530 Tremblay Road

Transportation Impact Assessment

Step 1 Screening Report

Step 2 Scoping Report

Step 3 Forecasting Report

Step 4 Analysis Report

Prepared for:

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November 2019

PN: 2018-67

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1 Screening

This study has been prepared according to the City of Ottawa's 2017 Transportation Impact Assessment (TIA) Guidelines. Accordingly, a Step 1 Screening Form has been prepared and is included as Appendix A, along with the Certification Form for TIA Study PM. As shown in the Screening Form, a TIA is required including the Design Review component and the Network Impact Component.

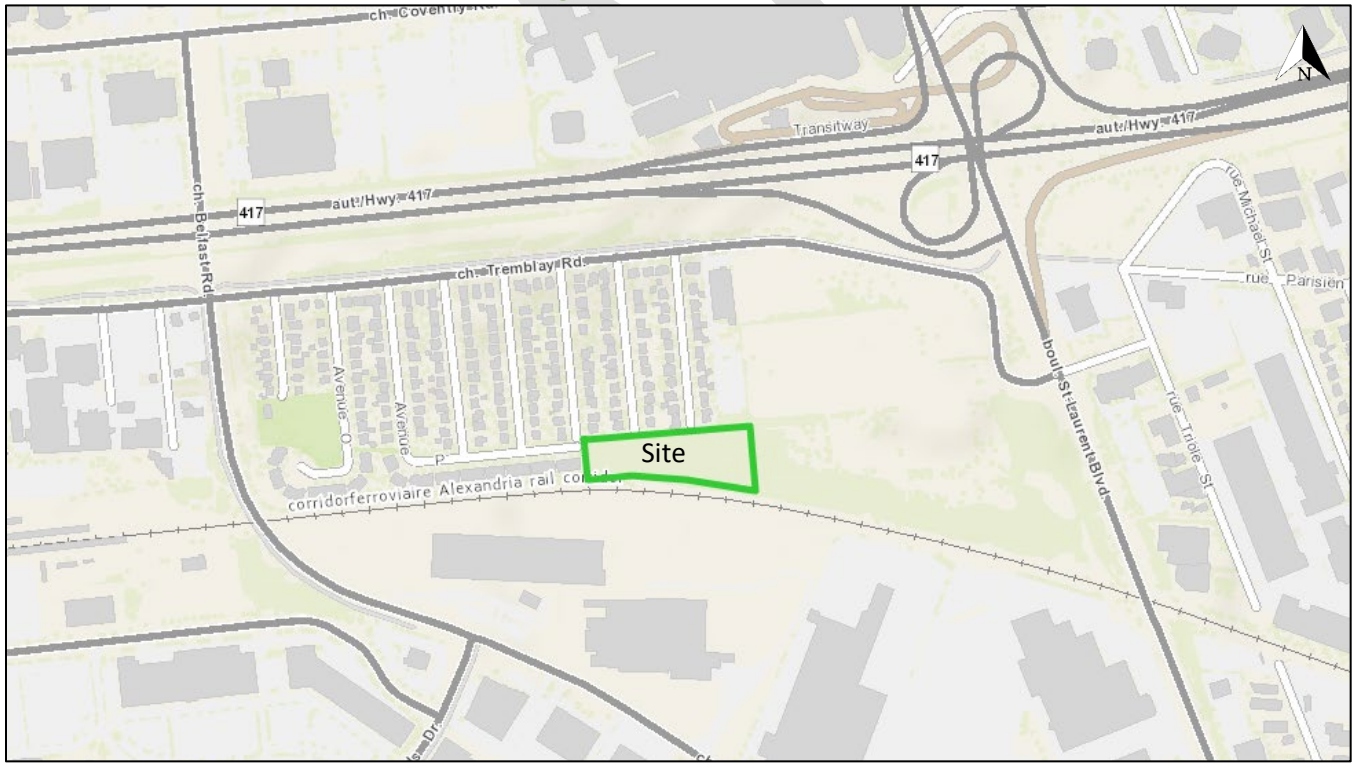
2 Existing and Planned Conditions

2.1 Proposed Development

The proposed development located at 530 Tremblay Road is currently an undeveloped parcel. The proposed development is within 400 metres of the St. Laurent LRT Station and, as such, is zoned as a Transit Oriented Development Zone (TD1).

The proposed development is an apartment complex divided into two buildings (Building A & Building B). Building A is five storeys and contains 54 apartment units. Building B is six storeys and contains 70 apartment units. Sixty-six underground parking spaces and an additional 58 surface-level parking spaces are planned. Twelve surface-level visitor parking spaces are anticipated as well. The anticipated full build-out and occupancy horizon is 2021. Figure 1 illustrates the Study Area Context. Figure 2 illustrates the site plan.

Figure 1: Area Context Plan

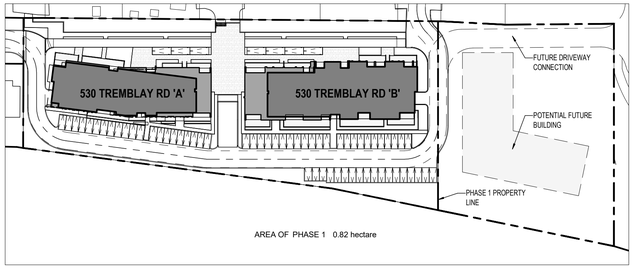


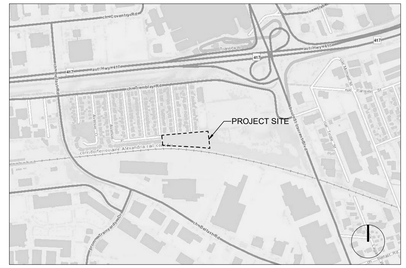
Site & Project Statistics	
Zoning By-Law	TD1 (Transit Oriented Development Zone)
Lot Width:	60m
Lot Area:	1.27 hectares
Lot Area Under this Application	0.82 hectares
Number of Dwelling Units:	124 units 54 - Building 'A' 70 - Building 'B'

Zoning Mechanism	Requirement	Proposed
Min. Front Yard Setback	3m	15m
Min. Interior Side Yard	3m	10m - West & 7.2m - East
Min. Rear Yard Setback	No Minimum	15m
Max. Building Height	20m *In excess of 15m from a property line abutting an R1, R2, or R3 Zone*	16.54m - Building 'A' 19.52m - Building 'B'
Minimum Separation distance between buildings	3m *Higher than 14.5m*	11.9m

Ground Floor Amenity Area		163.96m2 *2% of the total lot area must be provided as outdoor communal space located at grade anywhere on the lot and such area can also be used towards complying with any amenity area requirements*	1091.7m2
Minimum Density		123 units *150 units / hectare*	124 units
Vehicle Parking	Resident Parking	0	124 spaces *66 - Below Grade*
	Visitor Parking	12 spaces *0.1 per dwelling unit (no visitor parking spaces required for the first 12 dwelling units). Maximum requirement per building: 30 spaces*	12 spaces
	Total Parking	12 spaces	136 spaces
Bicycle Parking		Building 'A' 27 spaces Building 'B' 35 spaces *0.5 per dwelling unit* Total required: 62	67 spaces

Amenity Area	Total Amenity Area Building 'A'	324m2 *6m2 per dwelling unit*	1283.17m2
	Communal Amenity Building 'A'	162m2 *A minimum of 50% of the required total amenity area*	852.39m2 545.9m2 - at Grade Area 153.44m2 - Interior Amenity 153.05m2 - Roof Top Amenity
	Total Amenity Area Building 'B'	420m2 *6m2 per dwelling unit*	1626.95m2
	Communal Amenity Building 'B'	162m2 *A minimum of 50% of the required total amenity area*	851.3m2 545.9m2 - at Grade Area 165.7m2 - Interior Amenity 139.7m2 - Roof Top Amenity





ZONING INFORMATION
SCALE: N.T.S.

CONTEXT PLAN
3 / SP-01
SCALE: 1 : 1000

LOCATION PLAN
SCALE: N.T.S.

SURVEY INFO
SCALE: NTS

TOPOGRAPHIC PLAN OF SURVEY OF
PART OF LOTS 4, 5 & 6
BLOCK 1
REGISTERED PLAN 29
FORMERLY CITY OF VANIER
CITY OF OTTAWA

FAIRHILL, MOFFATT & WOODLAND LTD. 2018

Scale 1:250
12 9 6 3 0 6 12 Meters

SITE PLAN SYMBOLS LEGEND

- BUILDING ENTRANCE
- BUILDING EXIT
- FIRE HYDRANT
- NEW STREET LIGHT
- STREET LIGHT TO BE REMOVED
- BICYCLE PARKING
- SIAMESE CONNECTION

SYMBOLS LEGEND
SCALE: NTS

1. CONCRETE MULTI-USE PATHWAY
2. INTERLOCKED CONCRETE PAVERS
3. SOFT LANDSCAPING
4. COLLAPSIBLE BOLLARDS
5. TINTED CONCRETE
6. CONCRETE SIDEWALK
7. ASPHALT PAVING

KEYNOTE LEGEND
SCALE: N.T.S.

SITE PLAN
1 / SP-01
SCALE: 1 : 250

GENERAL ARCHITECTURAL NOTES:
1. This drawing is the property of the Architect and may not be reproduced or used without the expressed consent of the Architect.
2. Drawings are not to be scaled. The Contractor is responsible for checking and verifying all levels and dimensions and shall report all discrepancies to the Architect and obtain clarification prior to commencing work.
3. Upon notice in writing, the Architect will provide written/graphic clarification or supplementary information regarding the intent of the Contract Documents.
4. The Architectural drawings are to be read in conjuction with all other Contract Documents including Project Manuals and the Structural, Mechanical and Electrical Drawings.
5. Positions of exposed or finished Mechanical or Electrical devices, fittings and fixtures are indicated on the Architectural Drawings. Locations shown on the Architectural Drawings shall govern over Mechanical and Electrical Drawings. Mechanical and Electrical items not clearly located will be located as directed by the Architect.
6. These documents are not to be used for construction unless specifically noted for such purpose.

CLV GROUP DEVELOPMENTS

2019-10-25

2	ISSUED FOR SITE PLAN CONTROL	19-10-25
1	ISSUED FOR COORDINATION	19-08-30

ISSUE RECORD

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530 TREMBLAY
BUILDINGS 'A' & 'B'

530 Tremblay road
Ottawa, ON

PROJ	SCALE	DRAWN	REVIEWED
1906	NOTED	JDL	RMK

SITE PLAN

SP-01

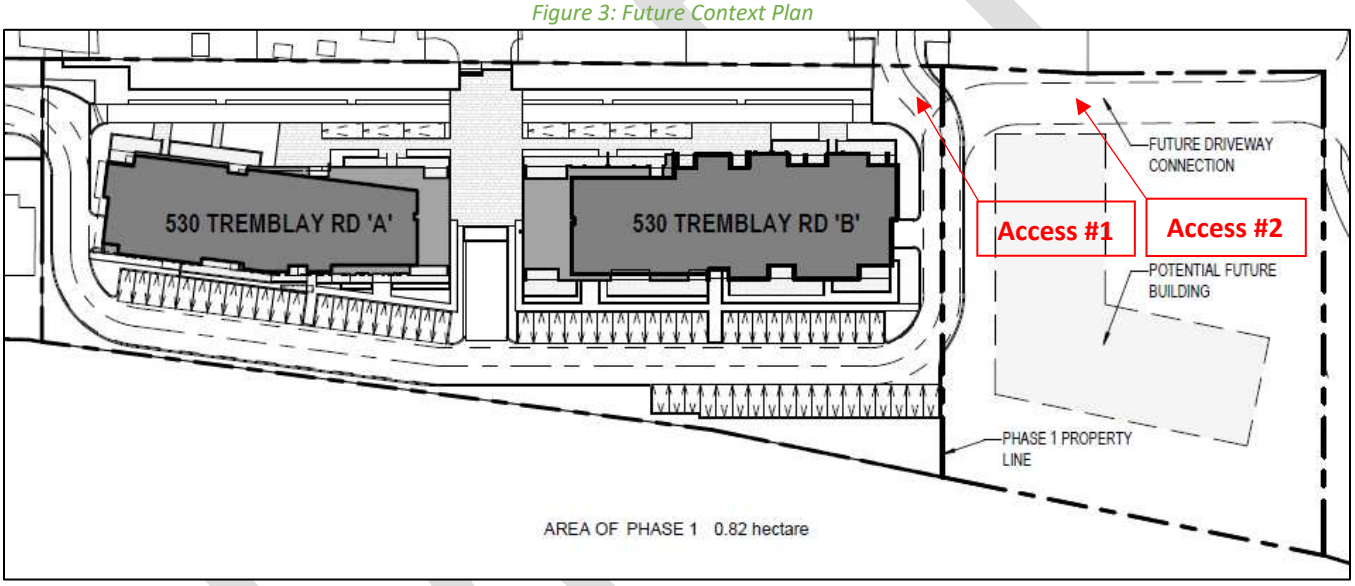
2.1.1 Proposed Development Site Accesses

The site is proposed to have one full movement access; however, the access configuration is anticipated to change as the area surrounding the development proceeds. Additionally, an emergency vehicle access regulated by collapsible bollards is to be provided on Avenue P during all horizons.

The first access (Access #1) will connect the proposed development to Avenue U and will serve as the only site access at the time of the 2021 horizon. As Access #1 is a temporary condition, once the second access is completed Access #1 will be closed and controlled by collapsible bollards in order to provide emergency vehicle access only. Site Access #1 can be seen in Figure 3.

The timing of the second access (Access #2) is currently unknown as it is dependent on the development of an adjacent property and will also pass through a CLV property with an unknown development timeline. It is assumed that it will be in use by the 2026 future horizon and will serve as the only site access at that time. Upon completion of Access #2, Access #1 will be closed and controlled by collapsible bollards in order to provide emergency vehicle access only. Access #2 will connect the proposed development to St. Laurent Boulevard via the realigned Tremblay Road. Site Access #2 can be seen in Figure 3

Figure 3: Future Context Plan



2.2 Existing Conditions

2.2.1 Area Road Network

Tremblay Road: Tremblay Road is a City of Ottawa major collector road with a two-lane cross-section to the east of Pickering Place, a four-lane cross-section to the west of Pickering Place and a posted speed limit of 50 km/h. To the west of the VIA Rail driveway there are no sidewalks, however to the east there are sidewalks on both sides of Tremblay Road until Pickering Place where the northern sidewalk becomes a pedestrian asphalt pathway. Tremblay Road has curbs and gutters to the west of Avenue Q. Between Avenue Q and Avenue U, the north side of the road has a gravel shoulder and south side has a curb and gutter. To the east of Avenue U, both sides of Tremblay Road have curbs and gutters. The existing right-of-way is 26.0 metres and is a designated trucking route.

St. Laurent Boulevard: St. Laurent Boulevard is a City of Ottawa arterial road with a six-lane cross-section to the north of Tremblay Road and a four-lane cross-section to the south of Tremblay Road. St. Laurent Boulevard has a

posted speed limit of 60 km/h to the north of Tremblay Avenue and 70 km/h to the south. There are sidewalks and curbs and gutters on both sides. The existing right-of-way is 44.5 metres and is a designated trucking route.

Avenue U: Avenue U is a local road with a two-lane cross-section and an unposted speed-limit of 50 km/h. Avenue U has no sidewalks and has grass shoulders on both sides. This road currently ends in a dead-end at the subject site. The measured right-of-way is 15.0 metres.

Belfast Road: Belfast Road is a City of Ottawa collector road with a two-lane cross-section and has an unposted speed-limit of 50 km/h. The presence of sidewalks and curbs and gutters changes many times along Belfast Road within the Study Area. The measured existing right-of-way between Coventry Road and St. Laurent Boulevard varies between 75.0 metres and 25.0 metres and is a designated trucking route.

Trainyards Drive: Trainyards Drive is a collector road with a two-lane cross-section, bike lanes on both sides and an unposted speed limit of 50 km/h. There is a sidewalk on the east side and a pedestrian asphalt pathway on the west side. Trainyards Drive has curbs and gutters. The existing right-of-way is 30.0 metres and is a designated trucking route from Terminal Avenue to Belfast Road.

2.2.2 Existing Intersections

A description and accompanying aerial photograph of the existing intersections within the Study Area can be found below.

Avenue U / Tremblay Road

The intersection at Avenue U / Tremblay Road is an unsignalized intersection. The northbound movement on Avenue U is a stop-controlled shared left-turn/right-turn lane. The eastbound movement is a shared through/right-turn lane and the westbound movement is a shared through/left-turn lane.

St. Laurent Boulevard / Tremblay Road

The intersection at St. Laurent Boulevard / Tremblay Road is a signalized intersection. The northbound and southbound approaches both consist of one auxiliary left-turn lane, two through-lanes and one auxiliary right-turn lane. Both eastbound and westbound movements consist of auxiliary left-turn lanes and a shared through/right-turn lane. No turn restrictions were noted.

Belfast Road / Tremblay Road

The intersection at Belfast Road / Tremblay Road is a signalized intersection. All approaches consist of an auxiliary left-turn lane and a shared through/right-turn lane. No turn restrictions were noted.

Belfast Road / Trainyards Drive

The intersection at Belfast Road / Trainyards Drive is a signalized T-intersection. The northbound approach consists of two left-turn lanes, one right-turn lane and one bike lane. The westbound approach consists of two through-lanes and one auxiliary left-turn lane. The eastbound approach consists of one through-lane, one auxiliary right-turn lane and one bike lane. No turn restrictions were noted.

2.2.3 Existing Driveways

Within 200 metres of the proposed site accesses, there are residential driveways along Avenue U. None of the driveways would provide access to significant traffic generators and have no impact on this TIA.

2.2.4 Cycling and Pedestrian Facilities

A combination of sidewalks and multi-use paths are provided along both sides of St. Laurent Boulevard, Tremblay Road and Trainyards Drive in the Study Area. Sidewalks are generally provided on one side of Belfast Road within the Study Area. The cycling network consists of pathways along Tremblay Road and a segment of Belfast Road

between Tremblay Road and Trainyards Drive. South of Trainyards Drive, Belfast Road has a paved shoulder. Trainyards Drive has bike lanes, a path and a proposed future major pathway. A suggested route along Tremblay Road exists to the east of Belfast Road and a future spine route is located along St. Laurent Boulevard. A proposed pathway link exists between Avenue P and a major pathway along the Transitway as well as to the future spine route along St. Laurent Boulevard. Figure 3 illustrates the pedestrian facilities in the Study Area and Figure 4 illustrates the cycling facilities.

Figure 4: Study Area Pedestrian Facilities

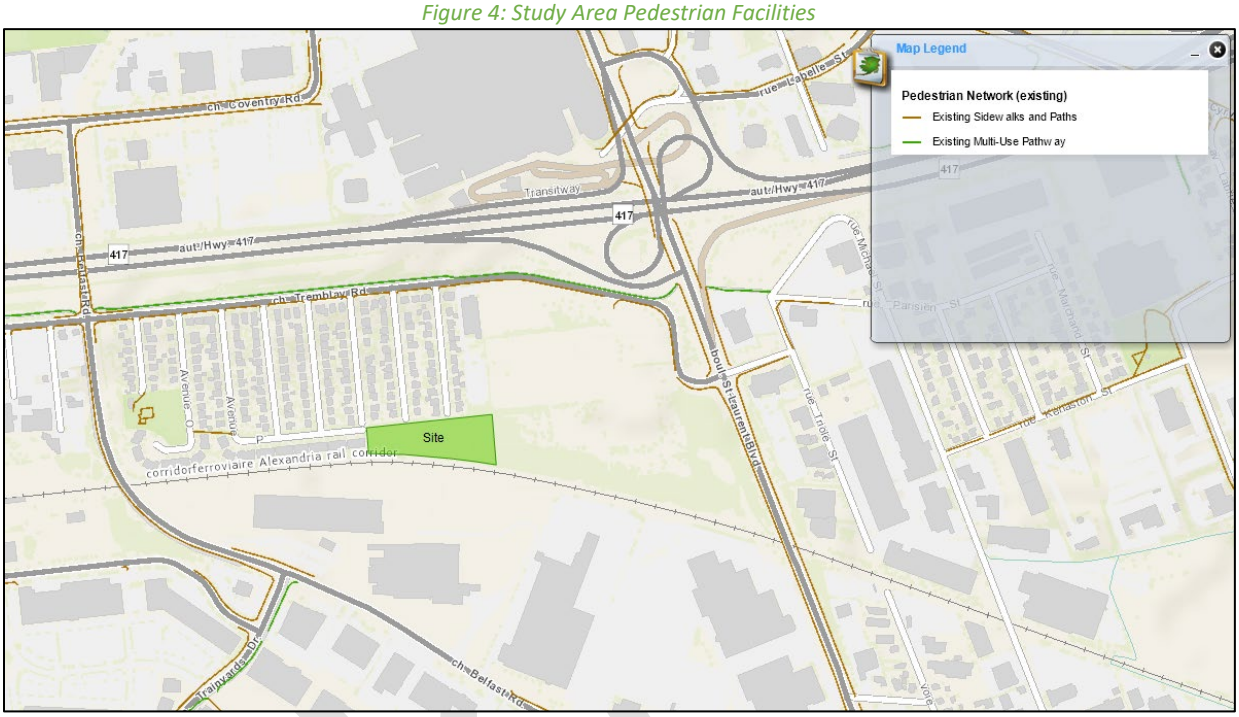
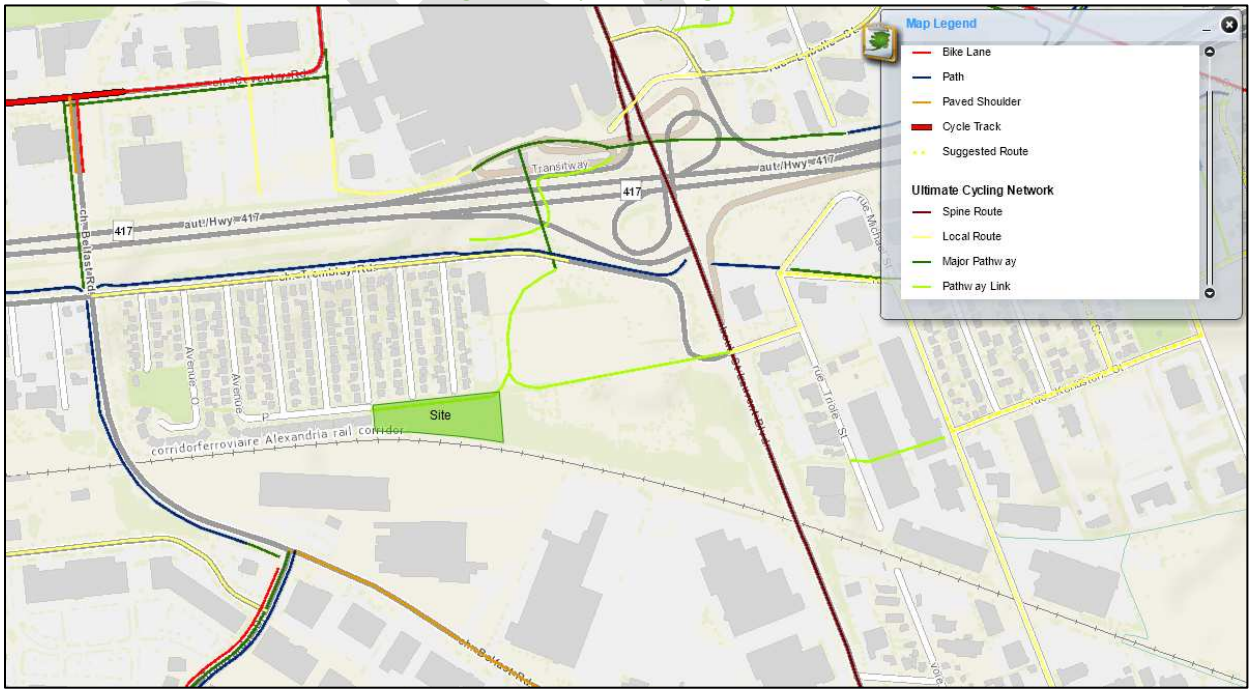
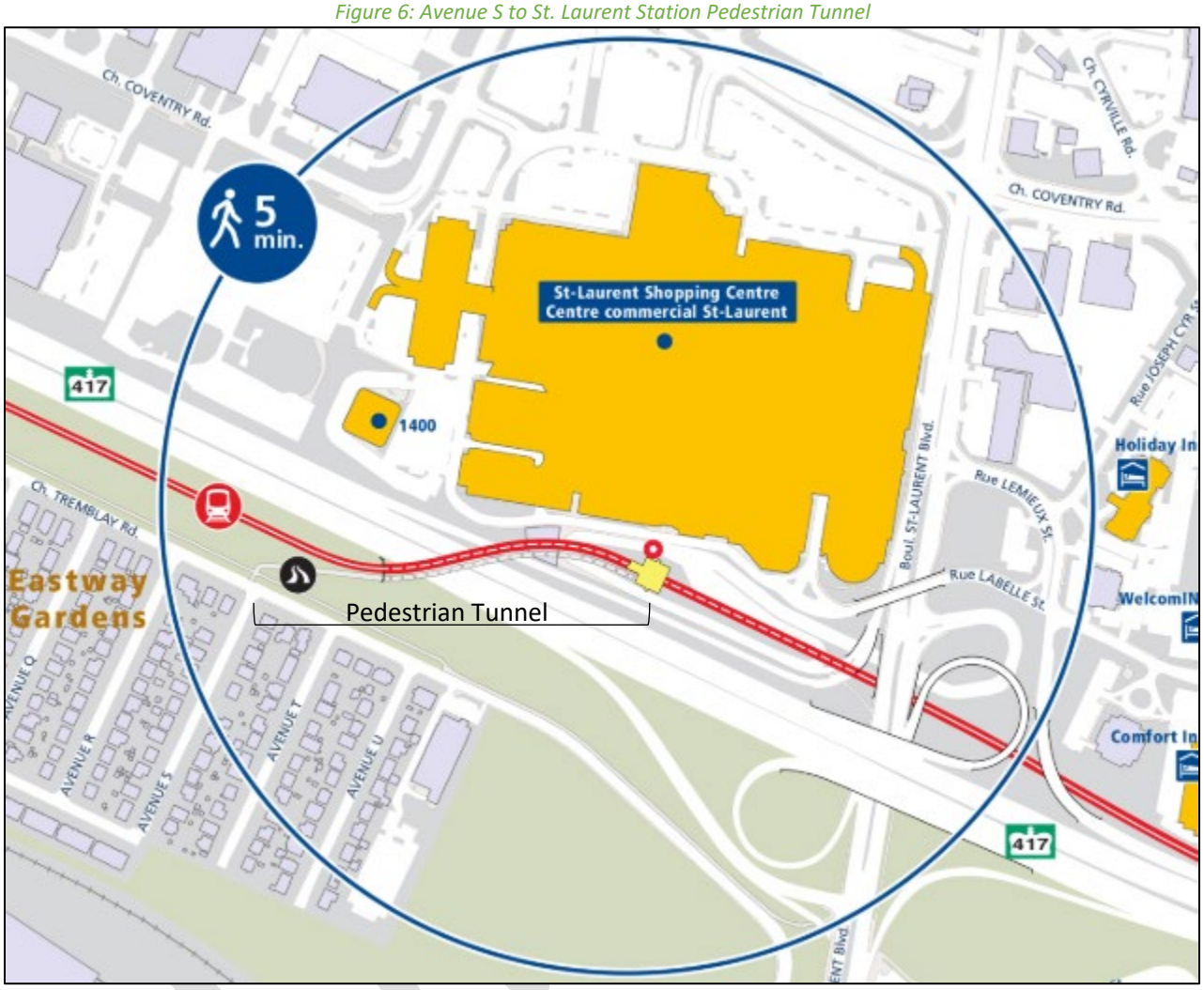


Figure 5: Study Area Cycling Facilities



Additionally, an existing pedestrian tunnel (not shown in Figure 4) underneath Highway 417 connects the Eastway Garden community at Avenue S to the St. Laurent station and St. Laurent Shopping Centre. This pathway is shown in Figure 6 in the OC Transpo St. Laurent station map.

Figure 6: Avenue S to St. Laurent Station Pedestrian Tunnel



2.2.5 Existing Transit

Within the Study Area, Routes #18, and 39 share eight stops along Tremblay Road from Belfast Road to St. Laurent Boulevard. To the east of the Tremblay Road and St. Laurent Boulevard intersection, is a stop for Route #47. Routes #18, 39, and 40, share two stops to the north of the Tremblay Road and St. Laurent Boulevard intersection. Additionally, Route #47 is present at the stop on the east of St. Laurent Boulevard. Routes #39 and 42 share one stop on Trainyards Drive south of Belfast Road. To the east of the Trainyards Drive and Belfast Road intersection two stops for Route # 42 are present.

- Route #18 – every 15 minutes in the peak direction and 30 minutes in the off-peak direction, off-peak times and Sundays. There is no Saturday service.
- Route #39 – every 30 minutes from 3:30 AM to 6:30 AM.
- Route #40 – every 5-15 minutes in the AM and PM weekday peak hours, 15 minutes in the weekend peak hours and 30 minutes in the off-peak times.

- Route #42 – every 15-30 minutes in the peak direction and 30 minutes in the off-peak direction, off-peak times and weekends.
- Route #47 – every 15-30 minutes in the peak direction during the corresponding weekday peak hours.

Additionally, the St. Laurent station is located approximately 400m northeast from the development site and the VIA train station is located 850 metres to the west of the development site. Figure 7 illustrates the transit system map and summarizes the route information for St. Laurent Station. Figure 8 illustrates the transit stops in the Study Area.

Figure 7: Existing Study Area Transit Service

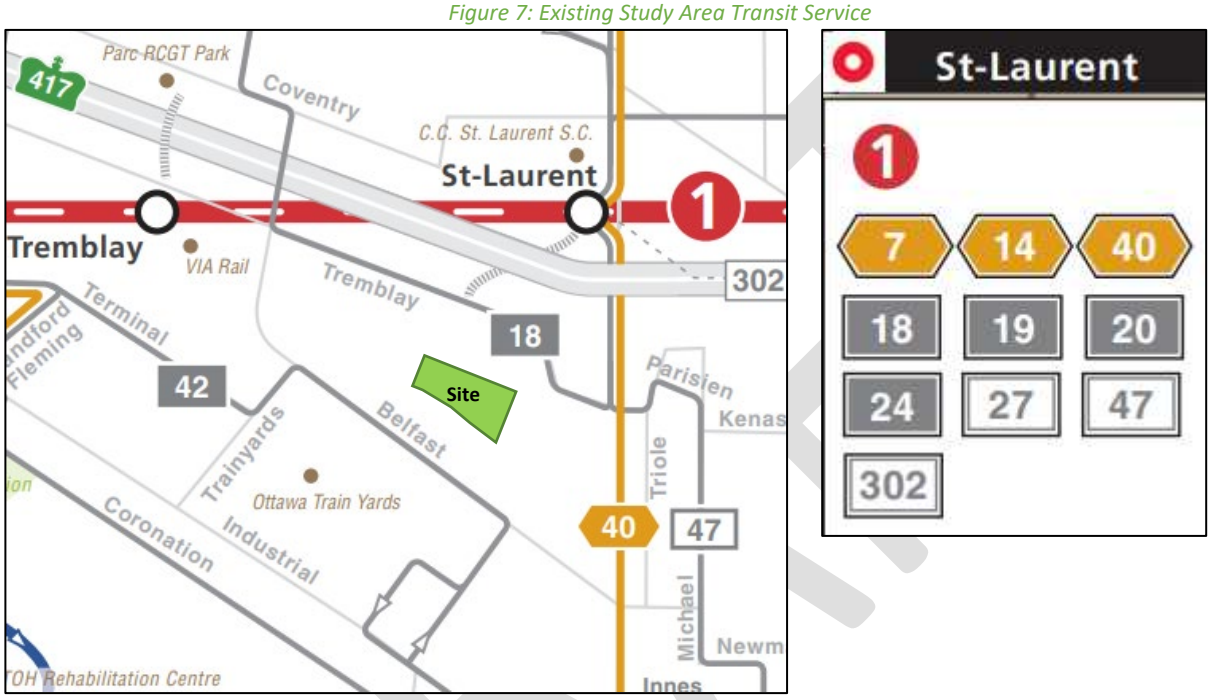
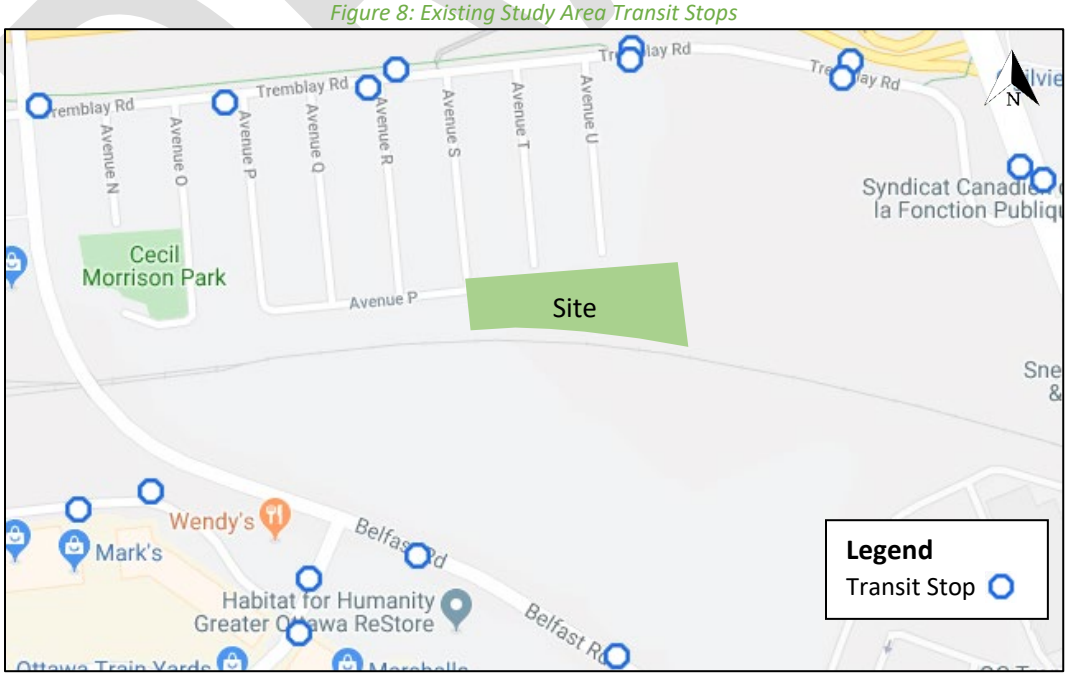


Figure 8: Existing Study Area Transit Stops



2.2.6 Existing Area Traffic Management Measures

As part of the 2013 Ottawa Pedestrian Plan, sidewalks have been built on the east side of St. Laurent Road between Tremblay Road and Belfast Road as part of the overall plan to encourage more sustainable modes of transportation in the area.

2.2.7 Existing Peak Hour Travel Demand

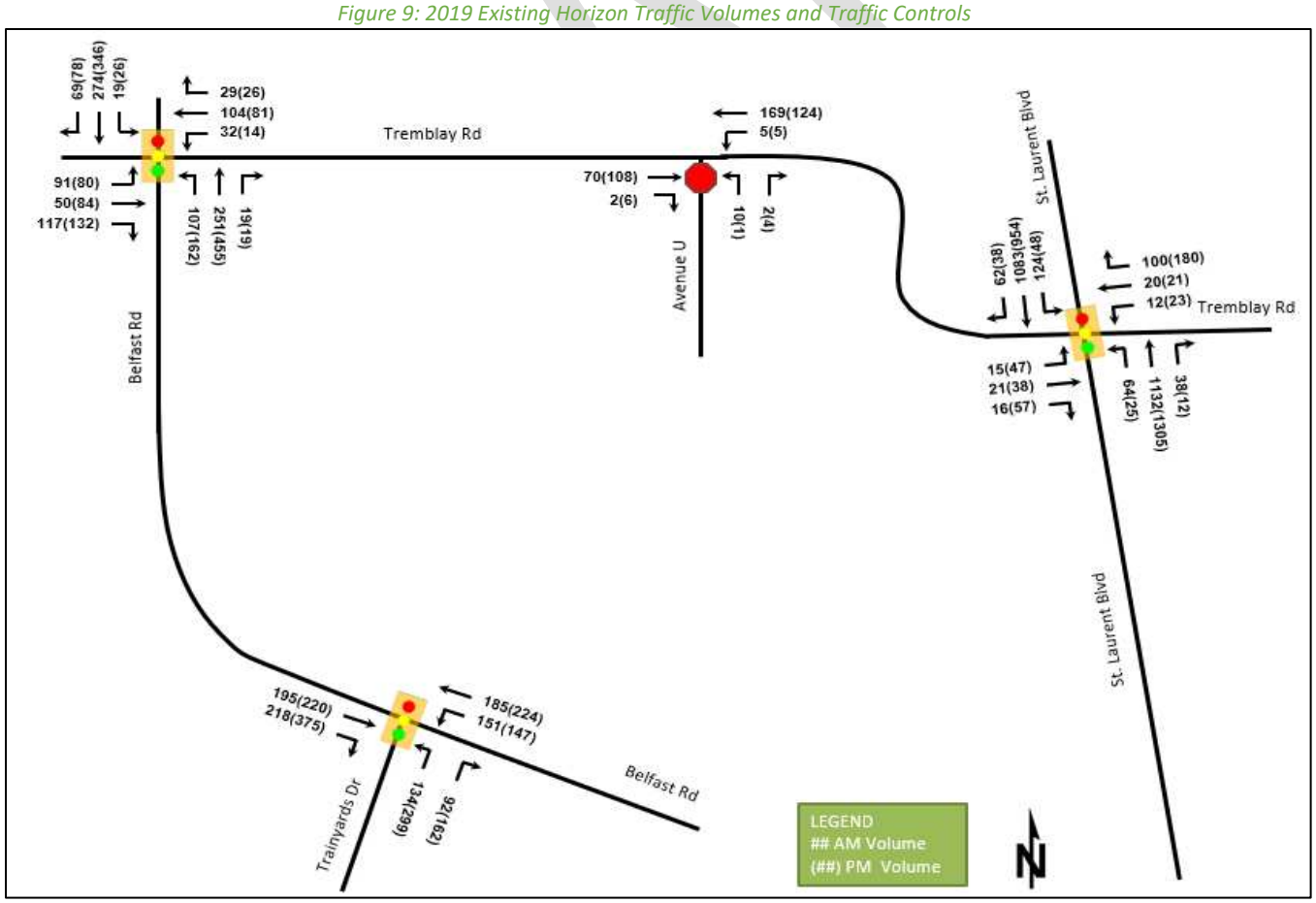
Existing turning movement counts were acquired from the City of Ottawa and Traffic Specialists for the existing Study Area intersections. Table 1 summarizes the intersection count dates and data sources.

Table 1: Intersection Count Date

Intersection	Count Date	Data Source
Belfast Road and Tremblay Road	Tuesday, November 8, 2016	City of Ottawa
Belfast Road and Trainyards Drive	Tuesday, June 25, 2019	Traffic Specialists
St. Laurent Boulevard and Tremblay Road	Wednesday, January 30, 2019	City of Ottawa
Avenue U and Tremblay Road	Tuesday, June 25, 2019	Traffic Specialists

Figure 9 illustrates the 2019 existing horizon traffic volumes and existing traffic controls. As shown above, the turning movement count data has been collected over several different years. To reflect a consistent horizon, a 1% background growth rate has been applied to the Study Area intersections used (excluding Avenue U as growth is not expected there) to reflect a 2019 horizon. This growth rate was taken from adjacent transportation studies and was justified through historic traffic counts. Detailed turning movement count data and signal timing plans are included in Appendix B.

Figure 9: 2019 Existing Horizon Traffic Volumes and Traffic Controls



2.2.8 Collision Analysis

Collision data has been acquired from the City of Ottawa for five years (2013-2017) prior to the commencement of this TIA for the surrounding Study Area road network. Specific attention is directed to the four primary intersections within the Study Area that have collisions. Figure 10 illustrates the collisions at the intersections analyzed within the Study Area, and Table 2 summarizes the total collisions for the intersections of interest. Collision data is included in Appendix C.

Figure 10: Study Area Representation of Collision Locations

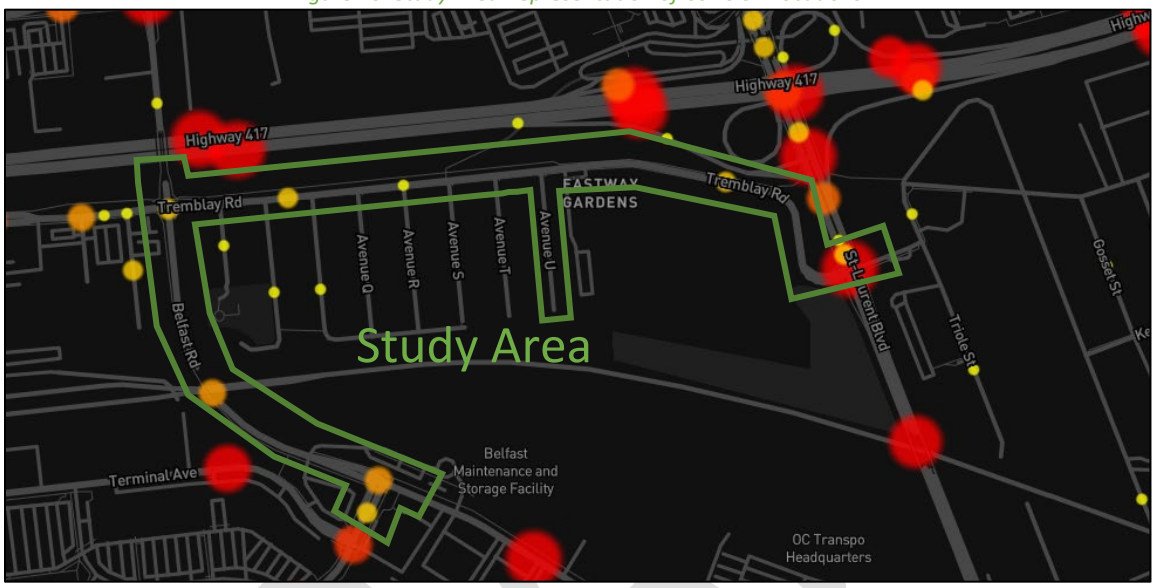


Table 2: Summary of Collision Locations

Intersections	Number	%
	73	**100%**
Belfast Rd @ Trainyards Dr	7	9.60%
Belfast Rd @ Tremblay Rd	12	16.40%
St. Laurent Blvd @ Tremblay Rd	54	74.0%
Avenue U @ Tremblay Rd	0	0.00%

Overall, no fatal collisions were documented in the Study Area and only one collision was noted involving pedestrians or cyclists. This collision involved a pedestrian at the intersection of Belfast Road and Tremblay Road. No collisions were recorded at the intersection of Avenue U and Tremblay Road.

Table 3, Table 4, and Table 5 summarize the collision types and conditions of the three intersections within the Study Area on an individual basis.

Belfast Road and Trainyards Drive experienced seven collisions between 2013-2017. Of these collisions, one resulted in a non-fatal injury and six resulted in property damage only. The impact types are distributed throughout the angle, rear end and turning movement categories with 14.30%, 42.85% and 28.55% of all collisions respectively. Weather/road conditions are considered a contributing factor for 57.15% of collisions at this intersection.

Table 3: Belfast Road at Trainyards Drive Collision Summary

		Number	%
Total Collisions		**7**	**100%**
Classification	Non-Fatal Injury	1	14.30%
	Property Damage Only	6	85.70%
Initial Impact Type	Approaching	0	0.00%
	Angle	1	14.30%
	Rear end	3	42.85%
	Sideswipe	0	0.00%
	Turning Movement	2	28.55%
	SMV Unattended Vehicle	0	0.00%
	SMV Other	0	0.00%
	Other	1	14.30%
Road Surface Condition	Dry	3	42.85%
	Wet	3	42.85%
	Loose Snow	1	14.30%
	Slush	0	0.00%
	Packed Snow	0	0.00%
	Ice	0	0.00%
	Loose sand or gravel	0	0.00%
Pedestrian Involved		0	0.00%
Cyclists Involved		0	0.00%

Belfast Road and Tremblay Road experienced 12 collisions between 2013-2017. Of these collisions, four resulted in non-fatal injuries and eight resulted in property damage only. The majority of impact types are distributed throughout the angle, rear end and turning movement categories with 25.00%, 25.00% and 33.33% of all collisions respectively. Weather/road conditions are considered a contributing factor for 41.67% of collisions at this intersection.

Table 4: Belfast Road at Tremblay Road Collision Summary

		Number	%
Total Collisions		**12**	**100%**
Classification	Non-Fatal Injury	4	33.33%
	Property Damage Only	8	66.66%
Initial Impact Type	Approaching	0	0.00%
	Angle	3	25.00%
	Rear end	3	25.00%
	Sideswipe	1	8.33%
	Turning Movement	4	33.33%
	SMV Unattended Vehicle	0	0.00%
	SMV Other	1	8.33%
Road Surface Condition	Dry	7	58.33%
	Wet	5	41.67%
	Loose Snow	0	0.00%
	Slush	0	0.00%
	Packed Snow	0	0.00%
	Ice	0	0.00%
	Loose sand or gravel	0	0.00%
Pedestrian Involved		1	8.33%
Cyclists Involved		0	0.00%

Tremblay Road and St. Laurent Boulevard experienced 54 collisions between 2013-2017. Of these collisions, 12 resulted in a non-fatal injury and 42 resulted in property damage only. The impact types are distributed throughout the angle, rear end, sideswipe and turning movement categories with 18.52%, 46.30%, 12.96% and 20.37% of all collisions respectively. Weather/road conditions are considered a contributing factor for 31.48% of collisions at this intersection.

Table 5: Tremblay Road at St. Laurent Boulevard Collision Summary

		Number	%
Total Collisions		**54**	**100%**
Classification	Non-Fatal Injury	12	22.22%
	Property Damage Only	42	77.78%
Initial Impact Type	Approaching	0	0.00%
	Angle	10	18.52%
	Rear end	25	46.30%
	Sideswipe	7	12.96%
	Turning Movement	11	20.37%
	SMV Unattended Vehicle	0	0.00%
	SMV Other	1	1.85%
Road Surface Condition	Dry	37	68.52%
	Wet	9	16.67%
	Loose Snow	3	5.56%
	Slush	2	3.70%
	Packed Snow	1	1.85%
	Ice	2	3.70%
	Loose sand or gravel	0	0.00%
Pedestrian Involved		0	0.00%
Cyclists Involved		0	0.00%

2.3 Planned Conditions

2.3.1 Changes to the Area Transportation Network

The subject development is within the St. Laurent TOD plan which outlines the St. Laurent LRT station to the north of the development site. Applicable elements of the Ottawa Official Plan, Ottawa Transportation Master Plan, Ottawa Pedestrian Plan, and the Ottawa Cycling Plan are incorporated in this plan. The resulting changes to the road, pedestrian, and cycling network in the Study Area due to these plans are outlined below:

- As part of Phase 3 (2026-2031) of the 2031 Affordable Network, a segment of Tremblay Road between Belfast Road and St. Laurent Boulevard, will be widened and realigned.
- A multi-use pathway along Belfast Road between Trainyards Drive and Coventry Road will be completed as part of Phase 2 (2020-2025) of the 2031 Affordable Network.

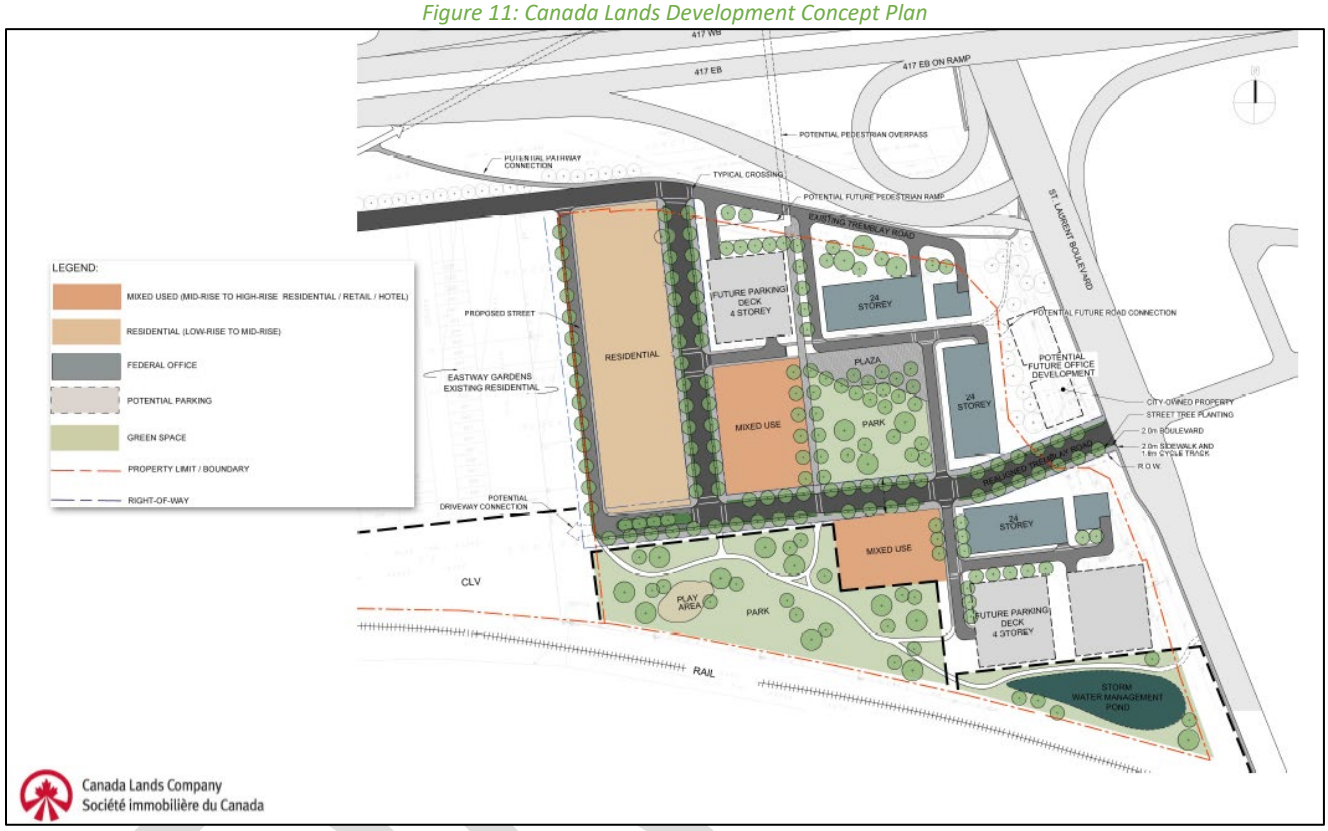
The St. Laurent TOD plan also outlines plans for a new pedestrian overpass which is part of the Canada Lands Company Development Plan for an adjacent property to the east of the proposed development as described below. This overpass will connect the Canada Lands Company development to the St. Laurent Shopping Centre and the St. Laurent LRT station.

2.3.2 Other Study Area Developments

At the time of this report, Canada Lands Company made available a development plan for the parcel of land (also referred to as 530 Tremblay Road) to the east of the proposed development discussed in this report. This

development plan indicates three high-rise office buildings to accommodate approximately 8,000 employees, approximately 500 residential units, and mixed-use commercial zoning to provide local commercial services will be provided at this location. This Canada Lands Company development is expected to have a driveway connection to 530 Tremblay and will in turn provide an alternative site access (Site Access #2) in the 2026 future horizons. A preliminary concept plan developed by the Canada Lands Company and WSP, was taken from an open house presentation in June 2019 can be seen in Figure 11.

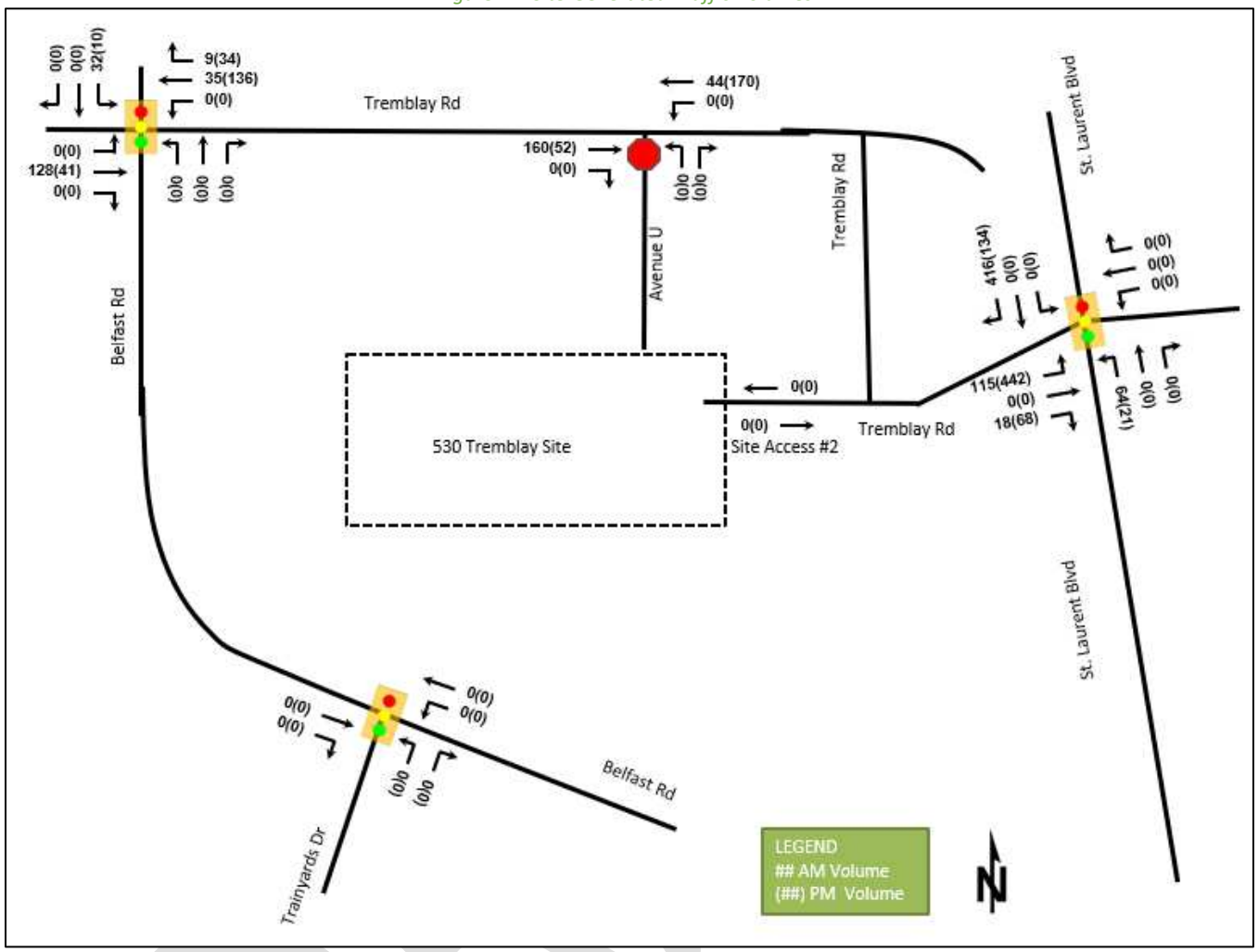
Figure 11: Canada Lands Development Concept Plan



Source: 530 Tremblay Road-Open House-June 24, 2019

At this time, no TIA is available however it is expected that the traffic generated from this development will impact the Study Area intersections. As a result, site-traffic generation and distribution has been prepared using the land use statistics mentioned above and the information provided in Figure 11. The same methodology was followed as will be shown in Section 5.1 of this report. The trip generation details can be found in Appendix D. Average person trip rates for the general office building dwelling type were used to generate a conservative estimate as the fitted curve rates produced lower trip generation volumes. The same TOD mode shares and trip distribution patterns were used as those shown in Section 5.1. As shown in Appendix D, 817 AM and 886 PM new peak hour two-way vehicle trips are projected as a result of the proposed Canada Lands Company development. The resulting new site-generated volumes can be found in Figure 12.

Figure 12: Site-Generated Traffic Volumes

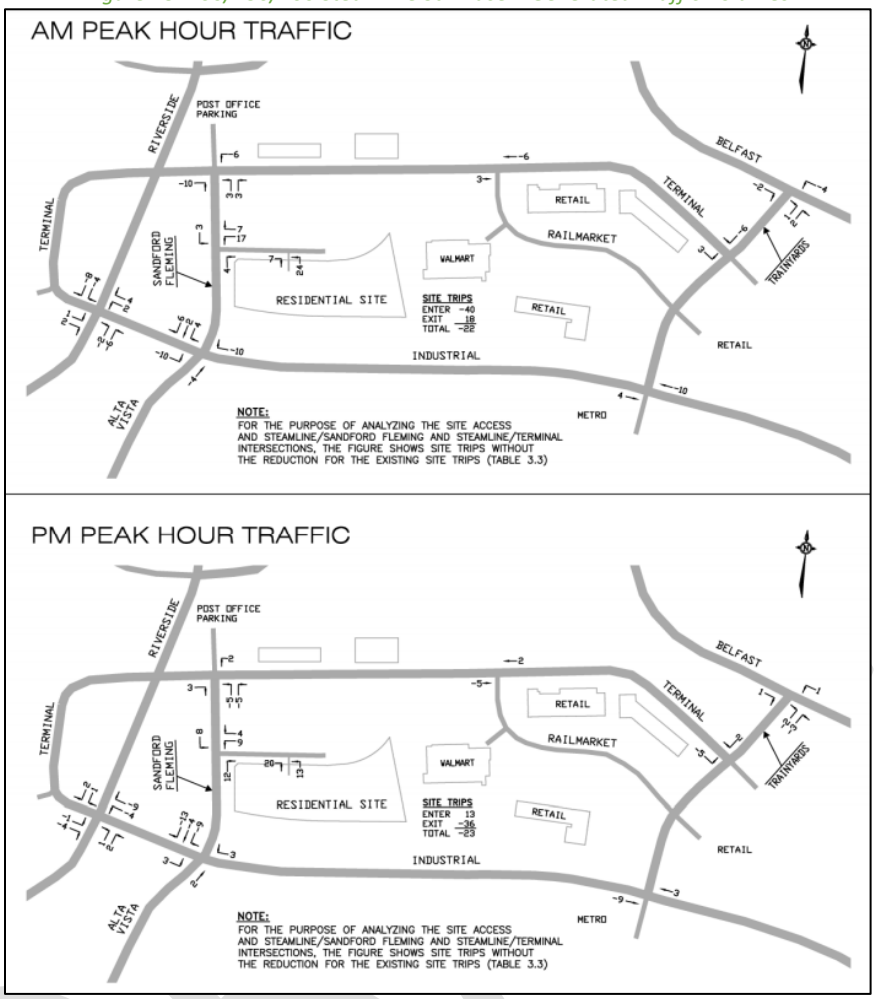


Directly to the east of the proposed development is another property owned by CLV. The connection between the proposed development and the Canada Lands Company development will pass through this land parcel. The timing and use of this property is currently unknown.

Additionally, a few development applications were available for the adjacent properties as listed on the City's Development Application Search tool:

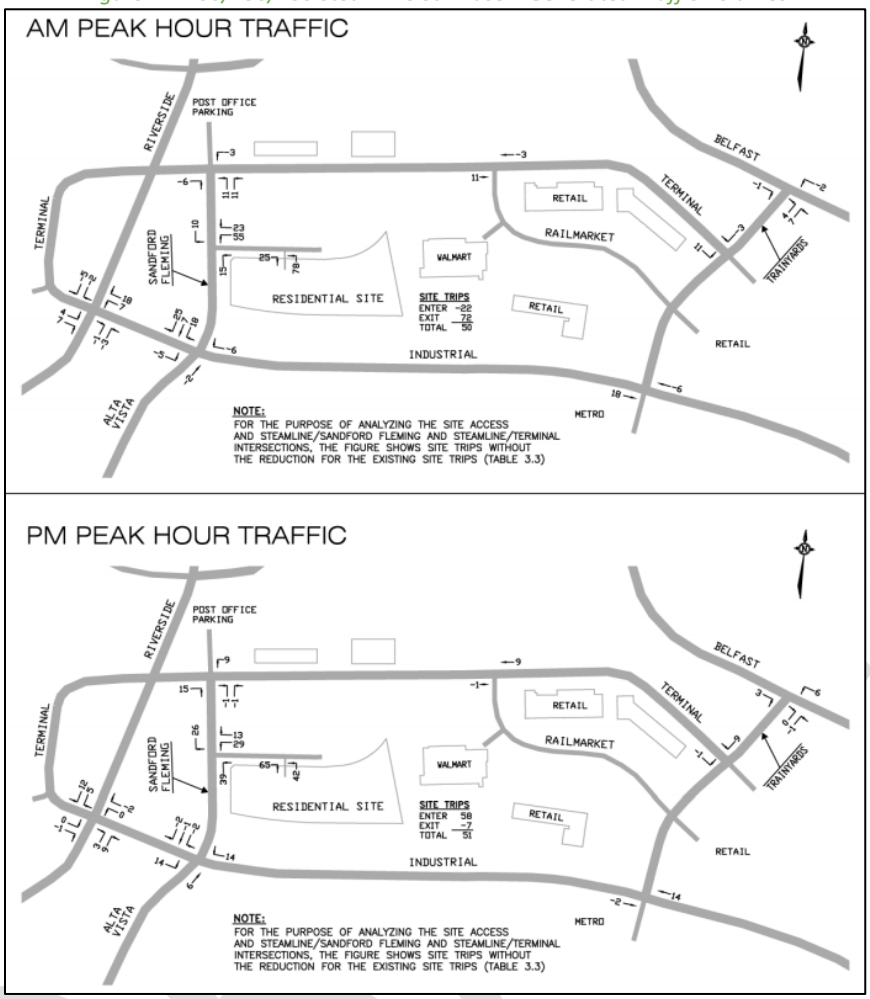
- 500/525/535 Coventry Road & 1200 St. Laurent Boulevard – The City of Ottawa has received Zoning Bylaw Amendment applications to facilitate the potential expansion of the St. Laurent Shopping Centre. The plans for this area appear to be in the preliminary planning stages and as a result, the anticipated trip generation is currently unclear.
- 200/230/260 Steamline Street – seven apartment buildings totalling 1,845 units. 375 of these units are to be completed in 2019 as part of Phase 1, 865 units by 2025 as part of Phase 2 and 605 units in 2029 as part of phase 3. The Site Plan indicates 1,843 underground parking spaces and 189 surface parking spaces for tenants and visitors. The anticipated trip generation from this site can be seen in Figure 13, Figure 14, and Figure 15 for Phases 1, 2 and 3 respectively and are excerpts from OTY Residential Development 200, 230 & 260 Steamline Street – Transportation Impact Assessment prepared by D.J. Halpenny & Associates Ltd.

