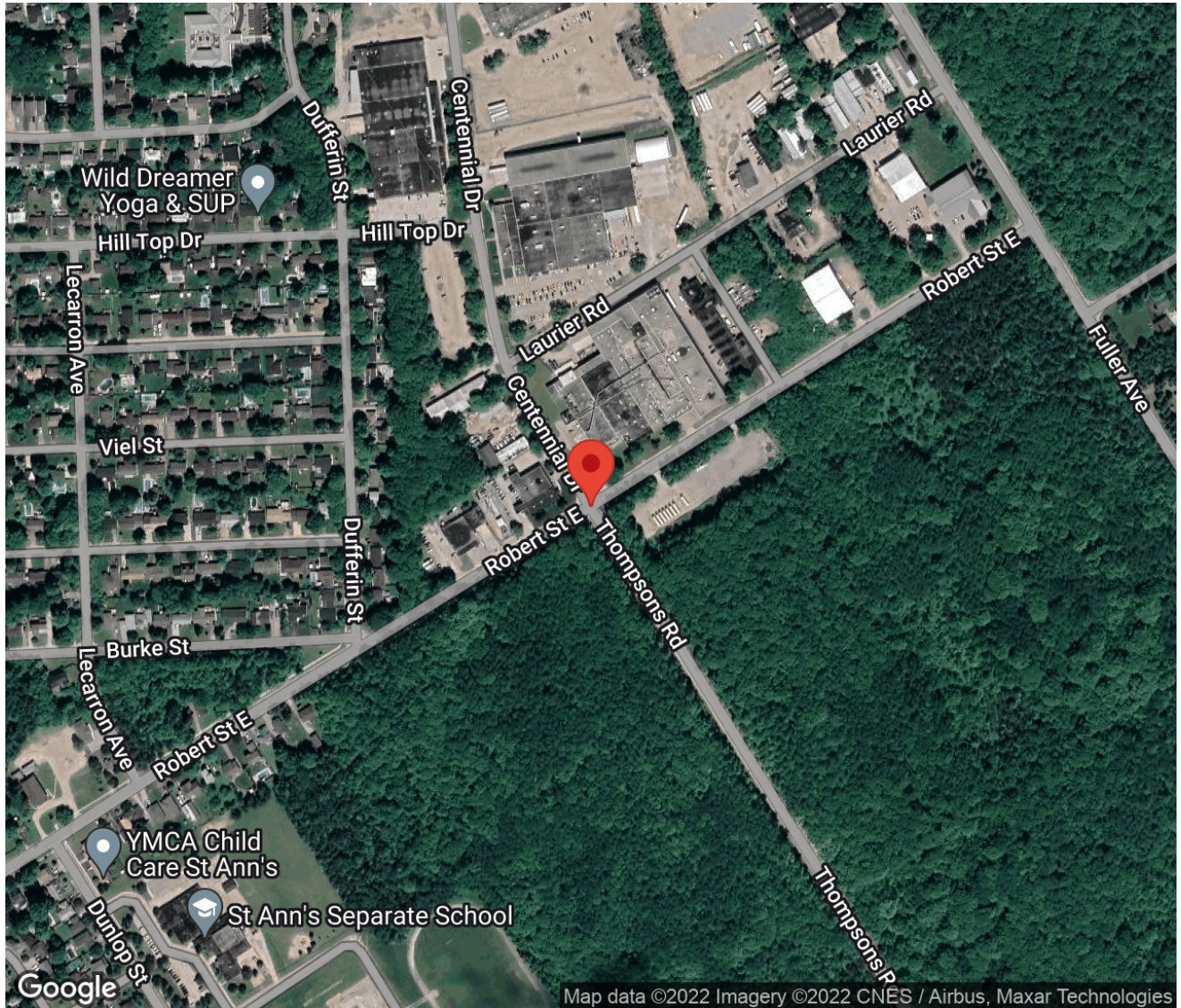
## Project #22-301 - GHD

### Intersection Count Report

**Intersection:** Robert St E & Thompsons Rd-Centennial Dr  
**Municipality:** Penetanguishene  
**Count Date:** Thursday, Sep 15, 2022  
**Site Code:** 2230100002  
**Count Categories:** Cars, Trucks, Bicycles, Pedestrians  
**Count Period:** 07:00-09:00, 16:00-18:00  
**Weather:** Clear  
**Comments:**

## Traffic Count Map

Intersection: Robert St E & Thompsons Rd-Centennial Dr  
Site Code: 2230100002  
Municipality: Penetanguishene  
Count Date: Sep 15, 2022



## Traffic Count Summary

Intersection: Robert St E & Thompsons Rd-Centennial Dr  
 Site Code: 2230100002  
 Municipality: Penetanguishene  
 Count Date: Sep 15, 2022

### Centennial Dr - Traffic Summary

Hour	North Approach Totals						South Approach Totals						Total
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	
<b>07:00 - 08:00</b>	14	15	24	0	53	0	2	23	63	0	88	0	141
<b>08:00 - 09:00</b>	17	16	8	0	41	0	1	21	41	0	63	0	104
BREAK													
<b>16:00 - 17:00</b>	15	26	31	0	72	0	4	14	34	0	52	0	124
<b>17:00 - 18:00</b>	6	12	7	0	25	0	3	14	39	0	56	0	81
<b>GRAND TOTAL</b>	<b>52</b>	<b>69</b>	<b>70</b>	<b>0</b>	<b>191</b>	<b>0</b>	<b>10</b>	<b>72</b>	<b>177</b>	<b>0</b>	<b>259</b>	<b>0</b>	<b>450</b>

## Traffic Count Summary

Intersection: Robert St E & Thompsons Rd-Centennial Dr  
 Site Code: 2230100002  
 Municipality: Penetanguishene  
 Count Date: Sep 15, 2022

### Robert St E - Traffic Summary

Hour	East Approach Totals						West Approach Totals						Total
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	
<b>07:00 - 08:00</b>	46	95	13	0	154	0	24	144	3	0	171	0	325
<b>08:00 - 09:00</b>	32	178	12	0	222	0	25	132	5	0	162	0	384
BREAK													
<b>16:00 - 17:00</b>	60	206	17	0	283	0	10	148	8	0	166	0	449
<b>17:00 - 18:00</b>	32	160	11	0	203	0	5	126	2	0	133	0	336
<b>GRAND TOTAL</b>	<b>170</b>	<b>639</b>	<b>53</b>	<b>0</b>	<b>862</b>	<b>0</b>	<b>64</b>	<b>550</b>	<b>18</b>	<b>0</b>	<b>632</b>	<b>0</b>	<b>1494</b>



## Traffic Count Data

Intersection: Robert St E & Thompsons Rd-Centennial Dr  
 Site Code: 2230100002  
 Municipality: Penetanguishene  
 Count Date: Sep 15, 2022

### North Approach - Centennial Dr

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:00	5	1	14	0	20	0	0	0	0	0	0	0	0	0	0	0
07:15	2	3	5	0	10	0	3	1	0	4	0	0	0	0	0	0
07:30	4	4	0	0	8	1	0	0	0	1	0	0	0	0	0	0
07:45	2	4	3	0	9	0	0	1	0	1	0	0	0	0	0	0
08:00	2	5	0	0	7	0	1	2	0	3	0	0	0	0	0	0
08:15	3	2	2	0	7	0	1	0	0	1	0	0	0	0	0	0
08:30	1	2	2	0	5	0	0	0	0	0	0	0	0	0	0	0
08:45	10	5	2	0	17	1	0	0	0	1	0	0	0	0	0	0
<b>SUBTOTAL</b>	29	26	28	0	83	2	5	4	0	11	0	0	0	0	0	0



## Traffic Count Data

Intersection: Robert St E & Thompsons Rd-Centennial Dr  
 Site Code: 2230100002  
 Municipality: Penetanguishene  
 Count Date: Sep 15, 2022

### North Approach - Centennial Dr

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
16:00	2	11	6	0	19	0	1	0	0	1	0	0	0	0	0	0
16:15	2	5	7	0	14	0	0	1	0	1	0	0	0	0	0	0
16:30	6	6	10	0	22	0	0	0	0	0	0	0	0	0	0	0
16:45	5	3	7	0	15	0	0	0	0	0	0	0	0	0	0	0
17:00	1	6	3	0	10	0	0	0	0	0	0	0	0	0	0	0
17:15	4	3	0	0	7	0	0	0	0	0	0	0	0	0	0	0
17:30	1	2	3	0	6	0	0	0	0	0	0	0	0	0	0	0
17:45	0	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0
<b>SUBTOTAL</b>	21	37	37	0	95	0	1	1	0	2	0	0	0	0	0	0
<b>GRAND TOTAL</b>	50	63	65	0	178	2	6	5	0	13	0	0	0	0	0	0





## Traffic Count Data

Intersection: Robert St E & Thompsons Rd-Centennial Dr  
 Site Code: 2230100002  
 Municipality: Penetanguishene  
 Count Date: Sep 15, 2022

### South Approach - Thompsons Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:00	1	3	10	0	14	0	0	2	0	2	0	0	0	0	0	0
07:15	0	5	12	0	17	0	1	5	0	6	0	0	0	0	0	0
07:30	0	2	14	0	16	0	2	2	0	4	0	0	0	0	0	0
07:45	1	9	15	0	25	0	1	3	0	4	0	0	0	0	0	0
08:00	0	6	13	0	19	0	1	4	0	5	0	0	0	0	0	0
08:15	0	8	7	0	15	0	0	3	0	3	0	0	0	0	0	0
08:30	0	5	5	0	10	0	0	1	0	1	0	0	0	0	0	0
08:45	1	1	6	0	8	0	0	2	0	2	0	0	0	0	0	0
<b>SUBTOTAL</b>	3	39	82	0	124	0	5	22	0	27	0	0	0	0	0	0



## Traffic Count Data

Intersection: Robert St E & Thompsons Rd-Centennial Dr  
 Site Code: 2230100002  
 Municipality: Penetanguishene  
 Count Date: Sep 15, 2022

### South Approach - Thompsons Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
16:00	0	3	8	0	11	0	0	0	0	0	0	0	0	0	0	0
16:15	1	2	8	0	11	0	0	1	0	1	0	0	0	0	0	0
16:30	1	1	7	0	9	0	3	1	0	4	0	0	0	0	0	0
16:45	2	5	8	0	15	0	0	1	0	1	0	0	0	0	0	0
17:00	1	3	5	0	9	0	1	0	0	1	0	0	0	0	0	0
17:15	0	3	9	0	12	1	0	1	0	2	0	0	0	0	0	0
17:30	1	5	14	0	20	0	1	0	0	1	0	0	0	0	0	0
17:45	0	1	10	0	11	0	0	0	0	0	0	0	0	0	0	0
<b>SUBTOTAL</b>	6	23	69	0	98	1	5	4	0	10	0	0	0	0	0	0
<b>GRAND TOTAL</b>	9	62	151	0	222	1	10	26	0	37	0	0	0	0	0	0



## Traffic Count Data

Intersection: Robert St E & Thompsons Rd-Centennial Dr  
 Site Code: 2230100002  
 Municipality: Penetanguishene  
 Count Date: Sep 15, 2022

### East Approach - Robert St E

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:00	12	19	6	0	37	1	0	0	0	1	0	0	0	0	0	0
07:15	12	19	2	0	33	5	1	0	0	6	0	0	0	0	0	0
07:30	8	16	1	0	25	2	3	0	0	5	0	0	0	0	0	0
07:45	3	35	4	0	42	3	2	0	0	5	0	0	0	0	0	0
08:00	6	37	4	0	47	3	2	0	0	5	0	0	0	0	0	0
08:15	3	37	5	0	45	1	0	0	0	1	0	0	0	0	0	0
08:30	5	42	2	0	49	4	1	0	0	5	0	0	0	0	0	0
08:45	9	50	1	0	60	1	9	0	0	10	0	0	0	0	0	0
<b>SUBTOTAL</b>	58	255	25	0	338	20	18	0	0	38	0	0	0	0	0	0



## Traffic Count Data

Intersection: Robert St E & Thompsons Rd-Centennial Dr  
 Site Code: 2230100002  
 Municipality: Penetanguishene  
 Count Date: Sep 15, 2022

### East Approach - Robert St E

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
16:00	22	50	3	0	75	1	1	0	0	2	0	0	0	0	0	0
16:15	15	52	3	0	70	0	0	0	0	0	0	0	0	0	0	0
16:30	13	49	3	0	65	0	0	0	0	0	0	0	0	0	0	0
16:45	9	54	8	0	71	0	0	0	0	0	0	0	0	0	0	0
17:00	11	57	3	0	71	0	0	0	0	0	0	0	0	0	0	0
17:15	7	44	0	0	51	0	0	0	0	0	0	0	0	0	0	0
17:30	7	30	4	0	41	0	0	0	0	0	0	1	0	0	1	0
17:45	7	27	4	0	38	0	1	0	0	1	0	0	0	0	0	0
<b>SUBTOTAL</b>	91	363	28	0	482	1	2	0	0	3	0	1	0	0	1	0
<b>GRAND TOTAL</b>	149	618	53	0	820	21	20	0	0	41	0	1	0	0	1	0



## Traffic Count Data

Intersection: Robert St E & Thompsons Rd-Centennial Dr  
 Site Code: 2230100002  
 Municipality: Penetanguishene  
 Count Date: Sep 15, 2022

### West Approach - Robert St E

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:00	9	23	0	0	32	1	1	0	0	2	0	0	0	0	0	0
07:15	2	35	1	0	38	0	1	1	0	2	0	0	0	0	0	0
07:30	4	37	1	0	42	0	1	0	0	1	0	0	0	0	0	0
07:45	8	45	0	0	53	0	1	0	0	1	0	0	0	0	0	0
08:00	11	19	0	0	30	1	0	0	0	1	0	0	0	0	0	0
08:15	4	34	2	0	40	1	0	0	0	1	0	0	0	0	0	0
08:30	2	29	2	0	33	2	0	0	0	2	0	0	0	0	0	0
08:45	4	49	1	0	54	0	1	0	0	1	0	0	0	0	0	0
<b>SUBTOTAL</b>	44	271	7	0	322	5	5	1	0	11	0	0	0	0	0	0



## Traffic Count Data

Intersection: Robert St E & Thompsons Rd-Centennial Dr  
 Site Code: 2230100002  
 Municipality: Penetanguishene  
 Count Date: Sep 15, 2022

### West Approach - Robert St E

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
16:00	0	35	2	0	37	0	2	0	0	2	0	0	0	0	0	0
16:15	4	37	1	0	42	0	0	0	0	0	0	0	0	0	0	0
16:30	3	35	3	0	41	0	2	0	0	2	0	1	0	0	1	0
16:45	3	33	2	0	38	0	3	0	0	3	0	0	0	0	0	0
17:00	2	33	2	0	37	1	3	0	0	4	0	0	0	0	0	0
17:15	1	24	0	0	25	0	1	0	0	1	0	0	0	0	0	0
17:30	1	34	0	0	35	0	0	0	0	0	0	0	0	0	0	0
17:45	0	31	0	0	31	0	0	0	0	0	0	0	0	0	0	0
<b>SUBTOTAL</b>	14	262	10	0	286	1	11	0	0	12	0	1	0	0	1	0
<b>GRAND TOTAL</b>	58	533	17	0	608	6	16	1	0	23	0	1	0	0	1	0

## Peak Hour Diagram

### Specified Period

From: 07:00:00  
To: 09:00:00

### One Hour Peak

From: 08:00:00  
To: 09:00:00

**Intersection:** Robert St E & Thompsons Rd-Centennial Dr  
**Site Code:** 2230100002  
**Count Date:** Sep 15, 2022

**Weather conditions:** Clear

**\*\* Unsignalized Intersection \*\***

**Major Road:** Robert St E runs E/W

### North Approach

	Out	In	Total
	36	53	89
	5	5	10
	0	0	0
<b>Totals</b>	<b>41</b>	<b>58</b>	<b>99</b>

### Centennial Dr

	0	0	0	0
	2	2	1	0
	6	14	16	0
<b>Totals</b>	<b>8</b>	<b>16</b>	<b>17</b>	<b>0</b>

### East Approach

	Out	In	Total
	201	178	379
	21	12	33
	0	0	0
<b>Totals</b>	<b>222</b>	<b>190</b>	<b>412</b>

### Robert St E

				Totals
	0	0	0	<b>0</b>
	0	4	21	<b>25</b>
	0	1	131	<b>132</b>
	0	0	5	<b>5</b>

Peds: 0

Peds: 0



Peds: 0

Peds: 0

### Robert St E

Totals			
<b>0</b>	0	0	0
<b>12</b>	12	0	0
<b>178</b>	166	12	0
<b>32</b>	23	9	0

### West Approach

	Out	In	Total
	157	173	330
	5	14	19
	0	0	0
<b>Totals</b>	<b>162</b>	<b>187</b>	<b>349</b>

Totals				
<b>1</b>	<b>21</b>	<b>41</b>	<b>0</b>	
	1	20	31	0
	0	1	10	0
	0	0	0	0

Thompsons Rd

### South Approach

Out	In	Total	
	52	42	94
	11	11	22
	0	0	0
<b>Totals</b>	<b>63</b>	<b>53</b>	<b>116</b>

- Cars

- Trucks

- Bicycles

### Comments



## Peak Hour Summary

Intersection: Robert St E & Thompsons Rd-Centennial Dr  
 Site Code: 2230100002  
 Count Date: Sep 15, 2022  
 Period: 07:00 - 09:00

### Peak Hour Data (08:00 - 09:00)

Start Time	North Approach Centennial Dr						South Approach Thompsons Rd						East Approach Robert St E						West Approach Robert St E						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
08:00	2	6	2	0	0	10	0	7	17	0	0	24	9	39	4	0	0	52	12	19	0	0	0	31	117
08:15	3	3	2	0	0	8	0	8	10	0	0	18	4	37	5	0	0	46	5	34	2	0	0	41	113
08:30	1	2	2	0	0	5	0	5	6	0	0	11	9	43	2	0	0	54	4	29	2	0	0	35	105
08:45	11	5	2	0	0	18	1	1	8	0	0	10	10	59	1	0	0	70	4	50	1	0	0	55	153
<b>Grand Total</b>	<b>17</b>	<b>16</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>41</b>	<b>1</b>	<b>21</b>	<b>41</b>	<b>0</b>	<b>0</b>	<b>63</b>	<b>32</b>	<b>178</b>	<b>12</b>	<b>0</b>	<b>0</b>	<b>222</b>	<b>25</b>	<b>132</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>162</b>	<b>488</b>
Approach %	41.5	39	19.5	0	-	-	1.6	33.3	65.1	0	-	-	14.4	80.2	5.4	0	-	-	15.4	81.5	3.1	0	-	-	-
Totals %	3.5	3.3	1.6	0	-	8.4	0.2	4.3	8.4	0	-	12.9	6.6	36.5	2.5	0	-	45.5	5.1	27	1	0	-	33.2	-
<b>PHF</b>	<b>0.39</b>	<b>0.67</b>	<b>1</b>	<b>0</b>	-	<b>0.57</b>	<b>0.25</b>	<b>0.66</b>	<b>0.6</b>	<b>0</b>	-	<b>0.66</b>	<b>0.8</b>	<b>0.75</b>	<b>0.6</b>	<b>0</b>	-	<b>0.79</b>	<b>0.52</b>	<b>0.66</b>	<b>0.63</b>	<b>0</b>	-	<b>0.74</b>	<b>0.8</b>
Cars	16	14	6	0	-	36	1	20	31	0	-	52	23	166	12	0	-	201	21	131	5	0	-	157	446
% Cars	94.1	87.5	75	0	-	87.8	100	95.2	75.6	0	-	82.5	71.9	93.3	100	0	-	90.5	84	99.2	100	0	-	96.9	91.4
Trucks	1	2	2	0	-	5	0	1	10	0	-	11	9	12	0	0	-	21	4	1	0	0	-	5	42
% Trucks	5.9	12.5	25	0	-	12.2	0	4.8	24.4	0	-	17.5	28.1	6.7	0	0	-	9.5	16	0.8	0	0	-	3.1	8.6
Bicycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
Peds	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	0
% Peds	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	0



## Peak Hour Diagram

### Specified Period

From: 16:00:00  
To: 18:00:00

### One Hour Peak

From: 16:00:00  
To: 17:00:00

**Intersection:** Robert St E & Thompsons Rd-Centennial Dr  
**Site Code:** 2230100002  
**Count Date:** Sep 15, 2022

**Weather conditions:** Clear

**\*\* Unsignalized Intersection \*\***

**Major Road:** Robert St E runs E/W

### North Approach

	Out	In	Total
	70	38	108
	2	3	5
	0	0	0
<b>Totals</b>	<b>72</b>	<b>41</b>	<b>113</b>

### Centennial Dr

	0	0	0	0
	1	1	0	0
	30	25	15	0
<b>Totals</b>	<b>31</b>	<b>26</b>	<b>15</b>	<b>0</b>

### East Approach

	Out	In	Total
	281	186	467
	2	10	12
	0	1	1
<b>Totals</b>	<b>283</b>	<b>197</b>	<b>480</b>

### Robert St E

				Totals	
0	0	0	0	0	
0	0	10	10	10	
1	7	140	148	148	
0	0	8	8	8	

Peds: 0

Peds: 0



Peds: 0

Peds: 0

### Robert St E

Totals			
0	0	0	0
17	17	0	0
206	205	1	0
60	59	1	0

### West Approach

	Out	In	Total
	158	239	397
	7	2	9
	1	0	1
<b>Totals</b>	<b>166</b>	<b>241</b>	<b>407</b>

Totals				
<b>4</b>	<b>14</b>	<b>34</b>	<b>0</b>	
	4	11	31	0
	0	3	3	0
	0	0	0	0

Thompsons Rd

### South Approach

Out	In	Total	
	46	92	138
	6	2	8
	0	0	0
<b>Totals</b>	<b>52</b>	<b>94</b>	<b>146</b>

- Cars

- Trucks

- Bicycles

### Comments



## Peak Hour Summary

Intersection: Robert St E & Thompsons Rd-Centennial Dr  
 Site Code: 2230100002  
 Count Date: Sep 15, 2022  
 Period: 16:00 - 18:00

### Peak Hour Data (16:00 - 17:00)

Start Time	North Approach Centennial Dr						South Approach Thompsons Rd						East Approach Robert St E						West Approach Robert St E						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
16:00	2	12	6	0	0	20	0	3	8	0	0	11	23	51	3	0	0	77	0	37	2	0	0	39	147
16:15	2	5	8	0	0	15	1	2	9	0	0	12	15	52	3	0	0	70	4	37	1	0	0	42	139
16:30	6	6	10	0	0	22	1	4	8	0	0	13	13	49	3	0	0	65	3	38	3	0	0	44	144
16:45	5	3	7	0	0	15	2	5	9	0	0	16	9	54	8	0	0	71	3	36	2	0	0	41	143
<b>Grand Total</b>	<b>15</b>	<b>26</b>	<b>31</b>	<b>0</b>	<b>0</b>	<b>72</b>	<b>4</b>	<b>14</b>	<b>34</b>	<b>0</b>	<b>0</b>	<b>52</b>	<b>60</b>	<b>206</b>	<b>17</b>	<b>0</b>	<b>0</b>	<b>283</b>	<b>10</b>	<b>148</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>166</b>	<b>573</b>
<b>Approach %</b>	20.8	36.1	43.1	0	-	-	7.7	26.9	65.4	0	-	-	21.2	72.8	6	0	-	6	89.2	4.8	0	-	-		
<b>Totals %</b>	2.6	4.5	5.4	0	12.6		0.7	2.4	5.9	0	9.1		10.5	36	3	0	49.4	1.7	25.8	1.4	0		29		
<b>PHF</b>	<b>0.63</b>	<b>0.54</b>	<b>0.78</b>	<b>0</b>	<b>0.82</b>		<b>0.5</b>	<b>0.7</b>	<b>0.94</b>	<b>0</b>	<b>0.81</b>		<b>0.65</b>	<b>0.95</b>	<b>0.53</b>	<b>0</b>	<b>0.92</b>	<b>0.63</b>	<b>0.97</b>	<b>0.67</b>	<b>0</b>	<b>0.94</b>	<b>0.97</b>		
<b>Cars</b>	15	25	30	0	70		4	11	31	0	46		59	205	17	0	281	10	140	8	0	158	555		
<b>% Cars</b>	100	96.2	96.8	0	97.2		100	78.6	91.2	0	88.5		98.3	99.5	100	0	99.3	100	94.6	100	0	95.2	96.9		
<b>Trucks</b>	0	1	1	0	2		0	3	3	0	6		1	1	0	0	2	0	7	0	0	7	17		
<b>% Trucks</b>	0	3.8	3.2	0	2.8		0	21.4	8.8	0	11.5		1.7	0.5	0	0	0.7	0	4.7	0	0	4.2	3		
<b>Bicycles</b>	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	0	1	0	0	1	1		
<b>% Bicycles</b>	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	0	0.7	0	0	0.6	0.2		
<b>Peds</b>					0	-					0	-					0	-					0	-	0
<b>% Peds</b>					0	-					0	-					0	-					0	-	



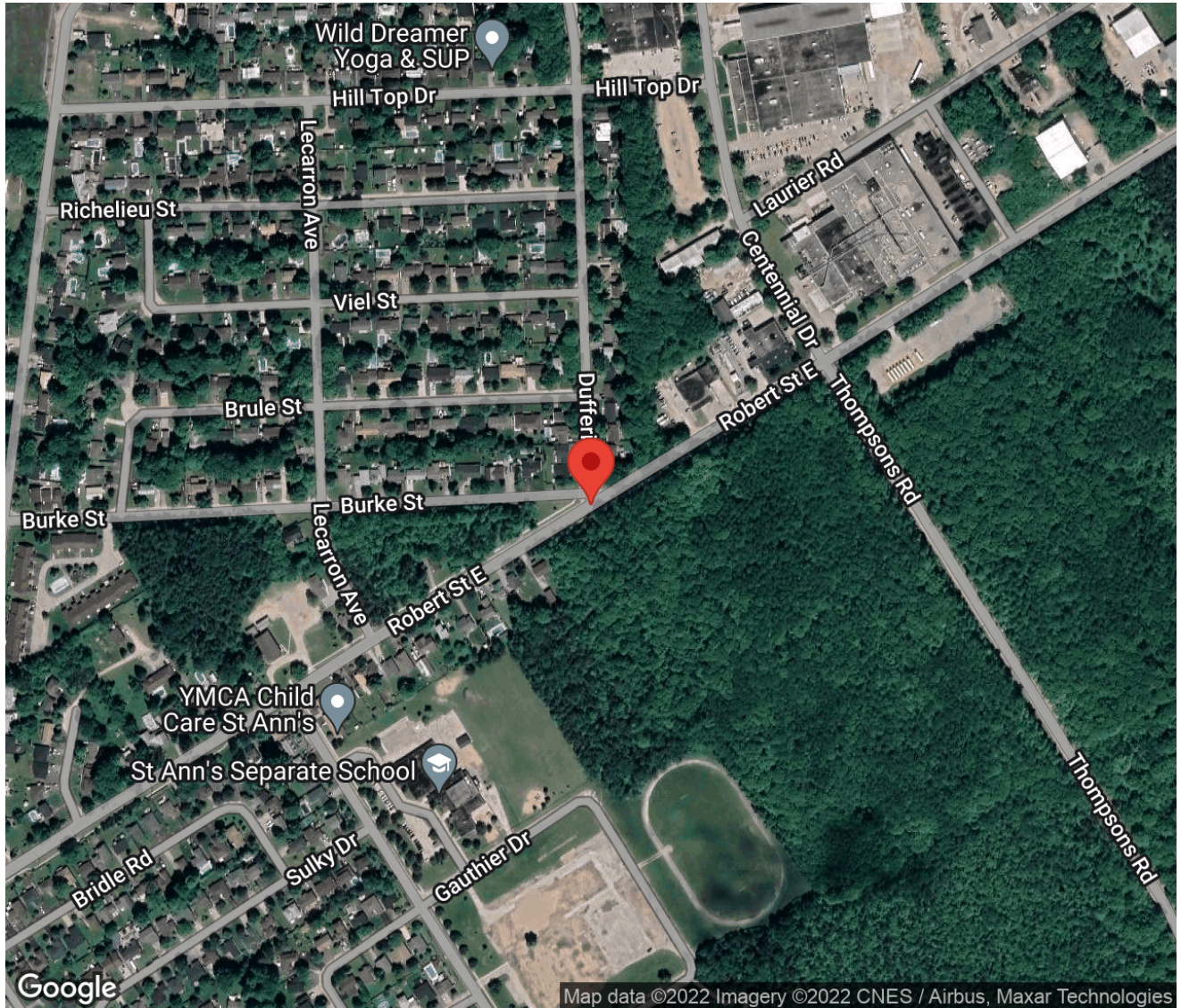
## Project #22-301 - GHD

### Intersection Count Report

**Intersection:** Robert St E & Dufferin St-Burke St  
**Municipality:** Penetanguishene  
**Count Date:** Thursday, Sep 15, 2022  
**Site Code:** 2230100003  
**Count Categories:** Cars, Trucks, Bicycles, Pedestrians  
**Count Period:** 07:00-09:00, 16:00-18:00  
**Weather:** Clear  
**Comments:**

## Traffic Count Map

Intersection: Robert St E & Dufferin St-Burke St  
Site Code: 2230100003  
Municipality: Penetanguishene  
Count Date: Sep 15, 2022





## Traffic Count Summary

Intersection: Robert St E & Dufferin St-Burke St  
 Site Code: 2230100003  
 Municipality: Penetanguishene  
 Count Date: Sep 15, 2022

### Robert St E - Traffic Summary

Hour	East Approach Totals						West Approach Totals						Total
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	
<b>07:00 - 08:00</b>	0	97	18	0	115	0	13	141	0	0	154	0	269
<b>08:00 - 09:00</b>	0	138	55	0	193	0	23	126	0	0	149	0	342
BREAK													
<b>16:00 - 17:00</b>	0	193	44	0	237	0	13	137	0	0	150	0	387
<b>17:00 - 18:00</b>	0	127	38	0	165	0	15	109	0	0	124	0	289
<b>GRAND TOTAL</b>	<b>0</b>	<b>555</b>	<b>155</b>	<b>0</b>	<b>710</b>	<b>0</b>	<b>64</b>	<b>513</b>	<b>0</b>	<b>0</b>	<b>577</b>	<b>0</b>	<b>1287</b>



## Traffic Count Data

Intersection: Robert St E & Dufferin St-Burke St  
 Site Code: 2230100003  
 Municipality: Penetanguishene  
 Count Date: Sep 15, 2022

### North Approach - Dufferin St-Burke St

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:00	6	0	1	1	8	0	0	1	0	1	0	0	0	0	0	1
07:15	9	0	2	0	11	0	0	0	0	0	0	0	0	0	0	0
07:30	4	0	4	0	8	0	0	0	0	0	0	0	0	0	0	0
07:45	8	0	1	0	9	0	0	0	0	0	0	0	0	0	0	0
08:00	4	0	0	0	4	0	0	1	0	1	0	0	0	0	0	1
08:15	11	0	3	0	14	0	0	0	0	0	0	0	0	0	0	0
08:30	9	0	4	0	13	0	0	0	0	0	0	0	0	0	0	1
08:45	12	0	10	1	23	0	0	9	1	10	0	0	0	0	0	0
<b>SUBTOTAL</b>	63	0	25	2	90	0	0	11	1	12	0	0	0	0	0	3



## Traffic Count Data

Intersection: Robert St E & Dufferin St-Burke St  
 Site Code: 2230100003  
 Municipality: Penetanguishene  
 Count Date: Sep 15, 2022

### North Approach - Dufferin St-Burke St

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
16:00	1	0	8	0	9	0	0	3	0	3	0	0	0	0	0	0
16:15	7	0	9	1	17	0	0	0	0	0	0	0	0	0	0	0
16:30	13	0	1	0	14	0	0	0	0	0	0	0	0	0	0	0
16:45	9	0	2	0	11	0	0	0	0	0	0	0	0	0	0	0
17:00	7	0	3	0	10	0	0	1	0	1	0	0	0	0	0	0
17:15	6	0	5	0	11	0	0	0	0	0	0	0	0	0	0	0
17:30	4	0	2	0	6	0	0	0	0	0	0	0	0	0	0	0
17:45	2	0	1	0	3	0	0	0	0	0	0	0	0	0	0	0
<b>SUBTOTAL</b>	49	0	31	1	81	0	0	4	0	4	0	0	0	0	0	0
<b>GRAND TOTAL</b>	112	0	56	3	171	0	0	15	1	16	0	0	0	0	0	3





## Traffic Count Data

Intersection: Robert St E & Dufferin St-Burke St  
 Site Code: 2230100003  
 Municipality: Penetanguishene  
 Count Date: Sep 15, 2022

### East Approach - Robert St E

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:00	0	27	3	0	30	0	0	1	0	1	0	0	0	0	0	0
07:15	0	23	2	0	25	0	1	1	0	2	0	0	0	0	0	0
07:30	0	11	4	0	15	0	2	1	0	3	0	0	0	0	0	0
07:45	0	29	6	0	35	0	4	0	0	4	0	0	0	0	0	0
08:00	0	31	11	0	42	0	3	1	0	4	0	0	0	0	0	0
08:15	0	23	8	0	31	0	0	0	0	0	0	0	0	0	0	0
08:30	0	38	13	0	51	0	0	1	0	1	0	0	0	0	0	0
08:45	0	40	16	0	56	0	3	5	0	8	0	0	0	0	0	0
<b>SUBTOTAL</b>	0	222	63	0	285	0	13	10	0	23	0	0	0	0	0	0



## Traffic Count Data

Intersection: Robert St E & Dufferin St-Burke St  
 Site Code: 2230100003  
 Municipality: Penetanguishene  
 Count Date: Sep 15, 2022

### East Approach - Robert St E

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
16:00	0	49	7	0	56	0	1	0	0	1	0	0	0	0	0	0
16:15	0	43	13	0	56	0	0	0	0	0	0	0	0	0	0	0
16:30	0	45	18	0	63	0	0	0	0	0	0	0	0	0	0	0
16:45	0	55	6	0	61	0	0	0	0	0	0	0	0	0	0	0
17:00	0	44	11	0	55	0	0	0	0	0	0	0	0	0	0	0
17:15	0	34	14	0	48	0	0	0	0	0	0	1	0	0	1	0
17:30	0	25	9	0	34	0	0	0	0	0	0	0	0	0	0	0
17:45	0	22	4	0	26	0	1	0	0	1	0	0	0	0	0	0
<b>SUBTOTAL</b>	0	317	82	0	399	0	2	0	0	2	0	1	0	0	1	0
<b>GRAND TOTAL</b>	0	539	145	0	684	0	15	10	0	25	0	1	0	0	1	0



## Traffic Count Data

Intersection: Robert St E & Dufferin St-Burke St  
 Site Code: 2230100003  
 Municipality: Penetanguishene  
 Count Date: Sep 15, 2022

### West Approach - Robert St E

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:00	1	24	0	0	25	0	1	0	0	1	0	0	0	0	0	0
07:15	4	30	0	0	34	0	1	0	0	1	0	0	0	0	0	0
07:30	2	39	0	0	41	0	1	0	0	1	0	0	0	0	0	0
07:45	6	43	0	0	49	0	2	0	0	2	0	0	0	0	0	0
08:00	3	22	0	0	25	0	0	0	0	0	0	0	0	0	0	0
08:15	4	29	0	0	33	0	2	0	0	2	0	0	0	0	0	0
08:30	4	30	0	0	34	0	1	0	0	1	0	0	0	0	0	0
08:45	10	39	0	0	49	2	3	0	0	5	0	0	0	0	0	0
<b>SUBTOTAL</b>	34	256	0	0	290	2	11	0	0	13	0	0	0	0	0	0



## Traffic Count Data

Intersection: Robert St E & Dufferin St-Burke St  
 Site Code: 2230100003  
 Municipality: Penetanguishene  
 Count Date: Sep 15, 2022

### West Approach - Robert St E

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
16:00	5	40	0	0	45	0	2	0	0	2	0	0	0	0	0	0
16:15	3	34	0	0	37	0	0	0	0	0	0	1	0	0	1	0
16:30	4	28	0	0	32	0	3	0	0	3	0	0	0	0	0	0
16:45	1	27	0	0	28	0	2	0	0	2	0	0	0	0	0	0
17:00	3	28	0	0	31	0	4	0	0	4	0	0	0	0	0	0
17:15	6	22	0	0	28	0	1	0	0	1	0	0	0	0	0	0
17:30	3	25	0	0	28	0	0	0	0	0	0	0	0	0	0	0
17:45	3	29	0	0	32	0	0	0	0	0	0	0	0	0	0	0
<b>SUBTOTAL</b>	28	233	0	0	261	0	12	0	0	12	0	1	0	0	1	0
<b>GRAND TOTAL</b>	62	489	0	0	551	2	23	0	0	25	0	1	0	0	1	0

## Peak Hour Diagram

### Specified Period

From: 07:00:00  
To: 09:00:00

### One Hour Peak

From: 08:00:00  
To: 09:00:00




**Intersection:** Robert St E & Dufferin St-Burke St  
**Site Code:** 2230100003  
**Count Date:** Sep 15, 2022

**Weather conditions:** Clear




**\*\* Unsignalized Intersection \*\***




**Major Road:** Robert St E runs E/W

### North Approach




	Out	In	Total
	54	70	124
	11	10	21
	0	0	0
	<b>65</b>	<b>80</b>	<b>145</b>

### Dufferin St-Burke St




	0	0	0
	10	0	1
	17	36	1
<b>Totals</b>	<b>27</b>	<b>36</b>	<b>2</b>








### East Approach

	Out	In	Total
	180	156	336
	13	6	19
	0	0	0
	<b>193</b>	<b>162</b>	<b>355</b>

### Robert St E

				Totals
	0	0	0	<b>0</b>
	0	2	21	<b>23</b>
	0	6	120	<b>126</b>

Peds: 2




Peds: 0






Peds: 0




Peds: 0

### Robert St E

Totals			
<b>0</b>	0	0	0
<b>55</b>	48	7	0
<b>138</b>	132	6	0

### West Approach

	Out	In	Total
	141	149	290
	8	16	24
	0	0	0
	<b>149</b>	<b>165</b>	<b>314</b>

 - Cars

 - Trucks

 - Bicycles

### Comments



## Peak Hour Summary

Intersection: Robert St E & Dufferin St-Burke St  
 Site Code: 2230100003  
 Count Date: Sep 15, 2022  
 Period: 07:00 - 09:00

### Peak Hour Data (08:00 - 09:00)

Start Time	North Approach Dufferin St-Burke St						South Approach				East Approach Robert St E						West Approach Robert St E						Total Vehicles		
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻		Peds	Total
08:00	4		1	0	1	5					0			34	12	0	0	46	3	22		0	0	25	76
08:15	11		3	0	0	14					0			23	8	0	0	31	4	31		0	0	35	80
08:30	9		4	0	1	13					0			38	14	0	0	52	4	31		0	0	35	100
08:45	12		19	2	0	33					0			43	21	0	0	64	12	42		0	0	54	151
<b>Grand Total</b>	<b>36</b>		<b>27</b>	<b>2</b>	<b>2</b>	<b>65</b>					<b>0</b>	<b>0</b>		<b>138</b>	<b>55</b>	<b>0</b>	<b>0</b>	<b>193</b>	<b>23</b>	<b>126</b>		<b>0</b>	<b>0</b>	<b>149</b>	<b>407</b>
<b>Approach %</b>	55.4		41.5	3.1	-	-					-	-		71.5	28.5	0	-	-	15.4	84.6		0	-	-	-
<b>Totals %</b>	8.8		6.6	0.5	16						0			33.9	13.5	0	47.4		5.7	31		0		36.6	
<b>PHF</b>	<b>0.75</b>		<b>0.36</b>	<b>0.25</b>	<b>0.49</b>						<b>0</b>			<b>0.8</b>	<b>0.65</b>	<b>0</b>	<b>0.75</b>		<b>0.48</b>	<b>0.75</b>		<b>0</b>		<b>0.69</b>	<b>0.67</b>
<b>Cars</b>	36		17	1	54						0			132	48	0	180		21	120		0	141	375	
<b>% Cars</b>	100		63	50	83.1						0			95.7	87.3	0	93.3		91.3	95.2		0	94.6	92.1	
<b>Trucks</b>	0		10	1	11						0			6	7	0	13		2	6		0	8	32	
<b>% Trucks</b>	0		37	50	16.9						0			4.3	12.7	0	6.7		8.7	4.8		0	5.4	7.9	
<b>Bicycles</b>	0		0	0	0						0			0	0	0	0		0	0		0	0	0	0
<b>% Bicycles</b>	0		0	0	0						0			0	0	0	0		0	0		0	0	0	0
<b>Peds</b>					2	-					0	-					0	-				0	-	2	
<b>% Peds</b>					100	-					0	-					0	-				0	-		

## Peak Hour Diagram

### Specified Period

From: 16:00:00  
To: 18:00:00

### One Hour Peak

From: 16:00:00  
To: 17:00:00

**Intersection:** Robert St E & Dufferin St-Burke St  
**Site Code:** 2230100003  
**Count Date:** Sep 15, 2022

**Weather conditions:** Clear

**\*\* Unsignalized Intersection \*\***

**Major Road:** Robert St E runs E/W

### North Approach

	Out	In	Total
	51	58	109
	3	0	3
	0	0	0
<b>Totals</b>	<b>54</b>	<b>58</b>	<b>112</b>

### Dufferin St-Burke St

	0	0	0
	3	0	0
	20	30	1
<b>Totals</b>	<b>23</b>	<b>30</b>	<b>1</b>

### East Approach

	Out	In	Total
	236	159	395
	1	7	8
	0	1	1
<b>Totals</b>	<b>237</b>	<b>167</b>	<b>404</b>

### Robert St E

				Totals
	0	0	0	<b>0</b>
	0	0	13	<b>13</b>
	1	7	129	<b>137</b>

Peds: 0

Peds: 0



Peds: 0

Peds: 0

### Robert St E

Totals			
<b>0</b>	0	0	0
<b>44</b>	44	0	0
<b>193</b>	192	1	0

### West Approach

	Out	In	Total
	142	212	354
	7	4	11
	1	0	1
<b>Totals</b>	<b>150</b>	<b>216</b>	<b>366</b>

- Cars

- Trucks

- Bicycles

### Comments



## Peak Hour Summary

Intersection: Robert St E & Dufferin St-Burke St  
 Site Code: 2230100003  
 Count Date: Sep 15, 2022  
 Period: 16:00 - 18:00

### Peak Hour Data (16:00 - 17:00)

Start Time	North Approach Dufferin St-Burke St						South Approach				East Approach Robert St E						West Approach Robert St E						Total Vehicles			
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻		Peds	Total	
16:00	1		11	0	0	12					0			50	7	0	0	57	5	42			0	0	47	116
16:15	7		9	1	0	17					0			43	13	0	0	56	3	35			0	0	38	111
16:30	13		1	0	0	14					0			45	18	0	0	63	4	31			0	0	35	112
16:45	9		2	0	0	11					0			55	6	0	0	61	1	29			0	0	30	102
<b>Grand Total</b>	<b>30</b>		<b>23</b>	<b>1</b>	<b>0</b>	<b>54</b>					<b>0</b>	<b>0</b>		<b>193</b>	<b>44</b>	<b>0</b>	<b>0</b>	<b>237</b>	<b>13</b>	<b>137</b>			<b>0</b>	<b>0</b>	<b>150</b>	<b>441</b>
<b>Approach %</b>	55.6		42.6	1.9		-					-			81.4	18.6	0		-	8.7	91.3			0		-	
<b>Totals %</b>	6.8		5.2	0.2		12.2					0			43.8	10	0		53.7	2.9	31.1			0		34	
<b>PHF</b>	<b>0.58</b>		<b>0.52</b>	<b>0.25</b>		<b>0.79</b>					<b>0</b>			<b>0.88</b>	<b>0.61</b>	<b>0</b>		<b>0.94</b>	<b>0.65</b>	<b>0.82</b>			<b>0</b>		<b>0.8</b>	<b>0.95</b>
<b>Cars</b>	30		20	1		51					0			192	44	0		236	13	129			0		142	429
<b>% Cars</b>	100		87	100		94.4					0			99.5	100	0		99.6	100	94.2			0		94.7	97.3
<b>Trucks</b>	0		3	0		3					0			1	0	0		1	0	7			0		7	11
<b>% Trucks</b>	0		13	0		5.6					0			0.5	0	0		0.4	0	5.1			0		4.7	2.5
<b>Bicycles</b>	0		0	0		0					0			0	0	0		0	0	1			0		1	1
<b>% Bicycles</b>	0		0	0		0					0			0	0	0		0	0	0.7			0		0.7	0.2
<b>Peds</b>					0	-					0	-						0	-				0	-		0
<b>% Peds</b>					0	-					0	-						0	-				0	-		0





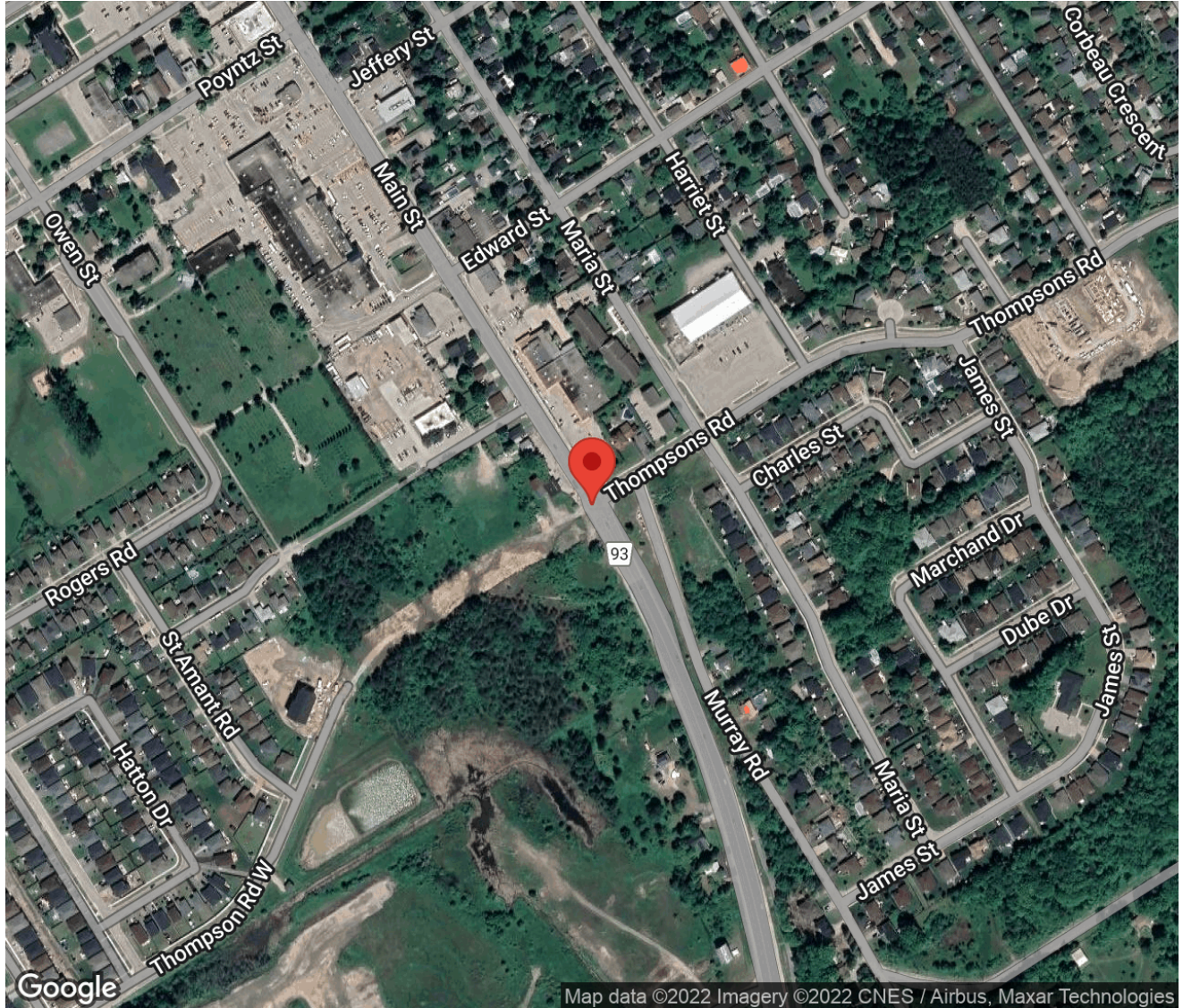
## Project #22-301 - GHD

### Intersection Count Report

**Intersection:** Main St & Thompsons Rd  
**Municipality:** Penetanguishene  
**Count Date:** Thursday, Sep 15, 2022  
**Site Code:** 2230100004  
**Count Categories:** Cars, Trucks, Bicycles, Pedestrians  
**Count Period:** 07:00-09:00, 16:00-18:00  
**Weather:** Clear  
**Comments:**

## Traffic Count Map

Intersection: Main St & Thompsons Rd  
Site Code: 2230100004  
Municipality: Penetanguishene  
Count Date: Sep 15, 2022



## Traffic Count Summary

Intersection: Main St & Thompsons Rd  
 Site Code: 2230100004  
 Municipality: Penetanguishene  
 Count Date: Sep 15, 2022

### Main St - Traffic Summary

Hour	North Approach Totals						South Approach Totals						Total
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	
<b>07:00 - 08:00</b>	26	333	0	0	359	0	0	190	104	0	294	0	653
<b>08:00 - 09:00</b>	22	353	0	0	375	0	0	307	120	0	427	0	802
BREAK													
<b>16:00 - 17:00</b>	44	525	0	0	569	1	0	554	174	0	728	0	1297
<b>17:00 - 18:00</b>	43	381	0	0	424	0	0	504	164	0	668	0	1092
<b>GRAND TOTAL</b>	<b>135</b>	<b>1592</b>	<b>0</b>	<b>0</b>	<b>1727</b>	<b>1</b>	<b>0</b>	<b>1555</b>	<b>562</b>	<b>0</b>	<b>2117</b>	<b>0</b>	<b>3844</b>





## Traffic Count Data

Intersection: Main St & Thompsons Rd  
 Site Code: 2230100004  
 Municipality: Penetanguishene  
 Count Date: Sep 15, 2022

### North Approach - Main St

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:00	2	65	0	0	67	0	1	0	0	1	0	0	0	0	0	0
07:15	7	73	0	0	80	2	3	0	0	5	0	0	0	0	0	0
07:30	6	84	0	0	90	4	9	0	0	13	0	0	0	0	0	0
07:45	4	95	0	0	99	1	3	0	0	4	0	0	0	0	0	0
08:00	2	68	0	0	70	1	6	0	0	7	0	0	0	0	0	0
08:15	6	76	0	0	82	5	4	0	0	9	0	0	0	0	0	0
08:30	4	93	0	0	97	0	7	0	0	7	0	0	0	0	0	0
08:45	4	95	0	0	99	0	4	0	0	4	0	0	0	0	0	0
<b>SUBTOTAL</b>	35	649	0	0	684	13	37	0	0	50	0	0	0	0	0	0



## Traffic Count Data

Intersection: Main St & Thompsons Rd  
 Site Code: 2230100004  
 Municipality: Penetanguishene  
 Count Date: Sep 15, 2022

### North Approach - Main St

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
16:00	10	121	0	0	131	0	1	0	0	1	0	0	0	0	0	0
16:15	10	148	0	0	158	0	5	0	0	5	0	0	0	0	0	1
16:30	16	129	0	0	145	0	4	0	0	4	0	0	0	0	0	0
16:45	8	112	0	0	120	0	4	0	0	4	0	1	0	0	1	0
17:00	8	117	0	0	125	0	4	0	0	4	0	0	0	0	0	0
17:15	9	98	0	0	107	0	2	0	0	2	0	0	0	0	0	0
17:30	11	78	0	0	89	0	1	0	0	1	0	0	0	0	0	0
17:45	15	77	0	0	92	0	3	0	0	3	0	1	0	0	1	0
<b>SUBTOTAL</b>	87	880	0	0	967	0	24	0	0	24	0	2	0	0	2	1
<b>GRAND TOTAL</b>	122	1529	0	0	1651	13	61	0	0	74	0	2	0	0	2	1



## Traffic Count Data

Intersection: Main St & Thompsons Rd  
 Site Code: 2230100004  
 Municipality: Penetanguishene  
 Count Date: Sep 15, 2022

### South Approach - Main St

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:00	0	26	13	0	39	0	4	5	0	9	0	0	0	0	0	0
07:15	0	51	23	0	74	0	3	2	0	5	0	0	0	0	0	0
07:30	0	33	20	0	53	0	6	3	0	9	0	0	0	0	0	0
07:45	0	65	35	0	100	0	2	3	0	5	0	0	0	0	0	0
08:00	0	57	23	0	80	0	4	1	0	5	0	0	0	0	0	0
08:15	0	63	27	0	90	0	6	3	0	9	0	0	0	0	0	0
08:30	0	68	31	0	99	0	9	2	0	11	0	0	0	0	0	0
08:45	0	91	31	0	122	0	9	2	0	11	0	0	0	0	0	0
<b>SUBTOTAL</b>	0	454	203	0	657	0	43	21	0	64	0	0	0	0	0	0



## Traffic Count Data

Intersection: Main St & Thompsons Rd  
 Site Code: 2230100004  
 Municipality: Penetanguishene  
 Count Date: Sep 15, 2022

### South Approach - Main St

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
16:00	0	145	36	0	181	0	3	0	0	3	0	0	0	0	0	0
16:15	0	133	41	0	174	0	1	2	0	3	0	0	0	0	0	0
16:30	0	135	35	0	170	0	3	0	0	3	0	0	0	0	0	0
16:45	0	130	58	0	188	0	4	2	0	6	0	0	0	0	0	0
17:00	0	132	39	0	171	0	0	0	0	0	0	0	0	0	0	0
17:15	0	138	38	0	176	0	1	2	0	3	0	0	0	0	0	0
17:30	0	127	51	0	178	0	1	1	0	2	0	0	0	0	0	0
17:45	0	105	32	0	137	0	0	1	0	1	0	0	0	0	0	0
<b>SUBTOTAL</b>	0	1045	330	0	1375	0	13	8	0	21	0	0	0	0	0	0
<b>GRAND TOTAL</b>	0	1499	533	0	2032	0	56	29	0	85	0	0	0	0	0	0





## Traffic Count Data

Intersection: Main St & Thompsons Rd  
 Site Code: 2230100004  
 Municipality: Penetanguishene  
 Count Date: Sep 15, 2022

### East Approach - Thompsons Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:00	26	0	3	0	29	1	0	2	0	3	0	0	0	0	0	0
07:15	32	0	6	0	38	5	0	4	0	9	0	0	0	0	0	0
07:30	41	0	3	0	44	3	0	2	0	5	0	0	0	0	0	0
07:45	23	0	1	0	24	1	0	4	0	5	0	0	0	0	0	0
08:00	26	0	3	0	29	0	0	4	0	4	0	0	0	0	0	0
08:15	28	0	10	0	38	3	0	2	0	5	0	0	0	0	0	0
08:30	26	0	9	0	35	1	0	2	0	3	0	0	0	0	0	0
08:45	40	0	8	0	48	2	0	1	0	3	0	0	0	0	0	0
<b>SUBTOTAL</b>	242	0	43	0	285	16	0	21	0	37	0	0	0	0	0	0



## Traffic Count Data

Intersection: Main St & Thompsons Rd  
 Site Code: 2230100004  
 Municipality: Penetanguishene  
 Count Date: Sep 15, 2022

### East Approach - Thompsons Rd

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
16:00	56	0	10	0	66	1	0	2	0	3	0	0	0	0	0	0
16:15	41	0	11	0	52	1	0	1	0	2	0	0	0	0	0	0
16:30	47	0	10	0	57	0	0	0	0	0	0	0	0	0	0	0
16:45	23	0	10	0	33	0	0	1	0	1	0	0	0	0	0	0
17:00	37	0	12	0	49	0	0	1	0	1	0	0	0	0	0	0
17:15	24	0	12	0	36	0	0	0	0	0	0	0	0	0	0	1
17:30	24	0	9	0	33	0	0	0	0	0	0	0	0	0	0	0
17:45	28	0	4	0	32	0	0	1	0	1	0	0	0	0	0	0
<b>SUBTOTAL</b>	280	0	78	0	358	2	0	6	0	8	0	0	0	0	0	1
<b>GRAND TOTAL</b>	522	0	121	0	643	18	0	27	0	45	0	0	0	0	0	1

## Peak Hour Diagram

### Specified Period

From: 07:00:00  
To: 09:00:00

### One Hour Peak

From: 08:00:00  
To: 09:00:00




**Intersection:** Main St & Thompsons Rd  
**Site Code:** 2230100004  
**Count Date:** Sep 15, 2022

**Weather conditions:** Clear




**\*\* Signalized Intersection \*\***

**Major Road:** Main St runs N/S

### North Approach

	Out	In	Total
	348	309	657
	27	37	64
	0	0	0
<b>Totals</b>	<b>375</b>	<b>346</b>	<b>721</b>

### Main St

	0	0	0
	21	6	0
	332	16	0
<b>Totals</b>	<b>353</b>	<b>22</b>	<b>0</b>






Peds: 0

Peds: 0






Peds: 0

Peds: 0







<b>Totals</b>	<b>307</b>	<b>120</b>	<b>0</b>
	279	112	0
	28	8	0
	0	0	0

### Main St




### East Approach

	Out	In	Total
	150	128	278
	15	14	29
	0	0	0
<b>Totals</b>	<b>165</b>	<b>142</b>	<b>307</b>


### Thompsons Rd

Totals			
	0	0	0
	39	30	9
	126	120	6

### South Approach

	Out	In	Total
	391	452	843
	36	27	63
	0	0	0
<b>Totals</b>	<b>427</b>	<b>479</b>	<b>906</b>

 - Cars

 - Trucks

 - Bicycles

### Comments

## Peak Hour Summary

Intersection: Main St & Thompsons Rd  
 Site Code: 2230100004  
 Count Date: Sep 15, 2022  
 Period: 07:00 - 09:00

### Peak Hour Data (08:00 - 09:00)

Start Time	North Approach Main St						South Approach Main St						East Approach Thompsons Rd						West Approach						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
08:00	3	74		0	0	77		61	24	0	0	85	26		7	0	0	33					0		195
08:15	11	80		0	0	91		69	30	0	0	99	31		12	0	0	43					0		233
08:30	4	100		0	0	104		77	33	0	0	110	27		11	0	0	38					0		252
08:45	4	99		0	0	103		100	33	0	0	133	42		9	0	0	51					0		287
<b>Grand Total</b>	<b>22</b>	<b>353</b>		<b>0</b>	<b>0</b>	<b>375</b>		<b>307</b>	<b>120</b>	<b>0</b>	<b>0</b>	<b>427</b>	<b>126</b>		<b>39</b>	<b>0</b>	<b>0</b>	<b>165</b>					<b>0</b>	<b>0</b>	<b>967</b>
Approach %	5.9	94.1		0	-	-		71.9	28.1	0	-	-	76.4		23.6	0	-	-					0	-	-
Totals %	2.3	36.5		0	38.8		31.7	12.4	0	44.2		13		4	0	17.1							0		
<b>PHF</b>	<b>0.5</b>	<b>0.88</b>		<b>0</b>	<b>0.9</b>		<b>0.77</b>	<b>0.91</b>	<b>0</b>	<b>0.8</b>		<b>0.75</b>		<b>0.81</b>	<b>0</b>	<b>0.81</b>						<b>0</b>		<b>0.84</b>	
<b>Cars</b>	16	332		0	348		279	112	0	391		120	30	0	150								0		889
<b>% Cars</b>	72.7	94.1		0	92.8		90.9	93.3	0	91.6		95.2	76.9	0	90.9								0		91.9
<b>Trucks</b>	6	21		0	27		28	8	0	36		6	9	0	15								0		78
<b>% Trucks</b>	27.3	5.9		0	7.2		9.1	6.7	0	8.4		4.8	23.1	0	9.1								0		8.1
<b>Bicycles</b>	0	0		0	0		0	0	0	0		0	0	0	0								0		0
<b>% Bicycles</b>	0	0		0	0		0	0	0	0		0	0	0	0								0		0
<b>Peds</b>					0	-				0	-				0	-							0	-	0
<b>% Peds</b>					0	-				0	-				0	-							0	-	-

## Peak Hour Diagram

### Specified Period

From: 16:00:00  
To: 18:00:00

### One Hour Peak

From: 16:00:00  
To: 17:00:00




**Intersection:** Main St & Thompsons Rd  
**Site Code:** 2230100004  
**Count Date:** Sep 15, 2022

**Weather conditions:** Clear




**\*\* Signalized Intersection \*\***

**Major Road:** Main St runs N/S

### North Approach

	Out	In	Total
	554	584	1138
	14	15	29
	1	0	1
<b>Totals</b>	<b>569</b>	<b>599</b>	<b>1168</b>

### Main St

	1	0	0
	14	0	0
	510	44	0
<b>Totals</b>	<b>525</b>	<b>44</b>	<b>0</b>






Peds: 1

Peds: 0






Peds: 0

Peds: 0







<b>Totals</b>	<b>554</b>	<b>174</b>	<b>0</b>
	543	170	0
	11	4	0
	0	0	0

Main St




### East Approach

	Out	In	Total
	208	214	422
	6	4	10
	0	0	0
<b>Totals</b>	<b>214</b>	<b>218</b>	<b>432</b>

### Thompsons Rd

Totals			
	0	0	0
	45	41	0
	169	167	0

### South Approach

	Out	In	Total
	713	677	1390
	15	16	31
	0	1	1
<b>Totals</b>	<b>728</b>	<b>694</b>	<b>1422</b>

 - Cars

 - Trucks

 - Bicycles

### Comments



## Peak Hour Summary

Intersection: Main St & Thompsons Rd  
 Site Code: 2230100004  
 Count Date: Sep 15, 2022  
 Period: 16:00 - 18:00

### Peak Hour Data (16:00 - 17:00)

Start Time	North Approach Main St						South Approach Main St						East Approach Thompsons Rd						West Approach						Total Vehic es
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
16:00	10	122		0	0	132		148	36	0	0	184	57		12	0	0	69					0		385
16:15	10	153		0	1	163		134	43	0	0	177	42		12	0	0	54					0		394
16:30	16	133		0	0	149		138	35	0	0	173	47		10	0	0	57					0		379
16:45	8	117		0	0	125		134	60	0	0	194	23		11	0	0	34					0		353
<b>Grand Total</b>	<b>44</b>	<b>525</b>		<b>0</b>	<b>1</b>	<b>569</b>		<b>554</b>	<b>174</b>	<b>0</b>	<b>0</b>	<b>728</b>	<b>169</b>		<b>45</b>	<b>0</b>	<b>0</b>	<b>214</b>					<b>0</b>	<b>0</b>	<b>1511</b>
<b>Approach %</b>	7.7	92.3		0	-	-		76.1	23.9	0	-	-	79		21	0	-	-					0	-	-
<b>Totals %</b>	2.9	34.7		0	37.7		36.7	11.5	0	48.2		11.2		3	0	14.2							0		
<b>PHF</b>	<b>0.69</b>	<b>0.86</b>		<b>0</b>	<b>0.87</b>		<b>0.94</b>	<b>0.73</b>	<b>0</b>	<b>0.94</b>		<b>0.74</b>		<b>0.94</b>	<b>0</b>	<b>0.78</b>						<b>0</b>		<b>0.96</b>	
<b>Cars</b>	44	510		0	554		543	170	0	713		167	41	0	208							0		1475	
<b>% Cars</b>	100	97.1		0	97.4		98	97.7	0	97.9		98.8	91.1	0	97.2							0		97.6	
<b>Trucks</b>	0	14		0	14		11	4	0	15		2	4	0	6							0		35	
<b>% Trucks</b>	0	2.7		0	2.5		2	2.3	0	2.1		1.2	8.9	0	2.8							0		2.3	
<b>Bicycles</b>	0	1		0	1		0	0	0	0		0	0	0	0							0		1	
<b>% Bicycles</b>	0	0.2		0	0.2		0	0	0	0		0	0	0	0							0		0.1	
<b>Peds</b>					1	-				0	-				0	-						0	-		1
<b>% Peds</b>					100	-				0	-				0	-						0	-		



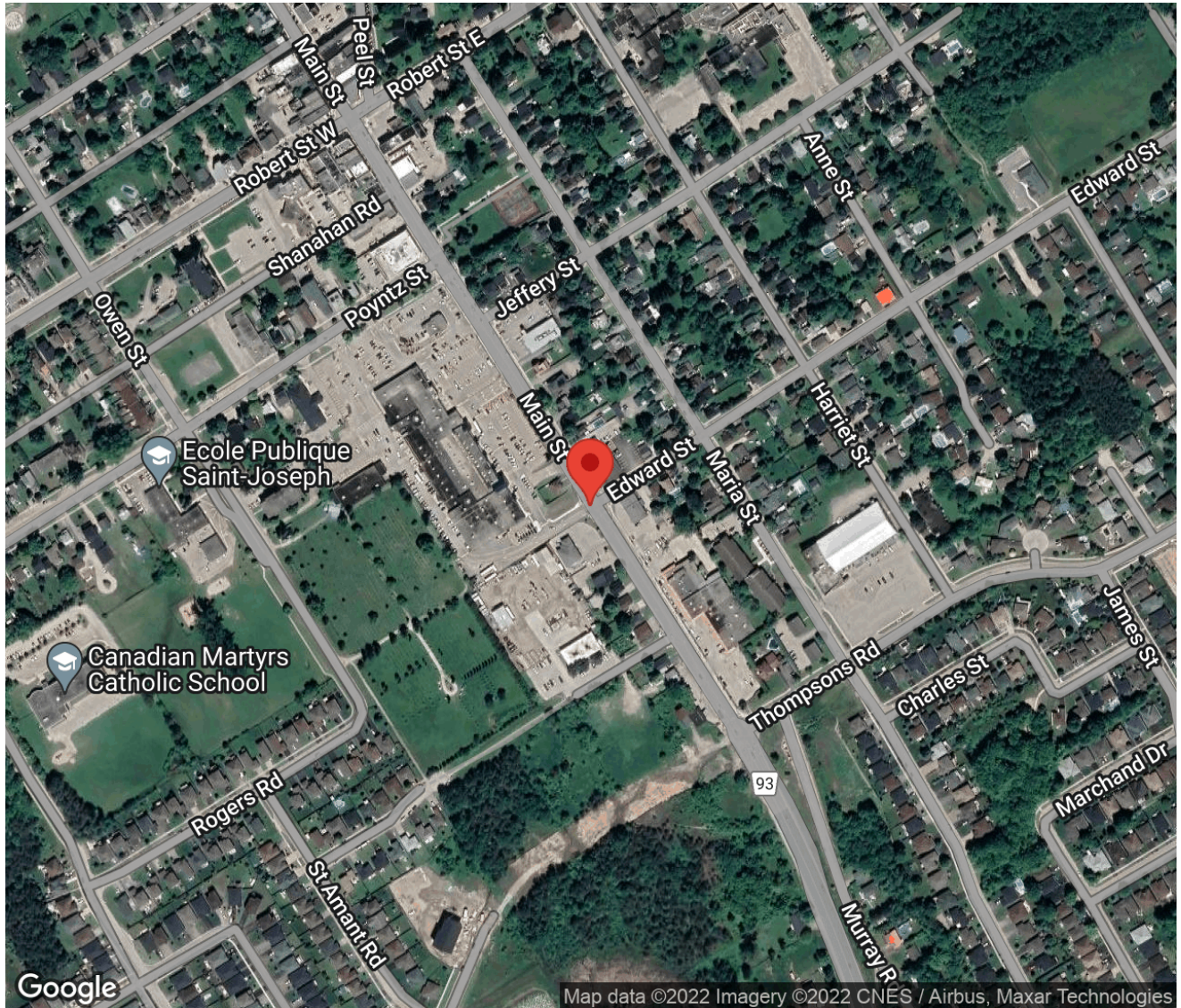
## Project #22-301 - GHD

### Intersection Count Report

**Intersection:** Main St & Edward St  
**Municipality:** Penetanguishene  
**Count Date:** Thursday, Sep 15, 2022  
**Site Code:** 2230100005  
**Count Categories:** Cars, Trucks, Bicycles, Pedestrians  
**Count Period:** 07:00-09:00, 16:00-18:00  
**Weather:** Clear  
**Comments:**

## Traffic Count Map

Intersection: Main St & Edward St  
Site Code: 2230100005  
Municipality: Penetanguishene  
Count Date: Sep 15, 2022





## Traffic Count Summary

Intersection: Main St & Edward St  
 Site Code: 2230100005  
 Municipality: Penetanguishene  
 Count Date: Sep 15, 2022

### Main St - Traffic Summary

Hour	North Approach Totals						South Approach Totals						Total
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	
<b>07:00 - 08:00</b>	12	308	0	0	320	1	16	190	9	0	215	0	535
<b>08:00 - 09:00</b>	19	317	2	0	338	1	26	300	17	0	343	1	681
BREAK													
<b>16:00 - 17:00</b>	36	451	10	0	497	1	94	467	34	0	595	3	1092
<b>17:00 - 18:00</b>	27	336	8	0	371	8	83	441	24	0	548	1	919
<b>GRAND TOTAL</b>	<b>94</b>	<b>1412</b>	<b>20</b>	<b>0</b>	<b>1526</b>	<b>11</b>	<b>219</b>	<b>1398</b>	<b>84</b>	<b>0</b>	<b>1701</b>	<b>5</b>	<b>3227</b>

## Traffic Count Summary

Intersection: Main St & Edward St  
 Site Code: 2230100005  
 Municipality: Penetanguishene  
 Count Date: Sep 15, 2022

### Edward St - Traffic Summary

Hour	East Approach Totals						West Approach Totals						Total
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	
<b>07:00 - 08:00</b>	36	4	9	0	49	0	0	2	17	0	19	2	68
<b>08:00 - 09:00</b>	40	11	30	0	81	2	0	5	16	0	21	0	102
BREAK													
<b>16:00 - 17:00</b>	51	28	27	0	106	8	6	19	64	0	89	3	195
<b>17:00 - 18:00</b>	32	13	25	0	70	7	12	20	61	0	93	2	163
<b>GRAND TOTAL</b>	<b>159</b>	<b>56</b>	<b>91</b>	<b>0</b>	<b>306</b>	<b>17</b>	<b>18</b>	<b>46</b>	<b>158</b>	<b>0</b>	<b>222</b>	<b>7</b>	<b>528</b>



## Traffic Count Data

Intersection: Main St & Edward St  
 Site Code: 2230100005  
 Municipality: Penetanguishene  
 Count Date: Sep 15, 2022

### North Approach - Main St

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:00	3	59	0	0	62	0	0	0	0	0	0	0	0	0	0	1
07:15	1	67	0	0	68	0	2	0	0	2	0	0	0	0	0	0
07:30	4	82	0	0	86	0	13	0	0	13	0	0	0	0	0	0
07:45	4	80	0	0	84	0	4	0	0	4	0	1	0	0	1	0
08:00	4	61	0	0	65	0	7	0	0	7	0	0	0	0	0	0
08:15	8	60	0	0	68	0	8	0	0	8	0	0	0	0	0	1
08:30	3	82	1	0	86	0	5	0	0	5	0	0	0	0	0	0
08:45	4	91	1	0	96	0	3	0	0	3	0	0	0	0	0	0
<b>SUBTOTAL</b>	31	582	2	0	615	0	42	0	0	42	0	1	0	0	1	2



## Traffic Count Data

Intersection: Main St & Edward St  
 Site Code: 2230100005  
 Municipality: Penetanguishene  
 Count Date: Sep 15, 2022

### North Approach - Main St

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
16:00	13	109	3	0	125	0	1	0	0	1	0	0	0	0	0	0
16:15	9	125	2	0	136	0	4	0	0	4	0	0	0	0	0	0
16:30	8	101	3	0	112	0	5	0	0	5	0	0	0	0	0	0
16:45	6	102	2	0	110	0	3	0	0	3	0	1	0	0	1	1
17:00	11	103	4	0	118	0	3	0	0	3	0	0	0	0	0	3
17:15	7	81	1	0	89	0	0	0	0	0	0	0	0	0	0	1
17:30	4	75	2	0	81	0	3	0	0	3	0	0	0	0	0	2
17:45	5	68	1	0	74	0	3	0	0	3	0	0	0	0	0	2
<b>SUBTOTAL</b>	63	764	18	0	845	0	22	0	0	22	0	1	0	0	1	9
<b>GRAND TOTAL</b>	94	1346	20	0	1460	0	64	0	0	64	0	2	0	0	2	11



## Traffic Count Data

Intersection: Main St & Edward St  
 Site Code: 2230100005  
 Municipality: Penetanguishene  
 Count Date: Sep 15, 2022

### South Approach - Main St

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:00	1	25	3	0	29	2	3	0	0	5	0	0	0	0	0	0
07:15	2	56	2	0	60	1	7	0	0	8	0	0	0	0	0	0
07:30	4	29	1	0	34	1	7	0	0	8	0	0	0	0	0	0
07:45	5	55	3	0	63	0	8	0	0	8	0	0	0	0	0	0
08:00	1	53	6	0	60	2	6	0	0	8	0	0	0	0	0	0
08:15	3	63	5	0	71	1	5	1	0	7	0	0	0	0	0	1
08:30	6	69	1	0	76	1	11	0	0	12	0	0	0	0	0	0
08:45	12	83	4	0	99	0	10	0	0	10	0	0	0	0	0	0
<b>SUBTOTAL</b>	34	433	25	0	492	8	57	1	0	66	0	0	0	0	0	1



## Traffic Count Data

Intersection: Main St & Edward St  
 Site Code: 2230100005  
 Municipality: Penetanguishene  
 Count Date: Sep 15, 2022

### South Approach - Main St

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
16:00	23	122	9	0	154	1	3	0	0	4	0	0	0	0	0	1
16:15	19	113	10	0	142	0	3	0	0	3	0	0	0	0	0	2
16:30	28	106	9	0	143	1	2	0	0	3	0	0	0	0	0	0
16:45	22	114	6	0	142	0	4	0	0	4	0	0	0	0	0	0
17:00	24	117	8	0	149	1	2	0	0	3	0	0	0	0	0	0
17:15	18	122	6	0	146	0	1	0	0	1	0	0	0	0	0	0
17:30	24	101	8	0	133	1	0	0	0	1	0	0	0	0	0	0
17:45	15	97	2	0	114	0	1	0	0	1	0	0	0	0	0	1
<b>SUBTOTAL</b>	173	892	58	0	1123	4	16	0	0	20	0	0	0	0	0	4
<b>GRAND TOTAL</b>	207	1325	83	0	1615	12	73	1	0	86	0	0	0	0	0	5



## Traffic Count Data

Intersection: Main St & Edward St  
 Site Code: 2230100005  
 Municipality: Penetanguishene  
 Count Date: Sep 15, 2022

### East Approach - Edward St

Start Time	Cars					Trucks					Bicycles					Total Peds	
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total		
07:00	6	1	3	0	10	0	0	0	0	0	0	0	0	0	0	0	0
07:15	11	1	3	0	15	1	0	0	0	1	0	0	0	0	0	0	0
07:30	7	1	2	0	10	0	0	0	0	0	0	0	0	0	0	0	0
07:45	11	1	1	0	13	0	0	0	0	0	0	0	0	0	0	0	0
08:00	7	2	4	0	13	0	0	0	0	0	0	0	0	0	0	0	0
08:15	13	3	3	0	19	0	0	0	0	0	0	0	0	0	0	0	0
08:30	11	2	8	0	21	1	0	0	0	1	0	0	0	0	0	0	1
08:45	7	4	15	0	26	1	0	0	0	1	0	0	0	0	0	0	1
<b>SUBTOTAL</b>	73	15	39	0	127	3	0	0	0	3	0	0	0	0	0	0	2



## Traffic Count Data

Intersection: Main St & Edward St  
 Site Code: 2230100005  
 Municipality: Penetanguishene  
 Count Date: Sep 15, 2022

### East Approach - Edward St

Start Time	Cars					Trucks					Bicycles					Total Peds	
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total		
16:00	11	8	10	0	29	0	0	0	0	0	0	0	0	0	0	0	2
16:15	14	7	4	0	25	0	0	0	0	0	0	0	0	0	0	0	4
16:30	19	2	5	0	26	0	0	0	0	0	0	0	0	0	0	0	1
16:45	7	11	8	0	26	0	0	0	0	0	0	0	0	0	0	0	1
17:00	11	3	8	0	22	0	0	0	0	0	0	0	0	0	0	0	2
17:15	7	1	6	0	14	1	0	0	0	1	0	0	0	0	0	0	5
17:30	7	5	6	0	18	0	0	0	0	0	0	0	0	0	0	0	0
17:45	6	4	5	0	15	0	0	0	0	0	0	0	0	0	0	0	0
<b>SUBTOTAL</b>	82	41	52	0	175	1	0	0	0	1	0	0	0	0	0	0	15
<b>GRAND TOTAL</b>	155	56	91	0	302	4	0	0	0	4	0	0	0	0	0	0	17





## Traffic Count Data

Intersection: Main St & Edward St  
 Site Code: 2230100005  
 Municipality: Penetanguishene  
 Count Date: Sep 15, 2022

### West Approach - Edward St

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:00	0	2	4	0	6	0	0	2	0	2	0	0	0	0	0	0
07:15	0	0	2	0	2	0	0	1	0	1	0	0	0	0	0	1
07:30	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	1
07:45	0	0	6	0	6	0	0	0	0	0	0	0	0	0	0	0
08:00	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0
08:15	0	1	4	0	5	0	0	0	0	0	0	0	0	0	0	0
08:30	0	1	2	0	3	0	0	0	0	0	0	0	0	0	0	0
08:45	0	3	8	0	11	0	0	0	0	0	0	0	0	0	0	0
<b>SUBTOTAL</b>	0	7	30	0	37	0	0	3	0	3	0	0	0	0	0	2



## Traffic Count Data

Intersection: Main St & Edward St  
 Site Code: 2230100005  
 Municipality: Penetanguishene  
 Count Date: Sep 15, 2022

### West Approach - Edward St

Start Time	Cars					Trucks					Bicycles					Total Peds	
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total		
16:00	0	5	14	0	19	0	0	0	0	0	0	0	0	0	0	0	0
16:15	2	4	21	0	27	0	0	0	0	0	0	0	0	0	0	0	1
16:30	2	3	20	0	25	0	0	0	0	0	0	0	0	0	0	0	2
16:45	2	7	8	0	17	0	0	0	0	0	0	0	1	0	1	0	0
17:00	5	6	15	0	26	0	0	0	0	0	0	0	0	0	0	0	0
17:15	2	10	20	0	32	0	0	0	0	0	0	0	0	0	0	0	0
17:30	1	2	7	0	10	0	0	0	0	0	0	0	1	0	1	0	0
17:45	4	2	18	0	24	0	0	0	0	0	0	0	0	0	0	0	2
<b>SUBTOTAL</b>	18	39	123	0	180	0	0	0	0	0	0	0	2	0	2	0	5
<b>GRAND TOTAL</b>	18	46	153	0	217	0	0	3	0	3	0	0	2	0	2	0	7

## Peak Hour Diagram

### Specified Period

From: 07:00:00  
To: 09:00:00

### One Hour Peak

From: 08:00:00  
To: 09:00:00

**Intersection:** Main St & Edward St  
**Site Code:** 2230100005  
**Count Date:** Sep 15, 2022

**Weather conditions:** Clear

**\*\* Signalized Intersection \*\***

**Major Road:** Main St runs N/S

### North Approach

	Out	In	Total
	315	298	613
	23	32	55
	0	0	0
<b>Totals</b>	<b>338</b>	<b>330</b>	<b>668</b>

### Main St

	0	0	0	0
	0	23	0	0
	2	294	19	0
<b>Totals</b>	<b>2</b>	<b>317</b>	<b>19</b>	<b>0</b>

