817 Montreal Road

Transportation Impact Study

Prepared By:

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August 19, 2015

Novatech File: 113211
Ref: R-2015-127

NOVATECH
Engineers, Planners & Landscape Architects

August 19th, 2015

City of Ottawa
Planning and Growth Management Branch
110 Laurier Ave. W., 4th Floor
Ottawa, ON K1P 1J1

Attention: **Mr. Wally Dubyk, C.E.T.**
Project Manager, Infrastructure Approvals

Dear Sir:

Reference: **817 Montreal Road**
Transportation Impact Study
Our File No.: 113211

This Transportation Impact Study has been prepared in support of a Site Plan Control (SPC) application for 817 Montreal Road.

The structure and format of this report follows the 2006 City of Ottawa Transportation Impact Assessment (TIA) Guidelines. A checklist of the documentation requirements as outlined in Appendix D of the TIA guidelines is attached with reference to corresponding report sections.

A PDF version of this report and copies of the electronic software files are provided on the enclosed disk. We trust that the Transportation Impact Study will be to your satisfaction; please call if you have any questions as you complete your review of the study.

Yours truly,

NOVATECH

Meghan Whitehead

Meghan Whitehead, P.Eng.
Transportation Engineer

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Documentation and Reporting Checklist

Report Context (Section 1.0)

Description of the development (include all of the following that are known at the time of the application):

- ☐ Municipal address;
- ☐ Location relative to major elements of the existing transportation system (e.g., the site is located in the southwest quadrant of the intersection of Main Street/ First Street, 600 metres from the Maple Street Rapid Transit Station);
- ☐ Existing land uses or permitted use provisions in the Official Plan, Zoning By-law, etc.;
- ☐ Proposed land uses and relevant planning regulations to be used in the analysis;
- ☐ Proposed development size (building size, number of residential units, etc.) and location on site;
- ☐ Estimated date of occupancy;
- ☐ Planned phasing of development;
- ☐ Proposed number of parking spaces (not relevant for Draft Plans of Subdivision); and
- ☐ Proposed access points and type of access (full turns, right-in/ right-out, turning restrictions, etc.
- ☐ Study area;
- ☐ Time periods and phasing; and
- ☐ Horizon years (include reference to phased development).

The TIS must include a key plan that shows the general location of the development in relation to the surrounding area. The TIS must also provide a draft site plan of a suitable scale that shows the general location of the development and the proposed access. If the proposed development/ redevelopment is to be constructed in phases, a description must be provided for each phase, identifying the proposed timing of implementation.

Existing Conditions (Section 2.0 and 4.0)

- ☐ Existing roads and ramps in the study area, including jurisdiction, classification, number of lanes, and posted speed limit;
- ☐ Existing intersections, indicating type of control, lane configurations, turning restrictions, and any other relevant data (e.g., extraordinary lane widths, grades, etc.);
- ☐ Existing access points to adjacent developments (both sides of all roads bordering the site);
- ☐ Existing transit system, including stations and stops;
- ☐ Existing on- and off-road bicycle facilities and pedestrian sidewalks and pathway networks;
- ☐ Existing system operations (V/C, LOS); and
- ☐ Major trip generators/ attractors within the Study Area should be indicated.

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The TIS report must include: a context plan of a suitable scale that shows the general location of the development, the proposed access locations and the existing conditions in the surrounding area; figures documenting the existing travel demands by mode; and a summary of collisions for the effected study area roads. A photographic inventory of the transportation network elements in the vicinity of the proposed access points would be beneficial to staff in their review of the Consultant's report.

Demand Forecasting (Section 3.0)

- ☐ General background growth;
- ☐ Other study area developments;
- ☐ Changes to the study area road network;
- ☐ Future background system operations (V/C, LOS, queue lengths):
  - include figures documenting future background travel demands by mode for each horizon year
- ☐ Trip generation rates;
- ☐ Trip distribution and assignment:
  - include figures documenting forecasted site trip generation and assignment by mode; and
  - include figures documenting total future travel demands by mode for each horizon year.

Impact Analysis (Sections 4.0 to 7.0)

- ☐ Total future system operations (V/C, LOS, queue lengths);
- ☐ Signal and auxiliary lane (device) warrants;
- ☐ Operational/ safety assessment (e.g., sight line assessment where grades are an issue);
- ☐ Storage analysis for closely spaced intersections;
- ☐ Pedestrian and bicycle network connections and continuity;
- ☐ On-site circulation and design;
- ☐ Potential for neighbourhood impacts; and
- ☐ TDM.

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EXECUTIVE SUMMARY

A 9-storey office development with ground-floor retail is proposed at 817 Montreal Road, located between Carsons Road and Den Haag Drive (approximately 450m east of the Aviation Parkway). The development includes approximately 12,800m^2 of office space and 750m^2 of retail space. The construction will be carried out in a single phase with completion expected in 2016.

The intersections to be evaluated in this report were confirmed with the City prior to the preparation of this report. The time periods for analysis include the weekday AM and PM peak hours. Analysis has been completed for the build-out scenario in 2016 and a five year horizon of 2021.

The background traffic growth was developed based on the 2011 and 2031 TRANS model. A linear growth rate of 1% per annum was used for Montreal Road while a linear growth rate of 3% per annum was used for through movements on the Aviation Parkway. Trip generation rates for the proposed development were based on the General Office and Specialty Retail land uses in the *Institute of Transportation Engineers (ITE) Trip Generation Manual 9th Edition*. Total traffic volumes have been calculated by adding the proposed site traffic to the projected background traffic volumes.

Provisions for non-auto travel modes were assessed, including access to local pedestrian, bicycle and transit systems. The proposed on-site design was reviewed in terms of vehicle access, on-site parking and on-site loading activities. Potential for community impacts and the conformance to Transportation Demand Management (TDM) principles were also evaluated. The main conclusions and recommendations of this report are as follows:

<u>Existing Conditions</u>

- In the last three years at the intersection of the Aviation Parkway & Montreal Road, 11 turning impact collisions occurred between westbound left turning vehicles and eastbound through vehicles, and 9 rear-end collisions occurred involving westbound vehicles. It is recommended that the city continue to monitor this location and consider a fully protected westbound left turn movement if a collision pattern continues.

- In the last three years, 8 rear-end collisions involving westbound vehicles occurred at the intersection of Den Haag Drive & Montreal Road. It is recommended that the city continue to monitor the collisions involving westbound vehicles at this intersection.

- All traffic movements within the study area are currently operating at a LOS E or better during the AM and PM peak hours. Modifications to the existing timing plans can improve the LOS to D for all movements.

- The following extensions to left turn storage are recommended to meet existing demand or match the City of Ottawa's TIA guideline for left turn storage requirements:
    - Aviation Parkway
        - Northbound left – extend to 90m (an additional 50m)
        - Southbound left – extend to 70m (an additional 30m)

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        - Westbound left – extend to 90m (an additional 35m)
    - Montfort Hospital
        - Eastbound left – extend to 65m (an additional 20m)
    - Den Haag Drive
        - Northbound left – extend to 85m (expected to be achievable through line painting)

- Extension of the westbound left turn storage at the Aviation Parkway and eastbound left turn storage at the Montfort will exceed the available combined storage within the current back-to-back left turn lane. The storage constraints are limited to the PM peak hour and specifically the 95th percentile queues. As a result, it is recommended the City monitor the queues in this location to identify whether extensions to the turning lanes are necessary at this time.

Background Traffic (2021)

- All traffic movements within the study area are anticipated to operate at a LOS E or better during the AM and PM peak hours. To achieve a LOS D for all movements would require widening of the Aviation Parkway and Montreal Road intersection. As the capacity constraints are limited to the weekday PM peak hour and all movements are anticipated to operate at a LOS E, additional widening to this intersection is not recommended. Limiting the roadway cross-section is expected to be preferable in creating an attractive multi-modal transportation system in this urban area.

- It is recommended that the northbound left turn storage at the Aviation Parkway and Montreal Road be further extended to 100m to accommodate the additional background traffic demand (an additional 10m beyond the required storage for the existing condition).

Total Traffic

- With modifications to the signal timing plans, all traffic movements within the study area are anticipated to operate at a LOS E or better during the AM and PM peak hours. To achieve a LOS D for all movements would require widening of the Aviation Parkway and Montreal Road intersection; consistent with the findings of the background traffic analysis. It is recommended the City consider maintaining operations at a LOS E to limit the roadway cross-section in this urban area.

- It is recommended that the westbound left turn storage at the Aviation Parkway and Montreal Road be further extended to 100m to accommodate the total traffic (an additional 10m beyond the required storage for the existing condition). It is expected that this minor additional lengthening would be undertaken in combination with the intersection modifications identified to accommodate the existing traffic.

- Based on the projected transit trip volumes associated with the proposed development, no capacity problems are anticipated on any of the adjacent transit routes, or at any of the nearby bus stops.

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- The location and spacing of the proposed private approach driveway is compliant with the requirements of the City of Ottawa's *Private Approach and Zoning By-laws*.

- A total of 314 parking spaces are to be provided on-site through a combination of surface and underground parking. The on-site parking satisfies the minimum required parking as identified in the City of Ottawa's *Zoning By-Law* (ZBL).

- A total of 55 bicycle parking spaces will be provided to meet the minimum requirements identified in the ZBL; 14 of which will be secure bicycle parking (as required by the ZBL).

- The proposed development is not anticipated to have any measurable impact on the local neighborhood roadways in the vicinity of the subject site.

- The proposed development conforms to the City's TDM initiatives by providing easy access to local pedestrian, bicycle and transit systems. Consideration should be given to additional measures such as providing flexible working hours and providing a parking space for a car share service (VRTUCAR).

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1.0 INTRODUCTION

The following Transportation Impact Study (TIS) has been prepared as requested by the City in support of a Site Plan Control (SPC) application for an office development with ground floor retail located at 807-825 Montreal Road. The subject site is located east of the Montfort Hospital between LeBoutillier Avenue and Carsons Road, as shown in **Figure 1**.

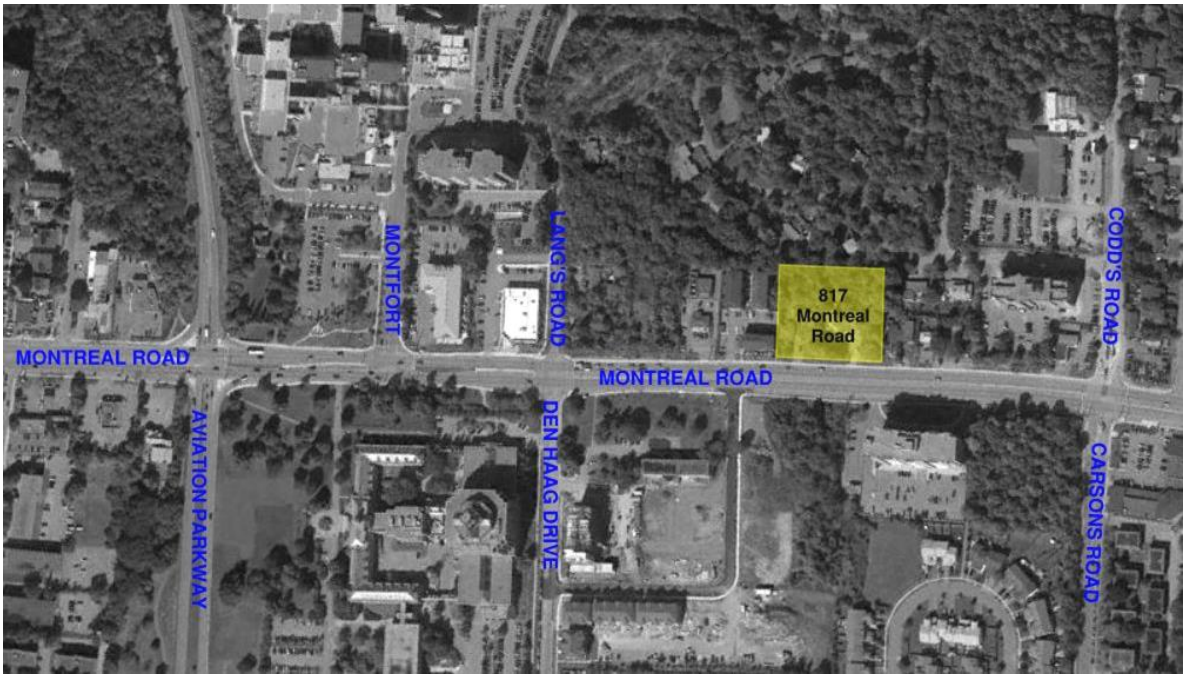


Figure 1: Study Area and Site

The subject site is immediately surrounded by residential land uses with single detached homes to the east and north, townhomes to the west and apartment and condominiums to the south.

The site is to be developed in a single phase with full build-out anticipated in 2016. The development will consist of a single 9-storey building with ground floor retail and a total of 314 parking spaces provided through a combination of surface and underground parking facilities. Vehicle access to the site is proposed through a full movement access along Montreal Road. The proposed site plan is provided in **Appendix A**.

1.1 Analysis Parameters

The study area for this report was confirmed with City staff, and includes the proposed site access along Montreal Road as well as the following signalized intersections:

- Aviation Parkway & Montreal Road
- Montfort Hospital & Montreal Road
- Den Haag Drive/Lang's Road & Montreal Road
- Codd's Road/Carsons Road & Montreal Road

The selected time period for analysis is the weekday AM and PM peak hours as they represent the 'worst case' combination of site generated traffic and adjacent street traffic. Evaluation of the

study area intersections has been completed for the existing, background and total traffic conditions.

2.0 EXISTING CONDITIONS

2.1 Roadway Facilities

2.1.1 Montreal Road

Montreal Road is an arterial road that runs on an east-west alignment within the study area. Montreal Road has a four-lane divided urban cross-section with the exception of between Den Haag Drive and Carsons Road where the median is replaced by a two-way-left-turn (TWLT) lane. Montreal Road has a posted speed limit of 60km/h through the study area and is designated as a primary truck route. The City of Ottawa *Official Plan* (OP) identifies a requirement to protect a Right-of-Way (ROW) of 37.5m along Montreal Road.

2.1.2 Aviation Parkway

The Aviation Parkway is a federally owned roadway that runs on a north-south alignment between Highway 417 and the Sir George-Étienne Cartier Parkway (formerly the Rockcliffe Parkway). The Aviation Parkway has a four lane divided urban cross-section south of Montreal Road and a two lane undivided urban cross-section north of Montreal Road. The Aviation Parkway has a posted speed limit of 60km/h and trucks are prohibited.

2.1.3 Den Haag Drive

Den Haag Drive and Carsons Road/Codd's Road are designated as collector roadways and intersect Montreal Road on a north-south alignment. Both roads have a two lane undivided urban cross-section with a speed limit is 50km/h.

2.2 Study Area Intersections

The lane configurations at each of the study area intersections can be summarized as follows:

<u>Aviation Parkway & Montreal Road</u>

- This intersection is a four legged signalized intersection;
- The northbound and southbound approaches consist of a single through lane, a left turn lane, and a channelized right turn lane;
- The eastbound and westbound approaches consist of two through lanes, a bicycle lane, a channelized right turn lane and a single left turn lane.

<u>Montfort Hospital & Montreal Road</u>

- This intersection is a three legged signalized intersection;
- The north leg is a two-lane road with a single inbound lane and two outbound lanes (one left and one right); and
- The eastbound and westbound approaches consist of two through lanes and a bicycle lane in each direction, as well as a dedicated eastbound left turn lane.

<u>Den Haag Drive/Lang's Road & Montreal Road</u>

- This intersection is a four legged signalized intersection;

- The north leg is a two-lane road with an inbound lane and an outbound lane;
- The south leg is a two-lane road with a northbound left turn lane developed on approach to Montreal Road;
- The east leg has two through lanes, a bicycle lane, and a left turn lane; and
- The west leg has two through lanes, a bicycle lane, a left turn lane, and a right turn lane.

Carsons Road/Codd's Road & Montreal Road

- This intersection is a four legged signalized intersection;
- The northbound and southbound approaches consist of a shared through-right lane and a dedicated left turn lane; and
- The eastbound and westbound approaches consist of two through lanes, a bicycle lane, and a single left turn lane.

2.3 Existing Pedestrian Facilities

Pedestrian facilities are currently provided along the study area roadways as follows:

- A concrete sidewalk is provided along both sides of Montreal Road;
- A multi-use pathway is provided along the west side of the Aviation Parkway;
- A concrete sidewalk is provided along the west side of Lang's Road;
- A concrete sidewalk is provided along both sides of Den Haag Drive;
- A concrete sidewalk is provided along both sides of the Montfort Hospital access road;
- A concrete or asphalt sidewalk is provided along the west side of Codd's Road; and
- A concrete sidewalk is provided along both sides of Carsons Road.

2.4 Existing Bicycle Facilities

The City of Ottawa Primary Urban Cycling Network in the *2013 Transportation Master Plan* (TMP) identifies Montreal Road as a spine route and Lang's Road/Den Haag Drive as well as Codd's Road/Carsons Road as local routes. Montreal Road has on-street bike lanes through the study area terminating at Bathgate Drive to the east and St.Laurent Blvd. to the west. Cyclists travelling longer distances would likely use the pathway along the Aviation Parkway or local roads to connect with alternate east-west cycling facilities.

2.5 Existing Transit Facilities

A copy of the 2015 OC Transpo system map for the study area is included in **Appendix B**. This report describes all existing transit facilities within a five minute walk of the subject site, which equates to a distance of approximately 400m for local stops. The locations of the bus stops in the area are shown in **Figure 2**.

Several bus stops are located along Montreal Road with the closest stops located approximately 150m east of the site and served by Routes 12 and 129. Route 12 operates primarily along Montreal Road between Blair Station and downtown with a 10min frequency during peak periods and approximately 15min frequency during off-peak time periods. Route 129 operates as a local route connecting the study area to Blair Station and continuing west along the Transitway to Hurdman Station.

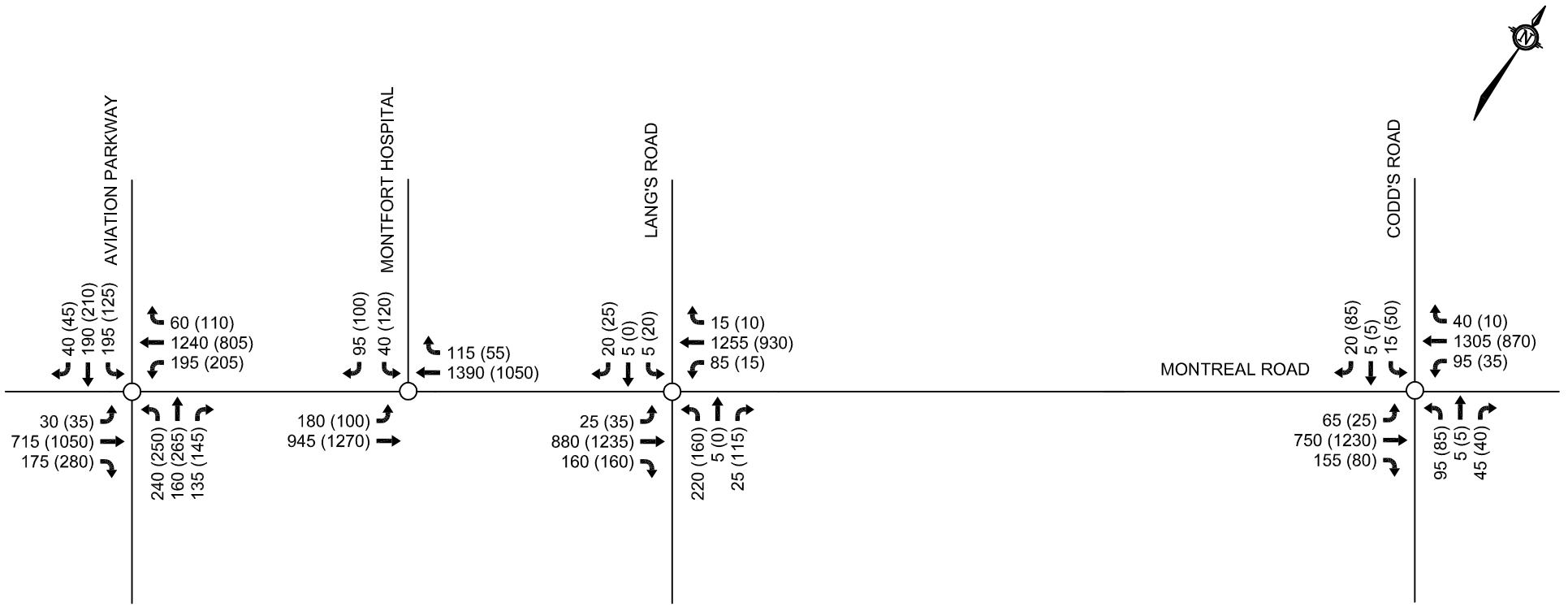
Figure 2: OC Transpo Stop and Station Locations

2.6 Existing Traffic Volumes

Weekday AM and PM peak hour traffic counts were completed by the City of Ottawa at the following study area intersections on the dates indicated:

- Aviation Parkway & Montreal Road — Thursday July 24, 2014
- Aviation Parkway & Montreal Road — Wednesday May 11, 2011
- Montfort Hospital & Montreal Road — Thursday July 10, 2014
- Montfort Hospital & Montreal Road — Tuesday July 6, 2010
- Den Haag Drive & Montreal Road — Tuesday December 16, 2014
- Den Haag Drive & Montreal Road — Monday July 5, 2010
- Carsons Road & Montreal Road — Tuesday December 2, 2014
- Carsons Road & Montreal Road — Wednesday May 2, 2012

Due to the discrepancy in the 2014 traffic data (likely attributable to seasonal variability), the second most recent count at each intersection was reviewed and the network was balanced to identify appropriate volumes for the existing conditions analysis. The traffic analysis was typically based upon the 2014 volumes with the exception of the Aviation Parkway/Montreal Road intersection where the 2011 data was used as it reflected higher traffic volumes than the more recent 2014 data. Existing AM and PM peak hour traffic volumes are shown in **Figure 3**. Peak hour summary sheets of the traffic count data are included in **Appendix C**.



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LEGEND

- Unsignalized Intersection
- Signalized Intersection
- xx VPH AM Peak Hour
- (xx) VPH PM Peak Hour

817 MONTREAL ROAD

EXISTING TRAFFIC

27/07/2015 113211 FIGURE 3

2.7 Collision Records

Historical collision data from the last three years was obtained from the City's Public Works and Service Department for all study area intersections. Copies of the collision summary reports are included in **Appendix D**.

The data was evaluated to determine if there are any identifiable collision patterns. The Ottawa TIA Guidelines define a collision pattern as more than one collision at a roadway location that involves similar directions and impact types. Further analysis may be warranted for intersections with a pattern of six or more collisions for any one movement or a total of 33 or more collisions, over a three-year period.

The following table provides a summary of the number of collisions reported in the study area between January 1, 2011 and January 1, 2014.

Table 1: Reported Collisions

Location	Number of Reported Collisions (Jan. 2011 to Jan. 2014)
Intersections	
Aviation Parkway & Montreal Road	49
Montfort Hospital & Montreal Road	5
Den Haag Drive/Lang's Road & Montreal Road	13
Codd's Road/Carsons Road & Montreal Road	6
Mid-Block on Montreal Road	
Aviation Parkway to Lang's Road/Den Haag Drive	17
Lang's Road/Den Haag Drive to Codd's Road/Carsons Road	9

Aviation Parkway and Montreal Road
A total of 49 collisions were recorded at the Aviation Parkway / Montreal Road intersection over the last three years. Twenty-three (23) of the collisions were turning impacts, 19 were rear-end impacts, 4 were angle impacts, 2 were sideswipe impacts, and one was an 'other' impact involving a reversing vehicle. Seventeen (17) of the collisions recorded caused personal injuries but none caused fatalities.

Eleven (11) of the 23 turning impacts recorded involved a westbound left turning vehicle, 7 involved a northbound left turning vehicle, 4 involved an eastbound left turning vehicle and 1 involved a southbound left turning vehicle.

Four (4) of the 11 collisions involving a westbound left tuning vehicle occurred in the dark; of which 2 occurred in wet conditions. The remaining 7 occurred during daylight hours in dry and clear conditions and occurred throughout the day with four during the midday time period and three during the afternoon peak period. It is recommended that the City continue to monitor the westbound left turn at this intersection to identify if the collision pattern continues. A fully protected left turn phase on the westbound approach could be considered to decrease the frequency of left turning collisions at this intersection.

Nine (9) of the 19 rear-end impacts at this intersection occurred between vehicles in the westbound direction, 5 between vehicles in the eastbound direction, 4 between vehicles in the northbound direction, and 1 between vehicles in the southbound direction. Four (4) of the 9 westbound rear-end collisions occurred under unfavourable weather conditions. It is recommended that the City continue to monitor the westbound rear-end collisions in this location.

Den Haag Drive & Montreal Road

Eight (8) of the 12 reported collisions at the Den Haag Drive/Montreal Road intersection were westbound rear-end impacts; of which two occurred under unfavourable weather conditions. With consideration to the westbound rear-end collisions, there does not appear to be sightline concerns in this area. It is recommended that these collisions continue to be monitored. If the collision pattern continues, warning signs could be considered on approach to the intersection.

Codd's Road/Carsons Road & Montreal Road

A total of 6 collisions were reported at the Carsons Road/Montreal Road intersection over the last three years. Two (2) of the collisions were rear end impacts, 2 were angle impacts, 1 was involving a single vehicle hitting a curb and the last was an "other" impact which involved a vehicle skidding in snowy conditions. None of these meet the City of Ottawa's criteria for further analysis with respect to patterns or total collisions.

Montreal Road – Aviation Parkway to Den Haag Drive/Lang's Road

Seventeen (17) collisions were reported on this segment of Montreal Road in the last three years; excluding those that occurred at intersections. Eight (8) of the collisions were rear-end impacts, 5 were sideswipe impacts, 1 was an angle impact, 1 involved turning vehicles, and 2 were single vehicle collisions. Six (6) of the 8 rear-end impacts involved westbound vehicles, of which 5 occurred under unfavourable weather conditions.

Montreal Road – Den Haag Drive/Lang's Road to Codd's Road/Carsons Road

A total of 9 collisions occurred on this segment of Montreal Road in the last three years (excluding the intersections). Three (3) of the collisions were rear-end impacts, 1 was an angle impact, 1 was a turning impact, 1 was a sideswipe impact, 1 was an approaching vehicle, and 2 were single vehicle impacts. Three (3) of the collisions had personal injuries but none were fatal.

3.0 TRAVEL DEMAND FORECASTING

3.1 Planned Roadway and Transit Projects

The City of Ottawa's 2013 *Transportation Master Plan* (TMP) identified Montreal Road as a transit priority corridor including a widening through the study area to include transit lanes. The timeframe for this roadway widening is uncertain and has not been assumed to be undertaken within the timeframe analysed in this report.

The TMP also identified the extension of Codd's Road to connect with the future proposed development at the CFB Rockcliffe site. This roadway extension is also identified as a transit priority corridor. The extension of Codd's Road is anticipated in combination with the development of CFB Rockcliffe which is not anticipated to occur during the timeframe considered in this report.

3.2 Planned Cycling and Pedestrian Projects

There are no planned projects exclusively for pedestrians and cyclists in the study area. However, the widening of Montreal Road and extension of Codd's Road for the implementation of transit priority measures is expected to include appropriate pedestrian and cycling facilities.

3.3 Historic Background Growth

The anticipated growth in traffic along Montreal Road and the Aviation Parkway was developed based on the TRANS model (2011 to 2031). A linear growth rate of 1% per annum was applied to all through traffic on Montreal Road and all turning movements to/from the Aviation Parkway. A linear growth rate of 3% per annum was applied to through movements on the Aviation Parkway at Montreal Road. The 2016 and 2021 background traffic volumes are shown in **Figure 4** and **Figure 5**, respectively.

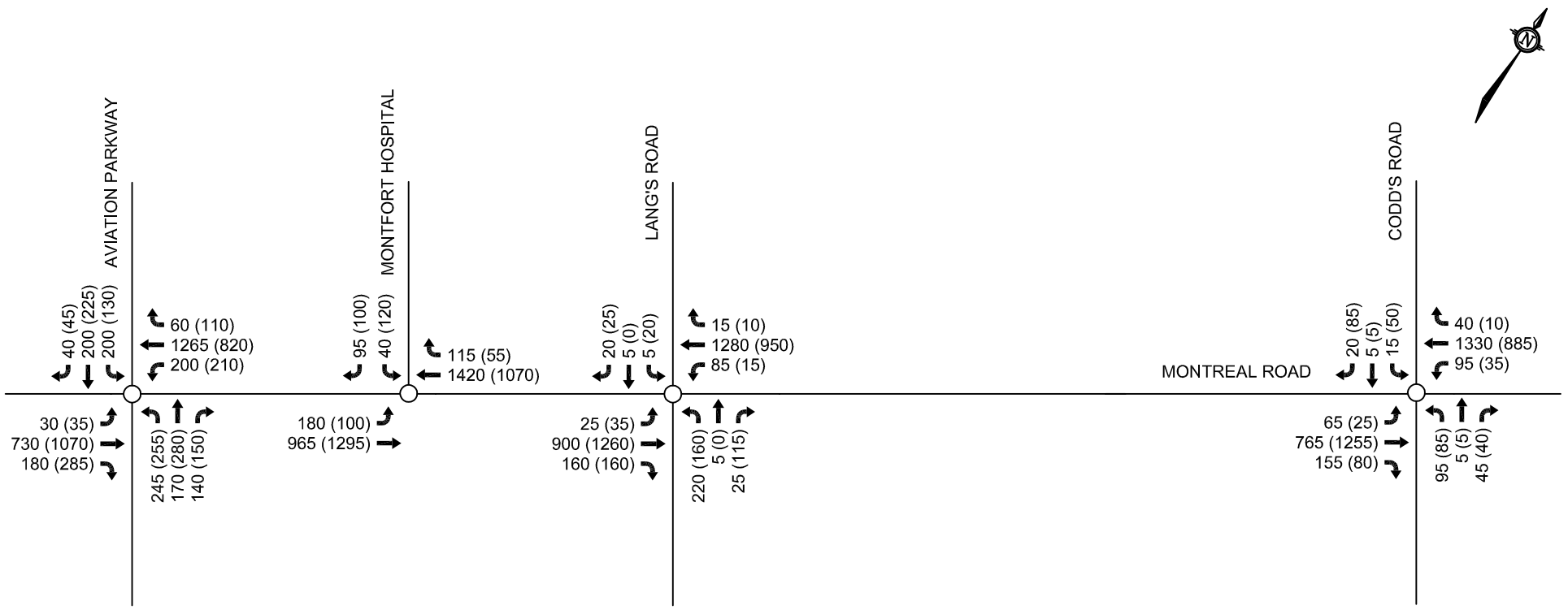
3.4 Trip Generation

The proposed building has a gross floor area of approximately 13,550m^2, of which 12,800m^2 is office space and 750m^2 is retail. Trips generated by the proposed development have been estimated using the peak hour rate identified in the *Institute of Transportation Engineers (ITE) Trip Generation Manual, 9th Edition* for a general office building (LU710) and specialty retail (LU826). The specialty retail land use does not include an AM peak hour rate (likely because many retail stores are closed during the AM peak hour). Instead, the AM specialty retail rate was estimated based on the PM peak hour rate and the rates provided for the shopping centre land use. The peak hour vehicle trips generated by the proposed development are outlined in **Table 2** below.

Table 2: ITE Vehicle Trip Generation

Land Use	ITE Code	GFA (s.f.)	AM Peak (VPH)			PM Peak (VPH)		
			IN	OUT	TOTAL	IN	OUT	TOTAL
General Office	710	137,680	217	30	247	40	193	233
Specialty Retail	826	8,030	2	3	5	18	23	41
		Total	**219**	**33**	**252**	**58**	**216**	**274**

The trip generation surveys compiled in the ITE Trip Generation Manual only record vehicle trips, and the sites surveyed are typically located in suburban locations in the United States where non-auto modes of transportation are typically very low. Where multiple modes of transportation are readily available, it is considered good practice to express projected trip generation volumes in terms of person trips, instead of vehicle trips. To convert ITE vehicle trip rates to person trip rates an adjustment factor of 1.42 has been used to account for non-auto usage and vehicle occupancy. The person trip generation is summarized in **Table 3**.



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LEGEND

- Unsignalized Intersection
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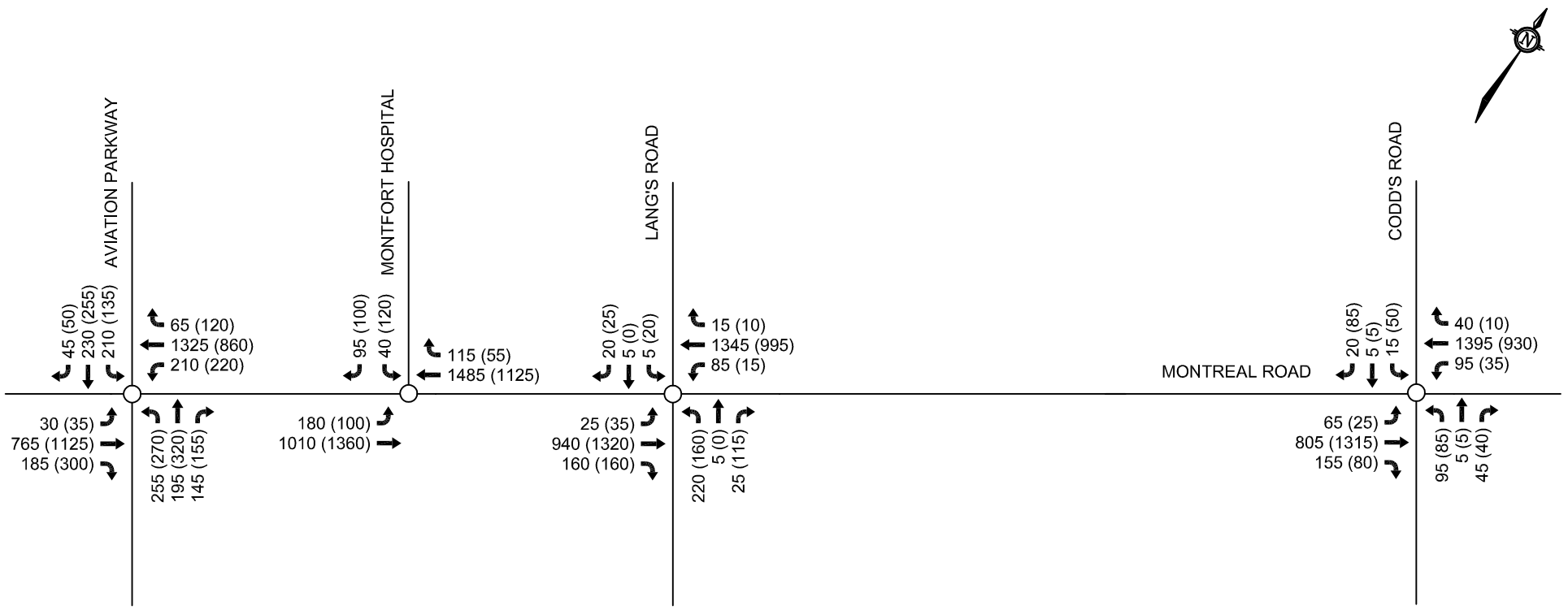
817 MONTREAL ROAD

2016 BACKGROUND TRAFFIC

27/07/2015 113211 FIGURE 4



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817 MONTREAL ROAD

2021 BACKGROUND TRAFFIC

27/07/2015 113211 FIGURE 5

Table 3: Person Trips

Land Use	In (vph)	Out (vph)	Total (vph)	Person Trip Factor	In (pph)	Out (pph)	Total (pph)
AM Peak							
Office	217	30	247	x 1.42	309	42	351
Retail	2	3	5	⟶	3	4	7
				Total	**312**	**46**	**358**
PM Peak							
Office	40	193	233	x 1.42	56	275	331
Retail	18	23	41	⟶	26	32	58
				Total	**82**	**307**	**389**

The number of trips by mode of transportation has been estimated based on the *2011 TRANS O-D Survey* for the Beacon Hill area. This approach of basing the analysis on the existing modal share is considered conservative as the *Transportation Master Plan* identified a city-wide auto driver target of only 50% with higher targets for the area within the greenbelt.

A full breakdown of the projected person trips by modal share and arrival/departure is shown in **Table 4**.

Table 4: Site Generated Person Trips by Mode of Transportation

Travel Mode	Modal Share	AM Peak			PM Peak		
		In	Out	Total	In	Out	Total
Office Person Trips							
Auto Driver	75%	232	31	**263**	42	206	**248**
Auto Passenger	5%	16	2	**18**	3	14	**17**
Transit	15%	45	7	**52**	8	41	**49**
Non-Motorized	5%	16	2	**18**	3	14	**17**
Retail Person Trips							
Auto Driver	75%	2	3	**5**	19	24	**43**
Auto Passenger	15%	1	1	**2**	3	4	**7**
Transit	5%	-	-	**-**	2	2	**4**
Non-Motorized	5%	-	-	**-**	2	2	**4**

The proposed retail land use is expected to generate two types of external peak hour trips: primary trips and pass-by trips. Primary trips are made for the specific purpose of visiting the site and pass-by trips are made as intermediate stops on the way to another destination. Peak hour pass-by trips have been estimated based on a pass-by rate of 34%. The *ITE Trip Generation Handbook, 9th Edition* identifies this percentage as an average rate for a Shopping

Centre land use. The pass-by trips generated by the retail use are part of the projected background traffic, and as such do not constitute 'new' trips on the adjacent road network. The primary and pass-by trip generation is summarized in the **Table 5**.

Table 5: Primary and Pass-By Trips Generated by the Retail Development

Trip Type	AM Peak			PM Peak		
	In	Out	Total	In	Out	Total
Retail Vehicle Trips	**2**	**3**	**5**	**19**	**24**	**43**
Pass-By	1	1	2	5	5	10
Primary	1	2	3	14	19	33

3.5 Trip Distribution

3.5.1 Vehicular Traffic

The origins of AM auto driver work trips to Beacon Hill as identified in the 2011 OD data was reviewed and used as a basis for identifying the trip distribution pattern for vehicle trips to/from the office development. The origin of trips generated by the retail land use was estimated based on the 2011 OD data for 24-hour trips for non-work purposes. With consideration to the estimated trip origins, the trip distribution has been derived with consideration given to several key factors, including:

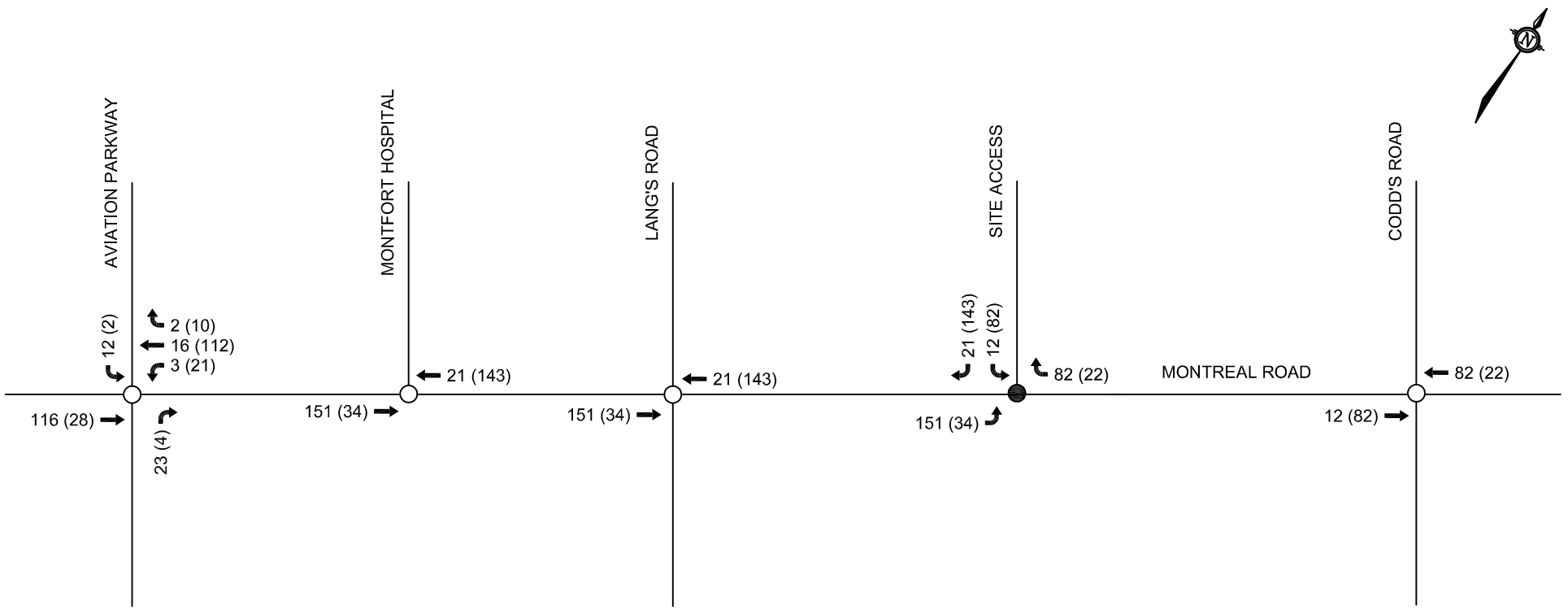
- The size and nature of the proposed development;
- Existing traffic patterns;
- The location of the site access with respect to the adjacent roadway system; and
- The principles of logical trip routing.

The assignment of site-generated vehicular trips to the road network during the weekday AM and PM peak hours is summarized in **Table 6**.

Table 6: Vehicle Trip Distribution

Assignment	Office	Retail
Montreal Road West	50%	45%
Aviation Pkwy South	10%	5%
Aviation Pkwy North	5%	
Montreal Road East	35%	50%

The projected peak hour trips generated by the proposed development are shown in **Figure 6** and **Figure 7**. The projected total traffic volumes are shown in **Figure 8** and **Figure 9**.



