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- Environmental Restoration

39 Years

1765 Montreal Road &

9 Beckenham Lane

Transportation Impact Assessment

Proposed Residential Development

1765 Montreal Road & 9 Beckenham Lane

Transportation Impact Assessment

Prepared By:

NOVATECH
Suite 200, 240 Michael Cowpland Drive
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December 2022

Novatech File: 121060
Ref: R-2021-159

NOVATECH
Engineers, Planners & Landscape Architects

December 16, 2022

City of Ottawa
Planning and Growth Management Department
110 Laurier Ave. E. 4th Floor
Ottawa, Ontario K1P 1J1

Attention: **Mr. Mike Giampa**
Senior Transportation Engineer, Infrastructure Applications

Reference: **1765 Montreal Road & 9 Beckenham Lane**
TIA Report
Our File No.: 121060

We are pleased to submit the following Transportation Impact Assessment (TIA) Report in support of Zoning By-law Amendment and Site Plan Control applications for the above noted properties, for your review and signoff. The structure and format of this report is in accordance with the City of Ottawa Transportation Impact Assessment Guidelines (June 2017).

If you have any questions or comments regarding this report, please feel free to contact Brad Byvelds, or the undersigned.

Yours truly,

NOVATECH

Trevor Van Wiechen, M.Eng.
E.I.T. | Transportation

Suite 200, 240 Michael Cowpland Drive, Ottawa ON K2M 1P6 Tel: 613.254.9643 Fax: 613.254.5867 www.novatech-eng.com

TIA Plan Reports

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

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

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

CERTIFICATION

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

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

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Dated at Ottawa (City) this 16 day of December, 2022 .

Name: Brad Byvelds
(Please Print)

Professional Title: P. Eng. - Project Manager

B. Byvelds

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

Office Contact Information (Please Print)	
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EXECUTIVE SUMMARY

This Transportation Impact Assessment (TIA) Report has been prepared in support of Zoning By-law Amendment and Site Plan Control applications for 1765 Montreal Road & 9 Beckenham Lane in Ward 11, Beacon Hill-Cyrville in Ottawa. The subject site has an area of approximately 0.80 hectares (1.98 acres) and is occupied by two single-family residential units.

The subject site is surrounded by the following:

- Cedar Road and existing residential developments to the north;
- Montfort Renaissance and existing residential developments to the east;
- Montreal Road and existing commercial developments to the south;
- Beckenham Lane and existing residential and commercial developments to the west.

The subject site has frontage on Montreal Road and is located in the Outer Urban Transect. Within the study area it has an Evolving Neighbourhood overlay and is classified as a 'Corridor - Mainstreet' within schedule B3 of the City of Ottawa's Official Plan.

The proposed development will replace the two existing single-family residential units with a nine-storey building containing 159 condominium units and 12 townhouse units, for a total of 169 residential units. The development is anticipated to be constructed in a single phase with full occupancy by 2023. The proposed development will be accessed via two driveways, one to Montreal Road and one to Beckenham Lane. The site will include 71 surface parking spaces and an underground parking garage with 123 parking spaces for a total of 194.

Based on the results of the analysis, the main conclusions and recommendations of this report are provided below.

The conclusions and recommendations of this TIA can be summarized as follows:

<u>Forecasting</u>

- The proposed residential development is expected to generate 73 person trips in the AM peak hour (35 vehicle trips) and 74 person trips in the PM peak hour (36 vehicle trips).

<u>Development Design</u>

- Sidewalk connections will be provided between the proposed development and the existing sidewalk along Montreal Road.
- As new sidewalks within the Beckenham Lane and Cedar Road Right-of-Way will not provide system connectivity beyond the subject site, no new municipal sidewalks are proposed along these frontages.
- The transit stops within 400m walking distance of the subject site provide service to Routes 12 and 23.
- Garbage will be stored in the garbage room within the underground parking and will be wheeled up to surface level parking for collection. Fire route access for the 9-storey apartment building is provided along Montreal Road while fire route access for the proposed townhouses is provided along Cedar Road.
- All required TDM-supportive design and infrastructure measures in the TDM checklist are met.

Parking

- Eighty-eight bicycle parking spaces will be provided within the underground parking garage and surface level parking. The proposed bicycle parking will exceed the requirements of the City's ZBL.
- The site will include 71 surface parking spaces and an underground parking garage with 123 parking spaces for a total of 194. The proposed parking for the apartment building will not meet the requirements of the City's *Zoning By-law* (ZBL). As the proposed parking equates to 85% of the ZBL requirements, a further review of spillover parking is not required.

Boundary Street Design

- All boundary streets do not meet the target pedestrian level of service (PLOS);
- Beckenham Lane and Cedar Road meet the target bicycle level of service (BLOS), while Montreal Road does not;
- Montreal Road does not meet the target transit level of service (TLOS);
- Montreal Road meets the target TkLOS. There is no target TkLOS for Beckenham Lane and Cedar Road; and
- The City's planned Montreal-Blair Transit Priority Project is anticipated to provide improved pedestrian and cycling facilities along the sites Montreal Road frontage.

Access Design

- It is requested that the requirements of Section 25(t) of the PABL be waived as the 6% grade towards the road at the Montreal Road access is not anticipated to impact sight lines or create a traffic hazard.
- The proposed Montreal Road access is located 1.8m from the eastern property line and does not meet Section 25(p) of the Private Approach By-law. The proposed driveway location is recommended to maximize the distance to the Beckenham Lane intersection and to facilitate inbound/outbound movements through the existing median break along Montreal Road.
- The proposed accesses will be stop-controlled with free flow on Montreal Road and Beckenham Lane. It is anticipated that the proposed accesses will operate acceptably during both peak hours.
- As Beckenham Lane to the north of the Beckenham Lane/Cedar Road South intersection has an upwards grade and slight horizontal curvature, it is recommended that the City trim vegetation within the Right-of-Way on the west side of the road to improve sight lines for southbound traveling vehicles around the horizontal curve.

Transportation Demand Management

- The proponent has committed to providing the following TDM measures:
    - Display local area maps with walking/cycling access routes and key destinations at major entrances;
    - Display relevant transit schedules and route maps at entrances:
    - Unbundle parking cost from purchase price/monthly rent; and
    - Provide a multimodal travel option information package to new residents.

Neighbourhood Traffic Management

- The proposed development is anticipated to increase traffic along Beckenham Lane by 23-24 vehicles (two-way) during peak hours, equating to one vehicle every 2-3 minutes. As all traffic is anticipated to arrive and depart via Montreal Road, the proposed

development is not anticipated to have a significant impact on traffic volumes within the adjacent community. No traffic calming measures are proposed as part of this development.

Transit

- The proposed development is anticipated to generate 23 transit trips during the AM and PM peak hours. Based on the transit distribution and transit frequency, two new transit trips per bus on Routes 12 and 23 are anticipated. It is anticipated that the proposed development will not have a significant impact on operations at the surrounding bus stops.

Intersection MMLOS

- None of the study area intersections meet the target PLOS.
- None of the study area intersections meet the target BLOS.
- All of the study area intersections meet the target TLOS.
- Montreal Road/Blair Road meets the target TkLOS while Montreal Road/Elwood Street and Montreal Road/Elmsmere Road do not.
- All of the study area intersections meet the target Auto LOS.
- The City's Montreal-Blair Transit Priority Project is anticipated to improve the LOS for all modes along the corridor.

Existing Intersection Operations

- At Montreal Road/Beckenham Lane the southbound approach does not meet the target Auto LOS D during the AM peak hour.
- The maximum (95th percentile) northbound left turn queue at the Montreal Road/Blair Road intersection is approximately 50m, exceeding the existing storage capacity. The maximum queues for all other movements within the study area do not exceed the existing auxiliary lane storage or extend through upstream intersections.

Background Intersection Operations

- At Montreal Road/Beckenham Lane the southbound approach does not meet the target Auto LOS D during the AM peak hour.
- To achieve the target LOS D at Montreal Road/Beckenham Lane, a reduction of four southbound left turning vehicles during 2023 traffic conditions and seven southbound left turning vehicles during 2028 traffic conditions is required. The reduction in southbound left turning vehicles can be achieved by increased use of non-auto modes of transportation, alternative travel times (peak period spreading), and alternative routes of travel.
- The maximum (95th percentile) northbound left turn queue at the Montreal Road/Blair Road intersection is approximately 50m, exceeding the existing storage capacity. The maximum queues for all other movements within the study area do not exceed the existing auxiliary lane storage or extend through upstream intersections.

Total Intersection Operations

- At Montreal Road/Beckenham Lane the southbound approach does not meet the target Auto LOS D during the AM peak hour.
- To achieve the target LOS D at Montreal Road/Beckenham Lane, a reduction of eight southbound left turning vehicles during 2023 traffic conditions and eleven southbound left turning vehicles during 2028 traffic conditions is required. The reduction in southbound left turning vehicles can be achieved by increased use of non-auto modes of transportation, alternative travel times (peak period spreading), and alternative routes of travel.

- The City's Naskapi Drive traffic calming project may result in a reduced number of vehicles cutting through the community to Montreal Road via Beckenham Lane during the AM peak hour. It is recommended that the City monitor traffic at this intersection following implementation of the Naskapi Drive traffic calming measures.
- Should high delays continue at the Montreal Road/Beckenham Lane intersection, southbound left turning vehicles could be detoured to perform a westbound U-turn maneuver at the Montreal Road/Elwood Street intersection.

1.0 SCREENING

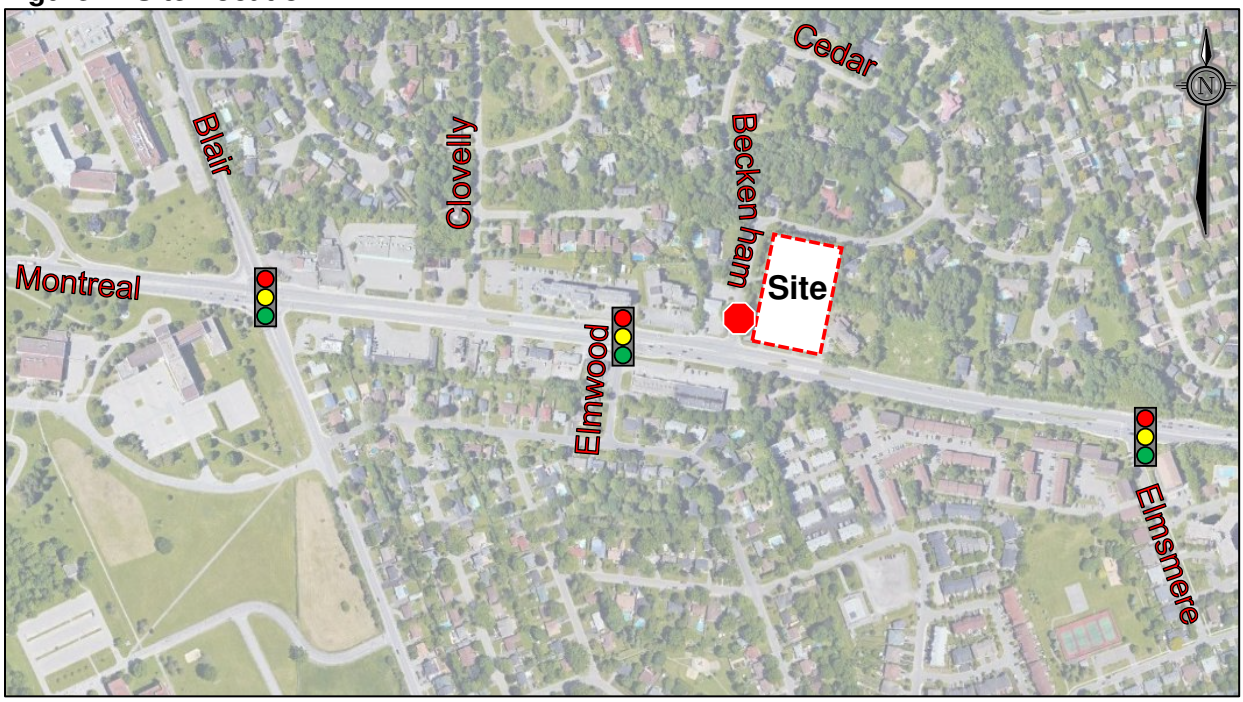
1.1 Introduction

This Transportation Impact Assessment (TIA) Report has been prepared in support of Zoning By-law Amendment and Site Plan Control applications for 1765 Montreal Road & 9 Beckenham Lane in Ward 11, Beacon Hill-Cyrville in Ottawa. The subject site (location shown in **Figure 1**) has an area of approximately 0.80 hectares (1.98 acres) and is occupied by two single-family residential units.

The subject site is surrounded by the following:

- Cedar Road and existing residential developments to the north;
- Montfort Renaissance and existing residential developments to the east;
- Montreal Road and existing commercial developments to the south;
- Beckenham Lane and existing residential and commercial developments to the west.

Figure 1: Site Location



1.2 Proposed Development

The subject site has frontage on Montreal Road and is located in the Outer Urban Transect. Within the study area it has an Evolving Neighbourhood overlay and is classified as a 'Corridor - Mainstreet' within schedule B3 of the City of Ottawa's Official Plan.

The proposed development (See **Appendix A**) will replace the two existing single-family residential units with a nine-storey building containing 159 condominium units and 12 townhouse units, for a total of 169 residential units. The development is anticipated to be constructed in a single phase with full occupancy by 2023. The proposed development will be accessed via two

driveways, one to Montreal Road and one to Beckenham Lane. The site will include 71 surface parking spaces and an underground parking garage with 123 parking spaces for a total of 194.

1.3 Screening Form

The City's 2017 TIA Guidelines identify three triggers for completing a TIA report, including trip generation, location, and safety. The criteria for each trigger are outlined in the City's TIA Screening Form (See **Appendix B**). The trigger results are as follows:

- **Trip Generation Trigger** – The proposed development is anticipated to generate over 60 person trips/peak hour; further assessment **is** required based on this trigger.

- **Location Triggers** – The proposed development is located within the City's 'Design Priority Area'; further assessment **is** required based on this trigger.

- **Safety Triggers** – The proposed development makes use of an existing median break; further assessment **is** required based on this trigger.

2.0 SCOPING

2.1 Existing Conditions

2.1.1 Roadways

All roadways within the study area fall under the jurisdiction of the City of Ottawa.

Montreal Road is an arterial roadway that runs on an east-west alignment between North River Road and Highway 174. Montreal Road continues as St Joseph Boulevard east of Highway 174, and as Rideau Street West of North River Road. Within the study area, Montreal Road has a four-lane divided urban cross-section, sidewalks on both sides, and a posted speed limit of 60 km/h. Montreal Road is classified as a full-load truck route within the study area. On-street parking is not permitted. The City of Ottawa's Official Plan identifies a right-of-way (ROW) protection of 37.5 metres for Montreal Road between St. Laurent Boulevard and Highway 174. Across the site frontage, Montreal Road has a ROW of approximately 33.8m and a widening is required.

Beckenham Lane is a local roadway that runs on a north-south alignment between Montreal Road and Cedar Road. It has a two-lane undivided rural cross-section, and a posted speed limit of 40 km/h. Within the study area, Beckenham Lane is not classified as a truck route. South of Cedar Road (south), on-street parking is prohibited on the east side of the road.

Blair Road generally runs on a north-south alignment between Massey Lane and Innes Road. North of Montreal Road, Blair Road is classified as a major collector road and an arterial road south of Montreal Road. In this area, Blair Road has a two-lane undivided semi-urban cross-section, a sidewalk on the east side of the road, and a posted speed limit of 50 km/h. South of Montreal Road, Blair Road is classified as a truck route.

Elwood Street is a local roadway that runs on a north-south alignment between Montreal Road and Seguin Street. It has a two-lane undivided urban cross-section, no sidewalks on either side of the road, and a posted speed limit of 40 km/h. Elwood Street is not a truck route and prohibits on-street parking on both side of the road.

Elmsmere Road is a local roadway that runs on a north-south alignment between Montreal Road and Elmridge Drive. It has a two-lane undivided urban cross-section, a sidewalk on the west side of the roadway, and a posted speed limit of 40 km/h. Elmsmere Road is not a truck route and parking is permitted on the east side of the road.

Cedar Road is a local roadway that loops off Beckenham Lane. Cedar Road has a two-lane undivided rural cross-section, and an unposted regulatory speed limit of 50 km/h under the Highway Traffic Act. Cedar Road is not a truck route and parking is permitted on both sides of the road.

Rothwell Drive is a local roadway that runs on an east-west alignment between Cedar Road and Whippoorwill Drive. Within the study area, Rothwell Drive typically has a two-lane undivided urban cross-section, no sidewalks on both sides of the roadway, and an unposted regulatory speed limit of 50 km/h under the Highway Traffic Act. Rothwell Drive is not a truck route and permits on-street parking on both sides of the road.

Rothwell Circle is a local roadway that runs on a north-south alignment starting at Rothwell Drive and running south. Rothwell Circle has a two-lane undivided urban cross-section, no sidewalks on both sides of the roadway, and a posted speed limit of 40 km/h. It is not a truck route and permits on-street parking on both sides of the road.

2.1.2 Study Intersections

<u>Montreal Road & Blair Road</u>

- Signalized four-legged intersection
- North/South Approaches (Blair Road): One left-turn lane, one through lane, and one right-turn lane
- East/West Approaches (Montreal Road): One left-turn lane, two through lanes, and one right-turn lane
- Additional Information: Standard pedestrian crossing on all four legs; A pocket bike lane is provided on the north approach; Channelized islands for right turns on the north and west approaches

<u>Montreal Road & Elwood Street</u>

- Signalized four-legged intersection
- North/South Approaches: one left-turn/through/right-turn shared lane
- East/West Approaches: one left-turn lane, one through lane, and one through/right-turn shared lane
- Additional Information: standard pedestrian crossing on east, south and west legs and sidewalk crossing on the north leg

Montreal Road & Beckenham Lane

- Unsignalized four-legged intersection
- North/South Approaches: one left/through/right shared lane
- East/West Approaches: one left-turn lane, one through lane, and one through/right-turn shared lane
- Additional Information: standard pedestrian crossing on the north leg

Montreal Road & Elmsmere Road

- Signalized three-legged intersection
- East Approach: one left-turn lane, two through lanes
- South Approach: one left-turn/through/right-turn shared lane
- West Approach: two through lanes and one right-turn lane
- Additional Information: standard pedestrian crossing on the east, south and west legs; OC Transpo stop with a bus bay on the east leg; west leg has a left turn lane not in use

2.1.3 Driveways

In accordance with the City's 2017 TIA Guidelines, a review of driveways on the boundary streets within 200m of the proposed development is provided as follows:

Montreal Road (North Side)

- One private driveway to residential building at 1695 Montreal Road
- One private driveway to residential building at 1735 Montreal Road
- One commercial driveway to dental clinic at 1743 Montreal Road
- One private driveway to the Montfort Renaissance at 1777 Montreal Road
- One private driveway to residential building at 1815 Montreal Road

Montreal Road (South Side)

- Two commercial driveways to businesses at 1730 Montreal Road
- Two commercial driveway to businesses at 1716 and 1722 Montreal Road
- Two commercial driveway to business at 1770 Montreal Road

Beckenham Lane (East Side)

- One private driveway to residential building at 1 Beckenham Lane

Beckenham Lane (West Side)

- Four private driveways to residential buildings at 4-10 Beckenham Lane
- Two commercial driveways to businesses at 1743 Montreal Road

Cedar Road (North Side)

- Three Private Driveways to residential buildings at 14-22 Cedar Road

Cedar Road (North Side)

- Three Private Driveways to residential buildings at 14-22 Cedar Road

2.1.4 Pedestrian and Cycling Facilities

Concrete and/or unit paver sidewalks are provided on both sides of Montreal Road and the east side of Elmsmere Road and Blair Road between Seguin Street and Nicol Street. Bike lanes or paved shoulders are also provided on Blair Road.

As per the City of Ottawa's primary cycling network, Montreal Road and Blair Road are classified as spine routes. Beckenham Lane, Elwood Street, Elmsmere Road, Cedar Road, Rothwell Drive, and Rothwell Circle do not have any classifications.

2.1.5 Area Traffic Management

The following traffic calming measures have been implemented within the study area:

- 40km/hr MAX markings are provided on Elmsmere Road; and,
- 50km/hr MAX markings are provided on Blair Road.

The City of Ottawa has initiated a Neighbourhood Traffic Calming Study along Naskapi Drive (north of the study area) due to traffic concerns raised by residents. In Spring 2021, the City conducted a survey to gather feedback from the community. The main concerns identified by residents were speeding and school safety. Following the survey, the City developed a conceptual traffic calming plan for Naskapi Drive between Ogilvie Road and Rothwell Drive. In June 2022, the City conducted a second survey to gather feedback on the conceptual design. Following the second survey, the City prepared a final recommended traffic calming plan, which includes:

- three speed humps; and
- a raised pedestrian crosswalk at Naskapi Drive/Marquis Avenue and Naskapi Drive/Rothwell Drive

The recommended Naskapi Drive Traffic Calming Plan is included in **Appendix C**.

2.1.6 Transit

There are several OC transit and bus stops within 400 metres of the subject site. A summary of the closest bus stops and routes along Montreal Road is provided as follows:

Montreal Road:

- Stop #8647 – for Route 12, 23, 616
- Stop #2568 / Stop #2569 / Stop #2570 – for Route 12, 616
- Stop #2571 / Stop #2572 / Stop #2573 / Stop #8648 / Stop #2574– for Route 12, 615, 616

Elwood Street:

- Stop #8644: for Route 23

The locations of these transit stops are shown in **Figure 2**.

Figure 2: Transit Stops within 400m of Study Site

OC Transpo Route #12 travels between St. Laurent Station and Blair Station. The route operates every 15 to 40 minutes from 5:00 a.m. to 1:30 a.m. on weekdays, every 10 to 30 minutes on Saturdays from 5:00 a.m. to 1:00 a.m., and every 15 to 30 minutes from 6:00 a.m. to 12:30 a.m. on Sundays.

Route #23 travels between Rothwell Heights and Blair Station. The route operates every 30 to 120 minutes from 6:30 a.m. to 6:30 p.m. on weekdays. The route does not operate on the weekends.

Route #615 is a school route that runs from Lester B. Pearson High School to Parliament Station.

Route #616 is a school route that runs from Gloucester High School to Parliament Station.

OC Transpo maps for the routes outlined above and a portion of the OC Transpo System Map are included in **Appendix D**.

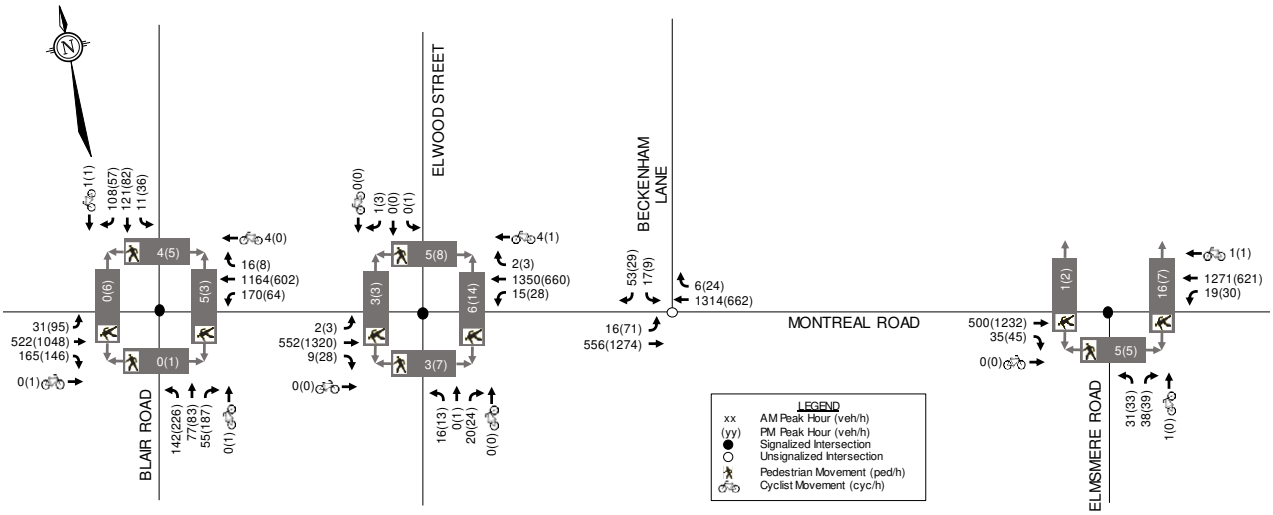
2.1.7 Existing Traffic Volumes

Weekday traffic counts completed by the City of Ottawa were used to determine the existing pedestrian, cyclist and vehicular traffic volumes at the study area intersections. The traffic counts were completed on the following dates:

- Montreal Road & Blair Road 2018-Nov-15
- Montreal Road & Elwood Street 2018-Nov-15
- Beckenham Lane & Cedar Road South 2019-July-25
- Rothwell Circle & Rothwell Drive 2019-July-17
- Montreal Road & Elmsmere Road 2018-Mar-15

The 2019 traffic count completed at the Beckenham Lane/Cedar Road (South) intersection has been used to estimate the traffic volumes at the Montreal Road/Beckenham Lane intersection. It is noted that the City of Ottawa does not have any traffic counts at the Montreal Road and Beckenham Lane intersection. Turning movements at the Montreal Road/Beckenham Lane intersection have been estimated based on the Cedar Road (South) traffic count and existing traffic patterns along Montreal Road. Through traffic along Montreal Road has been estimated based on the Montreal Road/Elwood Street traffic count. Traffic count data is included in **Appendix E**. Traffic volumes within the study area are shown in **Figure 3**.

Figure 3: Existing Traffic Volumes



2.1.8 Collision Records

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

The collision data has been evaluated to determine if there are any identifiable collision patterns. The number of collisions at each intersection from January 1, 2016 to December 31, 2020 is summarized in **Table 1**.

Table 1: Collision History Summary

Intersection/ Roadway Segment	Impact Type					Total
	Angle	Rear-End	Sideswipe	Turning	SMV[(1)]/ Other	
Montreal Rd at Blair Road	4	18	1	9	2	**34**
Montreal Road at Elwood Street	0	2	0	0	1	**3**
Montreal Road at Elmsmere Road	2	4	0	0	1	**7**
Montreal Road at Beckenham Lane	0	0	0	1	2	**3**
Montreal – Blair to Clovelly	1	2	0	0	1	**4**
Montreal – Clovelly to Elwood	1	0	1	0	0	**2**
Montreal – Elwood to Beckenham	0	1	0	0	2	**3**
Montreal – Chimney Hill to Elmsmere	0	0	1	0	1	**2**

Montreal Road & Blair Road
Ten of the thirty-four collisions caused injuries, but none caused fatalities. None of the collisions involved a cyclist or a pedestrian.

Of the thirty-four collisions, twenty-three occurred during clear conditions, eight in rain conditions, two in snow conditions, and one in strong wind. Additionally, of the thirty-four collisions, twenty-four of them occurred during daylight hours.

Of the rear-end collisions:
- two of the vehicles involved were heading northbound;
- twelve of the vehicles were heading eastbound; and,
- four of the vehicles were heading westbound.

As there are clear sight lines on the eastbound approach to the intersection, the rear-end collision pattern on this approach is likely attributable to high traffic volumes.

Of the turning movement collisions:
- five involved westbound left turning vehicles;
- one involved northbound left turning vehicles; and
- three involved eastbound left turning vehicles.

Montreal Road & Elwood Street
One of the three collisions caused injuries, but none caused fatalities. None of the collisions involved a cyclist but one involved a pedestrian.

Montreal Road & Elmsmere Road
Two of the seven collisions caused injuries, but none caused fatalities. None of the collisions involved cyclists or pedestrians.

Montreal Road & Beckenham Lane
One of the three collisions caused injuries, but none caused fatalities. None of the collisions involved a cyclist or a pedestrian.

Montreal Road between Blair Road and Clovelly Road
One of the four collisions caused injuries, but none caused fatalities. None of the collisions involved a cyclist or a pedestrian.

Montreal Road between Clovelly Road and Elwood Street
None of the two collisions caused injuries. None of the collisions involved a cyclist or a pedestrian.

Montreal Road between Elwood Street and Beckenham Lane
Two of the three collisions caused injuries, including one fatal collisions. All injury collisions (including the fatality) were single motor vehicle collisions between an eastbound travelling vehicle and a pedestrian and occurred in the dark. None of the collisions involved cyclists.

Montreal Road between Chimney Hill Road and Elmsmere Road
Neither of the collisions caused an injury and neither involved a cyclist or a pedestrian.

2.2 Planned Conditions

2.2.1 Transportation Projects

The City of Ottawa's 2013 Transportation Master Plan (TMP) does not identify any upcoming roadway projects within the study area in its 2031 Affordable Road Network or Road Network Concept. The 2031 Affordable Rapid Transit and Transit Priority (RTTP) Network identifies Montreal Road as a Transit Priority Corridor with continuous lanes between Cummings Bridge and Blair Road. The RTTP Network Concept continues the Transit Priority Corridor from Blair Road to Ogilvie Road, but is not anticipated to be complete until post 2031. The preliminary preferred design for the Montreal - Blair Transit Priority Corridor within the study area is shown in **Figure 4** and **5**.

There are no planned pedestrian or cycling projects within the study area.