### East Approach

	Out	In	Total
	79	40	119
	2	1	3
	0	0	0
<b>Totals</b>	<b>81</b>	<b>41</b>	<b>122</b>

### Edward St

				Totals
	0	0	0	0
	0	0	0	0
	0	0	5	5
	0	0	16	16

Peds: 1

Peds: 0



Peds: 2

Peds: 1

### Edward St

Totals			
0	0	0	0
30	30	0	0
11	11	0	0
40	38	2	0

### West Approach

	Out	In	Total
	21	35	56
	0	4	4
	0	0	0
<b>Totals</b>	<b>21</b>	<b>39</b>	<b>60</b>

Totals				
26	300	17	0	
	22	268	16	0
	4	32	1	0
	0	0	0	0

Main St

### South Approach

Out	In	Total	
	306	348	654
	37	25	62
	0	0	0
<b>Totals</b>	<b>343</b>	<b>373</b>	<b>716</b>

- Cars

- Trucks

- Bicycles

### Comments

## Peak Hour Summary

Intersection: Main St & Edward St  
 Site Code: 2230100005  
 Count Date: Sep 15, 2022  
 Period: 07:00 - 09:00

### Peak Hour Data (08:00 - 09:00)

Start Time	North Approach Main St						South Approach Main St						East Approach Edward St						West Approach Edward St						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
08:00	4	68	0	0	0	72	3	59	6	0	0	68	7	2	4	0	0	13	0	0	2	0	0	2	155
08:15	8	68	0	0	1	76	4	68	6	0	1	78	13	3	3	0	0	19	0	1	4	0	0	5	178
08:30	3	87	1	0	0	91	7	80	1	0	0	88	12	2	8	0	1	22	0	1	2	0	0	3	204
08:45	4	94	1	0	0	99	12	93	4	0	0	109	8	4	15	0	1	27	0	3	8	0	0	11	246
<b>Grand Total</b>	<b>19</b>	<b>317</b>	<b>2</b>	<b>0</b>	<b>1</b>	<b>338</b>	<b>26</b>	<b>300</b>	<b>17</b>	<b>0</b>	<b>1</b>	<b>343</b>	<b>40</b>	<b>11</b>	<b>30</b>	<b>0</b>	<b>2</b>	<b>81</b>	<b>0</b>	<b>5</b>	<b>16</b>	<b>0</b>	<b>0</b>	<b>21</b>	<b>783</b>
<b>Approach %</b>	5.6	93.8	0.6	0	-	-	7.6	87.5	5	0	-	-	49.4	13.6	37	0	-	-	0	23.8	76.2	0	-	-	
<b>Totals %</b>	2.4	40.5	0.3	0	43.2	43.2	3.3	38.3	2.2	0	43.8	43.8	5.1	1.4	3.8	0	10.3	10.3	0	0.6	2	0	2.7	2.7	
<b>PHF</b>	<b>0.59</b>	<b>0.84</b>	<b>0.5</b>	<b>0</b>	<b>0.85</b>	<b>0.85</b>	<b>0.54</b>	<b>0.81</b>	<b>0.71</b>	<b>0</b>	<b>0.79</b>	<b>0.79</b>	<b>0.77</b>	<b>0.69</b>	<b>0.5</b>	<b>0</b>	<b>0.75</b>	<b>0.75</b>	<b>0</b>	<b>0.42</b>	<b>0.5</b>	<b>0</b>	<b>0.48</b>	<b>0.48</b>	<b>0.8</b>
<b>Cars</b>	19	294	2	0	315	315	22	268	16	0	306	306	38	11	30	0	79	79	0	5	16	0	21	21	721
<b>% Cars</b>	100	92.7	100	0	93.2	93.2	84.6	89.3	94.1	0	89.2	89.2	95	100	100	0	97.5	97.5	0	100	100	0	100	100	92.1
<b>Trucks</b>	0	23	0	0	23	23	4	32	1	0	37	37	2	0	0	0	2	2	0	0	0	0	0	0	62
<b>% Trucks</b>	0	7.3	0	0	6.8	6.8	15.4	10.7	5.9	0	10.8	10.8	5	0	0	0	2.5	2.5	0	0	0	0	0	0	7.9
<b>Bicycles</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>% Bicycles</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Peds</b>					1	-					1	-					2	-					0	-	4
<b>% Peds</b>					25	-					25	-					50	-					0	-	

## Peak Hour Diagram

### Specified Period

From: 16:00:00  
To: 18:00:00

### One Hour Peak

From: 16:00:00  
To: 17:00:00

**Intersection:** Main St & Edward St  
**Site Code:** 2230100005  
**Count Date:** Sep 15, 2022

**Weather conditions:** Clear

**\*\* Signalized Intersection \*\***

**Major Road:** Main St runs N/S

### North Approach

	Out	In	Total
	483	488	971
	13	12	25
	1	0	1
<b>Totals</b>	<b>497</b>	<b>500</b>	<b>997</b>

### Main St

	0	1	0	0
	0	13	0	0
	10	437	36	0
<b>Totals</b>	<b>10</b>	<b>451</b>	<b>36</b>	<b>0</b>

### East Approach

	Out	In	Total
	106	89	195
	0	0	0
	0	0	0
<b>Totals</b>	<b>106</b>	<b>89</b>	<b>195</b>

### Edward St

				Totals
	0	0	0	<b>0</b>
	0	0	6	<b>6</b>
	0	0	19	<b>19</b>
	1	0	63	<b>64</b>

Peds: 1

Peds: 3



Peds: 8

Peds: 3

### Edward St

Totals			
<b>0</b>	0	0	0
<b>27</b>	27	0	0
<b>28</b>	28	0	0
<b>51</b>	51	0	0

### West Approach

	Out	In	Total
	88	130	218
	0	2	2
	1	0	1
<b>Totals</b>	<b>89</b>	<b>132</b>	<b>221</b>

Totals				
<b>94</b>	94	467	34	0
	92	455	34	0
	2	12	0	0
	0	0	0	0

Main St

### South Approach

Out	In	Total	
	581	551	1132
	14	13	27
	0	2	2
<b>Totals</b>	<b>595</b>	<b>566</b>	<b>1161</b>

- Cars

- Trucks

- Bicycles

### Comments



## Peak Hour Summary

Intersection: Main St & Edward St  
 Site Code: 2230100005  
 Count Date: Sep 15, 2022  
 Period: 16:00 - 18:00

### Peak Hour Data (16:00 - 17:00)

Start Time	North Approach Main St						South Approach Main St						East Approach Edward St						West Approach Edward St						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
16:00	13	110	3	0	0	126	24	125	9	0	1	158	11	8	10	0	2	29	0	5	14	0	0	19	332
16:15	9	129	2	0	0	140	19	116	10	0	2	145	14	7	4	0	4	25	2	4	21	0	1	27	337
16:30	8	106	3	0	0	117	29	108	9	0	0	146	19	2	5	0	1	26	2	3	20	0	2	25	314
16:45	6	106	2	0	1	114	22	118	6	0	0	146	7	11	8	0	1	26	2	7	9	0	0	18	304
<b>Grand Total</b>	<b>36</b>	<b>451</b>	<b>10</b>	<b>0</b>	<b>1</b>	<b>497</b>	<b>94</b>	<b>467</b>	<b>34</b>	<b>0</b>	<b>3</b>	<b>595</b>	<b>51</b>	<b>28</b>	<b>27</b>	<b>0</b>	<b>8</b>	<b>106</b>	<b>6</b>	<b>19</b>	<b>64</b>	<b>0</b>	<b>3</b>	<b>89</b>	<b>1287</b>
Approach %	7.2	90.7	2	0	-	-	15.8	78.5	5.7	0	-	-	48.1	26.4	25.5	0	-	-	6.7	21.3	71.9	0	-	-	-
Totals %	2.8	35	0.8	0	38.6	-	7.3	36.3	2.6	0	46.2	-	4	2.2	2.1	0	8.2	-	0.5	1.5	5	0	6.9	-	-
<b>PHF</b>	<b>0.69</b>	<b>0.87</b>	<b>0.83</b>	<b>0</b>	<b>0.89</b>	<b>0.81</b>	<b>0.93</b>	<b>0.85</b>	<b>0</b>	<b>0.94</b>	<b>0.67</b>	<b>0.64</b>	<b>0.68</b>	<b>0</b>	<b>0.91</b>	<b>0.75</b>	<b>0.68</b>	<b>0.76</b>	<b>0</b>	<b>0.82</b>	<b>0.95</b>	<b>0.82</b>	<b>0.95</b>	<b>0.95</b>	<b>0.95</b>
Cars	36	437	10	0	483	92	455	34	0	581	51	28	27	0	106	6	19	63	0	88	1258	88	1258	1258	
% Cars	100	96.9	100	0	97.2	97.9	97.4	100	0	97.6	100	100	100	0	100	100	100	98.4	0	98.9	97.7	98.9	97.7	97.7	
Trucks	0	13	0	0	13	2	12	0	0	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	27
% Trucks	0	2.9	0	0	2.6	2.1	2.6	0	0	2.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.1
Bicycles	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2	
% Bicycles	0	0.2	0	0	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.6	0	1.1	0.2	
Peds					1	-				3	-				8	-				3	-		3	-	15
% Peds					6.7	-				20	-				53.3	-				20	-		20	-	15



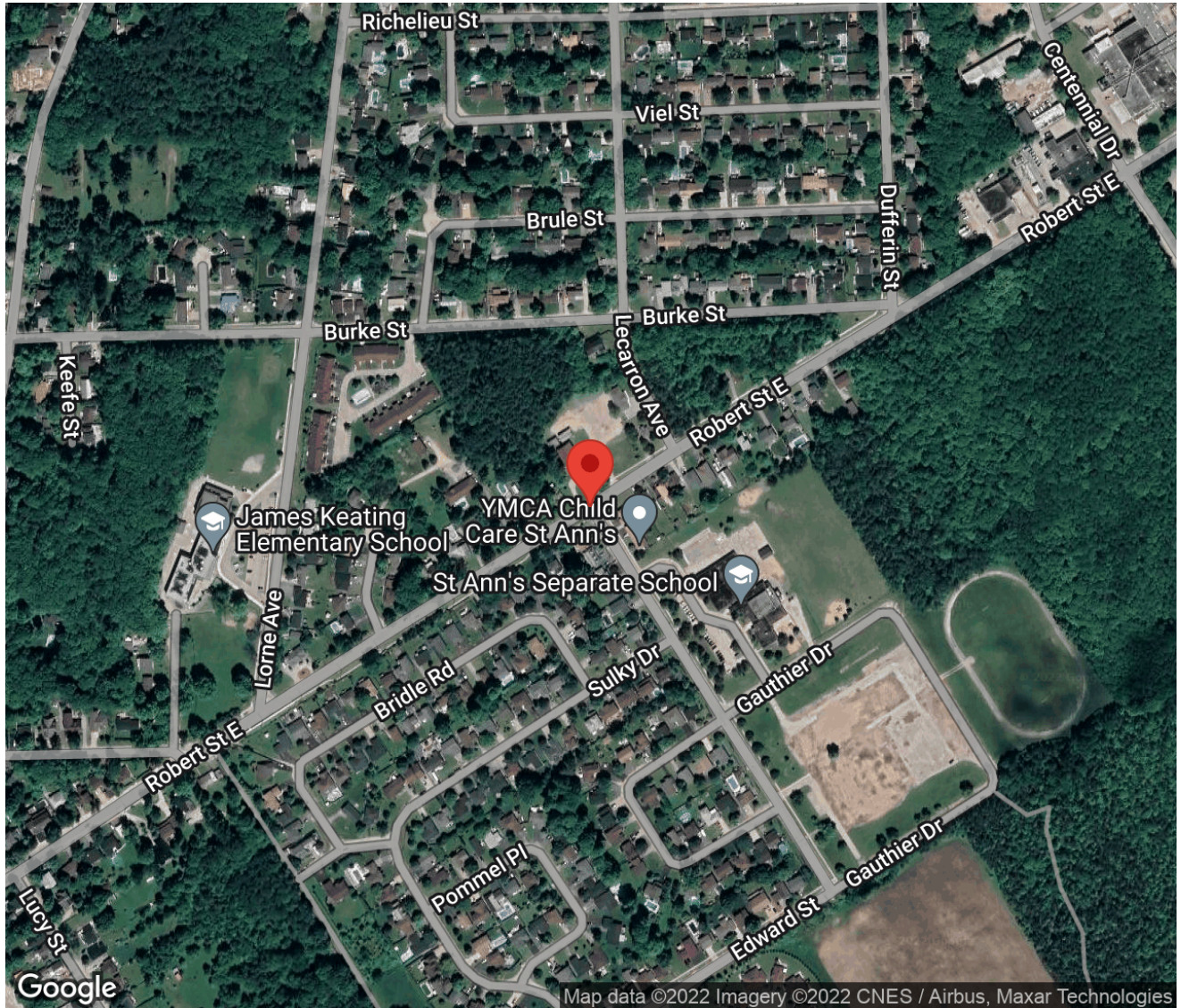
## Project #22-301 - GHD

### Intersection Count Report

**Intersection:** Dunlop St & Robert St E  
**Municipality:** Penetanguishene  
**Count Date:** Thursday, Sep 15, 2022  
**Site Code:** 2230100006  
**Count Categories:** Cars, Trucks, Bicycles, Pedestrians  
**Count Period:** 07:00-09:00, 16:00-18:00  
**Weather:** Clear  
**Comments:**

## Traffic Count Map

Intersection: Dunlop St & Robert St E  
Site Code: 2230100006  
Municipality: Penetanguishene  
Count Date: Sep 15, 2022







## Traffic Count Summary

Intersection: Dunlop St & Robert St E  
 Site Code: 2230100006  
 Municipality: Penetanguishene  
 Count Date: Sep 15, 2022

### Dunlop St - Traffic Summary

Hour	North Approach Totals						South Approach Totals						Total
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	
07:00 - 08:00	0	0	0	0	0	0	9	0	26	0	35	1	35
08:00 - 09:00	0	0	0	0	0	0	33	0	41	0	74	2	74
BREAK													
16:00 - 17:00	0	0	0	0	0	0	20	0	42	0	62	1	62
17:00 - 18:00	0	0	0	0	0	0	12	0	37	0	49	2	49
<b>GRAND TOTAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>74</b>	<b>0</b>	<b>146</b>	<b>0</b>	<b>220</b>	<b>6</b>	<b>220</b>

## Traffic Count Summary

Intersection: Dunlop St & Robert St E  
 Site Code: 2230100006  
 Municipality: Penetanguishene  
 Count Date: Sep 15, 2022

### Robert St E - Traffic Summary

Hour	East Approach Totals						West Approach Totals						Total
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	
<b>07:00 - 08:00</b>	21	103	0	0	124	0	0	125	10	0	135	0	259
<b>08:00 - 09:00</b>	67	125	0	0	192	1	0	121	38	0	159	0	351
BREAK													
<b>16:00 - 17:00</b>	42	193	0	0	235	4	0	125	19	0	144	0	379
<b>17:00 - 18:00</b>	31	123	0	0	154	3	0	100	8	0	108	0	262
<b>GRAND TOTAL</b>	<b>161</b>	<b>544</b>	<b>0</b>	<b>0</b>	<b>705</b>	<b>8</b>	<b>0</b>	<b>471</b>	<b>75</b>	<b>0</b>	<b>546</b>	<b>0</b>	<b>1251</b>



## Traffic Count Data

Intersection: Dunlop St & Robert St E  
 Site Code: 2230100006  
 Municipality: Penetanguishene  
 Count Date: Sep 15, 2022

### South Approach - Dunlop St

Start Time	Cars					Trucks					Bicycles					Total Peds	
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total		
07:00	1	0	6	0	7	0	0	0	0	0	0	0	0	0	0	0	1
07:15	0	0	6	0	6	0	0	0	0	0	0	0	0	0	0	0	0
07:30	1	0	7	0	8	0	0	0	0	0	0	0	0	0	0	0	0
07:45	7	0	7	0	14	0	0	0	0	0	0	0	0	0	0	0	0
08:00	4	0	2	0	6	0	0	0	0	0	0	0	0	0	0	0	1
08:15	1	0	6	0	7	0	0	0	0	0	0	0	0	0	0	0	1
08:30	7	0	12	0	19	0	0	1	0	1	0	0	0	0	0	0	0
08:45	20	0	19	0	39	1	0	1	0	2	0	0	0	0	0	0	0
<b>SUBTOTAL</b>	41	0	65	0	106	1	0	2	0	3	0	0	0	0	0	0	3



## Traffic Count Data

Intersection: Dunlop St & Robert St E  
 Site Code: 2230100006  
 Municipality: Penetanguishene  
 Count Date: Sep 15, 2022

### South Approach - Dunlop St

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
16:00	6	0	14	0	20	0	0	0	0	0	0	0	0	0	0	0
16:15	3	0	9	0	12	0	0	0	0	0	0	0	0	0	0	0
16:30	4	0	6	0	10	0	0	0	0	0	0	0	0	0	0	1
16:45	7	0	13	0	20	0	0	0	0	0	0	0	0	0	0	0
17:00	6	0	7	0	13	0	0	1	0	1	0	0	0	0	0	1
17:15	1	0	11	0	12	0	0	0	0	0	0	0	0	0	0	0
17:30	3	0	8	0	11	0	0	0	0	0	0	0	0	0	0	0
17:45	2	0	10	0	12	0	0	0	0	0	0	0	0	0	0	1
<b>SUBTOTAL</b>	32	0	78	0	110	0	0	1	0	1	0	0	0	0	0	3
<b>GRAND TOTAL</b>	73	0	143	0	216	1	0	3	0	4	0	0	0	0	0	6



## Traffic Count Data

Intersection: Dunlop St & Robert St E  
 Site Code: 2230100006  
 Municipality: Penetanguishene  
 Count Date: Sep 15, 2022

### East Approach - Robert St E

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:00	3	28	0	0	31	1	0	0	0	1	0	0	0	0	0	0
07:15	8	20	0	0	28	0	2	0	0	2	0	0	0	0	0	0
07:30	5	16	0	0	21	0	3	0	0	3	0	0	0	0	0	0
07:45	4	30	0	0	34	0	4	0	0	4	0	0	0	0	0	0
08:00	11	28	0	0	39	2	2	0	0	4	0	0	0	0	0	0
08:15	8	22	0	0	30	0	0	0	0	0	0	0	0	0	0	0
08:30	18	24	0	0	42	0	0	0	0	0	0	0	0	0	0	1
08:45	27	38	0	0	65	1	11	0	0	12	0	0	0	0	0	0
<b>SUBTOTAL</b>	84	206	0	0	290	4	22	0	0	26	0	0	0	0	0	1



## Traffic Count Data

Intersection: Dunlop St & Robert St E  
 Site Code: 2230100006  
 Municipality: Penetanguishene  
 Count Date: Sep 15, 2022

### East Approach - Robert St E

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
16:00	7	53	0	0	60	1	2	0	0	3	0	0	0	0	0	1
16:15	11	42	0	0	53	0	1	0	0	1	0	0	0	0	0	2
16:30	6	47	0	0	53	0	1	0	0	1	0	0	0	0	0	1
16:45	17	47	0	0	64	0	0	0	0	0	0	0	0	0	0	0
17:00	7	44	0	0	51	1	0	0	0	1	0	0	0	0	0	1
17:15	5	34	0	0	39	0	0	0	0	0	0	1	0	0	1	0
17:30	8	24	0	0	32	0	0	0	0	0	0	0	0	0	0	0
17:45	10	19	0	0	29	0	1	0	0	1	0	0	0	0	0	2
<b>SUBTOTAL</b>	71	310	0	0	381	2	5	0	0	7	0	1	0	0	1	7
<b>GRAND TOTAL</b>	155	516	0	0	671	6	27	0	0	33	0	1	0	0	1	8



## Traffic Count Data

Intersection: Dunlop St & Robert St E  
 Site Code: 2230100006  
 Municipality: Penetanguishene  
 Count Date: Sep 15, 2022

### West Approach - Robert St E

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:00	0	18	0	0	18	0	0	0	0	0	0	0	0	0	0	0
07:15	0	27	2	0	29	0	1	0	0	1	0	0	0	0	0	0
07:30	0	36	2	0	38	0	1	1	0	2	0	0	0	0	0	0
07:45	0	40	5	0	45	0	2	0	0	2	0	0	0	0	0	0
08:00	0	23	6	0	29	0	1	0	0	1	0	0	0	0	0	0
08:15	0	29	4	0	33	0	2	0	0	2	0	0	0	0	0	0
08:30	0	26	15	0	41	0	1	0	0	1	0	0	0	0	0	0
08:45	0	34	11	0	45	0	5	2	0	7	0	0	0	0	0	0
<b>SUBTOTAL</b>	0	233	45	0	278	0	13	3	0	16	0	0	0	0	0	0



## Traffic Count Data

Intersection: Dunlop St & Robert St E  
 Site Code: 2230100006  
 Municipality: Penetanguishene  
 Count Date: Sep 15, 2022

### West Approach - Robert St E

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
16:00	0	36	4	0	40	0	2	1	0	3	0	0	0	0	0	0
16:15	0	32	2	0	34	0	0	0	0	0	0	1	0	0	1	0
16:30	0	28	7	0	35	0	3	0	0	3	0	0	0	0	0	0
16:45	0	21	5	0	26	0	2	0	0	2	0	0	0	0	0	0
17:00	0	27	3	0	30	0	4	0	0	4	0	0	0	0	0	0
17:15	0	22	1	0	23	0	1	0	0	1	0	0	0	0	0	0
17:30	0	23	1	0	24	0	0	0	0	0	0	0	0	0	0	0
17:45	0	23	3	0	26	0	0	0	0	0	0	0	0	0	0	0
<b>SUBTOTAL</b>	0	212	26	0	238	0	12	1	0	13	0	1	0	0	1	0
<b>GRAND TOTAL</b>	0	445	71	0	516	0	25	4	0	29	0	1	0	0	1	0



## Peak Hour Diagram

### Specified Period

From: 07:00:00  
To: 09:00:00

### One Hour Peak

From: 08:00:00  
To: 09:00:00

**Intersection:** Dunlop St & Robert St E  
**Site Code:** 2230100006  
**Count Date:** Sep 15, 2022

**Weather conditions:** Clear

**\*\* Signalized Intersection \*\***

**Major Road:** Robert St E runs E/W

### East Approach

	Out	In	Total
	176	151	327
	16	11	27
	0	0	0
<b>Totals</b>	<b>192</b>	<b>162</b>	<b>354</b>

### Robert St E

			Totals
0	0	0	0
0	9	112	121
0	2	36	38

Peds: 0



Peds: 0

Peds: 1

### Robert St E

Totals			
0	0	0	0
125	112	13	0
67	64	3	0

Peds: 2

### West Approach

Out	In	Total
148	144	292
11	14	25
0	0	0
<b>159</b>	<b>158</b>	<b>317</b>

Totals			
<b>33</b>	<b>41</b>	<b>0</b>	
	32	39	0
	1	2	0
	0	0	0

Dunlop St

### South Approach

Out	In	Total
71	100	171
3	5	8
0	0	0
<b>74</b>	<b>105</b>	<b>179</b>

- Cars

- Trucks

- Bicycles

### Comments



## Peak Hour Summary

Intersection: Dunlop St & Robert St E  
 Site Code: 2230100006  
 Count Date: Sep 15, 2022  
 Period: 07:00 - 09:00

### Peak Hour Data (08:00 - 09:00)

Start Time	North Approach				South Approach Dunlop St				East Approach Robert St E				West Approach Robert St E				Total Vehicles								
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻		Peds	Total						
08:00					0		4		2	0	1	6	13	30			0	0	43	24	6	0	0	30	79
08:15					0		1		6	0	1	7	8	22			0	0	30	31	4	0	0	35	72
08:30					0		7		13	0	0	20	18	24			0	1	42	27	15	0	0	42	104
08:45					0		21		20	0	0	41	28	49			0	0	77	39	13	0	0	52	170
<b>Grand Total</b>					<b>0</b>	<b>0</b>	<b>33</b>	<b>41</b>	<b>0</b>	<b>2</b>	<b>74</b>	<b>67</b>	<b>125</b>	<b>0</b>	<b>1</b>	<b>192</b>	<b>121</b>	<b>38</b>	<b>0</b>	<b>0</b>	<b>159</b>	<b>425</b>			
Approach %					-		44.6	55.4	0	-		34.9	65.1	0	-		76.1	23.9	0	-					
Totals %					0		7.8	9.6	0	17.4		15.8	29.4	0	45.2		28.5	8.9	0	37.4					
<b>PHF</b>					<b>0</b>		<b>0.39</b>	<b>0.51</b>	<b>0</b>	<b>0.45</b>		<b>0.6</b>	<b>0.64</b>	<b>0</b>	<b>0.62</b>		<b>0.78</b>	<b>0.63</b>	<b>0</b>	<b>0.76</b>	<b>0.63</b>				
Cars					0		32	39	0	71		64	112	0	176		112	36	0	148			395		
% Cars					0		97	95.1	0	95.9		95.5	89.6	0	91.7		92.6	94.7	0	93.1			92.9		
Trucks					0		1	2	0	3		3	13	0	16		9	2	0	11			30		
% Trucks					0		3	4.9	0	4.1		4.5	10.4	0	8.3		7.4	5.3	0	6.9			7.1		
Bicycles					0		0	0	0	0		0	0	0	0		0	0	0	0			0		
% Bicycles					0		0	0	0	0		0	0	0	0		0	0	0	0			0		
Peds					0	-				2	-					1	-			0	-		3		
% Peds					0	-				66.7	-					33.3	-			0	-				

## Peak Hour Diagram

### Specified Period

From: 16:00:00  
To: 18:00:00

### One Hour Peak

From: 16:00:00  
To: 17:00:00

**Intersection:** Dunlop St & Robert St E  
**Site Code:** 2230100006  
**Count Date:** Sep 15, 2022

**Weather conditions:** Clear

**\*\* Signalized Intersection \*\***

**Major Road:** Robert St E runs E/W

### East Approach

	Out	In	Total
	230	159	389
	5	7	12
	0	1	1
	<b>235</b>	<b>167</b>	<b>402</b>

### Robert St E

			Totals	
0	0	0	0	
1	7	117	125	
0	1	18	19	

Peds: 0



Peds: 0

Peds: 4

### Robert St E

Totals				
0	0	0	0	
193	189	4	0	
42	41	1	0	

Peds: 1

### West Approach

	Out	In	Total
	135	209	344
	8	4	12
	1	0	1
	<b>144</b>	<b>213</b>	<b>357</b>

Totals	20	42	0
	20	42	0
	0	0	0
	0	0	0

Dunlop St

### South Approach

	Out	In	Total
	62	59	121
	0	2	2
	0	0	0
	<b>62</b>	<b>61</b>	<b>123</b>

- Cars

- Trucks

- Bicycles

### Comments



## Peak Hour Summary

Intersection: Dunlop St & Robert St E  
 Site Code: 2230100006  
 Count Date: Sep 15, 2022  
 Period: 16:00 - 18:00

### Peak Hour Data (16:00 - 17:00)

Start Time	North Approach				South Approach Dunlop St				East Approach Robert St E				West Approach Robert St E				Total Vehicles										
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻		Peds	Total								
16:00					0		6		14	0	0	20	8	55			0	1	63			38	5	0	0	43	126
16:15					0		3		9	0	0	12	11	43			0	2	54			33	2	0	0	35	101
16:30					0		4		6	0	1	10	6	48			0	1	54			31	7	0	0	38	102
16:45					0		7		13	0	0	20	17	47			0	0	64			23	5	0	0	28	112
<b>Grand Total</b>					<b>0</b>	<b>0</b>	<b>20</b>	<b>42</b>	<b>0</b>	<b>1</b>	<b>62</b>	<b>42</b>	<b>193</b>	<b>0</b>	<b>4</b>	<b>235</b>	<b>125</b>	<b>19</b>	<b>0</b>	<b>0</b>	<b>144</b>	<b>441</b>					
Approach %					-		32.3	67.7	0	-		17.9	82.1	0	-		86.8	13.2	0	-							
Totals %					0		4.5	9.5	0	14.1		9.5	43.8	0	53.3		28.3	4.3	0	32.7							
<b>PHF</b>					<b>0</b>		<b>0.71</b>	<b>0.75</b>	<b>0</b>	<b>0.78</b>	<b>0.62</b>	<b>0.88</b>	<b>0</b>	<b>0.92</b>	<b>0.82</b>	<b>0.68</b>	<b>0</b>	<b>0.84</b>	<b>0.88</b>								
Cars					0		20	42	0	62	41	189	0	230	117	18	0	135	427								
% Cars					0		100	100	0	100	97.6	97.9	0	97.9	93.6	94.7	0	93.8	96.8								
Trucks					0		0	0	0	0	1	4	0	5	7	1	0	8	13								
% Trucks					0		0	0	0	0	2.4	2.1	0	2.1	5.6	5.3	0	5.6	2.9								
Bicycles					0		0	0	0	0	0	0	0	0	1	0	0	1	1								
% Bicycles					0		0	0	0	0	0	0	0	0	0.8	0	0	0.7	0.2								
Peds					0	-			1	-			4	-			0	-	5								
% Peds					0	-			20	-			80	-			0	-									



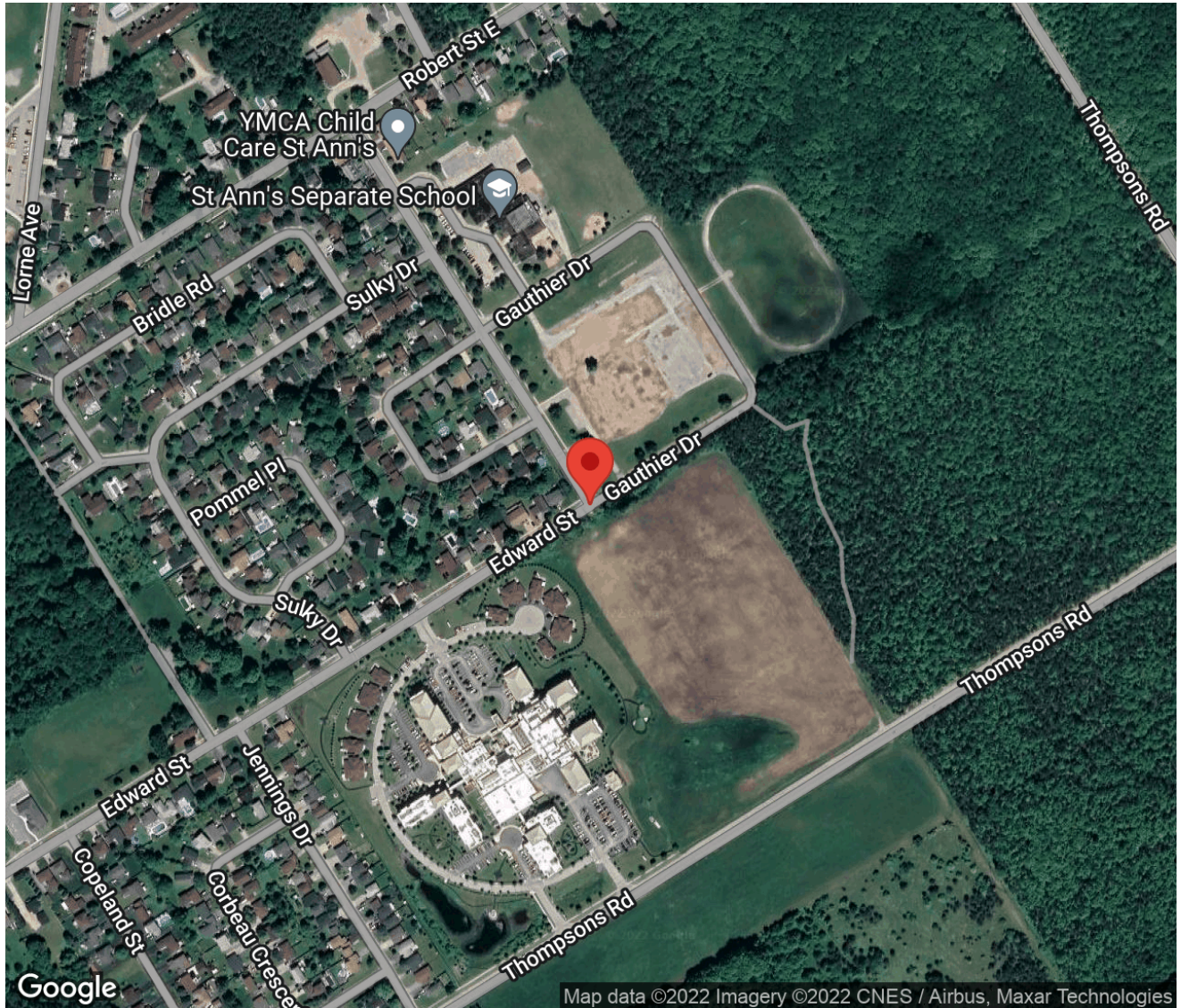
## Project #22-301 - GHD

### Intersection Count Report

**Intersection:** Dunlop St & Edward Dr  
**Municipality:** Penetanguishene  
**Count Date:** Thursday, Sep 15, 2022  
**Site Code:** 2230100007  
**Count Categories:** Cars, Trucks, Bicycles, Pedestrians  
**Count Period:** 07:00-09:00, 16:00-18:00  
**Weather:** Clear  
**Comments:**

## Traffic Count Map

Intersection: Dunlop St & Edward Dr  
Site Code: 2230100007  
Municipality: Penetanguishene  
Count Date: Sep 15, 2022







## Traffic Count Summary

Intersection: Dunlop St & Edward Dr  
 Site Code: 2230100007  
 Municipality: Penetanguishene  
 Count Date: Sep 15, 2022

### Gauthier Dr - Traffic Summary

Hour	East Approach Totals						West Approach Totals						Total
	Includes Cars, Trucks, Bicycles						Includes Cars, Trucks, Bicycles						
	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	
07:00 - 08:00	0	0	0	0	0	0	6	0	0	0	6	0	6
08:00 - 09:00	0	0	0	0	0	0	37	0	0	0	37	0	37
BREAK													
16:00 - 17:00	0	0	0	0	0	0	38	0	0	0	38	0	38
17:00 - 18:00	0	0	0	0	0	0	34	0	0	0	34	0	34
<b>GRAND TOTAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>115</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>115</b>	<b>0</b>	<b>115</b>





## Traffic Count Data

Intersection: Dunlop St & Edward Dr  
 Site Code: 2230100007  
 Municipality: Penetanguishene  
 Count Date: Sep 15, 2022

### North Approach - Dunlop St

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:00	0	0	5	0	5	0	0	1	0	1	0	0	0	0	0	1
07:15	0	0	5	0	5	0	0	0	0	0	0	0	0	0	0	2
07:30	0	0	5	0	5	0	0	1	0	1	0	0	0	0	0	1
07:45	0	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0
08:00	0	0	9	0	9	0	0	2	0	2	0	0	0	0	0	2
08:15	0	0	9	0	9	0	0	0	0	0	0	0	0	0	0	2
08:30	0	0	10	0	10	0	0	0	0	0	0	0	0	0	0	0
08:45	0	0	19	0	19	0	0	2	0	2	0	0	0	0	0	4
<b>SUBTOTAL</b>	0	0	65	0	65	0	0	6	0	6	0	0	0	0	0	12



## Traffic Count Data

Intersection: Dunlop St & Edward Dr  
 Site Code: 2230100007  
 Municipality: Penetanguishene  
 Count Date: Sep 15, 2022

### North Approach - Dunlop St

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
16:00	0	0	5	0	5	0	0	2	0	2	0	0	0	0	0	0
16:15	0	0	7	0	7	0	0	0	0	0	0	0	1	0	1	0
16:30	0	0	7	0	7	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	11	0	11	0	0	0	0	0	0	0	0	0	0	0
17:00	0	0	9	0	9	0	0	1	0	1	0	0	0	0	0	1
17:15	0	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0
17:30	0	0	4	0	4	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	5	0	5	0	0	0	0	0	0	0	0	0	0	0
<b>SUBTOTAL</b>	0	0	51	0	51	0	0	3	0	3	0	0	1	0	1	1
<b>GRAND TOTAL</b>	0	0	116	0	116	0	0	9	0	9	0	0	1	0	1	13



## Traffic Count Data

Intersection: Dunlop St & Edward Dr  
 Site Code: 2230100007  
 Municipality: Penetanguishene  
 Count Date: Sep 15, 2022

### East Approach - Gauthier Dr

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
07:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>SUBTOTAL</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



## Traffic Count Data

Intersection: Dunlop St & Edward Dr  
 Site Code: 2230100007  
 Municipality: Penetanguishene  
 Count Date: Sep 15, 2022

### East Approach - Gauthier Dr

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>SUBTOTAL</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>GRAND TOTAL</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



## Traffic Count Data

Intersection: Dunlop St & Edward Dr  
 Site Code: 2230100007  
 Municipality: Penetanguishene  
 Count Date: Sep 15, 2022

### West Approach - Edward Dr

Start Time	Cars					Trucks					Bicycles					Total Peds	
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total		
07:00	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
07:15	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
07:30	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
07:45	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
08:00	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0
08:15	6	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0
08:30	14	0	0	0	14	0	0	0	0	0	1	0	0	0	1	0	0
08:45	11	0	0	0	11	1	0	0	0	1	0	0	0	0	0	0	0
<b>SUBTOTAL</b>	41	0	0	0	41	1	0	0	0	1	1	0	0	0	1		0



## Traffic Count Data

Intersection: Dunlop St & Edward Dr  
 Site Code: 2230100007  
 Municipality: Penetanguishene  
 Count Date: Sep 15, 2022

### West Approach - Edward Dr

Start Time	Cars					Trucks					Bicycles					Total Peds
	←	↑	→	↻	Total	←	↑	→	↻	Total	←	↑	→	↻	Total	
16:00	11	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0
16:15	9	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0
16:30	7	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0
16:45	11	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0
17:00	10	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0
17:15	13	0	0	0	13	0	0	0	0	0	0	0	0	0	0	0
17:30	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0
17:45	6	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0
<b>SUBTOTAL</b>	72	0	0	0	72	0	0	0	0	0	0	0	0	0	0	0
<b>GRAND TOTAL</b>	113	0	0	0	113	1	0	0	0	1	1	0	0	0	1	0

## Peak Hour Diagram

### Specified Period

From: 07:00:00  
To: 09:00:00

### One Hour Peak

From: 08:00:00  
To: 09:00:00




**Intersection:** Dunlop St & Edward Dr  
**Site Code:** 2230100007  
**Count Date:** Sep 15, 2022

**Weather conditions:** Clear




**\*\* Unsignalized Intersection \*\***

**Major Road:** Dunlop St runs N/S




### North Approach

	Out	In	Total
	47	35	82
	4	1	5
	0	1	1
<b>Totals</b>	<b>51</b>	<b>37</b>	<b>88</b>




### Dunlop St

	0	0	0
	4	0	0
	47	0	0
<b>Totals</b>	<b>51</b>	<b>0</b>	<b>0</b>

### East Approach

	Out	In	Total
	0	0	0
	0	0	0
	0	0	0
<b>Totals</b>	<b>0</b>	<b>0</b>	<b>0</b>

### Edward Dr

				Totals
	0	0	0	0
	1	1	35	37
	0	0	0	0

Peds: 8




Peds: 0






Peds: 0

Peds: 0

### Gauthier Dr

Totals			
0	0	0	0
0	0	0	0
0	0	0	0

### West Approach

	Out	In	Total
	35	47	82
	1	4	5
	1	0	1
<b>Totals</b>	<b>37</b>	<b>51</b>	<b>88</b>

 - Cars

 - Trucks

 - Bicycles

### Comments



## Peak Hour Summary

Intersection: Dunlop St & Edward Dr  
 Site Code: 2230100007  
 Count Date: Sep 15, 2022  
 Period: 07:00 - 09:00

### Peak Hour Data (08:00 - 09:00)

Start Time	North Approach Dunlop St						South Approach						East Approach Gauthier Dr						West Approach Edward Dr						Total Vehicles
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
08:00	0		11	0	2	11					0			0	0	0	0	0	4	0		0	0	4	15
08:15	0		9	0	2	9					0			0	0	0	0	0	6	0		0	0	6	15
08:30	0		10	0	0	10					0			0	0	0	0	0	15	0		0	0	15	25
08:45	0		21	0	4	21					0			0	0	0	0	0	12	0		0	0	12	33
<b>Grand Total</b>	<b>0</b>		<b>51</b>	<b>0</b>	<b>8</b>	<b>51</b>					<b>0</b>			<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>37</b>	<b>0</b>		<b>0</b>	<b>0</b>	<b>37</b>	<b>88</b>
Approach %	0		100	0	-	-					0			0	0	0	-	-	100	0		0	-	-	-
Totals %	0		58	0	58	-					0			0	0	0	-	-	42	0		0	-	-	42
<b>PHF</b>	<b>0</b>		<b>0.61</b>	<b>0</b>	<b>0.61</b>	<b>0</b>					<b>0</b>			<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.62</b>	<b>0</b>		<b>0</b>	<b>0.62</b>	<b>0.67</b>	
Cars	0		47	0	47	-					0			0	0	0	-	-	35	0		0	-	-	82
% Cars	0		92.2	0	92.2	-					0			0	0	0	-	-	94.6	0		0	-	-	93.2
Trucks	0		4	0	4	-					0			0	0	0	-	-	1	0		0	-	-	5
% Trucks	0		7.8	0	7.8	-					0			0	0	0	-	-	2.7	0		0	-	-	5.7
Bicycles	0		0	0	0	-					0			0	0	0	-	-	1	0		0	-	-	1
% Bicycles	0		0	0	0	-					0			0	0	0	-	-	2.7	0		0	-	-	1.1
Peds					8	-					0						-	-				0		-	8
% Peds					100	-					0						-	-				0		-	-



## Peak Hour Diagram

### Specified Period

From: 16:00:00  
To: 18:00:00

### One Hour Peak

From: 16:15:00  
To: 17:15:00




**Intersection:** Dunlop St & Edward Dr  
**Site Code:** 2230100007  
**Count Date:** Sep 15, 2022

**Weather conditions:** Clear




**\*\* Unsignalized Intersection \*\***

**Major Road:** Dunlop St runs N/S




### North Approach

	Out	In	Total
	34	37	71
	1	0	1
	1	0	1
<b>Totals</b>	<b>36</b>	<b>37</b>	<b>73</b>




### Dunlop St

	1	0	0
	1	0	0
	34	0	0
<b>Totals</b>	<b>36</b>	<b>0</b>	<b>0</b>

### East Approach

	Out	In	Total
	0	0	0
	0	0	0
	0	0	0
<b>Totals</b>	<b>0</b>	<b>0</b>	<b>0</b>

### Edward Dr

				Totals
	0	0	0	0
	0	0	37	37
	0	0	0	0

Peds: 1




Peds: 0






Peds: 0

Peds: 0


### Gauthier Dr

Totals			
0	0	0	0
0	0	0	0
0	0	0	0

### West Approach

	Out	In	Total
	37	34	71
	0	1	1
	0	1	1
<b>Totals</b>	<b>37</b>	<b>36</b>	<b>73</b>

 - Cars

 - Trucks

 - Bicycles

### Comments



## Peak Hour Summary

Intersection: Dunlop St & Edward Dr  
 Site Code: 2230100007  
 Count Date: Sep 15, 2022  
 Period: 16:00 - 18:00

### Peak Hour Data (16:15 - 17:15)

Start Time	North Approach Dunlop St						South Approach						East Approach Gauthier Dr						West Approach Edward Dr						Total Vehic es
	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	←	↑	→	↻	Peds	Total	
16:15	0		8	0	0	8					0			0	0	0	0	0	9	0		0	0	9	17
16:30	0		7	0	0	7					0			0	0	0	0	0	7	0		0	0	7	14
16:45	0		11	0	0	11					0			0	0	0	0	0	11	0		0	0	11	22
17:00	0		10	0	1	10					0			0	0	0	0	0	10	0		0	0	10	20
<b>Grand Total</b>	<b>0</b>		<b>36</b>	<b>0</b>	<b>1</b>	<b>36</b>					<b>0</b>	<b>0</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>37</b>	<b>0</b>		<b>0</b>	<b>0</b>	<b>37</b>	<b>73</b>
Approach %	0		100	0	-	-					0	0	0	-	-	-	-	-	100	0		0	-	-	-
Totals %	0		49.3	0	49.3	-					0	0	0	0	0	0	0	0	50.7	0		0	50.7	-	
<b>PHF</b>	<b>0</b>		<b>0.82</b>	<b>0</b>	<b>0.82</b>	<b>0</b>					<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.84</b>	<b>0</b>		<b>0</b>	<b>0.84</b>	<b>0.83</b>	
Cars	0		34	0	34	0					0	0	0	0	0	0	0	0	37	0		0	37	71	
% Cars	0		94.4	0	94.4	0					0	0	0	0	0	0	0	0	100	0		0	100	97.3	
Trucks	0		1	0	1	0					0	0	0	0	0	0	0	0	0	0		0	0	1	
% Trucks	0		2.8	0	2.8	0					0	0	0	0	0	0	0	0	0	0		0	0	1.4	
Bicycles	0		1	0	1	0					0	0	0	0	0	0	0	0	0	0		0	0	1	
% Bicycles	0		2.8	0	2.8	0					0	0	0	0	0	0	0	0	0	0		0	0	1.4	
Peds					1	-					0	-										0	-	1	
% Peds					100	-					0	-										0	-	-	

# **Appendix C**

**Transportation Tomorrow Survey 2016**

AM Inbound  
Fri Oct 07 2022 11:07:54 GMT-0400 (Eastern Daylight Time) - Run Time: 2720ms

Crms Tabulation Query Form - Trip - 2015 v1.1

Row: Planning district of origin - pd\_org  
Column: 2008 GTA area of destination - pdst\_dest

RowG:  
ColG:(8274,8885)  
TMC:

Filters:  
Start time of trip - start\_time in 600-900

Trip 2015  
Table

	South (Main)	South (Fuller)	West (Robert Street)	North (Fuller)	North (Main)	South (Main) Trips	South (Fuller) Trips	West (Robert Street) Trips	North (Fuller) Trips	North (Main) Trips	
1	1	0	0	0	0	0	0	0	0	0	
Calodon	1	0	0	0	0	0	0	0	0	0	
Mississauga	1	0	0	0	0	0	0	0	0	0	
Newmarket	11	11	0	0	0	0	0	0	0	0	
Cambridge	1	0	0	0	0	0	0	0	0	0	
Barrie	181	181	0	0	0	0	0	0	0	0	
Innisfil	21	21	0	0	0	0	0	0	0	0	
Adelaide-Toronto	44	44	0	0	0	0	0	0	0	0	
Springwater	79	79	0	0	0	0	0	0	0	0	
Kawartha Lakes	0.5	0.5	0	0	0	0	0	0	0	0	
Muskoka	0.5	0.5	0	0	0	0	0	0	0	0	
Collingwood	15	15	0	0	0	0	0	0	0	0	
Geary	1	0	0	0	0	0	0	0	0	0	
Waukeg Beach	1	0	0	0	0	0	0	0	0	0	
Try	614	0.5	0.5	0	0	307	0	307	0	0	
Parkeston	1389	30%	16%	10%	18%	27%	415.0536494	219.2245789	136.9070493	247.8190892	369.9956332
Mildred	1065	0	1	0	0	0	0	0	0	0	
Try	322	0.5	0.5	0	0	161	161	0	0	0	
Oro-Medonte	14	0.5	0.5	7	0	0	0	0	0	0	
Severn	53	0.5	0.5	26.5	0	0	0	0	0	0	
Orillia	26	0.5	0.5	13	13	0	0	0	0	0	
<b>Sum</b>	<b>3834</b>					<b>1280.553649</b>	<b>1491.724579</b>	<b>443.9070493</b>	<b>247.8190892</b>	<b>369.9956332</b>	<b>10%</b>

TOTAL - TTS

	South (Main)	South (Fuller)	West (Robert Street)	North (Fuller)	North (Main)
AM Inbound	33%	39%	12%	6%	10%
AM Outbound	48%	31%	5%	7%	10%
PM Inbound	32%	49%	7%	2%	9%
PM Outbound	53%	28%	9%	2%	8%

100%  
100%

TOTAL - Adjusted

	South (Ma)	South (Full)	West (Rob)	North (Fuller)	North (Main)	North (Dufferin)
AM Inbound	35%	15%	15%	15%	15%	5%
AM Outbound	50%	15%	10%	10%	10%	5%
PM Inbound	50%	15%	10%	10%	10%	5%
PM Outbound	35%	15%	15%	15%	15%	5%

100%  
100%  
100%

AM Outbound  
Fri Oct 07 2022 11:08:07 GMT-0400 (Eastern Daylight Time) - Run Time: 2640ms

Crms Tabulation Query Form - Trip - 2015 v1.1

Row: Planning district of destination - pd\_dest  
Column: 2008 GTA area of origin - pdst\_org

RowG:  
ColG:(8274,8885)  
TMC:

Filters:  
Start time of trip - start\_time in 600-900

Trip 2015  
Table

	South (Main)	South (Fuller)	West (Robert Street)	North (Fuller)	North (Main)	South (Main) Trips	South (Fuller) Trips	West (Robert Street) Trips	North (Fuller) Trips	North (Main) Trips	
1	1	0	0	0	0	0	0	0	0	0	
Calodon	1	0	0	0	0	0	0	0	0	0	
Mississauga	1	0	0	0	0	0	0	0	0	0	
Newmarket	22	0.5	0.5	11	11	0	0	0	0	0	
Cambridge	40	1	0	0	0	0	0	0	0	0	
Barrie	272	1	0	0	0	0	0	0	0	0	
Innisfil	1	0	0	0	0	0	0	0	0	0	
Adelaide-Toronto	1	0	0	0	0	0	0	0	0	0	
Springwater	1	0	0	0	0	0	0	0	0	0	
Kawartha Lakes	0.5	0.5	0	0	0	0	0	0	0	0	
Muskoka	31	0.5	0.5	15.5	15.5	0	0	0	0	0	
Collingwood	1	0	0	0	0	0	0	0	0	0	
Geary	1	0	0	0	0	0	0	0	0	0	
Waukeg Beach	49	1	0	0	0	0	0	0	0	0	
Try	93	0.5	0.5	46.5	0	46.5	0	46.5	0	0	
Parkeston	1343	30%	16%	10%	18%	27%	401.3081722	211.9644417	132.3730505	239.6119775	357.7423581
Mildred	1575	0.5	0.5	787.5	787.5	0	0	0	0	0	
Try	29	0.5	0.5	14.5	14.5	0	0	0	0	0	
Oro-Medonte	1	0.5	0.5	0	0	0	0	0	0	0	
Severn	10	0.5	0.5	5	5	0	0	0	0	0	
Orillia	109	0.5	0.5	54.5	54.5	0	0	0	0	0	
<b>Sum</b>	<b>3586</b>					<b>1709.808172</b>	<b>1099.964442</b>	<b>178.8730505</b>	<b>239.6119775</b>	<b>357.7423581</b>	<b>10%</b>

TOTAL - TTS

	South (Main)	South (Fuller)	West (Robert Street)	North (Fuller)	North (Main)
AM Inbound	33%	39%	12%	6%	10%
AM Outbound	48%	31%	5%	7%	10%
PM Inbound	32%	49%	7%	2%	9%
PM Outbound	53%	28%	9%	2%	8%

100%  
100%

TOTAL - Adjusted

	South (Ma)	South (Full)	West (Rob)	North (Fuller)	North (Main)	North (Dufferin)
AM Inbound	35%	15%	15%	15%	15%	5%
AM Outbound	50%	15%	10%	10%	10%	5%
PM Inbound	50%	15%	10%	10%	10%	5%
PM Outbound	35%	15%	15%	15%	15%	5%

100%  
100%  
100%

PM Inbound  
 Fri Oct 07 2022 11:08:22 GMT-0400 (Eastern Daylight Time) - Run Time: 2330ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Planning district of origin - pdt\_orig  
 Column: 2008 GTA area of destination - gdtR\_dest

RowG:  
 ColG (8574.8685)  
 TRIP

Filters:  
 Start time of trip - start\_time in 1600-1900

Top 2016  
 Table

	South (Main)	South (Fuller)	West (Robert Street)	North (Fuller)	North (Main)	South (Main) Trips	South (Fuller) Trips	West (Robert Street) Trips	North (Fuller) Trips	North (Main) Trips
1	1					0	0	0	0	0
FD 10 of Toronto										
Caledon	1					0	0	0	0	0
Mississauga	1					0	0	0	0	0
Newmarket	11					11	0	0	0	0
Cambridge	1					0	0	0	0	0
Brampton	1					310	0	0	0	0
Markham	1					0	0	0	0	0
Richmond Hill	1					0	0	0	0	0
Agincourt	1					0	0	0	0	0
Scarborough	22					22	0	0	0	0
Kawatha Lakes	13	0.5	0.5			6.5	6.5	0	0	0
Markham	31	0.5	0.5			15.5	15.5	0	0	0
Collingwood	80					80	0	0	0	0
Geary	1					0	0	0	0	0
Windsor Beach	85					85	0	0	0	0
Tray	287	0.5		0.5		143.5	0	143.5	0	0
Panthersville	1090	36%	16%	10%	8%	397.0918635	179.0918635	110.4304462	86.39895013	316.9868766
Midland	1467		1			0	1467	0	0	0
Tray	60	0.5	0.5			34.5	34.5	0	0	0
Ohio-Medford	19	0.5	0.5			9.5	9.5	0	0	0
Severn	10	0.5	0.5			5	5	0	0	0
Orino	29	0.5	0.5			14.5	14.5	0	0	0
<b>Sum</b>	<b>3523</b>					<b>1134.091864</b>	<b>1731.591864</b>	<b>253.9304462</b>	<b>86.39895013</b>	<b>316.9868766</b>
						32%	49%	7%	2%	9%

PM Outbound  
 Fri Oct 07 2022 11:08:54 GMT-0400 (Eastern Daylight Time) - Run Time: 2543ms

Cross Tabulation Query Form - Trip - 2016 v1.1

Row: Planning district of destination - pdt\_dest  
 Column: 2008 GTA area of origin - gdtR\_orig

RowG:  
 ColG (8574.8685)  
 TRIP

Filters:  
 Start time of trip - start\_time in 1600-1900

Top 2016  
 Table

	South (Main)	South (Fuller)	West (Robert Street)	North (Fuller)	North (Main)	South (Main) Trips	South (Fuller) Trips	West (Robert Street) Trips	North (Fuller) Trips	North (Main) Trips
1	1					0	0	0	0	0
FD 10 of Toronto										
Caledon	63					63	0	0	0	0
Mississauga	8					8	0	0	0	0
Newmarket		0.5	0.5			0	0	0	0	0
Cambridge		1				0	0	0	0	0
Brampton	282					282	0	0	0	0
Markham	21					21	0	0	0	0
Agincourt	44					44	0	0	0	0
Scarborough	75					75	0	0	0	0
Kawatha Lakes		0.5	0.5			0	0	0	0	0
Markham		0.5	0.5			0	0	0	0	0
Collingwood		1				0	0	0	0	0
Geary	52					52	0	0	0	0
Windsor Beach		1				0	0	0	0	0
Tray	572	0.5		0.5		286	0	286	0	0
Panthersville	1143	36%	16%	10%	8%	416.4	187.8	115.8	90.6	332.4
Midland	1010		0.5	0.5		805	805	0	0	0
Tray	275	0.5	0.5			137.5	137.5	0	0	0
Ohio-Medford	14	0.5	0.5			7	7	0	0	0
Severn	37	0.5	0.5			18.5	18.5	0	0	0
Orino	34	0.5	0.5			17	17	0	0	0
<b>Sum</b>	<b>4230</b>					<b>2222.4</b>	<b>1172.8</b>	<b>401.8</b>	<b>90.6</b>	<b>332.4</b>
						53%	28%	9%	2%	8%

# **Appendix D**

## **Synchro Outputs**

Lanes, Volumes, Timings  
1: Dunlop Street & Robert Street East

Existing 2022  
AM Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	121	38	67	125	33	41
Future Volume (vph)	121	38	67	125	33	41
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	0.968			0.925		
Flt Protected				0.983	0.978	
Satd. Flow (prot)	1746	0	0	1744	1669	0
Flt Permitted				0.983	0.978	
Satd. Flow (perm)	1746	0	0	1744	1669	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	1218.0			320.1	410.5	
Travel Time (s)	87.7			23.0	29.6	
Confl. Peds. (#/hr)	2		2			1
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Heavy Vehicles (%)	7%	5%	5%	10%	3%	5%
Adj. Flow (vph)	192	60	106	198	52	65
Shared Lane Traffic (%)						
Lane Group Flow (vph)	252	0	0	304	117	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	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	14		24	24		14
Sign Control	Free			Free	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  
 1: Dunlop Street & Robert Street East

Existing 2022  
 AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	121	38	67	125	33	41
Future Volume (Veh/h)	121	38	67	125	33	41
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Hourly flow rate (vph)	192	60	106	198	52	65
Pedestrians				1	2	
Lane Width (m)				3.7	3.7	
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			254		634	225
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			254		634	225
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			92		87	92
cM capacity (veh/h)			1292		405	805
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>NB 1</b>			
Volume Total	252	304	117			
Volume Left	0	106	52			
Volume Right	60	0	65			
cSH	1700	1292	559			
Volume to Capacity	0.15	0.08	0.21			
Queue Length 95th (m)	0.0	2.0	5.9			
Control Delay (s)	0.0	3.3	13.1			
Lane LOS			A			B
Approach Delay (s)	0.0	3.3	13.1			
Approach LOS			B			
<b>Intersection Summary</b>						
Average Delay			3.8			
Intersection Capacity Utilization			34.0%	ICU Level of Service	A	
Analysis Period (min)			15			



Lanes, Volumes, Timings  
 2: Robert Street East & Dufferin Street/Burke Street

Existing 2022  
 AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	23	126	138	55	36	27
Future Volume (vph)	23	126	138	55	36	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.962		0.943	
Flt Protected		0.992			0.972	
Satd. Flow (prot)	0	1804	1734	0	1521	0
Flt Permitted		0.992			0.972	
Satd. Flow (perm)	0	1804	1734	0	1521	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		320.1	250.8		76.2	
Travel Time (s)		23.0	18.1		5.5	
Confl. Peds. (#/hr)	2			2		
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67
Heavy Vehicles (%)	9%	5%	4%	13%	0%	37%
Adj. Flow (vph)	34	188	206	82	54	40
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	222	288	0	94	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	32.4%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis  
 2: Robert Street East & Dufferin Street/Burke Street

Existing 2022  
 AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	23	126	138	55	36	27
Future Volume (Veh/h)	23	126	138	55	36	27
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67
Hourly flow rate (vph)	34	188	206	82	54	40
Pedestrians					2	
Lane Width (m)					3.7	
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	290				505	249
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	290				505	249
tC, single (s)	4.2				6.4	6.6
tC, 2 stage (s)						
tF (s)	2.3				3.5	3.6
p0 queue free %	97				90	94
cM capacity (veh/h)	1231				515	710
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>SB 1</b>			
Volume Total	222	288	94			
Volume Left	34	0	54			
Volume Right	0	82	40			
cSH	1231	1700	583			
Volume to Capacity	0.03	0.17	0.16			
Queue Length 95th (m)	0.6	0.0	4.3			
Control Delay (s)	1.4	0.0	12.4			
Lane LOS	A		B			
Approach Delay (s)	1.4	0.0	12.4			
Approach LOS			B			
<b>Intersection Summary</b>						
Average Delay			2.5			
Intersection Capacity Utilization			32.4%		ICU Level of Service	A
Analysis Period (min)			15			

Lanes, Volumes, Timings  
 3: Thompsons Road/Centennial Drive & Robert Street East

Existing 2022  
 AM Peak Hour



















Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	25	132	5	32	178	12	1	21	41	17	16	8
Future Volume (vph)	25	132	5	32	178	12	1	21	41	17	16	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
Fr <sub>t</sub>		0.996			0.993			0.912			0.974	
Fl <sub>t</sub> Protected		0.992			0.993			0.999			0.980	
Satd. Flow (prot)	0	1838	0	0	1728	0	0	1491	0	0	1689	0
Fl <sub>t</sub> Permitted		0.992			0.993			0.999			0.980	
Satd. Flow (perm)	0	1838	0	0	1728	0	0	1491	0	0	1689	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		250.8			471.9			174.6			77.4	
Travel Time (s)		18.1			34.0			12.6			5.6	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	16%	1%	0%	28%	7%	0%	0%	5%	24%	6%	3%	25%
Adj. Flow (vph)	31	165	6	40	223	15	1	26	51	21	20	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	202	0	0	278	0	0	78	0	0	51	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)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

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  
 3: Thompsons Road/Centennial Drive & Robert Street East

Existing 2022  
 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	132	5	32	178	12	1	21	41	17	16	8
Future Volume (Veh/h)	25	132	5	32	178	12	1	21	41	17	16	8
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	31	165	6	40	223	15	1	26	51	21	20	10
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	238			171			560	548	168	604	544	230
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	238			171			560	548	168	604	544	230
tC, single (s)	4.3			4.4			7.1	6.5	6.4	7.2	6.5	6.5
tC, 2 stage (s)												
tF (s)	2.3			2.5			3.5	4.0	3.5	3.6	4.0	3.5
p0 queue free %	98			97			100	94	94	94	95	99
cM capacity (veh/h)	1251			1263			402	415	822	346	420	755
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	202	278	78	51								
Volume Left	31	40	1	21								
Volume Right	6	15	51	10								
cSH	1251	1263	614	420								
Volume to Capacity	0.02	0.03	0.13	0.12								
Queue Length 95th (m)	0.6	0.7	3.3	3.1								
Control Delay (s)	1.4	1.4	11.7	14.8								
Lane LOS	A	A	B	B								
Approach Delay (s)	1.4	1.4	11.7	14.8								
Approach LOS			B	B								
Intersection Summary												
Average Delay			3.8									
Intersection Capacity Utilization			31.2%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings  
4: Fuller Avenue & Robert Street East

Existing 2022  
AM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	115	108	100	171	145	67
Future Volume (vph)	115	108	100	171	145	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0	0.0	45.0			30.0
Storage Lanes	0	0	0			0
Taper Length (m)	2.5		2.5			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.935				0.957	
Flt Protected	0.975			0.982		
Satd. Flow (prot)	1604	0	0	1808	1655	0
Flt Permitted	0.975			0.982		
Satd. Flow (perm)	1604	0	0	1808	1655	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	471.9			243.5	103.8	
Travel Time (s)	34.0			14.6	6.2	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles (%)	14%	4%	5%	4%	6%	22%
Adj. Flow (vph)	142	133	123	211	179	83
Shared Lane Traffic (%)						
Lane Group Flow (vph)	275	0	0	334	262	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	49.2%			ICU Level of Service A		
Analysis Period (min)	15					

# HCM Unsignalized Intersection Capacity Analysis

## 4: Fuller Avenue & Robert Street East

Existing 2022  
AM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	115	108	100	171	145	67
Future Volume (Veh/h)	115	108	100	171	145	67
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81
Hourly flow rate (vph)	142	133	123	211	179	83
<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	678	220	262			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	678	220	262			
tC, single (s)	6.5	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.6	3.3	2.2			
p0 queue free %	61	84	90			
cM capacity (veh/h)	362	814	1285			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	275	334	262			
Volume Left	142	123	0			
Volume Right	133	0	83			
cSH	495	1285	1700			
Volume to Capacity	0.56	0.10	0.15			
Queue Length 95th (m)	25.4	2.4	0.0			
Control Delay (s)	21.0	3.5	0.0			
Lane LOS	C	A				
Approach Delay (s)	21.0	3.5	0.0			
Approach LOS	C					
<b>Intersection Summary</b>						
Average Delay			8.0			
Intersection Capacity Utilization			49.2%	ICU Level of Service	A	
Analysis Period (min)			15			

Lanes, Volumes, Timings  
5: Main Street & Edward Street

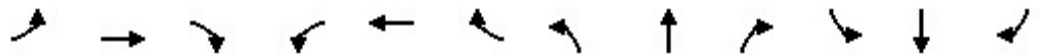
Existing 2022  
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕			↕	
Traffic Volume (vph)	0	5	16	40	11	30	26	300	17	19	317	2
Future Volume (vph)	0	5	16	40	11	30	26	300	17	19	317	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		30.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor		0.99			1.00	0.99		1.00			1.00	
Frt		0.896				0.850		0.993			0.999	
Flt Protected					0.962			0.996			0.997	
Satd. Flow (prot)	0	1704	0	0	1779	1633	0	3273	0	0	3412	0
Flt Permitted					0.756			0.906			0.922	
Satd. Flow (perm)	0	1704	0	0	1397	1612	0	2977	0	0	3155	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		20				91		8			1	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		135.5			260.4			246.8			121.8	
Travel Time (s)		9.8			18.7			17.8			8.8	
Confl. Peds. (#/hr)	1		1	1		1			2	2		
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	0%	0%	0%	5%	0%	0%	15%	10%	6%	0%	7%	0%
Adj. Flow (vph)	0	6	20	50	14	38	33	375	21	24	396	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	26	0	0	64	38	0	429	0	0	423	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)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	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	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
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  
5: Main Street & Edward Street

Existing 2022  
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type		NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	8.0	8.0		7.0	30.0	
Minimum Split (s)	26.0	26.0		26.0	26.0	26.0	31.0	31.0		10.0	36.0	
Total Split (s)	31.0	31.0		31.0	31.0	31.0	31.0	31.0		10.0	41.0	
Total Split (%)	43.1%	43.1%		43.1%	43.1%	43.1%	43.1%	43.1%		13.9%	56.9%	
Maximum Green (s)	25.0	25.0		25.0	25.0	25.0	25.0	25.0		7.0	35.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		0.0	2.0	
Lost Time Adjust (s)		0.0			0.0	0.0		0.0			0.0	
Total Lost Time (s)		6.0			6.0	6.0		6.0			6.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	Max	Max		None	Max	
Walk Time (s)	12.0	12.0		12.0	12.0	12.0	15.0	15.0			20.0	
Flash Dont Walk (s)	8.0	8.0		8.0	8.0	8.0	10.0	10.0			10.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0			0	
Act Effct Green (s)		10.1			10.1	10.1		43.5			43.5	
Actuated g/C Ratio		0.18			0.18	0.18		0.77			0.77	
v/c Ratio		0.08			0.26	0.11		0.19			0.17	
Control Delay		12.0			23.3	1.5		4.0			4.0	
Queue Delay		0.0			0.0	0.0		0.0			0.0	
Total Delay		12.0			23.3	1.5		4.0			4.0	
LOS		B			C	A		A			A	
Approach Delay		12.0			15.2			4.0			4.0	
Approach LOS		B			B			A			A	

Intersection Summary

Area Type: Other  
 Cycle Length: 72  
 Actuated Cycle Length: 56.7  
 Natural Cycle: 70  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.26  
 Intersection Signal Delay: 5.4  
 Intersection Capacity Utilization 53.0%  
 Analysis Period (min) 15  
 Intersection LOS: A  
 ICU Level of Service A

Splits and Phases: 5: Main Street & Edward Street





Queues  
5: Main Street & Edward Street

Existing 2022  
AM Peak Hour




















Lane Group	EBT	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	26	64	38	429	423
v/c Ratio	0.08	0.26	0.11	0.19	0.17
Control Delay	12.0	23.3	1.5	4.0	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	12.0	23.3	1.5	4.0	4.0
Queue Length 50th (m)	0.5	5.8	0.0	8.7	8.6
Queue Length 95th (m)	4.8	12.8	0.3	12.4	12.2
Internal Link Dist (m)	111.5	236.4		222.8	97.8
Turn Bay Length (m)			30.0		
Base Capacity (vph)	762	615	762	2286	2421
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.03	0.10	0.05	0.19	0.17
<b>Intersection Summary</b>					

# HCM Signalized Intersection Capacity Analysis

## 5: Main Street & Edward Street

Existing 2022  
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	5	16	40	11	30	26	300	17	19	317	2
Future Volume (vph)	0	5	16	40	11	30	26	300	17	19	317	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	6.0		6.0			6.0	
Lane Util. Factor		1.00			1.00	1.00		0.95			0.95	
Frbp, ped/bikes		0.99			1.00	0.99		1.00			1.00	
Flpb, ped/bikes		1.00			1.00	1.00		1.00			1.00	
Frt		0.90			1.00	0.85		0.99			1.00	
Flt Protected		1.00			0.96	1.00		1.00			1.00	
Satd. Flow (prot)		1705			1778	1612		3272			3412	
Flt Permitted		1.00			0.76	1.00		0.91			0.92	
Satd. Flow (perm)		1705			1396	1612		2975			3154	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	0	6	20	50	14	38	32	375	21	24	396	2
RTOR Reduction (vph)	0	18	0	0	0	34	0	2	0	0	0	0
Lane Group Flow (vph)	0	8	0	0	64	4	0	427	0	0	423	0
Confl. Peds. (#/hr)	1		1	1		1			2	2		
Heavy Vehicles (%)	0%	0%	0%	5%	0%	0%	15%	10%	6%	0%	7%	0%
Turn Type		NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		6.0			6.0	6.0		41.1			41.1	
Effective Green, g (s)		6.0			6.0	6.0		41.1			41.1	
Actuated g/C Ratio		0.10			0.10	0.10		0.70			0.70	
Clearance Time (s)		6.0			6.0	6.0		6.0			6.0	
Vehicle Extension (s)		3.0			3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)		173			141	163		2068			2193	
v/s Ratio Prot		0.00										
v/s Ratio Perm					c0.05	0.00		c0.14			0.13	
v/c Ratio		0.05			0.45	0.02		0.21			0.19	
Uniform Delay, d1		24.0			25.0	23.9		3.2			3.2	
Progression Factor		1.00			1.00	1.00		1.00			1.00	
Incremental Delay, d2		0.1			2.3	0.1		0.2			0.0	
Delay (s)		24.1			27.3	24.0		3.4			3.2	
Level of Service		C			C	C		A			A	
Approach Delay (s)		24.1			26.1			3.4			3.2	
Approach LOS		C			C			A			A	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			6.2		HCM 2000 Level of Service						A	
HCM 2000 Volume to Capacity ratio			0.25									
Actuated Cycle Length (s)			59.1		Sum of lost time (s)						15.0	
Intersection Capacity Utilization			53.0%		ICU Level of Service						A	
Analysis Period (min)			15									

c Critical Lane Group

Lanes, Volumes, Timings  
6: Edward Street & Dunlop Street

Existing 2022  
AM Peak Hour



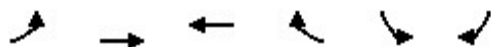
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	37	0	0	0	0	51
Future Volume (vph)	37	0	0	0	0	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt						0.865
Flt Protected	0.950					
Satd. Flow (prot)	1772	0	1921	0	0	1539
Flt Permitted	0.950					
Satd. Flow (perm)	1772	0	1921	0	0	1539
Link Speed (k/h)	50		50	48		
Link Distance (m)	802.7		141.2	410.5		
Travel Time (s)	57.8		10.2	30.8		
Confl. Peds. (#/hr)	8				8	
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67
Heavy Vehicles (%)	3%	0%	0%	0%	0%	8%
Adj. Flow (vph)	55	0	0	0	0	76
Shared Lane Traffic (%)						
Lane Group Flow (vph)	55	0	0	0	0	76
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)	3.7		3.7	0.0		
Link Offset(m)	0.0		0.0	0.0		
Crosswalk Width(m)	1.6		1.6	1.6		
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24				14	24
Sign Control	Free		Free	Stop		

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	9.0%
	ICU Level of Service A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis  
6: Edward Street & Dunlop Street














Existing 2022  
AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	37	0	0	0	0	51
Future Volume (Veh/h)	37	0	0	0	0	51
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67
Hourly flow rate (vph)	55	0	0	0	0	76
Pedestrians						8
Lane Width (m)						3.7
Walking Speed (m/s)						1.2
Percent Blockage						1
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	8				118	8
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	8				118	8
tC, single (s)	4.1				6.4	6.3
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.4
p0 queue free %	97				100	93
cM capacity (veh/h)	1595				846	1050
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>SB 1</b>			
Volume Total	55	0	76			
Volume Left	55	0	0			
Volume Right	0	0	76			
cSH	1595	1700	1050			
Volume to Capacity	0.03	0.00	0.07			
Queue Length 95th (m)	0.8	0.0	1.8			
Control Delay (s)	7.3	0.0	8.7			
Lane LOS	A		A			
Approach Delay (s)	7.3	0.0	8.7			
Approach LOS			A			
<b>Intersection Summary</b>						
Average Delay			8.1			
Intersection Capacity Utilization		9.0%		ICU Level of Service		A
Analysis Period (min)			15			

Lanes, Volumes, Timings  
7: Main Street & Thompsons Road

Existing 2022  
AM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	126	39	307	120	22	353
Future Volume (vph)	126	39	307	120	22	353
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	20.0		15.0	0.0	
Storage Lanes	1	1		1	0	
Taper Length (m)	2.5				2.5	
Lane Util. Factor	1.00	1.00	0.95	1.00	0.95	0.95
Frt		0.850		0.850		
Flt Protected	0.950					0.997
Satd. Flow (prot)	1738	1328	3349	1526	0	3394
Flt Permitted	0.950					0.923
Satd. Flow (perm)	1738	1328	3349	1526	0	3142
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		46		143		
Link Speed (k/h)	50		50			50
Link Distance (m)	179.9		164.4			246.8
Travel Time (s)	13.0		11.8			17.8
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	5%	23%	9%	7%	27%	6%
Adj. Flow (vph)	150	46	365	143	26	420
Shared Lane Traffic (%)						
Lane Group Flow (vph)	150	46	365	143	0	446
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Number of Detectors	1	1	2	1	1	2
Detector Template	Left	Right	Thru	Right	Left	Thru
Leading Detector (m)	6.1	6.1	30.5	6.1	6.1	30.5
Trailing Detector (m)	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
Detector 1 Size(m)	6.1	6.1	1.8	6.1	6.1	1.8
Detector 1 Type	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
Detector 1 Queue (s)	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
Detector 2 Position(m)			28.7			28.7
Detector 2 Size(m)			1.8			1.8
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	8		2		1	6

Lanes, Volumes, Timings  
7: Main Street & Thompsons Road

Existing 2022  
AM Peak Hour

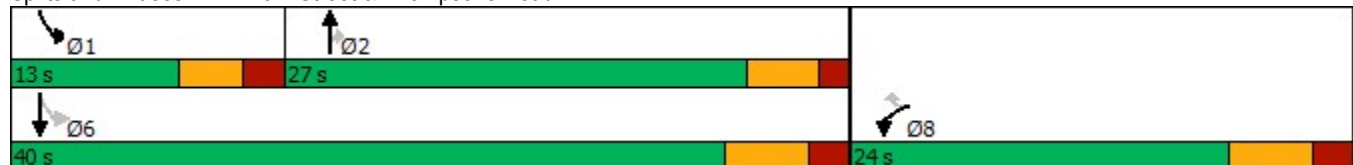


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Permitted Phases		8		2	6	
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	8.0	8.0	5.0	5.0	8.0	34.0
Minimum Split (s)	22.0	22.0	21.0	21.0	13.0	40.0
Total Split (s)	24.0	24.0	27.0	27.0	13.0	40.0
Total Split (%)	37.5%	37.5%	42.2%	42.2%	20.3%	62.5%
Maximum Green (s)	18.0	18.0	22.0	22.0	8.0	34.0
Yellow Time (s)	4.0	4.0	3.5	3.5	3.0	4.0
All-Red Time (s)	2.0	2.0	1.5	1.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	6.0	6.0	5.0	5.0		6.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Max	Max	None	Max
Walk Time (s)	5.0	5.0	5.0	5.0		5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0		11.0
Pedestrian Calls (#/hr)	0	0	0	0		0
Act Effect Green (s)	10.6	10.6	41.3	41.3		40.5
Actuated g/C Ratio	0.18	0.18	0.70	0.70		0.69
v/c Ratio	0.48	0.17	0.16	0.13		0.21
Control Delay	26.6	8.3	4.7	1.5		5.4
Queue Delay	0.0	0.0	0.0	0.0		0.0
Total Delay	26.6	8.3	4.7	1.5		5.4
LOS	C	A	A	A		A
Approach Delay	22.3		3.8			5.4
Approach LOS	C		A			A

Intersection Summary

Area Type: Other  
 Cycle Length: 64  
 Actuated Cycle Length: 58.9  
 Natural Cycle: 65  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.48  
 Intersection Signal Delay: 7.6  
 Intersection Capacity Utilization 45.3%  
 Analysis Period (min) 15  
 Intersection LOS: A  
 ICU Level of Service A

Splits and Phases: 7: Main Street & Thompsons Road



Queues  
7: Main Street & Thompsons Road

Existing 2022  
AM Peak Hour



Lane Group	WBL	WBR	NBT	NBR	SBT
Lane Group Flow (vph)	150	46	365	143	446
v/c Ratio	0.48	0.17	0.16	0.13	0.21
Control Delay	26.6	8.3	4.7	1.5	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	26.6	8.3	4.7	1.5	5.4
Queue Length 50th (m)	14.3	0.0	6.8	0.0	9.3
Queue Length 95th (m)	25.5	5.8	12.8	4.6	16.7
Internal Link Dist (m)	155.9		140.4		222.8
Turn Bay Length (m)		20.0		15.0	
Base Capacity (vph)	532	438	2348	1112	2161
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.28	0.11	0.16	0.13	0.21
<b>Intersection Summary</b>					

HCM Signalized Intersection Capacity Analysis  
7: Main Street & Thompsons Road

Existing 2022  
AM Peak Hour



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	126	39	307	120	22	353
Future Volume (vph)	126	39	307	120	22	353
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	5.0	5.0		6.0
Lane Util. Factor	1.00	1.00	0.95	1.00		0.95
Frt	1.00	0.85	1.00	0.85		1.00
Flt Protected	0.95	1.00	1.00	1.00		1.00
Satd. Flow (prot)	1738	1328	3349	1526		3394
Flt Permitted	0.95	1.00	1.00	1.00		0.92
Satd. Flow (perm)	1738	1328	3349	1526		3143
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	150	46	365	143	26	420
RTOR Reduction (vph)	0	39	0	47	0	0
Lane Group Flow (vph)	150	7	365	96	0	446
Heavy Vehicles (%)	5%	23%	9%	7%	27%	6%
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2	6	
Actuated Green, G (s)	8.9	8.9	40.2	40.2		39.2
Effective Green, g (s)	8.9	8.9	40.2	40.2		39.2
Actuated g/C Ratio	0.15	0.15	0.67	0.67		0.65
Clearance Time (s)	6.0	6.0	5.0	5.0		6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0
Lane Grp Cap (vph)	257	196	2240	1020		2050
v/s Ratio Prot	c0.09		0.11			
v/s Ratio Perm		0.01		0.06		c0.14
v/c Ratio	0.58	0.03	0.16	0.09		0.22
Uniform Delay, d1	23.9	21.9	3.7	3.5		4.2
Progression Factor	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	3.4	0.1	0.2	0.2		0.1
Delay (s)	27.2	22.0	3.9	3.7		4.3
Level of Service	C	C	A	A		A
Approach Delay (s)	26.0		3.8			4.3
Approach LOS	C		A			A

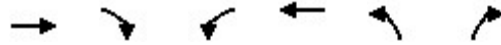
Intersection Summary

HCM 2000 Control Delay	7.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	60.1	Sum of lost time (s)	16.0
Intersection Capacity Utilization	45.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Lanes, Volumes, Timings  
 1: Dunlop Street & Robert Street East