Figure 13: 200/230/260 Steamline St-Phase 1 Generated Traffic Volumes



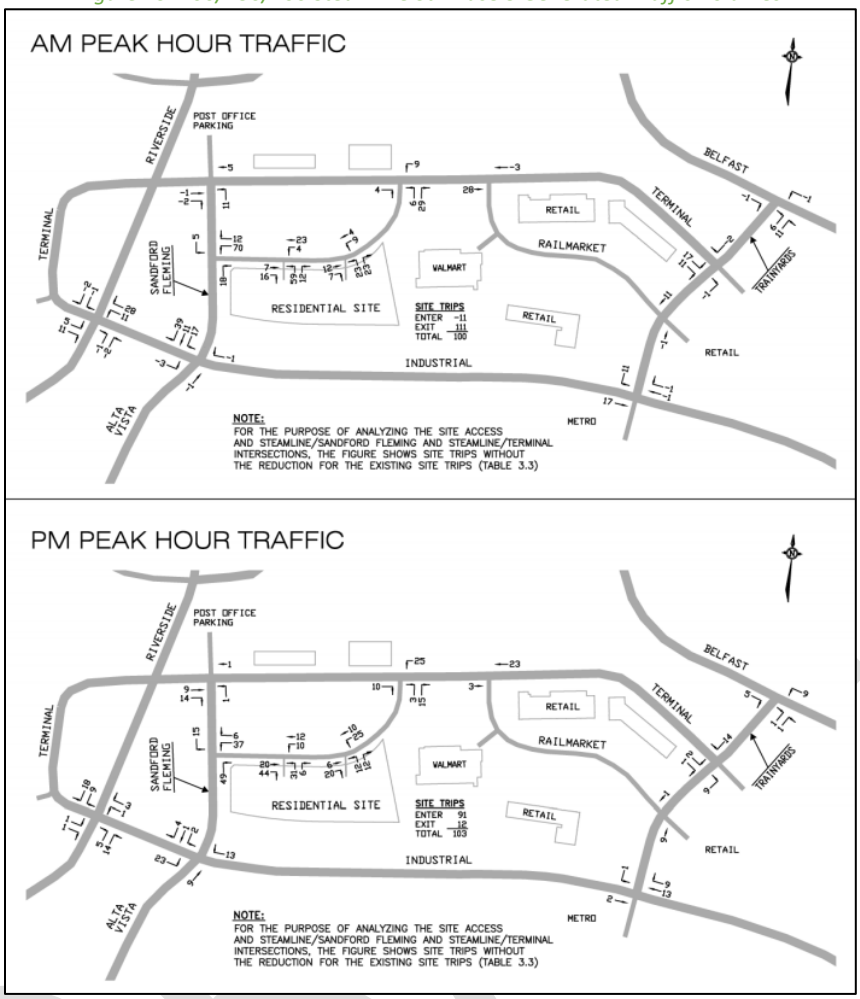
Source: OTY Residential Development 200, 230 & 260 Streamline St-TIA-January 16, 2018

Figure 14: 200/230/260 Steamline St-Phase 2 Generated Traffic Volumes



Source: OTY Residential Development 200, 230 & 260 Streamline St-TIA-January 16, 2018

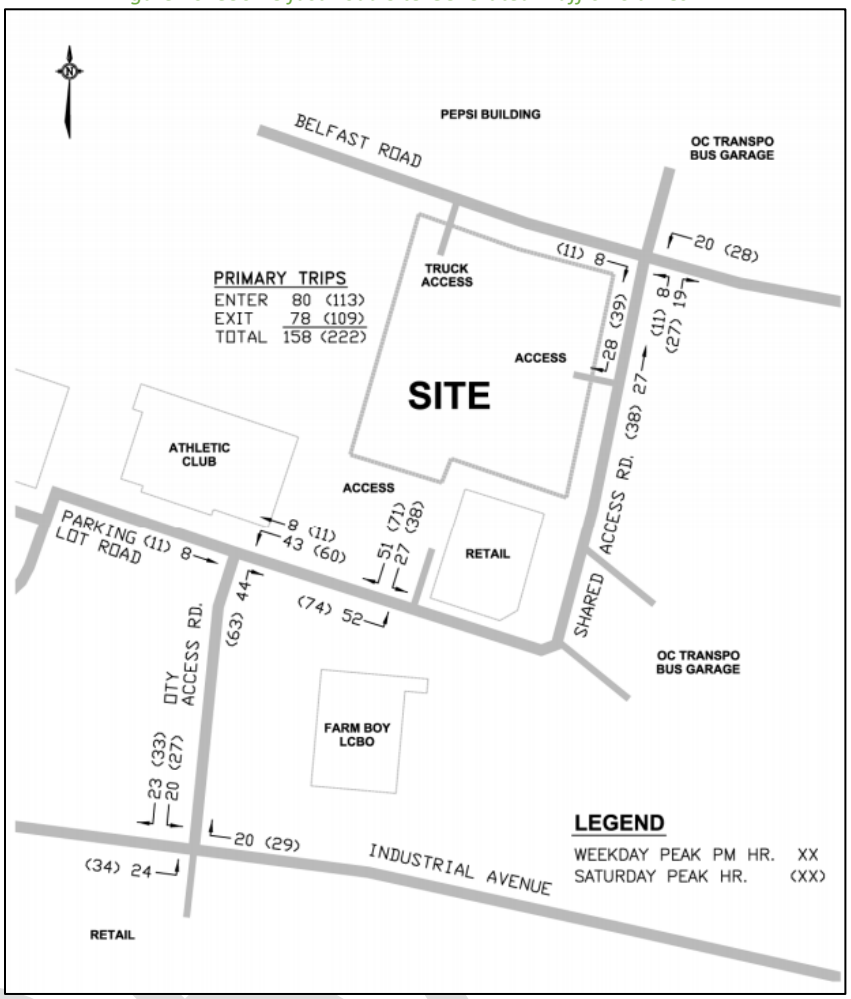
Figure 15: 200/230/260 Steamline St-Phase 3 Generated Traffic Volumes



Source: OTY Residential Development 200, 230 & 260 Streamline St-TIA-January 16, 2018

- 830 Belfast Road – the proposed development of 3530 square metres of retail space will replace the existing commercial building at this municipal address with a grocery store. A total of 197 outdoor parking spaces will replace the 120 existing parking spaces. The anticipated trip generation from this site can be seen in Figure 16 and is an excerpt from Ottawa Train Yards Retail Development 830 Belfast Road Transportation Impact Assessment prepared by D.J. Halpenny & Associates Ltd.

Figure 16: 830 Belfast Road Site-Generated Traffic Volumes



Source: 830 Belfast Road-TIA-April 8, 2019

3 Study Area and Time Periods

3.1 Study Area

The Study Area will include the intersections of Tremblay Road and Belfast Road, Belfast Road and Trainyards Drive, St. Laurent Boulevard and Tremblay Road, and Avenue U, and Tremblay Road. Avenue U is noted as the boundary road.

3.2 Time Periods

The AM and PM peak hours will be examined for the proposed development.

3.3 Horizon Years

The anticipated build-out year is 2021. As a result, the full build-out plus five years horizon year is 2026.

4 Exemption Review

Table 6 summarizes the exemptions for this TIA.

Table 6: Exemption Review

Module	Element	Explanation	Exempt/Required
Design Review Component			
4.1 Development Design	4.1.2 Circulation and Access	Only required for site plans	Required
	4.2.3 New Street Networks	Only required for plans of subdivision	Exempt
4.2 Parking	4.2.1 Parking Supply	Only required for site plans	Required
	4.2.2 Spillover Parking	Only required for site plans where parking supply is 15% below unconstrained demand	Exempt
Network Impact Component			
4.5 Transportation Demand Management	All Elements	Not required for site plans expected to have fewer than 60 employees and/or students on location at any given time	Required
4.6 Neighbourhood Traffic Management	4.6.1 Adjacent Neighbourhoods	Only required when the development relies on local or collector streets for access and total volumes exceed ATM capacity thresholds. While traffic volumes along Avenue U increase by a large percentage due to the site-generated traffic, this large percentage increase occurs as a result of small existing traffic volumes. In this case a significant percentage increase in volume will have a minimal impact on the Study Area as it translates to a small increase in number of vehicles. As such, this section is not required for this TIA.	Exempt
4.8 Network Concept		Only required when proposed development generates more than 200 person-trips during the peak hour in excess of equivalent volume permitted by established zoning	Exempt

5 Development-Generated Travel Demand

5.1 Trip Generation and Mode Shares

This TIA has been prepared using the vehicle and person trip rates for the residential components using the TRANS Trip Generation Study Report (2009). Table 7 summarizes the person trip rates for the proposed land uses.

Table 7: Trip Generation Person Trip Rates

Dwelling Type	Land Use Code	Peak Hour	Vehicle Trip Rate	Person Trip Rates
Mid-rise Apartments	223 (TRANS)	AM	0.24	0.65
		PM	0.28	0.70

Using the above Person Trip rates, the total person trip generation has been estimated. This estimation is based on the proposed development's unit count. As part of an original concept plan, 122 units were proposed, however, prior to the submission of this report but following the completion of the prepared analysis, the estimated unit count was increased to 124. As this is a small change to the unit count, the analysis below is based on the original proposal of 122 units. Table 8 below illustrates the total person trip generation by dwelling type.

Table 8: Total Person Trip Generations

Land Use	Units / GFA	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Mid-Rise Apartments	122 units	19	60	79	53	32	85
	Total Person Trips	**19**	**60**	**79**	**53**	**32**	**85**

Using the most recent National Capital Region Origin Destination Survey (OD Survey), the existing mode shares for Alta Vista have been summarized in Table 9. As the site is located within a TOD, the mode share assumptions for developments in proximity to transit stations is included and will be used to generate the site trips for the proposed residential building.

Table 9: Mode Share

Travel Mode	Alta Vista	TOD Mode Share
Auto Driver	60%	20%
Auto Passenger	15%	10%
Transit	20%	65%
Non-Auto	5%	5%
Total	100%	100%

Using the above TOD Mode Shares and person trip rates, the person trips by mode have been projected. Table 10 summarizes the trip generation by mode.

Table 10: Trip Generation Mode

Travel Mode	Mode Share	In	Out	Total	In	Out	Total
Auto Driver	20%	4	12	16	11	6	17
Auto Passenger	10%	2	6	8	5	4	9
Transit	65%	12	39	51	34	21	55
Non-Auto Modes	5%	1	3	4	3	1	4
Total	100%	19	60	79	53	32	85

As shown above, 16 AM and 17 PM new peak hour two-way vehicle trips are projected as a result of the proposed development.

5.2 Trip Distribution

To understand the travel patterns of the subject development, the OD Survey has been reviewed to determine the existing travel patterns that will be applied to the new vehicle trips. Table 11 below summarizes the distribution for Alta Vista.

Table 11: OD Survey Existing Mode Share-Alta Vista

To/From	% of Trips
North	30%
South	15%
East	10%
West	45%
Total	100%

5.3 Trip Assignment

Using the distribution outlined above, turning movement splits, and access to major transportation infrastructure, the trips generated by the site have been assigned to the Study Area road network. Two road network scenarios will be considered as a result of the future development of the adjacent land by the Canada Lands Company (also named 530 Tremblay), which is expected to provide a site access (Site Access #2) as well as alter the surrounding road network by re-aligning Tremblay Road. The exact build-out year of the Canada Lands Development is currently unknown; however, it is expected to occur after the 2021 build-out year of the proposed development in this report and before the corresponding 5-year horizon of 2026. As such, Scenario 1 will be considered at the 2021 future horizon and Scenario 2 will be considered at the 2026 future horizon.

Scenario 1 will consider the 2021 road network prior to the full build-out of the Canada Lands development with Site Access #1 as the only access in use. Figure 17 illustrates the new site traffic assignment by percentage for Scenario 1 and Figure 18 illustrates the new site generated volumes for Scenario 1.

Figure 17: New Site Generation Assignment Scenario 1 (%)

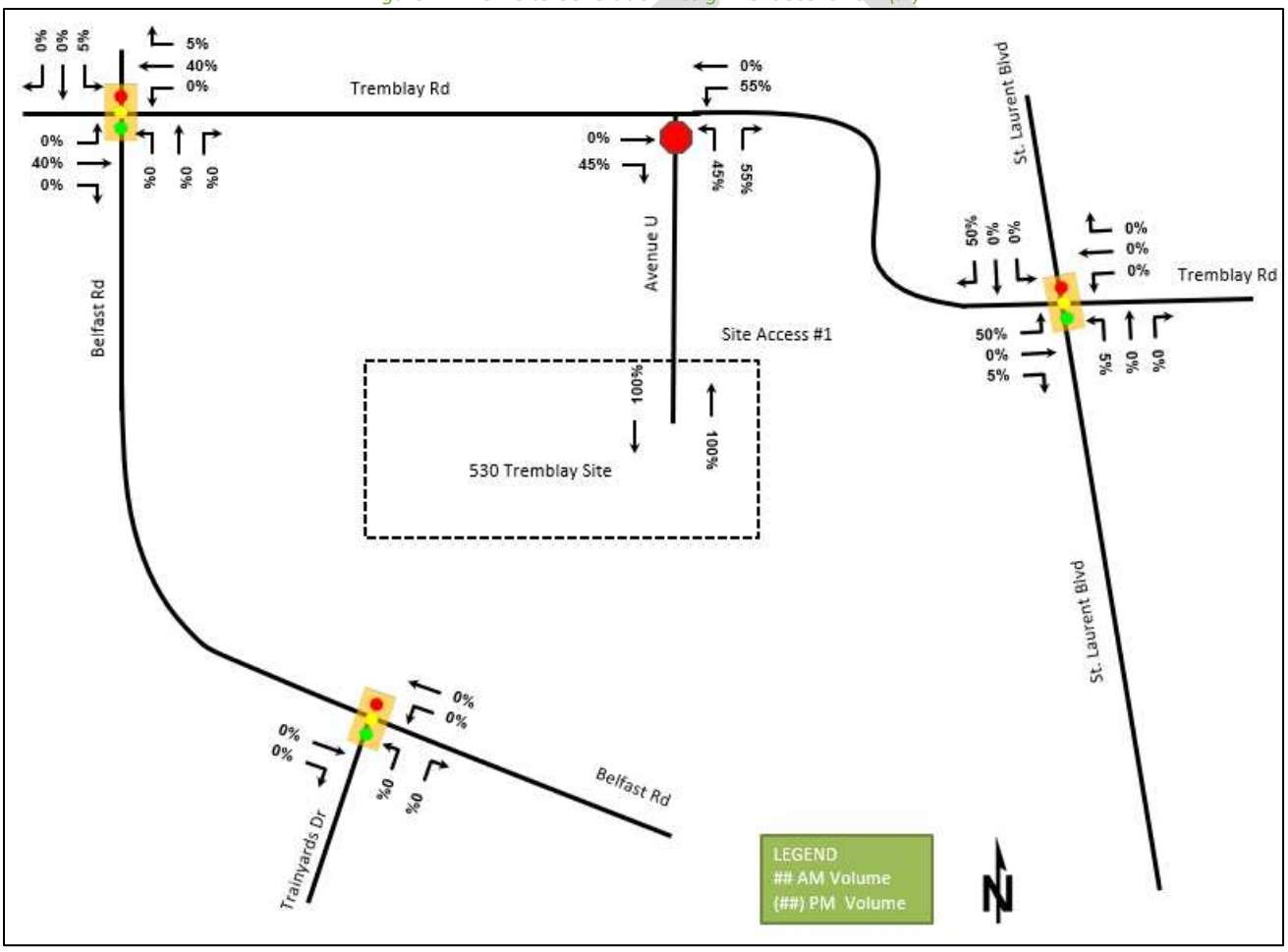
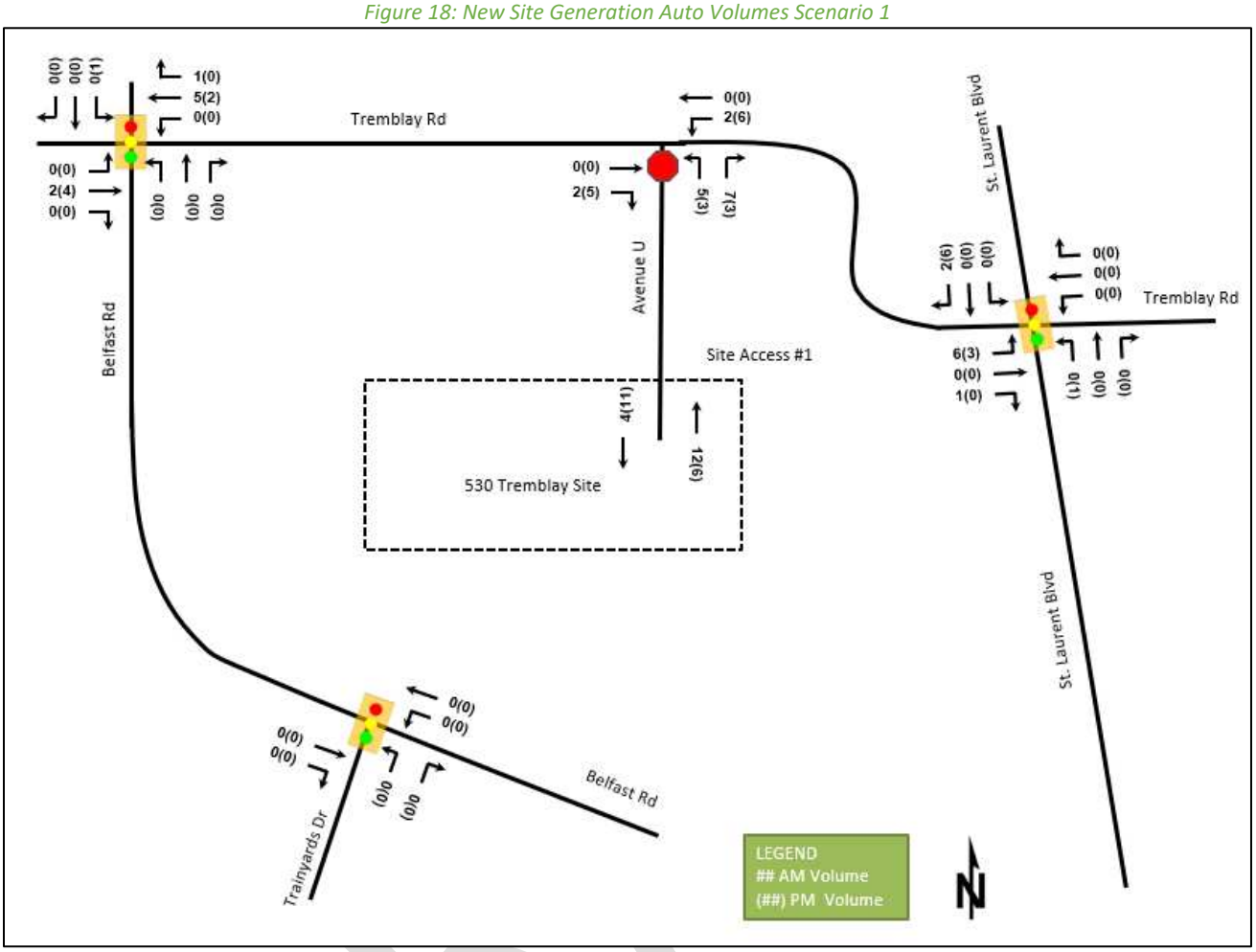


Figure 18: New Site Generation Auto Volumes Scenario 1



Scenario 2 will consider the 2026 road network following the full build-out of the Canada Lands development. As Scenario 1 is a temporary condition, once the second access is completed, Access #1 will be closed and controlled by collapsible bollards in order to provide emergency vehicle access, with only Site Access #2 in use. Figure 19 illustrates the new site traffic assignment by percentage for Scenario 2 and Figure 20 illustrates the new site generated volumes for Scenario 2.

Figure 19: New Site Generation Assignment Scenario 2 (%)

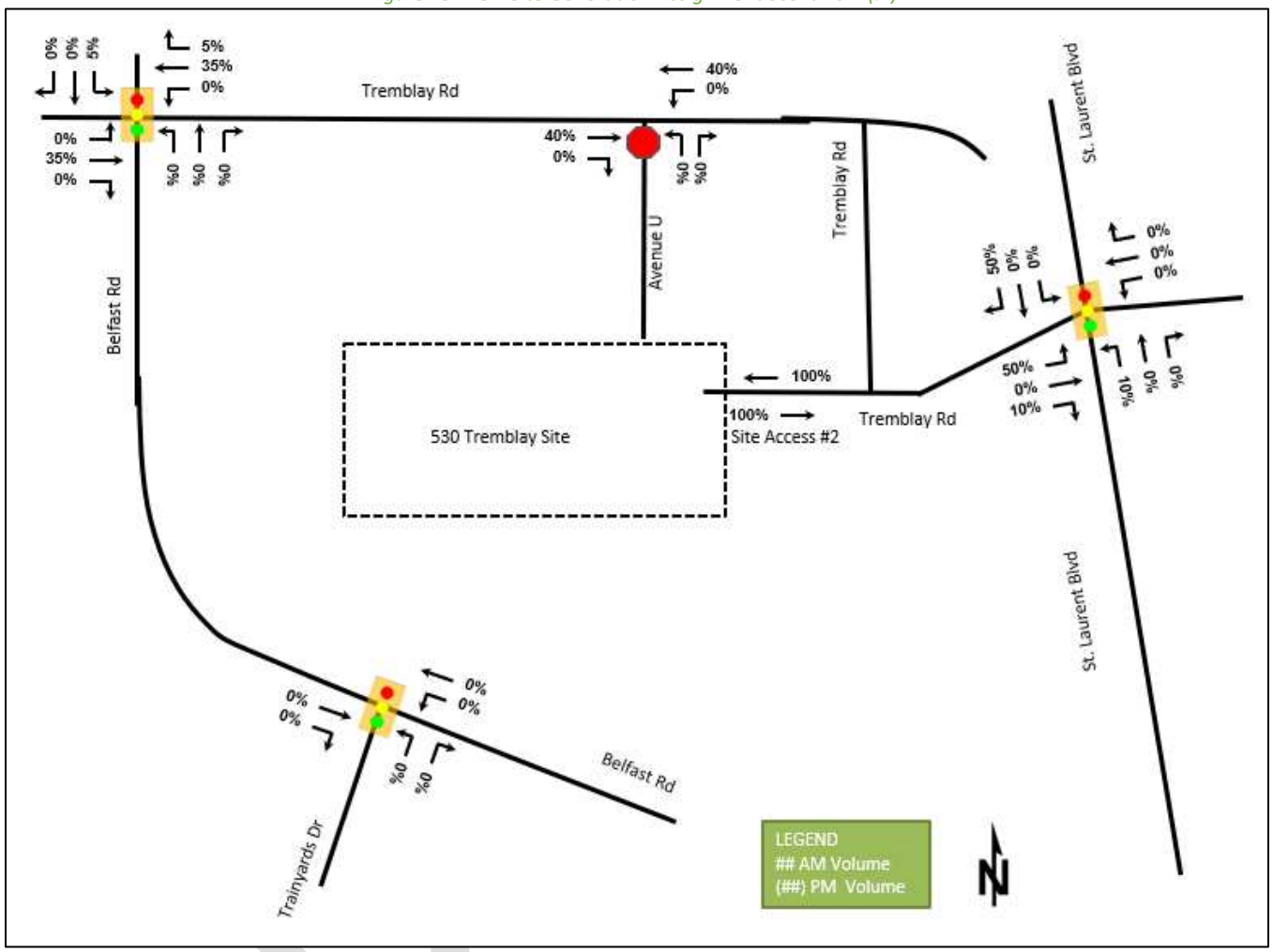
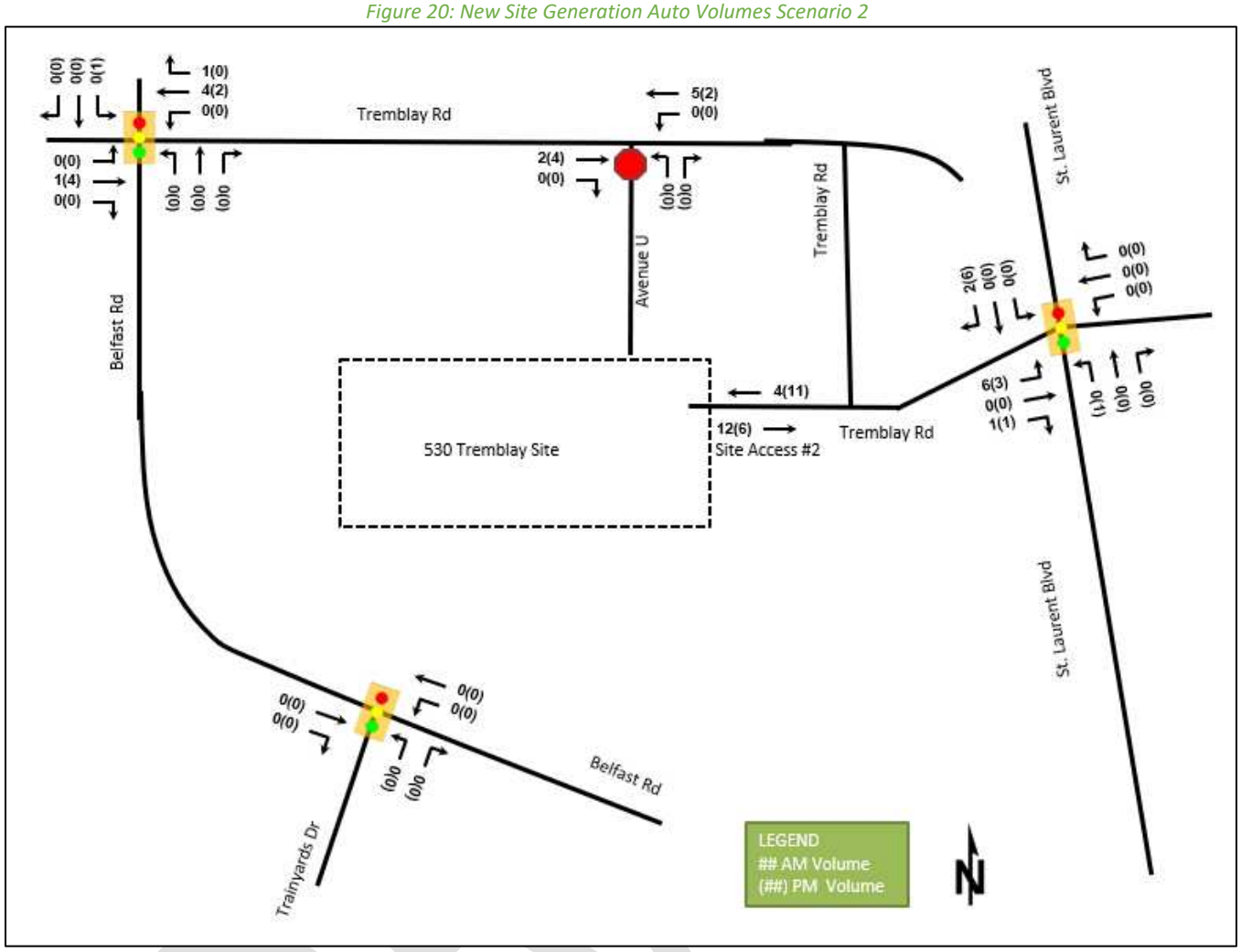


Figure 20: New Site Generation Auto Volumes Scenario 2



6 Background Network Travel Demands

6.1 Transportation Network Plans

The transportation network plans were discussed in Section 2.3.1. The opening of the St. Laurent LRT station and TOD policies have been accounted for within the modal share assumptions. As part of Phase 3 (2026-2031) of the 2031 Affordable Network, a segment of Tremblay Road between Belfast Road and St. Laurent Boulevard, will be widened and realigned.

A multi-use pathway along Belfast Road between Trainyards Drive and Coventry Road will be completed as part of Phase 2 (2020-2025) of the 2031 Affordable Network. The additional connectivity provided by this will improve the active mode network but is not anticipated to significantly impact the modal shares used in the future trip generation.

6.2 Background Growth and Other Developments

Adjacent area transportation studies have used a 1% traffic growth. This growth rate was justified through historic traffic counts. As such, an annual background growth rate of 1% will be used (excluding Avenue U as growth is not expected there) in order to remain consistent with these studies.

The background developments explicitly considered in the background conditions include 200/230/260 Steamline Street Phase 1 & Phase 2, 830 Belfast Road and the Canada Lands Development at 530 Tremblay. Phase 2 of 200/230/260 Steamline Street and the Canada Lands Development at 530 Tremblay will only be included in the background 2026 volumes. All of these developments are discussed in Section 2.3.2.

Figure 21 illustrates the 2021 background volumes and Figure 22 illustrates the 2026 background volumes.

Figure 21: Background 2021 Volumes

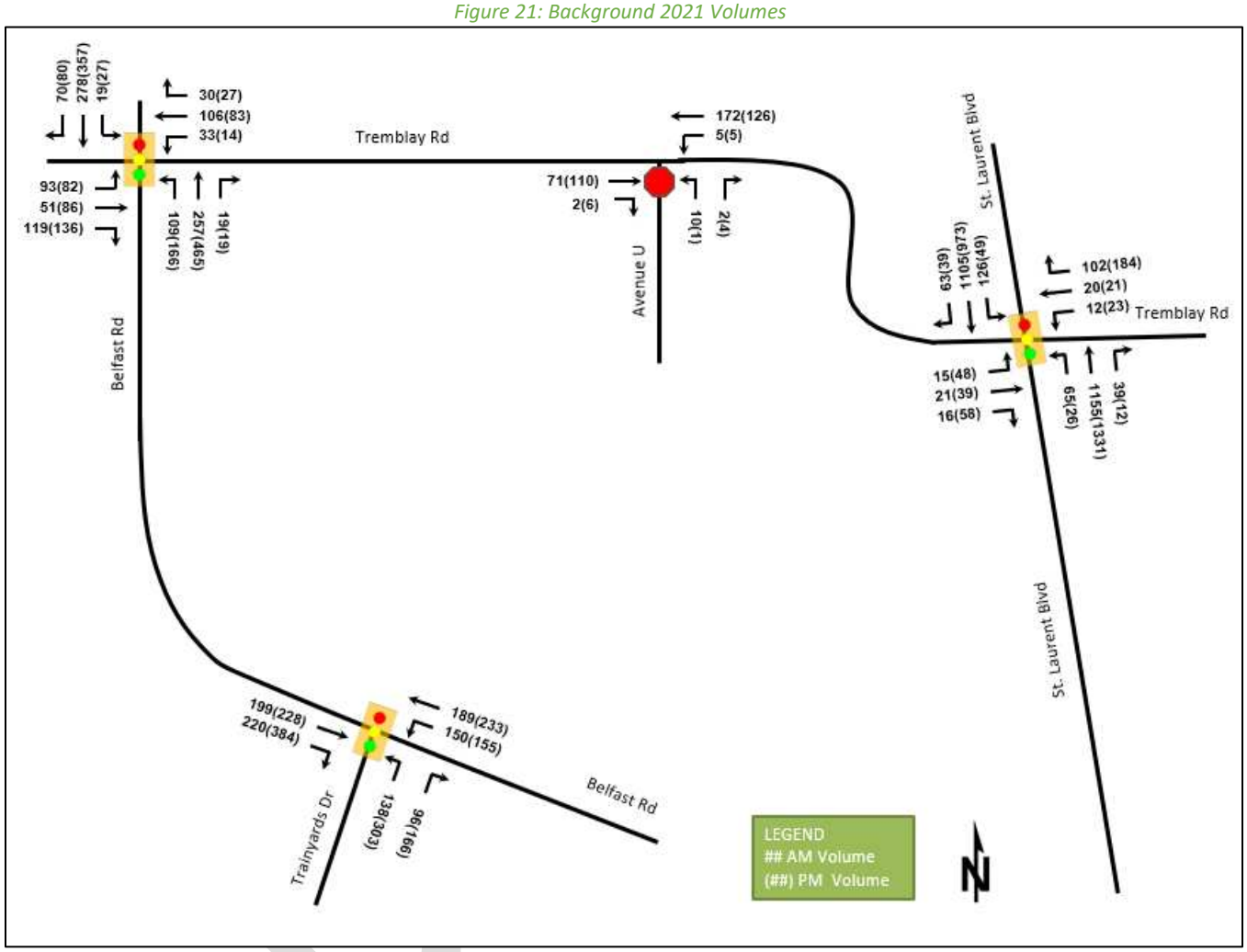
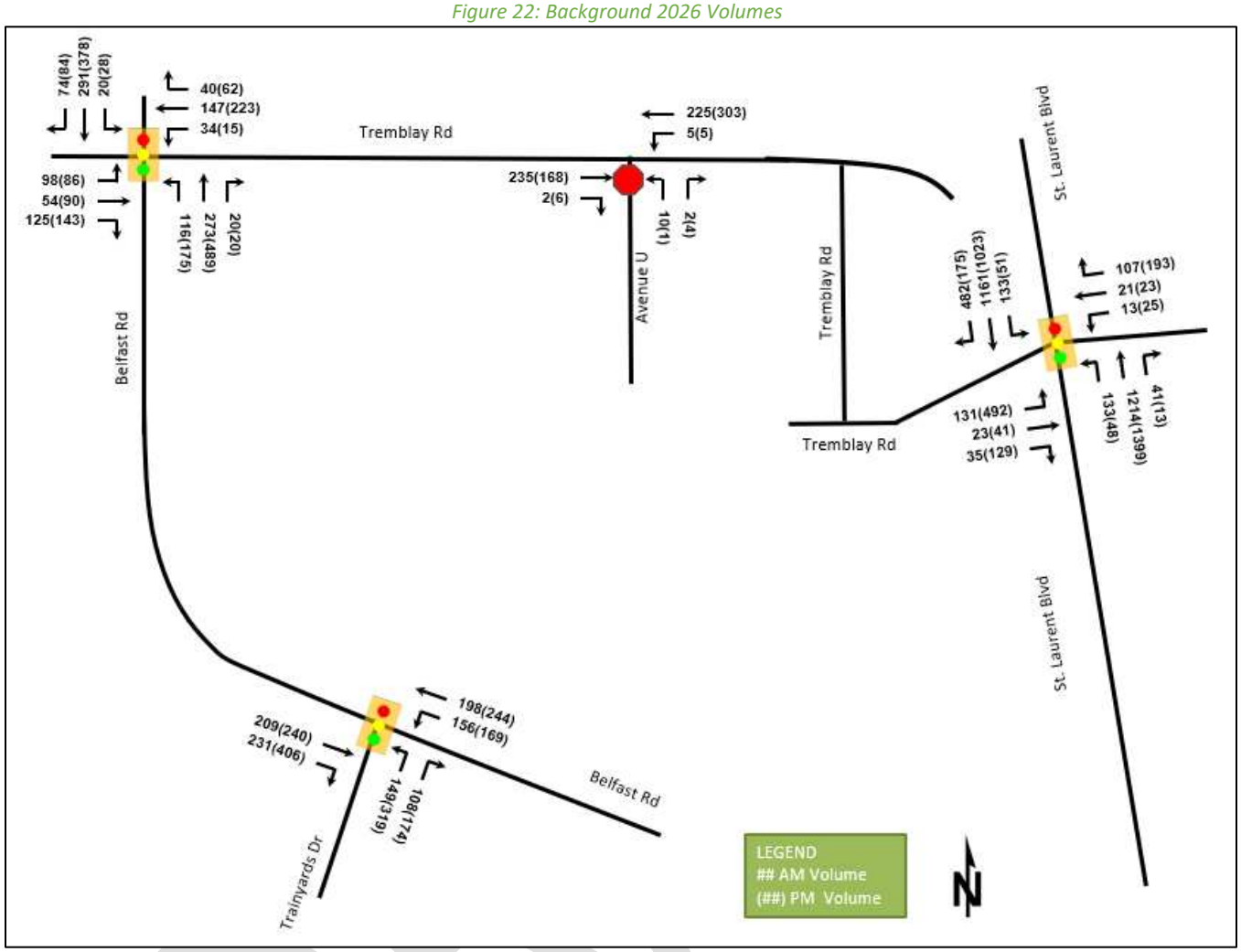


Figure 22: Background 2026 Volumes



7 Demand Rationalization

As documented in Section 16.2.1, the existing intersections within the Study Area are operating well and have additional capacity. The changes in volume between existing and future conditions will come from growth within the Study Area, the developments mentioned in Section 2.3.2, and the proposed development within this report. The trip generation of this development is consistent with expected TOD modal shares, as can be seen in Section 5.1, and no adjustments are required. The future total 2021 volumes are illustrated in Figure 23 and the future total 2026 volumes are illustrated in Figure 24.

Figure 23: Future Total 2021 Volumes

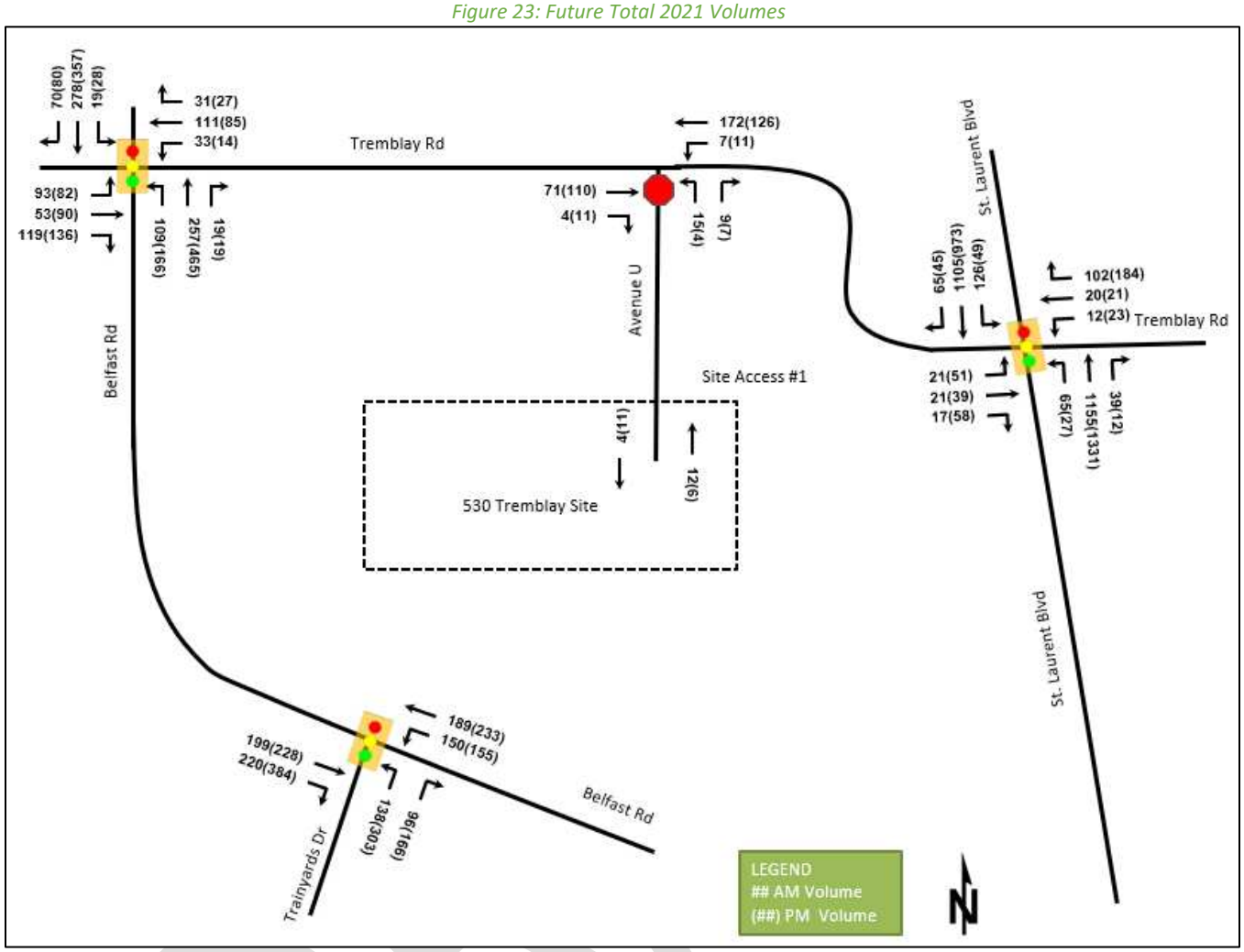
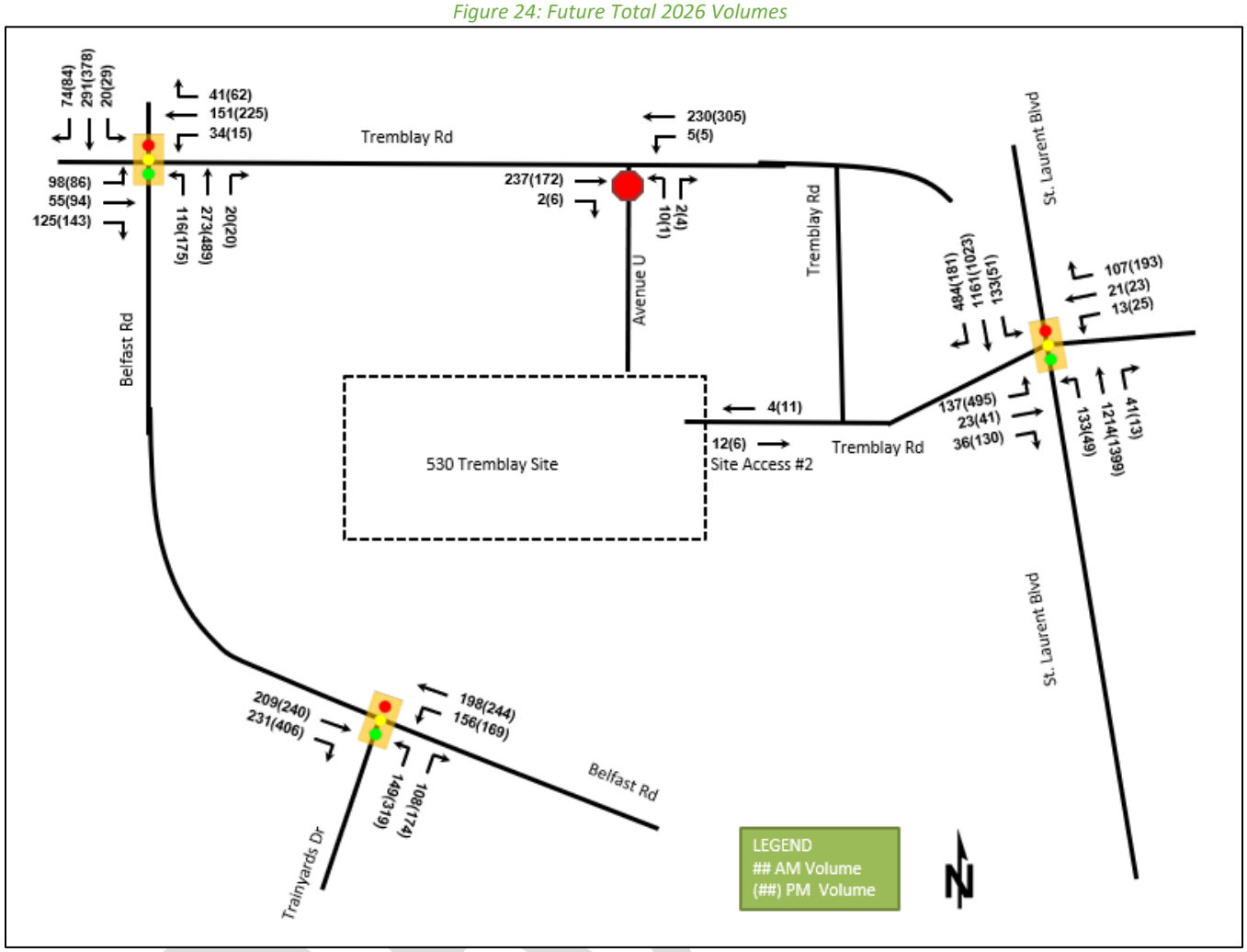


Figure 24: Future Total 2026 Volumes



8 Development Design

8.1 Design for Sustainable Modes

The proposed development is an apartment complex divided into two buildings with surface parking for automobiles and underground parking for both automobiles and bicycles.

The proposed development provides a multi-use pathway to connect the development to Avenue T and Avenue S. It is anticipated that pedestrian and cyclist facilities will be provided in Scenario 2 along with Access #2 to connect the proposed development to the planned pedestrian and cyclist facilities along the realigned Tremblay Road and within the Canada Lands Company development. These proposed pedestrian facilities will allow for improved access to the existing pedestrian tunnel underneath Highway 417 which connects the Eastway Garden community at Avenue S to the St. Laurent station as well as improved access to the future pedestrian bridge connecting the Canada Lands Company development to the St. Laurent LRT station.

8.2 Circulation and Access

An emergency vehicle access regulated by collapsible bollards is to be provided on Avenue P. Access #1 and Access #2 will accommodate passenger vehicles accessing the residential parking within their respective scenarios and will also be used by garbage trucks to access the development.

8.3 New Street Networks

This TIA is exempt from this Module (see Table 6).

9 Parking

9.1 Parking Supply

The parking requirements and provisions for the proposed development are summarized in Table 12.

Table 12: Parking Provisions

Land Use	Parking Required	Parking Provided
Mid-rise Apartment (Resident)	0	124
Mid-rise Apartment (Visitor)	12	12
Bicycle Parking	62	67

As shown above, vehicle parking requirements for building residents and visitors, as well as bicycle parking requirements have been met or exceeded.

9.2 Spillover Parking

This TIA is exempt from this Module (see Table 6).

10 Boundary Street Design

For the purposes of this TIA, Avenue U will be considered a boundary street for both existing and the future 2021 horizon. Avenue U is not currently a Complete Street and no plans currently exist to upgrade it to a Complete Street. The Segment Multi-Modal Level of Service (MMLOS) is broken down into the Pedestrian Level of Service (PLOS), Bicycle Level of Service (BLOS), Transit Level of Service (TLOS) and Truck Level of Service (TkLOS) and are all recorded in Table 13.

Table 13: Avenue U Segment MMLOS

Road Segment	Horizon	MMLOS							
		PLOS		BLOS		TLOS		TkLOS	
		Actual	Target	Actual	Target	Actual	Target	Actual	Target
Avenue U	Existing	F	A	B	D	-	-	-	-
	2021	F	A	B	D	-	-	-	-

Avenue U does not have any existing sidewalks, bike lanes, bus stops or bus routes and is not part of the City of Ottawa truck route. There are currently no plans to add sidewalks, bike lanes, bus stops or bus routes in future horizons. As such, the PLOS, BLOS, TLOS and TkLOS of Avenue U are expected to remain the same in future conditions, even with its use as a site access in Scenario 1 (2021 future horizon). The PLOS is below the target however, this can be tolerated as Avenue U is a temporary boundary street. The addition of pedestrian sidewalks along Avenue U have the potential to improve the PLOS in future horizons.

In the 2026 future horizon, Access #2 will be considered a boundary street. It is recommended that, where possible, the future connections through the adjacent Canada Lands Company development meet the MMLOS targets.

11 Access Intersections Design

11.1 Location and Design of Access

The proposed development will always have one primary access however the access will change locations as adjacent properties are developed. The first access (Site Access #1) will connect the proposed development to Avenue U and will serve as the only site access at the time of the 2021 horizon (Scenario 1). The timing of the second access (Access #2) is currently unknown as it is dependent on the development of an adjacent property and will also pass through the CLV property with an unknown development timeline. It is assumed that it will be in use by the 2026 future horizon and will serve as the only site access. Access #2 will connect the proposed development to St. Laurent Boulevard (Scenario 2). The proponent is working alongside Canada Lands Company to further develop Site Access #2 as it will be internal to the Canada Lands Company site. As such, this access will be looked at in greater detail in the Canada Lands Company Transportation Impact Study.

11.2 Intersection Control

As both accesses in their respective scenarios are proposed as driveways, signalization warrants and turning lane warrants are not required to be examined.

12 Transportation Demand Management

Transportation Demand Management measures are implemented to encourage the use of non-auto modes of travel. This is aimed at reducing the reliance on single occupant auto trips in the City of Ottawa. The proposed development adheres to the City's TDM principles by facilitating connections to adjacent pedestrian, cycling and transit facilities. As the proposed development is in a designated Transit-oriented Development (TOD) zone, a TOD mode share has been used for all study horizons.

The following measures, consistent with the TDM Checklist included in Appendix E, could be implemented to ensure that the travel mode shares meet the TOD targets.

- Designate an internal coordinator, or contract with an external coordinator.
- Display local area maps with walking/cycling access routes and key destinations at major entrances.
- Display relevant transit schedules and route maps at entrances.
- Contract with provider to install on-site carshare vehicles and promote their use by residents.
- Unbundle parking cost from monthly rent.
- Provide a multimodal travel option information package to new residents.

13 Neighbourhood Traffic Management

This TIA is exempt from this Module (see Table 6). While traffic volumes along Avenue U increase by a large percentage due to the site-generated traffic, this large percentage increase occurs as a result of small existing traffic volumes. For example, the existing northbound left-turn volume in the PM peak period is 1 and in the 2021 future total horizon the northbound left-turn volume in the PM peak period is 4. While this is a significant percentage increase in volume, it will have a minimal impact on the Study Area as it is only an increase of three vehicles. As such, this section is not required for this TIA.

14 Transit

In section 5.1 the trip generation by mode was estimated, including an estimate of the number of transit trips that will be generated by the proposed development. Table 14 summarizes the transit trip generation.

Table 14: Trip Generation by Transit Mode

Travel Mode	Mode Share	AM Peak Period			PM Peak Period		
		In	Out	Total	In	Out	Total
Transit	65%	12	39	51	34	21	55

The increase in travel demand is anticipated to be relatively minimal. Additionally, access to the St. Laurent LRT station provides adequate transit capacity which will support the development and surrounding Study Area growth.

15 Review of Network Concept

This TIA is exempt from this Module (see Table 6).

16 Intersection Design

16.1 Intersection Control

The intersection method of control will remain consistent with existing methods of control for all Study Area intersections at both future horizons.

16.2 Intersection Design

To understand the intersection design, an MMLOS analysis of existing, 2021 future horizon, and 2026 future horizon demands is required. The existing and future segment MMLOS has been discussed in Section 10. The following sections will discuss the vehicle LOS at Study Area intersections which is based on the HCM criteria for average delay at unsignalized intersections. At signalized intersections, the level of service is based on the V/C ratio as required by the City of Ottawa. This will be followed by a discussion of the intersection MMLOS for other modes.

16.2.1 Existing Conditions

The existing intersection volumes have been analyzed to establish a baseline condition and determine the impact of the subject development on the Study Area road network. Table 15 summarizes the operational analysis of 2019 existing conditions. Appendix F contains the 2019 Existing Conditions Synchro sheets.

Table 15: Existing Intersection Operations

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	Delay	V/C	Q (95th)	LOS	Delay	V/C	Q (95th)
Belfast Road & Tremblay Road *Signalized*	EBL	A	20	0.22	25	A	25	0.22	27
	EBT/R	A	18	0.34	21	A	26	0.50	50
	WBL	A	20	0.09	11	A	28	0.06	7
	WBT/R	A	17	0.25	30	A	21	0.23	30
	NBL	A	19	0.46	18	B	21	0.64	26
	NBT/R	A	15	0.43	44	B	16	0.65	88
	SBL	A	19	0.06	7	A	23	0.10	10
	SBT/R	D	34	0.86	83	D	36	0.88	#122
	Overall	**C**	**22**	-	-	**C**	**25**	-	-
Belfast Road & Trainyards Drive *Signalized*	EBT	A	10	0.24	35	A	12	0.30	44
	EBR	A	11	0.32	12	A	17	0.60	16
	WBL	A	6	0.28	14	A	8	0.33	18
	WBT	A	4	0.10	8	A	5	0.12	13
	NBL	A	33	0.41	19	B	33	0.68	35
	NBR	A	29	0.39	9	A	28	0.56	10
	Overall	**B**	**13**	-	-	**B**	**18**	-	-
St. Laurent Boulevard & Tremblay Road *Signalized*	EBL	A	58	0.17	11	A	57	0.39	#31
	EBT/R	A	48	0.22	16	A	40	0.33	25
	WBL	A	49	0.07	9	A	44	0.11	14
	WBT/R	C	57	0.76	24	C	49	0.74	34
	NBL	A	13	0.24	17	A	17	0.10	7
	NBT/R	A	10	0.43	66	A	17	0.55	81
	SBL	A	7	0.41	11	A	11	0.22	6
	SBT	A	6	0.52	61	A	11	0.52	63
	SBR	A	4	0.07	3	A	7	0.05	3
	Overall	**B**	**11**	-	-	**B**	**18**	-	-
Avenue U & Tremblay Road *Unsignalized*	EBT/R	-	-	-	-	-	-	-	-
	WBL/T	A	7	0.0	-	A	8	0.00	-
	NBL/R	A	10	0.02	-	A	9	0.01	-
Notes:	Saturation flow rate of 1800 veh/h/lane								
	PHF = 0.90								
	# indicates the volume for the 95th percentile cycle exceeds capacity								

All existing intersections within the Study Area operate satisfactorily during the peak hours. The 95th percentile cycle exceeds capacity at the southbound shared through/right movement at Belfast Road and Tremblay Road in the PM peak period, as well as at the eastbound left-turn movement at St. Laurent Boulevard and Tremblay Road in the PM peak period. The V/C ratio for this movement is less than one and it can therefore be assumed that in practice the 95th percentile queues will rarely be exceeded. No mitigation measures are required or recommended.

16.2.2 2021 Future Background

The 2021 future background intersection volumes and other development traffic has been analyzed to allow a comparison between the future volumes with and without the proposed development. Table 16 summarizes the operational analysis of 2021 future background conditions. Appendix G contains the 2021 Future Background Synchro sheets.

Table 16: 2021 Future Background Conditions Operational Analysis

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	Delay	V/C	Q (95th)	LOS	Delay	V/C	Q (95th)
Belfast Road & Tremblay Road *Signalized*	EBL	A	18	0.19	23	A	23	0.19	25
	EBT/R	A	16	0.30	20	A	23	0.45	45
	WBL	A	18	0.07	10	A	25	0.04	7
	WBT/R	A	15	0.22	27	A	20	0.21	28
	NBL	A	19	0.42	17	A	20	0.58	24
	NBT/R	A	15	0.42	40	B	16	0.62	78
	SBL	A	19	0.05	7	A	22	0.09	9
	SBT/R	D	31	0.84	74	D	33	0.86	106
	Overall	**C**	**20**	-	-	**C**	**23**	-	-
Belfast Road & Trainyards Drive *Signalized*	EBT	A	9	0.22	31	A	11	0.27	41
	EBR	A	10	0.29	11	A	15	0.54	16
	WBL	A	6	0.24	12	A	7	0.30	17
	WBT	A	4	0.09	7	A	5	0.11	12
	NBL	A	33	0.38	18	B	33	0.66	32
	NBR	A	30	0.38	9	A	29	0.55	10
	Overall	**B**	**13**	-	-	**B**	**17**	-	-
St. Laurent Boulevard & Tremblay Road *Signalized*	EBL	A	58	0.16	10	A	57	0.37	#29
	EBT/R	A	49	0.22	15	A	41	0.33	24
	WBL	A	50	0.07	9	A	45	0.10	13
	WBT/R	C	58	0.76	23	C	49	0.73	27
	NBL	A	10	0.19	13	A	14	0.08	6
	NBT/R	A	9	0.38	54	A	14	0.49	68
	SBL	A	6	0.34	10	A	10	0.18	6
	SBT	A	5	0.47	52	A	9	0.47	52
	SBR	A	3	0.06	3	A	6	0.04	3
	Overall	**B**	**10**	-	-	**B**	**17**	-	-
Avenue U & Tremblay Road *Unsignalized*	EBT/R	-	-	-	-	-	-	-	-
	WBL/T	A	7	0.0	-	A	8	0.00	-
	NBL/R	A	10	0.02	-	A	9	0.01	-
Notes:	Saturation flow rate of 1800 veh/h/lane								
	PHF = 1.00								
	# indicates the volume for the 95th percentile cycle exceeds capacity								

With the addition of background growth to reflect the 2021 horizon, the existing intersections are anticipated to operate with similar operational characteristics to the existing conditions, and well within the City of Ottawa operational thresholds.

16.2.3 2026 Future Background

The 2026 future background intersection volumes and other development traffic has been analyzed to allow comparison between the future volumes with and without the proposed development. Table 17 summarizes the operational analysis of 2026 future background conditions. Appendix H contains the 2026 Future Background Synchro sheets.

Table 17:2026 Future Background Conditions Operational Analysis

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	Delay	V/C	Q (95th)	LOS	Delay	V/C	Q (95th)
Belfast Road & Tremblay Road *Signalized*	EBL	A	21	0.23	24	A	33	0.32	28
	EBT/R	A	17	0.32	20	A	25	0.48	48
	WBL	A	19	0.08	10	A	27	0.05	7
	WBT/R	A	17	0.31	38	A	27	0.55	74
	NBL	A	19	0.45	18	B	21	0.62	25
	NBT/R	A	15	0.43	43	B	16	0.63	84
	SBL	A	19	0.05	7	A	23	0.09	9
	SBT/R	D	32	0.85	79	D	35	0.88	#115
	Overall	**C**	**21**	-	-	**C**	**25**	-	-
Belfast Road & Trainyards Drive *Signalized*	EBT	A	9	0.23	33	A	12	0.29	43
	EBR	A	10	0.30	11	A	17	0.58	16
	WBL	A	6	0.26	13	A	8	0.34	18
	WBT	A	4	0.09	8	A	5	0.12	12
	NBL	A	33	0.41	19	B	33	0.67	34
	NBR	A	30	0.42	9	A	28	0.55	10
	Overall	**B**	**14**	-	-	**B**	**18**	-	-
St. Laurent Boulevard & Tremblay Road *Signalized*	EBL	B	54	0.62	48	F	668	2.33	#249
	EBT/R	A	39	0.19	15	A	36	0.43	27
	WBL	A	41	0.05	8	A	42	0.10	12
	WBT/R	A	42	0.43	20	A	39	0.56	26
	NBL	B	51	0.70	#56	A	25	0.20	15
	NBT/R	A	16	0.48	86	A	20	0.58	103
	SBL	A	12	0.43	18	A	21	0.23	9
	SBT	A	11	0.57	94	A	15	0.55	87
	SBR	A	12	0.53	11	A	11	0.21	8
	Overall	**B**	**18**	-	-	**F**	**109**	-	-
Avenue U & Tremblay Road *Unsignalized*	EBT/R	-	-	-	-	-	-	-	-
	WBL/T	A	8	0.0	-	A	8	0.00	-
	NBL/R	B	11	0.02	-	A	10	0.01	-
Mitigation Measures-EBL Protected Double Left-turn									
St. Laurent Boulevard & Tremblay Road *Signalized*	EBL	D	97	0.88	#35	E	82	0.97	#94
	EBT/R	A	40	0.20	16	A	26	0.31	35
	WBL	A	48	0.07	9	A	41	0.10	12
	WBT/R	D	62	0.81	23	D	62	0.87	51
	NBL	B	46	0.68	#54	A	43	0.29	21
	NBT/R	A	14	0.46	81	C	35	0.73	#153
	SBL	A	11	0.43	16	A	23	0.30	14
	SBT	A	10	0.56	84	B	25	0.67	127
	SBR	A	11	0.52	10	A	18	0.26	12
	Overall	**B**	**19**	-	-	**D**	**38**	-	-
Notes:	Saturation flow rate of 1800 veh/h/lane								
	PHF = 1.00								
	# indicates the volume for the 95th percentile cycle exceeds capacity								

With the addition of background growth to reflect the 2026 horizon, including surrounding developments, the existing intersections are expected to operate with similar operational characteristics to the existing conditions with one exception. The eastbound left-turn at the intersection of St. Laurent Boulevard and Tremblay Road in the PM peak period is anticipated to operate with a LOS F and v/c of 2.33. This result is a reflection of the significant volumes expected to be generated by the future Canada Lands Company development as calculated in this TIA.

To mitigate the projected deficiencies of the eastbound left-turn movement at St. Laurent Boulevard and Tremblay Road, a protected double left-turn is proposed as a potential solution. These measures allow the intersection to operate well with a V/C<1.0 at the eastbound left-turn. As Canada Lands Company moves forward with their development, it is expected that they will confirm the timing and layout at this intersection. The mitigation results can also be seen in Table 17.

16.2.4 2021 Total Future

The 2021 total future intersection volumes, including the site generated traffic and other development traffic, has been analyzed to understand the impact of the subject development on the Study Area intersections. Table 18 summarizes the operational analysis of 2021 total future conditions. Appendix I contains the 2021 Future Total Synchro Sheets.

Table 18: 2021 Total Future Conditions Operational Analysis

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	Delay	V/C	Q (95th)	LOS	Delay	V/C	Q (95th)
Belfast Road & Tremblay Road ***Signalized***	EBL	A	18	0.20	23	A	23	0.19	25
	EBT/R	A	16	0.31	20	A	24	0.45	46
	WBL	A	18	0.07	10	A	25	0.04	7
	WBT/R	A	15	0.23	29	A	20	0.21	28
	NBL	A	19	0.42	17	A	20	0.58	24
	NBT/R	A	15	0.42	40	B	16	0.62	78
	SBL	A	19	0.05	7	A	22	0.09	9
	SBT/R	D	31	0.84	74	D	33	0.86	106
	Overall	**C**	**20**	**-**	**-**	**C**	**23**	**-**	**-**
Belfast Road & Trainyards Drive ***Signalized***	EBT	A	9	0.22	31	A	11	0.27	41
	EBR	A	10	0.29	11	A	15	0.54	16
	WBL	A	6	0.24	12	A	7	0.30	17
	WBT	A	4	0.09	7	A	5	0.11	12
	NBL	A	33	0.38	18	B	33	0.66	32
	NBR	A	30	0.38	9	A	29	0.55	10
	Overall	**B**	**13**	**-**	**-**	**B**	**17**	**-**	**-**
St. Laurent Boulevard & Tremblay Road ***Signalized***	EBL	A	58	0.21	13	A	57	0.39	#31
	EBT/R	A	48	0.21	15	A	41	0.33	24
	WBL	A	49	0.07	9	A	44	0.10	13
	WBT/R	C	57	0.73	23	C	49	0.72	27
	NBL	A	10	0.19	13	A	14	0.08	6
	NBT/R	A	9	0.39	54	A	15	0.49	69
	SBL	A	6	0.34	10	A	10	0.18	6
	SBT	A	6	0.47	52	A	10	0.47	53
	SBR	A	3	0.06	3	A	6	0.05	3
	Overall	**B**	**10**	**-**	**-**	**B**	**17**	**-**	**-**
Avenue U & Tremblay Road ***Unsignalized***	EBT/R	-	-	-	-	-	-	-	-
	WBL/T	A	7	0.01	-	A	8	0.01	-
	NBL/R	A	10	0.03	-	A	9	0.01	-
Notes:	Saturation flow rate of 1800 veh/h/lane								
	PHF = 1.00								
	# indicates the volume for the 95th percentile cycle exceeds capacity								

With the addition of site generated traffic, the existing intersections are anticipated to operate with similar operational characteristics as the 2021 future background conditions, and well within the City of Ottawa operational thresholds.

16.2.5 2026 Total Future

The 2026 total future intersection volumes, including the site generated traffic and other development traffic, have been analyzed to understand the impact of the subject development on the Study Area intersections. Table 19 summarizes the operational analysis of the 2026 future total conditions. Appendix J contains the 2026 Future Total Synchro Sheets.

Table 19: 2026 Total Future Conditions Operational Analysis

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	Delay	V/C	Q (95th)	LOS	Delay	V/C	Q (95th)
Belfast Road & Tremblay Road *Signalized*	EBL	A	21	0.23	24	A	34	0.32	28
	EBT/R	A	17	0.33	21	A	25	0.49	49
	WBL	A	19	0.08	10	A	27	0.05	7
	WBT/R	A	17	0.32	39	A	27	0.56	75
	NBL	A	19	0.45	18	B	21	0.62	25
	NBT/R	A	15	0.43	43	B	16	0.63	84
	SBL	A	19	0.05	7	A	23	0.09	10
	SBT/R	D	32	0.85	79	D	35	0.88	#115
	Overall	**C**	**21**	-	-	**C**	**25**	-	-
Belfast Road & Trainyards Drive *Signalized*	EBT	A	9	0.23	33	A	12	0.29	43
	EBR	A	10	0.30	11	A	17	0.58	16
	WBL	A	6	0.26	13	A	8	0.34	18
	WBT	A	4	0.09	8	A	5	0.12	12
	NBL	A	33	0.41	19	B	33	0.67	34
	NBR	A	30	0.42	9	A	28	0.55	10
	Overall	**B**	**14**	-	-	**B**	**18**	-	-
St. Laurent Boulevard & Tremblay Road *Signalized*	EBL	D	99	0.89	#36	E	84	0.98	#95
	EBT/R	A	40	0.20	16	A	26	0.31	35
	WBL	A	48	0.07	9	A	41	0.10	12
	WBT/R	D	62	0.81	23	D	62	0.87	52
	NBL	B	47	0.68	#54	A	43	0.30	21
	NBT/R	A	14	0.46	81	C	35	0.73	#153
	SBL	A	11	0.44	16	A	23	0.30	14
	SBT	A	10	0.56	85	B	25	0.67	127
	SBR	A	11	0.52	10	A	18	0.27	12
	Overall	**B**	**19**	-	-	**D**	**38**	-	-
Avenue U & Tremblay Road *Unsignalized*	EBT/R	-	-	-	-	-	-	-	-
	WBL/T	A	8	0.0	-	A	8	0.00	-
	NBL/R	B	11	0.02	-	A	10	0.01	-
Notes:	Saturation flow rate of 1800 veh/h/lane								
	PHF = 1.00								
	# indicates the volume for the 95th percentile cycle exceeds capacity								

With the addition of site generated traffic, the existing intersections are anticipated to operate with similar operational characteristics as the 2026 future background conditions, and well within the City of Ottawa operational thresholds.

The mitigation measures described in Section 16.2.3 for the eastbound left-turn at the intersection of St. Laurent Boulevard and Tremblay Road have been applied in this horizon as well. As Canada Lands Company moves forward with their development, it is expected that they will confirm the timing and layout of this intersection.