2.2.2 Other Area Developments

In proximity of the proposed development, there are multiple other residential and mixed-use developments under construction, approved, or in the approval process, including:

- 741 Blair Road and 1649 Montreal Road: a proposed development with a 26-storey mixed-use building with a total of 243 residential dwelling units are being proposed with 773 square metres of commercial/retail space at-grade
- 971 Montreal Road: a proposed development to construct a nine-storey residential apartment building, containing 78 units, adjacent surface parking and a one-storey underground parking garage

2.3 Study Area and Time Periods

The study area for this report includes the boundary streets Montreal Road, Beckenham Lane, and Cedar Road, and the following study area intersections at:

- Montreal Road & Blair Road
- Montreal Road & Elwood Street
- Montreal Road & Beckenham Lane
- Montreal Road & Elmsmere Road

Analysis will be completed for the weekday AM and PM peak hours, as they represent the worst-case combination of site generated traffic and adjacent street traffic. The proposed development is expected to be completed with full occupancy by the year 2023. As such, this TIA considers the weekday AM and PM peak periods for the 2023 buildout year and the 2028 horizon year.

Figure 4: Montreal - Blair Transit Priority Corridor (Montreal Road to Elwood Street)

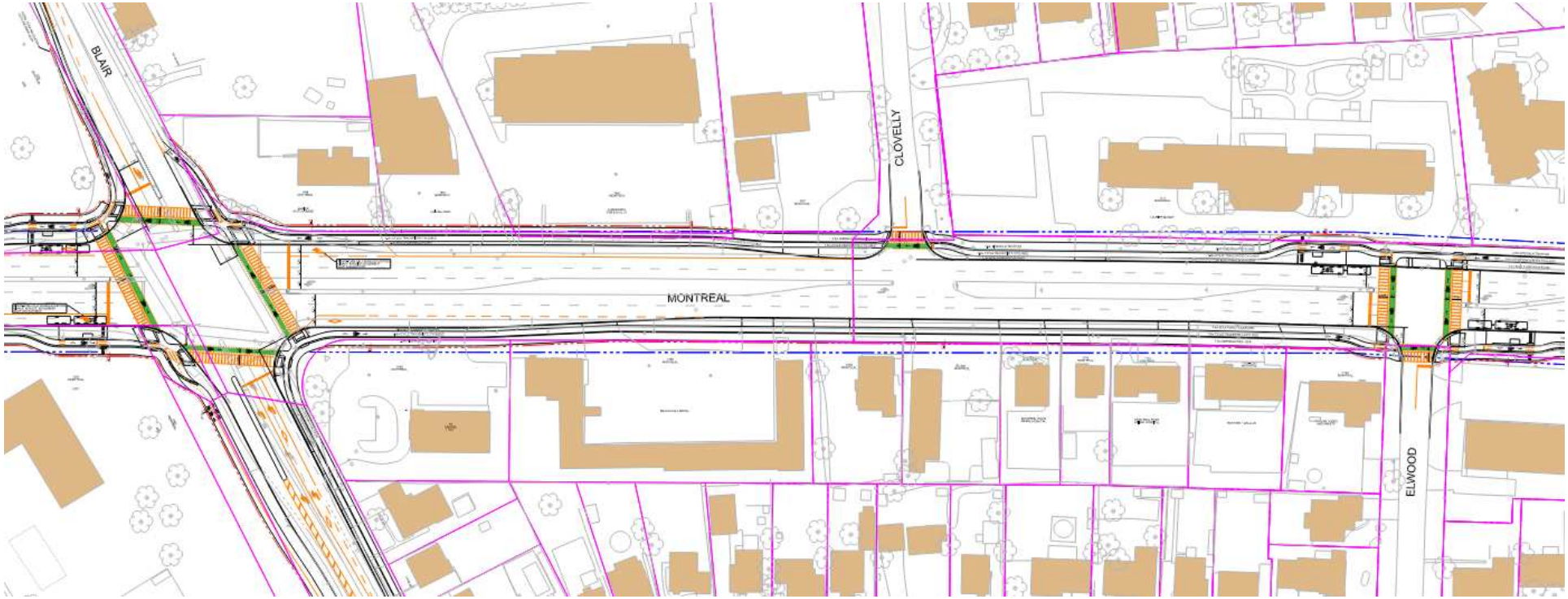
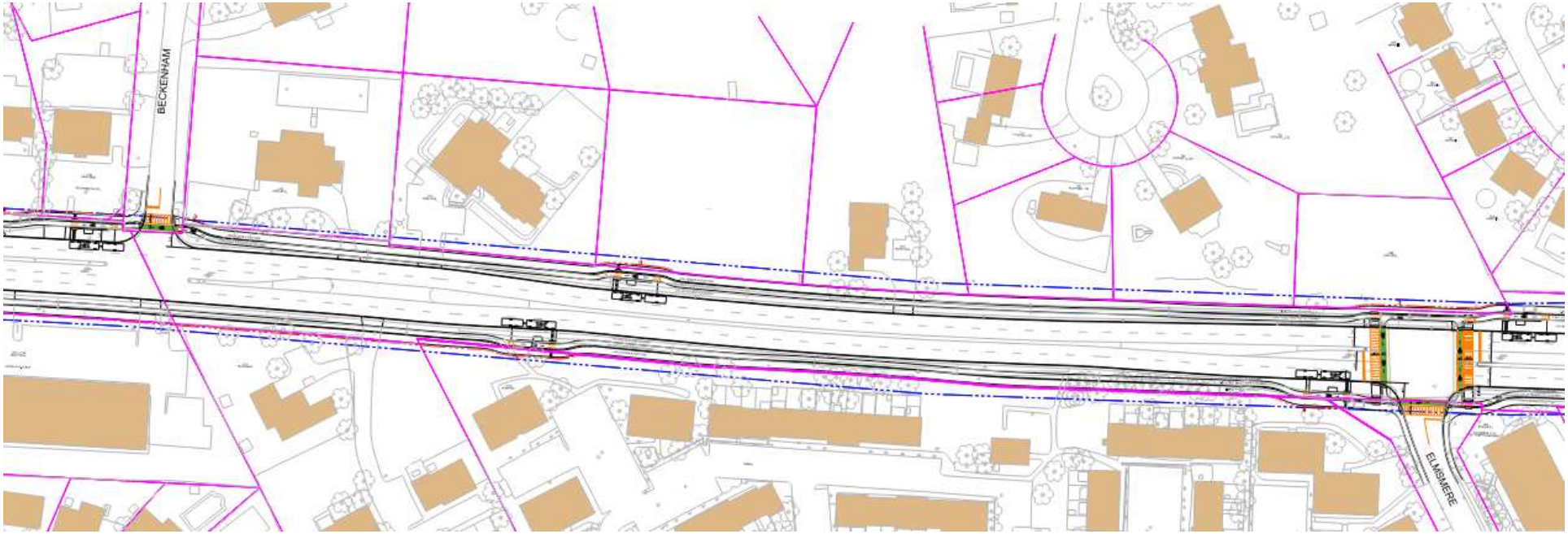


Figure 5: Montreal - Blair Transit Priority Corridor (Beckenham Lane to Elmsmere Road)



2.4 Exemptions Review

This section reviews possible exemptions from the final Transportation Impact Assessment, as outlined in the 2017 TIA Guidelines. The applicable exemptions for the site are shown below in **Table 2**.

Table 2: City of Ottawa Exemptions Review

Module	Element	Exemption Criteria	Exemption Status
Design Review Component			
4.1 Development Design	*4.1.2* Circulation and Access	• Only required for site plans	Not exempt
	4.1.3 New Street Networks	• Only required for plans of subdivision	Exempt
4.2 Parking	*4.2.1* Parking Supply	• Only required for site plans	Not exempt
	4.2.2 Spillover Parking	• Only required for site plans where parking supply is 15% below unconstrained demand	Exempt
Network Impact Component			
4.5 Transportation Demand Management	*All elements*	• Not required for non-residential site plans expected to have fewer than 60 employees and/or students on location at any given time	Not Exempt
4.6 Neighbourhood Traffic Management	*4.6.1* Adjacent Neighbourhoods	• Only required when the development relies on local or collector streets for access and total volumes exceed ATM capacity thresholds	Not Exempt
4.8 Network Concept	*All elements*	• Only required when proposed development generates more than 200 person-trips during the peak hour in excess of the equivalent volume permitted by the established zoning	Exempt

3.0 FORECASTING

3.1 Development-Generated Travel Demand

3.1.1 Trip Generation

Trips Generated from Existing Development

Currently, the subject site is occupied by two single-family residential units and generates negligible traffic volumes during the AM and PM peak hours.

Trips Generated from Proposed Development

The *TRANS Trip Generation Manual Summary Report* (October 2020, WSP), was used to estimate traffic generated by the proposed development. Peak period person trips generated by the proposed development have been estimated based on the Multifamily Housing (Low-Rise and High-Rise) rates presented in Table 3 of the *Trans Trip Generation Manual*. The directional

distribution of the peak period trips is identified in Table 9 of *TRANS Trip Generation Manual*. The peak period person trips generated by the proposed residential development during the weekday AM and PM peak periods are estimated in **Table 3** below.

Table 3: Peak Period Person Trips Generated

Land Use	TRANS Rate per Unit	Units	AM Peak Period (ppp[1])			PM Peak Period (ppp[1])		
			IN	OUT	TOT	IN	OUT	TOT
High-Rise Multifamily Housing	AM: 0.80 PM: 0.90	159	39	88	*127*	83	60	*143*
Low-Rise Multifamily Housing	AM: 1.35 PM: 1.58	12	5	11	*16*	11	8	*19*
TOTAL			**44**	**99**	***143***	**94**	**68**	***162***

1. PPP = Person Trips per Peak Period

Table 8 of *TRANS Trip Generation Manual* includes recommended AM and PM peak hour modal shares for high-rise multifamily housing developments by district. Figure 1 of *TRANS Trip Generation Manual* identifies the subject site as being within the Beacon Hill district and therefore recommends the following modal shares for this high-rise residential development:

- Auto Driver: 48% AM, 52% PM
- Transit: 30% AM, 28% PM
- Pedestrian: 10% AM, 4% PM
- Auto Passenger: 9% AM, 16% PM
- Cyclist: 3% AM, 0% PM

For the purposes of this analysis, the AM and PM peak hour modal shares from the TRANS Trip Generation Manual were averaged and rounded to the nearest 5%. A full breakdown by modal share of the projected peak period person trips generated by the proposed development is included in **Table 4**.

Table 4: Proposed Development - Peak Hour Person Trips by Modal Share

Travel Mode	Modal Share	AM Peak Period (ppp)			PM Peak Period (ppp)		
		IN	OUT	TOT	IN	OUT	TOT
Person Trips		*44*	*99*	*143*	*94*	*68*	*162*
Auto Driver	50%	22	50	72	47	34	81
Auto Passenger	10%	4	10	14	9	7	16
Transit	30%	14	29	43	29	20	49
Cyclist	0%	0	0	0	0	0	0
Pedestrian	10%	4	10	14	9	7	16

Table 4 of *TRANS Trip Generation Manual* includes adjustment factors to convert the estimated peak period person trips to peak hour person trips. A breakdown of the estimated peak hour person trips with site development is shown in **Table 5**.

Table 5: Peak Hour Person Trips Generated

Travel Mode	Peak Hour Factor	AM Peak Hour (pph[1])			PM Peak Hour (pph[1])		
		IN	OUT	TOT	IN	OUT	TOT
Auto Driver	AM: 0.48 PM: 0.44	**11**	**24**	***35***	**21**	**15**	***36***
Auto Passenger	AM: 0.48 PM: 0.44	2	5	*7*	4	3	*7*
Transit	AM: 0.55 PM: 0.47	7	16	*23*	13	10	*23*
Cyclist	AM: 0.58 PM: 0.48	0	0	*0*	0	0	*0*
Pedestrian	AM: 0.58 PM: 0.52	2	6	*8*	5	3	*8*
Total		**22**	**51**	**73**	**43**	**31**	**74**

1. pph: Person Trips per Peak Hour

Based on the previous table, the proposed residential development is expected to generate 73 person trips in the AM peak hour (35 vehicle trips) and 74 person trips in the PM peak hour (36 vehicle trips).

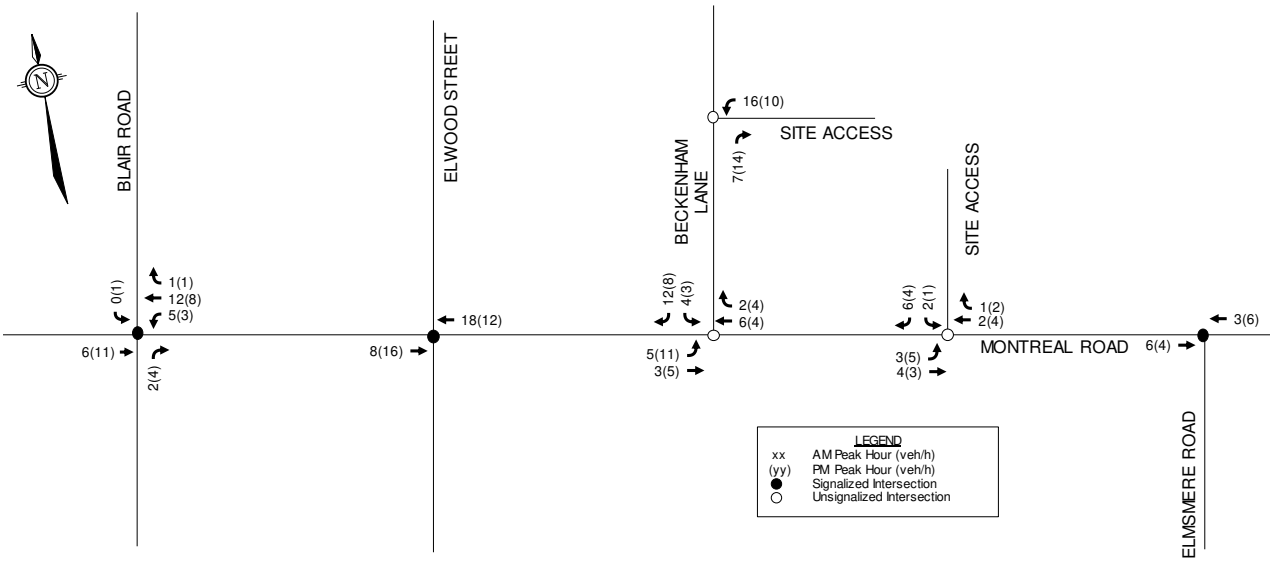
3.1.2 Trip Distribution

The assumed distribution of trips generated by the proposed development has been derived from existing commuter traffic patterns within the study area as well as a review of existing traffic movements exiting the study area during the AM peak hour and entering the study area during the PM peak hour. The anticipated trip distribution is:

- 5% to/from the north on Blair Road
- 20% to/from the south on Blair Road
- 25% to/from the east on Montreal Road
- 50% to/from the west on Montreal Road

The subject site is accessible via proposed accesses on Montreal Road or Beckenham Lane. Based on the relative sizes of parking lots, approximately one third of trips are expected to use the Montreal Road access and the reminder of the site trips will use the Beckenham Lane access. Estimated trips generated by the proposed site are shown in **Figure 6**.

Figure 6: Site Generated Trips



3.2 Background Traffic

3.2.1 Other Area Developments

A description of other study area developments is included in Section 2.2.

A review of the screening form for 971 Montreal Road suggest that the 78-unit apartment building does not meet the City's trip generation trigger and is expected to have a negligible impact on the study area roadways.

A TIA (May 2021) was prepared for the proposed 26-storey mixed-use building at 741 Blair Road & 1649 Montreal Road. Traffic volumes generated by that development have been added to the background traffic at all relevant intersections within the study area for this TIA.

Relevant excerpts from the respective traffic studies for the above developments are included in **Appendix G**.

3.2.2 Background Growth Rate

A rate of background growth for the arterial road network within the study area has been established through a review of the city of Ottawa's Strategic Long-Range Model (comparing snapshots of 2011 and 2031 AM peak hour volumes) and the City of Ottawa's Historic Intersection Traffic Growth Rate figures (comparing traffic growth from 2000 and 2016 AM and PM peak hour volumes). The City's long range model snapshots suggest a growth rate of 1% per year for Montreal Road and Blair Road. This is consistent with the historic intersection traffic growth figures, which suggest traffic at the Montreal Road/Blair Road intersection typically grows between 0.2% and 2% annually.

For the purposes of this report, a 1% per annum growth rate has been applied to traffic along Montreal Road and Blair Road.

3.2.3 Future Traffic Conditions

The figures listed below present the following future traffic conditions:

- Background traffic volumes in 2023 are shown in **Figure 7**;
- Background traffic volumes in 2028 are shown in **Figure 8**;
- Total traffic volumes in 2023 are shown in **Figure 9**; and
- Total traffic volumes in 2028 are shown in **Figure 10**.

Figure 7: 2023 Background Traffic Volumes

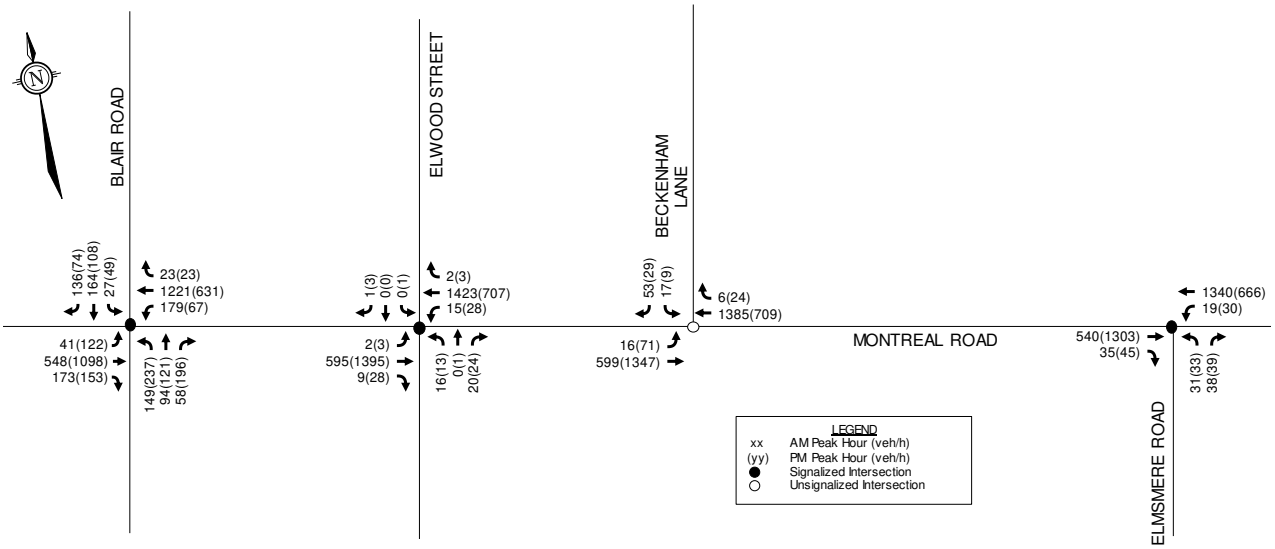


Figure 8: 2028 Background Traffic Volumes

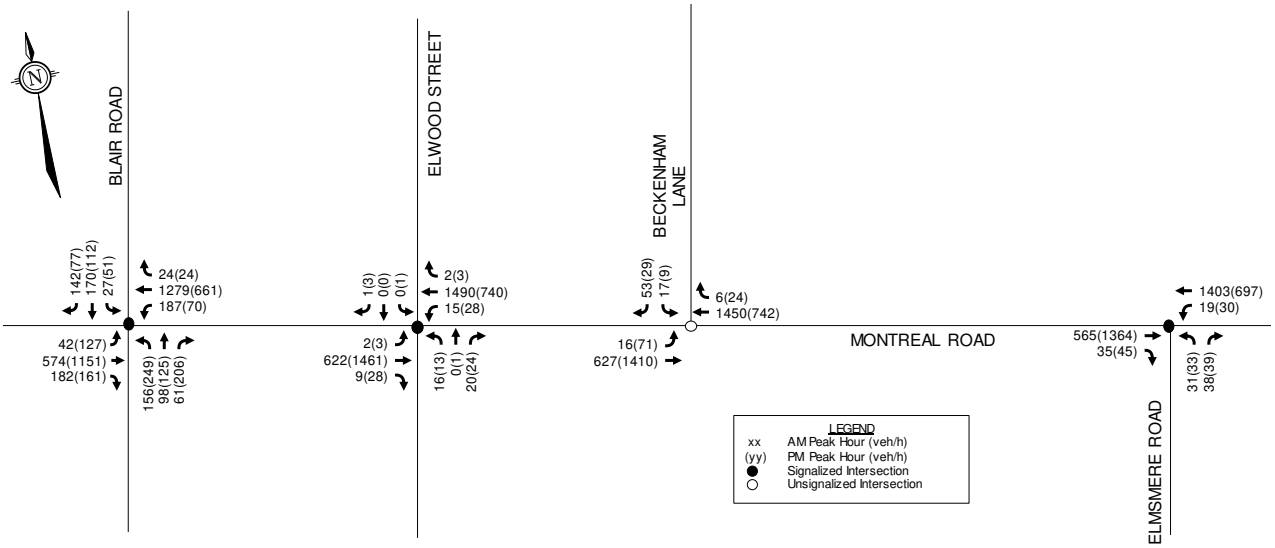


Figure 9: 2023 Total Traffic Volumes

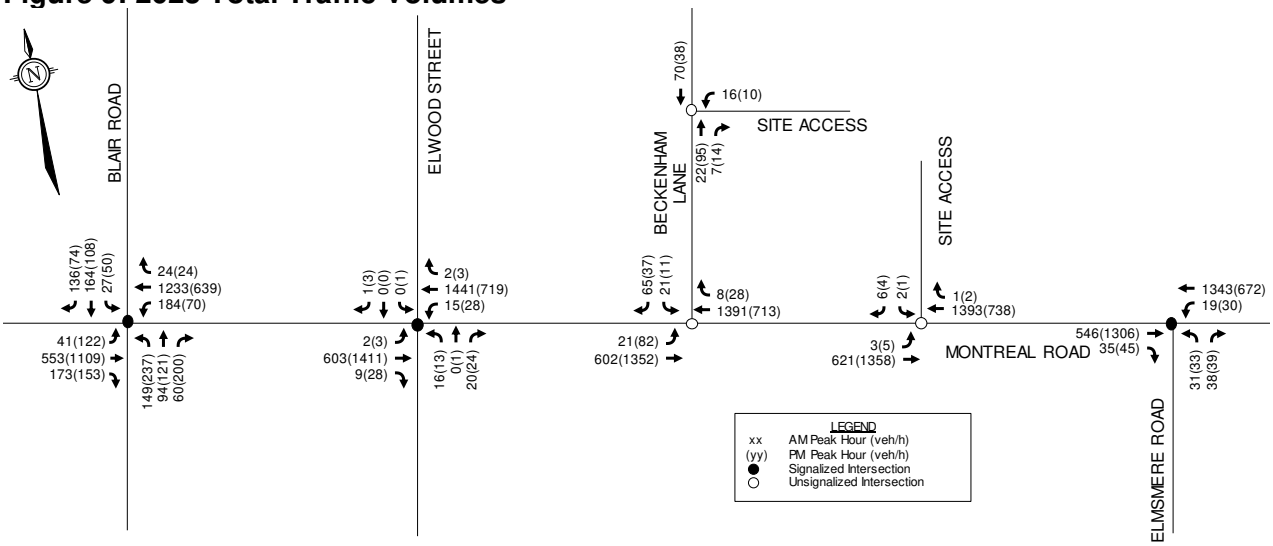
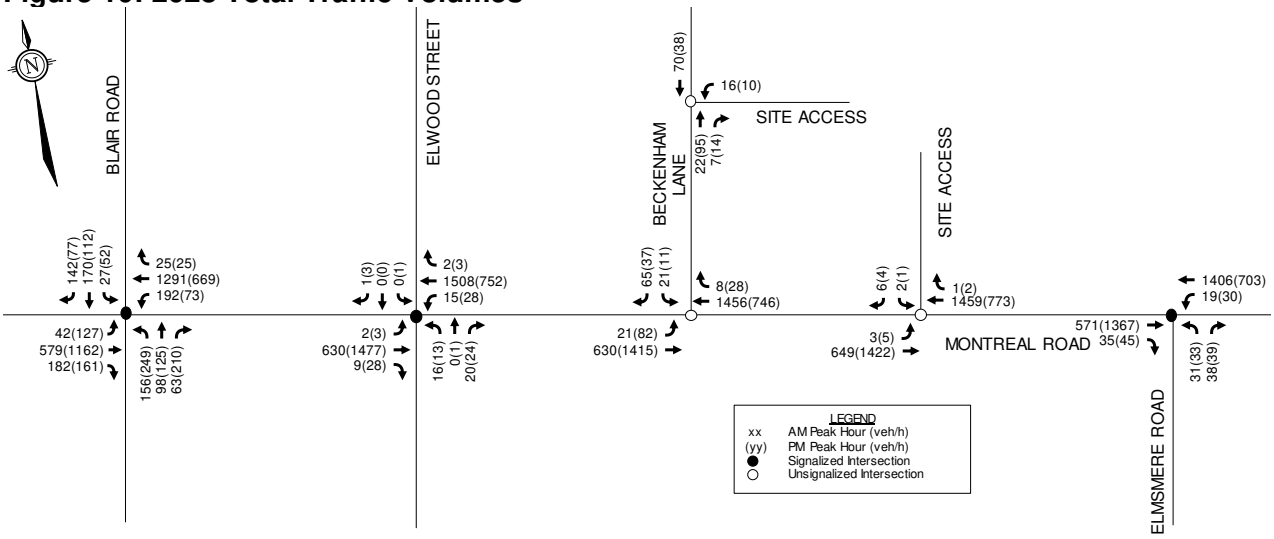


Figure 10: 2028 Total Traffic Volumes



3.3 Demand Rationalization

A review of the existing and background intersection operations has been conducted to determine if and when traffic volumes exceed capacity within the study area. Intersection parameters in the analysis are consistent with the City's TIA guidelines (saturation flow rate: 1800 vphpl, existing conditions PHF: 0.9, future conditions PHF: 1.0).

Per Exhibit 22 of the Multi-Modal Level of Service (MMLOS) Guidelines, the target vehicular level of service (Auto LOS) at all study area intersections is an Auto LOS D, which equates to a vehicle-to-capacity (v/c) ratio of 0.90 at signalized intersections, and a maximum delay of 35 seconds at unsignalized intersections.

Existing signal timing plans obtained from the City of Ottawa are included in **Appendix H**. Detailed *Synchro 10* analysis reports are included in **Appendix I**.

3.3.1 Existing Conditions

Intersection capacity analysis has been completed for the existing traffic volumes (See **Figure 3**) and summarized in **Table 6**.

Table 6: Existing Traffic Operations

Intersection	AM Peak			PM Peak		
	Max v/c or Delay	LOS	Mvmt	Max v/c or Delay	LOS	Mvmt
Montreal Rd & Blair Rd	0.61	B	WBT	0.72	C	NBL
Montreal Rd & Elwood St	0.59	A	WBT	0.60	A	EBT
Montreal Rd & Elmsmere Rd	0.53	A	WBT	0.53	A	EBT
Montreal Rd & Beckenham Ln[1]	**55 sec**	**F**	**SB**	20 sec	C	SB

1. Unsignalized intersection

All study area signalized intersections currently operate at a Vehicle LOS C or better during the AM and PM peak hours. The maximum (95th percentile) northbound left turn queue at the Montreal Road/Blair Road intersection is approximately 50m, exceeding the existing storage capacity. The maximum queues for all other movements within the study area do not exceed the existing auxiliary lane storage or extend through upstream intersections.

During the AM peak hour, the southbound approach on Beckenham Lane at Montreal Road operates with a LOS F and an average delay of 55 seconds. To achieve the target LOS D at this intersection, a reduction of eight southbound left turning vehicles is required. The reduction in southbound left turning vehicles can be achieved by increased use of non-auto modes of transportation, alternative travel times (peak period spreading), and alternative routes of travel. A further description of each option is provided in the subsequent sections.

3.3.2 2023 Background Traffic – Intersection Operations

Intersection capacity analysis has been conducted for the 2023 background traffic volumes (See **Figure 7**). The results of the analysis are summarized in **Table 7** for the weekday AM and PM peak hours.

Table 7: 2023 Future Background Traffic Operations

Intersection	AM Peak			PM Peak		
	Max v/c or Delay	LOS	Mvmt	Max v/c or Delay	LOS	Mvmt
Montreal Rd & Blair Rd	0.59	A	NBL	0.71	C	NBL
Montreal Rd & Elwood St	0.56	A	WBT	0.57	A	EBT
Montreal Rd & Elmsmere Rd	0.51	A	WBT	0.50	A	EBT
Montreal Rd & Beckenham Ln[1]	**41 sec**	**E**	**SB**	18 sec	C	SB

1. Unsignalized intersection

Based on the previous tables, some of the background traffic conditions appear to improve when compared to the existing traffic conditions. This can be attributed to differences in the Peak Hour Factor (set to 0.90 in existing conditions and 1.0 in future conditions, as per the 2017 TIA Guidelines).

All study area signalized intersections in the 2023 background conditions are projected to operate at LOS C or better during the AM and PM peak hours. Consistent with the existing conditions,

the maximum northbound left turn queue at the Montreal Road/Blair Road intersection is approximately 50m, exceeding the existing storage capacity. The maximum queues for all other movements within the study area do not exceed the existing auxiliary lane storage or extend through upstream intersections.