Existing 2022  
 PM Peak Hour



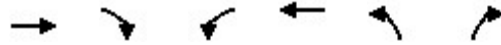
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	125	19	42	193	20	42
Future Volume (vph)	125	19	42	193	20	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.982			0.909		
Flt Protected				0.991	0.984	
Satd. Flow (prot)	1782	0	0	1866	1718	0
Flt Permitted				0.991	0.984	
Satd. Flow (perm)	1782	0	0	1866	1718	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	1218.0			320.1	410.5	
Travel Time (s)	87.7			23.0	29.6	
Confl. Peds. (#/hr)	1		1			4
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	6%	5%	2%	2%	0%	0%
Adj. Flow (vph)	142	22	48	219	23	48
Shared Lane Traffic (%)						
Lane Group Flow (vph)	164	0	0	267	71	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	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	14		24	24		14
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	35.6%
	ICU Level of Service A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis  
 1: Dunlop Street & Robert Street East

Existing 2022  
 PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	125	19	42	193	20	42
Future Volume (Veh/h)	125	19	42	193	20	42
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	142	22	48	219	23	48
Pedestrians				4	1	
Lane Width (m)				3.7	3.7	
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			165			158
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			165			158
tC, single (s)			4.1			6.2
tC, 2 stage (s)						
tF (s)			2.2			3.3
p0 queue free %			97			95
cM capacity (veh/h)			1412			889
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>NB 1</b>			
Volume Total	164	267	71			
Volume Left	0	48	23			
Volume Right	22	0	48			
cSH	1700	1412	733			
Volume to Capacity	0.10	0.03	0.10			
Queue Length 95th (m)	0.0	0.8	2.4			
Control Delay (s)	0.0	1.6	10.4			
Lane LOS			A		B	
Approach Delay (s)	0.0	1.6	10.4			
Approach LOS			B			
<b>Intersection Summary</b>						
Average Delay			2.3			
Intersection Capacity Utilization			35.6%		ICU Level of Service A	
Analysis Period (min)			15			

Lanes, Volumes, Timings  
 2: Robert Street East & Dufferin Street/Burke Street

Existing 2022  
 PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	13	137	193	44	30	23
Future Volume (vph)	13	137	193	44	30	23
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			0.975		0.942	
Flt Protected		0.996			0.972	
Satd. Flow (prot)	0	1830	1858	0	1666	0
Flt Permitted		0.996			0.972	
Satd. Flow (perm)	0	1830	1858	0	1666	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		320.1	250.8		76.2	
Travel Time (s)		23.0	18.1		5.5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	5%	1%	0%	0%	13%
Adj. Flow (vph)	14	144	203	46	32	24
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	158	249	0	56	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	28.0%
	ICU Level of Service A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis  
 2: Robert Street East & Dufferin Street/Burke Street

Existing 2022  
 PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	13	137	193	44	30	23
Future Volume (Veh/h)	13	137	193	44	30	23
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	14	144	203	46	32	24
<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	249				398	226
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	249				398	226
tC, single (s)	4.1				6.4	6.3
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.4
p0 queue free %	99				95	97
cM capacity (veh/h)	1328				605	787
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>SB 1</b>			
Volume Total	158	249	56			
Volume Left	14	0	32			
Volume Right	0	46	24			
cSH	1328	1700	671			
Volume to Capacity	0.01	0.15	0.08			
Queue Length 95th (m)	0.2	0.0	2.1			
Control Delay (s)	0.8	0.0	10.8			
Lane LOS	A		B			
Approach Delay (s)	0.8	0.0	10.8			
Approach LOS			B			
<b>Intersection Summary</b>						
Average Delay			1.6			
Intersection Capacity Utilization			28.0%	ICU Level of Service	A	
Analysis Period (min)			15			

Lanes, Volumes, Timings  
 3: Thompsons Road/Centennial Drive & Robert Street East

Existing 2022  
 PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	10	148	8	60	206	17	4	14	34	15	26	31
Future Volume (vph)	10	148	8	60	206	17	4	14	34	15	26	31
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
Fr <sub>t</sub>		0.994			0.992			0.911			0.942	
Fl <sub>t</sub> Protected		0.997			0.989			0.996			0.990	
Satd. Flow (prot)	0	1822	0	0	1863	0	0	1563	0	0	1744	0
Fl <sub>t</sub> Permitted		0.997			0.989			0.996			0.990	
Satd. Flow (perm)	0	1822	0	0	1863	0	0	1563	0	0	1744	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		250.8			471.9			174.6			77.4	
Travel Time (s)		18.1			34.0			12.6			5.6	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	5%	0%	2%	1%	0%	0%	21%	9%	0%	4%	3%
Adj. Flow (vph)	10	153	8	62	212	18	4	14	35	15	27	32
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	171	0	0	292	0	0	53	0	0	74	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)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

















Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	42.0%
ICU Level of Service	A
Analysis Period (min)	15

# HCM Unsignalized Intersection Capacity Analysis

## 3: Thompsons Road/Centennial Drive & Robert Street East

Existing 2022  
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	148	8	60	206	17	4	14	34	15	26	31
Future Volume (Veh/h)	10	148	8	60	206	17	4	14	34	15	26	31
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	10	153	8	62	212	18	4	14	35	15	27	32
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	230			161			568	531	157	564	526	221
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	230			161			568	531	157	564	526	221
tC, single (s)	4.1			4.1			7.1	6.7	6.3	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.2	3.4	3.5	4.0	3.3
p0 queue free %	99			96			99	97	96	96	94	96
cM capacity (veh/h)	1350			1418			384	406	870	395	431	816
Direction, Lane #												
	EB 1	WB 1	NB 1	SB 1								
Volume Total	171	292	53	74								
Volume Left	10	62	4	15								
Volume Right	8	18	35	32								
cSH	1350	1418	623	529								
Volume to Capacity	0.01	0.04	0.09	0.14								
Queue Length 95th (m)	0.2	1.0	2.1	3.7								
Control Delay (s)	0.5	1.9	11.3	12.9								
Lane LOS	A	A	B	B								
Approach Delay (s)	0.5	1.9	11.3	12.9								
Approach LOS			B	B								
Intersection Summary												
Average Delay			3.7									
Intersection Capacity Utilization			42.0%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings  
4: Fuller Avenue & Robert Street East

Existing 2022  
PM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	53	134	151	98	179	134
Future Volume (vph)	53	134	151	98	179	134
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0	0.0	0.0			0.0
Storage Lanes	0	0	0			0
Taper Length (m)	2.5		2.5			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.903				0.942	
Flt Protected	0.986			0.971		
Satd. Flow (prot)	1668	0	0	1822	1774	0
Flt Permitted	0.986			0.971		
Satd. Flow (perm)	1668	0	0	1822	1774	0
Link Speed (k/h)	50			60	60	
Link Distance (m)	471.9			243.5	103.8	
Travel Time (s)	34.0			14.6	6.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	4%	2%	2%	3%	2%	2%
Adj. Flow (vph)	58	146	164	107	195	146
Shared Lane Traffic (%)						
Lane Group Flow (vph)	204	0	0	271	341	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	52.3%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis  
4: Fuller Avenue & Robert Street East

Existing 2022  
PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	53	134	151	98	179	134
Future Volume (Veh/h)	53	134	151	98	179	134
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)	58	146	164	107	195	146
<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	703	268	341			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	703	268	341			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	83	81	87			
cM capacity (veh/h)	347	771	1218			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	204	271	341			
Volume Left	58	164	0			
Volume Right	146	0	146			
cSH	572	1218	1700			
Volume to Capacity	0.36	0.13	0.20			
Queue Length 95th (m)	12.2	3.5	0.0			
Control Delay (s)	14.7	5.6	0.0			
Lane LOS	B	A				
Approach Delay (s)	14.7	5.6	0.0			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			5.5			
Intersection Capacity Utilization			52.3%	ICU Level of Service	A	
Analysis Period (min)			15			



Lanes, Volumes, Timings  
5: Main Street & Edward Street

Existing 2022  
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕			↕	
Traffic Volume (vph)	6	19	64	51	28	27	94	467	34	36	451	10
Future Volume (vph)	6	19	64	51	28	27	94	467	34	36	451	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		30.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor		0.99			1.00	0.99		1.00			1.00	
Frt		0.903				0.850		0.991			0.997	
Flt Protected		0.997			0.968			0.992			0.996	
Satd. Flow (prot)	0	1711	0	0	1860	1633	0	3489	0	0	3527	0
Flt Permitted		0.972			0.748			0.793			0.885	
Satd. Flow (perm)	0	1668	0	0	1434	1612	0	2788	0	0	3133	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		67				91		9			4	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		135.5			260.4			246.8			121.8	
Travel Time (s)		9.8			18.7			17.8			8.8	
Confl. Peds. (#/hr)	1		3	3		1	3		8	8		3
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	2%	3%	0%	0%	3%	0%
Adj. Flow (vph)	6	20	67	54	29	28	99	492	36	38	475	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	93	0	0	83	28	0	627	0	0	524	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)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	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	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
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  
5: Main Street & Edward Street

Existing 2022  
PM Peak Hour

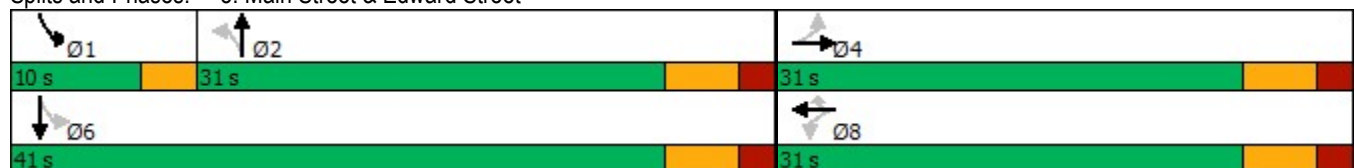


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	8.0	8.0		7.0	30.0	
Minimum Split (s)	26.0	26.0		26.0	26.0	26.0	31.0	31.0		10.0	36.0	
Total Split (s)	31.0	31.0		31.0	31.0	31.0	31.0	31.0		10.0	41.0	
Total Split (%)	43.1%	43.1%		43.1%	43.1%	43.1%	43.1%	43.1%		13.9%	56.9%	
Maximum Green (s)	25.0	25.0		25.0	25.0	25.0	25.0	25.0		7.0	35.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		0.0	2.0	
Lost Time Adjust (s)		0.0			0.0	0.0		0.0			0.0	
Total Lost Time (s)		6.0			6.0	6.0		6.0			6.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	Max	Max		None	Max	
Walk Time (s)	12.0	12.0		12.0	12.0	12.0	15.0	15.0			20.0	
Flash Dont Walk (s)	8.0	8.0		8.0	8.0	8.0	10.0	10.0			10.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0			0	
Act Effct Green (s)		10.3			10.3	10.3		39.3			39.3	
Actuated g/C Ratio		0.18			0.18	0.18		0.69			0.69	
v/c Ratio		0.26			0.32	0.08		0.33			0.24	
Control Delay		11.1			24.3	0.4		5.6			5.1	
Queue Delay		0.0			0.0	0.0		0.0			0.0	
Total Delay		11.1			24.3	0.4		5.6			5.1	
LOS		B			C	A		A			A	
Approach Delay		11.1			18.3			5.6			5.1	
Approach LOS		B			B			A			A	

Intersection Summary

Area Type:	Other
Cycle Length:	72
Actuated Cycle Length:	57.1
Natural Cycle:	70
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.33
Intersection Signal Delay:	6.8
Intersection LOS:	A
Intersection Capacity Utilization:	72.1%
ICU Level of Service:	C
Analysis Period (min):	15

Splits and Phases: 5: Main Street & Edward Street



Queues  
5: Main Street & Edward Street

Existing 2022  
PM Peak Hour




















Lane Group	EBT	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	93	83	28	627	524
v/c Ratio	0.26	0.32	0.08	0.33	0.24
Control Delay	11.1	24.3	0.4	5.6	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	11.1	24.3	0.4	5.6	5.1
Queue Length 50th (m)	2.3	7.6	0.0	14.1	11.0
Queue Length 95th (m)	12.0	17.9	0.0	23.8	18.7
Internal Link Dist (m)	111.5	236.4		222.8	97.8
Turn Bay Length (m)			30.0		
Base Capacity (vph)	768	627	757	1920	2156
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.12	0.13	0.04	0.33	0.24
<b>Intersection Summary</b>					

# HCM Signalized Intersection Capacity Analysis

## 5: Main Street & Edward Street

Existing 2022  
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	19	64	51	28	27	94	467	34	36	451	10
Future Volume (vph)	6	19	64	51	28	27	94	467	34	36	451	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	6.0		6.0			6.0	
Lane Util. Factor		1.00			1.00	1.00		0.95			0.95	
Frbp, ped/bikes		0.99			1.00	0.99		1.00			1.00	
Flpb, ped/bikes		1.00			1.00	1.00		1.00			1.00	
Frt		0.90			1.00	0.85		0.99			1.00	
Flt Protected		1.00			0.97	1.00		0.99			1.00	
Satd. Flow (prot)		1710			1858	1612		3490			3527	
Flt Permitted		0.97			0.75	1.00		0.79			0.88	
Satd. Flow (perm)		1667			1434	1612		2789			3131	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	6	20	67	54	29	28	99	492	36	38	475	11
RTOR Reduction (vph)	0	57	0	0	0	24	0	3	0	0	1	0
Lane Group Flow (vph)	0	36	0	0	83	4	0	624	0	0	523	0
Confl. Peds. (#/hr)	1		3	3		1	3		8	8		3
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	2%	3%	0%	0%	3%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		8.3			8.3	8.3		38.1			38.1	
Effective Green, g (s)		8.3			8.3	8.3		38.1			38.1	
Actuated g/C Ratio		0.14			0.14	0.14		0.65			0.65	
Clearance Time (s)		6.0			6.0	6.0		6.0			6.0	
Vehicle Extension (s)		3.0			3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)		236			203	229		1819			2042	
v/s Ratio Prot												
v/s Ratio Perm		0.02			c0.06	0.00		c0.22			0.17	
v/c Ratio		0.15			0.41	0.02		0.34			0.26	
Uniform Delay, d1		22.0			22.8	21.5		4.5			4.2	
Progression Factor		1.00			1.00	1.00		1.00			1.00	
Incremental Delay, d2		0.3			1.3	0.0		0.5			0.1	
Delay (s)		22.3			24.2	21.6		5.1			4.3	
Level of Service		C			C	C		A			A	
Approach Delay (s)		22.3			23.5			5.1			4.3	
Approach LOS		C			C			A			A	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			7.5									A
HCM 2000 Volume to Capacity ratio			0.38									
Actuated Cycle Length (s)			58.4								15.0	
Intersection Capacity Utilization			72.1%									C
Analysis Period (min)			15									

c Critical Lane Group

Lanes, Volumes, Timings  
6: Edward Street & Dunlop Street

Existing 2022  
PM Peak Hour



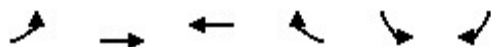
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	37	0	0	0	0	36
Future Volume (vph)	37	0	0	0	0	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt						0.865
Flt Protected	0.950					
Satd. Flow (prot)	1825	0	1921	0	0	1613
Flt Permitted	0.950					
Satd. Flow (perm)	1825	0	1921	0	0	1613
Link Speed (k/h)	50		50	48		
Link Distance (m)	802.7		141.2	410.5		
Travel Time (s)	57.8		10.2	30.8		
Confl. Peds. (#/hr)	1				1	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	0%	0%	0%	0%	0%	3%
Adj. Flow (vph)	45	0	0	0	0	43
Shared Lane Traffic (%)						
Lane Group Flow (vph)	45	0	0	0	0	43
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)	3.7		3.7	0.0		
Link Offset(m)	0.0		0.0	0.0		
Crosswalk Width(m)	1.6		1.6	1.6		
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24				14	24
Sign Control	Free		Free	Stop		

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	7.0%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis  
6: Edward Street & Dunlop Street












Existing 2022  
PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	37	0	0	0	0	36
Future Volume (Veh/h)	37	0	0	0	0	36
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	45	0	0	0	0	43
Pedestrians						1
Lane Width (m)						3.7
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	1				91	1
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1				91	1
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				100	96
cM capacity (veh/h)	1634				888	1080
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>SB 1</b>			
Volume Total	45	0	43			
Volume Left	45	0	0			
Volume Right	0	0	43			
cSH	1634	1700	1080			
Volume to Capacity	0.03	0.00	0.04			
Queue Length 95th (m)	0.6	0.0	0.9			
Control Delay (s)	7.3	0.0	8.5			
Lane LOS	A		A			
Approach Delay (s)	7.3	0.0	8.5			
Approach LOS			A			
<b>Intersection Summary</b>						
Average Delay			7.9			
Intersection Capacity Utilization		7.0%		ICU Level of Service		A
Analysis Period (min)			15			

Lanes, Volumes, Timings  
7: Main Street & Thompsons Road

Existing 2022  
PM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	169	45	554	174	44	525
Future Volume (vph)	169	45	554	174	44	525
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	20.0		15.0	0.0	
Storage Lanes	1	1		1	0	
Taper Length (m)	2.5				2.5	
Lane Util. Factor	1.00	1.00	0.95	1.00	0.95	0.95
Ped Bike Factor		0.99				
Frt		0.850		0.850		
Flt Protected	0.950					0.996
Satd. Flow (prot)	1807	1498	3579	1601	0	3538
Flt Permitted	0.950					0.879
Satd. Flow (perm)	1807	1478	3579	1601	0	3122
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		47		152		
Link Speed (k/h)	50		50			50
Link Distance (m)	179.9		164.4			246.8
Travel Time (s)	13.0		11.8			17.8
Confl. Peds. (#/hr)		1				
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	1%	9%	2%	2%	0%	3%
Adj. Flow (vph)	176	47	577	181	46	547
Shared Lane Traffic (%)						
Lane Group Flow (vph)	176	47	577	181	0	593
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Number of Detectors	1	1	2	1	1	2
Detector Template	Left	Right	Thru	Right	Left	Thru
Leading Detector (m)	6.1	6.1	30.5	6.1	6.1	30.5
Trailing Detector (m)	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
Detector 1 Size(m)	6.1	6.1	1.8	6.1	6.1	1.8
Detector 1 Type	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
Detector 1 Queue (s)	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
Detector 2 Position(m)			28.7			28.7
Detector 2 Size(m)			1.8			1.8
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0

Lanes, Volumes, Timings  
7: Main Street & Thompsons Road

Existing 2022  
PM Peak Hour



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2	6	
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	8.0	8.0	5.0	5.0	8.0	34.0
Minimum Split (s)	22.0	22.0	21.0	21.0	13.0	40.0
Total Split (s)	24.0	24.0	27.0	27.0	13.0	40.0
Total Split (%)	37.5%	37.5%	42.2%	42.2%	20.3%	62.5%
Maximum Green (s)	18.0	18.0	22.0	22.0	8.0	34.0
Yellow Time (s)	4.0	4.0	3.5	3.5	3.0	4.0
All-Red Time (s)	2.0	2.0	1.5	1.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	6.0	6.0	5.0	5.0		6.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Max	Max	None	Max
Walk Time (s)	5.0	5.0	5.0	5.0		5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0		11.0
Pedestrian Calls (#/hr)	0	0	0	0		0
Act Effct Green (s)	11.2	11.2	40.5	40.5		39.7
Actuated g/C Ratio	0.19	0.19	0.69	0.69		0.68
v/c Ratio	0.51	0.15	0.23	0.16		0.28
Control Delay	26.4	7.8	5.3	2.0		6.1
Queue Delay	0.0	0.0	0.0	0.0		0.0
Total Delay	26.4	7.8	5.3	2.0		6.1
LOS	C	A	A	A		A
Approach Delay	22.5		4.5			6.1
Approach LOS	C		A			A

Intersection Summary

Area Type: Other  
 Cycle Length: 64  
 Actuated Cycle Length: 58.6  
 Natural Cycle: 65  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.51  
 Intersection Signal Delay: 7.7  
 Intersection LOS: A  
 Intersection Capacity Utilization 67.3%  
 ICU Level of Service C  
 Analysis Period (min) 15

Splits and Phases: 7: Main Street & Thompsons Road





Queues  
7: Main Street & Thompsons Road

Existing 2022  
PM Peak Hour



Lane Group	WBL	WBR	NBT	NBR	SBT
Lane Group Flow (vph)	176	47	577	181	593
v/c Ratio	0.51	0.15	0.23	0.16	0.28
Control Delay	26.4	7.8	5.3	2.0	6.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	26.4	7.8	5.3	2.0	6.1
Queue Length 50th (m)	16.5	0.0	12.0	1.0	13.6
Queue Length 95th (m)	31.5	6.5	22.9	7.8	25.8
Internal Link Dist (m)	155.9		140.4		222.8
Turn Bay Length (m)		20.0		15.0	
Base Capacity (vph)	556	487	2471	1152	2113
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.32	0.10	0.23	0.16	0.28
<b>Intersection Summary</b>					

# HCM Signalized Intersection Capacity Analysis

## 7: Main Street & Thompsons Road

Existing 2022  
PM Peak Hour



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	169	45	554	174	44	525
Future Volume (vph)	169	45	554	174	44	525
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	5.0	5.0		6.0
Lane Util. Factor	1.00	1.00	0.95	1.00		0.95
Frpb, ped/bikes	1.00	0.99	1.00	1.00		1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00		1.00
Frt	1.00	0.85	1.00	0.85		1.00
Flt Protected	0.95	1.00	1.00	1.00		1.00
Satd. Flow (prot)	1807	1478	3579	1601		3538
Flt Permitted	0.95	1.00	1.00	1.00		0.88
Satd. Flow (perm)	1807	1478	3579	1601		3121
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	176	47	577	181	46	547
RTOR Reduction (vph)	0	40	0	52	0	0
Lane Group Flow (vph)	176	7	577	129	0	593
Confl. Peds. (#/hr)		1				
Heavy Vehicles (%)	1%	9%	2%	2%	0%	3%
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2	6	
Actuated Green, G (s)	9.5	9.5	39.4	39.4		38.4
Effective Green, g (s)	9.5	9.5	39.4	39.4		38.4
Actuated g/C Ratio	0.16	0.16	0.66	0.66		0.64
Clearance Time (s)	6.0	6.0	5.0	5.0		6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0
Lane Grp Cap (vph)	286	234	2354	1053		2000
v/s Ratio Prot	c0.10		0.16			
v/s Ratio Perm		0.01		0.08		c0.19
v/c Ratio	0.62	0.03	0.25	0.12		0.30
Uniform Delay, d1	23.5	21.3	4.2	3.8		4.8
Progression Factor	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	3.9	0.1	0.2	0.2		0.1
Delay (s)	27.4	21.4	4.4	4.1		4.8
Level of Service	C	C	A	A		A
Approach Delay (s)	26.1		4.3			4.8
Approach LOS	C		A			A

### Intersection Summary

HCM 2000 Control Delay	7.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	59.9	Sum of lost time (s)	16.0
Intersection Capacity Utilization	67.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lanes, Volumes, Timings  
1: Dunlop Street & Robert Street East

Future Background 2025  
AM Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	141	40	71	160	35	43
Future Volume (vph)	141	40	71	160	35	43
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	0.970					0.926
Flt Protected				0.985	0.978	
Satd. Flow (prot)	1749	0	0	1745	1671	0
Flt Permitted				0.985	0.978	
Satd. Flow (perm)	1749	0	0	1745	1671	0
Link Speed (k/h)	50					50
Link Distance (m)	1218.0			320.1	410.5	
Travel Time (s)	87.7			23.0	29.6	
Confl. Peds. (#/hr)	2		2			1
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Heavy Vehicles (%)	7%	5%	5%	10%	3%	5%
Adj. Flow (vph)	224	63	113	254	56	68
Shared Lane Traffic (%)						
Lane Group Flow (vph)	287	0	0	367	124	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	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	14		24	24		14
Sign Control	Free			Free	Stop	

Intersection Summary

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  
1: Dunlop Street & Robert Street East

Future Background 2025  
AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	141	40	71	160	35	43
Future Volume (Veh/h)	141	40	71	160	35	43
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Hourly flow rate (vph)	224	63	113	254	56	68
Pedestrians				1	2	
Lane Width (m)				3.7	3.7	
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			289		738	258
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			289		738	258
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			91		84	91
cM capacity (veh/h)			1254		349	771
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>NB 1</b>			
Volume Total	287	367	124			
Volume Left	0	113	56			
Volume Right	63	0	68			
cSH	1700	1254	498			
Volume to Capacity	0.17	0.09	0.25			
Queue Length 95th (m)	0.0	2.3	7.4			
Control Delay (s)	0.0	3.1	14.6			
Lane LOS			A			B
Approach Delay (s)	0.0	3.1	14.6			
Approach LOS				B		
<b>Intersection Summary</b>						
Average Delay			3.8			
Intersection Capacity Utilization			37.4%	ICU Level of Service	A	
Analysis Period (min)			15			

2: Street A/Dufferin Street/Burke Street & Robert Street East

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	24	143	0	0	167	60	0	0	0	38	0	32
Future Volume (vph)	24	143	0	0	167	60	0	0	0	38	0	32
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						0.964						0.938
Flt Protected	0.993										0.974	
Satd. Flow (prot)	0	1807	0	0	1741	0	0	1883	0	0	1501	0
Flt Permitted	0.993										0.974	
Satd. Flow (perm)	0	1807	0	0	1741	0	0	1883	0	0	1501	0
Link Speed (k/h)					50					50		
Link Distance (m)	320.1				250.8				228.0		76.2	
Travel Time (s)	23.0				18.1				16.4		5.5	
Confl. Peds. (#/hr)	2										2	
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Heavy Vehicles (%)	9%	5%	2%	2%	4%	13%	2%	2%	2%	0%	2%	37%
Adj. Flow (vph)	36	213	0	0	249	90	0	0	0	57	0	48
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	249	0	0	339	0	0	0	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	
Link Offset(m)	0.0										0.0	
Crosswalk Width(m)	1.6										1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14		24		14		24		14	
Sign Control	Free				Free				Stop		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	35.5%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis  
 2: Street A/Dufferin Street/Burke Street & Robert Street East

Future Background 2025  
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	24	143	0	0	167	60	0	0	0	38	0	32
Future Volume (Veh/h)	24	143	0	0	167	60	0	0	0	38	0	32
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Hourly flow rate (vph)	36	213	0	0	249	90	0	0	0	57	0	48
Pedestrians												2
Lane Width (m)												3.7
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	341			213			627	626	213	581	581	296
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	341			213			627	626	213	581	581	296
tC, single (s)	4.2			4.1			7.1	6.5	6.2	7.1	6.5	6.6
tC, 2 stage (s)												
tF (s)	2.3			2.2			3.5	4.0	3.3	3.5	4.0	3.6
p0 queue free %	97			100			100	100	100	86	100	93
cM capacity (veh/h)	1178			1357			358	388	827	417	411	667
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	249	339	0	105								
Volume Left	36	0	0	57								
Volume Right	0	90	0	48								
cSH	1178	1357	1700	503								
Volume to Capacity	0.03	0.00	0.00	0.21								
Queue Length 95th (m)	0.7	0.0	0.0	5.9								
Control Delay (s)	1.4	0.0	0.0	14.0								
Lane LOS	A		A	B								
Approach Delay (s)	1.4	0.0	0.0	14.0								
Approach LOS			A	B								
Intersection Summary												
Average Delay			2.6									
Intersection Capacity Utilization			35.5%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings  
3: Thompson Road/Centennial Drive & Robert Street East

Future Background 2025  
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	26	149	5	65	211	13	1	22	56	19	16	8
Future Volume (vph)	26	149	5	65	211	13	1	22	56	19	16	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
Fr <sub>t</sub>		0.996			0.994			0.905			0.975	
Fl <sub>t</sub> Protected		0.993			0.989			0.999			0.978	
Satd. Flow (prot)	0	1842	0	0	1695	0	0	1467	0	0	1634	0
Fl <sub>t</sub> Permitted		0.993			0.989			0.999			0.978	
Satd. Flow (perm)	0	1842	0	0	1695	0	0	1467	0	0	1634	0
Link Speed (k/h)		50			50			48			48	
Link Distance (m)		250.8			471.9			224.8			77.4	
Travel Time (s)		18.1			34.0			16.9			5.8	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	16%	1%	0%	28%	7%	0%	0%	5%	24%	6%	13%	25%
Adj. Flow (vph)	33	186	6	81	264	16	1	28	70	24	20	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	225	0	0	361	0	0	99	0	0	54	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)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

















Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	40.2%
ICU Level of Service	A
Analysis Period (min)	15

# HCM Unsignalized Intersection Capacity Analysis

## 3: Thompson Road/Centennial Drive & Robert Street East













Future Background 2025  
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	149	5	65	211	13	1	22	56	19	16	8
Future Volume (Veh/h)	26	149	5	65	211	13	1	22	56	19	16	8
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	33	186	6	81	264	16	1	28	70	24	20	10
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			192			709	697	189	773	692	272
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	280			192			709	697	189	773	692	272
tC, single (s)	4.3			4.4			7.1	6.5	6.4	7.2	6.6	6.5
tC, 2 stage (s)												
tF (s)	2.3			2.5			3.5	4.0	3.5	3.6	4.1	3.5
p0 queue free %	97			93			100	91	91	90	94	99
cM capacity (veh/h)	1206			1240			307	328	800	247	322	715
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	225	361	99	54								
Volume Left	33	81	1	24								
Volume Right	6	16	70	10								
cSH	1206	1240	562	312								
Volume to Capacity	0.03	0.07	0.18	0.17								
Queue Length 95th (m)	0.6	1.6	4.8	4.7								
Control Delay (s)	1.4	2.3	12.8	19.0								
Lane LOS	A	A	B	C								
Approach Delay (s)	1.4	2.3	12.8	19.0								
Approach LOS			B	C								
Intersection Summary												
Average Delay			4.6									
Intersection Capacity Utilization			40.2%		ICU Level of Service				A			
Analysis Period (min)			15									



Lanes, Volumes, Timings  
4: Fuller Avenue & Robert Street East

Future Background 2025  
AM Peak Hour

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	142	116	108	203	203	124
Future Volume (vph)	142	116	108	203	203	124
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0	0.0	0.0			0.0
Storage Lanes	1	1	1			1
Taper Length (m)	2.5		2.5			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1601	1570	1738	1847	1830	1338
Flt Permitted	0.950		0.547			
Satd. Flow (perm)	1601	1570	1001	1847	1830	1338
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		143				153
Link Speed (k/h)	50			60	60	
Link Distance (m)	471.9			243.5	103.8	
Travel Time (s)	34.0			14.6	6.2	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles (%)	14%	4%	5%	4%	5%	22%
Adj. Flow (vph)	175	143	133	251	251	153
Shared Lane Traffic (%)						
Lane Group Flow (vph)	175	143	133	251	251	153
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Number of Detectors	1	1	1	2	2	1
Detector Template	Left	Right	Left	Thru	Thru	Right
Leading Detector (m)	6.1	6.1	6.1	30.5	30.5	6.1
Trailing Detector (m)	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
Detector 1 Size(m)	6.1	6.1	6.1	1.8	1.8	6.1
Detector 1 Type	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
Detector 1 Queue (s)	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
Detector 2 Position(m)				28.7	28.7	
Detector 2 Size(m)				1.8	1.8	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	

Lanes, Volumes, Timings  
4: Fuller Avenue & Robert Street East

Future Background 2025  
AM Peak Hour

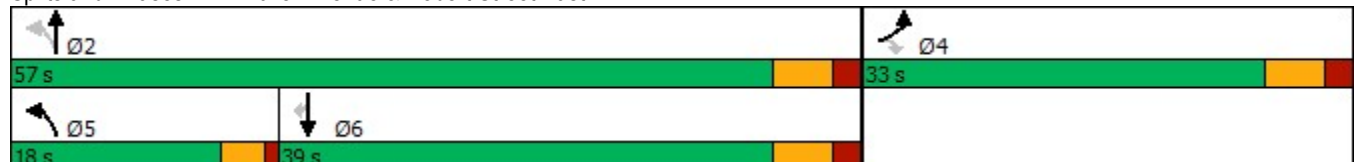


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Permitted Phases		4	2			6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	25.0	25.0	9.0	30.0	30.0	30.0
Total Split (s)	33.0	33.0	18.0	57.0	39.0	39.0
Total Split (%)	36.7%	36.7%	20.0%	63.3%	43.3%	43.3%
Maximum Green (s)	27.0	27.0	14.0	51.0	33.0	33.0
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	6.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	Max	Max	Max
Walk Time (s)	5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0
Act Effct Green (s)	13.9	13.9	53.1	51.1	39.5	39.5
Actuated g/C Ratio	0.18	0.18	0.69	0.66	0.51	0.51
v/c Ratio	0.61	0.36	0.17	0.20	0.27	0.20
Control Delay	38.3	7.7	5.2	6.1	12.7	3.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.3	7.7	5.2	6.1	12.7	3.1
LOS	D	A	A	A	B	A
Approach Delay	24.5			5.8	9.1	
Approach LOS	C			A	A	

Intersection Summary

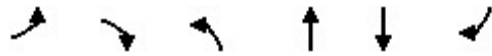
Area Type: Other  
 Cycle Length: 90  
 Actuated Cycle Length: 77  
 Natural Cycle: 65  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.61  
 Intersection Signal Delay: 12.4  
 Intersection Capacity Utilization 38.3%  
 Analysis Period (min) 15  
 Intersection LOS: B  
 ICU Level of Service A

Splits and Phases: 4: Fuller Avenue & Robert Street East



## 4: Fuller Avenue &amp; Robert Street East

AM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	175	143	133	251	251	153
v/c Ratio	0.61	0.36	0.17	0.20	0.27	0.20
Control Delay	38.3	7.7	5.2	6.1	12.7	3.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.3	7.7	5.2	6.1	12.7	3.1
Queue Length 50th (m)	23.7	0.0	5.3	12.0	19.0	0.0
Queue Length 95th (m)	37.1	9.9	11.8	22.7	35.1	7.0
Internal Link Dist (m)	447.9			219.5	79.8	
Turn Bay Length (m)	30.0					
Base Capacity (vph)	562	644	824	1225	938	760
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.22	0.16	0.20	0.27	0.20

## Intersection Summary

HCM Signalized Intersection Capacity Analysis  
4: Fuller Avenue & Robert Street East

Future Background 2025  
AM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	142	116	108	203	203	124
Future Volume (vph)	142	116	108	203	203	124
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	4.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1601	1570	1738	1847	1830	1338
Flt Permitted	0.95	1.00	0.55	1.00	1.00	1.00
Satd. Flow (perm)	1601	1570	1001	1847	1830	1338
Peak-hour factor, PHF	0.81	0.81	0.81	0.81	0.81	0.81
Adj. Flow (vph)	175	143	133	251	251	153
RTOR Reduction (vph)	0	117	0	0	0	75
Lane Group Flow (vph)	175	26	133	251	251	78
Heavy Vehicles (%)	14%	4%	5%	4%	5%	22%
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	13.9	13.9	51.1	51.1	39.5	39.5
Effective Green, g (s)	13.9	13.9	51.1	51.1	39.5	39.5
Actuated g/C Ratio	0.18	0.18	0.66	0.66	0.51	0.51
Clearance Time (s)	6.0	6.0	4.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	289	283	737	1225	938	686
v/s Ratio Prot	c0.11		0.02	c0.14	c0.14	
v/s Ratio Perm		0.02	0.10			0.06
v/c Ratio	0.61	0.09	0.18	0.20	0.27	0.11
Uniform Delay, d1	29.0	26.3	4.8	5.0	10.6	9.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.6	0.1	0.1	0.4	0.7	0.3
Delay (s)	32.6	26.4	5.0	5.4	11.3	10.0
Level of Service	C	C	A	A	B	B
Approach Delay (s)	29.8			5.3	10.8	
Approach LOS	C			A	B	

Intersection Summary

HCM 2000 Control Delay	14.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	77.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	38.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lanes, Volumes, Timings  
5: Main Street & Edward Street

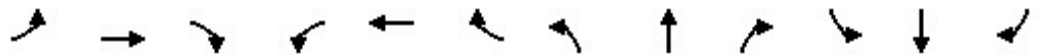
Future Background 2025  
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕			↕	
Traffic Volume (vph)	0	5	16	42	11	31	27	338	18	20	372	2
Future Volume (vph)	0	5	16	42	11	31	27	338	18	20	372	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		30.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor		0.99			1.00	0.99		1.00			1.00	
Frt		0.896				0.850		0.993			0.999	
Flt Protected					0.962			0.996			0.997	
Satd. Flow (prot)	0	1704	0	0	1848	1633	0	3247	0	0	3410	0
Flt Permitted					0.753			0.901			0.921	
Satd. Flow (perm)	0	1704	0	0	1445	1612	0	2938	0	0	3150	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		20				91		8			1	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		135.5			260.4			246.8			121.8	
Travel Time (s)		9.8			18.7			17.8			8.8	
Confl. Peds. (#/hr)	1		1	1		1			2	2		
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	15%	11%	6%	0%	7%	0%
Adj. Flow (vph)	0	6	20	53	14	39	34	423	23	25	465	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	26	0	0	67	39	0	480	0	0	493	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)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	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	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
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  
5: Main Street & Edward Street

Future Background 2025  
AM Peak Hour

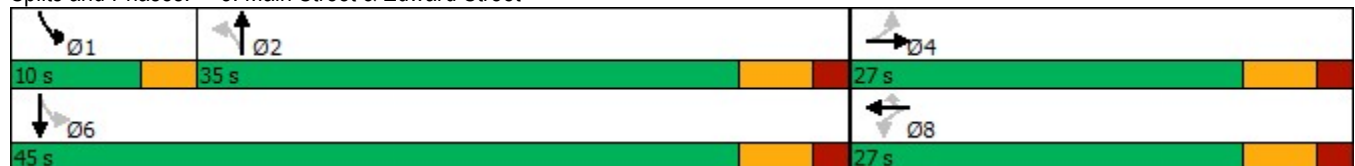


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type		NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	8.0	8.0		7.0	30.0	
Minimum Split (s)	26.0	26.0		26.0	26.0	26.0	31.0	31.0		10.0	36.0	
Total Split (s)	27.0	27.0		27.0	27.0	27.0	35.0	35.0		10.0	45.0	
Total Split (%)	37.5%	37.5%		37.5%	37.5%	37.5%	48.6%	48.6%		13.9%	62.5%	
Maximum Green (s)	21.0	21.0		21.0	21.0	21.0	29.0	29.0		7.0	39.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		0.0	2.0	
Lost Time Adjust (s)		0.0			0.0	0.0		0.0			0.0	
Total Lost Time (s)		6.0			6.0	6.0		6.0			6.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	Max	Max		None	Max	
Walk Time (s)	12.0	12.0		12.0	12.0	12.0	15.0	15.0			20.0	
Flash Dont Walk (s)	8.0	8.0		8.0	8.0	8.0	10.0	10.0			10.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0			0	
Act Effct Green (s)		10.3			10.3	10.3		46.0			46.0	
Actuated g/C Ratio		0.16			0.16	0.16		0.72			0.72	
v/c Ratio		0.09			0.29	0.12		0.23			0.22	
Control Delay		13.0			26.7	1.6		4.5			4.5	
Queue Delay		0.0			0.0	0.0		0.0			0.0	
Total Delay		13.0			26.7	1.6		4.5			4.5	
LOS		B			C	A		A			A	
Approach Delay		13.0			17.4			4.5			4.5	
Approach LOS		B			B			A			A	

Intersection Summary

Area Type:	Other
Cycle Length:	72
Actuated Cycle Length:	63.7
Natural Cycle:	70
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.29
Intersection Signal Delay:	5.9
Intersection LOS:	A
Intersection Capacity Utilization	53.0%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 5: Main Street & Edward Street



## 5: Main Street &amp; Edward Street

AM Peak Hour




















Lane Group	EBT	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	26	67	39	480	493
v/c Ratio	0.09	0.29	0.12	0.23	0.22
Control Delay	13.0	26.7	1.6	4.5	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	13.0	26.7	1.6	4.5	4.5
Queue Length 50th (m)	0.6	6.7	0.0	10.0	10.3
Queue Length 95th (m)	5.1	14.3	0.3	14.1	14.4
Internal Link Dist (m)	111.5	236.4		222.8	97.8
Turn Bay Length (m)			30.0		
Base Capacity (vph)	578	479	595	2125	2276
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.04	0.14	0.07	0.23	0.22

## Intersection Summary

# HCM Signalized Intersection Capacity Analysis

## 5: Main Street & Edward Street

Future Background 2025  
AM Peak Hour

















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	5	16	42	11	31	27	338	18	20	372	2
Future Volume (vph)	0	5	16	42	11	31	27	338	18	20	372	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	6.0		6.0			6.0	
Lane Util. Factor		1.00			1.00	1.00		0.95			0.95	
Frbp, ped/bikes		0.99			1.00	0.99		1.00			1.00	
Flpb, ped/bikes		1.00			1.00	1.00		1.00			1.00	
Frt		0.90			1.00	0.85		0.99			1.00	
Flt Protected		1.00			0.96	1.00		1.00			1.00	
Satd. Flow (prot)		1704			1847	1612		3248			3412	
Flt Permitted		1.00			0.75	1.00		0.90			0.92	
Satd. Flow (perm)		1704			1446	1612		2937			3149	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	0	6	20	52	14	39	34	422	22	25	465	2
RTOR Reduction (vph)	0	18	0	0	0	34	0	2	0	0	0	0
Lane Group Flow (vph)	0	8	0	0	67	5	0	478	0	0	493	0
Confl. Peds. (#/hr)	1		1	1		1			2	2		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	15%	11%	6%	0%	7%	0%
Turn Type		NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		8.1			8.1	8.1		44.8			44.8	
Effective Green, g (s)		8.1			8.1	8.1		44.8			44.8	
Actuated g/C Ratio		0.12			0.12	0.12		0.69			0.69	
Clearance Time (s)		6.0			6.0	6.0		6.0			6.0	
Vehicle Extension (s)		3.0			3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)		212			180	201		2027			2173	
v/s Ratio Prot		0.00										
v/s Ratio Perm					c0.05	0.00		c0.16			0.16	
v/c Ratio		0.04			0.37	0.02		0.24			0.23	
Uniform Delay, d1		25.0			26.1	24.9		3.7			3.7	
Progression Factor		1.00			1.00	1.00		1.00			1.00	
Incremental Delay, d2		0.1			1.3	0.0		0.3			0.1	
Delay (s)		25.1			27.4	25.0		4.0			3.7	
Level of Service		C			C	C		A			A	
Approach Delay (s)		25.1			26.5			4.0			3.7	
Approach LOS		C			C			A			A	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			6.5		HCM 2000 Level of Service						A	
HCM 2000 Volume to Capacity ratio			0.27									
Actuated Cycle Length (s)			64.9		Sum of lost time (s)						15.0	
Intersection Capacity Utilization			53.0%		ICU Level of Service						A	
Analysis Period (min)			15									

c Critical Lane Group



















Lanes, Volumes, Timings  
6: Dunlop Street & Edward Street

Future Background 2025  
AM Peak Hour

														
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations														
Traffic Volume (vph)	39	0	0	0	0	0	0	0	0	0	0	54		
Future Volume (vph)	39	0	0	0	0	0	0	0	0	0	0	54		
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												0.865		
Flt Protected	0.950													
Satd. Flow (prot)	0	1772	0	0	1921	0	0	1883	0	0	1539	0		
Flt Permitted	0.950													
Satd. Flow (perm)	0	1772	0	0	1921	0	0	1883	0	0	1539	0		
Link Speed (k/h)	50		50				50				50			
Link Distance (m)	802.7				150.8				325.8				410.5	
Travel Time (s)	57.8				10.9				23.5				29.6	
Confl. Peds. (#/hr)	8										8			
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67		
Heavy Vehicles (%)	3%	0%	2%	2%	0%	0%	2%	2%	2%	0%	2%	8%		
Adj. Flow (vph)	58	0	0	0	0	0	0	0	0	0	0	81		
Shared Lane Traffic (%)														
Lane Group Flow (vph)	0	58	0	0	0	0	0	0	0	0	81	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)	1.6		1.6				1.6				1.6			
Two way Left Turn Lane														
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99		
Turning Speed (k/h)	24		14		24		14		24		14			
Sign Control	Free				Free				Stop					
<b>Intersection Summary</b>														
Area Type:	Other													
Control Type:	Unsignalized													
Intersection Capacity Utilization	15.7%						ICU Level of Service A							
Analysis Period (min)	15													














HCM Unsignalized Intersection Capacity Analysis  
6: Dunlop Street & Edward Street

Future Background 2025  
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	39	0	0	0	0	0	0	0	0	0	0	54
Future Volume (Veh/h)	39	0	0	0	0	0	0	0	0	0	0	54
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Hourly flow rate (vph)	58	0	0	0	0	0	0	0	0	0	0	81
Pedestrians												8
Lane Width (m)												3.7
Walking Speed (m/s)												1.2
Percent Blockage												1
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	8			0			197	124	0	124	124	8
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	8			0			197	124	0	124	124	8
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.3
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.4
p0 queue free %	96			100			100	100	100	100	100	92
cM capacity (veh/h)	1595			1623			680	733	1085	821	733	1050
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	58	0	0	81								
Volume Left	58	0	0	0								
Volume Right	0	0	0	81								
cSH	1595	1700	1700	1050								
Volume to Capacity	0.04	0.00	0.00	0.08								
Queue Length 95th (m)	0.9	0.0	0.0	1.9								
Control Delay (s)	7.3	0.0	0.0	8.7								
Lane LOS	A			A								
Approach Delay (s)	7.3	0.0	0.0	8.7								
Approach LOS				A								
Intersection Summary												
Average Delay				8.1								
Intersection Capacity Utilization			15.7%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings  
7: Main Street & Thompson Road

Future Background 2025  
AM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	139	42	343	129	24	409
Future Volume (vph)	139	42	343	129	24	409
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	20.0		15.0	0.0	
Storage Lanes	1	1		1	0	
Taper Length (m)	2.5				2.5	
Lane Util. Factor	1.00	1.00	0.95	1.00	0.95	0.95
Frt		0.850		0.850		
Flt Protected	0.950					0.997
Satd. Flow (prot)	1738	1328	3349	1526	0	3395
Flt Permitted	0.950					0.920
Satd. Flow (perm)	1738	1328	3349	1526	0	3133
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		50		154		
Link Speed (k/h)	50		50			50
Link Distance (m)	653.3		164.4			246.8
Travel Time (s)	47.0		11.8			17.8
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	5%	23%	9%	7%	27%	6%
Adj. Flow (vph)	165	50	408	154	29	487
Shared Lane Traffic (%)						
Lane Group Flow (vph)	165	50	408	154	0	516
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Number of Detectors	1	1	2	1	1	2
Detector Template	Left	Right	Thru	Right	Left	Thru
Leading Detector (m)	6.1	6.1	30.5	6.1	6.1	30.5
Trailing Detector (m)	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
Detector 1 Size(m)	6.1	6.1	1.8	6.1	6.1	1.8
Detector 1 Type	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
Detector 1 Queue (s)	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
Detector 2 Position(m)			28.7			28.7
Detector 2 Size(m)			1.8			1.8
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	8		2		1	6

Lanes, Volumes, Timings  
7: Main Street & Thompson Road

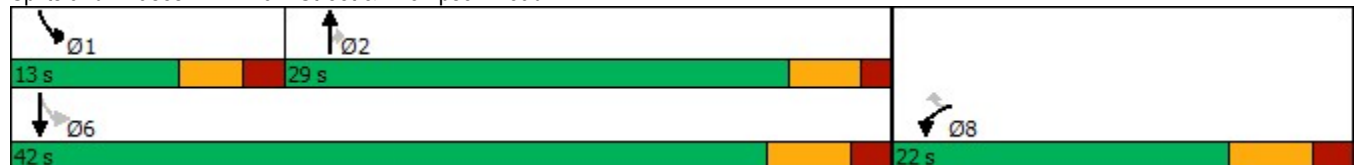
Future Background 2025  
AM Peak Hour

	↙	↖	↑	↗	↘	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Permitted Phases		8		2	6	
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	8.0	8.0	5.0	5.0	8.0	34.0
Minimum Split (s)	22.0	22.0	21.0	21.0	13.0	40.0
Total Split (s)	22.0	22.0	29.0	29.0	13.0	42.0
Total Split (%)	34.4%	34.4%	45.3%	45.3%	20.3%	65.6%
Maximum Green (s)	16.0	16.0	24.0	24.0	8.0	36.0
Yellow Time (s)	4.0	4.0	3.5	3.5	3.0	4.0
All-Red Time (s)	2.0	2.0	1.5	1.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	6.0	6.0	5.0	5.0		6.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Max	Max	None	Max
Walk Time (s)	5.0	5.0	5.0	5.0		5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0		11.0
Pedestrian Calls (#/hr)	0	0	0	0		0
Act Effct Green (s)	11.2	11.2	42.7	42.7		41.9
Actuated g/C Ratio	0.18	0.18	0.70	0.70		0.69
v/c Ratio	0.52	0.18	0.17	0.14		0.24
Control Delay	28.0	8.3	5.0	1.5		5.7
Queue Delay	0.0	0.0	0.0	0.0		0.0
Total Delay	28.0	8.3	5.0	1.5		5.7
LOS	C	A	A	A		A
Approach Delay	23.4		4.0			5.7
Approach LOS	C		A			A

Intersection Summary

Area Type: Other  
 Cycle Length: 64  
 Actuated Cycle Length: 60.9  
 Natural Cycle: 65  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.52  
 Intersection Signal Delay: 7.9  
 Intersection Capacity Utilization 47.0%  
 Analysis Period (min) 15  
 Intersection LOS: A  
 ICU Level of Service A

Splits and Phases: 7: Main Street & Thompson Road



## 7: Main Street &amp; Thompson Road

AM Peak Hour
















Lane Group	WBL	WBR	NBT	NBR	SBT
Lane Group Flow (vph)	165	50	408	154	516
v/c Ratio	0.52	0.18	0.17	0.14	0.24
Control Delay	28.0	8.3	5.0	1.5	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	28.0	8.3	5.0	1.5	5.7
Queue Length 50th (m)	16.2	0.0	8.2	0.0	11.5
Queue Length 95th (m)	28.6	6.2	15.1	4.9	20.3
Internal Link Dist (m)	629.3		140.4		222.8
Turn Bay Length (m)		20.0		15.0	
Base Capacity (vph)	457	386	2347	1115	2155
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.36	0.13	0.17	0.14	0.24

## Intersection Summary

HCM Signalized Intersection Capacity Analysis  
7: Main Street & Thompson Road

Future Background 2025  
AM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	139	42	343	129	24	409
Future Volume (vph)	139	42	343	129	24	409
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	5.0	5.0		6.0
Lane Util. Factor	1.00	1.00	0.95	1.00		0.95
Frt	1.00	0.85	1.00	0.85		1.00
Flt Protected	0.95	1.00	1.00	1.00		1.00
Satd. Flow (prot)	1738	1328	3349	1526		3396
Flt Permitted	0.95	1.00	1.00	1.00		0.92
Satd. Flow (perm)	1738	1328	3349	1526		3131
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	165	50	408	154	29	487
RTOR Reduction (vph)	0	42	0	51	0	0
Lane Group Flow (vph)	165	8	408	103	0	516
Heavy Vehicles (%)	5%	23%	9%	7%	27%	6%
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2	6	
Actuated Green, G (s)	9.5	9.5	41.6	41.6		40.6
Effective Green, g (s)	9.5	9.5	41.6	41.6		40.6
Actuated g/C Ratio	0.15	0.15	0.67	0.67		0.65
Clearance Time (s)	6.0	6.0	5.0	5.0		6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0
Lane Grp Cap (vph)	265	203	2243	1022		2046
v/s Ratio Prot	c0.09		0.12			
v/s Ratio Perm		0.01		0.07		c0.16
v/c Ratio	0.62	0.04	0.18	0.10		0.25
Uniform Delay, d1	24.6	22.4	3.9	3.6		4.5
Progression Factor	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	4.5	0.1	0.2	0.2		0.1
Delay (s)	29.1	22.5	4.0	3.8		4.5
Level of Service	C	C	A	A		A
Approach Delay (s)	27.6		4.0			4.5
Approach LOS	C		A			A
<b>Intersection Summary</b>						
HCM 2000 Control Delay			8.1		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.35			
Actuated Cycle Length (s)			62.1		Sum of lost time (s)	16.0
Intersection Capacity Utilization			47.0%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

Lanes, Volumes, Timings  
1: Dunlop Street & Robert Street East

Future Background 2025  
PM Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	162	20	44	226	21	44
Future Volume (vph)	162	20	44	226	21	44
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	0.985			0.909		
Flt Protected				0.992	0.984	
Satd. Flow (prot)	1787	0	0	1868	1718	0
Flt Permitted				0.992	0.984	
Satd. Flow (perm)	1787	0	0	1868	1718	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	1218.0			320.1	410.5	
Travel Time (s)	87.7			23.0	29.6	
Confl. Peds. (#/hr)	1		1			4
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	6%	5%	2%	2%	0%	0%
Adj. Flow (vph)	184	23	50	257	24	50
Shared Lane Traffic (%)						
Lane Group Flow (vph)	207	0	0	307	74	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	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	14		24	24		14
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	39.5%
	ICU Level of Service A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis  
 1: Dunlop Street & Robert Street East

Future Background 2025  
 PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	→			←	↘	↙
Traffic Volume (veh/h)	162	20	44	226	21	44
Future Volume (Veh/h)	162	20	44	226	21	44
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	184	23	50	257	24	50
Pedestrians				4	1	
Lane Width (m)				3.7	3.7	
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			208	554		200
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			208	554		200
tC, single (s)			4.1	6.4		6.2
tC, 2 stage (s)						
tF (s)			2.2	3.5		3.3
p0 queue free %			96	95		94
cM capacity (veh/h)			1362	479		842
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	207	307	74			
Volume Left	0	50	24			
Volume Right	23	0	50			
cSH	1700	1362	676			
Volume to Capacity	0.12	0.04	0.11			
Queue Length 95th (m)	0.0	0.9	2.8			
Control Delay (s)	0.0	1.5	11.0			
Lane LOS			A		B	
Approach Delay (s)	0.0	1.5	11.0			
Approach LOS			B			
<b>Intersection Summary</b>						
Average Delay			2.2			
Intersection Capacity Utilization			39.5%		ICU Level of Service A	
Analysis Period (min)			15			



2: Street A/Dufferin Street/Burke Street & Robert Street East

PM Peak Hour



















Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	13	168	0	0	221	49	0	0	0	32	0	27
Future Volume (vph)	13	168	0	0	221	49	0	0	0	32	0	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
Fr <sub>t</sub>					0.975						0.939	
Fl <sub>t</sub> Protected		0.996									0.973	
Satd. Flow (prot)	0	1829	0	0	1858	0	0	1883	0	0	1658	0
Fl <sub>t</sub> Permitted		0.996									0.973	
Satd. Flow (perm)	0	1829	0	0	1858	0	0	1883	0	0	1658	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		320.1			250.8			228.0			76.2	
Travel Time (s)		23.0			18.1			16.4			5.5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	5%	2%	2%	1%	0%	2%	2%	2%	0%	2%	13%
Adj. Flow (vph)	14	177	0	0	233	52	0	0	0	34	0	28
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	191	0	0	285	0	0	0	0	0	62	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)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	29.7%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis  
 2: Street A/Dufferin Street/Burke Street & Robert Street East

Future Background 2025  
 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	168	0	0	221	49	0	0	0	32	0	27
Future Volume (Veh/h)	13	168	0	0	221	49	0	0	0	32	0	27
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	14	177	0	0	233	52	0	0	0	34	0	28
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	285			177			492	490	177	464	464	259
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	285			177			492	490	177	464	464	259
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.3
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.4
p0 queue free %	99			100			100	100	100	93	100	96
cM capacity (veh/h)	1289			1399			465	474	866	508	490	754
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	191	285	0	62								
Volume Left	14	0	0	34								
Volume Right	0	52	0	28								
cSH	1289	1399	1700	595								
Volume to Capacity	0.01	0.00	0.00	0.10								
Queue Length 95th (m)	0.3	0.0	0.0	2.6								
Control Delay (s)	0.7	0.0	0.0	11.7								
Lane LOS	A		A	B								
Approach Delay (s)	0.7	0.0	0.0	11.7								
Approach LOS			A	B								
Intersection Summary												
Average Delay			1.6									
Intersection Capacity Utilization			29.7%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings  
3: Thompson Road/Centennial Drive & Robert Street East

Future Background 2025  
PM Peak Hour



















Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	10	182	8	86	238	19	4	14	70	16	27	32
Future Volume (vph)	10	182	8	86	238	19	4	14	70	16	27	32
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
Fr <sub>t</sub>		0.995			0.992			0.892			0.942	
Fl <sub>t</sub> Protected		0.998			0.988			0.998			0.990	
Satd. Flow (prot)	0	1823	0	0	1861	0	0	1677	0	0	1756	0
Fl <sub>t</sub> Permitted		0.998			0.988			0.998			0.990	
Satd. Flow (perm)	0	1823	0	0	1861	0	0	1677	0	0	1756	0
Link Speed (k/h)		50			50			48			48	
Link Distance (m)		250.8			471.9			224.8			77.4	
Travel Time (s)		18.1			34.0			16.9			5.8	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	5%	2%	2%	1%	0%	2%	2%	2%	0%	2%	3%
Adj. Flow (vph)	10	188	8	89	245	20	4	14	72	16	28	33
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	206	0	0	354	0	0	90	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	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	49.4%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis  
 3: Thompson Road/Centennial Drive & Robert Street East

Future Background 2025  
 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	182	8	86	238	19	4	14	70	16	27	32
Future Volume (Veh/h)	10	182	8	86	238	19	4	14	70	16	27	32
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	10	188	8	89	245	20	4	14	72	16	28	33
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	265			196			692	655	192	724	649	255
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	265			196			692	655	192	724	649	255
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			94			99	96	92	94	92	96
cM capacity (veh/h)	1311			1377			305	358	850	288	361	781
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	206	354	90	77								
Volume Left	10	89	4	16								
Volume Right	8	20	72	33								
cSH	1311	1377	657	439								
Volume to Capacity	0.01	0.06	0.14	0.18								
Queue Length 95th (m)	0.2	1.6	3.6	4.8								
Control Delay (s)	0.4	2.4	11.3	14.9								
Lane LOS	A	A	B	B								
Approach Delay (s)	0.4	2.4	11.3	14.9								
Approach LOS			B	B								
Intersection Summary												
Average Delay			4.3									
Intersection Capacity Utilization			49.4%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings  
4: Fuller Avenue & Robert Street East

Future Background 2025  
PM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	114	144	164	175	235	182
Future Volume (vph)	114	144	164	175	235	182
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0	0.0	0.0			0.0
Storage Lanes	1	1	1			1
Taper Length (m)	2.5		2.5			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1755	1601	1789	1865	1883	1601
Flt Permitted	0.950		0.548			
Satd. Flow (perm)	1755	1601	1032	1865	1883	1601
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		157				198
Link Speed (k/h)	50			60	60	
Link Distance (m)	471.9			243.5	103.8	
Travel Time (s)	34.0			14.6	6.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	4%	2%	2%	3%	2%	2%
Adj. Flow (vph)	124	157	178	190	255	198
Shared Lane Traffic (%)						
Lane Group Flow (vph)	124	157	178	190	255	198
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Number of Detectors	1	1	1	2	2	1
Detector Template	Left	Right	Left	Thru	Thru	Right
Leading Detector (m)	6.1	6.1	6.1	30.5	30.5	6.1
Trailing Detector (m)	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
Detector 1 Size(m)	6.1	6.1	6.1	1.8	1.8	6.1
Detector 1 Type	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
Detector 1 Queue (s)	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
Detector 2 Position(m)				28.7	28.7	
Detector 2 Size(m)				1.8	1.8	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	

Lanes, Volumes, Timings  
4: Fuller Avenue & Robert Street East

Future Background 2025  
PM Peak Hour

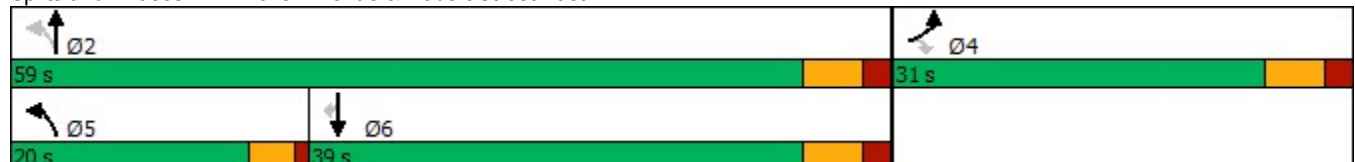


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Permitted Phases		4	2			6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	25.0	25.0	9.0	30.0	30.0	30.0
Total Split (s)	31.0	31.0	20.0	59.0	39.0	39.0
Total Split (%)	34.4%	34.4%	22.2%	65.6%	43.3%	43.3%
Maximum Green (s)	25.0	25.0	16.0	53.0	33.0	33.0
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	6.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	Max	Max	Max
Walk Time (s)	5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0
Act Effct Green (s)	11.5	11.5	55.0	53.0	41.1	41.1
Actuated g/C Ratio	0.15	0.15	0.72	0.69	0.54	0.54
v/c Ratio	0.47	0.42	0.22	0.15	0.25	0.21
Control Delay	35.9	9.0	4.3	4.6	11.0	2.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.9	9.0	4.3	4.6	11.0	2.4
LOS	D	A	A	A	B	A
Approach Delay	20.9			4.5	7.2	
Approach LOS	C			A	A	

Intersection Summary

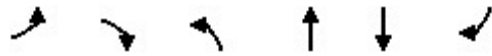
Area Type: Other  
 Cycle Length: 90  
 Actuated Cycle Length: 76.5  
 Natural Cycle: 65  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.47  
 Intersection Signal Delay: 9.8  
 Intersection Capacity Utilization 43.1%  
 Analysis Period (min) 15  
 Intersection LOS: A  
 ICU Level of Service A

Splits and Phases: 4: Fuller Avenue & Robert Street East



## 4: Fuller Avenue &amp; Robert Street East

PM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	124	157	178	190	255	198
v/c Ratio	0.47	0.42	0.22	0.15	0.25	0.21
Control Delay	35.9	9.0	4.3	4.6	11.0	2.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.9	9.0	4.3	4.6	11.0	2.4
Queue Length 50th (m)	16.7	0.0	6.1	7.4	17.6	0.0
Queue Length 95th (m)	31.7	14.6	14.0	16.2	36.2	9.6
Internal Link Dist (m)	447.9			219.5	79.8	
Turn Bay Length (m)	30.0					
Base Capacity (vph)	573	629	900	1291	1010	950
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.25	0.20	0.15	0.25	0.21

## Intersection Summary

# HCM Signalized Intersection Capacity Analysis

## 4: Fuller Avenue & Robert Street East

Future Background 2025  
PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	114	144	164	175	235	182
Future Volume (vph)	114	144	164	175	235	182
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	4.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1755	1601	1789	1865	1883	1601
Flt Permitted	0.95	1.00	0.55	1.00	1.00	1.00
Satd. Flow (perm)	1755	1601	1032	1865	1883	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	124	157	178	190	255	198
RTOR Reduction (vph)	0	133	0	0	0	92
Lane Group Flow (vph)	124	24	178	190	255	106
Heavy Vehicles (%)	4%	2%	2%	3%	2%	2%
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	11.5	11.5	53.1	53.1	41.1	41.1
Effective Green, g (s)	11.5	11.5	53.1	53.1	41.1	41.1
Actuated g/C Ratio	0.15	0.15	0.69	0.69	0.54	0.54
Clearance Time (s)	6.0	6.0	4.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	263	240	794	1292	1010	859
v/s Ratio Prot	c0.07		c0.02	0.10	c0.14	
v/s Ratio Perm		0.01	0.13			0.07
v/c Ratio	0.47	0.10	0.22	0.15	0.25	0.12
Uniform Delay, d1	29.8	28.1	4.1	4.0	9.5	8.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.3	0.2	0.1	0.2	0.6	0.3
Delay (s)	31.1	28.3	4.3	4.3	10.1	9.1
Level of Service	C	C	A	A	B	A
Approach Delay (s)	29.5			4.3	9.7	
Approach LOS	C			A	A	

### Intersection Summary

HCM 2000 Control Delay	12.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	76.6	Sum of lost time (s)	16.0
Intersection Capacity Utilization	43.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Lanes, Volumes, Timings  
5: Main Street & Edward Street

Future Background 2025  
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕↔			↕↔	
Traffic Volume (vph)	6	20	67	54	29	28	99	594	36	38	529	10
Future Volume (vph)	6	20	67	54	29	28	99	594	36	38	529	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		30.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor		0.99			1.00	0.99		1.00			1.00	
Frt		0.902				0.850		0.993			0.997	
Flt Protected		0.997			0.969			0.993			0.997	
Satd. Flow (prot)	0	1709	0	0	1862	1633	0	3499	0	0	3530	0
Flt Permitted		0.973			0.811			0.785			0.873	
Satd. Flow (perm)	0	1667	0	0	1555	1612	0	2765	0	0	3090	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		71				91		9			4	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		135.5			260.4			246.8			121.8	
Travel Time (s)		9.8			18.7			17.8			8.8	
Confl. Peds. (#/hr)	1		3	3		1	3		8	8		3
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	2%	3%	0%	0%	3%	0%
Adj. Flow (vph)	6	21	71	57	31	29	104	625	38	40	557	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	98	0	0	88	29	0	767	0	0	608	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)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	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	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
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  
5: Main Street & Edward Street

Future Background 2025  
PM Peak Hour

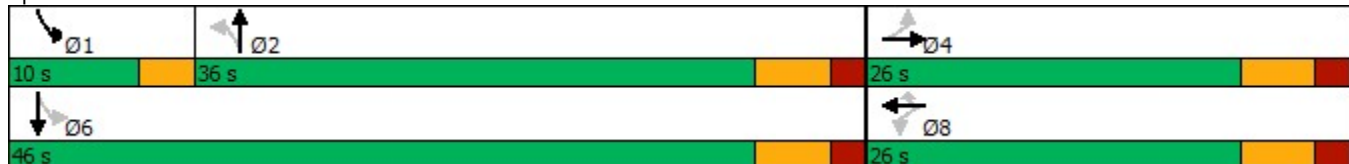


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	8.0	8.0		7.0	30.0	
Minimum Split (s)	26.0	26.0		26.0	26.0	26.0	31.0	31.0		10.0	36.0	
Total Split (s)	26.0	26.0		26.0	26.0	26.0	36.0	36.0		10.0	46.0	
Total Split (%)	36.1%	36.1%		36.1%	36.1%	36.1%	50.0%	50.0%		13.9%	63.9%	
Maximum Green (s)	20.0	20.0		20.0	20.0	20.0	30.0	30.0		7.0	40.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		0.0	2.0	
Lost Time Adjust (s)		0.0			0.0	0.0		0.0			0.0	
Total Lost Time (s)		6.0			6.0	6.0		6.0			6.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	Max	Max		None	Max	
Walk Time (s)	12.0	12.0		12.0	12.0	12.0	15.0	15.0			20.0	
Flash Dont Walk (s)	8.0	8.0		8.0	8.0	8.0	10.0	10.0			10.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0			0	
Act Effct Green (s)		10.6			10.6	10.6		44.3			44.3	
Actuated g/C Ratio		0.17			0.17	0.17		0.71			0.71	
v/c Ratio		0.29			0.33	0.08		0.39			0.28	
Control Delay		12.1			26.7	0.5		5.8			5.1	
Queue Delay		0.0			0.0	0.0		0.0			0.0	
Total Delay		12.1			26.7	0.5		5.8			5.1	
LOS		B			C	A		A			A	
Approach Delay		12.1			20.2			5.8			5.1	
Approach LOS		B			C			A			A	

Intersection Summary

Area Type:	Other
Cycle Length:	72
Actuated Cycle Length:	62.4
Natural Cycle:	70
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.39
Intersection Signal Delay:	7.0
Intersection LOS:	A
Intersection Capacity Utilization:	72.3%
ICU Level of Service:	C
Analysis Period (min):	15

Splits and Phases: 5: Main Street & Edward Street



## 5: Main Street &amp; Edward Street

PM Peak Hour




















Lane Group	EBT	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	98	88	29	767	608
v/c Ratio	0.29	0.33	0.08	0.39	0.28
Control Delay	12.1	26.7	0.5	5.8	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	12.1	26.7	0.5	5.8	5.1
Queue Length 50th (m)	2.7	9.1	0.0	18.5	13.3
Queue Length 95th (m)	13.3	20.2	0.0	32.0	23.0
Internal Link Dist (m)	111.5	236.4		222.8	97.8
Turn Bay Length (m)			30.0		
Base Capacity (vph)	582	498	578	1965	2194
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.17	0.18	0.05	0.39	0.28

## Intersection Summary

# HCM Signalized Intersection Capacity Analysis

## 5: Main Street & Edward Street

















Future Background 2025  
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	20	67	54	29	28	99	594	36	38	529	10
Future Volume (vph)	6	20	67	54	29	28	99	594	36	38	529	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	6.0		6.0			6.0	
Lane Util. Factor		1.00			1.00	1.00		0.95			0.95	
Frbp, ped/bikes		0.99			1.00	0.99		1.00			1.00	
Flpb, ped/bikes		1.00			1.00	1.00		1.00			1.00	
Frt		0.90			1.00	0.85		0.99			1.00	
Flt Protected		1.00			0.97	1.00		0.99			1.00	
Satd. Flow (prot)		1709			1858	1612		3498			3529	
Flt Permitted		0.97			0.81	1.00		0.78			0.87	
Satd. Flow (perm)		1668			1555	1612		2763			3092	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	6	21	71	57	31	29	104	625	38	40	557	11
RTOR Reduction (vph)	0	61	0	0	0	25	0	3	0	0	1	0
Lane Group Flow (vph)	0	37	0	0	88	4	0	764	0	0	607	0
Confl. Peds. (#/hr)	1		3	3		1	3		8	8		3
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	2%	3%	0%	0%	3%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		8.6			8.6	8.6		43.1			43.1	
Effective Green, g (s)		8.6			8.6	8.6		43.1			43.1	
Actuated g/C Ratio		0.14			0.14	0.14		0.68			0.68	
Clearance Time (s)		6.0			6.0	6.0		6.0			6.0	
Vehicle Extension (s)		3.0			3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)		225			209	217		1869			2092	
v/s Ratio Prot												
v/s Ratio Perm		0.02			c0.06	0.00		c0.28			0.20	
v/c Ratio		0.16			0.42	0.02		0.41			0.29	
Uniform Delay, d1		24.4			25.3	23.9		4.6			4.1	
Progression Factor		1.00			1.00	1.00		1.00			1.00	
Incremental Delay, d2		0.3			1.4	0.0		0.7			0.1	
Delay (s)		24.7			26.6	23.9		5.3			4.2	
Level of Service		C			C	C		A			A	
Approach Delay (s)		24.7			26.0			5.3			4.2	
Approach LOS		C			C			A			A	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			7.6									A
HCM 2000 Volume to Capacity ratio			0.44									
Actuated Cycle Length (s)			63.7								15.0	
Intersection Capacity Utilization			72.3%									C
Analysis Period (min)			15									

c Critical Lane Group

Lanes, Volumes, Timings  
6: Dunlop Street & Edward Street

Future Background 2025  
PM Peak Hour

													
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	39	0	0	0	0	0	0	0	0	0	0	38	
Future Volume (vph)	39	0	0	0	0	0	0	0	0	0	0	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												0.865	
Flt Protected	0.950												
Satd. Flow (prot)	0	1825	0	0	1921	0	0	1883	0	0	1613	0	
Flt Permitted	0.950												
Satd. Flow (perm)	0	1825	0	0	1921	0	0	1883	0	0	1613	0	
Link Speed (k/h)	50		50				50				50		
Link Distance (m)	802.7				150.8				325.8				410.5
Travel Time (s)	57.8				10.9				23.5				29.6
Confl. Peds. (#/hr)	1							1					
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	
Heavy Vehicles (%)	0%	0%	2%	2%	0%	0%	2%	2%	2%	0%	2%	3%	
Adj. Flow (vph)	47	0	0	0	0	0	0	0	0	0	0	46	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	47	0	0	0	0	0	0	0	0	46	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)	1.6		1.6				1.6				1.6		
Two way Left Turn Lane													
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	
Turning Speed (k/h)	24		14		24		14		24		14		
Sign Control	Free				Free				Stop				

















Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	13.8%
ICU Level of Service	A
Analysis Period (min)	15

# HCM Unsignalized Intersection Capacity Analysis












## 6: Dunlop Street & Edward Street

Future Background 2025  
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	39	0	0	0	0	0	0	0	0	0	0	38
Future Volume (Veh/h)	39	0	0	0	0	0	0	0	0	0	0	38
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	47	0	0	0	0	0	0	0	0	0	0	46
Pedestrians												1
Lane Width (m)												3.7
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	1			0			140	95	0	95	95	1
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1			0			140	95	0	95	95	1
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 %	97			100			100	100	100	100	100	96
cM capacity (veh/h)	1634			1623			777	772	1085	872	772	1080
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	47	0	0	46								
Volume Left	47	0	0	0								
Volume Right	0	0	0	46								
cSH	1634	1700	1700	1080								
Volume to Capacity	0.03	0.00	0.00	0.04								
Queue Length 95th (m)	0.7	0.0	0.0	1.0								
Control Delay (s)	7.3	0.0	0.0	8.5								
Lane LOS	A		A	A								
Approach Delay (s)	7.3	0.0	0.0	8.5								
Approach LOS			A	A								
<b>Intersection Summary</b>												
Average Delay			7.9									
Intersection Capacity Utilization			13.8%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings  
7: Main Street & Thompson Road

Future Background 2025  
PM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	182	52	684	190	50	603
Future Volume (vph)	182	52	684	190	50	603
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	20.0		15.0	0.0	
Storage Lanes	1	1		1	0	
Taper Length (m)	2.5				2.5	
Lane Util. Factor	1.00	1.00	0.95	1.00	0.95	0.95
Ped Bike Factor		0.99				
Frt		0.850		0.850		
Flt Protected	0.950					0.996
Satd. Flow (prot)	1807	1498	3579	1601	0	3538
Flt Permitted	0.950					0.856
Satd. Flow (perm)	1807	1478	3579	1601	0	3040
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		54		141		
Link Speed (k/h)	48		50			50
Link Distance (m)	653.3		164.4			246.8
Travel Time (s)	49.0		11.8			17.8
Confl. Peds. (#/hr)		1				
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	1%	9%	2%	2%	0%	3%
Adj. Flow (vph)	190	54	713	198	52	628
Shared Lane Traffic (%)						
Lane Group Flow (vph)	190	54	713	198	0	680
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Number of Detectors	1	1	2	1	1	2
Detector Template	Left	Right	Thru	Right	Left	Thru
Leading Detector (m)	6.1	6.1	30.5	6.1	6.1	30.5
Trailing Detector (m)	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
Detector 1 Size(m)	6.1	6.1	1.8	6.1	6.1	1.8
Detector 1 Type	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
Detector 1 Queue (s)	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
Detector 2 Position(m)			28.7			28.7
Detector 2 Size(m)			1.8			1.8
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0

Lanes, Volumes, Timings  
7: Main Street & Thompson Road

Future Background 2025  
PM Peak Hour

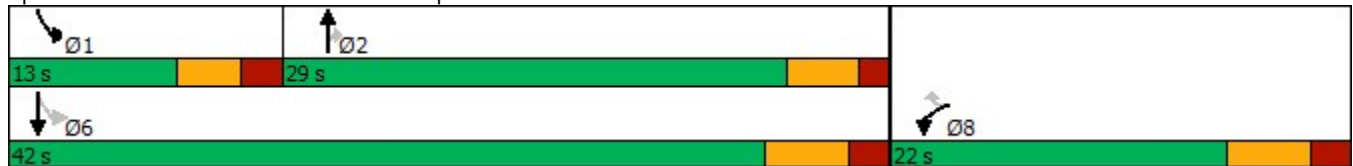


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2	6	
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	8.0	8.0	5.0	5.0	8.0	34.0
Minimum Split (s)	22.0	22.0	21.0	21.0	13.0	40.0
Total Split (s)	22.0	22.0	29.0	29.0	13.0	42.0
Total Split (%)	34.4%	34.4%	45.3%	45.3%	20.3%	65.6%
Maximum Green (s)	16.0	16.0	24.0	24.0	8.0	36.0
Yellow Time (s)	4.0	4.0	3.5	3.5	3.0	4.0
All-Red Time (s)	2.0	2.0	1.5	1.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	6.0	6.0	5.0	5.0		6.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Max	Max	None	Max
Walk Time (s)	5.0	5.0	5.0	5.0		5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0		11.0
Pedestrian Calls (#/hr)	0	0	0	0		0
Act Effct Green (s)	11.8	11.8	40.6	40.6		39.6
Actuated g/C Ratio	0.19	0.19	0.64	0.64		0.62
v/c Ratio	0.57	0.17	0.31	0.18		0.36
Control Delay	29.2	7.8	6.1	2.5		7.0
Queue Delay	0.0	0.0	0.0	0.0		0.0
Total Delay	29.2	7.8	6.1	2.5		7.0
LOS	C	A	A	A		A
Approach Delay	24.5		5.3			7.0
Approach LOS	C		A			A

Intersection Summary

Area Type: Other  
 Cycle Length: 64  
 Actuated Cycle Length: 63.5  
 Natural Cycle: 65  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.57  
 Intersection Signal Delay: 8.5  
 Intersection LOS: A  
 Intersection Capacity Utilization 71.6%  
 ICU Level of Service C  
 Analysis Period (min) 15

Splits and Phases: 7: Main Street & Thompson Road





## 7: Main Street &amp; Thompson Road

PM Peak Hour
















Lane Group	WBL	WBR	NBT	NBR	SBT
Lane Group Flow (vph)	190	54	713	198	680
v/c Ratio	0.57	0.17	0.31	0.18	0.36
Control Delay	29.2	7.8	6.1	2.5	7.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	29.2	7.8	6.1	2.5	7.0
Queue Length 50th (m)	18.8	0.0	16.2	2.1	16.9
Queue Length 95th (m)	35.0	7.2	29.6	9.8	31.4
Internal Link Dist (m)	629.3		140.4		222.8
Turn Bay Length (m)		20.0		15.0	
Base Capacity (vph)	456	414	2289	1075	1896
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.42	0.13	0.31	0.18	0.36

## Intersection Summary

# HCM Signalized Intersection Capacity Analysis

## 7: Main Street & Thompson Road

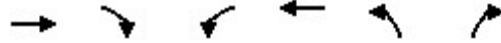
Future Background 2025  
PM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	182	52	684	190	50	603
Future Volume (vph)	182	52	684	190	50	603
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	5.0	5.0		6.0
Lane Util. Factor	1.00	1.00	0.95	1.00		0.95
Frpb, ped/bikes	1.00	0.99	1.00	1.00		1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00		1.00
Frt	1.00	0.85	1.00	0.85		1.00
Flt Protected	0.95	1.00	1.00	1.00		1.00
Satd. Flow (prot)	1807	1478	3579	1601		3538
Flt Permitted	0.95	1.00	1.00	1.00		0.86
Satd. Flow (perm)	1807	1478	3579	1601		3042
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	190	54	712	198	52	628
RTOR Reduction (vph)	0	44	0	51	0	0
Lane Group Flow (vph)	190	10	713	147	0	680
Confl. Peds. (#/hr)		1				
Heavy Vehicles (%)	1%	9%	2%	2%	0%	3%
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2	6	
Actuated Green, G (s)	11.8	11.8	40.6	40.6		39.6
Effective Green, g (s)	11.8	11.8	40.6	40.6		39.6
Actuated g/C Ratio	0.19	0.19	0.64	0.64		0.62
Clearance Time (s)	6.0	6.0	5.0	5.0		6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0
Lane Grp Cap (vph)	336	275	2291	1025		1900
v/s Ratio Prot	c0.11		0.20			
v/s Ratio Perm		0.01		0.09		c0.22
v/c Ratio	0.57	0.04	0.31	0.14		0.36
Uniform Delay, d1	23.5	21.1	5.1	4.5		5.8
Progression Factor	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	2.2	0.1	0.4	0.3		0.1
Delay (s)	25.6	21.2	5.5	4.8		5.9
Level of Service	C	C	A	A		A
Approach Delay (s)	24.7		5.3			5.9
Approach LOS	C		A			A
<b>Intersection Summary</b>						
HCM 2000 Control Delay			8.1		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.44			
Actuated Cycle Length (s)			63.4		Sum of lost time (s)	16.0
Intersection Capacity Utilization			71.6%		ICU Level of Service	C
Analysis Period (min)			15			

c Critical Lane Group

Lanes, Volumes, Timings  
 1: Dunlop Street & Robert Street East

Future Total 2025  
 AM Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	238	46	72	187	45	46
Future Volume (vph)	238	46	72	187	45	46
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	0.978			0.932		
Flt Protected				0.986	0.976	
Satd. Flow (prot)	1761	0	0	1744	1680	0
Flt Permitted				0.986	0.976	
Satd. Flow (perm)	1761	0	0	1744	1680	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	1218.0			320.1	410.5	
Travel Time (s)	87.7			23.0	29.6	
Confl. Peds. (#/hr)	2		2			1
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Heavy Vehicles (%)	7%	5%	5%	10%	3%	5%
Adj. Flow (vph)	378	73	114	297	71	73
Shared Lane Traffic (%)						
Lane Group Flow (vph)	451	0	0	411	144	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	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	14		24	24		14
Sign Control	Free			Free	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  
 1: Dunlop Street & Robert Street East