NOVATECH
Engineers, Planners & Landscape Architects
Suite 200, 240 Michael Cowpland Drive
Ottawa, Ontario, Canada K2M 1P6

Telephone (613) 254-9643
Facsimile (613) 254-5867
Website www.novatech-eng.com

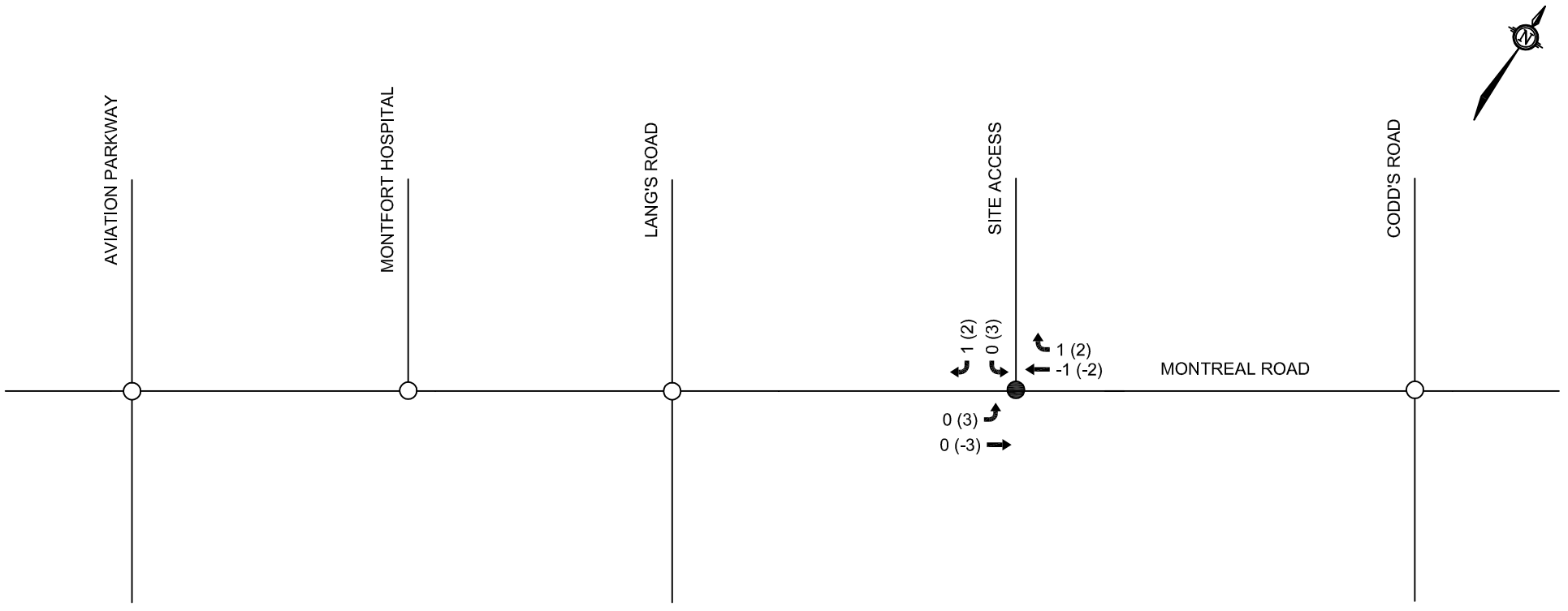
LEGEND

- Unsignalized Intersection
- Signalized Intersection
- xx VPH AM Peak Hour
- (xx) VPH PM Peak Hour

817 MONTREAL ROAD

PRIMARY SITE GENERATED VEHICLE TRIPS

27/07/2015 113211 FIGURE 6



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LEGEND

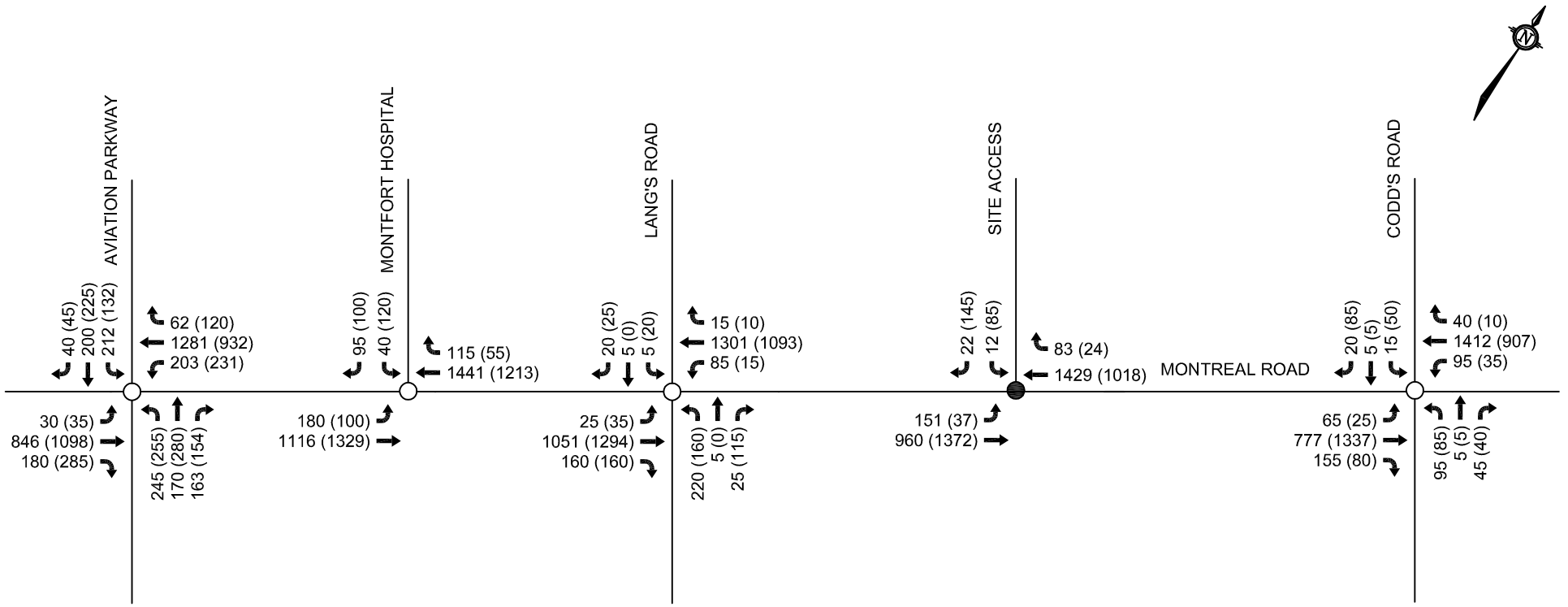
- Unsignalized Intersection
- Signalized Intersection

xx VPH AM Peak Hour
(xx) VPH PM Peak Hour

817 MONTREAL ROAD

PASS-BY SITE GENERATED VEHICLE TRIPS

27/07/2015 113211 FIGURE 7



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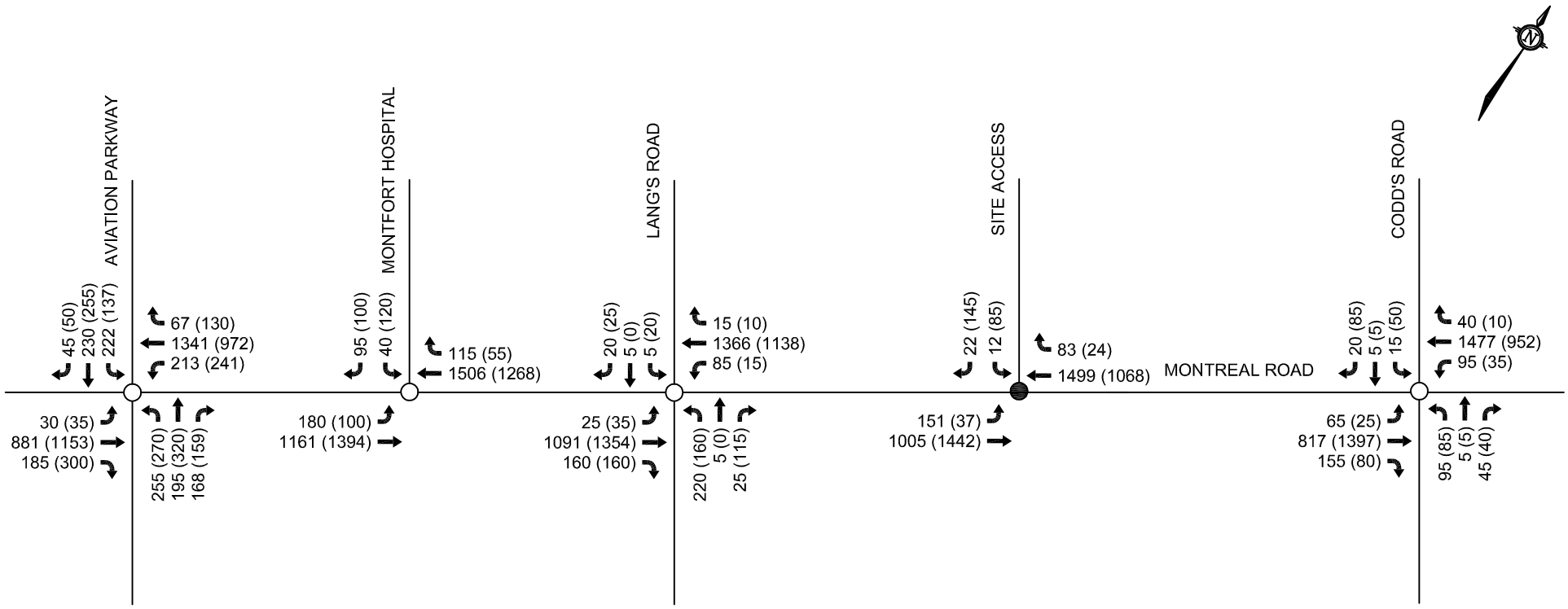
LEGEND

- Unsignalized Intersection
- Signalized Intersection
- xx VPH AM Peak Hour
- (xx) VPH PM Peak Hour

817 MONTREAL ROAD

2016 TOTAL TRAFFIC

27/07/2015 113211 FIGURE 8



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LEGEND

- Unsignalized Intersection
- Signalized Intersection
- xx VPH AM Peak Hour
- (xx) VPH PM Peak Hour

817 MONTREAL ROAD

2021 TOTAL TRAFFIC

27/07/2015 113211 FIGURE 9

3.5.2 Transit Trips

The distribution of transit trips to and from the proposed development was derived from AM work trip data compiled from the *2011 TRANS O-D Survey Report*.

The top origins for all AM work trips arriving by transit to the Beacon Hill District are summarized in **Table 7**.

Table 7: Top Origins of AM Trips to Alta Vista

AM Peak Origin of Arrivals	% Transit Trips
Ottawa Inner Area	35%
Orleans	15%
Ottawa East	15%
Alta Vista	10%
Kanata	10%

Based on the data presented in **Table 7**, most transit riders are likely to take a Transitway but to either Hurdman or Blair Stations and transfer to either Routes 129 or 12 to access the site. With peak transit volumes of approximately 45 passengers per hour distributed over two local bus routes with approximately 10 buses per hour and per direction, capacity constraints are not anticipated.

4.0 INTERSECTION ANALYSIS

4.1 Existing Traffic

Intersection capacity analysis was completed for the existing traffic condition during the weekday AM and PM peak hours. The analysis was based on the existing roadway and lane configurations within the study area, and traffic signal timing data obtained from the Public Works & Service Department. The signal timings are included in **Appendix C**.

The results of the analysis are summarized in **Table 8** for the weekday AM and PM peak hours. Detailed reports are included in **Appendix E**.

Table 8: Existing Peak Hour Intersection Operations

Intersection	AM Peak			PM Peak		
	Max v/c or Delay	LOS	Movement	Max v/c or Delay	LOS	Movement
Existing Timing Plans						
Aviation Parkway & Montreal Road	0.82	D	NBL	**0.96**	**E**	NBL
Montfort Hospital & Montreal Road	0.72	C	WB	0.63	B	SBL
Den Haag Drive/Lang's Road & Montreal Road	0.86	D	NBL	0.76	C	NBL
Carsons Road/Codd's Road & Montreal Road	0.69	B	WBTR	0.63	B	NBL
Adjusted Timing Plan						
Aviation Parkway & Montreal Road	-	-	-	0.88	D	NBL

Montreal Road & Aviation Parkway

The northbound left turn movement is currently operating near capacity during the PM peak hour. Adjustments to the existing signal timing plan will achieve a LOS D or better for all movements.

The Synchro analysis and City's methodology for identifying left turn storage suggest the northbound, southbound and westbound left turn storage is currently insufficient during the peak hour. The following modifications to the existing storage are recommended to accommodate the 95th percentile queue calculated by Synchro and the storage requirements identified by the methodology outlined in the TIA guidelines:

- Northbound left turn lane extended to 90m (an additional 50m)
- Southbound left turn lane extended to 70m (an additional 30m)
- Westbound left turn lane extended to 90m (an additional 35m)

The extension of the westbound left turn lane would require the existing back-to-back turn lanes between the Montfort Hospital and the Aviation Parkway to be separated as their combined storage requirements are estimated to exceed the spacing between these two intersections. It should be noted that the 50th percentile peak hour queues are not anticipated to exceed the available storage and the eastbound through movement at the Montfort Hospital and the WBT movement at the Aviation Parkway are both operating at acceptable Levels of Service. Therefore, it may be beneficial for the City to monitor the left turn queues at this location and identify whether modifications to the roadway in this location are necessary. As identified in Section 2.7, there has been a pattern of collisions at this intersection for westbound left turning vehicles and westbound rear-end impacts and this should be considered in combination with the peak hour queues.

Montreal Road & Montfort Hospital

The storage required for the eastbound left turn movement as identified in the TIA guidelines exceeds the available storage. As a result, the eastbound left turn movement should be extended to 65m (an additional 20m). As noted above, an extension to this left turn lane would require altering the existing back-to-back turn lanes between the Aviation Parkway and the Montfort. It should be noted that the 95th percentile queue as calculated by Synchro reaches but does not exceed the existing storage for the eastbound left turn movement. It is recommended that the City monitor the left turn queues in this location and identify whether modifications to the roadway in this location are necessary.

Den Haag Drive/Lang's Road & Montreal Road

The Synchro analysis for the AM peak hour as well as the City's methodology for calculating the left turn storage requirements both suggest the northbound left turn lane should be extended to approximately 85m. It is anticipated this could be achieved through line painting.

4.2 Background Traffic

4.2.1 2016 Background Traffic

Intersection capacity analysis was completed for the projected 2016 background traffic conditions using Synchro 8. The analysis was based on the existing intersection lane arrangements as well as any recommended intersection modifications identified in Section 4.1. The results of the analysis are summarized in **Table 9** for the weekday AM and PM peak hours.

Table 9: 2016 Background Traffic Peak Hour Intersection Operations

Intersection	AM Peak			PM Peak		
	Max v/c or Delay	LOS	Movement	Max v/c or Delay	LOS	Movement
Aviation Parkway & Montreal Road	0.84	D	NBL	**0.94**	**E**	WBL
Montfort Hospital & Montreal Road	0.73	C	WB	0.63	B	SBL
Den Haag Drive/Lang's Road & Montreal Road	0.86	D	NBL	0.76	C	NBL
Carsons Road/Codd's Road & Montreal Road	0.71	C	WBTR	0.63	B	NBL
Adjusted Timing Plan						
Aviation Parkway & Montreal Road	**-**	-	-	0.90	D	EBT

Most intersections will continue to operate at an acceptable LOS D or better with the exception of specific movements at the Aviation Parkway & Montreal Road intersection. The westbound left turn and northbound left turn movements at the Aviation Parkway / Montreal Road

intersection are operating at a LOS E during the PM peak hour. Modifications to the signal timing plan will achieve a LOS D or better for all movements.

4.2.2 2021 Background Traffic

Intersection capacity analysis has been completed for the projected 2021 background traffic conditions using Synchro 8. The analysis was based on the existing intersection lane arrangements as well as any recommended intersection modifications identified in Section 4.1 and 4.2.1. The results of the analysis are summarized in **Table 10** for the weekday AM and PM peak hours.

Table 10: 2021 Background Traffic Peak Hour Intersection Operations

Intersection	AM Peak			PM Peak		
	Max v/c or Delay	LOS	Movement	Max v/c or Delay	LOS	Movement
Aviation Parkway & Montreal Road	0.90	D	NBL	**0.97**	**E**	EBT
Montfort Hospital & Montreal Road	0.76	C	WB	0.63	B	SBL
Den Haag Drive/Lang's Road & Montreal Road	0.86	D	NBL	0.76	C	NBL
Carsons Road/Codd's Road & Montreal Road	0.74	C	WBTR	0.63	B	NBL

Most intersections will continue to operate at an acceptable LOS D or better with the exception of the Aviation Parkway & Montreal Road intersection which is expected to operate at a LOS E. A LOS D for all movements could be achieved through either the addition of a third eastbound through lane or dual northbound left turn lanes. However, it is not recommended that these additional lanes be pursued to improve the intersection capacity (on-going monitoring of collisions may recommend future modifications to improve safety). It is recommended the City accept a LOS E at this intersection during peak hours and maintain the existing lane arrangements with consideration to the following:

- The critical movements at this intersection are approaching capacity during the PM peak hour but are not exceeding the peak hour intersection capacity (v/c > 1.0).
- Capacity constraints are limited to only the weekday PM peak hour.
- The intersection is located within the urban area and less than 6km east of the Central Business District (CBD)
- Widening the intersection to provide additional capacity would further increase the pedestrian crossing times, creating a less attractive pedestrian environment.
- Montreal Road is proposed to be a transit priority corridor creating an opportunity to increase non-auto modal shares in the future.

Assuming the existing lane arrangements are maintained, it is recommended that the NBL turn lane storage be extended to 100m (an additional 10m beyond the requirement for the existing conditions).

4.3 Total Traffic

4.3.1 2016 Total Traffic

Intersection capacity analysis was completed for the projected total traffic volumes, which are the sum total of the background traffic and traffic likely to be generated by the proposed development. The analysis was based on the existing intersection lane arrangements as well as any recommended intersection modifications identified in Section 4.1 and 4.2.1. The results of the analysis are summarized in **Table 11** for the weekday AM and PM peak hours and the detailed reports are included in **Appendix E**.

Table 11: 2016 Total Traffic Intersection Operations

Intersection	AM Peak			PM Peak		
	Max v/c or Delay	LOS	Movement	Max v/c or Delay	LOS	Movement
Aviation Parkway & Montreal Road	0.84	D	NBL	**0.95**	**E**	EBT
Montfort Hospital & Montreal Road	0.74	C	WB	0.63	B	SBL
Den Haag Drive/Lang's Road & Montreal Road	0.86	D	NBL	0.76	C	NBL
Carsons Road/Codd's Road & Montreal Road	0.75	C	WBTR	0.63	B	NBL
Site Access & Montreal Road[1]	16.9	C	EBL	22.6	C	SB

Note: 1 - Unsignalized Intersection

Under the total traffic scenario, all movements are expected to continue to operate at an acceptable LOS D or better during both the AM and PM peak periods with the exception of the Aviation Parkway / Montreal Road intersection. The northbound left turn movement is expected to operate at a LOS E. All movements could be improved to a LOS D through either extending the cycle length to 140s, adding a second westbound left turn lane, or adding a second northbound left turn lane. However, consistent with the rationale identified in Section 4.2.2, it is recommended the existing lane arrangements be maintained as limiting the roadway cross-section and cycle length are preferable in creating an attractive multi-modal transportation system in this urban area. Furthermore, all movements are operating at a LOS E or better and the capacity constraints are limited to the PM peak hour.

4.3.2 2021 Total Traffic

Intersection capacity analysis has been completed for the projected total traffic volumes, which are the sum total of the background traffic and traffic likely to be generated by the proposed development. The analysis was based on the existing intersection lane arrangements as well as any recommended intersection modifications identified in Section 4.1, and 4.2. The results of the analysis are summarized in **Table 12** for the weekday AM and PM peak hours and the detailed reports are included in **Appendix E**.

Table 12: 2021 Total Traffic Intersection Operations

Intersection	AM Peak			PM Peak		
	Max v/c or Delay	LOS	Movement	Max v/c or Delay	LOS	Movement
Aviation Parkway & Montreal Road	0.90	D	NBL	**1.02**	**F**	EBT
Montfort Hospital & Montreal Road	0.77	C	WB	0.63	B	SBL
Den Haag Drive/Lang's Road & Montreal Road	0.86	D	NBL	0.76	C	NBL
Carsons Road/Codd's Road & Montreal Road	0.78	C	WBTR	0.64	B	EBTR
Site Access & Montreal Road[1]	18.1	C	EBL	23.8	C	SB
Adjusted Timing Plan						
Aviation Parkway & Montreal Road	**-**	-	-	**1.00**	**E**	EBT

Note: 1 - Unsignalized Intersection

Under the 2021 total traffic scenario, all movements are expected to continue to operate at an acceptable LOS D or better during both the AM and PM peak periods with the exception of the Aviation Parkway / Montreal Road intersection. With modifications to the signal timing plans, the critical movements are expected to operate at a LOS E. Consistent with the findings of the 2021 background traffic (Section 4.2.2), all movements could be improved to a LOS D through adding a second westbound left turn lane and a second northbound left turn lane. However, consistent with the rationale identified in Section 4.2.2, it is recommended the existing lane arrangements be maintained as limiting the roadway cross-section is expected to be preferable in creating an attractive multi-modal transportation system in this urban area. The capacity constraints for the 2021 total traffic condition remain limited to the PM peak hour.

Assuming the existing lane arrangements are maintained, it is recommended that the WBL turn lane storage be extended to 100m (an additional 10m beyond the requirement for the existing conditions). It is expected that this additional minor lengthening would be undertaken in combination with the intersection modifications recommended to accommodate the existing traffic demand.

5.0 PROVISIONS FOR NON-AUTO MODES

As previously identified in **Section 2.3**, existing sidewalks are provided along both sides of Montreal Road, and along at least one side of the cross-streets in the study area. The Aviation Parkway has a multi-use pathway on the west side of the road. A depressed and continuous concrete sidewalk is provided across the vehicular access to the proposed development.

Pedestrian crosswalks are provided on all four sides of the existing signalized intersections in the study area.

As outlined in **Section 2.4**, the site is well connected to the cycling network in the area. Cycling lanes on Montreal Road through the area connect cyclists with the multi-use pathway along the Aviation Parkway and local cycling routes providing connections for longer-distance cycling trips. It is anticipated that the widening and construction of transit lanes along Montreal Road would include upgrading the existing on-street cycling lanes to separated facilities that would provide a higher level of comfort.

The site is currently well served by local transit routes leading to/from downtown, and the Transitway via Blair Station. In addition, the 2013 *Transportation Master Plan* identified Montreal Road and Codd's Road as transit priority corridors with plans to widen both corridors to accommodate transit lanes. While these modifications will not be in place within the time horizon considered in this study, these measures will contribute to improving the multi-modal transportation system in the area over the planning horizon of 2031.

6.0 ON-SITE DESIGN

6.1 Proposed Access

Access to the proposed development will be provided through an all movement driveway on Montreal Road. The two-way access will facilitate both inbound and outbound movements and be designed in accordance with the *Private Approach and Zoning By-Laws*.

Montreal Road has an existing two-way-left-turn lane between Den Haag Drive and Carsons Road. This left turn lane will facilitate vehicles turning into the site and avoid delay to eastbound through vehicles. The eastbound left turn queue is anticipated to be less than 15m during the AM and PM peak hours.

6.2 Parking

The proposed development consists of approximately 750m^2 GFA of retail and 12,800m^2 GFA of office. The subject site is located in Area B of Schedule 1 to the ZBL. Minimum vehicular parking space requirements for the office development are 2 per 100m^2 of gross floor area and for the retail development are 2.5 per 100m^2 of gross floor area. To serve the proposed development, a minimum of 275 spaces are required. The proposed parking lot satisfies these requirements with a total of 314 spaces.

Minimum bicycle parking space requirements are identified in the ZBL as 1 per 250m^2 of gross floor area. Based on the foregoing, the ZBL identifies a minimum requirement of 55 bicycle parking spaces to be provided for the proposed development. A minimum of 14 spaces (25%) must be provided in a secure location such as inside the building, within a secure enclosed entrance, or within bicycle lockers.

7.0 TRANSPORTATION DEMAND MANAGEMENT

The City of Ottawa has developed a comprehensive Transportation Demand Management (TDM) strategy as part of its efforts to reduce automobile dependency. TDM measures can reduce transportation infrastructure requirements by encouraging people to change their travel mode, timing or destination.

The proposed development conforms to the City's TDM initiatives by providing easy access to local pedestrian, cycling and transit systems as outlined above. In addition, consideration should be given to additional measures such as providing flexible working hours and providing a parking space for a car share service (VRTUCAR).

8.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the results of the foregoing analysis, the main conclusions and recommendations of this report are as follows:

Existing Conditions

- In the last three years at the intersection of the Aviation Parkway & Montreal Road, 11 turning impact collisions occurred between westbound left turning vehicles and eastbound through vehicles, and 9 rear-end collisions occurred involving westbound vehicles. It is recommended that the city continue to monitor this location and consider a fully protected westbound left turn movement if a collision pattern continues.

- In the last three years, 8 rear-end collisions involving westbound vehicles occurred at the intersection of Den Haag Drive & Montreal Road. It is recommended that the city continue to monitor the collisions involving westbound vehicles at this intersection.

- All traffic movements within the study area are currently operating at a LOS E or better during the AM and PM peak hours. Modifications to the existing timing plans can improve the LOS to D for all movements.

- The following extensions to left turn storage are recommended to meet existing demand or match the City of Ottawa's TIA guideline for left turn storage requirements:
    - Aviation Parkway
        - Northbound left – extend to 90m (an additional 50m)
        - Southbound left – extend to 70m (an additional 30m)
        - Westbound left – extend to 90m (an additional 35m)
    - Montfort Hospital
        - Eastbound left – extend to 65m (an additional 20m)
    - Den Haag Drive
        - Northbound left – extend to 85m (expected to be achievable through line painting)

- Extension of the westbound left turn storage at the Aviation Parkway and eastbound left turn storage at the Montfort will exceed the available combined storage within the current back-to-back left turn lane. The storage constraints are limited to the PM peak hour and specifically the 95th percentile queues. As a result, it is recommended the City monitor

the queues in this location to identify whether extensions to the turning lanes are necessary at this time.

Background Traffic (2021)

- All traffic movements within the study area are anticipated to operate at a LOS E or better during the AM and PM peak hours. To achieve a LOS D for all movements would require widening of the Aviation Parkway and Montreal Road intersection. As the capacity constraints are limited to the weekday PM peak hour and all movements are anticipated to operate at a LOS E, additional widening to this intersection is not recommended. Limiting the roadway cross-section is expected to be preferable in creating an attractive multi-modal transportation system in this urban area.

- It is recommended that the northbound left turn storage at the Aviation Parkway and Montreal Road be further extended to 100m to accommodate the additional background traffic demand (an additional 10m beyond the required storage for the existing condition).

Total Traffic

- With modifications to the signal timing plans, all traffic movements within the study area are anticipated to operate at a LOS E or better during the AM and PM peak hours. To achieve a LOS D for all movements would require widening of the Aviation Parkway and Montreal Road intersection; consistent with the findings of the background traffic analysis. It is recommended the City consider maintaining operations at a LOS E to limit the roadway cross-section in this urban area.

- It is recommended that the westbound left turn storage at the Aviation Parkway and Montreal Road be further extended to 100m to accommodate the total traffic (an additional 10m beyond the required storage for the existing condition). It is expected that this minor additional lengthening would be undertaken in combination with the intersection modifications identified to accommodate the existing traffic.

- Based on the projected transit trip volumes associated with the proposed development, no capacity problems are anticipated on any of the adjacent transit routes, or at any of the nearby bus stops.

- The location and spacing of the proposed private approach driveway is compliant with the requirements of the City of Ottawa's *Private Approach and Zoning By-laws*.

- A total of 314 parking spaces are to be provided on-site through a combination of surface and underground parking. The on-site parking satisfies the minimum required parking as identified in the City of Ottawa's *Zoning By-Law* (ZBL).

- A total of 55 bicycle parking spaces will be provided to meet the minimum requirements identified in the ZBL; 14 of which will be secure bicycle parking (as required by the ZBL).

- The proposed development is not anticipated to have any measurable impact on the local neighborhood roadways in the vicinity of the subject site.

- The proposed development conforms to the City's TDM initiatives by providing easy access to local pedestrian, bicycle and transit systems. Consideration should be given to additional measures such as providing flexible working hours and providing a parking space for a car share service (VRTUCAR).

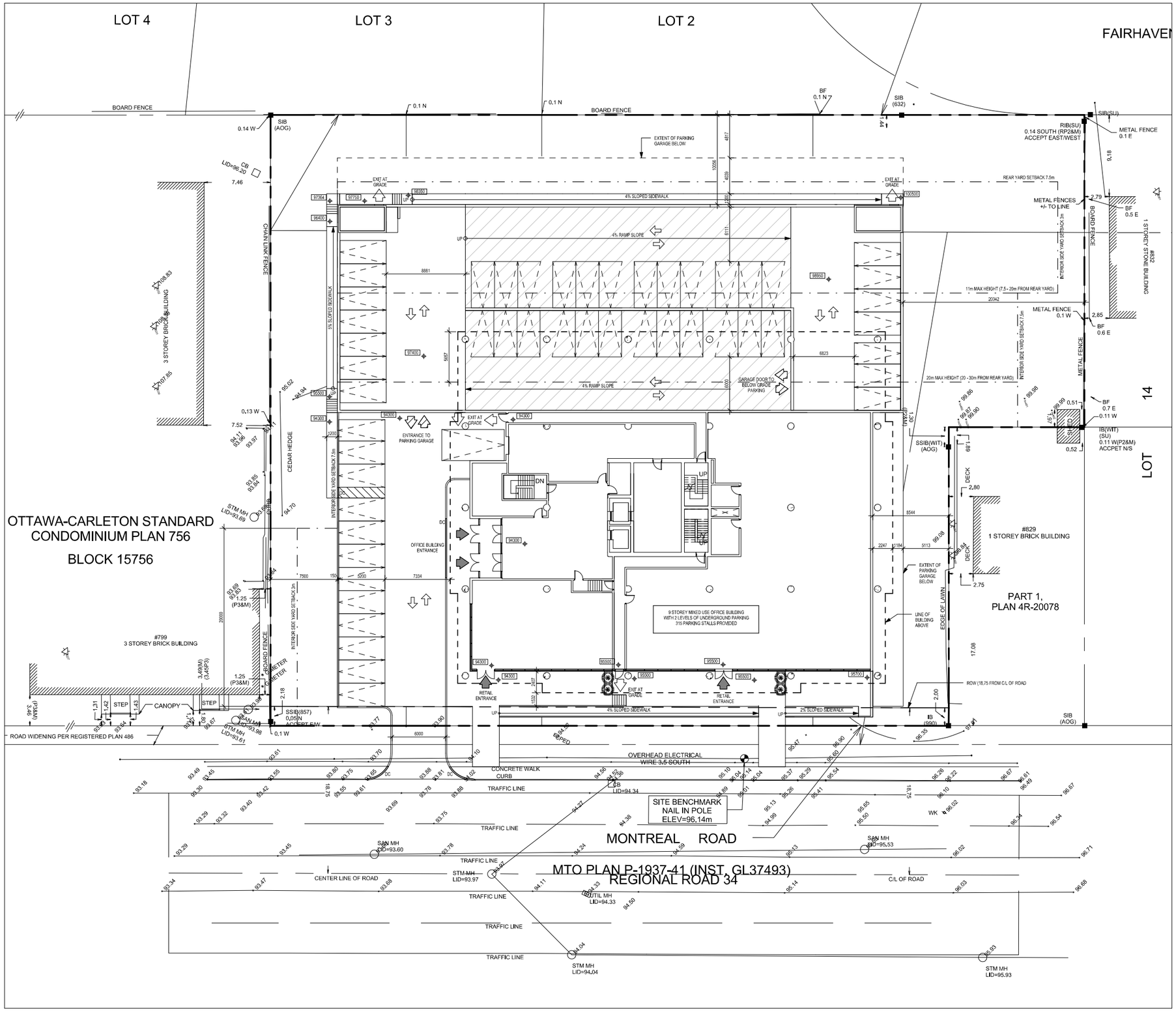
NOVATECH

Meghan Whitehead, P.Eng.
Transportation Engineer

Jennifer Luong, P.Eng.
Project Manager, Transportation

APPENDIX A

SITE PLAN



PROJECT INFORMATION

AREA OF SITE:
5,760 sq.m. (62,000 sq.ft.)

BUILDING GROSS FLOOR AREA:
13,572 sq.m. (146,088 sq.ft.)

LEGAL DESCRIPTION

PART 1 - PLAN SHOWING
LOTS 11 AND 12 AND PART OF LOT 13
REGISTERED PLAN 486
CITY OF OTTAWA

PROJECT NAME:	807-825 MONTREAL ROAD OFFICE BUILDING
OWNER/DEVLOPER:	DARWIN GROUP OTTAWA 183 MICHAEL COWPLAND DR. KANATA, ONTARIO K2M 0M3
ARCHITECT:	CHMIEL ARCHITECTS SUITE 200, 109 BANK STREET OTTAWA, ONTARIO K1S 1W1
PLANNER / CIVIL & LANDSCAPE:	NOVATECH SUITE 200, 240 MICHAEL COWPLAND DR. OTTAWA, ONTARIO K2M 1P6
MECHANICAL/ ELECTRICAL:	MMM GROUP SUITE 300, 1145 HUNT CLUB ROAD OTTAWA, ONTARIO K1V 0Y3
GEOTECHNICAL:	PATERNSON GROUP 154 COLONNADE ROAD SOUTH OTTAWA, ONTARIO K2E 7J5
SURVEYOR:	J.D. BARNES SUITE 204, 2430 DON REID DRIVE OTTAWA, ONTARIO K1H 1E1

LEGEND

PROPERTY LINE
RIGHT OF WAY
ZONING SETBACKS
EXTENT OF BUILDING ABOVE
MAIN ENTRANCE
EXITS
PARKING GRARAGE ENTRANCE / EXIT
TRAFFIC ARROWS
DEPRESSED CURB
PROPOSED ELEVATION

PARKING

OFFICE :	**256 PARKING STALLS (AS PER PART 4 SEC.101)**
RETAIL :	**4 PARKING STALLS (AS PER PART 4 SEC.101)**
RESTAURANT:	**55 PARKING STALLS (AS PER PART 4 SEC.101)**
TOTAL REQUIRED :	**315 PARKING STALLS**
TOTAL PROVIDED :	**315 PARKING STALLS**
LOADING REQUIRED:	**2 SPACE (AS PER PART 4 SEC.113)**
LOADING PROVIDED:	**1 SPACE**
BICYCLE PARKING REQUIRED: 54	
BICYCLE PARKING PROVIDED: 58	

City of Ottawa Gross Floor Area

Name	Level	Area
OFFICE:		
OFFICE	Ground Level - Retail	150 m²
OFFICE	Ground Level - Restaurant	596 m²
OFFICE	Level 2	1240 m²
OFFICE	Level 3	1693 m²
OFFICE	Level 4	1693 m²
OFFICE	Level 5	1693 m²
OFFICE	Level 6	1693 m²
OFFICE	Level 7	1656 m²
OFFICE	Level 8	1656 m²
OFFICE	Level 9	1501 m²
Grand total		13572 m²

NOTE: THIS DRAWING IS THE PROPERTY OF THE ARCHITECT AND MAY NOT BE REPRODUCED OR USED WITHOUT THE EXPRESSED CONSENT OF THE ARCHITECT. THE CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND REPORT ANY OMISSIONS OR DISCREPANCIES TO THE ARCHITECT BEFORE PROCEEDING WITH THE WORK.

DO NOT SCALE THE DRAWINGS

RELEASE / REVISION RECORD

No.	Description	Date
1	ISSUED FOR INFO	14-12-10
2	ISSUED FOR COORDINATION	15-04-08
3	ISSUED FOR COORDINATION	15-07-10
4	ISSUED FOR CLIENT REVIEW	15-07-15
5	ISSUED FOR INFO	15-07-21
6	ISSUED FOR COORDINATION	15-08-06
7	ISSUED FOR SITE PLAN CONTROL	15-08-13

DARWIN GROUP
OTTAWA

PROJECT NORTH

MAY NOT BE USED FOR CONSTRUCTION UNTIL SIGNED BY THE ARCHITECT

chmiel architects
200 - 109 Bank Street
Ottawa ON K1P 5N5
t (613) 234-3585
f (613) 234-6224

807-825 MONTREAL RD. OFFICE BUILDING

807 - 825 MONTREAL RD. OTTAWA

PROJECT NO.	DRAWN
15-1250	CG
SCALE	CHECKED
1 : 200	RAC

DRAWING TITLE

SITE PLAN

DRAWING NO.

SP-01

APPENDIX B

OC TRANSPO SYSTEM MAP


106 Laurier only / seulement
403
68 69 70 71 72 73 77
176 261 262 263 283
AM only / seulement
60 61 62 64 65 66
69 70 71 72 73 77
262 263 283
Rideau Falls
Chutes Rideau
24 Sussex Dr.
24, prom. Sussex
Rideau Hall
Rockcliffe
Lac McKay Lake
Ashbury
Rockcliffe Airport
Aéroport Rockcliffe
Aviation and Space Museum
Musée de l'aviation et de l'espace
Elisabeth Bruyère
Garry J. Armstrong
De La Salle
Champagne
Muséoparc Vanier
Museopark
Centre d'accueil Champlain
Mackenzie King
Laurier
Laurier E.
uOttawa
Somerset E.
Lisgar
Campus
Jack Purcell
Sandy Hill
Côte-de-Sable
Rideau Canal
Rivière Rideau
Montréal
Montfort
St-Laurent
Bernard Grandmaître
Rideau
Samuel Genest
La Cité
C.N.R.C
N.R.C.
Beacon Hill
Immaculata
Lees
U. Saint-Paul U.
1200 Vanier
Parc RCGT Park
Centre Gloucester Centre
Earl Armstrong
Pool Piscine
Gloucester
Hurdman
Lycée Claudel
Lycée Claudel
Smyth
Riverside
TRAIN
Ottawa Train Yards
Terminal
Tremblay
Blair
TELESAT
Telesat
Pine View Municipal Golf Course
Terrain de golf Municipal Pine View
CFHS SSFC
CHEO / HEEO
Rehab./Réadap.
General
Perley Rideau
Riverside
Pleasant Park
Illings Bridge
Franco-Cité
Hillcrest
Science & Technology Museum
(Closed until 2017)
Musée des sciences et de la technologie
(Fermé jusqu'en 2017)
Elmvale Acres
Brian Kilrea
St. Patrick's Jr.
Jim Durrell
Herongate
Licence Bureau
Bureau des permis
Canterbury
Minto
Hydro
Carlsbad Springs & Vars
Lycée Claudel - 3030
Smyth - 3031
Riverside - 3032
Pleasant Park - 3033
97 98 99 4 40 41 43 87
116 118 140 146 148 149 199 451
106 Lycée Claudel & Smyth Only / Seulement
91 95 20
24 27 30
35 37 38
130 193 194
221 405 455
MANIER

APPENDIX C

TRAFFIC COUNTS AND SIGNAL TIMING PLANS

Ottawa *Public Works and Services Department*

Count ID 2861

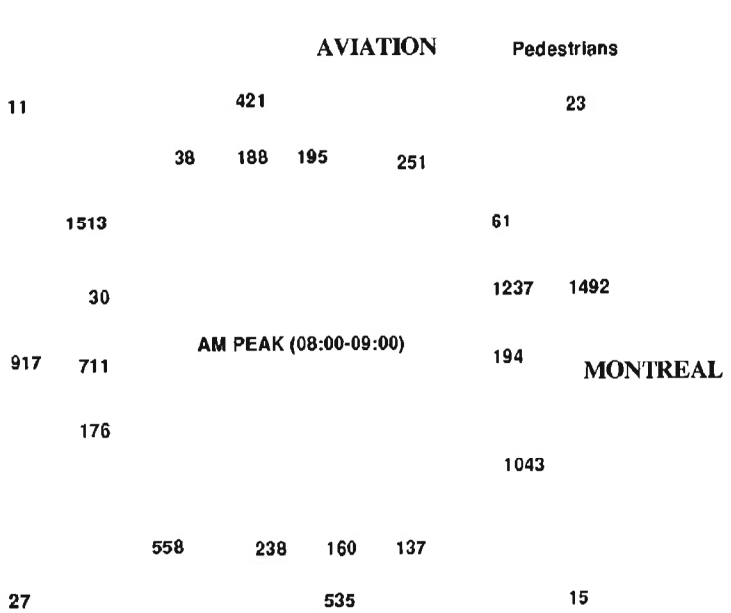
AVIATION PKWY and MONTREAL RD

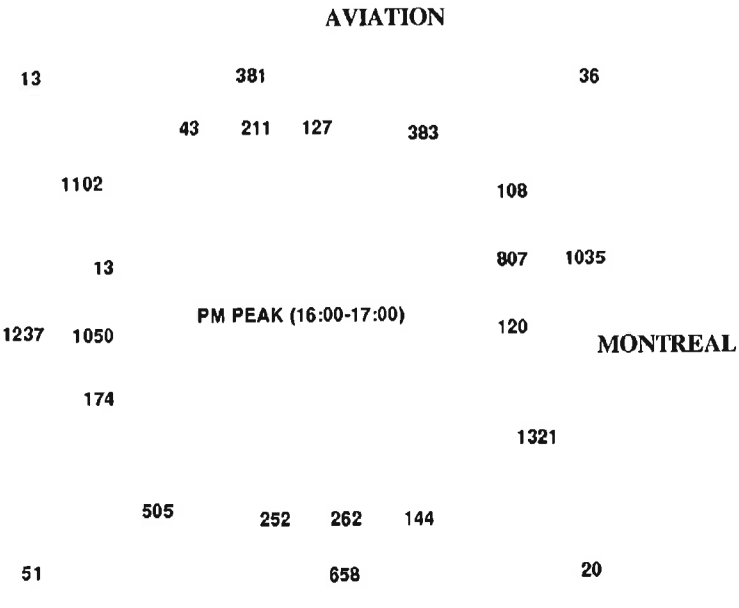
(ULRS Listing AVIATION & MONTREAL)

Survey Date: Wednesday 11 May 2011
Conditions: Dry
Start Time: 0700

Total Observed U-Turns
Northbound: 0 Southbound: 0
Eastbound: 0 Westbound: 3

AADT Factor
Wednesday in May i:
9





Approved by : DT

Printed on : 25/10/2012

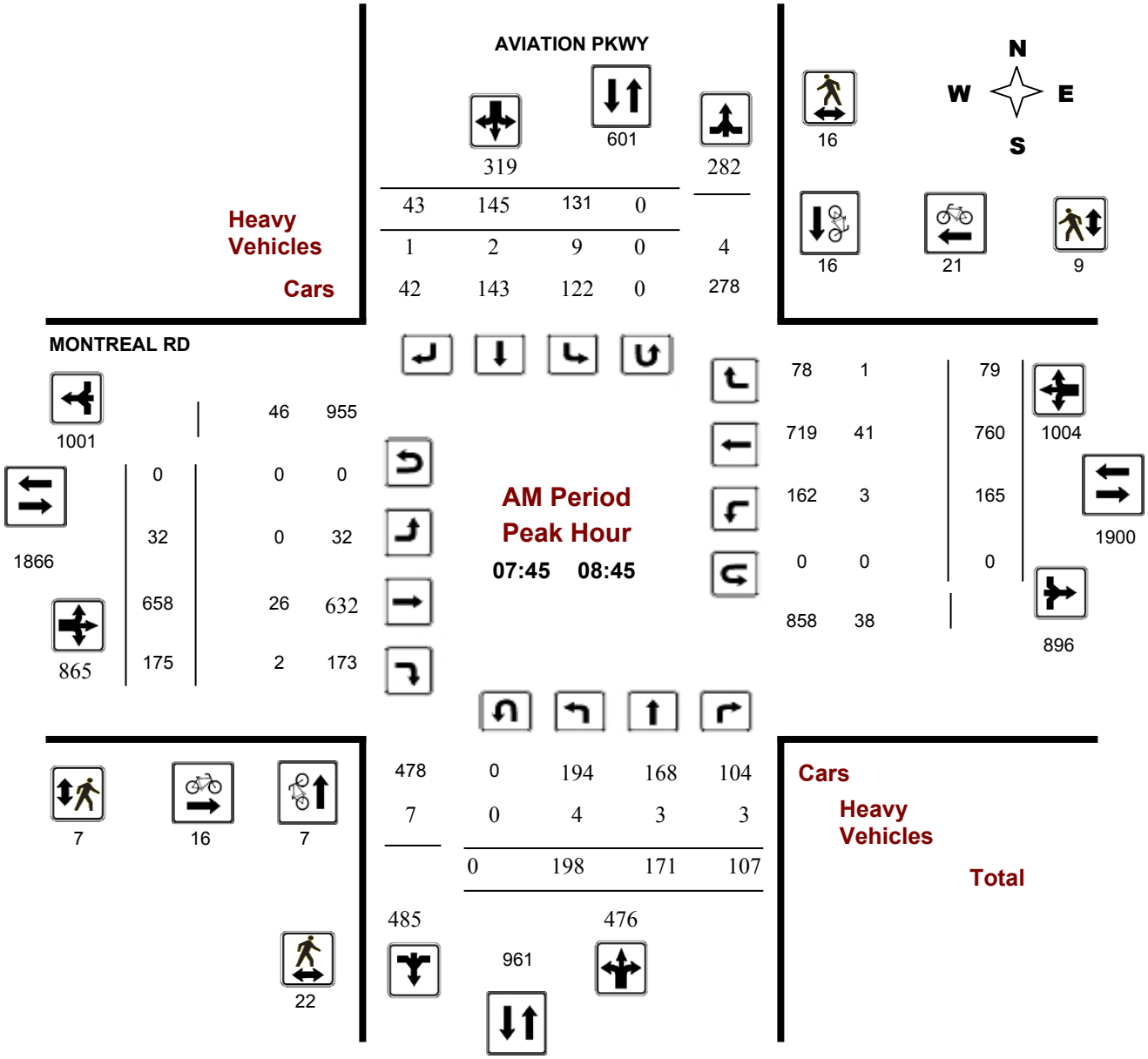
Public Works - Traffic Services

Turning Movement Count - Peak Hour Diagram

AVIATION PKWY @ MONTREAL RD

Survey Date: Thursday, July 24, 2014
Start Time: 07:00

WO No: 29369
Device: Jamar Technologies, Inc



Comments

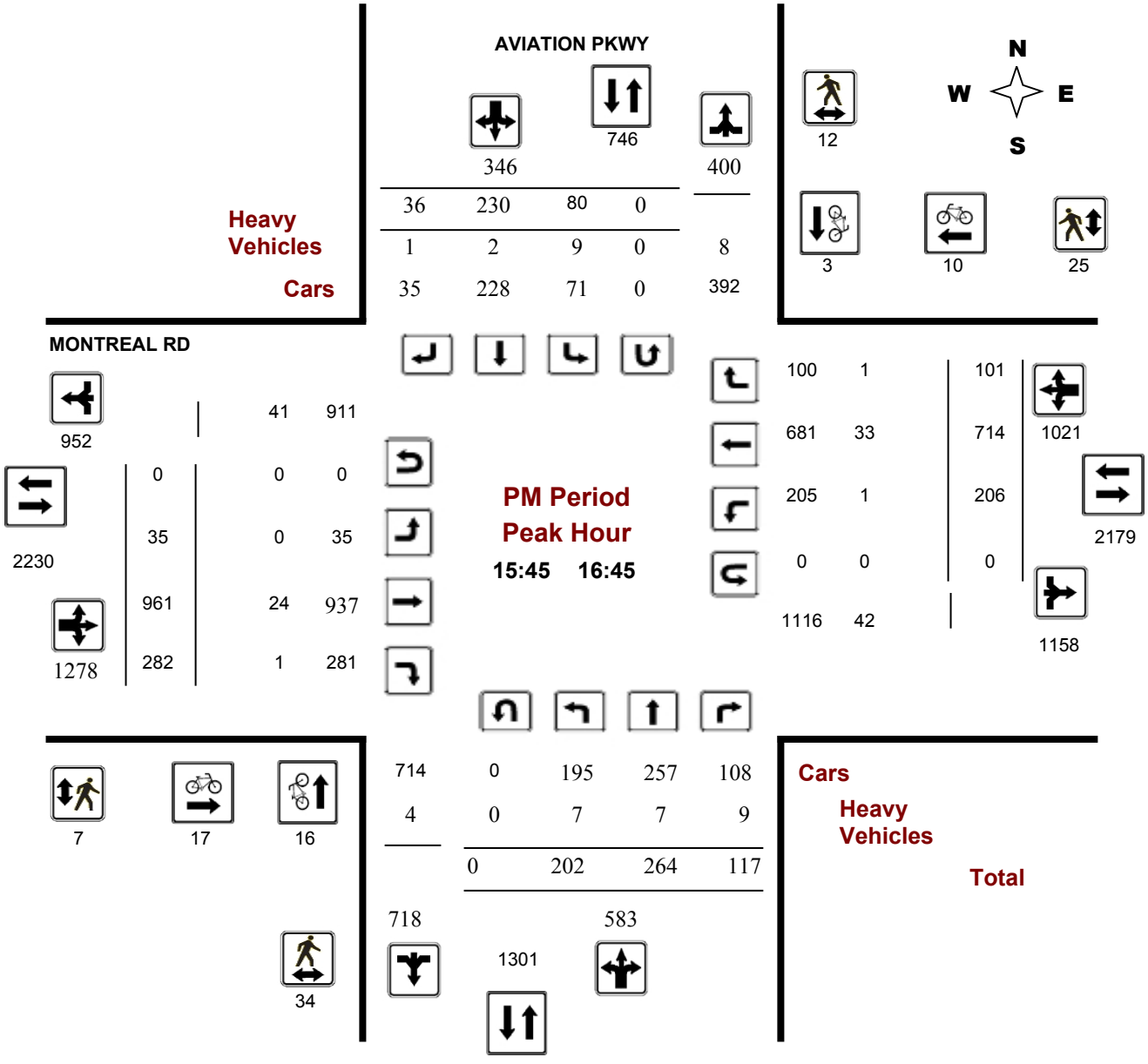
Public Works - Traffic Services

Turning Movement Count - Peak Hour Diagram

AVIATION PKWY @ MONTREAL RD

Survey Date: Thursday, July 24, 2014
Start Time: 07:00

WO No: 29369
Device: Jamar Technologies, Inc



Comments

Intersection:	**Main:** Montreal Rd	**Side:** Aviation Pkwy			
Controller:	**MS-3200**		**TSD:**	5453	
Author:	Florence Morin Paquette		**Date:**	13-Jul-15	

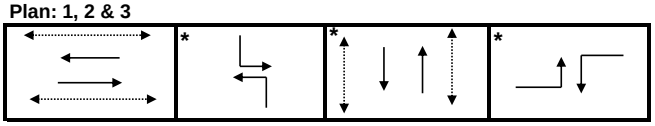
Existing Timing Plans†

	Plan						**Ped Minimum Time**		
	AM Peak	**Off Peak**	**PM Peak**	**Night**	**AM Heavy**	**Evening**	***Walk***	***DW***	***A+R***
	1	2	3	4	11	12			
Cycle	105	100	120	70	120	95			
Offset	71	85	93	X	45	72			
EB Thru	42	42	54	37	45	44	17	11	3.7 + 2.1
WB Thru	42	42	54	37	53	44	17	11	3.7 + 2.1
NB Left	17	11	18	-	20	-	-	-	3.7 + 2.2
SB Left	17	11	18	-	20	-	-	-	3.7 + 2.2
NB Thru	33	33	33	33	33	35	7	19	3.7 + 2.5
SB Thru	33	33	33	33	33	35	7	19	3.7 + 2.5
EB Left	13	14	15	-	14	16	-	-	3.7 + 2.2
WB Left	13	14	15	-	22	16	-	-	3.7 + 2.2

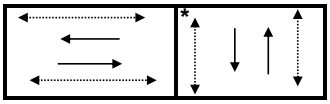
Notes: 1) The WB Left faze has a maximum green time of 20 seconds, and the EB Left faze has a green time of 15 seconds.
2) The NB and SB Thru fazes have a maximum green time of 35 seconds.