During the AM peak hour, the southbound approach on Beckenham Lane at Montreal Road operates with a LOS E and an average delay of 41 seconds. To achieve the target LOS D at this intersection, a reduction of four southbound left turning vehicles is required. The reduction in southbound left turning vehicles can be achieved by increased use of non-auto modes of transportation, alternative travel times (peak period spreading), and alternative routes of travel. A further description of each option is provided in the subsequent sections.

3.3.3 2028 Background Traffic – Intersection Operations

Intersection capacity analysis has been conducted for the 2028 background traffic volumes (See **Figure 8**). The results of the analysis are summarized in **Table 8** for the weekday AM and PM peak hours.

Table 8: 2028 Future Background Traffic Operations

Intersection	AM Peak			PM Peak		
	Max v/c or Delay	LOS	Mvmt	Max v/c or Delay	LOS	Mvmt
Montreal Rd & Blair Rd	0.61	B	WBT, NBL	0.73	C	NBL
Montreal Rd & Elwood St	0.58	A	WBT	0.60	A	EBT
Montreal Rd & Elmsmere Rd	0.53	A	WBT	0.53	A	EBT
Montreal Rd & Beckenham Ln[1]	**49 sec**	**E**	**SB**	19 sec	C	SB

1. Unsignalized intersection

There is a marginal increase in the v/c ratios and queue lengths at the study signalized intersections during the AM and PM peak hours compared to the 2023 background operations.

During the AM peak hour, the southbound approach on Beckenham Lane at Montreal Road operates with a LOS E and an average delay of 49 seconds. To achieve the target LOS D at this intersection, a reduction of seven southbound left turning vehicles is required. The reduction in southbound left turning vehicles can be achieved by increased use of non-auto modes of transportation, alternative travel times (peak period spreading), and alternative routes of travel. A further description of each option is provided below.

Increased Use of Non-Auto Modes

As described in Section 2.2.1, the City's RTTP Network identifies the implementation of transit lanes along Montreal Road. This project is currently scheduled for post 2031 implementation. Advancement of this project is anticipated to reduce the auto demand along the corridor by increasing transit utilization along Montreal Road.

Alternative Travel Times

As congestion increases within the study area, some motorists may alter their travel to occur outside of the peak hours. This shift in travel times may result in a reduction of peak hour traffic volumes.

Alternative Routes

Based on the 2019 traffic counts conducted at the Beckenham Lane/Cedar Road (South) and Rothwell Circle/Rothwell Drive intersection, approximately 60 vehicles travel southbound/westbound on Rothwell Drive, turn left on Cedar Road, and left on Beckenham Lane during the AM peak hour. Based on the number of residential dwellings on Rothwell Drive north of Rothwell Circle, the high volume of vehicles traveling this route is evidence of cut through traffic between Naskapi Drive and Montreal Road.

As described in Section 2.1.5, the City recently completed a Neighbourhood Traffic Calming Plan for Naskapi Drive. The proposed vertical traffic calming measures along Naskapi Drive are anticipated to increase travel times along the corridor, which may result in a reduced number vehicles cutting through the community to Montreal Road via Beckenham Lane during the AM peak hour. It is recommended that the City monitor traffic at this intersection following implementation of the Naskapi Drive traffic calming measures.

Should high delays continue at this intersection, southbound left turning vehicles could be detoured to perform a westbound U-turn maneuver at the Montreal Road/Elwood Street intersection. Based on the collision history presented in Section 2.1.8, no turning movement collisions were reported at this intersection within the last five years. Based on the above analysis, this intersection has capacity to accommodate the additional U-turn movements.

4.0 ANALYSIS

4.1 Development Design

4.1.1 Design for Sustainable Modes

Sidewalk connections will be provided between the high-rise building entrance and Montreal Road. There will also be paths from the townhome units to the parking lots as well as Montreal Road and Beckenham Lane. As new sidewalks within the Beckenham Lane and Cedar Road Right-of-Way will not provide system connectivity beyond the subject site, no new municipal sidewalks are proposed along these frontages.

Eighty-eight bicycle parking spaces will be provided within the underground parking garage and surface level parking. Further review of the number of bicycle parking spaces is included in Section 4.2: Parking.

OC Transpo guidelines recommend that all developments within the vicinity of a bus route should have at least one bus stop within a walking distance of 400m, roughly a 5-minute walk. All of the transit stops outlined in Section 2.1.6 are within the 400m distance. The stops within 400m walking distance of the subject site provide service to Routes 12 and 23.

A review of the Transportation Demand Management (TDM) – Supportive Development Design and Infrastructure Checklist has been conducted. A copy of the TDM checklist is included in **Appendix J**. All required TDM-supportive design and infrastructure measures in the TDM checklist are met. In addition to the required measures, the proposed development also meets the following 'basic' or 'better' measures as defined on the TDM - Supportive Development Design and Infrastructure Checklist:

- The building will be located near the street and have no parking areas between the street and building entrances

- The location of the building entrances will minimize the walking distance to sidewalks and transit stops/stations
- The location of building doors and windows will ensure visibility of pedestrians from the building
- Walking routes from the development to nearby transit stops will be safe, direct, and attractive
- Walking routes from the development to nearby transit stops will be secure, visible, lighted, shaded, and wind protected whenever possible

4.1.2 Circulation and Access

Garbage will be stored in the garbage room within the underground parking and will be wheeled up to surface level parking for collection. Fire route access for the 9-storey apartment building is provided along Montreal Road while fire route access for the proposed townhouses is provided along Cedar Road.

4.2 Parking

The subject site is located in Area C of Schedule 1 and Schedule 1A of the City of Ottawa's *Zoning By-Law* (ZBL).

Section 101,102, and 111 of the ZBL summarizes the minimum vehicle and bicycle parking space rates for various land uses. The minimum required vehicle and bicycle parking spaces for the proposed development is summarized in **Table 9**.

Table 9: Minimum Required Vehicle Parking Spaces

Land Use	Rate	Units	Required	Provided
Minimum Vehicle Parking				
High Rise	Tenant: 1.2 per dwelling unit	159	191	162
	Visitor: 0.2 per dwelling unit		32	32
Townhouses	Tenant: 1.0 per dwelling unit	12	12	12
	Visitor: None Required		0	
		Total	**235**	**206**
Minimum Bicycle Parking				
Apartment	0.5 per dwelling unit	159	80	88
Townhouses	None Required	12	0	0
		Total	**80**	**88**

The proposed bicycle parking will exceed the requirements of the City's ZBL. The proposed vehicle parking for the townhouses will meet the requirements of the City's ZBL. However, the proposed parking for the apartment building will not meet the requirements of the City's ZBL. As the proposed parking equates to 85% of the ZBL requirements, a further review of spillover parking is not required.

4.3 Boundary Streets

This section provides a review of the boundary streets, Montreal Road, Beckenham Lane, and Cedar Road using complete streets principles. The Multi-Modal Level of Service (MMLOS) guidelines produced by IBI Group in October 2015 have been used to evaluate the LOS of boundary roadways for each mode of transportation.

Each boundary road is located within the General Urban Area (per Schedule B of the City's previous Official Plan, which is referenced by the MMLOS Guidelines). Montreal Road is designated as an arterial mainstreet roadway and Beckenham Lane is classified as a local roadway.

A detailed segment MMLOS review of the boundary streets is located in **Appendix K**. A summary of the segment MMLOS analysis is provided in the table below.

Table 10: Segment MMLOS Summary

Segment	PLOS		BLOS		TLOS		TkLOS	
	Actual	Target	Actual	Target	Actual	Target	Actual	Target
Montreal Road	**F**	C	**F**	C	**E**	D	A	D
Beckenham Lane	**F**	C	B	D	-	-	D	-
Cedar Road	**F**	C	B	D	-	-	D	-

The results of the segment MMLOS analysis can be summarized as follows:

- All boundary streets do not meet the target pedestrian level of service (PLOS);
- Beckenham Lane and Cedar Road meet the target bicycle level of service (BLOS), while Montreal Road does not;
- Montreal Road does not meet the target transit level of service (TLOS); and
- Montreal Road meets the target TkLOS. There is no target TkLOS for Beckenham Lane and Cedar Road.

Pedestrian Level of Service

The target PLOS is not achieved along Montreal Road, Beckenham Lane, and Cedar Road. As described in Section 2.2.1, the City's planned Montreal-Blair Transit Priority Project is anticipated to provide a 2.5m sidewalk with 3.5-4m wide boulevard (including the proposed cycle track) along the site's frontage. The proposed pedestrian facility will provide an improved PLOS along Montreal Road adjacent to the site.

To achieve the target PLOS C along Beckenham Lane and Cedar Road, a 1.8m wide curbside sidewalk is required. This is identified for the City's consideration.

Bicycle Level of Service

Within the study area Montreal Road operates with mixed traffic on a road with an assumed operating speed of 70km/h. As described in Section 2.2.1, the City's planned Montreal-Blair Transit Priority Project is anticipated to provide cycle tracks along Montreal Road. The future cycle tracks will achieve a BLOS A along Montreal Road adjacent to the site.

Transit Level of Service

Within the study area Montreal Road operates with mixed traffic on a road with a medium exposure to driveway friction and potential incidents. As described in Section 2.2.1, the City's planned Montreal-Blair Transit Priority Project is anticipated to provide improved transit facilities along Montreal Road adjacent to the site.

4.4 Access Intersections

4.4.1 Access Design

The proposed development will be served by two full movement accesses, one along Montreal Road and one along Beckenham Lane. The access on Montreal Road leads to an at-grade parking lot with 57 surface parking spaces. The access on Beckenham Lane leads to an at-grade parking lot with 14 surface parking spaces and an underground parking garage with 123 parking spaces. The proposed access on Montreal Road will have a width of approximately 6.0m and will be located at the southeast corner of the property. The proposed access on Beckenham Lane will have a width of approximately 7.0m at the property line (6.7m within the site) and will be located near the northwest corner of the property. The design of each access has been evaluated using the relevant provisions of the City's Private Approach By-law (PABL) and ZBL.

Section 25(a) of the PABL identifies that, for sites with 46-150m of frontage to a given roadway, two two-way private approaches to that roadway are permitted. As one two-way approach is proposed on to each Montreal Road and Beckenham Lane the proposed development meets these requirements.

Section 25(c) of the PABL states that two-way accesses to have a width no greater than 9m, as measured at the street line. Furthermore, the City of Ottawa's ZBL identifies a minimum width of 6.0m and maximum width of 6.7m for a two-way driveway leading to a residential parking garage/lot with more than 20 spaces. The width of the proposed driveway adheres to the requirements of the PABL and ZBL.

Section 25(m)(ii) of the PABL states where a property abuts an arterial roadway and has less than 100 parking spaces, that the distance between the private approach and nearest intersecting street line be 18 metres. This is applicable to the surface parking lot access on Montreal Road. For an access serving 100 to 199 parking spaces, the distance between the private approach and nearest intersecting street line is to be 30m. This is applicable to the Beckenham Lane access. The Montreal Road access is located approximately 60m east of the Beckenham Lane Right-of-Way limit, conforming to PABL requirements. The Beckenham Lane access is located approximately 80m north of the Montreal Road Right-of-Way limit and 27m from the Cedar Road Right-of-Way limit. As the proposed access achieves the PABL requirements to Montreal Road, this is considered appropriate.

Section 25(p) of the PABL identifies a minimum spacing requirement of 3.0m between the nearest limit of a private approach and the property line, as measured at the street line. The proposed Montreal Road access is located approximately 1.8m from the eastern property line. Section 25(r) identifies that despite paragraph (p), a private approach may be constructed in such a manner that it is less than 3 metres from an adjoining property measured at the highway line and at the curb line or edge of the roadway if it is approved through Site Plan Control in accordance with the provision of the Planning Act and the City's Site Plan Control By-law. The proposed driveway location is recommended to maximize the distance to the Beckenham Lane intersection and to facilitate inbound/outbound movements through the existing median break along Montreal Road.

Section 25(u) of the PABL identifies a requirement that any private approach serving a parking area with more than 50 parking spaces shall not have a grade exceeding 2% for the first 9m inside the property line. The Beckenham Lane access adheres to this requirement. A 6% grade towards the road is proposed within the private property at the Montreal Road access. The proposed 6% grade is required to establish sufficient cover between the surface parking lot and the

underground parking garage. Section 25(v) identifies that despite paragraph (u), the General Manager may issue a permit for a private approach subject to such conditions and restrictions as the General Manager may deem necessary provided that the proposed access is located;

- a safe distance from the access serving the adjacent;
- in such a manner that there are adequate sight lines for vehicles exiting the property; and
- in such a manner that it does not create a traffic hazard.

As the 6% grade downgrade is not anticipated to impact sight lines or create a traffic hazard, a waiver to Section 25(t) of the PABL is recommended.

The Transportation Association of Canada (TAC)'s *Geometric Design Guide for Canadian Roads* identifies minimum intersection sight distance (ISD) and stopping sight distance (SSD) requirements, based on the roadway grade and design speed (taken as the speed limit plus 10 km/h). The required ISD and SSD for the two accesses are summarized as follows:

Beckenham Lane:
ISD: 105m to turn left
95m to turn right
SSD: 65m

Montreal Road:
ISD: 150mto turn left
130m to turn right
SSD: 105m

As the access to Montreal Road meets the roadway at a perpendicular angle and no vertical or horizontal curves impact sightlines these requirements are met at this location. As Beckenham Lane to the north of the Beckenham Lane/Cedar Road South intersection has an upwards grade and slight horizontal curvature, it is recommended that the City trim vegetation within the Right-of-Way on the west side of the road to improve sight lines for southbound traveling vehicles around the horizontal curve.

The TAC *Geometric Design Guide for Canadian Roads* identifies minimum clear throat lengths based on road classification and land use. For an Apartment land use with less than 100 units a minimum clear throat length of 15m is required for arterial roads. The requirement is met as roughly 50m is provided at the Montreal Road access. While the proposed apartment building has over 100 units, the requirements for less than 100 units was used as the access to Montreal Road serves approximately one third of the total parking of the proposed development.

4.4.2 Access Operations

Analysis of the access intersection operations has been conducted in Synchro, with the results summarized in **Table 13**. The intersection parameters used in the analysis are consistent with the *2017 TIA Guidelines* (Saturated Flow Rate: 1,800 vphpl, Peak Hour Factor: 1.0 in future conditions).

Table 11: 2023/2028 Access Intersection Operations

Access	AM Peak Hour			PM Peak Hour		
	Delay	LOS	Mvmt	Delay	LOS	Mvmt
2023 Traffic						
Montreal Road	17 sec	B	SBL/R	13 sec	B	SBL/R
Beckenham Lane	9 sec	A	WBL/R	9 sec	A	WBL/R
2028 Traffic						
Montreal Road	17 sec	B	SBL/R	14 sec	B	SBL/R
Beckenham Lane	9 sec	A	WBL/R	9 sec	A	WBL/R

Based on the foregoing, the proposed accesses to Montreal Road and Beckenham Lane are anticipated to operate with an acceptable vehicular level of service for the buildout year 2023 and horizon year 2028.

Based on the traffic projections presented in **Figure 6**, a total of three and five vehicles are anticipated to perform the eastbound left turn movement at the Montreal Road access during the AM and PM peak hours, respectively. Based on the Ministry of Transportation of Ontario (MTO) left turn storage lane warrants for four-lane divided roadways, a left turn lane is not required at this access. MTO left turn lane warrants are included in **Appendix L.**

4.5 Transportation Demand Management

4.5.1 Context for TDM

The proposed development consists of a total of 172 residential units. The residential unit breakdown is provided as follows:

- 159 Dwelling Units in the High-Rise Building:
- 12 Dwelling Units in the Townhomes

4.5.2 Need and Opportunity

As first discussed in Section 3.1.1, the mode share targets for the proposed development are assumed to be generally consistent with the observed mode shares for the Beacon Hill region, as outlined in the *TRANS Trip Generation Manual*. These target shares include a 50% driver share.

Failure to meet the already observed driver shares for the Beacon Hill region are not anticipated, due to the proximity of the subject site to nearby frequent transit service and the reduced number of on-site parking spaces. Failure to meet the proposed mode share targets are anticipated to marginally increase congestion within the study area.

4.5.3 TDM Program

A review of the Transportation Demand Management (TDM) – Measures Checklist has been conducted by the proponent, who has committed to providing the following TDM measures within this development:

- Display local area maps with walking/cycling access routes and key destinations at major entrances;
- Display relevant transit schedules and route maps at entrances:
- Unbundle parking cost from purchase price/monthly rent;

- Provide a multimodal travel option information package to new residents.

A copy of the TDM checklist is included in **Appendix J**.

4.6 Neighbourhood Traffic Management

The *2017 TIA Guidelines* identify two-way peak hour traffic volume thresholds for considering when a Neighbourhood Traffic Management (NTM) plan should be developed. The NTM two-way volume thresholds are as follows:

- Local Roadways: 120 vehicles during the peak hour, or 1,000 vehicles per day;
- Collector Roadways: 300 vehicles during the peak hour, or 2,500 vehicles per day;
- Major Collector Roadways: 600 vehicles during the peak hour, or 5,000 vehicles per day.

The proposed development will rely on the local road Beckenham Lane for direct access. Based on the 2028 background traffic projections presented in **Figure 8**, traffic along Beckenham Lane is expected to exceed the above NTM thresholds.

As previously mentioned in Section 2.1.5, a Neighbourhood Traffic Calming Study along Naskapi Drive was completed due to traffic concerns raised by residents. It is assumed that vehicles using Beckenham Lane as a shortcutting route from the north is causing projected volumes to exceed those of a typical local road. It is recommended that the City monitor traffic volumes within this community following the implementation of the Naskapi Drive traffic calming measures.

The proposed development is anticipated to increase traffic along Beckenham Lane by 23-24 vehicles (two-way) during peak hours, equating to one vehicle every 2-3 minutes. As all traffic is anticipated to arrive and depart via Montreal Road, the proposed development is not anticipated to have a significant impact on traffic volumes within the adjacent community. No traffic calming measures are proposed as part of this development.

4.7 Transit

Based on the trip generation estimates presented in Section 3.1.1, the proposed development is anticipated to generate the following number of transit trips:

- AM Peak Hour: 23 transit trips, including 16 boarding and 7 alighting;
- PM Peak Hour: 23 transit trips, including 10 boarding and 13 alighting.

The distribution of transit trips to/from the development has been estimated using the same trip distribution assumptions outlined in Section 3.1.2, which are summarized as follows:

- 5% to/from the north via Blair Road;
- 20% to/from the south via Blair Road;
- 50% to/from the east via Montreal Road;
- 25% to/from the west via Montreal Road.

Projected boarding and alighting information are summarized in **Table 12**.

Table 12: Existing and Projected Transit Utilization

Stop	Location	Route (Direction)		Boarding (tph)[(1)]	Alighting (tph)[(1)]
AM Peak Hour					
#2572 and #2573	North side of Montreal Road	12	WB	8	4
#2569 and #2570	South side of Montreal Road	12	EB	4	2
#8644	Elwood Street	23	SB	4	2
PM Peak Hour					
#2572 and #2573	North side of Montreal Road	12	WB	5	6
#2569 and #2570	South side of Montreal Road	12	EB	2	3
#1386	Elwood Street	23	SB	3	4

During the peak hours Route 12 operates with 15-minute headways and Route 23 operates with 30-minute headways. Based on the above transit distribution, two new transit trips per bus on Route 12 and 23 are anticipated. The projected increase in transit trip volumes due to the proposed redevelopment is not anticipated to result in capacity problems on any of the adjacent bus routes, or at any of the adjacent bus stops. No recommendations have been made to mitigate the increase of transit ridership, as none are required.

4.8 Intersection Design

4.8.1 Intersection MMLOS Review

This section provides a review of the study area intersections using complete streets principles. The MMLOS guidelines produced by IBI Group in October 2015 were used to evaluate the multi-modal levels of service for each signalized intersection within the study area. All roadways have been evaluated based on the targets for Arterial Main Streets.

The full intersection MMLOS analysis is included in **Appendix K**. A summary of the results is shown in **Table 13**.

Table 13: Intersection MMLOS Summary

Intersection	PLOS		BLOS		TLOS		TkLOS		AutoLOS	
	Actual	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target
Montreal Road & Blair Road	**F**	C	**F**	C	C	D	C	D	C	D
Montreal Road & Elwood Street	**F**	C	**F**	C	B	D	**F**	D	A	D
Montreal Road & Elmsmere Road	**F**	C	**F**	C	B	D	**F**	D	A	D

The results of the intersection MMLOS analysis can be summarized as follows:

- None of the study area intersections meet the target PLOS;
- None of the study area intersections meet the target BLOS;
- All of the study area intersections meet the target TLOS;
- Montreal Road/Blair Road meets the target TkLOS while Montreal Road/Elwood Street and Montreal Road/Elmsmere Road do not; and
- All intersections meet the target AutoLOS.

Montreal Road/Blair Road
The intersection does not meet the target PLOS C or BLOS C.

There is limited opportunity to improve the PLOS and BLOS at this intersection without reducing the number of lanes crossed and providing a designated cycling facility on all approaches.

No mitigation measures are proposed as part of the proposed development, as the City's planned Montreal-Blair Transit Priority Project is anticipated to provide improved pedestrian and cycling facilities along the Montreal Road corridor. This project will provide the following improvements to this intersection:

- reduced pedestrian crossing distance on all approaches;
- removal of the eastbound and southbound right turn channelization islands;
- ladder striped crosswalks on all approaches;
- two stage left-turn cyclist movements on all approaches (protected intersection); and
- east-west transit queue jump lanes.

Montreal Road/Elwood Street
The intersection does not meet the target PLOS C, BLOS C, or TkLOS.

There is limited opportunity to improve the PLOS and BLOS at this intersection without reducing the number of lanes crossed and providing a designated cycling facility on all approaches. The northbound and southbound right turn movements meet the target TkLOS but the eastbound and westbound right turn movements do not. As the north and south legs of the intersection do not form part of the City's truck routes, the eastbound and westbound right turn movements are considered acceptable.

No mitigation measures are proposed as part of the proposed development, as the City's planned Montreal-Blair Transit Priority Project is anticipated to provide improved pedestrian and cycling facilities along the Montreal Road corridor. This project will provide the following improvements to this intersection:

- reduced pedestrian crossing distance on all approaches;
- ladder striped crosswalks on all approaches; and
- two stage left-turn cyclist movements on all approaches (protected intersection).

Montreal Road/Elmsmere Road
The intersection does not meet the target PLOS C, BLOS C, or TkLOS.

There is limited opportunity to improve the PLOS and BLOS at this intersection without reducing the number of lanes crossed and providing a designated cycling facility on all approaches. The northbound right turn movement meets the target TkLOS but the eastbound right turn movement does not. As the south leg of the intersection does not form part of the City's truck routes, the eastbound right turn movement is considered acceptable.

No mitigation measures are proposed as part of the proposed development, as the City's planned Montreal-Blair Transit Priority Project is anticipated to provide improved pedestrian and cycling facilities along the Montreal Road corridor. This project will provide the following improvements to this intersection:

- reduced pedestrian crossing distance on all approaches;
- ladder striped crosswalks on all approaches; and
- two stage left-turn cyclist movements on all approaches (protected intersection).

4.8.2 2023 Total Intersection Operations

Intersection capacity analysis has been conducted for the 2023 total traffic conditions. The results of the analysis are summarized in **Table 14** for the weekday AM and PM peak hours. Detailed reports are included in **Appendix I**.

Table 14: 2023 Total Traffic Operations

Intersection	AM Peak			PM Peak		
	Max v/c or Delay	LOS	Mvmt	Max v/c or Delay	LOS	Mvmt
Montreal Rd & Blair Rd	0.59	A	NBL	0.71	C	NBL
Montreal Rd & Elwood St	0.56	A	WBT/R	0.58	A	EBT/R
Montreal Rd & Elmsmere Rd	0.51	A	WBT	0.50	A	EBT
Montreal Rd & Beckenham Ln	**50 sec.**	**F**	**SB**	19 sec.	C	SB

Compared to the 2023 background traffic conditions, site-generated traffic is anticipated to have marginal impacts on traffic operations within the study area.

During the AM peak hour, the southbound approach on Beckenham Lane at Montreal Road operates with a LOS F and an average delay of 50 seconds. To achieve the target LOS D at this intersection, a reduction of eight southbound left turning vehicles is required. The reduction in southbound left turning vehicles can be achieved by increased use of non-auto modes of transportation, alternative travel times (peak period spreading), and alternative routes of travel, as described in Section 3.3.3.

4.8.3 2028 Total Intersection Operations

Intersection capacity analysis has been conducted for the 2028 total traffic conditions. The results of the analysis are summarized in **Table 15** for the weekday AM and PM peak hours. Detailed reports are included in **Appendix I**.

Table 15: 2028 Total Traffic Operations

Intersection	AM Peak			PM Peak		
	Max v/c or Delay	LOS	Mvmt	Max v/c or Delay	LOS	Mvmt
Montreal Rd & Blair Rd	0.61	B	WBT/NBL	0.73	B	NBL
Montreal Rd & Elwood St	0.59	A	WBT/R	0.60	A	EBT/R
Montreal Rd & Elmsmere Rd	0.53	A	WBT	0.53	A	EBT
Montreal Rd & Beckenham Ln	**62 sec.**	**F**	**SB**	20 sec.	C	SB

Compared to the 2029 background traffic conditions, site-generated traffic is anticipated to have marginal impacts on traffic operations within the study area.

During the AM peak hour, the southbound approach on Beckenham Lane at Montreal Road operates with a LOS F and an average delay of 62 seconds. Based on the 2028 total traffic volumes, traffic signals are anticipated to be 16% warranted. To achieve the target LOS D at this

intersection, a reduction of eleven southbound left turning vehicles is required. The reduction in southbound left turning vehicles can be achieved by increased use of non-auto modes of transportation, alternative travel times (peak period spreading), and alternative routes of travel, as described in Section 3.3.3. Traffic signal warrants are included in **Appendix M**.

As traffic signal warrants are not met and since the City's Naskapi Drive traffic calming project is anticipated to reduce traffic along Beckenham Lane during the AM peak hour, no mitigation measures are identified as part of this development.

Should high delays continue at this intersection, southbound left turning vehicles could be detoured to perform a westbound U-turn maneuver at the Montreal Road/Elwood Street intersection. Based on the collision history presented in Section 2.1.8, no turning movement collisions were reported at this intersection within the last five years. Based on the above analysis, this intersection has capacity to accommodate the additional U-turn movements.

5.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the foregoing, the conclusions and recommendations of this TIA can be summarized as follows:

Forecasting

- The proposed residential development is expected to generate 73 person trips in the AM peak hour (35 vehicle trips) and 74 person trips in the PM peak hour (36 vehicle trips).

Development Design

- Sidewalk connections will be provided between the proposed development and the existing sidewalk along Montreal Road.
- As new sidewalks within the Beckenham Lane and Cedar Road Right-of-Way will not provide system connectivity beyond the subject site, no new municipal sidewalks are proposed along these frontages.
- The transit stops within 400m walking distance of the subject site provide service to Routes 12 and 23.
- Garbage will be stored in the garbage room within the underground parking and will be wheeled up to surface level parking for collection. Fire route access for the 9-storey apartment building is provided along Montreal Road while fire route access for the proposed townhouses is provided along Cedar Road.
- All required TDM-supportive design and infrastructure measures in the TDM checklist are met.

Parking

- Eighty-eight bicycle parking spaces will be provided within the underground parking garage and surface level parking. The proposed bicycle parking will exceed the requirements of the City's ZBL.
- The site will include 71 surface parking spaces and an underground parking garage with 123 parking spaces for a total of 194. The proposed parking for the apartment building will not meet the requirements of the City's *Zoning By-law* (ZBL). As the proposed parking equates to 85% of the ZBL requirements, a further review of spillover parking is not required.

Boundary Street Design

- All boundary streets do not meet the target pedestrian level of service (PLOS);
- Beckenham Lane and Cedar Road meet the target bicycle level of service (BLOS), while Montreal Road does not;
- Montreal Road does not meet the target transit level of service (TLOS);
- Montreal Road meets the target TkLOS. There is no target TkLOS for Beckenham Lane and Cedar Road; and
- The City's planned Montreal-Blair Transit Priority Project is anticipated to provide improved pedestrian and cycling facilities along the sites Montreal Road frontage.

Access Design

- It is requested that the requirements of Section 25(t) of the PABL be waived as the 6% grade towards the road at the Montreal Road access is not anticipated to impact sight lines or create a traffic hazard.
- The proposed Montreal Road access is located 1.8m from the eastern property line and does not meet Section 25(p) of the Private Approach By-law. The proposed driveway location is recommended to maximize the distance to the Beckenham Lane intersection and to facilitate inbound/outbound movements through the existing median break along Montreal Road.
- The proposed accesses will be stop-controlled with free flow on Montreal Road and Beckenham Lane. It is anticipated that the proposed accesses will operate acceptably during both peak hours.
- As Beckenham Lane to the north of the Beckenham Lane/Cedar Road South intersection has an upwards grade and slight horizontal curvature, it is recommended that the City trim vegetation within the Right-of-Way on the west side of the road to improve sight lines for southbound traveling vehicles around the horizontal curve.