Future Total 2025  
 AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	→			←	↘	↙
Traffic Volume (veh/h)	238	46	72	187	45	46
Future Volume (Veh/h)	238	46	72	187	45	46
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Hourly flow rate (vph)	378	73	114	297	71	73
Pedestrians				1	2	
Lane Width (m)				3.7	3.7	
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			453	942		418
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			453	942		418
tC, single (s)			4.1	6.4		6.2
tC, 2 stage (s)						
tF (s)			2.2	3.5		3.3
p0 queue free %			90	73		88
cM capacity (veh/h)			1090	260		627
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	451	411	144			
Volume Left	0	114	71			
Volume Right	73	0	73			
cSH	1700	1090	370			
Volume to Capacity	0.27	0.10	0.39			
Queue Length 95th (m)	0.0	2.7	13.7			
Control Delay (s)	0.0	3.2	20.8			
Lane LOS			A	C		
Approach Delay (s)	0.0	3.2	20.8			
Approach LOS			C			
<b>Intersection Summary</b>						
Average Delay			4.3			
Intersection Capacity Utilization			44.8%	ICU Level of Service		A
Analysis Period (min)			15			

Lanes, Volumes, Timings

Future Total 2025

2: Street A/Dufferin Street/Burke Street & Robert Street East

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	24	175	68	35	178	60	18	13	23	38	19	32
Future Volume (vph)	24	175	68	35	178	60	18	13	23	38	19	32
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		0.966			0.970			0.943			0.951	
Flt Protected		0.995			0.994			0.983			0.979	
Satd. Flow (prot)	0	1765	0	0	1752	0	0	1746	0	0	1572	0
Flt Permitted		0.995			0.994			0.983			0.979	
Satd. Flow (perm)	0	1765	0	0	1752	0	0	1746	0	0	1572	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		320.1			250.8			228.0			76.2	
Travel Time (s)		23.0			18.1			16.4			5.5	
Confl. Peds. (#/hr)	2						2					
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Heavy Vehicles (%)	9%	5%	2%	2%	4%	13%	2%	2%	2%	0%	2%	37%
Adj. Flow (vph)	36	261	101	52	266	90	27	19	34	57	28	48
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	398	0	0	408	0	0	80	0	0	133	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)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	36.1%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis  
 2: Street A/Dufferin Street/Burke Street & Robert Street East

















Future Total 2025  
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	24	175	68	35	178	60	18	13	23	38	19	32
Future Volume (Veh/h)	24	175	68	35	178	60	18	13	23	38	19	32
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Hourly flow rate (vph)	36	261	101	52	266	90	27	19	34	57	28	48
Pedestrians												2
Lane Width (m)												3.7
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	358			362			860	846	312	844	851	313
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	358			362			860	846	312	844	851	313
tC, single (s)	4.2			4.1			7.1	6.5	6.2	7.1	6.5	6.6
tC, 2 stage (s)												
tF (s)	2.3			2.2			3.5	4.0	3.3	3.5	4.0	3.6
p0 queue free %	97			96			88	93	95	77	90	93
cM capacity (veh/h)	1161			1197			222	277	729	243	275	652
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	398	408	80	133								
Volume Left	36	52	27	57								
Volume Right	101	90	34	48								
cSH	1161	1197	338	324								
Volume to Capacity	0.03	0.04	0.24	0.41								
Queue Length 95th (m)	0.7	1.0	6.9	14.7								
Control Delay (s)	1.0	1.4	18.9	23.6								
Lane LOS	A	A	C	C								
Approach Delay (s)	1.0	1.4	18.9	23.6								
Approach LOS			C	C								
<b>Intersection Summary</b>												
Average Delay			5.5									
Intersection Capacity Utilization			36.1%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings  
 3: Thompson Road/Centennial Drive & Robert Street East

















Future Total 2025  
 AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	175	34	140	247	13	11	22	94	19	16	8
Future Volume (vph)	26	175	34	140	247	13	11	22	94	19	16	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
Fr <sub>t</sub>		0.980			0.996			0.900			0.975	
Fl <sub>t</sub> Protected		0.994			0.983			0.996			0.978	
Satd. Flow (prot)	0	1825	0	0	1648	0	0	1452	0	0	1634	0
Fl <sub>t</sub> Permitted		0.994			0.983			0.996			0.978	
Satd. Flow (perm)	0	1825	0	0	1648	0	0	1452	0	0	1634	0
Link Speed (k/h)		50			50			48			48	
Link Distance (m)		250.8			471.9			224.8			77.4	
Travel Time (s)		18.1			34.0			16.9			5.8	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	16%	1%	0%	28%	7%	0%	0%	5%	24%	6%	13%	25%
Adj. Flow (vph)	33	219	43	175	309	16	14	28	118	24	20	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	295	0	0	500	0	0	160	0	0	54	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)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	51.9%
	ICU Level of Service A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis  
 3: Thompson Road/Centennial Drive & Robert Street East

Future Total 2025  
 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	175	34	140	247	13	11	22	94	19	16	8
Future Volume (Veh/h)	26	175	34	140	247	13	11	22	94	19	16	8
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	33	219	43	175	309	16	14	28	118	24	20	10
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	325			262			994	982	240	1106	995	317
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	325			262			994	982	240	1106	995	317
tC, single (s)	4.3			4.4			7.1	6.5	6.4	7.2	6.6	6.5
tC, 2 stage (s)												
tF (s)	2.3			2.5			3.5	4.0	3.5	3.6	4.1	3.5
p0 queue free %	97			85			92	86	84	80	90	99
cM capacity (veh/h)	1160			1166			178	203	747	121	193	673
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	295	500	160	54								
Volume Left	33	175	14	24								
Volume Right	43	16	118	10								
cSH	1160	1166	428	170								
Volume to Capacity	0.03	0.15	0.37	0.32								
Queue Length 95th (m)	0.7	4.0	13.0	9.7								
Control Delay (s)	1.2	4.1	18.4	35.6								
Lane LOS	A	A	C	E								
Approach Delay (s)	1.2	4.1	18.4	35.6								
Approach LOS			C	E								
Intersection Summary												
Average Delay			7.2									
Intersection Capacity Utilization			51.9%		ICU Level of Service				A			
Analysis Period (min)			15									



Lanes, Volumes, Timings  
4: Fuller Avenue & Robert Street East

Future Total 2025  
AM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	167	155	164	203	203	180
Future Volume (vph)	167	155	164	203	203	180
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0	0.0	0.0			0.0
Storage Lanes	1	1	1			1
Taper Length (m)	2.5		2.5			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1601	1570	1738	1847	1830	1338
Flt Permitted	0.950		0.538			
Satd. Flow (perm)	1601	1570	984	1847	1830	1338
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		191				222
Link Speed (k/h)	50			60	60	
Link Distance (m)	471.9			243.5	103.8	
Travel Time (s)	34.0			14.6	6.2	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles (%)	14%	4%	5%	4%	5%	22%
Adj. Flow (vph)	206	191	202	251	251	222
Shared Lane Traffic (%)						
Lane Group Flow (vph)	206	191	202	251	251	222
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Number of Detectors	1	1	1	2	2	1
Detector Template	Left	Right	Left	Thru	Thru	Right
Leading Detector (m)	6.1	6.1	6.1	30.5	30.5	6.1
Trailing Detector (m)	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
Detector 1 Size(m)	6.1	6.1	6.1	1.8	1.8	6.1
Detector 1 Type	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
Detector 1 Queue (s)	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
Detector 2 Position(m)				28.7	28.7	
Detector 2 Size(m)				1.8	1.8	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	

Lanes, Volumes, Timings  
4: Fuller Avenue & Robert Street East

Future Total 2025  
AM Peak Hour

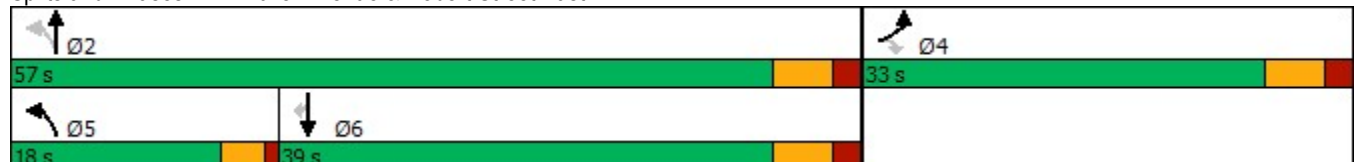


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Permitted Phases		4	2			6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	25.0	25.0	9.0	30.0	30.0	30.0
Total Split (s)	33.0	33.0	18.0	57.0	39.0	39.0
Total Split (%)	36.7%	36.7%	20.0%	63.3%	43.3%	43.3%
Maximum Green (s)	27.0	27.0	14.0	51.0	33.0	33.0
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	6.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	Max	Max	Max
Walk Time (s)	5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0
Act Effct Green (s)	15.3	15.3	53.2	51.2	38.1	38.1
Actuated g/C Ratio	0.19	0.19	0.68	0.65	0.49	0.49
v/c Ratio	0.66	0.42	0.27	0.21	0.28	0.29
Control Delay	39.7	7.2	6.3	6.7	14.8	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.7	7.2	6.3	6.7	14.8	3.5
LOS	D	A	A	A	B	A
Approach Delay	24.0			6.6	9.5	
Approach LOS	C			A	A	

Intersection Summary

Area Type: Other  
 Cycle Length: 90  
 Actuated Cycle Length: 78.5  
 Natural Cycle: 65  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.66  
 Intersection Signal Delay: 12.8  
 Intersection Capacity Utilization 42.4%  
 Analysis Period (min) 15  
 Intersection LOS: B  
 ICU Level of Service A

Splits and Phases: 4: Fuller Avenue & Robert Street East



Queues

Future Total 2025

4: Fuller Avenue & Robert Street East

AM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	206	191	202	251	251	222
v/c Ratio	0.66	0.42	0.27	0.21	0.28	0.29
Control Delay	39.7	7.2	6.3	6.7	14.8	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.7	7.2	6.3	6.7	14.8	3.5
Queue Length 50th (m)	28.5	0.0	9.2	13.0	20.9	0.0
Queue Length 95th (m)	43.0	10.7	18.8	24.7	39.4	8.8
Internal Link Dist (m)	447.9			219.5	79.8	
Turn Bay Length (m)	30.0					
Base Capacity (vph)	552	666	801	1203	887	763
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.29	0.25	0.21	0.28	0.29

Intersection Summary

# HCM Signalized Intersection Capacity Analysis

## 4: Fuller Avenue & Robert Street East

Future Total 2025  
AM Peak Hour



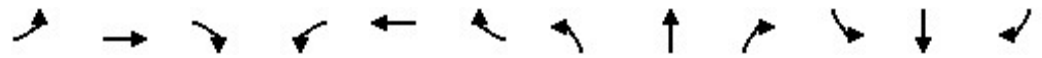
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	167	155	164	203	203	180
Future Volume (vph)	167	155	164	203	203	180
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	4.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1601	1570	1738	1847	1830	1338
Flt Permitted	0.95	1.00	0.54	1.00	1.00	1.00
Satd. Flow (perm)	1601	1570	985	1847	1830	1338
Peak-hour factor, PHF	0.81	0.81	0.81	0.81	0.81	0.81
Adj. Flow (vph)	206	191	202	251	251	222
RTOR Reduction (vph)	0	154	0	0	0	114
Lane Group Flow (vph)	206	37	202	251	251	108
Heavy Vehicles (%)	14%	4%	5%	4%	5%	22%
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	15.3	15.3	51.2	51.2	38.1	38.1
Effective Green, g (s)	15.3	15.3	51.2	51.2	38.1	38.1
Actuated g/C Ratio	0.19	0.19	0.65	0.65	0.49	0.49
Clearance Time (s)	6.0	6.0	4.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	312	306	729	1204	888	649
v/s Ratio Prot	c0.13		c0.03	0.14	0.14	
v/s Ratio Perm		0.02	c0.15			0.08
v/c Ratio	0.66	0.12	0.28	0.21	0.28	0.17
Uniform Delay, d1	29.2	26.1	5.5	5.5	12.0	11.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.2	0.2	0.2	0.4	0.8	0.6
Delay (s)	34.4	26.2	5.7	5.9	12.8	11.9
Level of Service	C	C	A	A	B	B
Approach Delay (s)	30.5			5.8	12.4	
Approach LOS	C			A	B	

### Intersection Summary

HCM 2000 Control Delay	15.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	78.5	Sum of lost time (s)	16.0
Intersection Capacity Utilization	42.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lanes, Volumes, Timings  
5: Main Street & Edward Street

Future Total 2025  
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕			↕	
Traffic Volume (vph)	0	5	16	113	11	43	27	338	104	30	372	2
Future Volume (vph)	0	5	16	113	11	43	27	338	104	30	372	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		30.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor		0.99			1.00	0.99		0.99			1.00	
Frt		0.896				0.850		0.967			0.999	
Flt Protected					0.956			0.997			0.996	
Satd. Flow (prot)	0	1704	0	0	1837	1633	0	3179	0	0	3412	0
Flt Permitted					0.726			0.908			0.885	
Satd. Flow (perm)	0	1704	0	0	1393	1612	0	2896	0	0	3032	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		20				91		61			1	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		135.5			260.4			246.8			121.8	
Travel Time (s)		9.8			18.7			17.8			8.8	
Confl. Peds. (#/hr)	1		1	1		1			2	2		
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	15%	11%	6%	0%	7%	0%
Adj. Flow (vph)	0	6	20	141	14	54	34	423	130	38	465	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	26	0	0	155	54	0	587	0	0	506	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)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	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	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
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  
5: Main Street & Edward Street

Future Total 2025  
AM Peak Hour

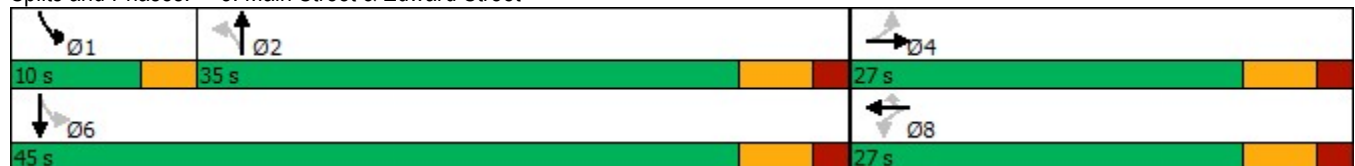


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type		NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	8.0	8.0		7.0	30.0	
Minimum Split (s)	26.0	26.0		26.0	26.0	26.0	31.0	31.0		10.0	36.0	
Total Split (s)	27.0	27.0		27.0	27.0	27.0	35.0	35.0		10.0	45.0	
Total Split (%)	37.5%	37.5%		37.5%	37.5%	37.5%	48.6%	48.6%		13.9%	62.5%	
Maximum Green (s)	21.0	21.0		21.0	21.0	21.0	29.0	29.0		7.0	39.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		0.0	2.0	
Lost Time Adjust (s)		0.0			0.0	0.0		0.0			0.0	
Total Lost Time (s)		6.0			6.0	6.0		6.0			6.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	Max	Max		None	Max	
Walk Time (s)	12.0	12.0		12.0	12.0	12.0	15.0	15.0			20.0	
Flash Dont Walk (s)	8.0	8.0		8.0	8.0	8.0	10.0	10.0			10.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0			0	
Act Effct Green (s)		12.8			12.8	12.8		43.6			43.6	
Actuated g/C Ratio		0.20			0.20	0.20		0.68			0.68	
v/c Ratio		0.07			0.55	0.14		0.29			0.24	
Control Delay		11.6			30.8	2.8		5.8			6.2	
Queue Delay		0.0			0.0	0.0		0.0			0.0	
Total Delay		11.6			30.8	2.8		5.8			6.2	
LOS		B			C	A		A			A	
Approach Delay		11.6			23.6			5.8			6.2	
Approach LOS		B			C			A			A	

Intersection Summary

Area Type:	Other
Cycle Length:	72
Actuated Cycle Length:	63.8
Natural Cycle:	70
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.55
Intersection Signal Delay:	8.9
Intersection LOS:	A
Intersection Capacity Utilization:	57.2%
ICU Level of Service:	B
Analysis Period (min):	15

Splits and Phases: 5: Main Street & Edward Street



Queues  
5: Main Street & Edward Street


















Future Total 2025  
AM Peak Hour



Lane Group	EBT	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	26	155	54	587	506
v/c Ratio	0.07	0.55	0.14	0.29	0.24
Control Delay	11.6	30.8	2.8	5.8	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	11.6	30.8	2.8	5.8	6.2
Queue Length 50th (m)	0.6	16.6	0.0	12.9	12.2
Queue Length 95th (m)	4.8	27.8	2.1	22.0	20.8
Internal Link Dist (m)	111.5	236.4		222.8	97.8
Turn Bay Length (m)			30.0		
Base Capacity (vph)	576	459	593	1998	2072
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.05	0.34	0.09	0.29	0.24
<b>Intersection Summary</b>					

HCM Signalized Intersection Capacity Analysis  
5: Main Street & Edward Street

Future Total 2025  
AM Peak Hour

















													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	0	5	16	113	11	43	27	338	104	30	372	2	
Future Volume (vph)	0	5	16	113	11	43	27	338	104	30	372	2	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		6.0			6.0	6.0		6.0			6.0		
Lane Util. Factor		1.00			1.00	1.00		0.95			0.95		
Frbp, ped/bikes		0.99			1.00	0.99		1.00			1.00		
Flpb, ped/bikes		1.00			1.00	1.00		1.00			1.00		
Frt		0.90			1.00	0.85		0.97			1.00		
Flt Protected		1.00			0.96	1.00		1.00			1.00		
Satd. Flow (prot)		1704			1836	1612		3179			3413		
Flt Permitted		1.00			0.73	1.00		0.91			0.88		
Satd. Flow (perm)		1704			1394	1612		2894			3032		
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	
Adj. Flow (vph)	0	6	20	141	14	54	34	422	130	38	465	2	
RTOR Reduction (vph)	0	17	0	0	0	45	0	21	0	0	0	0	
Lane Group Flow (vph)	0	9	0	0	155	9	0	566	0	0	506	0	
Confl. Peds. (#/hr)	1		1	1		1			2	2			
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	15%	11%	6%	0%	7%	0%	
Turn Type		NA		Perm	NA	Perm	Perm	NA		pm+pt	NA		
Protected Phases		4			8			2		1	6		
Permitted Phases	4			8		8	2			6			
Actuated Green, G (s)		10.7			10.7	10.7		42.3			42.3		
Effective Green, g (s)		10.7			10.7	10.7		42.3			42.3		
Actuated g/C Ratio		0.16			0.16	0.16		0.65			0.65		
Clearance Time (s)		6.0			6.0	6.0		6.0			6.0		
Vehicle Extension (s)		3.0			3.0	3.0		3.0			3.0		
Lane Grp Cap (vph)		280			229	265		1883			1973		
v/s Ratio Prot		0.01											
v/s Ratio Perm					c0.11	0.01		c0.20			0.17		
v/c Ratio		0.03			0.68	0.03		0.30			0.26		
Uniform Delay, d1		22.8			25.5	22.8		4.9			4.8		
Progression Factor		1.00			1.00	1.00		1.00			1.00		
Incremental Delay, d2		0.0			7.7	0.1		0.4			0.1		
Delay (s)		22.9			33.2	22.9		5.3			4.8		
Level of Service		C			C	C		A			A		
Approach Delay (s)		22.9			30.5			5.3			4.8		
Approach LOS		C			C			A			A		
<b>Intersection Summary</b>													
HCM 2000 Control Delay			9.5		HCM 2000 Level of Service						A		
HCM 2000 Volume to Capacity ratio			0.40										
Actuated Cycle Length (s)			65.0		Sum of lost time (s)						15.0		
Intersection Capacity Utilization			57.2%		ICU Level of Service						B		
Analysis Period (min)			15										

c Critical Lane Group



Lanes, Volumes, Timings  
6: Dunlop Street & Edward Street

Future Total 2025  
AM Peak Hour

















												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	91	3	1	75	5	8	5	3	3	5	54
Future Volume (vph)	39	91	3	1	75	5	8	5	3	3	5	54
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		0.997			0.992			0.977			0.881	
Flt Protected		0.986						0.975			0.998	
Satd. Flow (prot)	0	1871	0	0	1905	0	0	1794	0	0	1576	0
Flt Permitted		0.986						0.975			0.998	
Satd. Flow (perm)	0	1871	0	0	1905	0	0	1794	0	0	1576	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		802.7			150.8			325.8			410.5	
Travel Time (s)		57.8			10.9			23.5			29.6	
Confl. Peds. (#/hr)	8						8					
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Heavy Vehicles (%)	3%	0%	2%	2%	0%	0%	2%	2%	2%	0%	2%	8%
Adj. Flow (vph)	58	136	4	1	112	7	12	7	4	4	7	81
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	198	0	0	120	0	0	23	0	0	92	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)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	24.6%
ICU Level of Service	A
Analysis Period (min)	15












HCM Unsignalized Intersection Capacity Analysis  
6: Dunlop Street & Edward Street

Future Total 2025  
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	39	91	3	1	75	5	8	5	3	3	5	54
Future Volume (Veh/h)	39	91	3	1	75	5	8	5	3	3	5	54
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Hourly flow rate (vph)	58	136	4	1	112	7	12	7	4	4	7	81
Pedestrians												8
Lane Width (m)												3.7
Walking Speed (m/s)												1.2
Percent Blockage												1
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	127			140			456	383	138	387	382	124
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	127			140			456	383	138	387	382	124
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.3
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.4
p0 queue free %	96			100			97	99	100	99	99	91
cM capacity (veh/h)	1443			1443			447	524	910	543	525	905
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	198	120	23	92								
Volume Left	58	1	12	4								
Volume Right	4	7	4	81								
cSH	1443	1443	516	835								
Volume to Capacity	0.04	0.00	0.04	0.11								
Queue Length 95th (m)	1.0	0.0	1.1	2.8								
Control Delay (s)	2.5	0.1	12.3	9.8								
Lane LOS	A	A	B	A								
Approach Delay (s)	2.5	0.1	12.3	9.8								
Approach LOS			B	A								
<b>Intersection Summary</b>												
Average Delay			3.9									
Intersection Capacity Utilization			24.6%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings  
7: Main Street & Thompson Road

Future Total 2025  
AM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	195	42	429	171	24	481
Future Volume (vph)	195	42	429	171	24	481
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	20.0		15.0	0.0	
Storage Lanes	1	1		1	0	
Taper Length (m)	2.5				2.5	
Lane Util. Factor	1.00	1.00	0.95	1.00	0.95	0.95
Frt		0.850		0.850		
Flt Protected	0.950					0.998
Satd. Flow (prot)	1738	1328	3349	1526	0	3404
Flt Permitted	0.950					0.917
Satd. Flow (perm)	1738	1328	3349	1526	0	3128
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		50		203		
Link Speed (k/h)	50		50			50
Link Distance (m)	653.3		164.4			246.8
Travel Time (s)	47.0		11.8			17.8
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	5%	23%	9%	7%	27%	6%
Adj. Flow (vph)	232	50	511	204	29	573
Shared Lane Traffic (%)						
Lane Group Flow (vph)	232	50	511	204	0	602
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Number of Detectors	1	1	2	1	1	2
Detector Template	Left	Right	Thru	Right	Left	Thru
Leading Detector (m)	6.1	6.1	30.5	6.1	6.1	30.5
Trailing Detector (m)	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
Detector 1 Size(m)	6.1	6.1	1.8	6.1	6.1	1.8
Detector 1 Type	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
Detector 1 Queue (s)	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
Detector 2 Position(m)			28.7			28.7
Detector 2 Size(m)			1.8			1.8
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	8		2		1	6

Lanes, Volumes, Timings  
7: Main Street & Thompson Road

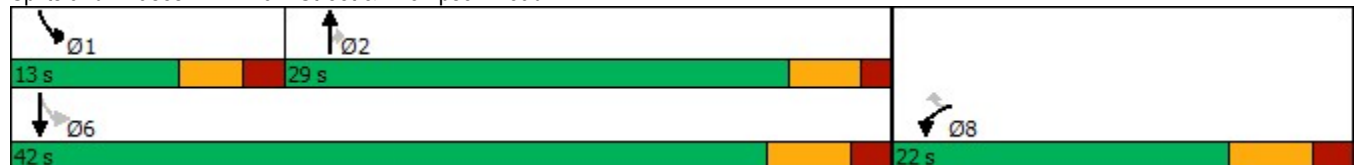
Future Total 2025  
AM Peak Hour

	↙	↖	↑	↗	↘	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Permitted Phases		8		2	6	
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	8.0	8.0	5.0	5.0	8.0	34.0
Minimum Split (s)	22.0	22.0	21.0	21.0	13.0	40.0
Total Split (s)	22.0	22.0	29.0	29.0	13.0	42.0
Total Split (%)	34.4%	34.4%	45.3%	45.3%	20.3%	65.6%
Maximum Green (s)	16.0	16.0	24.0	24.0	8.0	36.0
Yellow Time (s)	4.0	4.0	3.5	3.5	3.0	4.0
All-Red Time (s)	2.0	2.0	1.5	1.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	6.0	6.0	5.0	5.0		6.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Max	Max	None	Max
Walk Time (s)	5.0	5.0	5.0	5.0		5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0		11.0
Pedestrian Calls (#/hr)	0	0	0	0		0
Act Effct Green (s)	13.1	13.1	40.1	40.1		39.1
Actuated g/C Ratio	0.20	0.20	0.62	0.62		0.61
v/c Ratio	0.66	0.16	0.24	0.20		0.32
Control Delay	31.9	7.9	6.2	1.6		7.1
Queue Delay	0.0	0.0	0.0	0.0		0.0
Total Delay	31.9	7.9	6.2	1.6		7.1
LOS	C	A	A	A		A
Approach Delay	27.7		4.9			7.1
Approach LOS	C		A			A

Intersection Summary

Area Type: Other  
 Cycle Length: 64  
 Actuated Cycle Length: 64.3  
 Natural Cycle: 65  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.66  
 Intersection Signal Delay: 9.7  
 Intersection Capacity Utilization 51.9%  
 Analysis Period (min) 15  
 Intersection LOS: A  
 ICU Level of Service A

Splits and Phases: 7: Main Street & Thompson Road



Queues

Future Total 2025

7: Main Street & Thompson Road

AM Peak Hour
















Lane Group	WBL	WBR	NBT	NBR	SBT
Lane Group Flow (vph)	232	50	511	204	602
v/c Ratio	0.66	0.16	0.24	0.20	0.32
Control Delay	31.9	7.9	6.2	1.6	7.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	31.9	7.9	6.2	1.6	7.1
Queue Length 50th (m)	23.7	0.0	12.1	0.1	15.9
Queue Length 95th (m)	39.3	6.1	19.3	5.6	24.5
Internal Link Dist (m)	629.3		140.4		222.8
Turn Bay Length (m)		20.0		15.0	
Base Capacity (vph)	434	369	2090	1028	1903
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.53	0.14	0.24	0.20	0.32

Intersection Summary

















HCM Signalized Intersection Capacity Analysis  
7: Main Street & Thompson Road

Future Total 2025  
AM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	195	42	429	171	24	481
Future Volume (vph)	195	42	429	171	24	481
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	5.0	5.0		6.0
Lane Util. Factor	1.00	1.00	0.95	1.00		0.95
Frt	1.00	0.85	1.00	0.85		1.00
Flt Protected	0.95	1.00	1.00	1.00		1.00
Satd. Flow (prot)	1738	1328	3349	1526		3403
Flt Permitted	0.95	1.00	1.00	1.00		0.92
Satd. Flow (perm)	1738	1328	3349	1526		3127
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	232	50	511	204	29	573
RTOR Reduction (vph)	0	40	0	76	0	0
Lane Group Flow (vph)	232	10	511	128	0	602
Heavy Vehicles (%)	5%	23%	9%	7%	27%	6%
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2	6	
Actuated Green, G (s)	13.1	13.1	40.1	40.1		39.1
Effective Green, g (s)	13.1	13.1	40.1	40.1		39.1
Actuated g/C Ratio	0.20	0.20	0.62	0.62		0.61
Clearance Time (s)	6.0	6.0	5.0	5.0		6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0
Lane Grp Cap (vph)	354	270	2091	953		1904
v/s Ratio Prot	c0.13		0.15			
v/s Ratio Perm		0.01		0.08		c0.19
v/c Ratio	0.66	0.04	0.24	0.13		0.32
Uniform Delay, d1	23.5	20.5	5.3	4.9		6.1
Progression Factor	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	4.3	0.1	0.3	0.3		0.1
Delay (s)	27.8	20.6	5.6	5.2		6.2
Level of Service	C	C	A	A		A
Approach Delay (s)	26.5		5.5			6.2
Approach LOS	C		A			A
<b>Intersection Summary</b>						
HCM 2000 Control Delay			9.5		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.43			
Actuated Cycle Length (s)			64.2		Sum of lost time (s)	16.0
Intersection Capacity Utilization			51.9%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

Lanes, Volumes, Timings  
8: Street A & Gauthier Drive Extension

















Future Total 2025  
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	10	0	4	0	62	29	29	77	0
Future Volume (vph)	0	0	0	10	0	4	0	62	29	29	77	0
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
Fr <sub>t</sub>					0.962			0.957				
Fl <sub>t</sub> Protected					0.965						0.987	
Satd. Flow (prot)	0	1883	0	0	1748	0	0	1802	0	0	1859	0
Fl <sub>t</sub> Permitted					0.965						0.987	
Satd. Flow (perm)	0	1883	0	0	1748	0	0	1802	0	0	1859	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		161.7			257.7			188.1			228.0	
Travel Time (s)		11.6			18.6			13.5			16.4	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	0	0	0	13	0	5	0	78	36	36	96	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	18	0	0	114	0	0	132	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)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
<b>Intersection Summary</b>												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	22.3%						ICU Level of Service A					
Analysis Period (min)	15											

# HCM Unsignalized Intersection Capacity Analysis

## 8: Street A & Gauthier Drive Extension

Future Total 2025  
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	10	0	4	0	62	29	29	77	0
Future Volume (Veh/h)	0	0	0	10	0	4	0	62	29	29	77	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	0	0	0	13	0	5	0	78	36	36	96	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	269	282	96	264	264	96	96			114		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	269	282	96	264	264	96	96			114		
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 %	100	100	100	98	100	99	100			98		
cM capacity (veh/h)	667	611	960	676	626	960	1498			1475		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	0	18	114	132								
Volume Left	0	13	0	36								
Volume Right	0	5	36	0								
cSH	1700	737	1498	1475								
Volume to Capacity	0.00	0.02	0.00	0.02								
Queue Length 95th (m)	0.0	0.6	0.0	0.6								
Control Delay (s)	0.0	10.0	0.0	2.2								
Lane LOS	A	B		A								
Approach Delay (s)	0.0	10.0	0.0	2.2								
Approach LOS	A	B										
Intersection Summary												
Average Delay			1.8									
Intersection Capacity Utilization			22.3%		ICU Level of Service				A			
Analysis Period (min)			15									



Lanes, Volumes, Timings  
 9: Thompson Road & Gauthier Drive Extension

Future Total 2025  
 AM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	5	0	0	111	111	25
Future Volume (vph)	5	0	0	111	111	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>					0.975	
Fl <sub>t</sub> Protected	0.950					
Satd. Flow (prot)	1789	0	0	1883	1836	0
Fl <sub>t</sub> Permitted	0.950					
Satd. Flow (perm)	1789	0	0	1883	1836	0
Link Speed (k/h)	50			48	48	
Link Distance (m)	257.7			188.8	224.8	
Travel Time (s)	18.6			14.2	16.9	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	6	0	0	139	139	31
Shared Lane Traffic (%)						
Lane Group Flow (vph)	6	0	0	139	170	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	17.4%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis  
 9: Thompson Road & Gauthier Drive Extension

Future Total 2025  
 AM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	0	0	111	111	25
Future Volume (Veh/h)	5	0	0	111	111	25
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	6	0	0	139	139	31
<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	294	154	170			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	294	154	170			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	100	100			
cM capacity (veh/h)	697	891	1407			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	6	139	170			
Volume Left	6	0	0			
Volume Right	0	0	31			
cSH	697	1407	1700			
Volume to Capacity	0.01	0.00	0.10			
Queue Length 95th (m)	0.2	0.0	0.0			
Control Delay (s)	10.2	0.0	0.0			
Lane LOS	B					
Approach Delay (s)	10.2	0.0	0.0			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			0.2			
Intersection Capacity Utilization			17.4%	ICU Level of Service	A	
Analysis Period (min)			15			

Lanes, Volumes, Timings  
10: Street I & Edward Street

Future Total 2025  
AM Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	89	4	4	65	15	15
Future Volume (vph)	89	4	4	65	15	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
Fr <sub>t</sub>	0.994			0.932		
Fl <sub>t</sub> Protected				0.997	0.976	
Satd. Flow (prot)	1872	0	0	1878	1713	0
Fl <sub>t</sub> Permitted				0.997	0.976	
Satd. Flow (perm)	1872	0	0	1878	1713	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	150.8			175.4	326.7	
Travel Time (s)	10.9			12.6	23.5	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	111	5	5	81	19	19
Shared Lane Traffic (%)						
Lane Group Flow (vph)	116	0	0	86	38	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	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	14		24	24		14
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	16.7%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis  
 10: Street I & Edward Street

















Future Total 2025  
 AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	→			←	↔	↔
Traffic Volume (veh/h)	89	4	4	65	15	15
Future Volume (Veh/h)	89	4	4	65	15	15
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	111	5	5	81	19	19
<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			116		204	114
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			116		204	114
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		98	98
cM capacity (veh/h)			1473		781	939
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>NB 1</b>			
Volume Total	116	86	38			
Volume Left	0	5	19			
Volume Right	5	0	19			
cSH	1700	1473	853			
Volume to Capacity	0.07	0.00	0.04			
Queue Length 95th (m)	0.0	0.1	1.1			
Control Delay (s)	0.0	0.5	9.4			
Lane LOS		A	A			
Approach Delay (s)	0.0	0.5	9.4			
Approach LOS			A			
<b>Intersection Summary</b>						
Average Delay			1.7			
Intersection Capacity Utilization			16.7%	ICU Level of Service	A	
Analysis Period (min)			15			

Lanes, Volumes, Timings  
11: Street A & Edward Street

Future Total 2025  
AM Peak Hour

















												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	68	29	3	2	22	3	8	19	3	17	12	38
Future Volume (vph)	68	29	3	2	22	3	8	19	3	17	12	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
Frt		0.996			0.985			0.986			0.923	
Flt Protected		0.967			0.996			0.987			0.988	
Satd. Flow (prot)	0	1814	0	0	1848	0	0	1833	0	0	1718	0
Flt Permitted		0.967			0.996			0.987			0.988	
Satd. Flow (perm)	0	1814	0	0	1848	0	0	1833	0	0	1718	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		175.4			254.9			326.2			188.1	
Travel Time (s)		12.6			18.4			23.5			13.5	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	85	36	4	3	28	4	10	24	4	21	15	48
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	125	0	0	35	0	0	38	0	0	84	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)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	23.9%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis  
 11: Street A & Edward Street

Future Total 2025  
 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	68	29	3	2	22	3	8	19	3	17	12	38
Future Volume (Veh/h)	68	29	3	2	22	3	8	19	3	17	12	38
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	85	36	4	3	28	4	10	24	4	21	15	48
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	32			40			300	246	38	260	246	30
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	32			40			300	246	38	260	246	30
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 %	95			100			98	96	100	97	98	95
cM capacity (veh/h)	1580			1570			585	620	1034	642	620	1044
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	125	35	38	84								
Volume Left	85	3	10	21								
Volume Right	4	4	4	48								
cSH	1580	1570	637	816								
Volume to Capacity	0.05	0.00	0.06	0.10								
Queue Length 95th (m)	1.3	0.0	1.4	2.6								
Control Delay (s)	5.2	0.6	11.0	9.9								
Lane LOS	A	A	B	A								
Approach Delay (s)	5.2	0.6	11.0	9.9								
Approach LOS			B	A								
Intersection Summary												
Average Delay			6.8									
Intersection Capacity Utilization			23.9%	ICU Level of Service						A		
Analysis Period (min)			15									

Lanes, Volumes, Timings  
 12: Thompson Road & Edward Street

Future Total 2025  
 AM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	26	0	0	97	68	10
Future Volume (vph)	26	0	0	97	68	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
Fr <sub>t</sub>					0.982	
Fl <sub>t</sub> Protected	0.950					
Satd. Flow (prot)	1789	0	0	1883	1850	0
Fl <sub>t</sub> Permitted	0.950					
Satd. Flow (perm)	1789	0	0	1883	1850	0
Link Speed (k/h)	50			48	48	
Link Distance (m)	254.9			324.7	188.8	
Travel Time (s)	18.4			24.4	14.2	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	33	0	0	121	85	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	33	0	0	121	98	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	15.1%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis  
 12: Thompson Road & Edward Street

Future Total 2025  
 AM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	26	0	0	97	68	10
Future Volume (Veh/h)	26	0	0	97	68	10
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	33	0	0	121	85	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	212	92	98			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	212	92	98			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	100	100			
cM capacity (veh/h)	776	966	1495			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	33	121	98			
Volume Left	33	0	0			
Volume Right	0	0	13			
cSH	776	1495	1700			
Volume to Capacity	0.04	0.00	0.06			
Queue Length 95th (m)	1.0	0.0	0.0			
Control Delay (s)	9.8	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	9.8	0.0	0.0			
Approach LOS	A					
<b>Intersection Summary</b>						
Average Delay			1.3			
Intersection Capacity Utilization			15.1%	ICU Level of Service	A	
Analysis Period (min)			15			



Lanes, Volumes, Timings  
 13: Thompson Road & Dunlop Street

Future Total 2025  
 AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	2	192	226	2	1	6
Future Volume (vph)	2	192	226	2	1	6
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			0.999		0.880	
Flt Protected		0.999			0.994	
Satd. Flow (prot)	0	1882	1882	0	1647	0
Flt Permitted		0.999			0.994	
Satd. Flow (perm)	0	1882	1882	0	1647	0
Link Speed (k/h)		48	48		50	
Link Distance (m)		419.2	156.0		325.8	
Travel Time (s)		31.4	11.7		23.5	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	3	240	283	3	1	8
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	243	286	0	9	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	22.0% ICU Level of Service A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis  
 13: Thompson Road & Dunlop Street

Future Total 2025  
 AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	192	226	2	1	6
Future Volume (Veh/h)	2	192	226	2	1	6
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	3	240	283	3	1	8
<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	286			530	284	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	286			530	284	
tC, single (s)	4.1			6.4	6.2	
tC, 2 stage (s)						
tF (s)	2.2			3.5	3.3	
p0 queue free %	100			100	99	
cM capacity (veh/h)	1276			508	754	
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>SB 1</b>			
Volume Total	243	286	9			
Volume Left	3	0	1			
Volume Right	0	3	8			
cSH	1276	1700	716			
Volume to Capacity	0.00	0.17	0.01			
Queue Length 95th (m)	0.1	0.0	0.3			
Control Delay (s)	0.1	0.0	10.1			
Lane LOS	A		B			
Approach Delay (s)	0.1	0.0	10.1			
Approach LOS			B			
<b>Intersection Summary</b>						
Average Delay			0.2			
Intersection Capacity Utilization			22.0%	ICU Level of Service	A	
Analysis Period (min)			15			

Lanes, Volumes, Timings  
14: Thompson Road & Street I

Future Total 2025  
AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	3	189	218	0	0	9
Future Volume (vph)	3	189	218	0	0	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>					0.865	
Fl <sub>t</sub> Protected		0.999				
Satd. Flow (prot)	0	1882	1883	0	1629	0
Fl <sub>t</sub> Permitted		0.999				
Satd. Flow (perm)	0	1882	1883	0	1629	0
Link Speed (k/h)		48	48		50	
Link Distance (m)		156.0	175.3		326.7	
Travel Time (s)		11.7	13.1		23.5	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	4	236	273	0	0	11
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	240	273	0	11	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	22.3%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis  
 14: Thompson Road & Street I

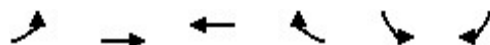
Future Total 2025  
 AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	3	189	218	0	0	9
Future Volume (Veh/h)	3	189	218	0	0	9
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	4	236	273	0	0	11
<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	273				517	273
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	273				517	273
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	99
cM capacity (veh/h)	1290				517	766
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>SB 1</b>			
Volume Total	240	273	11			
Volume Left	4	0	0			
Volume Right	0	0	11			
cSH	1290	1700	766			
Volume to Capacity	0.00	0.16	0.01			
Queue Length 95th (m)	0.1	0.0	0.3			
Control Delay (s)	0.2	0.0	9.8			
Lane LOS	A		A			
Approach Delay (s)	0.2	0.0	9.8			
Approach LOS			A			
<b>Intersection Summary</b>						
Average Delay			0.3			
Intersection Capacity Utilization			22.3%	ICU Level of Service	A	
Analysis Period (min)			15			

Lanes, Volumes, Timings  
15: Thompson Road & Street A

Future Total 2025  
AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	9	181	187	0	0	26
Future Volume (vph)	9	181	187	0	0	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>					0.865	
Fl <sub>t</sub> Protected		0.998				
Satd. Flow (prot)	0	1880	1883	0	1629	0
Fl <sub>t</sub> Permitted		0.998				
Satd. Flow (perm)	0	1880	1883	0	1629	0
Link Speed (k/h)		48	48		50	
Link Distance (m)		175.3	250.1		326.2	
Travel Time (s)		13.1	18.8		23.5	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	11	226	234	0	0	33
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	237	234	0	33	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	26.9%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis  
 15: Thompson Road & Street A

Future Total 2025  
 AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↶	↷		↘	
Traffic Volume (veh/h)	9	181	187	0	0	26
Future Volume (Veh/h)	9	181	187	0	0	26
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	11	226	234	0	0	33
<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	234				482	234
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	234				482	234
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				100	96
cM capacity (veh/h)	1333				539	805
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>SB 1</b>			
Volume Total	237	234	33			
Volume Left	11	0	0			
Volume Right	0	0	33			
cSH	1333	1700	805			
Volume to Capacity	0.01	0.14	0.04			
Queue Length 95th (m)	0.2	0.0	1.0			
Control Delay (s)	0.4	0.0	9.7			
Lane LOS	A		A			
Approach Delay (s)	0.4	0.0	9.7			
Approach LOS			A			
<b>Intersection Summary</b>						
Average Delay			0.8			
Intersection Capacity Utilization			26.9%	ICU Level of Service	A	
Analysis Period (min)			15			

Lanes, Volumes, Timings  
 1: Dunlop Street & Robert Street East

Future Total 2025  
 PM Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	224	29	47	365	31	46
Future Volume (vph)	224	29	47	365	31	46
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	0.985				0.919	
Flt Protected			0.994		0.980	
Satd. Flow (prot)	1787	0	0	1872	1730	0
Flt Permitted			0.994		0.980	
Satd. Flow (perm)	1787	0	0	1872	1730	0
Link Speed (k/h)	50		50		50	
Link Distance (m)	1218.0		320.1		410.5	
Travel Time (s)	87.7		23.0		29.6	
Confl. Peds. (#/hr)	1		1		4	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	6%	5%	2%	2%	0%	0%
Adj. Flow (vph)	255	33	53	415	35	52
Shared Lane Traffic (%)						
Lane Group Flow (vph)	288	0	0	468	87	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		3.7	
Link Offset(m)	0.0		0.0		0.0	
Crosswalk Width(m)	1.6		1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	14		24		24	
Sign Control	Free		Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	51.2%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis  
 1: Dunlop Street & Robert Street East

Future Total 2025  
 PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	224	29	47	365	31	46
Future Volume (Veh/h)	224	29	47	365	31	46
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	255	33	53	415	35	52
Pedestrians				4	1	
Lane Width (m)				3.7	3.7	
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			289			276
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			289			276
tC, single (s)			4.1			6.2
tC, 2 stage (s)						
tF (s)			2.2			3.3
p0 queue free %			96			93
cM capacity (veh/h)			1272			764
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>NB 1</b>			
Volume Total	288	468	87			
Volume Left	0	53	35			
Volume Right	33	0	52			
cSH	1700	1272	513			
Volume to Capacity	0.17	0.04	0.17			
Queue Length 95th (m)	0.0	1.0	4.6			
Control Delay (s)	0.0	1.3	13.4			
Lane LOS			A	B		
Approach Delay (s)	0.0	1.3	13.4			
Approach LOS				B		
<b>Intersection Summary</b>						
Average Delay			2.1			
Intersection Capacity Utilization			51.2%	ICU Level of Service	A	
Analysis Period (min)			15			



















Lanes, Volumes, Timings

Future Total 2025

2: Street A/Dufferin Street/Burke Street & Robert Street East

PM Peak Hour

















												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	190	41	35	266	49	97	27	51	32	21	27
Future Volume (vph)	13	190	41	35	266	49	97	27	51	32	21	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
Frt		0.977			0.981			0.960			0.955	
Flt Protected		0.997			0.995			0.973			0.980	
Satd. Flow (prot)	0	1795	0	0	1857	0	0	1759	0	0	1715	0
Flt Permitted		0.997			0.995			0.973			0.980	
Satd. Flow (perm)	0	1795	0	0	1857	0	0	1759	0	0	1715	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		320.1			250.8			228.0			76.2	
Travel Time (s)		23.0			18.1			16.4			5.5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	5%	2%	2%	1%	0%	2%	2%	2%	0%	2%	13%
Adj. Flow (vph)	14	200	43	37	280	52	102	28	54	34	22	28
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	257	0	0	369	0	0	184	0	0	84	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)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	50.6%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis  
 2: Street A/Dufferin Street/Burke Street & Robert Street East

Future Total 2025  
 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	190	41	35	266	49	97	27	51	32	21	27
Future Volume (Veh/h)	13	190	41	35	266	49	97	27	51	32	21	27
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	14	200	43	37	280	52	102	28	54	34	22	28
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	332			243			668	656	222	698	651	306
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	332			243			668	656	222	698	651	306
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.3
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.4
p0 queue free %	99			97			69	92	93	89	94	96
cM capacity (veh/h)	1239			1323			331	370	818	306	373	709
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	257	369	184	84								
Volume Left	14	37	102	34								
Volume Right	43	52	54	28								
cSH	1239	1323	409	400								
Volume to Capacity	0.01	0.03	0.45	0.21								
Queue Length 95th (m)	0.3	0.7	17.3	5.9								
Control Delay (s)	0.5	1.0	20.8	16.4								
Lane LOS	A	A	C	C								
Approach Delay (s)	0.5	1.0	20.8	16.4								
Approach LOS			C	C								
Intersection Summary												
Average Delay			6.4									
Intersection Capacity Utilization			50.6%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings  
 3: Thompson Road/Centennial Drive & Robert Street East

Future Total 2025  
 PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	10	236	28	151	276	19	46	14	180	16	27	32
Future Volume (vph)	10	236	28	151	276	19	46	14	180	16	27	32
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
Fr <sub>t</sub>		0.986			0.994			0.898			0.942	
Fl <sub>t</sub> Protected		0.998			0.983			0.991			0.990	
Satd. Flow (prot)	0	1809	0	0	1853	0	0	1676	0	0	1756	0
Fl <sub>t</sub> Permitted		0.998			0.983			0.991			0.990	
Satd. Flow (perm)	0	1809	0	0	1853	0	0	1676	0	0	1756	0
Link Speed (k/h)		50			50			48			48	
Link Distance (m)		250.8			471.9			224.8			77.4	
Travel Time (s)		18.1			34.0			16.9			5.8	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	5%	2%	2%	1%	0%	2%	2%	2%	0%	2%	3%
Adj. Flow (vph)	10	243	29	156	285	20	47	14	186	16	28	33
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	282	0	0	461	0	0	247	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	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

















Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	67.3%
ICU Level of Service	C
Analysis Period (min)	15

# HCM Unsignalized Intersection Capacity Analysis













## 3: Thompson Road/Centennial Drive & Robert Street East

Future Total 2025  
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	236	28	151	276	19	46	14	180	16	27	32
Future Volume (Veh/h)	10	236	28	151	276	19	46	14	180	16	27	32
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	10	243	29	156	285	20	47	14	186	16	28	33
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	305			272			932	894	258	1078	899	295
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	305			272			932	894	258	1078	899	295
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			88			76	94	76	88	88	96
cM capacity (veh/h)	1267			1291			194	244	781	130	243	742
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	282	461	247	77								
Volume Left	10	156	47	16								
Volume Right	29	20	186	33								
cSH	1267	1291	460	273								
Volume to Capacity	0.01	0.12	0.54	0.28								
Queue Length 95th (m)	0.2	3.1	23.7	8.6								
Control Delay (s)	0.4	3.6	21.5	23.3								
Lane LOS	A	A	C	C								
Approach Delay (s)	0.4	3.6	21.5	23.3								
Approach LOS			C	C								
Intersection Summary												
Average Delay			8.3									
Intersection Capacity Utilization			67.3%	ICU Level of Service						C		
Analysis Period (min)			15									

Lanes, Volumes, Timings  
4: Fuller Avenue & Robert Street East

Future Total 2025  
PM Peak Hour

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	196	226	226	175	235	223
Future Volume (vph)	196	226	226	175	235	223
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0	0.0	0.0			0.0
Storage Lanes	1	1	1			1
Taper Length (m)	2.5		2.5			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1755	1601	1789	1865	1883	1601
Flt Permitted	0.950		0.536			
Satd. Flow (perm)	1755	1601	1010	1865	1883	1601
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		246				242
Link Speed (k/h)	50			60	60	
Link Distance (m)	471.9			243.5	103.8	
Travel Time (s)	34.0			14.6	6.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	4%	2%	2%	3%	2%	2%
Adj. Flow (vph)	213	246	246	190	255	242
Shared Lane Traffic (%)						
Lane Group Flow (vph)	213	246	246	190	255	242
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Number of Detectors	1	1	1	2	2	1
Detector Template	Left	Right	Left	Thru	Thru	Right
Leading Detector (m)	6.1	6.1	6.1	30.5	30.5	6.1
Trailing Detector (m)	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
Detector 1 Size(m)	6.1	6.1	6.1	1.8	1.8	6.1
Detector 1 Type	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
Detector 1 Queue (s)	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
Detector 2 Position(m)				28.7	28.7	
Detector 2 Size(m)				1.8	1.8	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	

Lanes, Volumes, Timings  
4: Fuller Avenue & Robert Street East

Future Total 2025  
PM Peak Hour

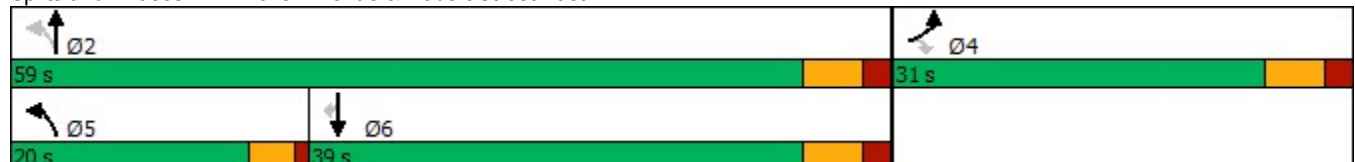


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Permitted Phases		4	2			6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	25.0	25.0	9.0	30.0	30.0	30.0
Total Split (s)	31.0	31.0	20.0	59.0	39.0	39.0
Total Split (%)	34.4%	34.4%	22.2%	65.6%	43.3%	43.3%
Maximum Green (s)	25.0	25.0	16.0	53.0	33.0	33.0
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	6.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	Max	Max	Max
Walk Time (s)	5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0
Act Effct Green (s)	15.0	15.0	55.1	53.1	39.4	39.4
Actuated g/C Ratio	0.19	0.19	0.69	0.66	0.49	0.49
v/c Ratio	0.65	0.49	0.31	0.15	0.28	0.27
Control Delay	39.7	7.5	6.3	6.1	14.5	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.7	7.5	6.3	6.1	14.5	3.0
LOS	D	A	A	A	B	A
Approach Delay	22.5			6.2	8.9	
Approach LOS	C			A	A	

Intersection Summary

Area Type: Other  
 Cycle Length: 90  
 Actuated Cycle Length: 80.1  
 Natural Cycle: 65  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.65  
 Intersection Signal Delay: 12.5  
 Intersection Capacity Utilization 49.1%  
 Analysis Period (min) 15  
 Intersection LOS: B  
 ICU Level of Service A

Splits and Phases: 4: Fuller Avenue & Robert Street East



Queues  
4: Fuller Avenue & Robert Street East

Future Total 2025  
PM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	213	246	246	190	255	242
v/c Ratio	0.65	0.49	0.31	0.15	0.28	0.27
Control Delay	39.7	7.5	6.3	6.1	14.5	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.7	7.5	6.3	6.1	14.5	3.0
Queue Length 50th (m)	30.2	0.0	11.4	9.3	21.3	0.0
Queue Length 95th (m)	50.8	17.0	24.9	20.8	45.4	12.7
Internal Link Dist (m)	447.9			219.5	79.8	
Turn Bay Length (m)	30.0					
Base Capacity (vph)	548	669	850	1236	925	910
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.37	0.29	0.15	0.28	0.27
<b>Intersection Summary</b>						

HCM Signalized Intersection Capacity Analysis  
4: Fuller Avenue & Robert Street East

Future Total 2025  
PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	196	226	226	175	235	223
Future Volume (vph)	196	226	226	175	235	223
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	4.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1755	1601	1789	1865	1883	1601
Flt Permitted	0.95	1.00	0.54	1.00	1.00	1.00
Satd. Flow (perm)	1755	1601	1009	1865	1883	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	213	246	246	190	255	242
RTOR Reduction (vph)	0	200	0	0	0	123
Lane Group Flow (vph)	213	46	246	190	255	119
Heavy Vehicles (%)	4%	2%	2%	3%	2%	2%
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	15.0	15.0	53.1	53.1	39.4	39.4
Effective Green, g (s)	15.0	15.0	53.1	53.1	39.4	39.4
Actuated g/C Ratio	0.19	0.19	0.66	0.66	0.49	0.49
Clearance Time (s)	6.0	6.0	4.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	328	299	763	1236	926	787
v/s Ratio Prot	c0.12		c0.04	0.10	0.14	
v/s Ratio Perm		0.03	c0.17			0.07
v/c Ratio	0.65	0.15	0.32	0.15	0.28	0.15
Uniform Delay, d1	30.1	27.2	5.5	5.1	12.0	11.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.4	0.2	0.2	0.3	0.7	0.4
Delay (s)	34.5	27.5	5.7	5.3	12.7	11.6
Level of Service	C	C	A	A	B	B
Approach Delay (s)	30.7			5.5	12.2	
Approach LOS	C			A	B	


















Intersection Summary

HCM 2000 Control Delay	16.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	80.1	Sum of lost time (s)	16.0
Intersection Capacity Utilization	49.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



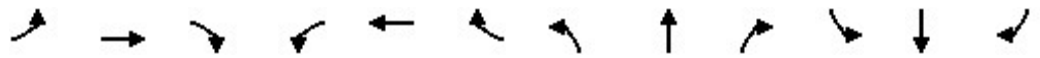
Lanes, Volumes, Timings  
5: Main Street & Edward Street

Future Total 2025  
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	20	67	180	29	41	99	594	159	54	529	10
Future Volume (vph)	6	20	67	180	29	41	99	594	159	54	529	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		30.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor		0.99			1.00	0.99		0.99			1.00	
Frt		0.902				0.850		0.972			0.997	
Flt Protected		0.997			0.959			0.994			0.995	
Satd. Flow (prot)	0	1709	0	0	1842	1633	0	3426	0	0	3525	0
Flt Permitted		0.975			0.689			0.791			0.808	
Satd. Flow (perm)	0	1671	0	0	1320	1612	0	2726	0	0	2862	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		71				91		47			4	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		135.5			260.4			246.8			121.8	
Travel Time (s)		9.8			18.7			17.8			8.8	
Confl. Peds. (#/hr)	1		3	3		1	3		8	8		3
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	2%	3%	0%	0%	3%	0%
Adj. Flow (vph)	6	21	71	189	31	43	104	625	167	57	557	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	98	0	0	220	43	0	896	0	0	625	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)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	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	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
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  
5: Main Street & Edward Street

Future Total 2025  
PM Peak Hour

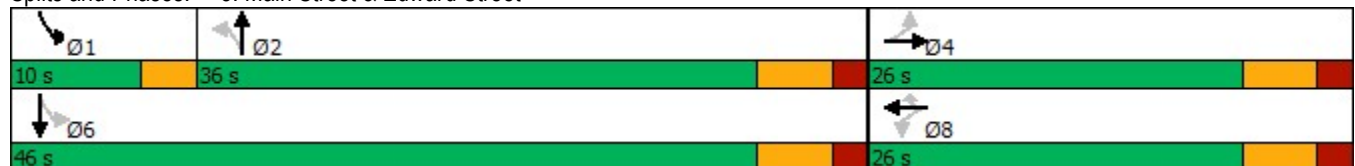


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	8.0	8.0		7.0	30.0	
Minimum Split (s)	26.0	26.0		26.0	26.0	26.0	31.0	31.0		10.0	36.0	
Total Split (s)	26.0	26.0		26.0	26.0	26.0	36.0	36.0		10.0	46.0	
Total Split (%)	36.1%	36.1%		36.1%	36.1%	36.1%	50.0%	50.0%		13.9%	63.9%	
Maximum Green (s)	20.0	20.0		20.0	20.0	20.0	30.0	30.0		7.0	40.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		0.0	2.0	
Lost Time Adjust (s)		0.0			0.0	0.0		0.0			0.0	
Total Lost Time (s)		6.0			6.0	6.0		6.0			6.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	Max	Max		None	Max	
Walk Time (s)	12.0	12.0		12.0	12.0	12.0	15.0	15.0			20.0	
Flash Dont Walk (s)	8.0	8.0		8.0	8.0	8.0	10.0	10.0			10.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0			0	
Act Effct Green (s)		15.7			15.7	15.7		40.1			40.1	
Actuated g/C Ratio		0.23			0.23	0.23		0.59			0.59	
v/c Ratio		0.22			0.72	0.10		0.55			0.37	
Control Delay		9.8			38.1	1.3		10.1			8.6	
Queue Delay		0.0			0.0	0.0		0.0			0.0	
Total Delay		9.8			38.1	1.3		10.1			8.6	
LOS		A			D	A		B			A	
Approach Delay		9.8			32.1			10.1			8.6	
Approach LOS		A			C			B			A	

Intersection Summary

Area Type:	Other
Cycle Length:	72
Actuated Cycle Length:	67.9
Natural Cycle:	70
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.72
Intersection Signal Delay:	12.7
Intersection LOS:	B
Intersection Capacity Utilization:	82.7%
ICU Level of Service:	E
Analysis Period (min):	15

Splits and Phases: 5: Main Street & Edward Street



Queues  
5: Main Street & Edward Street

Future Total 2025  
PM Peak Hour




















Lane Group	EBT	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	98	220	43	896	625
v/c Ratio	0.22	0.72	0.10	0.55	0.37
Control Delay	9.8	38.1	1.3	10.1	8.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	9.8	38.1	1.3	10.1	8.6
Queue Length 50th (m)	2.7	25.7	0.0	31.0	19.7
Queue Length 95th (m)	12.7	47.0	1.6	52.1	33.2
Internal Link Dist (m)	111.5	236.4		222.8	97.8
Turn Bay Length (m)			30.0		
Base Capacity (vph)	543	389	540	1630	1693
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.18	0.57	0.08	0.55	0.37

Intersection Summary

# HCM Signalized Intersection Capacity Analysis

## 5: Main Street & Edward Street

















Future Total 2025  
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	20	67	180	29	41	99	594	159	54	529	10
Future Volume (vph)	6	20	67	180	29	41	99	594	159	54	529	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	6.0		6.0			6.0	
Lane Util. Factor		1.00			1.00	1.00		0.95			0.95	
Frbp, ped/bikes		0.99			1.00	0.99		0.99			1.00	
Flpb, ped/bikes		1.00			1.00	1.00		1.00			1.00	
Frt		0.90			1.00	0.85		0.97			1.00	
Flt Protected		1.00			0.96	1.00		0.99			1.00	
Satd. Flow (prot)		1709			1838	1612		3427			3527	
Flt Permitted		0.98			0.69	1.00		0.79			0.81	
Satd. Flow (perm)		1672			1320	1612		2728			2862	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	6	21	71	189	31	43	104	625	167	57	557	11
RTOR Reduction (vph)	0	55	0	0	0	33	0	19	0	0	2	0
Lane Group Flow (vph)	0	43	0	0	220	10	0	877	0	0	623	0
Confl. Peds. (#/hr)	1		3	3		1	3		8	8		3
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	2%	3%	0%	0%	3%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		15.7			15.7	15.7		40.1			40.1	
Effective Green, g (s)		15.7			15.7	15.7		40.1			40.1	
Actuated g/C Ratio		0.23			0.23	0.23		0.59			0.59	
Clearance Time (s)		6.0			6.0	6.0		6.0			6.0	
Vehicle Extension (s)		3.0			3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)		387			305	373		1613			1692	
v/s Ratio Prot												
v/s Ratio Perm		0.03			c0.17	0.01		c0.32			0.22	
v/c Ratio		0.11			0.72	0.03		0.54			0.37	
Uniform Delay, d1		20.6			24.0	20.1		8.3			7.2	
Progression Factor		1.00			1.00	1.00		1.00			1.00	
Incremental Delay, d2		0.1			8.1	0.0		1.3			0.1	
Delay (s)		20.7			32.2	20.2		9.7			7.4	
Level of Service		C			C	C		A			A	
Approach Delay (s)		20.7			30.2			9.7			7.4	
Approach LOS		C			C			A			A	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			12.3				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.63									
Actuated Cycle Length (s)			67.8				Sum of lost time (s)		15.0			
Intersection Capacity Utilization			82.7%				ICU Level of Service			E		
Analysis Period (min)			15									

c Critical Lane Group

Lanes, Volumes, Timings  
6: Dunlop Street & Edward Street

Future Total 2025  
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	124	8	3	132	5	4	6	2	4	8	38
Future Volume (vph)	39	124	8	3	132	5	4	6	2	4	8	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		0.993			0.995			0.981			0.898	
Flt Protected		0.989			0.999			0.982			0.996	
Satd. Flow (prot)	0	1885	0	0	1909	0	0	1814	0	0	1675	0
Flt Permitted		0.989			0.999			0.982			0.996	
Satd. Flow (perm)	0	1885	0	0	1909	0	0	1814	0	0	1675	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		802.7			150.8			325.8			410.5	
Travel Time (s)		57.8			10.9			23.5			29.6	
Confl. Peds. (#/hr)	1						1					
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	0%	0%	2%	2%	0%	0%	2%	2%	2%	0%	2%	3%
Adj. Flow (vph)	47	149	10	4	159	6	5	7	2	5	10	46
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	206	0	0	169	0	0	14	0	0	61	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)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

















Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	30.1%
ICU Level of Service	A
Analysis Period (min)	15

# HCM Unsignalized Intersection Capacity Analysis












## 6: Dunlop Street & Edward Street

Future Total 2025  
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	39	124	8	3	132	5	4	6	2	4	8	38
Future Volume (Veh/h)	39	124	8	3	132	5	4	6	2	4	8	38
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	47	149	10	4	159	6	5	7	2	5	10	46
Pedestrians												1
Lane Width (m)												3.7
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	166			159			469	422	154	424	424	163
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	166			159			469	422	154	424	424	163
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 %	97			100			99	99	100	99	98	95
cM capacity (veh/h)	1423			1420			458	504	892	521	503	878
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>								
Volume Total	206	169	14	61								
Volume Left	47	4	5	5								
Volume Right	10	6	2	46								
cSH	1423	1420	517	745								
Volume to Capacity	0.03	0.00	0.03	0.08								
Queue Length 95th (m)	0.8	0.1	0.6	2.0								
Control Delay (s)	2.0	0.2	12.1	10.3								
Lane LOS	A	A	B	B								
Approach Delay (s)	2.0	0.2	12.1	10.3								
Approach LOS			B	B								
<b>Intersection Summary</b>												
Average Delay			2.7									
Intersection Capacity Utilization			30.1%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings  
7: Main Street & Thompson Road

Future Total 2025  
PM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	246	52	810	269	50	729
Future Volume (vph)	246	52	810	269	50	729
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	20.0		15.0	0.0	
Storage Lanes	1	1		1	0	
Taper Length (m)	2.5				2.5	
Lane Util. Factor	1.00	1.00	0.95	1.00	0.95	0.95
Ped Bike Factor		0.99				
Frt		0.850		0.850		
Flt Protected	0.950					0.997
Satd. Flow (prot)	1807	1498	3579	1601	0	3540
Flt Permitted	0.950					0.852
Satd. Flow (perm)	1807	1478	3579	1601	0	3025
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		54		169		
Link Speed (k/h)	48		50			50
Link Distance (m)	653.3		164.4			246.8
Travel Time (s)	49.0		11.8			17.8
Confl. Peds. (#/hr)		1				
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	1%	9%	2%	2%	0%	3%
Adj. Flow (vph)	256	54	844	280	52	759
Shared Lane Traffic (%)						
Lane Group Flow (vph)	256	54	844	280	0	811
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Number of Detectors	1	1	2	1	1	2
Detector Template	Left	Right	Thru	Right	Left	Thru
Leading Detector (m)	6.1	6.1	30.5	6.1	6.1	30.5
Trailing Detector (m)	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
Detector 1 Size(m)	6.1	6.1	1.8	6.1	6.1	1.8
Detector 1 Type	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
Detector 1 Queue (s)	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
Detector 2 Position(m)			28.7			28.7
Detector 2 Size(m)			1.8			1.8
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0

Lanes, Volumes, Timings  
7: Main Street & Thompson Road

Future Total 2025  
PM Peak Hour

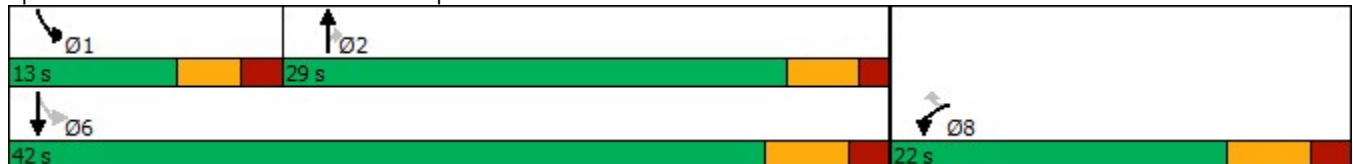


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2	6	
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	8.0	8.0	5.0	5.0	8.0	34.0
Minimum Split (s)	22.0	22.0	21.0	21.0	13.0	40.0
Total Split (s)	22.0	22.0	29.0	29.0	13.0	42.0
Total Split (%)	34.4%	34.4%	45.3%	45.3%	20.3%	65.6%
Maximum Green (s)	16.0	16.0	24.0	24.0	8.0	36.0
Yellow Time (s)	4.0	4.0	3.5	3.5	3.0	4.0
All-Red Time (s)	2.0	2.0	1.5	1.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	6.0	6.0	5.0	5.0		6.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Max	Max	None	Max
Walk Time (s)	5.0	5.0	5.0	5.0		5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0		11.0
Pedestrian Calls (#/hr)	0	0	0	0		0
Act Effct Green (s)	13.4	13.4	39.5	39.5		38.5
Actuated g/C Ratio	0.21	0.21	0.62	0.62		0.60
v/c Ratio	0.68	0.15	0.38	0.27		0.45
Control Delay	32.1	7.5	7.1	3.4		8.4
Queue Delay	0.0	0.0	0.0	0.0		0.0
Total Delay	32.1	7.5	7.1	3.4		8.4
LOS	C	A	A	A		A
Approach Delay	27.8		6.2			8.4
Approach LOS	C		A			A

Intersection Summary

Area Type: Other  
 Cycle Length: 64  
 Actuated Cycle Length: 63.9  
 Natural Cycle: 65  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.68  
 Intersection Signal Delay: 10.0  
 Intersection LOS: A  
 Intersection Capacity Utilization 78.5%  
 ICU Level of Service D  
 Analysis Period (min) 15

Splits and Phases: 7: Main Street & Thompson Road





Queues

Future Total 2025

7: Main Street & Thompson Road

PM Peak Hour
















Lane Group	WBL	WBR	NBT	NBR	SBT
Lane Group Flow (vph)	256	54	844	280	811
v/c Ratio	0.68	0.15	0.38	0.27	0.45
Control Delay	32.1	7.5	7.1	3.4	8.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	32.1	7.5	7.1	3.4	8.4
Queue Length 50th (m)	26.5	0.0	23.1	4.8	24.3
Queue Length 95th (m)	46.7	7.2	36.1	14.3	39.1
Internal Link Dist (m)	629.3		140.4		222.8
Turn Bay Length (m)		20.0		15.0	
Base Capacity (vph)	453	411	2210	1053	1820
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.57	0.13	0.38	0.27	0.45

Intersection Summary

# HCM Signalized Intersection Capacity Analysis

## 7: Main Street & Thompson Road

















Future Total 2025  
PM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	246	52	810	269	50	729
Future Volume (vph)	246	52	810	269	50	729
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	5.0	5.0		6.0
Lane Util. Factor	1.00	1.00	0.95	1.00		0.95
Frpb, ped/bikes	1.00	0.99	1.00	1.00		1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00		1.00
Frt	1.00	0.85	1.00	0.85		1.00
Flt Protected	0.95	1.00	1.00	1.00		1.00
Satd. Flow (prot)	1807	1478	3579	1601		3539
Flt Permitted	0.95	1.00	1.00	1.00		0.85
Satd. Flow (perm)	1807	1478	3579	1601		3025
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	256	54	844	280	52	759
RTOR Reduction (vph)	0	43	0	65	0	0
Lane Group Flow (vph)	256	11	844	215	0	811
Confl. Peds. (#/hr)		1				
Heavy Vehicles (%)	1%	9%	2%	2%	0%	3%
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2	6	
Actuated Green, G (s)	13.4	13.4	39.4	39.4		38.4
Effective Green, g (s)	13.4	13.4	39.4	39.4		38.4
Actuated g/C Ratio	0.21	0.21	0.62	0.62		0.60
Clearance Time (s)	6.0	6.0	5.0	5.0		6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0
Lane Grp Cap (vph)		310	2210	988		1820
v/s Ratio Prot	c0.14		0.24			
v/s Ratio Perm		0.01		0.13		c0.27
v/c Ratio	0.68	0.04	0.38	0.22		0.45
Uniform Delay, d1	23.2	20.1	6.1	5.4		6.9
Progression Factor	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	4.7	0.0	0.5	0.5		0.2
Delay (s)	27.9	20.1	6.6	5.9		7.1
Level of Service	C	C	A	A		A
Approach Delay (s)	26.6		6.4			7.1
Approach LOS	C		A			A
<b>Intersection Summary</b>						
HCM 2000 Control Delay			9.4		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.55			
Actuated Cycle Length (s)			63.8		Sum of lost time (s)	16.0
Intersection Capacity Utilization			78.5%		ICU Level of Service	D
Analysis Period (min)			15			

c Critical Lane Group

Lanes, Volumes, Timings  
8: Street A & Gauthier Drive Extension

















Future Total 2025  
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	42	0	36	0	115	29	29	82	0
Future Volume (vph)	0	0	0	42	0	36	0	115	29	29	82	0
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
Fr <sub>t</sub>					0.937			0.972				
Fl <sub>t</sub> Protected					0.974						0.987	
Satd. Flow (prot)	0	1883	0	0	1719	0	0	1831	0	0	1859	0
Fl <sub>t</sub> Permitted					0.974						0.987	
Satd. Flow (perm)	0	1883	0	0	1719	0	0	1831	0	0	1859	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		161.7			257.7			188.1			228.0	
Travel Time (s)		11.6			18.6			13.5			16.4	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	44	0	38	0	121	31	31	86	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	82	0	0	152	0	0	117	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)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
<b>Intersection Summary</b>												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	28.3%			ICU Level of Service A								
Analysis Period (min)	15											

# HCM Unsignalized Intersection Capacity Analysis

## 8: Street A & Gauthier Drive Extension

Future Total 2025  
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	42	0	36	0	115	29	29	82	0
Future Volume (Veh/h)	0	0	0	42	0	36	0	115	29	29	82	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	0	44	0	38	0	121	31	31	86	0
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	322	300	86	284	284	136	86			152		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	322	300	86	284	284	136	86			152		
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 %	100	100	100	93	100	96	100			98		
cM capacity (veh/h)	594	599	973	657	611	912	1510			1429		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	0	82	152	117								
Volume Left	0	44	0	31								
Volume Right	0	38	31	0								
cSH	1700	755	1510	1429								
Volume to Capacity	0.00	0.11	0.00	0.02								
Queue Length 95th (m)	0.0	2.8	0.0	0.5								
Control Delay (s)	0.0	10.4	0.0	2.1								
Lane LOS	A	B		A								
Approach Delay (s)	0.0	10.4	0.0	2.1								
Approach LOS	A	B										
Intersection Summary												
Average Delay			3.1									
Intersection Capacity Utilization			28.3%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings  
 9: Thompson Road & Gauthier Drive Extension

Future Total 2025  
 PM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	36	0	0	74	67	17
Future Volume (vph)	36	0	0	74	67	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
Fr <sub>t</sub>					0.973	
Fl <sub>t</sub> Protected	0.950					
Satd. Flow (prot)	1789	0	0	1883	1833	0
Fl <sub>t</sub> Permitted	0.950					
Satd. Flow (perm)	1789	0	0	1883	1833	0
Link Speed (k/h)	50			48	48	
Link Distance (m)	257.7			188.8	224.8	
Travel Time (s)	18.6			14.2	16.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	38	0	0	78	71	18
Shared Lane Traffic (%)						
Lane Group Flow (vph)	38	0	0	78	89	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	14.6%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis  
 9: Thompson Road & Gauthier Drive Extension











Future Total 2025  
 PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	36	0	0	74	67	17
Future Volume (Veh/h)	36	0	0	74	67	17
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	38	0	0	78	71	18
<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	158	80	89			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	158	80	89			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	95	100	100			
cM capacity (veh/h)	833	980	1506			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	38	78	89			
Volume Left	38	0	0			
Volume Right	0	0	18			
cSH	833	1506	1700			
Volume to Capacity	0.05	0.00	0.05			
Queue Length 95th (m)	1.1	0.0	0.0			
Control Delay (s)	9.5	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	9.5	0.0	0.0			
Approach LOS	A					
<b>Intersection Summary</b>						
Average Delay			1.8			
Intersection Capacity Utilization			14.6%	ICU Level of Service	A	
Analysis Period (min)			15			

Lanes, Volumes, Timings  
10: Street I & Edward Street

Future Total 2025  
PM Peak Hour

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	116	11	8	129	11	12
Future Volume (vph)	116	11	8	129	11	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
Fr <sub>t</sub>	0.988			0.930		
Fl <sub>t</sub> Protected				0.997	0.977	
Satd. Flow (prot)	1861	0	0	1878	1711	0
Fl <sub>t</sub> Permitted				0.997	0.977	
Satd. Flow (perm)	1861	0	0	1878	1711	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	150.8			175.4	326.7	
Travel Time (s)	10.9			12.6	23.5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	122	12	8	136	12	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	134	0	0	144	25	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	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	14		24	24		14
Sign Control	Free			Free	Stop	
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	23.3%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis  
 10: Street I & Edward Street

Future Total 2025  
 PM Peak Hour



















Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	116	11	8	129	11	12
Future Volume (Veh/h)	116	11	8	129	11	12
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	122	12	8	136	12	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			134		280	128
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			134		280	128
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		98	99
cM capacity (veh/h)			1451		706	922
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>NB 1</b>			
Volume Total	134	144	25			
Volume Left	0	8	12			
Volume Right	12	0	13			
cSH	1700	1451	804			
Volume to Capacity	0.08	0.01	0.03			
Queue Length 95th (m)	0.0	0.1	0.7			
Control Delay (s)	0.0	0.5	9.6			
Lane LOS		A	A			
Approach Delay (s)	0.0	0.5	9.6			
Approach LOS			A			
<b>Intersection Summary</b>						
Average Delay			1.0			
Intersection Capacity Utilization			23.3%	ICU Level of Service	A	
Analysis Period (min)			15			



















Lanes, Volumes, Timings  
11: Street A & Edward Street

Future Total 2025  
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	78	39	8	3	34	19	5	21	3	13	18	98
Future Volume (vph)	78	39	8	3	34	19	5	21	3	13	18	98
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		0.992			0.954			0.986			0.898	
Flt Protected		0.970			0.997			0.992			0.995	
Satd. Flow (prot)	0	1812	0	0	1791	0	0	1842	0	0	1683	0
Flt Permitted		0.970			0.997			0.992			0.995	
Satd. Flow (perm)	0	1812	0	0	1791	0	0	1842	0	0	1683	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		175.4			254.9			326.2			188.1	
Travel Time (s)		12.6			18.4			23.5			13.5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	82	41	8	3	36	20	5	22	3	14	19	103
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	131	0	0	59	0	0	30	0	0	136	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)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	
<b>Intersection Summary</b>												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	29.3%					ICU Level of Service A						
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis  
 11: Street A & Edward Street

Future Total 2025  
 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	39	8	3	34	19	5	21	3	13	18	98
Future Volume (Veh/h)	78	39	8	3	34	19	5	21	3	13	18	98
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	82	41	8	3	36	20	5	22	3	14	19	103
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	56			49			374	271	45	275	265	46
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	56			49			374	271	45	275	265	46
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 %	95			100			99	96	100	98	97	90
cM capacity (veh/h)	1549			1558			491	601	1025	629	605	1023
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	131	59	30	136								
Volume Left	82	3	5	14								
Volume Right	8	20	3	103								
cSH	1549	1558	603	882								
Volume to Capacity	0.05	0.00	0.05	0.15								
Queue Length 95th (m)	1.3	0.0	1.2	4.1								
Control Delay (s)	4.8	0.4	11.3	9.8								
Lane LOS	A	A	B	A								
Approach Delay (s)	4.8	0.4	11.3	9.8								
Approach LOS			B	A								
Intersection Summary												
Average Delay			6.5									
Intersection Capacity Utilization			29.3%	ICU Level of Service						A		
Analysis Period (min)			15									