16.2.6 Intersection MMLOS

Intersection MMLOS is only undertaken at signalized intersections. The three signalized intersections considered in this study are Belfast Road and Tremblay Road, St. Laurent Boulevard and Tremblay Road, and Belfast Road and Trainyards Drive. The intersections of Belfast Road and Tremblay Road, and Belfast Road and Trainyards Drive have been evaluated at all horizons using the existing geometry as no future signalization or geometric changes are anticipated at these intersections. St. Laurent Boulevard and Tremblay Road has been evaluated at the

existing/2021 horizons, and the 2026 horizon for the PLOS analysis as potential future geometric and signalization changes are anticipated at this intersection due to the mitigation measures described in Section 16.2.3 and the realignment of Tremblay Road. For all other MMLOS analysis at the intersection of St. Laurent Boulevard and Tremblay Road, all three analysis horizons are evaluated together as these signalization and geometric changes do not alter the BLOS, TLOS or TkLOS analysis outcomes.

Pedestrian LOS (PLOS) is evaluated using the PETSI score methodology which evaluates various intersection geometry elements and assigns those values a score. Table 20 summarizes the PETSI score evaluation for the existing signalized intersection of Belfast Road and Tremblay Road.

Table 20: PETSI Score Belfast Road and Tremblay Road-All Horizons

	Crossing East West			Crossing North South		
Element	**Condition**	**Points**		**Condition**	**Points**	
Crossing Distance	3 Lanes No Median	105		4 Lanes No Median	88	
Island Refuge	No	-4		No	-4	
Signal Phasing / Timing						
Left Turn Type	Protected / Permissive	-8		Permissive	-8	
Right Turn Conflict	Permissive	-5		Permissive	-5	
Right Turn on Red	Allowed	-3		Allowed	-3	
Leading Ped. Interval	No	-2		No	-2	
Corner Radius	>10m to 15m	-6		>10m to 15m	-6	
Crosswalk	Standard Markings	-7		Standard Markings	-7	
PETSI LOS	Actual	70	C	Actual	53	D
	Target		A	Target		A

Neither the east-west pedestrian crossing nor the north-south pedestrian crossing meets the target PLOS for collector roads within 600m of a rapid transit station. To improve the PLOS, the signal timing could be adjusted to only allow protected left turns. Removing the permissive left turn phase on the eastbound and westbound approaches will reduce the vehicle LOS and create an awkward signal timing for motorists. Therefore, in this case the intersection LOS D should be tolerated as it is not reasonable to achieve the target PLOS.

Table 21 summarizes the PETSI score evaluation for the existing signalized intersection of Belfast Road and Trainyards Drive.

Table 21: PETSI Score Belfast Road and Trainyards Drive-All Horizons

	Crossing East West			Crossing North South		
Element	**Condition**	**Points**		**Condition**	**Points**	
Crossing Distance	4 Lanes No Median	88		5 Lanes No Median	72	
Island Refuge	No	-4		No	-4	
Signal Phasing / Timing						
Left Turn Type	No left-turn	0		Protected / Permissive	-8	
Right Turn Conflict	Permissive	-5		Permissive	-5	
Right Turn on Red	Allowed	-3		Allowed	-3	
Leading Ped. Interval	No	-2		No	-2	
Corner Radius	>10m to 15m	-6		>10m to 15m	-6	
Crosswalk	Standard Markings	-7		Standard Markings	-7	
PETSI LOS	Actual	61	C	Actual	37	E
	Target		A	Target		A

Neither the east-west pedestrian crossing nor the north-south pedestrian crossing meets the target PLOS for collector roads within 600m of a rapid transit station. To improve the PLOS, the eastbound right-turn lane and the northbound right-turn lane could be removed to reduce the crossing distances. Removing the northbound right-turn lane is not recommended given that to accommodate this removal, one of the northbound left-turn lanes would need to be altered as this is a T-intersection and therefore no northbound through lanes exist. Removing the eastbound right-turn lane is not recommended either as this can increase the number of rear-end collisions at a signalized intersection. Therefore, in this case the intersection LOS E should be tolerated as it is not reasonable to achieve the target PLOS.

Table 22 summarizes the PETSI score evaluation for the existing and 2021 future horizon of the signalized intersection of St. Laurent Boulevard and Tremblay Road. No signalization or geometric changes from existing conditions are expected by the 2021 future horizon.

Table 22: PETSI Score St. Laurent and Tremblay Road-Existing/2021 Future Horizon

	Crossing East West			**Crossing North South**		
Element	**Condition**	**Points**		**Condition**	**Points**	
Crossing Distance	3 Lanes No Median	105		7 Lanes No Median	39	
Island Refuge	No	-4		No	-4	
Signal Phasing / Timing						
Left Turn Type	Protected / Permissive	-8		Permissive	-8	
Right Turn Conflict	Permissive	-5		Permissive	-5	
Right Turn on Red	Allowed	-3		Allowed	-3	
Leading Ped. Interval	No	-2		No	-2	
Corner Radius	>10m to 15m	-6		>10m to 15m	-6	
Crosswalk	Standard Markings	-7		Standard Markings	-7	
PETSI LOS	Actual	70	C	Actual	-2	F
	Target		A	Target		A

Neither the east-west pedestrian crossing nor the north-south pedestrian crossing meets the target PLOS for collector roads or arterial roads within 600m of a rapid transit station. Removing lanes at this intersection on any leg is not feasible in order to reduce the crossing distances and improve the PLOS. Therefore, in this case the intersection LOS F should be tolerated as it is not reasonable to achieve the target PLOS.

Table 23 summarizes the PETSI score evaluation for the 2026 future horizon of the signalized intersection of St. Laurent Boulevard and Tremblay Road

Table 23: PETSI Score St. Laurent and Tremblay Road-2026 Future Horizon

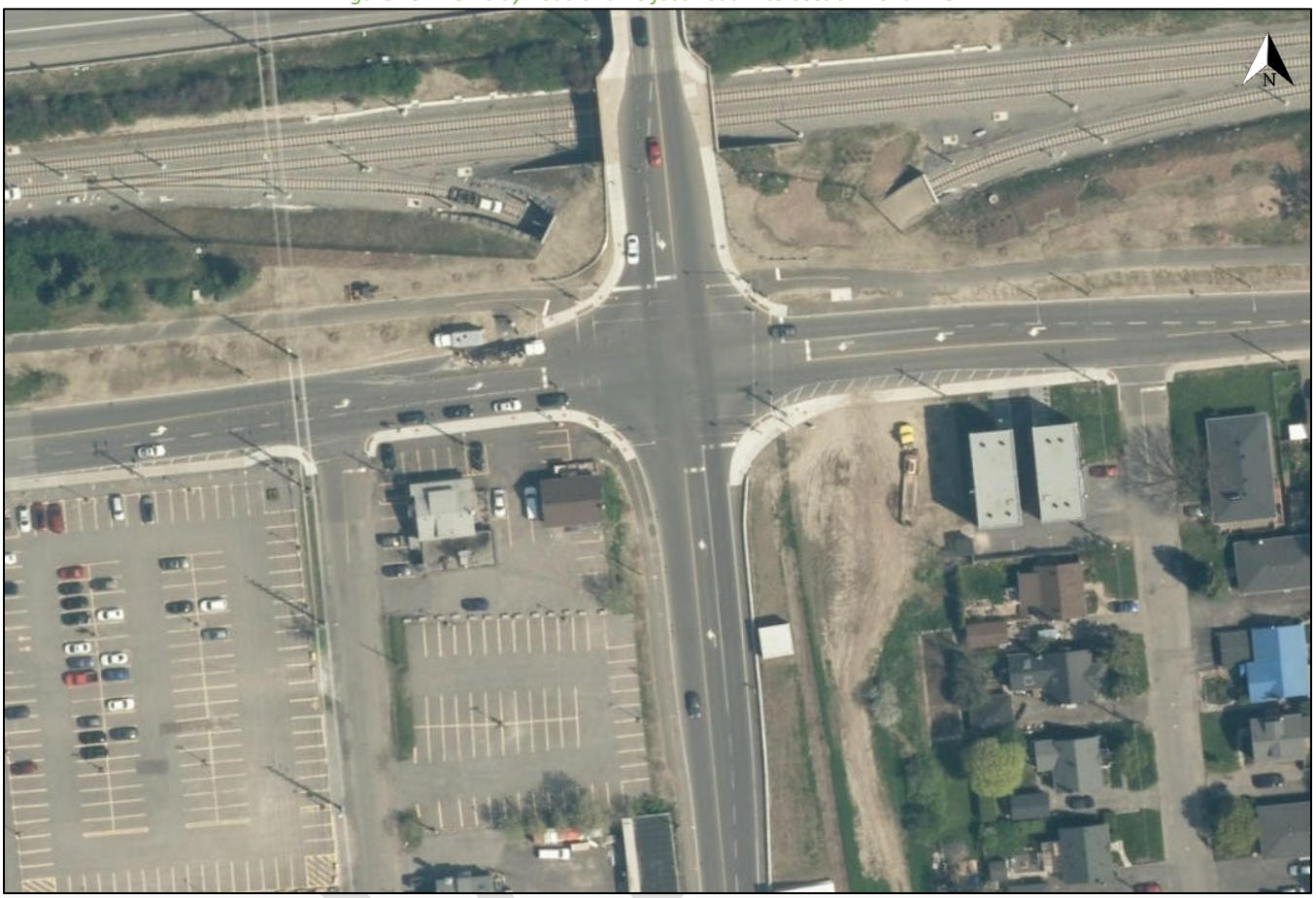
	Crossing East West			Crossing North South		
Element	**Condition**	**Points**		**Condition**	**Points**	
Crossing Distance	4 Lanes No Median	88		7 Lanes No Median	39	
Island Refuge	No	-4		No	-4	
Signal Phasing / Timing						
Left Turn Type	Protected / Permissive	-8		Protected	0	
Right Turn Conflict	Permissive	-5		Permissive	-5	
Right Turn on Red	Allowed	-3		Allowed	-3	
Leading Ped. Interval	No	-2		No	-2	
Corner Radius	>10m to 15m	-6		>10m to 15m	-6	
Crosswalk	Standard Markings	-7		Standard Markings	-7	
PETSI LOS	Actual	53	D	Actual	12	F
	Target		A	Target		A

Neither the east-west pedestrian crossing nor the north-south pedestrian crossing meets the target PLOS for collector roads or arterial roads within 600m of a rapid transit station. Removing lanes at this intersection on any leg is not feasible in order to reduce the crossing distances and improve the PLOS. Therefore, in this case the intersection LOS F should be tolerated as it is not reasonable to achieve the target PLOS. The intersection configuration is required to be confirmed by Canada Lands Company.

Bicycle LOS (BLOS) is evaluated by examining elements that impact the level of traffic stress (LTS).

The BLOS at the intersection of Tremblay Road and Belfast Road cannot be evaluated using the MMLOS guidelines as this is a unique situation. An aerial view of the intersection can be found in Figure 25.

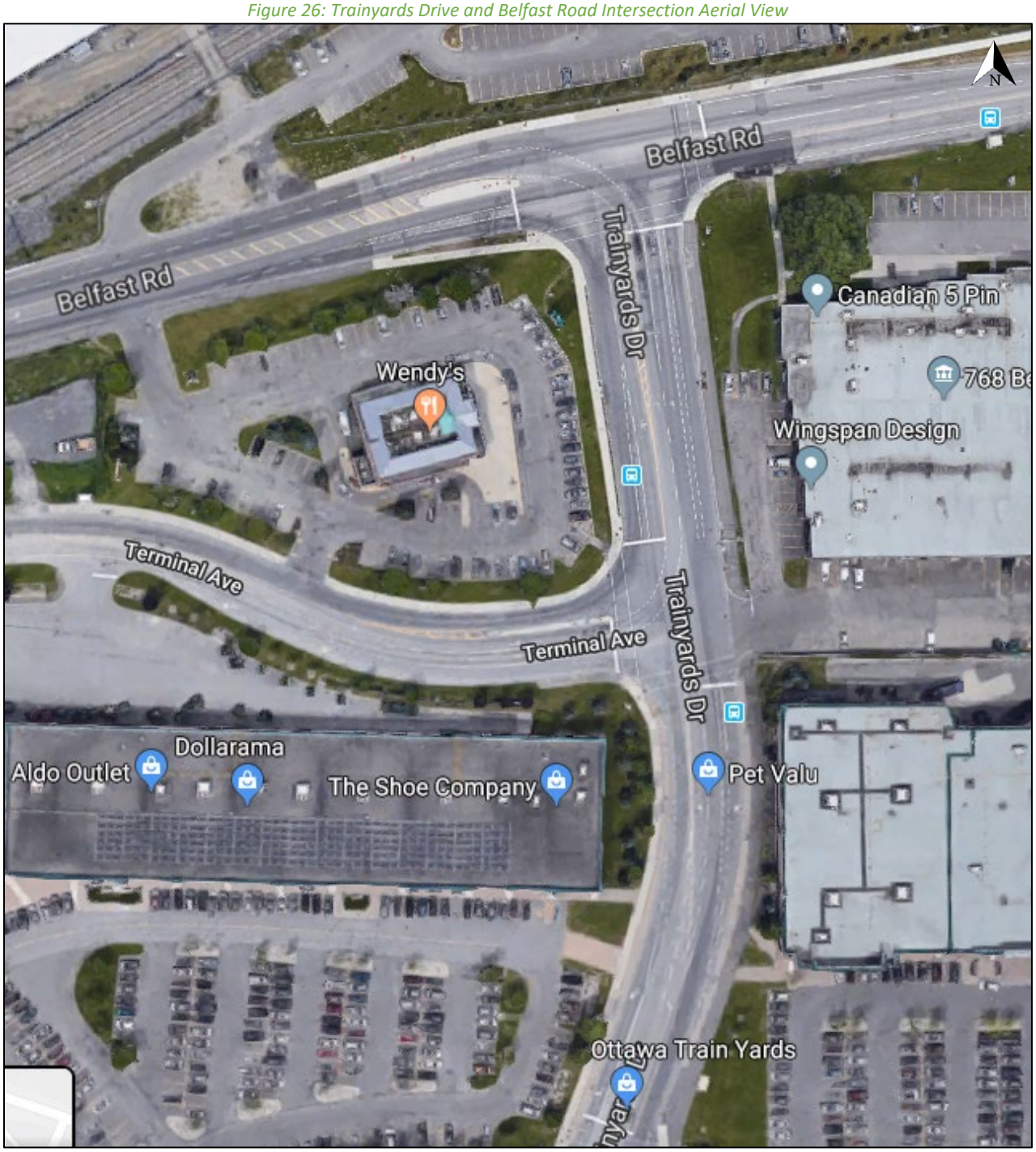
Figure 25: Tremblay Road and Belfast Road Intersection Aerial View



The multi-use path on the north side of the intersection is a source of confusion to both drivers and cyclists at the intersection. As it does not lead to a crossride, cyclists are expected to dismount in order to traverse the intersection. While this serves as a minor inconvenience to cyclists travelling in the east-west directions, it is unclear to cyclists attempting to turn left or right onto Belfast Road how to perform this maneuver safely. A similar problem exists for the paved path on the south leg of the intersection. Based on these identified problems at this intersection which may cause confusion among cyclists and drivers, it is clear that an unfavorable LOS is provided. As this a unique situation with no clear guidelines to follow, a specific BLOS cannot be determined using the MMLOS guidelines.

While the intersection of Trainyards Drive and Belfast Road can be evaluated using the MMLOS guidelines, its unique set-up produces challenges to cyclists using the intersection. An aerial view of the intersection can be found in Figure 26.

Figure 26: Trainyards Drive and Belfast Road Intersection Aerial View



The paved multi-use pathway on the south side of Belfast Road exists only to the west of Trainyards Drive. Cyclists are expected to exit the pathway and merge onto the road at the exact area of Belfast Road where the eastbound right-turn lane begins. Cyclists are forced to make this transition at the entrance of an existing driveway which is dangerous. A lack of signage indicating this transition to both cyclists and drivers will produce confusion and a potential safety risk.

Table 24 summarizes the elements that impact the BLOS at Trainyards Drive and Belfast Road, the worst of which is taken as the intersection BLOS.

Table 24: Bicycle LOS at Trainyards Drive and Belfast Road-All Horizons

	East-West			North-South		
Right-turn Lane and Turning Speed of Motorists	Right-turn lane with any other configurations	Actual	F	Right-turn lane introduced to the right of the bike lane and > 50 m long, turning speed ≤ 30 km/	Actual	D
		Target	D		Target	D
Cyclist Making a Left-turn and Operating Speed of Motorists	2 or more lanes crossed, ≥ 50 km/h	Actual	F	No lane crossed, ≥ 60 km/h	Actual	C
		Target	D		Target	D

The east-west approaches operate at a BLOS F which does not meet their target of D. The north-south approaches operate at a BLOS D which meets the target of D. Overall, the intersection operates at a BLOS of F.

Table 25 summarizes the elements that impact the BLOS at St. Laurent Boulevard and Tremblay Road, the worst of which is taken as the intersection BLOS.

Table 25: Bicycle LOS at St. Laurent Boulevard and Tremblay Road-All Horizons

	East-West			North-South		
Right-turn Lane and Turning Speed of Motorists	No Right Turn Lanes	Actual	N/A	Right-turn lane introduced to the right of the bike lane and > 50 m long, turning speed ≤ 30 km/	Actual	F
		Target	D		Target	D
Cyclist Making a Left-turn and Operating Speed of Motorists	2 or more lanes crossed, ≥ 50 km/h	Actual	F	No lane crossed, ≥ 60 km/h	Actual	F
		Target	D		Target	D

The east-west approaches operate at a BLOS F which does not meet their target of D. The north-south approaches operate at a BLOS F which does not meet the target of D either. Overall, the intersection operates at a BLOS of F.

Transit LOS (TLOS) is evaluated by examining the average signal delay and the relative attractiveness of transit compared to automobile trips. While local transit service is present at the existing signalized intersections, the TMP Ultimate Network does not include higher order transit facilities or transit signal priority (TSP) measures at these intersections. Therefore, the TLOS for these three intersections, at all horizons considered in this TIA, is F. Based on the definition of TLOS there are no improvements, aside from adding TSP along the street corridors, however due to the intersections' close proximity to both the St. Laurent and Tremblay LRT stations, this is unnecessary.

Truck LOS (TkLOS) is evaluated by examining the intersection geometry including the corner radius and the number of receiving lanes.

Table 26 summarizes the TkLOS for the intersection of Tremblay Road and Belfast Road.

Table 26: Truck LOS Criteria for Tremblay Road and Belfast Road-All Horizons

	North-South				East-West			
Corner Radius	10 to 15m				10 to 15m			
Receiving Lanes	1				1			
TkLOS	Actual	E	Target	D	Actual	E	Target	D

Both Belfast Road and Tremblay Road are designated Truck Routes. Therefore, neither meet the target TkLOS of D at this intersection.

Table 27 summarizes the TkLOS for the intersection of Trainyards Drive and Tremblay Road.

Table 27: Truck LOS Criteria for Trainyards Drive and Tremblay Road-All Horizons

	North-South				East-West			
Corner Radius	10 to 15m				10 to 15m			
Receiving Lanes	1				>1			
TkLOS	Actual	E	Target	D	Actual	B	Target	D

Both Trainyards Drive and Tremblay Road are designated Truck Routes. Therefore, only Tremblay Road meets the target TkLOS of D at this intersection.

Table 28 summarizes the TkLOS for the intersection of St. Laurent Boulevard and Tremblay Road.

Table 28: Truck LOS Criteria for St. Laurent Boulevard and Tremblay Road-All Horizons

	North-South				East-West			
Corner Radius	10 to 15m				10 to 15m			
Receiving Lanes	1				>1			
TkLOS	Actual	E	Target	D	Actual	B	Target	D

Both St. Laurent Boulevard and Tremblay Road are designated Truck Routes. Therefore, only Tremblay Road at this location meets the target TkLOS of D at this intersection.

16.2.7 Intersection Design

No intersection changes are recommended based on the above PLOS, BLOS, TLOS, and TkLOS analysis above. Based on the vehicle LOS analysis in Section 16.2.3 however, the following intersection recommendation has been made:

- Implement an eastbound double left-turn at the intersection of St. Laurent Boulevard and Tremblay Road in the 2026 future horizon

As Canada Lands Company moves forward with their development, it is expected that they will confirm the timing and layout at this intersection.

17 Conclusions

This Transportation Impact Assessment has documented the existing and future transportation conditions, for all travel modes, in the Study Area. The following conclusions can be offered based on the foregoing:

A. The proposed development, located at 530 Tremblay Road, is an apartment complex divided into two buildings. It is anticipated to include a total of approximately 124 apartment units, 66 underground parking spaces and 58 above ground parking spaces divided between the two buildings.
B. Access to the proposed development varies between the future horizons. The proposed development will connect to Avenue U via Access #1 in the 2021 future horizon (Scenario 1). In the 2026 horizon, Access #1 will be closed and the development will be connected to St. Laurent Boulevard via Access #2 along the realigned Tremblay Road (Scenario 2).
C. Sections of the proposed development are within 400 metres of the St. Laurent LRT Station and as such is zoned as a Transit Oriented Development (TOD) Zone.
D. The existing Study Area is currently served by bus routes #18, 39, 40, 42 and 47.
E. The previous five years of collision history at the existing Study Area intersections has been reviewed. No patterns emerged that indicated that mitigation measures or further monitoring was required.
F. Using the TRANS Study the residential trip generation rates were calculated. TOD mode shares were used to determine the trip generation by mode in a manner that accounts for the proximity of the St. Laurent LRT station. It was found that the proposed development can be anticipated to generate 79 AM and 85 PM peak hour two-way person trips.
G. At this time, no TIA for the adjacent Canada Lands Company development is available. As the development is expected to directly impact 530 Tremblay and the surrounding Study Area, site-traffic generation and distribution has been prepared using the land use statistics and TOD mode shares. An estimated 817 AM and 886 PM new peak hour two-way vehicle trips are projected.
H. TOD areas do not require resident vehicle parking, however, 124 parking spaces will be provided. Additionally, 12 visitor parking spaces and 67 bicycle parking spaces will be provided. All minimum parking requirements are met or exceeded.
I. It was found that the road segment of Avenue U will meet the BLOS target level but will not meet the PLOS target level during its use as Site Access #1 in Scenario 1. As this is a temporary access with low vehicle volumes, no resulting improvements to Avenue U are recommended.
J. The majority of Access #2 is contained within the Canada Lands Company site and will require coordination with the future Canada Lands Company site. As such, a segment MMLOS was not performed for Scenario 2 at this time, however it is recommended that where possible it meet the MMLOS targets.
K. As both Access #1 and Access #2 in their respective scenarios are proposed as driveways, signalization warrants and turning lane warrants are not required to be examined.
L. The Study Area intersections operate satisfactorily during the peak hours in the existing conditions operational analysis.
M. The Study Area intersections operate satisfactorily during the peak hours in the 2021 future background operational analysis.
N. The Study Area intersections operate satisfactorily during the peak hours in the 2021 future total operational analysis with similar operational characteristics as the 2021 future background conditions.
O. The Study Area intersections operate satisfactorily during the peak hours in the 2026 future background operational analysis with the exception of the eastbound left-turn in the PM peak period at the intersection of St. Laurent Boulevard and Tremblay Road. To mitigate the projected deficiencies of this

movement, a protected double left-turn was proposed as a potential solution. These measures allowed the intersection to operate well with all v/c ratios less than one.

P. The Study Area intersections operate satisfactorily during the peak hours in the mitigated 2026 future total operational analysis with similar operational characteristics as the mitigated 2026 future background conditions.

Q. The PLOS, BLOS, TLOS, and TkLOS were evaluated at all three signalized Study Area intersections (Belfast Road and Tremblay Road, St. Laurent Boulevard and Tremblay Road, and Belfast Road and Trainyards Drive). In most cases, the MMLOS targets were not met. No intersection alterations or mitigation measures are suggested as changes to these intersections are not feasible.

The proposed development will function within the Study Area Road Network. It is recommended that, from a transportation perspective, the proposed development application process proceed.

Prepared By:

Reviewed By:

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Appendix A

TIA Screening Form and PM Certification Form

13 Markham Avenue
Nepean ON K2G 3Z1

City of Ottawa 2017 TIA Guidelines
Step 1 - Screening Form

Date: 26-Jun-19
Project Number: 2018-67
Project Reference: CLV - 530 Tremblay

1.1 Description of Proposed Development	
Municipal Address	530 Tremblay Road
Description of Location	GLOUCESTER CON JUNCTION GORE;PT LOT 11 RP 4R27340 PART 1
Land Use Classification	TD1 - Transit Oriented Development
Development Size	122 apartment units, 60 surface & 60 underground parking, 7 visitor parking/drop-off
Accesses	Single access on Avenue U. Additional emergency vehicle access on Avenue P
Phase of Development	Single Phase
Buildout Year	2021
TIA Requirement	Full TIA Required

1.2 Trip Generation Trigger		
Land Use Type	Townhomes or apartments	
Development Size	124	Units
Trip Generation Trigger	Yes	

1.3 Location Triggers		
Does the development propose a new driveway to a boundary street that is designated as part of the City's Transit Priority, Rapid Transit or Spine Bicycle Networks?	No	
Is the development in a Design Priority Area (DPA) or Transit-oriented Development (TOD) zone?	Yes	St Laurent TOD, Cyrville Mixed-Use Centre, Tremblay, St Laurent and Cyrville Secondary Plan
Location Trigger	Yes	

1.4. Safety Triggers	
Are posted speed limits on a boundary street are 80 km/hr or greater?	No
Are there any horizontal/vertical curvatures on a boundary street limits sight lines at a proposed driveway?	No
Is the proposed driveway within the area of influence of an adjacent traffic signal or roundabout (i.e. within 300 m of intersection in rural conditions, or within 150 m of intersection in urban/ suburban conditions)?	No
Is the proposed driveway within auxiliary lanes of an intersection?	No
Does the proposed driveway make use of an existing median break that serves an existing site?	No
Is there is a documented history of traffic operations or safety concerns on the boundary streets within 500 m of the development?	No
Does the development include a drive-thru facility?	No
Safety Trigger	No

TIA Plan Reports

On 14 June 2017, the Council of the City of Ottawa adopted new Transportation Impact Assessment (TIA) Guidelines. In adopting the guidelines, Council established a requirement for those preparing and delivering transportation impact assessments and reports to sign a letter of certification.

Individuals submitting TIA reports will be responsible for all aspects of development-related transportation assessment and reporting, and undertaking such work, in accordance and compliance with the City of Ottawa's Official Plan, the Transportation Master Plan and the Transportation Impact Assessment (2017) Guidelines.

By submitting the attached TIA report (and any associated documents) and signing this document, the individual acknowledges that s/he meets the four criteria listed below.

CERTIFICATION

1. I have reviewed and have a sound understanding of the objectives, needs and requirements of the City of Ottawa's Official Plan, Transportation Master Plan and the Transportation Impact Assessment (2017) Guidelines;
2. I have a sound knowledge of industry standard practice with respect to the preparation of transportation impact assessment reports, including multi modal level of service review;
3. I have substantial experience (more than 5 years) in undertaking and delivering transportation impact studies (analysis, reporting and geometric design) with strong background knowledge in transportation planning, engineering or traffic operations; and
4. I am either a licensed[1] or registered[2] professional in good standing, whose field of expertise [check √ appropriate field(s)] is either transportation engineering √ or transportation planning □.

[1,2] License of registration body that oversees the profession is required to have a code of conduct and ethics guidelines that will ensure appropriate conduct and representation for transportation planning and/or transportation engineering works.

City Of Ottawa
Infrastructure Services and Community Sustainability
Planning and Growth Management
110 Laurier Avenue West, 4th fl.
Ottawa, ON K1P 1J1
Tel. : 613-580-2424
Fax: 613-560-6006

Ville d'Ottawa
Services d 'infrastructure et Viabilité des collectivités
Urbanisme et Gestion de la croissance
110, avenue Laurier Ouest
Ottawa (Ontario) K1P 1J1
Tél. : 613-580-2424
Télécopieur: 613-560-6006

Dated at ___Newmarket_____ this __26__ day of _____July_____, 2019.
(City)

Name: _____Mark Crockford_____
(Please Print)

Professional Title: _____Professional Engineer_____

_____
Signature of Individual certifier that s/he meets the above four criteria

Office Contact Information (Please Print)
Address: 628 Haines Road
City / Postal Code: Newmarket / L3Y 6V5
Telephone / Extension: (905) 251-4070
E-Mail Address: Mark.Crockford@CGHTransportation.com

Appendix B

Traffic Data

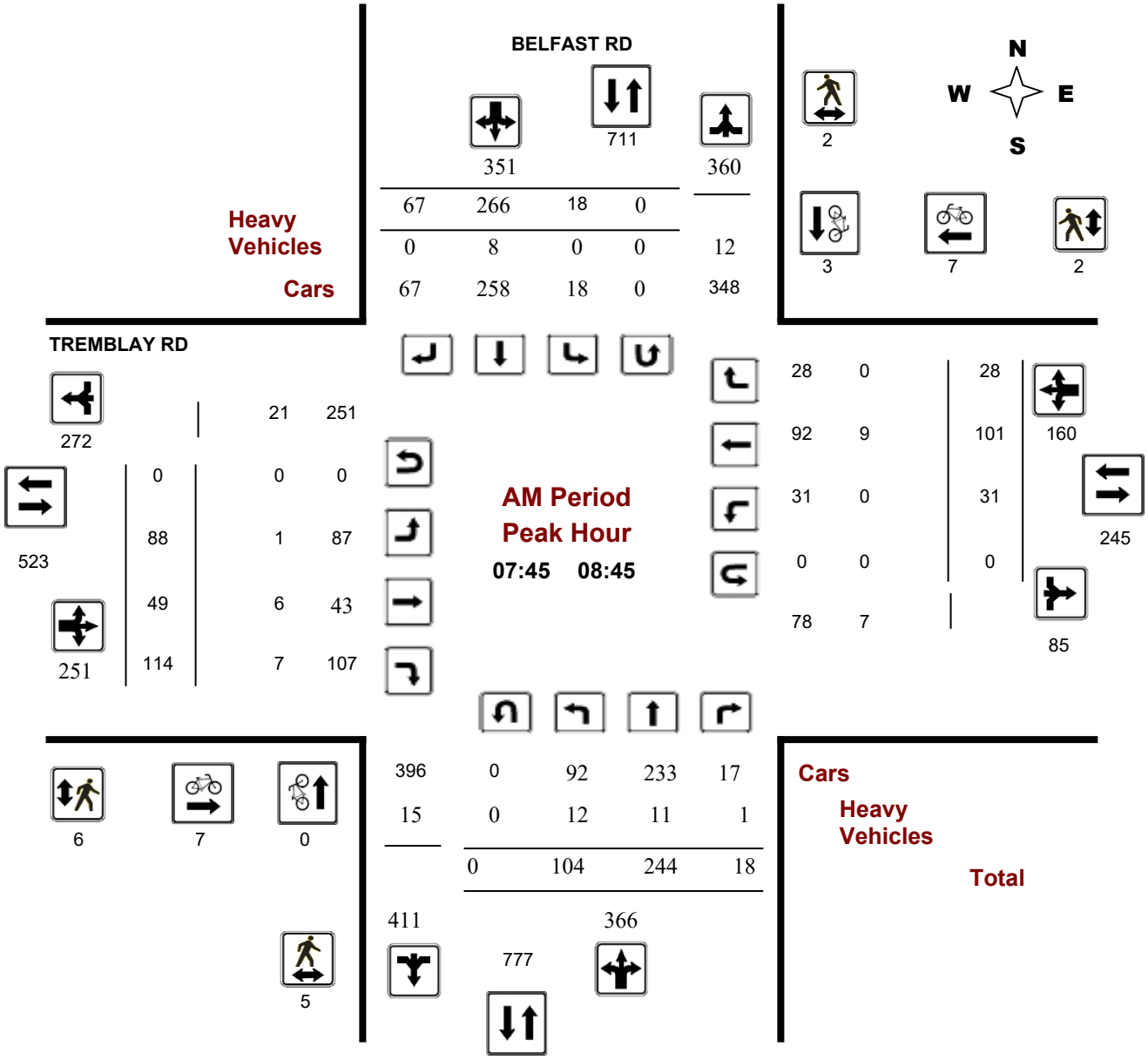
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

BELFAST RD @ TREMBLAY RD

Survey Date: Tuesday, November 08, 2016 **WO No:** 36466

Start Time: 07:00 **Device:** Miovision



Comments

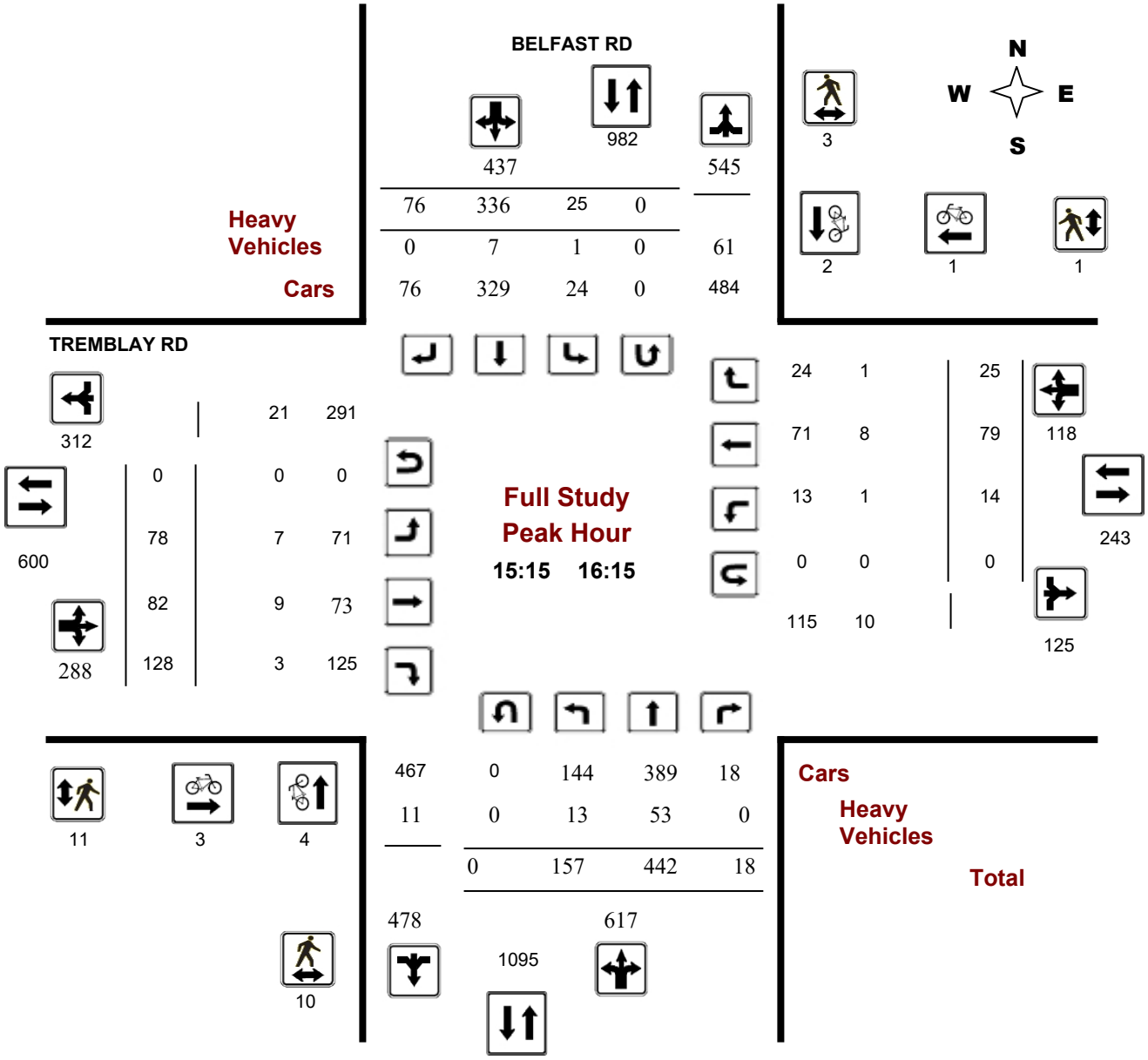
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

BELFAST RD @ TREMBLAY RD

Survey Date: Tuesday, November 08, 2016 **WO No:** 36466

Start Time: 07:00 **Device:** Miovision



Comments

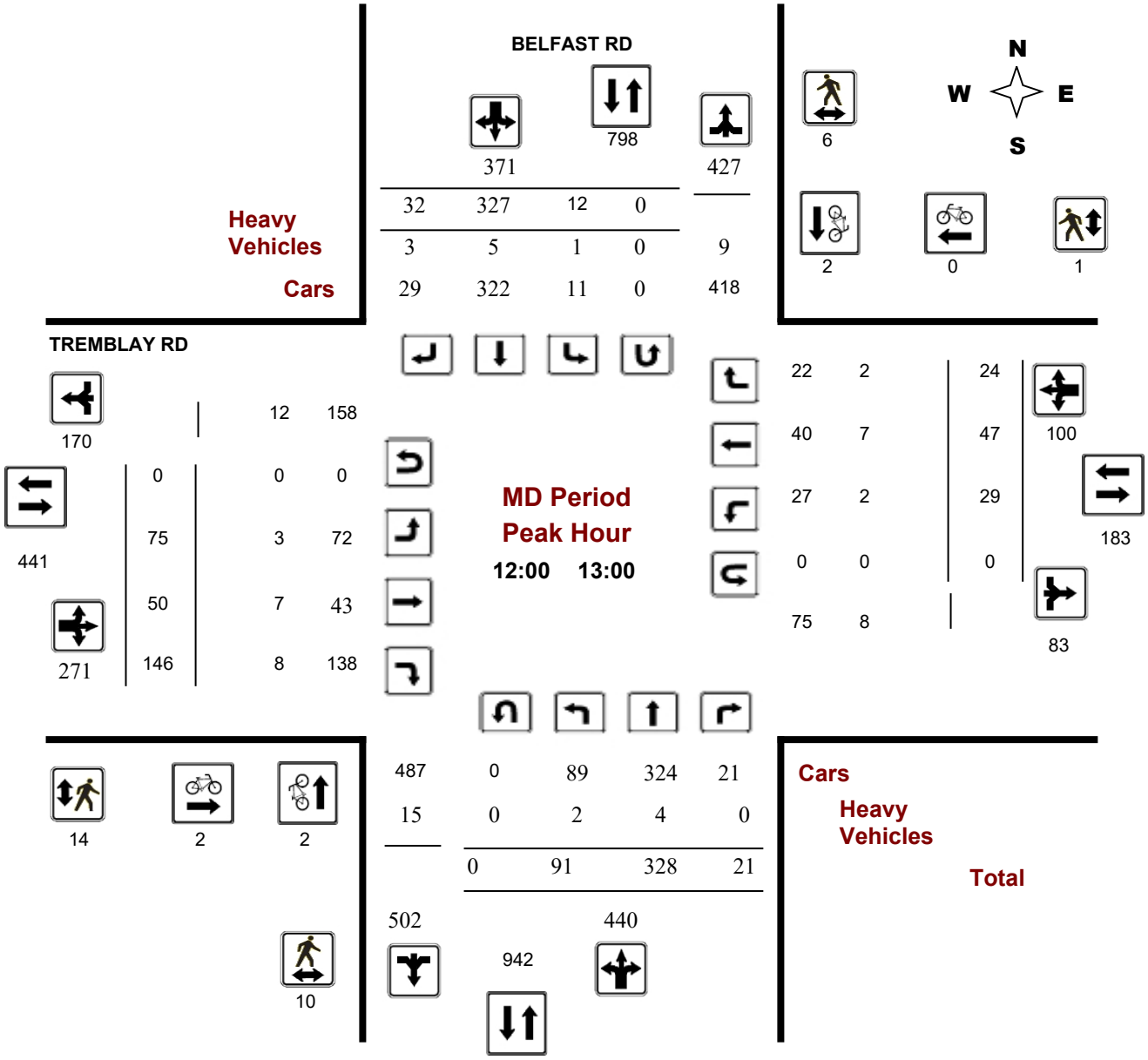
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

BELFAST RD @ TREMBLAY RD

Survey Date: Tuesday, November 08, 2016 **WO No:** 36466

Start Time: 07:00 **Device:** Miovision



Comments

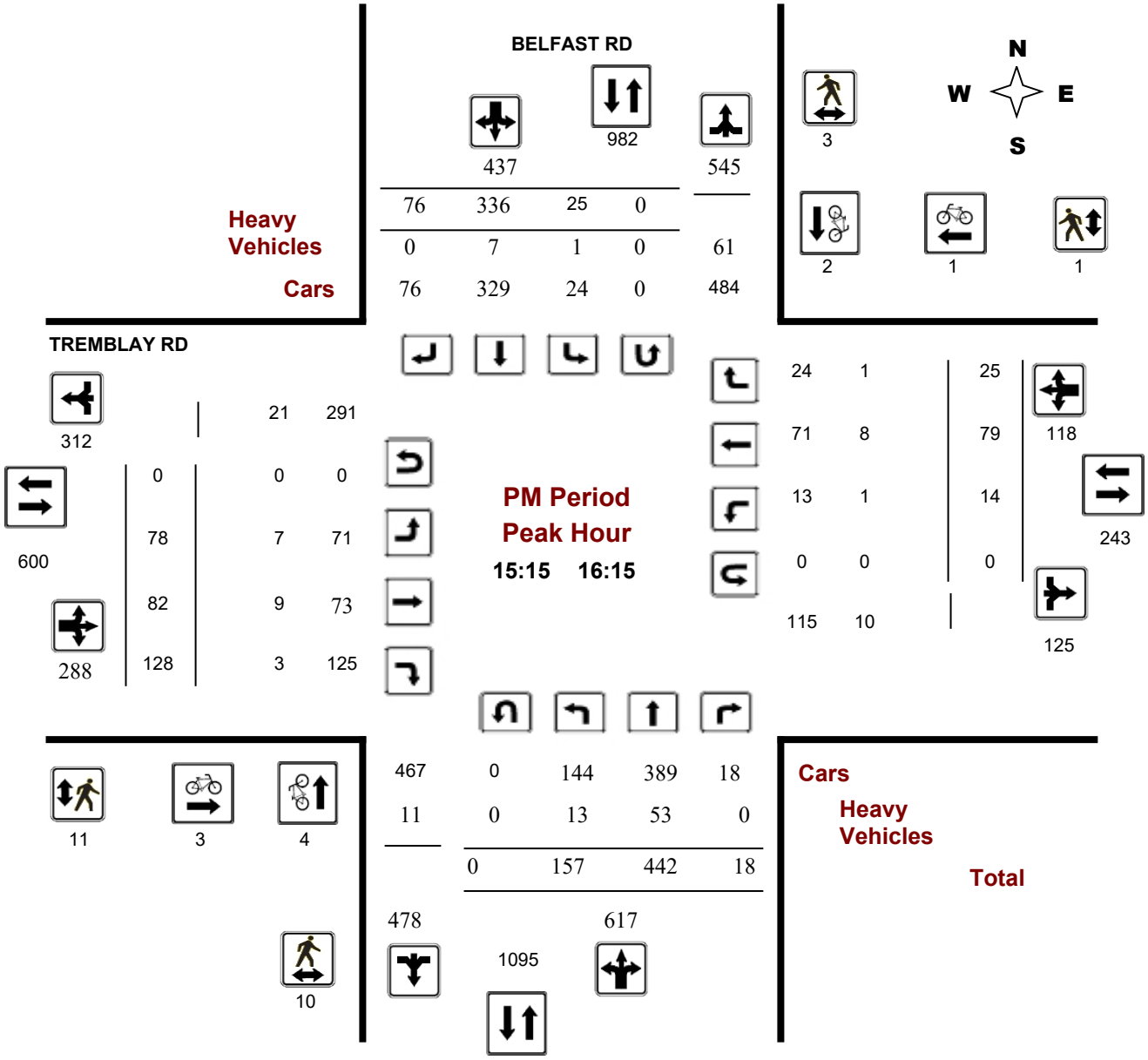
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

BELFAST RD @ TREMBLAY RD

Survey Date: Tuesday, November 08, 2016 **WO No:** 36466

Start Time: 07:00 **Device:** Miovision



Comments

Transportation Services - Traffic Services

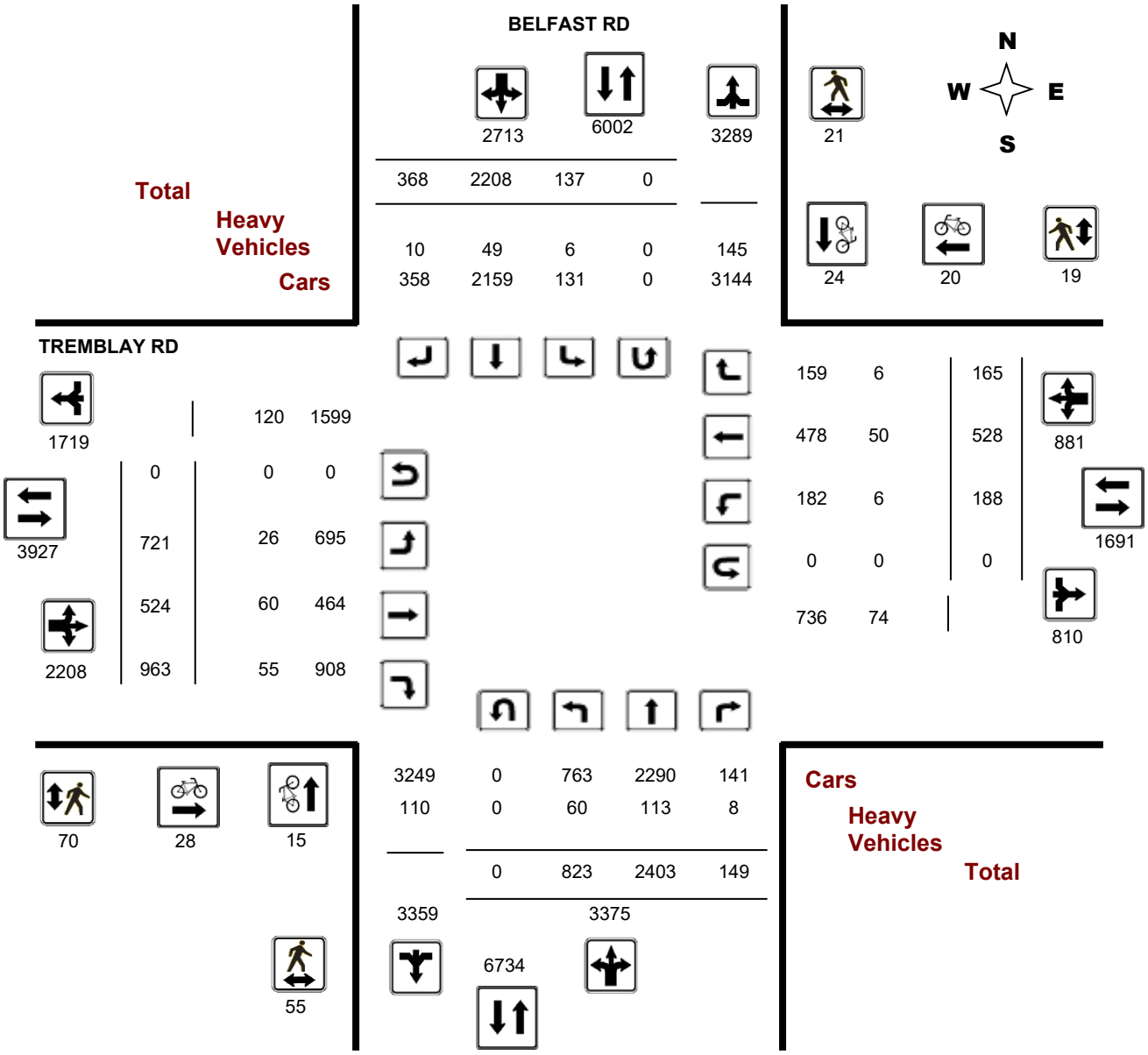
Turning Movement Count - Full Study Diagram

BELFAST RD @ TREMBLAY RD

Survey Date: Tuesday, November 08, 2016

WO#: 36466

Device: Miovision



Comments

Transportation Services - Traffic Services

Work Order 36466

Turning Movement Count - Full Study Summary Report

BELFAST RD @ TREMBLAY RD

Survey Date: Tuesday, November 08, 2016

Total Observed U-Turns

Northbound: 0 Southbound: 0

Eastbound: 0 Westbound: 0

AADT Factor 1.00

Full Study

	BELFAST RD									TREMBLAY RD									
	Northbound				Southbound					Eastbound				Westbound					
Period	LT	ST	RT	**NB TOT**	LT	ST	RT	**SB TOT**	**STR TOT**	LT	ST	RT	**EB TOT**	LT	ST	RT	**WB TOT**	**STR TOT**	**Grand Total**
07:00 08:00	78	196	20	**294**	13	240	46	**299**	**593**	101	44	129	**274**	32	97	16	**145**	**419**	**1012**
08:00 09:00	100	262	15	**377**	20	258	66	**344**	**721**	80	53	125	**258**	29	81	28	**138**	**396**	**1117**
09:00 10:00	84	193	10	**287**	12	200	29	**241**	**528**	87	46	135	**268**	14	52	18	**84**	**352**	**880**
11:30 12:30	94	284	26	**404**	15	327	28	**370**	**774**	86	48	141	**275**	37	51	20	**108**	**383**	**1157**
12:30 13:30	111	325	21	**457**	14	315	40	**369**	**826**	73	43	117	**233**	24	44	20	**88**	**321**	**1147**
15:00 16:00	179	437	18	**634**	26	319	71	**416**	**1050**	80	77	107	**264**	13	65	21	**99**	**363**	**1413**
16:00 17:00	109	406	19	**534**	25	302	54	**381**	**915**	109	101	123	**333**	25	78	23	**126**	**459**	**1374**
17:00 18:00	68	300	20	**388**	12	247	34	**293**	**681**	105	112	86	**303**	14	60	19	**93**	**396**	**1077**
Sub Total	823	2403	149	**3375**	137	2208	368	**2713**	**6088**	721	524	963	**2208**	188	528	165	**881**	**3089**	**9177**
U Turns				**0**				**0**	**0**				**0**				**0**	**0**	**0**
Total	823	2403	149	**3375**	137	2208	368	**2713**	**6088**	721	524	963	**2208**	188	528	165	**881**	**3089**	**9177**
EQ 12Hr	1144	3340	207	**4691**	190	3069	512	**3771**	**8462**	1002	728	1339	**3069**	261	734	229	**1225**	**4294**	**12756**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.													**1.39**						
AVG 12Hr	1144	3340	207	**4691**	190	3069	512	**3771**	**8462**	1002	728	1339	**3069**	261	734	229	**1225**	**4294**	**12756**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.													**1.00**						
AVG 24Hr	1499	4376	271	**6146**	249	4021	670	**4940**	**11086**	1313	954	1754	**4021**	342	961	300	**1604**	**5625**	**16711**
Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor.													**1.31**						

Comments:

Note: U-Turns provided for approach totals. Refer to 'U-Turn' Report for specific breakdown.

Transportation Services - Traffic Services

W.O. 36466

Turning Movement Count - 15 Minute Summary Report

BELFAST RD @ TREMBLAY RD

Survey Date: Tuesday, November 08, 2016

Total Observed U-Turns

Northbound: 0 Southbound: 0

Eastbound: 0 Westbound: 0

		BELFAST RD									TREMBLAY RD									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	16	48	6	**70**	3	49	4	**56**	**126**	24	11	30	**65**	4	15	2	**21**	**86**	**212**
07:15	07:30	22	45	3	**70**	2	51	11	**64**	**134**	24	11	36	**71**	14	26	5	**45**	**116**	**250**
07:30	07:45	19	56	5	**80**	4	66	13	**83**	**163**	20	14	33	**67**	6	21	2	**29**	**96**	**259**
07:45	08:00	21	47	6	**74**	4	74	18	**96**	**170**	33	8	30	**71**	8	35	7	**50**	**121**	**291**
08:00	08:15	31	63	3	**97**	3	69	20	**92**	**189**	10	9	32	**51**	6	28	7	**41**	**92**	**281**
08:15	08:30	23	60	2	**85**	5	56	15	**76**	**161**	18	16	29	**63**	8	18	8	**34**	**97**	**258**
08:30	08:45	29	74	7	**110**	6	67	14	**87**	**197**	27	16	23	**66**	9	20	6	**35**	**101**	**298**
08:45	09:00	17	65	3	**85**	6	66	17	**89**	**174**	25	12	41	**78**	6	15	7	**28**	**106**	**280**
09:00	09:15	24	49	3	**76**	0	44	10	**54**	**130**	21	13	35	**69**	6	15	3	**24**	**93**	**223**
09:15	09:30	19	51	3	**73**	3	47	7	**57**	**130**	20	15	38	**73**	2	10	7	**19**	**92**	**222**
09:30	09:45	20	44	3	**67**	8	56	5	**69**	**136**	23	10	35	**68**	4	15	5	**24**	**92**	**228**
09:45	10:00	21	49	1	**71**	1	53	7	**61**	**132**	23	8	27	**58**	2	12	3	**17**	**75**	**207**
11:30	11:45	28	45	11	**84**	4	70	7	**81**	**165**	21	14	32	**67**	8	16	5	**29**	**96**	**261**
11:45	12:00	23	79	4	**106**	5	84	5	**94**	**200**	26	7	27	**60**	7	11	3	**21**	**81**	**281**
12:00	12:15	25	91	6	**122**	3	76	4	**83**	**205**	20	12	41	**73**	11	14	6	**31**	**104**	**309**
12:15	12:30	18	69	5	**92**	3	97	12	**112**	**204**	19	15	41	**75**	11	10	6	**27**	**102**	**306**
12:30	12:45	26	77	5	**108**	4	81	7	**92**	**200**	21	8	30	**59**	2	13	6	**21**	**80**	**280**
12:45	13:00	22	91	5	**118**	2	73	9	**84**	**202**	15	15	34	**64**	5	10	6	**21**	**85**	**287**
13:00	13:15	33	76	6	**115**	6	89	13	**108**	**223**	18	10	29	**57**	13	7	4	**24**	**81**	**304**
13:15	13:30	30	81	5	**116**	2	72	11	**85**	**201**	19	10	24	**53**	4	14	4	**22**	**75**	**276**
15:00	15:15	57	111	4	**172**	8	66	14	**88**	**260**	22	17	25	**64**	6	8	4	**18**	**82**	**342**
15:15	15:30	52	116	3	**171**	4	88	20	**112**	**283**	20	18	30	**68**	2	17	4	**23**	**91**	**374**
15:30	15:45	41	108	9	**158**	7	89	19	**115**	**273**	22	20	22	**64**	3	18	4	**25**	**89**	**362**
15:45	16:00	29	102	2	**133**	7	76	18	**101**	**234**	16	22	30	**68**	2	22	9	**33**	**101**	**335**
16:00	16:15	35	116	4	**155**	7	83	19	**109**	**264**	20	22	46	**88**	7	22	8	**37**	**125**	**389**
16:15	16:30	32	84	8	**124**	4	75	17	**96**	**220**	28	22	26	**76**	7	16	4	**27**	**103**	**323**
16:30	16:45	28	114	3	**145**	10	63	9	**82**	**227**	26	28	28	**82**	6	20	6	**32**	**114**	**341**
16:45	17:00	14	92	4	**110**	4	81	9	**94**	**204**	35	29	23	**87**	5	20	5	**30**	**117**	**321**
17:00	17:15	22	87	6	**115**	3	68	11	**82**	**197**	36	49	27	**112**	3	17	5	**25**	**137**	**334**
17:15	17:30	13	85	4	**102**	3	60	11	**74**	**176**	28	24	22	**74**	4	14	3	**21**	**95**	**271**
17:30	17:45	15	64	6	**85**	2	57	4	**63**	**148**	22	23	20	**65**	3	14	8	**25**	**90**	**238**
17:45	18:00	18	64	4	**86**	4	62	8	**74**	**160**	19	16	17	**52**	4	15	3	**22**	**74**	**234**
TOTAL:		823	2403	149	**3375**	137	2208	368	**2713**	**6088**	721	524	963	**2208**	188	528	165	**881**	**3089**	**9177**

Note: U-Turns are included in Totals.

Comment:

Transportation Services - Traffic Services

Turning Movement Count - Cyclist Volume Report

Work Order
36466

BELFAST RD @ TREMBLAY RD

Count Date: Tuesday, November 08, 2016 **Start Time:** 07:00

	BELFAST RD			TREMBLAY RD			
Time Period	Northbound	Southbound	**Street Total**	Eastbound	Westbound	**Street Total**	**Grand Total**
07:00 08:00	4	10	**14**	9	5	**14**	**28**
08:00 09:00	0	1	**1**	6	7	**13**	**14**
09:00 10:00	0	1	**1**	2	0	**2**	**3**
11:30 12:30	3	0	**3**	2	0	**2**	**5**
12:30 13:30	0	4	**4**	0	1	**1**	**5**
15:00 16:00	2	1	**3**	3	1	**4**	**7**
16:00 17:00	5	4	**9**	4	3	**7**	**16**
17:00 18:00	1	3	**4**	2	3	**5**	**9**
Total	15	24	**39**	28	20	**48**	**87**

Comment:

Note: These volumes consists of bicycles only (no mopeds or motorcycles) and ARE NOT included in the Turning Movement Count Summary.

Transportation Services - Traffic Services

W.O. 36466

Turning Movement Count - Heavy Vehicle Report

BELFAST RD @ TREMBLAY RD

Survey Date: Tuesday, November 08, 2016

		BELFAST RD									TREMBLAY RD									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	08:00	3	4	2	**9**	1	2	2	**5**	**14**	2	5	3	**10**	1	7	1	**9**	**19**	**33**
08:00	09:00	12	9	1	**22**	0	11	2	**13**	**35**	1	5	11	**17**	0	8	1	**9**	**26**	**61**
09:00	10:00	9	10	0	**19**	1	10	1	**12**	**31**	1	8	10	**19**	0	5	0	**5**	**24**	**55**
11:30	12:30	6	4	0	**10**	2	6	3	**11**	**21**	2	4	9	**15**	1	8	1	**10**	**25**	**46**
12:30	13:30	8	4	1	**13**	1	6	0	**7**	**20**	3	6	5	**14**	2	6	2	**10**	**24**	**44**
15:00	16:00	18	57	1	**76**	0	10	0	**10**	**86**	8	9	3	**20**	1	7	1	**9**	**29**	**115**
16:00	17:00	2	21	2	**25**	1	2	1	**4**	**29**	7	11	11	**29**	0	4	0	**4**	**33**	**62**
17:00	18:00	2	4	1	**7**	0	2	1	**3**	**10**	2	12	3	**17**	1	5	0	**6**	**23**	**33**
Sub Total		60	113	8	**181**	6	49	10	**65**	**246**	26	60	55	**141**	6	50	6	**62**	**203**	**449**
U-Turns (Heavy Vehicles)					**0**				**0**	**0**				**0**				**0**	**0**	**0**
Total		60	113	8	**0**	6	49	10	**65**	**246**	26	60	55	**141**	6	50	6	**62**	**203**	**449**

Heavy Vehicles include Buses, Single-Unit Trucks and Articulated Trucks. Further, they ARE included in the Turning Movement Count Summary.