Transportation Demand Management

- The proponent has committed to providing the following TDM measures:
    - Display local area maps with walking/cycling access routes and key destinations at major entrances;
    - Display relevant transit schedules and route maps at entrances:
    - Unbundle parking cost from purchase price/monthly rent; and
    - Provide a multimodal travel option information package to new residents.

Neighbourhood Traffic Management

- The proposed development is anticipated to increase traffic along Beckenham Lane by 23-24 vehicles (two-way) during peak hours, equating to one vehicle every 2-3 minutes. As all traffic is anticipated to arrive and depart via Montreal Road, the proposed development is not anticipated to have a significant impact on traffic volumes within the adjacent community. No traffic calming measures are proposed as part of this development.

Transit

- The proposed development is anticipated to generate 23 transit trips during the AM and PM peak hours. Based on the transit distribution and transit frequency, two new transit trips per bus on Routes 12 and 23 are anticipated. It is anticipated that the proposed development will not have a significant impact on operations at the surrounding bus stops.

Intersection MMLOS

- None of the study area intersections meet the target PLOS.
- None of the study area intersections meet the target BLOS.
- All of the study area intersections meet the target TLOS.
- Montreal Road/Blair Road meets the target TkLOS while Montreal Road/Elwood Street and Montreal Road/Elmsmere Road do not.
- All of the study area intersections meet the target Auto LOS.
- The City's Montreal-Blair Transit Priority Project is anticipated to improve the LOS for all modes along the corridor.

Existing Intersection Operations

- At Montreal Road/Beckenham Lane the southbound approach does not meet the target Auto LOS D during the AM peak hour.
- The maximum (95th percentile) northbound left turn queue at the Montreal Road/Blair Road intersection is approximately 50m, exceeding the existing storage capacity. The maximum queues for all other movements within the study area do not exceed the existing auxiliary lane storage or extend through upstream intersections.

Background Intersection Operations

- At Montreal Road/Beckenham Lane the southbound approach does not meet the target Auto LOS D during the AM peak hour.
- To achieve the target LOS D at Montreal Road/Beckenham Lane, a reduction of four southbound left turning vehicles during 2023 traffic conditions and seven southbound left turning vehicles during 2028 traffic conditions is required. The reduction in southbound left turning vehicles can be achieved by increased use of non-auto modes of transportation, alternative travel times (peak period spreading), and alternative routes of travel.
- The maximum (95th percentile) northbound left turn queue at the Montreal Road/Blair Road intersection is approximately 50m, exceeding the existing storage capacity. The maximum queues for all other movements within the study area do not exceed the existing auxiliary lane storage or extend through upstream intersections.

Total Intersection Operations

- At Montreal Road/Beckenham Lane the southbound approach does not meet the target Auto LOS D during the AM peak hour.
- To achieve the target LOS D at Montreal Road/Beckenham Lane, a reduction of eight southbound left turning vehicles during 2023 traffic conditions and eleven southbound left turning vehicles during 2028 traffic conditions is required. The reduction in southbound left turning vehicles can be achieved by increased use of non-auto modes of transportation, alternative travel times (peak period spreading), and alternative routes of travel.
- The City's Naskapi Drive traffic calming project may result in a reduced number of vehicles cutting through the community to Montreal Road via Beckenham Lane during the AM peak hour. It is recommended that the City monitor traffic at this intersection following implementation of the Naskapi Drive traffic calming measures.
- Should high delays continue at the Montreal Road/Beckenham Lane intersection, southbound left turning vehicles could be detoured to perform a westbound U-turn maneuver at the Montreal Road/Elwood Street intersection.

Based on the foregoing, the proposed development is recommended from transportation perspective.

NOVATECH

Prepared by:

Trevor Van Wiechen, M.Eng.
E.I.T. | Transportation

Reviewed by:

Brad Byvelds, P.Eng.
Project Manager | Transportation

APPENDIX A

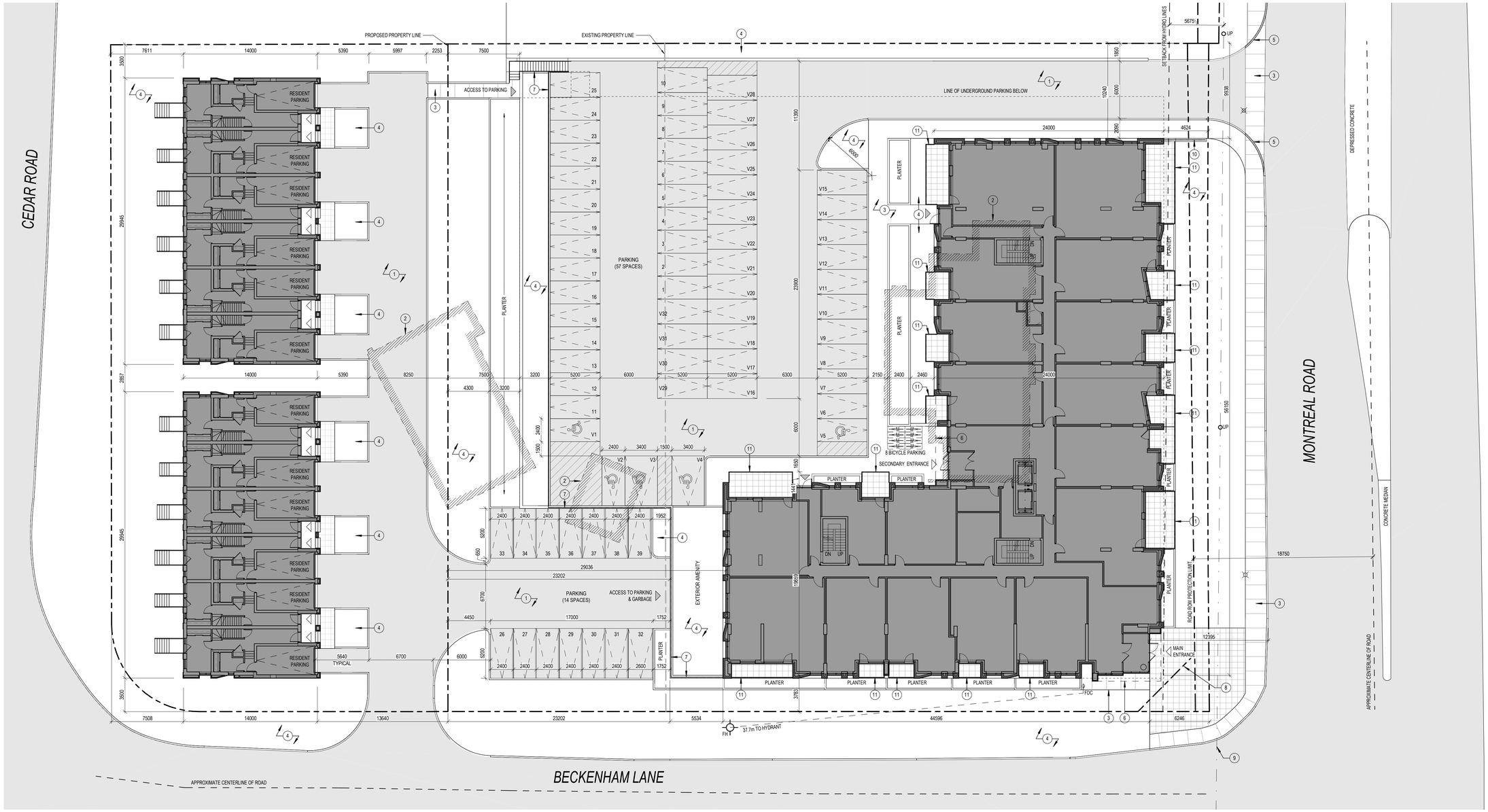
Preliminary Site Plan

SITE PLAN NOTES

1. ASPHALT
2. EXISTING STRUCTURE TO BE DEMOLISHED
3. CONCRETE SIDEWALK
4. SOFT LANDSCAPING
5. DEPRESSED CURB
6. LINE OF CANOPY ABOVE
7. STEEL GUARD
8. 6m CORNER SIGHT TRIANGLE
9. EXISTING OVERHEAD WIRES
10. RETAINING WALL AND GUARD
11. GLASS GUARD

SITE PLAN SYMBOLS LEGEND

- BUILDING ENTRANCE
- BUILDING EXIT
- BICYCLE PARKING
- PROPERTY LINE
- INTERLOCKING STONE PAVERS
- FDC — FIRE DEPARTMENT CONNECTION
- FH — FIRE HYDRANT
- NEW STREET LIGHT
- STREET LIGHT TO BE REMOVED
- EXISTING STREET LIGHT TO REMAIN
- UP — EXISTING UTILITY POLE TO REMAIN



1 SP-01 SITE PLAN
SCALE: 1 : 200

GENERAL ARCHITECTURAL NOTES:

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

PRINTED: YYYY-MM-DD

1 ISSUED FOR COORDINATION 2022-11-29

ISSUE RECORD

project1 studio
Project1 Studio Incorporated
| 613.884.3939 | mail@project1studio.ca

1765 MONTREAL RD

1765 Montreal Road
Ottawa, ON

PROJ	SCALE	DRAWN	REVIEWED
2107	NOTED	BH/JH	RMK

SITE PLAN

SP-01

APPENDIX B

TIA Screening Form

City of Ottawa 2017 TIA Guidelines Screening Form

1. Description of Proposed Development

Municipal Address	**1765 Montreal Road & 9 Beckenham Lane**
Description of Location	**Northeast corner of Montreal Rd at Beckenham Lane**
Land Use Classification	**Residential**
Development Size (units)	**About 173 residential units**
Development Size (m^2)	
Number of Accesses and Locations	**1 connection to Montreal Road and 1 connection to Beckenham Lane**
Phase of Development	
Buildout Year	**2023**

If available, please attach a sketch of the development or site plan to this form.

2. Trip Generation Trigger

Considering the Development's Land Use type and Size (as filled out in the previous section), please refer to the Trip Generation Trigger checks below.

Land Use Type	Minimum Development Size
Single-family homes	40 units
Townhomes or apartments	90 units
Office	3,500 m^2
Industrial	5,000 m^2
Fast-food restaurant or coffee shop	100 m^2
Destination retail	1,000 m^2
Gas station or convenience market	75 m^2

** If the development has a land use type other than what is presented in the table above, estimates of person-trip generation may be made based on average trip generation characteristics represented in the current edition of the Institute of Transportation Engineers (ITE) Trip Generation Manual.*

If the proposed development size is greater than the sizes identified above, the Trip Generation Trigger is satisfied.

3. Location Triggers

	Yes	No
Does the development propose a new driveway to a boundary street that is designated as part of the City's Transit Priority, Rapid Transit or Spine Bicycle Networks?	✓	
Is the development in a Design Priority Area (DPA) or Transit-oriented Development (TOD) zone?*	✓	

**DPA and TOD are identified in the City of Ottawa Official Plan (DPA in Section 2.5.1 and Schedules A and B; TOD in Annex 6). See Chapter 4 for a list of City of Ottawa Planning and Engineering documents that support the completion of TIA).*

If any of the above questions were answered with 'Yes,' the Location Trigger is satisfied.

4. Safety Triggers

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

If any of the above questions were answered with 'Yes,' the Safety Trigger is satisfied.

5. Summary

	Yes	No
Does the development satisfy the Trip Generation Trigger?	✓	
Does the development satisfy the Location Trigger?	✓	
Does the development satisfy the Safety Trigger?	✓	

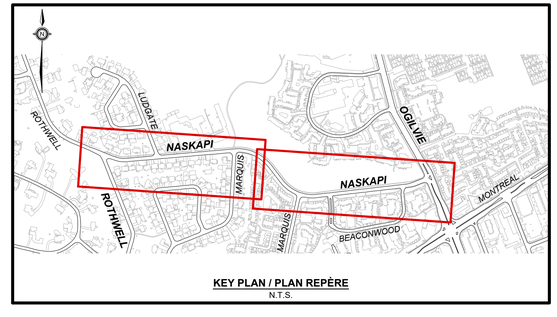
If none of the triggers are satisfied, the TIA Study is complete. If one or more of the triggers is satisfied, the TIA Study must continue into the next stage (Screening and Scoping).

APPENDIX C

Naskapi Drive Traffic Calming Plan

Planning, Infrastructure and Economic Development Department
Direction générale de la planification, de l'infrastructure et du développement économique

LOCAL TRAFFIC CALMING - NASKAPI DRIVE
MODÉRATION DE LA CIRCULATION LOCALE - PROMENADE NASKAPI



Stantec

Scale / Échelle
22.5m 11.25 0 7.5 15 30m

April 26, 2022

APPENDIX D

OC Transpo Route Maps

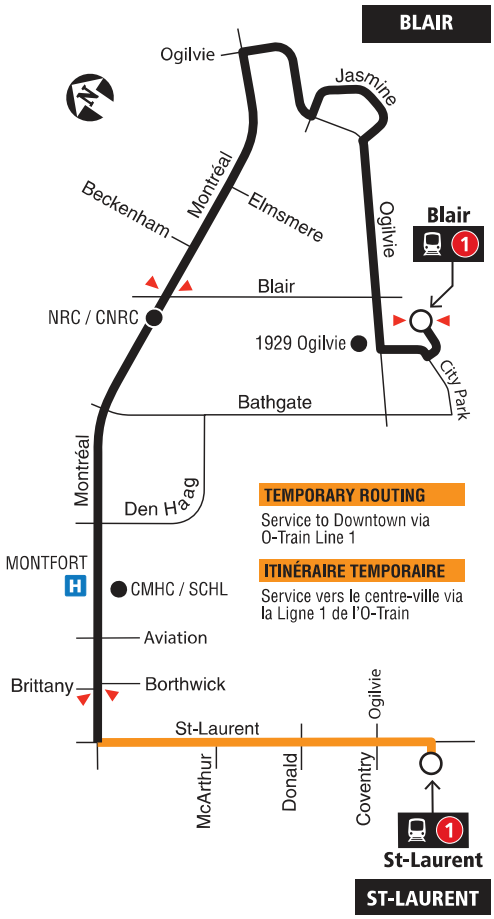
12 ST-LAURENT / BLAIR

Fréquent

7 days a week / 7 jours par semaine

All day service

Service toute la journée



Station

Temporary routing due to Montréal Rd. construction / Itinéraire temporaire en raison de la construction sur le ch. Montréal

Timepoint / Heures de passage

Detour adjustments may be required to accomodate construction requirements / Des ajustements aux déviations peuvent être nécessaires pour répondre aux exigences de construction

2021.04

Schedule / Horaire.....613-560-1000

Text / Texto 560560

plus your four digit bus stop number / *plus* votre numéro d'arrêt à quatre chiffres

Customer Service
Service à la clientèle **613-741-4390**

Lost and Found / Objets perdus..... **613-563-4011**

Security / Sécurité **613-741-2478**

Effective April 18, 2021
En vigueur 18 avril 2021

OC Transpo

INFO 613-741-4390
octranspo.com

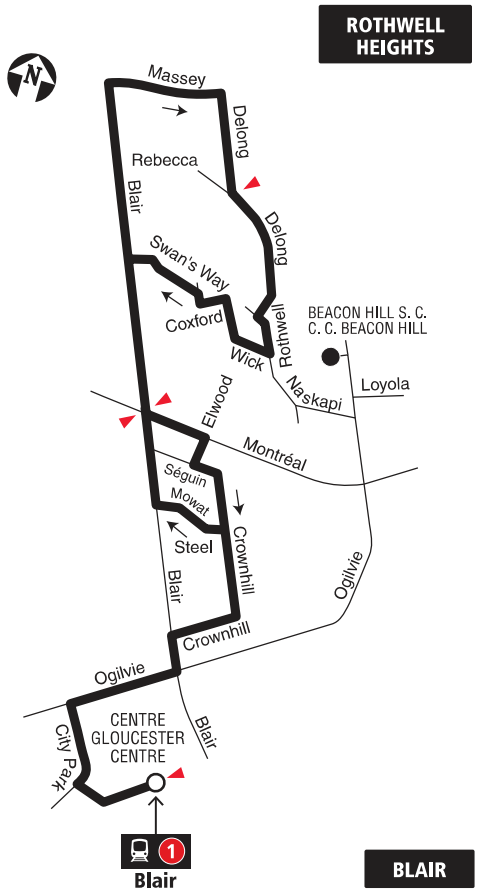
23

ROTHWELL HEIGHTS

BLAIR

Local

Monday to Friday / Lundi au vendredi
Limited Service. No weekend service
Service limité. Aucun service la fin de semaine



Station

Timepoint / Heures de passage

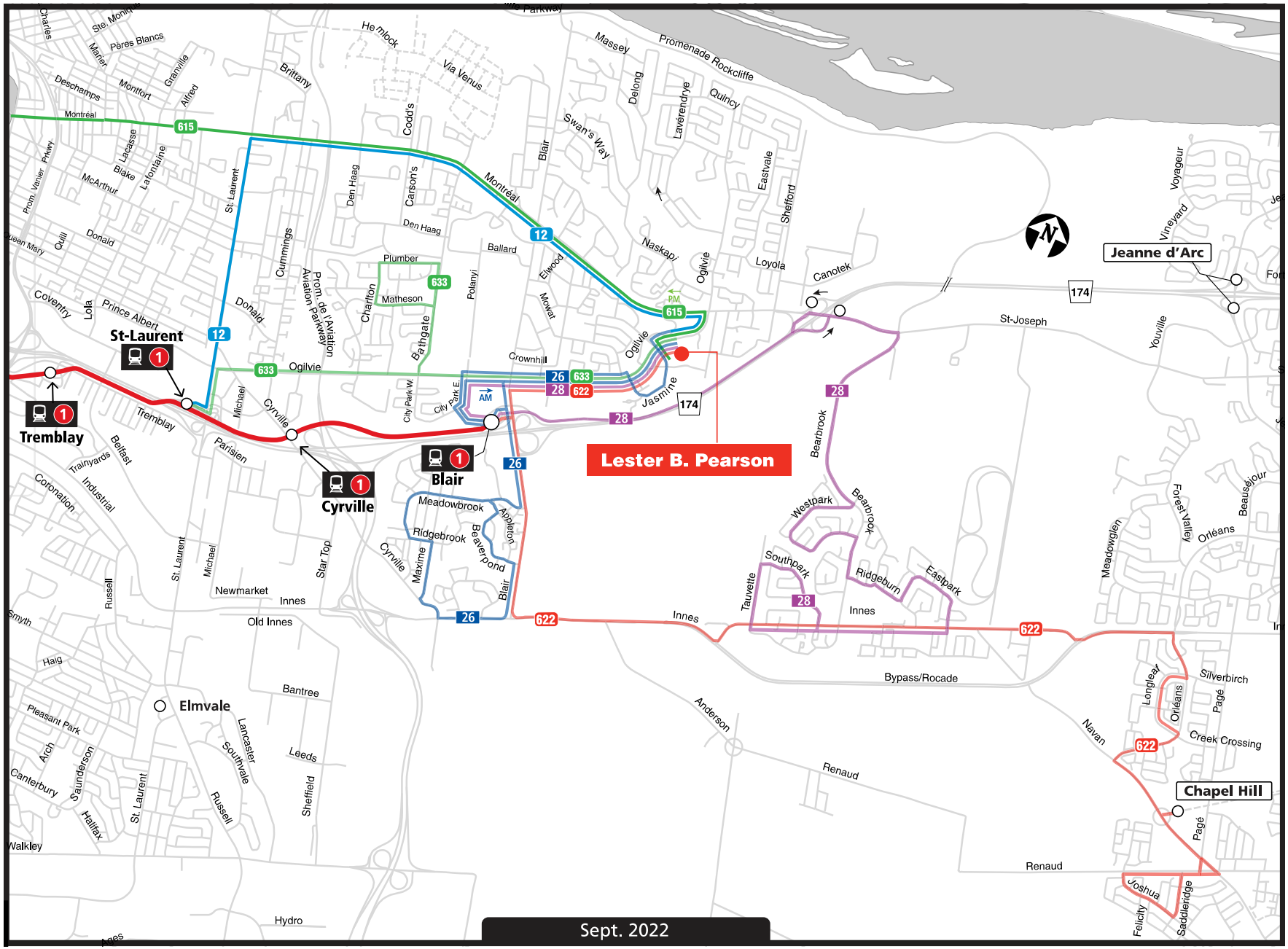
2019.06

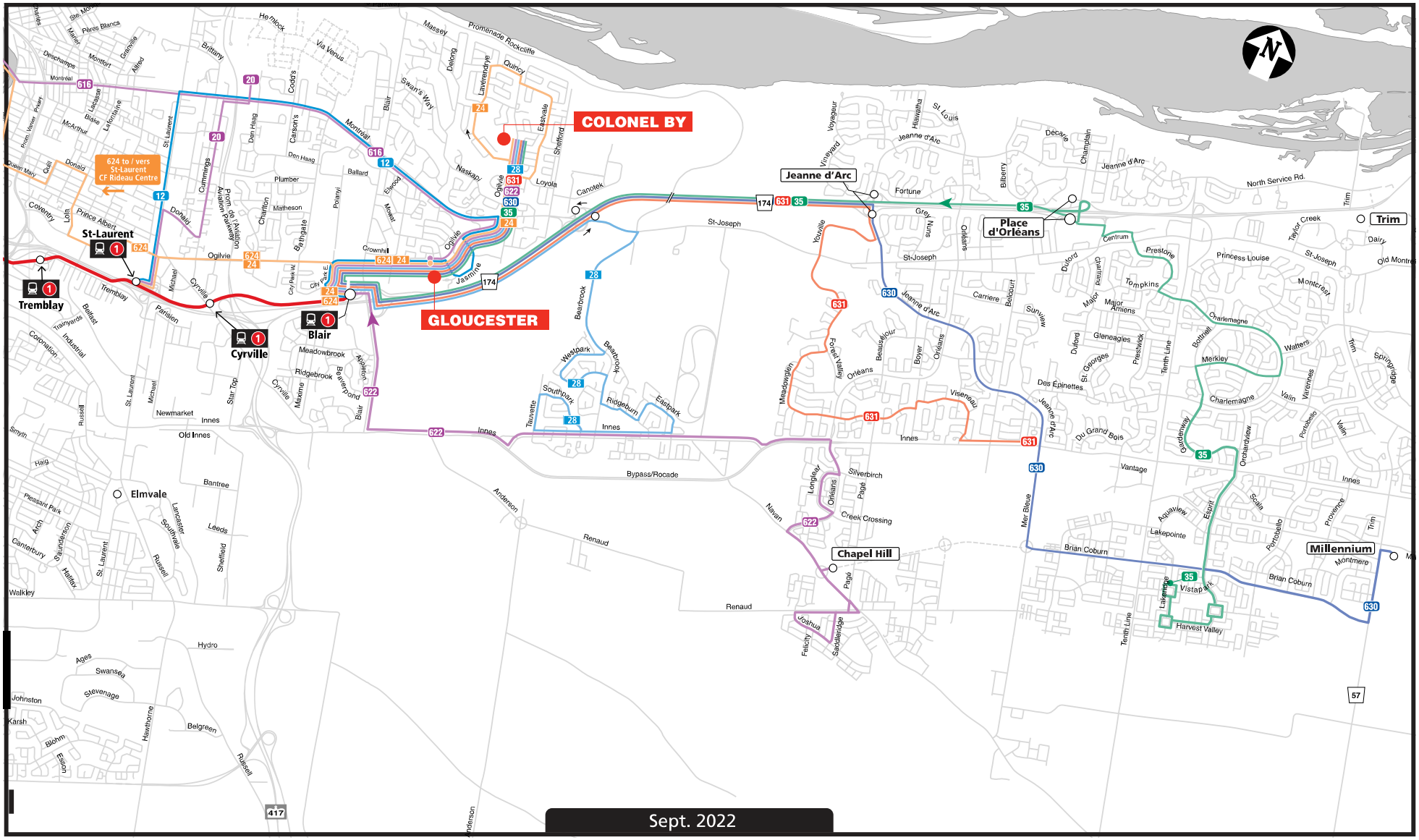
Schedule / Horaire 613-560-1000
Text / Texto 560560
plus your four digit bus stop number / *plus* votre numéro d'arrêt à quatre chiffres

Customer Service
Service à la clientèle **613-741-4390**
Lost and Found / Objets perdus..... **613-563-4011**
Security / Sécurité **613-741-2478**

Effective April 23, 2018
En vigueur 23 avril 2018

OC Transpo
INFO 613-741-4390
octranspo.com


Tremblay
St-Laurent
Cyrville
Blair
Lester B. Pearson
Jeanne d'Arc
Chapel Hill
Elmvale
Sept. 2022


COLONEL BY
GLOUCESTER
Jeanne d'Arc
Place d'Orléans
St-Laurent
Tremblay
Cyrville
Blair
Elmvale
Chapel Hill
Millennium
Trim
624 to / vers St-Laurent CF Rideau Centre
Sept. 2022

APPENDIX E

Traffic Count Data

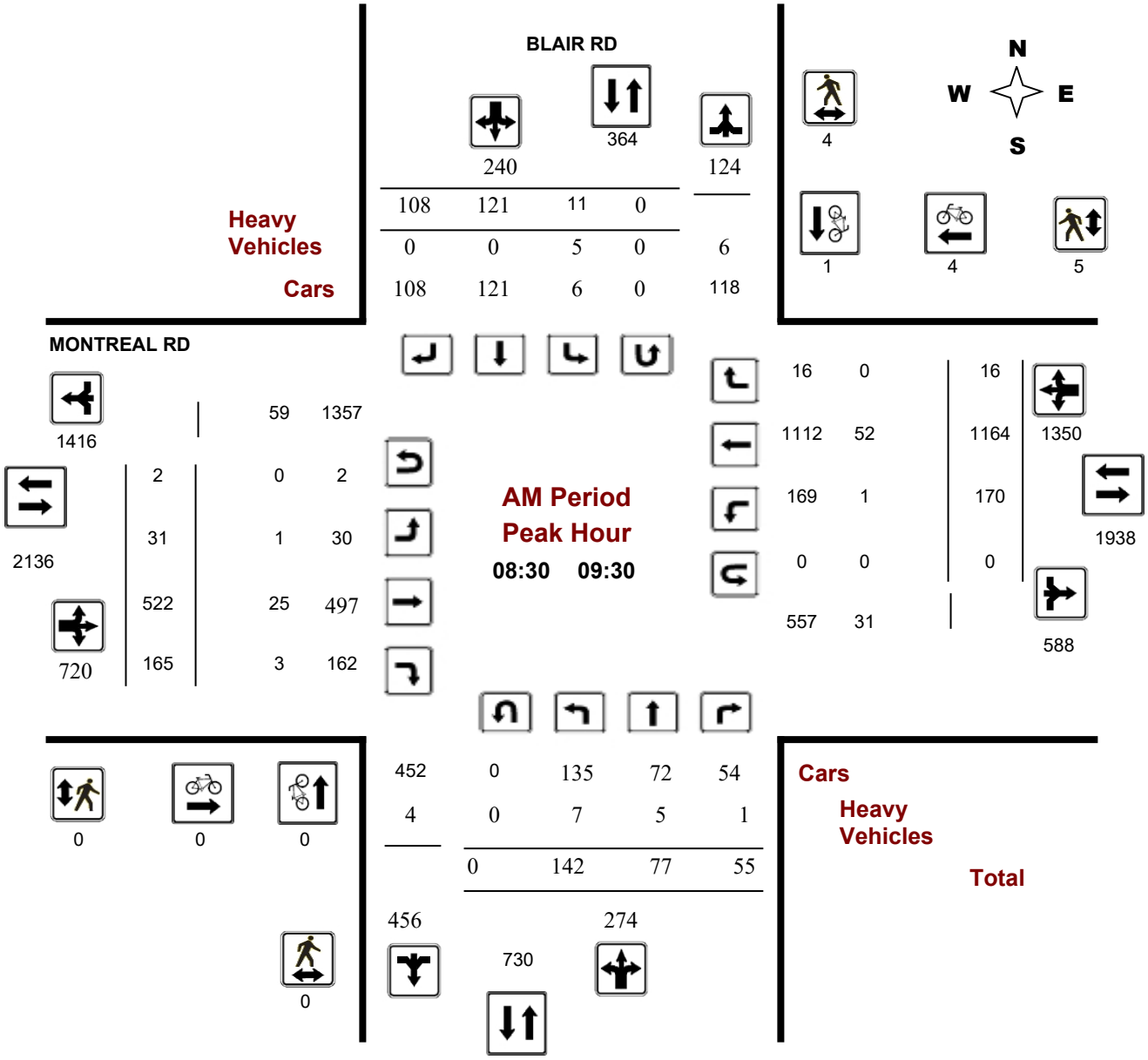
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