Lanes, Volumes, Timings  
12: Thompson Road & Edward Street

Future Total 2025  
PM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	37	0	0	36	46	18
Future Volume (vph)	37	0	0	36	46	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>					0.962	
Fl <sub>t</sub> Protected	0.950					
Satd. Flow (prot)	1789	0	0	1883	1812	0
Fl <sub>t</sub> Permitted	0.950					
Satd. Flow (perm)	1789	0	0	1883	1812	0
Link Speed (k/h)	50			48	48	
Link Distance (m)	254.9			324.7	188.8	
Travel Time (s)	18.4			24.4	14.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	39	0	0	38	48	19
Shared Lane Traffic (%)						
Lane Group Flow (vph)	39	0	0	38	67	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	13.5%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis  
 12: Thompson Road & Edward Street

Future Total 2025  
 PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	37	0	0	36	46	18
Future Volume (Veh/h)	37	0	0	36	46	18
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	39	0	0	38	48	19
<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	96	58	67			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	96	58	67			
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	100	100			
cM capacity (veh/h)	904	1009	1535			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	39	38	67			
Volume Left	39	0	0			
Volume Right	0	0	19			
cSH	904	1535	1700			
Volume to Capacity	0.04	0.00	0.04			
Queue Length 95th (m)	1.0	0.0	0.0			
Control Delay (s)	9.2	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	9.2	0.0	0.0			
Approach LOS	A					
<b>Intersection Summary</b>						
Average Delay			2.5			
Intersection Capacity Utilization			13.5%	ICU Level of Service	A	
Analysis Period (min)			15			

Lanes, Volumes, Timings  
 13: Thompson Road & Dunlop Street

Future Total 2025  
 PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	6	73	63	2	2	3
Future Volume (vph)	6	73	63	2	2	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.996		0.919	
Flt Protected		0.996			0.980	
Satd. Flow (prot)	0	1876	1876	0	1696	0
Flt Permitted		0.996			0.980	
Satd. Flow (perm)	0	1876	1876	0	1696	0
Link Speed (k/h)		48	48		50	
Link Distance (m)		419.2	156.0		325.8	
Travel Time (s)		31.4	11.7		23.5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	6	77	66	2	2	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	83	68	0	5	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	18.8%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis  
 13: Thompson Road & Dunlop Street

Future Total 2025  
 PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	6	73	63	2	2	3
Future Volume (Veh/h)	6	73	63	2	2	3
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	6	77	66	2	2	3
<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	68				156	67
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	68				156	67
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1533				832	997
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>SB 1</b>			
Volume Total	83	68	5			
Volume Left	6	0	2			
Volume Right	0	2	3			
cSH	1533	1700	924			
Volume to Capacity	0.00	0.04	0.01			
Queue Length 95th (m)	0.1	0.0	0.1			
Control Delay (s)	0.6	0.0	8.9			
Lane LOS	A		A			
Approach Delay (s)	0.6	0.0	8.9			
Approach LOS			A			
<b>Intersection Summary</b>						
Average Delay			0.6			
Intersection Capacity Utilization			18.8%	ICU Level of Service	A	
Analysis Period (min)			15			

Lanes, Volumes, Timings  
 14: Thompson Road & Street I

Future Total 2025  
 PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↶	↷		↶	↷
Traffic Volume (vph)	8	65	59	0	0	4
Future Volume (vph)	8	65	59	0	0	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>					0.865	
Fl <sub>t</sub> Protected		0.995				
Satd. Flow (prot)	0	1874	1883	0	1629	0
Fl <sub>t</sub> Permitted		0.995				
Satd. Flow (perm)	0	1874	1883	0	1629	0
Link Speed (k/h)		48	48		50	
Link Distance (m)		156.0	175.3		326.7	
Travel Time (s)		11.7	13.1		23.5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	8	68	62	0	0	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	76	62	0	4	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	20.1% ICU Level of Service A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis  
 14: Thompson Road & Street I

Future Total 2025  
 PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	8	65	59	0	0	4
Future Volume (Veh/h)	8	65	59	0	0	4
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	8	68	62	0	0	4
<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	62				146	62
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	62				146	62
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				100	100
cM capacity (veh/h)	1541				842	1003
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>SB 1</b>			
Volume Total	76	62	4			
Volume Left	8	0	0			
Volume Right	0	0	4			
cSH	1541	1700	1003			
Volume to Capacity	0.01	0.04	0.00			
Queue Length 95th (m)	0.1	0.0	0.1			
Control Delay (s)	0.8	0.0	8.6			
Lane LOS	A		A			
Approach Delay (s)	0.8	0.0	8.6			
Approach LOS			A			
<b>Intersection Summary</b>						
Average Delay			0.7			
Intersection Capacity Utilization		20.1%		ICU Level of Service		A
Analysis Period (min)			15			



Lanes, Volumes, Timings  
15: Thompson Road & Street A

Future Total 2025  
PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	27	36	46	0	0	12
Future Volume (vph)	27	36	46	0	0	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
Fr <sub>t</sub>					0.865	
Fl <sub>t</sub> Protected		0.979				
Satd. Flow (prot)	0	1844	1883	0	1629	0
Fl <sub>t</sub> Permitted		0.979				
Satd. Flow (perm)	0	1844	1883	0	1629	0
Link Speed (k/h)		48	48		50	
Link Distance (m)		175.3	250.1		326.2	
Travel Time (s)		13.1	18.8		23.5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	28	38	48	0	0	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	66	48	0	13	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	20.1%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis  
 15: Thompson Road & Street A

Future Total 2025  
 PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Traffic Volume (veh/h)	27	36	46	0	0	12
Future Volume (Veh/h)	27	36	46	0	0	12
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	28	38	48	0	0	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	48				142	48
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	48				142	48
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				100	99
cM capacity (veh/h)	1559				835	1021
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>SB 1</b>			
Volume Total	66	48	13			
Volume Left	28	0	0			
Volume Right	0	0	13			
cSH	1559	1700	1021			
Volume to Capacity	0.02	0.03	0.01			
Queue Length 95th (m)	0.4	0.0	0.3			
Control Delay (s)	3.2	0.0	8.6			
Lane LOS	A		A			
Approach Delay (s)	3.2	0.0	8.6			
Approach LOS			A			
<b>Intersection Summary</b>						
Average Delay			2.5			
Intersection Capacity Utilization			20.1%	ICU Level of Service	A	
Analysis Period (min)			15			

Lanes, Volumes, Timings  
1: Dunlop Street & Robert Street East

Future Background 2030  
AM Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	154	44	78	174	38	48
Future Volume (vph)	154	44	78	174	38	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.970					0.925
Flt Protected				0.985	0.978	
Satd. Flow (prot)	1749	0	0	1745	1669	0
Flt Permitted				0.985	0.978	
Satd. Flow (perm)	1749	0	0	1745	1669	0
Link Speed (k/h)	50					50
Link Distance (m)	1218.0			320.1	410.5	
Travel Time (s)	87.7			23.0	29.6	
Confl. Peds. (#/hr)	2		2			1
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Heavy Vehicles (%)	7%	5%	5%	10%	3%	5%
Adj. Flow (vph)	244	70	124	276	60	76
Shared Lane Traffic (%)						
Lane Group Flow (vph)	314	0	0	400	136	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	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	14		24	24		14
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 39.8% ICU Level of Service A

Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis  
 1: Dunlop Street & Robert Street East

Future Background 2030  
 AM Peak Hour



















Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	154	44	78	174	38	48
Future Volume (Veh/h)	154	44	78	174	38	48
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Hourly flow rate (vph)	244	70	124	276	60	76
Pedestrians				1	2	
Lane Width (m)				3.7	3.7	
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			316		805	282
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			316		805	282
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			90		81	90
cM capacity (veh/h)			1225		314	748
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>NB 1</b>			
Volume Total	314	400	136			
Volume Left	0	124	60			
Volume Right	70	0	76			
cSH	1700	1225	465			
Volume to Capacity	0.18	0.10	0.29			
Queue Length 95th (m)	0.0	2.6	9.2			
Control Delay (s)	0.0	3.3	15.9			
Lane LOS			A	C		
Approach Delay (s)	0.0	3.3	15.9			
Approach LOS				C		
<b>Intersection Summary</b>						
Average Delay			4.1			
Intersection Capacity Utilization			39.8%	ICU Level of Service	A	
Analysis Period (min)			15			

Lanes, Volumes, Timings

Future Background 2030

2: Street A/Dufferin Street/Burke Street & Robert Street East

AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	157	0	0	182	66	0	0	0	42	0	35
Future Volume (vph)	26	157	0	0	182	66	0	0	0	42	0	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						0.964						0.939
Flt Protected	0.993										0.973	
Satd. Flow (prot)	0	1807	0	0	1741	0	0	1883	0	0	1504	0
Flt Permitted	0.993										0.973	
Satd. Flow (perm)	0	1807	0	0	1741	0	0	1883	0	0	1504	0
Link Speed (k/h)					50					50		
Link Distance (m)	320.1				250.8				228.0			
Travel Time (s)	23.0				18.1				16.4			
Confl. Peds. (#/hr)	2										2	
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Heavy Vehicles (%)	9%	5%	2%	2%	4%	13%	2%	2%	2%	0%	2%	37%
Adj. Flow (vph)	39	234	0	0	272	99	0	0	0	63	0	52
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	273	0	0	371	0	0	0	0	0	115	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)	1.6				1.6				1.6		1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14		24		14		24		14	
Sign Control	Free				Free				Stop			

Intersection Summary

Area Type: Other

















Control Type: Unsignalized

Intersection Capacity Utilization 37.8% ICU Level of Service A

Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis  
 2: Street A/Dufferin Street/Burke Street & Robert Street East

Future Background 2030  
 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	157	0	0	182	66	0	0	0	42	0	35
Future Volume (Veh/h)	26	157	0	0	182	66	0	0	0	42	0	35
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Hourly flow rate (vph)	39	234	0	0	272	99	0	0	0	63	0	52
Pedestrians												2
Lane Width (m)												3.7
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	373			234			686	685	234	636	636	324
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	373			234			686	685	234	636	636	324
tC, single (s)	4.2			4.1			7.1	6.5	6.2	7.1	6.5	6.6
tC, 2 stage (s)												
tF (s)	2.3			2.2			3.5	4.0	3.3	3.5	4.0	3.6
p0 queue free %	97			100			100	100	100	84	100	92
cM capacity (veh/h)	1146			1333			324	357	805	382	382	642
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	273	371	0	115								
Volume Left	39	0	0	63								
Volume Right	0	99	0	52								
cSH	1146	1333	1700	468								
Volume to Capacity	0.03	0.00	0.00	0.25								
Queue Length 95th (m)	0.8	0.0	0.0	7.3								
Control Delay (s)	1.5	0.0	0.0	15.2								
Lane LOS	A		A	C								
Approach Delay (s)	1.5	0.0	0.0	15.2								
Approach LOS			A	C								
<b>Intersection Summary</b>												
Average Delay			2.8									
Intersection Capacity Utilization			37.8%		ICU Level of Service				A			
Analysis Period (min)			15									



















Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	29	164	5	69	231	15	1	24	61	20	18	9
Future Volume (vph)	29	164	5	69	231	15	1	24	61	20	18	9
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
Fr <sub>t</sub>		0.997			0.993			0.904			0.975	
Fl <sub>t</sub> Protected		0.993			0.989						0.979	
Satd. Flow (prot)	0	1844	0	0	1696	0	0	1466	0	0	1633	0
Fl <sub>t</sub> Permitted		0.993			0.989						0.979	
Satd. Flow (perm)	0	1844	0	0	1696	0	0	1466	0	0	1633	0
Link Speed (k/h)		50			50			48			48	
Link Distance (m)		250.8			471.9			224.8			77.4	
Travel Time (s)		18.1			34.0			16.9			5.8	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	16%	1%	0%	28%	7%	0%	0%	5%	24%	6%	13%	25%
Adj. Flow (vph)	36	205	6	86	289	19	1	30	76	25	23	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	247	0	0	394	0	0	107	0	0	59	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)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	42.2%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis  
 3: Thompson Road/Centennial Drive & Robert Street East













Future Background 2030  
 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	164	5	69	231	15	1	24	61	20	18	9
Future Volume (Veh/h)	29	164	5	69	231	15	1	24	61	20	18	9
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	36	205	6	86	289	19	1	30	76	25	23	11
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	308			211			773	760	208	842	754	298
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	308			211			773	760	208	842	754	298
tC, single (s)	4.3			4.4			7.1	6.5	6.4	7.2	6.6	6.5
tC, 2 stage (s)												
tF (s)	2.3			2.5			3.5	4.0	3.5	3.6	4.1	3.5
p0 queue free %	97			93			100	90	90	88	92	98
cM capacity (veh/h)	1177			1219			273	299	780	216	293	690
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	247	394	107	59								
Volume Left	36	86	1	25								
Volume Right	6	19	76	11								
cSH	1177	1219	531	281								
Volume to Capacity	0.03	0.07	0.20	0.21								
Queue Length 95th (m)	0.7	1.7	5.7	5.9								
Control Delay (s)	1.4	2.3	13.5	21.2								
Lane LOS	A	A	B	C								
Approach Delay (s)	1.4	2.3	13.5	21.2								
Approach LOS			B	C								
Intersection Summary												
Average Delay			4.9									
Intersection Capacity Utilization			42.2%		ICU Level of Service				A			
Analysis Period (min)			15									



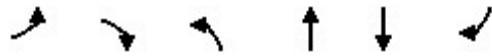
Lanes, Volumes, Timings  
4: Fuller Avenue & Robert Street East

Future Background 2030  
AM Peak Hour

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	155	128	119	222	219	132
Future Volume (vph)	155	128	119	222	219	132
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0	0.0	0.0			0.0
Storage Lanes	1	1	1			1
Taper Length (m)	2.5		2.5			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1601	1570	1738	1847	1830	1338
Flt Permitted	0.950		0.525			
Satd. Flow (perm)	1601	1570	961	1847	1830	1338
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		158				163
Link Speed (k/h)	50			60	60	
Link Distance (m)	471.9			243.5	103.8	
Travel Time (s)	34.0			14.6	6.2	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles (%)	14%	4%	5%	4%	5%	22%
Adj. Flow (vph)	191	158	147	274	270	163
Shared Lane Traffic (%)						
Lane Group Flow (vph)	191	158	147	274	270	163
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Number of Detectors	1	1	1	2	2	1
Detector Template	Left	Right	Left	Thru	Thru	Right
Leading Detector (m)	6.1	6.1	6.1	30.5	30.5	6.1
Trailing Detector (m)	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
Detector 1 Size(m)	6.1	6.1	6.1	1.8	1.8	6.1
Detector 1 Type	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
Detector 1 Queue (s)	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
Detector 2 Position(m)				28.7	28.7	
Detector 2 Size(m)				1.8	1.8	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	

Lanes, Volumes, Timings  
4: Fuller Avenue & Robert Street East

Future Background 2030  
AM Peak Hour

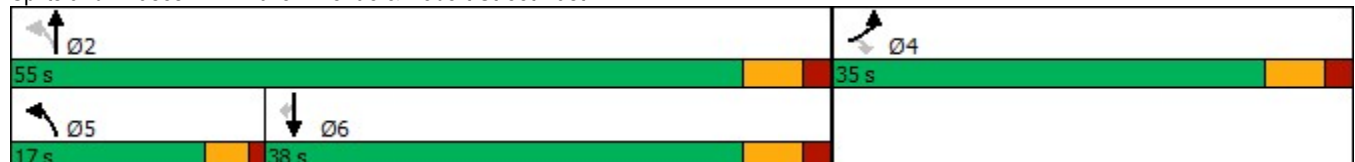


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Permitted Phases		4	2			6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	25.0	25.0	9.0	30.0	30.0	30.0
Total Split (s)	35.0	35.0	17.0	55.0	38.0	38.0
Total Split (%)	38.9%	38.9%	18.9%	61.1%	42.2%	42.2%
Maximum Green (s)	29.0	29.0	13.0	49.0	32.0	32.0
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	6.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	Max	Max	Max
Walk Time (s)	5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0
Act Effct Green (s)	14.4	14.4	51.1	49.1	37.2	37.2
Actuated g/C Ratio	0.19	0.19	0.68	0.65	0.49	0.49
v/c Ratio	0.63	0.37	0.20	0.23	0.30	0.22
Control Delay	37.5	7.3	5.7	6.6	13.8	3.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.5	7.3	5.7	6.6	13.8	3.3
LOS	D	A	A	A	B	A
Approach Delay	23.8			6.3	9.9	
Approach LOS	C			A	A	

Intersection Summary

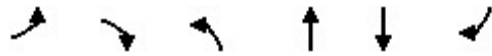
Area Type: Other  
 Cycle Length: 90  
 Actuated Cycle Length: 75.5  
 Natural Cycle: 65  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.63  
 Intersection Signal Delay: 12.7  
 Intersection Capacity Utilization 40.0%  
 Analysis Period (min) 15  
 Intersection LOS: B  
 ICU Level of Service A

Splits and Phases: 4: Fuller Avenue & Robert Street East



## 4: Fuller Avenue &amp; Robert Street East

AM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	191	158	147	274	270	163
v/c Ratio	0.63	0.37	0.20	0.23	0.30	0.22
Control Delay	37.5	7.3	5.7	6.6	13.8	3.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.5	7.3	5.7	6.6	13.8	3.3
Queue Length 50th (m)	25.2	0.0	6.2	13.7	21.3	0.0
Queue Length 95th (m)	38.9	10.1	13.4	25.6	39.2	7.5
Internal Link Dist (m)	447.9			219.5	79.8	
Turn Bay Length (m)	30.0					
Base Capacity (vph)	616	701	784	1200	901	742
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.23	0.19	0.23	0.30	0.22

## Intersection Summary

HCM Signalized Intersection Capacity Analysis  
4: Fuller Avenue & Robert Street East

Future Background 2030  
AM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	155	128	119	222	219	132
Future Volume (vph)	155	128	119	222	219	132
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	4.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1601	1570	1738	1847	1830	1338
Flt Permitted	0.95	1.00	0.52	1.00	1.00	1.00
Satd. Flow (perm)	1601	1570	960	1847	1830	1338
Peak-hour factor, PHF	0.81	0.81	0.81	0.81	0.81	0.81
Adj. Flow (vph)	191	158	147	274	270	163
RTOR Reduction (vph)	0	128	0	0	0	83
Lane Group Flow (vph)	191	30	147	274	270	80
Heavy Vehicles (%)	14%	4%	5%	4%	5%	22%
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	14.4	14.4	49.1	49.1	37.2	37.2
Effective Green, g (s)	14.4	14.4	49.1	49.1	37.2	37.2
Actuated g/C Ratio	0.19	0.19	0.65	0.65	0.49	0.49
Clearance Time (s)	6.0	6.0	4.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	305	299	705	1201	901	659
v/s Ratio Prot	c0.12		0.02	c0.15	c0.15	
v/s Ratio Perm		0.02	0.11			0.06
v/c Ratio	0.63	0.10	0.21	0.23	0.30	0.12
Uniform Delay, d1	28.1	25.2	5.2	5.4	11.4	10.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.0	0.1	0.1	0.4	0.9	0.4
Delay (s)	32.1	25.4	5.4	5.9	12.2	10.7
Level of Service	C	C	A	A	B	B
Approach Delay (s)	29.0			5.7	11.7	
Approach LOS	C			A	B	

Intersection Summary

HCM 2000 Control Delay	14.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	75.5	Sum of lost time (s)	16.0
Intersection Capacity Utilization	40.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lanes, Volumes, Timings  
5: Main Street & Edward Street

Future Background 2030  
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕			↕	
Traffic Volume (vph)	0	5	18	46	12	35	30	371	19	22	407	2
Future Volume (vph)	0	5	18	46	12	35	30	371	19	22	407	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		30.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor		0.99			1.00	0.99		1.00			1.00	
Frt		0.893				0.850		0.993			0.999	
Flt Protected					0.962			0.996			0.997	
Satd. Flow (prot)	0	1698	0	0	1848	1633	0	3247	0	0	3410	0
Flt Permitted					0.750			0.893			0.915	
Satd. Flow (perm)	0	1698	0	0	1440	1612	0	2911	0	0	3130	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		23				91		8			1	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		135.5			260.4			246.8			121.8	
Travel Time (s)		9.8			18.7			17.8			8.8	
Confl. Peds. (#/hr)	1		1	1		1			2	2		
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	15%	11%	6%	0%	7%	0%
Adj. Flow (vph)	0	6	23	58	15	44	38	464	24	28	509	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	29	0	0	73	44	0	526	0	0	540	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)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	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	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
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  
5: Main Street & Edward Street

Future Background 2030  
AM Peak Hour

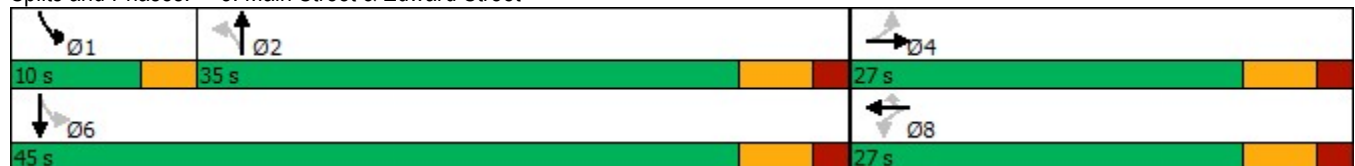


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type		NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	8.0	8.0		7.0	30.0	
Minimum Split (s)	26.0	26.0		26.0	26.0	26.0	31.0	31.0		10.0	36.0	
Total Split (s)	27.0	27.0		27.0	27.0	27.0	35.0	35.0		10.0	45.0	
Total Split (%)	37.5%	37.5%		37.5%	37.5%	37.5%	48.6%	48.6%		13.9%	62.5%	
Maximum Green (s)	21.0	21.0		21.0	21.0	21.0	29.0	29.0		7.0	39.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		0.0	2.0	
Lost Time Adjust (s)		0.0			0.0	0.0		0.0			0.0	
Total Lost Time (s)		6.0			6.0	6.0		6.0			6.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	Max	Max		None	Max	
Walk Time (s)	12.0	12.0		12.0	12.0	12.0	15.0	15.0			20.0	
Flash Dont Walk (s)	8.0	8.0		8.0	8.0	8.0	10.0	10.0			10.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0			0	
Act Effct Green (s)		10.3			10.3	10.3		45.0			45.0	
Actuated g/C Ratio		0.16			0.16	0.16		0.72			0.72	
v/c Ratio		0.10			0.31	0.13		0.25			0.24	
Control Delay		12.3			26.7	2.3		4.7			4.7	
Queue Delay		0.0			0.0	0.0		0.0			0.0	
Total Delay		12.3			26.7	2.3		4.7			4.7	
LOS		B			C	A		A			A	
Approach Delay		12.3			17.6			4.7			4.7	
Approach LOS		B			B			A			A	

Intersection Summary

Area Type:	Other
Cycle Length:	72
Actuated Cycle Length:	62.7
Natural Cycle:	70
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.31
Intersection Signal Delay:	6.1
Intersection LOS:	A
Intersection Capacity Utilization:	53.9%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 5: Main Street & Edward Street



## 5: Main Street &amp; Edward Street

AM Peak Hour




















Lane Group	EBT	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	29	73	44	526	540
v/c Ratio	0.10	0.31	0.13	0.25	0.24
Control Delay	12.3	26.7	2.3	4.7	4.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	12.3	26.7	2.3	4.7	4.7
Queue Length 50th (m)	0.6	7.3	0.0	11.2	11.5
Queue Length 95th (m)	5.3	15.2	1.1	15.9	16.2
Internal Link Dist (m)	111.5	236.4		222.8	97.8
Turn Bay Length (m)			30.0		
Base Capacity (vph)	585	483	601	2090	2245
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.05	0.15	0.07	0.25	0.24

## Intersection Summary

# HCM Signalized Intersection Capacity Analysis

## 5: Main Street & Edward Street

Future Background 2030  
AM Peak Hour

















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	5	18	46	12	35	30	371	19	22	407	2
Future Volume (vph)	0	5	18	46	12	35	30	371	19	22	407	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	6.0		6.0			6.0	
Lane Util. Factor		1.00			1.00	1.00		0.95			0.95	
Frbp, ped/bikes		0.99			1.00	0.99		1.00			1.00	
Flpb, ped/bikes		1.00			1.00	1.00		1.00			1.00	
Frt		0.89			1.00	0.85		0.99			1.00	
Flt Protected		1.00			0.96	1.00		1.00			1.00	
Satd. Flow (prot)		1698			1846	1612		3249			3412	
Flt Permitted		1.00			0.75	1.00		0.89			0.92	
Satd. Flow (perm)		1698			1441	1612		2911			3131	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	0	6	22	58	15	44	38	464	24	28	509	2
RTOR Reduction (vph)	0	20	0	0	0	38	0	3	0	0	0	0
Lane Group Flow (vph)	0	9	0	0	73	6	0	523	0	0	540	0
Confl. Peds. (#/hr)	1		1	1		1			2	2		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	15%	11%	6%	0%	7%	0%
Turn Type		NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		8.2			8.2	8.2		43.7			43.7	
Effective Green, g (s)		8.2			8.2	8.2		43.7			43.7	
Actuated g/C Ratio		0.13			0.13	0.13		0.68			0.68	
Clearance Time (s)		6.0			6.0	6.0		6.0			6.0	
Vehicle Extension (s)		3.0			3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)		217			184	206		1990			2141	
v/s Ratio Prot		0.01										
v/s Ratio Perm					c0.05	0.00		c0.18			0.17	
v/c Ratio		0.04			0.40	0.03		0.26			0.25	
Uniform Delay, d1		24.4			25.6	24.4		3.9			3.9	
Progression Factor		1.00			1.00	1.00		1.00			1.00	
Incremental Delay, d2		0.1			1.4	0.1		0.3			0.1	
Delay (s)		24.5			27.0	24.4		4.2			3.9	
Level of Service		C			C	C		A			A	
Approach Delay (s)		24.5			26.0			4.2			3.9	
Approach LOS		C			C			A			A	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			6.7		HCM 2000 Level of Service						A	
HCM 2000 Volume to Capacity ratio			0.30									
Actuated Cycle Length (s)			63.9		Sum of lost time (s)						15.0	
Intersection Capacity Utilization			53.9%		ICU Level of Service						A	
Analysis Period (min)			15									

c Critical Lane Group



















Lanes, Volumes, Timings  
6: Dunlop Street & Edward Street

Future Background 2030  
AM Peak Hour

													
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	43	0	0	0	0	0	0	0	0	0	0	59	
Future Volume (vph)	43	0	0	0	0	0	0	0	0	0	0	59	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor													
Frt												0.865	
Flt Protected	0.950												
Satd. Flow (prot)	0	1772	0	0	1921	0	0	1883	0	0	1539	0	
Flt Permitted	0.950												
Satd. Flow (perm)	0	1772	0	0	1921	0	0	1883	0	0	1539	0	
Link Speed (k/h)	50		50				50				50		
Link Distance (m)	802.7				150.8				325.8				410.5
Travel Time (s)	57.8				10.9				23.5				29.6
Confl. Peds. (#/hr)	8										8		
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	
Heavy Vehicles (%)	3%	0%	2%	2%	0%	0%	2%	2%	2%	0%	2%	8%	
Adj. Flow (vph)	64	0	0	0	0	0	0	0	0	0	0	88	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	64	0	0	0	0	0	0	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)	1.6		1.6				1.6				1.6		
Two way Left Turn Lane													
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	
Turning Speed (k/h)	24		14		24		14		24		14		
Sign Control	Free				Free				Stop				
<b>Intersection Summary</b>													
Area Type:	Other												
Control Type:	Unsignalized												
Intersection Capacity Utilization	16.0%						ICU Level of Service A						
Analysis Period (min)	15												














HCM Unsignalized Intersection Capacity Analysis  
6: Dunlop Street & Edward Street

Future Background 2030  
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	43	0	0	0	0	0	0	0	0	0	0	59
Future Volume (Veh/h)	43	0	0	0	0	0	0	0	0	0	0	59
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Hourly flow rate (vph)	64	0	0	0	0	0	0	0	0	0	0	88
Pedestrians												8
Lane Width (m)												3.7
Walking Speed (m/s)												1.2
Percent Blockage												1
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	8			0			216	136	0	136	136	8
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	8			0			216	136	0	136	136	8
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.3
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.4
p0 queue free %	96			100			100	100	100	100	100	92
cM capacity (veh/h)	1595			1623			654	720	1085	804	720	1050
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	64	0	0	88								
Volume Left	64	0	0	0								
Volume Right	0	0	0	88								
cSH	1595	1700	1700	1050								
Volume to Capacity	0.04	0.00	0.00	0.08								
Queue Length 95th (m)	1.0	0.0	0.0	2.1								
Control Delay (s)	7.4	0.0	0.0	8.7								
Lane LOS	A		A	A								
Approach Delay (s)	7.4	0.0	0.0	8.7								
Approach LOS			A	A								
<b>Intersection Summary</b>												
Average Delay			8.2									
Intersection Capacity Utilization			16.0%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings  
7: Main Street & Thompson Road

Future Background 2030  
AM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	153	46	377	142	27	448
Future Volume (vph)	153	46	377	142	27	448
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	20.0		15.0	0.0	
Storage Lanes	1	1		1	0	
Taper Length (m)	2.5				2.5	
Lane Util. Factor	1.00	1.00	0.95	1.00	0.95	0.95
Frt		0.850		0.850		
Flt Protected	0.950					0.997
Satd. Flow (prot)	1738	1328	3349	1526	0	3395
Flt Permitted	0.950					0.914
Satd. Flow (perm)	1738	1328	3349	1526	0	3112
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		55		169		
Link Speed (k/h)	50		50			50
Link Distance (m)	653.3		164.4			246.8
Travel Time (s)	47.0		11.8			17.8
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	5%	23%	9%	7%	27%	6%
Adj. Flow (vph)	182	55	449	169	32	533
Shared Lane Traffic (%)						
Lane Group Flow (vph)	182	55	449	169	0	565
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Number of Detectors	1	1	2	1	1	2
Detector Template	Left	Right	Thru	Right	Left	Thru
Leading Detector (m)	6.1	6.1	30.5	6.1	6.1	30.5
Trailing Detector (m)	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
Detector 1 Size(m)	6.1	6.1	1.8	6.1	6.1	1.8
Detector 1 Type	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
Detector 1 Queue (s)	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
Detector 2 Position(m)			28.7			28.7
Detector 2 Size(m)			1.8			1.8
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	8		2		1	6

Lanes, Volumes, Timings  
7: Main Street & Thompson Road

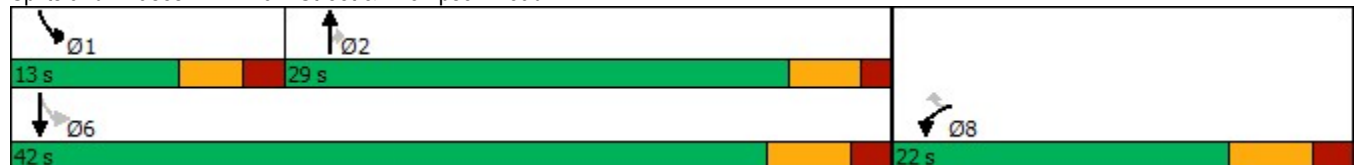
Future Background 2030  
AM Peak Hour

	↙	↖	↑	↗	↘	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Permitted Phases		8		2	6	
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	8.0	8.0	5.0	5.0	8.0	34.0
Minimum Split (s)	22.0	22.0	21.0	21.0	13.0	40.0
Total Split (s)	22.0	22.0	29.0	29.0	13.0	42.0
Total Split (%)	34.4%	34.4%	45.3%	45.3%	20.3%	65.6%
Maximum Green (s)	16.0	16.0	24.0	24.0	8.0	36.0
Yellow Time (s)	4.0	4.0	3.5	3.5	3.0	4.0
All-Red Time (s)	2.0	2.0	1.5	1.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	6.0	6.0	5.0	5.0		6.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Max	Max	None	Max
Walk Time (s)	5.0	5.0	5.0	5.0		5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0		11.0
Pedestrian Calls (#/hr)	0	0	0	0		0
Act Effct Green (s)	11.8	11.8	40.7	40.7		39.7
Actuated g/C Ratio	0.19	0.19	0.64	0.64		0.62
v/c Ratio	0.56	0.19	0.21	0.16		0.29
Control Delay	29.5	8.1	5.5	1.6		6.5
Queue Delay	0.0	0.0	0.0	0.0		0.0
Total Delay	29.5	8.1	5.5	1.6		6.5
LOS	C	A	A	A		A
Approach Delay	24.5		4.4			6.5
Approach LOS	C		A			A

Intersection Summary

Area Type: Other  
 Cycle Length: 64  
 Actuated Cycle Length: 63.6  
 Natural Cycle: 65  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.56  
 Intersection Signal Delay: 8.6  
 Intersection Capacity Utilization 51.1%  
 Analysis Period (min) 15  
 Intersection LOS: A  
 ICU Level of Service A

Splits and Phases: 7: Main Street & Thompson Road



## 7: Main Street &amp; Thompson Road

AM Peak Hour

















Lane Group	WBL	WBR	NBT	NBR	SBT
Lane Group Flow (vph)	182	55	449	169	565
v/c Ratio	0.56	0.19	0.21	0.16	0.29
Control Delay	29.5	8.1	5.5	1.6	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	29.5	8.1	5.5	1.6	6.5
Queue Length 50th (m)	18.0	0.0	9.4	0.0	13.3
Queue Length 95th (m)	31.1	6.4	16.8	5.1	22.9
Internal Link Dist (m)	629.3		140.4		222.8
Turn Bay Length (m)		20.0		15.0	
Base Capacity (vph)	438	376	2145	1038	1944
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.42	0.15	0.21	0.16	0.29

## Intersection Summary

HCM Signalized Intersection Capacity Analysis  
7: Main Street & Thompson Road

Future Background 2030  
AM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			  
Traffic Volume (vph)	153	46	377	142	27	448
Future Volume (vph)	153	46	377	142	27	448
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	5.0	5.0		6.0
Lane Util. Factor	1.00	1.00	0.95	1.00		0.95
Frt	1.00	0.85	1.00	0.85		1.00
Flt Protected	0.95	1.00	1.00	1.00		1.00
Satd. Flow (prot)	1738	1328	3349	1526		3396
Flt Permitted	0.95	1.00	1.00	1.00		0.91
Satd. Flow (perm)	1738	1328	3349	1526		3112
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	182	55	449	169	32	533
RTOR Reduction (vph)	0	45	0	61	0	0
Lane Group Flow (vph)	182	10	449	108	0	565
Heavy Vehicles (%)	5%	23%	9%	7%	27%	6%
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2	6	
Actuated Green, G (s)	11.8	11.8	40.8	40.8		39.8
Effective Green, g (s)	11.8	11.8	40.8	40.8		39.8
Actuated g/C Ratio	0.19	0.19	0.64	0.64		0.63
Clearance Time (s)	6.0	6.0	5.0	5.0		6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0
Lane Grp Cap (vph)	322	246	2148	978		1947
v/s Ratio Prot	c0.10		0.13			
v/s Ratio Perm		0.01		0.07		c0.18
v/c Ratio	0.57	0.04	0.21	0.11		0.29
Uniform Delay, d1	23.6	21.3	4.7	4.4		5.4
Progression Factor	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	2.3	0.1	0.2	0.2		0.1
Delay (s)	25.8	21.3	4.9	4.6		5.5
Level of Service	C	C	A	A		A
Approach Delay (s)	24.8		4.9			5.5
Approach LOS	C		A			A
<b>Intersection Summary</b>						
HCM 2000 Control Delay			8.4		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.38			
Actuated Cycle Length (s)			63.6		Sum of lost time (s)	16.0
Intersection Capacity Utilization			51.1%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

Lanes, Volumes, Timings  
1: Dunlop Street & Robert Street East

Future Background 2030  
PM Peak Hour



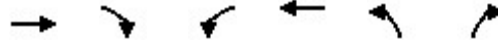
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	176	22	49	248	23	49
Future Volume (vph)	176	22	49	248	23	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.985			0.908		
Flt Protected				0.992	0.984	
Satd. Flow (prot)	1787	0	0	1868	1716	0
Flt Permitted				0.992	0.984	
Satd. Flow (perm)	1787	0	0	1868	1716	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	1218.0			320.1	410.5	
Travel Time (s)	87.7			23.0	29.6	
Confl. Peds. (#/hr)	1		1			4
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	6%	5%	2%	2%	0%	0%
Adj. Flow (vph)	200	25	56	282	26	56
Shared Lane Traffic (%)						
Lane Group Flow (vph)	225	0	0	338	82	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	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	14		24	24		14
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	42.1%
	ICU Level of Service A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis  
 1: Dunlop Street & Robert Street East

Future Background 2030  
 PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	→			←	↘	↙
Traffic Volume (veh/h)	176	22	49	248	23	49
Future Volume (Veh/h)	176	22	49	248	23	49
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	200	25	56	282	26	56
Pedestrians				4	1	
Lane Width (m)				3.7	3.7	
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			226			608 218
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			226			608 218
tC, single (s)			4.1			6.4 6.2
tC, 2 stage (s)						
tF (s)			2.2			3.5 3.3
p0 queue free %			96			94 93
cM capacity (veh/h)			1341			443 824
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	225	338	82			
Volume Left	0	56	26			
Volume Right	25	0	56			
cSH	1700	1341	647			
Volume to Capacity	0.13	0.04	0.13			
Queue Length 95th (m)	0.0	1.0	3.3			
Control Delay (s)	0.0	1.6	11.4			
Lane LOS			A	B		
Approach Delay (s)	0.0	1.6	11.4			
Approach LOS			B			
<b>Intersection Summary</b>						
Average Delay			2.3			
Intersection Capacity Utilization			42.1%	ICU Level of Service		A
Analysis Period (min)			15			



2: Street A/Dufferin Street/Burke Street & Robert Street East

PM Peak Hour



















Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	15	183	0	0	243	54	0	0	0	36	0	29
Future Volume (vph)	15	183	0	0	243	54	0	0	0	36	0	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
Fr <sub>t</sub>					0.975						0.939	
Fl <sub>t</sub> Protected		0.996									0.973	
Satd. Flow (prot)	0	1829	0	0	1858	0	0	1883	0	0	1658	0
Fl <sub>t</sub> Permitted		0.996									0.973	
Satd. Flow (perm)	0	1829	0	0	1858	0	0	1883	0	0	1658	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		320.1			250.8			228.0			76.2	
Travel Time (s)		23.0			18.1			16.4			5.5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	5%	2%	2%	1%	0%	2%	2%	2%	0%	2%	13%
Adj. Flow (vph)	16	193	0	0	256	57	0	0	0	38	0	31
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	209	0	0	313	0	0	0	0	0	69	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)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	32.5%
ICU Level of Service	A
Analysis Period (min)	15

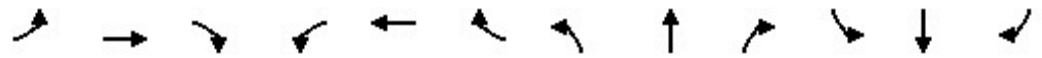
HCM Unsignalized Intersection Capacity Analysis  
 2: Street A/Dufferin Street/Burke Street & Robert Street East

Future Background 2030  
 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	183	0	0	243	54	0	0	0	36	0	29
Future Volume (Veh/h)	15	183	0	0	243	54	0	0	0	36	0	29
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	16	193	0	0	256	57	0	0	0	38	0	31
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	313			193			540	538	193	510	510	284
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	313			193			540	538	193	510	510	284
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.3
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.4
p0 queue free %	99			100			100	100	100	92	100	96
cM capacity (veh/h)	1259			1380			429	444	849	473	461	729
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	209	313	0	69								
Volume Left	16	0	0	38								
Volume Right	0	57	0	31								
cSH	1259	1380	1700	561								
Volume to Capacity	0.01	0.00	0.00	0.12								
Queue Length 95th (m)	0.3	0.0	0.0	3.2								
Control Delay (s)	0.7	0.0	0.0	12.3								
Lane LOS	A		A	B								
Approach Delay (s)	0.7	0.0	0.0	12.3								
Approach LOS			A	B								
Intersection Summary												
Average Delay			1.7									
Intersection Capacity Utilization			32.5%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings  
 3: Thompson Road/Centennial Drive & Robert Street East

Future Background 2030  
 PM Peak Hour



















Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	198	9	93	261	20	4	16	73	18	30	36
Future Volume (vph)	11	198	9	93	261	20	4	16	73	18	30	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
Frt		0.995			0.993			0.893			0.943	
Flt Protected		0.998			0.988			0.998			0.989	
Satd. Flow (prot)	0	1823	0	0	1863	0	0	1679	0	0	1757	0
Flt Permitted		0.998			0.988			0.998			0.989	
Satd. Flow (perm)	0	1823	0	0	1863	0	0	1679	0	0	1757	0
Link Speed (k/h)		50			50			48			48	
Link Distance (m)		250.8			471.9			224.8			77.4	
Travel Time (s)		18.1			34.0			16.9			5.8	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	5%	2%	2%	1%	0%	2%	2%	2%	0%	2%	3%
Adj. Flow (vph)	11	204	9	96	269	21	4	16	75	19	31	37
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	224	0	0	386	0	0	95	0	0	87	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)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			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  
 3: Thompson Road/Centennial Drive & Robert Street East

Future Background 2030  
 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	198	9	93	261	20	4	16	73	18	30	36
Future Volume (Veh/h)	11	198	9	93	261	20	4	16	73	18	30	36
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	11	204	9	96	269	21	4	16	75	19	31	37
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			213			754	712	208	785	706	280
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	290			213			754	712	208	785	706	280
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			93			99	95	91	93	91	95
cM capacity (veh/h)	1283			1357			270	329	832	258	332	757
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	224	386	95	87								
Volume Left	11	96	4	19								
Volume Right	9	21	75	37								
cSH	1283	1357	619	403								
Volume to Capacity	0.01	0.07	0.15	0.22								
Queue Length 95th (m)	0.2	1.7	4.1	6.2								
Control Delay (s)	0.5	2.5	11.9	16.4								
Lane LOS	A	A	B	C								
Approach Delay (s)	0.5	2.5	11.9	16.4								
Approach LOS			B	C								
Intersection Summary												
Average Delay			4.6									
Intersection Capacity Utilization			53.1%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings  
4: Fuller Avenue & Robert Street East

Future Background 2030  
PM Peak Hour

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	120	159	180	186	255	196
Future Volume (vph)	120	159	180	186	255	196
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0	0.0	0.0			0.0
Storage Lanes	1	1	1			1
Taper Length (m)	2.5		2.5			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1755	1601	1789	1865	1883	1601
Flt Permitted	0.950		0.529			
Satd. Flow (perm)	1755	1601	996	1865	1883	1601
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		173				213
Link Speed (k/h)	50			60	60	
Link Distance (m)	471.9			243.5	103.8	
Travel Time (s)	34.0			14.6	6.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	4%	2%	2%	3%	2%	2%
Adj. Flow (vph)	130	173	196	202	277	213
Shared Lane Traffic (%)						
Lane Group Flow (vph)	130	173	196	202	277	213
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Number of Detectors	1	1	1	2	2	1
Detector Template	Left	Right	Left	Thru	Thru	Right
Leading Detector (m)	6.1	6.1	6.1	30.5	30.5	6.1
Trailing Detector (m)	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
Detector 1 Size(m)	6.1	6.1	6.1	1.8	1.8	6.1
Detector 1 Type	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
Detector 1 Queue (s)	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
Detector 2 Position(m)				28.7	28.7	
Detector 2 Size(m)				1.8	1.8	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	

Lanes, Volumes, Timings  
4: Fuller Avenue & Robert Street East

Future Background 2030  
PM Peak Hour

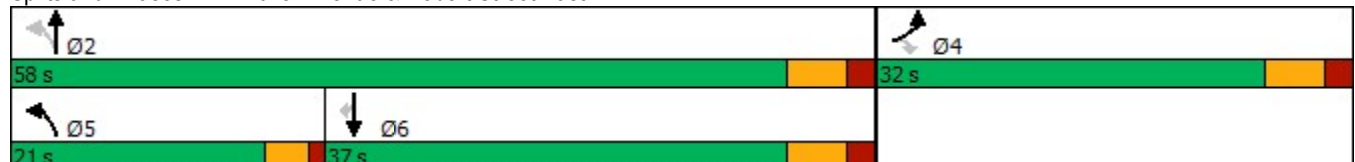


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Permitted Phases		4	2			6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	25.0	25.0	9.0	30.0	30.0	30.0
Total Split (s)	32.0	32.0	21.0	58.0	37.0	37.0
Total Split (%)	35.6%	35.6%	23.3%	64.4%	41.1%	41.1%
Maximum Green (s)	26.0	26.0	17.0	52.0	31.0	31.0
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	6.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	Max	Max	Max
Walk Time (s)	5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0
Act Effct Green (s)	11.6	11.6	54.0	52.0	39.8	39.8
Actuated g/C Ratio	0.15	0.15	0.71	0.69	0.53	0.53
v/c Ratio	0.48	0.44	0.25	0.16	0.28	0.23
Control Delay	35.6	8.8	4.6	4.8	11.7	2.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.6	8.8	4.6	4.8	11.7	2.5
LOS	D	A	A	A	B	A
Approach Delay	20.3			4.7	7.7	
Approach LOS	C			A	A	

Intersection Summary

Area Type: Other  
 Cycle Length: 90  
 Actuated Cycle Length: 75.7  
 Natural Cycle: 65  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.48  
 Intersection Signal Delay: 9.9  
 Intersection Capacity Utilization 45.1%  
 Analysis Period (min) 15  
 Intersection LOS: A  
 ICU Level of Service A

Splits and Phases: 4: Fuller Avenue & Robert Street East



Queues

Future Background 2030

4: Fuller Avenue & Robert Street East

PM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	130	173	196	202	277	213
v/c Ratio	0.48	0.44	0.25	0.16	0.28	0.23
Control Delay	35.6	8.8	4.6	4.8	11.7	2.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.6	8.8	4.6	4.8	11.7	2.5
Queue Length 50th (m)	17.2	0.0	6.9	8.0	19.8	0.0
Queue Length 95th (m)	32.6	15.0	15.5	17.5	40.4	10.3
Internal Link Dist (m)	447.9			219.5	79.8	
Turn Bay Length (m)	30.0					
Base Capacity (vph)	603	663	889	1282	989	942
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.26	0.22	0.16	0.28	0.23

Intersection Summary

HCM Signalized Intersection Capacity Analysis  
4: Fuller Avenue & Robert Street East

Future Background 2030  
PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	120	159	180	186	255	196
Future Volume (vph)	120	159	180	186	255	196
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	4.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1755	1601	1789	1865	1883	1601
Flt Permitted	0.95	1.00	0.53	1.00	1.00	1.00
Satd. Flow (perm)	1755	1601	996	1865	1883	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	130	173	196	202	277	213
RTOR Reduction (vph)	0	146	0	0	0	101
Lane Group Flow (vph)	130	27	196	202	277	112
Heavy Vehicles (%)	4%	2%	2%	3%	2%	2%
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	11.6	11.6	52.0	52.0	39.8	39.8
Effective Green, g (s)	11.6	11.6	52.0	52.0	39.8	39.8
Actuated g/C Ratio	0.15	0.15	0.69	0.69	0.53	0.53
Clearance Time (s)	6.0	6.0	4.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	269	245	771	1282	991	842
v/s Ratio Prot	c0.07		c0.03	0.11	c0.15	
v/s Ratio Perm		0.02	0.15			0.07
v/c Ratio	0.48	0.11	0.25	0.16	0.28	0.13
Uniform Delay, d1	29.3	27.5	4.3	4.1	9.9	9.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.4	0.2	0.2	0.3	0.7	0.3
Delay (s)	30.6	27.7	4.5	4.4	10.6	9.4
Level of Service	C	C	A	A	B	A
Approach Delay (s)	29.0			4.4	10.1	
Approach LOS	C			A	B	

Intersection Summary

HCM 2000 Control Delay	13.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	75.6	Sum of lost time (s)	16.0
Intersection Capacity Utilization	45.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Lanes, Volumes, Timings  
5: Main Street & Edward Street

Future Background 2030  
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕			↕	
Traffic Volume (vph)	7	22	74	59	32	31	110	646	39	42	578	11
Future Volume (vph)	7	22	74	59	32	31	110	646	39	42	578	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		30.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor		0.99			1.00	0.99		1.00			1.00	
Frt		0.902				0.850		0.993			0.997	
Flt Protected		0.997			0.969			0.993			0.997	
Satd. Flow (prot)	0	1709	0	0	1862	1633	0	3499	0	0	3530	0
Flt Permitted		0.971			0.822			0.762			0.861	
Satd. Flow (perm)	0	1664	0	0	1576	1612	0	2684	0	0	3048	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		78				91		9			4	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		135.5			260.4			246.8			121.8	
Travel Time (s)		9.8			18.7			17.8			8.8	
Confl. Peds. (#/hr)	1		3	3		1	3		8	8		3
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	2%	3%	0%	0%	3%	0%
Adj. Flow (vph)	7	23	78	62	34	33	116	680	41	44	608	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	108	0	0	96	33	0	837	0	0	664	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)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	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	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
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  
5: Main Street & Edward Street

Future Background 2030  
PM Peak Hour

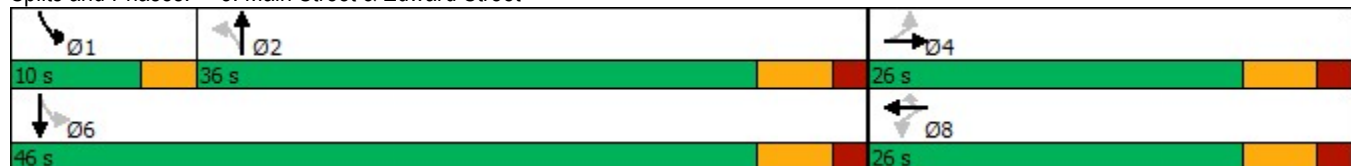


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	8.0	8.0		7.0	30.0	
Minimum Split (s)	26.0	26.0		26.0	26.0	26.0	31.0	31.0		10.0	36.0	
Total Split (s)	26.0	26.0		26.0	26.0	26.0	36.0	36.0		10.0	46.0	
Total Split (%)	36.1%	36.1%		36.1%	36.1%	36.1%	50.0%	50.0%		13.9%	63.9%	
Maximum Green (s)	20.0	20.0		20.0	20.0	20.0	30.0	30.0		7.0	40.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		0.0	2.0	
Lost Time Adjust (s)		0.0			0.0	0.0		0.0			0.0	
Total Lost Time (s)		6.0			6.0	6.0		6.0			6.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	Max	Max		None	Max	
Walk Time (s)	12.0	12.0		12.0	12.0	12.0	15.0	15.0			20.0	
Flash Dont Walk (s)	8.0	8.0		8.0	8.0	8.0	10.0	10.0			10.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0			0	
Act Effct Green (s)		10.8			10.8	10.8		44.4			44.4	
Actuated g/C Ratio		0.17			0.17	0.17		0.71			0.71	
v/c Ratio		0.31			0.35	0.09		0.44			0.31	
Control Delay		11.9			26.9	0.5		6.4			5.4	
Queue Delay		0.0			0.0	0.0		0.0			0.0	
Total Delay		11.9			26.9	0.5		6.4			5.4	
LOS		B			C	A		A			A	
Approach Delay		11.9			20.1			6.4			5.4	
Approach LOS		B			C			A			A	

Intersection Summary

Area Type:	Other
Cycle Length:	72
Actuated Cycle Length:	62.7
Natural Cycle:	70
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.44
Intersection Signal Delay:	7.4
Intersection LOS:	A
Intersection Capacity Utilization:	75.1%
ICU Level of Service:	D
Analysis Period (min):	15

Splits and Phases: 5: Main Street & Edward Street



## Queues

Future Background 2030

## 5: Main Street &amp; Edward Street

PM Peak Hour




















Lane Group	EBT	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	108	96	33	837	664
v/c Ratio	0.31	0.35	0.09	0.44	0.31
Control Delay	11.9	26.9	0.5	6.4	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	11.9	26.9	0.5	6.4	5.4
Queue Length 50th (m)	3.0	9.9	0.0	21.3	15.0
Queue Length 95th (m)	14.2	21.5	0.2	38.1	26.5
Internal Link Dist (m)	111.5	236.4		222.8	97.8
Turn Bay Length (m)			30.0		
Base Capacity (vph)	584	503	576	1901	2157
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.18	0.19	0.06	0.44	0.31

## Intersection Summary

HCM Signalized Intersection Capacity Analysis  
5: Main Street & Edward Street

















Future Background 2030  
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	22	74	59	32	31	110	646	39	42	578	11
Future Volume (vph)	7	22	74	59	32	31	110	646	39	42	578	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	6.0		6.0			6.0	
Lane Util. Factor		1.00			1.00	1.00		0.95			0.95	
Frbp, ped/bikes		0.99			1.00	0.99		1.00			1.00	
Flpb, ped/bikes		1.00			1.00	1.00		1.00			1.00	
Frt		0.90			1.00	0.85		0.99			1.00	
Flt Protected		1.00			0.97	1.00		0.99			1.00	
Satd. Flow (prot)		1710			1858	1612		3497			3529	
Flt Permitted		0.97			0.82	1.00		0.76			0.86	
Satd. Flow (perm)		1665			1577	1612		2684			3048	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	7	23	78	62	34	33	116	680	41	44	608	12
RTOR Reduction (vph)	0	67	0	0	0	28	0	3	0	0	1	0
Lane Group Flow (vph)	0	41	0	0	96	5	0	834	0	0	663	0
Confl. Peds. (#/hr)	1		3	3		1	3		8	8		3
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	2%	3%	0%	0%	3%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		8.8			8.8	8.8		43.1			43.1	
Effective Green, g (s)		8.8			8.8	8.8		43.1			43.1	
Actuated g/C Ratio		0.14			0.14	0.14		0.67			0.67	
Clearance Time (s)		6.0			6.0	6.0		6.0			6.0	
Vehicle Extension (s)		3.0			3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)		229			217	221		1810			2055	
v/s Ratio Prot												
v/s Ratio Perm		0.02			c0.06	0.00		c0.31			0.22	
v/c Ratio		0.18			0.44	0.02		0.46			0.32	
Uniform Delay, d1		24.4			25.3	23.8		4.9			4.3	
Progression Factor		1.00			1.00	1.00		1.00			1.00	
Incremental Delay, d2		0.4			1.4	0.0		0.8			0.1	
Delay (s)		24.7			26.7	23.9		5.8			4.4	
Level of Service		C			C	C		A			A	
Approach Delay (s)		24.7			26.0			5.8			4.4	
Approach LOS		C			C			A			A	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			7.9				HCM 2000 Level of Service				A	
HCM 2000 Volume to Capacity ratio			0.49									
Actuated Cycle Length (s)			63.9				Sum of lost time (s)			15.0		
Intersection Capacity Utilization			75.1%				ICU Level of Service				D	
Analysis Period (min)			15									

c Critical Lane Group

Lanes, Volumes, Timings  
6: Dunlop Street & Edward Street

















Future Background 2030  
PM Peak Hour

													
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	43	0	0	0	0	0	0	0	0	0	0	42	
Future Volume (vph)	43	0	0	0	0	0	0	0	0	0	0	42	
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												0.865	
Flt Protected	0.950												
Satd. Flow (prot)	0	1825	0	0	1921	0	0	1883	0	0	1613	0	
Flt Permitted	0.950												
Satd. Flow (perm)	0	1825	0	0	1921	0	0	1883	0	0	1613	0	
Link Speed (k/h)	50		50				50				50		
Link Distance (m)	802.7				150.8				325.8				410.5
Travel Time (s)	57.8				10.9				23.5				29.6
Confl. Peds. (#/hr)	1							1					
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	
Heavy Vehicles (%)	0%	0%	2%	2%	0%	0%	2%	2%	2%	0%	2%	3%	
Adj. Flow (vph)	52	0	0	0	0	0	0	0	0	0	0	51	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	52	0	0	0	0	0	0	0	0	51	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)	1.6		1.6				1.6				1.6		
Two way Left Turn Lane													
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	
Turning Speed (k/h)	24		14		24		14		24		14		
Sign Control	Free				Free				Stop				
<b>Intersection Summary</b>													
Area Type:	Other												
Control Type:	Unsignalized												
Intersection Capacity Utilization	14.2%						ICU Level of Service A						
Analysis Period (min)	15												

# HCM Unsignalized Intersection Capacity Analysis














## 6: Dunlop Street & Edward Street

Future Background 2030  
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	43	0	0	0	0	0	0	0	0	0	0	42
Future Volume (Veh/h)	43	0	0	0	0	0	0	0	0	0	0	42
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	52	0	0	0	0	0	0	0	0	0	0	51
Pedestrians												1
Lane Width (m)												3.7
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	1			0			155	105	0	105	105	1
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1			0			155	105	0	105	105	1
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 %	97			100			100	100	100	100	100	95
cM capacity (veh/h)	1634			1623			754	759	1085	857	759	1080
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	52	0	0	51								
Volume Left	52	0	0	0								
Volume Right	0	0	0	51								
cSH	1634	1700	1700	1080								
Volume to Capacity	0.03	0.00	0.00	0.05								
Queue Length 95th (m)	0.7	0.0	0.0	1.1								
Control Delay (s)	7.3	0.0	0.0	8.5								
Lane LOS	A		A	A								
Approach Delay (s)	7.3	0.0	0.0	8.5								
Approach LOS			A	A								
<b>Intersection Summary</b>												
Average Delay			7.9									
Intersection Capacity Utilization			14.2%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings  
7: Main Street & Thompson Road

Future Background 2030  
PM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	201	57	745	209	55	661
Future Volume (vph)	201	57	745	209	55	661
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	20.0		15.0	0.0	
Storage Lanes	1	1		1	0	
Taper Length (m)	2.5				2.5	
Lane Util. Factor	1.00	1.00	0.95	1.00	0.95	0.95
Ped Bike Factor		0.99				
Frt		0.850		0.850		
Flt Protected	0.950					0.996
Satd. Flow (prot)	1807	1498	3579	1601	0	3537
Flt Permitted	0.950					0.843
Satd. Flow (perm)	1807	1478	3579	1601	0	2994
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		59		143		
Link Speed (k/h)	48		50			50
Link Distance (m)	653.3		164.4			246.8
Travel Time (s)	49.0		11.8			17.8
Confl. Peds. (#/hr)		1				
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	1%	9%	2%	2%	0%	3%
Adj. Flow (vph)	209	59	776	218	57	689
Shared Lane Traffic (%)						
Lane Group Flow (vph)	209	59	776	218	0	746
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Number of Detectors	1	1	2	1	1	2
Detector Template	Left	Right	Thru	Right	Left	Thru
Leading Detector (m)	6.1	6.1	30.5	6.1	6.1	30.5
Trailing Detector (m)	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
Detector 1 Size(m)	6.1	6.1	1.8	6.1	6.1	1.8
Detector 1 Type	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
Detector 1 Queue (s)	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
Detector 2 Position(m)			28.7			28.7
Detector 2 Size(m)			1.8			1.8
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0

Lanes, Volumes, Timings  
7: Main Street & Thompson Road

Future Background 2030  
PM Peak Hour

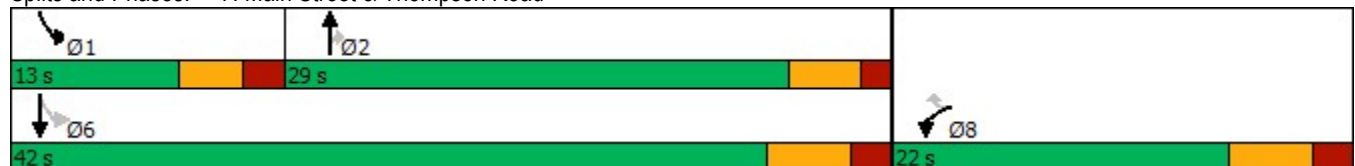


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2	6	
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	8.0	8.0	5.0	5.0	8.0	34.0
Minimum Split (s)	22.0	22.0	21.0	21.0	13.0	40.0
Total Split (s)	22.0	22.0	29.0	29.0	13.0	42.0
Total Split (%)	34.4%	34.4%	45.3%	45.3%	20.3%	65.6%
Maximum Green (s)	16.0	16.0	24.0	24.0	8.0	36.0
Yellow Time (s)	4.0	4.0	3.5	3.5	3.0	4.0
All-Red Time (s)	2.0	2.0	1.5	1.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	6.0	6.0	5.0	5.0		6.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Max	Max	None	Max
Walk Time (s)	5.0	5.0	5.0	5.0		5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0		11.0
Pedestrian Calls (#/hr)	0	0	0	0		0
Act Effct Green (s)	12.3	12.3	40.3	40.3		39.3
Actuated g/C Ratio	0.19	0.19	0.63	0.63		0.62
v/c Ratio	0.60	0.18	0.34	0.20		0.40
Control Delay	30.1	7.6	6.4	2.8		7.5
Queue Delay	0.0	0.0	0.0	0.0		0.0
Total Delay	30.1	7.6	6.4	2.8		7.5
LOS	C	A	A	A		A
Approach Delay	25.1		5.6			7.5
Approach LOS	C		A			A

Intersection Summary

Area Type: Other  
 Cycle Length: 64  
 Actuated Cycle Length: 63.6  
 Natural Cycle: 65  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.60  
 Intersection Signal Delay: 8.9  
 Intersection LOS: A  
 Intersection Capacity Utilization 74.3%  
 ICU Level of Service D  
 Analysis Period (min) 15

Splits and Phases: 7: Main Street & Thompson Road





## 7: Main Street &amp; Thompson Road

PM Peak Hour
















Lane Group	WBL	WBR	NBT	NBR	SBT
Lane Group Flow (vph)	209	59	776	218	746
v/c Ratio	0.60	0.18	0.34	0.20	0.40
Control Delay	30.1	7.6	6.4	2.8	7.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	30.1	7.6	6.4	2.8	7.5
Queue Length 50th (m)	20.9	0.0	18.8	2.9	19.9
Queue Length 95th (m)	38.3	7.5	32.7	11.2	35.3
Internal Link Dist (m)	629.3		140.4		222.8
Turn Bay Length (m)		20.0		15.0	
Base Capacity (vph)	456	417	2267	1066	1849
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.46	0.14	0.34	0.20	0.40

## Intersection Summary

# HCM Signalized Intersection Capacity Analysis

## 7: Main Street & Thompson Road

Future Background 2030  
PM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	201	57	745	209	55	661
Future Volume (vph)	201	57	745	209	55	661
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	5.0	5.0		6.0
Lane Util. Factor	1.00	1.00	0.95	1.00		0.95
Frpb, ped/bikes	1.00	0.99	1.00	1.00		1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00		1.00
Frt	1.00	0.85	1.00	0.85		1.00
Flt Protected	0.95	1.00	1.00	1.00		1.00
Satd. Flow (prot)	1807	1478	3579	1601		3538
Flt Permitted	0.95	1.00	1.00	1.00		0.84
Satd. Flow (perm)	1807	1478	3579	1601		2995
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	209	59	776	218	57	689
RTOR Reduction (vph)	0	48	0	52	0	0
Lane Group Flow (vph)	209	11	776	166	0	746
Confl. Peds. (#/hr)		1				
Heavy Vehicles (%)	1%	9%	2%	2%	0%	3%
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2	6	
Actuated Green, G (s)	12.3	12.3	40.3	40.3		39.3
Effective Green, g (s)	12.3	12.3	40.3	40.3		39.3
Actuated g/C Ratio	0.19	0.19	0.63	0.63		0.62
Clearance Time (s)	6.0	6.0	5.0	5.0		6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0
Lane Grp Cap (vph)	349	285	2267	1014		1850
v/s Ratio Prot	c0.12		0.22			
v/s Ratio Perm		0.01		0.10		c0.25
v/c Ratio	0.60	0.04	0.34	0.16		0.40
Uniform Delay, d1	23.4	20.9	5.5	4.8		6.2
Progression Factor	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	2.8	0.1	0.4	0.3		0.1
Delay (s)	26.2	20.9	5.9	5.1		6.3
Level of Service	C	C	A	A		A
Approach Delay (s)	25.0		5.7			6.3
Approach LOS	C		A			A
<b>Intersection Summary</b>						
HCM 2000 Control Delay			8.5		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.49			
Actuated Cycle Length (s)			63.6		Sum of lost time (s)	16.0
Intersection Capacity Utilization			74.3%		ICU Level of Service	D
Analysis Period (min)			15			

c Critical Lane Group

Lanes, Volumes, Timings  
 1: Dunlop Street & Robert Street East

Future Total 2030  
 AM Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	251	50	79	201	48	51
Future Volume (vph)	251	50	79	201	48	51
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	0.978			0.930		
Flt Protected				0.986	0.976	
Satd. Flow (prot)	1761	0	0	1744	1676	0
Flt Permitted				0.986	0.976	
Satd. Flow (perm)	1761	0	0	1744	1676	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	1218.0			320.1	410.5	
Travel Time (s)	87.7			23.0	29.6	
Confl. Peds. (#/hr)	2		2			1
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Heavy Vehicles (%)	7%	5%	5%	10%	3%	5%
Adj. Flow (vph)	398	79	125	319	76	81
Shared Lane Traffic (%)						
Lane Group Flow (vph)	477	0	0	444	157	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	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	14		24	24		14
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	47.3%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis  
 1: Dunlop Street & Robert Street East

Future Total 2030  
 AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	→			←	←	↘
Traffic Volume (veh/h)	251	50	79	201	48	51
Future Volume (Veh/h)	251	50	79	201	48	51
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Hourly flow rate (vph)	398	79	125	319	76	81
Pedestrians				1	2	
Lane Width (m)				3.7	3.7	
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			479	1008		440
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			479	1008		440
tC, single (s)			4.1	6.4	6.2	
tC, 2 stage (s)						
tF (s)			2.2	3.5	3.3	
p0 queue free %			88	67	87	
cM capacity (veh/h)			1066	234	609	
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>NB 1</b>			
Volume Total	477	444	157			
Volume Left	0	125	76			
Volume Right	79	0	81			
cSH	1700	1066	343			
Volume to Capacity	0.28	0.12	0.46			
Queue Length 95th (m)	0.0	3.0	17.5			
Control Delay (s)	0.0	3.4	24.1			
Lane LOS			A	C		
Approach Delay (s)	0.0	3.4	24.1			
Approach LOS				C		
<b>Intersection Summary</b>						
Average Delay			4.9			
Intersection Capacity Utilization			47.3%	ICU Level of Service	A	
Analysis Period (min)			15			

Lanes, Volumes, Timings

Future Total 2030

2: Street A/Dufferin Street/Burke Street & Robert Street East

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	26	189	68	35	193	66	18	13	23	42	19	35
Future Volume (vph)	26	189	68	35	193	66	18	13	23	42	19	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		0.968			0.970			0.943			0.951	
Flt Protected		0.995			0.994			0.983			0.978	
Satd. Flow (prot)	0	1768	0	0	1751	0	0	1746	0	0	1569	0
Flt Permitted		0.995			0.994			0.983			0.978	
Satd. Flow (perm)	0	1768	0	0	1751	0	0	1746	0	0	1569	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		320.1			250.8			228.0			76.2	
Travel Time (s)		23.0			18.1			16.4			5.5	
Confl. Peds. (#/hr)	2						2					
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Heavy Vehicles (%)	9%	5%	2%	2%	4%	13%	2%	2%	2%	0%	2%	37%
Adj. Flow (vph)	39	282	101	52	288	99	27	19	34	63	28	52
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	422	0	0	439	0	0	80	0	0	143	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)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	37.7%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis  
 2: Street A/Dufferin Street/Burke Street & Robert Street East

















Future Total 2030  
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	26	189	68	35	193	66	18	13	23	42	19	35
Future Volume (Veh/h)	26	189	68	35	193	66	18	13	23	42	19	35
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Hourly flow rate (vph)	39	282	101	52	288	99	27	19	34	63	28	52
Pedestrians												2
Lane Width (m)												3.7
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	389			383			918	904	332	898	904	340
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	389			383			918	904	332	898	904	340
tC, single (s)	4.2			4.1			7.1	6.5	6.2	7.1	6.5	6.6
tC, 2 stage (s)												
tF (s)	2.3			2.2			3.5	4.0	3.3	3.5	4.0	3.6
p0 queue free %	97			96			86	93	95	72	89	92
cM capacity (veh/h)	1130			1175			199	255	709	221	255	629
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	422	439	80	143								
Volume Left	39	52	27	63								
Volume Right	101	99	34	52								
cSH	1130	1175	310	300								
Volume to Capacity	0.03	0.04	0.26	0.48								
Queue Length 95th (m)	0.8	1.1	7.7	18.5								
Control Delay (s)	1.1	1.4	20.6	27.5								
Lane LOS	A	A	C	D								
Approach Delay (s)	1.1	1.4	20.6	27.5								
Approach LOS			C	D								
Intersection Summary												
Average Delay			6.1									
Intersection Capacity Utilization			37.7%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings  
 3: Thompson Road/Centennial Drive & Robert Street East

Future Total 2030  
 AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	190	34	144	267	15	11	24	99	20	18	9
Future Volume (vph)	29	190	34	144	267	15	11	24	99	20	18	9
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			0.995			0.900			0.975	
Flt Protected		0.994			0.983			0.996			0.979	
Satd. Flow (prot)	0	1828	0	0	1651	0	0	1452	0	0	1633	0
Flt Permitted		0.994			0.983			0.996			0.979	
Satd. Flow (perm)	0	1828	0	0	1651	0	0	1452	0	0	1633	0
Link Speed (k/h)		50			50			48			48	
Link Distance (m)		250.8			471.9			224.8			77.4	
Travel Time (s)		18.1			34.0			16.9			5.8	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	16%	1%	0%	28%	7%	0%	0%	5%	24%	6%	13%	25%
Adj. Flow (vph)	36	238	43	180	334	19	14	30	124	25	23	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	317	0	0	533	0	0	168	0	0	59	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)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			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

## 3: Thompson Road/Centennial Drive & Robert Street East

Future Total 2030  
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	190	34	144	267	15	11	24	99	20	18	9
Future Volume (Veh/h)	29	190	34	144	267	15	11	24	99	20	18	9
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	36	238	43	180	334	19	14	30	124	25	23	11
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	353			281			1058	1044	260	1174	1056	344
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	353			281			1058	1044	260	1174	1056	344
tC, single (s)	4.3			4.4			7.1	6.5	6.4	7.2	6.6	6.5
tC, 2 stage (s)												
tF (s)	2.3			2.5			3.5	4.0	3.5	3.6	4.1	3.5
p0 queue free %	97			84			91	84	83	76	87	98
cM capacity (veh/h)	1132			1146			156	185	729	104	176	650
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	317	533	168	59								
Volume Left	36	180	14	25								
Volume Right	43	19	124	11								
cSH	1132	1146	398	152								
Volume to Capacity	0.03	0.16	0.42	0.39								
Queue Length 95th (m)	0.7	4.2	15.6	12.7								
Control Delay (s)	1.2	4.1	20.5	43.1								
Lane LOS	A	A	C	E								
Approach Delay (s)	1.2	4.1	20.5	43.1								
Approach LOS			C	E								
Intersection Summary												
Average Delay			7.9									
Intersection Capacity Utilization			54.8%		ICU Level of Service				A			
Analysis Period (min)			15									



Lanes, Volumes, Timings  
4: Fuller Avenue & Robert Street East

Future Total 2030  
AM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	180	167	175	222	219	188
Future Volume (vph)	180	167	175	222	219	188
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0	0.0	0.0			0.0
Storage Lanes	1	1	1			1
Taper Length (m)	2.5		2.5			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1601	1570	1738	1847	1830	1338
Flt Permitted	0.950		0.515			
Satd. Flow (perm)	1601	1570	942	1847	1830	1338
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		206				232
Link Speed (k/h)	50			60	60	
Link Distance (m)	471.9			243.5	103.8	
Travel Time (s)	34.0			14.6	6.2	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles (%)	14%	4%	5%	4%	5%	22%
Adj. Flow (vph)	222	206	216	274	270	232
Shared Lane Traffic (%)						
Lane Group Flow (vph)	222	206	216	274	270	232
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Number of Detectors	1	1	1	2	2	1
Detector Template	Left	Right	Left	Thru	Thru	Right
Leading Detector (m)	6.1	6.1	6.1	30.5	30.5	6.1
Trailing Detector (m)	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
Detector 1 Size(m)	6.1	6.1	6.1	1.8	1.8	6.1
Detector 1 Type	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
Detector 1 Queue (s)	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
Detector 2 Position(m)				28.7	28.7	
Detector 2 Size(m)				1.8	1.8	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	

Lanes, Volumes, Timings  
4: Fuller Avenue & Robert Street East

Future Total 2030  
AM Peak Hour

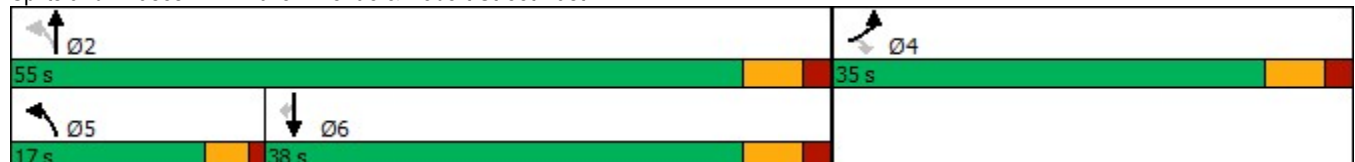


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Permitted Phases		4	2			6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	25.0	25.0	9.0	30.0	30.0	30.0
Total Split (s)	35.0	35.0	17.0	55.0	38.0	38.0
Total Split (%)	38.9%	38.9%	18.9%	61.1%	42.2%	42.2%
Maximum Green (s)	29.0	29.0	13.0	49.0	32.0	32.0
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	6.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	Max	Max	Max
Walk Time (s)	5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0
Act Effct Green (s)	15.8	15.8	51.2	49.2	35.8	35.8
Actuated g/C Ratio	0.21	0.21	0.66	0.64	0.46	0.46
v/c Ratio	0.68	0.42	0.30	0.23	0.32	0.31
Control Delay	38.9	6.8	6.9	7.3	16.0	3.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.9	6.8	6.9	7.3	16.0	3.7
LOS	D	A	A	A	B	A
Approach Delay	23.4			7.1	10.3	
Approach LOS	C			A	B	

Intersection Summary

Area Type: Other  
 Cycle Length: 90  
 Actuated Cycle Length: 77  
 Natural Cycle: 65  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.68  
 Intersection Signal Delay: 13.2  
 Intersection Capacity Utilization 44.5%  
 Analysis Period (min) 15  
 Intersection LOS: B  
 ICU Level of Service A

Splits and Phases: 4: Fuller Avenue & Robert Street East



Queues

Future Total 2030

4: Fuller Avenue & Robert Street East

AM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	222	206	216	274	270	232
v/c Ratio	0.68	0.42	0.30	0.23	0.32	0.31
Control Delay	38.9	6.8	6.9	7.3	16.0	3.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.9	6.8	6.9	7.3	16.0	3.7
Queue Length 50th (m)	29.9	0.0	10.3	14.8	23.3	0.0
Queue Length 95th (m)	44.7	10.6	20.8	27.8	43.6	9.3
Internal Link Dist (m)	447.9			219.5	79.8	
Turn Bay Length (m)	30.0					
Base Capacity (vph)	604	721	760	1178	850	746
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.29	0.28	0.23	0.32	0.31

Intersection Summary

# HCM Signalized Intersection Capacity Analysis

## 4: Fuller Avenue & Robert Street East

Future Total 2030  
AM Peak Hour





















Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	180	167	175	222	219	188
Future Volume (vph)	180	167	175	222	219	188
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	4.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1601	1570	1738	1847	1830	1338
Flt Permitted	0.95	1.00	0.51	1.00	1.00	1.00
Satd. Flow (perm)	1601	1570	942	1847	1830	1338
Peak-hour factor, PHF	0.81	0.81	0.81	0.81	0.81	0.81
Adj. Flow (vph)	222	206	216	274	270	232
RTOR Reduction (vph)	0	164	0	0	0	124
Lane Group Flow (vph)	222	42	216	274	270	108
Heavy Vehicles (%)	14%	4%	5%	4%	5%	22%
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	15.8	15.8	49.2	49.2	35.9	35.9
Effective Green, g (s)	15.8	15.8	49.2	49.2	35.9	35.9
Actuated g/C Ratio	0.21	0.21	0.64	0.64	0.47	0.47
Clearance Time (s)	6.0	6.0	4.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	328	322	698	1180	853	623
v/s Ratio Prot	c0.14		c0.04	0.15	0.15	
v/s Ratio Perm		0.03	c0.16			0.08
v/c Ratio	0.68	0.13	0.31	0.23	0.32	0.17
Uniform Delay, d1	28.2	25.0	6.0	5.9	12.9	11.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.5	0.2	0.3	0.5	1.0	0.6
Delay (s)	33.7	25.2	6.2	6.4	13.8	12.5
Level of Service	C	C	A	A	B	B
Approach Delay (s)	29.6			6.3	13.2	
Approach LOS	C			A	B	

### Intersection Summary

HCM 2000 Control Delay	15.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	77.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	44.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

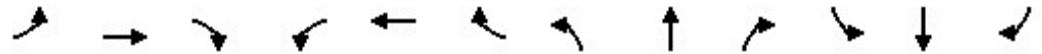
Lanes, Volumes, Timings  
5: Main Street & Edward Street

Future Total 2030  
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	5	18	117	12	47	30	371	105	32	407	2
Future Volume (vph)	0	5	18	117	12	47	30	371	105	32	407	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		30.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor		0.99			1.00	0.99		1.00			1.00	
Frt		0.893				0.850		0.969			0.999	
Flt Protected					0.957			0.997			0.996	
Satd. Flow (prot)	0	1698	0	0	1839	1633	0	3185	0	0	3412	0
Flt Permitted					0.725			0.899			0.880	
Satd. Flow (perm)	0	1698	0	0	1391	1612	0	2872	0	0	3014	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		23				91		54			1	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		135.5			260.4			246.8			121.8	
Travel Time (s)		9.8			18.7			17.8			8.8	
Confl. Peds. (#/hr)	1		1	1		1			2	2		
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	15%	11%	6%	0%	7%	0%
Adj. Flow (vph)	0	6	23	146	15	59	38	464	131	40	509	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	29	0	0	161	59	0	633	0	0	552	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)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	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	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
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  
5: Main Street & Edward Street

Future Total 2030  
AM Peak Hour

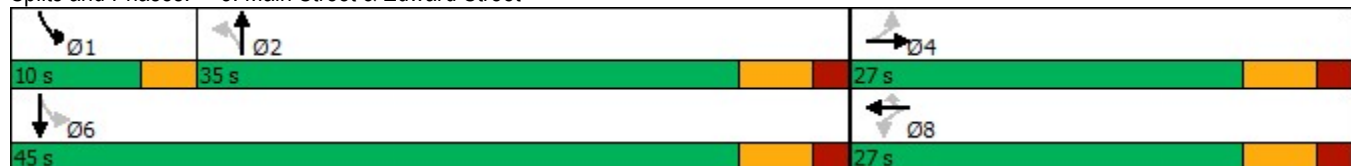


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type		NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	8.0	8.0		7.0	30.0	
Minimum Split (s)	26.0	26.0		26.0	26.0	26.0	31.0	31.0		10.0	36.0	
Total Split (s)	27.0	27.0		27.0	27.0	27.0	35.0	35.0		10.0	45.0	
Total Split (%)	37.5%	37.5%		37.5%	37.5%	37.5%	48.6%	48.6%		13.9%	62.5%	
Maximum Green (s)	21.0	21.0		21.0	21.0	21.0	29.0	29.0		7.0	39.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		0.0	2.0	
Lost Time Adjust (s)		0.0			0.0	0.0		0.0			0.0	
Total Lost Time (s)		6.0			6.0	6.0		6.0			6.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	Max	Max		None	Max	
Walk Time (s)	12.0	12.0		12.0	12.0	12.0	15.0	15.0			20.0	
Flash Dont Walk (s)	8.0	8.0		8.0	8.0	8.0	10.0	10.0			10.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0			0	
Act Effct Green (s)		13.1			13.1	13.1		43.6			43.6	
Actuated g/C Ratio		0.20			0.20	0.20		0.68			0.68	
v/c Ratio		0.08			0.57	0.15		0.32			0.27	
Control Delay		11.0			31.1	3.2		6.3			6.4	
Queue Delay		0.0			0.0	0.0		0.0			0.0	
Total Delay		11.0			31.1	3.2		6.3			6.4	
LOS		B			C	A		A			A	
Approach Delay		11.0			23.6			6.3			6.4	
Approach LOS		B			C			A			A	