Phasing Sequence‡

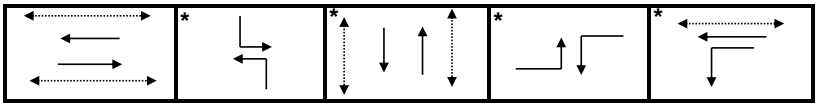
Plan: 1, 2 & 3



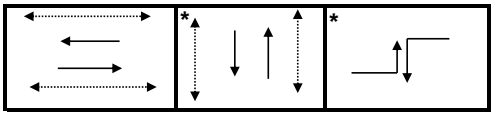
Plan: 4



Plan: 11



Plan: 12



Schedule

Weekday

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

Weekend

Time	Plan
0:15	4
8:30	2
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
Asterix (*) Indicates actuated phase
(fp): Fully Protected Left Turn

◄·····► Pedestrian signal

Cost is $56.50 ($50 + HST)

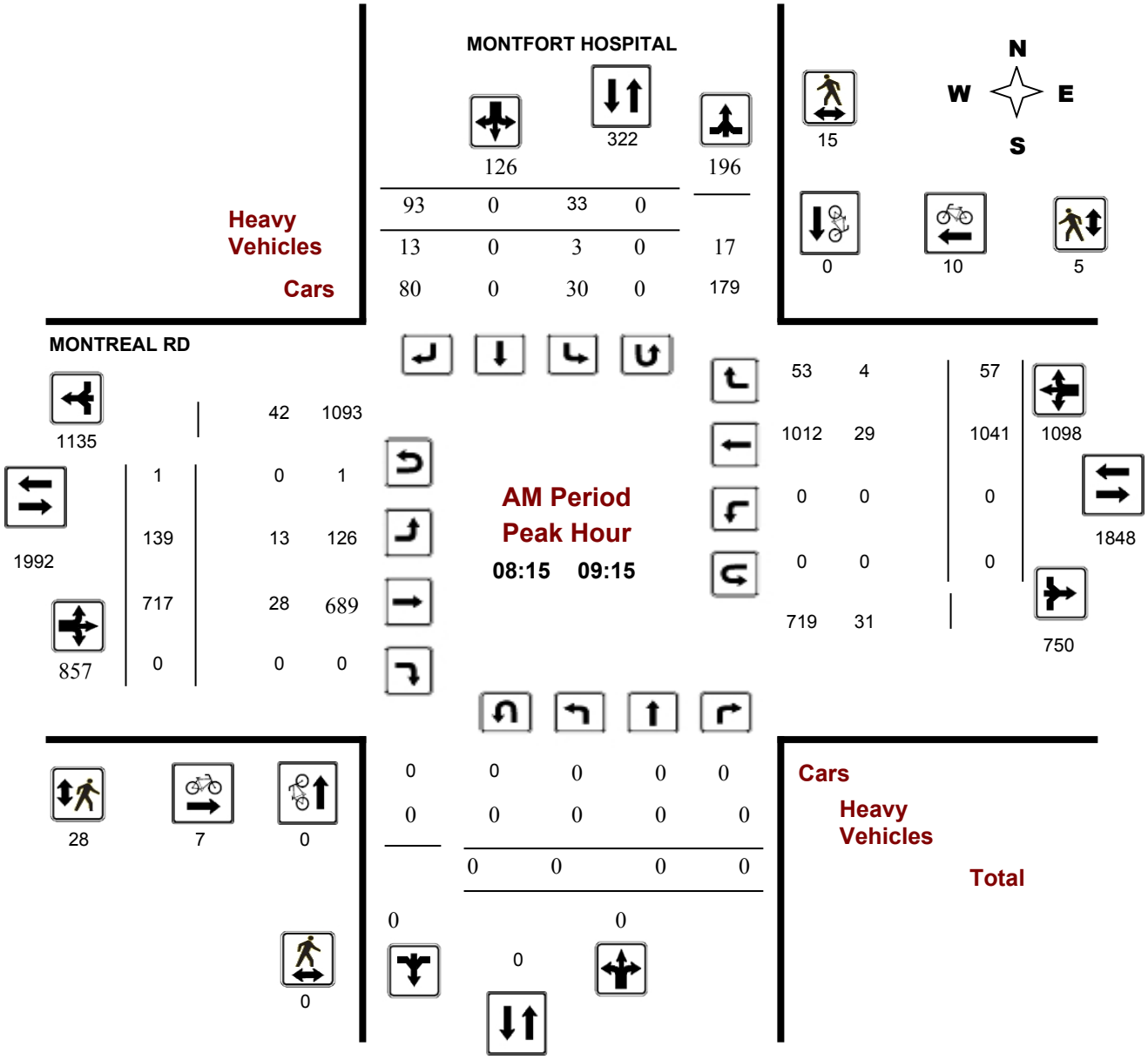
Public Works - Traffic Services

Turning Movement Count - Peak Hour Diagram

MONTREAL RD @ MONTFORT HOSPITAL

Survey Date: Tuesday, July 06, 2010 **WO No:** 33801

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



Comments

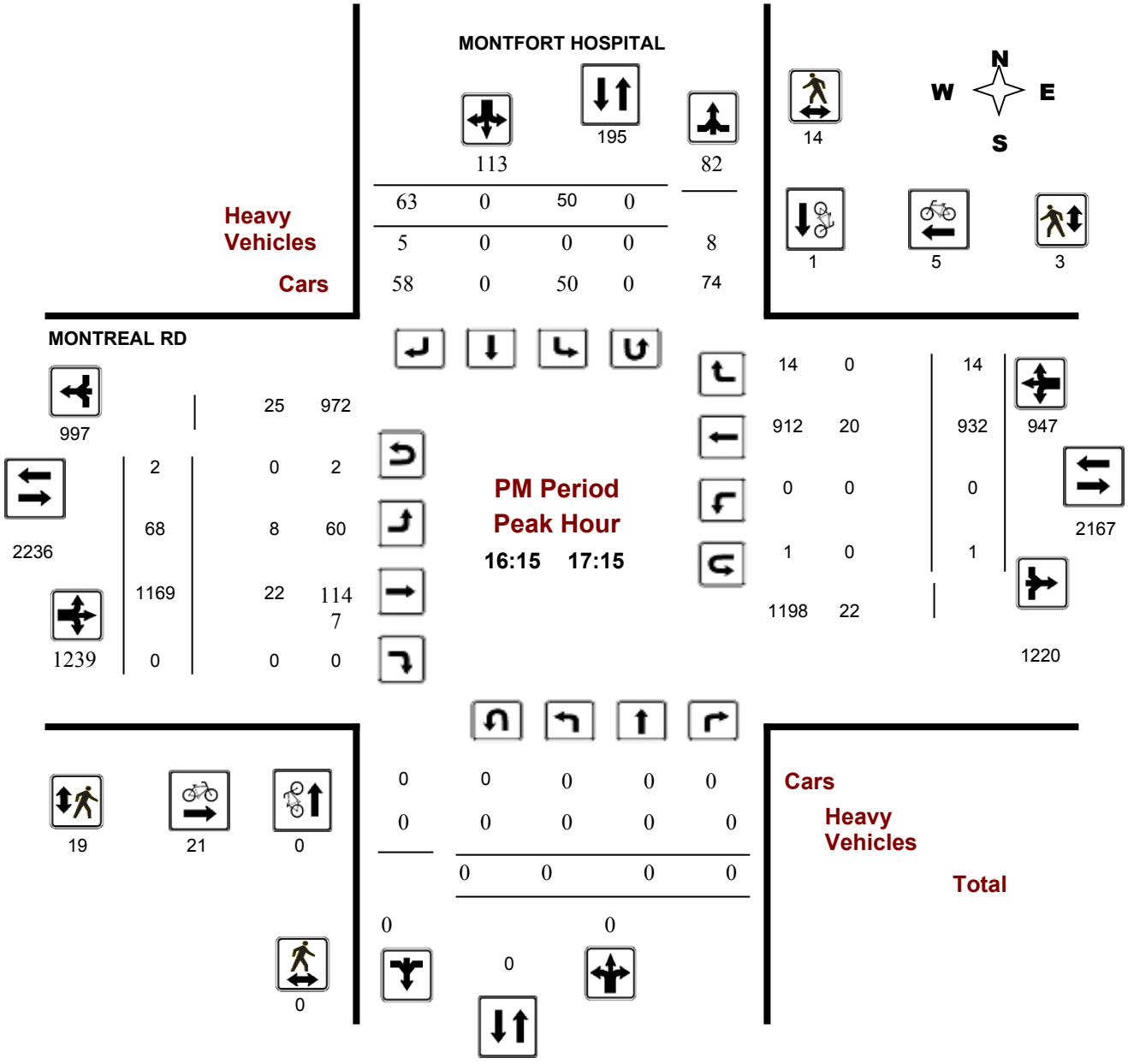
Public Works - Traffic Services

Turning Movement Count - Peak Hour Diagram

MONTREAL RD @ MONTFORT HOSPITAL

Survey Date: Tuesday, July 06, 2010 **WO No:** 33801

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



Comments

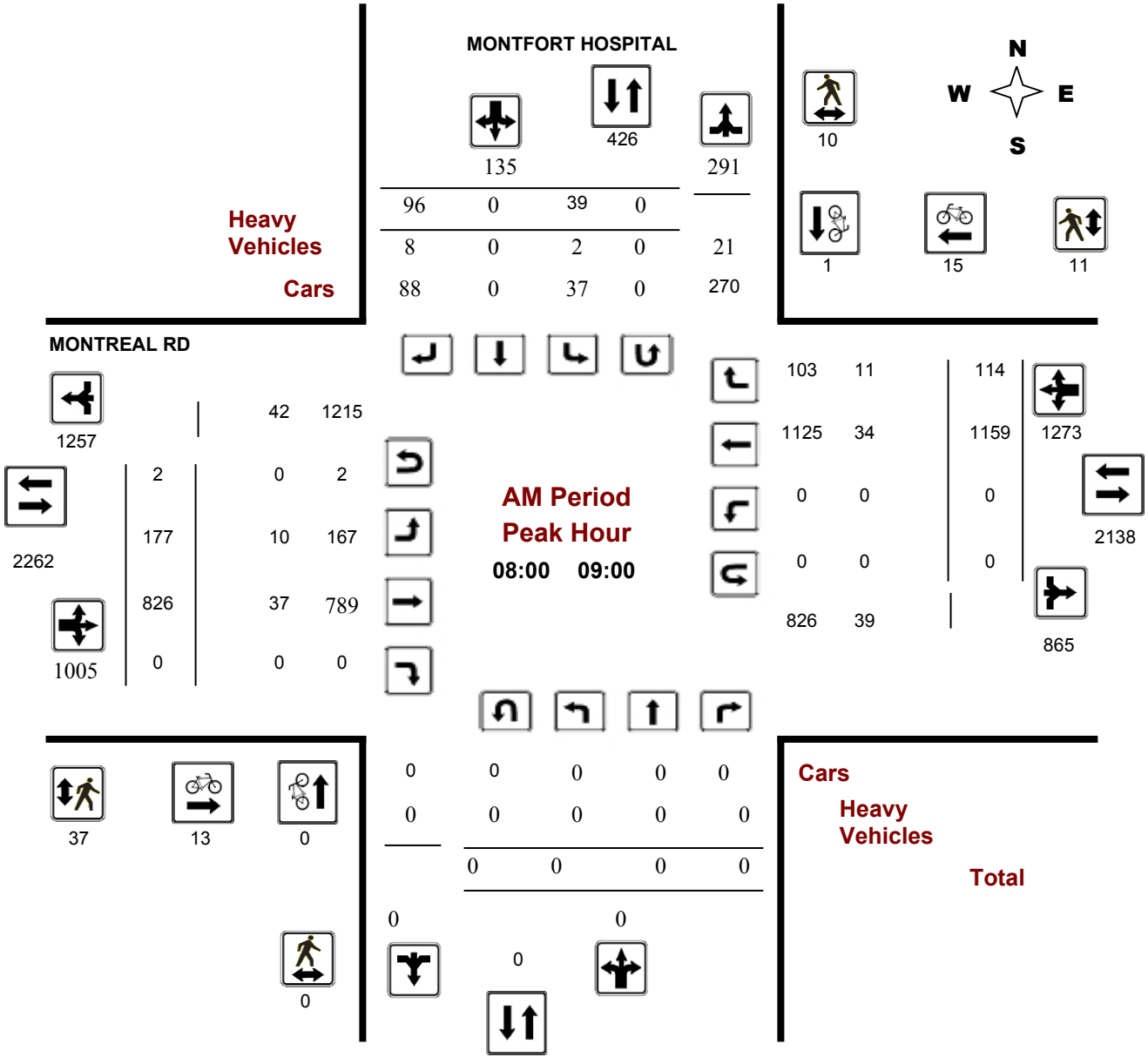
Public Works - Traffic Services

Turning Movement Count - Peak Hour Diagram

MONTREAL RD @ MONTFORT HOSPITAL

Survey Date: Thursday, July 10, 2014
Start Time: 07:00

WO No: 1184
Device: Jamar Technologies, Inc



Comments

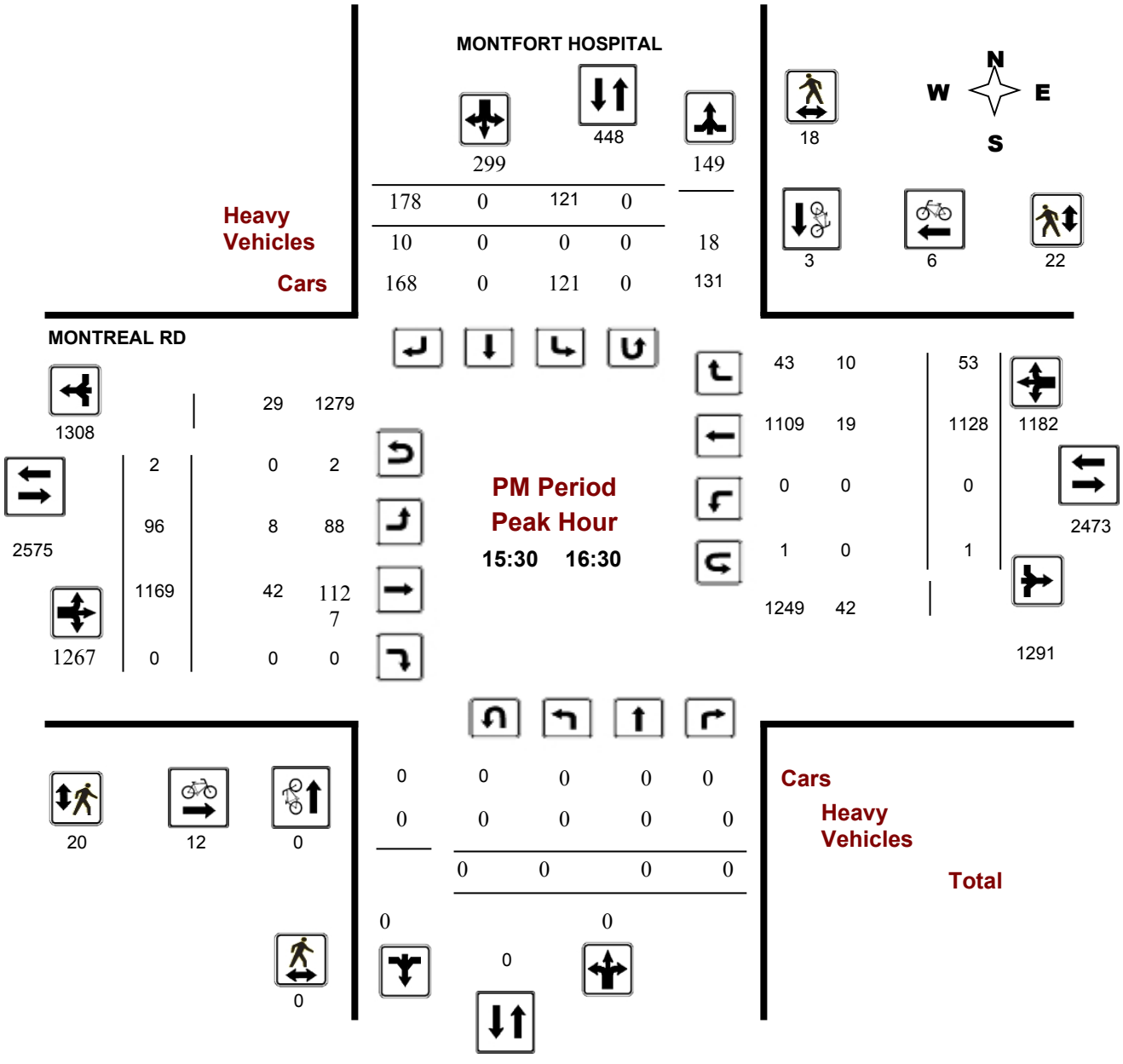
Public Works - Traffic Services

Turning Movement Count - Peak Hour Diagram

MONTREAL RD @ MONTFORT HOSPITAL

Survey Date: Thursday, July 10, 2014
Start Time: 07:00

WO No: 1184
Device: Jamar Technologies, Inc



Comments

Traffic Signal Timing

City of Ottawa, Public Works & Services Department

Traffic Operations Unit

Intersection:	**Main:**	Montreal Rd	**Side:**	Montford Hospital	
Controller:	**MS-3200**			**TSD:**	6695
Author:	Florence Morin Paquette			**Date:**	13-Jul-15

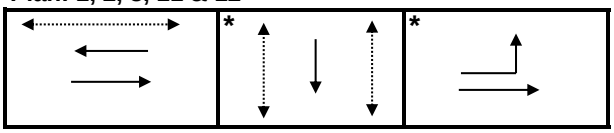
Existing Timing Plans†

	Plan						**Ped Minimum Time**		
	AM Peak	**Off Peak**	**PM Peak**	**Night**	**AM Heavy**	**Evening**	***Walk***	***DW***	***A+R***
	1	2	3	4	11	12			
Cycle	105	100	120	65	120	95			
Offset	64	87	88	X	33	62			
EB Thru	74	69	84	34	89	64	-	-	3.7 + 2.3
WB Thru	54	54	70	34	69	51	7	18	3.7 + 2.3
SB Thru	31	31	36	-	31	31	7	18	3.3 + 2.1
EB Left	20	15	14	31	20	13	-	-	3.7 + 1.7

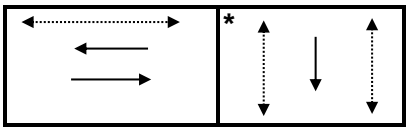
Notes: 1) The EB Left has a maximum green time of 15 seconds.

Phasing Sequence‡

Plan: 1, 2, 3, 11 & 12



Plan: 4



Schedule

Weekday

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

Weekend

Time	Plan
0:15	4
8:30	2
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

Asterix (*) Indicates actuated phase

(fp): Fully Protected Left Turn

◄·····► Pedestrian signal

Cost is $56.50 ($50 + HST)

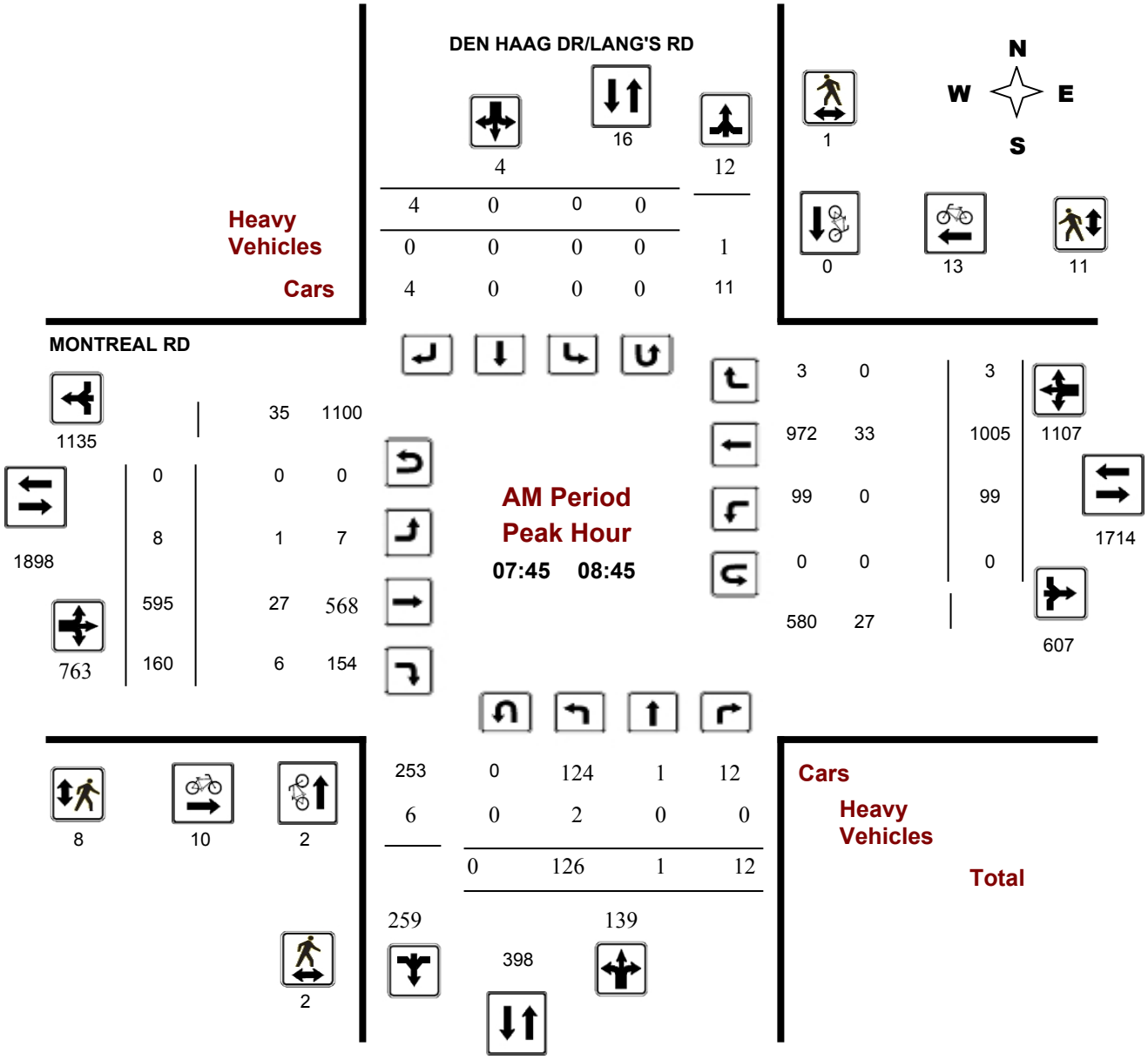
Public Works - Traffic Services

Turning Movement Count - Peak Hour Diagram

MONTREAL RD @ DEN HAAG DR/LANG'S RD

Survey Date: Monday, July 05, 2010 **WO No:** 27355

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



Comments

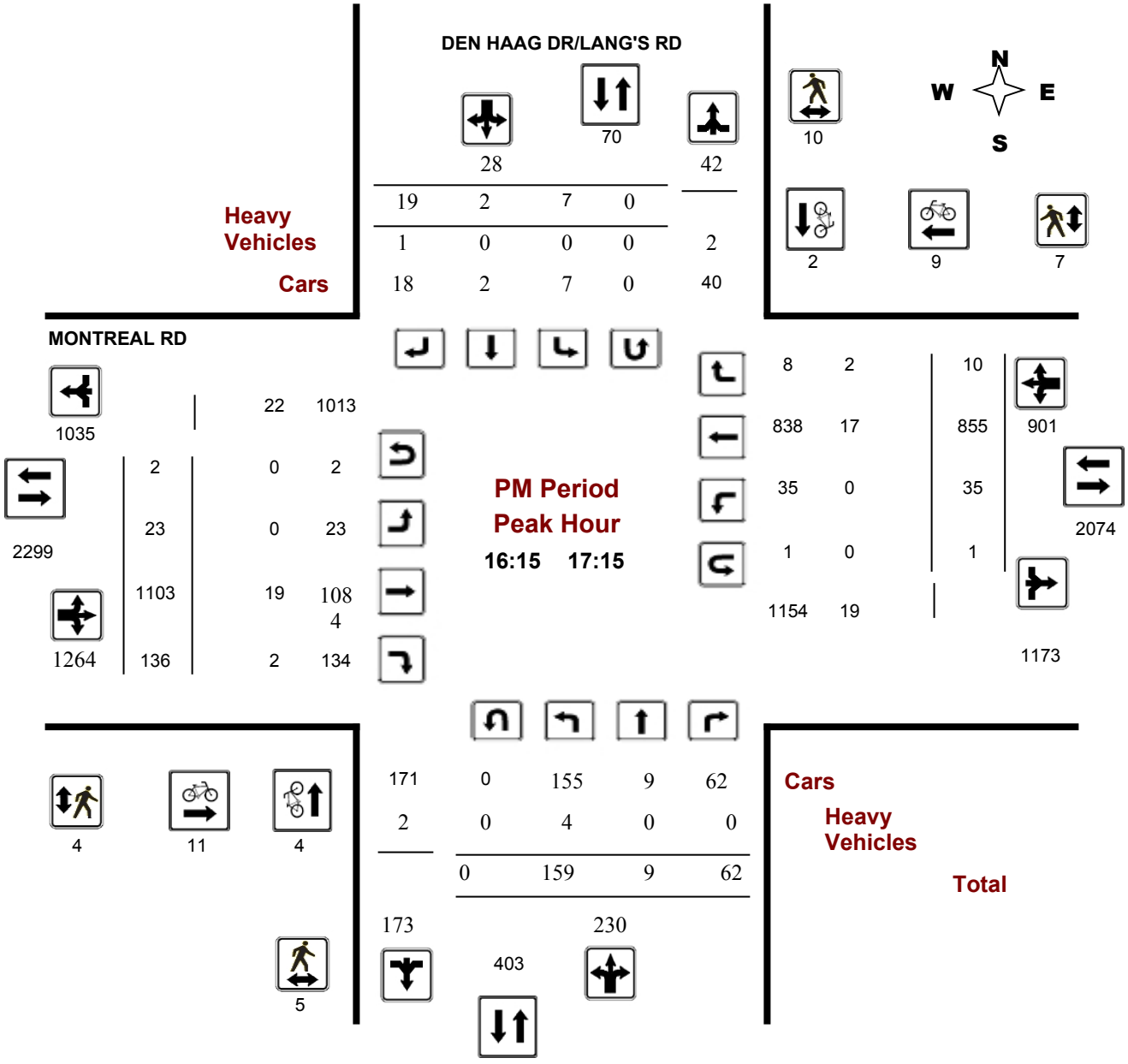
Public Works - Traffic Services

Turning Movement Count - Peak Hour Diagram

MONTREAL RD @ DEN HAAG DR/LANG'S RD

Survey Date: Monday, July 05, 2010 **WO No:** 27355

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



Comments

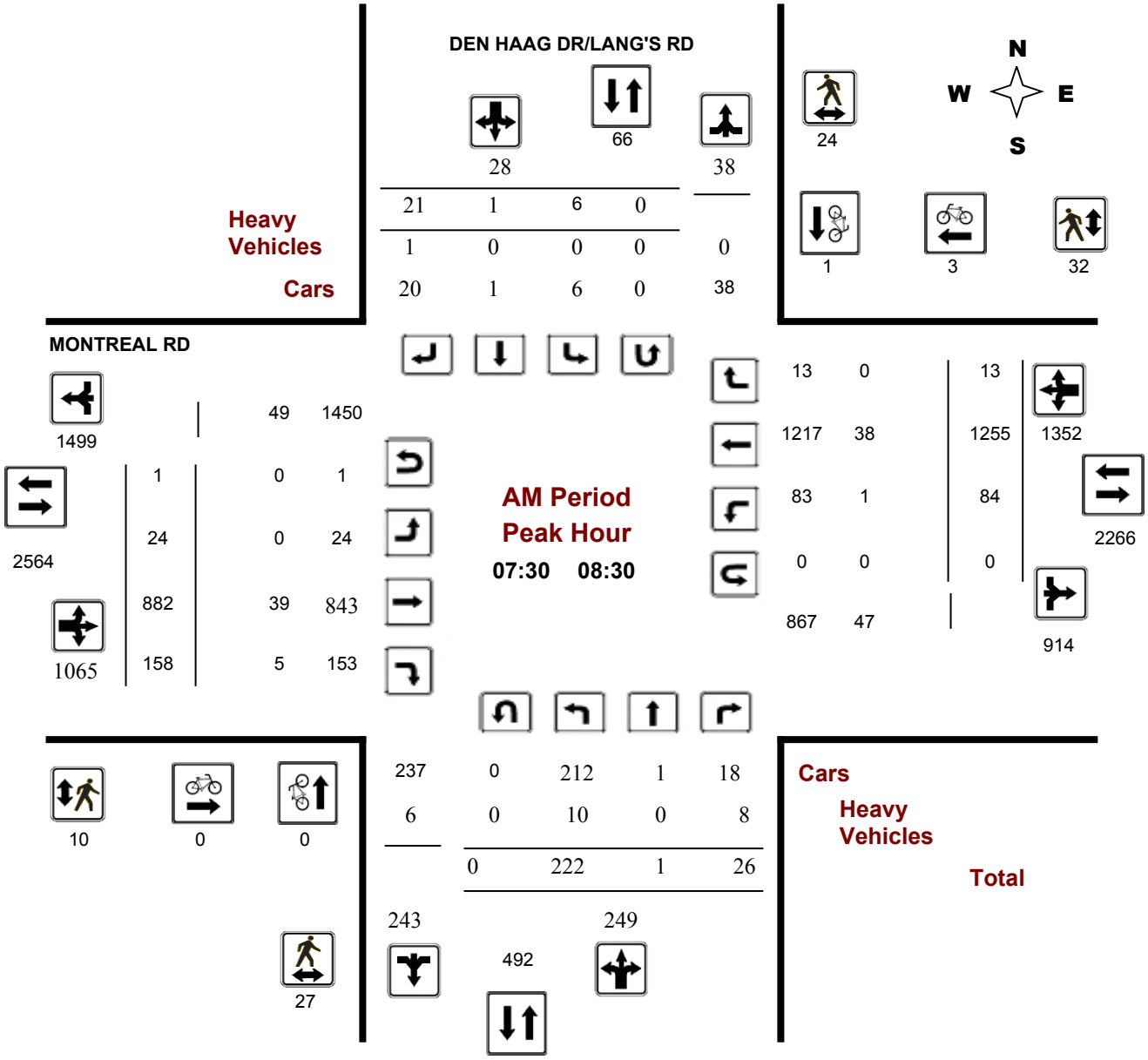
Public Works - Traffic Services

Turning Movement Count - Peak Hour Diagram

MONTREAL RD @ DEN HAAG DR/LANG'S RD

Survey Date: Tuesday, December 16, 2014 **WO No:** 34270

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



Comments

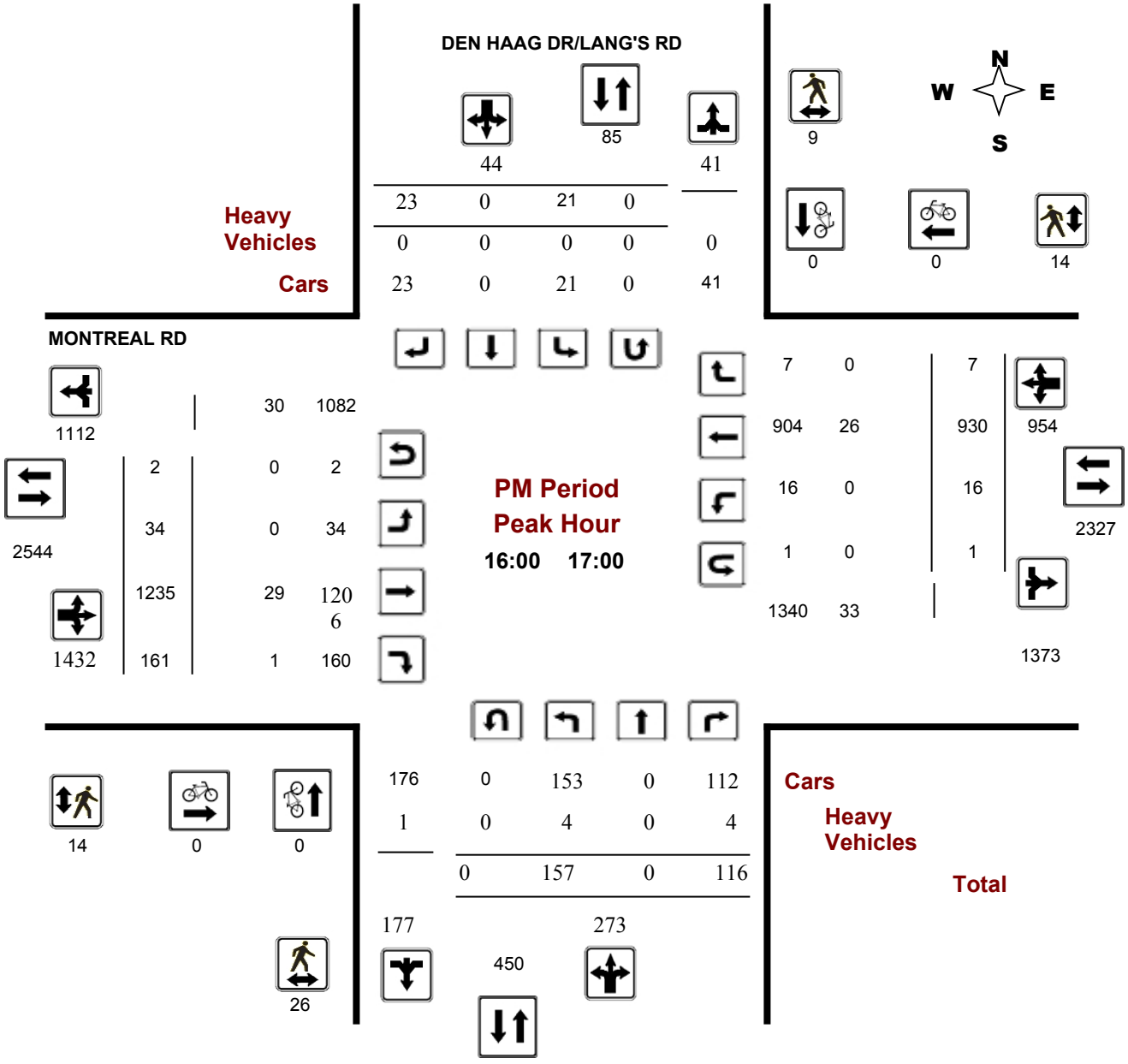
Public Works - Traffic Services

Turning Movement Count - Peak Hour Diagram

MONTREAL RD @ DEN HAAG DR/LANG'S RD

Survey Date: Tuesday, December 16, 2014 **WO No:** 34270

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



Comments

Traffic Signal Timing

City of Ottawa, Public Works & Services Department

Traffic Operations Unit

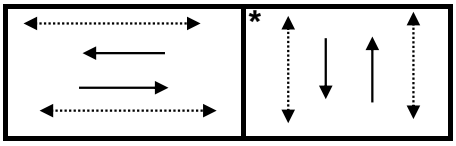
Intersection:	**Main:**	Montreal Rd	**Side:**	DenHaag/Lang's	
Controller:	**MS-3200A**		**TSD:**	6572	
Author:	Florence Morin Paquette		**Date:**	13-Jul-15	

Existing Timing Plans†

	Plan						**Ped Minimum Time**		
	AM Peak 1	**Off Peak** 2	**PM Peak** 3	**Night** 4	**AM Heavy** 11	**Evening** 12	***Walk***	***DW***	***A+R***
Cycle	105	100	120	65	120	95			
Offset	41	76	81	X	11	62			
EB Thru	74	69	85	34	82	64	7	10	3.7 + 2.1
WB Thru	74	69	85	34	82	64	7	10	3.7 + 2.1
NB Thru	31	31	35	31	38	31	7	18	3.3 + 3.1
SB Thru	31	31	35	31	38	31	7	18	3.3 + 3.1

Phasing Sequence‡

Plan: All



Schedule

Weekday

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

Weekend

Time	Plan
0:15	4
8:30	2
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

Asterix (*) Indicates actuated phase

(fp): Fully Protected Left Turn

◄·····► Pedestrian signal

Cost is $56.50 ($50 + HST)

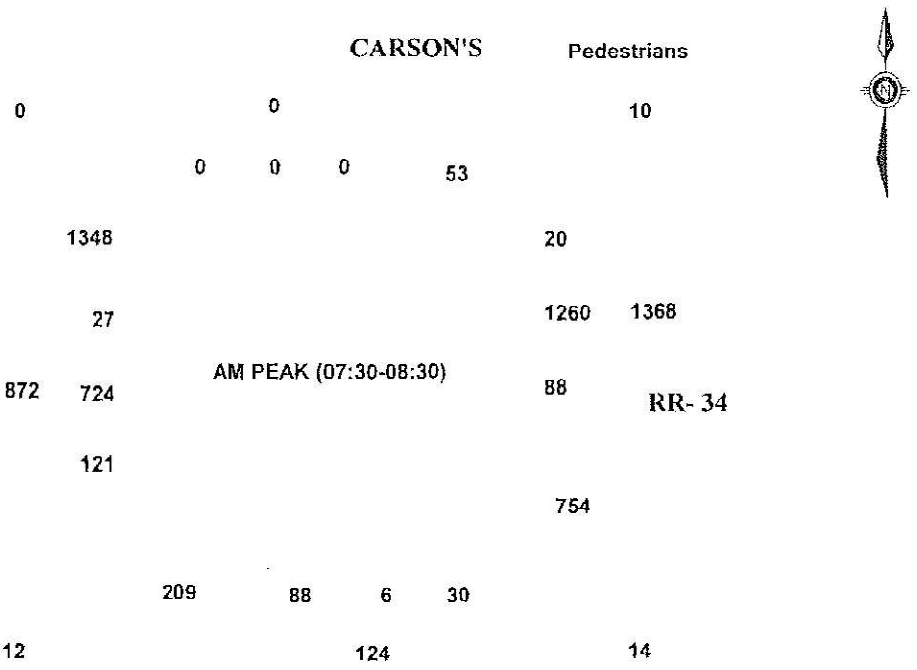
MONTREAL RD and CARSON'S AVE

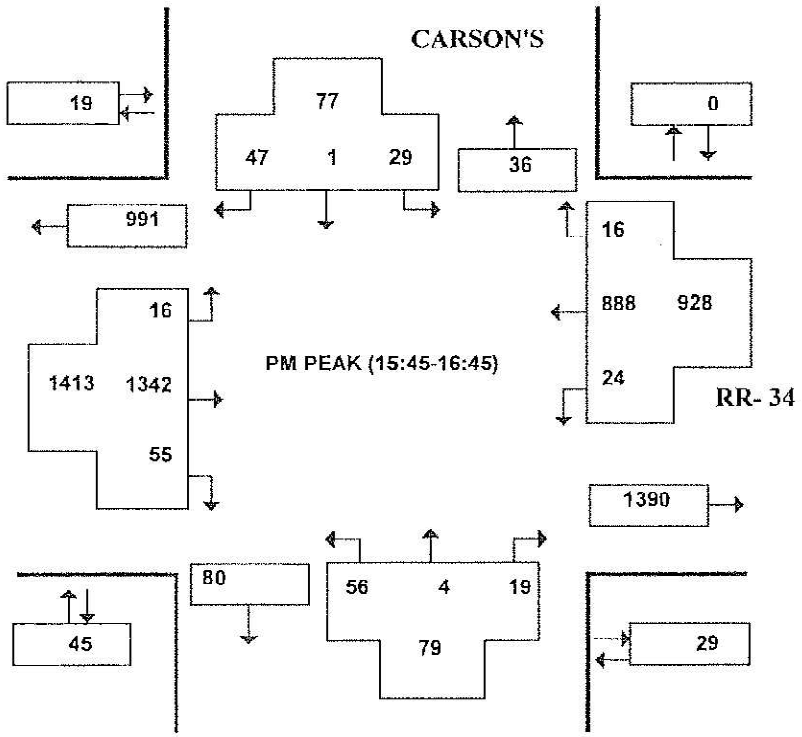
(ULRS Listing RR- 34 & CARSON'S)