BLAIR RD @ MONTREAL RD

Survey Date: Thursday, November 15, 2018 **WO No:** 38125

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



Comments

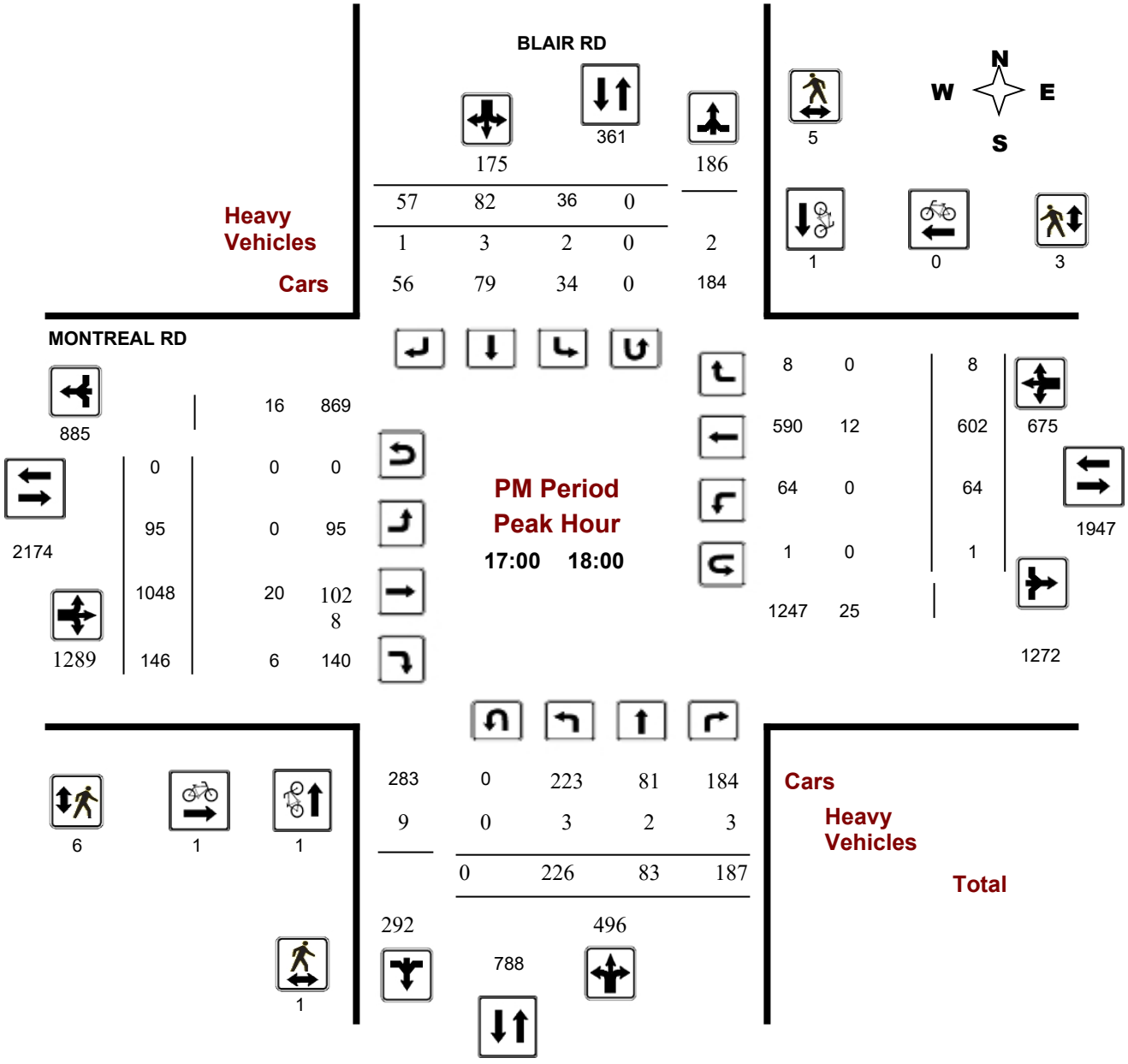
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

BLAIR RD @ MONTREAL RD

Survey Date: Thursday, November 15, 2018 **WO No:** 38125

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



Comments

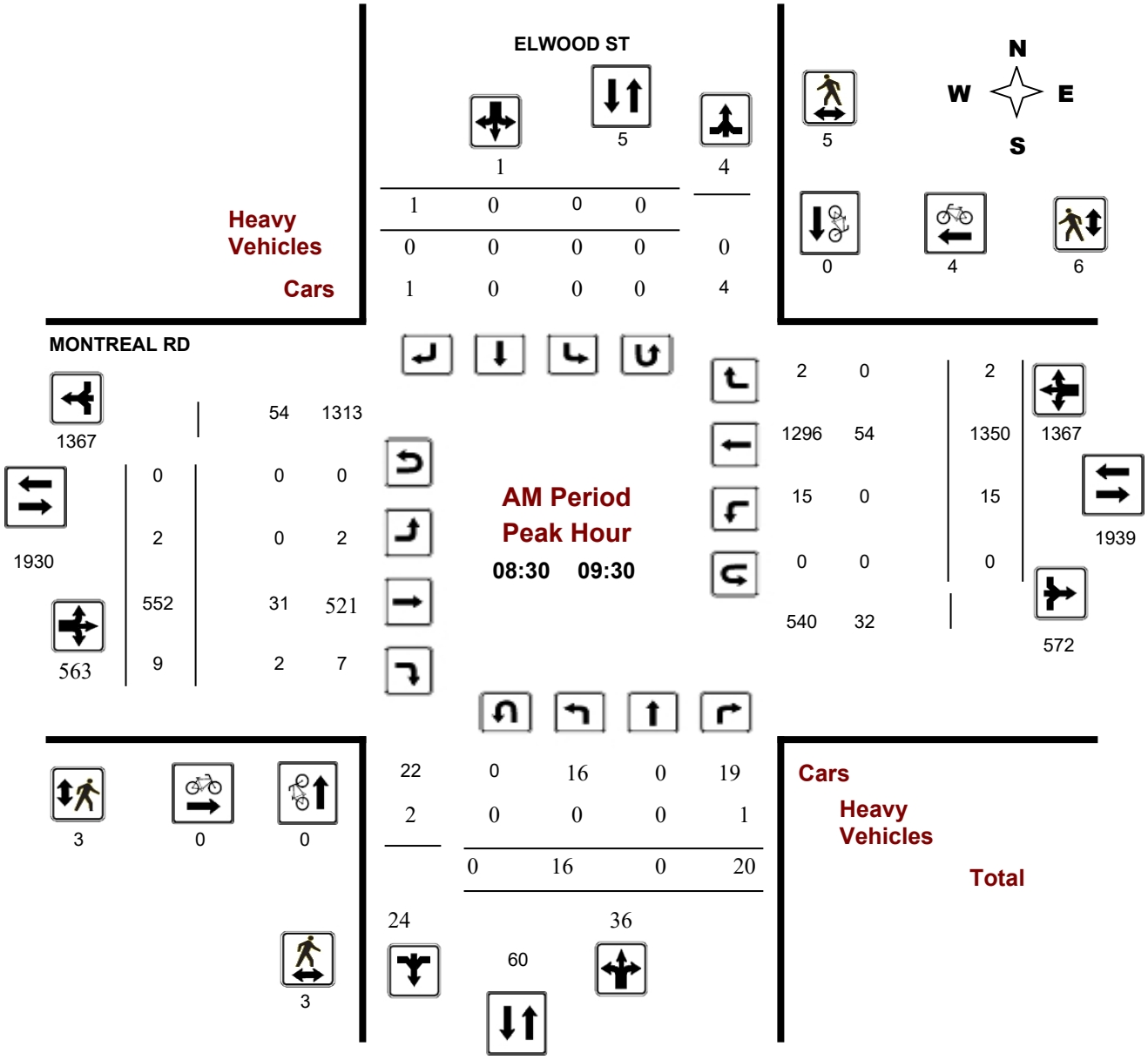
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

ELWOOD ST @ MONTREAL RD

Survey Date: Thursday, November 15, 2018 **WO No:** 38124

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



Comments

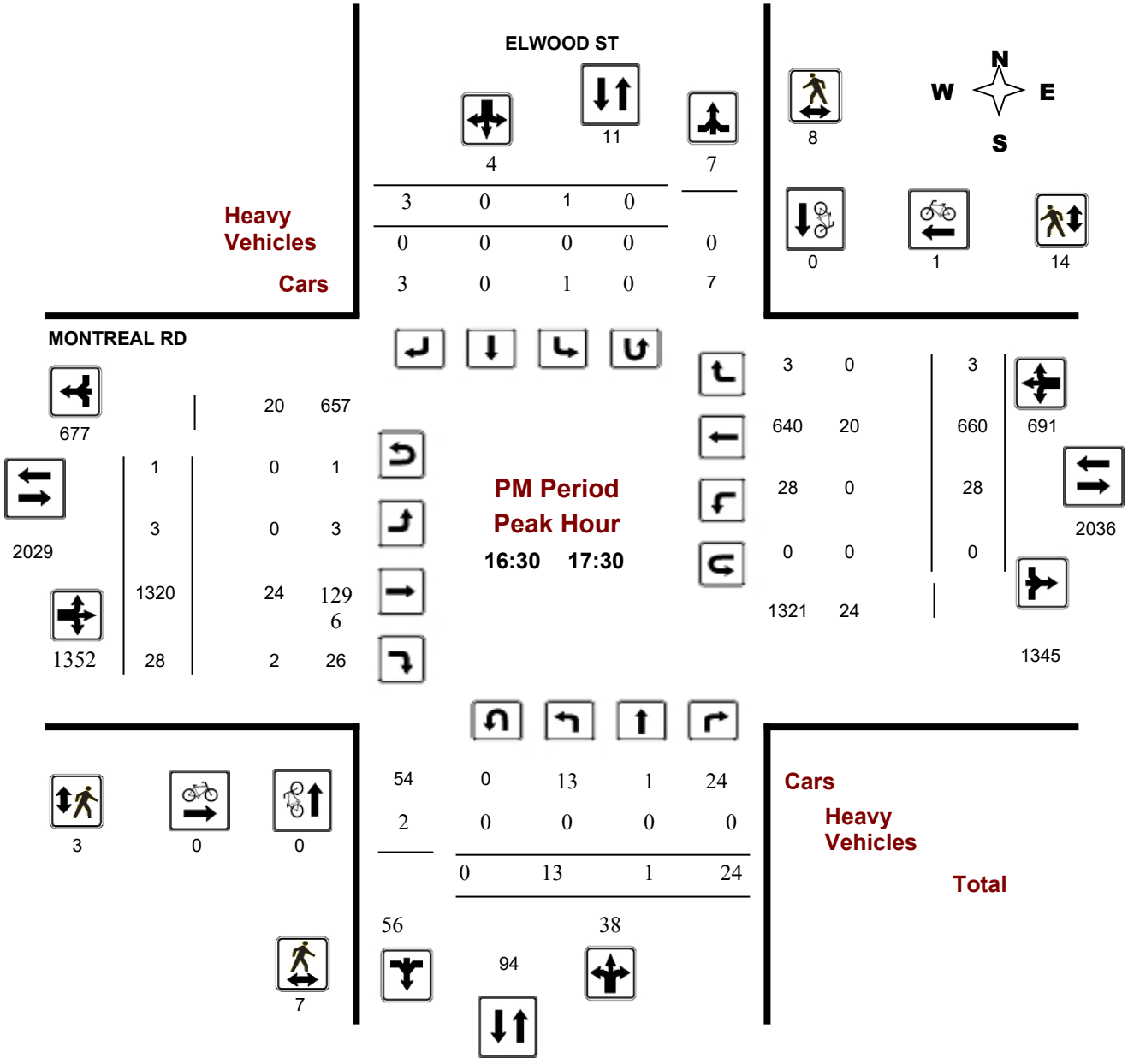
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

ELWOOD ST @ MONTREAL RD

Survey Date: Thursday, November 15, 2018 **WO No:** 38124

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



Comments

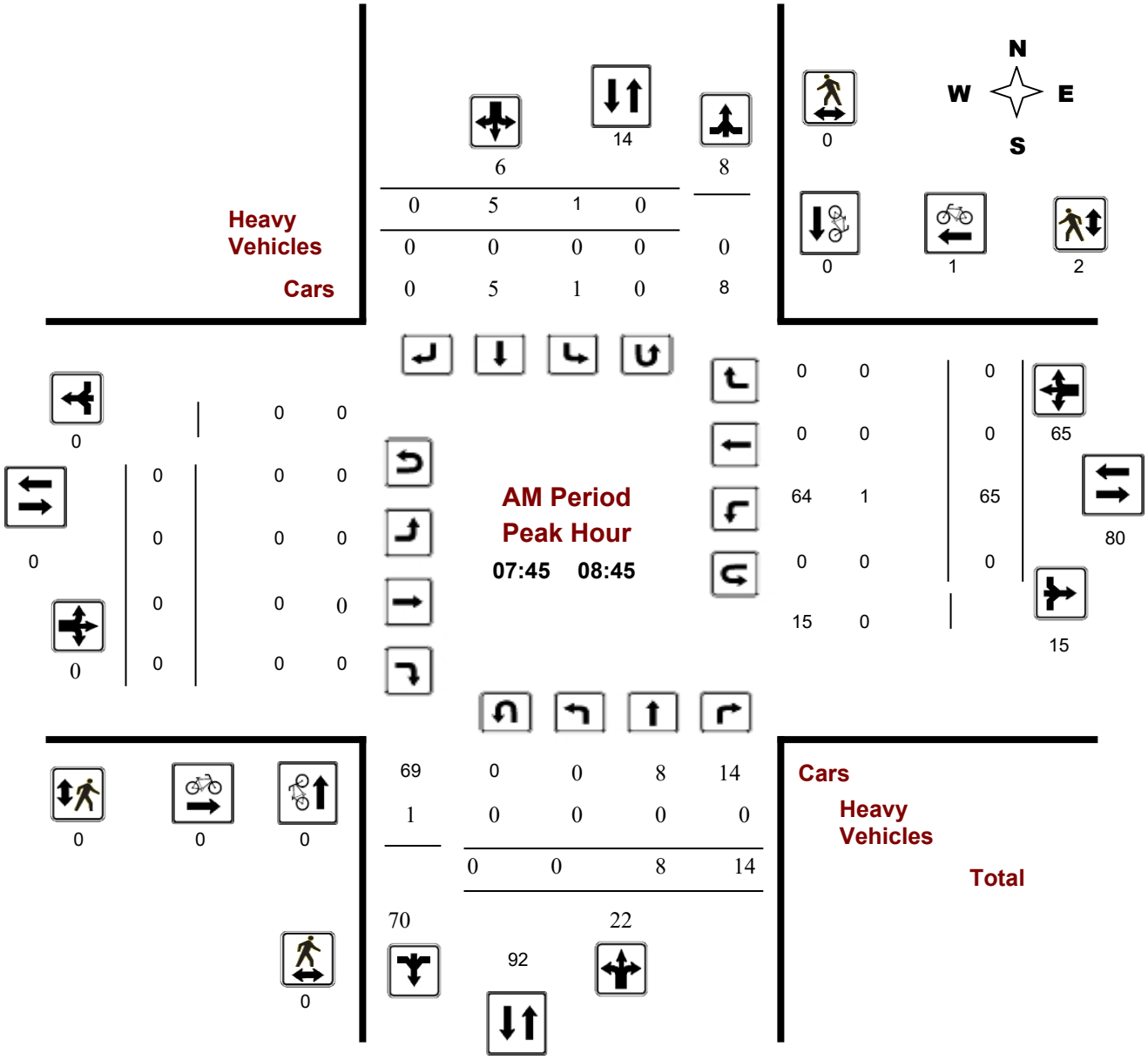
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

BECKENHAM LANE @ CEDAR RD S

Survey Date: Thursday, July 25, 2019
Start Time: 07:00

WO No: 38700
Device: Miovision



Comments

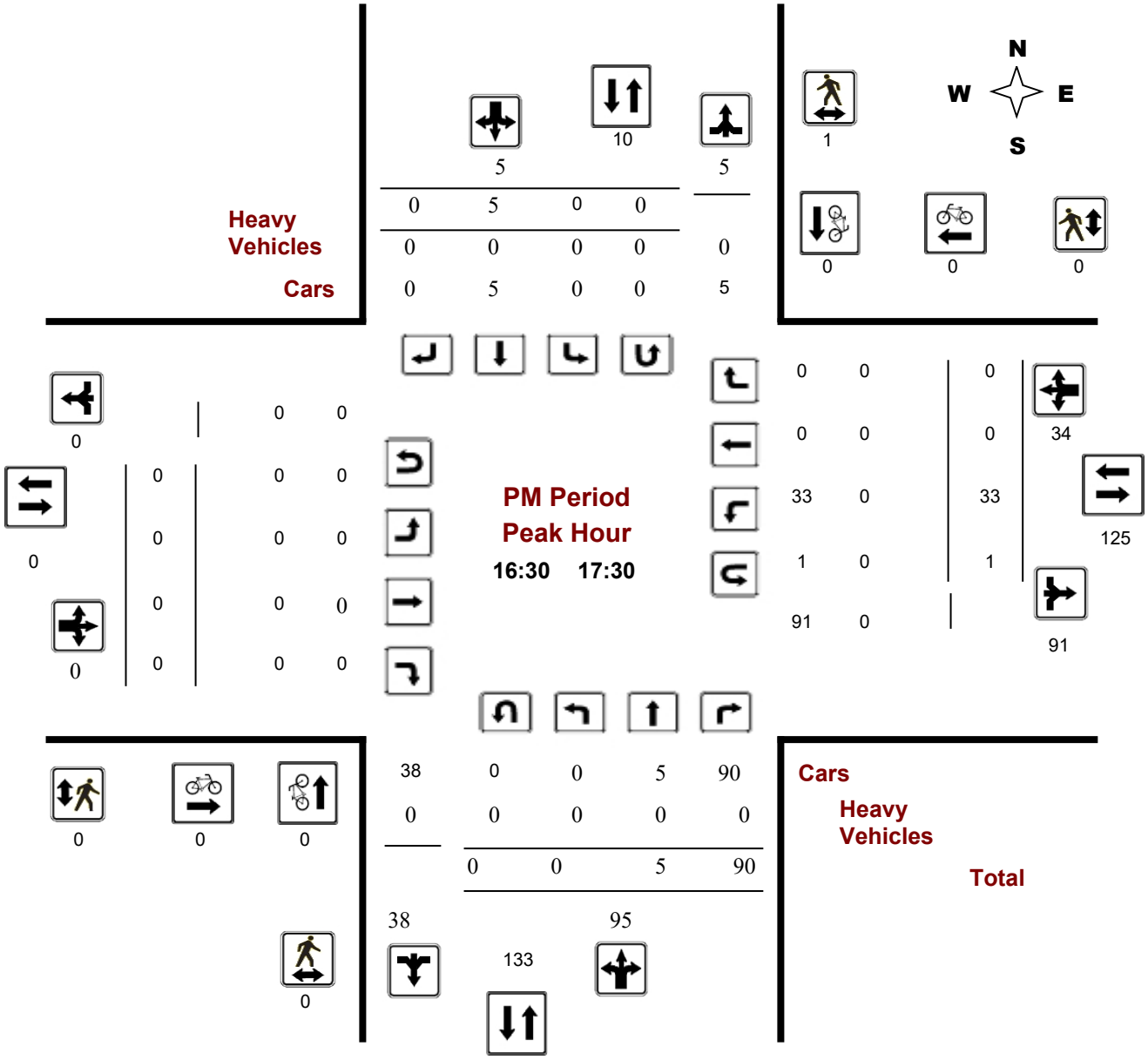
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

BECKENHAM LANE @ CEDAR RD S

Survey Date: Thursday, July 25, 2019
Start Time: 07:00

WO No: 38700
Device: Miovision



Comments

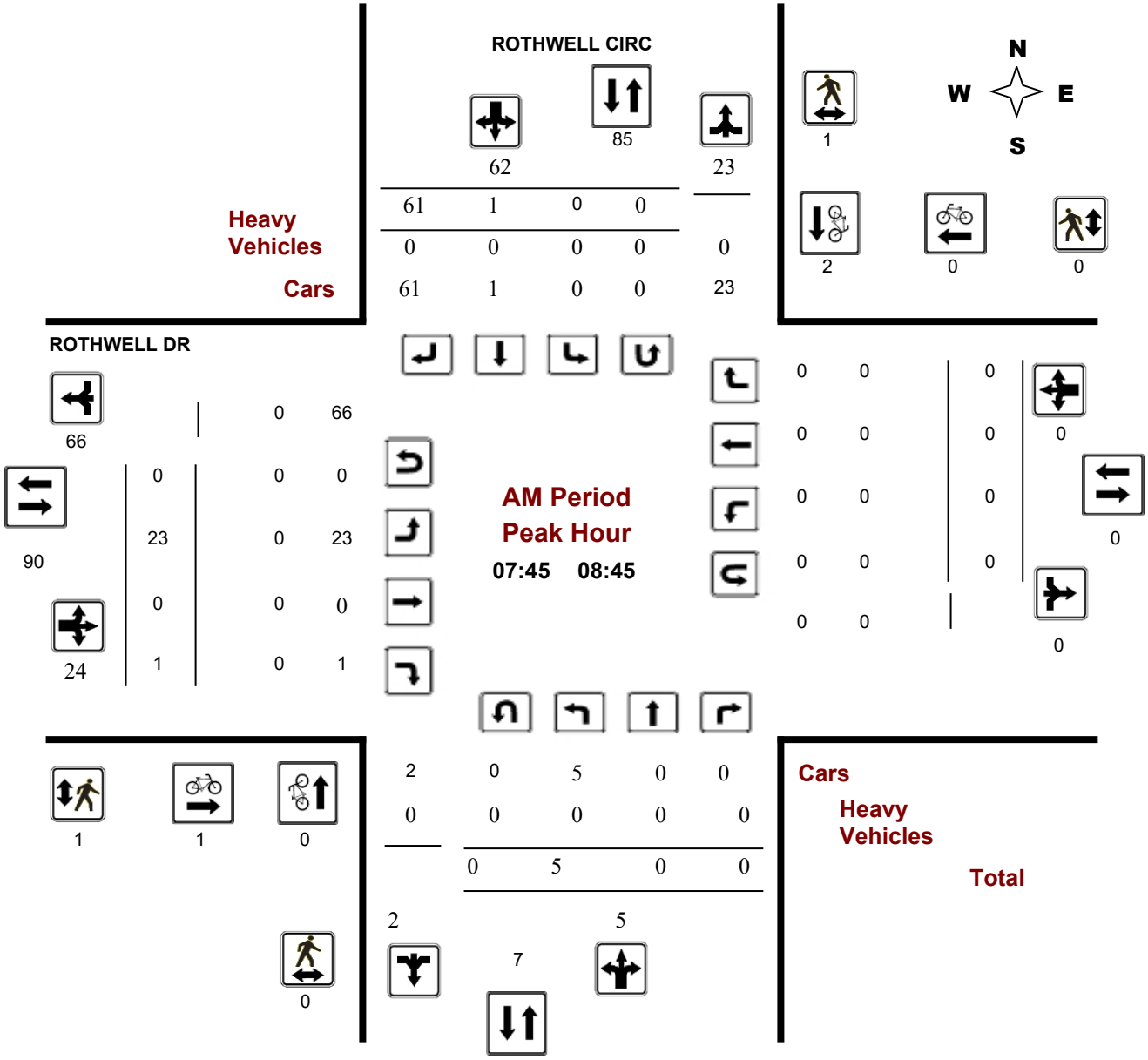
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

ROTHWELL CIRC @ ROTHWELL DR

Survey Date: Wednesday, July 17, 2019 **WO No:** 38692

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



Comments

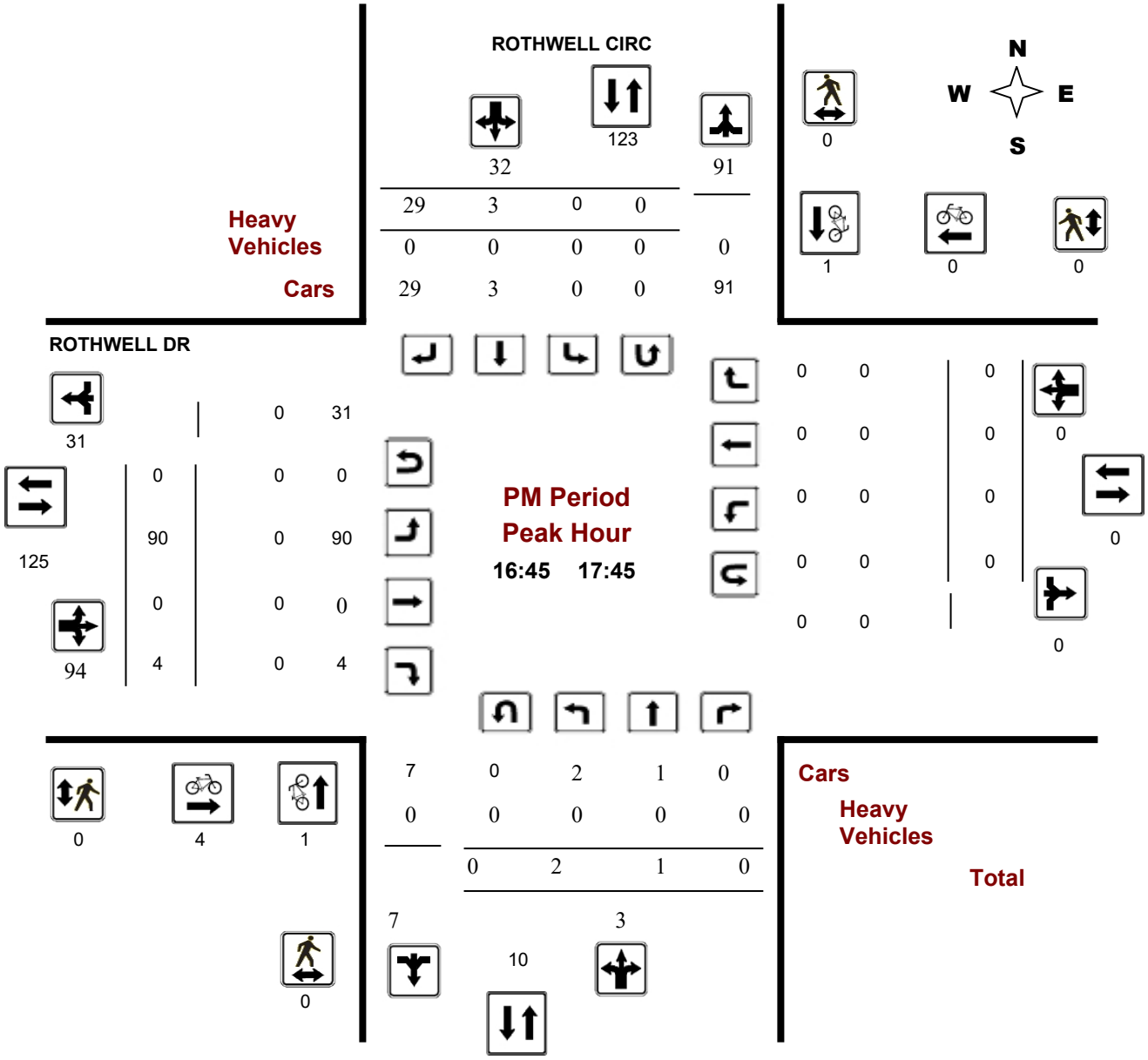
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

ROTHWELL CIRC @ ROTHWELL DR

Survey Date: Wednesday, July 17, 2019 **WO No:** 38692

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



Comments

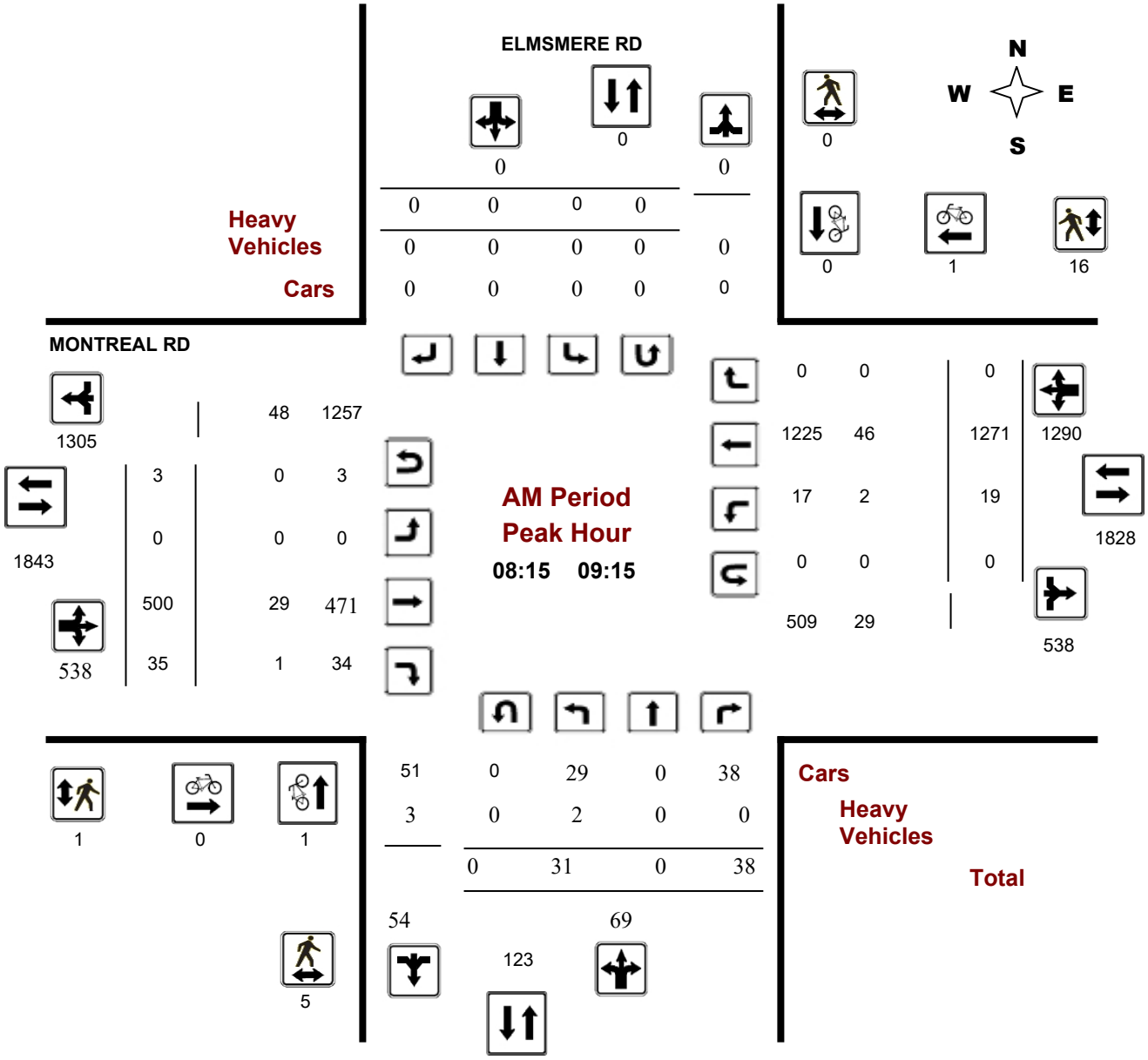
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