Transportation Services - Traffic Services

Work Order
36466

Turning Movement Count - Pedestrian Volume Report

BELFAST RD @ TREMBLAY RD

Count Date: Tuesday, November 08, 2016 **Start Time:** 07:00

Time Period	NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	Total	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	Total	Grand Total
07:00 07:15	0	0	**0**	1	0	**1**	**1**
07:15 07:30	0	0	**0**	1	0	**1**	**1**
07:30 07:45	0	1	**1**	0	0	**0**	**1**
07:45 08:00	1	2	**3**	1	1	**2**	**5**
07:00 08:00	1	3	**4**	3	1	**4**	**8**
08:00 08:15	2	0	**2**	0	1	**1**	**3**
08:15 08:30	1	0	**1**	2	0	**2**	**3**
08:30 08:45	1	0	**1**	3	0	**3**	**4**
08:45 09:00	3	2	**5**	2	0	**2**	**7**
08:00 09:00	7	2	**9**	7	1	**8**	**17**
09:00 09:15	0	2	**2**	4	0	**4**	**6**
09:15 09:30	0	1	**1**	2	0	**2**	**3**
09:30 09:45	1	0	**1**	4	0	**4**	**5**
09:45 10:00	3	0	**3**	1	3	**4**	**7**
09:00 10:00	4	3	**7**	11	3	**14**	**21**
11:30 11:45	3	1	**4**	3	2	**5**	**9**
11:45 12:00	2	0	**2**	3	1	**4**	**6**
12:00 12:15	3	0	**3**	3	1	**4**	**7**
12:15 12:30	1	2	**3**	5	0	**5**	**8**
11:30 12:30	9	3	**12**	14	4	**18**	**30**
12:30 12:45	4	2	**6**	3	0	**3**	**9**
12:45 13:00	2	2	**4**	3	0	**3**	**7**
13:00 13:15	1	1	**2**	4	0	**4**	**6**
13:15 13:30	2	1	**3**	0	3	**3**	**6**
12:30 13:30	9	6	**15**	10	3	**13**	**28**
15:00 15:15	1	0	**1**	2	0	**2**	**3**
15:15 15:30	3	1	**4**	2	0	**2**	**6**
15:30 15:45	1	1	**2**	5	0	**5**	**7**
15:45 16:00	3	1	**4**	2	1	**3**	**7**
15:00 16:00	8	3	**11**	11	1	**12**	**23**
16:00 16:15	3	0	**3**	2	0	**2**	**5**
16:15 16:30	3	0	**3**	1	1	**2**	**5**
16:30 16:45	1	0	**1**	1	1	**2**	**3**
16:45 17:00	2	0	**2**	3	0	**3**	**5**
16:00 17:00	9	0	**9**	7	2	**9**	**18**
17:00 17:15	0	1	**1**	3	1	**4**	**5**
17:15 17:30	3	0	**3**	1	1	**2**	**5**
17:30 17:45	1	0	**1**	0	0	**0**	**1**
17:45 18:00	4	0	**4**	3	2	**5**	**9**
17:00 18:00	8	1	**9**	7	4	**11**	**20**
Total	55	21	**76**	70	19	**89**	**165**

Comment:

Transportation Services - Traffic Services

Work Order
36466

Turning Movement Count - 15 Min U-Turn Total Report

BELFAST RD @ TREMBLAY RD

Survey Date: Tuesday, November 08, 2016

Time Period		Northbound U-Turn Total	Southbound U-Turn Total	Eastbound U-Turn Total	Westbound U-Turn Total	Total
07:00	07:15	0	0	0	0	0
07:15	07:30	0	0	0	0	0
07:30	07:45	0	0	0	0	0
07:45	08:00	0	0	0	0	0
08:00	08:15	0	0	0	0	0
08:15	08:30	0	0	0	0	0
08:30	08:45	0	0	0	0	0
08:45	09:00	0	0	0	0	0
09:00	09:15	0	0	0	0	0
09:15	09:30	0	0	0	0	0
09:30	09:45	0	0	0	0	0
09:45	10:00	0	0	0	0	0
11:30	11:45	0	0	0	0	0
11:45	12:00	0	0	0	0	0
12:00	12:15	0	0	0	0	0
12:15	12:30	0	0	0	0	0
12:30	12:45	0	0	0	0	0
12:45	13:00	0	0	0	0	0
13:00	13:15	0	0	0	0	0
13:15	13:30	0	0	0	0	0
15:00	15:15	0	0	0	0	0
15:15	15:30	0	0	0	0	0
15:30	15:45	0	0	0	0	0
15:45	16:00	0	0	0	0	0
16:00	16:15	0	0	0	0	0
16:15	16:30	0	0	0	0	0
16:30	16:45	0	0	0	0	0
16:45	17:00	0	0	0	0	0
17:00	17:15	0	0	0	0	0
17:15	17:30	0	0	0	0	0
17:30	17:45	0	0	0	0	0
17:45	18:00	0	0	0	0	0
Total		0	0	0	0	0

ACCURATE TRUSTED TRAFFIC DATA

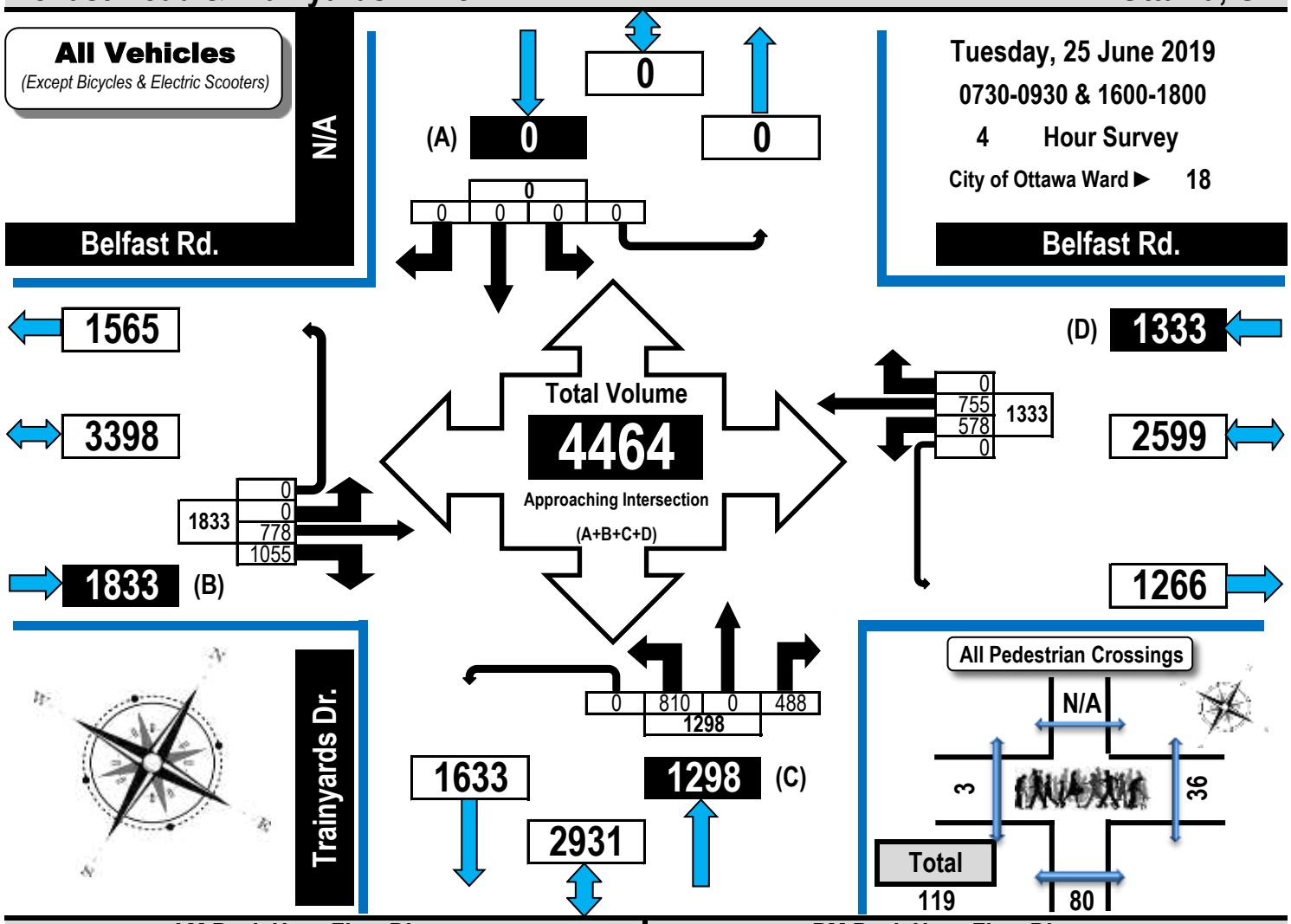
Turning Movement Count
Summary, AM and PM Peak Hour Flow Diagrams

Automobiles, Taxis, Light Trucks, Vans, SUV's, Motorcycles, Heavy Trucks, Buses, and School Buses

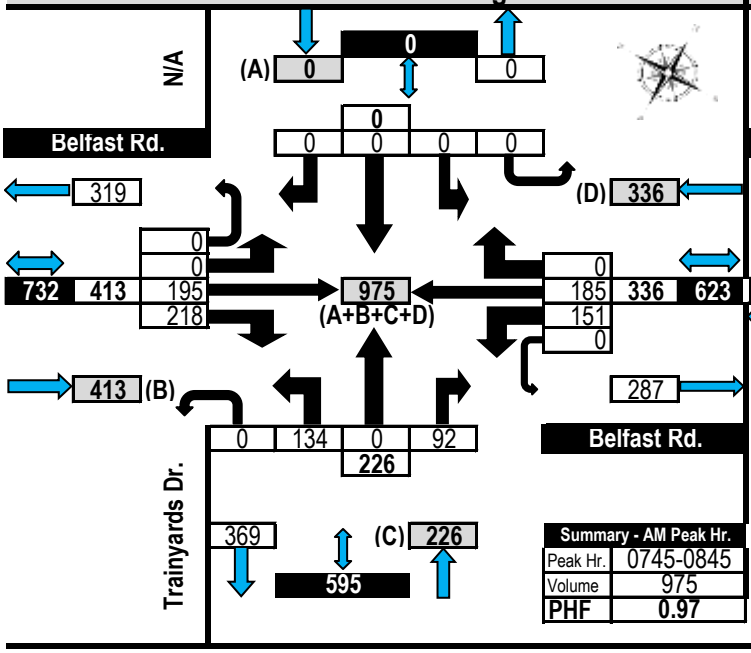
Belfast Road & Trainyards Drive — Ottawa, ON

All Vehicles
(Except Bicycles & Electric Scooters)

Tuesday, 25 June 2019
0730-0930 & 1600-1800
4 Hour Survey
City of Ottawa Ward ▶ 18

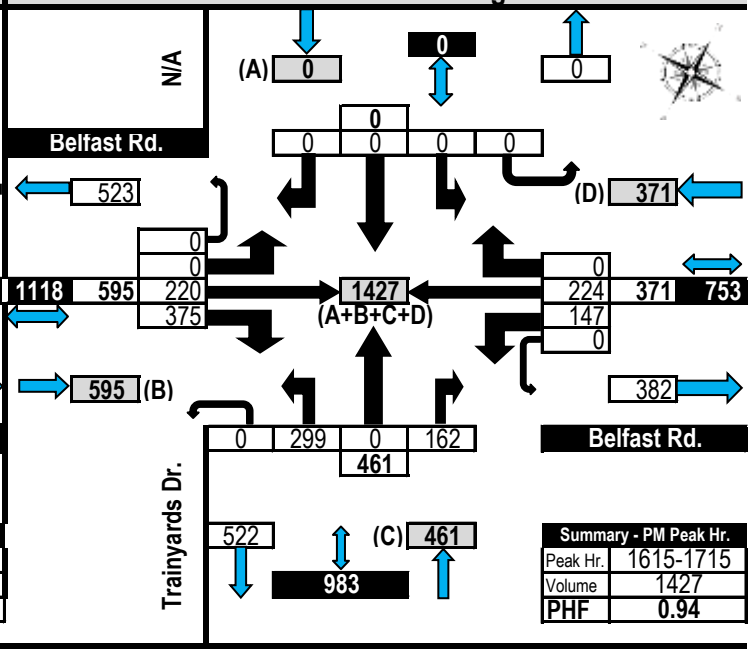


AM Peak Hour Flow Diagram



Summary - AM Peak Hr.	
Peak Hr.	0745-0845
Volume	975
PHF	0.97

PM Peak Hour Flow Diagram



Summary - PM Peak Hr.	
Peak Hr.	1615-1715
Volume	1427
PHF	0.94

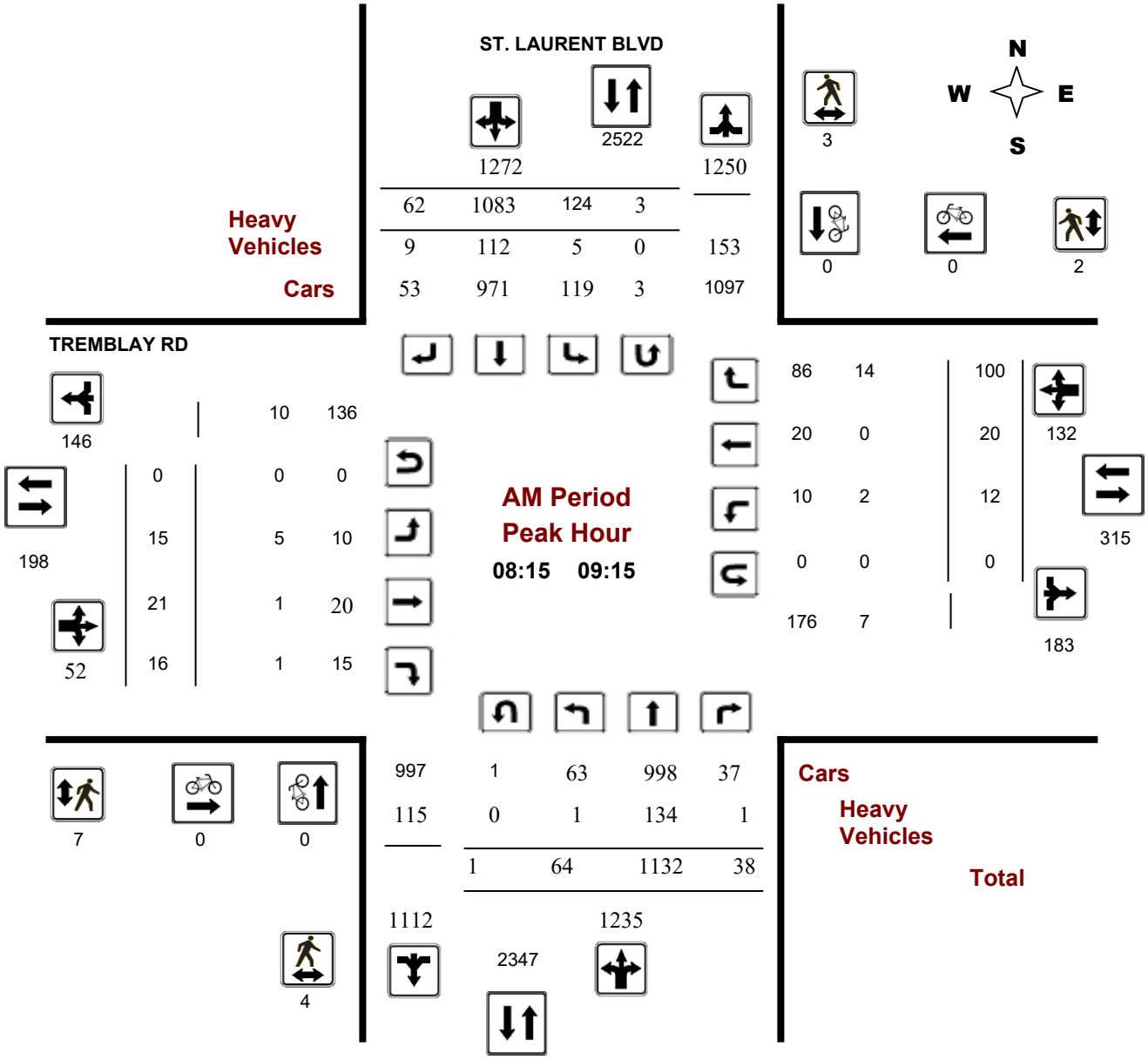
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

ST. LAURENT BLVD @ TREMBLAY RD

Survey Date: Wednesday, January 30, 2019 **WO No:** 38338

Start Time: 07:00 **Device:** Miovision



Comments

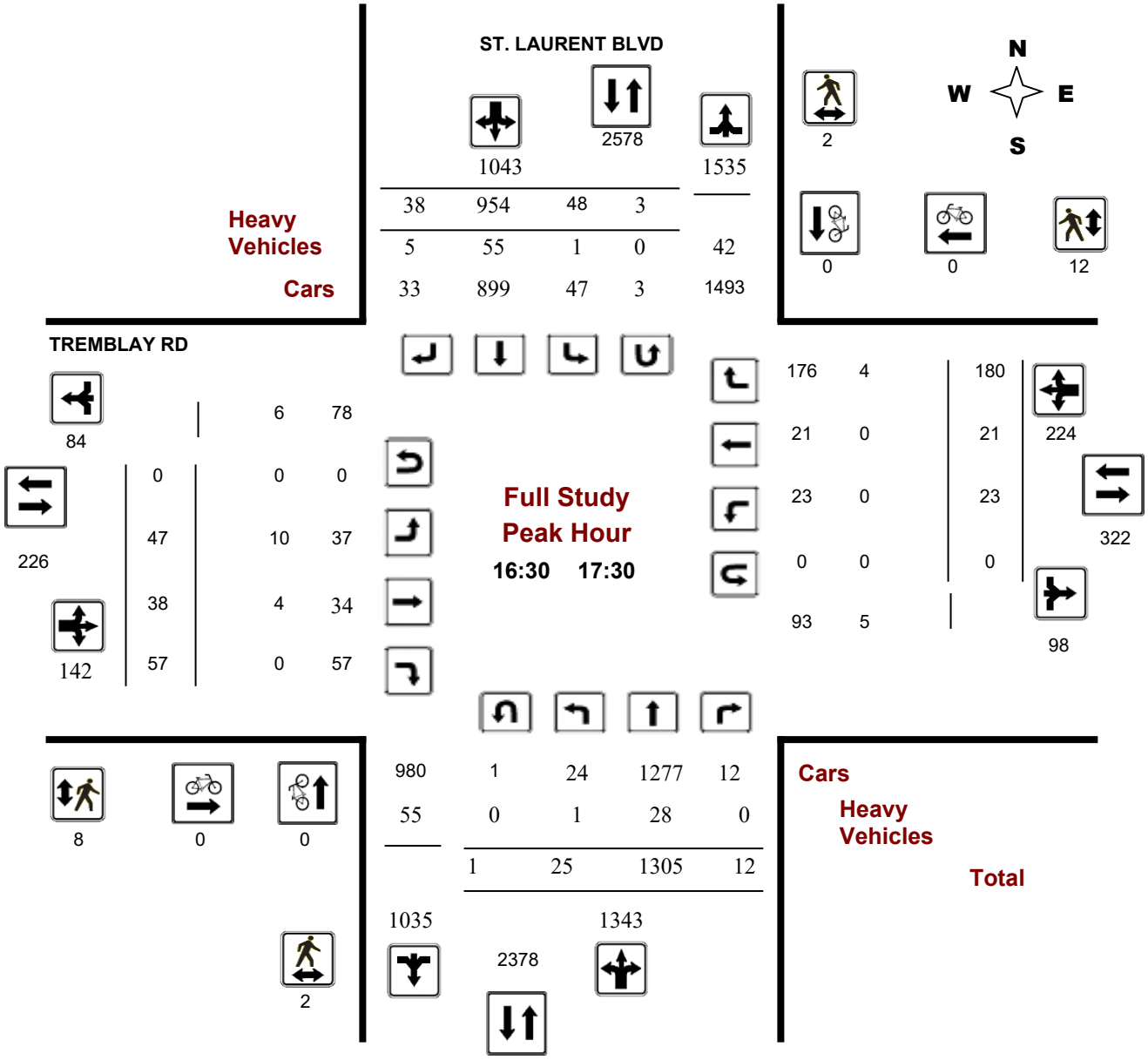
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

ST. LAURENT BLVD @ TREMBLAY RD

Survey Date: Wednesday, January 30, 2019 **WO No:** 38338

Start Time: 07:00 **Device:** Miovision



Comments

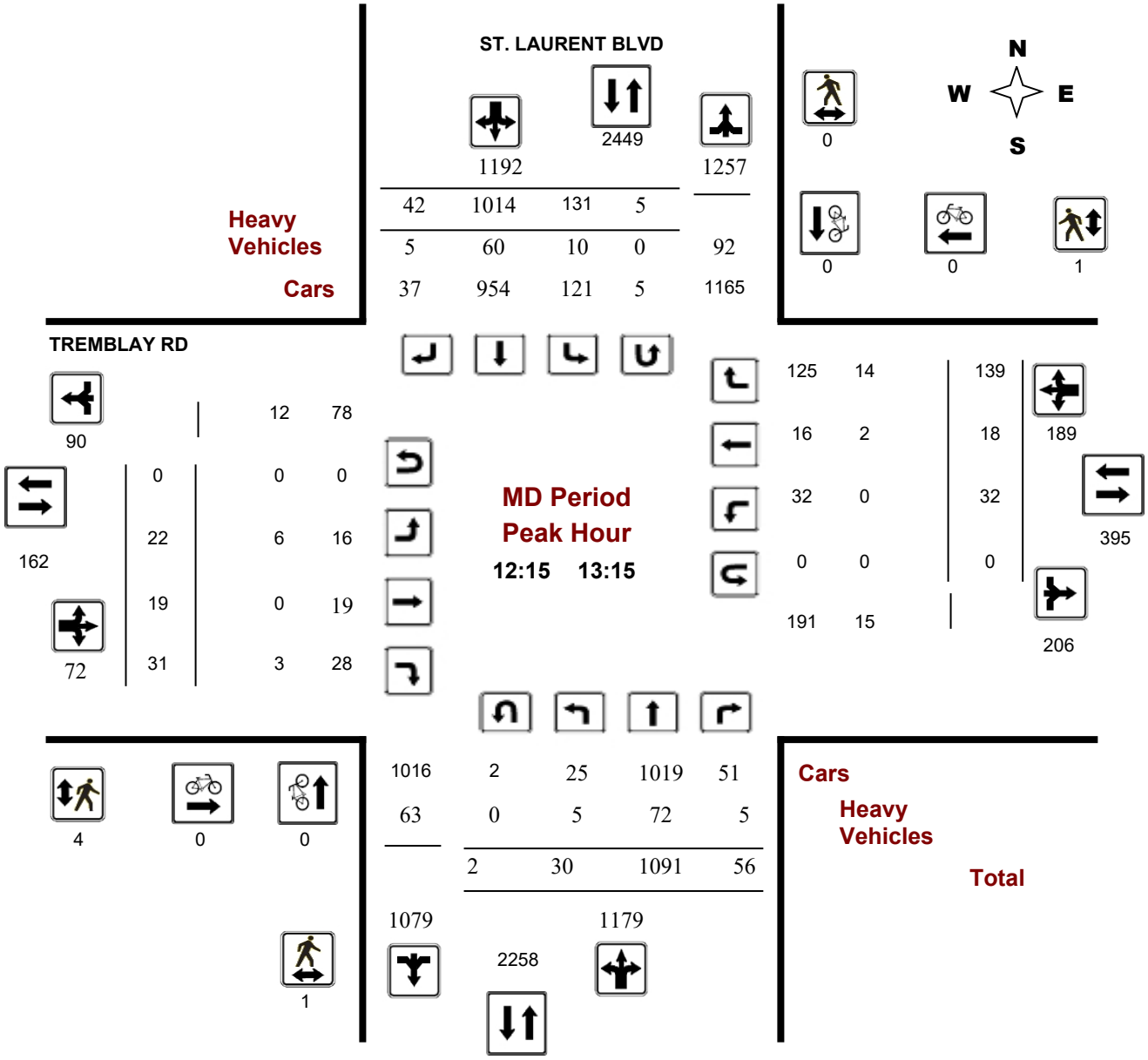
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

ST. LAURENT BLVD @ TREMBLAY RD

Survey Date: Wednesday, January 30, 2019 **WO No:** 38338

Start Time: 07:00 **Device:** Miovision



Comments

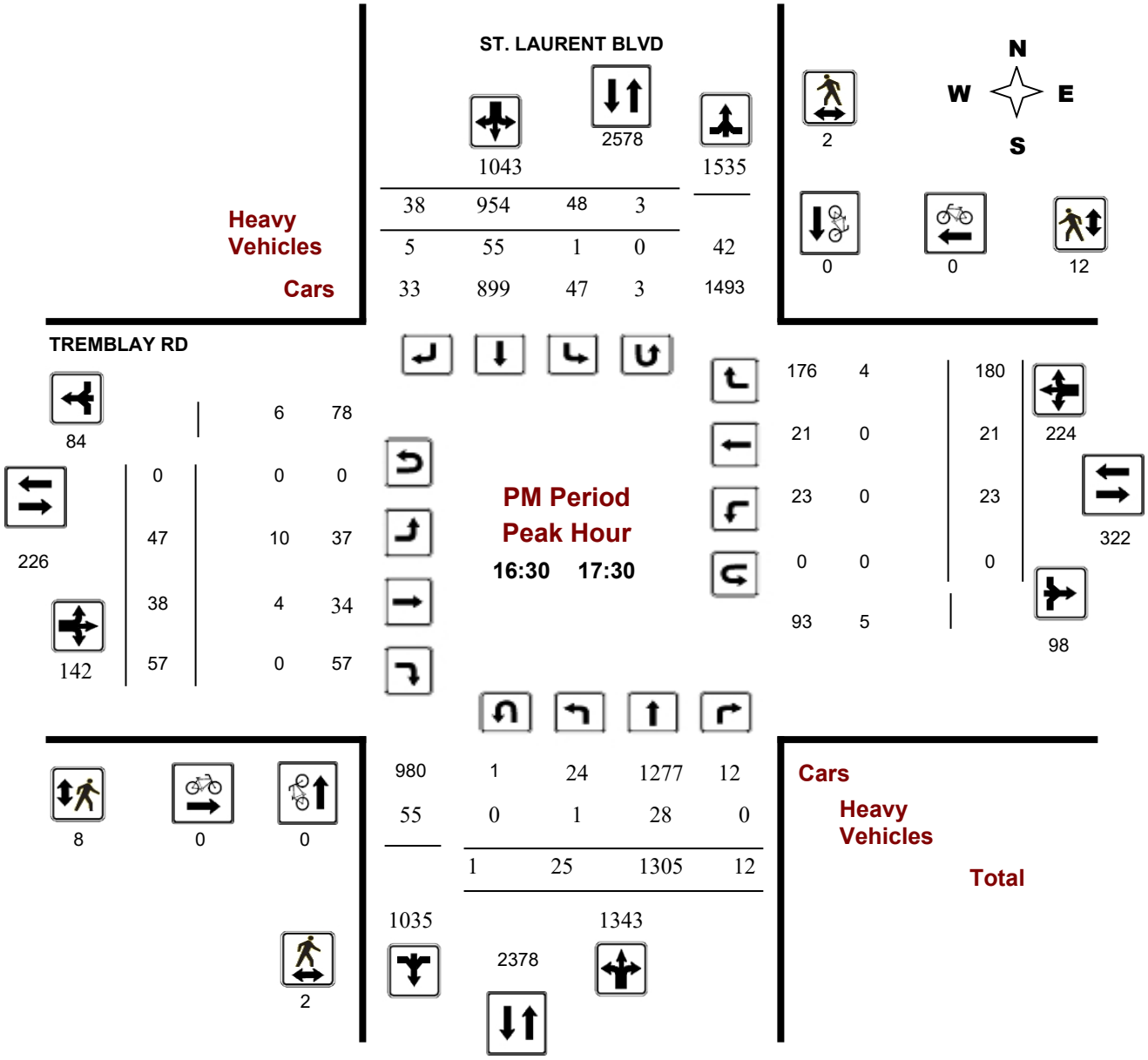
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

ST. LAURENT BLVD @ TREMBLAY RD

Survey Date: Wednesday, January 30, 2019 **WO No:** 38338

Start Time: 07:00 **Device:** Miovision



Comments

Transportation Services - Traffic Services

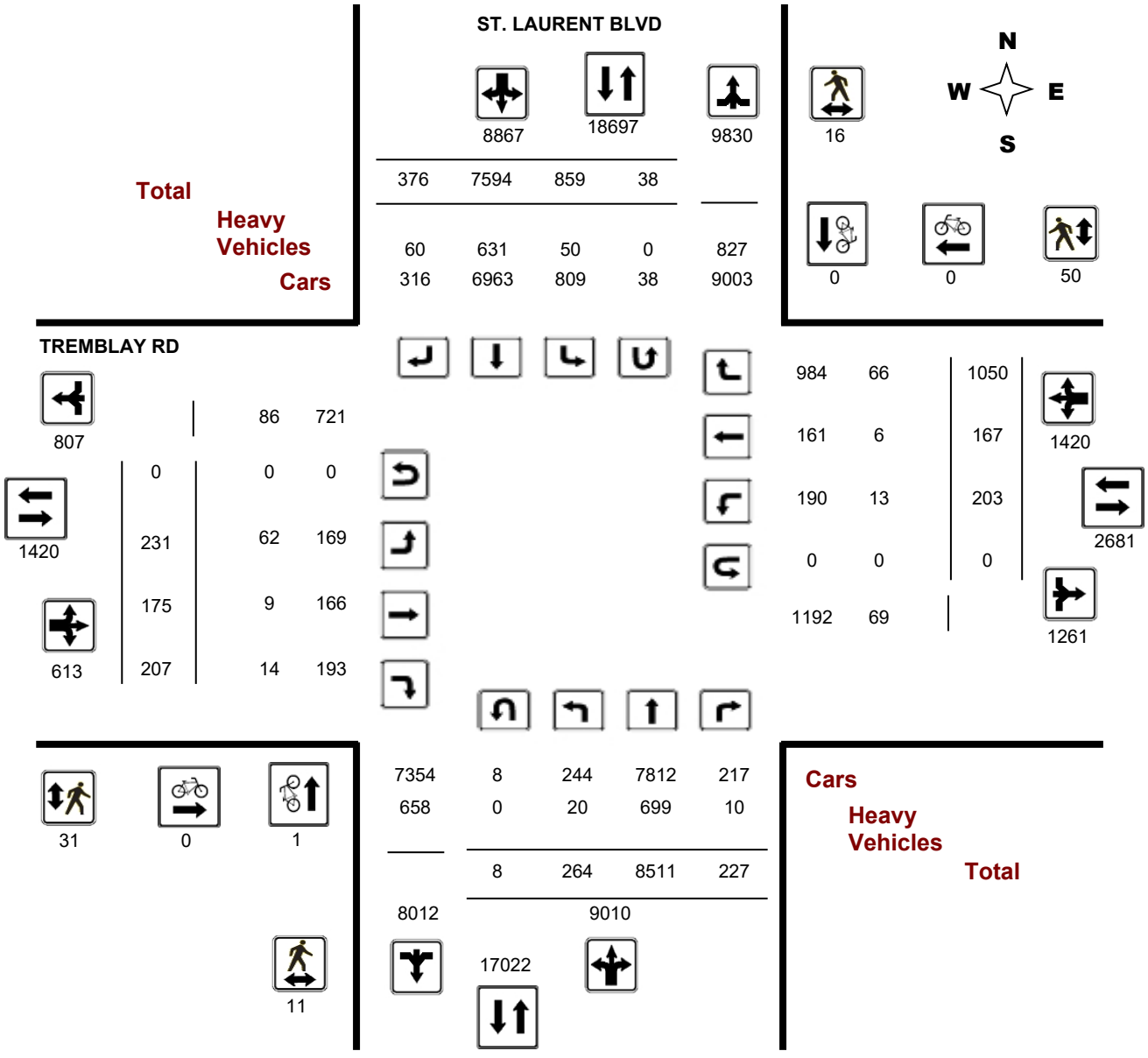
Turning Movement Count - Full Study Diagram

ST. LAURENT BLVD @ TREMBLAY RD

Survey Date: Wednesday, January 30, 2019

WO#: 38338

Device: Miovision



Comments

Transportation Services - Traffic Services

Work Order 38338

Turning Movement Count - Full Study Summary Report

ST. LAURENT BLVD @ TREMBLAY RD

Survey Date: Wednesday, January 30, 201

Total Observed U-Turns

Northbound: 8 Southbound: 38

Eastbound: 0 Westbound: 0

AADT Factor 1.00

Full Study

	ST. LAURENT BLVD									TREMBLAY RD									
	Northbound				Southbound					Eastbound				Westbound					
Period	LT	ST	RT	**NB TOT**	LT	ST	RT	**SB TOT**	**STR TOT**	LT	ST	RT	**EB TOT**	LT	ST	RT	**WB TOT**	**STR TOT**	**Grand Total**
07:00 08:00	34	827	29	**890**	168	978	58	**1204**	**2094**	21	25	15	**61**	13	19	68	**100**	**161**	**2255**
08:00 09:00	62	1157	40	**1259**	108	1055	67	**1230**	**2489**	14	20	21	**55**	16	17	101	**134**	**189**	**2678**
09:00 10:00	29	885	23	**937**	133	1038	46	**1217**	**2154**	23	23	17	**63**	12	21	76	**109**	**172**	**2326**
11:30 12:30	32	1008	37	**1077**	113	1004	48	**1165**	**2242**	29	10	28	**67**	41	24	144	**209**	**276**	**2518**
12:30 13:30	28	1058	48	**1134**	133	975	38	**1146**	**2280**	24	20	30	**74**	30	19	140	**189**	**263**	**2543**
15:00 16:00	31	1182	19	**1232**	100	787	34	**921**	**2153**	34	21	23	**78**	34	24	186	**244**	**322**	**2475**
16:00 17:00	34	1192	23	**1249**	68	807	41	**916**	**2165**	42	31	29	**102**	36	23	193	**252**	**354**	**2519**
17:00 18:00	14	1202	8	**1224**	36	950	44	**1030**	**2254**	44	25	44	**113**	21	20	142	**183**	**296**	**2550**
Sub Total	264	8511	227	**9002**	859	7594	376	**8829**	**17831**	231	175	207	**613**	203	167	1050	**1420**	**2033**	**19864**
U Turns				**8**				**38**	**46**				**0**				**0**	**0**	**46**
Total	264	8511	227	**9010**	859	7594	376	**8867**	**17877**	231	175	207	**613**	203	167	1050	**1420**	**2033**	**19910**
EQ 12Hr	367	11830	316	**12524**	1194	10556	523	**12325**	**24849**	321	243	288	**852**	282	232	1460	**1974**	**2826**	**27675**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.													**1.39**						
AVG 12Hr	367	11830	316	**12524**	1194	10556	523	**12325**	**24849**	321	243	288	**852**	282	232	1460	**1974**	**2826**	**27675**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.													**1.00**						
AVG 24Hr	481	15498	413	**16406**	1564	13828	685	**16146**	**32552**	421	319	377	**1116**	370	304	1912	**2586**	**3702**	**36254**
Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor.													**1.31**						

Comments:

Note: U-Turns provided for approach totals. Refer to 'U-Turn' Report for specific breakdown.

Transportation Services - Traffic Services

W.O. 38338

Turning Movement Count - 15 Minute Summary Report

ST. LAURENT BLVD @ TREMBLAY RD

Survey Date: Wednesday, January 30, 2019

Total Observed U-Turns

Northbound: 8 Southbound: 38

Eastbound: 0 Westbound: 0

		ST. LAURENT BLVD									TREMBLAY RD									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	3	159	9	**171**	42	228	12	**283**	**454**	5	6	5	**16**	5	2	14	**21**	**37**	**491**
07:15	07:30	10	189	6	**205**	42	234	14	**290**	**495**	2	7	3	**12**	1	1	13	**15**	**27**	**522**
07:30	07:45	9	228	9	**246**	45	241	14	**300**	**546**	6	5	4	**15**	5	10	23	**38**	**53**	**599**
07:45	08:00	12	251	5	**268**	39	275	18	**334**	**602**	8	7	3	**18**	2	6	18	**26**	**44**	**646**
08:00	08:15	14	277	11	**302**	22	235	18	**275**	**577**	4	5	8	**17**	7	5	20	**32**	**49**	**626**
08:15	08:30	13	294	10	**317**	26	279	14	**319**	**636**	2	6	5	**13**	5	1	23	**29**	**42**	**678**
08:30	08:45	17	283	12	**313**	29	270	23	**322**	**635**	3	4	2	**9**	3	6	26	**35**	**44**	**679**
08:45	09:00	18	303	7	**328**	31	271	12	**316**	**644**	5	5	6	**16**	1	5	32	**38**	**54**	**698**
09:00	09:15	16	252	9	**277**	38	263	13	**315**	**592**	5	6	3	**14**	3	8	19	**30**	**44**	**636**
09:15	09:30	4	212	4	**221**	24	271	18	**313**	**534**	3	9	3	**15**	3	3	17	**23**	**38**	**572**
09:30	09:45	5	222	5	**232**	32	252	8	**295**	**527**	7	5	5	**17**	5	3	18	**26**	**43**	**570**
09:45	10:00	4	199	5	**208**	39	252	7	**300**	**508**	8	3	6	**17**	1	7	22	**30**	**47**	**555**
11:30	11:45	5	237	7	**250**	21	248	7	**277**	**527**	11	4	4	**19**	7	5	30	**42**	**61**	**588**
11:45	12:00	8	258	8	**274**	34	250	15	**302**	**576**	7	2	6	**15**	7	7	43	**57**	**72**	**648**
12:00	12:15	9	241	8	**258**	33	223	10	**267**	**525**	8	4	11	**23**	19	7	39	**65**	**88**	**613**
12:15	12:30	10	272	14	**297**	25	283	16	**325**	**622**	3	0	7	**10**	8	5	32	**45**	**55**	**677**
12:30	12:45	6	277	16	**300**	36	237	12	**285**	**585**	4	4	7	**15**	9	4	37	**50**	**65**	**650**
12:45	13:00	6	257	12	**275**	39	263	7	**312**	**587**	9	8	10	**27**	6	6	32	**44**	**71**	**658**
13:00	13:15	8	285	14	**307**	31	231	7	**270**	**577**	6	7	7	**20**	9	3	38	**50**	**70**	**647**
13:15	13:30	8	239	6	**253**	27	244	12	**285**	**538**	5	1	6	**12**	6	6	33	**45**	**57**	**595**
15:00	15:15	9	295	2	**307**	31	219	14	**266**	**573**	7	4	5	**16**	11	8	59	**78**	**94**	**667**
15:15	15:30	5	316	6	**327**	22	226	4	**253**	**580**	8	4	4	**16**	7	5	40	**52**	**68**	**648**
15:30	15:45	9	307	6	**322**	19	190	9	**218**	**540**	10	6	11	**27**	7	5	47	**59**	**86**	**626**
15:45	16:00	8	264	5	**277**	28	152	7	**189**	**466**	9	7	3	**19**	9	6	40	**55**	**74**	**540**
16:00	16:15	6	270	8	**284**	14	168	13	**195**	**479**	10	10	1	**21**	13	8	68	**89**	**110**	**589**
16:15	16:30	10	284	6	**300**	23	150	13	**188**	**488**	8	5	4	**17**	10	5	35	**50**	**67**	**555**
16:30	16:45	9	299	3	**311**	9	232	9	**250**	**561**	16	9	17	**42**	9	5	66	**80**	**122**	**683**
16:45	17:00	9	339	6	**354**	22	257	6	**286**	**640**	8	7	7	**22**	4	5	24	**33**	**55**	**695**
17:00	17:15	3	318	1	**322**	10	237	13	**261**	**583**	13	11	16	**40**	8	5	54	**67**	**107**	**690**
17:15	17:30	4	349	2	**356**	7	228	10	**246**	**602**	10	11	17	**38**	2	6	36	**44**	**82**	**684**
17:30	17:45	4	282	3	**289**	9	212	11	**235**	**524**	9	1	7	**17**	6	5	25	**36**	**53**	**577**
17:45	18:00	3	253	2	**259**	10	273	10	**295**	**554**	12	2	4	**18**	5	4	27	**36**	**54**	**608**
TOTAL:		264	8511	227	**9010**	859	7594	376	**8867**	**17877**	231	175	207	**613**	203	167	1050	**1420**	**2033**	**19910**

Note: U-Turns are included in Totals.

Comment:

Transportation Services - Traffic Services

Turning Movement Count - Cyclist Volume Report

Work Order
38338

ST. LAURENT BLVD @ TREMBLAY RD

Count Date: Wednesday, January 30, 2019 **Start Time:** 07:00

	ST. LAURENT BLVD			TREMBLAY RD			
Time Period	Northbound	Southbound	**Street Total**	Eastbound	Westbound	**Street Total**	**Grand Total**
07:00 08:00	0	0	**0**	0	0	**0**	**0**
08:00 09:00	0	0	**0**	0	0	**0**	**0**
09:00 10:00	1	0	**1**	0	0	**0**	**1**
11:30 12:30	0	0	**0**	0	0	**0**	**0**
12:30 13:30	0	0	**0**	0	0	**0**	**0**
15:00 16:00	0	0	**0**	0	0	**0**	**0**
16:00 17:00	0	0	**0**	0	0	**0**	**0**
17:00 18:00	0	0	**0**	0	0	**0**	**0**
Total	1	0	**1**	0	0	**0**	**1**

Comment:

Note: These volumes consists of bicycles only (no mopeds or motorcycles) and ARE NOT included in the Turning Movement Count Summary.

Transportation Services - Traffic Services

W.O. 38338

Turning Movement Count - Heavy Vehicle Report

ST. LAURENT BLVD @ TREMBLAY RD

Survey Date: Wednesday, January 30, 2019

		ST. LAURENT BLVD									TREMBLAY RD									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	**N TOT**	LT	ST	RT	**S TOT**	**STR TOT**	LT	ST	RT	**E TOT**	LT	ST	RT	**W TOT**	**STR TOT**	**Grand Total**
07:00	08:00	2	134	1	**137**	10	52	10	**72**	**209**	9	1	0	**10**	4	0	9	**13**	**23**	**232**
08:00	09:00	2	124	1	**127**	3	80	11	**94**	**221**	4	1	1	**6**	4	0	15	**19**	**25**	**246**
09:00	10:00	3	116	1	**120**	6	183	5	**194**	**314**	9	1	1	**11**	0	2	8	**10**	**21**	**335**
11:30	12:30	2	66	1	**69**	8	68	8	**84**	**153**	8	0	5	**13**	1	0	11	**12**	**25**	**178**
12:30	13:30	5	80	5	**90**	7	62	7	**76**	**166**	6	0	3	**9**	0	2	11	**13**	**22**	**188**
15:00	16:00	4	112	0	**116**	10	74	5	**89**	**205**	7	1	3	**11**	3	2	6	**11**	**22**	**227**
16:00	17:00	2	40	1	**43**	3	65	10	**78**	**121**	10	1	1	**12**	0	0	2	**2**	**14**	**135**
17:00	18:00	0	27	0	**27**	3	47	4	**54**	**81**	9	4	0	**13**	1	0	4	**5**	**18**	**99**
Sub Total		20	699	10	**729**	50	631	60	**741**	**1470**	62	9	14	**85**	13	6	66	**85**	**170**	**1640**
U-Turns (Heavy Vehicles)					**0**				**0**	**0**				**0**				**0**	**0**	**0**
Total		20	699	10	**0**	50	631	60	**741**	**1470**	62	9	14	**85**	13	6	66	**85**	**170**	**1640**

Heavy Vehicles include Buses, Single-Unit Trucks and Articulated Trucks. Further, they ARE included in the Turning Movement Count Summary.

Transportation Services - Traffic Services

Work Order
38338

Turning Movement Count - Pedestrian Volume Report

ST. LAURENT BLVD @ TREMBLAY RD

Count Date: Wednesday, January 30, 2019 **Start Time:** 07:00

Time Period	NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	Total	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	Total	Grand Total
07:00 07:15	0	1	**1**	0	6	**6**	**7**
07:15 07:30	0	0	**0**	0	1	**1**	**1**
07:30 07:45	1	0	**1**	2	4	**6**	**7**
07:45 08:00	1	0	**1**	1	1	**2**	**3**
07:00 08:00	2	1	**3**	3	12	**15**	**18**
08:00 08:15	0	0	**0**	0	0	**0**	**0**
08:15 08:30	1	0	**1**	0	0	**0**	**1**
08:30 08:45	0	0	**0**	1	0	**1**	**1**
08:45 09:00	3	1	**4**	3	1	**4**	**8**
08:00 09:00	4	1	**5**	4	1	**5**	**10**
09:00 09:15	0	2	**2**	3	1	**4**	**6**
09:15 09:30	0	0	**0**	1	4	**5**	**5**
09:30 09:45	0	0	**0**	0	0	**0**	**0**
09:45 10:00	0	0	**0**	1	2	**3**	**3**
09:00 10:00	0	2	**2**	5	7	**12**	**14**
11:30 11:45	0	0	**0**	0	1	**1**	**1**
11:45 12:00	0	1	**1**	0	1	**1**	**2**
12:00 12:15	0	0	**0**	0	0	**0**	**0**
12:15 12:30	0	0	**0**	0	0	**0**	**0**
11:30 12:30	0	1	**1**	0	2	**2**	**3**
12:30 12:45	0	0	**0**	1	0	**1**	**1**
12:45 13:00	1	0	**1**	1	1	**2**	**3**
13:00 13:15	0	0	**0**	2	0	**2**	**2**
13:15 13:30	0	1	**1**	0	1	**1**	**2**
12:30 13:30	1	1	**2**	4	2	**6**	**8**
15:00 15:15	0	0	**0**	1	2	**3**	**3**
15:15 15:30	1	4	**5**	2	2	**4**	**9**
15:30 15:45	0	1	**1**	0	3	**3**	**4**
15:45 16:00	0	1	**1**	1	0	**1**	**2**
15:00 16:00	1	6	**7**	4	7	**11**	**18**
16:00 16:15	0	1	**1**	0	3	**3**	**4**
16:15 16:30	1	0	**1**	1	2	**3**	**4**
16:30 16:45	2	0	**2**	3	5	**8**	**10**
16:45 17:00	0	1	**1**	2	4	**6**	**7**
16:00 17:00	3	2	**5**	6	14	**20**	**25**
17:00 17:15	0	0	**0**	1	1	**2**	**2**
17:15 17:30	0	1	**1**	2	2	**4**	**5**
17:30 17:45	0	1	**1**	2	1	**3**	**4**
17:45 18:00	0	0	**0**	0	1	**1**	**1**
17:00 18:00	0	2	**2**	5	5	**10**	**12**
Total	11	16	**27**	31	50	**81**	**108**

Comment:

Transportation Services - Traffic Services

Work Order
38338

Turning Movement Count - 15 Min U-Turn Total Report

ST. LAURENT BLVD @ TREMBLAY RD

Survey Date: Wednesday, January 30, 2019

Time Period		Northbound U-Turn Total	Southbound U-Turn Total	Eastbound U-Turn Total	Westbound U-Turn Total	Total
07:00	07:15	0	1	0	0	1
07:15	07:30	0	0	0	0	0
07:30	07:45	0	0	0	0	0
07:45	08:00	0	2	0	0	2
08:00	08:15	0	0	0	0	0
08:15	08:30	0	0	0	0	0
08:30	08:45	1	0	0	0	1
08:45	09:00	0	2	0	0	2
09:00	09:15	0	1	0	0	1
09:15	09:30	1	0	0	0	1
09:30	09:45	0	3	0	0	3
09:45	10:00	0	2	0	0	2
11:30	11:45	1	1	0	0	2
11:45	12:00	0	3	0	0	3
12:00	12:15	0	1	0	0	1
12:15	12:30	1	1	0	0	2
12:30	12:45	1	0	0	0	1
12:45	13:00	0	3	0	0	3
13:00	13:15	0	1	0	0	1
13:15	13:30	0	2	0	0	2
15:00	15:15	1	2	0	0	3
15:15	15:30	0	1	0	0	1
15:30	15:45	0	0	0	0	0
15:45	16:00	0	2	0	0	2
16:00	16:15	0	0	0	0	0
16:15	16:30	0	2	0	0	2
16:30	16:45	0	0	0	0	0
16:45	17:00	0	1	0	0	1
17:00	17:15	0	1	0	0	1
17:15	17:30	1	1	0	0	2
17:30	17:45	0	3	0	0	3
17:45	18:00	1	2	0	0	3
Total		8	38	0	0	46

ACCURATE TRUSTED TRAFFIC DATA

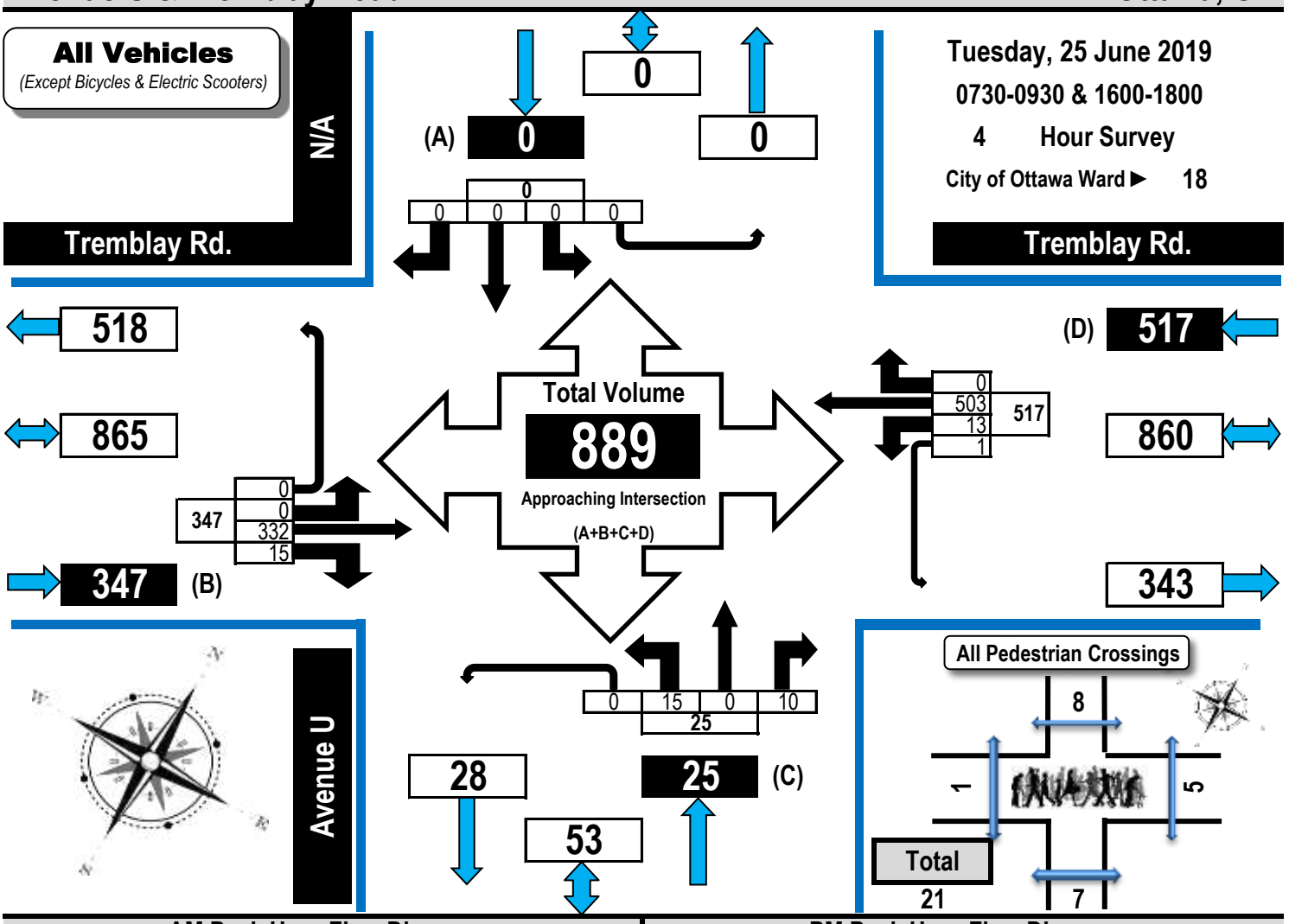
Turning Movement Count
Summary, AM and PM Peak Hour Flow Diagrams

Automobiles, Taxis, Light Trucks, Vans, SUV's, Motorcycles, Heavy Trucks, Buses, and School Buses

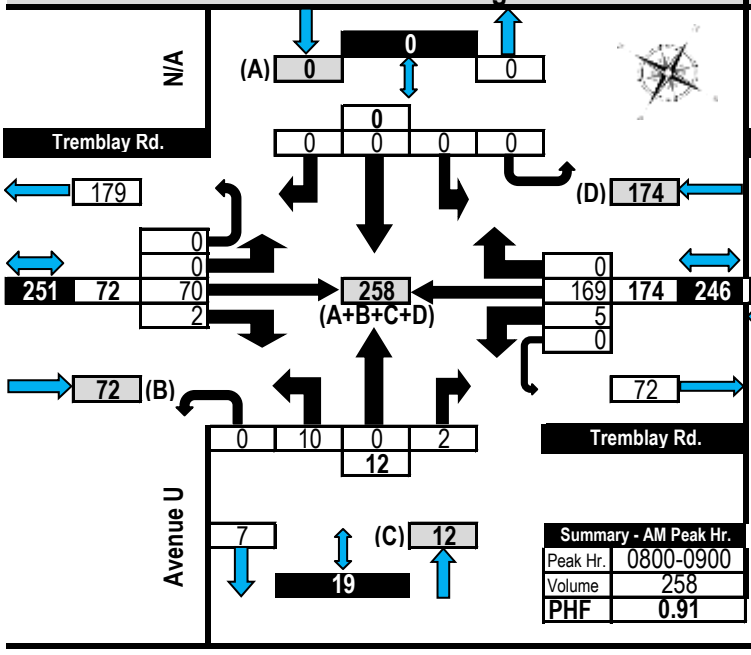
Avenue U & Tremblay Road — Ottawa, ON

All Vehicles
(Except Bicycles & Electric Scooters)

Tuesday, 25 June 2019
0730-0930 & 1600-1800
4 Hour Survey
City of Ottawa Ward ▶ 18

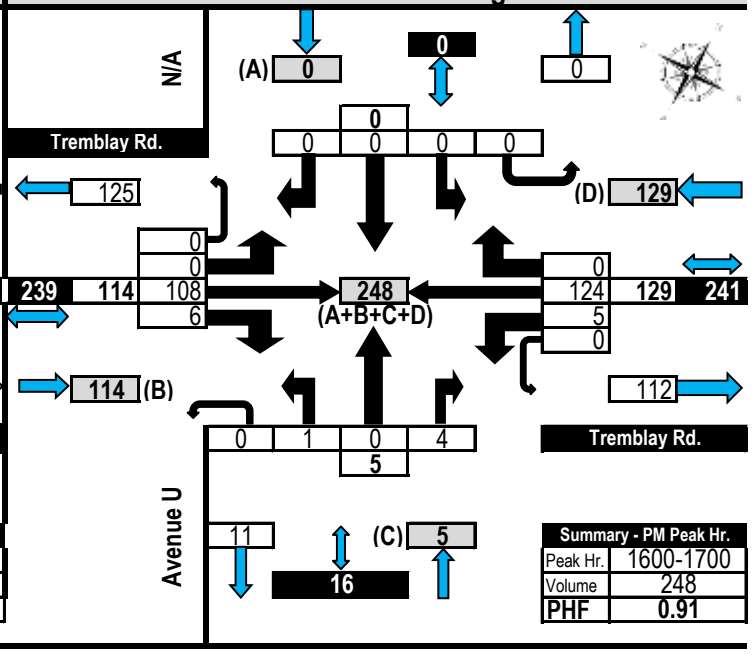


AM Peak Hour Flow Diagram



Summary - AM Peak Hr.	
Peak Hr.	0800-0900
Volume	258
PHF	0.91

PM Peak Hour Flow Diagram



Summary - PM Peak Hr.	
Peak Hr.	1600-1700
Volume	248
PHF	0.91

Traffic Signal Timing

City of Ottawa, Transportation Services Department

Traffic Signal Operations Unit

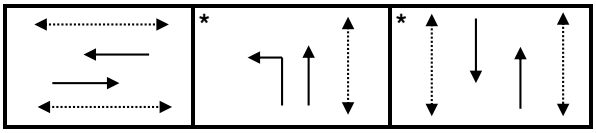
Intersection:	**Main:** Belfast	**Side:**	Tremblay
Controller:	**ATC-3**	**TSD:**	**5128**
Author:	Yassine Bennani	**Date:**	05-Feb-2019

Existing Timing Plans†

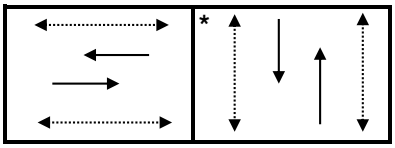
	Plan					**Ped Minimum Time**		
	AM Peak 1	**Off Peak** 2	**PM Peak** 3	**Night** 4	**Weekend** 5	***Walk***	***DW***	***A+R***
Cycle	85	75	100	60	90			
Offset	X	X	X	X	X			
EB Thru	35	30	35	30	35	7	16	3.3+3.5
WB Thru	35	30	35	30	35	7	16	3.3+3.5
NB Left	15	15	20	-	20	-	-	3.3+2.6
NB Thru	35	30	45	30	35	7	7	3.3+2.6
SB Thru	35	30	45	30	35	7	7	3.3+2.6

Phasing Sequence‡

Plan: 1,2,3,5



Plan: 4



Schedule

Weekday

Time	Plan
0:15	4
6:30	1
9:30	2
15:00	3
18:30	2
22:30	4

Weekend

Time	Plan
0:15	4
8:30	5
19:00	2
23:30	4

Weekend

Time	Plan
0:15	4
8:30	5
23:30	4

Notes

†: Time for each direction includes amber and all red intervals

‡: Start of first phase should be used as reference point for offset

Asterisk (*) Indicates actuated phase

(fp): Fully Protected Left Turn

◄·····► Pedestrian signal

Cost is $56.50 ($50 + HST)

Traffic Signal Timing

City of Ottawa, Transportation Services Department

Traffic Signal Operations Unit

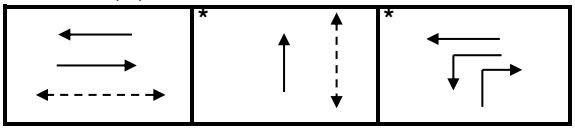
Intersection:	**Main:**	Belfast	**Side:**	Trainyards	
Controller:	**ATC-3**			**TSD:**	**6542**
Author:	Jean Nabolle			**Date:**	08-Jul-19

Existing Timing Plans†

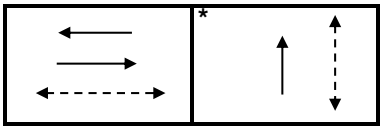
	Plan					**Ped Minimum Time**		
	AM Peak 1	**Off Peak** 2	**PM Peak** 3	**Night** 4	**Weekend** 5	***Walk***	***DW***	***A+R***
Cycle	80	80	80	70	90			
Offset	60	60	60	X	44			
EB Thru	38	38	38	40	40	7	25	3.3 + 3.5
WB Thru	51	51	51	40	60	-	-	3.3 + 3.5
NB Thru	29	29	29	30	30	7	15	3.3 + 3.6
WB Left	13	13	13	-	20	-	-	3.3 + 2.8
NB Right	13	13	13	-	20	-	-	3.3 + 2.8

Phasing Sequence‡

Plan: 1, 2, 3 & 5



Plan: 4



Schedule

Weekday

Time	Plan
0:15	4
6:30	1
9:30	2
15:00	3
18:30	2
22:30	4

Saturday

Time	Plan
0:15	4
8:30	5
19:00	2
23:30	4

Sunday

Time	Plan
0:15	4
8:30	5
23:30	4

Notes

†: Time for each direction includes amber and all red intervals

‡: Start of first phase should be used as reference point for offset

Asterisk (*) Indicates actuated phase

(fp): Fully Protected Left Turn

◄·····► Pedestrian signal

Cost is $57.63 ($51 + HST)

Traffic Signal Timing

City of Ottawa, Transportation Services Department

Traffic Signal Operations Unit

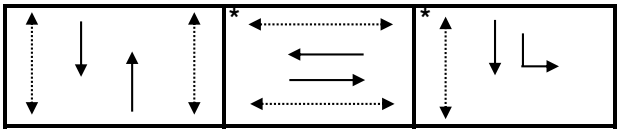
Intersection:	**Main:** St. Laurent	**Side:**	Tremblay
Controller:	**MS-3200**	**TSD:**	**5821**
Author:	Yassine Bennani	**Date:**	05-Feb-2019

Existing Timing Plans†

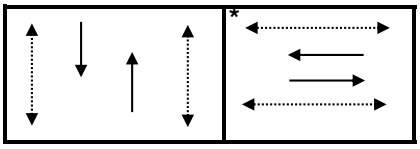
	Plan							**Ped Minimum Time**		
	AM Peak 1	**Off Peak** 2	**PM Peak** 3	**Night** 4	**Weekend** 5	**AM Rush** 11	**Evening** 12	***Walk***	***DW***	***A+R***
Cycle	120	120	120	80	120	130	120			
Offset	50	44	49	X	44	53	44			
NB Thru	65	65	65	41	65	72	65	11	22	3.7+2.5
SB Thru	80	80	80	41	80	90	80	11	22	3.7+2.5
EB Thru	40	40	40	39	40	40	40	7	25	3.3+3.2
WB Thru	40	40	40	39	40	40	40	7	25	3.3+3.2
SB Left	15	15	15	-	15	18	15	-	-	3.7+1.0

Phasing Sequence‡

Plans: 1, 2, 3, 5, 12



Plans: 4



Schedule

Weekday

Time	Plan
0:15	4
6:30	1
7:30	11
9:00	1
9:30	2
15:00	3
18:30	12
22:30	4

Saturday

Time	Plan
0:15	4
8:30	5
19:00	2
22:30	4

Sunday

Time	Plan
0:15	4
8:30	2
22:30	4

Notes

†: Time for each direction includes amber and all red intervals

‡: Start of first phase should be used as reference point for offset

Asterisk (*) Indicates actuated phase

(fp): Fully Protected Left Turn

◄·····► Pedestrian signal

Cost is $56.50 ($50 + HST)

Appendix C

Collision Data

Accident Date	Accident Year	Accident Time	Location	Environment Condition	Light	Traffic Control	Classification Of Accident	Initial Impact Type	Road Surface Condition
2013-02-08	2013	10:00:00 AM	BELFAST RD @ TRAINYARDS	03 - Snow	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	03 - Loose snow
2013-09-27	2013	4:27:00 PM	BELFAST RD @ TRAINYARDS	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2013-11-29	2013	9:08:00 AM	BELFAST RD @ TRAINYARDS	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	05 - Turning movement	02 - Wet
2015-10-10	2015	3:14:00 PM	BELFAST RD @ TRAINYARDS	01 - Clear	01 - Daylight	01 - Traffic signal	02 - Non-fatal injury	02 - Angle	01 - Dry
2015-06-26	2015	12:33:00 PM	BELFAST RD @ TRAINYARDS	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	99 - Other	01 - Dry
2015-12-22	2015	6:27:00 PM	BELFAST RD @ TRAINYARDS	02 - Rain	07 - Dark	01 - Traffic signal	03 - P.D. only	05 - Turning movement	02 - Wet
2017-07-24	2017	1:19:00 PM	BELFAST RD @ TRAINYARDS	02 - Rain	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	02 - Wet

Accident Date	Accident Year	Accident Time	Location	Environment Condition	Light	Traffic Control	Classification Of Accident	Initial Impact Type	Road Surface Condition
2013-03-04	2013	6:23:00 AM	BELFAST RD @ TREMBLAY RD	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	05 - Turning movement	01 - Dry
2013-03-12	2013	11:04:00 AM	BELFAST RD @ TREMBLAY RD	02 - Rain	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	02 - Wet
2013-06-07	2013	8:00:00 AM	BELFAST RD @ TREMBLAY RD	02 - Rain	01 - Daylight	01 - Traffic signal	03 - P.D. only	02 - Angle	02 - Wet
2013-10-01	2013	3:28:00 PM	BELFAST RD @ TREMBLAY RD	01 - Clear	01 - Daylight	01 - Traffic signal	02 - Non-fatal injury	07 - SMV other	01 - Dry
2013-10-12	2013	3:44:00 PM	BELFAST RD @ TREMBLAY RD	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	02 - Angle	01 - Dry
2013-12-11	2013	5:01:00 PM	BELFAST RD @ TREMBLAY RD	01 - Clear	07 - Dark	01 - Traffic signal	03 - P.D. only	03 - Rear end	02 - Wet
2016-07-07	2016	11:58:00 AM	BELFAST RD @ TREMBLAY RD	01 - Clear	01 - Daylight	01 - Traffic signal	02 - Non-fatal injury	05 - Turning movement	01 - Dry
2016-11-24	2016	8:28:00 AM	BELFAST RD @ TREMBLAY RD	02 - Rain	01 - Daylight	01 - Traffic signal	02 - Non-fatal injury	02 - Angle	02 - Wet
2017-07-21	2017	5:00:00 PM	BELFAST RD @ TREMBLAY RD	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	04 - Sideswipe	01 - Dry
2017-08-24	2017	5:56:00 PM	BELFAST RD @ TREMBLAY RD	01 - Clear	01 - Daylight	01 - Traffic signal	02 - Non-fatal injury	05 - Turning movement	01 - Dry
2017-10-18	2017	4:51:00 PM	BELFAST RD @ TREMBLAY RD	01 - Clear	05 - Dusk	01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2017-12-31	2017	10:33:00 AM	BELFAST RD @ TREMBLAY RD	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	05 - Turning movement	02 - Wet

Accident Date	Accident Year	Accident Time	Location	Environment Condition	Light	Traffic Control	Classification Of Accident	Initial Impact Type	Road Surface Condition
2013-01-27	2013	3:35:00 AM	ST. LAURENT BLVD @ TREMBLAY RD	01 - Clear	07 - Dark	01 - Traffic signal	03 - P.D. only	07 - SMV other	01 - Dry
2013-02-19	2013	4:13:00 PM	ST. LAURENT BLVD @ TREMBLAY RD	03 - Snow	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	03 - Loose snow
2013-04-18	2013	2:43:00 PM	ST. LAURENT BLVD @ TREMBLAY RD	01 - Clear	01 - Daylight	01 - Traffic signal	02 - Non-fatal injury	03 - Rear end	01 - Dry
2013-07-24	2013	8:35:00 AM	ST. LAURENT BLVD @ TREMBLAY RD	01 - Clear	01 - Daylight	01 - Traffic signal	02 - Non-fatal injury	03 - Rear end	01 - Dry
2013-08-02	2013	11:29:00 AM	ST. LAURENT BLVD @ TREMBLAY RD	01 - Clear	01 - Daylight	01 - Traffic signal	02 - Non-fatal injury	05 - Turning movement	01 - Dry
2013-08-02	2013	12:06:00 PM	ST. LAURENT BLVD @ TREMBLAY RD	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2013-08-20	2013	2:07:00 PM	ST. LAURENT BLVD @ TREMBLAY RD	01 - Clear	01 - Daylight	01 - Traffic signal	02 - Non-fatal injury	02 - Angle	01 - Dry
2013-09-26	2013	9:15:00 AM	ST. LAURENT BLVD @ TREMBLAY RD	01 - Clear	01 - Daylight	01 - Traffic signal	02 - Non-fatal injury	02 - Angle	01 - Dry
2013-10-07	2013	4:34:00 PM	ST. LAURENT BLVD @ TREMBLAY RD	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	02 - Angle	01 - Dry
2013-11-09	2013	2:28:00 PM	ST. LAURENT BLVD @ TREMBLAY RD	03 - Snow	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	02 - Wet
2013-12-13	2013	12:05:00 PM	ST. LAURENT BLVD @ TREMBLAY RD	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	05 - Turning movement	01 - Dry
2013-01-28	2013	10:30:00 PM	ST. LAURENT BLVD @ TREMBLAY RD	03 - Snow	07 - Dark	01 - Traffic signal	03 - P.D. only	03 - Rear end	03 - Loose snow
2014-04-25	2014	6:20:00 PM	ST. LAURENT BLVD @ TREMBLAY RD	01 - Clear	01 - Daylight	01 - Traffic signal	02 - Non-fatal injury	03 - Rear end	01 - Dry
2014-06-22	2014	1:15:00 PM	ST. LAURENT BLVD @ TREMBLAY RD	01 - Clear	01 - Daylight	01 - Traffic signal	02 - Non-fatal injury	02 - Angle	01 - Dry
2014-11-11	2014	3:41:00 PM	ST. LAURENT BLVD @ TREMBLAY RD	01 - Clear	01 - Daylight	01 - Traffic signal	02 - Non-fatal injury	02 - Angle	01 - Dry
2014-09-14	2014	12:52:00 AM	ST. LAURENT BLVD @ TREMBLAY RD	01 - Clear	07 - Dark	01 - Traffic signal	02 - Non-fatal injury	03 - Rear end	01 - Dry
2014-01-03	2014	12:41:00 PM	ST. LAURENT BLVD @ TREMBLAY RD	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	06 - Ice
2014-01-24	2014	10:49:00 AM	ST. LAURENT BLVD @ TREMBLAY RD	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	02 - Angle	01 - Dry
2014-06-10	2014	12:51:00 PM	ST. LAURENT BLVD @ TREMBLAY RD	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	05 - Turning movement	01 - Dry
2014-06-17	2014	2:10:00 PM	ST. LAURENT BLVD @ TREMBLAY RD	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	05 - Turning movement	01 - Dry
2014-06-12	2014	2:46:00 PM	ST. LAURENT BLVD @ TREMBLAY RD	02 - Rain	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	02 - Wet
2014-06-20	2014	2:15:00 PM	ST. LAURENT BLVD @ TREMBLAY RD	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2014-08-08	2014	10:45:00 AM	ST. LAURENT BLVD @ TREMBLAY RD	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2014-12-16	2014	11:15:00 AM	ST. LAURENT BLVD @ TREMBLAY RD	02 - Rain	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	02 - Wet
2014-09-18	2014	9:15:00 AM	ST. LAURENT BLVD @ TREMBLAY RD	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	04 - Sideswipe	01 - Dry
2014-12-20	2014	5:06:00 PM	ST. LAURENT BLVD @ TREMBLAY RD	01 - Clear	07 - Dark	01 - Traffic signal	03 - P.D. only	05 - Turning movement	01 - Dry
2014-12-11	2014	6:28:00 AM	ST. LAURENT BLVD @ TREMBLAY RD	01 - Clear	07 - Dark	01 - Traffic signal	03 - P.D. only	03 - Rear end	03 - Loose snow
2015-02-03	2015	4:12:00 PM	ST. LAURENT BLVD @ TREMBLAY RD	03 - Snow	01 - Daylight	01 - Traffic signal	02 - Non-fatal injury	03 - Rear end	05 - Packed snow
2015-07-24	2015	11:32:00 AM	ST. LAURENT BLVD @ TREMBLAY RD	01 - Clear	01 - Daylight	01 - Traffic signal	02 - Non-fatal injury	03 - Rear end	01 - Dry
2015-10-15	2015	8:38:00 AM	ST. LAURENT BLVD @ TREMBLAY RD	02 - Rain	01 - Daylight	01 - Traffic signal	03 - P.D. only	05 - Turning movement	02 - Wet
2015-07-21	2015	4:35:00 PM	ST. LAURENT BLVD @ TREMBLAY RD	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	04 - Sideswipe	01 - Dry
2015-02-24	2015	9:12:00 AM	ST. LAURENT BLVD @ TREMBLAY RD	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	02 - Angle	02 - Wet
2015-08-25	2015	5:49:00 PM	ST. LAURENT BLVD @ TREMBLAY RD	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	04 - Sideswipe	01 - Dry
2015-08-23	2015	12:35:00 PM	ST. LAURENT BLVD @ TREMBLAY RD	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	04 - Sideswipe	01 - Dry
2015-10-26	2015	11:47:00 AM	ST. LAURENT BLVD @ TREMBLAY RD	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	05 - Turning movement	01 - Dry
2015-10-14	2015	3:20:00 PM	ST. LAURENT BLVD @ TREMBLAY RD	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	05 - Turning movement	01 - Dry
2016-02-05	2016	7:46:00 PM	ST. LAURENT BLVD @ TREMBLAY RD	01 - Clear	07 - Dark	01 - Traffic signal	02 - Non-fatal injury	05 - Turning movement	01 - Dry
2016-05-16	2016	6:44:00 AM	ST. LAURENT BLVD @ TREMBLAY RD	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2016-08-05	2016	10:21:00 AM	ST. LAURENT BLVD @ TREMBLAY RD	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	02 - Angle	01 - Dry
2016-02-09	2016	12:05:00 PM	ST. LAURENT BLVD @ TREMBLAY RD	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	02 - Wet
2016-02-04	2016	5:00:00 PM	ST. LAURENT BLVD @ TREMBLAY RD	01 - Clear	05 - Dusk	01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2016-01-06	2016	6:35:00 AM	ST. LAURENT BLVD @ TREMBLAY RD	01 - Clear	07 - Dark	01 - Traffic signal	03 - P.D. only	05 - Turning movement	01 - Dry
2016-07-07	2016	6:52:00 PM	ST. LAURENT BLVD @ TREMBLAY RD	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2016-10-13	2016	8:00:00 AM	ST. LAURENT BLVD @ TREMBLAY RD	02 - Rain	01 - Daylight	01 - Traffic signal	03 - P.D. only	04 - Sideswipe	02 - Wet
2016-11-15	2016	5:10:00 PM	ST. LAURENT BLVD @ TREMBLAY RD	01 - Clear	07 - Dark	01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2016-12-28	2016	10:25:00 AM	ST. LAURENT BLVD @ TREMBLAY RD	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	02 - Angle	01 - Dry
2016-12-05	2016	2:30:00 PM	ST. LAURENT BLVD @ TREMBLAY RD	03 - Snow	01 - Daylight	01 - Traffic signal	03 - P.D. only	02 - Angle	04 - Slush
2017-06-07	2017	8:34:00 AM	ST. LAURENT BLVD @ TREMBLAY RD	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	04 - Sideswipe	01 - Dry
2017-10-05	2017	2:16:00 PM	ST. LAURENT BLVD @ TREMBLAY RD	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2017-12-05	2017	8:45:00 PM	ST. LAURENT BLVD @ TREMBLAY RD	02 - Rain	07 - Dark	01 - Traffic signal	03 - P.D. only	04 - Sideswipe	02 - Wet
2017-02-13	2017	3:47:00 PM	ST. LAURENT BLVD @ TREMBLAY RD	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	05 - Turning movement	02 - Wet
2017-01-07	2017	9:16:00 PM	ST. LAURENT BLVD @ TREMBLAY RD	01 - Clear	07 - Dark	01 - Traffic signal	03 - P.D. only	03 - Rear end	06 - Ice
2017-02-03	2017	9:57:00 AM	ST. LAURENT BLVD @ TREMBLAY RD	01 - Clear	01 - Daylight	01 - Traffic signal	03 - P.D. only	03 - Rear end	01 - Dry
2017-12-31	2017	8:58:00 PM	ST. LAURENT BLVD @ TREMBLAY RD	01 - Clear	07 - Dark	01 - Traffic signal	03 - P.D. only	03 - Rear end	04 - Slush

LOCATION & GEOID	TOTAL_COLLISIONS	TOTAL_CYCLIST_COLLISIONS	TOTAL_PEDESTRIAN_COLLISIONS
BELFAST RD @ TREMBLAY RD (0002698)	12	0	1
ST. LAURENT BLVD @ TREMBLAY RD (0002573)	54	0	0
BELFAST RD @ TRAINYARDS (0007799)	7	0	0

Appendix D

Canada Lands Company Trip Generation Details

Table 1 below illustrates the total person trip generation by dwelling type.