Survey Date: Wednesday 2 May 2012
Conditions: DRY
Start Time: 0700

Total Observed U-Turns
Northbound: 0 Southbound: 0
Eastbound: 4 Westbound: 0

AADT Factor
Wednesday in May is
9





Approved by : DT

Printed on : 05/03/2013

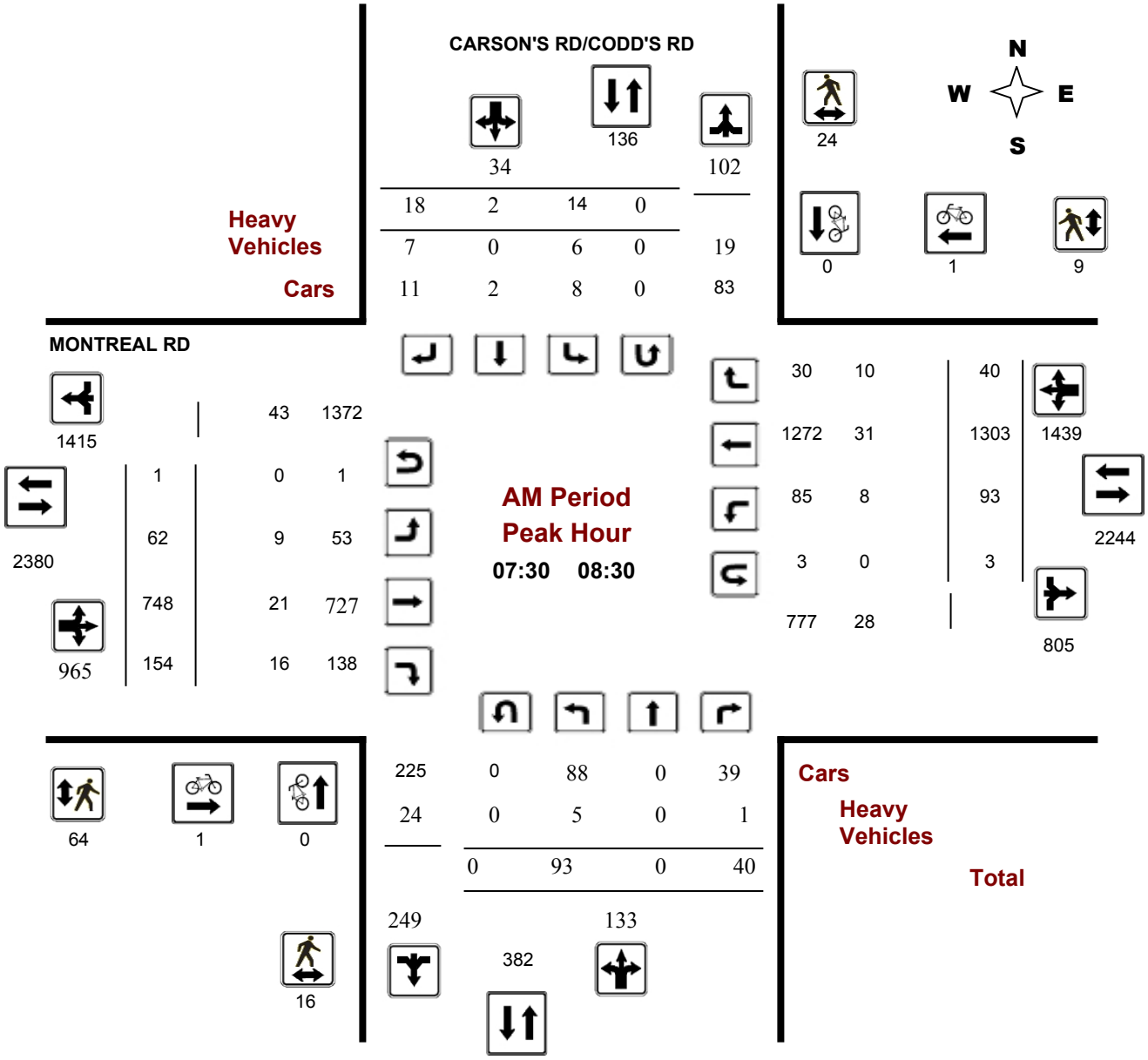
Public Works - Traffic Services

Turning Movement Count - Peak Hour Diagram

MONTREAL RD @ CARSON'S RD/CODD'S RD

Survey Date: Tuesday, December 02, 2014 **WO No:** 34045

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



Comments

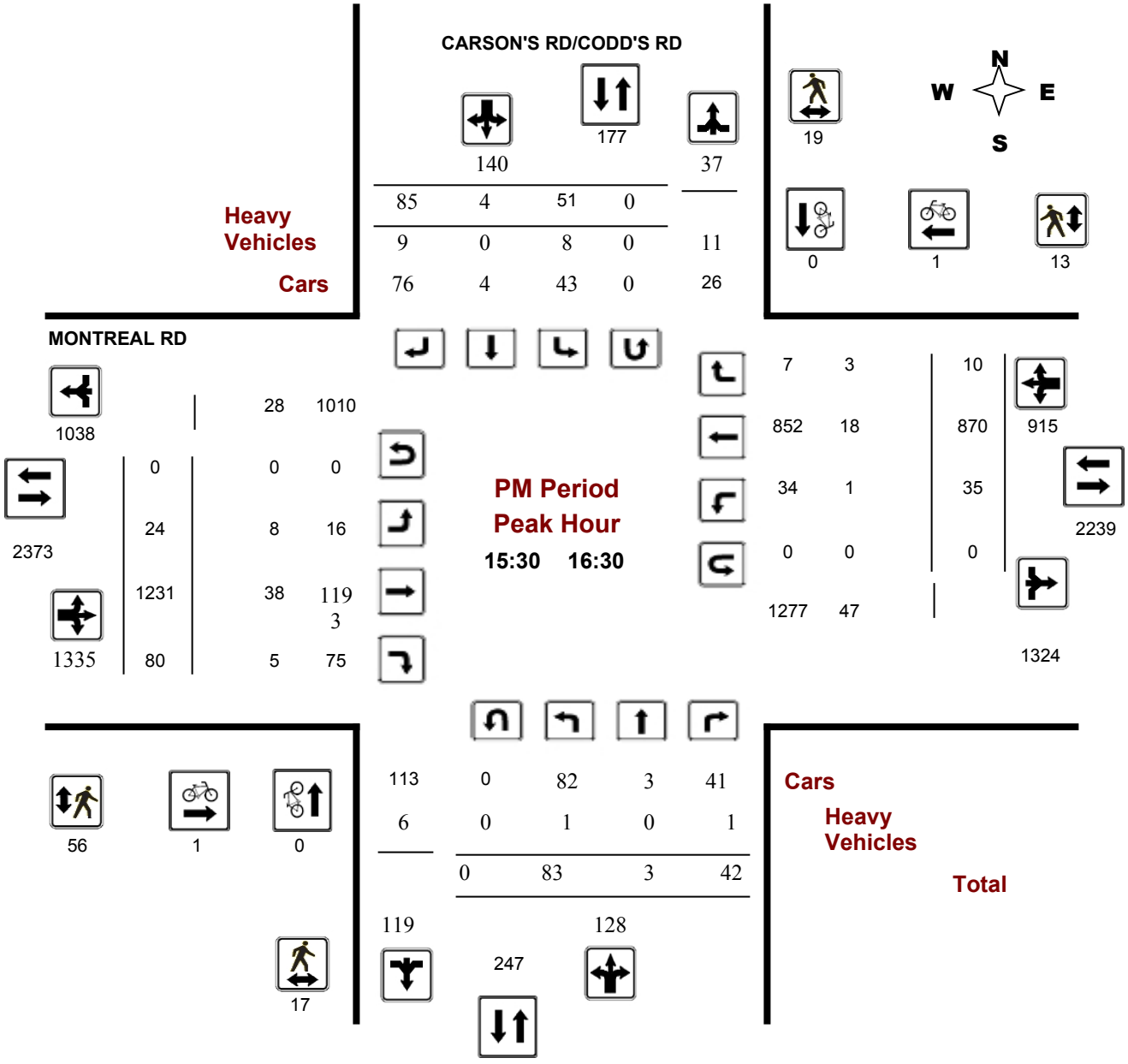
Public Works - Traffic Services

Turning Movement Count - Peak Hour Diagram

MONTREAL RD @ CARSON'S RD/CODD'S RD

Survey Date: Tuesday, December 02, 2014 **WO No:** 34045

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



Comments

Traffic Signal Timing

City of Ottawa, Public Works & Services Department

Traffic Operations Unit

Intersection:	**Main:**	Montreal Rd	**Side:**	Carson's / Codd's	
Controller:	**ATC-3**			**TSD:**	5200
Author:	Florence Morin Paquette			**Date:**	13-Jul-15

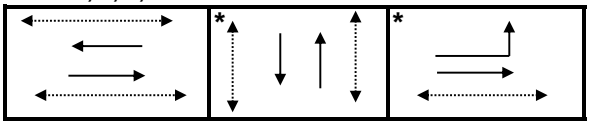
Existing Timing Plans†

	Plan						**Ped Minimum Time**		
	AM Peak 1	**Off Peak** 2	**PM Peak** 3	**Night** 4	**AM Heavy** 11	**Evening** 12	***Walk***	***DW***	***A+R***
Cycle	105	100	120	65	120	95			
Offset	31	45	115	X	13	36			
EB Thru	70	65	82	30	80	60	7	16	3.7 + 2.3
WB Thru	57	49	67	30	67	44	7	16	3.7 + 2.3
NB Thru	35	35	38	35	40	35	7	22	3.3 + 3.2
SB Thru	35	35	38	35	40	35	7	22	3.3 + 3.2
EB Left	13	16	15	-	13	16	-	-	3.7 + 2.3

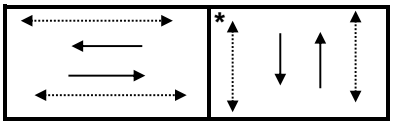
Notes: The maximum green time for the EB Left is 10 seconds.

Phasing Sequence‡

Plan: 1, 2, 3, 11 & 12



Plan: 4



Schedule

Weekday

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

Weekend

Time	Plan
0:15	4
8:30	2
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

Asterix (*) Indicates actuated phase

(fp): Fully Protected Left Turn

◄·····► Pedestrian signal

Cost is $56.50 ($50 + HST)

APPENDIX D

COLLISION DATA

Collision Main Detail Summary

OnTRAC Reporting System

FROM: 2011-01-01 TO: 2014-01-01

AVIATION PKWY & MONTREAL RD

Former Municipality: **Ottawa** Traffic Control: **Traffic signal** Number of Collisions: **49**

	DATE	DAY	TIME	ENV	LIGHT	IMPACT TYPE	CLASS	DIR	SURFACE COND'N	VEHICLE MANOEUVRE	VEHICLE TYPE	FIRST EVENT	No. PED
1	2011-01-11	Tue	16:06	Clear	Dusk	Rear end	Non-fatal	V1 N	Dry	Turning right	Passenger van	Other motor vehicle	0
								V2 N	Dry	Turning right	Automobile, station	Other motor vehicle	
2	2011-01-12	We	06:10	Clear	Dark	Turning	P.D. only	V1 E	Dry	Turning left	Pick-up truck	Other motor vehicle	0
								V2 W	Dry	Going ahead	Automobile, station	Other motor vehicle	
3	2011-01-14	Fri	07:21	Clear	Dawn	Turning	P.D. only	V1 N	Dry	Turning left	Automobile, station	Other motor vehicle	0
								V2 S	Dry	Going ahead	Automobile, station	Other motor vehicle	
								V3 E	Dry	Stopped	Automobile, station	Other motor vehicle	
4	2011-02-01	Tue	11:48	Clear	Daylight	Turning	P.D. only	V1 E	Dry	Turning left	Automobile, station	Other motor vehicle	0
								V2 W	Dry	Going ahead	Automobile, station	Other motor vehicle	
5	2011-03-05	Sat	08:35	Freezin	Daylight	Angle	Non-fatal	V1 W	Ice	Going ahead	Truck - closed	Skidding/Sliding	0
								V2 S	Ice	Going ahead	Car and trailer	Other motor vehicle	
6	2011-03-10	Thu	15:20	Rain	Daylight	Rear end	P.D. only	V1 W	Wet	Turning right	Automobile, station	Other motor vehicle	0
								V2 W	Wet	Turning right	Automobile, station	Other motor vehicle	
7	2011-03-15	Tue	08:14	Clear	Daylight	Other	Non	V1 E	Dry	Reversing	Automobile, station	Other motor vehicle	0
								V2 W	Dry	Stopped	Municipal transit bus	Other motor vehicle	
8	2011-03-24	Thu	15:45	Clear	Daylight	Turning	P.D. only	V1 W	Dry	Turning left	Pick-up truck	Other motor vehicle	0
								V2 E	Dry	Going ahead	Automobile, station	Other motor vehicle	
9	2011-05-08	Sun	00:02	Clear	Dark	Turning	P.D. only	V1 N	Dry	Turning left	Automobile, station	Other motor vehicle	0
								V2 S	Dry	Going ahead	Automobile, station	Other motor vehicle	
10	2011-06-21	Tue	15:30	Clear	Daylight	Rear end	P.D. only	V1 E	Dry	Slowing or	Automobile, station	Other motor vehicle	0
								V2 E	Dry	Going ahead	Automobile, station	Other motor vehicle	
11	2011-07-29	Fri	14:43	Clear	Daylight	Turning	P.D. only	V1 N	Dry	Turning left	Pick-up truck	Other motor vehicle	0
								V2 S	Dry	Going ahead	Delivery van	Other motor vehicle	
12	2011-09-07	We	20:19	Clear	Dark	Turning	P.D. only	V1 N	Dry	Going ahead	Automobile, station	Other motor vehicle	0
								V2 S	Dry	Turning left	Automobile, station	Other motor vehicle	

(Note: Time of Day = "00:00" represents unknown collision time

13	2011-10-24	Mo	12:58	Clear	Daylight	Turning	Non-fatal	V1	W	Dry	Turning left	Automobile, station	Other motor vehicle		0
								V2	E	Dry	Going ahead	Pick-up truck	Other motor vehicle		
14	2011-10-27	Thu	06:50	Clear	Dark	Turning	Non-fatal	V1	W	Dry	Turning left	Automobile, station	Other motor vehicle		0
								V2	E	Dry	Going ahead	Pick-up truck	Other motor vehicle		
15	2011-11-30	We	09:55	Clear	Daylight	Rear end	P.D. only	V1	E	Wet	Turning right	Automobile, station	Other motor vehicle		0
								V2	E	Wet	Turning right	Automobile, station	Other motor vehicle		
16	2011-12-06	Tue	18:48	Clear	Dark	Turning	P.D. only	V1	W	Dry	Turning left	Automobile, station	Other motor vehicle		0
								V2	E	Dry	Going ahead	Automobile, station	Other motor vehicle		
17	2011-12-31	Sat	10:30	Snow	Daylight	Sideswipe	P.D. only	V1	E	Loose snow	Merging	Automobile, station	Other motor vehicle		0
								V2	E	Loose snow	Going ahead	Automobile, station	Other motor vehicle		
18	2012-01-27	Fri	14:15	Rain	Daylight	Rear end	P.D. only	V1	W	Ice	Going ahead	Pick-up truck	Other motor vehicle		0
								V2	W	Ice	Stopped	Automobile, station	Other motor vehicle		
19	2012-01-27	Fri	15:42	Snow	Daylight	Rear end	P.D. only	V1	W	Ice	Turning left	Automobile, station	Skidding/Sliding		0
								V2	W	Ice	Turning left	Automobile, station	Other motor vehicle		
20	2012-02-24	Fri	15:00	Clear	Daylight	Rear end	P.D. only	V2	W	Slush	Stopped	Automobile, station	Other motor vehicle		0
								V1	W	Slush	Going ahead	Pick-up truck	Other motor vehicle		
21	2012-03-03	Sat	06:08	Clear	Dark	Turning	Non-fatal	V1	E	Slush	Turning left	Automobile, station	Other motor vehicle		0
								V2	W	Slush	Going ahead	Passenger van	Other motor vehicle		
22	2012-03-08	Thu	20:30	Rain	Dark	Turning	P.D. only	V1	W	Wet	Turning left	Automobile, station	Other motor vehicle		0
								V2	E	Wet	Going ahead	Automobile, station	Other motor vehicle		
23	2012-03-08	Thu	18:22	Rain	Dark	Turning	Non-fatal	V1	W	Wet	Turning left	Pick-up truck	Other motor vehicle		0
								V2	E	Wet	Going ahead	Automobile, station	Other motor vehicle		
24	2012-03-13	Tue	06:09	Rain	Dark	Turning	P.D. only	V1	N	Wet	Turning left	Automobile, station	Other motor vehicle		0
								V2	S	Wet	Going ahead	Automobile, station	Other motor vehicle		
25	2012-05-12	Sat	14:00	Clear	Daylight	Sideswipe	P.D. only	V1	W	Dry	Changing lanes	Automobile, station	Other motor vehicle		0
								V2	W	Dry	Going ahead	Automobile, station	Other motor vehicle		
26	2012-06-04	Mo	13:10	Clear	Daylight	Rear end	Non-fatal	V1	N	Dry	Going ahead	Pick-up truck	Other motor vehicle		0
								V2	N	Dry	Stopped	Automobile, station	Other motor vehicle		
27	2012-08-02	Thu	12:45	Clear	Daylight	Rear end	P.D. only	V1	N	Dry	Turning right	Automobile, station	Other motor vehicle		0
								V2	N	Dry	Turning right	Automobile, station	Other motor vehicle		

(Note: Time of Day = "00:00" represents unknown collision time

28	2012-08-27	Mo	10:38	Clear	Daylight	Turning	Non-fatal	V1	W	Dry	Turning left	Automobile, station	Other motor vehicle		0
								V2	E	Dry	Going ahead	Automobile, station	Other motor vehicle		
29	2012-09-05	We	15:50	Clear	Daylight	Rear end	P.D. only	V1	N	Dry	Slowing or	Automobile, station	Other motor vehicle		0
								V2	N	Dry	Stopped	Automobile, station	Other motor vehicle		
30	2012-09-20	Thu	16:10	Clear	Daylight	Rear end	Non-fatal	V1	E	Dry	Going ahead	Automobile, station	Other motor vehicle		0
								V2	E	Dry	Stopped	Pick-up truck	Other motor vehicle		
31	2012-10-16	Tue	08:49	Clear	Daylight	Rear end	Non-fatal	V1	W	Dry	Slowing or	Automobile, station	Other motor vehicle		0
								V2	W	Dry	Stopped	Automobile, station	Other motor vehicle		
32	2012-11-29	Thu	20:22	Clear	Dark	Angle	Non-fatal	V1	W	Dry	Going ahead	Automobile, station	Other motor vehicle		0
								V2	S	Dry	Going ahead	Automobile, station	Other motor vehicle		
33	2012-11-29	Thu	15:47	Clear	Daylight	Turning	Non-fatal	V1	E	Dry	Going ahead	Automobile, station	Other motor vehicle		0
								V2	W	Dry	Turning left	Pick-up truck	Other motor vehicle		
34	2012-12-05	We	09:00	Clear	Daylight	Rear end	P.D. only	V1	W	Dry	Going ahead	Automobile, station	Other motor vehicle		0
								V2	W	Dry	Stopped	Automobile, station	Other motor vehicle		
35	2012-12-15	Sat	05:30	Clear	Dark	Rear end	P.D. only	V1	E	Dry	Turning right	Pick-up truck	Other motor vehicle		0
								V2	E	Dry	Turning right	Automobile, station	Other motor vehicle		
36	2013-01-23	We	17:41	Clear	Dark	Turning	P.D. only	V1	E	Dry	Turning left	Pick-up truck	Other motor vehicle		0
								V2	W	Dry	Going ahead	Automobile, station	Other motor vehicle		
37	2013-01-24	Thu	07:25	Clear	Dawn	Rear end	P.D. only	V1	W	Dry	Going ahead	Automobile, station	Other motor vehicle		0
								V2	W	Dry	Stopped	Automobile, station	Other motor vehicle		
38	2013-01-29	Tue	07:14	Clear	Dawn	Turning	Non-fatal	V1	N	Wet	Turning left	Automobile, station	Other motor vehicle		0
								V2	S	Wet	Going ahead	Automobile, station	Other motor vehicle		
								V3	E	Wet	Turning left	Automobile, station	Other motor vehicle		
								V4	E	Wet	Stopped	Automobile, station	Other motor vehicle		
39	2013-02-05	Tue	09:08	Clear	Daylight	Rear end	Non-fatal	V1	E	Dry	Slowing or	Automobile, station	Other motor vehicle		0
								V2	E	Dry	Stopped	Automobile, station	Other motor vehicle		
40	2013-06-20	Thu	15:33	Clear	Daylight	Rear end	P.D. only	V1	W	Dry	Going ahead	Automobile, station	Other motor vehicle		0
								V2	W	Dry	Going ahead	Automobile, station	Other motor vehicle		
								V3	W	Dry	Going ahead	Automobile, station	Other motor vehicle		

(Note: Time of Day = "00:00" represents unknown collision time

41	2013-09-05	Thu	16:53	Clear	Daylight	Angle	P.D. only	V1	N	Dry	Turning right	Automobile, station	Other motor vehicle	0
								V2	E	Dry	Going ahead	Pick-up truck	Other motor vehicle	
42	2013-09-06	Fri	12:07	Clear	Daylight	Turning	P.D. only	V1	W	Dry	Turning left	Automobile, station	Other motor vehicle	0
								V2	E	Dry	Going ahead	Automobile, station	Other motor vehicle	
43	2013-09-13	Fri	20:08	Clear	Dark	Turning	P.D. only	V1	N	Dry	Turning left	Pick-up truck	Other motor vehicle	0
								V2	S	Dry	Going ahead	Automobile, station	Other motor vehicle	
								V3	E	Dry	Stopped	Automobile, station	Other motor vehicle	
44	2013-09-17	Tue	17:20	Clear	Daylight	Turning	P.D. only	V1	E	Dry	Going ahead	Automobile, station	Other motor vehicle	0
								V2	W	Dry	Turning left	Automobile, station	Other motor vehicle	
45	2013-09-18	We	14:40	Clear	Daylight	Turning	P.D. only	V1	N	Dry	Turning left	Automobile, station	Other motor vehicle	0
								V2	S	Dry	Going ahead	Delivery van	Other motor vehicle	
46	2013-09-30	Mo	21:58	Clear	Dark	Rear end	P.D. only	V1	S	Dry	Stopped	Automobile, station	Other motor vehicle	0
								V2	S	Dry	Changing lanes	Automobile, station	Other motor vehicle	
47	2013-11-06	We	08:15	Clear	Daylight	Rear end	Non-fatal	V1	W	Dry	Slowing or	Automobile, station	Other motor vehicle	0
								V2	W	Dry	Stopped	Automobile, station	Other motor vehicle	
48	2013-11-07	Thu	12:43	Clear	Daylight	Turning	Non-fatal	V1	W	Dry	Turning left	Automobile, station	Other motor vehicle	0
								V2	E	Dry	Going ahead	Automobile, station	Other motor vehicle	
								V3	N	Dry	Stopped	Pick-up truck	Other motor vehicle	
								V4	N	Dry	Stopped	Automobile, station	Other motor vehicle	
49	2013-11-10	Sun	09:10	Clear	Daylight	Angle	Non-fatal	V1	E	Wet	Going ahead	Automobile, station	Skidding/Sliding	0
								V2	S	Wet	Going ahead	Pick-up truck	Other motor vehicle	

CARSON'S RD & MONTREAL RD

Former Municipality: **Ottawa** Traffic Control: **Traffic signal** Number of Collisions: **6**

	DATE	DAY	TIME	ENV	LIGHT	IMPACT TYPE	CLASS	DIR		SURFACE COND'N	VEHICLE MANOEUVRE	VEHICLE TYPE	FIRST EVENT	No. PED
50	2011-01-07	Fri	21:55	Snow	Dark	Other	P.D. only	V1	W	Loose snow	Turning right	Automobile, station	Skidding/Sliding	0
								V2	S	Loose snow	Turning left	Automobile, station	Other motor vehicle	
51	2011-01-28	Fri	13:57	Snow	Daylight	Rear end	Non-fatal	V1	N	Wet	Going ahead	Automobile, station	Other motor vehicle	0
								V2	N	Wet	Changing lanes	Automobile, station	Other motor vehicle	

(Note: Time of Day = "00:00" represents unknown collision time

52	2011-07-15	Fri	08:51	Clear	Daylight	Single vehicle	Non-fatal	V1	E	Dry	Going ahead	Automobile, station	Curb	0
53	2012-06-18	Mo	11:50	Clear	Daylight	Angle	Non-fatal	V1	W	Dry	Going ahead	Pick-up truck	Other motor vehicle	0
								V2	S	Dry	Slowing or	Automobile, station	Other motor vehicle	
54	2013-01-10	Thu	11:30	Clear	Daylight	Rear end	P.D. only	V1	E	Wet	Going ahead	Automobile, station	Other motor vehicle	0
								V2	E	Wet	Stopped	Automobile, station	Other motor vehicle	
								V3	E	Wet	Stopped	Automobile, station	Other motor vehicle	
								V4	E	Wet	Stopped	Pick-up truck	Other motor vehicle	
55	2013-06-28	Fri	12:26	Rain	Daylight	Angle	P.D. only	V1	S	Wet	Turning right	Passenger van	Other motor vehicle	0
								V2	W	Wet	Going ahead	Automobile, station	Other motor vehicle	

DEN HAAG DR & MONTREAL RD

Former Municipality: **Ottawa** Traffic Control: **Traffic signal** Number of Collisions: **13**

	DATE	DAY	TIME	ENV	LIGHT	IMPACT TYPE	CLASS	DIR		SURFACE COND'N	VEHICLE MANOEUVRE	VEHICLE TYPE	FIRST EVENT	No. PED
56	2011-02-25	Fri	14:49	Clear	Daylight	Turning	P.D. only	V1	N	Dry	Going ahead	Automobile, station	Other motor vehicle	0
								V2	S	Dry	Turning left	Automobile, station	Other motor vehicle	
57	2011-05-05	Thu	11:01	Clear	Daylight	Sideswipe	P.D. only	V1	E	Dry	Going ahead	Pick-up truck	Other motor vehicle	0
								V2	E	Dry	Going ahead	Automobile, station	Other motor vehicle	
58	2011-10-12	We	08:38	Clear	Daylight	Rear end	P.D. only	V1	W	Dry	Slowing or	Pick-up truck	Other motor vehicle	0
								V2	W	Dry	Slowing or	Passenger van	Other motor vehicle	
59	2011-11-09	We	14:51	Clear	Daylight	Rear end	Non-fatal	V1	N	Dry	Turning left	Automobile, station	Other motor vehicle	0
								V2	N	Dry	Turning left	Pick-up truck	Other motor vehicle	
60	2012-04-24	Tue	07:48	Rain	Daylight	Rear end	P.D. only	V1	W	Wet	Going ahead	Automobile, station	Other motor vehicle	0
								V2	W	Wet	Stopped	Automobile, station	Other motor vehicle	
								V3	W	Wet	Stopped	Automobile, station	Other motor vehicle	
61	2012-06-26	Tue	17:04	Clear	Daylight	Rear end	Non-fatal	V1	W	Dry	Changing lanes	Pick-up truck	Other Moveable	0
								V2	W	Dry	Stopped	Automobile, station	Other motor vehicle	

(Note: Time of Day = "00:00" represents unknown collision time

62	2013-03-05	Tue	07:25	Snow	Daylight	Rear end	P.D. only	V1	W	Slush	Slowing or	Passenger van	Other motor vehicle	0
								V2	W	Loose snow	Stopped	Automobile, station	Other motor vehicle	
								V3	W	Slush	Stopped	Automobile, station	Other motor vehicle	
63	2013-03-15	Fri	12:27	Snow	Daylight	Single vehicle	P.D. only	V1	E	Slush	Slowing or	Automobile, station	Skidding/Sliding	0
64	2013-03-15	Fri	13:00	Snow	Daylight	Angle	P.D. only	V1	S	Ice	Slowing or	Automobile, station	Other motor vehicle	0
								V2	W	Ice	Going ahead	Pick-up truck	Other motor vehicle	
65	2013-04-18	Thu	15:06	Clear	Daylight	Rear end	P.D. only	V1	W	Dry	Going ahead	Passenger van	Other motor vehicle	0
								V2	W	Dry	Stopped	Pick-up truck	Other motor vehicle	
								V3	W	Dry	Stopped	Passenger van	Other motor vehicle	
66	2013-06-20	Thu	17:38	Clear	Daylight	Rear end	Non-fatal	V1	W	Dry	Going ahead	Automobile, station	Other motor vehicle	0
								V2	W	Dry	Stopped	Passenger van	Other motor vehicle	
67	2013-08-01	Thu	13:31	Clear	Daylight	Rear end	P.D. only	V1	W	Dry	Going ahead	Unknown	Other motor vehicle	0
								V2	W	Dry	Stopped	Automobile, station	Other motor vehicle	
68	2013-08-30	Fri	16:06	Clear	Daylight	Rear end	P.D. only	V1	W	Dry	Going ahead	Automobile, station	Other motor vehicle	0
								V2	W	Dry	Stopped	Pick-up truck	Other motor vehicle	

MONTREAL RD, AVIATION PKWY to LANG'S RD

Former Municipality: **Ottawa** Traffic Control: **No control** Number of Collisions: **17**

	DATE	DAY	TIME	ENV	LIGHT	IMPACT TYPE	CLASS	DIR		SURFACE COND'N	VEHICLE MANOEUVRE	VEHICLE TYPE	FIRST EVENT	No. PED
69	2011-03-06	Sun	11:23	Snow	Daylight	Sideswipe	P.D. only	V1	E	Loose snow	Overtaking	Passenger van	Other motor vehicle	0
								V2	E	Loose snow	Going ahead	Truck - dump	Other motor vehicle	
70	2011-06-16	Thu	17:01	Clear	Daylight	Angle	Non-fatal	V1	S	Dry	Turning right	Pick-up truck	Cyclist	0
								V2	E	Dry	Going ahead	Bicycle	Other motor vehicle	
71	2011-06-20	Mo	07:50	Clear	Daylight	Turning	Non-fatal	V1	W	Dry	Going ahead	Pick-up truck	Other motor vehicle	0
								V2	E	Dry	Turning left	Automobile, station	Other motor vehicle	

(Note: Time of Day = "00:00" represents unknown collision time

72	2011-06-20	Mo	09:55	Clear	Daylight	Sideswipe	P.D. only	V1	E	Dry	Going ahead	Automobile, station	Other motor vehicle	0
								V2	E	Dry	Changing lanes	Automobile, station	Other motor vehicle	
73	2012-02-15	We	08:30	Clear	Daylight	Rear end	Non-fatal	V1	W	Wet	Going ahead	Automobile, station	Skidding/Sliding	0
								V2	W	Wet	Stopped	Automobile, station	Other motor vehicle	
74	2012-08-06	Mo	15:07	Clear	Daylight	Sideswipe	P.D. only	V1	E	Dry	Going ahead	Passenger van	Other motor vehicle	0
								V2	E	Dry	Stopped	Municipal transit bus	Other motor vehicle	
75	2012-09-05	We	14:01	Clear	Daylight	Single vehicle	Non-fatal	V1	S	Dry	Turning right	Automobile, station	Pedestrian	1
76	2012-10-24	We	16:45	Clear	Daylight	Single vehicle	P.D. only	V1	E	Dry	Reversing	Automobile, station	Building or wall	0
77	2012-12-05	We	21:35	Clear	Dark	Sideswipe	P.D. only	V1	W	Dry	Changing lanes	Automobile, station	Other motor vehicle	0
								V2	W	Dry	Going ahead	Automobile, station	Other motor vehicle	
78	2013-01-23	We	09:30	Clear	Daylight	Rear end	P.D. only	V1	W	Dry	Going ahead	Automobile, station	Other motor vehicle	0
								V2	W	Dry	Slowing or	Automobile, station	Other motor vehicle	
	COMMENTS: EXACT LOCATION UNKNOWN													
79	2013-01-29	Tue	07:00	Clear	Dawn	Rear end	P.D. only	V1	E	Wet	Changing lanes	Automobile, station	Other motor vehicle	0
								V2	E	Wet	Going ahead	Pick-up truck	Other motor vehicle	
80	2013-02-01	Fri	21:50	Snow	Dark	Rear end	P.D. only	V1	E	Loose snow	Going ahead	Automobile, station	Other motor vehicle	0
								V2	E	Loose snow	Stopped	Automobile, station	Other motor vehicle	
81	2013-02-08	Fri	12:30	Snow	Daylight	Rear end	P.D. only	V1	W	Loose snow	Changing lanes	Pick-up truck	Skidding/Sliding	0
								V2	W	Loose snow	Slowing or	Pick-up truck	Other motor vehicle	
82	2013-03-15	Fri	13:22	Drifting	Daylight	Rear end	P.D. only	V1	W	Packed snow	Slowing or	Automobile, station	Other motor vehicle	0
								V2	W	Packed snow	Stopped	Automobile, station	Other motor vehicle	
83	2013-03-15	Fri	11:01	Snow	Daylight	Rear end	P.D. only	V1	W	Slush	Slowing or	Automobile, station	Other motor vehicle	0
								V2	W	Slush	Stopped	Automobile, station	Other motor vehicle	
84	2013-12-12	Thu	08:49	Clear	Daylight	Rear end	Non-fatal	V1	W	Ice	Slowing or	Pick-up truck	Other motor vehicle	0
								V2	W	Dry	Slowing or	Passenger van	Other motor vehicle	
								V3	W	Ice	Slowing or	Automobile, station	Other motor vehicle	
85	2013-12-15	Sun	10:51	Snow	Daylight	Sideswipe	P.D. only	V1	E	Ice	Changing lanes	Pick-up truck	Other motor vehicle	0
								V2	E	Ice	Going ahead	Municipal transit bus	Other motor vehicle	

(Note: Time of Day = "00:00" represents unknown collision time

MONTREAL RD, CARSON'S RD to LANG'S RD

Former Municipality: **Ottawa** Traffic Control: **No control** Number of Collisions: **9**

	DATE	DAY	TIME	ENV	LIGHT	IMPACT TYPE	CLASS	DIR	SURFACE COND'N	VEHICLE MANOEUVRE	VEHICLE TYPE	FIRST EVENT	No. PED
86	2011-01-29	Sat	00:34	Snow	Dark	Single vehicle	P.D. only	V1 W	Ice	Going ahead	Automobile, station	Skidding/Sliding	0
87	2011-06-07	Tue	11:13	Clear	Daylight	Sideswipe	P.D. only	V1 E	Dry	Going ahead	Pick-up truck	Other motor vehicle	0
								V2 E	Dry	Stopped	Municipal transit bus	Other motor vehicle	
88	2011-11-21	Mo	07:07	Clear	Dawn	Rear end	P.D. only	V1 W	Dry	Slowing or	Automobile, station	Other motor vehicle	0
								V2 W	Dry	Slowing or	Automobile, station	Other motor vehicle	
89	2012-02-27	Mo	13:15	Snow	Daylight	Rear end	P.D. only	V1 W	Loose snow	Going ahead	Automobile, station	Other motor vehicle	0
								V2 W	Loose snow	Slowing or	Municipal transit bus	Other motor vehicle	
								V3 W	Loose snow	Going ahead	Automobile, station	Other motor vehicle	
90	2012-12-24	Mo	12:57	Clear	Daylight	Single vehicle	P.D. only	V1 E	Dry	Going ahead	Automobile, station	Pole (sign, parking	0
91	2013-04-04	Thu	16:35	Clear	Daylight	Approaching	Non-fatal	V1 W	Dry	Going ahead	Automobile, station	Other motor vehicle	0
								V2 E	Dry	Slowing or	Automobile, station	Other motor vehicle	
								V3 E	Dry	Slowing or	Passenger van	Other motor vehicle	
92	2013-05-29	We	07:38	Rain	Daylight	Turning	Non-fatal	V1 E	Wet	Turning left	Pick-up truck	Other motor vehicle	0
								V2 W	Wet	Going ahead	Automobile, station	Other motor vehicle	
93	2013-08-23	Fri	12:41	Clear	Daylight	Angle	P.D. only	V1 N	Dry	Turning left	Automobile, station	Other motor vehicle	0
								V2 E	Unknown	Going ahead	Pick-up truck	Other motor vehicle	
94	2013-11-22	Fri	17:01	Rain	Dark	Rear end	Non-fatal	V1 E	Wet	Going ahead	Pick-up truck	Other motor vehicle	0
								V2 E	Wet	Stopped	Automobile, station	Other motor vehicle	
								V3 E	Wet	Stopped	Automobile, station	Other motor vehicle	

MONTFORT HOSPITAL & MONTREAL RD

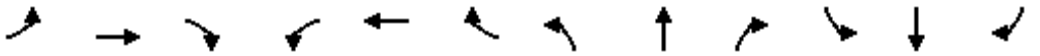
Former Municipality: **Ottawa** Traffic Control: **Traffic signal** Number of Collisions: **5**

	DATE	DAY	TIME	ENV	LIGHT	IMPACT TYPE	CLASS	DIR	SURFACE COND'N	VEHICLE MANOEUVRE	VEHICLE TYPE	FIRST EVENT	No. PED
95	2012-01-26	Thu	08:10	Clear	Daylight	Rear end	P.D. only	V1 W	Dry	Going ahead	Automobile, station	Other motor vehicle	0
								V2 W	Dry	Stopped	Passenger van	Other motor vehicle	
96	2012-03-16	Fri	02:25	Rain	Dark	Single vehicle	Non-fatal	V1 W	Wet	Going ahead	Automobile, station	Skidding/Sliding	0
97	2012-10-04	Thu	10:45	Clear	Daylight	Rear end	P.D. only	V1 W	Dry	Slowing or	Automobile, station	Other motor vehicle	0
								V2 W	Dry	Stopped	Automobile, station	Other motor vehicle	
98	2012-12-21	Fri	07:34	Snow	Dawn	Rear end	P.D. only	V1 W	Slush	Slowing or	Automobile, station	Other motor vehicle	0
								V2 W	Slush	Stopped	Automobile, station	Other motor vehicle	
99	2013-02-27	We	14:15	Snow	Daylight	Sideswipe	P.D. only	V1 W	Loose snow	Going ahead	Passenger van	Other motor vehicle	0
								V2 W	Loose snow	Stopped	Passenger van	Other motor vehicle	

(Note: Time of Day = "00:00" represents unknown collision time

APPENDIX E

SYNCHRO REPORTS



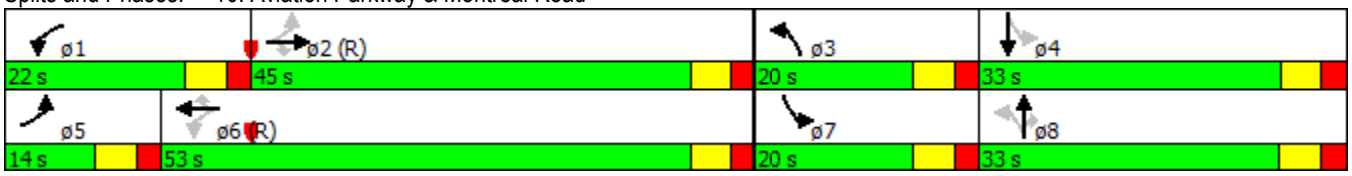
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	30	715	175	195	1240	60	240	160	135	195	190	40
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	45.0		30.0	55.0		15.0	40.0		0.0	40.0		0.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	7.5			25.0			40.0			75.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.95	0.99		0.93	0.99		0.97	0.99	0.99	
Frt			0.850			0.850			0.850		0.974	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1660	3320	1485	1660	3320	1485	1693	1782	1515	1660	1691	0
Flt Permitted	0.108			0.233			0.335			0.548		
Satd. Flow (perm)	189	3320	1411	405	3320	1377	594	1782	1468	949	1691	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			190			136			186		8	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		313.7			136.0			269.0			321.2	
Travel Time (s)		18.8			8.2			19.4			23.1	
Confl. Peds. (#/hr)	16		22	22		16	7		9	9		7
Confl. Bikes (#/hr)			16			21			7			16
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	1%	1%	1%	3%	3%	3%
Adj. Flow (vph)	31	745	182	203	1292	62	250	167	141	203	198	42
Shared Lane Traffic (%)												
Lane Group Flow (vph)	31	745	182	203	1292	62	250	167	141	203	240	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			5.0			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane		Yes										
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	10.9	33.8	33.8	10.9	33.8	33.8	10.9	32.2	32.2	10.9	32.0	
Total Split (s)	14.0	45.0	45.0	22.0	53.0	53.0	20.0	33.0	33.0	20.0	33.0	
Total Split (%)	11.7%	37.5%	37.5%	18.3%	44.2%	44.2%	16.7%	27.5%	27.5%	16.7%	27.5%	
Maximum Green (s)	8.1	39.2	39.2	16.1	47.2	47.2	14.1	26.8	26.8	14.1	27.0	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.5	
All-Red Time (s)	2.2	2.1	2.1	2.2	2.1	2.1	2.2	2.5	2.5	2.2	2.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.9	5.8	5.8	5.9	5.8	5.8	5.9	6.2	6.2	5.9	6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	

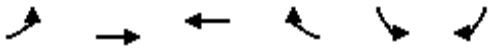
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	
Walk Time (s)		17.0	17.0		17.0	17.0		7.0	7.0		7.0	
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		19.0	19.0		19.0	
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	
Act Effct Green (s)	55.0	48.5	48.5	67.0	59.2	59.2	35.7	21.5	21.5	34.9	21.2	
Actuated g/C Ratio	0.46	0.40	0.40	0.56	0.49	0.49	0.30	0.18	0.18	0.29	0.18	
v/c Ratio	0.19	0.56	0.27	0.57	0.79	0.08	0.82	0.52	0.34	0.57	0.79	
Control Delay	17.2	31.0	4.6	18.1	18.3	0.4	53.0	50.0	4.2	35.7	63.2	
Queue Delay	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	17.2	31.0	4.6	18.1	18.8	0.4	53.0	50.0	4.2	35.7	63.2	
LOS	B	C	A	B	B	A	D	D	A	D	E	
Approach Delay		25.6			18.0			39.8			50.6	
Approach LOS		C			B			D			D	
Queue Length 50th (m)	2.9	65.2	0.0	6.9	107.3	0.0	41.2	33.1	0.0	32.5	48.4	
Queue Length 95th (m)	7.9	93.3	13.0	m25.9	#186.4	m0.2	#63.5	50.5	6.4	47.3	70.8	
Internal Link Dist (m)		289.7			112.0			245.0			297.2	
Turn Bay Length (m)	45.0		30.0	55.0		15.0	40.0			40.0		
Base Capacity (vph)	188	1341	683	394	1638	748	306	397	472	363	386	
Starvation Cap Reductn	0	0	0	0	95	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.16	0.56	0.27	0.52	0.84	0.08	0.82	0.42	0.30	0.56	0.62	

Intersection Summary

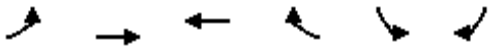
Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 45 (38%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.82
Intersection Signal Delay: 27.6 Intersection LOS: C
Intersection Capacity Utilization 89.1% 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 10: Aviation Parkway & Montreal Road





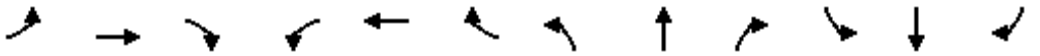
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	180	945	1390	115	40	95
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	45.0			0.0	60.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	25.0				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor			1.00		0.98	0.93
Frt			0.989			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1644	3288	3368	0	1598	1430
Flt Permitted	0.093				0.950	
Satd. Flow (perm)	161	3288	3368	0	1573	1337
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			11			100
Link Speed (k/h)		60	60		50	
Link Distance (m)		136.0	129.4		182.7	
Travel Time (s)		8.2	7.8		13.2	
Confl. Peds. (#/hr)	10			10	11	37
Confl. Bikes (#/hr)				15		1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	4%	4%	0%	0%	7%	7%
Adj. Flow (vph)	189	995	1463	121	42	100
Shared Lane Traffic (%)						
Lane Group Flow (vph)	189	995	1584	0	42	100
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25			15	25	15
Turn Type	pm+pt	NA	NA		Perm	Perm
Protected Phases	5	2	6			
Permitted Phases	2				4	4
Detector Phase	5	2	6		4	4
Switch Phase						
Minimum Initial (s)	5.0	10.0	10.0		10.0	10.0
Minimum Split (s)	10.4	24.0	31.0		30.4	30.4
Total Split (s)	20.0	89.0	69.0		31.0	31.0
Total Split (%)	16.7%	74.2%	57.5%		25.8%	25.8%
Maximum Green (s)	14.6	83.0	63.0		25.6	25.6
Yellow Time (s)	3.7	3.7	3.7		3.3	3.3
All-Red Time (s)	1.7	2.3	2.3		2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.4	6.0	6.0		5.4	5.4
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	C-Max	C-Max		None	None
Walk Time (s)			7.0		7.0	7.0
Flash Dont Walk (s)			18.0		18.0	18.0
Pedestrian Calls (#/hr)			0		0	0
Act Effct Green (s)	98.8	98.2	78.7		10.4	10.4
Actuated g/C Ratio	0.82	0.82	0.66		0.09	0.09
v/c Ratio	0.62	0.37	0.72		0.31	0.48
Control Delay	34.2	3.2	9.5		57.5	18.0
Queue Delay	0.0	0.1	0.4		0.0	0.0
Total Delay	34.2	3.3	9.9		57.5	18.1
LOS	C	A	A		E	B
Approach Delay		8.2	9.9		29.7	
Approach LOS		A	A		C	
Queue Length 50th (m)	22.9	20.5	57.4		8.7	0.0
Queue Length 95th (m)	46.1	24.6	33.7		18.9	14.9
Internal Link Dist (m)		112.0	105.4		158.7	
Turn Bay Length (m)	45.0				60.0	
Base Capacity (vph)	334	2690	2212		335	363
Starvation Cap Reductn	0	594	72		0	0
Spillback Cap Reductn	0	0	224		0	6
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.57	0.47	0.80		0.13	0.28

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 33 (28%), Referenced to phase 2:EBTL and 6:WBT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay: 10.2		Intersection LOS: B	
Intersection Capacity Utilization 86.2%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 20: Montreal Road & Montfort Hospital