ELMSMERE RD @ MONTREAL RD

Survey Date: Thursday, November 15, 2018 **WO No:** 38123

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



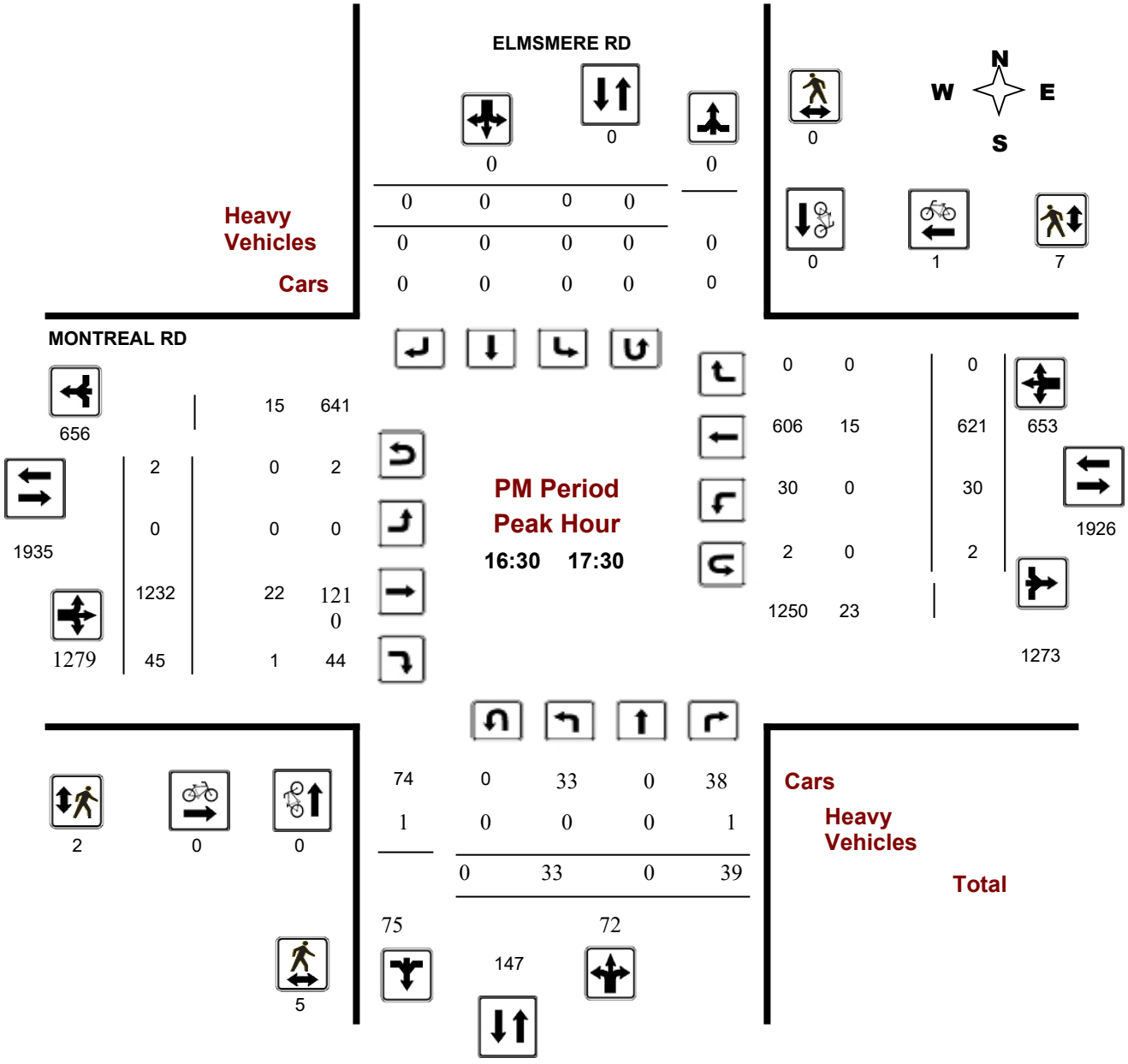
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

ELMSMERE RD @ MONTREAL RD

Survey Date: Thursday, November 15, 2018 **WO No:** 38123

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



Comments

APPENDIX F

Collision Data

Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2016 **To:** December 31, 2020

Location: BECKENHAM LANE @ MONTREAL RD

Traffic Control: Stop sign **Total Collisions:** 3

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2016-Jan-05, Tue,03:43	Clear	SMV other	P.D. only	Dry	West	Going ahead	Unknown	Ran off road	0
2018-Jan-14, Sun,12:18	Clear	SMV other	P.D. only	Ice	South	Turning left	Automobile, station wagon	Skidding/sliding	0
2019-Jan-16, Wed,14:40	Clear	Turning movement	Non-fatal injury	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	

Location: BLAIR RD @ MONTREAL RD

Traffic Control: Traffic signal **Total Collisions:** 34

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2016-Feb-25, Thu,18:13	Snow	Rear end	P.D. only	Ice	East	Going ahead	Pick-up truck	Other motor vehicle	0
					East	Stopped	Pick-up truck	Other motor vehicle	
					East	Stopped	Passenger van	Other motor vehicle	
2016-Feb-25, Thu,18:28	Strong wind	Rear end	P.D. only	Ice	East	Going ahead	Pick-up truck	Other motor vehicle	0
					East	Stopped	Pick-up truck	Other motor vehicle	
2016-Feb-26, Fri,12:06	Rain	Turning movement	P.D. only	Ice	West	Turning left	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Passenger van	Other motor vehicle	
2016-Mar-02, Wed,14:29	Clear	Rear end	P.D. only	Wet	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2016-Apr-19, Tue,08:27	Clear	Rear end	P.D. only	Dry	West	Slowing or stopping	Pick-up truck	Other motor vehicle	0
					West	Stopped	Pick-up truck	Other motor vehicle	
2016-Aug-26, Fri,08:28	Clear	Turning movement	P.D. only	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2016-Nov-11, Fri,20:44	Clear	Angle	Non-fatal injury	Dry	East	Going ahead	Passenger van	Other motor vehicle	0
					North	Turning left	Automobile, station wagon	Other motor vehicle	

Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2016 **To:** December 31, 2020

Location: BLAIR RD @ MONTREAL RD

Traffic Control: Traffic signal **Total Collisions:** 34

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2017-Feb-01, Wed,11:30	Clear	Sideswipe	P.D. only	Dry	North	Turning right	Automobile, station wagon	Other motor vehicle	0
					North	Turning right	Automobile, station wagon	Other motor vehicle	
2017-Mar-08, Wed,13:30	Clear	Angle	P.D. only	Dry	East	Going ahead	Passenger van	Other motor vehicle	0
					North	Going ahead	Pick-up truck	Other motor vehicle	
2017-Mar-31, Fri,14:56	Snow	Turning movement	P.D. only	Loose snow	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Turning left	Automobile, station wagon	Other motor vehicle	
2017-Jul-30, Sun,16:28	Clear	Angle	P.D. only	Dry	North	Turning right	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2017-Aug-27, Sun,16:00	Clear	Rear end	P.D. only	Dry	North	Going ahead	Passenger van	Other motor vehicle	0
					North	Stopped	Automobile, station wagon	Other motor vehicle	
2017-Sep-28, Thu,16:21	Clear	Rear end	P.D. only	Dry	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2017-Oct-14, Sat,08:50	Rain	SMV other	P.D. only	Wet	East	Turning right	Automobile, station wagon	Curb	0
2017-Oct-23, Mon,15:30	Clear	Other	P.D. only	Dry	North	Reversing	Automobile, station wagon	Other motor vehicle	0
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2017-Nov-21, Tue,16:57	Clear	Turning movement	Non-fatal injury	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2017-Dec-05, Tue,16:40	Clear	Rear end	P.D. only	Wet	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Pick-up truck	Other motor vehicle	
2017-Dec-05, Tue,16:54	Clear	Rear end	P.D. only	Wet	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Mar-26, Mon,15:38	Clear	Rear end	P.D. only	Dry	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	

Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2016 **To:** December 31, 2020

Location: BLAIR RD @ MONTREAL RD

Traffic Control: Traffic signal **Total Collisions:** 34

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2018-Apr-08, Sun,13:52	Clear	Rear end	P.D. only	Dry	East	Unknown	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Sep-20, Thu,15:35	Clear	Turning movement	Non-fatal injury	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Sep-30, Sun,19:38	Rain	Angle	Non-fatal injury	Wet	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Passenger van	Other motor vehicle	
2018-Nov-02, Fri,11:52	Rain	Turning movement	P.D. only	Wet	North	Turning left	Automobile, station wagon	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Nov-05, Mon,17:30	Rain	Turning movement	P.D. only	Wet	East	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Jan-22, Tue,08:20	Clear	Rear end	Non-fatal injury	Ice	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2019-Feb-24, Sun,07:16	Rain	Rear end	Non-fatal injury	Wet	East	Slowing or stopping	Automobile, station wagon	Skidding/sliding	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2019-May-24, Fri,08:30	Clear	Rear end	Non-fatal injury	Dry	East	Turning right	Automobile, station wagon	Other motor vehicle	0
					East	Turning right	Automobile, station wagon	Other motor vehicle	
2019-Aug-16, Fri,20:29	Clear	Turning movement	Non-fatal injury	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle	0
					North	Turning left	Automobile, station wagon	Other motor vehicle	
2019-Aug-19, Mon,16:25	Rain	Rear end	Non-fatal injury	Wet	East	Slowing or stopping	Delivery van	Other motor vehicle	0
					East	Stopped	Unknown	Other motor vehicle	
2019-Aug-21, Wed,09:30	Clear	Rear end	P.D. only	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Turning left	Automobile, station wagon	Other motor vehicle	
2019-Oct-10, Thu,12:52	Clear	Rear end	Non-fatal injury	Dry	East	Turning right	Automobile, station wagon	Other motor vehicle	0
					East	Turning right	Automobile, station wagon	Other motor vehicle	

Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2016 **To:** December 31, 2020

Location: BLAIR RD @ MONTREAL RD

Traffic Control: Traffic signal **Total Collisions:** 34

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2019-Oct-17, Thu,09:40	Rain	Rear end	P.D. only	Wet	North	Going ahead	Automobile, station wagon	Other motor vehicle	0
					North	Stopped	Automobile, station wagon	Other motor vehicle	
2020-Jul-24, Fri,11:30	Clear	Rear end	P.D. only	Dry	East	Going ahead	Pick-up truck	Other motor vehicle	0
					East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
2020-Oct-08, Thu,11:09	Clear	Turning movement	P.D. only	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	

Location: ELMSMERE RD @ MONTREAL RD

Traffic Control: Traffic signal **Total Collisions:** 7

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2016-May-02, Mon,11:36	Clear	Rear end	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
2016-Jul-15, Fri,23:28	Clear	Angle	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2016-Nov-30, Wed,18:11	Rain	Rear end	Non-fatal injury	Wet	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Tow truck	Other motor vehicle	
2018-Nov-16, Fri,14:30	Snow	Angle	P.D. only	Slush	East	Going ahead	Automobile, station wagon	Skidding/sliding	0
					North	Turning left	Automobile, station wagon	Other motor vehicle	
2019-Apr-25, Thu,18:30	Clear	Rear end	P.D. only	Dry	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					East	Slowing or stopping	Passenger van	Other motor vehicle	
2020-Jan-06, Mon,17:54	Snow	SMV other	P.D. only	Loose snow	East	Slowing or stopping	Automobile, station wagon	Skidding/sliding	0
2020-May-01, Fri,17:34	Clear	Rear end	Non-fatal injury	Dry	East	Unknown	Unknown	Other motor vehicle	0
					East	Unknown	Pick-up truck	Other motor vehicle	
					East	Unknown	Unknown	Other motor vehicle	

Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2016 **To:** December 31, 2020

Location: ELWOOD ST @ MONTREAL RD

Traffic Control: Traffic signal **Total Collisions:** 3

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2018-Mar-23, Fri,14:13	Clear	SMV other	Non-fatal injury	Dry	East	Going ahead	Automobile, station wagon	Pedestrian	1
2019-Mar-18, Mon,07:40	Clear	Rear end	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Pick-up truck	Other motor vehicle	
2020-Feb-05, Wed,00:00	Clear	Rear end	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	

Location: MONTREAL RD btwn BECKENHAM LANE & ELWOOD ST

Traffic Control: No control **Total Collisions:** 3

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2017-Feb-15, Wed,17:20	Snow	SMV other	Non-fatal injury	Loose snow	East	Going ahead	Automobile, station wagon	Pedestrian	1
2017-Nov-26, Sun,19:31	Snow	Rear end	P.D. only	Loose snow	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Pick-up truck	Other motor vehicle	
					East	Stopped	Municipal transit bus	Other motor vehicle	
2018-Oct-09, Tue,19:13	Clear	SMV other	Fatal injury	Dry	East	Going ahead	Automobile, station wagon	Pedestrian	1

Location: MONTREAL RD btwn BLAIR RD & CLOVELLY RD

Traffic Control: No control **Total Collisions:** 4

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2016-Oct-06, Thu,14:52	Clear	Rear end	P.D. only	Dry	East	Slowing or stopping	School bus	Other motor vehicle	0
					East	Stopped	Pick-up truck	Other motor vehicle	
2017-Aug-31, Thu,18:35	Clear	Rear end	P.D. only	Dry	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
2018-Apr-03, Tue,17:20	Clear	Angle	P.D. only	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Aug-28, Tue,16:05	Clear	SMV other	Non-fatal injury	Dry	West	Going ahead	Automobile, station wagon	Curb	0

Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2016 **To:** December 31, 2020

Location: MONTREAL RD btwn CHIMNEY HILL WAY & ELMSMERE RD

Traffic Control: No control **Total Collisions:** 2

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2016-Dec-09, Fri,18:51	Clear	Sideswipe	P.D. only	Dry	East	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Mar-08, Fri,00:04	Clear	SMV other	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Ran off road	0

Location: MONTREAL RD btwn CLOVELLY RD & ELWOOD ST

Traffic Control: No control **Total Collisions:** 2

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2016-Mar-18, Fri,15:23	Clear	Sideswipe	P.D. only	Dry	West	Overtaking	Passenger van	Other motor vehicle	0
					West	Stopped	Municipal transit bus	Other motor vehicle	
2020-Feb-10, Mon,09:00	Snow	Angle	P.D. only	Loose snow	South	Turning right	Unknown	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	

APPENDIX G

Other Area Developments

5.2 Trip Distribution

To understand the travel patterns of the subject development, the OD Survey has been reviewed to determine the existing district travel and these patterns were applied based on the build-out of Beacon Hill. Table 12 below summarizes the distributions.

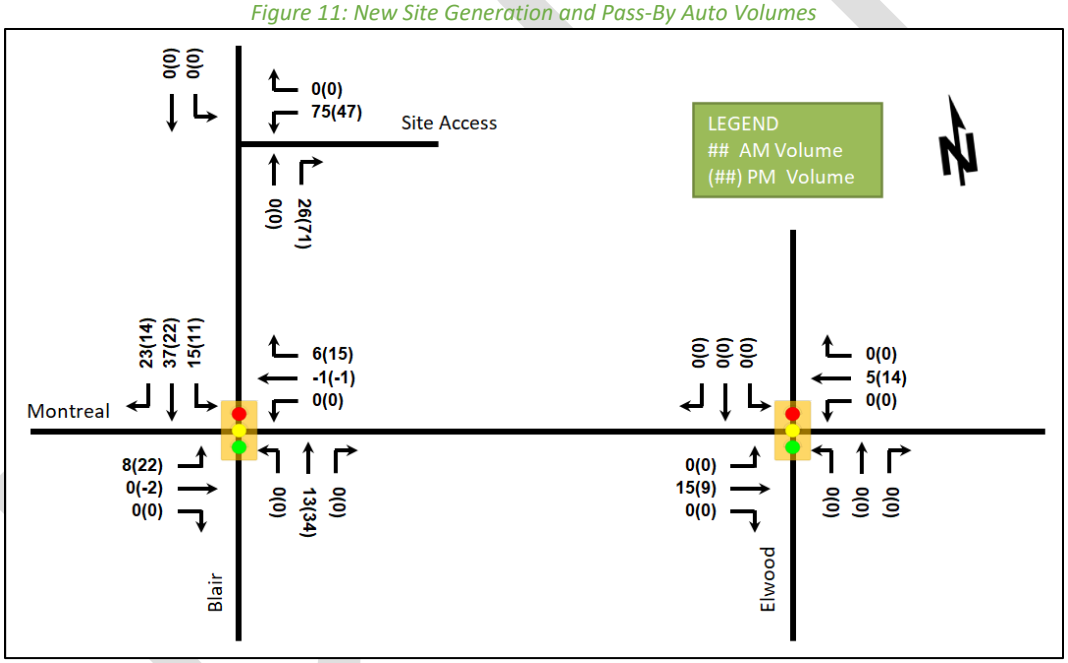
Table 12: OD Survey Distribution – Beacon Hill

To/From	% of Trips	Via
North	5%	Montreal Rd (W)
South	30%	Blair Rd
East	20%	Montreal Rd
West	45%	25% Montreal Rd, 20% Blair Rd
Total	100%	-

5.3 Trip Assignment

Using the distribution outlined above, turning movement splits, and access to major transportation infrastructure, the trips generated by the site have been assigned to the Study Area road network. Figure 11 illustrates the new site generated and pass-by volumes.

Figure 11: New Site Generation and Pass-By Auto Volumes



6 Background Network Travel Demands

6.1 Transportation Network Plans

The transportation network plans were discussed in Section 2.3. The Montreal-Blair Road Transit Priority Corridor is the only confirmed project within the study expected to impact traffic operations. The City's project team has noted that transit priority lanes, cycletracks, and wider sidewalks will be included along this portion of Montreal Road. This work is assumed to be planned for completion between the TIA study horizons and will be modelled in all 2029 future conditions.

APPENDIX H

Signal Timing Plans

Traffic Signal Timing

City of Ottawa, Public Works & Environmental Services Department

Traffic Signal Operations Unit

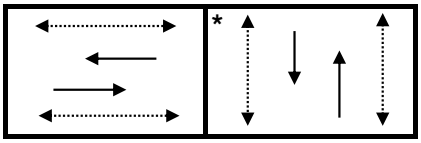
Intersection:	***Main:*** Montreal	***Side:***	Blair
Controller:	**MS 3200**	**TSD:**	**5477**
Author:	Kymen Kwan	**Date:**	04-Oct-2021

Existing Timing Plans†

	Plan					**Ped Minimum Time**		
	AM Peak 1	**Off Peak** 2	**PM Peak** 3	**Night** 4	**Evening** 12	***Walk***	***DW***	***A+R***
Cycle	90	80	90	80	80			
Offset	14	54	1	X	54			
EB Thru	44	34	43	34	34	7	20	3.7+2.7
WB Thru	44	34	43	34	34	7	20	3.7+2.7
NB Thru	46	46	47	46	46	7	32	3.3+3.8
SB Thru	46	46	47	46	46	7	32	3.3+3.8

Phasing Sequence‡

Plan: All



Note: 1) If the NS pedestrian phase is not actuated, the NS movements will receive a max green time of 35s

Schedule

Weekday

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

Weekend

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

Notes

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

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

Asterisk (*) Indicates actuated phase

(fp): Fully Protected Left Turn

◄·····► Pedestrian signal

Cost is $59.96 ($53.06 + HST)

Traffic Signal Timing

City of Ottawa, Public Works & Environmental Services Department

Traffic Signal Operations Unit

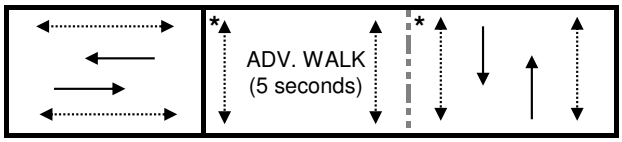
Intersection:	***Main:*** Montreal	***Side:***	Elwood
Controller:	**MS 3200**	**TSD:**	**5730**
Author:	Kymen Kwan	**Date:**	04-Oct-2021

Existing Timing Plans†

	Plan					**Ped Minimum Time**		
	AM Peak 1	**Off Peak** 2	**PM Peak** 3	**Night** 4	**Evening** 12	***Walk***	***DW***	***A+R***
Cycle	90	80	90	70	80			
Offset	7	11	8	X	11			
EB Thru	53	43	53	33	43	7	10	3.7+1.9
WB Thru	53	43	53	33	43	7	10	3.7+1.9
NB Thru	37	37	37	37	37	10	21	3.0+3.7
SB Thru	37	37	37	37	37	10	21	3.0+3.7

Phasing Sequence‡

Plan: All



Note: 1) If the NS pedestrian phase is not actuated; the NS movement will receive a max green time of 25s

Schedule

Weekday

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

Weekend

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

Notes

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

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

Asterisk (*) Indicates actuated phase

(fp): Fully Protected Left Turn

◄·····► Pedestrian signal

Cost is $59.96 ($53.06 + HST)

Traffic Signal Timing

City of Ottawa, Public Works & Environmental Services Department

Traffic Signal Operations Unit

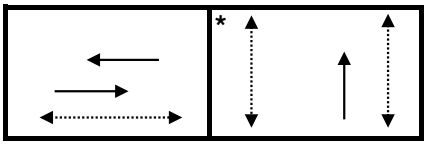
Intersection:	***Main:*** Montreal	***Side:***	Elmsmere
Controller:	**MS 3200**	**TSD:**	**5163**
Author:	Kymen Kwan	**Date:**	04-Oct-2021

Existing Timing Plans†

	Plan					**Ped Minimum Time**		
	AM Peak 1	**Off Peak** 2	**PM Peak** 3	**Night** 4	**Evening** 12	***Walk***	***DW***	***A+R***
Cycle	90	80	90	65	80			
Offset	50	42	52	X	42			
EB Thru	58	47	58	33	47	7	14	3.7+2.3
WB Thru	58	47	58	33	47	-	-	3.7+2.3
NB Thru	32	33	32	32	33	7	14	3.3+2.9
SB Thru	32	33	32	32	33	7	19	3.3+2.9

Phasing Sequence‡

Plan: All



Schedule

Weekday

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

Weekend

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

Notes

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

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

Asterisk (*) Indicates actuated phase

(fp): Fully Protected Left Turn

◄·····► Pedestrian signal

Cost is $59.96 ($53.06 + HST)

APPENDIX I

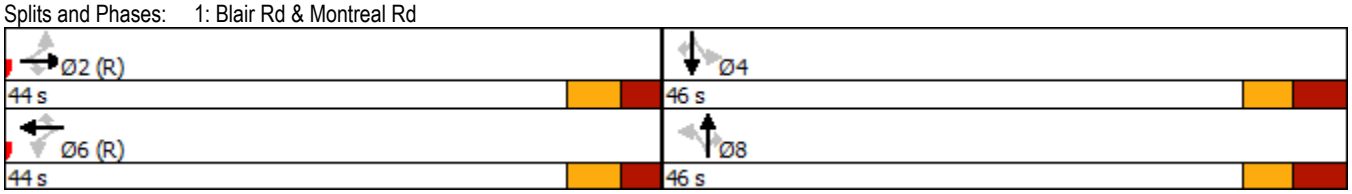
Detailed Synchro Analysis

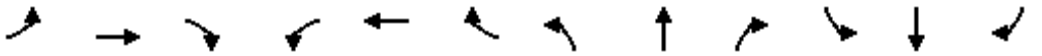
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	522	165	170	1164	16	142	77	55	11	121	108
Future Volume (vph)	31	522	165	170	1164	16	142	77	55	11	121	108
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	105.2		68.6	64.0		21.3	27.4		33.5	42.7		33.5
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	7.6			7.6			7.6			7.6		
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					0.97			0.98	1.00		0.99
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1679	3293	1517	1695	3390	1517	1647	1717	1517	1192	1784	1517
Flt Permitted	0.159			0.429			0.671			0.701		
Satd. Flow (perm)	281	3293	1517	765	3390	1471	1163	1717	1493	877	1784	1498
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			183			50			61			41
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		495.7			372.4			636.1			459.9	
Travel Time (s)		29.7			22.3			45.8			33.1	
Confl. Peds. (#/hr)	4					4			5	5		
Confl. Bikes (#/hr)						4						1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	5%	2%	2%	2%	2%	5%	6%	2%	45%	2%	2%
Adj. Flow (vph)	34	580	183	189	1293	18	158	86	61	12	134	120
Shared Lane Traffic (%)												
Lane Group Flow (vph)	34	580	183	189	1293	18	158	86	61	12	134	120
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	2	2	2	6	6	6	8	8	8	4	4	4

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	33.4	33.4	33.4	33.4	33.4	33.4	46.1	46.1	46.1	46.1	46.1	46.1
Total Split (s)	44.0	44.0	44.0	44.0	44.0	44.0	46.0	46.0	46.0	46.0	46.0	46.0
Total Split (%)	48.9%	48.9%	48.9%	48.9%	48.9%	48.9%	51.1%	51.1%	51.1%	51.1%	51.1%	51.1%
Maximum Green (s)	37.6	37.6	37.6	37.6	37.6	37.6	38.9	38.9	38.9	38.9	38.9	38.9
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7	2.7	3.8	3.8	3.8	3.8	3.8	3.8
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	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.4	6.4	7.1	7.1	7.1	7.1	7.1	7.1
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	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None	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	7.0	7.0	7.0
Flash Dont Walk (s)	20.0	20.0	20.0	20.0	20.0	20.0	32.0	32.0	32.0	32.0	32.0	32.0
Pedestrian Calls (#/hr)	0	0	0	4	4	4	5	5	5	0	0	0
Act Effct Green (s)	56.0	56.0	56.0	56.0	56.0	56.0	20.5	20.5	20.5	20.5	20.5	20.5
Actuated g/C Ratio	0.62	0.62	0.62	0.62	0.62	0.62	0.23	0.23	0.23	0.23	0.23	0.23
v/c Ratio	0.20	0.28	0.18	0.40	0.61	0.02	0.60	0.22	0.16	0.06	0.33	0.32
Control Delay	15.9	10.2	2.7	9.5	9.4	0.4	38.3	26.2	6.3	21.7	28.5	18.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.9	10.2	2.7	9.5	9.4	0.4	38.3	26.2	6.3	21.7	28.5	18.7
LOS	B	B	A	A	A	A	D	C	A	C	C	B
Approach Delay		8.7			9.3			28.5			23.8	
Approach LOS		A			A			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 14 (16%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.61			
Intersection Signal Delay: 12.5		Intersection LOS: B	
Intersection Capacity Utilization 85.2%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 1: Blair Rd & Montreal Rd





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	552	9	15	1350	2	16	0	20	0	0	1
Future Volume (vph)	2	552	9	15	1350	2	16	0	20	0	0	1
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	39.6		0.0	33.5		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	7.6			7.6			7.6			7.6		
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			0.99			0.98	
Frt		0.998						0.926			0.865	
Flt Protected	0.950			0.950				0.978				
Satd. Flow (prot)	1695	3246	0	1695	3325	0	0	1587	0	0	1520	0
Flt Permitted	0.133			0.414				0.333				
Satd. Flow (perm)	237	3246	0	737	3325	0	0	540	0	0	1520	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3						56			86	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		372.4			113.5			96.5			81.4	
Travel Time (s)		22.3			6.8			8.7			7.3	
Confl. Peds. (#/hr)	5		3	3		5	3		6	6		3
Confl. Bikes (#/hr)						4						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	6%	22%	2%	4%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	2	2	5	0	0	0
Adj. Flow (vph)	2	613	10	17	1500	2	18	0	22	0	0	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	623	0	17	1502	0	0	40	0	0	1	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.07	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA			NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		