Table 1: Total Person Trip Generations

Land Use	Units / Employees	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
General Office Building	8000 employees	3121	639	3760	816	3264	4080
Mid-Rise Apartments	500 units	78	247	325	217	133	350
Total Person Trips		**3199**	**886**	**4085**	**1033**	**3397**	**4430**

Using TOD mode shares and person trip rates, the person trips by mode have been projected. Table 2 summarizes the trip generation by mode.

Table 2: Trip Generation Mode

Travel Mode	Mode Share	In	Out	Total	In	Out	Total
Auto Driver	20%	640	177	817	206	680	886
Auto Passenger	10%	320	89	409	104	339	443
Transit	65%	2079	576	2655	671	2208	2879
Non-Auto Modes	5%	160	44	204	52	170	222
Total	100%	3199	886	4085	1033	3397	4430

As shown above, 817 AM and 886 PM new peak hour two-way vehicle trips are projected as a result of the proposed Canada Lands Company development.

Appendix E

TDM Checklist

TDM Measures Checklist:
Residential Developments (multi-family, condominium or subdivision)

Legend

BASIC — The measure is generally feasible and effective, and in most cases would benefit the development and its users

BETTER — The measure could maximize support for users of sustainable modes, and optimize development performance

★ — The measure is one of the most dependably effective tools to encourage the use of sustainable modes

		TDM measures: *Residential developments*	Check if proposed & add descriptions
	1.	**TDM PROGRAM MANAGEMENT**	
	1.1	**Program coordinator**	
BASIC ★	1.1.1	Designate an internal coordinator, or contract with an external coordinator	☒
	1.2	**Travel surveys**	
BETTER	1.2.1	Conduct periodic surveys to identify travel-related behaviours, attitudes, challenges and solutions, and to track progress	☐
	2.	**WALKING AND CYCLING**	
	2.1	**Information on walking/cycling routes & destinations**	
BASIC	2.1.1	Display local area maps with walking/cycling access routes and key destinations at major entrances *(multi-family, condominium)*	☒
	2.2	**Bicycle skills training**	
BETTER	2.2.1	Offer on-site cycling courses for residents, or subsidize off-site courses	☐

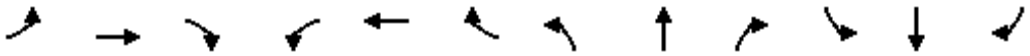
		TDM measures: *Residential developments*	Check if proposed & add descriptions
		3. TRANSIT	
		3.1 Transit information	
BASIC		3.1.1 Display relevant transit schedules and route maps at entrances *(multi-family, condominium)*	☒
BETTER		3.1.2 Provide real-time arrival information display at entrances *(multi-family, condominium)*	☐
		3.2 Transit fare incentives	
BASIC	★	3.2.1 Offer PRESTO cards preloaded with one monthly transit pass on residence purchase/move-in, to encourage residents to use transit	☐
BETTER		3.2.2 Offer at least one year of free monthly transit passes on residence purchase/move-in	☐
		3.3 Enhanced public transit service	
BETTER	★	3.3.1 Contract with OC Transpo to provide early transit services until regular services are warranted by occupancy levels *(subdivision)*	☐
		3.4 Private transit service	
BETTER		3.4.1 Provide shuttle service for seniors homes or lifestyle communities (e.g. scheduled mall or supermarket runs)	☐
		4. CARSHARING & BIKESHARING	
		4.1 Bikeshare stations & memberships	
BETTER		4.1.1 Contract with provider to install on-site bikeshare station (*multi-family)*	☐
BETTER		4.1.2 Provide residents with bikeshare memberships, either free or subsidized *(multi-family)*	☐
		4.2 Carshare vehicles & memberships	
BETTER		4.2.1 Contract with provider to install on-site carshare vehicles and promote their use by residents	☒
BETTER		4.2.2 Provide residents with carshare memberships, either free or subsidized	☐
		5. PARKING	
		5.1 Priced parking	
BASIC	★	5.1.1 Unbundle parking cost from purchase price *(condominium)*	☐
BASIC	★	5.1.2 Unbundle parking cost from monthly rent *(multi-family)*	☒

		TDM measures: *Residential developments*	Check if proposed & add descriptions
		6. TDM MARKETING & COMMUNICATIONS	
		6.1 Multimodal travel information	
BASIC	★	6.1.1 Provide a multimodal travel option information package to new residents	☒
		6.2 Personalized trip planning	
BETTER	★	6.2.1 Offer personalized trip planning to new residents	☐

Appendix F

2019 Existing Conditions Synchro Worksheets

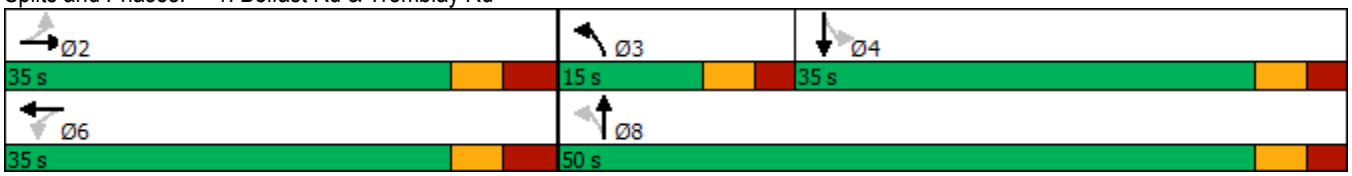
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	91	50	117	32	104	29	107	251	19	19	274	69
Future Volume (vph)	91	50	117	32	104	29	107	251	19	19	274	69
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	40.0		0.0	25.0		0.0	45.0		0.0	15.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	60.0			65.0			60.0			25.0		
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		0.895			0.968			0.989			0.970	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1492	1406	0	1492	1520	0	1492	1553	0	1492	1523	0
Flt Permitted	0.663			0.640			0.261			0.577		
Satd. Flow (perm)	1041	1406	0	1005	1520	0	410	1553	0	906	1523	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		130			17			7			16	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		241.9			574.2			414.4			151.3	
Travel Time (s)		17.4			41.3			29.8			10.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	101	56	130	36	116	32	119	279	21	21	304	77
Shared Lane Traffic (%)												
Lane Group Flow (vph)	101	186	0	36	148	0	119	300	0	21	381	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)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		2			6		3	8			4	
Permitted Phases	2			6			8			4		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	2	2		6	6		3	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	10.0		10.0	10.0	
Minimum Split (s)	29.8	29.8		29.8	29.8		10.9	23.9		23.9	23.9	
Total Split (s)	35.0	35.0		35.0	35.0		15.0	50.0		35.0	35.0	
Total Split (%)	41.2%	41.2%		41.2%	41.2%		17.6%	58.8%		41.2%	41.2%	
Maximum Green (s)	28.2	28.2		28.2	28.2		9.1	44.1		29.1	29.1	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	3.5	3.5		3.5	3.5		2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.8	6.8		6.8	6.8		5.9	5.9		5.9	5.9	
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		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0		7.0	7.0	
Flash Dont Walk (s)	16.0	16.0		16.0	16.0			7.0		7.0	7.0	
Pedestrian Calls (#/hr)	0	0		0	0			0		0	0	
Act Effct Green (s)	29.1	29.1		29.1	29.1		33.4	33.4		22.5	22.5	
Actuated g/C Ratio	0.38	0.38		0.38	0.38		0.44	0.44		0.30	0.30	
v/c Ratio	0.25	0.30		0.09	0.25		0.40	0.43		0.08	0.82	
Control Delay	22.3	8.9		19.9	18.8		15.3	15.1		20.1	39.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	22.3	8.9		19.9	18.8		15.3	15.1		20.1	39.7	
LOS	C	A		B	B		B	B		C	D	
Approach Delay		13.6			19.0			15.2			38.7	
Approach LOS		B			B			B			D	
Queue Length 50th (m)	10.8	5.7		3.6	13.9		9.5	26.7		2.3	50.9	
Queue Length 95th (m)	24.6	20.9		10.6	29.7		18.2	44.0		7.2	83.0	
Internal Link Dist (m)		217.9			550.2			390.4			127.3	
Turn Bay Length (m)	40.0			25.0			45.0			15.0		
Base Capacity (vph)	400	621		386	595		315	937		359	614	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.25	0.30		0.09	0.25		0.38	0.32		0.06	0.62	

Intersection Summary			
Area Type:	CBD		
Cycle Length: 85			
Actuated Cycle Length: 75.6			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.82			
Intersection Signal Delay: 22.7		Intersection LOS: C	
Intersection Capacity Utilization 65.6%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 1: Belfast Rd & Tremblay Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	91	50	117	32	104	29	107	251	19	19	274	69
Future Volume (veh/h)	91	50	117	32	104	29	107	251	19	19	274	69
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1588	1588	1620	1588	1588	1620	1588	1588	1620	1588	1588	1620
Adj Flow Rate, veh/h	101	56	130	36	116	32	119	279	21	21	304	77
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	451	163	379	410	460	127	258	647	49	378	354	90
Arrive On Green	0.38	0.38	0.38	0.38	0.38	0.38	0.07	0.44	0.44	0.29	0.29	0.29
Sat Flow, veh/h	1111	426	988	1073	1199	331	1513	1459	110	967	1224	310
Grp Volume(v), veh/h	101	0	186	36	0	148	119	0	300	21	0	381
Grp Sat Flow(s),veh/h/ln	1111	0	1414	1073	0	1530	1513	0	1569	967	0	1534
Q Serve(g_s), s	5.0	0.0	6.9	1.8	0.0	4.8	3.8	0.0	9.7	1.2	0.0	17.3
Cycle Q Clear(g_c), s	9.9	0.0	6.9	8.7	0.0	4.8	3.8	0.0	9.7	1.2	0.0	17.3
Prop In Lane	1.00		0.70	1.00		0.22	1.00		0.07	1.00		0.20
Lane Grp Cap(c), veh/h	451	0	543	410	0	587	258	0	695	378	0	444
V/C Ratio(X)	0.22	0.00	0.34	0.09	0.00	0.25	0.46	0.00	0.43	0.06	0.00	0.86
Avail Cap(c_a), veh/h	451	0	543	410	0	587	334	0	942	481	0	607
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.8	0.0	16.1	19.1	0.0	15.4	17.7	0.0	14.1	19.0	0.0	24.7
Incr Delay (d2), s/veh	1.1	0.0	1.7	0.4	0.0	1.0	1.3	0.0	0.4	0.1	0.0	9.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.0	2.9	0.6	0.0	2.2	1.6	0.0	4.2	0.3	0.0	8.4
LnGrp Delay(d),s/veh	20.0	0.0	17.8	19.6	0.0	16.5	19.0	0.0	14.5	19.0	0.0	33.7
LnGrp LOS	B		B	B		B	B		B	B		C
Approach Vol, veh/h		287			184			419			402	
Approach Delay, s/veh		18.5			17.1			15.8			32.9	
Approach LOS		B			B			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6		8
Phs Duration (G+Y+Rc), s		35.0	11.3	27.2		35.0		38.5
Change Period (Y+Rc), s		* 6.8	* 5.9	* 5.9		* 6.8		* 5.9
Max Green Setting (Gmax), s		* 28	* 9.1	* 29		* 28		* 44
Max Q Clear Time (g_c+I1), s		11.9	5.8	19.3		10.7		11.7
Green Ext Time (p_c), s		1.7	0.1	2.0		1.0		2.3

Intersection Summary	
HCM 2010 Ctrl Delay	21.9
HCM 2010 LOS	C

Notes

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	195	218	151	185	134	92
Future Volume (vph)	195	218	151	185	134	92
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		40.0	65.0		70.0	0.0
Storage Lanes		1	1		2	1
Taper Length (m)			30.0		0.0	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.97	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1571	1335	1492	2984	2895	1335
Flt Permitted			0.542		0.950	
Satd. Flow (perm)	1571	1335	851	2984	2895	1335
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		242				102
Link Speed (k/h)	50			50	50	
Link Distance (m)	179.6			116.9	82.9	
Travel Time (s)	12.9			8.4	6.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	217	242	168	206	149	102
Shared Lane Traffic (%)						
Lane Group Flow (vph)	217	242	168	206	149	102
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	7.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.24	1.24	1.24	1.24	1.24	1.24
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (m)	10.0	2.0	2.0	10.0	2.0	2.0
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)	0.6	2.0	2.0	0.6	2.0	2.0
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)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	pm+pt	NA	Prot	pm+ov
Protected Phases	2		1	6	8	1
Permitted Phases		2	6			8

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2	2	1	6	8	1
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	10.0	5.0
Minimum Split (s)	38.4	38.4	11.1	24.8	28.5	11.1
Total Split (s)	38.4	38.4	13.0	51.4	28.6	13.0
Total Split (%)	48.0%	48.0%	16.3%	64.3%	35.8%	16.3%
Maximum Green (s)	31.6	31.6	6.9	44.6	21.7	6.9
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	3.5	3.5	2.8	3.5	3.6	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.8	6.8	6.1	6.8	6.9	6.1
Lead/Lag	Lag	Lag	Lead			Lead
Lead-Lag Optimize?	Yes	Yes	Yes			Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	None	C-Max	None	None
Walk Time (s)	7.0	7.0			7.0	
Flash Dont Walk (s)	24.6	24.6			14.6	
Pedestrian Calls (#/hr)	0	0			0	
Act Effct Green (s)	41.0	41.0	56.4	55.7	10.6	26.1
Actuated g/C Ratio	0.51	0.51	0.70	0.70	0.13	0.33
v/c Ratio	0.27	0.30	0.25	0.10	0.39	0.20
Control Delay	12.9	2.9	5.1	4.2	34.8	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.9	2.9	5.1	4.2	34.8	5.0
LOS	B	A	A	A	C	A
Approach Delay	7.6			4.6	22.7	
Approach LOS	A			A	C	
Queue Length 50th (m)	17.1	0.0	6.8	4.3	10.9	0.0
Queue Length 95th (m)	34.6	11.5	14.1	8.2	18.8	8.9
Internal Link Dist (m)	155.6			92.9	58.9	
Turn Bay Length (m)		40.0	65.0		70.0	
Base Capacity (vph)	805	802	669	2078	785	505
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	0.27	0.30	0.25	0.10	0.19	0.20

Intersection Summary	
Area Type:	CBD
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 60 (75%), Referenced to phase 2:EBT and 6:WBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.39	
Intersection Signal Delay: 10.1	Intersection LOS: B
Intersection Capacity Utilization 46.7%	ICU Level of Service A
Analysis Period (min) 15	

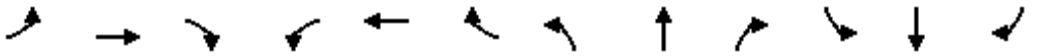
Splits and Phases: 2: Trainyards Dr & Belfast Rd

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	195	218	151	185	134	92
Future Volume (veh/h)	195	218	151	185	134	92
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1588	1588	1588	1588	1588	1588
Adj Flow Rate, veh/h	217	242	168	206	149	102
Adj No. of Lanes	1	1	1	2	2	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	890	756	603	2125	365	260
Arrive On Green	0.56	0.56	0.07	0.70	0.12	0.12
Sat Flow, veh/h	1588	1350	1513	3097	2934	1350
Grp Volume(v), veh/h	217	242	168	206	149	102
Grp Sat Flow(s),veh/h/ln	1588	1350	1513	1509	1467	1350
Q Serve(g_s), s	5.6	7.7	3.5	1.7	3.7	5.3
Cycle Q Clear(g_c), s	5.6	7.7	3.5	1.7	3.7	5.3
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	890	756	603	2125	365	260
V/C Ratio(X)	0.24	0.32	0.28	0.10	0.41	0.39
Avail Cap(c_a), veh/h	890	756	631	2125	796	458
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.0	9.4	5.9	3.8	32.3	28.2
Incr Delay (d2), s/veh	0.7	1.1	0.2	0.1	0.7	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	3.1	1.4	0.7	1.5	2.0
LnGrp Delay(d),s/veh	9.6	10.5	6.1	3.8	33.0	29.2
LnGrp LOS	A	B	A	A	C	C
Approach Vol, veh/h	459			374	251	
Approach Delay, s/veh	10.1			4.9	31.5	
Approach LOS	B			A	C	

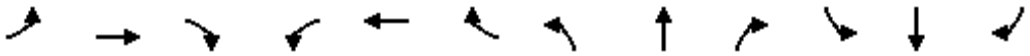
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	11.5	51.6				63.1		16.9
Change Period (Y+Rc), s	6.1	* 6.8				* 6.8		6.9
Max Green Setting (Gmax), s	6.9	* 32				* 45		21.7
Max Q Clear Time (g_c+I1), s	5.5	9.7				3.7		7.3
Green Ext Time (p_c), s	0.1	2.7				1.7		1.0

Intersection Summary	
HCM 2010 Ctrl Delay	13.2
HCM 2010 LOS	B

Notes



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	21	16	12	20	100	64	1132	38	124	1083	62
Future Volume (vph)	15	21	16	12	20	100	64	1132	38	124	1083	62
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	30.0		0.0	35.0		0.0	30.0		0.0	75.0		0.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	30.0			30.0			65.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.95	1.00
Frt		0.934			0.875			0.995				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1492	1467	0	1492	1374	0	1492	4266	0	1492	2984	1335
Flt Permitted	0.493			0.730			0.234			0.176		
Satd. Flow (perm)	774	1467	0	1147	1374	0	368	4266	0	276	2984	1335
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18			111			6				69
Link Speed (k/h)		50			50			70			60	
Link Distance (m)		52.7			112.0			55.9			143.5	
Travel Time (s)		3.8			8.1			2.9			8.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	17	23	18	13	22	111	71	1258	42	138	1203	69
Shared Lane Traffic (%)												
Lane Group Flow (vph)	17	41	0	13	133	0	71	1300	0	138	1203	69
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)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
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)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
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)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		6



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		10.0	10.0		5.0	10.0	10.0
Minimum Split (s)	38.5	38.5		38.5	38.5		39.2	39.2		9.7	39.2	39.2
Total Split (s)	40.0	40.0		40.0	40.0		65.0	65.0		15.0	80.0	80.0
Total Split (%)	33.3%	33.3%		33.3%	33.3%		54.2%	54.2%		12.5%	66.7%	66.7%
Maximum Green (s)	33.5	33.5		33.5	33.5		58.8	58.8		10.3	73.8	73.8
Yellow Time (s)	3.3	3.3		3.3	3.3		3.7	3.7		3.7	3.7	3.7
All-Red Time (s)	3.2	3.2		3.2	3.2		2.5	2.5		1.0	2.5	2.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5		6.5	6.5		6.2	6.2		4.7	6.2	6.2
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		C-Max	C-Max		None	C-Max	C-Max
Walk Time (s)	7.0	7.0		7.0	7.0		11.0	11.0			11.0	11.0
Flash Dont Walk (s)	25.0	25.0		25.0	25.0		22.0	22.0			22.0	22.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	0
Act Effct Green (s)	8.9	8.9		8.9	8.9		85.6	85.6		99.9	98.4	98.4
Actuated g/C Ratio	0.07	0.07		0.07	0.07		0.71	0.71		0.83	0.82	0.82
v/c Ratio	0.30	0.33		0.15	0.65		0.27	0.43		0.44	0.49	0.06
Control Delay	63.7	39.7		53.5	28.8		10.9	8.2		6.8	4.4	0.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	63.7	39.7		53.5	28.8		10.9	8.2		6.8	4.4	0.8
LOS	E	D		D	C		B	A		A	A	A
Approach Delay		46.7			31.0			8.3			4.5	
Approach LOS		D			C			A			A	
Queue Length 50th (m)	3.9	5.3		3.0	5.0		4.9	37.8		4.1	31.8	0.0
Queue Length 95th (m)	10.9	15.6		8.9	23.6		16.7	65.8		11.1	61.0	2.9
Internal Link Dist (m)		28.7			88.0			31.9			119.5	
Turn Bay Length (m)	30.0			35.0			30.0			75.0		
Base Capacity (vph)	216	422		320	463		262	3044		337	2445	1106
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.08	0.10		0.04	0.29		0.27	0.43		0.41	0.49	0.06

Intersection Summary			
Area Type:	CBD		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 50 (42%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.65			
Intersection Signal Delay: 8.4		Intersection LOS: A	
Intersection Capacity Utilization 67.7%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 3: St. Laurent Blvd & Tremblay Rd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	21	16	12	20	100	64	1132	38	124	1083	62
Future Volume (veh/h)	15	21	16	12	20	100	64	1132	38	124	1083	62
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1588	1588	1620	1588	1588	1620	1588	1588	1620	1588	1588	1588
Adj Flow Rate, veh/h	17	23	18	13	22	111	71	1258	42	138	1203	69
Adj No. of Lanes	1	1	0	1	1	0	1	3	0	1	2	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	97	104	82	184	29	146	300	2954	99	337	2318	1037
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.13	0.69	0.69	0.69	0.04	0.77	0.77
Sat Flow, veh/h	1126	827	647	1224	229	1155	390	4310	144	1513	3018	1350
Grp Volume(v), veh/h	17	0	41	13	0	133	71	844	456	138	1203	69
Grp Sat Flow(s),veh/h/ln	1126	0	1474	1224	0	1384	390	1445	1563	1513	1509	1350
Q Serve(g_s), s	1.8	0.0	3.0	1.2	0.0	11.1	10.3	15.6	15.6	3.1	18.4	1.5
Cycle Q Clear(g_c), s	12.9	0.0	3.0	4.2	0.0	11.1	18.8	15.6	15.6	3.1	18.4	1.5
Prop In Lane	1.00		0.44	1.00		0.83	1.00		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	97	0	186	184	0	175	300	1982	1071	337	2318	1037
V/C Ratio(X)	0.17	0.00	0.22	0.07	0.00	0.76	0.24	0.43	0.43	0.41	0.52	0.07
Avail Cap(c_a), veh/h	270	0	412	371	0	386	300	1982	1071	401	2318	1037
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.9	0.0	47.1	49.0	0.0	50.7	10.9	8.4	8.4	6.3	5.4	3.4
Incr Delay (d2), s/veh	0.8	0.0	0.6	0.2	0.0	6.7	1.9	0.7	1.2	0.8	0.8	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	1.2	0.4	0.0	4.6	1.3	6.3	7.0	1.3	7.8	0.6
LnGrp Delay(d),s/veh	57.8	0.0	47.7	49.2	0.0	57.4	12.8	9.1	9.6	7.1	6.2	3.5
LnGrp LOS	E		D	D		E	B	A	A	A	A	A
Approach Vol, veh/h		58			146			1371			1410	
Approach Delay, s/veh		50.7			56.7			9.4			6.2	
Approach LOS		D			E			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	9.9	88.5		21.6		98.4		21.6
Change Period (Y+Rc), s	* 4.7	* 6.2		6.5		* 6.2		6.5
Max Green Setting (Gmax), s	* 10	* 59		33.5		* 74		33.5
Max Q Clear Time (g_c+I1), s	5.1	20.8		14.9		20.4		13.1
Green Ext Time (p_c), s	0.2	15.6		0.2		15.2		0.9

Intersection Summary	
HCM 2010 Ctrl Delay	11.0
HCM 2010 LOS	B

Notes

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	70	2	5	169	10	2
Future Volume (vph)	70	2	5	169	10	2
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.997				0.979	
Flt Protected				0.998	0.959	
Satd. Flow (prot)	1566	0	0	1567	1475	0
Flt Permitted				0.998	0.959	
Satd. Flow (perm)	1566	0	0	1567	1475	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	574.2			141.6	216.8	
Travel Time (s)	41.3			10.2	15.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	78	2	6	188	11	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	80	0	0	194	13	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.24	1.24	1.24	1.24	1.24	1.24
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 25.2%		ICU Level of Service A	
Analysis Period (min) 15			

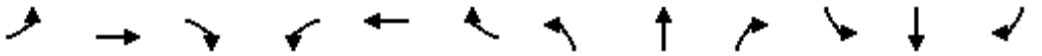
Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	70	2	5	169	10	2
Future Vol, veh/h	70	2	5	169	10	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	78	2	6	188	11	2

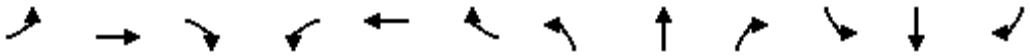
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	80	0	279	79
Stage 1	-	-	-	-	79	-
Stage 2	-	-	-	-	200	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1518	-	711	981
Stage 1	-	-	-	-	944	-
Stage 2	-	-	-	-	834	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1518	-	708	981
Mov Cap-2 Maneuver	-	-	-	-	708	-
Stage 1	-	-	-	-	944	-
Stage 2	-	-	-	-	831	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	9.9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	742	-	-	1518	-
HCM Lane V/C Ratio	0.018	-	-	0.004	-
HCM Control Delay (s)	9.9	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	84	132	14	81	26	162	455	19	26	346	78
Future Volume (vph)	80	84	132	14	81	26	162	455	19	26	346	78
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	40.0		0.0	25.0		0.0	45.0		0.0	15.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	60.0			65.0			60.0			25.0		
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		0.908			0.963			0.994			0.972	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1492	1426	0	1492	1512	0	1492	1561	0	1492	1527	0
Flt Permitted	0.681			0.556			0.218			0.468		
Satd. Flow (perm)	1070	1426	0	873	1512	0	342	1561	0	735	1527	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		79			16			4			13	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		241.9			574.2			414.4			151.3	
Travel Time (s)		17.4			41.3			29.8			10.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	89	93	147	16	90	29	180	506	21	29	384	87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	89	240	0	16	119	0	180	527	0	29	471	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)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		2			6		3	8			4	
Permitted Phases	2			6			8			4		

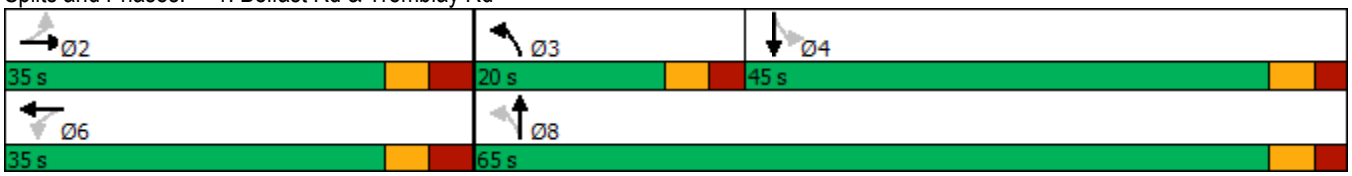


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	2	2		6	6		3	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	10.0		10.0	10.0	
Minimum Split (s)	29.8	29.8		29.8	29.8		10.9	23.9		23.9	23.9	
Total Split (s)	35.0	35.0		35.0	35.0		20.0	65.0		45.0	45.0	
Total Split (%)	35.0%	35.0%		35.0%	35.0%		20.0%	65.0%		45.0%	45.0%	
Maximum Green (s)	28.2	28.2		28.2	28.2		14.1	59.1		39.1	39.1	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	3.5	3.5		3.5	3.5		2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.8	6.8		6.8	6.8		5.9	5.9		5.9	5.9	
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		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0		7.0	7.0	
Flash Dont Walk (s)	16.0	16.0		16.0	16.0			7.0		7.0	7.0	
Pedestrian Calls (#/hr)	0	0		0	0			0		0	0	
Act Effct Green (s)	28.5	28.5		28.5	28.5		47.8	47.8		30.9	30.9	
Actuated g/C Ratio	0.32	0.32		0.32	0.32		0.54	0.54		0.35	0.35	
v/c Ratio	0.26	0.47		0.06	0.24		0.56	0.63		0.11	0.88	
Control Delay	28.5	21.6		26.1	23.6		17.2	17.7		20.7	45.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	28.5	21.6		26.1	23.6		17.2	17.7		20.7	45.1	
LOS	C	C		C	C		B	B		C	D	
Approach Delay		23.4			23.9			17.6			43.7	
Approach LOS		C			C			B			D	
Queue Length 50th (m)	11.5	21.8		1.9	13.1		15.1	58.1		3.3	72.3	
Queue Length 95th (m)	26.9	49.5		7.4	30.0		25.5	88.2		9.5	#121.6	
Internal Link Dist (m)		217.9			550.2			390.4			127.3	
Turn Bay Length (m)	40.0			25.0			45.0			15.0		
Base Capacity (vph)	342	509		279	494		367	1048		326	684	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.26	0.47		0.06	0.24		0.49	0.50		0.09	0.69	

Intersection Summary			
Area Type:	CBD		
Cycle Length: 100			
Actuated Cycle Length: 89.2			
Natural Cycle: 75			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay: 27.1		Intersection LOS: C	
Intersection Capacity Utilization 67.9%		ICU Level of Service C	
Analysis Period (min) 15			

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Belfast Rd & Tremblay Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	84	132	14	81	26	162	455	19	26	346	78
Future Volume (veh/h)	80	84	132	14	81	26	162	455	19	26	346	78
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1588	1588	1620	1588	1588	1620	1588	1588	1620	1588	1588	1620
Adj Flow Rate, veh/h	89	93	147	16	90	29	180	506	21	29	384	87
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	402	185	293	290	385	124	283	781	32	299	436	99
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.10	0.52	0.52	0.35	0.35	0.35
Sat Flow, veh/h	1141	555	878	1022	1152	371	1513	1514	63	785	1254	284
Grp Volume(v), veh/h	89	0	240	16	0	119	180	0	527	29	0	471
Grp Sat Flow(s),veh/h/ln	1141	0	1433	1022	0	1523	1513	0	1577	785	0	1538
Q Serve(g_s), s	5.2	0.0	11.3	1.1	0.0	4.8	6.1	0.0	20.5	2.4	0.0	24.3
Cycle Q Clear(g_c), s	9.9	0.0	11.3	12.4	0.0	4.8	6.1	0.0	20.5	8.7	0.0	24.3
Prop In Lane	1.00		0.61	1.00		0.24	1.00		0.04	1.00		0.18
Lane Grp Cap(c), veh/h	402	0	479	290	0	509	283	0	813	299	0	535
V/C Ratio(X)	0.22	0.00	0.50	0.06	0.00	0.23	0.64	0.00	0.65	0.10	0.00	0.88
Avail Cap(c_a), veh/h	402	0	479	290	0	509	388	0	1104	390	0	712
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	23.9	0.0	22.5	27.4	0.0	20.3	18.6	0.0	14.9	23.2	0.0	25.9
Incr Delay (d2), s/veh	1.3	0.0	3.7	0.4	0.0	1.1	2.4	0.0	0.9	0.1	0.0	9.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	5.0	0.3	0.0	2.1	2.7	0.0	9.0	0.5	0.0	11.7
LnGrp Delay(d),s/veh	25.2	0.0	26.2	27.8	0.0	21.4	21.0	0.0	15.8	23.3	0.0	35.7
LnGrp LOS	C		C	C		C	C		B	C		D
Approach Vol, veh/h		329			135			707			500	
Approach Delay, s/veh		25.9			22.2			17.1			35.0	
Approach LOS		C			C			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6		8
Phs Duration (G+Y+Rc), s		35.0	14.2	35.3		35.0		49.4
Change Period (Y+Rc), s		* 6.8	* 5.9	* 5.9		* 6.8		* 5.9
Max Green Setting (Gmax), s		* 28	* 14	* 39		* 28		* 59
Max Q Clear Time (g_c+I1), s		13.3	8.1	26.3		14.4		22.5
Green Ext Time (p_c), s		1.9	0.3	3.1		0.6		4.7

Intersection Summary	
HCM 2010 Ctrl Delay	24.6
HCM 2010 LOS	C

Notes

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	220	375	147	224	299	162
Future Volume (vph)	220	375	147	224	299	162
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		40.0	65.0		70.0	0.0
Storage Lanes		1	1		2	1
Taper Length (m)			30.0		0.0	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.97	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1571	1335	1492	2984	2895	1335
Flt Permitted			0.522		0.950	
Satd. Flow (perm)	1571	1335	820	2984	2895	1335
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		417				180
Link Speed (k/h)	50			50	50	
Link Distance (m)	179.6			116.9	82.9	
Travel Time (s)	12.9			8.4	6.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	244	417	163	249	332	180
Shared Lane Traffic (%)						
Lane Group Flow (vph)	244	417	163	249	332	180
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	7.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.24	1.24	1.24	1.24	1.24	1.24
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (m)	10.0	2.0	2.0	10.0	2.0	2.0
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)	0.6	2.0	2.0	0.6	2.0	2.0
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)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	pm+pt	NA	Prot	pm+ov
Protected Phases	2		1	6	8	1
Permitted Phases		2	6			8

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2	2	1	6	8	1
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	10.0	5.0
Minimum Split (s)	38.4	38.4	11.1	24.8	28.5	11.1
Total Split (s)	38.4	38.4	13.0	51.4	28.6	13.0
Total Split (%)	48.0%	48.0%	16.3%	64.3%	35.8%	16.3%
Maximum Green (s)	31.6	31.6	6.9	44.6	21.7	6.9
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	3.5	3.5	2.8	3.5	3.6	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.8	6.8	6.1	6.8	6.9	6.1
Lead/Lag	Lag	Lag	Lead			Lead
Lead-Lag Optimize?	Yes	Yes	Yes			Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	None	C-Max	None	None
Walk Time (s)	7.0	7.0			7.0	
Flash Dont Walk (s)	24.6	24.6			14.6	
Pedestrian Calls (#/hr)	0	0			0	
Act Effct Green (s)	37.2	37.2	52.6	51.9	14.4	29.9
Actuated g/C Ratio	0.46	0.46	0.66	0.65	0.18	0.37
v/c Ratio	0.33	0.49	0.27	0.13	0.64	0.29
Control Delay	16.5	4.1	7.1	6.1	35.8	3.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.5	4.1	7.1	6.1	35.8	3.7
LOS	B	A	A	A	D	A
Approach Delay	8.7			6.5	24.5	
Approach LOS	A			A	C	
Queue Length 50th (m)	22.6	0.0	8.3	6.6	24.2	0.0
Queue Length 95th (m)	44.0	16.4	18.2	12.7	34.6	10.2
Internal Link Dist (m)	155.6			92.9	58.9	
Turn Bay Length (m)		40.0	65.0		70.0	
Base Capacity (vph)	730	844	612	1936	785	613
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	0.33	0.49	0.27	0.13	0.42	0.29

Intersection Summary	
Area Type:	CBD
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 60 (75%), Referenced to phase 2:EBT and 6:WBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.64	
Intersection Signal Delay: 13.2	Intersection LOS: B
Intersection Capacity Utilization 49.6%	ICU Level of Service A
Analysis Period (min) 15	

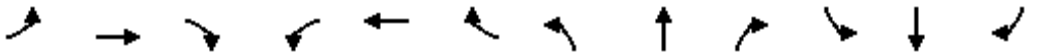
Splits and Phases: 2: Trainyards Dr & Belfast Rd

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	220	375	147	224	299	162
Future Volume (veh/h)	220	375	147	224	299	162
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1588	1588	1588	1588	1588	1588
Adj Flow Rate, veh/h	244	417	163	249	332	180
Adj No. of Lanes	1	1	1	2	2	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	819	696	494	1999	488	320
Arrive On Green	0.52	0.52	0.07	0.66	0.17	0.17
Sat Flow, veh/h	1588	1350	1513	3097	2934	1350
Grp Volume(v), veh/h	244	417	163	249	332	180
Grp Sat Flow(s),veh/h/ln	1588	1350	1513	1509	1467	1350
Q Serve(g_s), s	7.0	17.3	3.8	2.4	8.5	9.4
Cycle Q Clear(g_c), s	7.0	17.3	3.8	2.4	8.5	9.4
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	819	696	494	1999	488	320
V/C Ratio(X)	0.30	0.60	0.33	0.12	0.68	0.56
Avail Cap(c_a), veh/h	819	696	517	1999	796	462
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.1	13.6	7.4	5.0	31.4	26.9
Incr Delay (d2), s/veh	0.9	3.8	0.4	0.1	1.7	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	7.1	1.6	1.0	3.6	3.6
LnGrp Delay(d),s/veh	12.0	17.4	7.8	5.1	33.0	28.4
LnGrp LOS	B	B	A	A	C	C
Approach Vol, veh/h	661			412	512	
Approach Delay, s/veh	15.4			6.2	31.4	
Approach LOS	B			A	C	

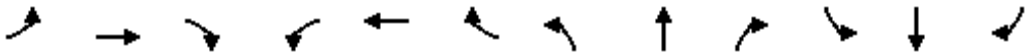
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	11.8	48.0				59.8		20.2
Change Period (Y+Rc), s	6.1	* 6.8				* 6.8		6.9
Max Green Setting (Gmax), s	6.9	* 32				* 45		21.7
Max Q Clear Time (g_c+I1), s	5.8	19.3				4.4		11.4
Green Ext Time (p_c), s	0.1	3.2				2.1		1.9

Intersection Summary	
HCM 2010 Ctrl Delay	18.2
HCM 2010 LOS	B

Notes



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	38	57	23	21	180	25	1305	12	48	954	38
Future Volume (vph)	47	38	57	23	21	180	25	1305	12	48	954	38
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	30.0		0.0	35.0		0.0	30.0		0.0	75.0		0.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	30.0			30.0			65.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.95	1.00
Frt		0.910			0.865			0.999				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1492	1429	0	1492	1359	0	1492	4283	0	1492	2984	1335
Flt Permitted	0.305			0.683			0.270			0.143		
Satd. Flow (perm)	479	1429	0	1073	1359	0	424	4283	0	225	2984	1335
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		62			179			1				42
Link Speed (k/h)		50			50			70			60	
Link Distance (m)		52.7			112.0			55.9			143.5	
Travel Time (s)		3.8			8.1			2.9			8.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	52	42	63	26	23	200	28	1450	13	53	1060	42
Shared Lane Traffic (%)												
Lane Group Flow (vph)	52	105	0	26	223	0	28	1463	0	53	1060	42
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)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
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)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
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)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		6



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		10.0	10.0		5.0	10.0	10.0
Minimum Split (s)	38.5	38.5		38.5	38.5		39.2	39.2		9.7	39.2	39.2
Total Split (s)	40.0	40.0		40.0	40.0		65.0	65.0		15.0	80.0	80.0
Total Split (%)	33.3%	33.3%		33.3%	33.3%		54.2%	54.2%		12.5%	66.7%	66.7%
Maximum Green (s)	33.5	33.5		33.5	33.5		58.8	58.8		10.3	73.8	73.8
Yellow Time (s)	3.3	3.3		3.3	3.3		3.7	3.7		3.7	3.7	3.7
All-Red Time (s)	3.2	3.2		3.2	3.2		2.5	2.5		1.0	2.5	2.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5		6.5	6.5		6.2	6.2		4.7	6.2	6.2
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		C-Max	C-Max		None	C-Max	C-Max
Walk Time (s)	7.0	7.0		7.0	7.0		11.0	11.0			11.0	11.0
Flash Dont Walk (s)	25.0	25.0		25.0	25.0		22.0	22.0			22.0	22.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	0
Act Effct Green (s)	13.1	13.1		13.1	13.1		85.0	85.0		95.7	94.2	94.2
Actuated g/C Ratio	0.11	0.11		0.11	0.11		0.71	0.71		0.80	0.78	0.78
v/c Ratio	1.00	0.50		0.22	0.72		0.09	0.48		0.21	0.45	0.04
Control Delay	178.6	29.9		50.3	25.9		8.9	9.6		5.4	5.6	1.4
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	178.6	29.9		50.3	25.9		8.9	9.6		5.4	5.6	1.4
LOS	F	C		D	C		A	A		A	A	A
Approach Delay		79.1			28.5			9.6			5.4	
Approach LOS		E			C			A			A	
Queue Length 50th (m)	12.4	9.5		5.7	9.7		2.0	52.8		2.1	36.2	0.0
Queue Length 95th (m)	#31.2	25.0		13.6	34.0		6.8	80.9		6.3	62.7	2.9
Internal Link Dist (m)		28.7			88.0			31.9			119.5	
Turn Bay Length (m)	30.0			35.0			30.0			75.0		
Base Capacity (vph)	133	443		299	508		300	3035		288	2341	1056
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.39	0.24		0.09	0.44		0.09	0.48		0.18	0.45	0.04

Intersection Summary			
Area Type:	CBD		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 49 (41%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.00			
Intersection Signal Delay: 13.1		Intersection LOS: B	
Intersection Capacity Utilization 78.9%		ICU Level of Service D	
Analysis Period (min) 15			

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: St. Laurent Blvd & Tremblay Rd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	38	57	23	21	180	25	1305	12	48	954	38
Future Volume (veh/h)	47	38	57	23	21	180	25	1305	12	48	954	38
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1588	1588	1620	1588	1588	1620	1588	1588	1620	1588	1588	1588
Adj Flow Rate, veh/h	52	42	63	26	23	200	28	1450	13	53	1060	42
Adj No. of Lanes	1	1	0	1	1	0	1	3	0	1	2	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	132	127	190	244	31	272	288	2657	24	244	2031	909
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	0.60	0.60	0.60	0.03	0.67	0.67
Sat Flow, veh/h	1038	574	862	1155	141	1230	459	4432	40	1513	3018	1350
Grp Volume(v), veh/h	52	0	105	26	0	223	28	946	517	53	1060	42
Grp Sat Flow(s),veh/h/ln	1038	0	1436	1155	0	1371	459	1445	1581	1513	1509	1350
Q Serve(g_s), s	5.9	0.0	7.4	2.3	0.0	18.2	3.9	23.4	23.4	1.5	21.2	1.3
Cycle Q Clear(g_c), s	24.0	0.0	7.4	9.7	0.0	18.2	16.3	23.4	23.4	1.5	21.2	1.3
Prop In Lane	1.00		0.60	1.00		0.90	1.00		0.03	1.00		1.00
Lane Grp Cap(c), veh/h	132	0	317	244	0	303	288	1733	948	244	2031	909
V/C Ratio(X)	0.39	0.00	0.33	0.11	0.00	0.74	0.10	0.55	0.55	0.22	0.52	0.05
Avail Cap(c_a), veh/h	193	0	401	312	0	383	288	1733	948	321	2031	909
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.7	0.0	39.3	43.4	0.0	43.5	16.2	14.3	14.3	10.8	9.9	6.6
Incr Delay (d2), s/veh	1.9	0.0	0.6	0.2	0.0	5.5	0.7	1.2	2.3	0.4	1.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	3.0	0.8	0.0	7.3	0.6	9.6	10.8	0.6	9.1	0.5
LnGrp Delay(d),s/veh	56.5	0.0	39.9	43.5	0.0	48.9	16.9	15.6	16.6	11.2	10.8	6.7
LnGrp LOS	E		D	D		D	B	B	B	B	B	A
Approach Vol, veh/h		157			249			1491			1155	
Approach Delay, s/veh		45.4			48.4			15.9			10.7	
Approach LOS		D			D			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	8.8	78.1		33.0		87.0		33.0
Change Period (Y+Rc), s	* 4.7	* 6.2		6.5		* 6.2		6.5
Max Green Setting (Gmax), s	* 10	* 59		33.5		* 74		33.5
Max Q Clear Time (g_c+I1), s	3.5	25.4		26.0		23.2		20.2
Green Ext Time (p_c), s	0.1	15.7		0.5		12.2		1.4

Intersection Summary	
HCM 2010 Ctrl Delay	18.1
HCM 2010 LOS	B

Notes

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	108	6	5	124	1	4
Future Volume (vph)	108	6	5	124	1	4
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.993				0.892	
Flt Protected				0.998	0.990	
Satd. Flow (prot)	1560	0	0	1567	1387	0
Flt Permitted				0.998	0.990	
Satd. Flow (perm)	1560	0	0	1567	1387	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	574.2			141.6	216.8	
Travel Time (s)	41.3			10.2	15.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	120	7	6	138	1	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	127	0	0	144	5	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.24	1.24	1.24	1.24	1.24	1.24
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 22.4%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	108	6	5	124	1	4
Future Vol, veh/h	108	6	5	124	1	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	120	7	6	138	1	4

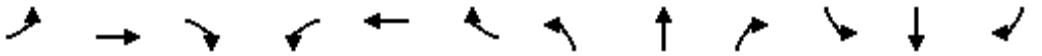
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	127	0	274	124
Stage 1	-	-	-	-	124	-
Stage 2	-	-	-	-	150	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1459	-	716	927
Stage 1	-	-	-	-	902	-
Stage 2	-	-	-	-	878	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1459	-	713	927
Mov Cap-2 Maneuver	-	-	-	-	713	-
Stage 1	-	-	-	-	902	-
Stage 2	-	-	-	-	874	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	9.1
HCM LOS			A

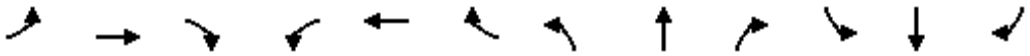
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	875	-	-	1459	-
HCM Lane V/C Ratio	0.006	-	-	0.004	-
HCM Control Delay (s)	9.1	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Appendix G

2021 Future Background Synchro Worksheets



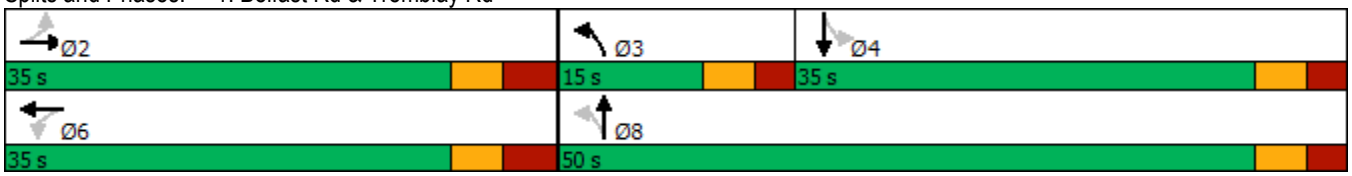
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	93	51	119	33	106	30	109	257	19	19	278	70
Future Volume (vph)	93	51	119	33	106	30	109	257	19	19	278	70
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	40.0		0.0	25.0		0.0	45.0		0.0	15.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	60.0			65.0			60.0			25.0		
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		0.895			0.967			0.990			0.970	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1492	1406	0	1492	1519	0	1492	1555	0	1492	1523	0
Flt Permitted	0.670			0.650			0.283			0.590		
Satd. Flow (perm)	1052	1406	0	1021	1519	0	444	1555	0	927	1523	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		119			18			7			16	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		241.9			574.2			414.4			151.3	
Travel Time (s)		17.4			41.3			29.8			10.9	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	93	51	119	33	106	30	109	257	19	19	278	70
Shared Lane Traffic (%)												
Lane Group Flow (vph)	93	170	0	33	136	0	109	276	0	19	348	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)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		2			6		3	8			4	
Permitted Phases	2			6			8			4		

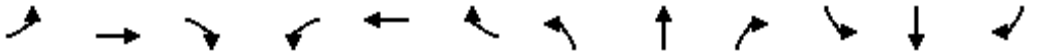


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	2	2		6	6		3	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	10.0		10.0	10.0	
Minimum Split (s)	29.8	29.8		29.8	29.8		10.9	23.9		23.9	23.9	
Total Split (s)	35.0	35.0		35.0	35.0		15.0	50.0		35.0	35.0	
Total Split (%)	41.2%	41.2%		41.2%	41.2%		17.6%	58.8%		41.2%	41.2%	
Maximum Green (s)	28.2	28.2		28.2	28.2		9.1	44.1		29.1	29.1	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	3.5	3.5		3.5	3.5		2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.8	6.8		6.8	6.8		5.9	5.9		5.9	5.9	
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		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0		7.0	7.0	
Flash Dont Walk (s)	16.0	16.0		16.0	16.0			7.0		7.0	7.0	
Pedestrian Calls (#/hr)	0	0		0	0			0		0	0	
Act Effct Green (s)	29.1	29.1		29.1	29.1		31.6	31.6		20.8	20.8	
Actuated g/C Ratio	0.39	0.39		0.39	0.39		0.43	0.43		0.28	0.28	
v/c Ratio	0.22	0.27		0.08	0.22		0.36	0.41		0.07	0.79	
Control Delay	21.0	8.6		19.1	17.7		14.7	15.0		20.3	37.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	21.0	8.6		19.1	17.7		14.7	15.0		20.3	37.8	
LOS	C	A		B	B		B	B		C	D	
Approach Delay		13.0			18.0			14.9			36.9	
Approach LOS		B			B			B			D	
Queue Length 50th (m)	9.3	4.8		3.1	11.7		8.7	24.0		2.0	44.7	
Queue Length 95th (m)	22.7	19.5		10.0	27.2		16.9	40.1		6.6	74.0	
Internal Link Dist (m)		217.9			550.2			390.4			127.3	
Turn Bay Length (m)	40.0			25.0			45.0			15.0		
Base Capacity (vph)	414	626		402	609		323	961		377	629	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.22	0.27		0.08	0.22		0.34	0.29		0.05	0.55	

Intersection Summary			
Area Type:	CBD		
Cycle Length: 85			
Actuated Cycle Length: 73.8			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay: 21.7		Intersection LOS: C	
Intersection Capacity Utilization 66.3%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 1: Belfast Rd & Tremblay Rd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	93	51	119	33	106	30	109	257	19	19	278	70
Future Volume (veh/h)	93	51	119	33	106	30	109	257	19	19	278	70
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1588	1588	1620	1588	1588	1620	1588	1588	1620	1588	1588	1620
Adj Flow Rate, veh/h	93	51	119	33	106	30	109	257	19	19	278	70
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	482	169	393	445	474	134	259	618	46	369	331	83
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.07	0.42	0.42	0.27	0.27	0.27
Sat Flow, veh/h	1123	424	990	1089	1192	337	1513	1461	108	989	1225	309
Grp Volume(v), veh/h	93	0	170	33	0	136	109	0	276	19	0	348
Grp Sat Flow(s),veh/h/ln	1123	0	1414	1089	0	1529	1513	0	1569	989	0	1534
Q Serve(g_s), s	4.2	0.0	5.8	1.5	0.0	4.2	3.5	0.0	8.7	1.0	0.0	15.2
Cycle Q Clear(g_c), s	8.4	0.0	5.8	7.4	0.0	4.2	3.5	0.0	8.7	1.0	0.0	15.2
Prop In Lane	1.00		0.70	1.00		0.22	1.00		0.07	1.00		0.20
Lane Grp Cap(c), veh/h	482	0	562	445	0	608	259	0	664	369	0	415
V/C Ratio(X)	0.19	0.00	0.30	0.07	0.00	0.22	0.42	0.00	0.42	0.05	0.00	0.84
Avail Cap(c_a), veh/h	482	0	562	445	0	608	348	0	976	507	0	629
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.9	0.0	14.6	17.1	0.0	14.1	17.6	0.0	14.3	19.2	0.0	24.4
Incr Delay (d2), s/veh	0.9	0.0	1.4	0.3	0.0	0.9	1.1	0.0	0.4	0.1	0.0	6.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	2.5	0.5	0.0	1.9	1.5	0.0	3.8	0.3	0.0	7.1
LnGrp Delay(d),s/veh	17.8	0.0	16.0	17.5	0.0	15.0	18.7	0.0	14.7	19.3	0.0	30.6
LnGrp LOS	B		B	B		B	B		B	B		C
Approach Vol, veh/h		263			169			385			367	
Approach Delay, s/veh		16.6			15.5			15.9			30.0	
Approach LOS		B			B			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6		8
Phs Duration (G+Y+Rc), s		35.0	10.8	25.1		35.0		35.9
Change Period (Y+Rc), s		* 6.8	* 5.9	* 5.9		* 6.8		* 5.9
Max Green Setting (Gmax), s		* 28	* 9.1	* 29		* 28		* 44
Max Q Clear Time (g_c+I1), s		10.4	5.5	17.2		9.4		10.7
Green Ext Time (p_c), s		1.5	0.1	2.0		0.9		2.1

Intersection Summary	
HCM 2010 Ctrl Delay	20.4
HCM 2010 LOS	C

Notes

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	199	220	150	189	138	96
Future Volume (vph)	199	220	150	189	138	96
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		40.0	65.0		70.0	0.0
Storage Lanes		1	1		2	1
Taper Length (m)			30.0		0.0	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.97	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1571	1335	1492	2984	2895	1335
Flt Permitted			0.552		0.950	
Satd. Flow (perm)	1571	1335	867	2984	2895	1335
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		220				96
Link Speed (k/h)	50			50	50	
Link Distance (m)	179.6			116.9	82.9	
Travel Time (s)	12.9			8.4	6.0	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	199	220	150	189	138	96
Shared Lane Traffic (%)						
Lane Group Flow (vph)	199	220	150	189	138	96
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	7.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.24	1.24	1.24	1.24	1.24	1.24
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (m)	10.0	2.0	2.0	10.0	2.0	2.0
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)	0.6	2.0	2.0	0.6	2.0	2.0
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)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	pm+pt	NA	Prot	pm+ov
Protected Phases	2		1	6	8	1
Permitted Phases		2	6			8

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2	2	1	6	8	1
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	10.0	5.0
Minimum Split (s)	38.4	38.4	11.1	24.8	28.5	11.1
Total Split (s)	38.4	38.4	13.0	51.4	28.6	13.0
Total Split (%)	48.0%	48.0%	16.3%	64.3%	35.8%	16.3%
Maximum Green (s)	31.6	31.6	6.9	44.6	21.7	6.9
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	3.5	3.5	2.8	3.5	3.6	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.8	6.8	6.1	6.8	6.9	6.1
Lead/Lag	Lag	Lag	Lead			Lead
Lead-Lag Optimize?	Yes	Yes	Yes			Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	None	C-Max	None	None
Walk Time (s)	7.0	7.0			7.0	
Flash Dont Walk (s)	24.6	24.6			14.6	
Pedestrian Calls (#/hr)	0	0			0	
Act Effct Green (s)	41.6	41.6	56.6	55.9	10.4	25.5
Actuated g/C Ratio	0.52	0.52	0.71	0.70	0.13	0.32
v/c Ratio	0.24	0.28	0.22	0.09	0.37	0.20
Control Delay	12.2	2.8	4.8	4.1	34.7	5.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.2	2.8	4.8	4.1	34.7	5.3
LOS	B	A	A	A	C	A
Approach Delay	7.2			4.4	22.6	
Approach LOS	A			A	C	
Queue Length 50th (m)	15.3	0.0	6.0	4.0	10.1	0.0
Queue Length 95th (m)	30.8	10.7	12.4	7.4	17.7	8.9
Internal Link Dist (m)	155.6			92.9	58.9	
Turn Bay Length (m)		40.0	65.0		70.0	
Base Capacity (vph)	817	799	678	2084	785	493
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	0.28	0.22	0.09	0.18	0.19

Intersection Summary			
Area Type:	CBD		
Cycle Length: 80			
Actuated Cycle Length: 80			
Offset: 60 (75%), Referenced to phase 2:EBT and 6:WBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.37			
Intersection Signal Delay: 9.9		Intersection LOS: A	
Intersection Capacity Utilization 46.9%		ICU Level of Service A	
Analysis Period (min) 15			

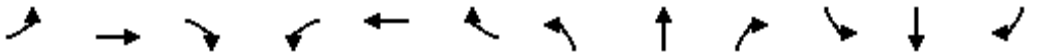
Splits and Phases: 2: Trainyards Dr & Belfast Rd

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	199	220	150	189	138	96
Future Volume (veh/h)	199	220	150	189	138	96
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1588	1588	1588	1588	1588	1588
Adj Flow Rate, veh/h	199	220	150	189	138	96
Adj No. of Lanes	1	1	1	2	2	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	899	764	621	2126	365	252
Arrive On Green	0.57	0.57	0.06	0.70	0.12	0.12
Sat Flow, veh/h	1588	1350	1513	3097	2934	1350
Grp Volume(v), veh/h	199	220	150	189	138	96
Grp Sat Flow(s),veh/h/ln	1588	1350	1513	1509	1467	1350
Q Serve(g_s), s	5.0	6.8	3.1	1.6	3.5	5.0
Cycle Q Clear(g_c), s	5.0	6.8	3.1	1.6	3.5	5.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	899	764	621	2126	365	252
V/C Ratio(X)	0.22	0.29	0.24	0.09	0.38	0.38
Avail Cap(c_a), veh/h	899	764	658	2126	796	450
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	8.6	9.0	5.7	3.7	32.2	28.5
Incr Delay (d2), s/veh	0.6	0.9	0.2	0.1	0.6	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	2.7	1.3	0.7	1.4	1.9
LnGrp Delay(d),s/veh	9.2	9.9	5.9	3.8	32.8	29.5
LnGrp LOS	A	A	A	A	C	C
Approach Vol, veh/h	419			339	234	
Approach Delay, s/veh	9.6			4.7	31.5	
Approach LOS	A			A	C	

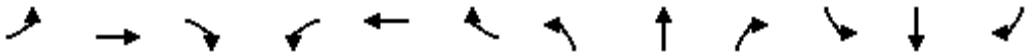
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	11.1	52.1				63.2		16.8
Change Period (Y+Rc), s	6.1	* 6.8				* 6.8		6.9
Max Green Setting (Gmax), s	6.9	* 32				* 45		21.7
Max Q Clear Time (g_c+I1), s	5.1	8.8				3.6		7.0
Green Ext Time (p_c), s	0.1	2.4				1.5		0.9

Intersection Summary	
HCM 2010 Ctrl Delay	13.1
HCM 2010 LOS	B

Notes



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	21	16	12	20	102	65	1155	39	126	1105	63
Future Volume (vph)	15	21	16	12	20	102	65	1155	39	126	1105	63
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	30.0		0.0	35.0		0.0	30.0		0.0	75.0		0.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	30.0			30.0			65.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.95	1.00
Frt		0.935			0.875			0.995				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1492	1468	0	1492	1374	0	1492	4266	0	1492	2984	1335
Flt Permitted	0.554			0.733			0.258			0.201		
Satd. Flow (perm)	870	1468	0	1151	1374	0	405	4266	0	316	2984	1335
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			102			6				63
Link Speed (k/h)		50			50			70			60	
Link Distance (m)		52.7			112.0			55.9			143.5	
Travel Time (s)		3.8			8.1			2.9			8.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	15	21	16	12	20	102	65	1155	39	126	1105	63
Shared Lane Traffic (%)												
Lane Group Flow (vph)	15	37	0	12	122	0	65	1194	0	126	1105	63
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)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
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)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
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)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		6