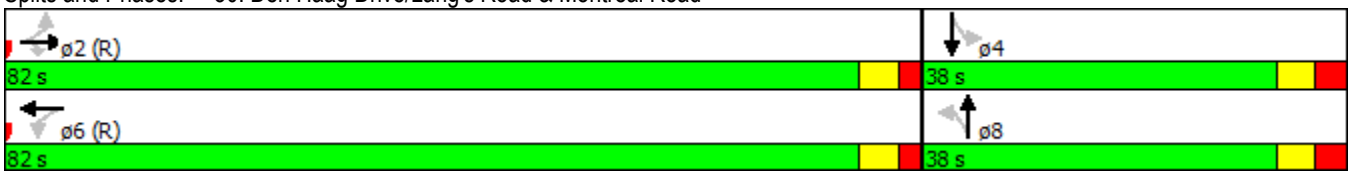


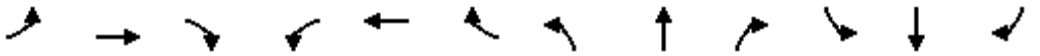
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	25	880	160	85	1255	15	220	5	25	5	5	20
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	35.0		20.0	35.0		0.0	30.0		0.0	0.0		0.0
Storage Lanes	1		1	1		0	1		0	0		0
Taper Length (m)	35.0			45.0			15.0			7.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.89	0.98	1.00		0.99	0.95			0.97	
Frt			0.850		0.998			0.873			0.907	
Flt Protected	0.950			0.950			0.950				0.992	
Satd. Flow (prot)	1644	3288	1471	1676	3342	0	1583	1385	0	0	1543	0
Flt Permitted	0.149			0.268			0.736				0.970	
Satd. Flow (perm)	258	3288	1304	465	3342	0	1210	1385	0	0	1499	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			109		2			27			22	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		129.4			423.7			263.1			160.4	
Travel Time (s)		7.8			25.4			18.9			11.5	
Confl. Peds. (#/hr)	24		27	27		24	10		32	32		10
Confl. Bikes (#/hr)						3						1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	8%	8%	8%	3%	3%	3%
Adj. Flow (vph)	27	946	172	91	1349	16	237	5	27	5	5	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	27	946	172	91	1365	0	237	32	0	0	32	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane					Yes							
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	23.8	23.8	23.8	23.8	23.8		31.4	31.4		31.4	31.4	
Total Split (s)	82.0	82.0	82.0	82.0	82.0		38.0	38.0		38.0	38.0	
Total Split (%)	68.3%	68.3%	68.3%	68.3%	68.3%		31.7%	31.7%		31.7%	31.7%	
Maximum Green (s)	76.2	76.2	76.2	76.2	76.2		31.6	31.6		31.6	31.6	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.1	2.1	2.1	2.1	2.1		3.1	3.1		3.1	3.1	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	5.8	5.8	5.8	5.8	5.8		6.4	6.4			6.4	
Lead/Lag												
Lead-Lag Optimize?												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	10.0	10.0	10.0	10.0	10.0		18.0	18.0		18.0	18.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	
Act Effct Green (s)	80.6	80.6	80.6	80.6	80.6		27.2	27.2			27.2	
Actuated g/C Ratio	0.67	0.67	0.67	0.67	0.67		0.23	0.23			0.23	
v/c Ratio	0.16	0.43	0.19	0.29	0.61		0.86	0.10			0.09	
Control Delay	9.0	7.2	2.1	7.6	6.7		72.8	14.7			17.7	
Queue Delay	0.0	0.2	0.0	0.0	0.0		0.0	0.0			0.0	
Total Delay	9.0	7.3	2.1	7.6	6.7		72.8	14.7			17.7	
LOS	A	A	A	A	A		E	B			B	
Approach Delay		6.6			6.7			65.9			17.7	
Approach LOS		A			A			E			B	
Queue Length 50th (m)	1.0	38.5	0.4	3.6	28.1		48.6	0.8			1.7	
Queue Length 95th (m)	6.3	57.5	5.7	m6.8	41.2		#80.6	8.0			8.8	
Internal Link Dist (m)		105.4			399.7			239.1			136.4	
Turn Bay Length (m)	35.0		20.0	35.0			30.0					
Base Capacity (vph)	173	2207	911	312	2244		318	384			410	
Starvation Cap Reductn	0	440	0	0	0		0	0			0	
Spillback Cap Reductn	0	0	0	0	14		0	0			0	
Storage Cap Reductn	0	0	0	0	0		0	0			0	
Reduced v/c Ratio	0.16	0.54	0.19	0.29	0.61		0.75	0.08			0.08	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 11 (9%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.86			
Intersection Signal Delay: 12.3		Intersection LOS: B	
Intersection Capacity Utilization 80.9%		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.			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 30: Den Haag Drive/Lang's Road & Montreal Road





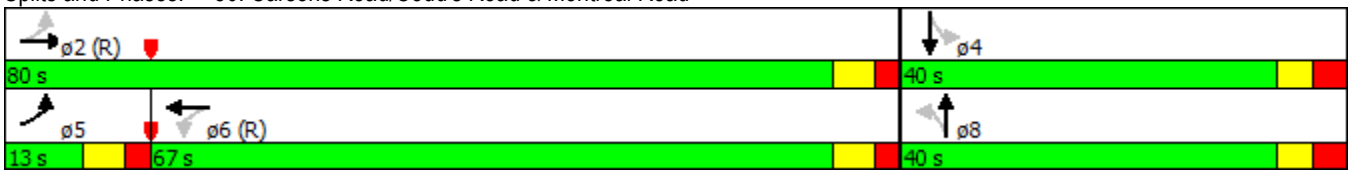
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	65	750	155	95	1305	40	95	5	45	15	5	20
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	100.0		0.0	70.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			25.0			30.0			25.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99		0.99	1.00		0.92	0.98		0.99	0.93	
Frt		0.974			0.996			0.866			0.881	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1644	3169	0	1660	3299	0	1644	1468	0	1179	1016	0
Flt Permitted	0.103			0.279			0.738			0.720		
Satd. Flow (perm)	178	3169	0	483	3299	0	1180	1468	0	885	1016	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		38			4			51			23	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		423.7			307.2			279.9			115.6	
Travel Time (s)		25.4			18.4			20.2			8.3	
Confl. Peds. (#/hr)	24		16	16		24	64		9	9		64
Confl. Bikes (#/hr)			1			1						
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	4%	4%	4%	3%	3%	3%	4%	4%	4%	45%	45%	45%
Adj. Flow (vph)	74	852	176	108	1483	45	108	6	51	17	6	23
Shared Lane Traffic (%)												
Lane Group Flow (vph)	74	1028	0	108	1528	0	108	57	0	17	29	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane		Yes										
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	5	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	11.0	29.0		29.0	29.0		35.5	35.5		35.5	35.5	
Total Split (s)	13.0	80.0		67.0	67.0		40.0	40.0		40.0	40.0	
Total Split (%)	10.8%	66.7%		55.8%	55.8%		33.3%	33.3%		33.3%	33.3%	
Maximum Green (s)	7.0	74.0		61.0	61.0		33.5	33.5		33.5	33.5	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.3	2.3		2.3	2.3		3.2	3.2		3.2	3.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.5	6.5		6.5	6.5	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							

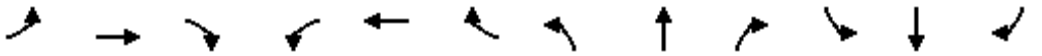
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)		7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		16.0		16.0	16.0		22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	
Act Effct Green (s)	91.0	91.0		80.0	80.0		16.5	16.5		16.5	16.5	
Actuated g/C Ratio	0.76	0.76		0.67	0.67		0.14	0.14		0.14	0.14	
v/c Ratio	0.33	0.43		0.34	0.69		0.67	0.23		0.14	0.18	
Control Delay	13.3	10.6		15.0	16.6		67.6	15.7		45.2	21.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	13.3	10.6		15.0	16.6		67.6	15.7		45.2	21.7	
LOS	B	B		B	B		E	B		D	C	
Approach Delay		10.8			16.5			49.7			30.4	
Approach LOS		B			B			D			C	
Queue Length 50th (m)	7.7	67.5		9.6	103.4		22.6	1.2		3.3	1.2	
Queue Length 95th (m)	14.3	69.8		25.4	157.3		36.8	10.8		8.9	8.5	
Internal Link Dist (m)		399.7			283.2			255.9			91.6	
Turn Bay Length (m)	100.0			70.0			30.0			30.0		
Base Capacity (vph)	229	2411		322	2201		329	446		247	300	
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	0.32	0.43		0.34	0.69		0.33	0.13		0.07	0.10	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 13 (11%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.69
Intersection Signal Delay: 16.4 Intersection LOS: B
Intersection Capacity Utilization 81.4% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 50: Carsons Road/Codd's Road & Montreal Road





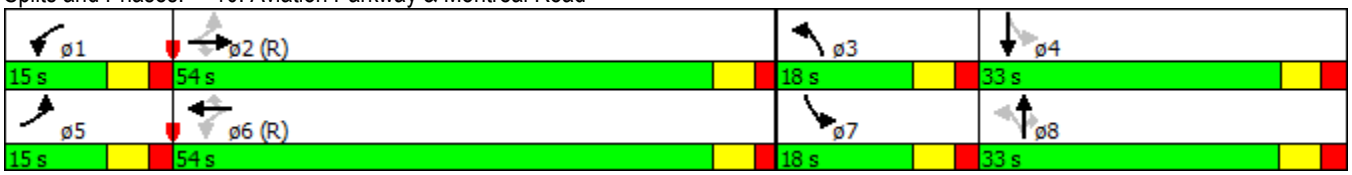
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	35	1050	280	205	805	110	250	265	145	125	210	45
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	45.0		30.0	55.0		15.0	40.0		0.0	40.0		0.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	7.5			25.0			40.0			75.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99		0.94	1.00		0.95	0.99		0.94	0.98	1.00	
Frt			0.850			0.850			0.850		0.973	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1676	3353	1500	1660	3320	1485	1660	1748	1485	1660	1693	0
Flt Permitted	0.295			0.098			0.295			0.328		
Satd. Flow (perm)	518	3353	1405	170	3320	1405	513	1748	1395	562	1693	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			136			136			151		8	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		313.7			136.0			269.0			321.2	
Travel Time (s)		18.8			8.2			19.4			23.1	
Confl. Peds. (#/hr)	12		34	34		12	7		25	25		7
Confl. Bikes (#/hr)			17			10			16			3
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	36	1094	292	214	839	115	260	276	151	130	219	47
Shared Lane Traffic (%)												
Lane Group Flow (vph)	36	1094	292	214	839	115	260	276	151	130	266	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			5.0			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane		Yes										
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	10.9	33.8	33.8	10.9	33.8	33.8	10.9	32.2	32.2	10.9	32.0	
Total Split (s)	15.0	54.0	54.0	15.0	54.0	54.0	18.0	33.0	33.0	18.0	33.0	
Total Split (%)	12.5%	45.0%	45.0%	12.5%	45.0%	45.0%	15.0%	27.5%	27.5%	15.0%	27.5%	
Maximum Green (s)	9.1	48.2	48.2	9.1	48.2	48.2	12.1	26.8	26.8	12.1	27.0	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.5	
All-Red Time (s)	2.2	2.1	2.1	2.2	2.1	2.1	2.2	2.5	2.5	2.2	2.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.9	5.8	5.8	5.9	5.8	5.8	5.9	6.2	6.2	5.9	6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	

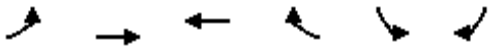
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	
Walk Time (s)		17.0	17.0		17.0	17.0		7.0	7.0		7.0	
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		19.0	19.0		19.0	
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	
Act Effct Green (s)	54.9	48.2	48.2	65.3	59.4	59.4	36.1	23.7	23.7	33.9	22.8	
Actuated g/C Ratio	0.46	0.40	0.40	0.54	0.50	0.50	0.30	0.20	0.20	0.28	0.19	
v/c Ratio	0.12	0.81	0.45	0.84	0.51	0.15	0.96	0.80	0.38	0.50	0.81	
Control Delay	14.6	37.7	15.9	60.1	22.4	3.6	80.6	63.2	8.9	34.5	63.8	
Queue Delay	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	14.6	37.7	15.9	60.1	22.5	3.6	80.6	63.2	8.9	34.5	63.8	
LOS	B	D	B	E	C	A	F	E	A	C	E	
Approach Delay		32.7			27.5			57.8			54.2	
Approach LOS		C			C			E			D	
Queue Length 50th (m)	3.5	109.3	23.2	22.5	85.7	1.6	43.0	57.3	0.0	19.6	53.3	
Queue Length 95th (m)	8.4	134.8	45.2	#82.5	115.9	5.1	#73.7	83.2	15.4	32.2	78.8	
Internal Link Dist (m)		289.7			112.0			245.0			297.2	
Turn Bay Length (m)	45.0		30.0	55.0		15.0	40.0			40.0		
Base Capacity (vph)	334	1347	645	256	1643	764	270	390	428	274	387	
Starvation Cap Reductn	0	0	0	0	142	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.11	0.81	0.45	0.84	0.56	0.15	0.96	0.71	0.35	0.47	0.69	

Intersection Summary

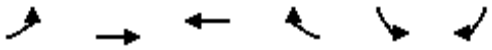
Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 93 (78%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.96
Intersection Signal Delay: 38.1 Intersection LOS: D
Intersection Capacity Utilization 93.0% 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: 10: Aviation Parkway & Montreal Road





Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	100	1270	1050	55	120	100
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	45.0			0.0	60.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	25.0				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor			1.00		0.99	0.95
Frt			0.992			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1660	3320	3381	0	1629	1457
Flt Permitted	0.195				0.950	
Satd. Flow (perm)	341	3320	3381	0	1607	1387
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			7			103
Link Speed (k/h)		60	60		50	
Link Distance (m)		136.0	129.4		182.7	
Travel Time (s)		8.2	7.8		13.2	
Confl. Peds. (#/hr)	20			20	9	25
Confl. Bikes (#/hr)				6		1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	3%	3%	0%	0%	5%	5%
Adj. Flow (vph)	103	1309	1082	57	124	103
Shared Lane Traffic (%)						
Lane Group Flow (vph)	103	1309	1139	0	124	103
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25			15	25	15
Turn Type	pm+pt	NA	NA		Perm	Perm
Protected Phases	5	2	6			
Permitted Phases	2				4	4
Detector Phase	5	2	6		4	4
Switch Phase						
Minimum Initial (s)	5.0	10.0	10.0		10.0	10.0
Minimum Split (s)	10.4	24.0	31.0		30.4	30.4
Total Split (s)	14.0	84.0	70.0		36.0	36.0
Total Split (%)	11.7%	70.0%	58.3%		30.0%	30.0%
Maximum Green (s)	8.6	78.0	64.0		30.6	30.6
Yellow Time (s)	3.7	3.7	3.7		3.3	3.3
All-Red Time (s)	1.7	2.3	2.3		2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.4	6.0	6.0		5.4	5.4
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	C-Max	C-Max		None	None
Walk Time (s)			7.0		7.0	7.0
Flash Dont Walk (s)			18.0		18.0	18.0
Pedestrian Calls (#/hr)			0		0	0
Act Effct Green (s)	94.4	93.8	81.1		14.8	14.8
Actuated g/C Ratio	0.79	0.78	0.68		0.12	0.12
v/c Ratio	0.30	0.50	0.50		0.63	0.39
Control Delay	3.8	2.7	8.9		63.2	13.0
Queue Delay	0.0	0.1	0.1		0.0	0.0
Total Delay	3.8	2.8	9.0		63.2	13.0
LOS	A	A	A		E	B
Approach Delay		2.9	9.0		40.4	
Approach LOS		A	A		D	
Queue Length 50th (m)	2.2	16.7	36.2		26.0	0.0
Queue Length 95th (m)	m4.0	25.5	74.7		42.1	13.8
Internal Link Dist (m)		112.0	105.4		158.7	
Turn Bay Length (m)	45.0				60.0	
Base Capacity (vph)	363	2594	2286		409	430
Starvation Cap Reductn	0	281	270		0	0
Spillback Cap Reductn	0	0	76		0	2
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.28	0.57	0.56		0.30	0.24

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 88 (73%), Referenced to phase 2:EBTL and 6:WBT, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.63			
Intersection Signal Delay: 8.5		Intersection LOS: A	
Intersection Capacity Utilization 67.8%		ICU Level of Service C	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 20: Montreal Road & Montfort Hospital

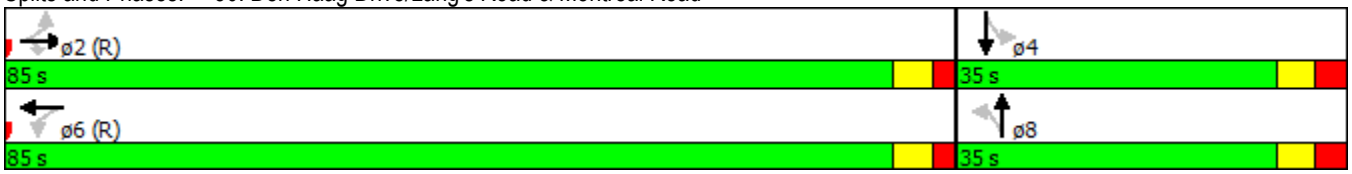
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	35	1235	160	15	930	10	160	0	115	20	0	25
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	35.0		20.0	35.0		0.0	30.0		0.0	0.0		0.0
Storage Lanes	1		1	1		0	1		0	0		0
Taper Length (m)	35.0			45.0			15.0			7.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99		0.89		1.00		0.98	0.97			0.97	
Frt			0.850		0.998			0.850			0.924	
Flt Protected	0.950			0.950			0.950				0.979	
Satd. Flow (prot)	1676	3353	1500	1660	3312	0	1660	1438	0	0	1599	0
Flt Permitted	0.274			0.187			0.727				0.845	
Satd. Flow (perm)	481	3353	1335	327	3312	0	1246	1438	0	0	1370	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			84		2			77			26	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		129.4			423.7			263.1			160.4	
Travel Time (s)		7.8			25.4			18.9			11.5	
Confl. Peds. (#/hr)	9		26	26		9	14		14	14		14
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	0%	0%	0%
Adj. Flow (vph)	36	1260	163	15	949	10	163	0	117	20	0	26
Shared Lane Traffic (%)												
Lane Group Flow (vph)	36	1260	163	15	959	0	163	117	0	0	46	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane					Yes							
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	23.8	23.8	23.8	23.8	23.8		31.4	31.4		31.4	31.4	
Total Split (s)	85.0	85.0	85.0	85.0	85.0		35.0	35.0		35.0	35.0	
Total Split (%)	70.8%	70.8%	70.8%	70.8%	70.8%		29.2%	29.2%		29.2%	29.2%	
Maximum Green (s)	79.2	79.2	79.2	79.2	79.2		28.6	28.6		28.6	28.6	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.1	2.1	2.1	2.1	2.1		3.1	3.1		3.1	3.1	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	5.8	5.8	5.8	5.8	5.8		6.4	6.4			6.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	

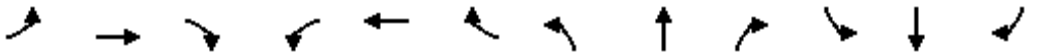
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	10.0	10.0	10.0	10.0	10.0		18.0	18.0		18.0	18.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	
Act Effct Green (s)	87.1	87.1	87.1	87.1	87.1		20.7	20.7			20.7	
Actuated g/C Ratio	0.73	0.73	0.73	0.73	0.73		0.17	0.17			0.17	
v/c Ratio	0.10	0.52	0.16	0.06	0.40		0.76	0.38			0.18	
Control Delay	3.8	4.4	1.5	6.5	6.4		68.2	19.4			22.6	
Queue Delay	0.0	0.1	0.0	0.0	0.0		0.0	0.0			0.0	
Total Delay	3.8	4.4	1.5	6.5	6.4		68.2	19.4			22.6	
LOS	A	A	A	A	A		E	B			C	
Approach Delay		4.1			6.4			47.8			22.6	
Approach LOS		A			A			D			C	
Queue Length 50th (m)	1.2	31.5	0.6	0.8	33.1		34.0	7.5			3.7	
Queue Length 95th (m)	m3.4	42.3	3.6	m2.6	41.7		51.9	21.2			12.3	
Internal Link Dist (m)		105.4			399.7			239.1			136.4	
Turn Bay Length (m)	35.0		20.0	35.0			30.0					
Base Capacity (vph)	349	2432	991	237	2403		296	401			346	
Starvation Cap Reductn	0	209	0	0	0		0	0			0	
Spillback Cap Reductn	0	0	0	0	62		0	0			0	
Storage Cap Reductn	0	0	0	0	0		0	0			0	
Reduced v/c Ratio	0.10	0.57	0.16	0.06	0.41		0.55	0.29			0.13	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 81 (68%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.76
Intersection Signal Delay: 9.6 Intersection LOS: A
Intersection Capacity Utilization 64.0% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 30: Den Haag Drive/Lang's Road & Montreal Road



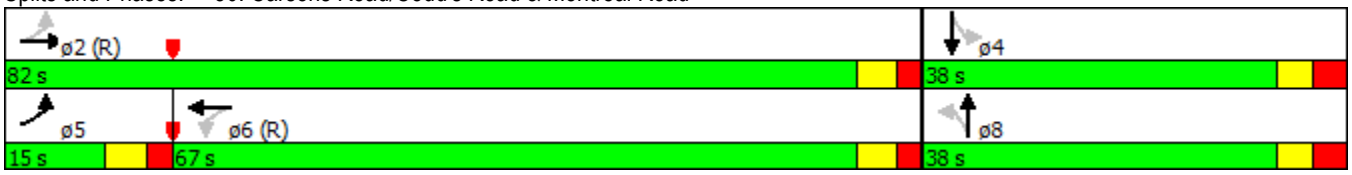


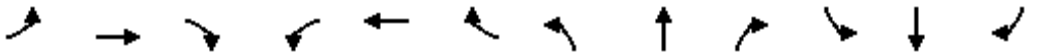
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	25	1230	80	35	870	10	85	5	40	50	5	85
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	100.0		0.0	70.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			25.0			30.0			25.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	1.00		1.00	1.00		0.94	0.98		0.98	0.92	
Frt		0.991			0.998			0.866			0.858	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1660	3278	0	1644	3279	0	1693	1505	0	1527	1274	0
Flt Permitted	0.250			0.178			0.694			0.726		
Satd. Flow (perm)	434	3278	0	307	3279	0	1162	1505	0	1149	1274	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11			1			43			92	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		423.7			307.2			279.9			115.6	
Travel Time (s)		25.4			18.4			20.2			8.3	
Confl. Peds. (#/hr)	19		17	17		19	56		13	13		56
Confl. Bikes (#/hr)			1			1						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	1%	1%	1%	12%	12%	12%
Adj. Flow (vph)	27	1337	87	38	946	11	92	5	43	54	5	92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	27	1424	0	38	957	0	92	48	0	54	97	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane		Yes										
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	5	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	11.0	29.0		29.0	29.0		35.5	35.5		35.5	35.5	
Total Split (s)	15.0	82.0		67.0	67.0		38.0	38.0		38.0	38.0	
Total Split (%)	12.5%	68.3%		55.8%	55.8%		31.7%	31.7%		31.7%	31.7%	
Maximum Green (s)	9.0	76.0		61.0	61.0		31.5	31.5		31.5	31.5	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.3	2.3		2.3	2.3		3.2	3.2		3.2	3.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.5	6.5		6.5	6.5	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		C-Max	C-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		22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	
Act Effct Green (s)	92.3	92.3		84.9	84.9		15.2	15.2		15.2	15.2	
Actuated g/C Ratio	0.77	0.77		0.71	0.71		0.13	0.13		0.13	0.13	
v/c Ratio	0.07	0.56		0.18	0.41		0.63	0.21		0.37	0.40	
Control Delay	2.9	3.2		11.3	9.3		67.1	17.0		53.7	15.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	2.9	3.2		11.3	9.3		67.1	17.0		53.7	15.0	
LOS	A	A		B	A		E	B		D	B	
Approach Delay		3.2			9.4			49.9			28.8	
Approach LOS		A			A			D			C	
Queue Length 50th (m)	0.6	16.3		2.8	45.9		19.3	1.0		10.9	1.0	
Queue Length 95th (m)	m1.9	30.6		9.4	70.5		33.3	10.5		21.4	14.3	
Internal Link Dist (m)		399.7			283.2			255.9			91.6	
Turn Bay Length (m)	100.0			70.0			30.0			30.0		
Base Capacity (vph)	425	2522		217	2319		305	426		301	402	
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	0.06	0.56		0.18	0.41		0.30	0.11		0.18	0.24	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 115 (96%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.63			
Intersection Signal Delay: 9.2		Intersection LOS: A	
Intersection Capacity Utilization 71.1%		ICU Level of Service C	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 50: Carsons Road/Codd's Road & Montreal Road





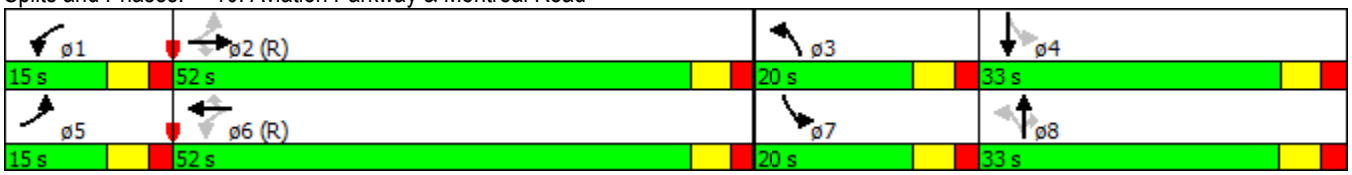
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	35	1050	280	205	805	110	250	265	145	125	210	45
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	45.0		30.0	90.0		15.0	90.0		0.0	70.0		0.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	7.5			25.0			40.0			75.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99		0.94			0.95	0.99		0.94	0.98	1.00	
Frt			0.850			0.850			0.850		0.973	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1676	3353	1500	1660	3320	1485	1660	1748	1485	1660	1693	0
Flt Permitted	0.291			0.087			0.275			0.367		
Satd. Flow (perm)	511	3353	1404	152	3320	1404	478	1748	1395	629	1693	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			136			136			151		8	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		313.7			136.0			269.0			321.2	
Travel Time (s)		18.8			8.2			19.4			23.1	
Confl. Peds. (#/hr)	12		34	34		12	7		25	25		7
Confl. Bikes (#/hr)			17			10			16			3
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	36	1094	292	214	839	115	260	276	151	130	219	47
Shared Lane Traffic (%)												
Lane Group Flow (vph)	36	1094	292	214	839	115	260	276	151	130	266	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			7.0			5.0			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane		Yes										
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	10.9	33.8	33.8	10.9	33.8	33.8	10.9	32.2	32.2	10.9	32.0	
Total Split (s)	15.0	52.0	52.0	15.0	52.0	52.0	20.0	33.0	33.0	20.0	33.0	
Total Split (%)	12.5%	43.3%	43.3%	12.5%	43.3%	43.3%	16.7%	27.5%	27.5%	16.7%	27.5%	
Maximum Green (s)	9.1	46.2	46.2	9.1	46.2	46.2	14.1	26.8	26.8	14.1	27.0	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.5	
All-Red Time (s)	2.2	2.1	2.1	2.2	2.1	2.1	2.2	2.5	2.5	2.2	2.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.9	5.8	5.8	5.9	5.8	5.8	5.9	6.2	6.2	5.9	6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	

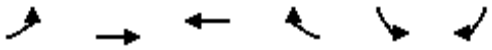
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	
Walk Time (s)		17.0	17.0		17.0	17.0		7.0	7.0		7.0	
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		19.0	19.0		19.0	
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	
Act Effct Green (s)	52.9	46.2	46.2	63.7	57.6	57.6	39.3	24.9	24.9	34.3	22.6	
Actuated g/C Ratio	0.44	0.38	0.38	0.53	0.48	0.48	0.33	0.21	0.21	0.29	0.19	
v/c Ratio	0.12	0.85	0.47	0.86	0.53	0.15	0.88	0.76	0.37	0.47	0.82	
Control Delay	15.5	41.2	16.9	66.1	23.9	3.9	60.9	58.9	8.7	32.0	65.0	
Queue Delay	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	15.5	41.2	16.9	66.1	24.0	3.9	60.9	58.9	8.7	32.0	65.0	
LOS	B	D	B	E	C	A	E	E	A	C	E	
Approach Delay		35.6			29.8			48.6			54.2	
Approach LOS		D			C			D			D	
Queue Length 50th (m)	3.6	112.6	24.0	24.8	90.3	2.2	42.3	56.4	0.0	19.3	53.8	
Queue Length 95th (m)	8.8	138.9	46.7	#87.1	116.8	5.1	#71.1	83.2	15.4	31.3	78.8	
Internal Link Dist (m)		289.7			112.0			245.0			297.2	
Turn Bay Length (m)	45.0		30.0	90.0		15.0	90.0			70.0		
Base Capacity (vph)	323	1290	624	250	1593	744	295	391	429	313	387	
Starvation Cap Reductn	0	0	0	0	129	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.11	0.85	0.47	0.86	0.57	0.15	0.88	0.71	0.35	0.42	0.69	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 93 (78%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 38.2 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: 10: Aviation Parkway & Montreal Road



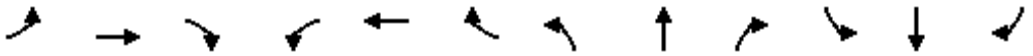


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	100	1270	1050	55	120	100
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	65.0			0.0	60.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	25.0				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor			1.00		0.99	0.95
Frt			0.992			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1660	3320	3381	0	1629	1457
Flt Permitted	0.195				0.950	
Satd. Flow (perm)	341	3320	3381	0	1607	1387
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			7			103
Link Speed (k/h)		60	60		50	
Link Distance (m)		136.0	129.4		182.7	
Travel Time (s)		8.2	7.8		13.2	
Confl. Peds. (#/hr)	20			20	9	25
Confl. Bikes (#/hr)				6		1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	3%	3%	0%	0%	5%	5%
Adj. Flow (vph)	103	1309	1082	57	124	103
Shared Lane Traffic (%)						
Lane Group Flow (vph)	103	1309	1139	0	124	103
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		7.0	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25			15	25	15
Turn Type	pm+pt	NA	NA		Perm	Perm
Protected Phases	5	2	6			
Permitted Phases	2				4	4
Detector Phase	5	2	6		4	4
Switch Phase						
Minimum Initial (s)	5.0	10.0	10.0		10.0	10.0
Minimum Split (s)	10.4	24.0	31.0		30.4	30.4
Total Split (s)	14.0	84.0	70.0		36.0	36.0
Total Split (%)	11.7%	70.0%	58.3%		30.0%	30.0%
Maximum Green (s)	8.6	78.0	64.0		30.6	30.6
Yellow Time (s)	3.7	3.7	3.7		3.3	3.3
All-Red Time (s)	1.7	2.3	2.3		2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.4	6.0	6.0		5.4	5.4
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	C-Max	C-Max		None	None
Walk Time (s)			7.0		7.0	7.0
Flash Dont Walk (s)			18.0		18.0	18.0
Pedestrian Calls (#/hr)			0		0	0
Act Effct Green (s)	94.4	93.8	81.1		14.8	14.8
Actuated g/C Ratio	0.79	0.78	0.68		0.12	0.12
v/c Ratio	0.30	0.50	0.50		0.63	0.39
Control Delay	4.0	2.8	8.9		63.2	13.0
Queue Delay	0.0	0.1	0.1		0.0	0.0
Total Delay	4.0	2.9	9.0		63.2	13.0
LOS	A	A	A		E	B
Approach Delay		3.0	9.0		40.4	
Approach LOS		A	A		D	
Queue Length 50th (m)	2.2	16.8	36.2		26.0	0.0
Queue Length 95th (m)	m3.9	25.4	74.7		42.1	13.8
Internal Link Dist (m)		112.0	105.4		158.7	
Turn Bay Length (m)	65.0				60.0	
Base Capacity (vph)	363	2594	2286		409	430
Starvation Cap Reductn	0	334	270		0	0
Spillback Cap Reductn	0	0	78		0	2
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.28	0.58	0.56		0.30	0.24

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 88 (73%), Referenced to phase 2:EBTL and 6:WBT, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.63			
Intersection Signal Delay: 8.5		Intersection LOS: A	
Intersection Capacity Utilization 67.8%		ICU Level of Service C	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 20: Montreal Road & Montfort Hospital



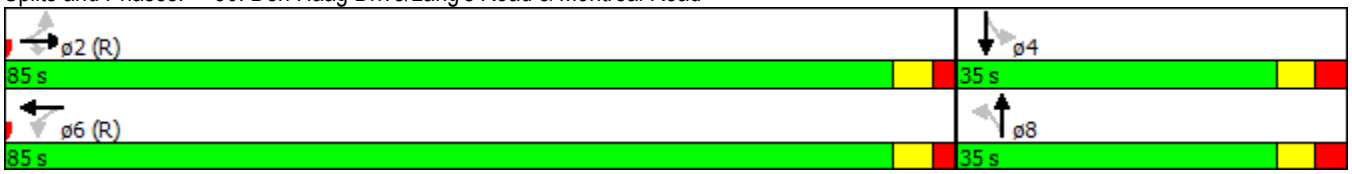
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	35	1235	160	15	930	10	160	0	115	20	0	25
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	35.0		20.0	35.0		0.0	85.0		0.0	0.0		0.0
Storage Lanes	1		1	1		0	1		0	0		0
Taper Length (m)	35.0			45.0			15.0			7.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99		0.89		1.00		0.98	0.97			0.97	
Frt			0.850		0.998			0.850			0.924	
Flt Protected	0.950			0.950			0.950				0.979	
Satd. Flow (prot)	1676	3353	1500	1660	3312	0	1660	1438	0	0	1599	0
Flt Permitted	0.274			0.187			0.727				0.845	
Satd. Flow (perm)	481	3353	1335	327	3312	0	1246	1438	0	0	1370	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			84		2			77			26	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		129.4			423.7			263.1			160.4	
Travel Time (s)		7.8			25.4			18.9			11.5	
Confl. Peds. (#/hr)	9		26	26		9	14		14	14		14
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	0%	0%	0%
Adj. Flow (vph)	36	1260	163	15	949	10	163	0	117	20	0	26
Shared Lane Traffic (%)												
Lane Group Flow (vph)	36	1260	163	15	959	0	163	117	0	0	46	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane					Yes							
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	23.8	23.8	23.8	23.8	23.8		31.4	31.4		31.4	31.4	
Total Split (s)	85.0	85.0	85.0	85.0	85.0		35.0	35.0		35.0	35.0	
Total Split (%)	70.8%	70.8%	70.8%	70.8%	70.8%		29.2%	29.2%		29.2%	29.2%	
Maximum Green (s)	79.2	79.2	79.2	79.2	79.2		28.6	28.6		28.6	28.6	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.1	2.1	2.1	2.1	2.1		3.1	3.1		3.1	3.1	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	5.8	5.8	5.8	5.8	5.8		6.4	6.4			6.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	

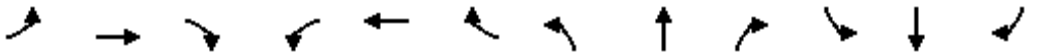
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	10.0	10.0	10.0	10.0	10.0		18.0	18.0		18.0	18.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	
Act Effct Green (s)	87.1	87.1	87.1	87.1	87.1		20.7	20.7			20.7	
Actuated g/C Ratio	0.73	0.73	0.73	0.73	0.73		0.17	0.17			0.17	
v/c Ratio	0.10	0.52	0.16	0.06	0.40		0.76	0.38			0.18	
Control Delay	3.8	4.4	1.5	6.5	6.4		68.2	19.4			22.6	
Queue Delay	0.0	0.1	0.0	0.0	0.0		0.0	0.0			0.0	
Total Delay	3.8	4.4	1.5	6.5	6.4		68.2	19.4			22.6	
LOS	A	A	A	A	A		E	B			C	
Approach Delay		4.1			6.4			47.8			22.6	
Approach LOS		A			A			D			C	
Queue Length 50th (m)	1.2	31.5	0.6	0.8	33.1		34.0	7.5			3.7	
Queue Length 95th (m)	m3.4	42.3	3.6	m2.6	41.7		51.9	21.2			12.3	
Internal Link Dist (m)		105.4			399.7			239.1			136.4	
Turn Bay Length (m)	35.0		20.0	35.0			85.0					
Base Capacity (vph)	349	2432	991	237	2403		296	401			346	
Starvation Cap Reductn	0	209	0	0	0		0	0			0	
Spillback Cap Reductn	0	0	0	0	62		0	0			0	
Storage Cap Reductn	0	0	0	0	0		0	0			0	
Reduced v/c Ratio	0.10	0.57	0.16	0.06	0.41		0.55	0.29			0.13	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 81 (68%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.76
Intersection Signal Delay: 9.6 Intersection LOS: A
Intersection Capacity Utilization 64.0% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 30: Den Haag Drive/Lang's Road & Montreal Road



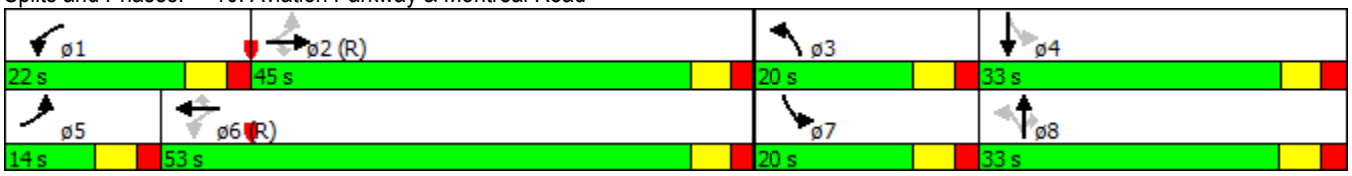


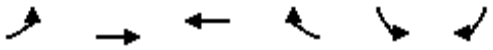
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	30	730	180	200	1265	60	245	170	140	200	200	40
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	45.0		30.0	90.0		15.0	90.0		0.0	70.0		0.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	7.5			25.0			40.0			75.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.95	0.99		0.93	0.99		0.97	0.99	0.99	
Frt			0.850			0.850			0.850		0.975	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1660	3320	1485	1660	3320	1485	1693	1782	1515	1660	1693	0
Flt Permitted	0.097			0.223			0.323			0.525		
Satd. Flow (perm)	170	3320	1411	387	3320	1377	572	1782	1468	909	1693	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			190			136			186		8	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		313.7			136.0			269.0			321.2	
Travel Time (s)		18.8			8.2			19.4			23.1	
Confl. Peds. (#/hr)	16		22	22		16	7		9	9		7
Confl. Bikes (#/hr)			16			21			7			16
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	1%	1%	1%	3%	3%	3%
Adj. Flow (vph)	31	760	188	208	1318	62	255	177	146	208	208	42
Shared Lane Traffic (%)												
Lane Group Flow (vph)	31	760	188	208	1318	62	255	177	146	208	250	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			7.0			5.0			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane		Yes										
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	10.9	33.8	33.8	10.9	33.8	33.8	10.9	32.2	32.2	10.9	32.0	
Total Split (s)	14.0	45.0	45.0	22.0	53.0	53.0	20.0	33.0	33.0	20.0	33.0	
Total Split (%)	11.7%	37.5%	37.5%	18.3%	44.2%	44.2%	16.7%	27.5%	27.5%	16.7%	27.5%	
Maximum Green (s)	8.1	39.2	39.2	16.1	47.2	47.2	14.1	26.8	26.8	14.1	27.0	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.5	
All-Red Time (s)	2.2	2.1	2.1	2.2	2.1	2.1	2.2	2.5	2.5	2.2	2.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.9	5.8	5.8	5.9	5.8	5.8	5.9	6.2	6.2	5.9	6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	
Walk Time (s)		17.0	17.0		17.0	17.0		7.0	7.0		7.0	
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		19.0	19.0		19.0	
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	
Act Effct Green (s)	54.2	47.7	47.7	66.4	58.7	58.7	36.3	22.0	22.0	35.4	21.7	
Actuated g/C Ratio	0.45	0.40	0.40	0.55	0.49	0.49	0.30	0.18	0.18	0.30	0.18	
v/c Ratio	0.20	0.58	0.28	0.59	0.81	0.08	0.84	0.54	0.35	0.59	0.80	
Control Delay	17.8	31.9	5.0	20.3	19.7	0.5	54.8	50.2	4.6	36.1	63.8	
Queue Delay	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	17.8	31.9	5.0	20.3	20.4	0.5	54.8	50.2	4.6	36.1	63.8	
LOS	B	C	A	C	C	A	D	D	A	D	E	
Approach Delay		26.3			19.6			40.7			51.2	
Approach LOS		C			B			D			D	
Queue Length 50th (m)	3.0	67.8	0.0	7.1	119.6	0.0	41.8	35.1	0.0	33.1	50.5	
Queue Length 95th (m)	7.9	95.5	14.2	m27.9	#192.9	m0.1	#58.1	53.3	7.7	48.4	73.6	
Internal Link Dist (m)		289.7			112.0			245.0			297.2	
Turn Bay Length (m)	45.0		30.0	90.0		15.0	90.0			70.0		
Base Capacity (vph)	179	1319	675	385	1623	743	305	397	472	360	387	
Starvation Cap Reductn	0	0	0	0	91	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.17	0.58	0.28	0.54	0.86	0.08	0.84	0.45	0.31	0.58	0.65	

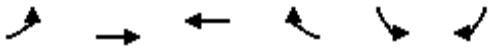
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 45 (38%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay: 28.8		Intersection LOS: C	
Intersection Capacity Utilization 90.5%		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.			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 10: Aviation Parkway & Montreal Road





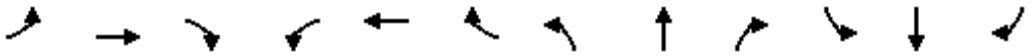
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	180	965	1420	115	40	95
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	65.0			0.0	60.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	25.0				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor			1.00		0.98	0.93
Frt			0.989			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1644	3288	3369	0	1598	1430
Flt Permitted	0.087				0.950	
Satd. Flow (perm)	151	3288	3369	0	1573	1337
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			10			100
Link Speed (k/h)		60	60		50	
Link Distance (m)		136.0	129.4		182.7	
Travel Time (s)		8.2	7.8		13.2	
Confl. Peds. (#/hr)	10			10	11	37
Confl. Bikes (#/hr)				15		1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	4%	4%	0%	0%	7%	7%
Adj. Flow (vph)	189	1016	1495	121	42	100
Shared Lane Traffic (%)						
Lane Group Flow (vph)	189	1016	1616	0	42	100
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		7.0	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25			15	25	15
Turn Type	pm+pt	NA	NA		Perm	Perm
Protected Phases	5	2	6			
Permitted Phases	2				4	4
Detector Phase	5	2	6		4	4
Switch Phase						
Minimum Initial (s)	5.0	10.0	10.0		10.0	10.0
Minimum Split (s)	10.4	24.0	31.0		30.4	30.4
Total Split (s)	20.0	89.0	69.0		31.0	31.0
Total Split (%)	16.7%	74.2%	57.5%		25.8%	25.8%
Maximum Green (s)	14.6	83.0	63.0		25.6	25.6
Yellow Time (s)	3.7	3.7	3.7		3.3	3.3
All-Red Time (s)	1.7	2.3	2.3		2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.4	6.0	6.0		5.4	5.4
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	C-Max	C-Max		None	None
Walk Time (s)			7.0		7.0	7.0
Flash Dont Walk (s)			18.0		18.0	18.0
Pedestrian Calls (#/hr)			0		0	0
Act Effct Green (s)	98.8	98.2	78.7		10.4	10.4
Actuated g/C Ratio	0.82	0.82	0.66		0.09	0.09
v/c Ratio	0.63	0.38	0.73		0.31	0.48
Control Delay	35.6	3.2	9.7		57.5	18.0
Queue Delay	0.0	0.1	0.6		0.0	0.0
Total Delay	35.6	3.3	10.3		57.5	18.1
LOS	D	A	B		E	B
Approach Delay		8.4	10.3		29.7	
Approach LOS		A	B		C	
Queue Length 50th (m)	24.3	20.9	58.0		8.7	0.0
Queue Length 95th (m)	46.9	24.6	100.9		18.9	14.9
Internal Link Dist (m)		112.0	105.4		158.7	
Turn Bay Length (m)	65.0				60.0	
Base Capacity (vph)	327	2690	2213		335	363
Starvation Cap Reductn	0	606	68		0	0
Spillback Cap Reductn	0	0	253		0	7
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.58	0.49	0.82		0.13	0.28

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 33 (28%), Referenced to phase 2:EBTL and 6:WBT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay: 10.5		Intersection LOS: B	
Intersection Capacity Utilization 87.1%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 20: Montreal Road & Montfort Hospital



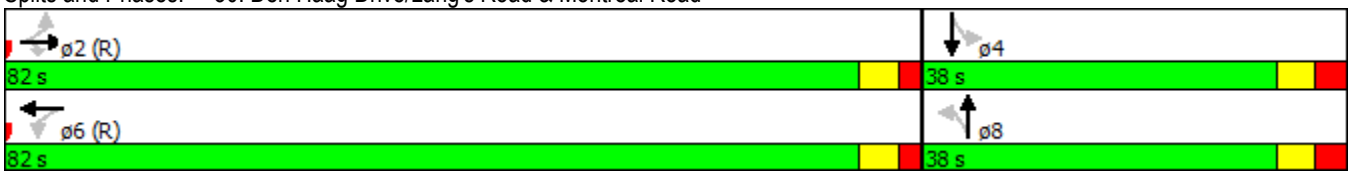
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	25	900	160	85	1280	15	220	5	25	5	5	20
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	35.0		20.0	35.0		0.0	85.0		0.0	0.0		0.0
Storage Lanes	1		1	1		0	1		0	0		0
Taper Length (m)	35.0			45.0			15.0			7.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.89	0.98	1.00		0.99	0.95			0.97	
Frt			0.850		0.998			0.873			0.907	
Flt Protected	0.950			0.950			0.950				0.992	
Satd. Flow (prot)	1644	3288	1471	1676	3342	0	1583	1385	0	0	1543	0
Flt Permitted	0.142			0.260			0.736				0.970	
Satd. Flow (perm)	246	3288	1304	451	3342	0	1210	1385	0	0	1499	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			107		2			27			22	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		129.4			423.7			263.1			160.4	
Travel Time (s)		7.8			25.4			18.9			11.5	
Confl. Peds. (#/hr)	24		27	27		24	10		32	32		10
Confl. Bikes (#/hr)						3						1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	8%	8%	8%	3%	3%	3%
Adj. Flow (vph)	27	968	172	91	1376	16	237	5	27	5	5	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	27	968	172	91	1392	0	237	32	0	0	32	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane					Yes							
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	23.8	23.8	23.8	23.8	23.8		31.4	31.4		31.4	31.4	
Total Split (s)	82.0	82.0	82.0	82.0	82.0		38.0	38.0		38.0	38.0	
Total Split (%)	68.3%	68.3%	68.3%	68.3%	68.3%		31.7%	31.7%		31.7%	31.7%	
Maximum Green (s)	76.2	76.2	76.2	76.2	76.2		31.6	31.6		31.6	31.6	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.1	2.1	2.1	2.1	2.1		3.1	3.1		3.1	3.1	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	5.8	5.8	5.8	5.8	5.8		6.4	6.4			6.4	
Lead/Lag												
Lead-Lag Optimize?												