Intersection Summary

Area Type:	Other
Cycle Length:	72
Actuated Cycle Length:	64.1
Natural Cycle:	70
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.57
Intersection Signal Delay:	9.1
Intersection LOS:	A
Intersection Capacity Utilization:	60.8%
ICU Level of Service:	B
Analysis Period (min):	15

Splits and Phases: 5: Main Street & Edward Street



Queues  
5: Main Street & Edward Street

Future Total 2030  
AM Peak Hour




















Lane Group	EBT	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	29	161	59	633	552
v/c Ratio	0.08	0.57	0.15	0.32	0.27
Control Delay	11.0	31.1	3.2	6.3	6.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	11.0	31.1	3.2	6.3	6.4
Queue Length 50th (m)	0.6	17.3	0.0	14.9	13.8
Queue Length 95th (m)	5.0	28.8	2.8	25.0	23.3
Internal Link Dist (m)	111.5	236.4		222.8	97.8
Turn Bay Length (m)			30.0		
Base Capacity (vph)	573	457	591	1971	2051
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.05	0.35	0.10	0.32	0.27
<b>Intersection Summary</b>					

# HCM Signalized Intersection Capacity Analysis

Future Total 2030

## 5: Main Street & Edward Street

AM Peak Hour

















													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	0	5	18	117	12	47	30	371	105	32	407	2	
Future Volume (vph)	0	5	18	117	12	47	30	371	105	32	407	2	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		6.0			6.0	6.0		6.0			6.0		
Lane Util. Factor		1.00			1.00	1.00		0.95			0.95		
Frbp, ped/bikes		0.99			1.00	0.99		1.00			1.00		
Flpb, ped/bikes		1.00			1.00	1.00		1.00			1.00		
Frt		0.89			1.00	0.85		0.97			1.00		
Flt Protected		1.00			0.96	1.00		1.00			1.00		
Satd. Flow (prot)		1698			1836	1612		3185			3413		
Flt Permitted		1.00			0.72	1.00		0.90			0.88		
Satd. Flow (perm)		1698			1391	1612		2873			3015		
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	
Adj. Flow (vph)	0	6	22	146	15	59	38	464	131	40	509	2	
RTOR Reduction (vph)	0	19	0	0	0	49	0	19	0	0	0	0	
Lane Group Flow (vph)	0	10	0	0	161	10	0	614	0	0	552	0	
Confl. Peds. (#/hr)	1		1	1		1			2	2			
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	15%	11%	6%	0%	7%	0%	
Turn Type		NA		Perm	NA	Perm	Perm	NA		pm+pt	NA		
Protected Phases		4			8			2		1	6		
Permitted Phases	4			8		8	2			6			
Actuated Green, G (s)		11.0			11.0	11.0		42.3			42.3		
Effective Green, g (s)		11.0			11.0	11.0		42.3			42.3		
Actuated g/C Ratio		0.17			0.17	0.17		0.65			0.65		
Clearance Time (s)		6.0			6.0	6.0		6.0			6.0		
Vehicle Extension (s)		3.0			3.0	3.0		3.0			3.0		
Lane Grp Cap (vph)		286			234	271		1861			1953		
v/s Ratio Prot		0.01											
v/s Ratio Perm					c0.12	0.01		c0.21			0.18		
v/c Ratio		0.03			0.69	0.04		0.33			0.28		
Uniform Delay, d1		22.7			25.5	22.7		5.2			5.0		
Progression Factor		1.00			1.00	1.00		1.00			1.00		
Incremental Delay, d2		0.0			8.1	0.1		0.5			0.1		
Delay (s)		22.8			33.7	22.8		5.6			5.0		
Level of Service		C			C	C		A			A		
Approach Delay (s)		22.8			30.8			5.6			5.0		
Approach LOS		C			C			A			A		
<b>Intersection Summary</b>													
HCM 2000 Control Delay			9.6		HCM 2000 Level of Service						A		
HCM 2000 Volume to Capacity ratio			0.43										
Actuated Cycle Length (s)			65.3		Sum of lost time (s)						15.0		
Intersection Capacity Utilization			60.8%		ICU Level of Service						B		
Analysis Period (min)			15										

c Critical Lane Group



















Lanes, Volumes, Timings  
6: Dunlop Street & Edward Street

Future Total 2030  
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	91	3	1	75	5	8	5	3	3	5	59
Future Volume (vph)	43	91	3	1	75	5	8	5	3	3	5	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.997			0.992			0.977			0.880	
Flt Protected		0.985						0.975			0.998	
Satd. Flow (prot)	0	1868	0	0	1905	0	0	1794	0	0	1573	0
Flt Permitted		0.985						0.975			0.998	
Satd. Flow (perm)	0	1868	0	0	1905	0	0	1794	0	0	1573	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		802.7			150.8			325.8			410.5	
Travel Time (s)		57.8			10.9			23.5			29.6	
Confl. Peds. (#/hr)	8						8					
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Heavy Vehicles (%)	3%	0%	2%	2%	0%	0%	2%	2%	2%	0%	2%	8%
Adj. Flow (vph)	64	136	4	1	112	7	12	7	4	4	7	88
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	204	0	0	120	0	0	23	0	0	99	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)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	
<b>Intersection Summary</b>												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	25.0%						ICU Level of Service A					
Analysis Period (min)	15											














HCM Unsignalized Intersection Capacity Analysis  
6: Dunlop Street & Edward Street

Future Total 2030  
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	43	91	3	1	75	5	8	5	3	3	5	59
Future Volume (Veh/h)	43	91	3	1	75	5	8	5	3	3	5	59
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Hourly flow rate (vph)	64	136	4	1	112	7	12	7	4	4	7	88
Pedestrians												8
Lane Width (m)												3.7
Walking Speed (m/s)												1.2
Percent Blockage												1
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	127			140			475	395	138	399	394	124
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	127			140			475	395	138	399	394	124
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.3
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.4
p0 queue free %	96			100			97	99	100	99	99	90
cM capacity (veh/h)	1443			1443			429	514	910	531	515	905
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	204	120	23	99								
Volume Left	64	1	12	4								
Volume Right	4	7	4	88								
cSH	1443	1443	500	837								
Volume to Capacity	0.04	0.00	0.05	0.12								
Queue Length 95th (m)	1.1	0.0	1.1	3.0								
Control Delay (s)	2.6	0.1	12.5	9.9								
Lane LOS	A	A	B	A								
Approach Delay (s)	2.6	0.1	12.5	9.9								
Approach LOS			B	A								
<b>Intersection Summary</b>												
Average Delay			4.1									
Intersection Capacity Utilization			25.0%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings  
7: Main Street & Thompson Road

Future Total 2030  
AM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	209	46	463	184	27	520
Future Volume (vph)	209	46	463	184	27	520
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	20.0		15.0	0.0	
Storage Lanes	1	1		1	0	
Taper Length (m)	2.5				2.5	
Lane Util. Factor	1.00	1.00	0.95	1.00	0.95	0.95
Frt		0.850		0.850		
Flt Protected	0.950					0.998
Satd. Flow (prot)	1738	1328	3349	1526	0	3403
Flt Permitted	0.950					0.911
Satd. Flow (perm)	1738	1328	3349	1526	0	3107
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		55		202		
Link Speed (k/h)	50		50			50
Link Distance (m)	653.3		164.4			246.8
Travel Time (s)	47.0		11.8			17.8
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	5%	23%	9%	7%	27%	6%
Adj. Flow (vph)	249	55	551	219	32	619
Shared Lane Traffic (%)						
Lane Group Flow (vph)	249	55	551	219	0	651
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Number of Detectors	1	1	2	1	1	2
Detector Template	Left	Right	Thru	Right	Left	Thru
Leading Detector (m)	6.1	6.1	30.5	6.1	6.1	30.5
Trailing Detector (m)	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
Detector 1 Size(m)	6.1	6.1	1.8	6.1	6.1	1.8
Detector 1 Type	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
Detector 1 Queue (s)	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
Detector 2 Position(m)			28.7			28.7
Detector 2 Size(m)			1.8			1.8
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	8		2		1	6

Lanes, Volumes, Timings  
7: Main Street & Thompson Road

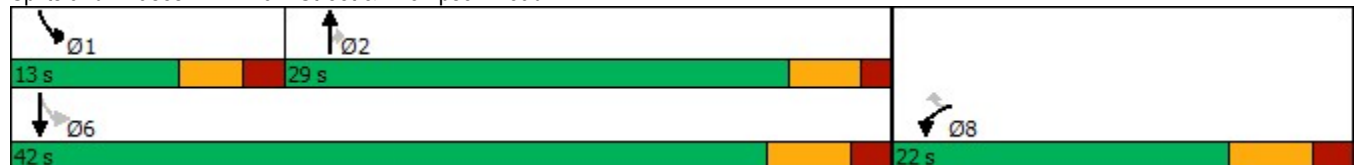
Future Total 2030  
AM Peak Hour

	↙	↖	↑	↗	↘	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Permitted Phases		8		2	6	
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	8.0	8.0	5.0	5.0	8.0	34.0
Minimum Split (s)	22.0	22.0	21.0	21.0	13.0	40.0
Total Split (s)	22.0	22.0	29.0	29.0	13.0	42.0
Total Split (%)	34.4%	34.4%	45.3%	45.3%	20.3%	65.6%
Maximum Green (s)	16.0	16.0	24.0	24.0	8.0	36.0
Yellow Time (s)	4.0	4.0	3.5	3.5	3.0	4.0
All-Red Time (s)	2.0	2.0	1.5	1.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	6.0	6.0	5.0	5.0		6.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Max	Max	None	Max
Walk Time (s)	5.0	5.0	5.0	5.0		5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0		11.0
Pedestrian Calls (#/hr)	0	0	0	0		0
Act Effct Green (s)	13.5	13.5	39.7	39.7		38.7
Actuated g/C Ratio	0.21	0.21	0.62	0.62		0.60
v/c Ratio	0.68	0.17	0.27	0.21		0.35
Control Delay	32.9	7.7	6.4	1.9		7.5
Queue Delay	0.0	0.0	0.0	0.0		0.0
Total Delay	32.9	7.7	6.4	1.9		7.5
LOS	C	A	A	A		A
Approach Delay	28.3		5.1			7.5
Approach LOS	C		A			A

Intersection Summary

Area Type: Other  
 Cycle Length: 64  
 Actuated Cycle Length: 64.2  
 Natural Cycle: 65  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.68  
 Intersection Signal Delay: 10.1  
 Intersection Capacity Utilization 56.0%  
 Analysis Period (min) 15  
 Intersection LOS: B  
 ICU Level of Service B

Splits and Phases: 7: Main Street & Thompson Road



## Queues

Future Total 2030

## 7: Main Street &amp; Thompson Road














AM Peak Hour



Lane Group	WBL	WBR	NBT	NBR	SBT
Lane Group Flow (vph)	249	55	551	219	651
v/c Ratio	0.68	0.17	0.27	0.21	0.35
Control Delay	32.9	7.7	6.4	1.9	7.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	32.9	7.7	6.4	1.9	7.5
Queue Length 50th (m)	25.8	0.0	13.8	0.7	18.2
Queue Length 95th (m)	42.2	6.4	20.8	6.6	26.8
Internal Link Dist (m)	629.3		140.4		222.8
Turn Bay Length (m)		20.0		15.0	
Base Capacity (vph)	434	373	2071	1020	1872
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.57	0.15	0.27	0.21	0.35
Intersection Summary					

















HCM Signalized Intersection Capacity Analysis  
7: Main Street & Thompson Road

Future Total 2030  
AM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	209	46	463	184	27	520
Future Volume (vph)	209	46	463	184	27	520
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	5.0	5.0		6.0
Lane Util. Factor	1.00	1.00	0.95	1.00		0.95
Frt	1.00	0.85	1.00	0.85		1.00
Flt Protected	0.95	1.00	1.00	1.00		1.00
Satd. Flow (prot)	1738	1328	3349	1526		3402
Flt Permitted	0.95	1.00	1.00	1.00		0.91
Satd. Flow (perm)	1738	1328	3349	1526		3108
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	249	55	551	219	32	619
RTOR Reduction (vph)	0	43	0	77	0	0
Lane Group Flow (vph)	249	12	551	142	0	651
Heavy Vehicles (%)	5%	23%	9%	7%	27%	6%
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2	6	
Actuated Green, G (s)	13.5	13.5	39.7	39.7		38.7
Effective Green, g (s)	13.5	13.5	39.7	39.7		38.7
Actuated g/C Ratio	0.21	0.21	0.62	0.62		0.60
Clearance Time (s)	6.0	6.0	5.0	5.0		6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0
Lane Grp Cap (vph)	365	279	2070	943		1873
v/s Ratio Prot	c0.14		0.16			
v/s Ratio Perm		0.01		0.09		c0.21
v/c Ratio	0.68	0.04	0.27	0.15		0.35
Uniform Delay, d1	23.4	20.2	5.6	5.2		6.4
Progression Factor	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	5.2	0.1	0.3	0.3		0.1
Delay (s)	28.6	20.3	5.9	5.5		6.5
Level of Service	C	C	A	A		A
Approach Delay (s)	27.1		5.8			6.5
Approach LOS	C		A			A
<b>Intersection Summary</b>						
HCM 2000 Control Delay			9.8		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.47			
Actuated Cycle Length (s)			64.2		Sum of lost time (s)	16.0
Intersection Capacity Utilization			56.0%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

Lanes, Volumes, Timings  
8: Street A & Gauthier Drive Extension

















Future Total 2030  
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	10	0	4	0	62	29	29	77	0
Future Volume (vph)	0	0	0	10	0	4	0	62	29	29	77	0
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
Fr <sub>t</sub>					0.962			0.957				
Fl <sub>t</sub> Protected					0.965						0.987	
Satd. Flow (prot)	0	1883	0	0	1748	0	0	1802	0	0	1859	0
Fl <sub>t</sub> Permitted					0.965						0.987	
Satd. Flow (perm)	0	1883	0	0	1748	0	0	1802	0	0	1859	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		161.7			257.7			188.1			228.0	
Travel Time (s)		11.6			18.6			13.5			16.4	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	0	0	0	13	0	5	0	78	36	36	96	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	18	0	0	114	0	0	132	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)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
<b>Intersection Summary</b>												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	22.3%						ICU Level of Service A					
Analysis Period (min)	15											

# HCM Unsignalized Intersection Capacity Analysis

## 8: Street A & Gauthier Drive Extension

Future Total 2030  
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	10	0	4	0	62	29	29	77	0
Future Volume (Veh/h)	0	0	0	10	0	4	0	62	29	29	77	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	0	0	0	13	0	5	0	78	36	36	96	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	269	282	96	264	264	96	96			114		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	269	282	96	264	264	96	96			114		
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 %	100	100	100	98	100	99	100			98		
cM capacity (veh/h)	667	611	960	676	626	960	1498			1475		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	0	18	114	132								
Volume Left	0	13	0	36								
Volume Right	0	5	36	0								
cSH	1700	737	1498	1475								
Volume to Capacity	0.00	0.02	0.00	0.02								
Queue Length 95th (m)	0.0	0.6	0.0	0.6								
Control Delay (s)	0.0	10.0	0.0	2.2								
Lane LOS	A	B		A								
Approach Delay (s)	0.0	10.0	0.0	2.2								
Approach LOS	A	B										
Intersection Summary												
Average Delay			1.8									
Intersection Capacity Utilization			22.3%		ICU Level of Service				A			
Analysis Period (min)			15									



Lanes, Volumes, Timings  
 9: Thompson Road & Gauthier Drive Extension

Future Total 2030  
 AM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	5	0	0	118	117	25
Future Volume (vph)	5	0	0	118	117	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>					0.976	
Fl <sub>t</sub> Protected	0.950					
Satd. Flow (prot)	1789	0	0	1883	1838	0
Fl <sub>t</sub> Permitted	0.950					
Satd. Flow (perm)	1789	0	0	1883	1838	0
Link Speed (k/h)	50			48	48	
Link Distance (m)	257.7			188.8	224.8	
Travel Time (s)	18.6			14.2	16.9	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	6	0	0	148	146	31
Shared Lane Traffic (%)						
Lane Group Flow (vph)	6	0	0	148	177	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	17.7%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis  
 9: Thompson Road & Gauthier Drive Extension

Future Total 2030  
 AM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	0	0	118	117	25
Future Volume (Veh/h)	5	0	0	118	117	25
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	6	0	0	148	146	31
<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	310	162	177			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	310	162	177			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	100	100			
cM capacity (veh/h)	683	883	1399			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	6	148	177			
Volume Left	6	0	0			
Volume Right	0	0	31			
cSH	683	1399	1700			
Volume to Capacity	0.01	0.00	0.10			
Queue Length 95th (m)	0.2	0.0	0.0			
Control Delay (s)	10.3	0.0	0.0			
Lane LOS	B					
Approach Delay (s)	10.3	0.0	0.0			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay	0.2					
Intersection Capacity Utilization	17.7%			ICU Level of Service	A	
Analysis Period (min)	15					

Lanes, Volumes, Timings  
10: Street I & Edward Street

Future Total 2030  
AM Peak Hour

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗			↖	↗	↘
Traffic Volume (vph)	89	4	4	65	15	15
Future Volume (vph)	89	4	4	65	15	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
Fr <sub>t</sub>	0.994			0.932		
Fl <sub>t</sub> Protected				0.997	0.976	
Satd. Flow (prot)	1872	0	0	1878	1713	0
Fl <sub>t</sub> Permitted				0.997	0.976	
Satd. Flow (perm)	1872	0	0	1878	1713	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	150.8			175.4	326.7	
Travel Time (s)	10.9			12.6	23.5	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	111	5	5	81	19	19
Shared Lane Traffic (%)						
Lane Group Flow (vph)	116	0	0	86	38	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	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	14		24	24		14
Sign Control	Free			Free	Stop	
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	16.7%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis  
 10: Street I & Edward Street

















Future Total 2030  
 AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	→			←	↔	↔
Traffic Volume (veh/h)	89	4	4	65	15	15
Future Volume (Veh/h)	89	4	4	65	15	15
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	111	5	5	81	19	19
<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			116		204	114
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			116		204	114
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		98	98
cM capacity (veh/h)			1473		781	939
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>NB 1</b>			
Volume Total	116	86	38			
Volume Left	0	5	19			
Volume Right	5	0	19			
cSH	1700	1473	853			
Volume to Capacity	0.07	0.00	0.04			
Queue Length 95th (m)	0.0	0.1	1.1			
Control Delay (s)	0.0	0.5	9.4			
Lane LOS		A	A			
Approach Delay (s)	0.0	0.5	9.4			
Approach LOS			A			
<b>Intersection Summary</b>						
Average Delay			1.7			
Intersection Capacity Utilization			16.7%	ICU Level of Service	A	
Analysis Period (min)			15			

















Lanes, Volumes, Timings  
11: Street A & Edward Street

Future Total 2030  
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	68	29	3	2	22	3	8	19	3	17	12	38
Future Volume (vph)	68	29	3	2	22	3	8	19	3	17	12	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
Frt		0.996			0.985			0.986			0.923	
Flt Protected		0.967			0.996			0.987			0.988	
Satd. Flow (prot)	0	1814	0	0	1848	0	0	1833	0	0	1718	0
Flt Permitted		0.967			0.996			0.987			0.988	
Satd. Flow (perm)	0	1814	0	0	1848	0	0	1833	0	0	1718	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		175.4			254.9			326.2			188.1	
Travel Time (s)		12.6			18.4			23.5			13.5	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	85	36	4	3	28	4	10	24	4	21	15	48
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	125	0	0	35	0	0	38	0	0	84	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)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	
<b>Intersection Summary</b>												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	23.9%						ICU Level of Service A					
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis  
 11: Street A & Edward Street

Future Total 2030  
 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	68	29	3	2	22	3	8	19	3	17	12	38
Future Volume (Veh/h)	68	29	3	2	22	3	8	19	3	17	12	38
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	85	36	4	3	28	4	10	24	4	21	15	48
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	32			40			300	246	38	260	246	30
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	32			40			300	246	38	260	246	30
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 %	95			100			98	96	100	97	98	95
cM capacity (veh/h)	1580			1570			585	620	1034	642	620	1044
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	125	35	38	84								
Volume Left	85	3	10	21								
Volume Right	4	4	4	48								
cSH	1580	1570	637	816								
Volume to Capacity	0.05	0.00	0.06	0.10								
Queue Length 95th (m)	1.3	0.0	1.4	2.6								
Control Delay (s)	5.2	0.6	11.0	9.9								
Lane LOS	A	A	B	A								
Approach Delay (s)	5.2	0.6	11.0	9.9								
Approach LOS			B	A								
Intersection Summary												
Average Delay			6.8									
Intersection Capacity Utilization			23.9%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings  
12: Thompson Road & Edward Street

Future Total 2030  
AM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	26	0	0	104	74	10
Future Volume (vph)	26	0	0	104	74	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
Fr <sub>t</sub>					0.983	
Fl <sub>t</sub> Protected	0.950					
Satd. Flow (prot)	1789	0	0	1883	1851	0
Fl <sub>t</sub> Permitted	0.950					
Satd. Flow (perm)	1789	0	0	1883	1851	0
Link Speed (k/h)	50			48	48	
Link Distance (m)	254.9			324.7	188.8	
Travel Time (s)	18.4			24.4	14.2	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	33	0	0	130	93	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	33	0	0	130	106	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	15.5%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis  
 12: Thompson Road & Edward Street

Future Total 2030  
 AM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	26	0	0	104	74	10
Future Volume (Veh/h)	26	0	0	104	74	10
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	33	0	0	130	93	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	230	100	106			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	230	100	106			
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	100	100			
cM capacity (veh/h)	759	956	1485			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	33	130	106			
Volume Left	33	0	0			
Volume Right	0	0	13			
cSH	759	1485	1700			
Volume to Capacity	0.04	0.00	0.06			
Queue Length 95th (m)	1.0	0.0	0.0			
Control Delay (s)	10.0	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	10.0	0.0	0.0			
Approach LOS	A					
<b>Intersection Summary</b>						
Average Delay			1.2			
Intersection Capacity Utilization			15.5%	ICU Level of Service	A	
Analysis Period (min)			15			



Lanes, Volumes, Timings  
 13: Thompson Road & Dunlop Street

Future Total 2030  
 AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	2	208	244	2	1	6
Future Volume (vph)	2	208	244	2	1	6
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			0.999		0.880	
Flt Protected		0.999			0.994	
Satd. Flow (prot)	0	1882	1882	0	1647	0
Flt Permitted		0.999			0.994	
Satd. Flow (perm)	0	1882	1882	0	1647	0
Link Speed (k/h)		48	48		50	
Link Distance (m)		419.2	156.0		325.8	
Travel Time (s)		31.4	11.7		23.5	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	3	260	305	3	1	8
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	263	308	0	9	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	

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  
 13: Thompson Road & Dunlop Street

Future Total 2030  
 AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↗	↖		↘	
Traffic Volume (veh/h)	2	208	244	2	1	6
Future Volume (Veh/h)	2	208	244	2	1	6
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	3	260	305	3	1	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	308				572	306
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	308				572	306
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	99
cM capacity (veh/h)	1253				480	733
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	263	308	9			
Volume Left	3	0	1			
Volume Right	0	3	8			
cSH	1253	1700	693			
Volume to Capacity	0.00	0.18	0.01			
Queue Length 95th (m)	0.1	0.0	0.3			
Control Delay (s)	0.1	0.0	10.3			
Lane LOS	A		B			
Approach Delay (s)	0.1	0.0	10.3			
Approach LOS			B			
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			23.0%		ICU Level of Service	A
Analysis Period (min)			15			

Lanes, Volumes, Timings  
 14: Thompson Road & Street I

Future Total 2030  
 AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	3	205	236	0	0	9
Future Volume (vph)	3	205	236	0	0	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>					0.865	
Fl <sub>t</sub> Protected		0.999				
Satd. Flow (prot)	0	1882	1883	0	1629	0
Fl <sub>t</sub> Permitted		0.999				
Satd. Flow (perm)	0	1882	1883	0	1629	0
Link Speed (k/h)		48	48		50	
Link Distance (m)		156.0	175.3		326.7	
Travel Time (s)		11.7	13.1		23.5	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	4	256	295	0	0	11
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	260	295	0	11	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	23.2% ICU Level of Service A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis  
 14: Thompson Road & Street I

Future Total 2030  
 AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↖	↗		↘	
Traffic Volume (veh/h)	3	205	236	0	0	9
Future Volume (Veh/h)	3	205	236	0	0	9
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	4	256	295	0	0	11
<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	295				559	295
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	295				559	295
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	99
cM capacity (veh/h)	1266				489	744
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>SB 1</b>			
Volume Total	260	295	11			
Volume Left	4	0	0			
Volume Right	0	0	11			
cSH	1266	1700	744			
Volume to Capacity	0.00	0.17	0.01			
Queue Length 95th (m)	0.1	0.0	0.3			
Control Delay (s)	0.1	0.0	9.9			
Lane LOS	A		A			
Approach Delay (s)	0.1	0.0	9.9			
Approach LOS			A			
<b>Intersection Summary</b>						
Average Delay			0.3			
Intersection Capacity Utilization			23.2%	ICU Level of Service	A	
Analysis Period (min)			15			

Lanes, Volumes, Timings  
 15: Thompson Road & Street A

Future Total 2030  
 AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	9	197	205	0	0	26
Future Volume (vph)	9	197	205	0	0	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>					0.865	
Fl <sub>t</sub> Protected		0.998				
Satd. Flow (prot)	0	1880	1883	0	1629	0
Fl <sub>t</sub> Permitted		0.998				
Satd. Flow (perm)	0	1880	1883	0	1629	0
Link Speed (k/h)		48	48		50	
Link Distance (m)		175.3	250.1		326.2	
Travel Time (s)		13.1	18.8		23.5	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	11	246	256	0	0	33
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	257	256	0	33	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	27.7%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis  
 15: Thompson Road & Street A

Future Total 2030  
 AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	9	197	205	0	0	26
Future Volume (Veh/h)	9	197	205	0	0	26
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	11	246	256	0	0	33
<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	256			524	256	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	256			524	256	
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			100	96	
cM capacity (veh/h)	1309			509	783	
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>SB 1</b>			
Volume Total	257	256	33			
Volume Left	11	0	0			
Volume Right	0	0	33			
cSH	1309	1700	783			
Volume to Capacity	0.01	0.15	0.04			
Queue Length 95th (m)	0.2	0.0	1.0			
Control Delay (s)	0.4	0.0	9.8			
Lane LOS	A		A			
Approach Delay (s)	0.4	0.0	9.8			
Approach LOS			A			
<b>Intersection Summary</b>						
Average Delay			0.8			
Intersection Capacity Utilization			27.7%	ICU Level of Service	A	
Analysis Period (min)			15			

Lanes, Volumes, Timings  
 1: Dunlop Street & Robert Street East

Future Total 2030  
 PM Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	238	31	52	387	33	51
Future Volume (vph)	238	31	52	387	33	51
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	0.985					0.918
Flt Protected				0.994	0.981	
Satd. Flow (prot)	1787	0	0	1872	1730	0
Flt Permitted				0.994	0.981	
Satd. Flow (perm)	1787	0	0	1872	1730	0
Link Speed (k/h)	50					50
Link Distance (m)	1218.0			320.1	410.5	
Travel Time (s)	87.7			23.0	29.6	
Confl. Peds. (#/hr)	1		1	4		
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	6%	5%	2%	2%	0%	0%
Adj. Flow (vph)	270	35	59	440	38	58
Shared Lane Traffic (%)						
Lane Group Flow (vph)	305	0	0	499	96	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	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	14		24	24		14
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	53.9%
	ICU Level of Service A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis  
 1: Dunlop Street & Robert Street East

Future Total 2030  
 PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	238	31	52	387	33	51
Future Volume (Veh/h)	238	31	52	387	33	51
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	270	35	59	440	38	58
Pedestrians				4	1	
Lane Width (m)				3.7	3.7	
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			306		846	292
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			306		846	292
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			95		88	92
cM capacity (veh/h)			1254		319	748
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>NB 1</b>			
Volume Total	305	499	96			
Volume Left	0	59	38			
Volume Right	35	0	58			
cSH	1700	1254	488			
Volume to Capacity	0.18	0.05	0.20			
Queue Length 95th (m)	0.0	1.1	5.5			
Control Delay (s)	0.0	1.4	14.2			
Lane LOS			A			B
Approach Delay (s)	0.0	1.4	14.2			
Approach LOS				B		
<b>Intersection Summary</b>						
Average Delay			2.3			
Intersection Capacity Utilization			53.9%	ICU Level of Service	A	
Analysis Period (min)			15			

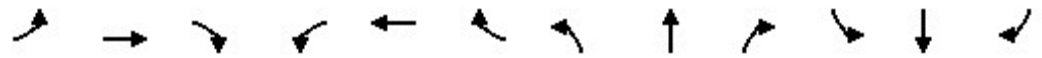


Lanes, Volumes, Timings

Future Total 2030

2: Street A/Dufferin Street/Burke Street & Robert Street East

PM Peak Hour



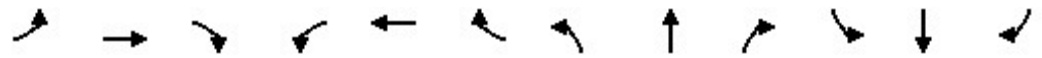
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	15	205	41	35	288	54	97	27	51	36	21	29
Future Volume (vph)	15	205	41	35	288	54	97	27	51	36	21	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. 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
Frt		0.979			0.981			0.960			0.954	
Flt Protected		0.997			0.995			0.973			0.980	
Satd. Flow (prot)	0	1799	0	0	1858	0	0	1759	0	0	1712	0
Flt Permitted		0.997			0.995			0.973			0.980	
Satd. Flow (perm)	0	1799	0	0	1858	0	0	1759	0	0	1712	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		320.1			250.8			228.0			76.2	
Travel Time (s)		23.0			18.1			16.4			5.5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	5%	2%	2%	1%	0%	2%	2%	2%	0%	2%	13%
Adj. Flow (vph)	16	216	43	37	303	57	102	28	54	38	22	31
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	275	0	0	397	0	0	184	0	0	91	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)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	51.0%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis  
 2: Street A/Dufferin Street/Burke Street & Robert Street East

















Future Total 2030  
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	15	205	41	35	288	54	97	27	51	36	21	29
Future Volume (Veh/h)	15	205	41	35	288	54	97	27	51	36	21	29
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	16	216	43	37	303	57	102	28	54	38	22	31
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	360			259			717	704	238	743	696	332
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	360			259			717	704	238	743	696	332
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.3
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.4
p0 queue free %	99			97			66	92	93	87	94	95
cM capacity (veh/h)	1210			1306			304	347	801	283	350	686
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	275	397	184	91								
Volume Left	16	37	102	38								
Volume Right	43	57	54	31								
cSH	1210	1306	380	375								
Volume to Capacity	0.01	0.03	0.48	0.24								
Queue Length 95th (m)	0.3	0.7	19.4	7.1								
Control Delay (s)	0.6	1.0	23.0	17.6								
Lane LOS	A	A	C	C								
Approach Delay (s)	0.6	1.0	23.0	17.6								
Approach LOS			C	C								
Intersection Summary												
Average Delay			6.8									
Intersection Capacity Utilization			51.0%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings  
 3: Thompson Road/Centennial Drive & Robert Street East

Future Total 2030  
 PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	252	29	158	299	20	46	16	183	18	30	36
Future Volume (vph)	11	252	29	158	299	20	46	16	183	18	30	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
Frt		0.987			0.994			0.899			0.943	
Flt Protected		0.998			0.984			0.991			0.989	
Satd. Flow (prot)	0	1811	0	0	1855	0	0	1678	0	0	1757	0
Flt Permitted		0.998			0.984			0.991			0.989	
Satd. Flow (perm)	0	1811	0	0	1855	0	0	1678	0	0	1757	0
Link Speed (k/h)		50			50			48			48	
Link Distance (m)		250.8			471.9			224.8			77.4	
Travel Time (s)		18.1			34.0			16.9			5.8	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	5%	2%	2%	1%	0%	2%	2%	2%	0%	2%	3%
Adj. Flow (vph)	11	260	30	163	308	21	47	16	189	19	31	37
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	301	0	0	492	0	0	252	0	0	87	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)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

















Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	70.2%
ICU Level of Service	C
Analysis Period (min)	15

# HCM Unsignalized Intersection Capacity Analysis













## 3: Thompson Road/Centennial Drive & Robert Street East

Future Total 2030  
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	252	29	158	299	20	46	16	183	18	30	36
Future Volume (Veh/h)	11	252	29	158	299	20	46	16	183	18	30	36
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	11	260	30	163	308	21	47	16	189	19	31	37
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	329			290			994	952	275	1138	956	318
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	329			290			994	952	275	1138	956	318
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			87			72	93	75	83	86	95
cM capacity (veh/h)	1242			1272			170	224	764	115	223	720
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	301	492	252	87								
Volume Left	11	163	47	19								
Volume Right	30	21	189	37								
cSH	1242	1272	424	244								
Volume to Capacity	0.01	0.13	0.59	0.36								
Queue Length 95th (m)	0.2	3.3	28.5	11.7								
Control Delay (s)	0.4	3.6	25.2	27.6								
Lane LOS	A	A	D	D								
Approach Delay (s)	0.4	3.6	25.2	27.6								
Approach LOS			D	D								
Intersection Summary												
Average Delay			9.4									
Intersection Capacity Utilization			70.2%		ICU Level of Service				C			
Analysis Period (min)			15									

Lanes, Volumes, Timings  
4: Fuller Avenue & Robert Street East

Future Total 2030  
PM Peak Hour

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	202	241	242	186	255	237
Future Volume (vph)	202	241	242	186	255	237
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0	0.0	0.0			0.0
Storage Lanes	1	1	1			1
Taper Length (m)	2.5		2.5			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1755	1601	1789	1865	1883	1601
Flt Permitted	0.950		0.512			
Satd. Flow (perm)	1755	1601	964	1865	1883	1601
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		262				258
Link Speed (k/h)	50			60	60	
Link Distance (m)	471.9			243.5	103.8	
Travel Time (s)	34.0			14.6	6.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	4%	2%	2%	3%	2%	2%
Adj. Flow (vph)	220	262	263	202	277	258
Shared Lane Traffic (%)						
Lane Group Flow (vph)	220	262	263	202	277	258
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Number of Detectors	1	1	1	2	2	1
Detector Template	Left	Right	Left	Thru	Thru	Right
Leading Detector (m)	6.1	6.1	6.1	30.5	30.5	6.1
Trailing Detector (m)	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
Detector 1 Size(m)	6.1	6.1	6.1	1.8	1.8	6.1
Detector 1 Type	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
Detector 1 Queue (s)	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
Detector 2 Position(m)				28.7	28.7	
Detector 2 Size(m)				1.8	1.8	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	

Lanes, Volumes, Timings  
4: Fuller Avenue & Robert Street East

Future Total 2030  
PM Peak Hour

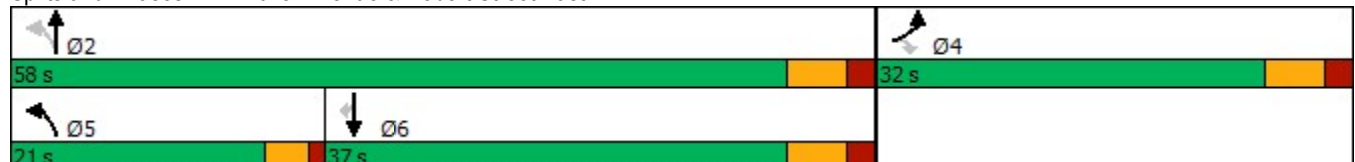


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Permitted Phases		4	2			6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	25.0	25.0	9.0	30.0	30.0	30.0
Total Split (s)	32.0	32.0	21.0	58.0	37.0	37.0
Total Split (%)	35.6%	35.6%	23.3%	64.4%	41.1%	41.1%
Maximum Green (s)	26.0	26.0	17.0	52.0	31.0	31.0
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	6.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	Max	Max	Max
Walk Time (s)	5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0
Act Effct Green (s)	15.3	15.3	54.2	52.1	38.0	38.0
Actuated g/C Ratio	0.19	0.19	0.68	0.66	0.48	0.48
v/c Ratio	0.65	0.50	0.35	0.17	0.31	0.29
Control Delay	38.9	7.3	6.8	6.4	15.7	3.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.9	7.3	6.8	6.4	15.7	3.2
LOS	D	A	A	A	B	A
Approach Delay	21.7			6.6	9.7	
Approach LOS	C			A	A	

Intersection Summary

Area Type: Other  
 Cycle Length: 90  
 Actuated Cycle Length: 79.5  
 Natural Cycle: 65  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.65  
 Intersection Signal Delay: 12.7  
 Intersection Capacity Utilization 51.4%  
 Analysis Period (min) 15  
 Intersection LOS: B  
 ICU Level of Service A

Splits and Phases: 4: Fuller Avenue & Robert Street East



Queues

Future Total 2030

4: Fuller Avenue & Robert Street East

PM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	220	262	263	202	277	258
v/c Ratio	0.65	0.50	0.35	0.17	0.31	0.29
Control Delay	38.9	7.3	6.8	6.4	15.7	3.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.9	7.3	6.8	6.4	15.7	3.2
Queue Length 50th (m)	30.8	0.0	12.4	10.0	23.9	0.0
Queue Length 95th (m)	51.5	17.2	28.0	23.0	52.0	13.8
Internal Link Dist (m)	447.9			219.5	79.8	
Turn Bay Length (m)	30.0					
Base Capacity (vph)	575	701	833	1223	900	900
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.37	0.32	0.17	0.31	0.29

Intersection Summary

HCM Signalized Intersection Capacity Analysis  
4: Fuller Avenue & Robert Street East

Future Total 2030  
PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	202	241	242	186	255	237
Future Volume (vph)	202	241	242	186	255	237
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	4.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1755	1601	1789	1865	1883	1601
Flt Permitted	0.95	1.00	0.51	1.00	1.00	1.00
Satd. Flow (perm)	1755	1601	964	1865	1883	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	220	262	263	202	277	258
RTOR Reduction (vph)	0	212	0	0	0	135
Lane Group Flow (vph)	220	50	263	202	277	123
Heavy Vehicles (%)	4%	2%	2%	3%	2%	2%
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	15.3	15.3	52.1	52.1	38.0	38.0
Effective Green, g (s)	15.3	15.3	52.1	52.1	38.0	38.0
Actuated g/C Ratio	0.19	0.19	0.66	0.66	0.48	0.48
Clearance Time (s)	6.0	6.0	4.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	338	308	737	1223	901	766
v/s Ratio Prot	c0.13		c0.05	0.11	0.15	
v/s Ratio Perm		0.03	c0.19			0.08
v/c Ratio	0.65	0.16	0.36	0.17	0.31	0.16
Uniform Delay, d1	29.6	26.7	5.8	5.3	12.7	11.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.4	0.3	0.3	0.3	0.9	0.5
Delay (s)	34.0	27.0	6.1	5.6	13.5	12.1
Level of Service	C	C	A	A	B	B
Approach Delay (s)	30.2			5.8	12.9	
Approach LOS	C			A	B	

Intersection Summary

HCM 2000 Control Delay	16.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	79.4	Sum of lost time (s)	16.0
Intersection Capacity Utilization	51.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Lanes, Volumes, Timings  
5: Main Street & Edward Street

Future Total 2030  
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕			↕	
Traffic Volume (vph)	7	22	74	185	32	44	110	646	162	58	578	11
Future Volume (vph)	7	22	74	185	32	44	110	646	162	58	578	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		30.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor		0.99			1.00	0.99		0.99			1.00	
Frt		0.902				0.850		0.973			0.997	
Flt Protected		0.997			0.959			0.994			0.996	
Satd. Flow (prot)	0	1709	0	0	1842	1633	0	3430	0	0	3529	0
Flt Permitted		0.972			0.747			0.768			0.794	
Satd. Flow (perm)	0	1666	0	0	1432	1612	0	2650	0	0	2812	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		78				91		43			4	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		135.5			260.4			246.8			121.8	
Travel Time (s)		9.8			18.7			17.8			8.8	
Confl. Peds. (#/hr)	1		3	3		1	3		8	8		3
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	2%	3%	0%	0%	3%	0%
Adj. Flow (vph)	7	23	78	195	34	46	116	680	171	61	608	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	108	0	0	229	46	0	967	0	0	681	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)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	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	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
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  
5: Main Street & Edward Street

Future Total 2030  
PM Peak Hour

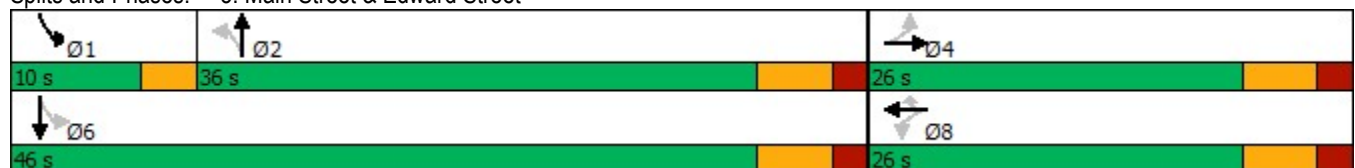


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	8.0	8.0		7.0	30.0	
Minimum Split (s)	26.0	26.0		26.0	26.0	26.0	31.0	31.0		10.0	36.0	
Total Split (s)	26.0	26.0		26.0	26.0	26.0	36.0	36.0		10.0	46.0	
Total Split (%)	36.1%	36.1%		36.1%	36.1%	36.1%	50.0%	50.0%		13.9%	63.9%	
Maximum Green (s)	20.0	20.0		20.0	20.0	20.0	30.0	30.0		7.0	40.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		0.0	2.0	
Lost Time Adjust (s)		0.0			0.0	0.0		0.0			0.0	
Total Lost Time (s)		6.0			6.0	6.0		6.0			6.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	Max	Max		None	Max	
Walk Time (s)	12.0	12.0		12.0	12.0	12.0	15.0	15.0			20.0	
Flash Dont Walk (s)	8.0	8.0		8.0	8.0	8.0	10.0	10.0			10.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0			0	
Act Effct Green (s)		15.6			15.6	15.6		40.1			40.1	
Actuated g/C Ratio		0.23			0.23	0.23		0.59			0.59	
v/c Ratio		0.24			0.70	0.10		0.61			0.41	
Control Delay		9.8			35.6	1.7		11.1			8.9	
Queue Delay		0.0			0.0	0.0		0.0			0.0	
Total Delay		9.8			35.6	1.7		11.1			8.9	
LOS		A			D	A		B			A	
Approach Delay		9.8			29.9			11.1			8.9	
Approach LOS		A			C			B			A	

Intersection Summary

Area Type:	Other
Cycle Length:	72
Actuated Cycle Length:	67.8
Natural Cycle:	70
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.70
Intersection Signal Delay:	12.9
Intersection LOS:	B
Intersection Capacity Utilization:	85.0%
ICU Level of Service:	E
Analysis Period (min):	15

Splits and Phases: 5: Main Street & Edward Street



Queues  
5: Main Street & Edward Street

Future Total 2030  
PM Peak Hour




















Lane Group	EBT	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	108	229	46	967	681
v/c Ratio	0.24	0.70	0.10	0.61	0.41
Control Delay	9.8	35.6	1.7	11.1	8.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	9.8	35.6	1.7	11.1	8.9
Queue Length 50th (m)	3.0	26.5	0.0	35.4	22.0
Queue Length 95th (m)	13.5	47.6	2.2	60.2	37.2
Internal Link Dist (m)	111.5	236.4		222.8	97.8
Turn Bay Length (m)			30.0		
Base Capacity (vph)	548	423	541	1586	1666
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.20	0.54	0.09	0.61	0.41

Intersection Summary

# HCM Signalized Intersection Capacity Analysis

## 5: Main Street & Edward Street

















Future Total 2030  
PM Peak Hour

														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations														
Traffic Volume (vph)	7	22	74	185	32	44	110	646	162	58	578	11		
Future Volume (vph)	7	22	74	185	32	44	110	646	162	58	578	11		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Total Lost time (s)		6.0			6.0	6.0		6.0			6.0			
Lane Util. Factor		1.00			1.00	1.00		0.95			0.95			
Frbp, ped/bikes		0.99			1.00	0.99		0.99			1.00			
Flpb, ped/bikes		1.00			1.00	1.00		1.00			1.00			
Frt		0.90			1.00	0.85		0.97			1.00			
Flt Protected		1.00			0.96	1.00		0.99			1.00			
Satd. Flow (prot)		1709			1839	1612		3432			3527			
Flt Permitted		0.97			0.75	1.00		0.77			0.79			
Satd. Flow (perm)		1667			1431	1612		2652			2813			
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95		
Adj. Flow (vph)	7	23	78	195	34	46	116	680	171	61	608	12		
RTOR Reduction (vph)	0	60	0	0	0	35	0	18	0	0	2	0		
Lane Group Flow (vph)	0	48	0	0	229	11	0	949	0	0	679	0		
Confl. Peds. (#/hr)	1		3	3		1	3		8	8		3		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	2%	3%	0%	0%	3%	0%		
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA			
Protected Phases		4			8			2		1	6			
Permitted Phases	4			8		8	2			6				
Actuated Green, G (s)		15.6			15.6	15.6		40.1			40.1			
Effective Green, g (s)		15.6			15.6	15.6		40.1			40.1			
Actuated g/C Ratio		0.23			0.23	0.23		0.59			0.59			
Clearance Time (s)		6.0			6.0	6.0		6.0			6.0			
Vehicle Extension (s)		3.0			3.0	3.0		3.0			3.0			
Lane Grp Cap (vph)		384			329	371		1570			1666			
v/s Ratio Prot														
v/s Ratio Perm		0.03			c0.16	0.01		c0.36			0.24			
v/c Ratio		0.12			0.70	0.03		0.60			0.41			
Uniform Delay, d1		20.6			23.9	20.2		8.8			7.4			
Progression Factor		1.00			1.00	1.00		1.00			1.00			
Incremental Delay, d2		0.1			6.3	0.0		1.7			0.2			
Delay (s)		20.8			30.2	20.2		10.5			7.6			
Level of Service		C			C	C		B			A			
Approach Delay (s)		20.8			28.5			10.5			7.6			
Approach LOS		C			C			B			A			
<b>Intersection Summary</b>														
HCM 2000 Control Delay			12.5									HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio			0.67											
Actuated Cycle Length (s)			67.7								15.0		Sum of lost time (s)	
Intersection Capacity Utilization			85.0%										ICU Level of Service	E
Analysis Period (min)			15											

c Critical Lane Group

Lanes, Volumes, Timings  
6: Dunlop Street & Edward Street

Future Total 2030  
PM Peak Hour

















												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	124	8	3	132	5	4	6	2	4	8	42
Future Volume (vph)	43	124	8	3	132	5	4	6	2	4	8	42
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			0.995			0.981			0.896	
Flt Protected		0.988			0.999			0.982			0.996	
Satd. Flow (prot)	0	1885	0	0	1909	0	0	1814	0	0	1671	0
Flt Permitted		0.988			0.999			0.982			0.996	
Satd. Flow (perm)	0	1885	0	0	1909	0	0	1814	0	0	1671	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		802.7			150.8			325.8			410.5	
Travel Time (s)		57.8			10.9			23.5			29.6	
Confl. Peds. (#/hr)	1						1					
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	0%	0%	2%	2%	0%	0%	2%	2%	2%	0%	2%	3%
Adj. Flow (vph)	52	149	10	4	159	6	5	7	2	5	10	51
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	211	0	0	169	0	0	14	0	0	66	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)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	30.4%
ICU Level of Service	A
Analysis Period (min)	15














HCM Unsignalized Intersection Capacity Analysis  
6: Dunlop Street & Edward Street

Future Total 2030  
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	43	124	8	3	132	5	4	6	2	4	8	42
Future Volume (Veh/h)	43	124	8	3	132	5	4	6	2	4	8	42
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	52	149	10	4	159	6	5	7	2	5	10	51
Pedestrians												1
Lane Width (m)												3.7
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	166			159			484	432	154	434	434	163
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	166			159			484	432	154	434	434	163
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			99	99	100	99	98	94
cM capacity (veh/h)	1423			1420			443	496	892	512	494	878
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	211	169	14	66								
Volume Left	52	4	5	5								
Volume Right	10	6	2	51								
cSH	1423	1420	507	750								
Volume to Capacity	0.04	0.00	0.03	0.09								
Queue Length 95th (m)	0.9	0.1	0.6	2.2								
Control Delay (s)	2.1	0.2	12.3	10.3								
Lane LOS	A	A	B	B								
Approach Delay (s)	2.1	0.2	12.3	10.3								
Approach LOS			B	B								
Intersection Summary												
Average Delay			2.9									
Intersection Capacity Utilization			30.4%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings  
7: Main Street & Thompson Road

Future Total 2030  
PM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	265	57	871	288	55	787
Future Volume (vph)	265	57	871	288	55	787
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	20.0		15.0	0.0	
Storage Lanes	1	1		1	0	
Taper Length (m)	2.5				2.5	
Lane Util. Factor	1.00	1.00	0.95	1.00	0.95	0.95
Ped Bike Factor		0.99				
Frt		0.850		0.850		
Flt Protected	0.950					0.997
Satd. Flow (prot)	1807	1498	3579	1601	0	3540
Flt Permitted	0.950					0.838
Satd. Flow (perm)	1807	1478	3579	1601	0	2975
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		58		168		
Link Speed (k/h)	48		50			50
Link Distance (m)	653.3		164.4			246.8
Travel Time (s)	49.0		11.8			17.8
Confl. Peds. (#/hr)		1				
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	1%	9%	2%	2%	0%	3%
Adj. Flow (vph)	276	59	907	300	57	820
Shared Lane Traffic (%)						
Lane Group Flow (vph)	276	59	907	300	0	877
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Number of Detectors	1	1	2	1	1	2
Detector Template	Left	Right	Thru	Right	Left	Thru
Leading Detector (m)	6.1	6.1	30.5	6.1	6.1	30.5
Trailing Detector (m)	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
Detector 1 Size(m)	6.1	6.1	1.8	6.1	6.1	1.8
Detector 1 Type	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
Detector 1 Queue (s)	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
Detector 2 Position(m)			28.7			28.7
Detector 2 Size(m)			1.8			1.8
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0

Lanes, Volumes, Timings  
7: Main Street & Thompson Road

Future Total 2030  
PM Peak Hour

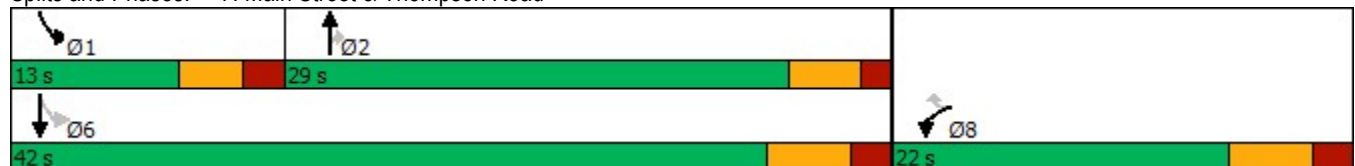


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2	6	
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	8.0	8.0	5.0	5.0	8.0	34.0
Minimum Split (s)	22.0	22.0	21.0	21.0	13.0	40.0
Total Split (s)	22.0	22.0	29.0	29.0	13.0	42.0
Total Split (%)	34.4%	34.4%	45.3%	45.3%	20.3%	65.6%
Maximum Green (s)	16.0	16.0	24.0	24.0	8.0	36.0
Yellow Time (s)	4.0	4.0	3.5	3.5	3.0	4.0
All-Red Time (s)	2.0	2.0	1.5	1.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	6.0	6.0	5.0	5.0		6.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Max	Max	None	Max
Walk Time (s)	5.0	5.0	5.0	5.0		5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0		11.0
Pedestrian Calls (#/hr)	0	0	0	0		0
Act Effct Green (s)	13.7	13.7	38.9	38.9		37.9
Actuated g/C Ratio	0.22	0.22	0.61	0.61		0.60
v/c Ratio	0.71	0.16	0.41	0.29		0.49
Control Delay	33.4	7.5	7.5	3.7		9.0
Queue Delay	0.0	0.0	0.0	0.0		0.0
Total Delay	33.4	7.5	7.5	3.7		9.0
LOS	C	A	A	A		A
Approach Delay	28.8		6.6			9.0
Approach LOS	C		A			A

Intersection Summary

Area Type: Other  
 Cycle Length: 64  
 Actuated Cycle Length: 63.6  
 Natural Cycle: 65  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.71  
 Intersection Signal Delay: 10.6  
 Intersection Capacity Utilization 81.3%  
 Analysis Period (min) 15  
 Intersection LOS: B  
 ICU Level of Service D

Splits and Phases: 7: Main Street & Thompson Road





Queues

Future Total 2030

7: Main Street & Thompson Road

PM Peak Hour
















Lane Group	WBL	WBR	NBT	NBR	SBT
Lane Group Flow (vph)	276	59	907	300	877
v/c Ratio	0.71	0.16	0.41	0.29	0.49
Control Delay	33.4	7.5	7.5	3.7	9.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	33.4	7.5	7.5	3.7	9.0
Queue Length 50th (m)	28.9	0.1	26.4	6.0	28.5
Queue Length 95th (m)	50.5	7.6	39.5	16.0	43.7
Internal Link Dist (m)	629.3		140.4		222.8
Turn Bay Length (m)		20.0		15.0	
Base Capacity (vph)	454	415	2188	1044	1772
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.61	0.14	0.41	0.29	0.49

Intersection Summary

# HCM Signalized Intersection Capacity Analysis

## 7: Main Street & Thompson Road

















Future Total 2030  
PM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	265	57	871	288	55	787
Future Volume (vph)	265	57	871	288	55	787
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	5.0	5.0		6.0
Lane Util. Factor	1.00	1.00	0.95	1.00		0.95
Frpb, ped/bikes	1.00	0.99	1.00	1.00		1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00		1.00
Frt	1.00	0.85	1.00	0.85		1.00
Flt Protected	0.95	1.00	1.00	1.00		1.00
Satd. Flow (prot)	1807	1478	3579	1601		3539
Flt Permitted	0.95	1.00	1.00	1.00		0.84
Satd. Flow (perm)	1807	1478	3579	1601		2974
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	276	59	907	300	57	820
RTOR Reduction (vph)	0	46	0	65	0	0
Lane Group Flow (vph)	276	13	907	235	0	877
Confl. Peds. (#/hr)		1				
Heavy Vehicles (%)	1%	9%	2%	2%	0%	3%
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2	6	
Actuated Green, G (s)	13.7	13.7	38.9	38.9		37.9
Effective Green, g (s)	13.7	13.7	38.9	38.9		37.9
Actuated g/C Ratio	0.22	0.22	0.61	0.61		0.60
Clearance Time (s)	6.0	6.0	5.0	5.0		6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0
Lane Grp Cap (vph)	389	318	2189	979		1772
v/s Ratio Prot	c0.15		0.25			
v/s Ratio Perm		0.01		0.15		c0.29
v/c Ratio	0.71	0.04	0.41	0.24		0.49
Uniform Delay, d1	23.1	19.8	6.4	5.6		7.4
Progression Factor	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	5.8	0.1	0.6	0.6		0.2
Delay (s)	28.9	19.8	7.0	6.2		7.6
Level of Service	C	B	A	A		A
Approach Delay (s)	27.3		6.8			7.6
Approach LOS	C		A			A
<b>Intersection Summary</b>						
HCM 2000 Control Delay			9.9		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.60			
Actuated Cycle Length (s)			63.6		Sum of lost time (s)	16.0
Intersection Capacity Utilization			81.3%		ICU Level of Service	D
Analysis Period (min)			15			

c Critical Lane Group

Lanes, Volumes, Timings  
8: Street A & Gauthier Drive Extension

















Future Total 2030  
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	42	0	36	0	115	29	29	82	0
Future Volume (vph)	0	0	0	42	0	36	0	115	29	29	82	0
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
Fr <sub>t</sub>					0.937			0.972				
Fl <sub>t</sub> Protected					0.974						0.987	
Satd. Flow (prot)	0	1883	0	0	1719	0	0	1831	0	0	1859	0
Fl <sub>t</sub> Permitted					0.974						0.987	
Satd. Flow (perm)	0	1883	0	0	1719	0	0	1831	0	0	1859	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		161.7			257.7			188.1			228.0	
Travel Time (s)		11.6			18.6			13.5			16.4	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	44	0	38	0	121	31	31	86	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	82	0	0	152	0	0	117	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)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
<b>Intersection Summary</b>												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	28.3%						ICU Level of Service A					
Analysis Period (min)	15											

# HCM Unsignalized Intersection Capacity Analysis

## 8: Street A & Gauthier Drive Extension

Future Total 2030  
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	42	0	36	0	115	29	29	82	0
Future Volume (Veh/h)	0	0	0	42	0	36	0	115	29	29	82	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	0	44	0	38	0	121	31	31	86	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	322	300	86	284	284	136	86			152		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	322	300	86	284	284	136	86			152		
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 %	100	100	100	93	100	96	100			98		
cM capacity (veh/h)	594	599	973	657	611	912	1510			1429		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	0	82	152	117								
Volume Left	0	44	0	31								
Volume Right	0	38	31	0								
cSH	1700	755	1510	1429								
Volume to Capacity	0.00	0.11	0.00	0.02								
Queue Length 95th (m)	0.0	2.8	0.0	0.5								
Control Delay (s)	0.0	10.4	0.0	2.1								
Lane LOS	A	B		A								
Approach Delay (s)	0.0	10.4	0.0	2.1								
Approach LOS	A	B										
Intersection Summary												
Average Delay			3.1									
Intersection Capacity Utilization			28.3%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings  
 9: Thompson Road & Gauthier Drive Extension

Future Total 2030  
 PM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	36	0	0	74	67	17
Future Volume (vph)	36	0	0	74	67	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
Fr <sub>t</sub>					0.973	
Fl <sub>t</sub> Protected	0.950					
Satd. Flow (prot)	1789	0	0	1883	1833	0
Fl <sub>t</sub> Permitted	0.950					
Satd. Flow (perm)	1789	0	0	1883	1833	0
Link Speed (k/h)	50			48	48	
Link Distance (m)	257.7			188.8	224.8	
Travel Time (s)	18.6			14.2	16.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	38	0	0	78	71	18
Shared Lane Traffic (%)						
Lane Group Flow (vph)	38	0	0	78	89	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	14.6%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis  
 9: Thompson Road & Gauthier Drive Extension

Future Total 2030  
 PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	36	0	0	74	67	17
Future Volume (Veh/h)	36	0	0	74	67	17
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	38	0	0	78	71	18
<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	158	80	89			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	158	80	89			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	95	100	100			
cM capacity (veh/h)	833	980	1506			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	38	78	89			
Volume Left	38	0	0			
Volume Right	0	0	18			
cSH	833	1506	1700			
Volume to Capacity	0.05	0.00	0.05			
Queue Length 95th (m)	1.1	0.0	0.0			
Control Delay (s)	9.5	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	9.5	0.0	0.0			
Approach LOS	A					
<b>Intersection Summary</b>						
Average Delay			1.8			
Intersection Capacity Utilization			14.6%	ICU Level of Service	A	
Analysis Period (min)			15			

Lanes, Volumes, Timings  
10: Street I & Edward Street

Future Total 2030  
PM Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	116	11	8	129	11	12
Future Volume (vph)	116	11	8	129	11	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
Frt	0.988			0.930		
Flt Protected				0.997	0.977	
Satd. Flow (prot)	1861	0	0	1878	1711	0
Flt Permitted				0.997	0.977	
Satd. Flow (perm)	1861	0	0	1878	1711	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	150.8			175.4	326.7	
Travel Time (s)	10.9			12.6	23.5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	122	12	8	136	12	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	134	0	0	144	25	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	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	14		24	24		14
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	23.3%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis  
 10: Street I & Edward Street

Future Total 2030  
 PM Peak Hour



















Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	116	11	8	129	11	12
Future Volume (Veh/h)	116	11	8	129	11	12
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	122	12	8	136	12	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			134		280	128
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			134		280	128
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		98	99
cM capacity (veh/h)			1451		706	922
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>NB 1</b>			
Volume Total	134	144	25			
Volume Left	0	8	12			
Volume Right	12	0	13			
cSH	1700	1451	804			
Volume to Capacity	0.08	0.01	0.03			
Queue Length 95th (m)	0.0	0.1	0.7			
Control Delay (s)	0.0	0.5	9.6			
Lane LOS		A	A			
Approach Delay (s)	0.0	0.5	9.6			
Approach LOS			A			
<b>Intersection Summary</b>						
Average Delay			1.0			
Intersection Capacity Utilization			23.3%	ICU Level of Service	A	
Analysis Period (min)			15			



















Lanes, Volumes, Timings  
11: Street A & Edward Street

Future Total 2030  
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	78	39	8	3	34	19	5	21	3	13	18	98
Future Volume (vph)	78	39	8	3	34	19	5	21	3	13	18	98
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		0.992			0.954			0.986			0.898	
Flt Protected		0.970			0.997			0.992			0.995	
Satd. Flow (prot)	0	1812	0	0	1791	0	0	1842	0	0	1683	0
Flt Permitted		0.970			0.997			0.992			0.995	
Satd. Flow (perm)	0	1812	0	0	1791	0	0	1842	0	0	1683	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		175.4			254.9			326.2			188.1	
Travel Time (s)		12.6			18.4			23.5			13.5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	82	41	8	3	36	20	5	22	3	14	19	103
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	131	0	0	59	0	0	30	0	0	136	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)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	
<b>Intersection Summary</b>												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	29.3%						ICU Level of Service A					
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis  
 11: Street A & Edward Street

Future Total 2030  
 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	39	8	3	34	19	5	21	3	13	18	98
Future Volume (Veh/h)	78	39	8	3	34	19	5	21	3	13	18	98
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	82	41	8	3	36	20	5	22	3	14	19	103
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	56			49			374	271	45	275	265	46
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	56			49			374	271	45	275	265	46
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 %	95			100			99	96	100	98	97	90
cM capacity (veh/h)	1549			1558			491	601	1025	629	605	1023
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	131	59	30	136								
Volume Left	82	3	5	14								
Volume Right	8	20	3	103								
cSH	1549	1558	603	882								
Volume to Capacity	0.05	0.00	0.05	0.15								
Queue Length 95th (m)	1.3	0.0	1.2	4.1								
Control Delay (s)	4.8	0.4	11.3	9.8								
Lane LOS	A	A	B	A								
Approach Delay (s)	4.8	0.4	11.3	9.8								
Approach LOS			B	A								
Intersection Summary												
Average Delay			6.5									
Intersection Capacity Utilization			29.3%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings  
12: Thompson Road & Edward Street

Future Total 2030  
PM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	37	0	0	36	46	18
Future Volume (vph)	37	0	0	36	46	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>					0.962	
Fl <sub>t</sub> Protected	0.950					
Satd. Flow (prot)	1789	0	0	1883	1812	0
Fl <sub>t</sub> Permitted	0.950					
Satd. Flow (perm)	1789	0	0	1883	1812	0
Link Speed (k/h)	50			48	48	
Link Distance (m)	254.9			324.7	188.8	
Travel Time (s)	18.4			24.4	14.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	39	0	0	38	48	19
Shared Lane Traffic (%)						
Lane Group Flow (vph)	39	0	0	38	67	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	13.5%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis  
 12: Thompson Road & Edward Street

Future Total 2030  
 PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	37	0	0	36	46	18
Future Volume (Veh/h)	37	0	0	36	46	18
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	39	0	0	38	48	19
<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	96	58	67			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	96	58	67			
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	100	100			
cM capacity (veh/h)	904	1009	1535			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	39	38	67			
Volume Left	39	0	0			
Volume Right	0	0	19			
cSH	904	1535	1700			
Volume to Capacity	0.04	0.00	0.04			
Queue Length 95th (m)	1.0	0.0	0.0			
Control Delay (s)	9.2	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	9.2	0.0	0.0			
Approach LOS	A					
<b>Intersection Summary</b>						
Average Delay			2.5			
Intersection Capacity Utilization			13.5%	ICU Level of Service	A	
Analysis Period (min)			15			

Lanes, Volumes, Timings  
 13: Thompson Road & Dunlop Street

Future Total 2030  
 PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	6	73	63	2	2	3
Future Volume (vph)	6	73	63	2	2	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.996		0.919	
Flt Protected		0.996			0.980	
Satd. Flow (prot)	0	1876	1876	0	1696	0
Flt Permitted		0.996			0.980	
Satd. Flow (perm)	0	1876	1876	0	1696	0
Link Speed (k/h)		48	48		50	
Link Distance (m)		419.2	156.0		325.8	
Travel Time (s)		31.4	11.7		23.5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	6	77	66	2	2	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	83	68	0	5	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	18.8%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis  
 13: Thompson Road & Dunlop Street

Future Total 2030  
 PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	6	73	63	2	2	3
Future Volume (Veh/h)	6	73	63	2	2	3
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	6	77	66	2	2	3
<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	68				156	67
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	68				156	67
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1533				832	997
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>SB 1</b>			
Volume Total	83	68	5			
Volume Left	6	0	2			
Volume Right	0	2	3			
cSH	1533	1700	924			
Volume to Capacity	0.00	0.04	0.01			
Queue Length 95th (m)	0.1	0.0	0.1			
Control Delay (s)	0.6	0.0	8.9			
Lane LOS	A		A			
Approach Delay (s)	0.6	0.0	8.9			
Approach LOS			A			
<b>Intersection Summary</b>						
Average Delay			0.6			
Intersection Capacity Utilization			18.8%	ICU Level of Service	A	
Analysis Period (min)			15			

Lanes, Volumes, Timings  
 14: Thompson Road & Street I

Future Total 2030  
 PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	8	65	59	0	0	4
Future Volume (vph)	8	65	59	0	0	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>					0.865	
Fl <sub>t</sub> Protected		0.995				
Satd. Flow (prot)	0	1874	1883	0	1629	0
Fl <sub>t</sub> Permitted		0.995				
Satd. Flow (perm)	0	1874	1883	0	1629	0
Link Speed (k/h)		48	48		50	
Link Distance (m)		156.0	175.3		326.7	
Travel Time (s)		11.7	13.1		23.5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	8	68	62	0	0	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	76	62	0	4	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	20.1% ICU Level of Service A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis  
 14: Thompson Road & Street I

Future Total 2030  
 PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	8	65	59	0	0	4
Future Volume (Veh/h)	8	65	59	0	0	4
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	8	68	62	0	0	4
<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	62				146	62
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	62				146	62
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				100	100
cM capacity (veh/h)	1541				842	1003
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>SB 1</b>			
Volume Total	76	62	4			
Volume Left	8	0	0			
Volume Right	0	0	4			
cSH	1541	1700	1003			
Volume to Capacity	0.01	0.04	0.00			
Queue Length 95th (m)	0.1	0.0	0.1			
Control Delay (s)	0.8	0.0	8.6			
Lane LOS	A		A			
Approach Delay (s)	0.8	0.0	8.6			
Approach LOS			A			
<b>Intersection Summary</b>						
Average Delay			0.7			
Intersection Capacity Utilization		20.1%		ICU Level of Service		A
Analysis Period (min)			15			



Lanes, Volumes, Timings  
15: Thompson Road & Street A

Future Total 2030  
PM Peak Hour



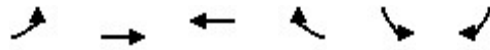
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	27	36	46	0	0	12
Future Volume (vph)	27	36	46	0	0	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>					0.865	
Fl <sub>t</sub> Protected		0.979				
Satd. Flow (prot)	0	1844	1883	0	1629	0
Fl <sub>t</sub> Permitted		0.979				
Satd. Flow (perm)	0	1844	1883	0	1629	0
Link Speed (k/h)		48	48		50	
Link Distance (m)		175.3	250.1		326.2	
Travel Time (s)		13.1	18.8		23.5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	28	38	48	0	0	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	66	48	0	13	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	20.1%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis  
 15: Thompson Road & Street A

Future Total 2030  
 PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↩	↩		↩	
Traffic Volume (veh/h)	27	36	46	0	0	12
Future Volume (Veh/h)	27	36	46	0	0	12
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	28	38	48	0	0	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	48			142	48	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	48			142	48	
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			100	99	
cM capacity (veh/h)	1559			835	1021	
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>SB 1</b>			
Volume Total	66	48	13			
Volume Left	28	0	0			
Volume Right	0	0	13			
cSH	1559	1700	1021			
Volume to Capacity	0.02	0.03	0.01			
Queue Length 95th (m)	0.4	0.0	0.3			
Control Delay (s)	3.2	0.0	8.6			
Lane LOS	A		A			
Approach Delay (s)	3.2	0.0	8.6			
Approach LOS			A			
<b>Intersection Summary</b>						
Average Delay			2.5			
Intersection Capacity Utilization			20.1%	ICU Level of Service	A	
Analysis Period (min)			15			

Lanes, Volumes, Timings  
1: Dunlop Street & Robert Street East

Future Background 2035  
AM Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	169	49	86	189	42	53
Future Volume (vph)	169	49	86	189	42	53
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	0.970			0.925		
Flt Protected				0.985	0.978	
Satd. Flow (prot)	1749	0	0	1745	1669	0
Flt Permitted				0.985	0.978	
Satd. Flow (perm)	1749	0	0	1745	1669	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	1218.0			320.1	410.5	
Travel Time (s)	87.7			23.0	29.6	
Confl. Peds. (#/hr)	2		2			1
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Heavy Vehicles (%)	7%	5%	5%	10%	3%	5%
Adj. Flow (vph)	268	78	137	300	67	84
Shared Lane Traffic (%)						
Lane Group Flow (vph)	346	0	0	437	151	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	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	14		24	24		14
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	42.6%
	ICU Level of Service A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis  
 1: Dunlop Street & Robert Street East

















Future Background 2035  
 AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	169	49	86	189	42	53
Future Volume (Veh/h)	169	49	86	189	42	53
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Hourly flow rate (vph)	268	78	137	300	67	84
Pedestrians				1	2	
Lane Width (m)				3.7	3.7	
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			348		883	310
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			348		883	310
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			89		76	88
cM capacity (veh/h)			1192		278	721
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>NB 1</b>			
Volume Total	346	437	151			
Volume Left	0	137	67			
Volume Right	78	0	84			
cSH	1700	1192	423			
Volume to Capacity	0.20	0.11	0.36			
Queue Length 95th (m)	0.0	3.0	12.1			
Control Delay (s)	0.0	3.4	18.2			
Lane LOS			A	C		
Approach Delay (s)	0.0	3.4	18.2			
Approach LOS			C			
<b>Intersection Summary</b>						
Average Delay			4.5			
Intersection Capacity Utilization			42.6%	ICU Level of Service	A	
Analysis Period (min)			15			

2: Street A/Dufferin Street/Burke Street & Robert Street East

AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	172	0	0	199	73	0	0	0	46	0	38
Future Volume (vph)	29	172	0	0	199	73	0	0	0	46	0	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						0.964						0.939
Flt Protected	0.993										0.973	
Satd. Flow (prot)	0	1807	0	0	1740	0	0	1883	0	0	1504	0
Flt Permitted	0.993										0.973	
Satd. Flow (perm)	0	1807	0	0	1740	0	0	1883	0	0	1504	0
Link Speed (k/h)					50					50		
Link Distance (m)	320.1				250.8				228.0			
Travel Time (s)	23.0				18.1				16.4			
Confl. Peds. (#/hr)	2										2	
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Heavy Vehicles (%)	9%	5%	2%	2%	4%	13%	2%	2%	2%	0%	2%	37%
Adj. Flow (vph)	43	257	0	0	297	109	0	0	0	69	0	57
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	300	0	0	406	0	0	0	0	0	126	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	
Link Offset(m)	0.0										0.0	
Crosswalk Width(m)	1.6										1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14		24		14		24		14	
Sign Control	Free				Free				Stop			

Intersection Summary

Area Type: Other

















Control Type: Unsignalized

Intersection Capacity Utilization 40.5% ICU Level of Service A

Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis  
 2: Street A/Dufferin Street/Burke Street & Robert Street East

Future Background 2035  
 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	172	0	0	199	73	0	0	0	46	0	38
Future Volume (Veh/h)	29	172	0	0	199	73	0	0	0	46	0	38
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Hourly flow rate (vph)	43	257	0	0	297	109	0	0	0	69	0	57
Pedestrians												2
Lane Width (m)												3.7
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	408			257			752	751	257	696	696	354
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	408			257			752	751	257	696	696	354
tC, single (s)	4.2			4.1			7.1	6.5	6.2	7.1	6.5	6.6
tC, 2 stage (s)												
tF (s)	2.3			2.2			3.5	4.0	3.3	3.5	4.0	3.6
p0 queue free %	96			100			100	100	100	80	100	91
cM capacity (veh/h)	1112			1308			287	326	782	347	350	617
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	300	406	0	126								
Volume Left	43	0	0	69								
Volume Right	0	109	0	57								
cSH	1112	1308	1700	433								
Volume to Capacity	0.04	0.00	0.00	0.29								
Queue Length 95th (m)	0.9	0.0	0.0	9.1								
Control Delay (s)	1.5	0.0	0.0	16.7								
Lane LOS	A		A	C								
Approach Delay (s)	1.5	0.0	0.0	16.7								
Approach LOS			A	C								
Intersection Summary												
Average Delay			3.1									
Intersection Capacity Utilization			40.5%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings  
 3: Thompson Road/Centennial Drive & Robert Street East

Future Background 2035  
 AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	32	180	6	73	252	16	1	27	66	22	20	10
Future Volume (vph)	32	180	6	73	252	16	1	27	66	22	20	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
Frt		0.996			0.994			0.905			0.973	
Flt Protected		0.993			0.989						0.979	
Satd. Flow (prot)	0	1842	0	0	1699	0	0	1469	0	0	1628	0
Flt Permitted		0.993			0.989						0.979	
Satd. Flow (perm)	0	1842	0	0	1699	0	0	1469	0	0	1628	0
Link Speed (k/h)		50			50			48			48	
Link Distance (m)		250.8			471.9			224.8			77.4	
Travel Time (s)		18.1			34.0			16.9			5.8	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	16%	1%	0%	28%	7%	0%	0%	5%	24%	6%	13%	25%
Adj. Flow (vph)	40	225	8	91	315	20	1	34	83	28	25	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	273	0	0	426	0	0	118	0	0	66	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)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

















Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	44.3%
ICU Level of Service	A
Analysis Period (min)	15

# HCM Unsignalized Intersection Capacity Analysis

## 3: Thompson Road/Centennial Drive & Robert Street East













Future Background 2035  
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	180	6	73	252	16	1	27	66	22	20	10
Future Volume (Veh/h)	32	180	6	73	252	16	1	27	66	22	20	10
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	40	225	8	91	315	20	1	34	83	28	25	13
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	335			233			842	826	229	916	820	325
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	335			233			842	826	229	916	820	325
tC, single (s)	4.3			4.4			7.1	6.5	6.4	7.2	6.6	6.5
tC, 2 stage (s)												
tF (s)	2.3			2.5			3.5	4.0	3.5	3.6	4.1	3.5
p0 queue free %	97			92			100	87	89	85	91	98
cM capacity (veh/h)	1150			1196			239	271	759	184	265	666
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	273	426	118	66								
Volume Left	40	91	1	28								
Volume Right	8	20	83	13								
cSH	1150	1196	494	248								
Volume to Capacity	0.03	0.08	0.24	0.27								
Queue Length 95th (m)	0.8	1.9	7.0	7.9								
Control Delay (s)	1.5	2.4	14.6	24.7								
Lane LOS	A	A	B	C								
Approach Delay (s)	1.5	2.4	14.6	24.7								
Approach LOS			B	C								
Intersection Summary												
Average Delay			5.4									
Intersection Capacity Utilization			44.3%		ICU Level of Service				A			
Analysis Period (min)			15									



Lanes, Volumes, Timings  
4: Fuller Avenue & Robert Street East

Future Background 2035  
AM Peak Hour

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	169	141	131	243	237	140
Future Volume (vph)	169	141	131	243	237	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0	0.0	0.0			0.0
Storage Lanes	1	1	1			1
Taper Length (m)	2.5		2.5			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1601	1570	1738	1847	1830	1338
Flt Permitted	0.950		0.502			
Satd. Flow (perm)	1601	1570	918	1847	1830	1338
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		174				173
Link Speed (k/h)	50			60	60	
Link Distance (m)	471.9			243.5	103.8	
Travel Time (s)	34.0			14.6	6.2	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles (%)	14%	4%	5%	4%	5%	22%
Adj. Flow (vph)	209	174	162	300	293	173
Shared Lane Traffic (%)						
Lane Group Flow (vph)	209	174	162	300	293	173
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Number of Detectors	1	1	1	2	2	1
Detector Template	Left	Right	Left	Thru	Thru	Right
Leading Detector (m)	6.1	6.1	6.1	30.5	30.5	6.1
Trailing Detector (m)	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
Detector 1 Size(m)	6.1	6.1	6.1	1.8	1.8	6.1
Detector 1 Type	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
Detector 1 Queue (s)	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
Detector 2 Position(m)				28.7	28.7	
Detector 2 Size(m)				1.8	1.8	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	

Lanes, Volumes, Timings  
4: Fuller Avenue & Robert Street East

Future Background 2035  
AM Peak Hour

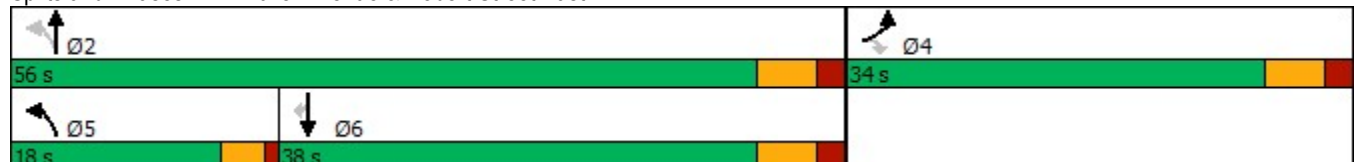


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Permitted Phases		4	2			6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	25.0	25.0	9.0	30.0	30.0	30.0
Total Split (s)	34.0	34.0	18.0	56.0	38.0	38.0
Total Split (%)	37.8%	37.8%	20.0%	62.2%	42.2%	42.2%
Maximum Green (s)	28.0	28.0	14.0	50.0	32.0	32.0
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	6.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	Max	Max	Max
Walk Time (s)	5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0
Act Effct Green (s)	15.3	15.3	52.1	50.1	37.9	37.9
Actuated g/C Ratio	0.20	0.20	0.67	0.65	0.49	0.49
v/c Ratio	0.66	0.39	0.23	0.25	0.33	0.23
Control Delay	39.0	7.1	6.2	7.1	14.8	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.0	7.1	6.2	7.1	14.8	3.4
LOS	D	A	A	A	B	A
Approach Delay	24.5			6.8	10.6	
Approach LOS	C			A	B	

Intersection Summary

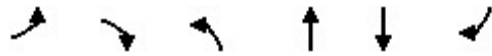
Area Type: Other  
 Cycle Length: 90  
 Actuated Cycle Length: 77.5  
 Natural Cycle: 65  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.66  
 Intersection Signal Delay: 13.3  
 Intersection Capacity Utilization 42.4%  
 Analysis Period (min) 15  
 Intersection LOS: B  
 ICU Level of Service A