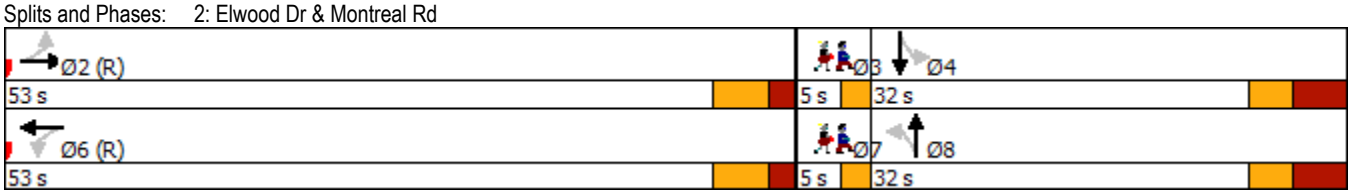
Lane Group	Ø3	Ø7
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (m)		
Storage Lanes		
Taper Length (m)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Bus Blockages (#/hr)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(m)		
Link Offset(m)		
Crosswalk Width(m)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (k/h)		
Number of Detectors		
Detector Template		
Leading Detector (m)		
Trailing Detector (m)		
Detector 1 Position(m)		
Detector 1 Size(m)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Detector 2 Position(m)		
Detector 2 Size(m)		
Detector 2 Type		
Detector 2 Channel		
Detector 2 Extend (s)		
Turn Type		
Protected Phases	3	7
Permitted Phases		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	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	
Minimum Split (s)	22.6	22.6		22.6	22.6		32.7	32.7		32.7	32.7	
Total Split (s)	53.0	53.0		53.0	53.0		32.0	32.0		32.0	32.0	
Total Split (%)	58.9%	58.9%		58.9%	58.9%		35.6%	35.6%		35.6%	35.6%	
Maximum Green (s)	47.4	47.4		47.4	47.4		25.3	25.3		25.3	25.3	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.9	1.9		1.9	1.9		3.7	3.7		3.7	3.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	5.6	5.6		5.6	5.6			6.7			6.7	
Lead/Lag							Lag	Lag		Lag	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	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		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	10.0	10.0		10.0	10.0		21.0	21.0		21.0	21.0	
Pedestrian Calls (#/hr)	3	3		5	5		0	0		0	0	
Act Effct Green (s)	69.4	69.4		69.4	69.4			10.0			10.0	
Actuated g/C Ratio	0.77	0.77		0.77	0.77			0.11			0.11	
v/c Ratio	0.01	0.25		0.03	0.59			0.37			0.00	
Control Delay	4.5	3.4		2.3	6.8			16.5			0.0	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	4.5	3.4		2.3	6.8			16.5			0.0	
LOS	A	A		A	A			B			A	
Approach Delay		3.4			6.8			16.5				
Approach LOS		A			A			B				

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 7 (8%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.59
Intersection Signal Delay: 6.0 Intersection LOS: A
Intersection Capacity Utilization 61.2% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 2: Elwood Dr & Montreal Rd



Lane Group	Ø3	Ø7
Detector Phase		
Switch Phase		
Minimum Initial (s)	1.0	1.0
Minimum Split (s)	3.0	3.0
Total Split (s)	5.0	5.0
Total Split (%)	6%	6%
Maximum Green (s)	3.0	3.0
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	Ped	Ped
Walk Time (s)	0.0	0.0
Flash Dont Walk (s)	0.0	0.0
Pedestrian Calls (#/hr)	6	6
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		

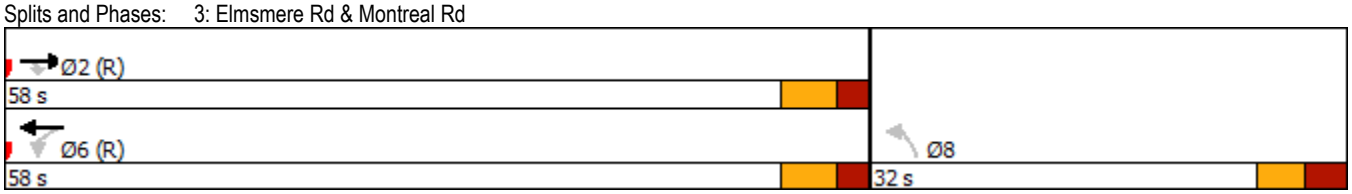
Intersection Summary

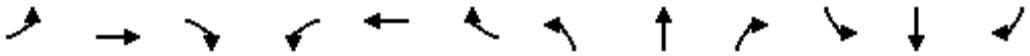
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	500	35	19	1271	31	38
Future Volume (vph)	500	35	19	1271	31	38
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		42.7	79.2		0.0	0.0
Storage Lanes		1	1		1	0
Taper Length (m)			7.6		7.6	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Ped Bike Factor		0.97	1.00		0.98	
Frt		0.850			0.925	
Flt Protected			0.950		0.978	
Satd. Flow (prot)	3262	1502	1558	3325	1557	0
Flt Permitted			0.444		0.978	
Satd. Flow (perm)	3262	1456	725	3325	1557	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		39			42	
Link Speed (k/h)	60			60	40	
Link Distance (m)	289.3			93.2	237.9	
Travel Time (s)	17.4			5.6	21.4	
Confl. Peds. (#/hr)		5	5		1	16
Confl. Bikes (#/hr)						1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	3%	11%	4%	6%	2%
Adj. Flow (vph)	556	39	21	1412	34	42
Shared Lane Traffic (%)						
Lane Group Flow (vph)	556	39	21	1412	76	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2	1	1	2	1	
Detector Template	Thru	Right	Left	Thru	Left	
Leading Detector (m)	30.5	6.1	6.1	30.5	6.1	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	1.8	6.1	6.1	1.8	6.1	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Perm	NA	Perm	
Protected Phases	2			6		
Permitted Phases		2	6		8	
Detector Phase	2	2	6	6	8	

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	
Minimum Split (s)	27.0	27.0	16.0	16.0	27.2	
Total Split (s)	58.0	58.0	58.0	58.0	32.0	
Total Split (%)	64.4%	64.4%	64.4%	64.4%	35.6%	
Maximum Green (s)	52.0	52.0	52.0	52.0	25.8	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.3	
All-Red Time (s)	2.3	2.3	2.3	2.3	2.9	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.2	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	
Walk Time (s)	7.0	7.0			7.0	
Flash Dont Walk (s)	14.0	14.0			14.0	
Pedestrian Calls (#/hr)	5	5			8	
Act Effct Green (s)	71.6	71.6	71.6	71.6	9.7	
Actuated g/C Ratio	0.80	0.80	0.80	0.80	0.11	
v/c Ratio	0.21	0.03	0.04	0.53	0.37	
Control Delay	2.9	2.3	4.6	6.1	23.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	2.9	2.3	4.6	6.1	23.2	
LOS	A	A	A	A	C	
Approach Delay	2.8			6.1	23.2	
Approach LOS	A			A	C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 50 (56%), Referenced to phase 2:EBT and 6:WBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.53			
Intersection Signal Delay: 5.8		Intersection LOS: A	
Intersection Capacity Utilization 57.5%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 3: Elmsmere Rd & Montreal Rd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	556	0	0	1314	6	0	0	0	17	0	53
Future Volume (Veh/h)	16	556	0	0	1314	6	0	0	0	17	0	53
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	18	618	0	0	1460	7	0	0	0	19	0	59
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		113										
pX, platoon unblocked				0.94			0.94	0.94	0.94	0.94	0.94	
vC, conflicting volume	1467			618			1443	2121	309	1808	2118	734
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1467			478			1352	2069	151	1739	2066	734
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	96			100			100	100	100	63	100	84
cM capacity (veh/h)	456			1020			83	49	820	51	49	363

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	18	309	309	0	973	494	0	78
Volume Left	18	0	0	0	0	0	0	19
Volume Right	0	0	0	0	0	7	0	59
cSH	456	1700	1700	1700	1700	1700	1700	146
Volume to Capacity	0.04	0.18	0.18	0.00	0.57	0.29	0.00	0.53
Queue Length 95th (m)	0.9	0.0	0.0	0.0	0.0	0.0	0.0	20.0
Control Delay (s)	13.2	0.0	0.0	0.0	0.0	0.0	0.0	54.9
Lane LOS	B						A	F
Approach Delay (s)	0.4			0.0			0.0	54.9
Approach LOS							A	F

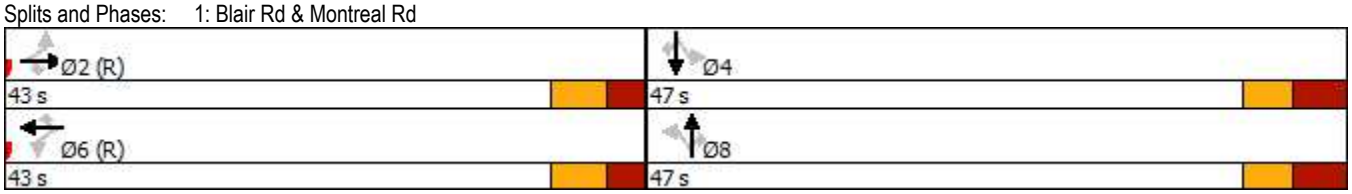
Intersection Summary				
Average Delay	2.1			
Intersection Capacity Utilization	49.6%	ICU Level of Service	A	
Analysis Period (min)	15			

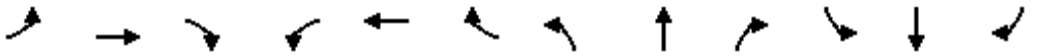
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	1048	146	64	602	8	226	83	187	36	82	57
Future Volume (vph)	95	1048	146	64	602	8	226	83	187	36	82	57
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	105.2		68.6	64.0		21.3	27.4		33.5	42.7		33.5
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	7.6			7.6			7.6			7.6		
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		0.98	1.00		0.97	1.00		0.99	1.00		0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1679	3293	1517	1695	3390	1517	1647	1717	1517	1192	1784	1517
Flt Permitted	0.372			0.176			0.698			0.697		
Satd. Flow (perm)	655	3293	1482	314	3390	1474	1205	1717	1495	873	1784	1492
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			162			50			41			63
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		495.7			372.4			636.1			459.9	
Travel Time (s)		29.7			22.3			45.8			33.1	
Confl. Peds. (#/hr)	5		1	1		5	6		3	3		6
Confl. Bikes (#/hr)			1						1			1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	5%	2%	2%	2%	2%	5%	6%	2%	45%	2%	2%
Adj. Flow (vph)	106	1164	162	71	669	9	251	92	208	40	91	63
Shared Lane Traffic (%)												
Lane Group Flow (vph)	106	1164	162	71	669	9	251	92	208	40	91	63
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	2	2	2	6	6	6	8	8	8	4	4	4

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	33.4	33.4	33.4	33.4	33.4	33.4	46.1	46.1	46.1	46.1	46.1	46.1
Total Split (s)	43.0	43.0	43.0	43.0	43.0	43.0	47.0	47.0	47.0	47.0	47.0	47.0
Total Split (%)	47.8%	47.8%	47.8%	47.8%	47.8%	47.8%	52.2%	52.2%	52.2%	52.2%	52.2%	52.2%
Maximum Green (s)	36.6	36.6	36.6	36.6	36.6	36.6	39.9	39.9	39.9	39.9	39.9	39.9
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7	2.7	3.8	3.8	3.8	3.8	3.8	3.8
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	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.4	6.4	7.1	7.1	7.1	7.1	7.1	7.1
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	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None	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	7.0	7.0	7.0
Flash Dont Walk (s)	20.0	20.0	20.0	20.0	20.0	20.0	32.0	32.0	32.0	32.0	32.0	32.0
Pedestrian Calls (#/hr)	1	1	1	5	5	5	3	3	3	6	6	6
Act Effct Green (s)	50.5	50.5	50.5	50.5	50.5	50.5	26.0	26.0	26.0	26.0	26.0	26.0
Actuated g/C Ratio	0.56	0.56	0.56	0.56	0.56	0.56	0.29	0.29	0.29	0.29	0.29	0.29
v/c Ratio	0.29	0.63	0.18	0.40	0.35	0.01	0.72	0.19	0.45	0.16	0.18	0.13
Control Delay	16.4	17.5	3.1	21.2	10.5	0.0	39.5	22.0	22.0	21.6	21.9	5.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.4	17.5	3.1	21.2	10.5	0.0	39.5	22.0	22.0	21.6	21.9	5.3
LOS	B	B	A	C	B	A	D	C	C	C	C	A
Approach Delay		15.8			11.4			30.0			16.4	
Approach LOS		B			B			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 1 (1%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay: 17.4		Intersection LOS: B	
Intersection Capacity Utilization 76.6%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 1: Blair Rd & Montreal Rd





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	1320	28	28	660	3	13	1	24	1	0	3
Future Volume (vph)	3	1320	28	28	660	3	13	1	24	1	0	3
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	39.6		0.0	33.5		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	7.6			7.6			7.6			7.6		
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			0.98			0.99	
Frt		0.997			0.999			0.913			0.899	
Flt Protected	0.950			0.950				0.984			0.988	
Satd. Flow (prot)	1695	3240	0	1695	3321	0	0	1563	0	0	1567	0
Flt Permitted	0.363			0.134				0.720				
Satd. Flow (perm)	644	3240	0	239	3321	0	0	1143	0	0	1581	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			1			27			56	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		372.4			113.5			96.5			81.4	
Travel Time (s)		22.3			6.8			8.7			7.3	
Confl. Peds. (#/hr)	8		7	7		8	3		14	14		3
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	6%	22%	2%	4%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	2	2	5	0	0	0
Adj. Flow (vph)	3	1467	31	31	733	3	14	1	27	1	0	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	1498	0	31	736	0	0	42	0	0	4	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.07	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		

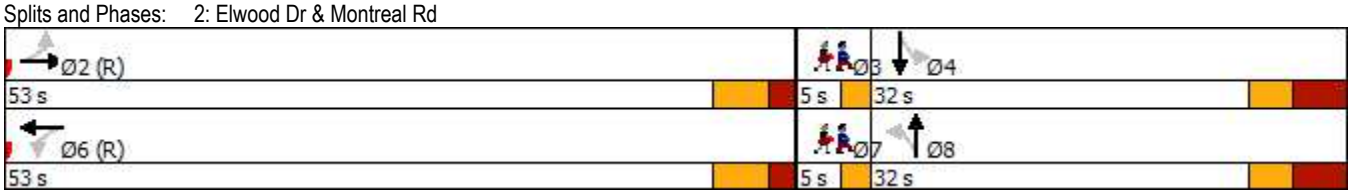
Lane Group	Ø3	Ø7
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (m)		
Storage Lanes		
Taper Length (m)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Bus Blockages (#/hr)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(m)		
Link Offset(m)		
Crosswalk Width(m)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (k/h)		
Number of Detectors		
Detector Template		
Leading Detector (m)		
Trailing Detector (m)		
Detector 1 Position(m)		
Detector 1 Size(m)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Detector 2 Position(m)		
Detector 2 Size(m)		
Detector 2 Type		
Detector 2 Channel		
Detector 2 Extend (s)		
Turn Type		
Protected Phases	3	7
Permitted Phases		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	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	
Minimum Split (s)	22.6	22.6		22.6	22.6		32.7	32.7		32.7	32.7	
Total Split (s)	53.0	53.0		53.0	53.0		32.0	32.0		32.0	32.0	
Total Split (%)	58.9%	58.9%		58.9%	58.9%		35.6%	35.6%		35.6%	35.6%	
Maximum Green (s)	47.4	47.4		47.4	47.4		25.3	25.3		25.3	25.3	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.9	1.9		1.9	1.9		3.7	3.7		3.7	3.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	5.6	5.6		5.6	5.6			6.7			6.7	
Lead/Lag							Lag	Lag		Lag	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	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		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	10.0	10.0		10.0	10.0		21.0	21.0		21.0	21.0	
Pedestrian Calls (#/hr)	7	7		8	8		0	0		0	0	
Act Effct Green (s)	69.4	69.4		69.4	69.4			10.0			10.0	
Actuated g/C Ratio	0.77	0.77		0.77	0.77			0.11			0.11	
v/c Ratio	0.01	0.60		0.17	0.29			0.28			0.02	
Control Delay	3.7	4.9		6.2	4.0			24.8			0.2	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	3.7	4.9		6.2	4.0			24.8			0.2	
LOS	A	A		A	A			C			A	
Approach Delay		4.9			4.1			24.8			0.3	
Approach LOS		A			A			C			A	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 8 (9%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.60
Intersection Signal Delay: 5.0 Intersection LOS: A
Intersection Capacity Utilization 63.0% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 2: Elwood Dr & Montreal Rd



Lane Group	Ø3	Ø7
Detector Phase		
Switch Phase		
Minimum Initial (s)	1.0	1.0
Minimum Split (s)	3.0	3.0
Total Split (s)	5.0	5.0
Total Split (%)	6%	6%
Maximum Green (s)	3.0	3.0
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	Ped	Ped
Walk Time (s)	0.0	0.0
Flash Dont Walk (s)	0.0	0.0
Pedestrian Calls (#/hr)	5	5
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		

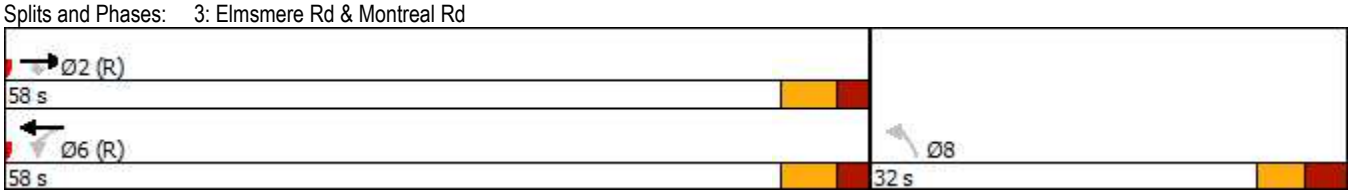
Intersection Summary

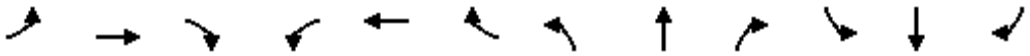
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1232	45	30	621	33	39
Future Volume (vph)	1232	45	30	621	33	39
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		42.7	79.2		0.0	0.0
Storage Lanes		1	1		1	0
Taper Length (m)			7.6		7.6	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Ped Bike Factor		0.97	1.00		0.99	
Frt		0.850			0.927	
Flt Protected			0.950		0.977	
Satd. Flow (prot)	3262	1502	1558	3325	1569	0
Flt Permitted			0.175		0.977	
Satd. Flow (perm)	3262	1456	287	3325	1568	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		43			43	
Link Speed (k/h)	60			60	40	
Link Distance (m)	289.3			93.2	237.9	
Travel Time (s)	17.4			5.6	21.4	
Confl. Peds. (#/hr)		5	5		2	7
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	3%	11%	4%	6%	2%
Adj. Flow (vph)	1369	50	33	690	37	43
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1369	50	33	690	80	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2	1	1	2	1	
Detector Template	Thru	Right	Left	Thru	Left	
Leading Detector (m)	30.5	6.1	6.1	30.5	6.1	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	1.8	6.1	6.1	1.8	6.1	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Perm	NA	Perm	
Protected Phases	2			6		
Permitted Phases		2	6		8	
Detector Phase	2	2	6	6	8	
Switch Phase						

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	
Minimum Split (s)	27.0	27.0	16.0	16.0	27.2	
Total Split (s)	58.0	58.0	58.0	58.0	32.0	
Total Split (%)	64.4%	64.4%	64.4%	64.4%	35.6%	
Maximum Green (s)	52.0	52.0	52.0	52.0	25.8	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.3	
All-Red Time (s)	2.3	2.3	2.3	2.3	2.9	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.2	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	
Walk Time (s)	7.0	7.0			7.0	
Flash Dont Walk (s)	14.0	14.0			14.0	
Pedestrian Calls (#/hr)	5	5			7	
Act Effct Green (s)	71.5	71.5	71.5	71.5	9.8	
Actuated g/C Ratio	0.79	0.79	0.79	0.79	0.11	
v/c Ratio	0.53	0.04	0.14	0.26	0.38	
Control Delay	4.6	2.0	6.6	4.1	23.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	4.6	2.0	6.6	4.1	23.7	
LOS	A	A	A	A	C	
Approach Delay	4.5			4.2	23.7	
Approach LOS	A			A	C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 52 (58%), Referenced to phase 2:EBT and 6:WBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.53			
Intersection Signal Delay: 5.1		Intersection LOS: A	
Intersection Capacity Utilization 53.6%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 3: Elmsmere Rd & Montreal Rd

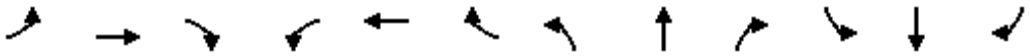




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	71	1274	0	0	662	24	0	0	0	9	0	29
Future Volume (Veh/h)	71	1274	0	0	662	24	0	0	0	9	0	29
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	79	1416	0	0	736	27	0	0	0	10	0	32
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		113										
pX, platoon unblocked				0.75			0.75	0.75	0.75	0.75	0.75	
vC, conflicting volume	763			1416			1974	2337	708	1616	2324	382
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	763			901			1640	2121	0	1165	2103	382
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	91			100			100	100	100	90	100	95
cM capacity (veh/h)	845			566			44	34	818	105	35	616

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	79	708	708	0	491	272	0	42
Volume Left	79	0	0	0	0	0	0	10
Volume Right	0	0	0	0	0	27	0	32
cSH	845	1700	1700	1700	1700	1700	1700	285
Volume to Capacity	0.09	0.42	0.42	0.00	0.29	0.16	0.00	0.15
Queue Length 95th (m)	2.3	0.0	0.0	0.0	0.0	0.0	0.0	3.9
Control Delay (s)	9.7	0.0	0.0	0.0	0.0	0.0	0.0	19.8
Lane LOS	A						A	C
Approach Delay (s)	0.5			0.0			0.0	19.8
Approach LOS							A	C

Intersection Summary				
Average Delay	0.7			
Intersection Capacity Utilization	53.8%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	556	0	0	1314	6	0	0	0	9	0	53
Future Volume (Veh/h)	16	556	0	0	1314	6	0	0	0	9	0	53
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	18	618	0	0	1460	7	0	0	0	10	0	59
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		113										
pX, platoon unblocked				0.94			0.94	0.94	0.94	0.94	0.94	
vC, conflicting volume	1467			618			1443	2121	309	1808	2118	734
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1467			478			1352	2069	151	1739	2066	734
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	96			100			100	100	100	80	100	84
cM capacity (veh/h)	456			1020			83	49	820	51	49	363

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	18	309	309	0	973	494	0	69
Volume Left	18	0	0	0	0	0	0	10
Volume Right	0	0	0	0	0	7	0	59
cSH	456	1700	1700	1700	1700	1700	1700	193
Volume to Capacity	0.04	0.18	0.18	0.00	0.57	0.29	0.00	0.36
Queue Length 95th (m)	0.9	0.0	0.0	0.0	0.0	0.0	0.0	11.6
Control Delay (s)	13.2	0.0	0.0	0.0	0.0	0.0	0.0	33.8
Lane LOS	B						A	D
Approach Delay (s)	0.4			0.0			0.0	33.8
Approach LOS							A	D

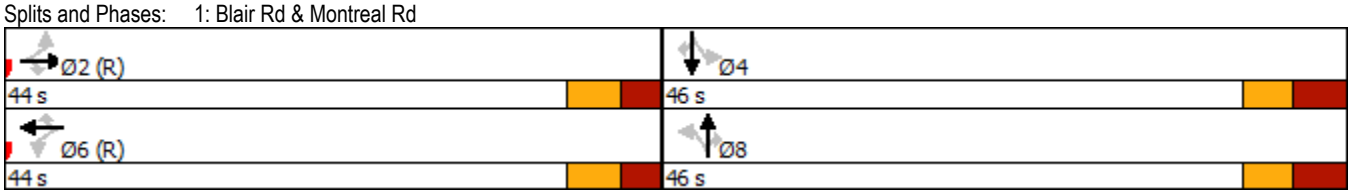
Intersection Summary				
Average Delay	1.2			
Intersection Capacity Utilization	49.2%	ICU Level of Service	A	
Analysis Period (min)	15			

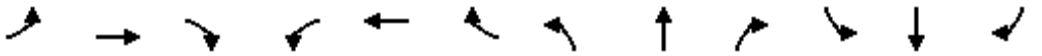
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	548	173	179	1221	23	149	94	58	27	164	136
Future Volume (vph)	41	548	173	179	1221	23	149	94	58	27	164	136
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	105.2		68.6	64.0		21.3	27.4		33.5	42.7		33.5
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	7.6			7.6			7.6			7.6		
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					0.97			0.98	1.00		0.99
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1679	3293	1517	1695	3390	1517	1647	1717	1517	1192	1784	1517
Flt Permitted	0.180			0.447			0.653			0.696		
Satd. Flow (perm)	318	3293	1517	798	3390	1471	1132	1717	1493	871	1784	1498
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			173			50			58			41
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		495.7			372.4			636.1			459.9	
Travel Time (s)		29.7			22.3			45.8			33.1	
Confl. Peds. (#/hr)	4					4			5	5		
Confl. Bikes (#/hr)						4						1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	5%	2%	2%	2%	2%	5%	6%	2%	45%	2%	2%
Adj. Flow (vph)	41	548	173	179	1221	23	149	94	58	27	164	136
Shared Lane Traffic (%)												
Lane Group Flow (vph)	41	548	173	179	1221	23	149	94	58	27	164	136
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	2	2	2	6	6	6	8	8	8	4	4	4

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	33.4	33.4	33.4	33.4	33.4	33.4	46.1	46.1	46.1	46.1	46.1	46.1
Total Split (s)	44.0	44.0	44.0	44.0	44.0	44.0	46.0	46.0	46.0	46.0	46.0	46.0
Total Split (%)	48.9%	48.9%	48.9%	48.9%	48.9%	48.9%	51.1%	51.1%	51.1%	51.1%	51.1%	51.1%
Maximum Green (s)	37.6	37.6	37.6	37.6	37.6	37.6	38.9	38.9	38.9	38.9	38.9	38.9
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7	2.7	3.8	3.8	3.8	3.8	3.8	3.8
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	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.4	6.4	7.1	7.1	7.1	7.1	7.1	7.1
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	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None	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	7.0	7.0	7.0
Flash Dont Walk (s)	20.0	20.0	20.0	20.0	20.0	20.0	32.0	32.0	32.0	32.0	32.0	32.0
Pedestrian Calls (#/hr)	0	0	0	4	4	4	5	5	5	0	0	0
Act Effct Green (s)	56.3	56.3	56.3	56.3	56.3	56.3	20.2	20.2	20.2	20.2	20.2	20.2
Actuated g/C Ratio	0.63	0.63	0.63	0.63	0.63	0.63	0.22	0.22	0.22	0.22	0.22	0.22
v/c Ratio	0.21	0.27	0.17	0.36	0.58	0.02	0.59	0.24	0.15	0.14	0.41	0.37
Control Delay	15.5	10.0	2.8	8.1	8.1	0.3	38.3	26.9	6.3	24.5	30.5	20.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.5	10.0	2.8	8.1	8.1	0.3	38.3	26.9	6.3	24.5	30.5	20.4
LOS	B	B	A	A	A	A	D	C	A	C	C	C
Approach Delay		8.7			8.0			28.6			25.8	
Approach LOS		A			A			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 14 (16%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.59			
Intersection Signal Delay: 12.4		Intersection LOS: B	
Intersection Capacity Utilization 86.8%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 1: Blair Rd & Montreal Rd





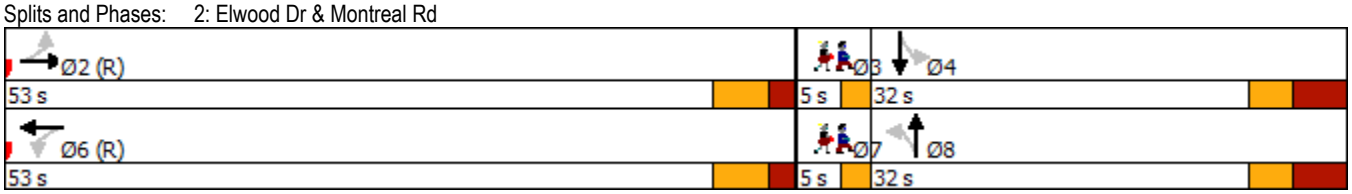
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	595	9	15	1423	2	16	0	20	0	0	1
Future Volume (vph)	2	595	9	15	1423	2	16	0	20	0	0	1
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	39.6		0.0	33.5		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	7.6			7.6			7.6			7.6		
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			0.99			0.98	
Frt		0.998						0.925			0.865	
Flt Protected	0.950			0.950				0.978				
Satd. Flow (prot)	1695	3247	0	1695	3325	0	0	1585	0	0	1520	0
Flt Permitted	0.149			0.423				0.332				
Satd. Flow (perm)	266	3247	0	752	3325	0	0	537	0	0	1520	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2						56			91	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		372.4			113.5			96.5			81.4	
Travel Time (s)		22.3			6.8			8.7			7.3	
Confl. Peds. (#/hr)	5		3	3		5	3		6	6		3
Confl. Bikes (#/hr)						4						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	6%	22%	2%	4%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	2	2	5	0	0	0
Adj. Flow (vph)	2	595	9	15	1423	2	16	0	20	0	0	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	604	0	15	1425	0	0	36	0	0	1	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.07	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA			NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		