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		10.0	10.0		5.0	10.0	10.0
Minimum Split (s)	38.5	38.5		38.5	38.5		39.2	39.2		9.7	39.2	39.2
Total Split (s)	40.0	40.0		40.0	40.0		65.0	65.0		15.0	80.0	80.0
Total Split (%)	33.3%	33.3%		33.3%	33.3%		54.2%	54.2%		12.5%	66.7%	66.7%
Maximum Green (s)	33.5	33.5		33.5	33.5		58.8	58.8		10.3	73.8	73.8
Yellow Time (s)	3.3	3.3		3.3	3.3		3.7	3.7		3.7	3.7	3.7
All-Red Time (s)	3.2	3.2		3.2	3.2		2.5	2.5		1.0	2.5	2.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5		6.5	6.5		6.2	6.2		4.7	6.2	6.2
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		C-Max	C-Max		None	C-Max	C-Max
Walk Time (s)	7.0	7.0		7.0	7.0		11.0	11.0			11.0	11.0
Flash Dont Walk (s)	25.0	25.0		25.0	25.0		22.0	22.0			22.0	22.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	0
Act Effct Green (s)	8.7	8.7		8.7	8.7		86.4	86.4		100.1	98.6	98.6
Actuated g/C Ratio	0.07	0.07		0.07	0.07		0.72	0.72		0.83	0.82	0.82
v/c Ratio	0.24	0.31		0.14	0.63		0.22	0.39		0.38	0.45	0.06
Control Delay	59.6	39.9		53.5	28.7		9.1	7.4		5.3	4.0	0.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	59.6	39.9		53.5	28.7		9.1	7.4		5.3	4.0	0.8
LOS	E	D		D	C		A	A		A	A	A
Approach Delay		45.6			31.0			7.5			4.0	
Approach LOS		D			C			A			A	
Queue Length 50th (m)	3.4	4.8		2.7	4.6		4.2	33.0		3.7	27.3	0.0
Queue Length 95th (m)	10.0	14.7		8.5	22.5		13.4	54.3		9.9	52.1	2.8
Internal Link Dist (m)		28.7			88.0			31.9			119.5	
Turn Bay Length (m)	30.0			35.0			30.0			75.0		
Base Capacity (vph)	242	421		321	457		291	3073		364	2451	1108
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.06	0.09		0.04	0.27		0.22	0.39		0.35	0.45	0.06

Intersection Summary			
Area Type:	CBD		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 50 (42%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.63			
Intersection Signal Delay: 7.7		Intersection LOS: A	
Intersection Capacity Utilization 74.5%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 3: St. Laurent Blvd & Tremblay Rd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	21	16	12	20	102	65	1155	39	126	1105	63
Future Volume (veh/h)	15	21	16	12	20	102	65	1155	39	126	1105	63
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1588	1588	1620	1588	1588	1620	1588	1588	1620	1588	1588	1588
Adj Flow Rate, veh/h	15	21	16	12	20	102	65	1155	39	126	1105	63
Adj No. of Lanes	1	1	0	1	1	0	1	3	0	1	2	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	95	98	74	175	26	135	340	3005	101	369	2347	1050
Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.12	0.70	0.70	0.70	0.04	0.78	0.78
Sat Flow, veh/h	1138	838	638	1229	227	1157	431	4308	145	1513	3018	1350
Grp Volume(v), veh/h	15	0	37	12	0	122	65	775	419	126	1105	63
Grp Sat Flow(s),veh/h/ln	1138	0	1476	1229	0	1384	431	1445	1563	1513	1509	1350
Q Serve(g_s), s	1.6	0.0	2.7	1.1	0.0	10.2	7.5	13.3	13.3	2.7	15.4	1.3
Cycle Q Clear(g_c), s	11.8	0.0	2.7	3.8	0.0	10.2	13.3	13.3	13.3	2.7	15.4	1.3
Prop In Lane	1.00		0.43	1.00		0.84	1.00		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	95	0	172	175	0	161	340	2016	1090	369	2347	1050
V/C Ratio(X)	0.16	0.00	0.22	0.07	0.00	0.76	0.19	0.38	0.38	0.34	0.47	0.06
Avail Cap(c_a), veh/h	280	0	412	375	0	386	340	2016	1090	436	2347	1050
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.1	0.0	48.0	49.8	0.0	51.4	8.7	7.5	7.5	5.3	4.7	3.1
Incr Delay (d2), s/veh	0.8	0.0	0.6	0.2	0.0	7.1	1.2	0.6	1.0	0.5	0.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	1.1	0.4	0.0	4.2	1.0	5.4	6.0	1.1	6.5	0.5
LnGrp Delay(d),s/veh	57.9	0.0	48.7	49.9	0.0	58.4	9.9	8.1	8.5	5.9	5.4	3.2
LnGrp LOS	E		D	D		E	A	A	A	A	A	A
Approach Vol, veh/h		52			134			1259			1294	
Approach Delay, s/veh		51.3			57.7			8.3			5.3	
Approach LOS		D			E			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	9.6	89.9		20.5		99.5		20.5
Change Period (Y+Rc), s	* 4.7	* 6.2		6.5		* 6.2		6.5
Max Green Setting (Gmax), s	* 10	* 59		33.5		* 74		33.5
Max Q Clear Time (g_c+I1), s	4.7	15.3		13.8		17.4		12.2
Green Ext Time (p_c), s	0.2	14.3		0.2		13.4		0.8

Intersection Summary	
HCM 2010 Ctrl Delay	10.1
HCM 2010 LOS	B

Notes

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	71	2	5	172	10	2
Future Volume (vph)	71	2	5	172	10	2
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.996				0.977	
Flt Protected				0.999	0.960	
Satd. Flow (prot)	1564	0	0	1569	1473	0
Flt Permitted				0.999	0.960	
Satd. Flow (perm)	1564	0	0	1569	1473	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	574.2			141.6	216.8	
Travel Time (s)	41.3			10.2	15.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	71	2	5	172	10	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	73	0	0	177	12	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.24	1.24	1.24	1.24	1.24	1.24
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 25.3%		ICU Level of Service A	
Analysis Period (min) 15			

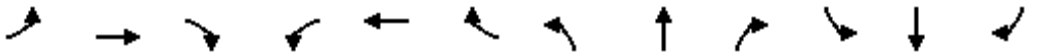
Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	71	2	5	172	10	2
Future Vol, veh/h	71	2	5	172	10	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	71	2	5	172	10	2

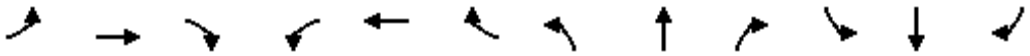
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	73	0	254	72
Stage 1	-	-	-	-	72	-
Stage 2	-	-	-	-	182	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1527	-	735	990
Stage 1	-	-	-	-	951	-
Stage 2	-	-	-	-	849	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1527	-	732	990
Mov Cap-2 Maneuver	-	-	-	-	732	-
Stage 1	-	-	-	-	951	-
Stage 2	-	-	-	-	846	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	9.8
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	765	-	-	1527	-
HCM Lane V/C Ratio	0.016	-	-	0.003	-
HCM Control Delay (s)	9.8	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-



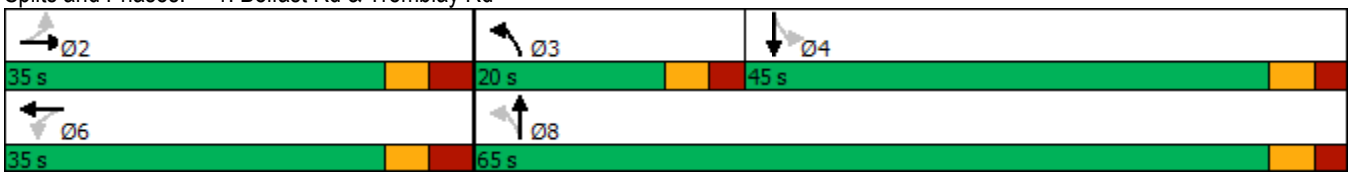
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	82	86	136	14	83	27	166	465	19	27	357	80
Future Volume (vph)	82	86	136	14	83	27	166	465	19	27	357	80
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	40.0		0.0	25.0		0.0	45.0		0.0	15.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	60.0			65.0			60.0			25.0		
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		0.908			0.963			0.994			0.973	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1492	1426	0	1492	1512	0	1492	1561	0	1492	1528	0
Flt Permitted	0.686			0.592			0.234			0.487		
Satd. Flow (perm)	1077	1426	0	930	1512	0	368	1561	0	765	1528	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		79			16			4			13	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		241.9			574.2			414.4			151.3	
Travel Time (s)		17.4			41.3			29.8			10.9	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	82	86	136	14	83	27	166	465	19	27	357	80
Shared Lane Traffic (%)												
Lane Group Flow (vph)	82	222	0	14	110	0	166	484	0	27	437	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)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		2			6		3	8			4	
Permitted Phases	2			6			8			4		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	2	2		6	6		3	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	10.0		10.0	10.0	
Minimum Split (s)	29.8	29.8		29.8	29.8		10.9	23.9		23.9	23.9	
Total Split (s)	35.0	35.0		35.0	35.0		20.0	65.0		45.0	45.0	
Total Split (%)	35.0%	35.0%		35.0%	35.0%		20.0%	65.0%		45.0%	45.0%	
Maximum Green (s)	28.2	28.2		28.2	28.2		14.1	59.1		39.1	39.1	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	3.5	3.5		3.5	3.5		2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.8	6.8		6.8	6.8		5.9	5.9		5.9	5.9	
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		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0		7.0	7.0	
Flash Dont Walk (s)	16.0	16.0		16.0	16.0			7.0		7.0	7.0	
Pedestrian Calls (#/hr)	0	0		0	0			0		0	0	
Act Effct Green (s)	28.6	28.6		28.6	28.6		44.7	44.7		28.2	28.2	
Actuated g/C Ratio	0.33	0.33		0.33	0.33		0.52	0.52		0.33	0.33	
v/c Ratio	0.23	0.42		0.05	0.21		0.51	0.60		0.11	0.86	
Control Delay	26.8	19.2		24.9	22.0		16.2	17.2		20.9	43.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	26.8	19.2		24.9	22.0		16.2	17.2		20.9	43.6	
LOS	C	B		C	C		B	B		C	D	
Approach Delay		21.2			22.4			17.0			42.3	
Approach LOS		C			C			B			D	
Queue Length 50th (m)	9.7	17.4		1.6	11.0		13.8	51.2		3.0	64.3	
Queue Length 95th (m)	25.0	44.6		6.7	28.0		23.6	77.5		9.0	105.5	
Internal Link Dist (m)		217.9			550.2			390.4			127.3	
Turn Bay Length (m)	40.0			25.0			45.0			15.0		
Base Capacity (vph)	357	525		308	512		377	1086		351	709	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.23	0.42		0.05	0.21		0.44	0.45		0.08	0.62	

Intersection Summary			
Area Type:	CBD		
Cycle Length: 100			
Actuated Cycle Length: 86.2			
Natural Cycle: 70			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.86			
Intersection Signal Delay: 25.8		Intersection LOS: C	
Intersection Capacity Utilization 69.1%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 1: Belfast Rd & Tremblay Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	82	86	136	14	83	27	166	465	19	27	357	80
Future Volume (veh/h)	82	86	136	14	83	27	166	465	19	27	357	80
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1588	1588	1620	1588	1588	1620	1588	1588	1620	1588	1588	1620
Adj Flow Rate, veh/h	82	86	136	14	83	27	166	465	19	27	357	80
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	430	193	305	326	399	130	285	752	31	312	413	93
Arrive On Green	0.35	0.35	0.35	0.35	0.35	0.35	0.09	0.50	0.50	0.33	0.33	0.33
Sat Flow, veh/h	1150	555	878	1039	1149	374	1513	1515	62	817	1257	282
Grp Volume(v), veh/h	82	0	222	14	0	110	166	0	484	27	0	437
Grp Sat Flow(s),veh/h/ln	1150	0	1433	1039	0	1522	1513	0	1577	817	0	1539
Q Serve(g_s), s	4.4	0.0	9.7	0.9	0.0	4.1	5.5	0.0	18.1	2.0	0.0	21.6
Cycle Q Clear(g_c), s	8.5	0.0	9.7	10.6	0.0	4.1	5.5	0.0	18.1	6.6	0.0	21.6
Prop In Lane	1.00		0.61	1.00		0.25	1.00		0.04	1.00		0.18
Lane Grp Cap(c), veh/h	430	0	498	326	0	529	285	0	782	312	0	506
V/C Ratio(X)	0.19	0.00	0.45	0.04	0.00	0.21	0.58	0.00	0.62	0.09	0.00	0.86
Avail Cap(c_a), veh/h	430	0	498	326	0	529	405	0	1149	437	0	741
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.6	0.0	20.4	24.5	0.0	18.6	18.1	0.0	14.9	22.2	0.0	25.5
Incr Delay (d2), s/veh	1.0	0.0	2.9	0.2	0.0	0.9	1.9	0.0	0.8	0.1	0.0	7.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	4.2	0.3	0.0	1.9	2.4	0.0	8.0	0.5	0.0	10.1
LnGrp Delay(d),s/veh	22.6	0.0	23.3	24.8	0.0	19.5	20.0	0.0	15.7	22.3	0.0	32.7
LnGrp LOS	C		C	C		B	C		B	C		C
Approach Vol, veh/h		304			124			650			464	
Approach Delay, s/veh		23.1			20.1			16.8			32.1	
Approach LOS		C			C			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6		8
Phs Duration (G+Y+Rc), s		35.0	13.6	32.6		35.0		46.1
Change Period (Y+Rc), s		* 6.8	* 5.9	* 5.9		* 6.8		* 5.9
Max Green Setting (Gmax), s		* 28	* 14	* 39		* 28		* 59
Max Q Clear Time (g_c+I1), s		11.7	7.5	23.6		12.6		20.1
Green Ext Time (p_c), s		1.8	0.3	3.1		0.6		4.2

Intersection Summary	
HCM 2010 Ctrl Delay	22.9
HCM 2010 LOS	C

Notes

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	228	384	155	233	303	166
Future Volume (vph)	228	384	155	233	303	166
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		40.0	65.0		70.0	0.0
Storage Lanes		1	1		2	1
Taper Length (m)			30.0		0.0	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.97	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1571	1335	1492	2984	2895	1335
Flt Permitted			0.531		0.950	
Satd. Flow (perm)	1571	1335	834	2984	2895	1335
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		384				166
Link Speed (k/h)	50			50	50	
Link Distance (m)	179.6			116.9	82.9	
Travel Time (s)	12.9			8.4	6.0	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	228	384	155	233	303	166
Shared Lane Traffic (%)						
Lane Group Flow (vph)	228	384	155	233	303	166
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	7.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.24	1.24	1.24	1.24	1.24	1.24
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (m)	10.0	2.0	2.0	10.0	2.0	2.0
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)	0.6	2.0	2.0	0.6	2.0	2.0
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)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	pm+pt	NA	Prot	pm+ov
Protected Phases	2		1	6	8	1
Permitted Phases		2	6			8

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2	2	1	6	8	1
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	10.0	5.0
Minimum Split (s)	38.4	38.4	11.1	24.8	28.5	11.1
Total Split (s)	38.4	38.4	13.0	51.4	28.6	13.0
Total Split (%)	48.0%	48.0%	16.3%	64.3%	35.8%	16.3%
Maximum Green (s)	31.6	31.6	6.9	44.6	21.7	6.9
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	3.5	3.5	2.8	3.5	3.6	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.8	6.8	6.1	6.8	6.9	6.1
Lead/Lag	Lag	Lag	Lead			Lead
Lead-Lag Optimize?	Yes	Yes	Yes			Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	None	C-Max	None	None
Walk Time (s)	7.0	7.0			7.0	
Flash Dont Walk (s)	24.6	24.6			14.6	
Pedestrian Calls (#/hr)	0	0			0	
Act Effct Green (s)	37.9	37.9	53.3	52.6	13.7	29.2
Actuated g/C Ratio	0.47	0.47	0.67	0.66	0.17	0.36
v/c Ratio	0.31	0.46	0.25	0.12	0.61	0.28
Control Delay	15.8	3.9	6.6	5.7	35.8	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.8	3.9	6.6	5.7	35.8	3.8
LOS	B	A	A	A	D	A
Approach Delay	8.3			6.1	24.5	
Approach LOS	A			A	C	
Queue Length 50th (m)	20.2	0.0	7.5	6.0	22.2	0.0
Queue Length 95th (m)	41.2	15.8	16.6	11.6	32.3	9.9
Internal Link Dist (m)	155.6			92.9	58.9	
Turn Bay Length (m)		40.0	65.0		70.0	
Base Capacity (vph)	744	834	627	1961	785	594
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	0.46	0.25	0.12	0.39	0.28

Intersection Summary			
Area Type:	CBD		
Cycle Length: 80			
Actuated Cycle Length: 80			
Offset: 60 (75%), Referenced to phase 2:EBT and 6:WBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.61			
Intersection Signal Delay: 12.9		Intersection LOS: B	
Intersection Capacity Utilization 50.8%		ICU Level of Service A	
Analysis Period (min) 15			

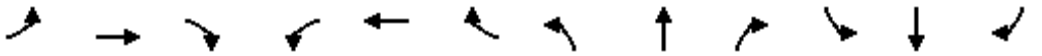
Splits and Phases: 2: Trainyards Dr & Belfast Rd

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	228	384	155	233	303	166
Future Volume (veh/h)	228	384	155	233	303	166
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1588	1588	1588	1588	1588	1588
Adj Flow Rate, veh/h	228	384	155	233	303	166
Adj No. of Lanes	1	1	1	2	2	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	841	715	518	2030	458	301
Arrive On Green	0.53	0.53	0.07	0.67	0.16	0.16
Sat Flow, veh/h	1588	1350	1513	3097	2934	1350
Grp Volume(v), veh/h	228	384	155	233	303	166
Grp Sat Flow(s),veh/h/ln	1588	1350	1513	1509	1467	1350
Q Serve(g_s), s	6.3	15.0	3.5	2.2	7.8	8.7
Cycle Q Clear(g_c), s	6.3	15.0	3.5	2.2	7.8	8.7
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	841	715	518	2030	458	301
V/C Ratio(X)	0.27	0.54	0.30	0.11	0.66	0.55
Avail Cap(c_a), veh/h	841	715	547	2030	796	457
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.3	12.4	6.9	4.6	31.8	27.5
Incr Delay (d2), s/veh	0.8	2.9	0.3	0.1	1.6	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	6.1	1.5	0.9	3.3	3.4
LnGrp Delay(d),s/veh	11.1	15.3	7.3	4.8	33.4	29.1
LnGrp LOS	B	B	A	A	C	C
Approach Vol, veh/h	612			388	469	
Approach Delay, s/veh	13.7			5.8	31.9	
Approach LOS	B			A	C	

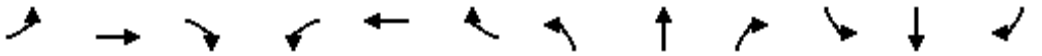
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	11.5	49.1				60.6		19.4
Change Period (Y+Rc), s	6.1	* 6.8				* 6.8		6.9
Max Green Setting (Gmax), s	6.9	* 32				* 45		21.7
Max Q Clear Time (g_c+I1), s	5.5	17.0				4.2		10.7
Green Ext Time (p_c), s	0.1	3.2				1.9		1.8

Intersection Summary	
HCM 2010 Ctrl Delay	17.4
HCM 2010 LOS	B

Notes



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	48	39	58	23	21	184	26	1331	12	49	973	39
Future Volume (vph)	48	39	58	23	21	184	26	1331	12	49	973	39
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	30.0		0.0	35.0		0.0	30.0		0.0	75.0		0.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	30.0			30.0			65.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.95	1.00
Frt		0.910			0.865			0.999				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1492	1429	0	1492	1359	0	1492	4283	0	1492	2984	1335
Flt Permitted	0.328			0.694			0.294			0.167		
Satd. Flow (perm)	515	1429	0	1090	1359	0	462	4283	0	262	2984	1335
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		58			184			1				39
Link Speed (k/h)		50			50			70			60	
Link Distance (m)		52.7			112.0			55.9			143.5	
Travel Time (s)		3.8			8.1			2.9			8.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	48	39	58	23	21	184	26	1331	12	49	973	39
Shared Lane Traffic (%)												
Lane Group Flow (vph)	48	97	0	23	205	0	26	1343	0	49	973	39
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)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
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)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
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)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		6



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		10.0	10.0		5.0	10.0	10.0
Minimum Split (s)	38.5	38.5		38.5	38.5		39.2	39.2		9.7	39.2	39.2
Total Split (s)	40.0	40.0		40.0	40.0		65.0	65.0		15.0	80.0	80.0
Total Split (%)	33.3%	33.3%		33.3%	33.3%		54.2%	54.2%		12.5%	66.7%	66.7%
Maximum Green (s)	33.5	33.5		33.5	33.5		58.8	58.8		10.3	73.8	73.8
Yellow Time (s)	3.3	3.3		3.3	3.3		3.7	3.7		3.7	3.7	3.7
All-Red Time (s)	3.2	3.2		3.2	3.2		2.5	2.5		1.0	2.5	2.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5		6.5	6.5		6.2	6.2		4.7	6.2	6.2
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		C-Max	C-Max		None	C-Max	C-Max
Walk Time (s)	7.0	7.0		7.0	7.0		11.0	11.0			11.0	11.0
Flash Dont Walk (s)	25.0	25.0		25.0	25.0		22.0	22.0			22.0	22.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	0
Act Effct Green (s)	12.2	12.2		12.2	12.2		86.1	86.1		96.6	95.1	95.1
Actuated g/C Ratio	0.10	0.10		0.10	0.10		0.72	0.72		0.80	0.79	0.79
v/c Ratio	0.94	0.49		0.21	0.68		0.08	0.44		0.18	0.41	0.04
Control Delay	160.1	30.7		51.3	21.2		8.0	8.6		4.6	4.9	1.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	160.1	30.7		51.3	21.2		8.0	8.6		4.6	4.9	1.3
LOS	F	C		D	C		A	A		A	A	A
Approach Delay		73.6			24.2			8.6			4.7	
Approach LOS		E			C			A			A	
Queue Length 50th (m)	11.4	8.6		5.1	4.6		1.7	44.9		1.8	30.1	0.0
Queue Length 95th (m)	#28.5	23.9		12.5	27.1		6.1	68.2		5.5	51.8	2.6
Internal Link Dist (m)		28.7			88.0			31.9			119.5	
Turn Bay Length (m)	30.0			35.0			30.0			75.0		
Base Capacity (vph)	143	440		304	512		331	3073		316	2365	1066
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.34	0.22		0.08	0.40		0.08	0.44		0.16	0.41	0.04

Intersection Summary			
Area Type:	CBD		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 49 (41%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.94			
Intersection Signal Delay: 11.7		Intersection LOS: B	
Intersection Capacity Utilization 79.8%		ICU Level of Service D	
Analysis Period (min) 15			

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: St. Laurent Blvd & Tremblay Rd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	48	39	58	23	21	184	26	1331	12	49	973	39
Future Volume (veh/h)	48	39	58	23	21	184	26	1331	12	49	973	39
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1588	1588	1620	1588	1588	1620	1588	1588	1620	1588	1588	1588
Adj Flow Rate, veh/h	48	39	58	23	21	184	26	1331	12	49	973	39
Adj No. of Lanes	1	1	0	1	1	0	1	3	0	1	2	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	129	119	176	232	29	253	330	2731	25	275	2079	930
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21	0.62	0.62	0.62	0.03	0.69	0.69
Sat Flow, veh/h	1055	578	859	1164	140	1231	499	4432	40	1513	3018	1350
Grp Volume(v), veh/h	48	0	97	23	0	205	26	868	475	49	973	39
Grp Sat Flow(s),veh/h/ln	1055	0	1437	1164	0	1371	499	1445	1581	1513	1509	1350
Q Serve(g_s), s	5.3	0.0	6.9	2.1	0.0	16.8	3.0	19.8	19.8	1.3	17.8	1.1
Cycle Q Clear(g_c), s	22.1	0.0	6.9	9.0	0.0	16.8	12.1	19.8	19.8	1.3	17.8	1.1
Prop In Lane	1.00		0.60	1.00		0.90	1.00		0.03	1.00		1.00
Lane Grp Cap(c), veh/h	129	0	295	232	0	281	330	1781	974	275	2079	930
V/C Ratio(X)	0.37	0.00	0.33	0.10	0.00	0.73	0.08	0.49	0.49	0.18	0.47	0.04
Avail Cap(c_a), veh/h	207	0	401	318	0	383	330	1781	974	354	2079	930
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.9	0.0	40.6	44.5	0.0	44.6	13.3	12.6	12.6	9.2	8.6	6.0
Incr Delay (d2), s/veh	1.8	0.0	0.6	0.2	0.0	4.5	0.5	1.0	1.7	0.3	0.8	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.0	2.8	0.7	0.0	6.7	0.5	8.1	9.0	0.6	7.5	0.4
LnGrp Delay(d),s/veh	56.7	0.0	41.3	44.7	0.0	49.1	13.8	13.6	14.4	9.5	9.3	6.1
LnGrp LOS	E		D	D		D	B	B	B	A	A	A
Approach Vol, veh/h		145			228			1369			1061	
Approach Delay, s/veh		46.4			48.6			13.9			9.2	
Approach LOS		D			D			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	8.7	80.2		31.1		88.9		31.1
Change Period (Y+Rc), s	* 4.7	* 6.2		6.5		* 6.2		6.5
Max Green Setting (Gmax), s	* 10	* 59		33.5		* 74		33.5
Max Q Clear Time (g_c+I1), s	3.3	21.8		24.1		19.8		18.8
Green Ext Time (p_c), s	0.1	14.5		0.5		10.8		1.3

Intersection Summary	
HCM 2010 Ctrl Delay	16.6
HCM 2010 LOS	B

Notes

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	110	6	5	126	1	4
Future Volume (vph)	110	6	5	126	1	4
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.993				0.892	
Flt Protected				0.998	0.990	
Satd. Flow (prot)	1560	0	0	1567	1387	0
Flt Permitted				0.998	0.990	
Satd. Flow (perm)	1560	0	0	1567	1387	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	574.2			141.6	216.8	
Travel Time (s)	41.3			10.2	15.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	110	6	5	126	1	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	116	0	0	131	5	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.24	1.24	1.24	1.24	1.24	1.24
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 22.5%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	110	6	5	126	1	4
Future Vol, veh/h	110	6	5	126	1	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	110	6	5	126	1	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	116	0	249	113
Stage 1	-	-	-	-	113	-
Stage 2	-	-	-	-	136	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1473	-	739	940
Stage 1	-	-	-	-	912	-
Stage 2	-	-	-	-	890	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1473	-	736	940
Mov Cap-2 Maneuver	-	-	-	-	736	-
Stage 1	-	-	-	-	912	-
Stage 2	-	-	-	-	886	-

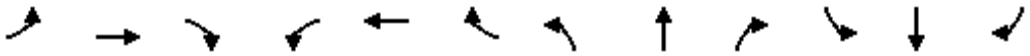
Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	9.1
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	891	-	-	1473	-
HCM Lane V/C Ratio	0.006	-	-	0.003	-
HCM Control Delay (s)	9.1	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Appendix H

2026 Future Background Synchro Worksheets

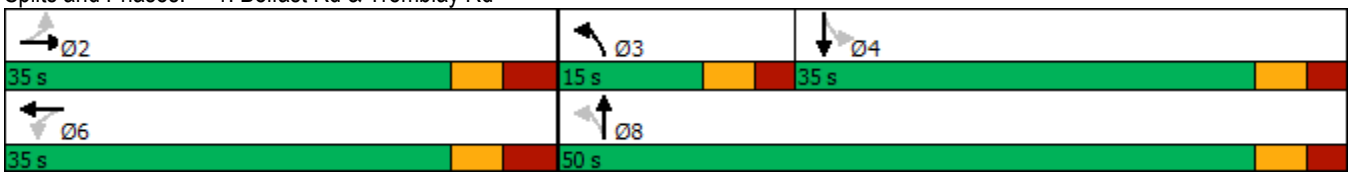
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	98	54	125	34	147	40	116	273	20	20	291	74
Future Volume (vph)	98	54	125	34	147	40	116	273	20	20	291	74
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	40.0		0.0	25.0		0.0	45.0		0.0	15.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	60.0			65.0			60.0			25.0		
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		0.895			0.968			0.990			0.970	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1492	1406	0	1492	1520	0	1492	1555	0	1492	1523	0
Flt Permitted	0.640			0.644			0.270			0.581		
Satd. Flow (perm)	1005	1406	0	1011	1520	0	424	1555	0	913	1523	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		125			17			6			16	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		241.9			574.2			414.4			151.3	
Travel Time (s)		17.4			41.3			29.8			10.9	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	98	54	125	34	147	40	116	273	20	20	291	74
Shared Lane Traffic (%)												
Lane Group Flow (vph)	98	179	0	34	187	0	116	293	0	20	365	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)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		2			6		3	8			4	
Permitted Phases	2			6			8			4		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	2	2		6	6		3	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	10.0		10.0	10.0	
Minimum Split (s)	29.8	29.8		29.8	29.8		10.9	23.9		23.9	23.9	
Total Split (s)	35.0	35.0		35.0	35.0		15.0	50.0		35.0	35.0	
Total Split (%)	41.2%	41.2%		41.2%	41.2%		17.6%	58.8%		41.2%	41.2%	
Maximum Green (s)	28.2	28.2		28.2	28.2		9.1	44.1		29.1	29.1	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	3.5	3.5		3.5	3.5		2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.8	6.8		6.8	6.8		5.9	5.9		5.9	5.9	
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		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0		7.0	7.0	
Flash Dont Walk (s)	16.0	16.0		16.0	16.0			7.0		7.0	7.0	
Pedestrian Calls (#/hr)	0	0		0	0			0		0	0	
Act Effct Green (s)	29.1	29.1		29.1	29.1		32.4	32.4		21.5	21.5	
Actuated g/C Ratio	0.39	0.39		0.39	0.39		0.43	0.43		0.29	0.29	
v/c Ratio	0.25	0.29		0.09	0.31		0.38	0.43		0.08	0.81	
Control Delay	21.9	8.8		19.5	19.5		15.1	15.2		20.2	38.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	21.9	8.8		19.5	19.5		15.1	15.2		20.2	38.9	
LOS	C	A		B	B		B	B		C	D	
Approach Delay		13.4			19.5			15.2			37.9	
Approach LOS		B			B			B			D	
Queue Length 50th (m)	10.2	5.3		3.3	18.0		9.3	26.0		2.1	47.9	
Queue Length 95th (m)	24.2	20.3		10.1	37.6		17.8	42.9		6.9	78.7	
Internal Link Dist (m)		217.9			550.2			390.4			127.3	
Turn Bay Length (m)	40.0			25.0			45.0			15.0		
Base Capacity (vph)	391	624		394	602		318	950		367	622	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.25	0.29		0.09	0.31		0.36	0.31		0.05	0.59	

Intersection Summary			
Area Type:	CBD		
Cycle Length: 85			
Actuated Cycle Length: 74.6			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay: 22.3		Intersection LOS: C	
Intersection Capacity Utilization 70.2%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 1: Belfast Rd & Tremblay Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	98	54	125	34	147	40	116	273	20	20	291	74
Future Volume (veh/h)	98	54	125	34	147	40	116	273	20	20	291	74
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1588	1588	1620	1588	1588	1620	1588	1588	1620	1588	1588	1620
Adj Flow Rate, veh/h	98	54	125	34	147	40	116	273	20	20	291	74
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	427	166	385	425	469	128	260	635	47	372	343	87
Arrive On Green	0.39	0.39	0.39	0.39	0.39	0.39	0.07	0.43	0.43	0.28	0.28	0.28
Sat Flow, veh/h	1072	427	987	1080	1203	327	1513	1462	107	974	1222	311
Grp Volume(v), veh/h	98	0	179	34	0	187	116	0	293	20	0	365
Grp Sat Flow(s),veh/h/ln	1072	0	1414	1080	0	1530	1513	0	1569	974	0	1533
Q Serve(g_s), s	5.1	0.0	6.4	1.6	0.0	6.1	3.7	0.0	9.4	1.1	0.0	16.3
Cycle Q Clear(g_c), s	11.2	0.0	6.4	8.0	0.0	6.1	3.7	0.0	9.4	1.1	0.0	16.3
Prop In Lane	1.00		0.70	1.00		0.21	1.00		0.07	1.00		0.20
Lane Grp Cap(c), veh/h	427	0	551	425	0	597	260	0	682	372	0	430
V/C Ratio(X)	0.23	0.00	0.32	0.08	0.00	0.31	0.45	0.00	0.43	0.05	0.00	0.85
Avail Cap(c_a), veh/h	427	0	551	425	0	597	340	0	957	491	0	617
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.2	0.0	15.4	18.2	0.0	15.3	17.7	0.0	14.2	19.1	0.0	24.6
Incr Delay (d2), s/veh	1.3	0.0	1.6	0.4	0.0	1.4	1.2	0.0	0.4	0.1	0.0	7.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.0	2.7	0.5	0.0	2.8	1.6	0.0	4.2	0.3	0.0	7.8
LnGrp Delay(d),s/veh	20.5	0.0	17.0	18.6	0.0	16.7	18.9	0.0	14.6	19.2	0.0	32.2
LnGrp LOS	C		B	B		B	B		B	B		C
Approach Vol, veh/h		277			221			409			385	
Approach Delay, s/veh		18.2			17.0			15.8			31.5	
Approach LOS		B			B			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6		8
Phs Duration (G+Y+Rc), s		35.0	11.2	26.2		35.0		37.3
Change Period (Y+Rc), s		* 6.8	* 5.9	* 5.9		* 6.8		* 5.9
Max Green Setting (Gmax), s		* 28	* 9.1	* 29		* 28		* 44
Max Q Clear Time (g_c+I1), s		13.2	5.7	18.3		10.0		11.4
Green Ext Time (p_c), s		1.5	0.1	2.0		1.3		2.2

Intersection Summary	
HCM 2010 Ctrl Delay	21.2
HCM 2010 LOS	C

Notes

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	209	231	156	198	149	108
Future Volume (vph)	209	231	156	198	149	108
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		40.0	65.0		70.0	0.0
Storage Lanes		1	1		2	1
Taper Length (m)			30.0		0.0	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.97	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1571	1335	1492	2984	2895	1335
Flt Permitted			0.546		0.950	
Satd. Flow (perm)	1571	1335	858	2984	2895	1335
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		231				108
Link Speed (k/h)	50			50	50	
Link Distance (m)	179.6			116.9	82.9	
Travel Time (s)	12.9			8.4	6.0	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	209	231	156	198	149	108
Shared Lane Traffic (%)						
Lane Group Flow (vph)	209	231	156	198	149	108
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	7.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.24	1.24	1.24	1.24	1.24	1.24
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (m)	10.0	2.0	2.0	10.0	2.0	2.0
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)	0.6	2.0	2.0	0.6	2.0	2.0
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)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	pm+pt	NA	Prot	pm+ov
Protected Phases	2		1	6	8	1
Permitted Phases		2	6			8

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2	2	1	6	8	1
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	10.0	5.0
Minimum Split (s)	38.4	38.4	11.1	24.8	28.5	11.1
Total Split (s)	38.4	38.4	13.0	51.4	28.6	13.0
Total Split (%)	48.0%	48.0%	16.3%	64.3%	35.8%	16.3%
Maximum Green (s)	31.6	31.6	6.9	44.6	21.7	6.9
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	3.5	3.5	2.8	3.5	3.6	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.8	6.8	6.1	6.8	6.9	6.1
Lead/Lag	Lag	Lag	Lead			Lead
Lead-Lag Optimize?	Yes	Yes	Yes			Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	None	C-Max	None	None
Walk Time (s)	7.0	7.0			7.0	
Flash Dont Walk (s)	24.6	24.6			14.6	
Pedestrian Calls (#/hr)	0	0			0	
Act Effct Green (s)	41.3	41.3	56.4	55.7	10.6	25.8
Actuated g/C Ratio	0.52	0.52	0.70	0.70	0.13	0.32
v/c Ratio	0.26	0.29	0.23	0.10	0.39	0.21
Control Delay	12.6	2.9	4.9	4.2	34.8	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.6	2.9	4.9	4.2	34.8	5.0
LOS	B	A	A	A	C	A
Approach Delay	7.5			4.5	22.3	
Approach LOS	A			A	C	
Queue Length 50th (m)	16.3	0.0	6.3	4.1	10.9	0.0
Queue Length 95th (m)	32.9	11.1	13.1	7.9	18.8	9.3
Internal Link Dist (m)	155.6			92.9	58.9	
Turn Bay Length (m)		40.0	65.0		70.0	
Base Capacity (vph)	811	800	672	2078	785	505
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	0.26	0.29	0.23	0.10	0.19	0.21

Intersection Summary	
Area Type:	CBD
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 60 (75%), Referenced to phase 2:EBT and 6:WBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.39	
Intersection Signal Delay: 10.1	Intersection LOS: B
Intersection Capacity Utilization 47.9%	ICU Level of Service A
Analysis Period (min) 15	

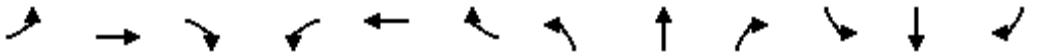
Splits and Phases: 2: Trainyards Dr & Belfast Rd

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	209	231	156	198	149	108
Future Volume (veh/h)	209	231	156	198	149	108
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1588	1588	1588	1588	1588	1588
Adj Flow Rate, veh/h	209	231	156	198	149	108
Adj No. of Lanes	1	1	1	2	2	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	896	761	610	2125	366	255
Arrive On Green	0.56	0.56	0.06	0.70	0.12	0.12
Sat Flow, veh/h	1588	1350	1513	3097	2934	1350
Grp Volume(v), veh/h	209	231	156	198	149	108
Grp Sat Flow(s),veh/h/ln	1588	1350	1513	1509	1467	1350
Q Serve(g_s), s	5.3	7.2	3.2	1.7	3.7	5.6
Cycle Q Clear(g_c), s	5.3	7.2	3.2	1.7	3.7	5.6
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	896	761	610	2125	366	255
V/C Ratio(X)	0.23	0.30	0.26	0.09	0.41	0.42
Avail Cap(c_a), veh/h	896	761	644	2125	796	453
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	8.8	9.2	5.8	3.7	32.3	28.6
Incr Delay (d2), s/veh	0.6	1.0	0.2	0.1	0.7	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	2.8	1.3	0.7	1.5	2.2
LnGrp Delay(d),s/veh	9.4	10.2	6.0	3.8	33.0	29.7
LnGrp LOS	A	B	A	A	C	C
Approach Vol, veh/h	440			354	257	
Approach Delay, s/veh	9.8			4.8	31.6	
Approach LOS	A			A	C	

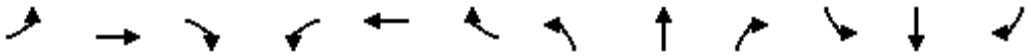
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	11.2	51.9				63.1		16.9
Change Period (Y+Rc), s	6.1	* 6.8				* 6.8		6.9
Max Green Setting (Gmax), s	6.9	* 32				* 45		21.7
Max Q Clear Time (g_c+I1), s	5.2	9.2				3.7		7.6
Green Ext Time (p_c), s	0.1	2.6				1.6		1.0

Intersection Summary	
HCM 2010 Ctrl Delay	13.5
HCM 2010 LOS	B

Notes



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	131	23	35	13	21	107	133	1214	41	133	1161	482
Future Volume (vph)	131	23	35	13	21	107	133	1214	41	133	1161	482
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	30.0		0.0	35.0		0.0	30.0		0.0	75.0		0.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	30.0			30.0			65.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.95	1.00
Frt		0.909			0.875			0.995				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1492	1428	0	1492	1374	0	1492	4266	0	1492	2984	1335
Flt Permitted	0.636			0.719			0.244			0.172		
Satd. Flow (perm)	999	1428	0	1129	1374	0	383	4266	0	270	2984	1335
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		35			107			6				482
Link Speed (k/h)		50			50			70			60	
Link Distance (m)		52.7			112.0			55.9			143.5	
Travel Time (s)		3.8			8.1			2.9			8.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	131	23	35	13	21	107	133	1214	41	133	1161	482
Shared Lane Traffic (%)												
Lane Group Flow (vph)	131	58	0	13	128	0	133	1255	0	133	1161	482
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)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
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)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
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)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		6



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		10.0	10.0		5.0	10.0	10.0
Minimum Split (s)	38.5	38.5		38.5	38.5		39.2	39.2		9.7	39.2	39.2
Total Split (s)	40.0	40.0		40.0	40.0		65.0	65.0		15.0	80.0	80.0
Total Split (%)	33.3%	33.3%		33.3%	33.3%		54.2%	54.2%		12.5%	66.7%	66.7%
Maximum Green (s)	33.5	33.5		33.5	33.5		58.8	58.8		10.3	73.8	73.8
Yellow Time (s)	3.3	3.3		3.3	3.3		3.7	3.7		3.7	3.7	3.7
All-Red Time (s)	3.2	3.2		3.2	3.2		2.5	2.5		1.0	2.5	2.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5		6.5	6.5		6.2	6.2		4.7	6.2	6.2
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		C-Max	C-Max		None	C-Max	C-Max
Walk Time (s)	7.0	7.0		7.0	7.0		11.0	11.0			11.0	11.0
Flash Dont Walk (s)	25.0	25.0		25.0	25.0		22.0	22.0			22.0	22.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	0
Act Effct Green (s)	20.1	20.1		20.1	20.1		73.7	73.7		88.7	87.2	87.2
Actuated g/C Ratio	0.17	0.17		0.17	0.17		0.61	0.61		0.74	0.73	0.73
v/c Ratio	0.78	0.22		0.07	0.40		0.57	0.48		0.46	0.54	0.44
Control Delay	76.9	21.1		38.9	14.4		29.1	14.6		10.7	9.3	2.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	76.9	21.1		38.9	14.4		29.1	14.6		10.7	9.3	2.0
LOS	E	C		D	B		C	B		B	A	A
Approach Delay		59.8			16.7			16.0			7.4	
Approach LOS		E			B			B			A	
Queue Length 50th (m)	29.9	4.6		2.6	4.2		17.2	54.6		7.8	56.5	0.0
Queue Length 95th (m)	48.0	15.0		7.7	19.6		#56.3	85.7		17.9	93.7	10.8
Internal Link Dist (m)		28.7			88.0			31.9			119.5	
Turn Bay Length (m)	30.0			35.0			30.0			75.0		
Base Capacity (vph)	278	423		315	460		235	2622		308	2169	1102
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.47	0.14		0.04	0.28		0.57	0.48		0.43	0.54	0.44

Intersection Summary			
Area Type:	CBD		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 50 (42%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.78			
Intersection Signal Delay: 14.0		Intersection LOS: B	
Intersection Capacity Utilization 85.0%		ICU Level of Service E	
Analysis Period (min) 15			

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: St. Laurent Blvd & Tremblay Rd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	131	23	35	13	21	107	133	1214	41	133	1161	482
Future Volume (veh/h)	131	23	35	13	21	107	133	1214	41	133	1161	482
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1588	1588	1620	1588	1588	1620	1588	1588	1620	1588	1588	1588
Adj Flow Rate, veh/h	131	23	35	13	21	107	133	1214	41	133	1161	482
Adj No. of Lanes	1	1	0	1	1	0	1	3	0	1	2	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	213	122	186	279	49	249	191	2540	86	306	2050	917
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21	0.59	0.59	0.59	0.05	0.68	0.68
Sat Flow, veh/h	1132	569	866	1206	227	1157	273	4308	145	1513	3018	1350
Grp Volume(v), veh/h	131	0	58	13	0	128	133	815	440	133	1161	482
Grp Sat Flow(s),veh/h/ln	1132	0	1435	1206	0	1384	273	1445	1563	1513	1509	1350
Q Serve(g_s), s	13.6	0.0	4.0	1.1	0.0	9.6	57.4	19.3	19.3	4.0	24.1	21.4
Cycle Q Clear(g_c), s	23.2	0.0	4.0	5.0	0.0	9.6	70.8	19.3	19.3	4.0	24.1	21.4
Prop In Lane	1.00		0.60	1.00		0.84	1.00		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	213	0	308	279	0	297	191	1704	921	306	2050	917
V/C Ratio(X)	0.62	0.00	0.19	0.05	0.00	0.43	0.70	0.48	0.48	0.43	0.57	0.53
Avail Cap(c_a), veh/h	285	0	401	357	0	386	191	1704	921	360	2050	917
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.8	0.0	38.5	40.6	0.0	40.8	31.8	14.1	14.1	10.6	10.0	9.6
Incr Delay (d2), s/veh	2.9	0.0	0.3	0.1	0.0	1.0	19.0	1.0	1.8	1.0	1.1	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	0.0	1.6	0.4	0.0	3.7	5.4	7.9	8.8	1.7	10.2	8.4
LnGrp Delay(d),s/veh	53.7	0.0	38.8	40.7	0.0	41.7	50.8	15.0	15.8	11.6	11.2	11.8
LnGrp LOS	D		D	D		D	D	B	B	B	B	B
Approach Vol, veh/h		189			141			1388			1776	
Approach Delay, s/veh		49.1			41.6			18.7			11.4	
Approach LOS		D			D			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	10.8	77.0		32.3		87.7		32.3
Change Period (Y+Rc), s	* 4.7	* 6.2		6.5		* 6.2		6.5
Max Green Setting (Gmax), s	* 10	* 59		33.5		* 74		33.5
Max Q Clear Time (g_c+I1), s	6.0	72.8		25.2		26.1		11.6
Green Ext Time (p_c), s	0.2	0.0		0.6		18.7		0.9

Intersection Summary	
HCM 2010 Ctrl Delay	17.5
HCM 2010 LOS	B

Notes

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	235	2	5	225	10	2
Future Volume (vph)	235	2	5	225	10	2
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.999				0.977	
Flt Protected				0.999	0.960	
Satd. Flow (prot)	1569	0	0	1569	1473	0
Flt Permitted				0.999	0.960	
Satd. Flow (perm)	1569	0	0	1569	1473	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	574.2			141.6	216.8	
Travel Time (s)	41.3			10.2	15.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	235	2	5	225	10	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	237	0	0	230	12	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.24	1.24	1.24	1.24	1.24	1.24
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 28.6%		ICU Level of Service A	
Analysis Period (min) 15			

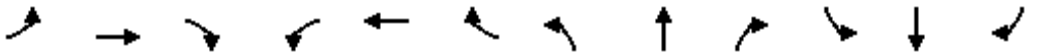
Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	235	2	5	225	10	2
Future Vol, veh/h	235	2	5	225	10	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	235	2	5	225	10	2

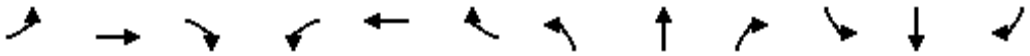
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	237	0	471	236
Stage 1	-	-	-	-	236	-
Stage 2	-	-	-	-	235	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1330	-	551	803
Stage 1	-	-	-	-	803	-
Stage 2	-	-	-	-	804	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1330	-	549	803
Mov Cap-2 Maneuver	-	-	-	-	549	-
Stage 1	-	-	-	-	803	-
Stage 2	-	-	-	-	801	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	11.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	580	-	-	1330	-
HCM Lane V/C Ratio	0.021	-	-	0.004	-
HCM Control Delay (s)	11.3	-	-	7.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	86	90	143	15	223	62	175	489	20	28	378	84
Future Volume (vph)	86	90	143	15	223	62	175	489	20	28	378	84
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	40.0		0.0	25.0		0.0	45.0		0.0	15.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	60.0			65.0			60.0			25.0		
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		0.908			0.967			0.994			0.973	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1492	1426	0	1492	1519	0	1492	1561	0	1492	1528	0
Flt Permitted	0.495			0.569			0.221			0.476		
Satd. Flow (perm)	777	1426	0	894	1519	0	347	1561	0	748	1528	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		80			14			4			13	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		241.9			574.2			414.4			151.3	
Travel Time (s)		17.4			41.3			29.8			10.9	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	86	90	143	15	223	62	175	489	20	28	378	84
Shared Lane Traffic (%)												
Lane Group Flow (vph)	86	233	0	15	285	0	175	509	0	28	462	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)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		2			6		3	8			4	
Permitted Phases	2			6			8			4		

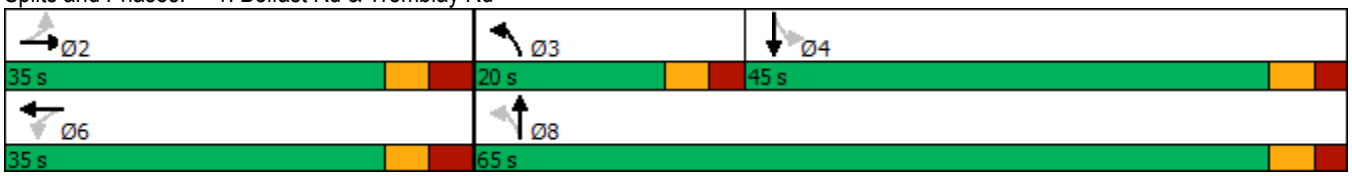


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	2	2		6	6		3	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	10.0		10.0	10.0	
Minimum Split (s)	29.8	29.8		29.8	29.8		10.9	23.9		23.9	23.9	
Total Split (s)	35.0	35.0		35.0	35.0		20.0	65.0		45.0	45.0	
Total Split (%)	35.0%	35.0%		35.0%	35.0%		20.0%	65.0%		45.0%	45.0%	
Maximum Green (s)	28.2	28.2		28.2	28.2		14.1	59.1		39.1	39.1	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	3.5	3.5		3.5	3.5		2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.8	6.8		6.8	6.8		5.9	5.9		5.9	5.9	
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		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0		7.0	7.0	
Flash Dont Walk (s)	16.0	16.0		16.0	16.0			7.0		7.0	7.0	
Pedestrian Calls (#/hr)	0	0		0	0			0		0	0	
Act Effct Green (s)	28.6	28.6		28.6	28.6		46.9	46.9		30.1	30.1	
Actuated g/C Ratio	0.32	0.32		0.32	0.32		0.53	0.53		0.34	0.34	
v/c Ratio	0.34	0.45		0.05	0.57		0.54	0.61		0.11	0.87	
Control Delay	31.3	20.6		25.7	31.3		16.9	17.4		20.7	44.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	31.3	20.6		25.7	31.3		16.9	17.4		20.7	44.7	
LOS	C	C		C	C		B	B		C	D	
Approach Delay		23.5			31.0			17.3			43.3	
Approach LOS		C			C			B			D	
Queue Length 50th (m)	11.2	20.0		1.8	38.4		14.6	55.2		3.2	70.1	
Queue Length 95th (m)	28.0	47.5		7.1	74.3		24.9	83.5		9.2	#114.7	
Internal Link Dist (m)		217.9			550.2			390.4			127.3	
Turn Bay Length (m)	40.0			25.0			45.0			15.0		
Base Capacity (vph)	251	515		289	500		369	1059		335	692	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.34	0.45		0.05	0.57		0.47	0.48		0.08	0.67	

Intersection Summary			
Area Type:	CBD		
Cycle Length: 100			
Actuated Cycle Length: 88.3			
Natural Cycle: 75			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.87			
Intersection Signal Delay: 27.8		Intersection LOS: C	
Intersection Capacity Utilization 85.6%		ICU Level of Service E	
Analysis Period (min) 15			

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Belfast Rd & Tremblay Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	86	90	143	15	223	62	175	489	20	28	378	84
Future Volume (veh/h)	86	90	143	15	223	62	175	489	20	28	378	84
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1588	1588	1620	1588	1588	1620	1588	1588	1620	1588	1588	1620
Adj Flow Rate, veh/h	86	90	143	15	223	62	175	489	20	28	378	84
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	269	187	297	302	404	112	283	773	32	307	432	96
Arrive On Green	0.34	0.34	0.34	0.34	0.34	0.34	0.10	0.51	0.51	0.34	0.34	0.34
Sat Flow, veh/h	981	554	879	1028	1197	333	1513	1515	62	798	1259	280
Grp Volume(v), veh/h	86	0	233	15	0	285	175	0	509	28	0	462
Grp Sat Flow(s),veh/h/ln	981	0	1433	1028	0	1530	1513	0	1577	798	0	1539
Q Serve(g_s), s	6.5	0.0	10.7	1.0	0.0	12.7	5.9	0.0	19.5	2.2	0.0	23.5
Cycle Q Clear(g_c), s	19.2	0.0	10.7	11.7	0.0	12.7	5.9	0.0	19.5	7.7	0.0	23.5
Prop In Lane	1.00		0.61	1.00		0.22	1.00		0.04	1.00		0.18
Lane Grp Cap(c), veh/h	269	0	484	302	0	517	283	0	804	307	0	528
V/C Ratio(X)	0.32	0.00	0.48	0.05	0.00	0.55	0.62	0.00	0.63	0.09	0.00	0.88
Avail Cap(c_a), veh/h	269	0	484	302	0	517	393	0	1117	407	0	721
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.3	0.0	21.9	26.5	0.0	22.5	18.5	0.0	14.8	22.6	0.0	25.8
Incr Delay (d2), s/veh	3.1	0.0	3.4	0.3	0.0	4.2	2.2	0.0	0.8	0.1	0.0	9.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.0	4.7	0.3	0.0	5.9	2.6	0.0	8.5	0.5	0.0	11.3
LnGrp Delay(d),s/veh	33.4	0.0	25.3	26.8	0.0	26.7	20.7	0.0	15.6	22.8	0.0	34.8
LnGrp LOS	C		C	C		C	C		B	C		C
Approach Vol, veh/h		319			300			684			490	
Approach Delay, s/veh		27.5			26.7			16.9			34.1	
Approach LOS		C			C			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6		8
Phs Duration (G+Y+Rc), s		35.0	13.9	34.5		35.0		48.5
Change Period (Y+Rc), s		* 6.8	* 5.9	* 5.9		* 6.8		* 5.9
Max Green Setting (Gmax), s		* 28	* 14	* 39		* 28		* 59
Max Q Clear Time (g_c+I1), s		21.2	7.9	25.5		14.7		21.5
Green Ext Time (p_c), s		1.2	0.3	3.1		1.7		4.5

Intersection Summary	
HCM 2010 Ctrl Delay	25.1
HCM 2010 LOS	C

Notes

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	240	406	169	244	319	174
Future Volume (vph)	240	406	169	244	319	174
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		40.0	65.0		70.0	0.0
Storage Lanes		1	1		2	1
Taper Length (m)			30.0		0.0	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.97	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1571	1335	1492	2984	2895	1335
Flt Permitted			0.524		0.950	
Satd. Flow (perm)	1571	1335	823	2984	2895	1335
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		406				174
Link Speed (k/h)	50			50	50	
Link Distance (m)	179.6			116.9	82.9	
Travel Time (s)	12.9			8.4	6.0	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	240	406	169	244	319	174
Shared Lane Traffic (%)						
Lane Group Flow (vph)	240	406	169	244	319	174
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	7.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.24	1.24	1.24	1.24	1.24	1.24
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (m)	10.0	2.0	2.0	10.0	2.0	2.0
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)	0.6	2.0	2.0	0.6	2.0	2.0
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)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	pm+pt	NA	Prot	pm+ov
Protected Phases	2		1	6	8	1
Permitted Phases		2	6			8

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2	2	1	6	8	1
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	10.0	5.0
Minimum Split (s)	38.4	38.4	11.1	24.8	28.5	11.1
Total Split (s)	38.4	38.4	13.0	51.4	28.6	13.0
Total Split (%)	48.0%	48.0%	16.3%	64.3%	35.8%	16.3%
Maximum Green (s)	31.6	31.6	6.9	44.6	21.7	6.9
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	3.5	3.5	2.8	3.5	3.6	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.8	6.8	6.1	6.8	6.9	6.1
Lead/Lag	Lag	Lag	Lead			Lead
Lead-Lag Optimize?	Yes	Yes	Yes			Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	None	C-Max	None	None
Walk Time (s)	7.0	7.0			7.0	
Flash Dont Walk (s)	24.6	24.6			14.6	
Pedestrian Calls (#/hr)	0	0			0	
Act Effct Green (s)	37.4	37.4	52.9	52.2	14.1	29.7
Actuated g/C Ratio	0.47	0.47	0.66	0.65	0.18	0.37
v/c Ratio	0.33	0.48	0.27	0.13	0.63	0.29
Control Delay	16.4	4.0	7.0	5.9	35.8	3.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.4	4.0	7.0	5.9	35.8	3.7
LOS	B	A	A	A	D	A
Approach Delay	8.6			6.4	24.5	
Approach LOS	A			A	C	
Queue Length 50th (m)	22.0	0.0	8.5	6.4	23.4	0.0
Queue Length 95th (m)	43.4	16.2	18.4	12.3	33.5	10.2
Internal Link Dist (m)	155.6			92.9	58.9	
Turn Bay Length (m)		40.0	65.0		70.0	
Base Capacity (vph)	733	839	618	1947	785	606
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	0.33	0.48	0.27	0.13	0.41	0.29

Intersection Summary	
Area Type:	CBD
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 60 (75%), Referenced to phase 2:EBT and 6:WBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.63	
Intersection Signal Delay: 13.1	Intersection LOS: B
Intersection Capacity Utilization 53.0%	ICU Level of Service A
Analysis Period (min) 15	

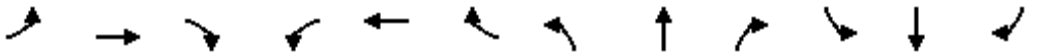
Splits and Phases: 2: Trainyards Dr & Belfast Rd

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	240	406	169	244	319	174
Future Volume (veh/h)	240	406	169	244	319	174
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1588	1588	1588	1588	1588	1588
Adj Flow Rate, veh/h	240	406	169	244	319	174
Adj No. of Lanes	1	1	1	2	2	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	824	700	504	2013	474	316
Arrive On Green	0.52	0.52	0.07	0.67	0.16	0.16
Sat Flow, veh/h	1588	1350	1513	3097	2934	1350
Grp Volume(v), veh/h	240	406	169	244	319	174
Grp Sat Flow(s),veh/h/ln	1588	1350	1513	1509	1467	1350
Q Serve(g_s), s	6.9	16.6	3.9	2.3	8.2	9.1
Cycle Q Clear(g_c), s	6.9	16.6	3.9	2.3	8.2	9.1
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	824	700	504	2013	474	316
V/C Ratio(X)	0.29	0.58	0.34	0.12	0.67	0.55
Avail Cap(c_a), veh/h	824	700	525	2013	796	464
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.9	13.3	7.3	4.8	31.5	26.9
Incr Delay (d2), s/veh	0.9	3.5	0.4	0.1	1.7	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	6.8	1.7	1.0	3.4	3.5
LnGrp Delay(d),s/veh	11.8	16.7	7.7	4.9	33.2	28.4
LnGrp LOS	B	B	A	A	C	C
Approach Vol, veh/h	646			413	493	
Approach Delay, s/veh	14.9			6.1	31.5	
Approach LOS	B			A	C	

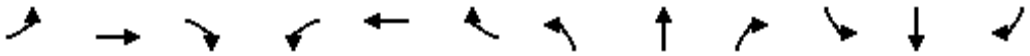
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	11.9	48.3				60.2		19.8
Change Period (Y+Rc), s	6.1	* 6.8				* 6.8		6.9
Max Green Setting (Gmax), s	6.9	* 32				* 45		21.7
Max Q Clear Time (g_c+I1), s	5.9	18.6				4.3		11.1
Green Ext Time (p_c), s	0.1	3.2				2.0		1.9

Intersection Summary	
HCM 2010 Ctrl Delay	17.8
HCM 2010 LOS	B

Notes



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	492	41	129	25	23	193	48	1399	13	51	1023	175
Future Volume (vph)	492	41	129	25	23	193	48	1399	13	51	1023	175
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	30.0		0.0	35.0		0.0	30.0		0.0	75.0		0.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	30.0			30.0			65.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.95	1.00
Frt		0.886			0.866			0.999				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1492	1392	0	1492	1360	0	1492	4283	0	1492	2984	1335
Flt Permitted	0.525			0.601			0.268			0.122		
Satd. Flow (perm)	825	1392	0	944	1360	0	421	4283	0	192	2984	1335
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		121			182			2				175
Link Speed (k/h)		50			50			70			60	
Link Distance (m)		52.7			112.0			55.9			143.5	
Travel Time (s)		3.8			8.1			2.9			8.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	492	41	129	25	23	193	48	1399	13	51	1023	175
Shared Lane Traffic (%)												
Lane Group Flow (vph)	492	170	0	25	216	0	48	1412	0	51	1023	175
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)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
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)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
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)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		6



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		10.0	10.0		5.0	10.0	10.0
Minimum Split (s)	38.5	38.5		38.5	38.5		39.2	39.2		9.7	39.2	39.2
Total Split (s)	40.0	40.0		40.0	40.0		65.0	65.0		15.0	80.0	80.0
Total Split (%)	33.3%	33.3%		33.3%	33.3%		54.2%	54.2%		12.5%	66.7%	66.7%
Maximum Green (s)	33.5	33.5		33.5	33.5		58.8	58.8		10.3	73.8	73.8
Yellow Time (s)	3.3	3.3		3.3	3.3		3.7	3.7		3.7	3.7	3.7
All-Red Time (s)	3.2	3.2		3.2	3.2		2.5	2.5		1.0	2.5	2.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5		6.5	6.5		6.2	6.2		4.7	6.2	6.2
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		C-Max	C-Max		None	C-Max	C-Max
Walk Time (s)	7.0	7.0		7.0	7.0		11.0	11.0			11.0	11.0
Flash Dont Walk (s)	25.0	25.0		25.0	25.0		22.0	22.0			22.0	22.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	0
Act Effct Green (s)	33.5	33.5		33.5	33.5		64.1	64.1		75.3	73.8	73.8
Actuated g/C Ratio	0.28	0.28		0.28	0.28		0.53	0.53		0.63	0.62	0.62
v/c Ratio	2.14	0.36		0.10	0.42		0.21	0.62		0.26	0.56	0.20
Control Delay	551.3	13.6		33.4	10.4		19.6	21.5		11.9	15.0	1.9
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	551.3	13.6		33.4	10.4		19.6	21.5		11.9	15.0	1.9
LOS	F	B		C	B		B	C		B	B	A
Approach Delay		413.2			12.8			21.5			13.0	
Approach LOS		F			B			C			B	
Queue Length 50th (m)	~184.7	8.6		4.4	5.9		5.9	84.4		4.3	69.6	0.0
Queue Length 95th (m)	#248.8	26.7		11.5	25.9		14.7	103.1		9.1	87.2	8.2
Internal Link Dist (m)		28.7			88.0			31.9			119.5	
Turn Bay Length (m)	30.0			35.0			30.0			75.0		
Base Capacity (vph)	230	475		263	510		224	2287		232	1835	888
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	2.14	0.36		0.10	0.42		0.21	0.62		0.22	0.56	0.20

Intersection Summary			
Area Type:	CBD		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 2.14			
Intersection Signal Delay: 89.8		Intersection LOS: F	
Intersection Capacity Utilization 110.0%		ICU Level of Service H	
Analysis Period (min) 15			

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: St. Laurent Blvd & Tremblay Rd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	492	41	129	25	23	193	48	1399	13	51	1023	175
Future Volume (veh/h)	492	41	129	25	23	193	48	1399	13	51	1023	175
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1588	1588	1620	1588	1588	1620	1588	1588	1620	1588	1588	1588
Adj Flow Rate, veh/h	492	41	129	25	23	193	48	1399	13	51	1023	175
Adj No. of Lanes	1	1	0	1	1	0	1	3	0	1	2	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	211	94	297	256	41	342	235	2400	22	224	1856	830
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28	0.54	0.54	0.54	0.03	0.62	0.62
Sat Flow, veh/h	1045	338	1063	1089	146	1226	419	4430	41	1513	3018	1350
Grp Volume(v), veh/h	492	0	170	25	0	216	48	913	499	51	1023	175
Grp Sat Flow(s),veh/h/ln	1045	0	1401	1089	0	1372	419	1445	1581	1513	1509	1350
Q Serve(g_s), s	17.3	0.0	11.9	2.3	0.0	16.2	9.1	25.4	25.4	1.7	23.7	6.9
Cycle Q Clear(g_c), s	33.5	0.0	11.9	14.3	0.0	16.2	24.0	25.4	25.4	1.7	23.7	6.9
Prop In Lane	1.00		0.76	1.00		0.89	1.00		0.03	1.00		1.00
Lane Grp Cap(c), veh/h	211	0	391	256	0	383	235	1566	857	224	1856	830
V/C Ratio(X)	2.33	0.00	0.43	0.10	0.00	0.56	0.20	0.58	0.58	0.23	0.55	0.21
Avail Cap(c_a), veh/h	211	0	391	256	0	383	235	1566	857	303	1856	830
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.8	0.0	35.5	41.3	0.0	37.0	23.0	18.4	18.4	14.0	13.5	10.2
Incr Delay (d2), s/veh	614.4	0.0	0.8	0.2	0.0	1.9	2.0	1.6	2.9	0.5	1.2	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	43.0	0.0	4.7	0.7	0.0	6.3	1.2	10.4	11.6	0.7	10.1	2.7
LnGrp Delay(d),s/veh	668.2	0.0	36.2	41.5	0.0	38.9	25.0	20.0	21.3	14.5	14.6	10.8
LnGrp LOS	F		D	D		D	C	C	C	B	B	B
Approach Vol, veh/h		662			241			1460			1249	
Approach Delay, s/veh		505.9			39.2			20.6			14.1	
Approach LOS		F			D			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	8.8	71.2		40.0		80.0		40.0
Change Period (Y+Rc), s	* 4.7	* 6.2		6.5		* 6.2		6.5
Max Green Setting (Gmax), s	* 10	* 59		33.5		* 74		33.5
Max Q Clear Time (g_c+I1), s	3.7	27.4		35.5		25.7		18.2
Green Ext Time (p_c), s	0.1	15.1		0.0		12.6		1.4