Splits and Phases: 4: Fuller Avenue & Robert Street East



## 4: Fuller Avenue &amp; Robert Street East

AM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	209	174	162	300	293	173
v/c Ratio	0.66	0.39	0.23	0.25	0.33	0.23
Control Delay	39.0	7.1	6.2	7.1	14.8	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.0	7.1	6.2	7.1	14.8	3.4
Queue Length 50th (m)	28.4	0.0	7.2	16.0	24.4	0.0
Queue Length 95th (m)	43.0	10.2	15.4	29.5	44.5	8.0
Internal Link Dist (m)	447.9			219.5	79.8	
Turn Bay Length (m)	30.0					
Base Capacity (vph)	580	679	766	1194	894	742
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.26	0.21	0.25	0.33	0.23

## Intersection Summary

# HCM Signalized Intersection Capacity Analysis

## 4: Fuller Avenue & Robert Street East

Future Background 2035  
AM Peak Hour




















Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	169	141	131	243	237	140
Future Volume (vph)	169	141	131	243	237	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	4.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1601	1570	1738	1847	1830	1338
Flt Permitted	0.95	1.00	0.50	1.00	1.00	1.00
Satd. Flow (perm)	1601	1570	918	1847	1830	1338
Peak-hour factor, PHF	0.81	0.81	0.81	0.81	0.81	0.81
Adj. Flow (vph)	209	174	162	300	293	173
RTOR Reduction (vph)	0	140	0	0	0	88
Lane Group Flow (vph)	209	34	162	300	293	85
Heavy Vehicles (%)	14%	4%	5%	4%	5%	22%
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	15.3	15.3	50.2	50.2	37.9	37.9
Effective Green, g (s)	15.3	15.3	50.2	50.2	37.9	37.9
Actuated g/C Ratio	0.20	0.20	0.65	0.65	0.49	0.49
Clearance Time (s)	6.0	6.0	4.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	316	309	682	1196	894	654
v/s Ratio Prot	c0.13		0.03	c0.16	c0.16	
v/s Ratio Perm		0.02	0.13			0.06
v/c Ratio	0.66	0.11	0.24	0.25	0.33	0.13
Uniform Delay, d1	28.7	25.5	5.5	5.7	12.0	10.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.1	0.2	0.2	0.5	1.0	0.4
Delay (s)	33.8	25.7	5.7	6.2	13.0	11.2
Level of Service	C	C	A	A	B	B
Approach Delay (s)	30.1			6.1	12.4	
Approach LOS	C			A	B	

### Intersection Summary

HCM 2000 Control Delay	15.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	77.5	Sum of lost time (s)	16.0
Intersection Capacity Utilization	42.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

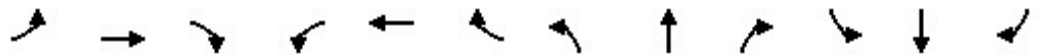
Lanes, Volumes, Timings  
5: Main Street & Edward Street

Future Background 2035  
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	6	20	51	14	38	33	407	21	24	446	2
Future Volume (vph)	0	6	20	51	14	38	33	407	21	24	446	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		30.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor		0.99			1.00	0.99		1.00				1.00
Frt		0.898				0.850		0.993				0.999
Flt Protected					0.962			0.996				0.997
Satd. Flow (prot)	0	1708	0	0	1848	1633	0	3247	0	0	3410	0
Flt Permitted					0.751			0.886				0.911
Satd. Flow (perm)	0	1708	0	0	1442	1612	0	2889	0	0	3116	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		25				91		8				1
Link Speed (k/h)		50			50			50				50
Link Distance (m)		135.5			260.4			246.8				121.8
Travel Time (s)		9.8			18.7			17.8				8.8
Confl. Peds. (#/hr)	1		1	1		1			2	2		
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	15%	11%	6%	0%	7%	0%
Adj. Flow (vph)	0	8	25	64	18	48	41	509	26	30	558	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	33	0	0	82	48	0	576	0	0	591	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)		1.6			1.6			1.6				1.6
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	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	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
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  
5: Main Street & Edward Street

Future Background 2035  
AM Peak Hour

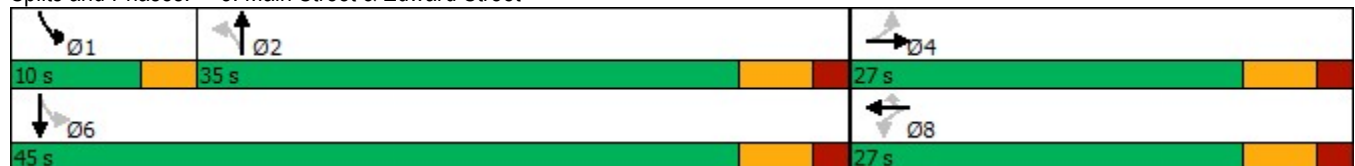


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type		NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	8.0	8.0		7.0	30.0	
Minimum Split (s)	26.0	26.0		26.0	26.0	26.0	31.0	31.0		10.0	36.0	
Total Split (s)	27.0	27.0		27.0	27.0	27.0	35.0	35.0		10.0	45.0	
Total Split (%)	37.5%	37.5%		37.5%	37.5%	37.5%	48.6%	48.6%		13.9%	62.5%	
Maximum Green (s)	21.0	21.0		21.0	21.0	21.0	29.0	29.0		7.0	39.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		0.0	2.0	
Lost Time Adjust (s)		0.0			0.0	0.0		0.0			0.0	
Total Lost Time (s)		6.0			6.0	6.0		6.0			6.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	Max	Max		None	Max	
Walk Time (s)	12.0	12.0		12.0	12.0	12.0	15.0	15.0			20.0	
Flash Dont Walk (s)	8.0	8.0		8.0	8.0	8.0	10.0	10.0			10.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0			0	
Act Effct Green (s)		10.4			10.4	10.4		43.8			43.8	
Actuated g/C Ratio		0.17			0.17	0.17		0.71			0.71	
v/c Ratio		0.11			0.34	0.14		0.28			0.27	
Control Delay		12.5			26.9	2.8		5.0			5.0	
Queue Delay		0.0			0.0	0.0		0.0			0.0	
Total Delay		12.5			26.9	2.8		5.0			5.0	
LOS		B			C	A		A			A	
Approach Delay		12.5			18.0			5.0			5.0	
Approach LOS		B			B			A			A	

Intersection Summary

Area Type:	Other
Cycle Length:	72
Actuated Cycle Length:	61.7
Natural Cycle:	70
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.34
Intersection Signal Delay:	6.4
Intersection LOS:	A
Intersection Capacity Utilization:	57.7%
ICU Level of Service:	B
Analysis Period (min):	15

Splits and Phases: 5: Main Street & Edward Street



## 5: Main Street &amp; Edward Street

AM Peak Hour




















Lane Group	EBT	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	33	82	48	576	591
v/c Ratio	0.11	0.34	0.14	0.28	0.27
Control Delay	12.5	26.9	2.8	5.0	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	12.5	26.9	2.8	5.0	5.0
Queue Length 50th (m)	0.8	8.3	0.0	12.5	12.9
Queue Length 95th (m)	5.7	16.6	1.5	18.3	18.5
Internal Link Dist (m)	111.5	236.4		222.8	97.8
Turn Bay Length (m)			30.0		
Base Capacity (vph)	598	490	608	2053	2212
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.06	0.17	0.08	0.28	0.27

## Intersection Summary

HCM Signalized Intersection Capacity Analysis  
 5: Main Street & Edward Street

Future Background 2035  
 AM Peak Hour

















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	6	20	51	14	38	33	407	21	24	446	2
Future Volume (vph)	0	6	20	51	14	38	33	407	21	24	446	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	6.0		6.0			6.0	
Lane Util. Factor		1.00			1.00	1.00		0.95			0.95	
Frbp, ped/bikes		0.99			1.00	0.99		1.00			1.00	
Flpb, ped/bikes		1.00			1.00	1.00		1.00			1.00	
Frt		0.90			1.00	0.85		0.99			1.00	
Flt Protected		1.00			0.96	1.00		1.00			1.00	
Satd. Flow (prot)		1708			1848	1612		3250			3412	
Flt Permitted		1.00			0.75	1.00		0.89			0.91	
Satd. Flow (perm)		1708			1442	1612		2889			3117	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	0	8	25	64	18	48	41	509	26	30	558	2
RTOR Reduction (vph)	0	22	0	0	0	42	0	3	0	0	0	0
Lane Group Flow (vph)	0	11	0	0	82	6	0	573	0	0	591	0
Confl. Peds. (#/hr)	1		1	1		1			2	2		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	15%	11%	6%	0%	7%	0%
Turn Type		NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		8.4			8.4	8.4		42.6			42.6	
Effective Green, g (s)		8.4			8.4	8.4		42.6			42.6	
Actuated g/C Ratio		0.13			0.13	0.13		0.68			0.68	
Clearance Time (s)		6.0			6.0	6.0		6.0			6.0	
Vehicle Extension (s)		3.0			3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)		227			192	214		1953			2107	
v/s Ratio Prot		0.01										
v/s Ratio Perm					c0.06	0.00		c0.20			0.19	
v/c Ratio		0.05			0.43	0.03		0.29			0.28	
Uniform Delay, d1		23.8			25.1	23.8		4.1			4.1	
Progression Factor		1.00			1.00	1.00		1.00			1.00	
Incremental Delay, d2		0.1			1.5	0.1		0.4			0.1	
Delay (s)		23.9			26.6	23.8		4.5			4.1	
Level of Service		C			C	C		A			A	
Approach Delay (s)		23.9			25.6			4.5			4.1	
Approach LOS		C			C			A			A	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			6.9		HCM 2000 Level of Service						A	
HCM 2000 Volume to Capacity ratio			0.34									
Actuated Cycle Length (s)			63.0		Sum of lost time (s)						15.0	
Intersection Capacity Utilization			57.7%		ICU Level of Service						B	
Analysis Period (min)			15									

c Critical Lane Group



















Lanes, Volumes, Timings  
6: Dunlop Street & Edward Street

Future Background 2035  
AM Peak Hour

													
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	47	0	0	0	0	0	0	0	0	0	0	65	
Future Volume (vph)	47	0	0	0	0	0	0	0	0	0	0	65	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor													
Frt												0.865	
Flt Protected	0.950												
Satd. Flow (prot)	0	1772	0	0	1921	0	0	1883	0	0	1539	0	
Flt Permitted	0.950												
Satd. Flow (perm)	0	1772	0	0	1921	0	0	1883	0	0	1539	0	
Link Speed (k/h)	50												
Link Distance (m)	802.7				150.8				325.8				410.5
Travel Time (s)	57.8				10.9				23.5				29.6
Confl. Peds. (#/hr)	8						8						
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	
Heavy Vehicles (%)	3%	0%	2%	2%	0%	0%	2%	2%	2%	0%	2%	8%	
Adj. Flow (vph)	70	0	0	0	0	0	0	0	0	0	0	97	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	70	0	0	0	0	0	0	0	0	97	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												
Link Offset(m)	0.0												
Crosswalk Width(m)	1.6				1.6				1.6				
Two way Left Turn Lane													
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	
Turning Speed (k/h)	24		14		24		14		24		14		
Sign Control	Free				Free				Stop				
<b>Intersection Summary</b>													
Area Type:	Other												
Control Type:	Unsignalized												
Intersection Capacity Utilization	16.4%						ICU Level of Service A						
Analysis Period (min)	15												














HCM Unsignalized Intersection Capacity Analysis  
6: Dunlop Street & Edward Street

Future Background 2035  
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	0	0	0	0	0	0	0	0	0	0	65
Future Volume (Veh/h)	47	0	0	0	0	0	0	0	0	0	0	65
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Hourly flow rate (vph)	70	0	0	0	0	0	0	0	0	0	0	97
Pedestrians												8
Lane Width (m)												3.7
Walking Speed (m/s)												1.2
Percent Blockage												1
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	8			0			237	148	0	148	148	8
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	8			0			237	148	0	148	148	8
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.3
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.4
p0 queue free %	96			100			100	100	100	100	100	91
cM capacity (veh/h)	1595			1623			626	706	1085	788	706	1050
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	70	0	0	97								
Volume Left	70	0	0	0								
Volume Right	0	0	0	97								
cSH	1595	1700	1700	1050								
Volume to Capacity	0.04	0.00	0.00	0.09								
Queue Length 95th (m)	1.0	0.0	0.0	2.3								
Control Delay (s)	7.4	0.0	0.0	8.8								
Lane LOS	A		A	A								
Approach Delay (s)	7.4	0.0	0.0	8.8								
Approach LOS			A	A								
Intersection Summary												
Average Delay			8.2									
Intersection Capacity Utilization			16.4%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings  
7: Main Street & Thompson Road

Future Background 2035  
AM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	168	51	414	157	29	491
Future Volume (vph)	168	51	414	157	29	491
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	20.0		15.0	0.0	
Storage Lanes	1	1		1	0	
Taper Length (m)	2.5				2.5	
Lane Util. Factor	1.00	1.00	0.95	1.00	0.95	0.95
Frt		0.850		0.850		
Flt Protected	0.950					0.997
Satd. Flow (prot)	1738	1328	3349	1526	0	3395
Flt Permitted	0.950					0.909
Satd. Flow (perm)	1738	1328	3349	1526	0	3096
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		61		184		
Link Speed (k/h)	50		50			50
Link Distance (m)	653.3		164.4			246.8
Travel Time (s)	47.0		11.8			17.8
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	5%	23%	9%	7%	27%	6%
Adj. Flow (vph)	200	61	493	187	35	585
Shared Lane Traffic (%)						
Lane Group Flow (vph)	200	61	493	187	0	620
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Number of Detectors	1	1	2	1	1	2
Detector Template	Left	Right	Thru	Right	Left	Thru
Leading Detector (m)	6.1	6.1	30.5	6.1	6.1	30.5
Trailing Detector (m)	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
Detector 1 Size(m)	6.1	6.1	1.8	6.1	6.1	1.8
Detector 1 Type	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
Detector 1 Queue (s)	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
Detector 2 Position(m)			28.7			28.7
Detector 2 Size(m)			1.8			1.8
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	8		2		1	6

Lanes, Volumes, Timings  
7: Main Street & Thompson Road

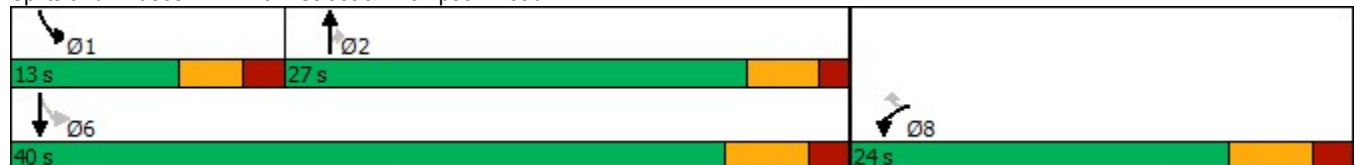
Future Background 2035  
AM Peak Hour

	↙	↖	↑	↗	↘	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Permitted Phases		8		2	6	
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	8.0	8.0	5.0	5.0	8.0	34.0
Minimum Split (s)	22.0	22.0	21.0	21.0	13.0	40.0
Total Split (s)	24.0	24.0	27.0	27.0	13.0	40.0
Total Split (%)	37.5%	37.5%	42.2%	42.2%	20.3%	62.5%
Maximum Green (s)	18.0	18.0	22.0	22.0	8.0	34.0
Yellow Time (s)	4.0	4.0	3.5	3.5	3.0	4.0
All-Red Time (s)	2.0	2.0	1.5	1.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	6.0	6.0	5.0	5.0		6.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Max	Max	None	Max
Walk Time (s)	5.0	5.0	5.0	5.0		5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0		11.0
Pedestrian Calls (#/hr)	0	0	0	0		0
Act Effct Green (s)	12.3	12.3	38.4	38.4		37.4
Actuated g/C Ratio	0.20	0.20	0.62	0.62		0.61
v/c Ratio	0.58	0.20	0.24	0.18		0.33
Control Delay	28.4	7.5	6.1	1.7		7.2
Queue Delay	0.0	0.0	0.0	0.0		0.0
Total Delay	28.4	7.5	6.1	1.7		7.2
LOS	C	A	A	A		A
Approach Delay	23.5		4.9			7.2
Approach LOS	C		A			A

Intersection Summary

Area Type: Other  
 Cycle Length: 64  
 Actuated Cycle Length: 61.7  
 Natural Cycle: 65  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.58  
 Intersection Signal Delay: 8.9  
 Intersection Capacity Utilization 54.6%  
 Analysis Period (min) 15  
 Intersection LOS: A  
 ICU Level of Service A

Splits and Phases: 7: Main Street & Thompson Road



## 7: Main Street &amp; Thompson Road

AM Peak Hour
















Lane Group	WBL	WBR	NBT	NBR	SBT
Lane Group Flow (vph)	200	61	493	187	620
v/c Ratio	0.58	0.20	0.24	0.18	0.33
Control Delay	28.4	7.5	6.1	1.7	7.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	28.4	7.5	6.1	1.7	7.2
Queue Length 50th (m)	19.1	0.0	10.8	0.1	15.3
Queue Length 95th (m)	32.7	6.4	19.7	5.9	26.8
Internal Link Dist (m)	629.3		140.4		222.8
Turn Bay Length (m)		20.0		15.0	
Base Capacity (vph)	509	432	2084	1019	1876
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.39	0.14	0.24	0.18	0.33

## Intersection Summary

HCM Signalized Intersection Capacity Analysis  
7: Main Street & Thompson Road

Future Background 2035  
AM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	168	51	414	157	29	491
Future Volume (vph)	168	51	414	157	29	491
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	5.0	5.0		6.0
Lane Util. Factor	1.00	1.00	0.95	1.00		0.95
Frt	1.00	0.85	1.00	0.85		1.00
Flt Protected	0.95	1.00	1.00	1.00		1.00
Satd. Flow (prot)	1738	1328	3349	1526		3396
Flt Permitted	0.95	1.00	1.00	1.00		0.91
Satd. Flow (perm)	1738	1328	3349	1526		3095
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	200	61	493	187	35	585
RTOR Reduction (vph)	0	49	0	69	0	0
Lane Group Flow (vph)	200	12	493	118	0	620
Heavy Vehicles (%)	5%	23%	9%	7%	27%	6%
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2	6	
Actuated Green, G (s)	12.3	12.3	38.4	38.4		37.4
Effective Green, g (s)	12.3	12.3	38.4	38.4		37.4
Actuated g/C Ratio	0.20	0.20	0.62	0.62		0.61
Clearance Time (s)	6.0	6.0	5.0	5.0		6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0
Lane Grp Cap (vph)	346	264	2084	949		1876
v/s Ratio Prot	c0.12		0.15			
v/s Ratio Perm		0.01		0.08		c0.20
v/c Ratio	0.58	0.05	0.24	0.12		0.33
Uniform Delay, d1	22.4	20.0	5.2	4.8		6.0
Progression Factor	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	2.3	0.1	0.3	0.3		0.1
Delay (s)	24.7	20.0	5.4	5.0		6.1
Level of Service	C	C	A	A		A
Approach Delay (s)	23.6		5.3			6.1
Approach LOS	C		A			A
<b>Intersection Summary</b>						
HCM 2000 Control Delay			8.7		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.43			
Actuated Cycle Length (s)			61.7		Sum of lost time (s)	16.0
Intersection Capacity Utilization			54.6%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

Lanes, Volumes, Timings  
 1: Dunlop Street & Robert Street East

Future Background 2035  
 PM Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	191	24	54	271	25	54
Future Volume (vph)	191	24	54	271	25	54
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	0.985			0.907		
Flt Protected				0.992	0.985	
Satd. Flow (prot)	1787	0	0	1868	1716	0
Flt Permitted				0.992	0.985	
Satd. Flow (perm)	1787	0	0	1868	1716	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	1218.0			320.1	410.5	
Travel Time (s)	87.7			23.0	29.6	
Confl. Peds. (#/hr)	1		1			4
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	6%	5%	2%	2%	0%	0%
Adj. Flow (vph)	217	27	61	308	28	61
Shared Lane Traffic (%)						
Lane Group Flow (vph)	244	0	0	369	89	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	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	14		24	24		14
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	44.9%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis  
 1: Dunlop Street & Robert Street East

Future Background 2035  
 PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	191	24	54	271	25	54
Future Volume (Veh/h)	191	24	54	271	25	54
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	217	27	61	308	28	61
Pedestrians				4	1	
Lane Width (m)				3.7	3.7	
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			245		662	236
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			245		662	236
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			95		93	92
cM capacity (veh/h)			1320		410	805
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	244	369	89			
Volume Left	0	61	28			
Volume Right	27	0	61			
cSH	1700	1320	618			
Volume to Capacity	0.14	0.05	0.14			
Queue Length 95th (m)	0.0	1.1	3.8			
Control Delay (s)	0.0	1.7	11.8			
Lane LOS			A			B
Approach Delay (s)	0.0	1.7	11.8			
Approach LOS				B		
<b>Intersection Summary</b>						
Average Delay			2.4			
Intersection Capacity Utilization			44.9%	ICU Level of Service	A	
Analysis Period (min)			15			



2: Street A/Dufferin Street/Burke Street & Robert Street East

PM Peak Hour



















Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	16	200	0	0	266	59	0	0	0	39	0	32
Future Volume (vph)	16	200	0	0	266	59	0	0	0	39	0	32
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
Fr <sub>t</sub>					0.976						0.939	
Fl <sub>t</sub> Protected		0.996									0.973	
Satd. Flow (prot)	0	1829	0	0	1860	0	0	1883	0	0	1658	0
Fl <sub>t</sub> Permitted		0.996									0.973	
Satd. Flow (perm)	0	1829	0	0	1860	0	0	1883	0	0	1658	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		320.1			250.8			228.0			76.2	
Travel Time (s)		23.0			18.1			16.4			5.5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	5%	2%	2%	1%	0%	2%	2%	2%	0%	2%	13%
Adj. Flow (vph)	17	211	0	0	280	62	0	0	0	41	0	34
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	228	0	0	342	0	0	0	0	0	75	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)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	34.5%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis  
 2: Street A/Dufferin Street/Burke Street & Robert Street East

Future Background 2035  
 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	200	0	0	266	59	0	0	0	39	0	32
Future Volume (Veh/h)	16	200	0	0	266	59	0	0	0	39	0	32
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	17	211	0	0	280	62	0	0	0	41	0	34
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	342			211			590	587	211	556	556	311
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	342			211			590	587	211	556	556	311
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.3
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.4
p0 queue free %	99			100			100	100	100	91	100	95
cM capacity (veh/h)	1228			1360			395	416	829	440	433	704
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	228	342	0	75								
Volume Left	17	0	0	41								
Volume Right	0	62	0	34								
cSH	1228	1360	1700	530								
Volume to Capacity	0.01	0.00	0.00	0.14								
Queue Length 95th (m)	0.3	0.0	0.0	3.7								
Control Delay (s)	0.7	0.0	0.0	12.9								
Lane LOS	A		A	B								
Approach Delay (s)	0.7	0.0	0.0	12.9								
Approach LOS			A	B								
Intersection Summary												
Average Delay			1.8									
Intersection Capacity Utilization			34.5%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings  
 3: Thompson Road/Centennial Drive & Robert Street East

Future Background 2035  
 PM Peak Hour



















Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	216	10	100	286	22	5	18	77	20	33	40
Future Volume (vph)	12	216	10	100	286	22	5	18	77	20	33	40
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
Fr <sub>t</sub>		0.994			0.993			0.896			0.942	
Fl <sub>t</sub> Protected		0.998			0.988			0.998			0.989	
Satd. Flow (prot)	0	1821	0	0	1863	0	0	1684	0	0	1755	0
Fl <sub>t</sub> Permitted		0.998			0.988			0.998			0.989	
Satd. Flow (perm)	0	1821	0	0	1863	0	0	1684	0	0	1755	0
Link Speed (k/h)		50			50			48			48	
Link Distance (m)		250.8			471.9			224.8			77.4	
Travel Time (s)		18.1			34.0			16.9			5.8	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	5%	2%	2%	1%	0%	2%	2%	2%	0%	2%	3%
Adj. Flow (vph)	12	223	10	103	295	23	5	19	79	21	34	41
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	245	0	0	421	0	0	103	0	0	96	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)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	56.5%
ICU Level of Service	B
Analysis Period (min)	15













HCM Unsignalized Intersection Capacity Analysis  
 3: Thompson Road/Centennial Drive & Robert Street East

Future Background 2035  
 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	216	10	100	286	22	5	18	77	20	33	40
Future Volume (Veh/h)	12	216	10	100	286	22	5	18	77	20	33	40
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	12	223	10	103	295	23	5	19	79	21	34	41
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	318			233			822	776	228	853	770	306
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	318			233			822	776	228	853	770	306
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			92			98	94	90	91	89	94
cM capacity (veh/h)	1253			1335			236	300	811	226	303	731
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	245	421	103	96								
Volume Left	12	103	5	21								
Volume Right	10	23	79	41								
cSH	1253	1335	566	367								
Volume to Capacity	0.01	0.08	0.18	0.26								
Queue Length 95th (m)	0.2	1.9	5.0	7.8								
Control Delay (s)	0.5	2.5	12.8	18.2								
Lane LOS	A	A	B	C								
Approach Delay (s)	0.5	2.5	12.8	18.2								
Approach LOS			B	C								
Intersection Summary												
Average Delay			4.9									
Intersection Capacity Utilization			56.5%		ICU Level of Service				B			
Analysis Period (min)			15									

Lanes, Volumes, Timings  
4: Fuller Avenue & Robert Street East

Future Background 2035  
PM Peak Hour

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	126	175	199	198	277	213
Future Volume (vph)	126	175	199	198	277	213
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0	0.0	0.0			0.0
Storage Lanes	1	1	1			1
Taper Length (m)	2.5		2.5			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1755	1601	1789	1865	1883	1601
Flt Permitted	0.950		0.507			
Satd. Flow (perm)	1755	1601	955	1865	1883	1601
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		190				232
Link Speed (k/h)	50			60	60	
Link Distance (m)	471.9			243.5	103.8	
Travel Time (s)	34.0			14.6	6.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	4%	2%	2%	3%	2%	2%
Adj. Flow (vph)	137	190	216	215	301	232
Shared Lane Traffic (%)						
Lane Group Flow (vph)	137	190	216	215	301	232
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Number of Detectors	1	1	1	2	2	1
Detector Template	Left	Right	Left	Thru	Thru	Right
Leading Detector (m)	6.1	6.1	6.1	30.5	30.5	6.1
Trailing Detector (m)	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
Detector 1 Size(m)	6.1	6.1	6.1	1.8	1.8	6.1
Detector 1 Type	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
Detector 1 Queue (s)	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
Detector 2 Position(m)				28.7	28.7	
Detector 2 Size(m)				1.8	1.8	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	

Lanes, Volumes, Timings  
4: Fuller Avenue & Robert Street East

Future Background 2035  
PM Peak Hour

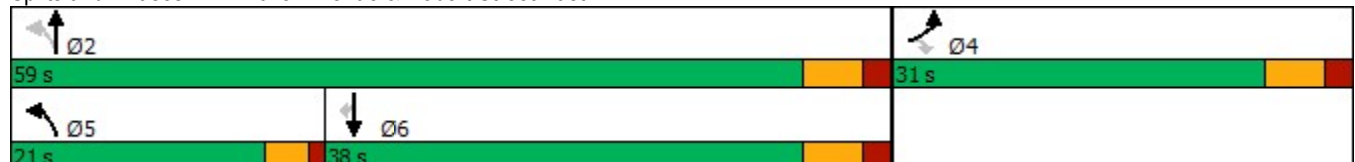


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Permitted Phases		4	2			6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	25.0	25.0	9.0	30.0	30.0	30.0
Total Split (s)	31.0	31.0	21.0	59.0	38.0	38.0
Total Split (%)	34.4%	34.4%	23.3%	65.6%	42.2%	42.2%
Maximum Green (s)	25.0	25.0	17.0	53.0	32.0	32.0
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	6.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	Max	Max	Max
Walk Time (s)	5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0
Act Effct Green (s)	11.9	11.9	55.1	53.1	40.4	40.4
Actuated g/C Ratio	0.15	0.15	0.72	0.69	0.52	0.52
v/c Ratio	0.50	0.47	0.28	0.17	0.30	0.24
Control Delay	36.6	8.8	4.8	4.9	12.3	2.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.6	8.8	4.8	4.9	12.3	2.5
LOS	D	A	A	A	B	A
Approach Delay	20.4			4.9	8.0	
Approach LOS	C			A	A	

Intersection Summary

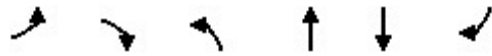
Area Type: Other  
 Cycle Length: 90  
 Actuated Cycle Length: 77  
 Natural Cycle: 65  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.50  
 Intersection Signal Delay: 10.1  
 Intersection Capacity Utilization 47.3%  
 Analysis Period (min) 15  
 Intersection LOS: B  
 ICU Level of Service A

Splits and Phases: 4: Fuller Avenue & Robert Street East



## 4: Fuller Avenue &amp; Robert Street East

PM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	137	190	216	215	301	232
v/c Ratio	0.50	0.47	0.28	0.17	0.30	0.24
Control Delay	36.6	8.8	4.8	4.9	12.3	2.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.6	8.8	4.8	4.9	12.3	2.5
Queue Length 50th (m)	18.5	0.0	7.9	8.8	22.4	0.0
Queue Length 95th (m)	34.5	15.7	17.4	18.9	45.4	10.8
Internal Link Dist (m)	447.9			219.5	79.8	
Turn Bay Length (m)	30.0					
Base Capacity (vph)	570	648	867	1284	988	950
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.29	0.25	0.17	0.30	0.24

## Intersection Summary

# HCM Signalized Intersection Capacity Analysis

## 4: Fuller Avenue & Robert Street East

Future Background 2035  
PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	126	175	199	198	277	213
Future Volume (vph)	126	175	199	198	277	213
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	4.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1755	1601	1789	1865	1883	1601
Flt Permitted	0.95	1.00	0.51	1.00	1.00	1.00
Satd. Flow (perm)	1755	1601	955	1865	1883	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	137	190	216	215	301	232
RTOR Reduction (vph)	0	161	0	0	0	110
Lane Group Flow (vph)	137	29	216	215	301	122
Heavy Vehicles (%)	4%	2%	2%	3%	2%	2%
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	11.9	11.9	53.0	53.0	40.4	40.4
Effective Green, g (s)	11.9	11.9	53.0	53.0	40.4	40.4
Actuated g/C Ratio	0.15	0.15	0.69	0.69	0.53	0.53
Clearance Time (s)	6.0	6.0	4.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	271	247	751	1285	989	841
v/s Ratio Prot	c0.08		c0.03	0.12	0.16	
v/s Ratio Perm		0.02	c0.17			0.08
v/c Ratio	0.51	0.12	0.29	0.17	0.30	0.14
Uniform Delay, d1	29.8	28.0	4.5	4.2	10.3	9.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.5	0.2	0.2	0.3	0.8	0.4
Delay (s)	31.3	28.2	4.7	4.5	11.1	9.7
Level of Service	C	C	A	A	B	A
Approach Delay (s)	29.5			4.6	10.5	
Approach LOS	C			A	B	

### Intersection Summary

HCM 2000 Control Delay	13.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	76.9	Sum of lost time (s)	16.0
Intersection Capacity Utilization	47.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Lanes, Volumes, Timings  
5: Main Street & Edward Street

Future Background 2035  
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕↔			↕↔	
Traffic Volume (vph)	7	24	82	65	36	34	121	703	43	46	633	12
Future Volume (vph)	7	24	82	65	36	34	121	703	43	46	633	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		30.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor		0.99			1.00	0.99		1.00			1.00	
Frt		0.902				0.850		0.993			0.997	
Flt Protected		0.997			0.969			0.993			0.997	
Satd. Flow (prot)	0	1709	0	0	1862	1633	0	3499	0	0	3530	0
Flt Permitted		0.973			0.813			0.740			0.848	
Satd. Flow (perm)	0	1667	0	0	1559	1612	0	2607	0	0	3002	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		86				91		9			4	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		135.5			260.4			246.8			121.8	
Travel Time (s)		9.8			18.7			17.8			8.8	
Confl. Peds. (#/hr)	1		3	3		1	3		8	8		3
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	2%	3%	0%	0%	3%	0%
Adj. Flow (vph)	7	25	86	68	38	36	127	740	45	48	666	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	118	0	0	106	36	0	912	0	0	727	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)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	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	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
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  
5: Main Street & Edward Street

Future Background 2035  
PM Peak Hour

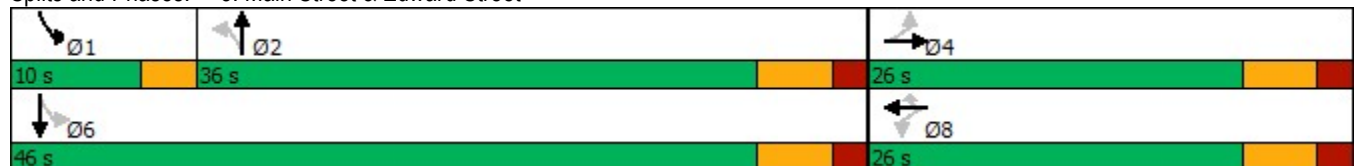


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	8.0	8.0		7.0	30.0	
Minimum Split (s)	26.0	26.0		26.0	26.0	26.0	31.0	31.0		10.0	36.0	
Total Split (s)	26.0	26.0		26.0	26.0	26.0	36.0	36.0		10.0	46.0	
Total Split (%)	36.1%	36.1%		36.1%	36.1%	36.1%	50.0%	50.0%		13.9%	63.9%	
Maximum Green (s)	20.0	20.0		20.0	20.0	20.0	30.0	30.0		7.0	40.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		0.0	2.0	
Lost Time Adjust (s)		0.0			0.0	0.0		0.0			0.0	
Total Lost Time (s)		6.0			6.0	6.0		6.0			6.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	Max	Max		None	Max	
Walk Time (s)	12.0	12.0		12.0	12.0	12.0	15.0	15.0			20.0	
Flash Dont Walk (s)	8.0	8.0		8.0	8.0	8.0	10.0	10.0			10.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0			0	
Act Effct Green (s)		11.1			11.1	11.1		44.3			44.3	
Actuated g/C Ratio		0.18			0.18	0.18		0.70			0.70	
v/c Ratio		0.32			0.39	0.10		0.50			0.34	
Control Delay		11.6			27.4	0.8		7.2			5.7	
Queue Delay		0.0			0.0	0.0		0.0			0.0	
Total Delay		11.6			27.4	0.8		7.2			5.7	
LOS		B			C	A		A			A	
Approach Delay		11.6			20.6			7.2			5.7	
Approach LOS		B			C			A			A	

Intersection Summary

Area Type:	Other
Cycle Length:	72
Actuated Cycle Length:	62.9
Natural Cycle:	70
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.50
Intersection Signal Delay:	7.9
Intersection LOS:	A
Intersection Capacity Utilization:	77.7%
ICU Level of Service:	D
Analysis Period (min):	15

Splits and Phases: 5: Main Street & Edward Street



## 5: Main Street &amp; Edward Street

PM Peak Hour




















Lane Group	EBT	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	118	106	36	912	727
v/c Ratio	0.32	0.39	0.10	0.50	0.34
Control Delay	11.6	27.4	0.8	7.2	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	11.6	27.4	0.8	7.2	5.7
Queue Length 50th (m)	3.2	11.0	0.0	24.6	16.8
Queue Length 95th (m)	14.8	23.3	0.7	45.7	31.0
Internal Link Dist (m)	111.5	236.4		222.8	97.8
Turn Bay Length (m)			30.0		
Base Capacity (vph)	588	495	574	1840	2117
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.20	0.21	0.06	0.50	0.34

## Intersection Summary

# HCM Signalized Intersection Capacity Analysis

## 5: Main Street & Edward Street

















Future Background 2035  
PM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	7	24	82	65	36	34	121	703	43	46	633	12	
Future Volume (vph)	7	24	82	65	36	34	121	703	43	46	633	12	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		6.0			6.0	6.0		6.0			6.0		
Lane Util. Factor		1.00			1.00	1.00		0.95			0.95		
Frbp, ped/bikes		0.99			1.00	0.99		1.00			1.00		
Flpb, ped/bikes		1.00			1.00	1.00		1.00			1.00		
Frt		0.90			1.00	0.85		0.99			1.00		
Flt Protected		1.00			0.97	1.00		0.99			1.00		
Satd. Flow (prot)		1708			1859	1612		3497			3529		
Flt Permitted		0.97			0.81	1.00		0.74			0.85		
Satd. Flow (perm)		1667			1559	1612		2606			3003		
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Adj. Flow (vph)	7	25	86	68	38	36	127	740	45	48	666	13	
RTOR Reduction (vph)	0	74	0	0	0	31	0	3	0	0	1	0	
Lane Group Flow (vph)	0	44	0	0	106	5	0	909	0	0	726	0	
Confl. Peds. (#/hr)	1		3	3		1	3		8	8		3	
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	2%	3%	0%	0%	3%	0%	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA		
Protected Phases		4			8			2		1	6		
Permitted Phases	4			8		8	2			6			
Actuated Green, G (s)		9.0			9.0	9.0		43.1			43.1		
Effective Green, g (s)		9.0			9.0	9.0		43.1			43.1		
Actuated g/C Ratio		0.14			0.14	0.14		0.67			0.67		
Clearance Time (s)		6.0			6.0	6.0		6.0			6.0		
Vehicle Extension (s)		3.0			3.0	3.0		3.0			3.0		
Lane Grp Cap (vph)		234			218	226		1752			2019		
v/s Ratio Prot													
v/s Ratio Perm		0.03			c0.07	0.00		c0.35			0.24		
v/c Ratio		0.19			0.49	0.02		0.52			0.36		
Uniform Delay, d1		24.3			25.4	23.8		5.3			4.5		
Progression Factor		1.00			1.00	1.00		1.00			1.00		
Incremental Delay, d2		0.4			1.7	0.0		1.1			0.1		
Delay (s)		24.7			27.1	23.8		6.4			4.6		
Level of Service		C			C	C		A			A		
Approach Delay (s)		24.7			26.3			6.4			4.6		
Approach LOS		C			C			A			A		
<b>Intersection Summary</b>													
HCM 2000 Control Delay			8.3		HCM 2000 Level of Service						A		
HCM 2000 Volume to Capacity ratio			0.54										
Actuated Cycle Length (s)			64.1		Sum of lost time (s)						15.0		
Intersection Capacity Utilization			77.7%		ICU Level of Service						D		
Analysis Period (min)			15										

c Critical Lane Group

















Lanes, Volumes, Timings  
6: Dunlop Street & Edward Street

Future Background 2035  
PM Peak Hour

													
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	47	0	0	0	0	0	0	0	0	0	0	46	
Future Volume (vph)	47	0	0	0	0	0	0	0	0	0	0	46	
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												0.865	
Flt Protected	0.950												
Satd. Flow (prot)	0	1825	0	0	1921	0	0	1883	0	0	1613	0	
Flt Permitted	0.950												
Satd. Flow (perm)	0	1825	0	0	1921	0	0	1883	0	0	1613	0	
Link Speed (k/h)	50		50				50				50		
Link Distance (m)	802.7				150.8				325.8				410.5
Travel Time (s)	57.8				10.9				23.5				29.6
Confl. Peds. (#/hr)	1		1										
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	
Heavy Vehicles (%)	0%	0%	2%	2%	0%	0%	2%	2%	2%	0%	2%	3%	
Adj. Flow (vph)	57	0	0	0	0	0	0	0	0	0	0	55	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	57	0	0	0	0	0	0	0	0	55	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)	1.6		1.6				1.6				1.6		
Two way Left Turn Lane													
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	
Turning Speed (k/h)	24		14		24		14		24		14		
Sign Control	Free				Free				Stop				
<b>Intersection Summary</b>													
Area Type:	Other												
Control Type:	Unsignalized												
Intersection Capacity Utilization	14.6%						ICU Level of Service A						
Analysis Period (min)	15												














HCM Unsignalized Intersection Capacity Analysis  
6: Dunlop Street & Edward Street

Future Background 2035  
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	0	0	0	0	0	0	0	0	0	0	46
Future Volume (Veh/h)	47	0	0	0	0	0	0	0	0	0	0	46
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	57	0	0	0	0	0	0	0	0	0	0	55
Pedestrians												1
Lane Width (m)												3.7
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	1			0			169	115	0	115	115	1
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1			0			169	115	0	115	115	1
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 %	97			100			100	100	100	100	100	95
cM capacity (veh/h)	1634			1623			734	748	1085	842	748	1080
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	57	0	0	55								
Volume Left	57	0	0	0								
Volume Right	0	0	0	55								
cSH	1634	1700	1700	1080								
Volume to Capacity	0.03	0.00	0.00	0.05								
Queue Length 95th (m)	0.8	0.0	0.0	1.2								
Control Delay (s)	7.3	0.0	0.0	8.5								
Lane LOS	A		A	A								
Approach Delay (s)	7.3	0.0	0.0	8.5								
Approach LOS			A	A								
<b>Intersection Summary</b>												
Average Delay			7.9									
Intersection Capacity Utilization			14.6%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings  
7: Main Street & Thompson Road

Future Background 2035  
PM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	221	62	813	231	61	725
Future Volume (vph)	221	62	813	231	61	725
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	20.0		15.0	0.0	
Storage Lanes	1	1		1	0	
Taper Length (m)	2.5				2.5	
Lane Util. Factor	1.00	1.00	0.95	1.00	0.95	0.95
Ped Bike Factor		0.99				
Frt		0.850		0.850		
Flt Protected	0.950					0.996
Satd. Flow (prot)	1807	1498	3579	1601	0	3538
Flt Permitted	0.950					0.824
Satd. Flow (perm)	1807	1478	3579	1601	0	2927
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		65		145		
Link Speed (k/h)	48		50			50
Link Distance (m)	653.3		164.4			246.8
Travel Time (s)	49.0		11.8			17.8
Confl. Peds. (#/hr)		1				
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	1%	9%	2%	2%	0%	3%
Adj. Flow (vph)	230	65	847	241	64	755
Shared Lane Traffic (%)						
Lane Group Flow (vph)	230	65	847	241	0	819
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Number of Detectors	1	1	2	1	1	2
Detector Template	Left	Right	Thru	Right	Left	Thru
Leading Detector (m)	6.1	6.1	30.5	6.1	6.1	30.5
Trailing Detector (m)	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
Detector 1 Size(m)	6.1	6.1	1.8	6.1	6.1	1.8
Detector 1 Type	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
Detector 1 Queue (s)	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
Detector 2 Position(m)			28.7			28.7
Detector 2 Size(m)			1.8			1.8
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0

Lanes, Volumes, Timings  
7: Main Street & Thompson Road

Future Background 2035  
PM Peak Hour

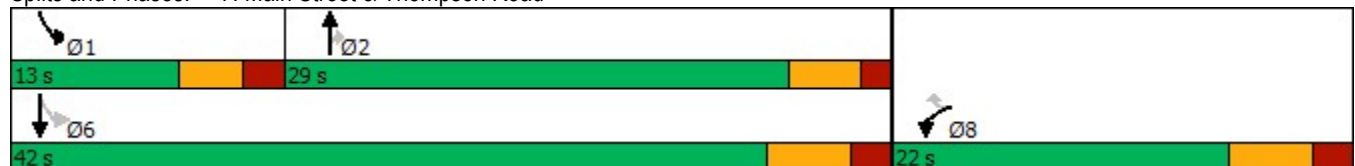


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2	6	
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	8.0	8.0	5.0	5.0	8.0	34.0
Minimum Split (s)	22.0	22.0	21.0	21.0	13.0	40.0
Total Split (s)	22.0	22.0	29.0	29.0	13.0	42.0
Total Split (%)	34.4%	34.4%	45.3%	45.3%	20.3%	65.6%
Maximum Green (s)	16.0	16.0	24.0	24.0	8.0	36.0
Yellow Time (s)	4.0	4.0	3.5	3.5	3.0	4.0
All-Red Time (s)	2.0	2.0	1.5	1.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	6.0	6.0	5.0	5.0		6.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Max	Max	None	Max
Walk Time (s)	5.0	5.0	5.0	5.0		5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0		11.0
Pedestrian Calls (#/hr)	0	0	0	0		0
Act Effct Green (s)	12.8	12.8	40.0	40.0		39.0
Actuated g/C Ratio	0.20	0.20	0.63	0.63		0.61
v/c Ratio	0.64	0.19	0.38	0.23		0.46
Control Delay	31.0	7.4	6.9	3.2		8.3
Queue Delay	0.0	0.0	0.0	0.0		0.0
Total Delay	31.0	7.4	6.9	3.2		8.3
LOS	C	A	A	A		A
Approach Delay	25.8		6.1			8.3
Approach LOS	C		A			A

Intersection Summary

Area Type: Other  
 Cycle Length: 64  
 Actuated Cycle Length: 63.8  
 Natural Cycle: 65  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.64  
 Intersection Signal Delay: 9.5  
 Intersection Capacity Utilization 77.3%  
 Analysis Period (min) 15  
 Intersection LOS: A  
 ICU Level of Service D

Splits and Phases: 7: Main Street & Thompson Road





## 7: Main Street &amp; Thompson Road

PM Peak Hour
















Lane Group	WBL	WBR	NBT	NBR	SBT
Lane Group Flow (vph)	230	65	847	241	819
v/c Ratio	0.64	0.19	0.38	0.23	0.46
Control Delay	31.0	7.4	6.9	3.2	8.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	31.0	7.4	6.9	3.2	8.3
Queue Length 50th (m)	23.4	0.0	22.0	3.8	23.7
Queue Length 95th (m)	42.0	7.8	36.3	12.9	40.3
Internal Link Dist (m)	629.3		140.4		222.8
Turn Bay Length (m)		20.0		15.0	
Base Capacity (vph)	454	420	2242	1057	1787
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.51	0.15	0.38	0.23	0.46

## Intersection Summary

# HCM Signalized Intersection Capacity Analysis

## 7: Main Street & Thompson Road

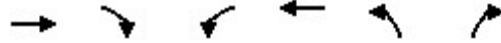
Future Background 2035  
PM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	221	62	813	231	61	725
Future Volume (vph)	221	62	813	231	61	725
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	5.0	5.0		6.0
Lane Util. Factor	1.00	1.00	0.95	1.00		0.95
Frpb, ped/bikes	1.00	0.99	1.00	1.00		1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00		1.00
Frt	1.00	0.85	1.00	0.85		1.00
Flt Protected	0.95	1.00	1.00	1.00		1.00
Satd. Flow (prot)	1807	1478	3579	1601		3538
Flt Permitted	0.95	1.00	1.00	1.00		0.82
Satd. Flow (perm)	1807	1478	3579	1601		2927
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	230	65	847	241	64	755
RTOR Reduction (vph)	0	52	0	54	0	0
Lane Group Flow (vph)	230	13	847	187	0	819
Confl. Peds. (#/hr)		1				
Heavy Vehicles (%)	1%	9%	2%	2%	0%	3%
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2	6	
Actuated Green, G (s)	12.8	12.8	40.0	40.0		39.0
Effective Green, g (s)	12.8	12.8	40.0	40.0		39.0
Actuated g/C Ratio	0.20	0.20	0.63	0.63		0.61
Clearance Time (s)	6.0	6.0	5.0	5.0		6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0
Lane Grp Cap (vph)	362	296	2243	1003		1789
v/s Ratio Prot	c0.13		0.24			
v/s Ratio Perm		0.01		0.12		c0.28
v/c Ratio	0.64	0.04	0.38	0.19		0.46
Uniform Delay, d1	23.4	20.6	5.8	5.0		6.7
Progression Factor	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	3.6	0.1	0.5	0.4		0.2
Delay (s)	27.0	20.6	6.3	5.4		6.9
Level of Service	C	C	A	A		A
Approach Delay (s)	25.6		6.1			6.9
Approach LOS	C		A			A
<b>Intersection Summary</b>						
HCM 2000 Control Delay			9.0		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.54			
Actuated Cycle Length (s)			63.8		Sum of lost time (s)	16.0
Intersection Capacity Utilization			77.3%		ICU Level of Service	D
Analysis Period (min)			15			

c Critical Lane Group

Lanes, Volumes, Timings  
 1: Dunlop Street & Robert Street East

Future Total 2025  
 AM Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	238	46	72	187	45	46
Future Volume (vph)	238	46	72	187	45	46
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	0.978			0.932		
Flt Protected				0.986	0.976	
Satd. Flow (prot)	1761	0	0	1744	1680	0
Flt Permitted				0.986	0.976	
Satd. Flow (perm)	1761	0	0	1744	1680	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	1218.0			320.1	410.5	
Travel Time (s)	87.7			23.0	29.6	
Confl. Peds. (#/hr)	2		2			1
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Heavy Vehicles (%)	7%	5%	5%	10%	3%	5%
Adj. Flow (vph)	378	73	114	297	71	73
Shared Lane Traffic (%)						
Lane Group Flow (vph)	451	0	0	411	144	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	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	14		24	24		14
Sign Control	Free			Free	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  
 1: Dunlop Street & Robert Street East

Future Total 2025  
 AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	→			←	↘	↙
Traffic Volume (veh/h)	238	46	72	187	45	46
Future Volume (Veh/h)	238	46	72	187	45	46
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Hourly flow rate (vph)	378	73	114	297	71	73
Pedestrians				1	2	
Lane Width (m)				3.7	3.7	
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			453	942		418
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			453	942		418
tC, single (s)			4.1	6.4		6.2
tC, 2 stage (s)						
tF (s)			2.2	3.5		3.3
p0 queue free %			90	73		88
cM capacity (veh/h)			1090	260		627
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	451	411	144			
Volume Left	0	114	71			
Volume Right	73	0	73			
cSH	1700	1090	370			
Volume to Capacity	0.27	0.10	0.39			
Queue Length 95th (m)	0.0	2.7	13.7			
Control Delay (s)	0.0	3.2	20.8			
Lane LOS			A		C	
Approach Delay (s)	0.0	3.2	20.8			
Approach LOS			C			
<b>Intersection Summary</b>						
Average Delay			4.3			
Intersection Capacity Utilization			44.8%	ICU Level of Service		A
Analysis Period (min)			15			

Lanes, Volumes, Timings

Future Total 2025

2: Street A/Dufferin Street/Burke Street & Robert Street East

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	24	175	68	35	178	60	18	13	23	38	19	32
Future Volume (vph)	24	175	68	35	178	60	18	13	23	38	19	32
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		0.966			0.970			0.943			0.951	
Flt Protected		0.995			0.994			0.983			0.979	
Satd. Flow (prot)	0	1765	0	0	1752	0	0	1746	0	0	1572	0
Flt Permitted		0.995			0.994			0.983			0.979	
Satd. Flow (perm)	0	1765	0	0	1752	0	0	1746	0	0	1572	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		320.1			250.8			228.0			76.2	
Travel Time (s)		23.0			18.1			16.4			5.5	
Confl. Peds. (#/hr)	2						2					
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Heavy Vehicles (%)	9%	5%	2%	2%	4%	13%	2%	2%	2%	0%	2%	37%
Adj. Flow (vph)	36	261	101	52	266	90	27	19	34	57	28	48
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	398	0	0	408	0	0	80	0	0	133	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)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	36.1%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis  
 2: Street A/Dufferin Street/Burke Street & Robert Street East

















Future Total 2025  
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	24	175	68	35	178	60	18	13	23	38	19	32
Future Volume (Veh/h)	24	175	68	35	178	60	18	13	23	38	19	32
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Hourly flow rate (vph)	36	261	101	52	266	90	27	19	34	57	28	48
Pedestrians												2
Lane Width (m)												3.7
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	358			362			860	846	312	844	851	313
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	358			362			860	846	312	844	851	313
tC, single (s)	4.2			4.1			7.1	6.5	6.2	7.1	6.5	6.6
tC, 2 stage (s)												
tF (s)	2.3			2.2			3.5	4.0	3.3	3.5	4.0	3.6
p0 queue free %	97			96			88	93	95	77	90	93
cM capacity (veh/h)	1161			1197			222	277	729	243	275	652
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	398	408	80	133								
Volume Left	36	52	27	57								
Volume Right	101	90	34	48								
cSH	1161	1197	338	324								
Volume to Capacity	0.03	0.04	0.24	0.41								
Queue Length 95th (m)	0.7	1.0	6.9	14.7								
Control Delay (s)	1.0	1.4	18.9	23.6								
Lane LOS	A	A	C	C								
Approach Delay (s)	1.0	1.4	18.9	23.6								
Approach LOS			C	C								
<b>Intersection Summary</b>												
Average Delay			5.5									
Intersection Capacity Utilization			36.1%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings  
 3: Thompson Road/Centennial Drive & Robert Street East

















Future Total 2025  
 AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	175	34	140	247	13	11	22	94	19	16	8
Future Volume (vph)	26	175	34	140	247	13	11	22	94	19	16	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
Fr <sub>t</sub>		0.980			0.996			0.900			0.975	
Fl <sub>t</sub> Protected		0.994			0.983			0.996			0.978	
Satd. Flow (prot)	0	1825	0	0	1648	0	0	1452	0	0	1634	0
Fl <sub>t</sub> Permitted		0.994			0.983			0.996			0.978	
Satd. Flow (perm)	0	1825	0	0	1648	0	0	1452	0	0	1634	0
Link Speed (k/h)		50			50			48			48	
Link Distance (m)		250.8			471.9			224.8			77.4	
Travel Time (s)		18.1			34.0			16.9			5.8	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	16%	1%	0%	28%	7%	0%	0%	5%	24%	6%	13%	25%
Adj. Flow (vph)	33	219	43	175	309	16	14	28	118	24	20	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	295	0	0	500	0	0	160	0	0	54	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)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	51.9%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis  
 3: Thompson Road/Centennial Drive & Robert Street East













Future Total 2025  
 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	175	34	140	247	13	11	22	94	19	16	8
Future Volume (Veh/h)	26	175	34	140	247	13	11	22	94	19	16	8
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	33	219	43	175	309	16	14	28	118	24	20	10
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	325			262			994	982	240	1106	995	317
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	325			262			994	982	240	1106	995	317
tC, single (s)	4.3			4.4			7.1	6.5	6.4	7.2	6.6	6.5
tC, 2 stage (s)												
tF (s)	2.3			2.5			3.5	4.0	3.5	3.6	4.1	3.5
p0 queue free %	97			85			92	86	84	80	90	99
cM capacity (veh/h)	1160			1166			178	203	747	121	193	673
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	295	500	160	54								
Volume Left	33	175	14	24								
Volume Right	43	16	118	10								
cSH	1160	1166	428	170								
Volume to Capacity	0.03	0.15	0.37	0.32								
Queue Length 95th (m)	0.7	4.0	13.0	9.7								
Control Delay (s)	1.2	4.1	18.4	35.6								
Lane LOS	A	A	C	E								
Approach Delay (s)	1.2	4.1	18.4	35.6								
Approach LOS			C	E								
Intersection Summary												
Average Delay			7.2									
Intersection Capacity Utilization			51.9%		ICU Level of Service				A			
Analysis Period (min)			15									



Lanes, Volumes, Timings  
4: Fuller Avenue & Robert Street East

Future Total 2025  
AM Peak Hour

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	167	155	164	203	203	180
Future Volume (vph)	167	155	164	203	203	180
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0	0.0	0.0			0.0
Storage Lanes	1	1	1			1
Taper Length (m)	2.5		2.5			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1601	1570	1738	1847	1830	1338
Flt Permitted	0.950		0.538			
Satd. Flow (perm)	1601	1570	984	1847	1830	1338
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		191				222
Link Speed (k/h)	50			60	60	
Link Distance (m)	471.9			243.5	103.8	
Travel Time (s)	34.0			14.6	6.2	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles (%)	14%	4%	5%	4%	5%	22%
Adj. Flow (vph)	206	191	202	251	251	222
Shared Lane Traffic (%)						
Lane Group Flow (vph)	206	191	202	251	251	222
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Number of Detectors	1	1	1	2	2	1
Detector Template	Left	Right	Left	Thru	Thru	Right
Leading Detector (m)	6.1	6.1	6.1	30.5	30.5	6.1
Trailing Detector (m)	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
Detector 1 Size(m)	6.1	6.1	6.1	1.8	1.8	6.1
Detector 1 Type	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
Detector 1 Queue (s)	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
Detector 2 Position(m)				28.7	28.7	
Detector 2 Size(m)				1.8	1.8	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	

Lanes, Volumes, Timings  
4: Fuller Avenue & Robert Street East

Future Total 2025  
AM Peak Hour

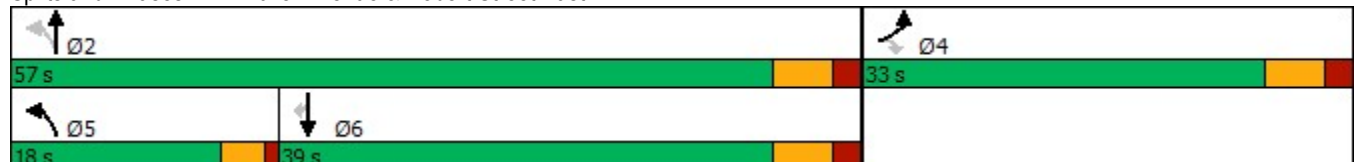


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Permitted Phases		4	2			6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	25.0	25.0	9.0	30.0	30.0	30.0
Total Split (s)	33.0	33.0	18.0	57.0	39.0	39.0
Total Split (%)	36.7%	36.7%	20.0%	63.3%	43.3%	43.3%
Maximum Green (s)	27.0	27.0	14.0	51.0	33.0	33.0
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	6.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	Max	Max	Max
Walk Time (s)	5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0
Act Effct Green (s)	15.3	15.3	53.2	51.2	38.1	38.1
Actuated g/C Ratio	0.19	0.19	0.68	0.65	0.49	0.49
v/c Ratio	0.66	0.42	0.27	0.21	0.28	0.29
Control Delay	39.7	7.2	6.3	6.7	14.8	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.7	7.2	6.3	6.7	14.8	3.5
LOS	D	A	A	A	B	A
Approach Delay	24.0			6.6	9.5	
Approach LOS	C			A	A	

Intersection Summary

Area Type: Other  
 Cycle Length: 90  
 Actuated Cycle Length: 78.5  
 Natural Cycle: 65  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.66  
 Intersection Signal Delay: 12.8  
 Intersection Capacity Utilization 42.4%  
 Analysis Period (min) 15  
 Intersection LOS: B  
 ICU Level of Service A

Splits and Phases: 4: Fuller Avenue & Robert Street East



Queues

Future Total 2025

4: Fuller Avenue & Robert Street East

AM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	206	191	202	251	251	222
v/c Ratio	0.66	0.42	0.27	0.21	0.28	0.29
Control Delay	39.7	7.2	6.3	6.7	14.8	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.7	7.2	6.3	6.7	14.8	3.5
Queue Length 50th (m)	28.5	0.0	9.2	13.0	20.9	0.0
Queue Length 95th (m)	43.0	10.7	18.8	24.7	39.4	8.8
Internal Link Dist (m)	447.9			219.5	79.8	
Turn Bay Length (m)	30.0					
Base Capacity (vph)	552	666	801	1203	887	763
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.29	0.25	0.21	0.28	0.29

Intersection Summary

HCM Signalized Intersection Capacity Analysis  
4: Fuller Avenue & Robert Street East

Future Total 2025  
AM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	167	155	164	203	203	180
Future Volume (vph)	167	155	164	203	203	180
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	4.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1601	1570	1738	1847	1830	1338
Flt Permitted	0.95	1.00	0.54	1.00	1.00	1.00
Satd. Flow (perm)	1601	1570	985	1847	1830	1338
Peak-hour factor, PHF	0.81	0.81	0.81	0.81	0.81	0.81
Adj. Flow (vph)	206	191	202	251	251	222
RTOR Reduction (vph)	0	154	0	0	0	114
Lane Group Flow (vph)	206	37	202	251	251	108
Heavy Vehicles (%)	14%	4%	5%	4%	5%	22%
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	15.3	15.3	51.2	51.2	38.1	38.1
Effective Green, g (s)	15.3	15.3	51.2	51.2	38.1	38.1
Actuated g/C Ratio	0.19	0.19	0.65	0.65	0.49	0.49
Clearance Time (s)	6.0	6.0	4.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	312	306	729	1204	888	649
v/s Ratio Prot	c0.13		c0.03	0.14	0.14	
v/s Ratio Perm		0.02	c0.15			0.08
v/c Ratio	0.66	0.12	0.28	0.21	0.28	0.17
Uniform Delay, d1	29.2	26.1	5.5	5.5	12.0	11.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.2	0.2	0.2	0.4	0.8	0.6
Delay (s)	34.4	26.2	5.7	5.9	12.8	11.9
Level of Service	C	C	A	A	B	B
Approach Delay (s)	30.5			5.8	12.4	
Approach LOS	C			A	B	

Intersection Summary

HCM 2000 Control Delay	15.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	78.5	Sum of lost time (s)	16.0
Intersection Capacity Utilization	42.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lanes, Volumes, Timings  
5: Main Street & Edward Street

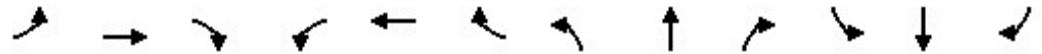
Future Total 2025  
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕			↕	
Traffic Volume (vph)	0	5	16	113	11	43	27	338	104	30	372	2
Future Volume (vph)	0	5	16	113	11	43	27	338	104	30	372	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		30.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor		0.99			1.00	0.99		0.99			1.00	
Frt		0.896				0.850		0.967			0.999	
Flt Protected					0.956			0.997			0.996	
Satd. Flow (prot)	0	1704	0	0	1837	1633	0	3179	0	0	3412	0
Flt Permitted					0.726			0.908			0.885	
Satd. Flow (perm)	0	1704	0	0	1393	1612	0	2896	0	0	3032	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		20				91		61			1	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		135.5			260.4			246.8			121.8	
Travel Time (s)		9.8			18.7			17.8			8.8	
Confl. Peds. (#/hr)	1		1	1		1			2	2		
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	15%	11%	6%	0%	7%	0%
Adj. Flow (vph)	0	6	20	141	14	54	34	423	130	38	465	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	26	0	0	155	54	0	587	0	0	506	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)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	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	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
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  
5: Main Street & Edward Street

Future Total 2025  
AM Peak Hour

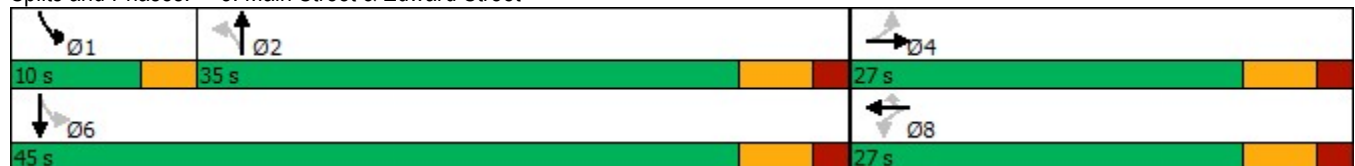


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type		NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	8.0	8.0		7.0	30.0	
Minimum Split (s)	26.0	26.0		26.0	26.0	26.0	31.0	31.0		10.0	36.0	
Total Split (s)	27.0	27.0		27.0	27.0	27.0	35.0	35.0		10.0	45.0	
Total Split (%)	37.5%	37.5%		37.5%	37.5%	37.5%	48.6%	48.6%		13.9%	62.5%	
Maximum Green (s)	21.0	21.0		21.0	21.0	21.0	29.0	29.0		7.0	39.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		0.0	2.0	
Lost Time Adjust (s)		0.0			0.0	0.0		0.0			0.0	
Total Lost Time (s)		6.0			6.0	6.0		6.0			6.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	Max	Max		None	Max	
Walk Time (s)	12.0	12.0		12.0	12.0	12.0	15.0	15.0			20.0	
Flash Dont Walk (s)	8.0	8.0		8.0	8.0	8.0	10.0	10.0			10.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0			0	
Act Effct Green (s)		12.8			12.8	12.8		43.6			43.6	
Actuated g/C Ratio		0.20			0.20	0.20		0.68			0.68	
v/c Ratio		0.07			0.55	0.14		0.29			0.24	
Control Delay		11.6			30.8	2.8		5.8			6.2	
Queue Delay		0.0			0.0	0.0		0.0			0.0	
Total Delay		11.6			30.8	2.8		5.8			6.2	
LOS		B			C	A		A			A	
Approach Delay		11.6			23.6			5.8			6.2	
Approach LOS		B			C			A			A	

Intersection Summary

Area Type:	Other
Cycle Length:	72
Actuated Cycle Length:	63.8
Natural Cycle:	70
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.55
Intersection Signal Delay:	8.9
Intersection LOS:	A
Intersection Capacity Utilization:	57.2%
ICU Level of Service:	B
Analysis Period (min):	15

Splits and Phases: 5: Main Street & Edward Street



Queues  
5: Main Street & Edward Street


















Future Total 2025  
AM Peak Hour



Lane Group	EBT	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	26	155	54	587	506
v/c Ratio	0.07	0.55	0.14	0.29	0.24
Control Delay	11.6	30.8	2.8	5.8	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	11.6	30.8	2.8	5.8	6.2
Queue Length 50th (m)	0.6	16.6	0.0	12.9	12.2
Queue Length 95th (m)	4.8	27.8	2.1	22.0	20.8
Internal Link Dist (m)	111.5	236.4		222.8	97.8
Turn Bay Length (m)			30.0		
Base Capacity (vph)	576	459	593	1998	2072
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.05	0.34	0.09	0.29	0.24
Intersection Summary					

HCM Signalized Intersection Capacity Analysis  
5: Main Street & Edward Street

Future Total 2025  
AM Peak Hour

















													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	0	5	16	113	11	43	27	338	104	30	372	2	
Future Volume (vph)	0	5	16	113	11	43	27	338	104	30	372	2	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		6.0			6.0	6.0		6.0			6.0		
Lane Util. Factor		1.00			1.00	1.00		0.95			0.95		
Frbp, ped/bikes		0.99			1.00	0.99		1.00			1.00		
Flpb, ped/bikes		1.00			1.00	1.00		1.00			1.00		
Frt		0.90			1.00	0.85		0.97			1.00		
Flt Protected		1.00			0.96	1.00		1.00			1.00		
Satd. Flow (prot)		1704			1836	1612		3179			3413		
Flt Permitted		1.00			0.73	1.00		0.91			0.88		
Satd. Flow (perm)		1704			1394	1612		2894			3032		
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	
Adj. Flow (vph)	0	6	20	141	14	54	34	422	130	38	465	2	
RTOR Reduction (vph)	0	17	0	0	0	45	0	21	0	0	0	0	
Lane Group Flow (vph)	0	9	0	0	155	9	0	566	0	0	506	0	
Confl. Peds. (#/hr)	1		1	1		1			2	2			
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	15%	11%	6%	0%	7%	0%	
Turn Type		NA		Perm	NA	Perm	Perm	NA		pm+pt	NA		
Protected Phases		4			8			2		1	6		
Permitted Phases	4			8		8	2			6			
Actuated Green, G (s)		10.7			10.7	10.7		42.3			42.3		
Effective Green, g (s)		10.7			10.7	10.7		42.3			42.3		
Actuated g/C Ratio		0.16			0.16	0.16		0.65			0.65		
Clearance Time (s)		6.0			6.0	6.0		6.0			6.0		
Vehicle Extension (s)		3.0			3.0	3.0		3.0			3.0		
Lane Grp Cap (vph)		280			229	265		1883			1973		
v/s Ratio Prot		0.01											
v/s Ratio Perm					c0.11	0.01		c0.20			0.17		
v/c Ratio		0.03			0.68	0.03		0.30			0.26		
Uniform Delay, d1		22.8			25.5	22.8		4.9			4.8		
Progression Factor		1.00			1.00	1.00		1.00			1.00		
Incremental Delay, d2		0.0			7.7	0.1		0.4			0.1		
Delay (s)		22.9			33.2	22.9		5.3			4.8		
Level of Service		C			C	C		A			A		
Approach Delay (s)		22.9			30.5			5.3			4.8		
Approach LOS		C			C			A			A		
<b>Intersection Summary</b>													
HCM 2000 Control Delay			9.5		HCM 2000 Level of Service						A		
HCM 2000 Volume to Capacity ratio			0.40										
Actuated Cycle Length (s)			65.0		Sum of lost time (s)						15.0		
Intersection Capacity Utilization			57.2%		ICU Level of Service						B		
Analysis Period (min)			15										

c Critical Lane Group



Lanes, Volumes, Timings  
6: Dunlop Street & Edward Street

Future Total 2025  
AM Peak Hour

















												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	91	3	1	75	5	8	5	3	3	5	54
Future Volume (vph)	39	91	3	1	75	5	8	5	3	3	5	54
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		0.997			0.992			0.977			0.881	
Flt Protected		0.986						0.975			0.998	
Satd. Flow (prot)	0	1871	0	0	1905	0	0	1794	0	0	1576	0
Flt Permitted		0.986						0.975			0.998	
Satd. Flow (perm)	0	1871	0	0	1905	0	0	1794	0	0	1576	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		802.7			150.8			325.8			410.5	
Travel Time (s)		57.8			10.9			23.5			29.6	
Confl. Peds. (#/hr)	8						8					
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Heavy Vehicles (%)	3%	0%	2%	2%	0%	0%	2%	2%	2%	0%	2%	8%
Adj. Flow (vph)	58	136	4	1	112	7	12	7	4	4	7	81
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	198	0	0	120	0	0	23	0	0	92	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)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	24.6%
ICU Level of Service	A
Analysis Period (min)	15












HCM Unsignalized Intersection Capacity Analysis  
6: Dunlop Street & Edward Street

Future Total 2025  
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	39	91	3	1	75	5	8	5	3	3	5	54
Future Volume (Veh/h)	39	91	3	1	75	5	8	5	3	3	5	54
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Hourly flow rate (vph)	58	136	4	1	112	7	12	7	4	4	7	81
Pedestrians												8
Lane Width (m)												3.7
Walking Speed (m/s)												1.2
Percent Blockage												1
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	127			140			456	383	138	387	382	124
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	127			140			456	383	138	387	382	124
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.3
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.4
p0 queue free %	96			100			97	99	100	99	99	91
cM capacity (veh/h)	1443			1443			447	524	910	543	525	905
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	198	120	23	92								
Volume Left	58	1	12	4								
Volume Right	4	7	4	81								
cSH	1443	1443	516	835								
Volume to Capacity	0.04	0.00	0.04	0.11								
Queue Length 95th (m)	1.0	0.0	1.1	2.8								
Control Delay (s)	2.5	0.1	12.3	9.8								
Lane LOS	A	A	B	A								
Approach Delay (s)	2.5	0.1	12.3	9.8								
Approach LOS			B	A								
Intersection Summary												
Average Delay			3.9									
Intersection Capacity Utilization			24.6%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings  
7: Main Street & Thompson Road

Future Total 2025  
AM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	195	42	429	171	24	481
Future Volume (vph)	195	42	429	171	24	481
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	20.0		15.0	0.0	
Storage Lanes	1	1		1	0	
Taper Length (m)	2.5				2.5	
Lane Util. Factor	1.00	1.00	0.95	1.00	0.95	0.95
Frt		0.850		0.850		
Flt Protected	0.950					0.998
Satd. Flow (prot)	1738	1328	3349	1526	0	3404
Flt Permitted	0.950					0.917
Satd. Flow (perm)	1738	1328	3349	1526	0	3128
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		50		203		
Link Speed (k/h)	50		50			50
Link Distance (m)	653.3		164.4			246.8
Travel Time (s)	47.0		11.8			17.8
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	5%	23%	9%	7%	27%	6%
Adj. Flow (vph)	232	50	511	204	29	573
Shared Lane Traffic (%)						
Lane Group Flow (vph)	232	50	511	204	0	602
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Number of Detectors	1	1	2	1	1	2
Detector Template	Left	Right	Thru	Right	Left	Thru
Leading Detector (m)	6.1	6.1	30.5	6.1	6.1	30.5
Trailing Detector (m)	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
Detector 1 Size(m)	6.1	6.1	1.8	6.1	6.1	1.8
Detector 1 Type	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
Detector 1 Queue (s)	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
Detector 2 Position(m)			28.7			28.7
Detector 2 Size(m)			1.8			1.8
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	8		2		1	6

Lanes, Volumes, Timings  
7: Main Street & Thompson Road

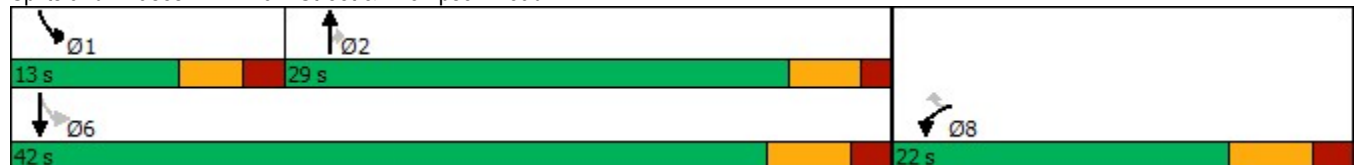
Future Total 2025  
AM Peak Hour

	↙	↖	↑	↗	↘	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Permitted Phases		8		2	6	
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	8.0	8.0	5.0	5.0	8.0	34.0
Minimum Split (s)	22.0	22.0	21.0	21.0	13.0	40.0
Total Split (s)	22.0	22.0	29.0	29.0	13.0	42.0
Total Split (%)	34.4%	34.4%	45.3%	45.3%	20.3%	65.6%
Maximum Green (s)	16.0	16.0	24.0	24.0	8.0	36.0
Yellow Time (s)	4.0	4.0	3.5	3.5	3.0	4.0
All-Red Time (s)	2.0	2.0	1.5	1.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	6.0	6.0	5.0	5.0		6.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Max	Max	None	Max
Walk Time (s)	5.0	5.0	5.0	5.0		5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0		11.0
Pedestrian Calls (#/hr)	0	0	0	0		0
Act Effct Green (s)	13.1	13.1	40.1	40.1		39.1
Actuated g/C Ratio	0.20	0.20	0.62	0.62		0.61
v/c Ratio	0.66	0.16	0.24	0.20		0.32
Control Delay	31.9	7.9	6.2	1.6		7.1
Queue Delay	0.0	0.0	0.0	0.0		0.0
Total Delay	31.9	7.9	6.2	1.6		7.1
LOS	C	A	A	A		A
Approach Delay	27.7		4.9			7.1
Approach LOS	C		A			A

Intersection Summary

Area Type: Other  
 Cycle Length: 64  
 Actuated Cycle Length: 64.3  
 Natural Cycle: 65  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.66  
 Intersection Signal Delay: 9.7  
 Intersection Capacity Utilization 51.9%  
 Analysis Period (min) 15  
 Intersection LOS: A  
 ICU Level of Service A

Splits and Phases: 7: Main Street & Thompson Road



Queues

Future Total 2025

7: Main Street & Thompson Road

AM Peak Hour
















Lane Group	WBL	WBR	NBT	NBR	SBT
Lane Group Flow (vph)	232	50	511	204	602
v/c Ratio	0.66	0.16	0.24	0.20	0.32
Control Delay	31.9	7.9	6.2	1.6	7.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	31.9	7.9	6.2	1.6	7.1
Queue Length 50th (m)	23.7	0.0	12.1	0.1	15.9
Queue Length 95th (m)	39.3	6.1	19.3	5.6	24.5
Internal Link Dist (m)	629.3		140.4		222.8
Turn Bay Length (m)		20.0		15.0	
Base Capacity (vph)	434	369	2090	1028	1903
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.53	0.14	0.24	0.20	0.32

Intersection Summary

















HCM Signalized Intersection Capacity Analysis  
7: Main Street & Thompson Road

Future Total 2025  
AM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	195	42	429	171	24	481
Future Volume (vph)	195	42	429	171	24	481
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	5.0	5.0		6.0
Lane Util. Factor	1.00	1.00	0.95	1.00		0.95
Frt	1.00	0.85	1.00	0.85		1.00
Flt Protected	0.95	1.00	1.00	1.00		1.00
Satd. Flow (prot)	1738	1328	3349	1526		3403
Flt Permitted	0.95	1.00	1.00	1.00		0.92
Satd. Flow (perm)	1738	1328	3349	1526		3127
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	232	50	511	204	29	573
RTOR Reduction (vph)	0	40	0	76	0	0
Lane Group Flow (vph)	232	10	511	128	0	602
Heavy Vehicles (%)	5%	23%	9%	7%	27%	6%
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2	6	
Actuated Green, G (s)	13.1	13.1	40.1	40.1		39.1
Effective Green, g (s)	13.1	13.1	40.1	40.1		39.1
Actuated g/C Ratio	0.20	0.20	0.62	0.62		0.61
Clearance Time (s)	6.0	6.0	5.0	5.0		6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0
Lane Grp Cap (vph)	354	270	2091	953		1904
v/s Ratio Prot	c0.13		0.15			
v/s Ratio Perm		0.01		0.08		c0.19
v/c Ratio	0.66	0.04	0.24	0.13		0.32
Uniform Delay, d1	23.5	20.5	5.3	4.9		6.1
Progression Factor	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	4.3	0.1	0.3	0.3		0.1
Delay (s)	27.8	20.6	5.6	5.2		6.2
Level of Service	C	C	A	A		A
Approach Delay (s)	26.5		5.5			6.2
Approach LOS	C		A			A
<b>Intersection Summary</b>						
HCM 2000 Control Delay			9.5		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.43			
Actuated Cycle Length (s)			64.2		Sum of lost time (s)	16.0
Intersection Capacity Utilization			51.9%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

Lanes, Volumes, Timings  
8: Street A & Gauthier Drive Extension

















Future Total 2025  
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	10	0	4	0	62	29	29	77	0
Future Volume (vph)	0	0	0	10	0	4	0	62	29	29	77	0
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
Fr <sub>t</sub>					0.962			0.957				
Fl <sub>t</sub> Protected					0.965						0.987	
Satd. Flow (prot)	0	1883	0	0	1748	0	0	1802	0	0	1859	0
Fl <sub>t</sub> Permitted					0.965						0.987	
Satd. Flow (perm)	0	1883	0	0	1748	0	0	1802	0	0	1859	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		161.7			257.7			188.1			228.0	
Travel Time (s)		11.6			18.6			13.5			16.4	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	0	0	0	13	0	5	0	78	36	36	96	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	18	0	0	114	0	0	132	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)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
<b>Intersection Summary</b>												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	22.3%						ICU Level of Service A					
Analysis Period (min)	15											

# HCM Unsignalized Intersection Capacity Analysis

## 8: Street A & Gauthier Drive Extension

Future Total 2025  
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	10	0	4	0	62	29	29	77	0
Future Volume (Veh/h)	0	0	0	10	0	4	0	62	29	29	77	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	0	0	0	13	0	5	0	78	36	36	96	0
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	269	282	96	264	264	96	96			114		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	269	282	96	264	264	96	96			114		
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 %	100	100	100	98	100	99	100			98		
cM capacity (veh/h)	667	611	960	676	626	960	1498			1475		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	0	18	114	132								
Volume Left	0	13	0	36								
Volume Right	0	5	36	0								
cSH	1700	737	1498	1475								
Volume to Capacity	0.00	0.02	0.00	0.02								
Queue Length 95th (m)	0.0	0.6	0.0	0.6								
Control Delay (s)	0.0	10.0	0.0	2.2								
Lane LOS	A	B		A								
Approach Delay (s)	0.0	10.0	0.0	2.2								
Approach LOS	A	B										
Intersection Summary												
Average Delay			1.8									
Intersection Capacity Utilization			22.3%		ICU Level of Service				A			
Analysis Period (min)			15									