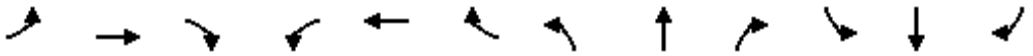
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	10.0	10.0	10.0	10.0	10.0		18.0	18.0		18.0	18.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	
Act Effct Green (s)	80.6	80.6	80.6	80.6	80.6		27.2	27.2			27.2	
Actuated g/C Ratio	0.67	0.67	0.67	0.67	0.67		0.23	0.23			0.23	
v/c Ratio	0.16	0.44	0.19	0.30	0.62		0.86	0.10			0.09	
Control Delay	9.3	7.3	2.2	7.9	6.8		72.8	14.7			17.7	
Queue Delay	0.0	0.2	0.0	0.0	0.1		0.0	0.0			0.0	
Total Delay	9.3	7.5	2.2	7.9	6.9		72.8	14.7			17.7	
LOS	A	A	A	A	A		E	B			B	
Approach Delay		6.8			7.0			65.9			17.7	
Approach LOS		A			A			E			B	
Queue Length 50th (m)	1.0	39.5	0.5	3.5	28.5		48.6	0.8			1.7	
Queue Length 95th (m)	6.5	60.3	6.2	m7.0	44.2		#80.6	8.0			8.8	
Internal Link Dist (m)		105.4			399.7			239.1			136.4	
Turn Bay Length (m)	35.0		20.0	35.0			85.0					
Base Capacity (vph)	165	2207	910	302	2244		318	384			410	
Starvation Cap Reductn	0	420	0	0	0		0	0			0	
Spillback Cap Reductn	0	0	0	0	90		0	0			0	
Storage Cap Reductn	0	0	0	0	0		0	0			0	
Reduced v/c Ratio	0.16	0.54	0.19	0.30	0.65		0.75	0.08			0.08	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 11 (9%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 12.4 Intersection LOS: B
Intersection Capacity Utilization 81.6% 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 30: Den Haag Drive/Lang's Road & Montreal Road





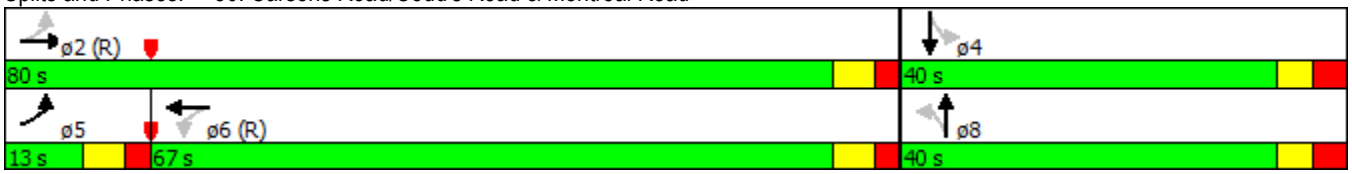
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	65	765	155	95	1330	40	95	5	45	15	5	20
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	100.0		0.0	70.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			25.0			30.0			25.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99		0.99	1.00		0.92	0.98		0.99	0.93	
Frt		0.975			0.996			0.866			0.881	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1644	3173	0	1660	3299	0	1644	1468	0	1179	1016	0
Flt Permitted	0.098			0.274			0.738			0.720		
Satd. Flow (perm)	170	3173	0	474	3299	0	1180	1468	0	885	1016	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		37			4			51			23	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		423.7			307.2			279.9			115.6	
Travel Time (s)		25.4			18.4			20.2			8.3	
Confl. Peds. (#/hr)	24		16	16		24	64		9	9		64
Confl. Bikes (#/hr)			1			1						
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	4%	4%	4%	3%	3%	3%	4%	4%	4%	45%	45%	45%
Adj. Flow (vph)	74	869	176	108	1511	45	108	6	51	17	6	23
Shared Lane Traffic (%)												
Lane Group Flow (vph)	74	1045	0	108	1556	0	108	57	0	17	29	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane		Yes										
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	5	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	11.0	29.0		29.0	29.0		35.5	35.5		35.5	35.5	
Total Split (s)	13.0	80.0		67.0	67.0		40.0	40.0		40.0	40.0	
Total Split (%)	10.8%	66.7%		55.8%	55.8%		33.3%	33.3%		33.3%	33.3%	
Maximum Green (s)	7.0	74.0		61.0	61.0		33.5	33.5		33.5	33.5	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.3	2.3		2.3	2.3		3.2	3.2		3.2	3.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.5	6.5		6.5	6.5	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							

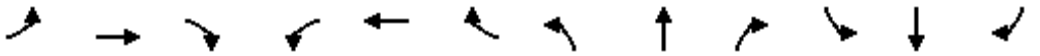
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)		7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		16.0		16.0	16.0		22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	
Act Effct Green (s)	91.0	91.0		80.0	80.0		16.5	16.5		16.5	16.5	
Actuated g/C Ratio	0.76	0.76		0.67	0.67		0.14	0.14		0.14	0.14	
v/c Ratio	0.34	0.43		0.34	0.71		0.67	0.23		0.14	0.18	
Control Delay	13.9	10.7		15.3	17.0		67.6	15.7		45.2	21.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	13.9	10.7		15.3	17.0		67.6	15.7		45.2	21.7	
LOS	B	B		B	B		E	B		D	C	
Approach Delay		10.9			16.8			49.7			30.4	
Approach LOS		B			B			D			C	
Queue Length 50th (m)	7.4	69.0		9.7	107.1		22.6	1.2		3.3	1.2	
Queue Length 95th (m)	15.1	69.8		25.8	162.5		36.8	10.8		8.9	8.5	
Internal Link Dist (m)		399.7			283.2			255.9			91.6	
Turn Bay Length (m)	100.0			70.0			30.0			30.0		
Base Capacity (vph)	224	2414		316	2201		329	446		247	300	
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	0.33	0.43		0.34	0.71		0.33	0.13		0.07	0.10	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 13 (11%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.71
Intersection Signal Delay: 16.6 Intersection LOS: B
Intersection Capacity Utilization 82.1% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 50: Carsons Road/Codd's Road & Montreal Road





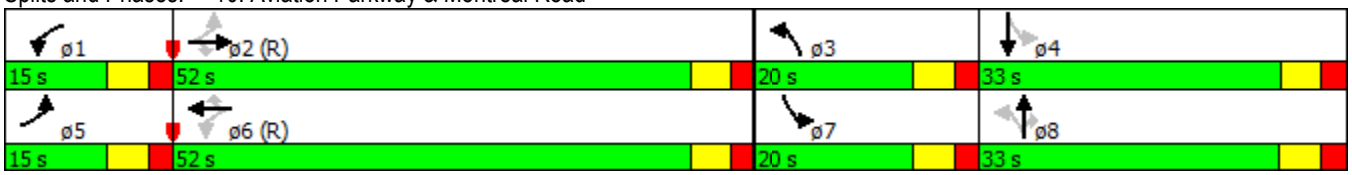
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	35	1070	285	210	820	110	255	280	150	130	225	45
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	45.0		30.0	90.0		15.0	90.0		0.0	70.0		0.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	7.5			25.0			40.0			75.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99		0.94			0.95	0.99		0.94	0.98	1.00	
Frt			0.850			0.850			0.850		0.975	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1676	3353	1500	1660	3320	1485	1660	1748	1485	1660	1697	0
Flt Permitted	0.276			0.080			0.258			0.339		
Satd. Flow (perm)	485	3353	1404	140	3320	1404	449	1748	1395	582	1697	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			136			136			156		8	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		313.7			136.0			269.0			321.2	
Travel Time (s)		18.8			8.2			19.4			23.1	
Confl. Peds. (#/hr)	12		34	34		12	7		25	25		7
Confl. Bikes (#/hr)			17			10			16			3
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	36	1115	297	219	854	115	266	292	156	135	234	47
Shared Lane Traffic (%)												
Lane Group Flow (vph)	36	1115	297	219	854	115	266	292	156	135	281	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			7.0			5.0			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane		Yes										
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	10.9	33.8	33.8	10.9	33.8	33.8	10.9	32.2	32.2	10.9	32.0	
Total Split (s)	15.0	52.0	52.0	15.0	52.0	52.0	20.0	33.0	33.0	20.0	33.0	
Total Split (%)	12.5%	43.3%	43.3%	12.5%	43.3%	43.3%	16.7%	27.5%	27.5%	16.7%	27.5%	
Maximum Green (s)	9.1	46.2	46.2	9.1	46.2	46.2	14.1	26.8	26.8	14.1	27.0	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.5	
All-Red Time (s)	2.2	2.1	2.1	2.2	2.1	2.1	2.2	2.5	2.5	2.2	2.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.9	5.8	5.8	5.9	5.8	5.8	5.9	6.2	6.2	5.9	6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	

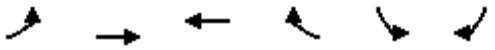
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	
Walk Time (s)		17.0	17.0		17.0	17.0		7.0	7.0		7.0	
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		19.0	19.0		19.0	
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	
Act Effct Green (s)	52.9	46.2	46.2	62.7	56.9	56.9	39.9	25.5	25.5	35.2	23.3	
Actuated g/C Ratio	0.44	0.38	0.38	0.52	0.47	0.47	0.33	0.21	0.21	0.29	0.19	
v/c Ratio	0.13	0.86	0.48	0.94	0.54	0.16	0.91	0.79	0.37	0.49	0.84	
Control Delay	15.8	42.4	17.3	82.2	24.4	4.0	66.3	60.5	8.6	32.4	66.1	
Queue Delay	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	15.8	42.4	17.3	82.2	24.6	4.0	66.3	60.5	8.6	32.4	66.1	
LOS	B	D	B	F	C	A	E	E	A	C	E	
Approach Delay		36.6			33.2			51.3			55.2	
Approach LOS		D			C			D			E	
Queue Length 50th (m)	3.6	116.0	24.9	~28.0	93.9	2.2	42.7	59.7	0.0	19.8	56.7	
Queue Length 95th (m)	8.8	142.6	48.1	#92.0	117.6	4.9	#77.1	#92.9	15.5	32.3	#83.9	
Internal Link Dist (m)		289.7			112.0			245.0			297.2	
Turn Bay Length (m)	45.0		30.0	90.0		15.0	90.0			70.0		
Base Capacity (vph)	313	1290	624	234	1573	736	291	391	433	308	388	
Starvation Cap Reductn	0	0	0	0	121	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.12	0.86	0.48	0.94	0.59	0.16	0.91	0.75	0.36	0.44	0.72	

Intersection Summary

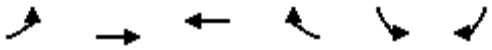
Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 93 (78%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 40.4 Intersection LOS: D
Intersection Capacity Utilization 94.9% ICU Level of Service F
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: 10: Aviation Parkway & Montreal Road





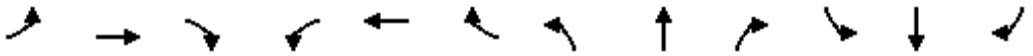
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	100	1295	1070	55	120	100
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	65.0			0.0	60.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	25.0				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor			1.00		0.99	0.95
Frt			0.993			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1660	3320	3384	0	1629	1457
Flt Permitted	0.190				0.950	
Satd. Flow (perm)	332	3320	3384	0	1607	1387
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			7			103
Link Speed (k/h)		60	60		50	
Link Distance (m)		136.0	129.4		182.7	
Travel Time (s)		8.2	7.8		13.2	
Confl. Peds. (#/hr)	20			20	9	25
Confl. Bikes (#/hr)				6		1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	3%	3%	0%	0%	5%	5%
Adj. Flow (vph)	103	1335	1103	57	124	103
Shared Lane Traffic (%)						
Lane Group Flow (vph)	103	1335	1160	0	124	103
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		7.0	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25			15	25	15
Turn Type	pm+pt	NA	NA		Perm	Perm
Protected Phases	5	2	6			
Permitted Phases	2				4	4
Detector Phase	5	2	6		4	4
Switch Phase						
Minimum Initial (s)	5.0	10.0	10.0		10.0	10.0
Minimum Split (s)	10.4	24.0	31.0		30.4	30.4
Total Split (s)	14.0	84.0	70.0		36.0	36.0
Total Split (%)	11.7%	70.0%	58.3%		30.0%	30.0%
Maximum Green (s)	8.6	78.0	64.0		30.6	30.6
Yellow Time (s)	3.7	3.7	3.7		3.3	3.3
All-Red Time (s)	1.7	2.3	2.3		2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.4	6.0	6.0		5.4	5.4
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	C-Max	C-Max		None	None
Walk Time (s)			7.0		7.0	7.0
Flash Dont Walk (s)			18.0		18.0	18.0
Pedestrian Calls (#/hr)			0		0	0
Act Effct Green (s)	94.4	93.8	81.1		14.8	14.8
Actuated g/C Ratio	0.79	0.78	0.68		0.12	0.12
v/c Ratio	0.30	0.51	0.51		0.63	0.39
Control Delay	4.2	2.9	9.0		63.2	13.0
Queue Delay	0.0	0.1	0.1		0.0	0.0
Total Delay	4.2	3.0	9.1		63.2	13.0
LOS	A	A	A		E	B
Approach Delay		3.1	9.1		40.4	
Approach LOS		A	A		D	
Queue Length 50th (m)	2.2	17.2	36.5		26.0	0.0
Queue Length 95th (m)	m3.8	26.1	89.3		42.1	13.8
Internal Link Dist (m)		112.0	105.4		158.7	
Turn Bay Length (m)	65.0				60.0	
Base Capacity (vph)	357	2594	2288		409	430
Starvation Cap Reductn	0	332	249		0	0
Spillback Cap Reductn	0	0	79		0	2
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.29	0.59	0.57		0.30	0.24

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 88 (73%), Referenced to phase 2:EBTL and 6:WBT, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.63			
Intersection Signal Delay: 8.6		Intersection LOS: A	
Intersection Capacity Utilization 68.4%		ICU Level of Service C	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 20: Montreal Road & Montfort Hospital



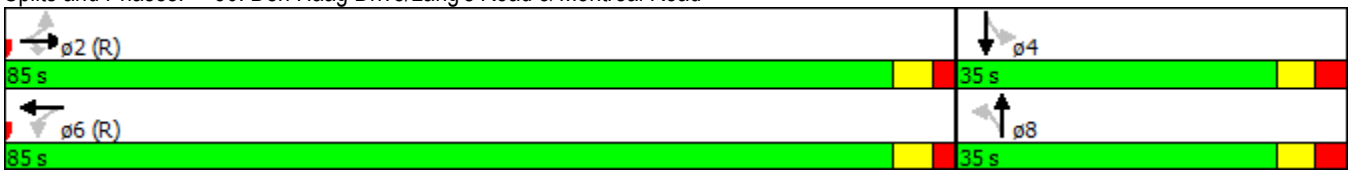
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	35	1260	160	15	950	10	160	0	115	20	0	25
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	35.0		20.0	35.0		0.0	85.0		0.0	0.0		0.0
Storage Lanes	1		1	1		0	1		0	0		0
Taper Length (m)	35.0			45.0			15.0			7.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99		0.89		1.00		0.98	0.97			0.97	
Frt			0.850		0.998			0.850			0.924	
Flt Protected	0.950			0.950			0.950				0.979	
Satd. Flow (prot)	1676	3353	1500	1660	3312	0	1660	1438	0	0	1599	0
Flt Permitted	0.268			0.181			0.727				0.845	
Satd. Flow (perm)	470	3353	1335	316	3312	0	1246	1438	0	0	1370	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			82		2			73			26	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		129.4			423.7			263.1			160.4	
Travel Time (s)		7.8			25.4			18.9			11.5	
Confl. Peds. (#/hr)	9		26	26		9	14		14	14		14
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	0%	0%	0%
Adj. Flow (vph)	36	1286	163	15	969	10	163	0	117	20	0	26
Shared Lane Traffic (%)												
Lane Group Flow (vph)	36	1286	163	15	979	0	163	117	0	0	46	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane					Yes							
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	23.8	23.8	23.8	23.8	23.8		31.4	31.4		31.4	31.4	
Total Split (s)	85.0	85.0	85.0	85.0	85.0		35.0	35.0		35.0	35.0	
Total Split (%)	70.8%	70.8%	70.8%	70.8%	70.8%		29.2%	29.2%		29.2%	29.2%	
Maximum Green (s)	79.2	79.2	79.2	79.2	79.2		28.6	28.6		28.6	28.6	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.1	2.1	2.1	2.1	2.1		3.1	3.1		3.1	3.1	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	5.8	5.8	5.8	5.8	5.8		6.4	6.4			6.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	

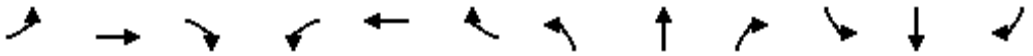
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	10.0	10.0	10.0	10.0	10.0		18.0	18.0		18.0	18.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	
Act Effct Green (s)	87.1	87.1	87.1	87.1	87.1		20.7	20.7			20.7	
Actuated g/C Ratio	0.73	0.73	0.73	0.73	0.73		0.17	0.17			0.17	
v/c Ratio	0.11	0.53	0.16	0.07	0.41		0.76	0.38			0.18	
Control Delay	3.7	4.4	1.4	6.6	6.4		68.2	20.7			22.6	
Queue Delay	0.0	0.1	0.0	0.0	0.0		0.0	0.0			0.0	
Total Delay	3.7	4.4	1.4	6.6	6.5		68.2	20.7			22.6	
LOS	A	A	A	A	A		E	C			C	
Approach Delay		4.1			6.5			48.3			22.6	
Approach LOS		A			A			D			C	
Queue Length 50th (m)	1.2	32.0	0.6	0.8	34.1		34.0	8.2			3.7	
Queue Length 95th (m)	m3.2	43.0	3.9	m2.6	43.1		51.9	22.1			12.3	
Internal Link Dist (m)		105.4			399.7			239.1			136.4	
Turn Bay Length (m)	35.0		20.0	35.0			85.0					
Base Capacity (vph)	341	2432	990	229	2403		296	398			346	
Starvation Cap Reductn	0	205	0	0	0		0	0			0	
Spillback Cap Reductn	0	0	0	0	67		0	0			0	
Storage Cap Reductn	0	0	0	0	0		0	0			0	
Reduced v/c Ratio	0.11	0.58	0.16	0.07	0.42		0.55	0.29			0.13	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 81 (68%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.76
Intersection Signal Delay: 9.6 Intersection LOS: A
Intersection Capacity Utilization 64.7% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 30: Den Haag Drive/Lang's Road & Montreal Road



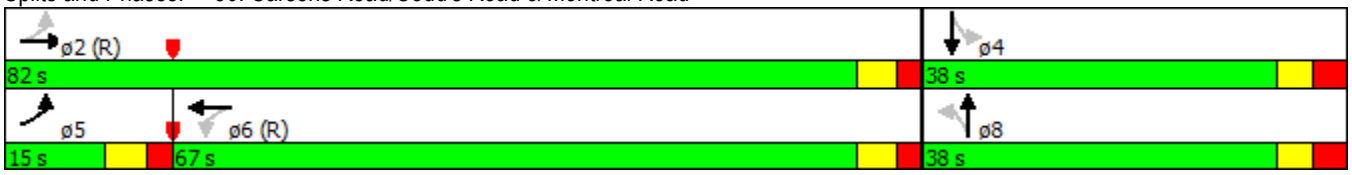


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	25	1255	80	35	885	10	85	5	40	50	5	85
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	100.0		0.0	70.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			25.0			30.0			25.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00	1.00		0.94	0.98		0.98	0.92	
Frt		0.991			0.998			0.866			0.858	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1660	3278	0	1644	3279	0	1693	1505	0	1527	1274	0
Flt Permitted	0.245			0.172			0.694			0.726		
Satd. Flow (perm)	428	3278	0	296	3279	0	1162	1505	0	1149	1274	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11			1			43			92	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		423.7			307.2			279.9			115.6	
Travel Time (s)		25.4			18.4			20.2			8.3	
Confl. Peds. (#/hr)	19		17	17		19	56		13	13		56
Confl. Bikes (#/hr)			1			1						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	1%	1%	1%	12%	12%	12%
Adj. Flow (vph)	27	1364	87	38	962	11	92	5	43	54	5	92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	27	1451	0	38	973	0	92	48	0	54	97	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane		Yes										
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	5	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	11.0	29.0		29.0	29.0		35.5	35.5		35.5	35.5	
Total Split (s)	15.0	82.0		67.0	67.0		38.0	38.0		38.0	38.0	
Total Split (%)	12.5%	68.3%		55.8%	55.8%		31.7%	31.7%		31.7%	31.7%	
Maximum Green (s)	9.0	76.0		61.0	61.0		31.5	31.5		31.5	31.5	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.3	2.3		2.3	2.3		3.2	3.2		3.2	3.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.5	6.5		6.5	6.5	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		C-Max	C-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		22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	
Act Effct Green (s)	92.3	92.3		84.9	84.9		15.2	15.2		15.2	15.2	
Actuated g/C Ratio	0.77	0.77		0.71	0.71		0.13	0.13		0.13	0.13	
v/c Ratio	0.07	0.58		0.18	0.42		0.63	0.21		0.37	0.40	
Control Delay	2.7	3.0		11.5	9.4		67.1	17.0		53.7	15.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	2.7	3.0		11.5	9.4		67.1	17.0		53.7	15.0	
LOS	A	A		B	A		E	B		D	B	
Approach Delay		3.0			9.5			49.9			28.8	
Approach LOS		A			A			D			C	
Queue Length 50th (m)	0.5	14.9		2.8	47.0		19.3	1.0		10.9	1.0	
Queue Length 95th (m)	m1.7	29.5		9.5	72.2		33.3	10.5		21.4	14.3	
Internal Link Dist (m)		399.7			283.2			255.9			91.6	
Turn Bay Length (m)	100.0			70.0			30.0			30.0		
Base Capacity (vph)	421	2522		209	2319		305	426		301	402	
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	0.06	0.58		0.18	0.42		0.30	0.11		0.18	0.24	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 115 (96%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.63			
Intersection Signal Delay: 9.1		Intersection LOS: A	
Intersection Capacity Utilization 71.8%		ICU Level of Service C	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 50: Carsons Road/Codd's Road & Montreal Road

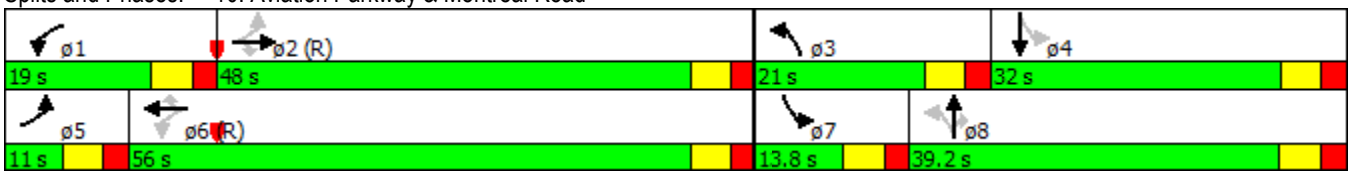


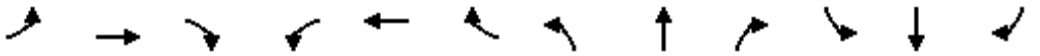
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	35	1070	285	210	820	110	255	280	150	130	225	45
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	45.0		30.0	90.0		15.0	90.0		0.0	70.0		0.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	7.5			25.0			40.0			75.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99		0.94			0.95	1.00		0.94	0.98	1.00	
Frt			0.850			0.850			0.850		0.975	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1676	3353	1500	1660	3320	1485	1660	1748	1485	1660	1697	0
Flt Permitted	0.292			0.080			0.222			0.479		
Satd. Flow (perm)	512	3353	1403	140	3320	1405	386	1748	1399	819	1697	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			244			190			186		8	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		313.7			136.0			269.0			321.2	
Travel Time (s)		18.8			8.2			19.4			23.1	
Confl. Peds. (#/hr)	12		34	34		12	7		25	25		7
Confl. Bikes (#/hr)			17			10			16			3
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	36	1115	297	219	854	115	266	292	156	135	234	47
Shared Lane Traffic (%)												
Lane Group Flow (vph)	36	1115	297	219	854	115	266	292	156	135	281	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			7.0			5.0			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane		Yes										
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	10.9	33.8	33.8	10.9	33.8	33.8	10.9	32.2	32.2	10.9	32.0	
Total Split (s)	11.0	48.0	48.0	19.0	56.0	56.0	21.0	39.2	39.2	13.8	32.0	
Total Split (%)	9.2%	40.0%	40.0%	15.8%	46.7%	46.7%	17.5%	32.7%	32.7%	11.5%	26.7%	
Maximum Green (s)	5.1	42.2	42.2	13.1	50.2	50.2	15.1	33.0	33.0	7.9	26.0	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.5	
All-Red Time (s)	2.2	2.1	2.1	2.2	2.1	2.1	2.2	2.5	2.5	2.2	2.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.9	5.8	5.8	5.9	5.8	5.8	5.9	6.2	6.2	5.9	6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	
Walk Time (s)		17.0	17.0		17.0	17.0		7.0	7.0		7.0	
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		19.0	19.0		19.0	
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	
Act Effct Green (s)	49.9	44.4	44.4	64.1	57.4	57.4	44.1	30.0	30.0	31.0	23.0	
Actuated g/C Ratio	0.42	0.37	0.37	0.53	0.48	0.48	0.37	0.25	0.25	0.26	0.19	
v/c Ratio	0.13	0.90	0.44	0.88	0.54	0.15	0.88	0.67	0.32	0.51	0.85	
Control Delay	16.6	47.2	8.5	72.1	22.2	1.9	59.2	48.3	4.4	34.4	67.9	
Queue Delay	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	16.6	47.2	8.5	72.1	22.3	1.9	59.2	48.3	4.4	34.4	67.9	
LOS	B	D	A	E	C	A	E	D	A	C	E	
Approach Delay		38.5			29.5			42.7			57.0	
Approach LOS		D			C			D			E	
Queue Length 50th (m)	3.7	122.8	7.7	28.1	97.5	1.7	41.9	56.0	0.0	19.4	56.6	
Queue Length 95th (m)	8.8	#162.5	28.1	#78.5	65.6	3.6	#73.4	81.9	9.2	32.3	#89.8	
Internal Link Dist (m)		289.7			112.0			245.0			297.2	
Turn Bay Length (m)	45.0		30.0	90.0		15.0	90.0			70.0		
Base Capacity (vph)	267	1240	672	252	1587	771	302	480	519	267	373	
Starvation Cap Reductn	0	0	0	0	125	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.13	0.90	0.44	0.87	0.58	0.15	0.88	0.61	0.30	0.51	0.75	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 93 (78%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.90			
Intersection Signal Delay: 38.5		Intersection LOS: D	
Intersection Capacity Utilization 94.9%		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: 10: Aviation Parkway & Montreal Road





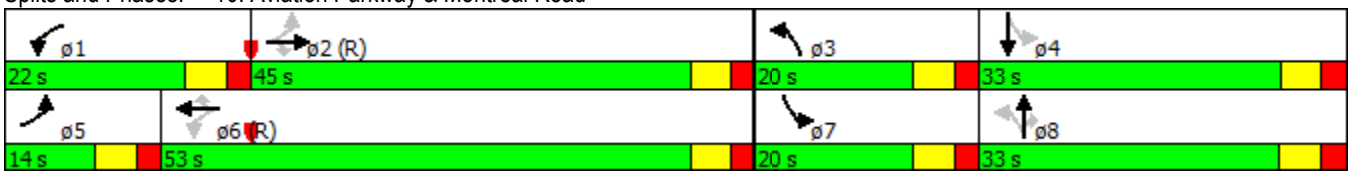
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	30	765	185	210	1325	65	255	195	145	210	230	45
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	45.0		30.0	90.0		15.0	90.0		0.0	70.0		0.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	7.5			25.0			40.0			75.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.95	0.99		0.93	0.99		0.97	0.99	0.99	
Frt			0.850			0.850			0.850		0.975	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1660	3320	1485	1660	3320	1485	1693	1782	1515	1660	1694	0
Flt Permitted	0.088			0.194			0.272			0.483		
Satd. Flow (perm)	154	3320	1411	337	3320	1377	482	1782	1468	837	1694	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			190			136			186		8	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		313.7			136.0			269.0			321.2	
Travel Time (s)		18.8			8.2			19.4			23.1	
Confl. Peds. (#/hr)	16		22	22		16	7		9	9		7
Confl. Bikes (#/hr)			16			21			7			16
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	1%	1%	1%	3%	3%	3%
Adj. Flow (vph)	31	797	193	219	1380	68	266	203	151	219	240	47
Shared Lane Traffic (%)												
Lane Group Flow (vph)	31	797	193	219	1380	68	266	203	151	219	287	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			7.0			5.0			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane		Yes										
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	10.9	33.8	33.8	10.9	33.8	33.8	10.9	32.2	32.2	10.9	32.0	
Total Split (s)	14.0	45.0	45.0	22.0	53.0	53.0	20.0	33.0	33.0	20.0	33.0	
Total Split (%)	11.7%	37.5%	37.5%	18.3%	44.2%	44.2%	16.7%	27.5%	27.5%	16.7%	27.5%	
Maximum Green (s)	8.1	39.2	39.2	16.1	47.2	47.2	14.1	26.8	26.8	14.1	27.0	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.5	
All-Red Time (s)	2.2	2.1	2.1	2.2	2.1	2.1	2.2	2.5	2.5	2.2	2.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.9	5.8	5.8	5.9	5.8	5.8	5.9	6.2	6.2	5.9	6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	

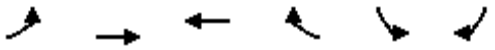
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	
Walk Time (s)		17.0	17.0		17.0	17.0		7.0	7.0		7.0	
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		19.0	19.0		19.0	
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	
Act Effct Green (s)	51.8	45.2	45.2	64.5	56.7	56.7	38.3	23.9	23.9	37.3	23.6	
Actuated g/C Ratio	0.43	0.38	0.38	0.54	0.47	0.47	0.32	0.20	0.20	0.31	0.20	
v/c Ratio	0.21	0.64	0.30	0.67	0.88	0.09	0.90	0.57	0.34	0.62	0.85	
Control Delay	18.9	34.8	5.6	27.6	24.3	0.8	63.1	49.8	4.7	36.1	66.9	
Queue Delay	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	18.9	34.8	5.6	27.6	26.0	0.8	63.1	49.8	4.7	36.1	66.9	
LOS	B	C	A	C	C	A	E	D	A	D	E	
Approach Delay		28.8			25.2			44.5			53.6	
Approach LOS		C			C			D			D	
Queue Length 50th (m)	3.2	76.2	0.4	10.6	147.6	0.0	42.2	39.6	0.0	33.7	57.9	
Queue Length 95th (m)	7.9	101.2	15.0	m33.4	#208.6	m0.4	#72.9	60.7	8.8	51.0	#89.9	
Internal Link Dist (m)		289.7			112.0			245.0			297.2	
Turn Bay Length (m)	45.0		30.0	90.0		15.0	90.0			70.0		
Base Capacity (vph)	170	1251	650	358	1568	722	296	397	472	360	387	
Starvation Cap Reductn	0	0	0	0	79	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.18	0.64	0.30	0.61	0.93	0.09	0.90	0.51	0.32	0.61	0.74	

Intersection Summary

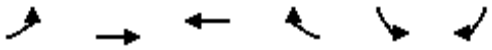
Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 45 (38%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.90
Intersection Signal Delay: 33.1 Intersection LOS: C
Intersection Capacity Utilization 94.4% 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 10: Aviation Parkway & Montreal Road





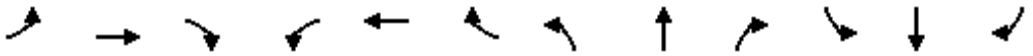
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	180	1010	1485	115	40	95
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	65.0			0.0	60.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	25.0				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor			1.00		0.98	0.93
Frt			0.989			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1644	3288	3369	0	1598	1430
Flt Permitted	0.076				0.950	
Satd. Flow (perm)	132	3288	3369	0	1573	1337
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			10			100
Link Speed (k/h)		60	60		50	
Link Distance (m)		136.0	129.4		182.7	
Travel Time (s)		8.2	7.8		13.2	
Confl. Peds. (#/hr)	10			10	11	37
Confl. Bikes (#/hr)				15		1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	4%	4%	0%	0%	7%	7%
Adj. Flow (vph)	189	1063	1563	121	42	100
Shared Lane Traffic (%)						
Lane Group Flow (vph)	189	1063	1684	0	42	100
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		7.0	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25			15	25	15
Turn Type	pm+pt	NA	NA		Perm	Perm
Protected Phases	5	2	6			
Permitted Phases	2				4	4
Detector Phase	5	2	6		4	4
Switch Phase						
Minimum Initial (s)	5.0	10.0	10.0		10.0	10.0
Minimum Split (s)	10.4	24.0	31.0		30.4	30.4
Total Split (s)	20.0	89.0	69.0		31.0	31.0
Total Split (%)	16.7%	74.2%	57.5%		25.8%	25.8%
Maximum Green (s)	14.6	83.0	63.0		25.6	25.6
Yellow Time (s)	3.7	3.7	3.7		3.3	3.3
All-Red Time (s)	1.7	2.3	2.3		2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.4	6.0	6.0		5.4	5.4
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	C-Max	C-Max		None	None
Walk Time (s)			7.0		7.0	7.0
Flash Dont Walk (s)			18.0		18.0	18.0
Pedestrian Calls (#/hr)			0		0	0
Act Effct Green (s)	98.8	98.2	78.7		10.4	10.4
Actuated g/C Ratio	0.82	0.82	0.66		0.09	0.09
v/c Ratio	0.66	0.40	0.76		0.31	0.48
Control Delay	38.4	3.1	10.1		57.5	18.0
Queue Delay	0.0	0.2	1.7		0.0	0.0
Total Delay	38.4	3.3	11.8		57.5	18.1
LOS	D	A	B		E	B
Approach Delay		8.6	11.8		29.7	
Approach LOS		A	B		C	
Queue Length 50th (m)	27.1	21.4	58.9		8.7	0.0
Queue Length 95th (m)	48.5	24.6	33.6		18.9	14.9
Internal Link Dist (m)		112.0	105.4		158.7	
Turn Bay Length (m)	65.0				60.0	
Base Capacity (vph)	315	2690	2213		335	363
Starvation Cap Reductn	0	660	68		0	0
Spillback Cap Reductn	0	0	345		0	10
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.60	0.52	0.90		0.13	0.28

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 33 (28%), Referenced to phase 2:EBTL and 6:WBT, Start of Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay: 11.4		Intersection LOS: B	
Intersection Capacity Utilization 89.0%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 20: Montreal Road & Montfort Hospital

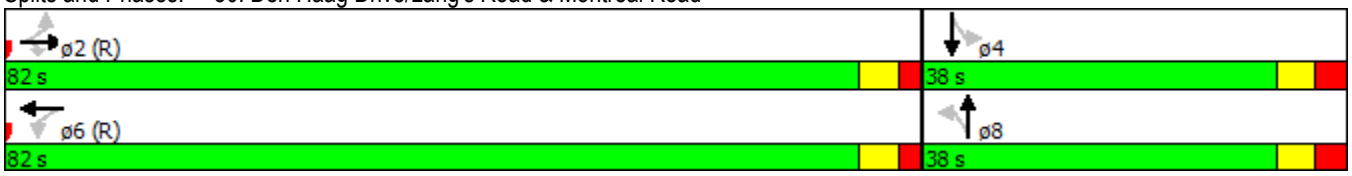


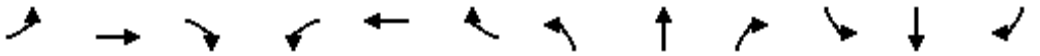
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	25	940	160	85	1345	15	220	5	25	5	5	20
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	35.0		20.0	35.0		0.0	85.0		0.0	0.0		0.0
Storage Lanes	1		1	1		0	1		0	0		0
Taper Length (m)	35.0			45.0			15.0			7.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.89	0.99	1.00		0.99	0.95			0.97	
Frt			0.850		0.998			0.873			0.907	
Flt Protected	0.950			0.950			0.950				0.992	
Satd. Flow (prot)	1644	3288	1471	1676	3342	0	1583	1385	0	0	1543	0
Flt Permitted	0.127			0.246			0.736				0.970	
Satd. Flow (perm)	220	3288	1304	428	3342	0	1210	1385	0	0	1499	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			102		2			27			22	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		129.4			423.7			263.1			160.4	
Travel Time (s)		7.8			25.4			18.9			11.5	
Confl. Peds. (#/hr)	24		27	27		24	10		32	32		10
Confl. Bikes (#/hr)						3						1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	8%	8%	8%	3%	3%	3%
Adj. Flow (vph)	27	1011	172	91	1446	16	237	5	27	5	5	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	27	1011	172	91	1462	0	237	32	0	0	32	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane					Yes							
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	23.8	23.8	23.8	23.8	23.8		31.4	31.4		31.4	31.4	
Total Split (s)	82.0	82.0	82.0	82.0	82.0		38.0	38.0		38.0	38.0	
Total Split (%)	68.3%	68.3%	68.3%	68.3%	68.3%		31.7%	31.7%		31.7%	31.7%	
Maximum Green (s)	76.2	76.2	76.2	76.2	76.2		31.6	31.6		31.6	31.6	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.1	2.1	2.1	2.1	2.1		3.1	3.1		3.1	3.1	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	5.8	5.8	5.8	5.8	5.8		6.4	6.4			6.4	
Lead/Lag												
Lead-Lag Optimize?												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	10.0	10.0	10.0	10.0	10.0		18.0	18.0		18.0	18.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	
Act Effct Green (s)	80.6	80.6	80.6	80.6	80.6		27.2	27.2			27.2	
Actuated g/C Ratio	0.67	0.67	0.67	0.67	0.67		0.23	0.23			0.23	
v/c Ratio	0.18	0.46	0.19	0.32	0.65		0.86	0.10			0.09	
Control Delay	11.0	8.1	2.9	8.2	7.0		72.8	14.7			17.7	
Queue Delay	0.0	0.2	0.0	0.0	0.1		0.0	0.0			0.0	
Total Delay	11.0	8.2	2.9	8.2	7.1		72.8	14.7			17.7	
LOS	B	A	A	A	A		E	B			B	
Approach Delay		7.5			7.2			65.9			17.7	
Approach LOS		A			A			E			B	
Queue Length 50th (m)	0.9	40.8	0.5	3.5	29.4		48.6	0.8			1.7	
Queue Length 95th (m)	7.0	65.7	7.6	m7.1	47.9		#80.6	8.0			8.8	
Internal Link Dist (m)		105.4			399.7			239.1			136.4	
Turn Bay Length (m)	35.0		20.0	35.0			85.0					
Base Capacity (vph)	147	2207	909	287	2244		318	384			410	
Starvation Cap Reductn	0	380	0	0	0		0	0			0	
Spillback Cap Reductn	0	0	0	0	115		0	0			0	
Storage Cap Reductn	0	0	0	0	0		0	0			0	
Reduced v/c Ratio	0.18	0.55	0.19	0.32	0.69		0.75	0.08			0.08	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 11 (9%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.86			
Intersection Signal Delay: 12.6		Intersection LOS: B	
Intersection Capacity Utilization 83.5%		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.			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 30: Den Haag Drive/Lang's Road & Montreal Road





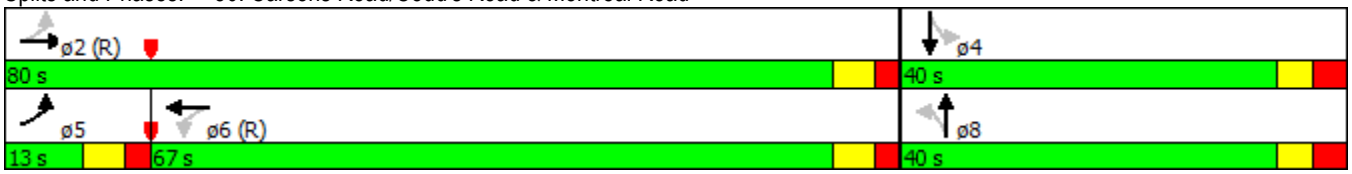
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	65	805	155	95	1395	40	95	5	45	15	5	20
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	100.0		0.0	70.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			25.0			30.0			25.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99		0.99	1.00		0.92	0.98		0.99	0.93	
Frt		0.976			0.996			0.866			0.881	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1644	3178	0	1660	3300	0	1644	1468	0	1179	1016	0
Flt Permitted	0.085			0.262			0.738			0.720		
Satd. Flow (perm)	147	3178	0	454	3300	0	1180	1468	0	885	1016	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		35			3			51			23	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		423.7			307.2			279.9			115.6	
Travel Time (s)		25.4			18.4			20.2			8.3	
Confl. Peds. (#/hr)	24		16	16		24	64		9	9		64
Confl. Bikes (#/hr)			1			1						
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	4%	4%	4%	3%	3%	3%	4%	4%	4%	45%	45%	45%
Adj. Flow (vph)	74	915	176	108	1585	45	108	6	51	17	6	23
Shared Lane Traffic (%)												
Lane Group Flow (vph)	74	1091	0	108	1630	0	108	57	0	17	29	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane		Yes										
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	5	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	11.0	29.0		29.0	29.0		35.5	35.5		35.5	35.5	
Total Split (s)	13.0	80.0		67.0	67.0		40.0	40.0		40.0	40.0	
Total Split (%)	10.8%	66.7%		55.8%	55.8%		33.3%	33.3%		33.3%	33.3%	
Maximum Green (s)	7.0	74.0		61.0	61.0		33.5	33.5		33.5	33.5	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.3	2.3		2.3	2.3		3.2	3.2		3.2	3.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.5	6.5		6.5	6.5	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							

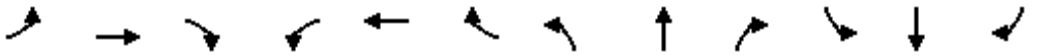
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)		7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		16.0		16.0	16.0		22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	
Act Effct Green (s)	91.0	91.0		80.0	80.0		16.5	16.5		16.5	16.5	
Actuated g/C Ratio	0.76	0.76		0.67	0.67		0.14	0.14		0.14	0.14	
v/c Ratio	0.37	0.45		0.36	0.74		0.67	0.23		0.14	0.18	
Control Delay	15.8	10.4		15.9	18.0		67.6	15.7		45.2	21.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	15.8	10.4		15.9	18.0		67.6	15.7		45.2	21.7	
LOS	B	B		B	B		E	B		D	C	
Approach Delay		10.8			17.9			49.7			30.4	
Approach LOS		B			B			D			C	
Queue Length 50th (m)	5.9	73.3		9.8	117.2		22.6	1.2		3.3	1.2	
Queue Length 95th (m)	17.3	70.9		26.4	177.8		36.8	10.8		8.9	8.5	
Internal Link Dist (m)		399.7			283.2			255.9			91.6	
Turn Bay Length (m)	100.0			70.0			30.0			30.0		
Base Capacity (vph)	207	2417		302	2201		329	446		247	300	
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	0.36	0.45		0.36	0.74		0.33	0.13		0.07	0.10	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 13 (11%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.74
Intersection Signal Delay: 17.1 Intersection LOS: B
Intersection Capacity Utilization 84.0% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 50: Carsons Road/Codd's Road & Montreal Road