Intersection Summary	
HCM 2010 Ctrl Delay	108.5
HCM 2010 LOS	F

Notes

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	168	6	5	303	1	4
Future Volume (vph)	168	6	5	303	1	4
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.995				0.892	
Flt Protected				0.999	0.990	
Satd. Flow (prot)	1563	0	0	1569	1387	0
Flt Permitted				0.999	0.990	
Satd. Flow (perm)	1563	0	0	1569	1387	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	574.2			141.6	216.8	
Travel Time (s)	41.3			10.2	15.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	168	6	5	303	1	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	174	0	0	308	5	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.24	1.24	1.24	1.24	1.24	1.24
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 33.4%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	168	6	5	303	1	4
Future Vol, veh/h	168	6	5	303	1	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	168	6	5	303	1	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	174	0	484	171
Stage 1	-	-	-	-	171	-
Stage 2	-	-	-	-	313	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1403	-	542	873
Stage 1	-	-	-	-	859	-
Stage 2	-	-	-	-	741	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1403	-	540	873
Mov Cap-2 Maneuver	-	-	-	-	540	-
Stage 1	-	-	-	-	859	-
Stage 2	-	-	-	-	738	-

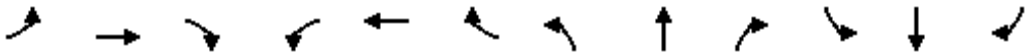
Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	9.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	777	-	-	1403	-
HCM Lane V/C Ratio	0.006	-	-	0.004	-
HCM Control Delay (s)	9.7	-	-	7.6	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	0	0	0
Future Volume (vph)	0	0	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1571	0	0	1571	0	0
Flt Permitted						
Satd. Flow (perm)	1571	0	0	1571	0	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	141.6			211.9	222.9	
Travel Time (s)	10.2			15.3	16.0	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	0	0	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	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.24	1.24	1.24	1.24	1.24	1.24
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Free	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 0.0%		ICU Level of Service A	
Analysis Period (min) 15			

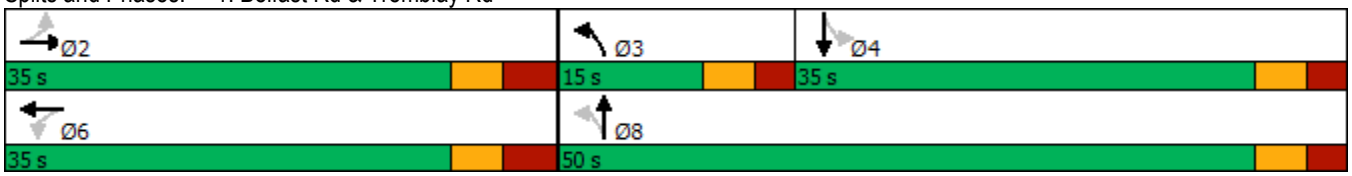
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	98	54	125	34	147	40	116	273	20	20	291	74
Future Volume (vph)	98	54	125	34	147	40	116	273	20	20	291	74
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	40.0		0.0	25.0		0.0	45.0		0.0	15.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	60.0			65.0			60.0			25.0		
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		0.895			0.968			0.990			0.970	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1492	1406	0	1492	1520	0	1492	1555	0	1492	1523	0
Flt Permitted	0.640			0.644			0.270			0.581		
Satd. Flow (perm)	1005	1406	0	1011	1520	0	424	1555	0	913	1523	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		125			17			6			16	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		241.9			574.2			414.4			151.3	
Travel Time (s)		17.4			41.3			29.8			10.9	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	98	54	125	34	147	40	116	273	20	20	291	74
Shared Lane Traffic (%)												
Lane Group Flow (vph)	98	179	0	34	187	0	116	293	0	20	365	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)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		2			6		3	8			4	
Permitted Phases	2			6			8			4		

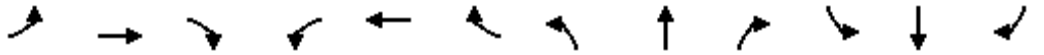


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	2	2		6	6		3	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	10.0		10.0	10.0	
Minimum Split (s)	29.8	29.8		29.8	29.8		10.9	23.9		23.9	23.9	
Total Split (s)	35.0	35.0		35.0	35.0		15.0	50.0		35.0	35.0	
Total Split (%)	41.2%	41.2%		41.2%	41.2%		17.6%	58.8%		41.2%	41.2%	
Maximum Green (s)	28.2	28.2		28.2	28.2		9.1	44.1		29.1	29.1	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	3.5	3.5		3.5	3.5		2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.8	6.8		6.8	6.8		5.9	5.9		5.9	5.9	
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		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0		7.0	7.0	
Flash Dont Walk (s)	16.0	16.0		16.0	16.0			7.0		7.0	7.0	
Pedestrian Calls (#/hr)	0	0		0	0			0		0	0	
Act Effct Green (s)	29.1	29.1		29.1	29.1		32.4	32.4		21.5	21.5	
Actuated g/C Ratio	0.39	0.39		0.39	0.39		0.43	0.43		0.29	0.29	
v/c Ratio	0.25	0.29		0.09	0.31		0.38	0.43		0.08	0.81	
Control Delay	21.9	8.8		19.5	19.5		15.1	15.2		20.2	38.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	21.9	8.8		19.5	19.5		15.1	15.2		20.2	38.9	
LOS	C	A		B	B		B	B		C	D	
Approach Delay		13.4			19.5			15.2			37.9	
Approach LOS		B			B			B			D	
Queue Length 50th (m)	10.2	5.3		3.3	18.0		9.3	26.0		2.1	47.9	
Queue Length 95th (m)	24.2	20.3		10.1	37.6		17.8	42.9		6.9	78.7	
Internal Link Dist (m)		217.9			550.2			390.4			127.3	
Turn Bay Length (m)	40.0			25.0			45.0			15.0		
Base Capacity (vph)	391	624		394	602		318	950		367	622	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.25	0.29		0.09	0.31		0.36	0.31		0.05	0.59	

Intersection Summary			
Area Type:	CBD		
Cycle Length: 85			
Actuated Cycle Length: 74.6			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay: 22.3		Intersection LOS: C	
Intersection Capacity Utilization 70.2%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 1: Belfast Rd & Tremblay Rd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	98	54	125	34	147	40	116	273	20	20	291	74
Future Volume (veh/h)	98	54	125	34	147	40	116	273	20	20	291	74
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1588	1588	1620	1588	1588	1620	1588	1588	1620	1588	1588	1620
Adj Flow Rate, veh/h	98	54	125	34	147	40	116	273	20	20	291	74
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	427	166	385	425	469	128	260	635	47	372	343	87
Arrive On Green	0.39	0.39	0.39	0.39	0.39	0.39	0.07	0.43	0.43	0.28	0.28	0.28
Sat Flow, veh/h	1072	427	987	1080	1203	327	1513	1462	107	974	1222	311
Grp Volume(v), veh/h	98	0	179	34	0	187	116	0	293	20	0	365
Grp Sat Flow(s),veh/h/ln	1072	0	1414	1080	0	1530	1513	0	1569	974	0	1533
Q Serve(g_s), s	5.1	0.0	6.4	1.6	0.0	6.1	3.7	0.0	9.4	1.1	0.0	16.3
Cycle Q Clear(g_c), s	11.2	0.0	6.4	8.0	0.0	6.1	3.7	0.0	9.4	1.1	0.0	16.3
Prop In Lane	1.00		0.70	1.00		0.21	1.00		0.07	1.00		0.20
Lane Grp Cap(c), veh/h	427	0	551	425	0	597	260	0	682	372	0	430
V/C Ratio(X)	0.23	0.00	0.32	0.08	0.00	0.31	0.45	0.00	0.43	0.05	0.00	0.85
Avail Cap(c_a), veh/h	427	0	551	425	0	597	340	0	957	491	0	617
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.2	0.0	15.4	18.2	0.0	15.3	17.7	0.0	14.2	19.1	0.0	24.6
Incr Delay (d2), s/veh	1.3	0.0	1.6	0.4	0.0	1.4	1.2	0.0	0.4	0.1	0.0	7.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.0	2.7	0.5	0.0	2.8	1.6	0.0	4.2	0.3	0.0	7.8
LnGrp Delay(d),s/veh	20.5	0.0	17.0	18.6	0.0	16.7	18.9	0.0	14.6	19.2	0.0	32.2
LnGrp LOS	C		B	B		B	B		B	B		C
Approach Vol, veh/h		277			221			409			385	
Approach Delay, s/veh		18.2			17.0			15.8			31.5	
Approach LOS		B			B			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6		8
Phs Duration (G+Y+Rc), s		35.0	11.2	26.2		35.0		37.3
Change Period (Y+Rc), s		* 6.8	* 5.9	* 5.9		* 6.8		* 5.9
Max Green Setting (Gmax), s		* 28	* 9.1	* 29		* 28		* 44
Max Q Clear Time (g_c+I1), s		13.2	5.7	18.3		10.0		11.4
Green Ext Time (p_c), s		1.5	0.1	2.0		1.3		2.2

Intersection Summary	
HCM 2010 Ctrl Delay	21.2
HCM 2010 LOS	C

Notes

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	209	231	156	198	149	108
Future Volume (vph)	209	231	156	198	149	108
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		40.0	65.0		70.0	0.0
Storage Lanes		1	1		2	1
Taper Length (m)			30.0		0.0	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.97	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1571	1335	1492	2984	2895	1335
Flt Permitted			0.546		0.950	
Satd. Flow (perm)	1571	1335	858	2984	2895	1335
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		231				108
Link Speed (k/h)	50			50	50	
Link Distance (m)	179.6			116.9	82.9	
Travel Time (s)	12.9			8.4	6.0	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	209	231	156	198	149	108
Shared Lane Traffic (%)						
Lane Group Flow (vph)	209	231	156	198	149	108
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	7.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.24	1.24	1.24	1.24	1.24	1.24
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (m)	10.0	2.0	2.0	10.0	2.0	2.0
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)	0.6	2.0	2.0	0.6	2.0	2.0
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)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	pm+pt	NA	Prot	pm+ov
Protected Phases	2		1	6	8	1
Permitted Phases		2	6			8

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2	2	1	6	8	1
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	10.0	5.0
Minimum Split (s)	38.4	38.4	11.1	24.8	28.5	11.1
Total Split (s)	38.4	38.4	13.0	51.4	28.6	13.0
Total Split (%)	48.0%	48.0%	16.3%	64.3%	35.8%	16.3%
Maximum Green (s)	31.6	31.6	6.9	44.6	21.7	6.9
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	3.5	3.5	2.8	3.5	3.6	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.8	6.8	6.1	6.8	6.9	6.1
Lead/Lag	Lag	Lag	Lead			Lead
Lead-Lag Optimize?	Yes	Yes	Yes			Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	None	C-Max	None	None
Walk Time (s)	7.0	7.0			7.0	
Flash Dont Walk (s)	24.6	24.6			14.6	
Pedestrian Calls (#/hr)	0	0			0	
Act Effct Green (s)	41.3	41.3	56.4	55.7	10.6	25.8
Actuated g/C Ratio	0.52	0.52	0.70	0.70	0.13	0.32
v/c Ratio	0.26	0.29	0.23	0.10	0.39	0.21
Control Delay	12.6	2.9	4.9	4.2	34.8	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.6	2.9	4.9	4.2	34.8	5.0
LOS	B	A	A	A	C	A
Approach Delay	7.5			4.5	22.3	
Approach LOS	A			A	C	
Queue Length 50th (m)	16.3	0.0	6.3	4.1	10.9	0.0
Queue Length 95th (m)	32.9	11.1	13.1	7.9	18.8	9.3
Internal Link Dist (m)	155.6			92.9	58.9	
Turn Bay Length (m)		40.0	65.0		70.0	
Base Capacity (vph)	811	800	672	2078	785	505
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	0.26	0.29	0.23	0.10	0.19	0.21

Intersection Summary			
Area Type:	CBD		
Cycle Length: 80			
Actuated Cycle Length: 80			
Offset: 60 (75%), Referenced to phase 2:EBT and 6:WBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.39			
Intersection Signal Delay: 10.1		Intersection LOS: B	
Intersection Capacity Utilization 47.9%		ICU Level of Service A	
Analysis Period (min) 15			

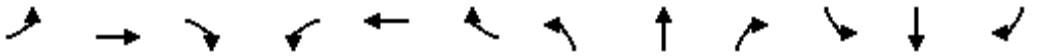
Splits and Phases: 2: Trainyards Dr & Belfast Rd

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	209	231	156	198	149	108
Future Volume (veh/h)	209	231	156	198	149	108
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1588	1588	1588	1588	1588	1588
Adj Flow Rate, veh/h	209	231	156	198	149	108
Adj No. of Lanes	1	1	1	2	2	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	896	761	610	2125	366	255
Arrive On Green	0.56	0.56	0.06	0.70	0.12	0.12
Sat Flow, veh/h	1588	1350	1513	3097	2934	1350
Grp Volume(v), veh/h	209	231	156	198	149	108
Grp Sat Flow(s),veh/h/ln	1588	1350	1513	1509	1467	1350
Q Serve(g_s), s	5.3	7.2	3.2	1.7	3.7	5.6
Cycle Q Clear(g_c), s	5.3	7.2	3.2	1.7	3.7	5.6
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	896	761	610	2125	366	255
V/C Ratio(X)	0.23	0.30	0.26	0.09	0.41	0.42
Avail Cap(c_a), veh/h	896	761	644	2125	796	453
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	8.8	9.2	5.8	3.7	32.3	28.6
Incr Delay (d2), s/veh	0.6	1.0	0.2	0.1	0.7	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	2.8	1.3	0.7	1.5	2.2
LnGrp Delay(d),s/veh	9.4	10.2	6.0	3.8	33.0	29.7
LnGrp LOS	A	B	A	A	C	C
Approach Vol, veh/h	440			354	257	
Approach Delay, s/veh	9.8			4.8	31.6	
Approach LOS	A			A	C	

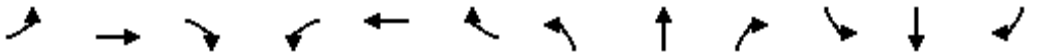
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	11.2	51.9				63.1		16.9
Change Period (Y+Rc), s	6.1	* 6.8				* 6.8		6.9
Max Green Setting (Gmax), s	6.9	* 32				* 45		21.7
Max Q Clear Time (g_c+I1), s	5.2	9.2				3.7		7.6
Green Ext Time (p_c), s	0.1	2.6				1.6		1.0

Intersection Summary	
HCM 2010 Ctrl Delay	13.5
HCM 2010 LOS	B

Notes



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	131	23	35	13	21	107	133	1214	41	133	1161	482
Future Volume (vph)	131	23	35	13	21	107	133	1214	41	133	1161	482
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	30.0		0.0	35.0		0.0	30.0		0.0	75.0		0.0
Storage Lanes	2		0	1		0	1		0	1		1
Taper Length (m)	30.0			30.0			65.0			30.0		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.95	1.00
Frt		0.909			0.875			0.995				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	2895	1428	0	1492	1374	0	1492	4266	0	1492	2984	1335
Flt Permitted	0.950			0.719			0.244			0.171		
Satd. Flow (perm)	2895	1428	0	1129	1374	0	383	4266	0	269	2984	1335
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		35			107			5				482
Link Speed (k/h)		50			50			70			60	
Link Distance (m)		52.7			112.0			55.9			143.5	
Travel Time (s)		3.8			8.1			2.9			8.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	131	23	35	13	21	107	133	1214	41	133	1161	482
Shared Lane Traffic (%)												
Lane Group Flow (vph)	131	58	0	13	128	0	133	1255	0	133	1161	482
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)		7.0			7.0			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
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)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
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)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Perm	NA		Perm	NA		pm+pt	NA	Perm
Protected Phases	7	4			8			2		1	6	
Permitted Phases				8			2			6		6



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		8	8		2	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		10.0	10.0		5.0	10.0	10.0
Minimum Split (s)	9.5	38.5		38.5	38.5		39.2	39.2		9.7	39.2	39.2
Total Split (s)	10.6	49.1		38.5	38.5		61.1	61.1		9.8	70.9	70.9
Total Split (%)	8.8%	40.9%		32.1%	32.1%		50.9%	50.9%		8.2%	59.1%	59.1%
Maximum Green (s)	6.1	42.6		32.0	32.0		54.9	54.9		5.1	64.7	64.7
Yellow Time (s)	3.5	3.3		3.3	3.3		3.7	3.7		3.7	3.7	3.7
All-Red Time (s)	1.0	3.2		3.2	3.2		2.5	2.5		1.0	2.5	2.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.5	6.5		6.5	6.5		6.2	6.2		4.7	6.2	6.2
Lead/Lag	Lead			Lag	Lag		Lag	Lag		Lead		
Lead-Lag Optimize?	Yes			Yes	Yes		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		C-Max	C-Max		None	C-Max	C-Max
Walk Time (s)		7.0		7.0	7.0		11.0	11.0			11.0	11.0
Flash Dont Walk (s)		25.0		25.0	25.0		22.0	22.0			22.0	22.0
Pedestrian Calls (#/hr)		0		0	0		0	0			0	0
Act Effct Green (s)	6.1	19.4		8.8	8.8		73.6	73.6		89.4	87.9	87.9
Actuated g/C Ratio	0.05	0.16		0.07	0.07		0.61	0.61		0.74	0.73	0.73
v/c Ratio	0.89	0.22		0.16	0.64		0.57	0.48		0.45	0.53	0.44
Control Delay	106.7	22.5		54.0	28.8		28.0	14.1		9.6	8.5	1.9
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	106.7	22.5		54.0	28.8		28.0	14.1		9.6	8.5	1.9
LOS	F	C		D	C		C	B		A	A	A
Approach Delay		80.8			31.1			15.5			6.8	
Approach LOS		F			C			B			A	
Queue Length 50th (m)	16.1	4.8		3.0	4.8		16.7	53.0		7.1	52.2	0.0
Queue Length 95th (m)	#34.6	15.6		8.9	23.1		#53.8	80.5		16.0	84.4	9.8
Internal Link Dist (m)		28.7			88.0			31.9			119.5	
Turn Bay Length (m)	30.0			35.0			30.0			75.0		
Base Capacity (vph)	147	529		301	444		234	2616		298	2185	1106
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.89	0.11		0.04	0.29		0.57	0.48		0.45	0.53	0.44

Intersection Summary			
Area Type:	CBD		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 120			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.89			
Intersection Signal Delay: 15.2		Intersection LOS: B	
Intersection Capacity Utilization 79.2%		ICU Level of Service D	
Analysis Period (min) 15			

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: St. Laurent Blvd & Tremblay Rd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	131	23	35	13	21	107	133	1214	41	133	1161	482
Future Volume (veh/h)	131	23	35	13	21	107	133	1214	41	133	1161	482
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1588	1588	1620	1588	1588	1620	1588	1588	1620	1588	1588	1588
Adj Flow Rate, veh/h	131	23	35	13	21	107	133	1214	41	133	1161	482
Adj No. of Lanes	2	1	0	1	1	0	1	3	0	1	2	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	149	115	175	197	26	131	197	2630	89	306	2089	934
Arrive On Green	0.05	0.20	0.20	0.11	0.11	0.11	0.61	0.61	0.61	0.04	0.69	0.69
Sat Flow, veh/h	2934	569	866	1206	227	1157	273	4308	145	1513	3018	1350
Grp Volume(v), veh/h	131	0	58	13	0	128	133	815	440	133	1161	482
Grp Sat Flow(s),veh/h/ln	1467	0	1435	1206	0	1384	273	1445	1563	1513	1509	1350
Q Serve(g_s), s	5.3	0.0	4.0	1.2	0.0	10.8	56.9	18.3	18.3	3.8	23.1	20.5
Cycle Q Clear(g_c), s	5.3	0.0	4.0	1.2	0.0	10.8	70.2	18.3	18.3	3.8	23.1	20.5
Prop In Lane	1.00		0.60	1.00		0.84	1.00		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	149	0	290	197	0	157	197	1765	954	306	2089	934
V/C Ratio(X)	0.88	0.00	0.20	0.07	0.00	0.81	0.68	0.46	0.46	0.43	0.56	0.52
Avail Cap(c_a), veh/h	149	0	510	382	0	369	197	1765	954	306	2089	934
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.6	0.0	39.8	47.7	0.0	51.9	29.3	12.7	12.7	9.8	9.2	8.8
Incr Delay (d2), s/veh	40.5	0.0	0.3	0.1	0.0	9.7	17.1	0.9	1.6	1.0	1.1	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	0.0	1.6	0.4	0.0	4.6	5.2	7.5	8.3	1.6	9.8	8.0
LnGrp Delay(d),s/veh	97.1	0.0	40.2	47.8	0.0	61.6	46.4	13.5	14.3	10.7	10.3	10.9
LnGrp LOS	F		D	D		E	D	B	B	B	B	B
Approach Vol, veh/h		189			141			1388			1776	
Approach Delay, s/veh		79.6			60.4			16.9			10.5	
Approach LOS		E			E			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6	7	8
Phs Duration (G+Y+Rc), s	9.8	79.5		30.7		89.3	10.6	20.1
Change Period (Y+Rc), s	* 4.7	* 6.2		6.5		* 6.2	4.5	6.5
Max Green Setting (Gmax), s	* 5.1	* 55		42.6		* 65	6.1	32.0
Max Q Clear Time (g_c+I1), s	5.8	72.2		6.0		25.1	7.3	12.8
Green Ext Time (p_c), s	0.0	0.0		0.4		17.5	0.0	0.8

Intersection Summary	
HCM 2010 Ctrl Delay	18.8
HCM 2010 LOS	B

Notes

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	235	2	5	225	10	2
Future Volume (vph)	235	2	5	225	10	2
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.999				0.977	
Flt Protected				0.999	0.960	
Satd. Flow (prot)	1569	0	0	1569	1473	0
Flt Permitted				0.999	0.960	
Satd. Flow (perm)	1569	0	0	1569	1473	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	574.2			141.6	216.8	
Travel Time (s)	41.3			10.2	15.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	235	2	5	225	10	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	237	0	0	230	12	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.24	1.24	1.24	1.24	1.24	1.24
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 28.6%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	235	2	5	225	10	2
Future Vol, veh/h	235	2	5	225	10	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	235	2	5	225	10	2

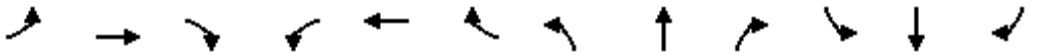
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	237	0	471	236
Stage 1	-	-	-	-	236	-
Stage 2	-	-	-	-	235	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1330	-	551	803
Stage 1	-	-	-	-	803	-
Stage 2	-	-	-	-	804	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1330	-	549	803
Mov Cap-2 Maneuver	-	-	-	-	549	-
Stage 1	-	-	-	-	803	-
Stage 2	-	-	-	-	801	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	11.3
HCM LOS			B

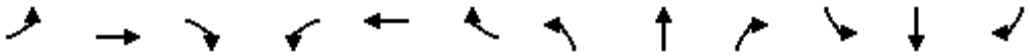
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	580	-	-	1330	-
HCM Lane V/C Ratio	0.021	-	-	0.004	-
HCM Control Delay (s)	11.3	-	-	7.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	0	0	0
Future Volume (vph)	0	0	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1571	0	0	1571	1571	0
Flt Permitted						
Satd. Flow (perm)	1571	0	0	1571	1571	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	141.6			149.0	228.5	
Travel Time (s)	10.2			10.7	16.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	0	0	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	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.24	1.24	1.24	1.24	1.24	1.24
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Free	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 0.0%		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)	86	90	143	15	223	62	175	489	20	28	378	84
Future Volume (vph)	86	90	143	15	223	62	175	489	20	28	378	84
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	40.0		0.0	25.0		0.0	45.0		0.0	15.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	60.0			65.0			60.0			25.0		
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		0.908			0.967			0.994			0.973	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1492	1426	0	1492	1519	0	1492	1561	0	1492	1528	0
Flt Permitted	0.495			0.569			0.221			0.476		
Satd. Flow (perm)	777	1426	0	894	1519	0	347	1561	0	748	1528	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		80			14			4			13	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		241.9			574.2			414.4			151.3	
Travel Time (s)		17.4			41.3			29.8			10.9	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	86	90	143	15	223	62	175	489	20	28	378	84
Shared Lane Traffic (%)												
Lane Group Flow (vph)	86	233	0	15	285	0	175	509	0	28	462	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)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		2			6		3	8			4	
Permitted Phases	2			6			8			4		

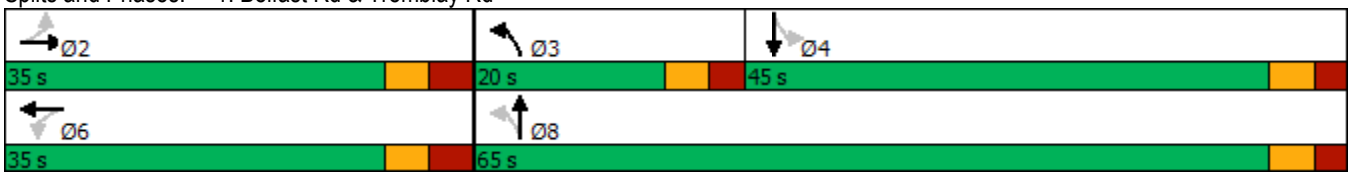


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	2	2		6	6		3	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	10.0		10.0	10.0	
Minimum Split (s)	29.8	29.8		29.8	29.8		10.9	23.9		23.9	23.9	
Total Split (s)	35.0	35.0		35.0	35.0		20.0	65.0		45.0	45.0	
Total Split (%)	35.0%	35.0%		35.0%	35.0%		20.0%	65.0%		45.0%	45.0%	
Maximum Green (s)	28.2	28.2		28.2	28.2		14.1	59.1		39.1	39.1	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	3.5	3.5		3.5	3.5		2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.8	6.8		6.8	6.8		5.9	5.9		5.9	5.9	
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		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0		7.0	7.0	
Flash Dont Walk (s)	16.0	16.0		16.0	16.0			7.0		7.0	7.0	
Pedestrian Calls (#/hr)	0	0		0	0			0		0	0	
Act Effct Green (s)	28.6	28.6		28.6	28.6		46.9	46.9		30.1	30.1	
Actuated g/C Ratio	0.32	0.32		0.32	0.32		0.53	0.53		0.34	0.34	
v/c Ratio	0.34	0.45		0.05	0.57		0.54	0.61		0.11	0.87	
Control Delay	31.3	20.6		25.7	31.3		16.9	17.4		20.7	44.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	31.3	20.6		25.7	31.3		16.9	17.4		20.7	44.7	
LOS	C	C		C	C		B	B		C	D	
Approach Delay		23.5			31.0			17.3			43.3	
Approach LOS		C			C			B			D	
Queue Length 50th (m)	11.2	20.0		1.8	38.4		14.6	55.2		3.2	70.1	
Queue Length 95th (m)	28.0	47.5		7.1	74.3		24.9	83.5		9.2	#114.7	
Internal Link Dist (m)		217.9			550.2			390.4			127.3	
Turn Bay Length (m)	40.0			25.0			45.0			15.0		
Base Capacity (vph)	251	515		289	500		369	1059		335	692	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.34	0.45		0.05	0.57		0.47	0.48		0.08	0.67	

Intersection Summary			
Area Type:	CBD		
Cycle Length: 100			
Actuated Cycle Length: 88.3			
Natural Cycle: 75			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.87			
Intersection Signal Delay: 27.8		Intersection LOS: C	
Intersection Capacity Utilization 85.6%		ICU Level of Service E	
Analysis Period (min) 15			

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Belfast Rd & Tremblay Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	86	90	143	15	223	62	175	489	20	28	378	84
Future Volume (veh/h)	86	90	143	15	223	62	175	489	20	28	378	84
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1588	1588	1620	1588	1588	1620	1588	1588	1620	1588	1588	1620
Adj Flow Rate, veh/h	86	90	143	15	223	62	175	489	20	28	378	84
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	269	187	297	302	404	112	283	773	32	307	432	96
Arrive On Green	0.34	0.34	0.34	0.34	0.34	0.34	0.10	0.51	0.51	0.34	0.34	0.34
Sat Flow, veh/h	981	554	879	1028	1197	333	1513	1515	62	798	1259	280
Grp Volume(v), veh/h	86	0	233	15	0	285	175	0	509	28	0	462
Grp Sat Flow(s),veh/h/ln	981	0	1433	1028	0	1530	1513	0	1577	798	0	1539
Q Serve(g_s), s	6.5	0.0	10.7	1.0	0.0	12.7	5.9	0.0	19.5	2.2	0.0	23.5
Cycle Q Clear(g_c), s	19.2	0.0	10.7	11.7	0.0	12.7	5.9	0.0	19.5	7.7	0.0	23.5
Prop In Lane	1.00		0.61	1.00		0.22	1.00		0.04	1.00		0.18
Lane Grp Cap(c), veh/h	269	0	484	302	0	517	283	0	804	307	0	528
V/C Ratio(X)	0.32	0.00	0.48	0.05	0.00	0.55	0.62	0.00	0.63	0.09	0.00	0.88
Avail Cap(c_a), veh/h	269	0	484	302	0	517	393	0	1117	407	0	721
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.3	0.0	21.9	26.5	0.0	22.5	18.5	0.0	14.8	22.6	0.0	25.8
Incr Delay (d2), s/veh	3.1	0.0	3.4	0.3	0.0	4.2	2.2	0.0	0.8	0.1	0.0	9.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.0	4.7	0.3	0.0	5.9	2.6	0.0	8.5	0.5	0.0	11.3
LnGrp Delay(d),s/veh	33.4	0.0	25.3	26.8	0.0	26.7	20.7	0.0	15.6	22.8	0.0	34.8
LnGrp LOS	C		C	C		C	C		B	C		C
Approach Vol, veh/h		319			300			684			490	
Approach Delay, s/veh		27.5			26.7			16.9			34.1	
Approach LOS		C			C			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6		8
Phs Duration (G+Y+Rc), s		35.0	13.9	34.5		35.0		48.5
Change Period (Y+Rc), s		* 6.8	* 5.9	* 5.9		* 6.8		* 5.9
Max Green Setting (Gmax), s		* 28	* 14	* 39		* 28		* 59
Max Q Clear Time (g_c+I1), s		21.2	7.9	25.5		14.7		21.5
Green Ext Time (p_c), s		1.2	0.3	3.1		1.7		4.5

Intersection Summary	
HCM 2010 Ctrl Delay	25.1
HCM 2010 LOS	C

Notes

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	240	406	169	244	319	174
Future Volume (vph)	240	406	169	244	319	174
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		40.0	65.0		70.0	0.0
Storage Lanes		1	1		2	1
Taper Length (m)			30.0		0.0	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.97	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1571	1335	1492	2984	2895	1335
Flt Permitted			0.524		0.950	
Satd. Flow (perm)	1571	1335	823	2984	2895	1335
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		406				174
Link Speed (k/h)	50			50	50	
Link Distance (m)	179.6			116.9	82.9	
Travel Time (s)	12.9			8.4	6.0	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	240	406	169	244	319	174
Shared Lane Traffic (%)						
Lane Group Flow (vph)	240	406	169	244	319	174
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	7.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.24	1.24	1.24	1.24	1.24	1.24
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (m)	10.0	2.0	2.0	10.0	2.0	2.0
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)	0.6	2.0	2.0	0.6	2.0	2.0
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)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	pm+pt	NA	Prot	pm+ov
Protected Phases	2		1	6	8	1
Permitted Phases		2	6			8

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2	2	1	6	8	1
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	10.0	5.0
Minimum Split (s)	38.4	38.4	11.1	24.8	28.5	11.1
Total Split (s)	38.4	38.4	13.0	51.4	28.6	13.0
Total Split (%)	48.0%	48.0%	16.3%	64.3%	35.8%	16.3%
Maximum Green (s)	31.6	31.6	6.9	44.6	21.7	6.9
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	3.5	3.5	2.8	3.5	3.6	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.8	6.8	6.1	6.8	6.9	6.1
Lead/Lag	Lag	Lag	Lead			Lead
Lead-Lag Optimize?	Yes	Yes	Yes			Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	None	C-Max	None	None
Walk Time (s)	7.0	7.0			7.0	
Flash Dont Walk (s)	24.6	24.6			14.6	
Pedestrian Calls (#/hr)	0	0			0	
Act Effct Green (s)	37.4	37.4	52.9	52.2	14.1	29.7
Actuated g/C Ratio	0.47	0.47	0.66	0.65	0.18	0.37
v/c Ratio	0.33	0.48	0.27	0.13	0.63	0.29
Control Delay	16.4	4.0	7.0	5.9	35.8	3.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.4	4.0	7.0	5.9	35.8	3.7
LOS	B	A	A	A	D	A
Approach Delay	8.6			6.4	24.5	
Approach LOS	A			A	C	
Queue Length 50th (m)	22.0	0.0	8.5	6.4	23.4	0.0
Queue Length 95th (m)	43.4	16.2	18.4	12.3	33.5	10.2
Internal Link Dist (m)	155.6			92.9	58.9	
Turn Bay Length (m)		40.0	65.0		70.0	
Base Capacity (vph)	733	839	618	1947	785	606
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	0.33	0.48	0.27	0.13	0.41	0.29

Intersection Summary	
Area Type:	CBD
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 60 (75%), Referenced to phase 2:EBT and 6:WBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.63	
Intersection Signal Delay: 13.1	Intersection LOS: B
Intersection Capacity Utilization 53.0%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: Trainyards Dr & Belfast Rd

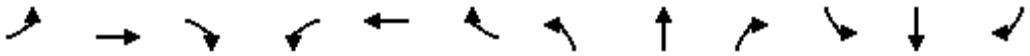
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	240	406	169	244	319	174
Future Volume (veh/h)	240	406	169	244	319	174
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1588	1588	1588	1588	1588	1588
Adj Flow Rate, veh/h	240	406	169	244	319	174
Adj No. of Lanes	1	1	1	2	2	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	824	700	504	2013	474	316
Arrive On Green	0.52	0.52	0.07	0.67	0.16	0.16
Sat Flow, veh/h	1588	1350	1513	3097	2934	1350
Grp Volume(v), veh/h	240	406	169	244	319	174
Grp Sat Flow(s),veh/h/ln	1588	1350	1513	1509	1467	1350
Q Serve(g_s), s	6.9	16.6	3.9	2.3	8.2	9.1
Cycle Q Clear(g_c), s	6.9	16.6	3.9	2.3	8.2	9.1
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	824	700	504	2013	474	316
V/C Ratio(X)	0.29	0.58	0.34	0.12	0.67	0.55
Avail Cap(c_a), veh/h	824	700	525	2013	796	464
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.9	13.3	7.3	4.8	31.5	26.9
Incr Delay (d2), s/veh	0.9	3.5	0.4	0.1	1.7	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	6.8	1.7	1.0	3.4	3.5
LnGrp Delay(d),s/veh	11.8	16.7	7.7	4.9	33.2	28.4
LnGrp LOS	B	B	A	A	C	C
Approach Vol, veh/h	646			413	493	
Approach Delay, s/veh	14.9			6.1	31.5	
Approach LOS	B			A	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	11.9	48.3				60.2		19.8
Change Period (Y+Rc), s	6.1	* 6.8				* 6.8		6.9
Max Green Setting (Gmax), s	6.9	* 32				* 45		21.7
Max Q Clear Time (g_c+I1), s	5.9	18.6				4.3		11.1
Green Ext Time (p_c), s	0.1	3.2				2.0		1.9

Intersection Summary	
HCM 2010 Ctrl Delay	17.8
HCM 2010 LOS	B

Notes

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	492	41	129	25	23	193	48	1399	13	51	1023	175
Future Volume (vph)	492	41	129	25	23	193	48	1399	13	51	1023	175
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	30.0		0.0	35.0		0.0	30.0		0.0	75.0		0.0
Storage Lanes	2		0	1		0	1		0	1		1
Taper Length (m)	30.0			30.0			65.0			30.0		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.95	1.00
Frt		0.886			0.866			0.999				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	2895	1392	0	1492	1360	0	1492	4283	0	1492	2984	1335
Flt Permitted	0.950			0.650			0.248			0.102		
Satd. Flow (perm)	2895	1392	0	1021	1360	0	390	4283	0	160	2984	1335
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		40			92			1				175
Link Speed (k/h)		50			50			70			60	
Link Distance (m)		52.7			112.0			55.9			143.5	
Travel Time (s)		3.8			8.1			2.9			8.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	492	41	129	25	23	193	48	1399	13	51	1023	175
Shared Lane Traffic (%)												
Lane Group Flow (vph)	492	170	0	25	216	0	48	1412	0	51	1023	175
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)		7.0			7.0			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
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)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
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)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Perm	NA		Perm	NA		pm+pt	NA	Perm
Protected Phases	7	4			8			2		1	6	
Permitted Phases				8			2			6		6



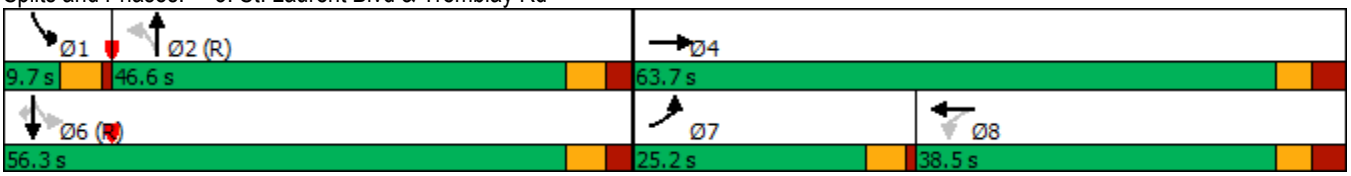
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		8	8		2	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		10.0	10.0		5.0	10.0	10.0
Minimum Split (s)	9.5	38.5		38.5	38.5		39.2	39.2		9.7	39.2	39.2
Total Split (s)	25.2	63.7		38.5	38.5		46.6	46.6		9.7	56.3	56.3
Total Split (%)	21.0%	53.1%		32.1%	32.1%		38.8%	38.8%		8.1%	46.9%	46.9%
Maximum Green (s)	20.7	57.2		32.0	32.0		40.4	40.4		5.0	50.1	50.1
Yellow Time (s)	3.5	3.3		3.3	3.3		3.7	3.7		3.7	3.7	3.7
All-Red Time (s)	1.0	3.2		3.2	3.2		2.5	2.5		1.0	2.5	2.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.5	6.5		6.5	6.5		6.2	6.2		4.7	6.2	6.2
Lead/Lag	Lead			Lag	Lag		Lag	Lag		Lead		
Lead-Lag Optimize?	Yes			Yes	Yes		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		C-Max	C-Max		None	C-Max	C-Max
Walk Time (s)		7.0		7.0	7.0		11.0	11.0			11.0	11.0
Flash Dont Walk (s)		25.0		25.0	25.0		22.0	22.0			22.0	22.0
Pedestrian Calls (#/hr)		0		0	0		0	0			0	0
Act Effct Green (s)	20.7	42.3		17.1	17.1		54.8	54.8		66.5	65.0	65.0
Actuated g/C Ratio	0.17	0.35		0.14	0.14		0.46	0.46		0.55	0.54	0.54
v/c Ratio	0.99	0.33		0.17	0.79		0.27	0.72		0.30	0.63	0.22
Control Delay	86.8	21.8		44.2	47.9		31.4	31.3		19.2	22.7	3.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	86.8	21.8		44.2	47.9		31.4	31.3		19.2	22.7	3.3
LOS	F	C		D	D		C	C		B	C	A
Approach Delay		70.1			47.5			31.3			19.9	
Approach LOS		E			D			C			B	
Queue Length 50th (m)	60.2	21.9		5.2	28.8		7.1	99.3		5.3	84.7	0.0
Queue Length 95th (m)	#94.2	34.5		12.4	51.4		20.5	#152.7		13.5	127.1	12.0
Internal Link Dist (m)		28.7			88.0			31.9			119.5	
Turn Bay Length (m)	30.0			35.0			30.0			75.0		
Base Capacity (vph)	499	684		272	430		178	1957		172	1617	803
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.99	0.25		0.09	0.50		0.27	0.72		0.30	0.63	0.22

Intersection Summary			
Area Type:	CBD		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 120			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.99			
Intersection Signal Delay: 35.5		Intersection LOS: D	
Intersection Capacity Utilization 92.9%		ICU Level of Service F	
Analysis Period (min) 15			

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: St. Laurent Blvd & Tremblay Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	492	41	129	25	23	193	48	1399	13	51	1023	175
Future Volume (veh/h)	492	41	129	25	23	193	48	1399	13	51	1023	175
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1588	1588	1620	1588	1588	1620	1588	1588	1620	1588	1588	1588
Adj Flow Rate, veh/h	492	41	129	25	23	193	48	1399	13	51	1023	175
Adj No. of Lanes	2	1	0	1	1	0	1	3	0	1	2	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	506	132	415	256	26	221	165	1909	18	169	1521	680
Arrive On Green	0.17	0.39	0.39	0.18	0.18	0.18	0.43	0.43	0.43	0.03	0.50	0.50
Sat Flow, veh/h	2934	338	1063	1089	146	1226	419	4430	41	1513	3018	1350
Grp Volume(v), veh/h	492	0	170	25	0	216	48	913	499	51	1023	175
Grp Sat Flow(s),veh/h/ln	1467	0	1401	1089	0	1372	419	1445	1581	1513	1509	1350
Q Serve(g_s), s	20.0	0.0	10.1	2.3	0.0	18.4	11.7	31.5	31.5	2.2	30.5	8.9
Cycle Q Clear(g_c), s	20.0	0.0	10.1	2.3	0.0	18.4	33.4	31.5	31.5	2.2	30.5	8.9
Prop In Lane	1.00		0.76	1.00		0.89	1.00		0.03	1.00		1.00
Lane Grp Cap(c), veh/h	506	0	546	256	0	247	165	1245	681	169	1521	680
V/C Ratio(X)	0.97	0.00	0.31	0.10	0.00	0.87	0.29	0.73	0.73	0.30	0.67	0.26
Avail Cap(c_a), veh/h	506	0	668	350	0	366	165	1245	681	180	1521	680
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.4	0.0	25.4	41.3	0.0	47.9	38.2	28.4	28.4	22.2	22.3	17.0
Incr Delay (d2), s/veh	32.8	0.0	0.3	0.2	0.0	14.4	4.4	3.8	6.9	1.0	2.4	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.4	0.0	4.0	0.7	0.0	8.0	1.5	13.2	15.0	1.0	13.2	3.5
LnGrp Delay(d),s/veh	82.1	0.0	25.7	41.4	0.0	62.3	42.6	32.3	35.3	23.2	24.7	17.9
LnGrp LOS	F		C	D		E	D	C	D	C	C	B
Approach Vol, veh/h		662			241			1460			1249	
Approach Delay, s/veh		67.6			60.1			33.6			23.7	
Approach LOS		E			E			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6	7	8
Phs Duration (G+Y+Rc), s	8.8	57.9		53.3		66.7	25.2	28.1
Change Period (Y+Rc), s	* 4.7	* 6.2		6.5		* 6.2	4.5	6.5
Max Green Setting (Gmax), s	* 5	* 40		57.2		* 50	20.7	32.0
Max Q Clear Time (g_c+I1), s	4.2	35.4		12.1		32.5	22.0	20.4
Green Ext Time (p_c), s	0.0	3.9		1.4		8.5	0.0	1.2

Intersection Summary	
HCM 2010 Ctrl Delay	38.2
HCM 2010 LOS	D

Notes

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	168	6	5	303	1	4
Future Volume (vph)	168	6	5	303	1	4
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.995				0.892	
Flt Protected				0.999	0.990	
Satd. Flow (prot)	1563	0	0	1569	1387	0
Flt Permitted				0.999	0.990	
Satd. Flow (perm)	1563	0	0	1569	1387	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	574.2			141.6	216.8	
Travel Time (s)	41.3			10.2	15.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	168	6	5	303	1	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	174	0	0	308	5	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.24	1.24	1.24	1.24	1.24	1.24
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 33.4%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	168	6	5	303	1	4
Future Vol, veh/h	168	6	5	303	1	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	168	6	5	303	1	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	174	0	484	171
Stage 1	-	-	-	-	171	-
Stage 2	-	-	-	-	313	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1403	-	542	873
Stage 1	-	-	-	-	859	-
Stage 2	-	-	-	-	741	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1403	-	540	873
Mov Cap-2 Maneuver	-	-	-	-	540	-
Stage 1	-	-	-	-	859	-
Stage 2	-	-	-	-	738	-

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

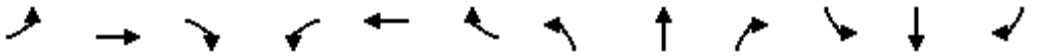
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	777	-	-	1403	-
HCM Lane V/C Ratio	0.006	-	-	0.004	-
HCM Control Delay (s)	9.7	-	-	7.6	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	0	0	0
Future Volume (vph)	0	0	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1571	0	0	1571	0	0
Flt Permitted						
Satd. Flow (perm)	1571	0	0	1571	0	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	141.6			211.9	222.9	
Travel Time (s)	10.2			15.3	16.0	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	0	0	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	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.24	1.24	1.24	1.24	1.24	1.24
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Free	

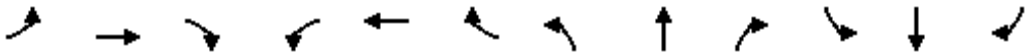
Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 0.0%		ICU Level of Service A	
Analysis Period (min) 15			

Appendix I

2021 Future Total Synchro Worksheets



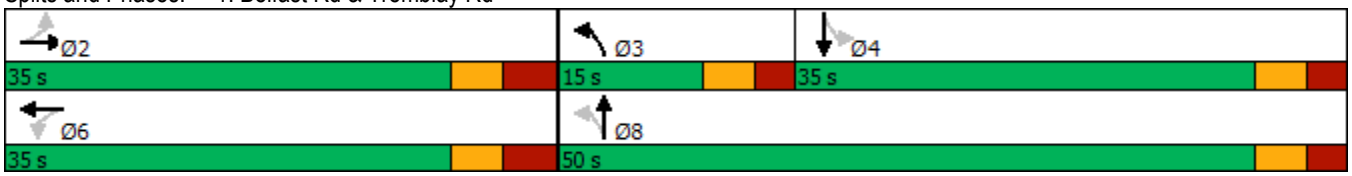
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	93	53	119	33	111	31	109	257	19	19	278	70
Future Volume (vph)	93	53	119	33	111	31	109	257	19	19	278	70
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	40.0		0.0	25.0		0.0	45.0		0.0	15.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	60.0			65.0			60.0			25.0		
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		0.896			0.967			0.990			0.970	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1492	1407	0	1492	1519	0	1492	1555	0	1492	1523	0
Flt Permitted	0.666			0.649			0.283			0.590		
Satd. Flow (perm)	1046	1407	0	1019	1519	0	444	1555	0	927	1523	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		119			18			7			16	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		241.9			574.2			414.4			151.3	
Travel Time (s)		17.4			41.3			29.8			10.9	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	93	53	119	33	111	31	109	257	19	19	278	70
Shared Lane Traffic (%)												
Lane Group Flow (vph)	93	172	0	33	142	0	109	276	0	19	348	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)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		2			6		3	8			4	
Permitted Phases	2			6			8			4		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	2	2		6	6		3	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	10.0		10.0	10.0	
Minimum Split (s)	29.8	29.8		29.8	29.8		10.9	23.9		23.9	23.9	
Total Split (s)	35.0	35.0		35.0	35.0		15.0	50.0		35.0	35.0	
Total Split (%)	41.2%	41.2%		41.2%	41.2%		17.6%	58.8%		41.2%	41.2%	
Maximum Green (s)	28.2	28.2		28.2	28.2		9.1	44.1		29.1	29.1	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	3.5	3.5		3.5	3.5		2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.8	6.8		6.8	6.8		5.9	5.9		5.9	5.9	
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		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0		7.0	7.0	
Flash Dont Walk (s)	16.0	16.0		16.0	16.0			7.0		7.0	7.0	
Pedestrian Calls (#/hr)	0	0		0	0			0		0	0	
Act Effct Green (s)	29.1	29.1		29.1	29.1		31.6	31.6		20.8	20.8	
Actuated g/C Ratio	0.39	0.39		0.39	0.39		0.43	0.43		0.28	0.28	
v/c Ratio	0.23	0.27		0.08	0.23		0.36	0.41		0.07	0.79	
Control Delay	21.0	8.7		19.2	17.8		14.7	15.0		20.3	37.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	21.0	8.7		19.2	17.8		14.7	15.0		20.3	37.8	
LOS	C	A		B	B		B	B		C	D	
Approach Delay		13.1			18.1			14.9			36.9	
Approach LOS		B			B			B			D	
Queue Length 50th (m)	9.3	5.0		3.1	12.3		8.7	24.0		2.0	44.7	
Queue Length 95th (m)	22.7	19.8		10.0	28.5		16.9	40.1		6.6	74.0	
Internal Link Dist (m)		217.9			550.2			390.4			127.3	
Turn Bay Length (m)	40.0			25.0			45.0			15.0		
Base Capacity (vph)	412	626		401	609		323	961		377	629	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.23	0.27		0.08	0.23		0.34	0.29		0.05	0.55	

Intersection Summary			
Area Type:	CBD		
Cycle Length: 85			
Actuated Cycle Length: 73.8			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay: 21.7		Intersection LOS: C	
Intersection Capacity Utilization 66.4%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 1: Belfast Rd & Tremblay Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	93	53	119	33	111	31	109	257	19	19	278	70
Future Volume (veh/h)	93	53	119	33	111	31	109	257	19	19	278	70
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1588	1588	1620	1588	1588	1620	1588	1588	1620	1588	1588	1620
Adj Flow Rate, veh/h	93	53	119	33	111	31	109	257	19	19	278	70
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	477	173	389	443	475	133	259	618	46	369	331	83
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.07	0.42	0.42	0.27	0.27	0.27
Sat Flow, veh/h	1117	436	979	1087	1195	334	1513	1461	108	989	1225	309
Grp Volume(v), veh/h	93	0	172	33	0	142	109	0	276	19	0	348
Grp Sat Flow(s),veh/h/ln	1117	0	1415	1087	0	1529	1513	0	1569	989	0	1534
Q Serve(g_s), s	4.3	0.0	5.9	1.5	0.0	4.4	3.5	0.0	8.7	1.0	0.0	15.2
Cycle Q Clear(g_c), s	8.6	0.0	5.9	7.4	0.0	4.4	3.5	0.0	8.7	1.0	0.0	15.2
Prop In Lane	1.00		0.69	1.00		0.22	1.00		0.07	1.00		0.20
Lane Grp Cap(c), veh/h	477	0	563	443	0	608	259	0	664	369	0	415
V/C Ratio(X)	0.20	0.00	0.31	0.07	0.00	0.23	0.42	0.00	0.42	0.05	0.00	0.84
Avail Cap(c_a), veh/h	477	0	563	443	0	608	348	0	976	507	0	629
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.1	0.0	14.6	17.2	0.0	14.2	17.6	0.0	14.3	19.2	0.0	24.4
Incr Delay (d2), s/veh	0.9	0.0	1.4	0.3	0.0	0.9	1.1	0.0	0.4	0.1	0.0	6.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	2.5	0.5	0.0	2.0	1.5	0.0	3.8	0.3	0.0	7.1
LnGrp Delay(d),s/veh	18.0	0.0	16.0	17.5	0.0	15.1	18.7	0.0	14.7	19.3	0.0	30.6
LnGrp LOS	B		B	B		B	B		B	B		C
Approach Vol, veh/h		265			175			385			367	
Approach Delay, s/veh		16.7			15.5			15.9			30.0	
Approach LOS		B			B			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6		8
Phs Duration (G+Y+Rc), s		35.0	10.8	25.1		35.0		35.9
Change Period (Y+Rc), s		* 6.8	* 5.9	* 5.9		* 6.8		* 5.9
Max Green Setting (Gmax), s		* 28	* 9.1	* 29		* 28		* 44
Max Q Clear Time (g_c+I1), s		10.6	5.5	17.2		9.4		10.7
Green Ext Time (p_c), s		1.6	0.1	2.0		1.0		2.1

Intersection Summary	
HCM 2010 Ctrl Delay	20.4
HCM 2010 LOS	C

Notes

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	199	220	150	189	138	96
Future Volume (vph)	199	220	150	189	138	96
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		40.0	65.0		70.0	0.0
Storage Lanes		1	1		2	1
Taper Length (m)			30.0		0.0	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.97	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1571	1335	1492	2984	2895	1335
Flt Permitted			0.552		0.950	
Satd. Flow (perm)	1571	1335	867	2984	2895	1335
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		220				96
Link Speed (k/h)	50			50	50	
Link Distance (m)	179.6			116.9	82.9	
Travel Time (s)	12.9			8.4	6.0	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	199	220	150	189	138	96
Shared Lane Traffic (%)						
Lane Group Flow (vph)	199	220	150	189	138	96
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	7.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.24	1.24	1.24	1.24	1.24	1.24
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (m)	10.0	2.0	2.0	10.0	2.0	2.0
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)	0.6	2.0	2.0	0.6	2.0	2.0
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)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	pm+pt	NA	Prot	pm+ov
Protected Phases	2		1	6	8	1
Permitted Phases		2	6			8

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2	2	1	6	8	1
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	10.0	5.0
Minimum Split (s)	38.4	38.4	11.1	24.8	28.5	11.1
Total Split (s)	38.4	38.4	13.0	51.4	28.6	13.0
Total Split (%)	48.0%	48.0%	16.3%	64.3%	35.8%	16.3%
Maximum Green (s)	31.6	31.6	6.9	44.6	21.7	6.9
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	3.5	3.5	2.8	3.5	3.6	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.8	6.8	6.1	6.8	6.9	6.1
Lead/Lag	Lag	Lag	Lead			Lead
Lead-Lag Optimize?	Yes	Yes	Yes			Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	None	C-Max	None	None
Walk Time (s)	7.0	7.0			7.0	
Flash Dont Walk (s)	24.6	24.6			14.6	
Pedestrian Calls (#/hr)	0	0			0	
Act Effct Green (s)	41.6	41.6	56.6	55.9	10.4	25.5
Actuated g/C Ratio	0.52	0.52	0.71	0.70	0.13	0.32
v/c Ratio	0.24	0.28	0.22	0.09	0.37	0.20
Control Delay	12.2	2.8	4.8	4.1	34.7	5.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.2	2.8	4.8	4.1	34.7	5.3
LOS	B	A	A	A	C	A
Approach Delay	7.2			4.4	22.6	
Approach LOS	A			A	C	
Queue Length 50th (m)	15.3	0.0	6.0	4.0	10.1	0.0
Queue Length 95th (m)	30.8	10.7	12.4	7.4	17.7	8.9
Internal Link Dist (m)	155.6			92.9	58.9	
Turn Bay Length (m)		40.0	65.0		70.0	
Base Capacity (vph)	817	799	678	2084	785	493
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	0.28	0.22	0.09	0.18	0.19

Intersection Summary			
Area Type:	CBD		
Cycle Length: 80			
Actuated Cycle Length: 80			
Offset: 60 (75%), Referenced to phase 2:EBT and 6:WBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.37			
Intersection Signal Delay: 9.9		Intersection LOS: A	
Intersection Capacity Utilization 46.9%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 2: Trainyards Dr & Belfast Rd

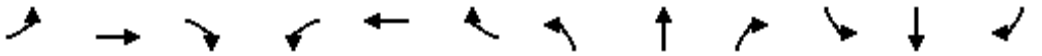
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	199	220	150	189	138	96
Future Volume (veh/h)	199	220	150	189	138	96
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1588	1588	1588	1588	1588	1588
Adj Flow Rate, veh/h	199	220	150	189	138	96
Adj No. of Lanes	1	1	1	2	2	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	899	764	621	2126	365	252
Arrive On Green	0.57	0.57	0.06	0.70	0.12	0.12
Sat Flow, veh/h	1588	1350	1513	3097	2934	1350
Grp Volume(v), veh/h	199	220	150	189	138	96
Grp Sat Flow(s),veh/h/ln	1588	1350	1513	1509	1467	1350
Q Serve(g_s), s	5.0	6.8	3.1	1.6	3.5	5.0
Cycle Q Clear(g_c), s	5.0	6.8	3.1	1.6	3.5	5.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	899	764	621	2126	365	252
V/C Ratio(X)	0.22	0.29	0.24	0.09	0.38	0.38
Avail Cap(c_a), veh/h	899	764	658	2126	796	450
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	8.6	9.0	5.7	3.7	32.2	28.5
Incr Delay (d2), s/veh	0.6	0.9	0.2	0.1	0.6	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	2.7	1.3	0.7	1.4	1.9
LnGrp Delay(d),s/veh	9.2	9.9	5.9	3.8	32.8	29.5
LnGrp LOS	A	A	A	A	C	C
Approach Vol, veh/h	419			339	234	
Approach Delay, s/veh	9.6			4.7	31.5	
Approach LOS	A			A	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	11.1	52.1				63.2		16.8
Change Period (Y+Rc), s	6.1	* 6.8				* 6.8		6.9
Max Green Setting (Gmax), s	6.9	* 32				* 45		21.7
Max Q Clear Time (g_c+I1), s	5.1	8.8				3.6		7.0
Green Ext Time (p_c), s	0.1	2.4				1.5		0.9

Intersection Summary	
HCM 2010 Ctrl Delay	13.1
HCM 2010 LOS	B

Notes

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	21	17	12	20	102	65	1155	39	126	1105	65
Future Volume (vph)	21	21	17	12	20	102	65	1155	39	126	1105	65
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	30.0		0.0	35.0		0.0	30.0		0.0	75.0		0.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	30.0			30.0			65.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.95	1.00
Frt		0.933			0.875			0.995				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1492	1465	0	1492	1374	0	1492	4266	0	1492	2984	1335
Flt Permitted	0.558			0.732			0.258			0.201		
Satd. Flow (perm)	876	1465	0	1150	1374	0	405	4266	0	316	2984	1335
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17			102			6				65
Link Speed (k/h)		50			50			70			60	
Link Distance (m)		52.7			112.0			55.9			143.5	
Travel Time (s)		3.8			8.1			2.9			8.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	21	21	17	12	20	102	65	1155	39	126	1105	65
Shared Lane Traffic (%)												
Lane Group Flow (vph)	21	38	0	12	122	0	65	1194	0	126	1105	65
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)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
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)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
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)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		6



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		10.0	10.0		5.0	10.0	10.0
Minimum Split (s)	38.5	38.5		38.5	38.5		39.2	39.2		9.7	39.2	39.2
Total Split (s)	40.0	40.0		40.0	40.0		65.0	65.0		15.0	80.0	80.0
Total Split (%)	33.3%	33.3%		33.3%	33.3%		54.2%	54.2%		12.5%	66.7%	66.7%
Maximum Green (s)	33.5	33.5		33.5	33.5		58.8	58.8		10.3	73.8	73.8
Yellow Time (s)	3.3	3.3		3.3	3.3		3.7	3.7		3.7	3.7	3.7
All-Red Time (s)	3.2	3.2		3.2	3.2		2.5	2.5		1.0	2.5	2.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5		6.5	6.5		6.2	6.2		4.7	6.2	6.2
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		C-Max	C-Max		None	C-Max	C-Max
Walk Time (s)	7.0	7.0		7.0	7.0		11.0	11.0			11.0	11.0
Flash Dont Walk (s)	25.0	25.0		25.0	25.0		22.0	22.0			22.0	22.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	0
Act Effct Green (s)	8.9	8.9		8.9	8.9		86.2	86.2		99.9	98.4	98.4
Actuated g/C Ratio	0.07	0.07		0.07	0.07		0.72	0.72		0.83	0.82	0.82
v/c Ratio	0.33	0.31		0.14	0.62		0.22	0.39		0.38	0.45	0.06
Control Delay	64.2	39.0		53.3	28.3		9.2	7.5		5.4	4.0	0.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	64.2	39.0		53.3	28.3		9.2	7.5		5.4	4.0	0.8
LOS	E	D		D	C		A	A		A	A	A
Approach Delay		48.0			30.5			7.6			4.0	
Approach LOS		D			C			A			A	
Queue Length 50th (m)	4.8	4.8		2.7	4.6		4.3	33.6		3.8	28.3	0.0
Queue Length 95th (m)	12.6	15.0		8.5	22.5		13.4	54.3		9.9	52.1	2.8
Internal Link Dist (m)		28.7			88.0			31.9			119.5	
Turn Bay Length (m)	30.0			35.0			30.0			75.0		
Base Capacity (vph)	244	421		321	457		290	3066		363	2447	1106
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.09	0.09		0.04	0.27		0.22	0.39		0.35	0.45	0.06

Intersection Summary			
Area Type:	CBD		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 50 (42%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.62			
Intersection Signal Delay: 7.9		Intersection LOS: A	
Intersection Capacity Utilization 78.1%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 3: St. Laurent Blvd & Tremblay Rd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	21	17	12	20	102	65	1155	39	126	1105	65
Future Volume (veh/h)	21	21	17	12	20	102	65	1155	39	126	1105	65
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1588	1588	1620	1588	1588	1620	1588	1588	1620	1588	1588	1588
Adj Flow Rate, veh/h	21	21	17	12	20	102	65	1155	39	126	1105	65
Adj No. of Lanes	1	1	0	1	1	0	1	3	0	1	2	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	102	99	80	180	28	140	336	2983	101	366	2332	1043
Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.12	0.69	0.69	0.69	0.04	0.77	0.77
Sat Flow, veh/h	1138	813	659	1228	227	1157	430	4308	145	1513	3018	1350
Grp Volume(v), veh/h	21	0	38	12	0	122	65	775	419	126	1105	65
Grp Sat Flow(s),veh/h/ln	1138	0	1472	1228	0	1384	430	1445	1563	1513	1509	1350
Q Serve(g_s), s	2.2	0.0	2.8	1.1	0.0	10.2	7.7	13.5	13.5	2.7	15.8	1.4
Cycle Q Clear(g_c), s	12.4	0.0	2.8	3.9	0.0	10.2	13.8	13.5	13.5	2.7	15.8	1.4
Prop In Lane	1.00		0.45	1.00		0.84	1.00		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	102	0	179	180	0	168	336	2002	1082	366	2332	1043
V/C Ratio(X)	0.21	0.00	0.21	0.07	0.00	0.73	0.19	0.39	0.39	0.34	0.47	0.06
Avail Cap(c_a), veh/h	281	0	411	374	0	386	336	2002	1082	434	2332	1043
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.7	0.0	47.5	49.3	0.0	50.8	9.1	7.7	7.8	5.5	4.9	3.3
Incr Delay (d2), s/veh	1.0	0.0	0.6	0.2	0.0	5.9	1.3	0.6	1.0	0.6	0.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	1.2	0.4	0.0	4.2	1.0	5.5	6.1	1.1	6.7	0.5
LnGrp Delay(d),s/veh	57.7	0.0	48.1	49.4	0.0	56.6	10.4	8.3	8.8	6.1	5.6	3.4
LnGrp LOS	E		D	D		E	B	A	A	A	A	A
Approach Vol, veh/h		59			134			1259			1296	
Approach Delay, s/veh		51.6			56.0			8.6			5.5	
Approach LOS		D			E			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	9.6	89.3		21.1		98.9		21.1
Change Period (Y+Rc), s	* 4.7	* 6.2		6.5		* 6.2		6.5
Max Green Setting (Gmax), s	* 10	* 59		33.5		* 74		33.5
Max Q Clear Time (g_c+I1), s	4.7	15.8		14.4		17.8		12.2
Green Ext Time (p_c), s	0.2	14.3		0.2		13.4		0.8