Lanes, Volumes, Timings  
 9: Thompson Road & Gauthier Drive Extension

Future Total 2025  
 AM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	5	0	0	111	111	25
Future Volume (vph)	5	0	0	111	111	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>					0.975	
Fl <sub>t</sub> Protected	0.950					
Satd. Flow (prot)	1789	0	0	1883	1836	0
Fl <sub>t</sub> Permitted	0.950					
Satd. Flow (perm)	1789	0	0	1883	1836	0
Link Speed (k/h)	50			48	48	
Link Distance (m)	257.7			188.8	224.8	
Travel Time (s)	18.6			14.2	16.9	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	6	0	0	139	139	31
Shared Lane Traffic (%)						
Lane Group Flow (vph)	6	0	0	139	170	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	17.4%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis  
 9: Thompson Road & Gauthier Drive Extension

Future Total 2025  
 AM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	0	0	111	111	25
Future Volume (Veh/h)	5	0	0	111	111	25
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	6	0	0	139	139	31
<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	294	154	170			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	294	154	170			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	100	100			
cM capacity (veh/h)	697	891	1407			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	6	139	170			
Volume Left	6	0	0			
Volume Right	0	0	31			
cSH	697	1407	1700			
Volume to Capacity	0.01	0.00	0.10			
Queue Length 95th (m)	0.2	0.0	0.0			
Control Delay (s)	10.2	0.0	0.0			
Lane LOS	B					
Approach Delay (s)	10.2	0.0	0.0			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			0.2			
Intersection Capacity Utilization			17.4%	ICU Level of Service	A	
Analysis Period (min)			15			

Lanes, Volumes, Timings  
10: Street I & Edward Street

Future Total 2025  
AM Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	89	4	4	65	15	15
Future Volume (vph)	89	4	4	65	15	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
Fr <sub>t</sub>	0.994			0.932		
Fl <sub>t</sub> Protected				0.997	0.976	
Satd. Flow (prot)	1872	0	0	1878	1713	0
Fl <sub>t</sub> Permitted				0.997	0.976	
Satd. Flow (perm)	1872	0	0	1878	1713	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	150.8			175.4	326.7	
Travel Time (s)	10.9			12.6	23.5	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	111	5	5	81	19	19
Shared Lane Traffic (%)						
Lane Group Flow (vph)	116	0	0	86	38	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	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	14		24	24		14
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	16.7%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis  
 10: Street I & Edward Street

















Future Total 2025  
 AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	→			←	↔	↔
Traffic Volume (veh/h)	89	4	4	65	15	15
Future Volume (Veh/h)	89	4	4	65	15	15
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	111	5	5	81	19	19
<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			116		204	114
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			116		204	114
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		98	98
cM capacity (veh/h)			1473		781	939
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>NB 1</b>			
Volume Total	116	86	38			
Volume Left	0	5	19			
Volume Right	5	0	19			
cSH	1700	1473	853			
Volume to Capacity	0.07	0.00	0.04			
Queue Length 95th (m)	0.0	0.1	1.1			
Control Delay (s)	0.0	0.5	9.4			
Lane LOS		A	A			
Approach Delay (s)	0.0	0.5	9.4			
Approach LOS			A			
<b>Intersection Summary</b>						
Average Delay			1.7			
Intersection Capacity Utilization			16.7%	ICU Level of Service	A	
Analysis Period (min)			15			

Lanes, Volumes, Timings  
11: Street A & Edward Street

Future Total 2025  
AM Peak Hour

















												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	68	29	3	2	22	3	8	19	3	17	12	38
Future Volume (vph)	68	29	3	2	22	3	8	19	3	17	12	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
Frt		0.996			0.985			0.986			0.923	
Flt Protected		0.967			0.996			0.987			0.988	
Satd. Flow (prot)	0	1814	0	0	1848	0	0	1833	0	0	1718	0
Flt Permitted		0.967			0.996			0.987			0.988	
Satd. Flow (perm)	0	1814	0	0	1848	0	0	1833	0	0	1718	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		175.4			254.9			326.2			188.1	
Travel Time (s)		12.6			18.4			23.5			13.5	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	85	36	4	3	28	4	10	24	4	21	15	48
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	125	0	0	35	0	0	38	0	0	84	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)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	23.9%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis  
 11: Street A & Edward Street

Future Total 2025  
 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	68	29	3	2	22	3	8	19	3	17	12	38
Future Volume (Veh/h)	68	29	3	2	22	3	8	19	3	17	12	38
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	85	36	4	3	28	4	10	24	4	21	15	48
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	32			40			300	246	38	260	246	30
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	32			40			300	246	38	260	246	30
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 %	95			100			98	96	100	97	98	95
cM capacity (veh/h)	1580			1570			585	620	1034	642	620	1044
Direction, Lane #												
	EB 1	WB 1	NB 1	SB 1								
Volume Total	125	35	38	84								
Volume Left	85	3	10	21								
Volume Right	4	4	4	48								
cSH	1580	1570	637	816								
Volume to Capacity	0.05	0.00	0.06	0.10								
Queue Length 95th (m)	1.3	0.0	1.4	2.6								
Control Delay (s)	5.2	0.6	11.0	9.9								
Lane LOS	A	A	B	A								
Approach Delay (s)	5.2	0.6	11.0	9.9								
Approach LOS			B	A								
Intersection Summary												
Average Delay			6.8									
Intersection Capacity Utilization			23.9%	ICU Level of Service		A						
Analysis Period (min)			15									

Lanes, Volumes, Timings  
 12: Thompson Road & Edward Street

Future Total 2025  
 AM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	26	0	0	97	68	10
Future Volume (vph)	26	0	0	97	68	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
Fr <sub>t</sub>					0.982	
Fl <sub>t</sub> Protected	0.950					
Satd. Flow (prot)	1789	0	0	1883	1850	0
Fl <sub>t</sub> Permitted	0.950					
Satd. Flow (perm)	1789	0	0	1883	1850	0
Link Speed (k/h)	50			48	48	
Link Distance (m)	254.9			324.7	188.8	
Travel Time (s)	18.4			24.4	14.2	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	33	0	0	121	85	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	33	0	0	121	98	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	15.1%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis  
 12: Thompson Road & Edward Street

Future Total 2025  
 AM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	26	0	0	97	68	10
Future Volume (Veh/h)	26	0	0	97	68	10
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	33	0	0	121	85	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	212	92	98			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	212	92	98			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	100	100			
cM capacity (veh/h)	776	966	1495			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	33	121	98			
Volume Left	33	0	0			
Volume Right	0	0	13			
cSH	776	1495	1700			
Volume to Capacity	0.04	0.00	0.06			
Queue Length 95th (m)	1.0	0.0	0.0			
Control Delay (s)	9.8	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	9.8	0.0	0.0			
Approach LOS	A					
<b>Intersection Summary</b>						
Average Delay			1.3			
Intersection Capacity Utilization			15.1%	ICU Level of Service	A	
Analysis Period (min)			15			



Lanes, Volumes, Timings  
 13: Thompson Road & Dunlop Street

Future Total 2025  
 AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	2	192	226	2	1	6
Future Volume (vph)	2	192	226	2	1	6
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			0.999		0.880	
Flt Protected		0.999			0.994	
Satd. Flow (prot)	0	1882	1882	0	1647	0
Flt Permitted		0.999			0.994	
Satd. Flow (perm)	0	1882	1882	0	1647	0
Link Speed (k/h)		48	48		50	
Link Distance (m)		419.2	156.0		325.8	
Travel Time (s)		31.4	11.7		23.5	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	3	240	283	3	1	8
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	243	286	0	9	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	22.0% ICU Level of Service A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis  
 13: Thompson Road & Dunlop Street

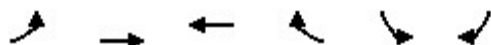
Future Total 2025  
 AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	192	226	2	1	6
Future Volume (Veh/h)	2	192	226	2	1	6
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	3	240	283	3	1	8
<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	286				530	284
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	286				530	284
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	99
cM capacity (veh/h)	1276				508	754
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>SB 1</b>			
Volume Total	243	286	9			
Volume Left	3	0	1			
Volume Right	0	3	8			
cSH	1276	1700	716			
Volume to Capacity	0.00	0.17	0.01			
Queue Length 95th (m)	0.1	0.0	0.3			
Control Delay (s)	0.1	0.0	10.1			
Lane LOS	A		B			
Approach Delay (s)	0.1	0.0	10.1			
Approach LOS			B			
<b>Intersection Summary</b>						
Average Delay			0.2			
Intersection Capacity Utilization		22.0%		ICU Level of Service		A
Analysis Period (min)			15			

Lanes, Volumes, Timings  
14: Thompson Road & Street I

Future Total 2025  
AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	3	189	218	0	0	9
Future Volume (vph)	3	189	218	0	0	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>					0.865	
Fl <sub>t</sub> Protected		0.999				
Satd. Flow (prot)	0	1882	1883	0	1629	0
Fl <sub>t</sub> Permitted		0.999				
Satd. Flow (perm)	0	1882	1883	0	1629	0
Link Speed (k/h)		48	48		50	
Link Distance (m)		156.0	175.3		326.7	
Travel Time (s)		11.7	13.1		23.5	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	4	236	273	0	0	11
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	240	273	0	11	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	22.3%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis  
 14: Thompson Road & Street I

Future Total 2025  
 AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	3	189	218	0	0	9
Future Volume (Veh/h)	3	189	218	0	0	9
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	4	236	273	0	0	11
<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	273				517	273
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	273				517	273
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	99
cM capacity (veh/h)	1290				517	766
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>SB 1</b>			
Volume Total	240	273	11			
Volume Left	4	0	0			
Volume Right	0	0	11			
cSH	1290	1700	766			
Volume to Capacity	0.00	0.16	0.01			
Queue Length 95th (m)	0.1	0.0	0.3			
Control Delay (s)	0.2	0.0	9.8			
Lane LOS	A		A			
Approach Delay (s)	0.2	0.0	9.8			
Approach LOS			A			
<b>Intersection Summary</b>						
Average Delay			0.3			
Intersection Capacity Utilization			22.3%	ICU Level of Service	A	
Analysis Period (min)			15			

Lanes, Volumes, Timings  
15: Thompson Road & Street A

Future Total 2025  
AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	9	181	187	0	0	26
Future Volume (vph)	9	181	187	0	0	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>					0.865	
Fl <sub>t</sub> Protected		0.998				
Satd. Flow (prot)	0	1880	1883	0	1629	0
Fl <sub>t</sub> Permitted		0.998				
Satd. Flow (perm)	0	1880	1883	0	1629	0
Link Speed (k/h)		48	48		50	
Link Distance (m)		175.3	250.1		326.2	
Travel Time (s)		13.1	18.8		23.5	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	11	226	234	0	0	33
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	237	234	0	33	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	26.9%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis  
 15: Thompson Road & Street A

Future Total 2025  
 AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Traffic Volume (veh/h)	9	181	187	0	0	26
Future Volume (Veh/h)	9	181	187	0	0	26
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	11	226	234	0	0	33
<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	234			482	234	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	234			482	234	
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			100	96	
cM capacity (veh/h)	1333			539	805	
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>SB 1</b>			
Volume Total	237	234	33			
Volume Left	11	0	0			
Volume Right	0	0	33			
cSH	1333	1700	805			
Volume to Capacity	0.01	0.14	0.04			
Queue Length 95th (m)	0.2	0.0	1.0			
Control Delay (s)	0.4	0.0	9.7			
Lane LOS	A		A			
Approach Delay (s)	0.4	0.0	9.7			
Approach LOS			A			
<b>Intersection Summary</b>						
Average Delay			0.8			
Intersection Capacity Utilization			26.9%	ICU Level of Service	A	
Analysis Period (min)			15			

Lanes, Volumes, Timings  
 1: Dunlop Street & Robert Street East

Future Total 2035  
 PM Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	253	33	57	410	35	56
Future Volume (vph)	253	33	57	410	35	56
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	0.984			0.917		
Flt Protected				0.994	0.981	
Satd. Flow (prot)	1785	0	0	1872	1728	0
Flt Permitted				0.994	0.981	
Satd. Flow (perm)	1785	0	0	1872	1728	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	1218.0			320.1	410.5	
Travel Time (s)	87.7			23.0	29.6	
Confl. Peds. (#/hr)	1		1			4
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	6%	5%	2%	2%	0%	0%
Adj. Flow (vph)	288	38	65	466	40	64
Shared Lane Traffic (%)						
Lane Group Flow (vph)	326	0	0	531	104	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	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	14		24	24		14
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	56.7%
ICU Level of Service	B
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis  
 1: Dunlop Street & Robert Street East

Future Total 2035  
 PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	253	33	57	410	35	56
Future Volume (Veh/h)	253	33	57	410	35	56
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	288	38	65	466	40	64
Pedestrians				4	1	
Lane Width (m)				3.7	3.7	
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			327		904	312
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			327		904	312
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			95		86	91
cM capacity (veh/h)			1232		293	730
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	326	531	104			
Volume Left	0	65	40			
Volume Right	38	0	64			
cSH	1700	1232	464			
Volume to Capacity	0.19	0.05	0.22			
Queue Length 95th (m)	0.0	1.3	6.5			
Control Delay (s)	0.0	1.5	15.0			
Lane LOS		A	B			
Approach Delay (s)	0.0	1.5	15.0			
Approach LOS			B			
<b>Intersection Summary</b>						
Average Delay			2.5			
Intersection Capacity Utilization			56.7%	ICU Level of Service	B	
Analysis Period (min)			15			



Lanes, Volumes, Timings

Future Total 2035

2: Street A/Dufferin Street/Burke Street & Robert Street East

PM Peak Hour



















Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	16	222	41	35	311	59	97	27	51	39	21	32
Future Volume (vph)	16	222	41	35	311	59	97	27	51	39	21	32
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		0.980			0.980			0.960			0.953	
Flt Protected		0.997			0.996			0.973			0.979	
Satd. Flow (prot)	0	1800	0	0	1858	0	0	1759	0	0	1707	0
Flt Permitted		0.997			0.996			0.973			0.979	
Satd. Flow (perm)	0	1800	0	0	1858	0	0	1759	0	0	1707	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		320.1			250.8			228.0			76.2	
Travel Time (s)		23.0			18.1			16.4			5.5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	5%	2%	2%	1%	0%	2%	2%	2%	0%	2%	13%
Adj. Flow (vph)	17	234	43	37	327	62	102	28	54	41	22	34
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	294	0	0	426	0	0	184	0	0	97	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)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	52.4%
ICU Level of Service	A
Analysis Period (min)	15

















HCM Unsignalized Intersection Capacity Analysis  
 2: Street A/Dufferin Street/Burke Street & Robert Street East

Future Total 2035  
 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	222	41	35	311	59	97	27	51	39	21	32
Future Volume (Veh/h)	16	222	41	35	311	59	97	27	51	39	21	32
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	17	234	43	37	327	62	102	28	54	41	22	34
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	389			277			766	752	256	790	743	358
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	389			277			766	752	256	790	743	358
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.3
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.4
p0 queue free %	99			97			63	91	93	84	93	95
cM capacity (veh/h)	1181			1286			278	324	783	261	329	662
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	294	426	184	97								
Volume Left	17	37	102	41								
Volume Right	43	62	54	34								
cSH	1181	1286	352	352								
Volume to Capacity	0.01	0.03	0.52	0.28								
Queue Length 95th (m)	0.3	0.7	21.9	8.4								
Control Delay (s)	0.6	1.0	25.8	19.0								
Lane LOS	A	A	D	C								
Approach Delay (s)	0.6	1.0	25.8	19.0								
Approach LOS			D	C								
Intersection Summary												
Average Delay			7.2									
Intersection Capacity Utilization			52.4%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings  
 3: Thompson Road/Centennial Drive & Robert Street East

















Future Total 2035  
 PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	270	30	165	324	22	47	18	187	20	33	40
Future Volume (vph)	12	270	30	165	324	22	47	18	187	20	33	40
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
Fr <sub>t</sub>		0.987			0.994			0.900			0.942	
Fl <sub>t</sub> Protected		0.998			0.984			0.991			0.989	
Satd. Flow (prot)	0	1810	0	0	1855	0	0	1680	0	0	1755	0
Fl <sub>t</sub> Permitted		0.998			0.984			0.991			0.989	
Satd. Flow (perm)	0	1810	0	0	1855	0	0	1680	0	0	1755	0
Link Speed (k/h)		50			50			48			48	
Link Distance (m)		250.8			471.9			224.8			77.4	
Travel Time (s)		18.1			34.0			16.9			5.8	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	5%	2%	2%	1%	0%	2%	2%	2%	0%	2%	3%
Adj. Flow (vph)	12	278	31	170	334	23	48	19	193	21	34	41
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	321	0	0	527	0	0	260	0	0	96	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)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	73.5%
ICU Level of Service	D
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis  
 3: Thompson Road/Centennial Drive & Robert Street East

Future Total 2035  
 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	270	30	165	324	22	47	18	187	20	33	40
Future Volume (Veh/h)	12	270	30	165	324	22	47	18	187	20	33	40
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	12	278	31	170	334	23	48	19	193	21	34	41
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	357			309			1061	1014	294	1206	1018	346
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	357			309			1061	1014	294	1206	1018	346
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			86			67	91	74	79	83	94
cM capacity (veh/h)	1213			1252			148	204	746	99	203	695
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	321	527	260	96								
Volume Left	12	170	48	21								
Volume Right	31	23	193	41								
cSH	1213	1252	384	219								
Volume to Capacity	0.01	0.14	0.68	0.44								
Queue Length 95th (m)	0.2	3.6	36.5	15.7								
Control Delay (s)	0.4	3.7	31.9	33.6								
Lane LOS	A	A	D	D								
Approach Delay (s)	0.4	3.7	31.9	33.6								
Approach LOS			D	D								
Intersection Summary												
Average Delay			11.3									
Intersection Capacity Utilization			73.5%		ICU Level of Service				D			
Analysis Period (min)			15									

Lanes, Volumes, Timings  
4: Fuller Avenue & Robert Street East

Future Total 2035  
PM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	208	257	261	198	277	254
Future Volume (vph)	208	257	261	198	277	254
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	30.0	0.0	0.0			0.0
Storage Lanes	1	1	1			1
Taper Length (m)	2.5		2.5			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1755	1601	1789	1865	1883	1601
Flt Permitted	0.950		0.489			
Satd. Flow (perm)	1755	1601	921	1865	1883	1601
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		279				276
Link Speed (k/h)	50			60	60	
Link Distance (m)	471.9			243.5	103.8	
Travel Time (s)	34.0			14.6	6.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	4%	2%	2%	3%	2%	2%
Adj. Flow (vph)	226	279	284	215	301	276
Shared Lane Traffic (%)						
Lane Group Flow (vph)	226	279	284	215	301	276
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Number of Detectors	1	1	1	2	2	1
Detector Template	Left	Right	Left	Thru	Thru	Right
Leading Detector (m)	6.1	6.1	6.1	30.5	30.5	6.1
Trailing Detector (m)	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
Detector 1 Size(m)	6.1	6.1	6.1	1.8	1.8	6.1
Detector 1 Type	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
Detector 1 Queue (s)	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
Detector 2 Position(m)				28.7	28.7	
Detector 2 Size(m)				1.8	1.8	
Detector 2 Type				Cl+Ex	Cl+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	

Lanes, Volumes, Timings  
4: Fuller Avenue & Robert Street East

Future Total 2035  
PM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Permitted Phases		4	2			6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	25.0	25.0	9.0	30.0	30.0	30.0
Total Split (s)	31.0	31.0	21.0	59.0	38.0	38.0
Total Split (%)	34.4%	34.4%	23.3%	65.6%	42.2%	42.2%
Maximum Green (s)	25.0	25.0	17.0	53.0	32.0	32.0
Yellow Time (s)	4.0	4.0	3.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	6.0	6.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	Max	Max	Max
Walk Time (s)	5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0
Act Effct Green (s)	15.7	15.7	55.2	53.2	38.5	38.5
Actuated g/C Ratio	0.19	0.19	0.68	0.66	0.48	0.48
v/c Ratio	0.66	0.52	0.38	0.18	0.34	0.30
Control Delay	39.8	7.4	7.2	6.6	16.5	3.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.8	7.4	7.2	6.6	16.5	3.3
LOS	D	A	A	A	B	A
Approach Delay	21.9			6.9	10.2	
Approach LOS	C			A	B	

Intersection Summary

Area Type: Other  
 Cycle Length: 90  
 Actuated Cycle Length: 80.9  
 Natural Cycle: 65  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.66  
 Intersection Signal Delay: 12.9  
 Intersection Capacity Utilization 53.9%  
 Analysis Period (min) 15  
 Intersection LOS: B  
 ICU Level of Service A

Splits and Phases: 4: Fuller Avenue & Robert Street East



Queues

Future Total 2035

4: Fuller Avenue & Robert Street East

PM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	226	279	284	215	301	276
v/c Ratio	0.66	0.52	0.38	0.18	0.34	0.30
Control Delay	39.8	7.4	7.2	6.6	16.5	3.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.8	7.4	7.2	6.6	16.5	3.3
Queue Length 50th (m)	32.3	0.0	13.8	11.0	27.0	0.0
Queue Length 95th (m)	53.7	17.8	30.9	24.9	58.2	14.6
Internal Link Dist (m)	447.9			219.5	79.8	
Turn Bay Length (m)	30.0					
Base Capacity (vph)	544	688	811	1225	896	906
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.41	0.35	0.18	0.34	0.30

Intersection Summary

# HCM Signalized Intersection Capacity Analysis

## 4: Fuller Avenue & Robert Street East

Future Total 2035  
PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	208	257	261	198	277	254
Future Volume (vph)	208	257	261	198	277	254
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	4.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1755	1601	1789	1865	1883	1601
Flt Permitted	0.95	1.00	0.49	1.00	1.00	1.00
Satd. Flow (perm)	1755	1601	920	1865	1883	1601
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	226	279	284	215	301	276
RTOR Reduction (vph)	0	225	0	0	0	144
Lane Group Flow (vph)	226	54	284	215	301	132
Heavy Vehicles (%)	4%	2%	2%	3%	2%	2%
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	15.7	15.7	53.2	53.2	38.6	38.6
Effective Green, g (s)	15.7	15.7	53.2	53.2	38.6	38.6
Actuated g/C Ratio	0.19	0.19	0.66	0.66	0.48	0.48
Clearance Time (s)	6.0	6.0	4.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	340	310	718	1226	898	763
v/s Ratio Prot	c0.13		c0.05	0.12	0.16	
v/s Ratio Perm		0.03	c0.21			0.08
v/c Ratio	0.66	0.17	0.40	0.18	0.34	0.17
Uniform Delay, d1	30.2	27.2	6.0	5.4	13.2	12.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.8	0.3	0.4	0.3	1.0	0.5
Delay (s)	35.0	27.5	6.4	5.7	14.2	12.5
Level of Service	D	C	A	A	B	B
Approach Delay (s)	30.8			6.1	13.4	
Approach LOS	C			A	B	

### Intersection Summary

HCM 2000 Control Delay	16.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	80.9	Sum of lost time (s)	16.0
Intersection Capacity Utilization	53.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Lanes, Volumes, Timings  
5: Main Street & Edward Street

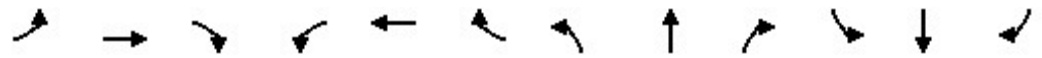
Future Total 2035  
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↗		↕			↕	
Traffic Volume (vph)	7	24	82	191	36	47	121	703	166	62	633	12
Future Volume (vph)	7	24	82	191	36	47	121	703	166	62	633	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		30.0	0.0		0.0	0.0		0.0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor		0.99			1.00	0.99		0.99			1.00	
Frt		0.902				0.850		0.975			0.997	
Flt Protected		0.997			0.960			0.994			0.996	
Satd. Flow (prot)	0	1709	0	0	1844	1633	0	3437	0	0	3528	0
Flt Permitted		0.974			0.746			0.744			0.779	
Satd. Flow (perm)	0	1669	0	0	1430	1612	0	2572	0	0	2759	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		86				91		40			4	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		135.5			260.4			246.8			121.8	
Travel Time (s)		9.8			18.7			17.8			8.8	
Confl. Peds. (#/hr)	1		3	3		1	3		8	8		3
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	2%	3%	0%	0%	3%	0%
Adj. Flow (vph)	7	25	86	201	38	49	127	740	175	65	666	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	118	0	0	239	49	0	1042	0	0	744	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)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5	6.1	6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	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	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8	6.1	6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
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  
5: Main Street & Edward Street

Future Total 2035  
PM Peak Hour

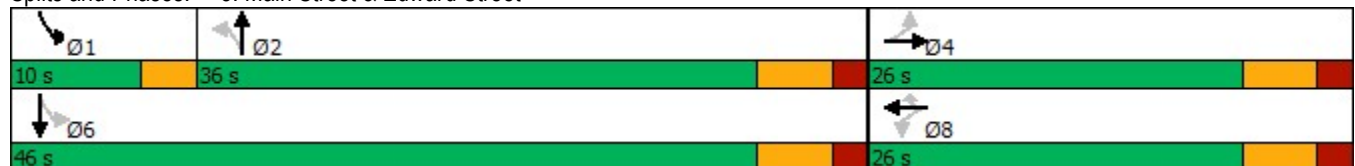


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	8.0	8.0		7.0	30.0	
Minimum Split (s)	26.0	26.0		26.0	26.0	26.0	31.0	31.0		10.0	36.0	
Total Split (s)	26.0	26.0		26.0	26.0	26.0	36.0	36.0		10.0	46.0	
Total Split (%)	36.1%	36.1%		36.1%	36.1%	36.1%	50.0%	50.0%		13.9%	63.9%	
Maximum Green (s)	20.0	20.0		20.0	20.0	20.0	30.0	30.0		7.0	40.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		0.0	2.0	
Lost Time Adjust (s)		0.0			0.0	0.0		0.0			0.0	
Total Lost Time (s)		6.0			6.0	6.0		6.0			6.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	Max	Max		None	Max	
Walk Time (s)	12.0	12.0		12.0	12.0	12.0	15.0	15.0			20.0	
Flash Dont Walk (s)	8.0	8.0		8.0	8.0	8.0	10.0	10.0			10.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0			0	
Act Effct Green (s)		15.9			15.9	15.9		40.1			40.1	
Actuated g/C Ratio		0.23			0.23	0.23		0.59			0.59	
v/c Ratio		0.26			0.72	0.11		0.68			0.46	
Control Delay		9.5			36.7	2.0		12.8			9.6	
Queue Delay		0.0			0.0	0.0		0.0			0.0	
Total Delay		9.5			36.7	2.0		12.8			9.6	
LOS		A			D	A		B			A	
Approach Delay		9.5			30.8			12.8			9.6	
Approach LOS		A			C			B			A	

Intersection Summary

Area Type:	Other
Cycle Length:	72
Actuated Cycle Length:	68
Natural Cycle:	75
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.72
Intersection Signal Delay:	13.9
Intersection LOS:	B
Intersection Capacity Utilization:	87.5%
ICU Level of Service:	E
Analysis Period (min):	15

Splits and Phases: 5: Main Street & Edward Street



Queues  
5: Main Street & Edward Street

Future Total 2035  
PM Peak Hour




















Lane Group	EBT	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	118	239	49	1042	744
v/c Ratio	0.26	0.72	0.11	0.68	0.46
Control Delay	9.5	36.7	2.0	12.8	9.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	9.5	36.7	2.0	12.8	9.6
Queue Length 50th (m)	3.2	27.9	0.0	42.0	25.4
Queue Length 95th (m)	14.2	49.8	2.6	70.3	42.0
Internal Link Dist (m)	111.5	236.4		222.8	97.8
Turn Bay Length (m)			30.0		
Base Capacity (vph)	552	421	539	1533	1628
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.21	0.57	0.09	0.68	0.46
<b>Intersection Summary</b>					

# HCM Signalized Intersection Capacity Analysis

## 5: Main Street & Edward Street

















Future Total 2035  
PM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	7	24	82	191	36	47	121	703	166	62	633	12	
Future Volume (vph)	7	24	82	191	36	47	121	703	166	62	633	12	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		6.0			6.0	6.0		6.0			6.0		
Lane Util. Factor		1.00			1.00	1.00		0.95			0.95		
Frbp, ped/bikes		0.99			1.00	0.99		0.99			1.00		
Flpb, ped/bikes		1.00			1.00	1.00		1.00			1.00		
Frt		0.90			1.00	0.85		0.97			1.00		
Flt Protected		1.00			0.96	1.00		0.99			1.00		
Satd. Flow (prot)		1708			1840	1612		3436			3528		
Flt Permitted		0.97			0.75	1.00		0.74			0.78		
Satd. Flow (perm)		1669			1430	1612		2573			2762		
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Adj. Flow (vph)	7	25	86	201	38	49	127	740	175	65	666	13	
RTOR Reduction (vph)	0	66	0	0	0	38	0	16	0	0	2	0	
Lane Group Flow (vph)	0	52	0	0	239	11	0	1026	0	0	742	0	
Confl. Peds. (#/hr)	1		3	3		1	3		8	8		3	
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	2%	3%	0%	0%	3%	0%	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA		
Protected Phases		4			8			2		1	6		
Permitted Phases	4			8		8	2			6			
Actuated Green, G (s)		15.9			15.9	15.9		40.1			40.1		
Effective Green, g (s)		15.9			15.9	15.9		40.1			40.1		
Actuated g/C Ratio		0.23			0.23	0.23		0.59			0.59		
Clearance Time (s)		6.0			6.0	6.0		6.0			6.0		
Vehicle Extension (s)		3.0			3.0	3.0		3.0			3.0		
Lane Grp Cap (vph)		390			334	376		1517			1628		
v/s Ratio Prot													
v/s Ratio Perm		0.03			c0.17	0.01		c0.40			0.27		
v/c Ratio		0.13			0.72	0.03		0.68			0.46		
Uniform Delay, d1		20.6			24.0	20.1		9.5			7.8		
Progression Factor		1.00			1.00	1.00		1.00			1.00		
Incremental Delay, d2		0.2			7.1	0.0		2.4			0.2		
Delay (s)		20.8			31.1	20.1		12.0			8.0		
Level of Service		C			C	C		B			A		
Approach Delay (s)		20.8			29.2			12.0			8.0		
Approach LOS		C			C			B			A		
<b>Intersection Summary</b>													
HCM 2000 Control Delay			13.4									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.73										
Actuated Cycle Length (s)			68.0									Sum of lost time (s)	15.0
Intersection Capacity Utilization			87.5%									ICU Level of Service	E
Analysis Period (min)			15										

c Critical Lane Group

















Lanes, Volumes, Timings  
6: Dunlop Street & Edward Street

Future Total 2035  
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	124	8	3	132	5	4	6	2	4	8	46
Future Volume (vph)	47	124	8	3	132	5	4	6	2	4	8	46
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			0.995			0.981			0.894	
Flt Protected		0.987			0.999			0.982			0.996	
Satd. Flow (prot)	0	1883	0	0	1909	0	0	1814	0	0	1667	0
Flt Permitted		0.987			0.999			0.982			0.996	
Satd. Flow (perm)	0	1883	0	0	1909	0	0	1814	0	0	1667	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		802.7			150.8			325.8			410.5	
Travel Time (s)		57.8			10.9			23.5			29.6	
Confl. Peds. (#/hr)	1						1					
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	0%	0%	2%	2%	0%	0%	2%	2%	2%	0%	2%	3%
Adj. Flow (vph)	57	149	10	4	159	6	5	7	2	5	10	55
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	216	0	0	169	0	0	14	0	0	70	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)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	
<b>Intersection Summary</b>												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	30.8%						ICU Level of Service A					
Analysis Period (min)	15											












HCM Unsignalized Intersection Capacity Analysis  
6: Dunlop Street & Edward Street

Future Total 2035  
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	124	8	3	132	5	4	6	2	4	8	46
Future Volume (Veh/h)	47	124	8	3	132	5	4	6	2	4	8	46
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	57	149	10	4	159	6	5	7	2	5	10	55
Pedestrians												1
Lane Width (m)												3.7
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	166			159			498	442	154	444	444	163
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	166			159			498	442	154	444	444	163
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			99	99	100	99	98	94
cM capacity (veh/h)	1423			1420			431	488	892	503	486	878
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	216	169	14	70								
Volume Left	57	4	5	5								
Volume Right	10	6	2	55								
cSH	1423	1420	496	752								
Volume to Capacity	0.04	0.00	0.03	0.09								
Queue Length 95th (m)	1.0	0.1	0.7	2.3								
Control Delay (s)	2.3	0.2	12.5	10.3								
Lane LOS	A	A	B	B								
Approach Delay (s)	2.3	0.2	12.5	10.3								
Approach LOS			B	B								
<b>Intersection Summary</b>												
Average Delay			3.0									
Intersection Capacity Utilization			30.8%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings  
7: Main Street & Thompson Road

Future Total 2035  
PM Peak Hour

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	285	62	939	310	61	851
Future Volume (vph)	285	62	939	310	61	851
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0	20.0		15.0	0.0	
Storage Lanes	1	1		1	0	
Taper Length (m)	2.5				2.5	
Lane Util. Factor	1.00	1.00	0.95	1.00	0.95	0.95
Ped Bike Factor		0.99				
Frt		0.850		0.850		
Flt Protected	0.950					0.997
Satd. Flow (prot)	1807	1498	3579	1601	0	3540
Flt Permitted	0.950					0.817
Satd. Flow (perm)	1807	1478	3579	1601	0	2901
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		60		168		
Link Speed (k/h)	48		50			50
Link Distance (m)	653.3		164.4			246.8
Travel Time (s)	49.0		11.8			17.8
Confl. Peds. (#/hr)		1				
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	1%	9%	2%	2%	0%	3%
Adj. Flow (vph)	297	65	978	323	64	886
Shared Lane Traffic (%)						
Lane Group Flow (vph)	297	65	978	323	0	950
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Number of Detectors	1	1	2	1	1	2
Detector Template	Left	Right	Thru	Right	Left	Thru
Leading Detector (m)	6.1	6.1	30.5	6.1	6.1	30.5
Trailing Detector (m)	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
Detector 1 Size(m)	6.1	6.1	1.8	6.1	6.1	1.8
Detector 1 Type	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
Detector 1 Queue (s)	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
Detector 2 Position(m)			28.7			28.7
Detector 2 Size(m)			1.8			1.8
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0

Lanes, Volumes, Timings  
7: Main Street & Thompson Road

Future Total 2035  
PM Peak Hour

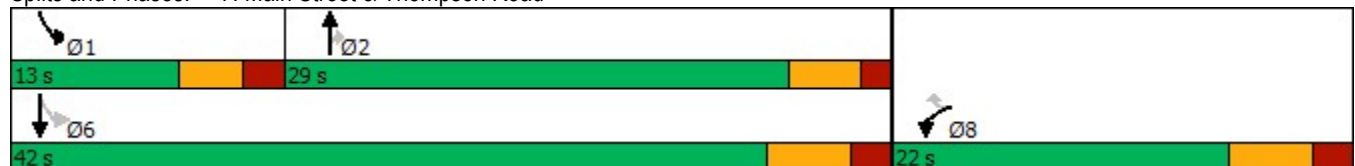


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2	6	
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	8.0	8.0	5.0	5.0	8.0	34.0
Minimum Split (s)	22.0	22.0	21.0	21.0	13.0	40.0
Total Split (s)	22.0	22.0	29.0	29.0	13.0	42.0
Total Split (%)	34.4%	34.4%	45.3%	45.3%	20.3%	65.6%
Maximum Green (s)	16.0	16.0	24.0	24.0	8.0	36.0
Yellow Time (s)	4.0	4.0	3.5	3.5	3.0	4.0
All-Red Time (s)	2.0	2.0	1.5	1.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	6.0	6.0	5.0	5.0		6.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	Max	Max	None	Max
Walk Time (s)	5.0	5.0	5.0	5.0		5.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0		11.0
Pedestrian Calls (#/hr)	0	0	0	0		0
Act Effct Green (s)	14.1	14.1	38.5	38.5		37.5
Actuated g/C Ratio	0.22	0.22	0.61	0.61		0.59
v/c Ratio	0.74	0.17	0.45	0.31		0.56
Control Delay	34.9	8.0	8.0	4.1		10.0
Queue Delay	0.0	0.0	0.0	0.0		0.0
Total Delay	34.9	8.0	8.0	4.1		10.0
LOS	C	A	A	A		A
Approach Delay	30.1		7.0			10.0
Approach LOS	C		A			A

Intersection Summary

Area Type: Other  
 Cycle Length: 64  
 Actuated Cycle Length: 63.6  
 Natural Cycle: 65  
 Control Type: Semi Act-Uncoord  
 Maximum v/c Ratio: 0.74  
 Intersection Signal Delay: 11.3  
 Intersection LOS: B  
 Intersection Capacity Utilization 84.2%  
 ICU Level of Service E  
 Analysis Period (min) 15

Splits and Phases: 7: Main Street & Thompson Road





Queues  
7: Main Street & Thompson Road

Future Total 2035  
PM Peak Hour
















Lane Group	WBL	WBR	NBT	NBR	SBT
Lane Group Flow (vph)	297	65	978	323	950
v/c Ratio	0.74	0.17	0.45	0.31	0.56
Control Delay	34.9	8.0	8.0	4.1	10.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	34.9	8.0	8.0	4.1	10.0
Queue Length 50th (m)	31.5	0.5	30.6	7.5	33.7
Queue Length 95th (m)	#55.8	8.3	43.7	18.0	49.9
Internal Link Dist (m)	629.3		140.4		222.8
Turn Bay Length (m)		20.0		15.0	
Base Capacity (vph)	454	417	2165	1034	1708
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.65	0.16	0.45	0.31	0.56

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis  
7: Main Street & Thompson Road

















Future Total 2035  
PM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	285	62	939	310	61	851
Future Volume (vph)	285	62	939	310	61	851
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	5.0	5.0		6.0
Lane Util. Factor	1.00	1.00	0.95	1.00		0.95
Frpb, ped/bikes	1.00	0.99	1.00	1.00		1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00		1.00
Frt	1.00	0.85	1.00	0.85		1.00
Flt Protected	0.95	1.00	1.00	1.00		1.00
Satd. Flow (prot)	1807	1478	3579	1601		3539
Flt Permitted	0.95	1.00	1.00	1.00		0.82
Satd. Flow (perm)	1807	1478	3579	1601		2902
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	297	65	978	323	64	886
RTOR Reduction (vph)	0	47	0	66	0	0
Lane Group Flow (vph)	297	18	978	257	0	950
Confl. Peds. (#/hr)		1				
Heavy Vehicles (%)	1%	9%	2%	2%	0%	3%
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2	6	
Actuated Green, G (s)	14.1	14.1	38.5	38.5		37.5
Effective Green, g (s)	14.1	14.1	38.5	38.5		37.5
Actuated g/C Ratio	0.22	0.22	0.61	0.61		0.59
Clearance Time (s)	6.0	6.0	5.0	5.0		6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0
Lane Grp Cap (vph)	400	327	2166	969		1711
v/s Ratio Prot	c0.16		0.27			
v/s Ratio Perm		0.01		0.16		c0.33
v/c Ratio	0.74	0.06	0.45	0.26		0.56
Uniform Delay, d1	23.1	19.5	6.8	5.9		8.0
Progression Factor	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2	7.3	0.1	0.7	0.7		0.4
Delay (s)	30.3	19.6	7.5	6.6		8.4
Level of Service	C	B	A	A		A
Approach Delay (s)	28.4		7.3			8.4
Approach LOS	C		A			A
<b>Intersection Summary</b>						
HCM 2000 Control Delay			10.6		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.66			
Actuated Cycle Length (s)			63.6		Sum of lost time (s)	16.0
Intersection Capacity Utilization			84.2%		ICU Level of Service	E
Analysis Period (min)			15			

c Critical Lane Group

Lanes, Volumes, Timings  
8: Street A & Gauthier Drive Extension

















Future Total 2035  
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	42	0	36	0	115	29	29	82	0
Future Volume (vph)	0	0	0	42	0	36	0	115	29	29	82	0
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
Fr <sub>t</sub>					0.937			0.972				
Fl <sub>t</sub> Protected					0.974						0.987	
Satd. Flow (prot)	0	1883	0	0	1719	0	0	1831	0	0	1859	0
Fl <sub>t</sub> Permitted					0.974						0.987	
Satd. Flow (perm)	0	1883	0	0	1719	0	0	1831	0	0	1859	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		161.7			257.7			188.1			228.0	
Travel Time (s)		11.6			18.6			13.5			16.4	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	44	0	38	0	121	31	31	86	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	82	0	0	152	0	0	117	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)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Free			Free	
<b>Intersection Summary</b>												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	28.3%						ICU Level of Service A					
Analysis Period (min)	15											

# HCM Unsignalized Intersection Capacity Analysis

## 8: Street A & Gauthier Drive Extension

Future Total 2035  
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	42	0	36	0	115	29	29	82	0
Future Volume (Veh/h)	0	0	0	42	0	36	0	115	29	29	82	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	0	44	0	38	0	121	31	31	86	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
Median storage veh												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	322	300	86	284	284	136	86			152		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	322	300	86	284	284	136	86			152		
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 %	100	100	100	93	100	96	100			98		
cM capacity (veh/h)	594	599	973	657	611	912	1510			1429		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	0	82	152	117								
Volume Left	0	44	0	31								
Volume Right	0	38	31	0								
cSH	1700	755	1510	1429								
Volume to Capacity	0.00	0.11	0.00	0.02								
Queue Length 95th (m)	0.0	2.8	0.0	0.5								
Control Delay (s)	0.0	10.4	0.0	2.1								
Lane LOS	A	B		A								
Approach Delay (s)	0.0	10.4	0.0	2.1								
Approach LOS	A	B										
Intersection Summary												
Average Delay			3.1									
Intersection Capacity Utilization			28.3%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings  
 9: Thompson Road & Gauthier Drive Extension

Future Total 2035  
 PM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	36	0	0	74	67	17
Future Volume (vph)	36	0	0	74	67	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
Fr <sub>t</sub>					0.973	
Fl <sub>t</sub> Protected	0.950					
Satd. Flow (prot)	1789	0	0	1883	1833	0
Fl <sub>t</sub> Permitted	0.950					
Satd. Flow (perm)	1789	0	0	1883	1833	0
Link Speed (k/h)	50			48	48	
Link Distance (m)	257.7			188.8	224.8	
Travel Time (s)	18.6			14.2	16.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	38	0	0	78	71	18
Shared Lane Traffic (%)						
Lane Group Flow (vph)	38	0	0	78	89	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	14.6%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis  
 9: Thompson Road & Gauthier Drive Extension











Future Total 2035  
 PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	36	0	0	74	67	17
Future Volume (Veh/h)	36	0	0	74	67	17
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	38	0	0	78	71	18
<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	158	80	89			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	158	80	89			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	95	100	100			
cM capacity (veh/h)	833	980	1506			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	38	78	89			
Volume Left	38	0	0			
Volume Right	0	0	18			
cSH	833	1506	1700			
Volume to Capacity	0.05	0.00	0.05			
Queue Length 95th (m)	1.1	0.0	0.0			
Control Delay (s)	9.5	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	9.5	0.0	0.0			
Approach LOS	A					
<b>Intersection Summary</b>						
Average Delay			1.8			
Intersection Capacity Utilization			14.6%	ICU Level of Service	A	
Analysis Period (min)			15			

Lanes, Volumes, Timings  
10: Street I & Edward Street

Future Total 2035  
PM Peak Hour

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	116	11	8	129	11	12
Future Volume (vph)	116	11	8	129	11	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
Fr <sub>t</sub>	0.988			0.930		
Fl <sub>t</sub> Protected				0.997	0.977	
Satd. Flow (prot)	1861	0	0	1878	1711	0
Fl <sub>t</sub> Permitted				0.997	0.977	
Satd. Flow (perm)	1861	0	0	1878	1711	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	150.8			175.4	326.7	
Travel Time (s)	10.9			12.6	23.5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	122	12	8	136	12	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	134	0	0	144	25	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	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	14		24	24		14
Sign Control	Free			Free	Stop	
<b>Intersection Summary</b>						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	23.3%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis  
 10: Street I & Edward Street

Future Total 2035  
 PM Peak Hour



















Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	116	11	8	129	11	12
Future Volume (Veh/h)	116	11	8	129	11	12
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	122	12	8	136	12	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			134		280	128
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			134		280	128
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		98	99
cM capacity (veh/h)			1451		706	922
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>NB 1</b>			
Volume Total	134	144	25			
Volume Left	0	8	12			
Volume Right	12	0	13			
cSH	1700	1451	804			
Volume to Capacity	0.08	0.01	0.03			
Queue Length 95th (m)	0.0	0.1	0.7			
Control Delay (s)	0.0	0.5	9.6			
Lane LOS		A	A			
Approach Delay (s)	0.0	0.5	9.6			
Approach LOS			A			
<b>Intersection Summary</b>						
Average Delay			1.0			
Intersection Capacity Utilization			23.3%	ICU Level of Service	A	
Analysis Period (min)			15			



















Lanes, Volumes, Timings  
11: Street A & Edward Street

Future Total 2035  
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	78	39	8	3	34	19	5	21	3	13	18	98
Future Volume (vph)	78	39	8	3	34	19	5	21	3	13	18	98
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		0.992			0.954			0.986			0.898	
Flt Protected		0.970			0.997			0.992			0.995	
Satd. Flow (prot)	0	1812	0	0	1791	0	0	1842	0	0	1683	0
Flt Permitted		0.970			0.997			0.992			0.995	
Satd. Flow (perm)	0	1812	0	0	1791	0	0	1842	0	0	1683	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		175.4			254.9			326.2			188.1	
Travel Time (s)		12.6			18.4			23.5			13.5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	82	41	8	3	36	20	5	22	3	14	19	103
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	131	0	0	59	0	0	30	0	0	136	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)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	
<b>Intersection Summary</b>												
Area Type:	Other											
Control Type:	Unsignalized											
Intersection Capacity Utilization	29.3%					ICU Level of Service A						
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis  
 11: Street A & Edward Street

Future Total 2035  
 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	39	8	3	34	19	5	21	3	13	18	98
Future Volume (Veh/h)	78	39	8	3	34	19	5	21	3	13	18	98
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	82	41	8	3	36	20	5	22	3	14	19	103
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	56			49			374	271	45	275	265	46
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	56			49			374	271	45	275	265	46
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 %	95			100			99	96	100	98	97	90
cM capacity (veh/h)	1549			1558			491	601	1025	629	605	1023
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	131	59	30	136								
Volume Left	82	3	5	14								
Volume Right	8	20	3	103								
cSH	1549	1558	603	882								
Volume to Capacity	0.05	0.00	0.05	0.15								
Queue Length 95th (m)	1.3	0.0	1.2	4.1								
Control Delay (s)	4.8	0.4	11.3	9.8								
Lane LOS	A	A	B	A								
Approach Delay (s)	4.8	0.4	11.3	9.8								
Approach LOS			B	A								
Intersection Summary												
Average Delay			6.5									
Intersection Capacity Utilization			29.3%		ICU Level of Service				A			
Analysis Period (min)			15									

Lanes, Volumes, Timings  
 12: Thompson Road & Edward Street

Future Total 2035  
 PM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	37	0	0	36	46	18
Future Volume (vph)	37	0	0	36	46	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>					0.962	
Fl <sub>t</sub> Protected	0.950					
Satd. Flow (prot)	1789	0	0	1883	1812	0
Fl <sub>t</sub> Permitted	0.950					
Satd. Flow (perm)	1789	0	0	1883	1812	0
Link Speed (k/h)	50			48	48	
Link Distance (m)	254.9			324.7	188.8	
Travel Time (s)	18.4			24.4	14.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	39	0	0	38	48	19
Shared Lane Traffic (%)						
Lane Group Flow (vph)	39	0	0	38	67	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	1.6			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	13.5%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis  
 12: Thompson Road & Edward Street

Future Total 2035  
 PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	37	0	0	36	46	18
Future Volume (Veh/h)	37	0	0	36	46	18
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	39	0	0	38	48	19
<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	96	58	67			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	96	58	67			
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	100	100			
cM capacity (veh/h)	904	1009	1535			
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	39	38	67			
Volume Left	39	0	0			
Volume Right	0	0	19			
cSH	904	1535	1700			
Volume to Capacity	0.04	0.00	0.04			
Queue Length 95th (m)	1.0	0.0	0.0			
Control Delay (s)	9.2	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	9.2	0.0	0.0			
Approach LOS	A					
<b>Intersection Summary</b>						
Average Delay			2.5			
Intersection Capacity Utilization			13.5%	ICU Level of Service	A	
Analysis Period (min)			15			

Lanes, Volumes, Timings  
 13: Thompson Road & Dunlop Street

Future Total 2035  
 PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	6	73	63	2	2	3
Future Volume (vph)	6	73	63	2	2	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.996		0.919	
Flt Protected		0.996			0.980	
Satd. Flow (prot)	0	1876	1876	0	1696	0
Flt Permitted		0.996			0.980	
Satd. Flow (perm)	0	1876	1876	0	1696	0
Link Speed (k/h)		48	48		50	
Link Distance (m)		419.2	156.0		325.8	
Travel Time (s)		31.4	11.7		23.5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	6	77	66	2	2	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	83	68	0	5	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	18.8%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis  
 13: Thompson Road & Dunlop Street

Future Total 2035  
 PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	6	73	63	2	2	3
Future Volume (Veh/h)	6	73	63	2	2	3
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	6	77	66	2	2	3
<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	68				156	67
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	68				156	67
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1533				832	997
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>SB 1</b>			
Volume Total	83	68	5			
Volume Left	6	0	2			
Volume Right	0	2	3			
cSH	1533	1700	924			
Volume to Capacity	0.00	0.04	0.01			
Queue Length 95th (m)	0.1	0.0	0.1			
Control Delay (s)	0.6	0.0	8.9			
Lane LOS	A		A			
Approach Delay (s)	0.6	0.0	8.9			
Approach LOS			A			
<b>Intersection Summary</b>						
Average Delay			0.6			
Intersection Capacity Utilization		18.8%		ICU Level of Service		A
Analysis Period (min)			15			

Lanes, Volumes, Timings  
 14: Thompson Road & Street I

Future Total 2035  
 PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	8	65	59	0	0	4
Future Volume (vph)	8	65	59	0	0	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>					0.865	
Fl <sub>t</sub> Protected		0.995				
Satd. Flow (prot)	0	1874	1883	0	1629	0
Fl <sub>t</sub> Permitted		0.995				
Satd. Flow (perm)	0	1874	1883	0	1629	0
Link Speed (k/h)		48	48		50	
Link Distance (m)		156.0	175.3		326.7	
Travel Time (s)		11.7	13.1		23.5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	8	68	62	0	0	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	76	62	0	4	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	20.1% ICU Level of Service A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis  
 14: Thompson Road & Street I

Future Total 2035  
 PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	8	65	59	0	0	4
Future Volume (Veh/h)	8	65	59	0	0	4
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	8	68	62	0	0	4
<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	62				146	62
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	62				146	62
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				100	100
cM capacity (veh/h)	1541				842	1003
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>SB 1</b>			
Volume Total	76	62	4			
Volume Left	8	0	0			
Volume Right	0	0	4			
cSH	1541	1700	1003			
Volume to Capacity	0.01	0.04	0.00			
Queue Length 95th (m)	0.1	0.0	0.1			
Control Delay (s)	0.8	0.0	8.6			
Lane LOS	A		A			
Approach Delay (s)	0.8	0.0	8.6			
Approach LOS			A			
<b>Intersection Summary</b>						
Average Delay			0.7			
Intersection Capacity Utilization		20.1%		ICU Level of Service		A
Analysis Period (min)			15			



Lanes, Volumes, Timings  
15: Thompson Road & Street A

Future Total 2035  
PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↩	↩		↩	
Traffic Volume (vph)	27	36	46	0	0	12
Future Volume (vph)	27	36	46	0	0	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
Fr <sub>t</sub>					0.865	
Fl <sub>t</sub> Protected		0.979				
Satd. Flow (prot)	0	1844	1883	0	1629	0
Fl <sub>t</sub> Permitted		0.979				
Satd. Flow (perm)	0	1844	1883	0	1629	0
Link Speed (k/h)		48	48		50	
Link Distance (m)		175.3	250.1		326.2	
Travel Time (s)		13.1	18.8		23.5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	28	38	48	0	0	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	66	48	0	13	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		1.6	1.6		1.6	
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	20.1%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis  
 15: Thompson Road & Street A

Future Total 2035  
 PM Peak Hour

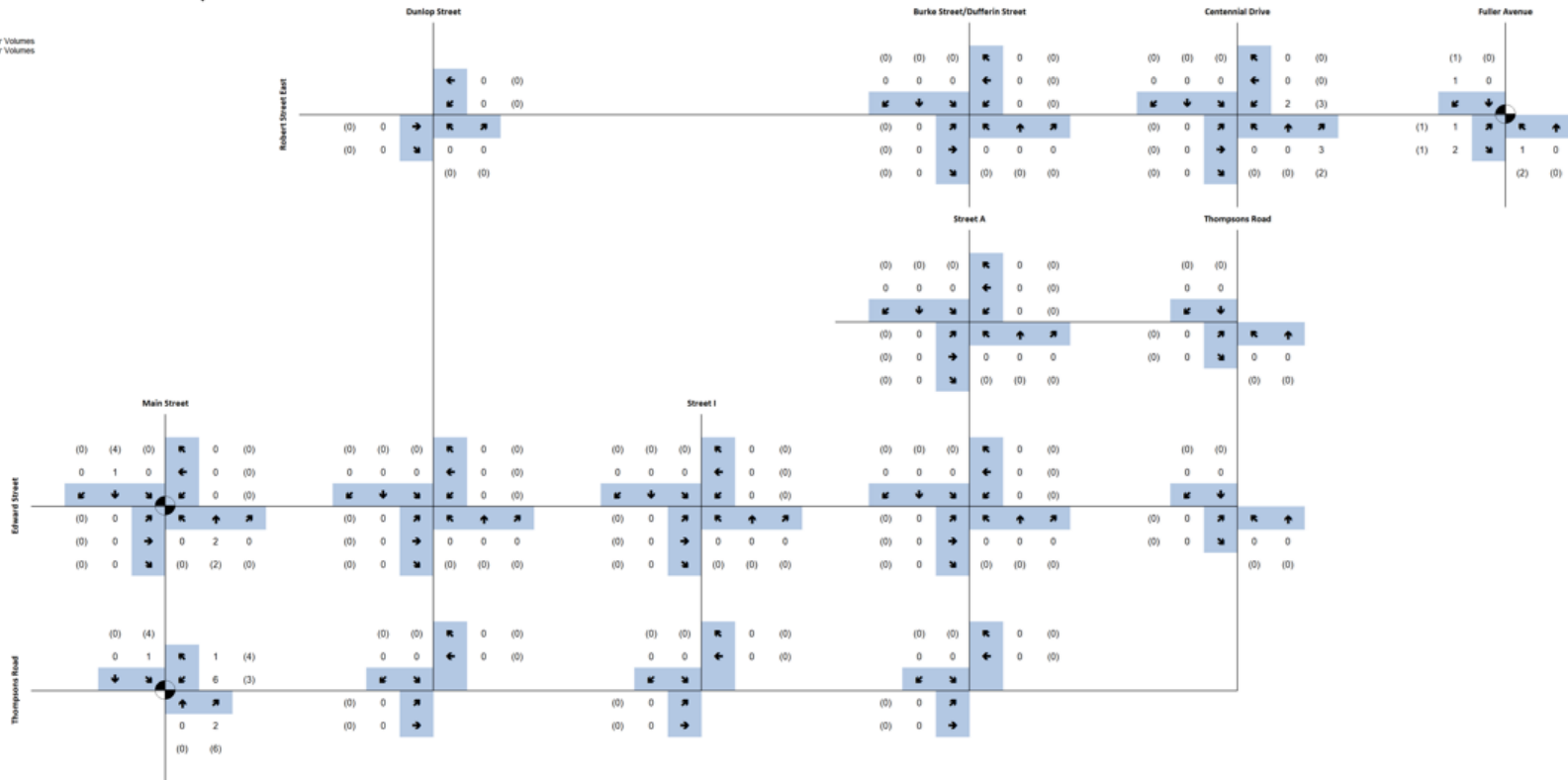


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↩	↩		↩	
Traffic Volume (veh/h)	27	36	46	0	0	12
Future Volume (Veh/h)	27	36	46	0	0	12
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	28	38	48	0	0	13
<b>Pedestrians</b>						
Lane 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	48				142	48
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	48				142	48
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				100	99
cM capacity (veh/h)	1559				835	1021
<b>Direction, Lane #</b>	<b>EB 1</b>	<b>WB 1</b>	<b>SB 1</b>			
Volume Total	66	48	13			
Volume Left	28	0	0			
Volume Right	0	0	13			
cSH	1559	1700	1021			
Volume to Capacity	0.02	0.03	0.01			
Queue Length 95th (m)	0.4	0.0	0.3			
Control Delay (s)	3.2	0.0	8.6			
Lane LOS	A		A			
Approach Delay (s)	3.2	0.0	8.6			
Approach LOS			A			
<b>Intersection Summary</b>						
Average Delay			2.5			
Intersection Capacity Utilization			20.1%	ICU Level of Service	A	
Analysis Period (min)			15			

# **Appendix E**

## **Background Developments**

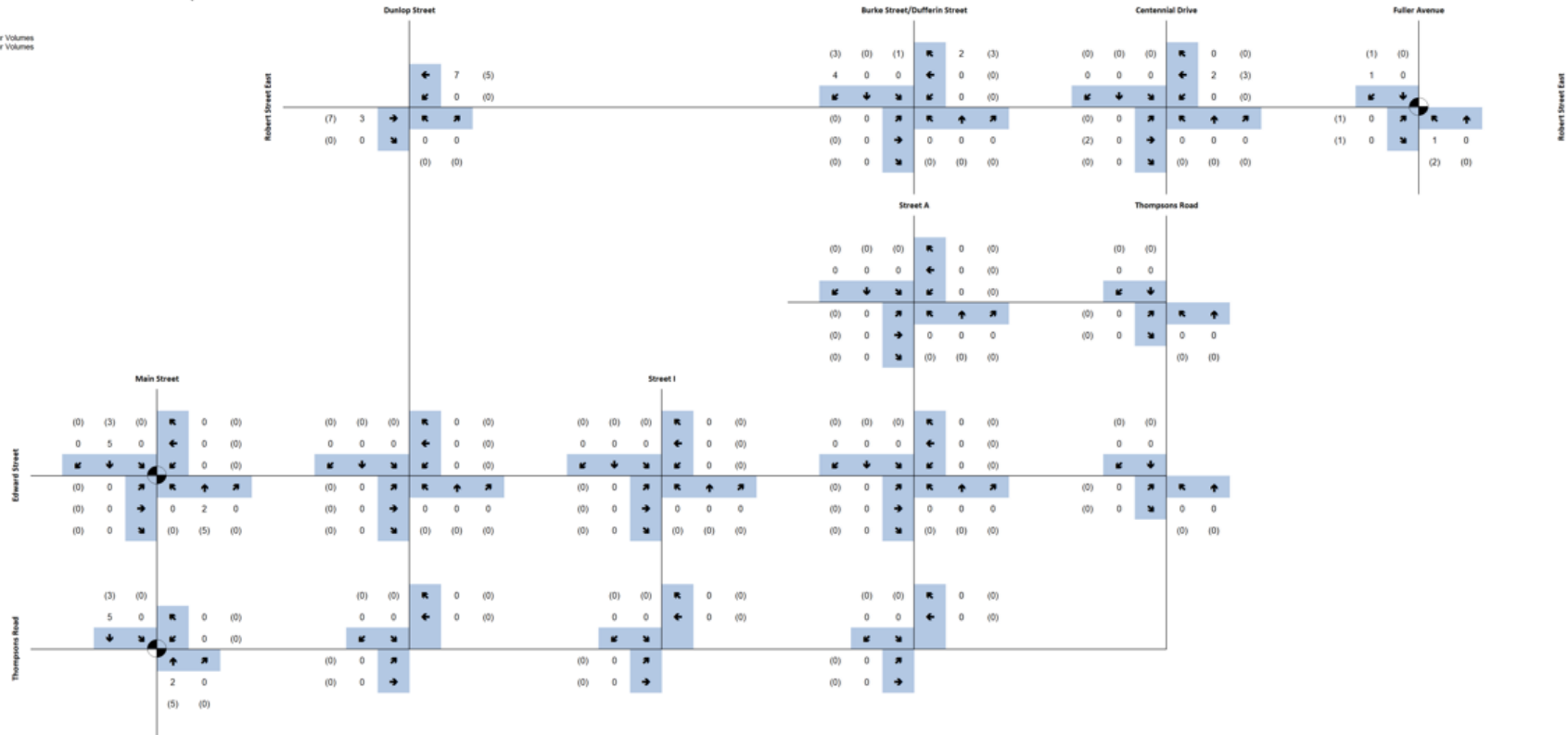
**LEGEND**  
 (X) AM Peak Hour Volumes  
 (XX) PM Peak Hour Volumes  
 Traffic Signal



40 Thompsons Road



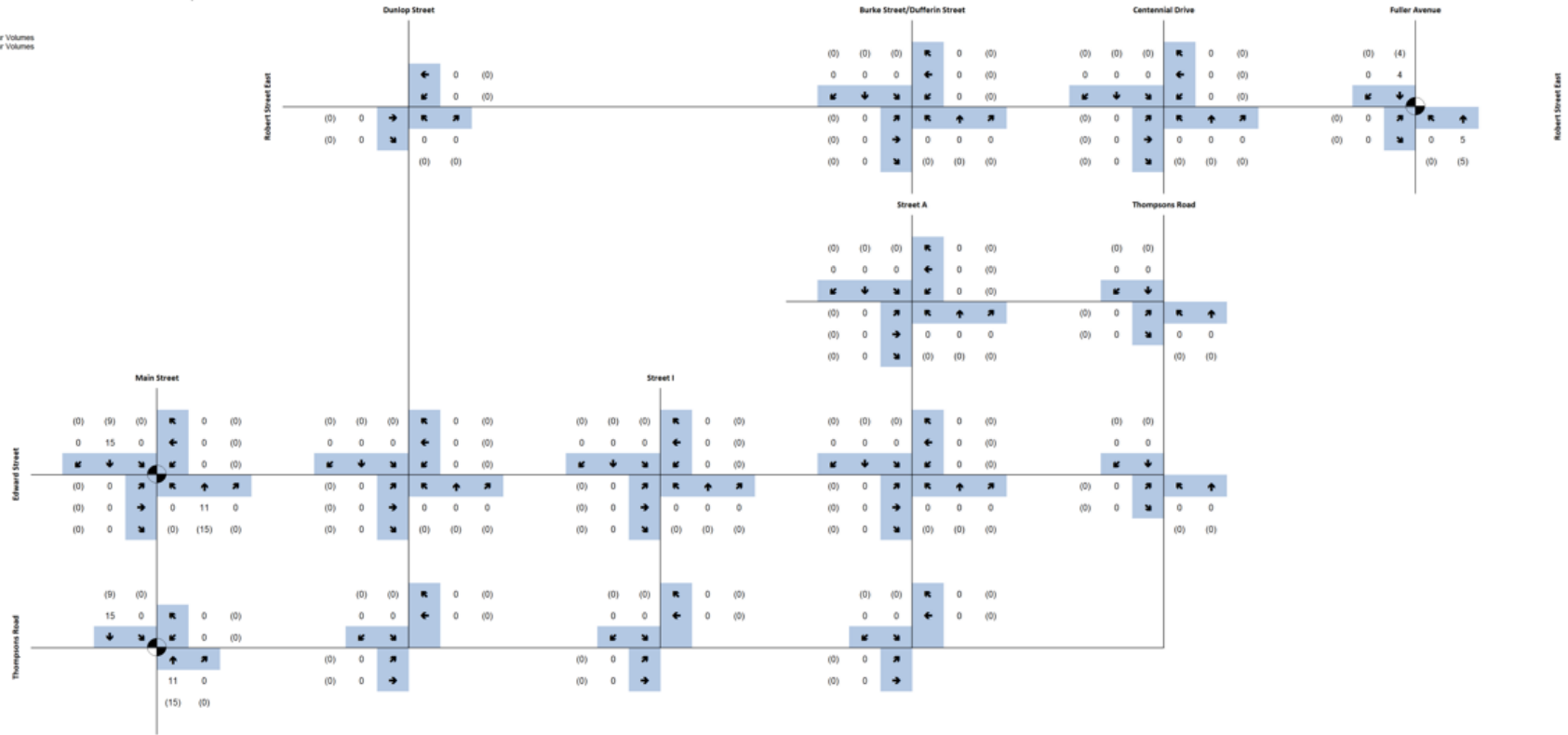
LEGEND  
XX AM Peak Hour Volumes  
(XX) PM Peak Hour Volumes  
Traffic Signal



# 123 Robert Street East



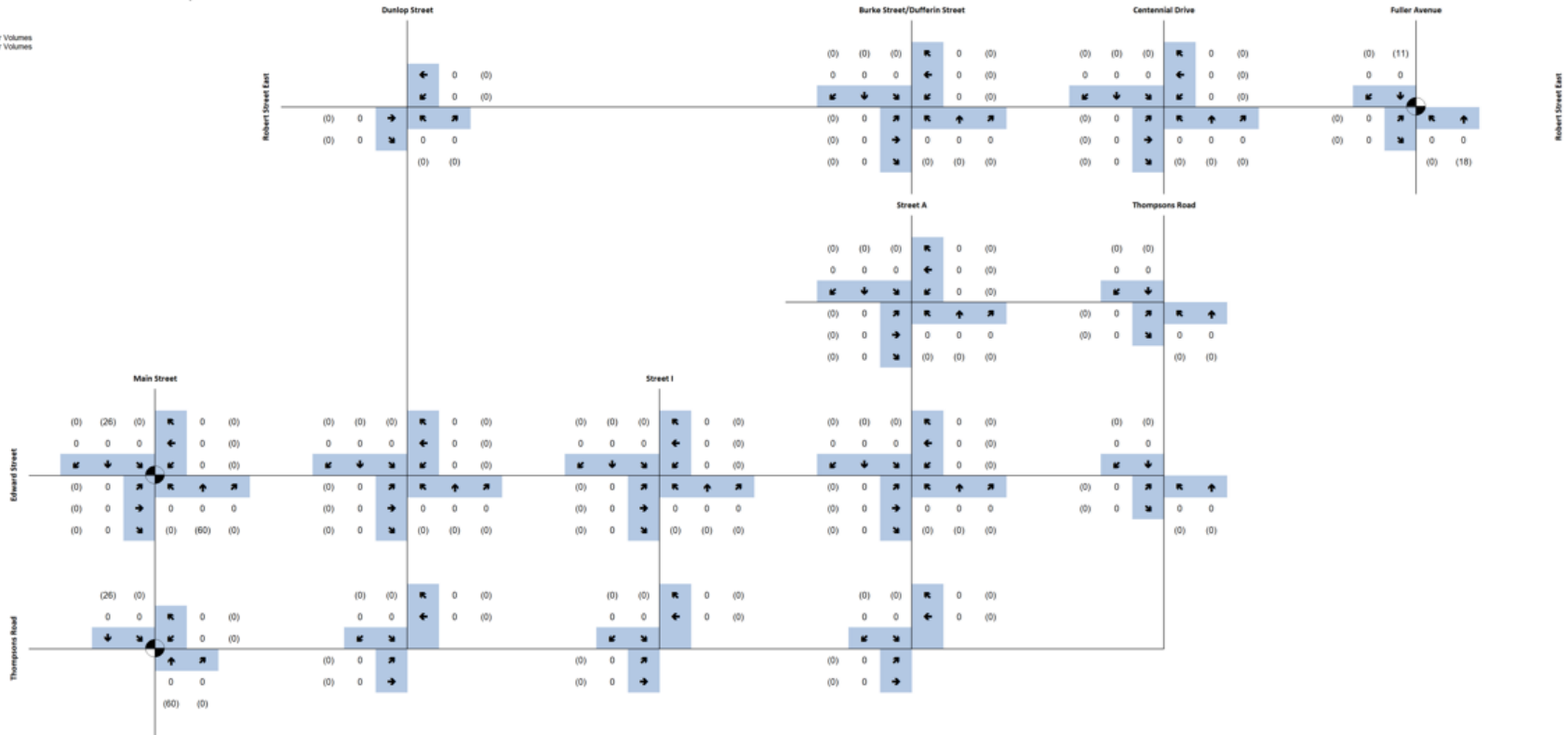
**LEGEND**  
XX AM Peak Hour Volumes  
XX PM Peak Hour Volumes  
Traffic Signal



200 Fox Street



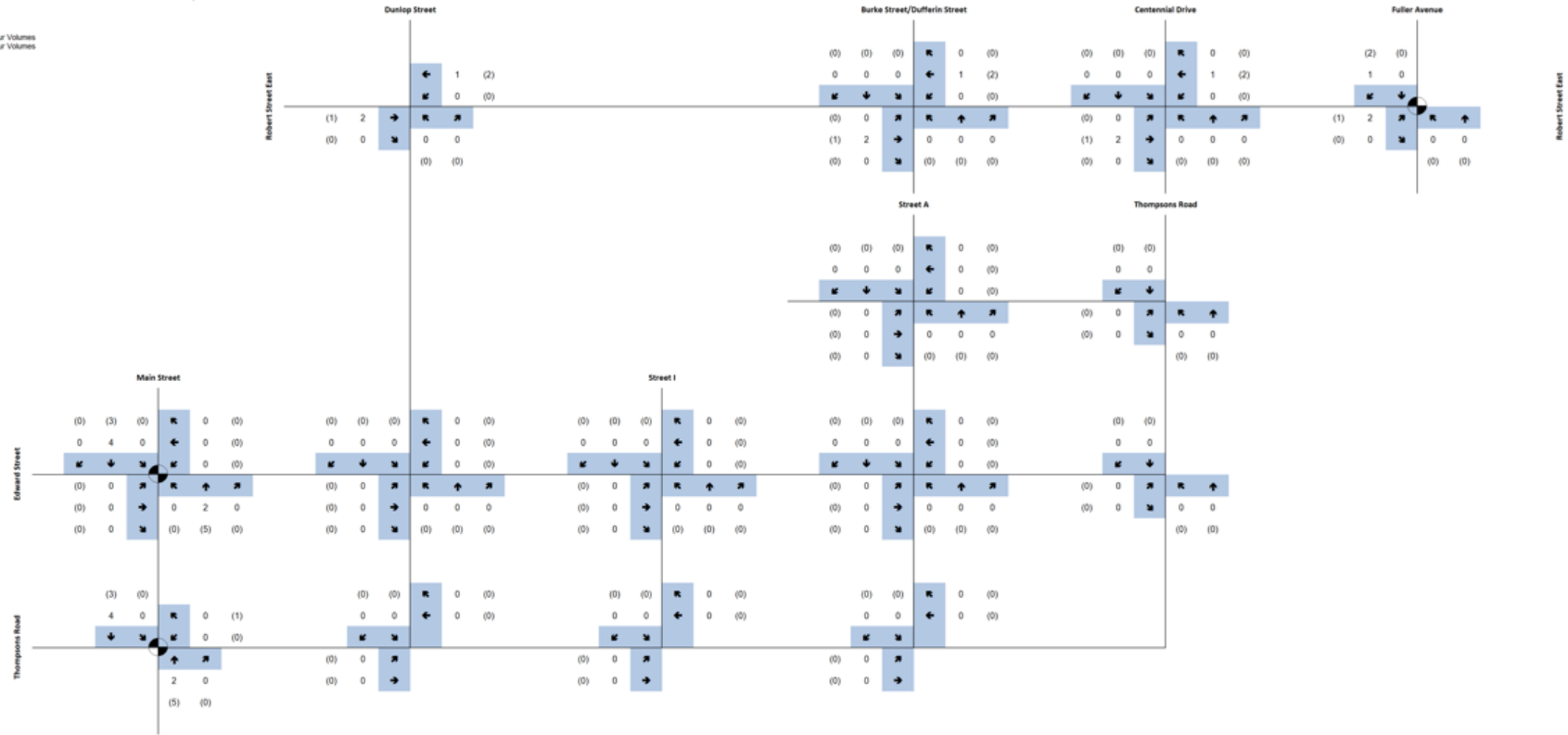
**LEGEND**  
XX AM Peak Hour Volumes  
OO PM Peak Hour Volumes  
Traffic Signal



# 220 Fox Street



LEGEND  
XX AM Peak Hour Volumes  
XX PM Peak Hour Volumes  
Traffic Signal

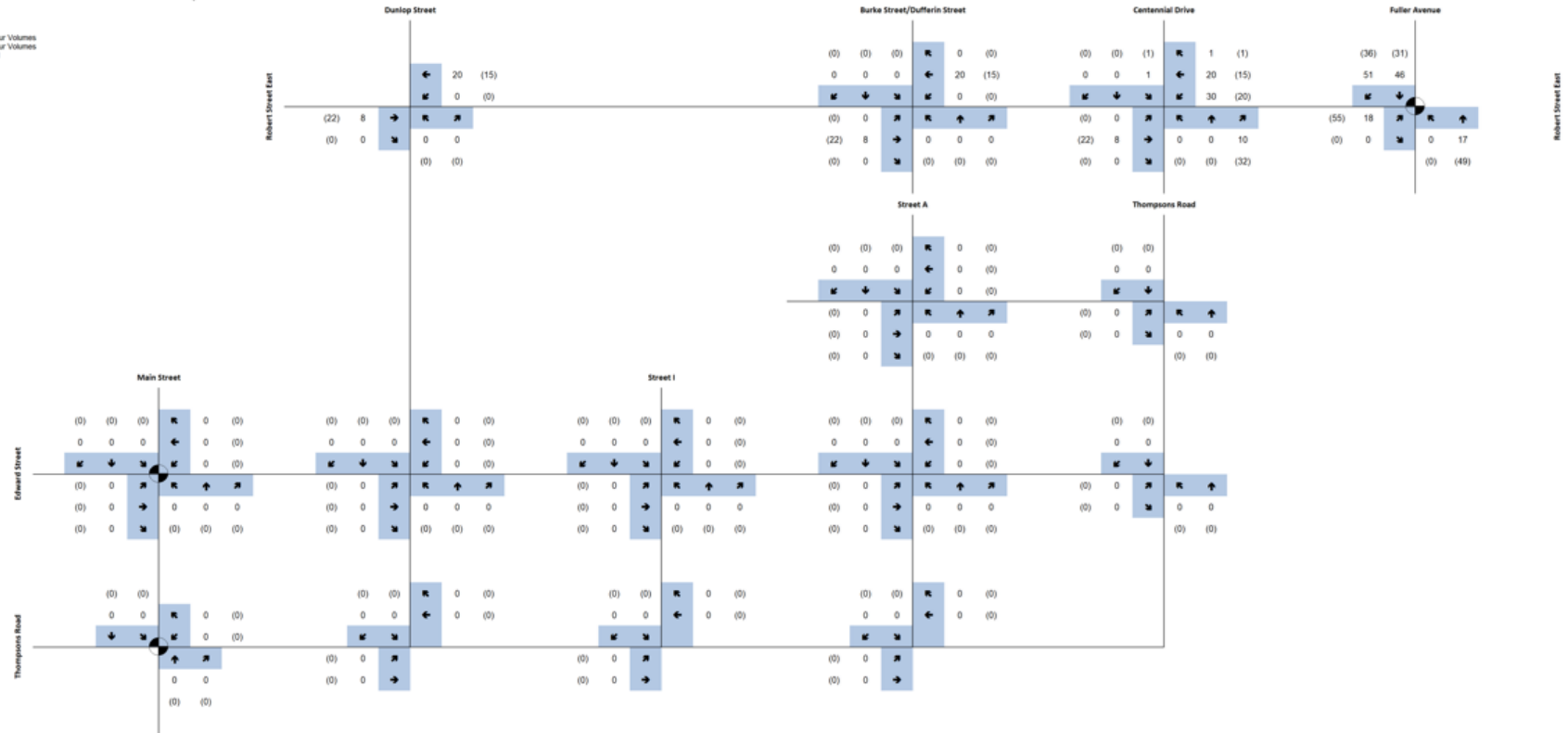


# Harbour Point Subdivision A





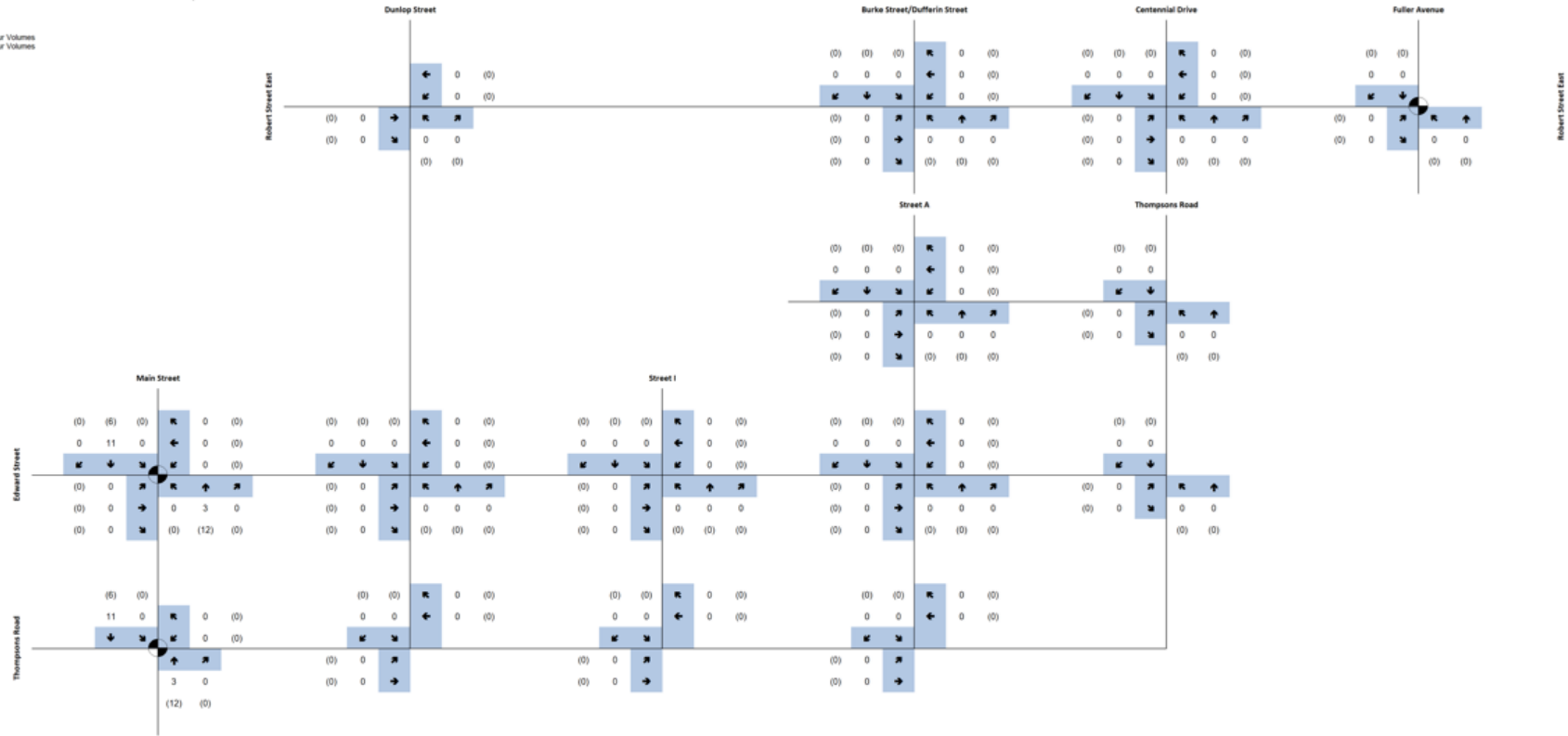
**LEGEND**  
XX AM Peak Hour Volumes  
OO PM Peak Hour Volumes  
Traffic Signal



1145 Fuller Avenue



**LEGEND**  
 XX AM Peak Hour Volumes  
 (XX) PM Peak Hour Volumes  
 Traffic Signal



77 Fox Street