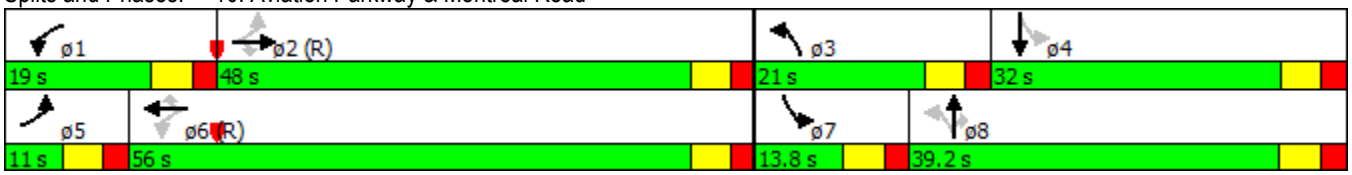
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	35	1125	300	220	860	120	270	320	155	135	255	50
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	45.0		30.0	90.0		15.0	90.0		0.0	70.0		0.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	7.5			25.0			40.0			75.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99		0.94			0.95	1.00		0.94	0.98	1.00	
Frt			0.850			0.850			0.850		0.975	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1676	3353	1500	1660	3320	1485	1660	1748	1485	1660	1697	0
Flt Permitted	0.264			0.082			0.186			0.408		
Satd. Flow (perm)	463	3353	1403	143	3320	1405	324	1748	1399	699	1697	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			244			190			186		7	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		313.7			136.0			269.0			321.2	
Travel Time (s)		18.8			8.2			19.4			23.1	
Confl. Peds. (#/hr)	12		34	34		12	7		25	25		7
Confl. Bikes (#/hr)			17			10			16			3
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	36	1172	312	229	896	125	281	333	161	141	266	52
Shared Lane Traffic (%)												
Lane Group Flow (vph)	36	1172	312	229	896	125	281	333	161	141	318	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			7.0			5.0			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane		Yes										
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	10.9	33.8	33.8	10.9	33.8	33.8	10.9	32.2	32.2	10.9	32.0	
Total Split (s)	11.0	48.0	48.0	19.0	56.0	56.0	21.0	39.2	39.2	13.8	32.0	
Total Split (%)	9.2%	40.0%	40.0%	15.8%	46.7%	46.7%	17.5%	32.7%	32.7%	11.5%	26.7%	
Maximum Green (s)	5.1	42.2	42.2	13.1	50.2	50.2	15.1	33.0	33.0	7.9	26.0	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.5	
All-Red Time (s)	2.2	2.1	2.1	2.2	2.1	2.1	2.2	2.5	2.5	2.2	2.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.9	5.8	5.8	5.9	5.8	5.8	5.9	6.2	6.2	5.9	6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	

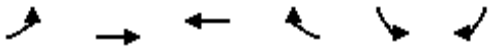
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	
Walk Time (s)		17.0	17.0		17.0	17.0		7.0	7.0		7.0	
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		19.0	19.0		19.0	
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	
Act Effct Green (s)	48.3	43.1	43.1	62.5	56.0	56.0	45.7	31.6	31.6	32.6	24.6	
Actuated g/C Ratio	0.40	0.36	0.36	0.52	0.47	0.47	0.38	0.26	0.26	0.27	0.20	
v/c Ratio	0.15	0.97	0.47	0.93	0.58	0.17	0.97	0.72	0.32	0.56	0.90	
Control Delay	17.1	58.9	9.7	81.2	22.6	2.1	74.9	50.0	4.7	36.1	73.8	
Queue Delay	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	17.1	58.9	9.7	81.2	22.8	2.1	74.9	50.0	4.7	36.1	73.8	
LOS	B	E	A	F	C	A	E	D	A	D	E	
Approach Delay		47.8			31.4			49.6			62.2	
Approach LOS		D			C			D			E	
Queue Length 50th (m)	3.8	132.4	10.0	30.2	104.1	2.2	44.0	64.8	0.0	20.1	65.4	
Queue Length 95th (m)	8.8	#176.3	32.0	#83.7	67.3	3.9	#89.5	94.6	10.2	33.6	#109.5	
Internal Link Dist (m)		289.7			112.0			245.0			297.2	
Turn Bay Length (m)	45.0		30.0	90.0		15.0	90.0			70.0		
Base Capacity (vph)	240	1203	659	246	1548	756	291	480	519	253	373	
Starvation Cap Reductn	0	0	0	0	123	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.15	0.97	0.47	0.93	0.63	0.17	0.97	0.69	0.31	0.56	0.85	

Intersection Summary

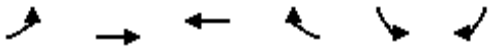
Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 93 (78%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.97
Intersection Signal Delay: 44.7 Intersection LOS: D
Intersection Capacity Utilization 99.5% 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: 10: Aviation Parkway & Montreal Road





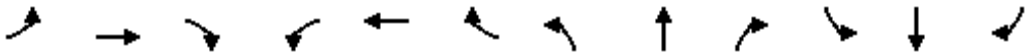
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	100	1360	1125	55	120	100
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	65.0			0.0	60.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	25.0				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor			1.00		0.99	0.95
Frt			0.993			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1660	3320	3385	0	1629	1457
Flt Permitted	0.175				0.950	
Satd. Flow (perm)	306	3320	3385	0	1607	1387
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			6			103
Link Speed (k/h)		60	60		50	
Link Distance (m)		136.0	129.4		182.7	
Travel Time (s)		8.2	7.8		13.2	
Confl. Peds. (#/hr)	20			20	9	25
Confl. Bikes (#/hr)				6		1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	3%	3%	0%	0%	5%	5%
Adj. Flow (vph)	103	1402	1160	57	124	103
Shared Lane Traffic (%)						
Lane Group Flow (vph)	103	1402	1217	0	124	103
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		7.0	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25			15	25	15
Turn Type	pm+pt	NA	NA		Perm	Perm
Protected Phases	5	2	6			
Permitted Phases	2				4	4
Detector Phase	5	2	6		4	4
Switch Phase						
Minimum Initial (s)	5.0	10.0	10.0		10.0	10.0
Minimum Split (s)	10.4	24.0	31.0		30.4	30.4
Total Split (s)	14.0	84.0	70.0		36.0	36.0
Total Split (%)	11.7%	70.0%	58.3%		30.0%	30.0%
Maximum Green (s)	8.6	78.0	64.0		30.6	30.6
Yellow Time (s)	3.7	3.7	3.7		3.3	3.3
All-Red Time (s)	1.7	2.3	2.3		2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.4	6.0	6.0		5.4	5.4
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	C-Max	C-Max		None	None
Walk Time (s)			7.0		7.0	7.0
Flash Dont Walk (s)			18.0		18.0	18.0
Pedestrian Calls (#/hr)			0		0	0
Act Effct Green (s)	94.4	93.8	81.1		14.8	14.8
Actuated g/C Ratio	0.79	0.78	0.68		0.12	0.12
v/c Ratio	0.32	0.54	0.53		0.63	0.39
Control Delay	5.6	2.9	9.7		63.2	13.0
Queue Delay	0.0	0.2	0.1		0.0	0.0
Total Delay	5.6	3.1	9.7		63.2	13.0
LOS	A	A	A		E	B
Approach Delay		3.2	9.7		40.4	
Approach LOS		A	A		D	
Queue Length 50th (m)	1.5	13.3	37.8		26.0	0.0
Queue Length 95th (m)	m2.6	m20.6	120.8		42.1	13.8
Internal Link Dist (m)		112.0	105.4		158.7	
Turn Bay Length (m)	65.0				60.0	
Base Capacity (vph)	338	2594	2288		409	430
Starvation Cap Reductn	0	399	195		0	0
Spillback Cap Reductn	0	0	16		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.30	0.64	0.58		0.30	0.24

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 88 (73%), Referenced to phase 2:EBTL and 6:WBT, Start of Green	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.63	
Intersection Signal Delay: 8.8	Intersection LOS: A
Intersection Capacity Utilization 70.0%	ICU Level of Service C
Analysis Period (min) 15	
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 20: Montreal Road & Montfort Hospital



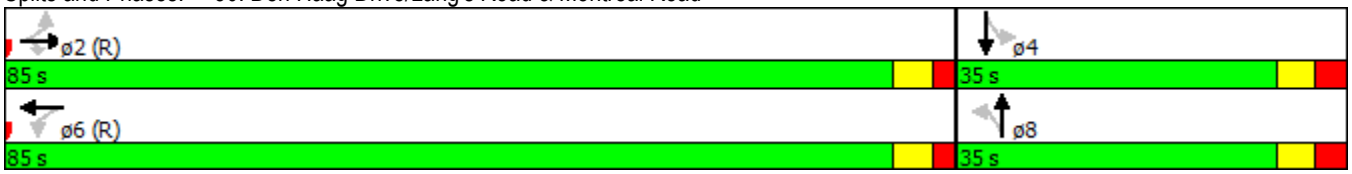
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	35	1320	160	15	995	10	160	0	115	20	0	25
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	35.0		20.0	35.0		0.0	85.0		0.0	0.0		0.0
Storage Lanes	1		1	1		0	1		0	0		0
Taper Length (m)	35.0			45.0			15.0			7.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99		0.89		1.00		0.98	0.97			0.97	
Frt			0.850		0.999			0.850			0.924	
Flt Protected	0.950			0.950			0.950				0.979	
Satd. Flow (prot)	1676	3353	1500	1660	3315	0	1660	1438	0	0	1599	0
Flt Permitted	0.253			0.166			0.727				0.845	
Satd. Flow (perm)	444	3353	1335	290	3315	0	1246	1438	0	0	1370	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			78		2			64			26	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		129.4			423.7			263.1			160.4	
Travel Time (s)		7.8			25.4			18.9			11.5	
Confl. Peds. (#/hr)	9		26	26		9	14		14	14		14
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	0%	0%	0%
Adj. Flow (vph)	36	1347	163	15	1015	10	163	0	117	20	0	26
Shared Lane Traffic (%)												
Lane Group Flow (vph)	36	1347	163	15	1025	0	163	117	0	0	46	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane					Yes							
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	23.8	23.8	23.8	23.8	23.8		31.4	31.4		31.4	31.4	
Total Split (s)	85.0	85.0	85.0	85.0	85.0		35.0	35.0		35.0	35.0	
Total Split (%)	70.8%	70.8%	70.8%	70.8%	70.8%		29.2%	29.2%		29.2%	29.2%	
Maximum Green (s)	79.2	79.2	79.2	79.2	79.2		28.6	28.6		28.6	28.6	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.1	2.1	2.1	2.1	2.1		3.1	3.1		3.1	3.1	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	5.8	5.8	5.8	5.8	5.8		6.4	6.4			6.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	

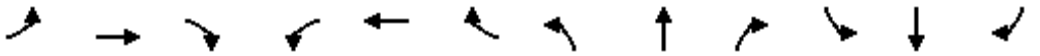
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	10.0	10.0	10.0	10.0	10.0		18.0	18.0		18.0	18.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	
Act Effct Green (s)	87.1	87.1	87.1	87.1	87.1		20.7	20.7			20.7	
Actuated g/C Ratio	0.73	0.73	0.73	0.73	0.73		0.17	0.17			0.17	
v/c Ratio	0.11	0.55	0.16	0.07	0.43		0.76	0.39			0.18	
Control Delay	3.6	4.0	1.3	6.7	6.6		68.2	23.6			22.6	
Queue Delay	0.0	0.1	0.0	0.0	0.0		0.0	0.0			0.0	
Total Delay	3.6	4.1	1.3	6.7	6.6		68.2	23.6			22.6	
LOS	A	A	A	A	A		E	C			C	
Approach Delay		3.8			6.6			49.5			22.6	
Approach LOS		A			A			D			C	
Queue Length 50th (m)	1.1	28.7	0.6	0.8	36.5		34.0	10.0			3.7	
Queue Length 95th (m)	m2.9	39.9	2.6	m2.4	46.5		51.9	23.9			12.3	
Internal Link Dist (m)		105.4			399.7			239.1			136.4	
Turn Bay Length (m)	35.0		20.0	35.0			85.0					
Base Capacity (vph)	322	2432	989	210	2405		296	391			346	
Starvation Cap Reductn	0	200	0	0	0		0	0			0	
Spillback Cap Reductn	0	0	0	0	80		0	0			0	
Storage Cap Reductn	0	0	0	0	0		0	0			0	
Reduced v/c Ratio	0.11	0.60	0.16	0.07	0.44		0.55	0.30			0.13	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 81 (68%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.76
Intersection Signal Delay: 9.5 Intersection LOS: A
Intersection Capacity Utilization 66.5% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 30: Den Haag Drive/Lang's Road & Montreal Road



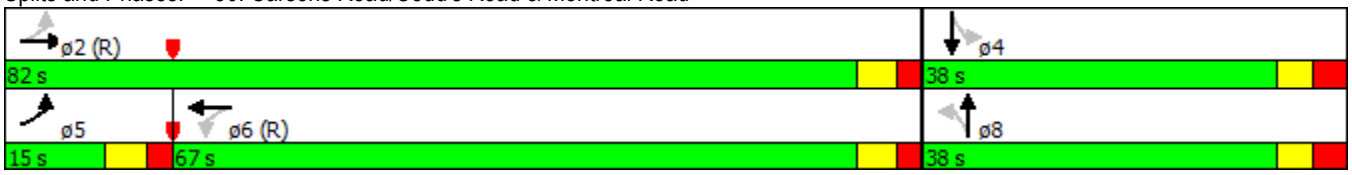


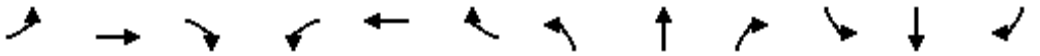
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	25	1315	80	35	930	10	85	5	40	50	5	85
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	100.0		0.0	70.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			25.0			30.0			25.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00	1.00		0.94	0.98		0.98	0.92	
Frt		0.991			0.998			0.866			0.858	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1660	3278	0	1644	3279	0	1693	1505	0	1527	1274	0
Flt Permitted	0.230			0.158			0.694			0.726		
Satd. Flow (perm)	402	3278	0	272	3279	0	1162	1505	0	1149	1274	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			1			43			92	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		423.7			307.2			279.9			115.6	
Travel Time (s)		25.4			18.4			20.2			8.3	
Confl. Peds. (#/hr)	19		17	17		19	56		13	13		56
Confl. Bikes (#/hr)			1			1						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	1%	1%	1%	12%	12%	12%
Adj. Flow (vph)	27	1429	87	38	1011	11	92	5	43	54	5	92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	27	1516	0	38	1022	0	92	48	0	54	97	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane		Yes										
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	5	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	11.0	29.0		29.0	29.0		35.5	35.5		35.5	35.5	
Total Split (s)	15.0	82.0		67.0	67.0		38.0	38.0		38.0	38.0	
Total Split (%)	12.5%	68.3%		55.8%	55.8%		31.7%	31.7%		31.7%	31.7%	
Maximum Green (s)	9.0	76.0		61.0	61.0		31.5	31.5		31.5	31.5	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.3	2.3		2.3	2.3		3.2	3.2		3.2	3.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.5	6.5		6.5	6.5	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		C-Max	C-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		22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	
Act Effct Green (s)	92.3	92.3		84.9	84.9		15.2	15.2		15.2	15.2	
Actuated g/C Ratio	0.77	0.77		0.71	0.71		0.13	0.13		0.13	0.13	
v/c Ratio	0.07	0.60		0.20	0.44		0.63	0.21		0.37	0.40	
Control Delay	3.6	3.8		12.2	9.6		67.1	17.0		53.7	15.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	3.6	3.8		12.2	9.6		67.1	17.0		53.7	15.0	
LOS	A	A		B	A		E	B		D	B	
Approach Delay		3.8			9.7			49.9			28.8	
Approach LOS		A			A			D			C	
Queue Length 50th (m)	0.5	16.4		2.9	50.4		19.3	1.0		10.9	1.0	
Queue Length 95th (m)	m2.2	40.3		9.9	77.2		33.3	10.5		21.4	14.3	
Internal Link Dist (m)		399.7			283.2			255.9			91.6	
Turn Bay Length (m)	100.0			70.0			30.0			30.0		
Base Capacity (vph)	403	2522		192	2319		305	426		301	402	
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	0.07	0.60		0.20	0.44		0.30	0.11		0.18	0.24	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 115 (96%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.63			
Intersection Signal Delay: 9.5		Intersection LOS: A	
Intersection Capacity Utilization 73.5%		ICU Level of Service D	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 50: Carsons Road/Codd's Road & Montreal Road



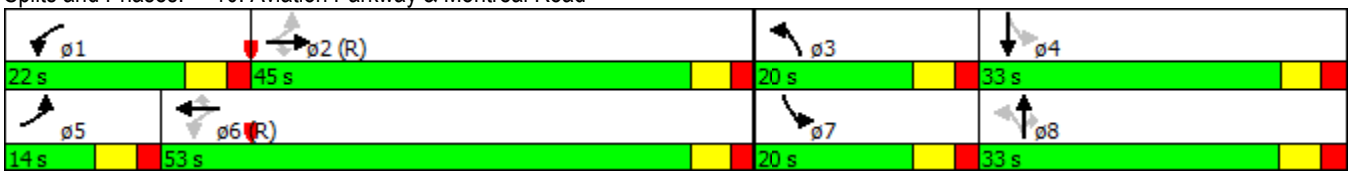


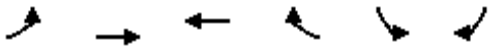
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	30	846	180	203	1281	62	245	170	163	212	200	40
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	45.0		30.0	90.0		15.0	90.0		0.0	70.0		0.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	7.5			25.0			40.0			75.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.95			0.93	0.99		0.97	0.99	0.99	
Frt			0.850			0.850			0.850		0.975	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1660	3320	1485	1660	3320	1485	1693	1782	1515	1660	1693	0
Flt Permitted	0.093			0.167			0.324			0.521		
Satd. Flow (perm)	163	3320	1411	292	3320	1377	574	1782	1468	902	1693	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			190			136			186		8	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		313.7			136.0			269.0			321.2	
Travel Time (s)		18.8			8.2			19.4			23.1	
Confl. Peds. (#/hr)	16		22	22		16	7		9	9		7
Confl. Bikes (#/hr)			16			21			7			16
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	1%	1%	1%	3%	3%	3%
Adj. Flow (vph)	31	881	188	211	1334	65	255	177	170	221	208	42
Shared Lane Traffic (%)												
Lane Group Flow (vph)	31	881	188	211	1334	65	255	177	170	221	250	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			7.0			5.0			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane		Yes										
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	10.9	33.8	33.8	10.9	33.8	33.8	10.9	32.2	32.2	10.9	32.0	
Total Split (s)	14.0	45.0	45.0	22.0	53.0	53.0	20.0	33.0	33.0	20.0	33.0	
Total Split (%)	11.7%	37.5%	37.5%	18.3%	44.2%	44.2%	16.7%	27.5%	27.5%	16.7%	27.5%	
Maximum Green (s)	8.1	39.2	39.2	16.1	47.2	47.2	14.1	26.8	26.8	14.1	27.0	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.5	
All-Red Time (s)	2.2	2.1	2.1	2.2	2.1	2.1	2.2	2.5	2.5	2.2	2.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.9	5.8	5.8	5.9	5.8	5.8	5.9	6.2	6.2	5.9	6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	
Walk Time (s)		17.0	17.0		17.0	17.0		7.0	7.0		7.0	
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		19.0	19.0		19.0	
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	
Act Effct Green (s)	53.4	46.9	46.9	66.4	58.7	58.7	36.2	21.9	21.9	35.5	21.7	
Actuated g/C Ratio	0.44	0.39	0.39	0.55	0.49	0.49	0.30	0.18	0.18	0.30	0.18	
v/c Ratio	0.20	0.68	0.28	0.66	0.82	0.09	0.84	0.54	0.40	0.63	0.80	
Control Delay	18.1	35.2	5.1	31.4	20.7	0.6	55.0	50.3	7.3	37.6	63.8	
Queue Delay	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	18.1	35.2	5.1	31.4	21.5	0.6	55.0	50.3	7.3	37.6	63.8	
LOS	B	D	A	C	C	A	D	D	A	D	E	
Approach Delay		29.6			22.0			40.1			51.5	
Approach LOS		C			C			D			D	
Queue Length 50th (m)	3.0	84.3	0.0	13.5	117.5	0.0	41.8	35.1	0.0	35.5	50.5	
Queue Length 95th (m)	7.9	114.7	14.2	m36.2	#197.0	m0.3	#67.6	53.3	12.9	51.6	73.6	
Internal Link Dist (m)		289.7			112.0			245.0			297.2	
Turn Bay Length (m)	45.0		30.0	90.0		15.0	90.0			70.0		
Base Capacity (vph)	175	1297	666	348	1623	743	304	397	472	359	387	
Starvation Cap Reductn	0	0	0	0	92	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.18	0.68	0.28	0.61	0.87	0.09	0.84	0.45	0.36	0.62	0.65	

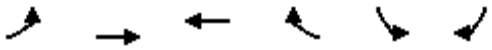
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 45 (38%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay: 30.8		Intersection LOS: C	
Intersection Capacity Utilization 91.0%		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.			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 10: Aviation Parkway & Montreal Road





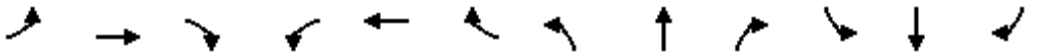
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	180	1116	1441	115	40	95
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	65.0			0.0	60.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	25.0				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor			1.00		0.98	0.93
Frt			0.989			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1644	3288	3369	0	1598	1430
Flt Permitted	0.084				0.950	
Satd. Flow (perm)	145	3288	3369	0	1573	1337
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			10			100
Link Speed (k/h)		60	60		50	
Link Distance (m)		136.0	129.4		182.7	
Travel Time (s)		8.2	7.8		13.2	
Confl. Peds. (#/hr)	10			10	11	37
Confl. Bikes (#/hr)				15		1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	4%	4%	0%	0%	7%	7%
Adj. Flow (vph)	189	1175	1517	121	42	100
Shared Lane Traffic (%)						
Lane Group Flow (vph)	189	1175	1638	0	42	100
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		7.0	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25			15	25	15
Turn Type	pm+pt	NA	NA		Perm	Perm
Protected Phases	5	2	6			
Permitted Phases	2				4	4
Detector Phase	5	2	6		4	4
Switch Phase						
Minimum Initial (s)	5.0	10.0	10.0		10.0	10.0
Minimum Split (s)	10.4	24.0	31.0		30.4	30.4
Total Split (s)	20.0	89.0	69.0		31.0	31.0
Total Split (%)	16.7%	74.2%	57.5%		25.8%	25.8%
Maximum Green (s)	14.6	83.0	63.0		25.6	25.6
Yellow Time (s)	3.7	3.7	3.7		3.3	3.3
All-Red Time (s)	1.7	2.3	2.3		2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.4	6.0	6.0		5.4	5.4
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	C-Max	C-Max		None	None
Walk Time (s)			7.0		7.0	7.0
Flash Dont Walk (s)			18.0		18.0	18.0
Pedestrian Calls (#/hr)			0		0	0
Act Effct Green (s)	98.8	98.2	78.7		10.4	10.4
Actuated g/C Ratio	0.82	0.82	0.66		0.09	0.09
v/c Ratio	0.64	0.44	0.74		0.31	0.48
Control Delay	35.3	3.1	9.8		57.5	18.0
Queue Delay	0.0	0.2	0.7		0.0	0.0
Total Delay	35.3	3.3	10.5		57.5	18.1
LOS	D	A	B		E	B
Approach Delay		7.7	10.5		29.7	
Approach LOS		A	B		C	
Queue Length 50th (m)	25.5	23.2	58.6		8.7	0.0
Queue Length 95th (m)	m47.3	25.6	112.0		18.9	14.9
Internal Link Dist (m)		112.0	105.4		158.7	
Turn Bay Length (m)	65.0				60.0	
Base Capacity (vph)	323	2690	2213		335	363
Starvation Cap Reductn	0	595	68		0	0
Spillback Cap Reductn	0	0	256		0	7
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.59	0.56	0.84		0.13	0.28

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 33 (28%), Referenced to phase 2:EBTL and 6:WBT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.74			
Intersection Signal Delay: 10.2		Intersection LOS: B	
Intersection Capacity Utilization 87.7%		ICU Level of Service E	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 20: Montreal Road & Montfort Hospital



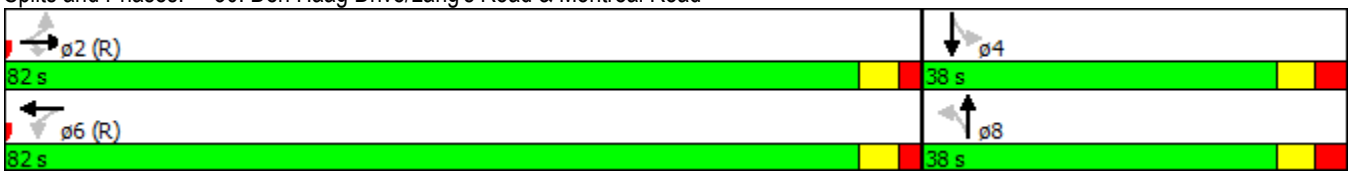
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	25	1051	160	85	1301	15	220	5	25	5	5	20
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	35.0		20.0	35.0		0.0	85.0		0.0	0.0		0.0
Storage Lanes	1		1	1		0	1		0	0		0
Taper Length (m)	35.0			45.0			15.0			7.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.89	0.99	1.00		0.99	0.95			0.97	
Frt			0.850		0.998			0.873			0.907	
Flt Protected	0.950			0.950			0.950				0.992	
Satd. Flow (prot)	1644	3288	1471	1676	3342	0	1583	1385	0	0	1543	0
Flt Permitted	0.137			0.209			0.736				0.970	
Satd. Flow (perm)	237	3288	1304	365	3342	0	1210	1385	0	0	1499	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			92		2			27			22	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		129.4			223.0			263.1			160.4	
Travel Time (s)		7.8			13.4			18.9			11.5	
Confl. Peds. (#/hr)	24		27	27		24	10		32	32		10
Confl. Bikes (#/hr)						3						1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	8%	8%	8%	3%	3%	3%
Adj. Flow (vph)	27	1130	172	91	1399	16	237	5	27	5	5	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	27	1130	172	91	1415	0	237	32	0	0	32	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane					Yes							
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	23.8	23.8	23.8	23.8	23.8		31.4	31.4		31.4	31.4	
Total Split (s)	82.0	82.0	82.0	82.0	82.0		38.0	38.0		38.0	38.0	
Total Split (%)	68.3%	68.3%	68.3%	68.3%	68.3%		31.7%	31.7%		31.7%	31.7%	
Maximum Green (s)	76.2	76.2	76.2	76.2	76.2		31.6	31.6		31.6	31.6	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.1	2.1	2.1	2.1	2.1		3.1	3.1		3.1	3.1	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	5.8	5.8	5.8	5.8	5.8		6.4	6.4			6.4	
Lead/Lag												
Lead-Lag Optimize?												

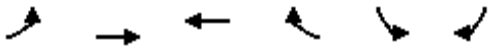
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	10.0	10.0	10.0	10.0	10.0		18.0	18.0		18.0	18.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	
Act Effct Green (s)	80.6	80.6	80.6	80.6	80.6		27.2	27.2			27.2	
Actuated g/C Ratio	0.67	0.67	0.67	0.67	0.67		0.23	0.23			0.23	
v/c Ratio	0.17	0.51	0.19	0.37	0.63		0.86	0.10			0.09	
Control Delay	11.6	9.4	4.0	9.4	7.0		72.8	14.7			17.7	
Queue Delay	0.0	0.1	0.0	0.0	0.1		0.0	0.0			0.0	
Total Delay	11.6	9.5	4.0	9.4	7.0		72.8	14.7			17.7	
LOS	B	A	A	A	A		E	B			B	
Approach Delay		8.8			7.2			65.9			17.7	
Approach LOS		A			A			E			B	
Queue Length 50th (m)	0.9	45.2	0.7	3.5	29.0		48.6	0.8			1.7	
Queue Length 95th (m)	m6.9	79.8	8.5	m7.1	47.2		#80.6	8.0			8.8	
Internal Link Dist (m)		105.4			199.0			239.1			136.4	
Turn Bay Length (m)	35.0		20.0	35.0			85.0					
Base Capacity (vph)	159	2207	905	244	2244		318	384			410	
Starvation Cap Reductn	0	275	0	0	0		0	0			0	
Spillback Cap Reductn	0	0	0	0	87		0	0			0	
Storage Cap Reductn	0	0	0	0	0		0	0			0	
Reduced v/c Ratio	0.17	0.58	0.19	0.37	0.66		0.75	0.08			0.08	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 11 (9%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 13.0 Intersection LOS: B
Intersection Capacity Utilization 82.2% 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 30: Den Haag Drive/Lang's Road & Montreal Road

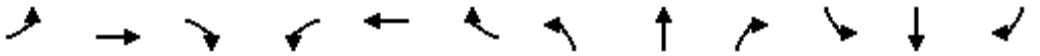




Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	151	960	1429	83	12	22
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	166	1055	1570	91	13	24
Pedestrians		10	10		10	
Lane Width (m)		3.6	3.6		3.6	
Walking Speed (m/s)		1.2	1.2		1.2	
Percent Blockage		1	1		1	
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (m)		223	201			
pX, platoon unblocked	0.65				0.73	0.65
vC, conflicting volume	1672				2495	851
vC1, stage 1 conf vol					1626	
vC2, stage 2 conf vol					869	
vCu, unblocked vol	966				1373	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	64				93	97
cM capacity (veh/h)	467				194	701

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	166	527	527	1047	615	37
Volume Left	166	0	0	0	0	13
Volume Right	0	0	0	0	91	24
cSH	467	1700	1700	1700	1700	365
Volume to Capacity	0.36	0.31	0.31	0.62	0.36	0.10
Queue Length 95th (m)	11.1	0.0	0.0	0.0	0.0	2.4
Control Delay (s)	16.9	0.0	0.0	0.0	0.0	16.0
Lane LOS	C					C
Approach Delay (s)	2.3			0.0		16.0
Approach LOS						C

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	69.5%	ICU Level of Service	C
Analysis Period (min)	15		



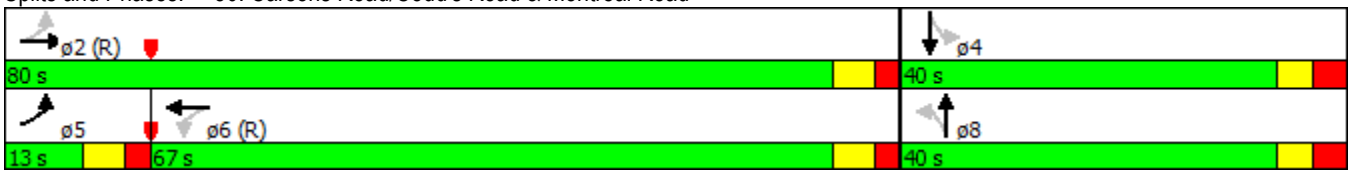
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	65	777	155	95	1412	40	95	5	45	15	5	20
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	100.0		0.0	70.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			25.0			30.0			25.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99		0.99	1.00		0.92	0.98		0.99	0.93	
Frt		0.975			0.996			0.866			0.881	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1644	3173	0	1660	3300	0	1644	1468	0	1179	1016	0
Flt Permitted	0.082			0.270			0.738			0.720		
Satd. Flow (perm)	142	3173	0	467	3300	0	1180	1468	0	885	1016	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		36			3			51			23	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		201.0			307.2			279.9			115.6	
Travel Time (s)		12.1			18.4			20.2			8.3	
Confl. Peds. (#/hr)	24		16	16		24	64		9	9		64
Confl. Bikes (#/hr)			1			1						
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	4%	4%	4%	3%	3%	3%	4%	4%	4%	45%	45%	45%
Adj. Flow (vph)	74	883	176	108	1605	45	108	6	51	17	6	23
Shared Lane Traffic (%)												
Lane Group Flow (vph)	74	1059	0	108	1650	0	108	57	0	17	29	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane		Yes										
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	5	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	11.0	29.0		29.0	29.0		35.5	35.5		35.5	35.5	
Total Split (s)	13.0	80.0		67.0	67.0		40.0	40.0		40.0	40.0	
Total Split (%)	10.8%	66.7%		55.8%	55.8%		33.3%	33.3%		33.3%	33.3%	
Maximum Green (s)	7.0	74.0		61.0	61.0		33.5	33.5		33.5	33.5	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.3	2.3		2.3	2.3		3.2	3.2		3.2	3.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.5	6.5		6.5	6.5	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							

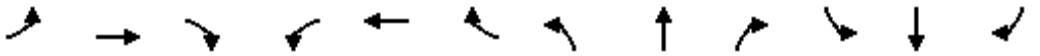
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)		7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		16.0		16.0	16.0		22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	
Act Effct Green (s)	91.0	91.0		80.0	80.0		16.5	16.5		16.5	16.5	
Actuated g/C Ratio	0.76	0.76		0.67	0.67		0.14	0.14		0.14	0.14	
v/c Ratio	0.37	0.44		0.35	0.75		0.67	0.23		0.14	0.18	
Control Delay	16.5	9.9		15.5	18.3		67.6	15.7		45.2	21.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	16.5	9.9		15.5	18.3		67.6	15.7		45.2	21.7	
LOS	B	A		B	B		E	B		D	C	
Approach Delay		10.3			18.2			49.7			30.4	
Approach LOS		B			B			D			C	
Queue Length 50th (m)	6.2	72.2		9.7	120.2		22.6	1.2		3.3	1.2	
Queue Length 95th (m)	17.7	64.9		26.0	182.0		36.8	10.8		8.9	8.5	
Internal Link Dist (m)		177.0			283.2			255.9			91.6	
Turn Bay Length (m)	100.0			70.0			30.0			30.0		
Base Capacity (vph)	204	2413		311	2201		329	446		247	300	
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	0.36	0.44		0.35	0.75		0.33	0.13		0.07	0.10	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 13 (11%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.75
Intersection Signal Delay: 17.1 Intersection LOS: B
Intersection Capacity Utilization 84.5% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 50: Carsons Road/Codd's Road & Montreal Road



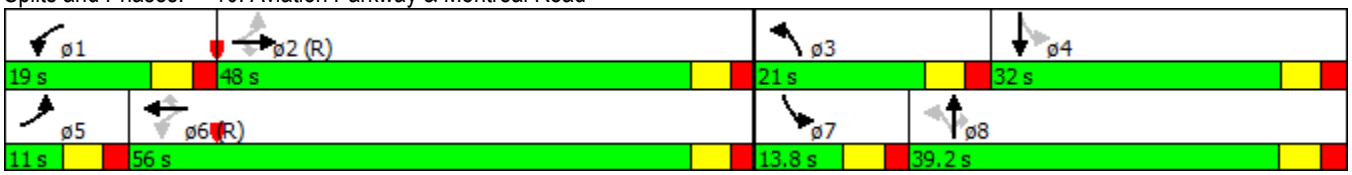


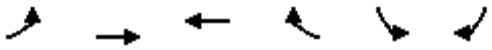
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	35	1098	285	231	932	120	255	280	154	132	225	45
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	45.0		30.0	90.0		15.0	90.0		0.0	70.0		0.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	7.5			25.0			40.0			75.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99		0.94			0.94	1.00		0.95	0.98	0.99	
Frt			0.850			0.850			0.850		0.975	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1676	3353	1500	1660	3320	1485	1660	1748	1485	1660	1693	0
Flt Permitted	0.240			0.082			0.224			0.480		
Satd. Flow (perm)	421	3353	1404	143	3320	1391	390	1748	1409	821	1693	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			244			190			186		8	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		313.7			136.0			269.0			321.2	
Travel Time (s)		18.8			8.2			19.4			23.1	
Confl. Peds. (#/hr)	12		34	34		12	7		25	25		7
Confl. Bikes (#/hr)			16			21			7			16
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	36	1144	297	241	971	125	266	292	160	138	234	47
Shared Lane Traffic (%)												
Lane Group Flow (vph)	36	1144	297	241	971	125	266	292	160	138	281	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			7.0			5.0			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane		Yes										
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	10.9	33.8	33.8	10.9	33.8	33.8	10.9	32.2	32.2	10.9	32.0	
Total Split (s)	11.0	48.0	48.0	19.0	56.0	56.0	21.0	39.2	39.2	13.8	32.0	
Total Split (%)	9.2%	40.0%	40.0%	15.8%	46.7%	46.7%	17.5%	32.7%	32.7%	11.5%	26.7%	
Maximum Green (s)	5.1	42.2	42.2	13.1	50.2	50.2	15.1	33.0	33.0	7.9	26.0	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.5	
All-Red Time (s)	2.2	2.1	2.1	2.2	2.1	2.1	2.2	2.5	2.5	2.2	2.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.9	5.8	5.8	5.9	5.8	5.8	5.9	6.2	6.2	5.9	6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	
Walk Time (s)		17.0	17.0		17.0	17.0		7.0	7.0		7.0	
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		19.0	19.0		19.0	
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	
Act Effct Green (s)	48.4	42.9	42.9	64.1	57.4	57.4	44.1	30.0	30.0	31.1	23.1	
Actuated g/C Ratio	0.40	0.36	0.36	0.53	0.48	0.48	0.37	0.25	0.25	0.26	0.19	
v/c Ratio	0.16	0.95	0.45	0.89	0.61	0.16	0.88	0.67	0.33	0.52	0.85	
Control Delay	17.1	55.2	8.6	72.8	22.3	1.9	58.7	48.2	4.8	34.8	68.0	
Queue Delay	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	17.1	55.2	8.6	72.8	22.4	1.9	58.7	48.2	4.8	34.8	68.0	
LOS	B	E	A	E	C	A	E	D	A	C	E	
Approach Delay		44.9			29.6			42.4			57.1	
Approach LOS		D			C			D			E	
Queue Length 50th (m)	3.7	127.5	7.7	33.1	113.5	1.8	41.9	56.0	0.0	19.9	56.6	
Queue Length 95th (m)	8.8	#169.6	28.1	#90.4	75.6	3.5	#72.9	81.9	10.0	33.0	#90.0	
Internal Link Dist (m)		289.7			112.0			245.0			297.2	
Turn Bay Length (m)	45.0		30.0	90.0		15.0	90.0			70.0		
Base Capacity (vph)	228	1199	658	270	1586	764	303	480	522	267	373	
Starvation Cap Reductn	0	0	0	0	119	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.16	0.95	0.45	0.89	0.66	0.16	0.88	0.61	0.31	0.52	0.75	

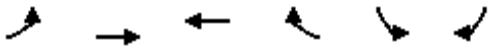
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 93 (78%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.95			
Intersection Signal Delay: 40.6		Intersection LOS: D	
Intersection Capacity Utilization 96.9%		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: 10: Aviation Parkway & Montreal Road





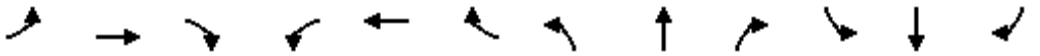
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	100	1329	1213	55	120	100
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	65.0			0.0	60.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	25.0				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor			1.00		0.99	0.95
Frt			0.993			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1660	3320	3385	0	1629	1457
Flt Permitted	0.153				0.950	
Satd. Flow (perm)	267	3320	3385	0	1607	1387
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			6			103
Link Speed (k/h)		60	60		50	
Link Distance (m)		136.0	129.4		182.7	
Travel Time (s)		8.2	7.8		13.2	
Confl. Peds. (#/hr)	20			20	9	25
Confl. Bikes (#/hr)				15		1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	3%	3%	0%	0%	5%	5%
Adj. Flow (vph)	103	1370	1251	57	124	103
Shared Lane Traffic (%)						
Lane Group Flow (vph)	103	1370	1308	0	124	103
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		7.0	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25			15	25	15
Turn Type	pm+pt	NA	NA		Perm	Perm
Protected Phases	5	2	6			
Permitted Phases	2				4	4
Detector Phase	5	2	6		4	4
Switch Phase						
Minimum Initial (s)	5.0	10.0	10.0		10.0	10.0
Minimum Split (s)	10.4	24.0	31.0		30.4	30.4
Total Split (s)	14.0	84.0	70.0		36.0	36.0
Total Split (%)	11.7%	70.0%	58.3%		30.0%	30.0%
Maximum Green (s)	8.6	78.0	64.0		30.6	30.6
Yellow Time (s)	3.7	3.7	3.7		3.3	3.3
All-Red Time (s)	1.7	2.3	2.3		2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.4	6.0	6.0		5.4	5.4
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	C-Max	C-Max		None	None
Walk Time (s)			7.0		7.0	7.0
Flash Dont Walk (s)			18.0		18.0	18.0
Pedestrian Calls (#/hr)			0		0	0
Act Effct Green (s)	94.4	93.8	81.1		14.8	14.8
Actuated g/C Ratio	0.79	0.78	0.68		0.12	0.12
v/c Ratio	0.35	0.53	0.57		0.63	0.39
Control Delay	8.7	2.7	9.5		63.2	13.0
Queue Delay	0.0	0.2	0.0		0.0	0.0
Total Delay	8.7	2.9	9.5		63.2	13.0
LOS	A	A	A		E	B
Approach Delay		3.3	9.5		40.4	
Approach LOS		A	A		D	
Queue Length 50th (m)	1.5	13.1	39.1		26.0	0.0
Queue Length 95th (m)	m2.8	m21.5	127.2		42.1	13.8
Internal Link Dist (m)		112.0	105.4		158.7	
Turn Bay Length (m)	65.0				60.0	
Base Capacity (vph)	310	2594	2288		409	430
Starvation Cap Reductn	0	400	97		0	0
Spillback Cap Reductn	0	0	29		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.33	0.62	0.60		0.30	0.24

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 88 (73%), Referenced to phase 2:EBTL and 6:WBT, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.63			
Intersection Signal Delay: 8.8		Intersection LOS: A	
Intersection Capacity Utilization 72.6%		ICU Level of Service C	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 20: Montreal Road & Montfort Hospital

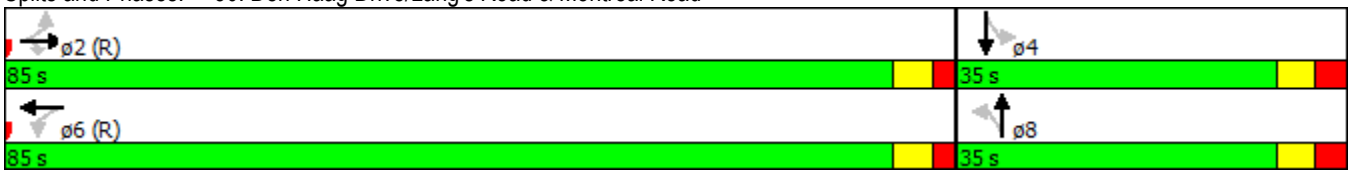


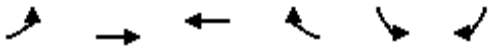
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	35	1294	160	15	1093	10	160	0	115	20	0	25
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	35.0		20.0	35.0		0.0	85.0		0.0	0.0		0.0
Storage Lanes	1		1	1		0	1		0	0		0
Taper Length (m)	35.0			45.0			15.0			7.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.89		1.00		0.98	0.97			0.97	
Frt			0.850		0.999			0.850			0.924	
Flt Protected	0.950			0.950			0.950				0.979	
Satd. Flow (prot)	1676	3353	1500	1660	3316	0	1660	1438	0	0	1598	0
Flt Permitted	0.223			0.172			0.727				0.845	
Satd. Flow (perm)	392	3353	1335	301	3316	0	1246	1438	0	0	1369	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			80		2			68			26	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		129.4			223.0			263.1			160.4	
Travel Time (s)		7.8			13.4			18.9			11.5	
Confl. Peds. (#/hr)	9		26	26		9	14		14	14		14
Confl. Bikes (#/hr)						3						1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	0%	0%	0%
Adj. Flow (vph)	36	1320	163	15	1115	10	163	0	117	20	0	26
Shared Lane Traffic (%)												
Lane Group Flow (vph)	36	1320	163	15	1125	0	163	117	0	0	46	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane					Yes							
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	23.8	23.8	23.8	23.8	23.8		31.4	31.4		31.4	31.4	
Total Split (s)	85.0	85.0	85.0	85.0	85.0		35.0	35.0		35.0	35.0	
Total Split (%)	70.8%	70.8%	70.8%	70.8%	70.8%		29.2%	29.2%		29.2%	29.2%	
Maximum Green (s)	79.2	79.2	79.2	79.2	79.2		28.6	28.6		28.6	28.6	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.1	2.1	2.1	2.1	2.1		3.1	3.1		3.1	3.1	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	5.8	5.8	5.8	5.8	5.8		6.4	6.4			6.4	
Lead/Lag												
Lead-Lag Optimize?												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	10.0	10.0	10.0	10.0	10.0		18.0	18.0		18.0	18.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	
Act Effct Green (s)	87.1	87.1	87.1	87.1	87.1		20.7	20.7			20.7	
Actuated g/C Ratio	0.73	0.73	0.73	0.73	0.73		0.17	0.17			0.17	
v/c Ratio	0.13	0.54	0.16	0.07	0.47		0.76	0.38			0.18	
Control Delay	3.9	4.0	1.4	6.7	7.1		68.2	22.3			22.6	
Queue Delay	0.0	0.1	0.0	0.0	0.0		0.0	0.0			0.0	
Total Delay	3.9	4.1	1.4	6.7	7.1		68.2	22.3			22.6	
LOS	A	A	A	A	A		E	C			C	
Approach Delay		3.8			7.1			49.0			22.6	
Approach LOS		A			A			D			C	
Queue Length 50th (m)	1.2	28.6	0.6	0.8	42.2		34.0	9.2			3.7	
Queue Length 95th (m)	m3.3	39.7	2.6	m2.6	56.4		51.9	23.1			12.3	
Internal Link Dist (m)		105.4			199.0			239.1			136.4	
Turn Bay Length (m)	35.0		20.0	35.0			85.0					
Base Capacity (vph)	284	2432	990	218	2406		296	394			346	
Starvation Cap Reductn	0	202	0	0	0		0	0			0	
Spillback Cap Reductn	0	0	0	0	77		0	0			0	
Storage Cap Reductn	0	0	0	0	0		0	0			0	
Reduced v/c Ratio	0.13	0.59	0.16	0.07	0.48		0.55	0.30			0.13	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 81 (68%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay: 9.6		Intersection LOS: A	
Intersection Capacity Utilization 65.7%		ICU Level of Service C	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 30: Den Haag Drive/Lang's Road & Montreal Road