Intersection Summary	
HCM 2010 Ctrl Delay	10.4
HCM 2010 LOS	B

Notes

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	71	4	7	172	15	9
Future Volume (vph)	71	4	7	172	15	9
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.993				0.949	
Flt Protected				0.998	0.970	
Satd. Flow (prot)	1560	0	0	1567	1446	0
Flt Permitted				0.998	0.970	
Satd. Flow (perm)	1560	0	0	1567	1446	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	574.2			141.6	189.2	
Travel Time (s)	41.3			10.2	13.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	71	4	7	172	15	9
Shared Lane Traffic (%)						
Lane Group Flow (vph)	75	0	0	179	24	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.24	1.24	1.24	1.24	1.24	1.24
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 27.3%		ICU Level of Service A	
Analysis Period (min) 15			

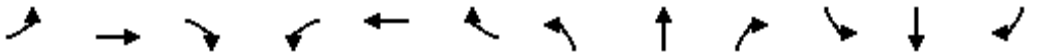
Intersection	
Int Delay, s/veh	1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	71	4	7	172	15	9
Future Vol, veh/h	71	4	7	172	15	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	71	4	7	172	15	9

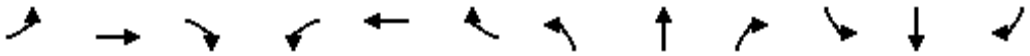
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	75	0	259	73
Stage 1	-	-	-	-	73	-
Stage 2	-	-	-	-	186	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1524	-	730	989
Stage 1	-	-	-	-	950	-
Stage 2	-	-	-	-	846	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1524	-	726	989
Mov Cap-2 Maneuver	-	-	-	-	726	-
Stage 1	-	-	-	-	950	-
Stage 2	-	-	-	-	842	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	9.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	806	-	-	1524	-
HCM Lane V/C Ratio	0.03	-	-	0.005	-
HCM Control Delay (s)	9.6	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-



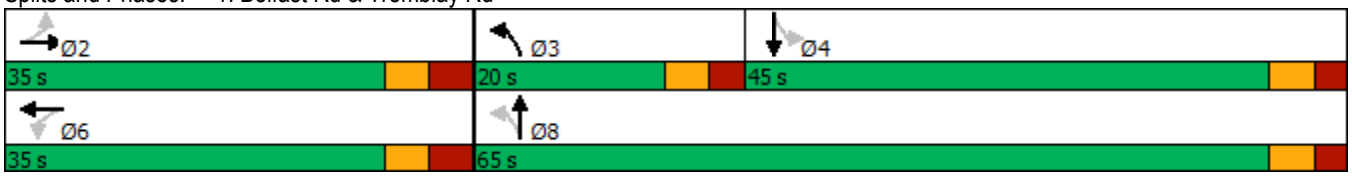
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	82	90	136	14	85	27	166	465	19	28	357	80
Future Volume (vph)	82	90	136	14	85	27	166	465	19	28	357	80
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	40.0		0.0	25.0		0.0	45.0		0.0	15.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	60.0			65.0			60.0			25.0		
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		0.910			0.964			0.994			0.973	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1492	1429	0	1492	1514	0	1492	1561	0	1492	1528	0
Flt Permitted	0.685			0.586			0.234			0.487		
Satd. Flow (perm)	1076	1429	0	920	1514	0	368	1561	0	765	1528	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		76			16			4			13	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		241.9			574.2			414.4			151.3	
Travel Time (s)		17.4			41.3			29.8			10.9	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	82	90	136	14	85	27	166	465	19	28	357	80
Shared Lane Traffic (%)												
Lane Group Flow (vph)	82	226	0	14	112	0	166	484	0	28	437	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)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		2			6		3	8			4	
Permitted Phases	2			6			8			4		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	2	2		6	6		3	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	10.0		10.0	10.0	
Minimum Split (s)	29.8	29.8		29.8	29.8		10.9	23.9		23.9	23.9	
Total Split (s)	35.0	35.0		35.0	35.0		20.0	65.0		45.0	45.0	
Total Split (%)	35.0%	35.0%		35.0%	35.0%		20.0%	65.0%		45.0%	45.0%	
Maximum Green (s)	28.2	28.2		28.2	28.2		14.1	59.1		39.1	39.1	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	3.5	3.5		3.5	3.5		2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.8	6.8		6.8	6.8		5.9	5.9		5.9	5.9	
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		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0		7.0	7.0	
Flash Dont Walk (s)	16.0	16.0		16.0	16.0			7.0		7.0	7.0	
Pedestrian Calls (#/hr)	0	0		0	0			0		0	0	
Act Effct Green (s)	28.6	28.6		28.6	28.6		44.7	44.7		28.2	28.2	
Actuated g/C Ratio	0.33	0.33		0.33	0.33		0.52	0.52		0.33	0.33	
v/c Ratio	0.23	0.43		0.05	0.22		0.51	0.60		0.11	0.86	
Control Delay	26.8	19.8		24.9	22.1		16.2	17.2		20.9	43.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	26.8	19.8		24.9	22.1		16.2	17.2		20.9	43.6	
LOS	C	B		C	C		B	B		C	D	
Approach Delay		21.7			22.4			17.0			42.2	
Approach LOS		C			C			B			D	
Queue Length 50th (m)	9.7	18.4		1.6	11.2		13.8	51.2		3.2	64.3	
Queue Length 95th (m)	25.0	46.2		6.7	28.1		23.6	77.5		9.2	105.5	
Internal Link Dist (m)		217.9			550.2			390.4			127.3	
Turn Bay Length (m)	40.0			25.0			45.0			15.0		
Base Capacity (vph)	357	524		305	512		377	1086		351	709	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.23	0.43		0.05	0.22		0.44	0.45		0.08	0.62	

Intersection Summary			
Area Type:	CBD		
Cycle Length: 100			
Actuated Cycle Length: 86.2			
Natural Cycle: 70			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.86			
Intersection Signal Delay: 25.9		Intersection LOS: C	
Intersection Capacity Utilization 69.4%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 1: Belfast Rd & Tremblay Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	82	90	136	14	85	27	166	465	19	28	357	80
Future Volume (veh/h)	82	90	136	14	85	27	166	465	19	28	357	80
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1588	1588	1620	1588	1588	1620	1588	1588	1620	1588	1588	1620
Adj Flow Rate, veh/h	82	90	136	14	85	27	166	465	19	28	357	80
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	428	199	300	322	402	128	285	752	31	312	414	93
Arrive On Green	0.35	0.35	0.35	0.35	0.35	0.35	0.09	0.50	0.50	0.33	0.33	0.33
Sat Flow, veh/h	1148	572	864	1035	1156	367	1513	1515	62	817	1257	282
Grp Volume(v), veh/h	82	0	226	14	0	112	166	0	484	28	0	437
Grp Sat Flow(s),veh/h/ln	1148	0	1436	1035	0	1523	1513	0	1577	817	0	1539
Q Serve(g_s), s	4.4	0.0	9.9	0.9	0.0	4.2	5.5	0.0	18.1	2.1	0.0	21.6
Cycle Q Clear(g_c), s	8.6	0.0	9.9	10.8	0.0	4.2	5.5	0.0	18.1	6.6	0.0	21.6
Prop In Lane	1.00		0.60	1.00		0.24	1.00		0.04	1.00		0.18
Lane Grp Cap(c), veh/h	428	0	499	322	0	529	285	0	782	312	0	506
V/C Ratio(X)	0.19	0.00	0.45	0.04	0.00	0.21	0.58	0.00	0.62	0.09	0.00	0.86
Avail Cap(c_a), veh/h	428	0	499	322	0	529	405	0	1149	437	0	741
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.7	0.0	20.5	24.7	0.0	18.6	18.1	0.0	14.9	22.2	0.0	25.5
Incr Delay (d2), s/veh	1.0	0.0	3.0	0.3	0.0	0.9	1.9	0.0	0.8	0.1	0.0	7.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	4.3	0.3	0.0	1.9	2.4	0.0	8.0	0.5	0.0	10.1
LnGrp Delay(d),s/veh	22.7	0.0	23.5	24.9	0.0	19.6	20.0	0.0	15.7	22.3	0.0	32.7
LnGrp LOS	C		C	C		B	C		B	C		C
Approach Vol, veh/h		308			126			650			465	
Approach Delay, s/veh		23.2			20.2			16.8			32.1	
Approach LOS		C			C			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6		8
Phs Duration (G+Y+Rc), s		35.0	13.6	32.6		35.0		46.2
Change Period (Y+Rc), s		* 6.8	* 5.9	* 5.9		* 6.8		* 5.9
Max Green Setting (Gmax), s		* 28	* 14	* 39		* 28		* 59
Max Q Clear Time (g_c+I1), s		11.9	7.5	23.6		12.8		20.1
Green Ext Time (p_c), s		1.8	0.3	3.1		0.6		4.2

Intersection Summary	
HCM 2010 Ctrl Delay	22.9
HCM 2010 LOS	C

Notes

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	228	384	155	233	303	166
Future Volume (vph)	228	384	155	233	303	166
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		40.0	65.0		70.0	0.0
Storage Lanes		1	1		2	1
Taper Length (m)			30.0		0.0	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.97	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1571	1335	1492	2984	2895	1335
Flt Permitted			0.531		0.950	
Satd. Flow (perm)	1571	1335	834	2984	2895	1335
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		384				166
Link Speed (k/h)	50			50	50	
Link Distance (m)	179.6			116.9	82.9	
Travel Time (s)	12.9			8.4	6.0	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	228	384	155	233	303	166
Shared Lane Traffic (%)						
Lane Group Flow (vph)	228	384	155	233	303	166
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	7.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.24	1.24	1.24	1.24	1.24	1.24
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (m)	10.0	2.0	2.0	10.0	2.0	2.0
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)	0.6	2.0	2.0	0.6	2.0	2.0
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)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	pm+pt	NA	Prot	pm+ov
Protected Phases	2		1	6	8	1
Permitted Phases		2	6			8

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2	2	1	6	8	1
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	10.0	5.0
Minimum Split (s)	38.4	38.4	11.1	24.8	28.5	11.1
Total Split (s)	38.4	38.4	13.0	51.4	28.6	13.0
Total Split (%)	48.0%	48.0%	16.3%	64.3%	35.8%	16.3%
Maximum Green (s)	31.6	31.6	6.9	44.6	21.7	6.9
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	3.5	3.5	2.8	3.5	3.6	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.8	6.8	6.1	6.8	6.9	6.1
Lead/Lag	Lag	Lag	Lead			Lead
Lead-Lag Optimize?	Yes	Yes	Yes			Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	None	C-Max	None	None
Walk Time (s)	7.0	7.0			7.0	
Flash Dont Walk (s)	24.6	24.6			14.6	
Pedestrian Calls (#/hr)	0	0			0	
Act Effct Green (s)	37.9	37.9	53.3	52.6	13.7	29.2
Actuated g/C Ratio	0.47	0.47	0.67	0.66	0.17	0.36
v/c Ratio	0.31	0.46	0.25	0.12	0.61	0.28
Control Delay	15.8	3.9	6.6	5.7	35.8	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.8	3.9	6.6	5.7	35.8	3.8
LOS	B	A	A	A	D	A
Approach Delay	8.3			6.1	24.5	
Approach LOS	A			A	C	
Queue Length 50th (m)	20.2	0.0	7.5	6.0	22.2	0.0
Queue Length 95th (m)	41.2	15.8	16.6	11.6	32.3	9.9
Internal Link Dist (m)	155.6			92.9	58.9	
Turn Bay Length (m)		40.0	65.0		70.0	
Base Capacity (vph)	744	834	627	1961	785	594
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	0.46	0.25	0.12	0.39	0.28

Intersection Summary	
Area Type:	CBD
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 60 (75%), Referenced to phase 2:EBT and 6:WBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.61	
Intersection Signal Delay: 12.9	Intersection LOS: B
Intersection Capacity Utilization 50.8%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: Trainyards Dr & Belfast Rd

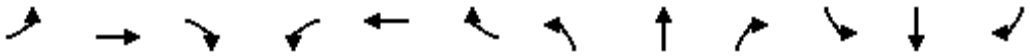
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	228	384	155	233	303	166
Future Volume (veh/h)	228	384	155	233	303	166
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1588	1588	1588	1588	1588	1588
Adj Flow Rate, veh/h	228	384	155	233	303	166
Adj No. of Lanes	1	1	1	2	2	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	841	715	518	2030	458	301
Arrive On Green	0.53	0.53	0.07	0.67	0.16	0.16
Sat Flow, veh/h	1588	1350	1513	3097	2934	1350
Grp Volume(v), veh/h	228	384	155	233	303	166
Grp Sat Flow(s),veh/h/ln	1588	1350	1513	1509	1467	1350
Q Serve(g_s), s	6.3	15.0	3.5	2.2	7.8	8.7
Cycle Q Clear(g_c), s	6.3	15.0	3.5	2.2	7.8	8.7
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	841	715	518	2030	458	301
V/C Ratio(X)	0.27	0.54	0.30	0.11	0.66	0.55
Avail Cap(c_a), veh/h	841	715	547	2030	796	457
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.3	12.4	6.9	4.6	31.8	27.5
Incr Delay (d2), s/veh	0.8	2.9	0.3	0.1	1.6	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	6.1	1.5	0.9	3.3	3.4
LnGrp Delay(d),s/veh	11.1	15.3	7.3	4.8	33.4	29.1
LnGrp LOS	B	B	A	A	C	C
Approach Vol, veh/h	612			388	469	
Approach Delay, s/veh	13.7			5.8	31.9	
Approach LOS	B			A	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	11.5	49.1				60.6		19.4
Change Period (Y+Rc), s	6.1	* 6.8				* 6.8		6.9
Max Green Setting (Gmax), s	6.9	* 32				* 45		21.7
Max Q Clear Time (g_c+I1), s	5.5	17.0				4.2		10.7
Green Ext Time (p_c), s	0.1	3.2				1.9		1.8

Intersection Summary	
HCM 2010 Ctrl Delay	17.4
HCM 2010 LOS	B

Notes

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	39	58	23	21	184	27	1331	12	49	973	45
Future Volume (vph)	51	39	58	23	21	184	27	1331	12	49	973	45
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	30.0		0.0	35.0		0.0	30.0		0.0	75.0		0.0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (m)	30.0			30.0			65.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.95	1.00
Frt		0.910			0.865			0.999				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1492	1429	0	1492	1359	0	1492	4283	0	1492	2984	1335
Flt Permitted	0.317			0.694			0.294			0.166		
Satd. Flow (perm)	498	1429	0	1090	1359	0	462	4283	0	261	2984	1335
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		58			184			1				45
Link Speed (k/h)		50			50			70			60	
Link Distance (m)		52.7			112.0			55.9			143.5	
Travel Time (s)		3.8			8.1			2.9			8.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	51	39	58	23	21	184	27	1331	12	49	973	45
Shared Lane Traffic (%)												
Lane Group Flow (vph)	51	97	0	23	205	0	27	1343	0	49	973	45
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)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
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)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
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)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA	Perm
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		6



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8	8		2	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		10.0	10.0		5.0	10.0	10.0
Minimum Split (s)	38.5	38.5		38.5	38.5		39.2	39.2		9.7	39.2	39.2
Total Split (s)	40.0	40.0		40.0	40.0		65.0	65.0		15.0	80.0	80.0
Total Split (%)	33.3%	33.3%		33.3%	33.3%		54.2%	54.2%		12.5%	66.7%	66.7%
Maximum Green (s)	33.5	33.5		33.5	33.5		58.8	58.8		10.3	73.8	73.8
Yellow Time (s)	3.3	3.3		3.3	3.3		3.7	3.7		3.7	3.7	3.7
All-Red Time (s)	3.2	3.2		3.2	3.2		2.5	2.5		1.0	2.5	2.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5		6.5	6.5		6.2	6.2		4.7	6.2	6.2
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		C-Max	C-Max		None	C-Max	C-Max
Walk Time (s)	7.0	7.0		7.0	7.0		11.0	11.0			11.0	11.0
Flash Dont Walk (s)	25.0	25.0		25.0	25.0		22.0	22.0			22.0	22.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	0
Act Effct Green (s)	12.6	12.6		12.6	12.6		85.7	85.7		96.2	94.7	94.7
Actuated g/C Ratio	0.10	0.10		0.10	0.10		0.71	0.71		0.80	0.79	0.79
v/c Ratio	0.98	0.48		0.20	0.67		0.08	0.44		0.18	0.41	0.04
Control Delay	174.9	30.0		50.5	20.5		8.2	8.8		4.7	5.0	1.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	174.9	30.0		50.5	20.5		8.2	8.8		4.7	5.0	1.3
LOS	F	C		D	C		A	A		A	A	A
Approach Delay		79.9			23.6			8.8			4.9	
Approach LOS		E			C			A			A	
Queue Length 50th (m)	12.2	8.6		5.1	4.6		1.8	45.7		1.9	30.7	0.0
Queue Length 95th (m)	#31.0	23.8		12.5	27.0		6.4	69.3		5.7	53.1	2.9
Internal Link Dist (m)		28.7			88.0			31.9			119.5	
Turn Bay Length (m)	30.0			35.0			30.0			75.0		
Base Capacity (vph)	139	440		304	512		329	3058		315	2355	1063
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.37	0.22		0.08	0.40		0.08	0.44		0.16	0.41	0.04

Intersection Summary			
Area Type:	CBD		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 49 (41%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.98			
Intersection Signal Delay: 12.2		Intersection LOS: B	
Intersection Capacity Utilization 79.8%		ICU Level of Service D	
Analysis Period (min) 15			

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: St. Laurent Blvd & Tremblay Rd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	51	39	58	23	21	184	27	1331	12	49	973	45
Future Volume (veh/h)	51	39	58	23	21	184	27	1331	12	49	973	45
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1588	1588	1620	1588	1588	1620	1588	1588	1620	1588	1588	1588
Adj Flow Rate, veh/h	51	39	58	23	21	184	27	1331	12	49	973	45
Adj No. of Lanes	1	1	0	1	1	0	1	3	0	1	2	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	132	120	178	235	29	255	327	2721	25	274	2072	927
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21	0.61	0.61	0.61	0.03	0.69	0.69
Sat Flow, veh/h	1055	578	859	1164	140	1231	496	4432	40	1513	3018	1350
Grp Volume(v), veh/h	51	0	97	23	0	205	27	868	475	49	973	45
Grp Sat Flow(s),veh/h/ln	1055	0	1437	1164	0	1371	496	1445	1581	1513	1509	1350
Q Serve(g_s), s	5.7	0.0	6.9	2.1	0.0	16.7	3.2	19.9	19.9	1.3	17.9	1.3
Cycle Q Clear(g_c), s	22.4	0.0	6.9	8.9	0.0	16.7	12.4	19.9	19.9	1.3	17.9	1.3
Prop In Lane	1.00		0.60	1.00		0.90	1.00		0.03	1.00		1.00
Lane Grp Cap(c), veh/h	132	0	298	235	0	285	327	1775	971	274	2072	927
V/C Ratio(X)	0.39	0.00	0.33	0.10	0.00	0.72	0.08	0.49	0.49	0.18	0.47	0.05
Avail Cap(c_a), veh/h	208	0	401	318	0	383	327	1775	971	353	2072	927
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.7	0.0	40.4	44.2	0.0	44.3	13.6	12.8	12.8	9.3	8.7	6.1
Incr Delay (d2), s/veh	1.8	0.0	0.6	0.2	0.0	4.3	0.5	1.0	1.8	0.3	0.8	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.0	2.8	0.7	0.0	6.7	0.5	8.1	9.0	0.6	7.7	0.5
LnGrp Delay(d),s/veh	56.6	0.0	41.0	44.4	0.0	48.6	14.1	13.8	14.5	9.6	9.5	6.2
LnGrp LOS	E		D	D		D	B	B	B	A	A	A
Approach Vol, veh/h		148			228			1370			1067	
Approach Delay, s/veh		46.4			48.2			14.0			9.3	
Approach LOS		D			D			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	8.7	79.9		31.4		88.6		31.4
Change Period (Y+Rc), s	* 4.7	* 6.2		6.5		* 6.2		6.5
Max Green Setting (Gmax), s	* 10	* 59		33.5		* 74		33.5
Max Q Clear Time (g_c+I1), s	3.3	21.9		24.4		19.9		18.7
Green Ext Time (p_c), s	0.1	14.5		0.5		10.8		1.3

Intersection Summary	
HCM 2010 Ctrl Delay	16.7
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	110	11	11	126	4	7
Future Volume (vph)	110	11	11	126	4	7
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.988				0.914	
Flt Protected				0.996	0.982	
Satd. Flow (prot)	1552	0	0	1564	1410	0
Flt Permitted				0.996	0.982	
Satd. Flow (perm)	1552	0	0	1564	1410	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	574.2			141.6	189.2	
Travel Time (s)	41.3			10.2	13.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	110	11	11	126	4	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	121	0	0	137	11	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.24	1.24	1.24	1.24	1.24	1.24
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 28.5%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	110	11	11	126	4	7
Future Vol, veh/h	110	11	11	126	4	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	110	11	11	126	4	7

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	121	0	264	116
Stage 1	-	-	-	-	116	-
Stage 2	-	-	-	-	148	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1467	-	725	936
Stage 1	-	-	-	-	909	-
Stage 2	-	-	-	-	880	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1467	-	719	936
Mov Cap-2 Maneuver	-	-	-	-	719	-
Stage 1	-	-	-	-	909	-
Stage 2	-	-	-	-	873	-

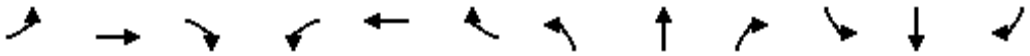
Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	9.3
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	843	-	-	1467	-
HCM Lane V/C Ratio	0.013	-	-	0.007	-
HCM Control Delay (s)	9.3	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Appendix J

2026 Future Total Synchro Worksheets

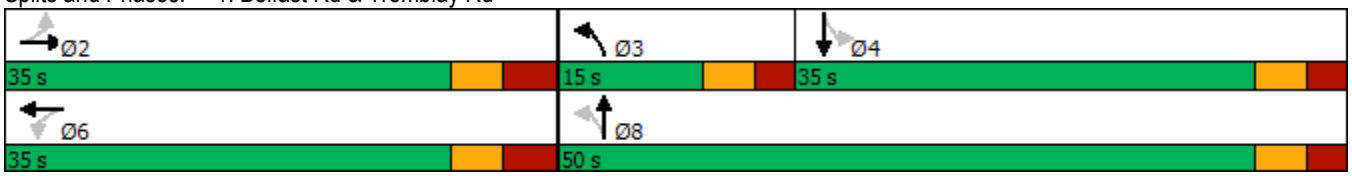
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	98	55	125	34	151	41	116	273	20	20	291	74
Future Volume (vph)	98	55	125	34	151	41	116	273	20	20	291	74
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	40.0		0.0	25.0		0.0	45.0		0.0	15.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	60.0			65.0			60.0			25.0		
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		0.896			0.968			0.990			0.970	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1492	1407	0	1492	1520	0	1492	1555	0	1492	1523	0
Flt Permitted	0.637			0.644			0.270			0.581		
Satd. Flow (perm)	1000	1407	0	1011	1520	0	424	1555	0	913	1523	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		125			17			6			16	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		241.9			574.2			414.4			151.3	
Travel Time (s)		17.4			41.3			29.8			10.9	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	98	55	125	34	151	41	116	273	20	20	291	74
Shared Lane Traffic (%)												
Lane Group Flow (vph)	98	180	0	34	192	0	116	293	0	20	365	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)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		2			6		3	8			4	
Permitted Phases	2			6			8			4		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	2	2		6	6		3	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	10.0		10.0	10.0	
Minimum Split (s)	29.8	29.8		29.8	29.8		10.9	23.9		23.9	23.9	
Total Split (s)	35.0	35.0		35.0	35.0		15.0	50.0		35.0	35.0	
Total Split (%)	41.2%	41.2%		41.2%	41.2%		17.6%	58.8%		41.2%	41.2%	
Maximum Green (s)	28.2	28.2		28.2	28.2		9.1	44.1		29.1	29.1	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	3.5	3.5		3.5	3.5		2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.8	6.8		6.8	6.8		5.9	5.9		5.9	5.9	
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		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0		7.0	7.0	
Flash Dont Walk (s)	16.0	16.0		16.0	16.0			7.0		7.0	7.0	
Pedestrian Calls (#/hr)	0	0		0	0			0		0	0	
Act Effct Green (s)	29.1	29.1		29.1	29.1		32.4	32.4		21.5	21.5	
Actuated g/C Ratio	0.39	0.39		0.39	0.39		0.43	0.43		0.29	0.29	
v/c Ratio	0.25	0.29		0.09	0.32		0.38	0.43		0.08	0.81	
Control Delay	21.9	8.8		19.5	19.6		15.1	15.2		20.2	38.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	21.9	8.8		19.5	19.6		15.1	15.2		20.2	38.9	
LOS	C	A		B	B		B	B		C	D	
Approach Delay		13.5			19.6			15.2			37.9	
Approach LOS		B			B			B			D	
Queue Length 50th (m)	10.2	5.4		3.3	18.6		9.3	26.0		2.1	47.9	
Queue Length 95th (m)	24.2	20.6		10.1	38.6		17.8	42.9		6.9	78.7	
Internal Link Dist (m)		217.9			550.2			390.4			127.3	
Turn Bay Length (m)	40.0			25.0			45.0			15.0		
Base Capacity (vph)	389	624		394	602		318	950		367	622	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.25	0.29		0.09	0.32		0.36	0.31		0.05	0.59	

Intersection Summary			
Area Type:	CBD		
Cycle Length: 85			
Actuated Cycle Length: 74.6			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.81			
Intersection Signal Delay: 22.3		Intersection LOS: C	
Intersection Capacity Utilization 70.6%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 1: Belfast Rd & Tremblay Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	98	55	125	34	151	41	116	273	20	20	291	74
Future Volume (veh/h)	98	55	125	34	151	41	116	273	20	20	291	74
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1588	1588	1620	1588	1588	1620	1588	1588	1620	1588	1588	1620
Adj Flow Rate, veh/h	98	55	125	34	151	41	116	273	20	20	291	74
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	422	169	383	424	469	127	260	635	47	372	343	87
Arrive On Green	0.39	0.39	0.39	0.39	0.39	0.39	0.07	0.43	0.43	0.28	0.28	0.28
Sat Flow, veh/h	1068	432	983	1079	1204	327	1513	1462	107	974	1222	311
Grp Volume(v), veh/h	98	0	180	34	0	192	116	0	293	20	0	365
Grp Sat Flow(s),veh/h/ln	1068	0	1415	1079	0	1531	1513	0	1569	974	0	1533
Q Serve(g_s), s	5.1	0.0	6.4	1.6	0.0	6.3	3.7	0.0	9.4	1.1	0.0	16.3
Cycle Q Clear(g_c), s	11.4	0.0	6.4	8.1	0.0	6.3	3.7	0.0	9.4	1.1	0.0	16.3
Prop In Lane	1.00		0.69	1.00		0.21	1.00		0.07	1.00		0.20
Lane Grp Cap(c), veh/h	422	0	552	424	0	597	260	0	682	372	0	430
V/C Ratio(X)	0.23	0.00	0.33	0.08	0.00	0.32	0.45	0.00	0.43	0.05	0.00	0.85
Avail Cap(c_a), veh/h	422	0	552	424	0	597	340	0	957	491	0	617
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.4	0.0	15.4	18.3	0.0	15.4	17.7	0.0	14.2	19.1	0.0	24.6
Incr Delay (d2), s/veh	1.3	0.0	1.6	0.4	0.0	1.4	1.2	0.0	0.4	0.1	0.0	7.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.0	2.7	0.5	0.0	2.9	1.6	0.0	4.2	0.3	0.0	7.8
LnGrp Delay(d),s/veh	20.7	0.0	17.0	18.6	0.0	16.8	18.9	0.0	14.6	19.2	0.0	32.2
LnGrp LOS	C		B	B		B	B		B	B		C
Approach Vol, veh/h		278			226			409			385	
Approach Delay, s/veh		18.3			17.1			15.8			31.5	
Approach LOS		B			B			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6		8
Phs Duration (G+Y+Rc), s		35.0	11.2	26.2		35.0		37.3
Change Period (Y+Rc), s		* 6.8	* 5.9	* 5.9		* 6.8		* 5.9
Max Green Setting (Gmax), s		* 28	* 9.1	* 29		* 28		* 44
Max Q Clear Time (g_c+I1), s		13.4	5.7	18.3		10.1		11.4
Green Ext Time (p_c), s		1.5	0.1	2.0		1.3		2.2

Intersection Summary	
HCM 2010 Ctrl Delay	21.2
HCM 2010 LOS	C

Notes

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	209	231	156	198	149	108
Future Volume (vph)	209	231	156	198	149	108
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		40.0	65.0		70.0	0.0
Storage Lanes		1	1		2	1
Taper Length (m)			30.0		0.0	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.97	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1571	1335	1492	2984	2895	1335
Flt Permitted			0.546		0.950	
Satd. Flow (perm)	1571	1335	858	2984	2895	1335
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		231				108
Link Speed (k/h)	50			50	50	
Link Distance (m)	179.6			116.9	82.9	
Travel Time (s)	12.9			8.4	6.0	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	209	231	156	198	149	108
Shared Lane Traffic (%)						
Lane Group Flow (vph)	209	231	156	198	149	108
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	7.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.24	1.24	1.24	1.24	1.24	1.24
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (m)	10.0	2.0	2.0	10.0	2.0	2.0
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)	0.6	2.0	2.0	0.6	2.0	2.0
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)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	pm+pt	NA	Prot	pm+ov
Protected Phases	2		1	6	8	1
Permitted Phases		2	6			8

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2	2	1	6	8	1
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	10.0	5.0
Minimum Split (s)	38.4	38.4	11.1	24.8	28.5	11.1
Total Split (s)	38.4	38.4	13.0	51.4	28.6	13.0
Total Split (%)	48.0%	48.0%	16.3%	64.3%	35.8%	16.3%
Maximum Green (s)	31.6	31.6	6.9	44.6	21.7	6.9
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	3.5	3.5	2.8	3.5	3.6	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.8	6.8	6.1	6.8	6.9	6.1
Lead/Lag	Lag	Lag	Lead			Lead
Lead-Lag Optimize?	Yes	Yes	Yes			Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	None	C-Max	None	None
Walk Time (s)	7.0	7.0			7.0	
Flash Dont Walk (s)	24.6	24.6			14.6	
Pedestrian Calls (#/hr)	0	0			0	
Act Effct Green (s)	41.3	41.3	56.4	55.7	10.6	25.8
Actuated g/C Ratio	0.52	0.52	0.70	0.70	0.13	0.32
v/c Ratio	0.26	0.29	0.23	0.10	0.39	0.21
Control Delay	12.6	2.9	4.9	4.2	34.8	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.6	2.9	4.9	4.2	34.8	5.0
LOS	B	A	A	A	C	A
Approach Delay	7.5			4.5	22.3	
Approach LOS	A			A	C	
Queue Length 50th (m)	16.3	0.0	6.3	4.1	10.9	0.0
Queue Length 95th (m)	32.9	11.1	13.1	7.9	18.8	9.3
Internal Link Dist (m)	155.6			92.9	58.9	
Turn Bay Length (m)		40.0	65.0		70.0	
Base Capacity (vph)	811	800	672	2078	785	505
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	0.26	0.29	0.23	0.10	0.19	0.21

Intersection Summary			
Area Type:	CBD		
Cycle Length: 80			
Actuated Cycle Length: 80			
Offset: 60 (75%), Referenced to phase 2:EBT and 6:WBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.39			
Intersection Signal Delay: 10.1		Intersection LOS: B	
Intersection Capacity Utilization 47.9%		ICU Level of Service A	
Analysis Period (min) 15			

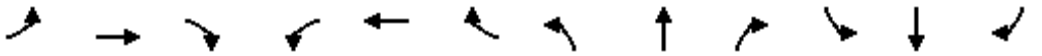
Splits and Phases: 2: Trainyards Dr & Belfast Rd

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	209	231	156	198	149	108
Future Volume (veh/h)	209	231	156	198	149	108
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1588	1588	1588	1588	1588	1588
Adj Flow Rate, veh/h	209	231	156	198	149	108
Adj No. of Lanes	1	1	1	2	2	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	896	761	610	2125	366	255
Arrive On Green	0.56	0.56	0.06	0.70	0.12	0.12
Sat Flow, veh/h	1588	1350	1513	3097	2934	1350
Grp Volume(v), veh/h	209	231	156	198	149	108
Grp Sat Flow(s),veh/h/ln	1588	1350	1513	1509	1467	1350
Q Serve(g_s), s	5.3	7.2	3.2	1.7	3.7	5.6
Cycle Q Clear(g_c), s	5.3	7.2	3.2	1.7	3.7	5.6
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	896	761	610	2125	366	255
V/C Ratio(X)	0.23	0.30	0.26	0.09	0.41	0.42
Avail Cap(c_a), veh/h	896	761	644	2125	796	453
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	8.8	9.2	5.8	3.7	32.3	28.6
Incr Delay (d2), s/veh	0.6	1.0	0.2	0.1	0.7	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	2.8	1.3	0.7	1.5	2.2
LnGrp Delay(d),s/veh	9.4	10.2	6.0	3.8	33.0	29.7
LnGrp LOS	A	B	A	A	C	C
Approach Vol, veh/h	440			354	257	
Approach Delay, s/veh	9.8			4.8	31.6	
Approach LOS	A			A	C	

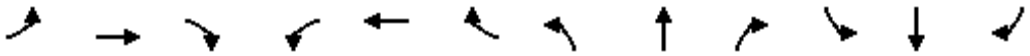
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	11.2	51.9				63.1		16.9
Change Period (Y+Rc), s	6.1	* 6.8				* 6.8		6.9
Max Green Setting (Gmax), s	6.9	* 32				* 45		21.7
Max Q Clear Time (g_c+I1), s	5.2	9.2				3.7		7.6
Green Ext Time (p_c), s	0.1	2.6				1.6		1.0

Intersection Summary	
HCM 2010 Ctrl Delay	13.5
HCM 2010 LOS	B

Notes



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	137	23	36	13	21	107	133	1214	41	133	1161	484
Future Volume (vph)	137	23	36	13	21	107	133	1214	41	133	1161	484
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	30.0		0.0	35.0		0.0	30.0		0.0	75.0		0.0
Storage Lanes	2		0	1		0	1		0	1		1
Taper Length (m)	30.0			30.0			65.0			30.0		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.95	1.00
Frt		0.908			0.875			0.995				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	2895	1426	0	1492	1374	0	1492	4266	0	1492	2984	1335
Flt Permitted	0.950			0.719			0.244			0.171		
Satd. Flow (perm)	2895	1426	0	1129	1374	0	383	4266	0	269	2984	1335
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		36			107			5				484
Link Speed (k/h)		50			50			70			60	
Link Distance (m)		52.7			112.0			55.9			143.5	
Travel Time (s)		3.8			8.1			2.9			8.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	137	23	36	13	21	107	133	1214	41	133	1161	484
Shared Lane Traffic (%)												
Lane Group Flow (vph)	137	59	0	13	128	0	133	1255	0	133	1161	484
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)		7.0			7.0			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
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)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
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)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Perm	NA		Perm	NA		pm+pt	NA	Perm
Protected Phases	7	4			8			2		1	6	
Permitted Phases				8			2			6		6



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		8	8		2	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		10.0	10.0		5.0	10.0	10.0
Minimum Split (s)	9.5	38.5		38.5	38.5		39.2	39.2		9.7	39.2	39.2
Total Split (s)	10.8	49.3		38.5	38.5		60.9	60.9		9.8	70.7	70.7
Total Split (%)	9.0%	41.1%		32.1%	32.1%		50.8%	50.8%		8.2%	58.9%	58.9%
Maximum Green (s)	6.3	42.8		32.0	32.0		54.7	54.7		5.1	64.5	64.5
Yellow Time (s)	3.5	3.3		3.3	3.3		3.7	3.7		3.7	3.7	3.7
All-Red Time (s)	1.0	3.2		3.2	3.2		2.5	2.5		1.0	2.5	2.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.5	6.5		6.5	6.5		6.2	6.2		4.7	6.2	6.2
Lead/Lag	Lead			Lag	Lag		Lag	Lag		Lead		
Lead-Lag Optimize?	Yes			Yes	Yes		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		C-Max	C-Max		None	C-Max	C-Max
Walk Time (s)		7.0		7.0	7.0		11.0	11.0			11.0	11.0
Flash Dont Walk (s)		25.0		25.0	25.0		22.0	22.0			22.0	22.0
Pedestrian Calls (#/hr)		0		0	0		0	0			0	0
Act Effct Green (s)	6.3	19.6		8.8	8.8		73.3	73.3		89.2	87.7	87.7
Actuated g/C Ratio	0.05	0.16		0.07	0.07		0.61	0.61		0.74	0.73	0.73
v/c Ratio	0.91	0.23		0.16	0.64		0.57	0.48		0.45	0.53	0.44
Control Delay	108.8	22.2		54.0	28.8		28.2	14.3		9.7	8.6	1.9
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	108.8	22.2		54.0	28.8		28.2	14.3		9.7	8.6	1.9
LOS	F	C		D	C		C	B		A	A	A
Approach Delay		82.7			31.1			15.6			6.9	
Approach LOS		F			C			B			A	
Queue Length 50th (m)	16.8	4.7		3.0	4.8		16.8	53.3		7.2	52.5	0.0
Queue Length 95th (m)	#35.8	15.6		8.9	23.1		#54.0	80.9		16.2	85.0	9.8
Internal Link Dist (m)		28.7			88.0			31.9			119.5	
Turn Bay Length (m)	30.0			35.0			30.0			75.0		
Base Capacity (vph)	151	531		301	444		233	2609		298	2180	1105
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.91	0.11		0.04	0.29		0.57	0.48		0.45	0.53	0.44

Intersection Summary			
Area Type:	CBD		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 120			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.91			
Intersection Signal Delay: 15.6		Intersection LOS: B	
Intersection Capacity Utilization 79.4%		ICU Level of Service D	
Analysis Period (min) 15			

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: St. Laurent Blvd & Tremblay Rd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	137	23	36	13	21	107	133	1214	41	133	1161	484
Future Volume (veh/h)	137	23	36	13	21	107	133	1214	41	133	1161	484
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1588	1588	1620	1588	1588	1620	1588	1588	1620	1588	1588	1588
Adj Flow Rate, veh/h	137	23	36	13	21	107	133	1214	41	133	1161	484
Adj No. of Lanes	2	1	0	1	1	0	1	3	0	1	2	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	154	114	178	197	26	131	196	2623	89	305	2084	932
Arrive On Green	0.05	0.20	0.20	0.11	0.11	0.11	0.61	0.61	0.61	0.04	0.69	0.69
Sat Flow, veh/h	2934	559	875	1205	227	1157	273	4308	145	1513	3018	1350
Grp Volume(v), veh/h	137	0	59	13	0	128	133	815	440	133	1161	484
Grp Sat Flow(s),veh/h/ln	1467	0	1434	1205	0	1384	273	1445	1563	1513	1509	1350
Q Serve(g_s), s	5.6	0.0	4.1	1.2	0.0	10.8	57.5	18.4	18.4	3.8	23.2	20.8
Cycle Q Clear(g_c), s	5.6	0.0	4.1	1.2	0.0	10.8	70.9	18.4	18.4	3.8	23.2	20.8
Prop In Lane	1.00		0.61	1.00		0.84	1.00		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	154	0	292	197	0	157	196	1760	951	305	2084	932
V/C Ratio(X)	0.89	0.00	0.20	0.07	0.00	0.81	0.68	0.46	0.46	0.44	0.56	0.52
Avail Cap(c_a), veh/h	154	0	511	381	0	369	196	1760	951	305	2084	932
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.5	0.0	39.7	47.7	0.0	51.9	29.6	12.8	12.8	9.9	9.3	9.0
Incr Delay (d2), s/veh	42.1	0.0	0.3	0.1	0.0	9.7	17.5	0.9	1.6	1.0	1.1	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	0.0	1.6	0.4	0.0	4.6	5.2	7.6	8.4	1.6	9.8	8.2
LnGrp Delay(d),s/veh	98.6	0.0	40.0	47.8	0.0	61.6	47.1	13.7	14.4	10.8	10.4	11.0
LnGrp LOS	F		D	D		E	D	B	B	B	B	B
Approach Vol, veh/h		196			141			1388			1778	
Approach Delay, s/veh		80.9			60.4			17.1			10.6	
Approach LOS		F			E			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6	7	8
Phs Duration (G+Y+Rc), s	9.8	79.3		30.9		89.1	10.8	20.1
Change Period (Y+Rc), s	* 4.7	* 6.2		6.5		* 6.2	4.5	6.5
Max Green Setting (Gmax), s	* 5.1	* 55		42.8		* 65	6.3	32.0
Max Q Clear Time (g_c+I1), s	5.8	72.9		6.1		25.2	7.6	12.8
Green Ext Time (p_c), s	0.0	0.0		0.4		17.5	0.0	0.8

Intersection Summary	
HCM 2010 Ctrl Delay	19.1
HCM 2010 LOS	B

Notes

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	237	2	5	230	10	2
Future Volume (vph)	237	2	5	230	10	2
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.999				0.977	
Flt Protected				0.999	0.960	
Satd. Flow (prot)	1569	0	0	1569	1473	0
Flt Permitted				0.999	0.960	
Satd. Flow (perm)	1569	0	0	1569	1473	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	574.2			141.6	216.8	
Travel Time (s)	41.3			10.2	15.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	237	2	5	230	10	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	239	0	0	235	12	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.24	1.24	1.24	1.24	1.24	1.24
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 28.9%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	237	2	5	230	10	2
Future Vol, veh/h	237	2	5	230	10	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	237	2	5	230	10	2

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	239	0	478	238
Stage 1	-	-	-	-	238	-
Stage 2	-	-	-	-	240	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1328	-	546	801
Stage 1	-	-	-	-	802	-
Stage 2	-	-	-	-	800	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1328	-	544	801
Mov Cap-2 Maneuver	-	-	-	-	544	-
Stage 1	-	-	-	-	802	-
Stage 2	-	-	-	-	797	-

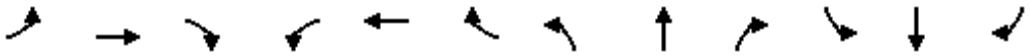
Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	11.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	575	-	-	1328	-
HCM Lane V/C Ratio	0.021	-	-	0.004	-
HCM Control Delay (s)	11.4	-	-	7.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	0	0	0
Future Volume (vph)	0	0	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1571	0	0	1571	1571	0
Flt Permitted						
Satd. Flow (perm)	1571	0	0	1571	1571	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	141.6			149.0	228.5	
Travel Time (s)	10.2			10.7	16.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	0	0	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	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.24	1.24	1.24	1.24	1.24	1.24
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Free	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 0.0%		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)	86	94	143	15	225	62	175	489	20	29	378	84
Future Volume (vph)	86	94	143	15	225	62	175	489	20	29	378	84
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	40.0		0.0	25.0		0.0	45.0		0.0	15.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	60.0			65.0			60.0			25.0		
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		0.909			0.968			0.994			0.973	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1492	1428	0	1492	1520	0	1492	1561	0	1492	1528	0
Flt Permitted	0.492			0.563			0.221			0.476		
Satd. Flow (perm)	773	1428	0	884	1520	0	347	1561	0	748	1528	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		76			14			4			13	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		241.9			574.2			414.4			151.3	
Travel Time (s)		17.4			41.3			29.8			10.9	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	86	94	143	15	225	62	175	489	20	29	378	84
Shared Lane Traffic (%)												
Lane Group Flow (vph)	86	237	0	15	287	0	175	509	0	29	462	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)		3.5			3.5			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		2			6		3	8			4	
Permitted Phases	2			6			8			4		

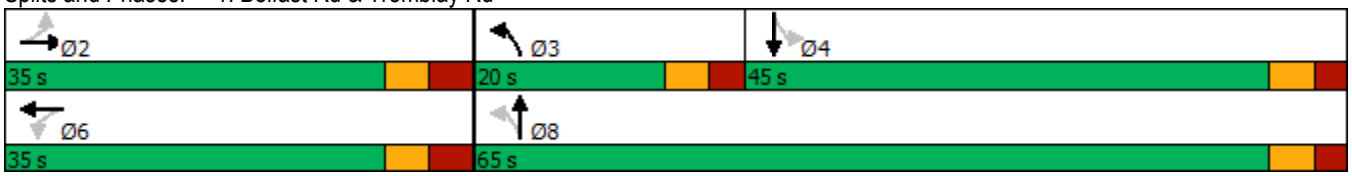


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	2	2		6	6		3	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	10.0		10.0	10.0	
Minimum Split (s)	29.8	29.8		29.8	29.8		10.9	23.9		23.9	23.9	
Total Split (s)	35.0	35.0		35.0	35.0		20.0	65.0		45.0	45.0	
Total Split (%)	35.0%	35.0%		35.0%	35.0%		20.0%	65.0%		45.0%	45.0%	
Maximum Green (s)	28.2	28.2		28.2	28.2		14.1	59.1		39.1	39.1	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	3.5	3.5		3.5	3.5		2.6	2.6		2.6	2.6	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.8	6.8		6.8	6.8		5.9	5.9		5.9	5.9	
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		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0		7.0	7.0	
Flash Dont Walk (s)	16.0	16.0		16.0	16.0			7.0		7.0	7.0	
Pedestrian Calls (#/hr)	0	0		0	0			0		0	0	
Act Effct Green (s)	28.6	28.6		28.6	28.6		46.9	46.9		30.1	30.1	
Actuated g/C Ratio	0.32	0.32		0.32	0.32		0.53	0.53		0.34	0.34	
v/c Ratio	0.35	0.46		0.05	0.57		0.54	0.61		0.11	0.87	
Control Delay	31.4	21.3		25.7	31.4		16.9	17.4		20.7	44.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	31.4	21.3		25.7	31.4		16.9	17.4		20.7	44.7	
LOS	C	C		C	C		B	B		C	D	
Approach Delay		24.0			31.1			17.3			43.3	
Approach LOS		C			C			B			D	
Queue Length 50th (m)	11.2	21.2		1.8	38.7		14.6	55.2		3.3	70.1	
Queue Length 95th (m)	28.1	49.2		7.1	74.9		24.9	83.5		9.5	#114.7	
Internal Link Dist (m)		217.9			550.2			390.4			127.3	
Turn Bay Length (m)	40.0			25.0			45.0			15.0		
Base Capacity (vph)	249	513		286	500		369	1059		335	692	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.35	0.46		0.05	0.57		0.47	0.48		0.09	0.67	

Intersection Summary			
Area Type:	CBD		
Cycle Length: 100			
Actuated Cycle Length: 88.3			
Natural Cycle: 75			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.87			
Intersection Signal Delay: 27.9		Intersection LOS: C	
Intersection Capacity Utilization 85.8%		ICU Level of Service E	
Analysis Period (min) 15			

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Belfast Rd & Tremblay Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	86	94	143	15	225	62	175	489	20	29	378	84
Future Volume (veh/h)	86	94	143	15	225	62	175	489	20	29	378	84
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1588	1588	1620	1588	1588	1620	1588	1588	1620	1588	1588	1620
Adj Flow Rate, veh/h	86	94	143	15	225	62	175	489	20	29	378	84
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	267	192	293	298	405	112	283	773	32	307	432	96
Arrive On Green	0.34	0.34	0.34	0.34	0.34	0.34	0.10	0.51	0.51	0.34	0.34	0.34
Sat Flow, veh/h	979	569	866	1025	1199	331	1513	1515	62	798	1259	280
Grp Volume(v), veh/h	86	0	237	15	0	287	175	0	509	29	0	462
Grp Sat Flow(s),veh/h/ln	979	0	1435	1025	0	1530	1513	0	1577	798	0	1539
Q Serve(g_s), s	6.6	0.0	10.9	1.0	0.0	12.8	5.9	0.0	19.5	2.3	0.0	23.5
Cycle Q Clear(g_c), s	19.3	0.0	10.9	11.9	0.0	12.8	5.9	0.0	19.5	7.8	0.0	23.5
Prop In Lane	1.00		0.60	1.00		0.22	1.00		0.04	1.00		0.18
Lane Grp Cap(c), veh/h	267	0	485	298	0	517	283	0	804	307	0	528
V/C Ratio(X)	0.32	0.00	0.49	0.05	0.00	0.56	0.62	0.00	0.63	0.09	0.00	0.88
Avail Cap(c_a), veh/h	267	0	485	298	0	517	393	0	1117	407	0	721
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.4	0.0	21.9	26.6	0.0	22.5	18.5	0.0	14.8	22.7	0.0	25.7
Incr Delay (d2), s/veh	3.2	0.0	3.5	0.3	0.0	4.3	2.2	0.0	0.8	0.1	0.0	9.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.0	4.8	0.3	0.0	6.0	2.6	0.0	8.5	0.5	0.0	11.3
LnGrp Delay(d),s/veh	33.6	0.0	25.4	27.0	0.0	26.8	20.7	0.0	15.6	22.8	0.0	34.8
LnGrp LOS	C		C	C		C	C		B	C		C
Approach Vol, veh/h		323			302			684			491	
Approach Delay, s/veh		27.6			26.8			16.9			34.1	
Approach LOS		C			C			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6		8
Phs Duration (G+Y+Rc), s		35.0	13.9	34.5		35.0		48.5
Change Period (Y+Rc), s		* 6.8	* 5.9	* 5.9		* 6.8		* 5.9
Max Green Setting (Gmax), s		* 28	* 14	* 39		* 28		* 59
Max Q Clear Time (g_c+I1), s		21.3	7.9	25.5		14.8		21.5
Green Ext Time (p_c), s		1.2	0.3	3.1		1.7		4.5

Intersection Summary	
HCM 2010 Ctrl Delay	25.2
HCM 2010 LOS	C

Notes

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	240	406	169	244	319	174
Future Volume (vph)	240	406	169	244	319	174
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		40.0	65.0		70.0	0.0
Storage Lanes		1	1		2	1
Taper Length (m)			30.0		0.0	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.97	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1571	1335	1492	2984	2895	1335
Flt Permitted			0.524		0.950	
Satd. Flow (perm)	1571	1335	823	2984	2895	1335
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		406				174
Link Speed (k/h)	50			50	50	
Link Distance (m)	179.6			116.9	82.9	
Travel Time (s)	12.9			8.4	6.0	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	240	406	169	244	319	174
Shared Lane Traffic (%)						
Lane Group Flow (vph)	240	406	169	244	319	174
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	7.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.24	1.24	1.24	1.24	1.24	1.24
Turning Speed (k/h)		15	25		25	15
Number of Detectors	2	1	1	2	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (m)	10.0	2.0	2.0	10.0	2.0	2.0
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)	0.6	2.0	2.0	0.6	2.0	2.0
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)	9.4			9.4		
Detector 2 Size(m)	0.6			0.6		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	pm+pt	NA	Prot	pm+ov
Protected Phases	2		1	6	8	1
Permitted Phases		2	6			8

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector Phase	2	2	1	6	8	1
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	10.0	5.0
Minimum Split (s)	38.4	38.4	11.1	24.8	28.5	11.1
Total Split (s)	38.4	38.4	13.0	51.4	28.6	13.0
Total Split (%)	48.0%	48.0%	16.3%	64.3%	35.8%	16.3%
Maximum Green (s)	31.6	31.6	6.9	44.6	21.7	6.9
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	3.5	3.5	2.8	3.5	3.6	2.8
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.8	6.8	6.1	6.8	6.9	6.1
Lead/Lag	Lag	Lag	Lead			Lead
Lead-Lag Optimize?	Yes	Yes	Yes			Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	None	C-Max	None	None
Walk Time (s)	7.0	7.0			7.0	
Flash Dont Walk (s)	24.6	24.6			14.6	
Pedestrian Calls (#/hr)	0	0			0	
Act Effct Green (s)	37.4	37.4	52.9	52.2	14.1	29.7
Actuated g/C Ratio	0.47	0.47	0.66	0.65	0.18	0.37
v/c Ratio	0.33	0.48	0.27	0.13	0.63	0.29
Control Delay	16.4	4.0	7.0	5.9	35.8	3.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.4	4.0	7.0	5.9	35.8	3.7
LOS	B	A	A	A	D	A
Approach Delay	8.6			6.4	24.5	
Approach LOS	A			A	C	
Queue Length 50th (m)	22.0	0.0	8.5	6.4	23.4	0.0
Queue Length 95th (m)	43.4	16.2	18.4	12.3	33.5	10.2
Internal Link Dist (m)	155.6			92.9	58.9	
Turn Bay Length (m)		40.0	65.0		70.0	
Base Capacity (vph)	733	839	618	1947	785	606
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	0.33	0.48	0.27	0.13	0.41	0.29

Intersection Summary	
Area Type:	CBD
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 60 (75%), Referenced to phase 2:EBT and 6:WBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.63	
Intersection Signal Delay: 13.1	Intersection LOS: B
Intersection Capacity Utilization 53.0%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: Trainyards Dr & Belfast Rd

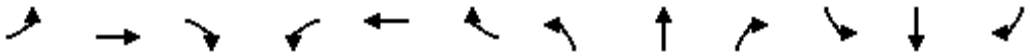
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	240	406	169	244	319	174
Future Volume (veh/h)	240	406	169	244	319	174
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1588	1588	1588	1588	1588	1588
Adj Flow Rate, veh/h	240	406	169	244	319	174
Adj No. of Lanes	1	1	1	2	2	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	824	700	504	2013	474	316
Arrive On Green	0.52	0.52	0.07	0.67	0.16	0.16
Sat Flow, veh/h	1588	1350	1513	3097	2934	1350
Grp Volume(v), veh/h	240	406	169	244	319	174
Grp Sat Flow(s),veh/h/ln	1588	1350	1513	1509	1467	1350
Q Serve(g_s), s	6.9	16.6	3.9	2.3	8.2	9.1
Cycle Q Clear(g_c), s	6.9	16.6	3.9	2.3	8.2	9.1
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	824	700	504	2013	474	316
V/C Ratio(X)	0.29	0.58	0.34	0.12	0.67	0.55
Avail Cap(c_a), veh/h	824	700	525	2013	796	464
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.9	13.3	7.3	4.8	31.5	26.9
Incr Delay (d2), s/veh	0.9	3.5	0.4	0.1	1.7	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	6.8	1.7	1.0	3.4	3.5
LnGrp Delay(d),s/veh	11.8	16.7	7.7	4.9	33.2	28.4
LnGrp LOS	B	B	A	A	C	C
Approach Vol, veh/h	646			413	493	
Approach Delay, s/veh	14.9			6.1	31.5	
Approach LOS	B			A	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	11.9	48.3				60.2		19.8
Change Period (Y+Rc), s	6.1	* 6.8				* 6.8		6.9
Max Green Setting (Gmax), s	6.9	* 32				* 45		21.7
Max Q Clear Time (g_c+I1), s	5.9	18.6				4.3		11.1
Green Ext Time (p_c), s	0.1	3.2				2.0		1.9

Intersection Summary	
HCM 2010 Ctrl Delay	17.8
HCM 2010 LOS	B

Notes

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	495	41	130	25	23	193	49	1399	13	51	1023	181
Future Volume (vph)	495	41	130	25	23	193	49	1399	13	51	1023	181
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	30.0		0.0	35.0		0.0	30.0		0.0	75.0		0.0
Storage Lanes	2		0	1		0	1		0	1		1
Taper Length (m)	30.0			30.0			65.0			30.0		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.95	1.00
Frt		0.886			0.866			0.999				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	2895	1392	0	1492	1360	0	1492	4283	0	1492	2984	1335
Flt Permitted	0.950			0.649			0.248			0.102		
Satd. Flow (perm)	2895	1392	0	1019	1360	0	390	4283	0	160	2984	1335
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		40			91			1				181
Link Speed (k/h)		50			50			70			60	
Link Distance (m)		52.7			112.0			55.9			143.5	
Travel Time (s)		3.8			8.1			2.9			8.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	495	41	130	25	23	193	49	1399	13	51	1023	181
Shared Lane Traffic (%)												
Lane Group Flow (vph)	495	171	0	25	216	0	49	1412	0	51	1023	181
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)		7.0			7.0			3.5			3.5	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		3.0			3.0			3.0			3.0	
Two way Left Turn Lane												
Headway Factor	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	2.0
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)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	2.0
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)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Perm	NA		Perm	NA		pm+pt	NA	Perm
Protected Phases	7	4			8			2		1	6	
Permitted Phases				8			2			6		6



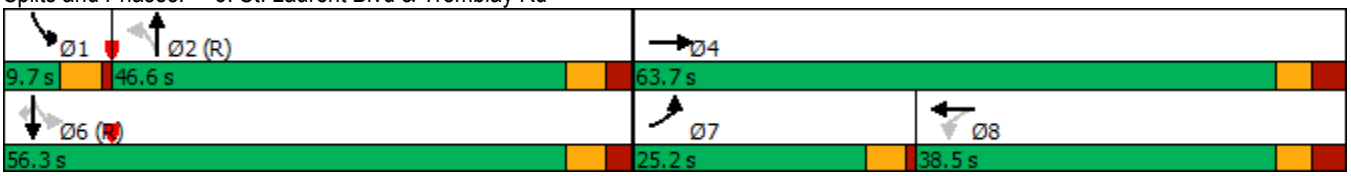
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		8	8		2	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		10.0	10.0		5.0	10.0	10.0
Minimum Split (s)	9.5	38.5		38.5	38.5		39.2	39.2		9.7	39.2	39.2
Total Split (s)	25.2	63.7		38.5	38.5		46.6	46.6		9.7	56.3	56.3
Total Split (%)	21.0%	53.1%		32.1%	32.1%		38.8%	38.8%		8.1%	46.9%	46.9%
Maximum Green (s)	20.7	57.2		32.0	32.0		40.4	40.4		5.0	50.1	50.1
Yellow Time (s)	3.5	3.3		3.3	3.3		3.7	3.7		3.7	3.7	3.7
All-Red Time (s)	1.0	3.2		3.2	3.2		2.5	2.5		1.0	2.5	2.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.5	6.5		6.5	6.5		6.2	6.2		4.7	6.2	6.2
Lead/Lag	Lead			Lag	Lag		Lag	Lag		Lead		
Lead-Lag Optimize?	Yes			Yes	Yes		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		C-Max	C-Max		None	C-Max	C-Max
Walk Time (s)		7.0		7.0	7.0		11.0	11.0			11.0	11.0
Flash Dont Walk (s)		25.0		25.0	25.0		22.0	22.0			22.0	22.0
Pedestrian Calls (#/hr)		0		0	0		0	0			0	0
Act Effct Green (s)	20.7	42.3		17.1	17.1		54.8	54.8		66.5	65.0	65.0
Actuated g/C Ratio	0.17	0.35		0.14	0.14		0.46	0.46		0.55	0.54	0.54
v/c Ratio	0.99	0.33		0.17	0.79		0.28	0.72		0.30	0.63	0.22
Control Delay	88.2	21.8		44.2	48.1		31.6	31.4		19.2	22.8	3.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	88.2	21.8		44.2	48.1		31.6	31.4		19.2	22.8	3.3
LOS	F	C		D	D		C	C		B	C	A
Approach Delay		71.2			47.7			31.4			19.8	
Approach LOS		E			D			C			B	
Queue Length 50th (m)	60.6	22.0		5.2	29.0		7.2	99.4		5.3	85.0	0.0
Queue Length 95th (m)	#95.0	34.8		12.4	51.6		21.1	#152.7		13.5	127.1	12.1
Internal Link Dist (m)		28.7			88.0			31.9			119.5	
Turn Bay Length (m)	30.0			35.0			30.0			75.0		
Base Capacity (vph)	499	684		271	429		177	1954		172	1615	805
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.99	0.25		0.09	0.50		0.28	0.72		0.30	0.63	0.22

Intersection Summary			
Area Type:	CBD		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 120			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.99			
Intersection Signal Delay: 35.8		Intersection LOS: D	
Intersection Capacity Utilization 93.0%		ICU Level of Service F	
Analysis Period (min) 15			

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: St. Laurent Blvd & Tremblay Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	495	41	130	25	23	193	49	1399	13	51	1023	181
Future Volume (veh/h)	495	41	130	25	23	193	49	1399	13	51	1023	181
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1588	1588	1620	1588	1588	1620	1588	1588	1620	1588	1588	1588
Adj Flow Rate, veh/h	495	41	130	25	23	193	49	1399	13	51	1023	181
Adj No. of Lanes	2	1	0	1	1	0	1	3	0	1	2	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	506	131	415	256	26	221	164	1909	18	169	1521	680
Arrive On Green	0.17	0.39	0.39	0.18	0.18	0.18	0.43	0.43	0.43	0.03	0.50	0.50
Sat Flow, veh/h	2934	336	1065	1088	146	1226	416	4430	41	1513	3018	1350
Grp Volume(v), veh/h	495	0	171	25	0	216	49	913	499	51	1023	181
Grp Sat Flow(s),veh/h/ln	1467	0	1400	1088	0	1372	416	1445	1581	1513	1509	1350
Q Serve(g_s), s	20.1	0.0	10.2	2.3	0.0	18.4	12.0	31.5	31.5	2.2	30.5	9.2
Cycle Q Clear(g_c), s	20.1	0.0	10.2	2.3	0.0	18.4	33.7	31.5	31.5	2.2	30.5	9.2
Prop In Lane	1.00		0.76	1.00		0.89	1.00		0.03	1.00		1.00
Lane Grp Cap(c), veh/h	506	0	546	256	0	247	164	1245	681	169	1521	680
V/C Ratio(X)	0.98	0.00	0.31	0.10	0.00	0.87	0.30	0.73	0.73	0.30	0.67	0.27
Avail Cap(c_a), veh/h	506	0	668	350	0	366	164	1245	681	180	1521	680
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.4	0.0	25.4	41.3	0.0	47.9	38.3	28.4	28.4	22.2	22.3	17.0
Incr Delay (d2), s/veh	34.2	0.0	0.3	0.2	0.0	14.4	4.6	3.8	6.9	1.0	2.4	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.6	0.0	4.0	0.7	0.0	8.0	1.6	13.2	15.0	1.0	13.2	3.6
LnGrp Delay(d),s/veh	83.6	0.0	25.7	41.4	0.0	62.3	42.9	32.3	35.3	23.2	24.7	18.0
LnGrp LOS	F		C	D		E	D	C	D	C	C	B
Approach Vol, veh/h		666			241			1461			1255	
Approach Delay, s/veh		68.8			60.1			33.6			23.7	
Approach LOS		E			E			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6	7	8
Phs Duration (G+Y+Rc), s	8.8	57.9		53.3		66.7	25.2	28.1
Change Period (Y+Rc), s	* 4.7	* 6.2		6.5		* 6.2	4.5	6.5
Max Green Setting (Gmax), s	* 5	* 40		57.2		* 50	20.7	32.0
Max Q Clear Time (g_c+I1), s	4.2	35.7		12.2		32.5	22.1	20.4
Green Ext Time (p_c), s	0.0	3.6		1.4		8.6	0.0	1.2

Intersection Summary	
HCM 2010 Ctrl Delay	38.4
HCM 2010 LOS	D

Notes

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	172	6	5	305	1	4
Future Volume (vph)	172	6	5	305	1	4
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.995				0.892	
Flt Protected				0.999	0.990	
Satd. Flow (prot)	1563	0	0	1569	1387	0
Flt Permitted				0.999	0.990	
Satd. Flow (perm)	1563	0	0	1569	1387	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	574.2			141.6	216.8	
Travel Time (s)	41.3			10.2	15.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	172	6	5	305	1	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	178	0	0	310	5	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.5			3.5	3.5	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.24	1.24	1.24	1.24	1.24	1.24
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 33.5%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	172	6	5	305	1	4
Future Vol, veh/h	172	6	5	305	1	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	172	6	5	305	1	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	178	0	490	175
Stage 1	-	-	-	-	175	-
Stage 2	-	-	-	-	315	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1398	-	537	868
Stage 1	-	-	-	-	855	-
Stage 2	-	-	-	-	740	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1398	-	535	868
Mov Cap-2 Maneuver	-	-	-	-	535	-
Stage 1	-	-	-	-	855	-
Stage 2	-	-	-	-	737	-

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

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	772	-	-	1398	-
HCM Lane V/C Ratio	0.006	-	-	0.004	-
HCM Control Delay (s)	9.7	-	-	7.6	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	0	0	0
Future Volume (vph)	0	0	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1571	0	0	1571	0	0
Flt Permitted						
Satd. Flow (perm)	1571	0	0	1571	0	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	141.6			211.9	222.9	
Travel Time (s)	10.2			15.3	16.0	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	0	0	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	0	0	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	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	3.0			3.0	3.0	
Two way Left Turn Lane						
Headway Factor	1.24	1.24	1.24	1.24	1.24	1.24
Turning Speed (k/h)		15	25		25	15
Sign Control	Free			Free	Free	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 0.0%		ICU Level of Service A	
Analysis Period (min) 15			