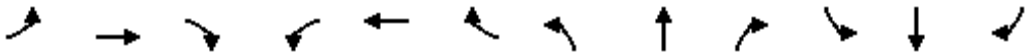




Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	37	1372	1018	24	85	145
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	41	1508	1119	26	93	159
Pedestrians		10	10		10	
Lane Width (m)		3.6	3.6		3.6	
Walking Speed (m/s)		1.2	1.2		1.2	
Percent Blockage		1	1		1	
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (m)		223	201			
pX, platoon unblocked	0.87				0.88	0.87
vC, conflicting volume	1155				1987	593
vC1, stage 1 conf vol					1142	
vC2, stage 2 conf vol					845	
vCu, unblocked vol	882				1199	236
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	94				68	76
cM capacity (veh/h)	670				294	661

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	41	754	754	746	399	253
Volume Left	41	0	0	0	0	93
Volume Right	0	0	0	0	26	159
cSH	670	1700	1700	1700	1700	452
Volume to Capacity	0.06	0.44	0.44	0.44	0.23	0.56
Queue Length 95th (m)	1.4	0.0	0.0	0.0	0.0	23.5
Control Delay (s)	10.7	0.0	0.0	0.0	0.0	22.6
Lane LOS	B					C
Approach Delay (s)	0.3			0.0		22.6
Approach LOS						C

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	61.7%	ICU Level of Service	B
Analysis Period (min)	15		

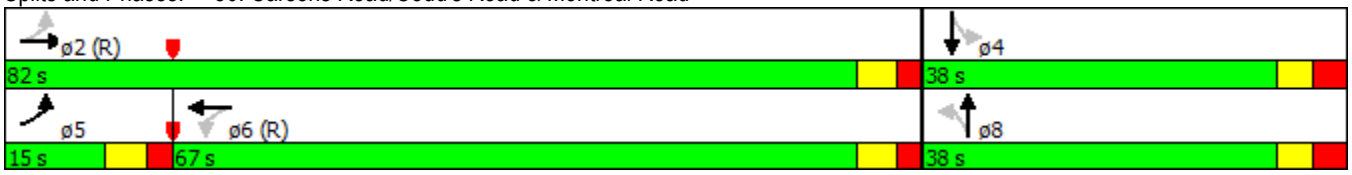


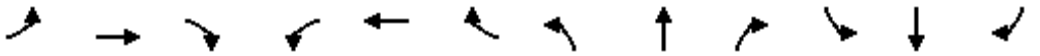
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	25	1337	80	35	907	10	85	5	40	50	5	85
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	100.0		0.0	70.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			25.0			30.0			25.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00	1.00		0.94	0.98		0.98	0.92	
Frt		0.992			0.998			0.866			0.858	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1660	3282	0	1644	3279	0	1693	1505	0	1527	1274	0
Flt Permitted	0.237			0.153			0.694			0.726		
Satd. Flow (perm)	414	3282	0	264	3279	0	1162	1505	0	1149	1274	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			1			43			92	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		201.0			307.2			279.9			115.6	
Travel Time (s)		12.1			18.4			20.2			8.3	
Confl. Peds. (#/hr)	19		17	17		19	56		13	13		56
Confl. Bikes (#/hr)			1			1						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	1%	1%	1%	12%	12%	12%
Adj. Flow (vph)	27	1453	87	38	986	11	92	5	43	54	5	92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	27	1540	0	38	997	0	92	48	0	54	97	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane		Yes										
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	5	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	11.0	29.0		29.0	29.0		35.5	35.5		35.5	35.5	
Total Split (s)	15.0	82.0		67.0	67.0		38.0	38.0		38.0	38.0	
Total Split (%)	12.5%	68.3%		55.8%	55.8%		31.7%	31.7%		31.7%	31.7%	
Maximum Green (s)	9.0	76.0		61.0	61.0		31.5	31.5		31.5	31.5	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.3	2.3		2.3	2.3		3.2	3.2		3.2	3.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.5	6.5		6.5	6.5	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		C-Max	C-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		22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	
Act Effct Green (s)	92.3	92.3		84.9	84.9		15.2	15.2		15.2	15.2	
Actuated g/C Ratio	0.77	0.77		0.71	0.71		0.13	0.13		0.13	0.13	
v/c Ratio	0.07	0.61		0.20	0.43		0.63	0.21		0.37	0.40	
Control Delay	3.4	3.9		12.4	9.5		67.1	17.0		53.7	15.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	3.4	3.9		12.4	9.5		67.1	17.0		53.7	15.0	
LOS	A	A		B	A		E	B		D	B	
Approach Delay		3.8			9.6			49.9			28.8	
Approach LOS		A			A			D			C	
Queue Length 50th (m)	0.6	18.5		2.9	48.6		19.3	1.0		10.9	1.0	
Queue Length 95th (m)	m2.2	41.1		10.0	74.5		33.3	10.5		21.4	14.3	
Internal Link Dist (m)		177.0			283.2			255.9			91.6	
Turn Bay Length (m)	100.0			70.0			30.0			30.0		
Base Capacity (vph)	411	2525		186	2319		305	426		301	402	
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	0.07	0.61		0.20	0.43		0.30	0.11		0.18	0.24	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 115 (96%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.63			
Intersection Signal Delay: 9.4		Intersection LOS: A	
Intersection Capacity Utilization 74.2%		ICU Level of Service D	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 50: Carsons Road/Codd's Road & Montreal Road





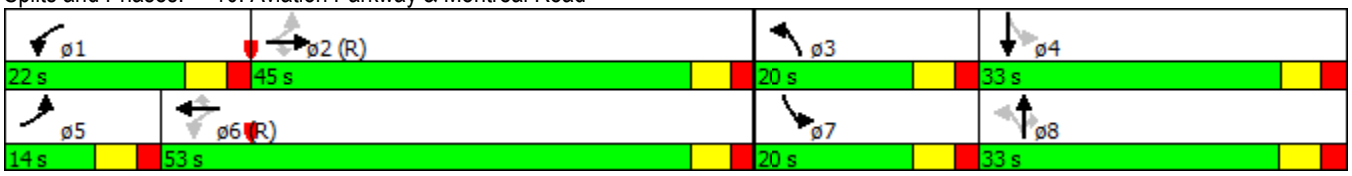
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	30	881	185	213	1341	67	255	195	168	222	230	45
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	45.0		30.0	90.0		15.0	100.0		0.0	70.0		0.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	7.5			25.0			40.0			75.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.95			0.93	0.99		0.97	0.99	0.99	
Frt			0.850			0.850			0.850		0.975	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1660	3320	1485	1660	3320	1485	1693	1782	1515	1660	1694	0
Flt Permitted	0.090			0.138			0.273			0.480		
Satd. Flow (perm)	157	3320	1411	241	3320	1377	484	1782	1468	832	1694	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			190			136			186		8	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		313.7			136.0			269.0			321.2	
Travel Time (s)		18.8			8.2			19.4			23.1	
Confl. Peds. (#/hr)	16		22	22		16	7		9	9		7
Confl. Bikes (#/hr)			16			21			7			16
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	1%	1%	1%	3%	3%	3%
Adj. Flow (vph)	31	918	193	222	1397	70	266	203	175	231	240	47
Shared Lane Traffic (%)												
Lane Group Flow (vph)	31	918	193	222	1397	70	266	203	175	231	287	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			7.0			5.0			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane		Yes										
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	10.9	33.8	33.8	10.9	33.8	33.8	10.9	32.2	32.2	10.9	32.0	
Total Split (s)	14.0	45.0	45.0	22.0	53.0	53.0	20.0	33.0	33.0	20.0	33.0	
Total Split (%)	11.7%	37.5%	37.5%	18.3%	44.2%	44.2%	16.7%	27.5%	27.5%	16.7%	27.5%	
Maximum Green (s)	8.1	39.2	39.2	16.1	47.2	47.2	14.1	26.8	26.8	14.1	27.0	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.5	
All-Red Time (s)	2.2	2.1	2.1	2.2	2.1	2.1	2.2	2.5	2.5	2.2	2.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.9	5.8	5.8	5.9	5.8	5.8	5.9	6.2	6.2	5.9	6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	

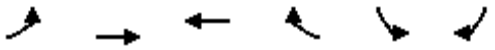
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	
Walk Time (s)		17.0	17.0		17.0	17.0		7.0	7.0		7.0	
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		19.0	19.0		19.0	
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	
Act Effct Green (s)	50.8	44.3	44.3	64.5	56.7	56.7	38.2	23.8	23.8	37.4	23.6	
Actuated g/C Ratio	0.42	0.37	0.37	0.54	0.47	0.47	0.32	0.20	0.20	0.31	0.20	
v/c Ratio	0.21	0.75	0.30	0.74	0.89	0.10	0.90	0.58	0.40	0.65	0.85	
Control Delay	19.0	38.9	5.6	41.5	25.3	0.8	63.1	49.9	7.4	37.8	66.9	
Queue Delay	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	19.0	38.9	5.6	41.5	27.3	0.8	63.1	49.9	7.4	37.8	66.9	
LOS	B	D	A	D	C	A	E	D	A	D	E	
Approach Delay		32.8			28.1			43.8			53.9	
Approach LOS		C			C			D			D	
Queue Length 50th (m)	3.2	95.3	0.4	19.6	141.7	0.0	42.2	39.6	0.0	35.8	57.9	
Queue Length 95th (m)	7.9	121.3	15.0	m41.8	#212.5	m0.4	#72.7	60.7	14.2	53.8	#89.9	
Internal Link Dist (m)		289.7			112.0			245.0			297.2	
Turn Bay Length (m)	45.0		30.0	90.0		15.0	100.0			70.0		
Base Capacity (vph)	170	1225	640	321	1568	722	296	397	472	359	387	
Starvation Cap Reductn	0	0	0	0	79	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.18	0.75	0.30	0.69	0.94	0.10	0.90	0.51	0.37	0.64	0.74	

Intersection Summary

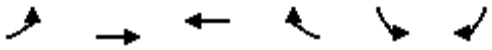
Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 45 (38%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.90
Intersection Signal Delay: 35.3 Intersection LOS: D
Intersection Capacity Utilization 94.9% 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 10: Aviation Parkway & Montreal Road





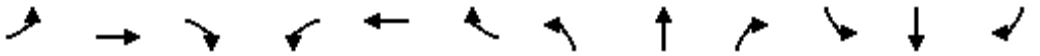
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	180	1161	1506	115	40	95
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	65.0			0.0	60.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	25.0				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor			1.00		0.98	0.93
Frt			0.989			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1644	3288	3369	0	1598	1430
Flt Permitted	0.073				0.950	
Satd. Flow (perm)	126	3288	3369	0	1573	1337
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			10			100
Link Speed (k/h)		60	60		50	
Link Distance (m)		136.0	129.4		182.7	
Travel Time (s)		8.2	7.8		13.2	
Confl. Peds. (#/hr)	10			10	11	37
Confl. Bikes (#/hr)				15		1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	4%	4%	0%	0%	7%	7%
Adj. Flow (vph)	189	1222	1585	121	42	100
Shared Lane Traffic (%)						
Lane Group Flow (vph)	189	1222	1706	0	42	100
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		7.0	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25			15	25	15
Turn Type	pm+pt	NA	NA		Perm	Perm
Protected Phases	5	2	6			
Permitted Phases	2				4	4
Detector Phase	5	2	6		4	4
Switch Phase						
Minimum Initial (s)	5.0	10.0	10.0		10.0	10.0
Minimum Split (s)	10.4	24.0	31.0		30.4	30.4
Total Split (s)	20.0	89.0	69.0		31.0	31.0
Total Split (%)	16.7%	74.2%	57.5%		25.8%	25.8%
Maximum Green (s)	14.6	83.0	63.0		25.6	25.6
Yellow Time (s)	3.7	3.7	3.7		3.3	3.3
All-Red Time (s)	1.7	2.3	2.3		2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.4	6.0	6.0		5.4	5.4
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	C-Max	C-Max		None	None
Walk Time (s)			7.0		7.0	7.0
Flash Dont Walk (s)			18.0		18.0	18.0
Pedestrian Calls (#/hr)			0		0	0
Act Effct Green (s)	98.8	98.2	78.7		10.4	10.4
Actuated g/C Ratio	0.82	0.82	0.66		0.09	0.09
v/c Ratio	0.67	0.45	0.77		0.31	0.48
Control Delay	38.0	3.1	10.2		57.5	18.0
Queue Delay	0.0	0.2	2.1		0.0	0.0
Total Delay	38.0	3.3	12.3		57.5	18.1
LOS	D	A	B		E	B
Approach Delay		8.0	12.3		29.7	
Approach LOS		A	B		C	
Queue Length 50th (m)	28.1	23.6	59.6		8.7	0.0
Queue Length 95th (m)	m44.5	25.3	33.6		18.9	14.9
Internal Link Dist (m)		112.0	105.4		158.7	
Turn Bay Length (m)	65.0				60.0	
Base Capacity (vph)	310	2690	2213		335	363
Starvation Cap Reductn	0	667	68		0	0
Spillback Cap Reductn	0	0	352		0	10
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.61	0.60	0.92		0.13	0.28

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 33 (28%), Referenced to phase 2:EBTL and 6:WBT, Start of Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay: 11.2		Intersection LOS: B	
Intersection Capacity Utilization 89.6%		ICU Level of Service E	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 20: Montreal Road & Montfort Hospital

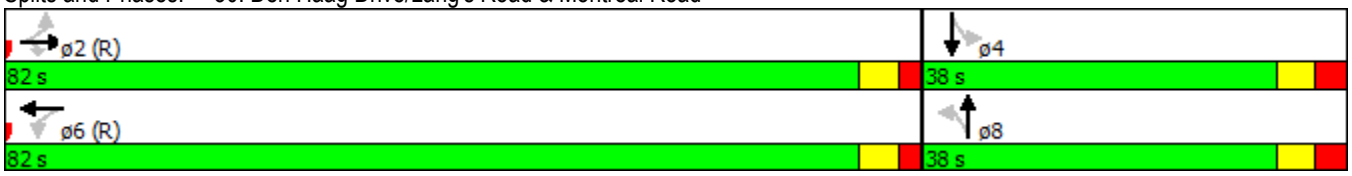


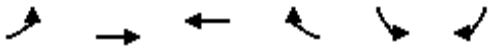
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	25	1091	160	85	1366	15	220	5	25	5	5	20
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	35.0		20.0	35.0		0.0	85.0		0.0	0.0		0.0
Storage Lanes	1		1	1		0	1		0	0		0
Taper Length (m)	35.0			45.0			15.0			7.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.89		1.00		0.99	0.95			0.97	
Frt			0.850		0.998			0.873			0.907	
Flt Protected	0.950			0.950			0.950				0.992	
Satd. Flow (prot)	1644	3288	1471	1676	3342	0	1583	1385	0	0	1543	0
Flt Permitted	0.123			0.197			0.736				0.970	
Satd. Flow (perm)	213	3288	1304	348	3342	0	1210	1385	0	0	1499	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			88		2			27			22	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		129.4			223.0			263.1			160.4	
Travel Time (s)		7.8			13.4			18.9			11.5	
Confl. Peds. (#/hr)	24		27	27		24	10		32	32		10
Confl. Bikes (#/hr)						3						1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	8%	8%	8%	3%	3%	3%
Adj. Flow (vph)	27	1173	172	91	1469	16	237	5	27	5	5	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	27	1173	172	91	1485	0	237	32	0	0	32	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane					Yes							
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	23.8	23.8	23.8	23.8	23.8		31.4	31.4		31.4	31.4	
Total Split (s)	82.0	82.0	82.0	82.0	82.0		38.0	38.0		38.0	38.0	
Total Split (%)	68.3%	68.3%	68.3%	68.3%	68.3%		31.7%	31.7%		31.7%	31.7%	
Maximum Green (s)	76.2	76.2	76.2	76.2	76.2		31.6	31.6		31.6	31.6	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.1	2.1	2.1	2.1	2.1		3.1	3.1		3.1	3.1	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	5.8	5.8	5.8	5.8	5.8		6.4	6.4			6.4	
Lead/Lag												
Lead-Lag Optimize?												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	10.0	10.0	10.0	10.0	10.0		18.0	18.0		18.0	18.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	
Act Effct Green (s)	80.6	80.6	80.6	80.6	80.6		27.2	27.2			27.2	
Actuated g/C Ratio	0.67	0.67	0.67	0.67	0.67		0.23	0.23			0.23	
v/c Ratio	0.19	0.53	0.19	0.39	0.66		0.86	0.10			0.09	
Control Delay	13.0	10.1	4.5	9.6	7.0		72.8	14.7			17.7	
Queue Delay	0.0	0.1	0.0	0.0	0.1		0.0	0.0			0.0	
Total Delay	13.0	10.2	4.5	9.6	7.1		72.8	14.7			17.7	
LOS	B	B	A	A	A		E	B			B	
Approach Delay		9.6			7.3			65.9			17.7	
Approach LOS		A			A			E			B	
Queue Length 50th (m)	1.1	51.9	2.2	3.4	29.9		48.6	0.8			1.7	
Queue Length 95th (m)	m6.7	83.0	8.8	m6.8	48.8		#80.6	8.0			8.8	
Internal Link Dist (m)		105.4			199.0			239.1			136.4	
Turn Bay Length (m)	35.0		20.0	35.0			85.0					
Base Capacity (vph)	142	2207	904	233	2244		318	384			410	
Starvation Cap Reductn	0	234	0	0	0		0	0			0	
Spillback Cap Reductn	0	0	0	0	107		0	0			0	
Storage Cap Reductn	0	0	0	0	0		0	0			0	
Reduced v/c Ratio	0.19	0.59	0.19	0.39	0.69		0.75	0.08			0.08	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 11 (9%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.86			
Intersection Signal Delay: 13.2		Intersection LOS: B	
Intersection Capacity Utilization 84.1%		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.			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 30: Den Haag Drive/Lang's Road & Montreal Road

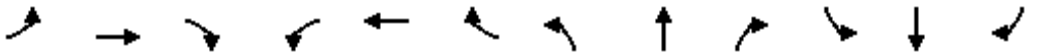




Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	151	1005	1499	83	12	22
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	166	1104	1647	91	13	24
Pedestrians		10	10		10	
Lane Width (m)		3.6	3.6		3.6	
Walking Speed (m/s)		1.2	1.2		1.2	
Percent Blockage		1	1		1	
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (m)		223	201			
pX, platoon unblocked	0.62				0.70	0.62
vC, conflicting volume	1748				2597	889
vC1, stage 1 conf vol					1703	
vC2, stage 2 conf vol					894	
vCu, unblocked vol	971				1373	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	62				93	96
cM capacity (veh/h)	439				184	662

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	166	552	552	1098	640	37
Volume Left	166	0	0	0	0	13
Volume Right	0	0	0	0	91	24
cSH	439	1700	1700	1700	1700	345
Volume to Capacity	0.38	0.32	0.32	0.65	0.38	0.11
Queue Length 95th (m)	12.1	0.0	0.0	0.0	0.0	2.5
Control Delay (s)	18.1	0.0	0.0	0.0	0.0	16.7
Lane LOS	C					C
Approach Delay (s)	2.4			0.0		16.7
Approach LOS						C

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	71.6%	ICU Level of Service	C
Analysis Period (min)	15		



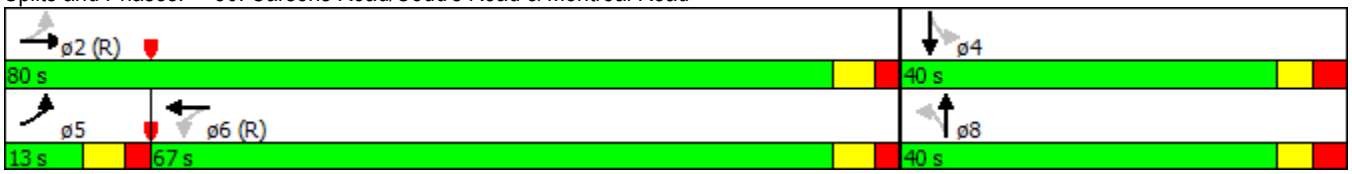
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	65	817	155	95	1477	40	95	5	45	15	5	20
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	100.0		0.0	70.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			25.0			30.0			25.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99		0.99	1.00		0.92	0.98		0.99	0.93	
Frt		0.976			0.996			0.866			0.881	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1644	3178	0	1660	3300	0	1644	1468	0	1179	1016	0
Flt Permitted	0.070			0.258			0.738			0.720		
Satd. Flow (perm)	121	3178	0	447	3300	0	1180	1468	0	885	1016	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		34			3			51			23	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		201.0			307.2			279.9			115.6	
Travel Time (s)		12.1			18.4			20.2			8.3	
Confl. Peds. (#/hr)	24		16	16		24	64		9	9		64
Confl. Bikes (#/hr)			1			1						
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	4%	4%	4%	3%	3%	3%	4%	4%	4%	45%	45%	45%
Adj. Flow (vph)	74	928	176	108	1678	45	108	6	51	17	6	23
Shared Lane Traffic (%)												
Lane Group Flow (vph)	74	1104	0	108	1723	0	108	57	0	17	29	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane		Yes										
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	5	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	11.0	29.0		29.0	29.0		35.5	35.5		35.5	35.5	
Total Split (s)	13.0	80.0		67.0	67.0		40.0	40.0		40.0	40.0	
Total Split (%)	10.8%	66.7%		55.8%	55.8%		33.3%	33.3%		33.3%	33.3%	
Maximum Green (s)	7.0	74.0		61.0	61.0		33.5	33.5		33.5	33.5	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.3	2.3		2.3	2.3		3.2	3.2		3.2	3.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.5	6.5		6.5	6.5	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		C-Max	C-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		22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	
Act Effct Green (s)	91.0	91.0		80.0	80.0		16.5	16.5		16.5	16.5	
Actuated g/C Ratio	0.76	0.76		0.67	0.67		0.14	0.14		0.14	0.14	
v/c Ratio	0.40	0.46		0.36	0.78		0.67	0.23		0.14	0.18	
Control Delay	19.3	9.5		16.1	19.5		67.6	15.7		45.2	21.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	19.3	9.5		16.1	19.5		67.6	15.7		45.2	21.7	
LOS	B	A		B	B		E	B		D	C	
Approach Delay		10.1			19.3			49.7			30.4	
Approach LOS		B			B			D			C	
Queue Length 50th (m)	4.6	71.8		9.9	131.1		22.6	1.2		3.3	1.2	
Queue Length 95th (m)	19.4	67.9		26.7	198.5		36.8	10.8		8.9	8.5	
Internal Link Dist (m)		177.0			283.2			255.9			91.6	
Turn Bay Length (m)	100.0			70.0			30.0			30.0		
Base Capacity (vph)	189	2417		298	2201		329	446		247	300	
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	0.39	0.46		0.36	0.78		0.33	0.13		0.07	0.10	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 13 (11%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.78
Intersection Signal Delay: 17.7 Intersection LOS: B
Intersection Capacity Utilization 86.4% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 50: Carsons Road/Codd's Road & Montreal Road



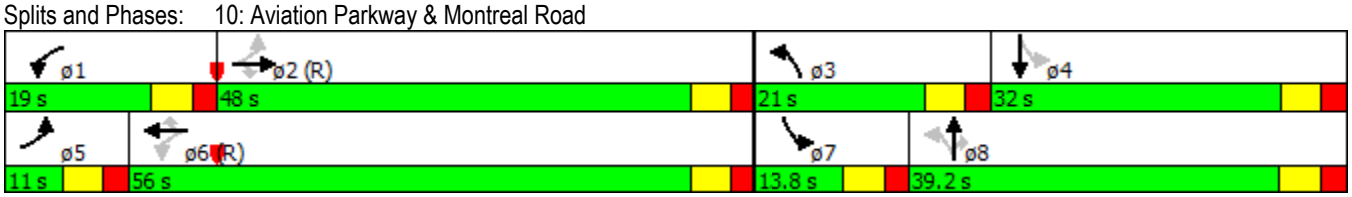
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	35	1153	300	241	972	130	270	320	159	137	255	50
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	45.0		30.0	90.0		15.0	100.0		0.0	70.0		0.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	7.5			25.0			40.0			75.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.94			0.94	1.00		0.95	0.98	0.99	
Frt			0.850			0.850			0.850		0.975	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1676	3353	1500	1660	3320	1485	1660	1748	1485	1660	1693	0
Flt Permitted	0.211			0.083			0.186			0.408		
Satd. Flow (perm)	371	3353	1404	145	3320	1391	324	1748	1409	699	1693	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			244			190			186		7	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		313.7			136.0			269.0			321.2	
Travel Time (s)		18.8			8.2			19.4			23.1	
Confl. Peds. (#/hr)	12		34	34		12	7		25	25		7
Confl. Bikes (#/hr)			16			21			7			16
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	36	1201	312	251	1012	135	281	333	166	143	266	52
Shared Lane Traffic (%)												
Lane Group Flow (vph)	36	1201	312	251	1012	135	281	333	166	143	318	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			7.0			5.0			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane		Yes										
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	10.9	33.8	33.8	10.9	33.8	33.8	10.9	32.2	32.2	10.9	32.0	
Total Split (s)	11.0	48.0	48.0	19.0	56.0	56.0	21.0	39.2	39.2	13.8	32.0	
Total Split (%)	9.2%	40.0%	40.0%	15.8%	46.7%	46.7%	17.5%	32.7%	32.7%	11.5%	26.7%	
Maximum Green (s)	5.1	42.2	42.2	13.1	50.2	50.2	15.1	33.0	33.0	7.9	26.0	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.5	
All-Red Time (s)	2.2	2.1	2.1	2.2	2.1	2.1	2.2	2.5	2.5	2.2	2.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.9	5.8	5.8	5.9	5.8	5.8	5.9	6.2	6.2	5.9	6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	

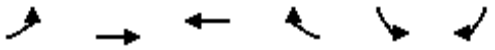
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	
Walk Time (s)		17.0	17.0		17.0	17.0		7.0	7.0		7.0	
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		19.0	19.0		19.0	
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	
Act Effct Green (s)	47.5	42.2	42.2	62.5	56.0	56.0	45.7	31.6	31.6	32.6	24.6	
Actuated g/C Ratio	0.40	0.35	0.35	0.52	0.47	0.47	0.38	0.26	0.26	0.27	0.20	
v/c Ratio	0.18	1.02	0.48	0.97	0.65	0.18	0.97	0.72	0.33	0.57	0.90	
Control Delay	17.7	69.8	9.8	89.5	22.7	2.1	74.9	50.0	5.2	36.5	74.1	
Queue Delay	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	17.7	69.8	9.8	89.5	23.0	2.1	74.9	50.0	5.2	36.5	74.1	
LOS	B	E	A	F	C	A	E	D	A	D	E	
Approach Delay		56.5			32.9			49.4			62.4	
Approach LOS		E			C			D			E	
Queue Length 50th (m)	3.8	~145.2	10.0	~43.1	118.7	2.4	44.0	64.8	0.0	20.4	65.4	
Queue Length 95th (m)	8.8	#183.4	31.9	#95.9	72.7	3.9	#89.5	94.6	11.3	34.0	#109.7	
Internal Link Dist (m)		289.7			112.0			245.0			297.2	
Turn Bay Length (m)	45.0		30.0	90.0		15.0	100.0			70.0		
Base Capacity (vph)	204	1179	651	258	1548	750	291	480	522	253	372	
Starvation Cap Reductn	0	0	0	0	118	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.18	1.02	0.48	0.97	0.71	0.18	0.97	0.69	0.32	0.57	0.85	

Intersection Summary

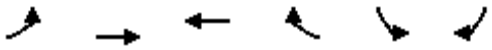
Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 93 (78%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.02
Intersection Signal Delay: 48.0 Intersection LOS: D
Intersection Capacity Utilization 101.6% ICU Level of Service G
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: 10: Aviation Parkway & Montreal Road





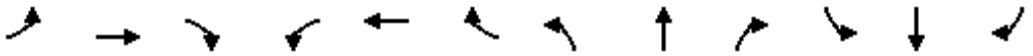
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	100	1394	1268	55	120	100
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	65.0			0.0	60.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	25.0				7.5	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor			1.00		0.99	0.95
Frt			0.994			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1660	3320	3389	0	1629	1457
Flt Permitted	0.141				0.950	
Satd. Flow (perm)	246	3320	3389	0	1607	1387
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			6			103
Link Speed (k/h)		60	60		50	
Link Distance (m)		136.0	129.4		182.7	
Travel Time (s)		8.2	7.8		13.2	
Confl. Peds. (#/hr)	20			20	9	25
Confl. Bikes (#/hr)				15		1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	3%	3%	0%	0%	5%	5%
Adj. Flow (vph)	103	1437	1307	57	124	103
Shared Lane Traffic (%)						
Lane Group Flow (vph)	103	1437	1364	0	124	103
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		7.0	3.6		3.6	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25			15	25	15
Turn Type	pm+pt	NA	NA		Perm	Perm
Protected Phases	5	2	6			
Permitted Phases	2				4	4
Detector Phase	5	2	6		4	4
Switch Phase						
Minimum Initial (s)	5.0	10.0	10.0		10.0	10.0
Minimum Split (s)	10.4	24.0	31.0		30.4	30.4
Total Split (s)	14.0	84.0	70.0		36.0	36.0
Total Split (%)	11.7%	70.0%	58.3%		30.0%	30.0%
Maximum Green (s)	8.6	78.0	64.0		30.6	30.6
Yellow Time (s)	3.7	3.7	3.7		3.3	3.3
All-Red Time (s)	1.7	2.3	2.3		2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.4	6.0	6.0		5.4	5.4
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	C-Max	C-Max		None	None
Walk Time (s)			7.0		7.0	7.0
Flash Dont Walk (s)			18.0		18.0	18.0
Pedestrian Calls (#/hr)			0		0	0
Act Effct Green (s)	94.4	93.8	81.0		14.8	14.8
Actuated g/C Ratio	0.79	0.78	0.68		0.12	0.12
v/c Ratio	0.37	0.55	0.60		0.63	0.39
Control Delay	10.5	3.3	10.2		63.2	13.0
Queue Delay	0.0	0.2	0.1		0.0	0.0
Total Delay	10.5	3.5	10.3		63.2	13.0
LOS	B	A	B		E	B
Approach Delay		3.9	10.3		40.4	
Approach LOS		A	B		D	
Queue Length 50th (m)	1.5	13.6	40.3		26.0	0.0
Queue Length 95th (m)	m2.5	m20.2	137.2		42.1	13.8
Internal Link Dist (m)		112.0	105.4		158.7	
Turn Bay Length (m)	65.0				60.0	
Base Capacity (vph)	297	2594	2288		409	430
Starvation Cap Reductn	0	396	58		0	0
Spillback Cap Reductn	0	0	171		0	4
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.35	0.65	0.64		0.30	0.24

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 88 (73%), Referenced to phase 2:EBTL and 6:WBT, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.63			
Intersection Signal Delay: 9.4		Intersection LOS: A	
Intersection Capacity Utilization 74.2%		ICU Level of Service D	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 20: Montreal Road & Montfort Hospital

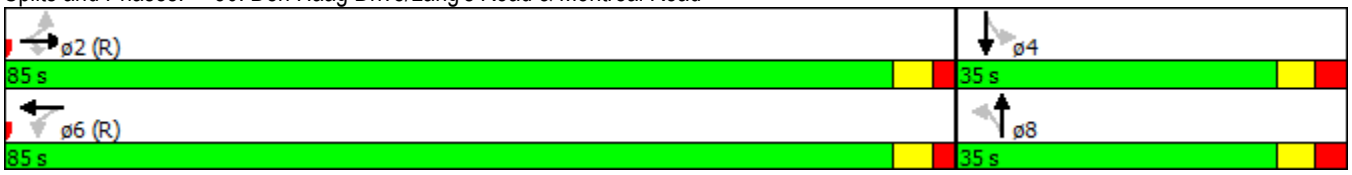


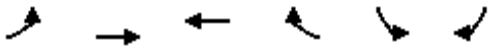
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	35	1354	160	15	1138	10	160	0	115	20	0	25
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	35.0		20.0	35.0		0.0	85.0		0.0	0.0		0.0
Storage Lanes	1		1	1		0	1		0	0		0
Taper Length (m)	35.0			45.0			15.0			7.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.89		1.00		0.98	0.97			0.97	
Frt			0.850		0.999			0.850			0.924	
Flt Protected	0.950			0.950			0.950				0.979	
Satd. Flow (prot)	1676	3353	1500	1660	3316	0	1660	1438	0	0	1598	0
Flt Permitted	0.210			0.158			0.727				0.845	
Satd. Flow (perm)	369	3353	1335	276	3316	0	1246	1438	0	0	1369	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			76		1			60			26	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		129.4			223.0			263.1			160.4	
Travel Time (s)		7.8			13.4			18.9			11.5	
Confl. Peds. (#/hr)	9		26	26		9	14		14	14		14
Confl. Bikes (#/hr)						3						1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	0%	0%	0%
Adj. Flow (vph)	36	1382	163	15	1161	10	163	0	117	20	0	26
Shared Lane Traffic (%)												
Lane Group Flow (vph)	36	1382	163	15	1171	0	163	117	0	0	46	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane					Yes							
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6			8			4		
Detector Phase	2	2	2	6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	23.8	23.8	23.8	23.8	23.8		31.4	31.4		31.4	31.4	
Total Split (s)	85.0	85.0	85.0	85.0	85.0		35.0	35.0		35.0	35.0	
Total Split (%)	70.8%	70.8%	70.8%	70.8%	70.8%		29.2%	29.2%		29.2%	29.2%	
Maximum Green (s)	79.2	79.2	79.2	79.2	79.2		28.6	28.6		28.6	28.6	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.1	2.1	2.1	2.1	2.1		3.1	3.1		3.1	3.1	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	5.8	5.8	5.8	5.8	5.8		6.4	6.4			6.4	
Lead/Lag												
Lead-Lag Optimize?												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	10.0	10.0	10.0	10.0	10.0		18.0	18.0		18.0	18.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	
Act Effct Green (s)	87.1	87.1	87.1	87.1	87.1		20.7	20.7			20.7	
Actuated g/C Ratio	0.73	0.73	0.73	0.73	0.73		0.17	0.17			0.17	
v/c Ratio	0.13	0.57	0.16	0.07	0.49		0.76	0.39			0.18	
Control Delay	3.9	4.0	1.3	6.8	7.2		68.2	24.9			22.6	
Queue Delay	0.0	0.1	0.0	0.0	0.0		0.0	0.0			0.0	
Total Delay	3.9	4.1	1.3	6.8	7.2		68.2	24.9			22.6	
LOS	A	A	A	A	A		E	C			C	
Approach Delay		3.8			7.2			50.1			22.6	
Approach LOS		A			A			D			C	
Queue Length 50th (m)	1.1	29.3	0.6	0.8	45.0		34.0	10.8			3.7	
Queue Length 95th (m)	m3.0	42.9	3.8	m2.5	60.2		51.9	24.7			12.3	
Internal Link Dist (m)		105.4			199.0			239.1			136.4	
Turn Bay Length (m)	35.0		20.0	35.0			85.0					
Base Capacity (vph)	267	2432	989	200	2405		296	388			346	
Starvation Cap Reductn	0	196	0	0	0		0	0			0	
Spillback Cap Reductn	0	0	0	0	94		0	0			0	
Storage Cap Reductn	0	0	0	0	0		0	0			0	
Reduced v/c Ratio	0.13	0.62	0.16	0.07	0.51		0.55	0.30			0.13	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 81 (68%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay: 9.6		Intersection LOS: A	
Intersection Capacity Utilization 67.5%		ICU Level of Service C	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 30: Den Haag Drive/Lang's Road & Montreal Road

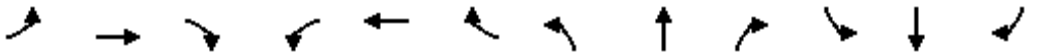




Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	37	1442	1068	24	85	145
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	41	1585	1174	26	93	159
Pedestrians		10	10		10	
Lane Width (m)		3.6	3.6		3.6	
Walking Speed (m/s)		1.2	1.2		1.2	
Percent Blockage		1	1		1	
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (m)		223	201			
pX, platoon unblocked	0.86				0.87	0.86
vC, conflicting volume	1210				2080	620
vC1, stage 1 conf vol					1197	
vC2, stage 2 conf vol					884	
vCu, unblocked vol	918				1225	231
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	94				67	76
cM capacity (veh/h)	641				280	657

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	41	792	792	782	418	253
Volume Left	41	0	0	0	0	93
Volume Right	0	0	0	0	26	159
cSH	641	1700	1700	1700	1700	439
Volume to Capacity	0.06	0.47	0.47	0.46	0.25	0.58
Queue Length 95th (m)	1.4	0.0	0.0	0.0	0.0	24.8
Control Delay (s)	11.0	0.0	0.0	0.0	0.0	23.8
Lane LOS	B					C
Approach Delay (s)	0.3			0.0		23.8
Approach LOS						C

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	63.8%	ICU Level of Service	B
Analysis Period (min)	15		

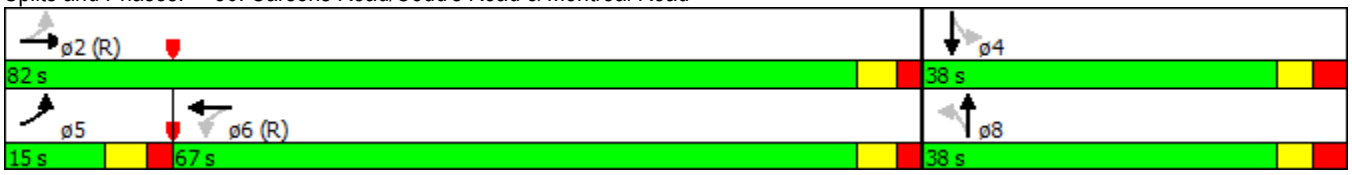


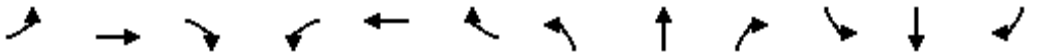
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	25	1397	80	35	952	10	85	5	40	50	5	85
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	100.0		0.0	70.0		0.0	30.0		0.0	30.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	7.5			25.0			30.0			25.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00	1.00		0.94	0.98		0.98	0.92	
Frt		0.992			0.998			0.866			0.858	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1660	3282	0	1644	3279	0	1693	1505	0	1527	1274	0
Flt Permitted	0.223			0.139			0.694			0.726		
Satd. Flow (perm)	390	3282	0	240	3279	0	1162	1505	0	1149	1274	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9			1			40			92	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		201.0			307.2			279.9			115.6	
Travel Time (s)		12.1			18.4			20.2			8.3	
Confl. Peds. (#/hr)	19		17	17		19	56		13	13		56
Confl. Bikes (#/hr)			1			1						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	1%	1%	1%	12%	12%	12%
Adj. Flow (vph)	27	1518	87	38	1035	11	92	5	43	54	5	92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	27	1605	0	38	1046	0	92	48	0	54	97	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane		Yes										
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	5	2		6	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	11.0	29.0		29.0	29.0		35.5	35.5		35.5	35.5	
Total Split (s)	15.0	82.0		67.0	67.0		38.0	38.0		38.0	38.0	
Total Split (%)	12.5%	68.3%		55.8%	55.8%		31.7%	31.7%		31.7%	31.7%	
Maximum Green (s)	9.0	76.0		61.0	61.0		31.5	31.5		31.5	31.5	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.3	2.3		2.3	2.3		3.2	3.2		3.2	3.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.5	6.5		6.5	6.5	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Max		C-Max	C-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		22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)		0		0	0		0	0		0	0	
Act Effct Green (s)	92.3	92.3		84.9	84.9		15.2	15.2		15.2	15.2	
Actuated g/C Ratio	0.77	0.77		0.71	0.71		0.13	0.13		0.13	0.13	
v/c Ratio	0.07	0.64		0.22	0.45		0.63	0.21		0.37	0.40	
Control Delay	3.9	4.4		13.4	9.7		67.1	18.8		53.7	15.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	3.9	4.4		13.4	9.7		67.1	18.8		53.7	15.0	
LOS	A	A		B	A		E	B		D	B	
Approach Delay		4.4			9.9			50.5			28.8	
Approach LOS		A			A			D			C	
Queue Length 50th (m)	0.7	22.7		2.9	52.1		19.3	1.6		10.9	1.0	
Queue Length 95th (m)	m2.3	46.4		10.5	79.7		33.3	11.0		21.4	14.3	
Internal Link Dist (m)		177.0			283.2			255.9			91.6	
Turn Bay Length (m)	100.0			70.0			30.0			30.0		
Base Capacity (vph)	395	2525		170	2319		305	424		301	402	
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	0.07	0.64		0.22	0.45		0.30	0.11		0.18	0.24	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 115 (96%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.64			
Intersection Signal Delay: 9.7		Intersection LOS: A	
Intersection Capacity Utilization 75.9%		ICU Level of Service D	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 50: Carsons Road/Codd's Road & Montreal Road





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	35	1153	300	241	972	130	270	320	159	137	255	50
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	45.0		30.0	100.0		15.0	100.0		0.0	70.0		0.0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (m)	7.5			25.0			40.0			75.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.94			0.94	1.00		0.95	0.98	0.99	
Frt			0.850			0.850			0.850		0.975	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1676	3353	1500	1660	3320	1485	1660	1748	1485	1660	1693	0
Flt Permitted	0.213			0.081			0.188			0.384		
Satd. Flow (perm)	374	3353	1404	142	3320	1392	327	1748	1409	659	1693	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			244			190			186		7	
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		313.7			136.0			269.0			321.2	
Travel Time (s)		18.8			8.2			19.4			23.1	
Confl. Peds. (#/hr)	12		34	34		12	7		25	25		7
Confl. Bikes (#/hr)			16			21			7			16
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	36	1201	312	251	1012	135	281	333	166	143	266	52
Shared Lane Traffic (%)												
Lane Group Flow (vph)	36	1201	312	251	1012	135	281	333	166	143	318	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			7.0			5.0			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane		Yes										
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	10.9	33.8	33.8	10.9	33.8	33.8	10.9	32.2	32.2	10.9	32.0	
Total Split (s)	11.0	49.0	49.0	18.7	56.5	56.5	20.2	38.4	38.4	13.9	32.0	
Total Split (%)	9.2%	40.8%	40.8%	15.6%	47.1%	47.1%	16.8%	32.0%	32.0%	11.6%	26.7%	
Maximum Green (s)	5.1	43.2	43.2	12.8	50.7	50.7	14.3	32.2	32.2	8.0	26.0	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.5	
All-Red Time (s)	2.2	2.1	2.1	2.2	2.1	2.1	2.2	2.5	2.5	2.2	2.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.9	5.8	5.8	5.9	5.8	5.8	5.9	6.2	6.2	5.9	6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	
Walk Time (s)		17.0	17.0		17.0	17.0		7.0	7.0		7.0	
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		19.0	19.0		19.0	
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	
Act Effct Green (s)	48.5	43.2	43.2	63.2	56.7	56.7	45.0	30.8	30.8	32.8	24.7	
Actuated g/C Ratio	0.40	0.36	0.36	0.53	0.47	0.47	0.38	0.26	0.26	0.27	0.21	
v/c Ratio	0.17	1.00	0.47	0.99	0.64	0.18	1.00	0.74	0.33	0.58	0.90	
Control Delay	17.2	63.3	9.5	92.7	22.6	2.1	85.1	51.9	5.3	37.6	73.9	
Queue Delay	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	17.2	63.3	9.5	92.7	22.8	2.1	85.1	51.9	5.3	37.6	73.9	
LOS	B	E	A	F	C	A	F	D	A	D	E	
Approach Delay		51.4			33.4			53.9			62.6	
Approach LOS		D			C			D			E	
Queue Length 50th (m)	3.7	135.6	9.9	~44.1	118.6	2.4	44.5	65.4	0.0	20.6	65.4	
Queue Length 95th (m)	8.6	#180.1	31.5	#96.9	74.4	3.9	#91.6	95.6	11.4	34.4	#109.4	
Internal Link Dist (m)		289.7			112.0			245.0			297.2	
Turn Bay Length (m)	45.0		30.0	100.0		15.0	100.0			70.0		
Base Capacity (vph)	209	1207	661	254	1569	758	281	469	514	246	373	
Starvation Cap Reductn	0	0	0	0	124	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.17	1.00	0.47	0.99	0.70	0.18	1.00	0.71	0.32	0.58	0.85	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 93 (78%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.00
Intersection Signal Delay: 47.1 Intersection LOS: D
Intersection Capacity Utilization 101.6% ICU Level of Service G
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: 10: Aviation Parkway & Montreal Road