Lane Group	Ø3	Ø7
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (m)		
Storage Lanes		
Taper Length (m)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Bus Blockages (#/hr)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(m)		
Link Offset(m)		
Crosswalk Width(m)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (k/h)		
Number of Detectors		
Detector Template		
Leading Detector (m)		
Trailing Detector (m)		
Detector 1 Position(m)		
Detector 1 Size(m)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Detector 2 Position(m)		
Detector 2 Size(m)		
Detector 2 Type		
Detector 2 Channel		
Detector 2 Extend (s)		
Turn Type		
Protected Phases	3	7
Permitted Phases		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	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	
Minimum Split (s)	22.6	22.6		22.6	22.6		32.7	32.7		32.7	32.7	
Total Split (s)	53.0	53.0		53.0	53.0		32.0	32.0		32.0	32.0	
Total Split (%)	58.9%	58.9%		58.9%	58.9%		35.6%	35.6%		35.6%	35.6%	
Maximum Green (s)	47.4	47.4		47.4	47.4		25.3	25.3		25.3	25.3	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.9	1.9		1.9	1.9		3.7	3.7		3.7	3.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	5.6	5.6		5.6	5.6			6.7			6.7	
Lead/Lag							Lag	Lag		Lag	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	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		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	10.0	10.0		10.0	10.0		21.0	21.0		21.0	21.0	
Pedestrian Calls (#/hr)	3	3		5	5		0	0		0	0	
Act Effct Green (s)	69.4	69.4		69.4	69.4			10.0			10.0	
Actuated g/C Ratio	0.77	0.77		0.77	0.77			0.11			0.11	
v/c Ratio	0.01	0.24		0.03	0.56			0.33			0.00	
Control Delay	4.0	3.4		2.3	6.5			13.6			0.0	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	4.0	3.4		2.3	6.5			13.6			0.0	
LOS	A	A		A	A			B			A	
Approach Delay		3.4			6.4			13.6				
Approach LOS		A			A			B				

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 7 (8%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.56			
Intersection Signal Delay: 5.7		Intersection LOS: A	
Intersection Capacity Utilization 63.3%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 2: Elwood Dr & Montreal Rd



Lane Group	Ø3	Ø7
Detector Phase		
Switch Phase		
Minimum Initial (s)	1.0	1.0
Minimum Split (s)	3.0	3.0
Total Split (s)	5.0	5.0
Total Split (%)	6%	6%
Maximum Green (s)	3.0	3.0
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	Ped	Ped
Walk Time (s)	0.0	0.0
Flash Dont Walk (s)	0.0	0.0
Pedestrian Calls (#/hr)	6	6
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		

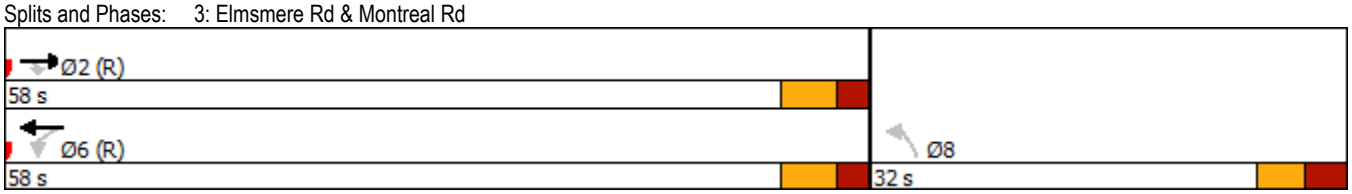
Intersection Summary

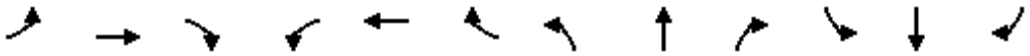
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	540	35	19	1340	31	38
Future Volume (vph)	540	35	19	1340	31	38
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		42.7	79.2		0.0	0.0
Storage Lanes		1	1		1	0
Taper Length (m)			7.6		7.6	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Ped Bike Factor		0.97	1.00		0.98	
Frt		0.850			0.926	
Flt Protected			0.950		0.978	
Satd. Flow (prot)	3262	1502	1558	3325	1559	0
Flt Permitted			0.451		0.978	
Satd. Flow (perm)	3262	1456	736	3325	1558	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		35			38	
Link Speed (k/h)	60			60	40	
Link Distance (m)	289.3			93.2	237.9	
Travel Time (s)	17.4			5.6	21.4	
Confl. Peds. (#/hr)		5	5		1	16
Confl. Bikes (#/hr)						1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	6%	3%	11%	4%	6%	2%
Adj. Flow (vph)	540	35	19	1340	31	38
Shared Lane Traffic (%)						
Lane Group Flow (vph)	540	35	19	1340	69	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2	1	1	2	1	
Detector Template	Thru	Right	Left	Thru	Left	
Leading Detector (m)	30.5	6.1	6.1	30.5	6.1	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	1.8	6.1	6.1	1.8	6.1	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Perm	NA	Perm	
Protected Phases	2			6		
Permitted Phases		2	6		8	
Detector Phase	2	2	6	6	8	

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	
Minimum Split (s)	27.0	27.0	16.0	16.0	27.2	
Total Split (s)	58.0	58.0	58.0	58.0	32.0	
Total Split (%)	64.4%	64.4%	64.4%	64.4%	35.6%	
Maximum Green (s)	52.0	52.0	52.0	52.0	25.8	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.3	
All-Red Time (s)	2.3	2.3	2.3	2.3	2.9	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.2	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	
Walk Time (s)	7.0	7.0			7.0	
Flash Dont Walk (s)	14.0	14.0			14.0	
Pedestrian Calls (#/hr)	5	5			8	
Act Effct Green (s)	71.7	71.7	71.7	71.7	9.6	
Actuated g/C Ratio	0.80	0.80	0.80	0.80	0.11	
v/c Ratio	0.21	0.03	0.03	0.51	0.34	
Control Delay	3.0	2.5	4.5	5.8	23.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	3.0	2.5	4.5	5.8	23.0	
LOS	A	A	A	A	C	
Approach Delay	2.9			5.8	23.0	
Approach LOS	A			A	C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 50 (56%), Referenced to phase 2:EBT and 6:WBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.51			
Intersection Signal Delay: 5.6		Intersection LOS: A	
Intersection Capacity Utilization 59.5%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 3: Elmsmere Rd & Montreal Rd

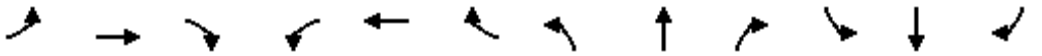




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	599	0	0	1385	6	0	0	0	17	0	53
Future Volume (Veh/h)	16	599	0	0	1385	6	0	0	0	17	0	53
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	16	599	0	0	1385	6	0	0	0	17	0	53
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		113										
pX, platoon unblocked				0.95			0.95	0.95	0.95	0.95	0.95	
vC, conflicting volume	1391			599			1376	2022	300	1720	2019	696
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1391			465			1286	1968	149	1648	1964	696
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			100			100	100	100	72	100	86
cM capacity (veh/h)	488			1035			97	57	825	60	57	384

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	16	399	200	0	923	468	0	70
Volume Left	16	0	0	0	0	0	0	17
Volume Right	0	0	0	0	0	6	0	53
cSH	488	1700	1700	1700	1700	1700	1700	167
Volume to Capacity	0.03	0.23	0.12	0.00	0.54	0.28	0.00	0.42
Queue Length 95th (m)	0.8	0.0	0.0	0.0	0.0	0.0	0.0	14.3
Control Delay (s)	12.6	0.0	0.0	0.0	0.0	0.0	0.0	41.4
Lane LOS	B						A	E
Approach Delay (s)	0.3			0.0			0.0	41.4
Approach LOS							A	E

Intersection Summary				
Average Delay	1.5			
Intersection Capacity Utilization	51.7%	ICU Level of Service	A	
Analysis Period (min)	15			

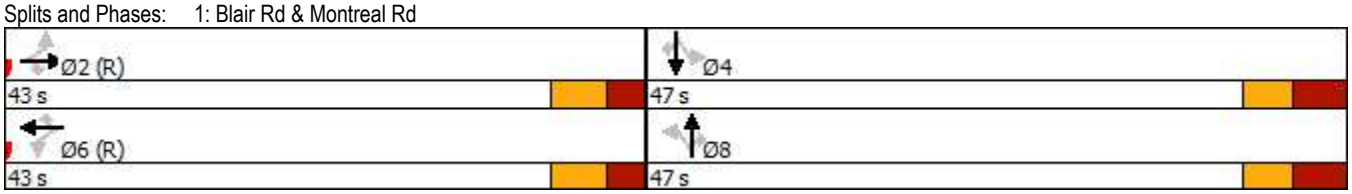


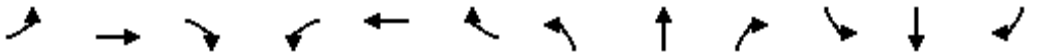
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	122	1098	153	67	631	23	237	121	196	49	108	74
Future Volume (vph)	122	1098	153	67	631	23	237	121	196	49	108	74
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	105.2		68.6	64.0		21.3	27.4		33.5	42.7		33.5
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	7.6			7.6			7.6			7.6		
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		0.98	1.00		0.97	1.00		0.99	1.00		0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1679	3293	1517	1695	3390	1517	1647	1717	1517	1192	1784	1517
Flt Permitted	0.393			0.199			0.687			0.679		
Satd. Flow (perm)	692	3293	1482	355	3390	1474	1187	1717	1495	851	1784	1492
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			153			50			41			74
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		495.7			372.4			636.1			459.9	
Travel Time (s)		29.7			22.3			45.8			33.1	
Confl. Peds. (#/hr)	5		1	1		5	6		3	3		6
Confl. Bikes (#/hr)			1						1			1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	5%	2%	2%	2%	2%	5%	6%	2%	45%	2%	2%
Adj. Flow (vph)	122	1098	153	67	631	23	237	121	196	49	108	74
Shared Lane Traffic (%)												
Lane Group Flow (vph)	122	1098	153	67	631	23	237	121	196	49	108	74
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	2	2	2	6	6	6	8	8	8	4	4	4

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	33.4	33.4	33.4	33.4	33.4	33.4	46.1	46.1	46.1	46.1	46.1	46.1
Total Split (s)	43.0	43.0	43.0	43.0	43.0	43.0	47.0	47.0	47.0	47.0	47.0	47.0
Total Split (%)	47.8%	47.8%	47.8%	47.8%	47.8%	47.8%	52.2%	52.2%	52.2%	52.2%	52.2%	52.2%
Maximum Green (s)	36.6	36.6	36.6	36.6	36.6	36.6	39.9	39.9	39.9	39.9	39.9	39.9
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7	2.7	3.8	3.8	3.8	3.8	3.8	3.8
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	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.4	6.4	7.1	7.1	7.1	7.1	7.1	7.1
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	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None	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	7.0	7.0	7.0
Flash Dont Walk (s)	20.0	20.0	20.0	20.0	20.0	20.0	32.0	32.0	32.0	32.0	32.0	32.0
Pedestrian Calls (#/hr)	1	1	1	5	5	5	3	3	3	6	6	6
Act Effct Green (s)	51.2	51.2	51.2	51.2	51.2	51.2	25.3	25.3	25.3	25.3	25.3	25.3
Actuated g/C Ratio	0.57	0.57	0.57	0.57	0.57	0.57	0.28	0.28	0.28	0.28	0.28	0.28
v/c Ratio	0.31	0.59	0.17	0.33	0.33	0.03	0.71	0.25	0.44	0.21	0.22	0.16
Control Delay	16.3	16.2	3.1	16.5	10.2	0.5	39.4	23.7	21.7	23.0	23.0	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.3	16.2	3.1	16.5	10.2	0.5	39.4	23.7	21.7	23.0	23.0	5.2
LOS	B	B	A	B	B	A	D	C	C	C	C	A
Approach Delay		14.8			10.4			29.7			17.3	
Approach LOS		B			B			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 1 (1%), 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: 16.8		Intersection LOS: B	
Intersection Capacity Utilization 89.4%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 1: Blair Rd & Montreal Rd





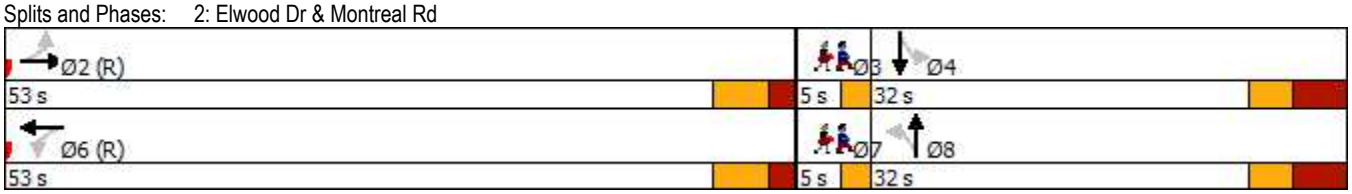
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	1395	28	28	707	3	13	1	24	1	0	3
Future Volume (vph)	3	1395	28	28	707	3	13	1	24	1	0	3
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	39.6		0.0	33.5		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	7.6			7.6			7.6			7.6		
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			0.98			0.99	
Frt		0.997			0.999			0.915			0.899	
Flt Protected	0.950			0.950				0.983			0.988	
Satd. Flow (prot)	1695	3240	0	1695	3321	0	0	1566	0	0	1567	0
Flt Permitted	0.374			0.150				0.715				
Satd. Flow (perm)	663	3240	0	268	3321	0	0	1138	0	0	1581	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			1			24			56	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		372.4			113.5			96.5			81.4	
Travel Time (s)		22.3			6.8			8.7			7.3	
Confl. Peds. (#/hr)	8		7	7		8	3		14	14		3
Confl. Bikes (#/hr)						1						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	6%	22%	2%	4%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	2	2	5	0	0	0
Adj. Flow (vph)	3	1395	28	28	707	3	13	1	24	1	0	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	1423	0	28	710	0	0	38	0	0	4	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.07	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		

Lane Group	Ø3	Ø7
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (m)		
Storage Lanes		
Taper Length (m)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Bus Blockages (#/hr)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(m)		
Link Offset(m)		
Crosswalk Width(m)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (k/h)		
Number of Detectors		
Detector Template		
Leading Detector (m)		
Trailing Detector (m)		
Detector 1 Position(m)		
Detector 1 Size(m)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Detector 2 Position(m)		
Detector 2 Size(m)		
Detector 2 Type		
Detector 2 Channel		
Detector 2 Extend (s)		
Turn Type		
Protected Phases	3	7
Permitted Phases		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	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	
Minimum Split (s)	22.6	22.6		22.6	22.6		32.7	32.7		32.7	32.7	
Total Split (s)	53.0	53.0		53.0	53.0		32.0	32.0		32.0	32.0	
Total Split (%)	58.9%	58.9%		58.9%	58.9%		35.6%	35.6%		35.6%	35.6%	
Maximum Green (s)	47.4	47.4		47.4	47.4		25.3	25.3		25.3	25.3	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.9	1.9		1.9	1.9		3.7	3.7		3.7	3.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	5.6	5.6		5.6	5.6			6.7			6.7	
Lead/Lag							Lag	Lag		Lag	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	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		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	10.0	10.0		10.0	10.0		21.0	21.0		21.0	21.0	
Pedestrian Calls (#/hr)	7	7		8	8		0	0		0	0	
Act Effct Green (s)	69.4	69.4		69.4	69.4			10.0			10.0	
Actuated g/C Ratio	0.77	0.77		0.77	0.77			0.11			0.11	
v/c Ratio	0.01	0.57		0.14	0.28			0.26			0.02	
Control Delay	3.7	4.3		5.2	3.9			24.8			0.2	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	3.7	4.3		5.2	3.9			24.8			0.2	
LOS	A	A		A	A			C			A	
Approach Delay		4.3			4.0			24.8			0.3	
Approach LOS		A			A			C			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 8 (9%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.57			
Intersection Signal Delay: 4.5		Intersection LOS: A	
Intersection Capacity Utilization 65.2%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 2: Elwood Dr & Montreal Rd



Lane Group	Ø3	Ø7
Detector Phase		
Switch Phase		
Minimum Initial (s)	1.0	1.0
Minimum Split (s)	3.0	3.0
Total Split (s)	5.0	5.0
Total Split (%)	6%	6%
Maximum Green (s)	3.0	3.0
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	Ped	Ped
Walk Time (s)	0.0	0.0
Flash Dont Walk (s)	0.0	0.0
Pedestrian Calls (#/hr)	5	5
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		

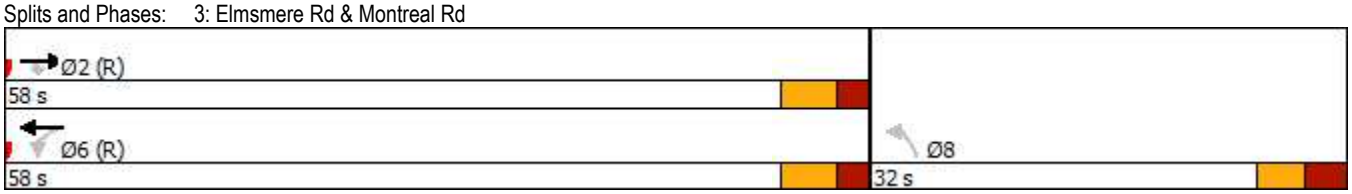
Intersection Summary

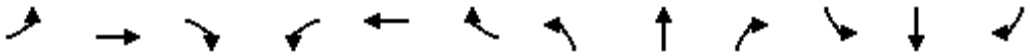
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1303	45	30	666	33	39
Future Volume (vph)	1303	45	30	666	33	39
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		42.7	79.2		0.0	0.0
Storage Lanes		1	1		1	0
Taper Length (m)			7.6		7.6	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Ped Bike Factor		0.97	1.00		0.99	
Frt		0.850			0.927	
Flt Protected			0.950		0.978	
Satd. Flow (prot)	3262	1502	1558	3325	1571	0
Flt Permitted			0.191		0.978	
Satd. Flow (perm)	3262	1456	313	3325	1569	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		41			39	
Link Speed (k/h)	60			60	40	
Link Distance (m)	289.3			93.2	237.9	
Travel Time (s)	17.4			5.6	21.4	
Confl. Peds. (#/hr)		5	5		2	7
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	6%	3%	11%	4%	6%	2%
Adj. Flow (vph)	1303	45	30	666	33	39
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1303	45	30	666	72	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2	1	1	2	1	
Detector Template	Thru	Right	Left	Thru	Left	
Leading Detector (m)	30.5	6.1	6.1	30.5	6.1	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	1.8	6.1	6.1	1.8	6.1	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Perm	NA	Perm	
Protected Phases	2			6		
Permitted Phases		2	6		8	
Detector Phase	2	2	6	6	8	
Switch Phase						

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	
Minimum Split (s)	27.0	27.0	16.0	16.0	27.2	
Total Split (s)	58.0	58.0	58.0	58.0	32.0	
Total Split (%)	64.4%	64.4%	64.4%	64.4%	35.6%	
Maximum Green (s)	52.0	52.0	52.0	52.0	25.8	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.3	
All-Red Time (s)	2.3	2.3	2.3	2.3	2.9	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.2	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	
Walk Time (s)	7.0	7.0			7.0	
Flash Dont Walk (s)	14.0	14.0			14.0	
Pedestrian Calls (#/hr)	5	5			7	
Act Effct Green (s)	71.6	71.6	71.6	71.6	9.7	
Actuated g/C Ratio	0.80	0.80	0.80	0.80	0.11	
v/c Ratio	0.50	0.04	0.12	0.25	0.35	
Control Delay	4.1	1.9	6.0	4.0	23.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	4.1	1.9	6.0	4.0	23.3	
LOS	A	A	A	A	C	
Approach Delay	4.0			4.1	23.3	
Approach LOS	A			A	C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 52 (58%), Referenced to phase 2:EBT and 6:WBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.50			
Intersection Signal Delay: 4.7		Intersection LOS: A	
Intersection Capacity Utilization 55.7%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 3: Elmsmere Rd & Montreal Rd

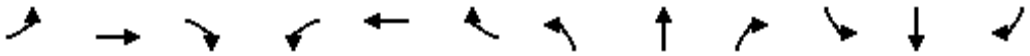




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	71	1347	0	0	709	24	0	0	0	9	0	29
Future Volume (Veh/h)	71	1347	0	0	709	24	0	0	0	9	0	29
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	71	1347	0	0	709	24	0	0	0	9	0	29
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		113										
pX, platoon unblocked				0.78			0.78	0.78	0.78	0.78	0.78	
vC, conflicting volume	733			1347			1872	2222	674	1536	2210	366
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	733			876			1551	2000	10	1119	1985	366
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	92			100			100	100	100	92	100	95
cM capacity (veh/h)	868			597			54	42	831	118	43	630

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	71	898	449	0	473	260	0	38
Volume Left	71	0	0	0	0	0	0	9
Volume Right	0	0	0	0	0	24	0	29
cSH	868	1700	1700	1700	1700	1700	1700	310
Volume to Capacity	0.08	0.53	0.26	0.00	0.28	0.15	0.00	0.12
Queue Length 95th (m)	2.0	0.0	0.0	0.0	0.0	0.0	0.0	3.1
Control Delay (s)	9.5	0.0	0.0	0.0	0.0	0.0	0.0	18.2
Lane LOS	A						A	C
Approach Delay (s)	0.5			0.0			0.0	18.2
Approach LOS							A	C

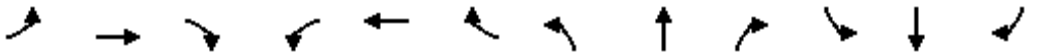
Intersection Summary				
Average Delay	0.6			
Intersection Capacity Utilization	56.0%	ICU Level of Service	B	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	599	0	0	1385	6	0	0	0	13	0	53
Future Volume (Veh/h)	16	599	0	0	1385	6	0	0	0	13	0	53
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	16	599	0	0	1385	6	0	0	0	13	0	53
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		113										
pX, platoon unblocked				0.95			0.95	0.95	0.95	0.95	0.95	
vC, conflicting volume	1391			599			1376	2022	300	1720	2019	696
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1391			465			1286	1968	149	1648	1964	696
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			100			100	100	100	78	100	86
cM capacity (veh/h)	488			1035			97	57	825	60	57	384

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	16	399	200	0	923	468	0	66
Volume Left	16	0	0	0	0	0	0	13
Volume Right	0	0	0	0	0	6	0	53
cSH	488	1700	1700	1700	1700	1700	1700	187
Volume to Capacity	0.03	0.23	0.12	0.00	0.54	0.28	0.00	0.35
Queue Length 95th (m)	0.8	0.0	0.0	0.0	0.0	0.0	0.0	11.4
Control Delay (s)	12.6	0.0	0.0	0.0	0.0	0.0	0.0	34.5
Lane LOS	B						A	D
Approach Delay (s)	0.3			0.0			0.0	34.5
Approach LOS							A	D

Intersection Summary				
Average Delay	1.2			
Intersection Capacity Utilization	51.5%	ICU Level of Service		A
Analysis Period (min)	15			

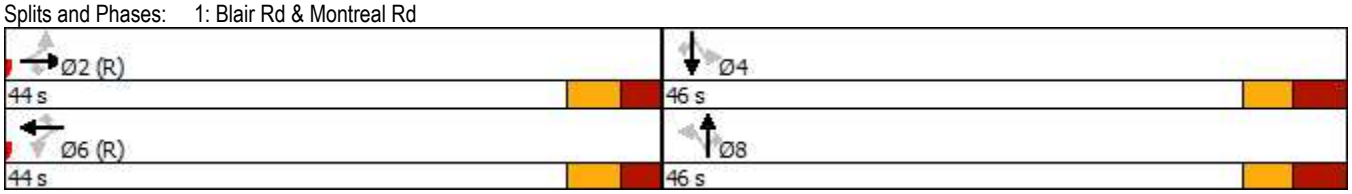


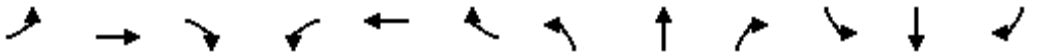
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	574	182	187	1279	24	156	98	61	27	170	142
Future Volume (vph)	42	574	182	187	1279	24	156	98	61	27	170	142
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	105.2		68.6	64.0		21.3	27.4		33.5	42.7		33.5
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	7.6			7.6			7.6			7.6		
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					0.97			0.98	1.00		0.99
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1679	3293	1517	1695	3390	1517	1647	1717	1517	1192	1784	1517
Flt Permitted	0.163			0.432			0.645			0.694		
Satd. Flow (perm)	288	3293	1517	771	3390	1471	1118	1717	1493	868	1784	1498
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			182			50			61			41
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		495.7			372.4			636.1			459.9	
Travel Time (s)		29.7			22.3			45.8			33.1	
Confl. Peds. (#/hr)	4					4			5	5		
Confl. Bikes (#/hr)						4						1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	5%	2%	2%	2%	2%	5%	6%	2%	45%	2%	2%
Adj. Flow (vph)	42	574	182	187	1279	24	156	98	61	27	170	142
Shared Lane Traffic (%)												
Lane Group Flow (vph)	42	574	182	187	1279	24	156	98	61	27	170	142
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	2	2	2	6	6	6	8	8	8	4	4	4

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	33.4	33.4	33.4	33.4	33.4	33.4	46.1	46.1	46.1	46.1	46.1	46.1
Total Split (s)	44.0	44.0	44.0	44.0	44.0	44.0	46.0	46.0	46.0	46.0	46.0	46.0
Total Split (%)	48.9%	48.9%	48.9%	48.9%	48.9%	48.9%	51.1%	51.1%	51.1%	51.1%	51.1%	51.1%
Maximum Green (s)	37.6	37.6	37.6	37.6	37.6	37.6	38.9	38.9	38.9	38.9	38.9	38.9
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7	2.7	3.8	3.8	3.8	3.8	3.8	3.8
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	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.4	6.4	7.1	7.1	7.1	7.1	7.1	7.1
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	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None	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	7.0	7.0	7.0
Flash Dont Walk (s)	20.0	20.0	20.0	20.0	20.0	20.0	32.0	32.0	32.0	32.0	32.0	32.0
Pedestrian Calls (#/hr)	0	0	0	4	4	4	5	5	5	0	0	0
Act Effct Green (s)	55.9	55.9	55.9	55.9	55.9	55.9	20.6	20.6	20.6	20.6	20.6	20.6
Actuated g/C Ratio	0.62	0.62	0.62	0.62	0.62	0.62	0.23	0.23	0.23	0.23	0.23	0.23
v/c Ratio	0.24	0.28	0.18	0.39	0.61	0.03	0.61	0.25	0.16	0.14	0.42	0.38
Control Delay	17.0	10.3	2.7	9.3	9.2	0.7	39.1	26.7	6.2	24.2	30.3	20.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.0	10.3	2.7	9.3	9.2	0.7	39.1	26.7	6.2	24.2	30.3	20.7
LOS	B	B	A	A	A	A	D	C	A	C	C	C
Approach Delay		8.9			9.1			28.9			25.8	
Approach LOS		A			A			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 14 (16%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.61			
Intersection Signal Delay: 13.1		Intersection LOS: B	
Intersection Capacity Utilization 88.5%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 1: Blair Rd & Montreal Rd





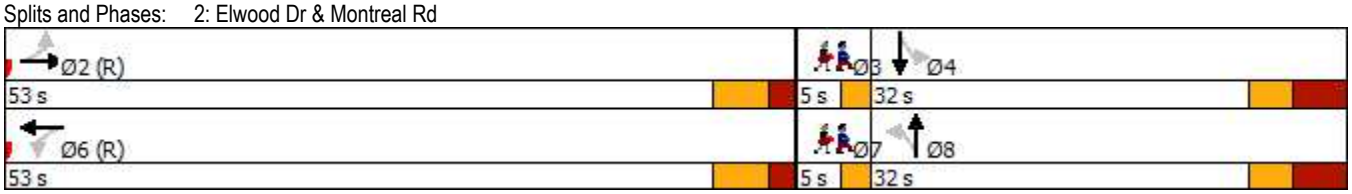
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	622	9	15	1490	2	16	0	20	0	0	1
Future Volume (vph)	2	622	9	15	1490	2	16	0	20	0	0	1
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	39.6		0.0	33.5		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	7.6			7.6			7.6			7.6		
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			0.99			0.98	
Frt		0.998						0.925			0.865	
Flt Protected	0.950			0.950				0.978				
Satd. Flow (prot)	1695	3247	0	1695	3325	0	0	1585	0	0	1520	0
Flt Permitted	0.135			0.411				0.332				
Satd. Flow (perm)	241	3247	0	731	3325	0	0	537	0	0	1520	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2						56			86	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		372.4			113.5			96.5			81.4	
Travel Time (s)		22.3			6.8			8.7			7.3	
Confl. Peds. (#/hr)	5		3	3		5	3		6	6		3
Confl. Bikes (#/hr)						4						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	6%	22%	2%	4%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	2	2	5	0	0	0
Adj. Flow (vph)	2	622	9	15	1490	2	16	0	20	0	0	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	631	0	15	1492	0	0	36	0	0	1	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.07	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA			NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		

Lane Group	Ø3	Ø7
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (m)		
Storage Lanes		
Taper Length (m)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Bus Blockages (#/hr)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(m)		
Link Offset(m)		
Crosswalk Width(m)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (k/h)		
Number of Detectors		
Detector Template		
Leading Detector (m)		
Trailing Detector (m)		
Detector 1 Position(m)		
Detector 1 Size(m)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Detector 2 Position(m)		
Detector 2 Size(m)		
Detector 2 Type		
Detector 2 Channel		
Detector 2 Extend (s)		
Turn Type		
Protected Phases	3	7
Permitted Phases		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	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	
Minimum Split (s)	22.6	22.6		22.6	22.6		32.7	32.7		32.7	32.7	
Total Split (s)	53.0	53.0		53.0	53.0		32.0	32.0		32.0	32.0	
Total Split (%)	58.9%	58.9%		58.9%	58.9%		35.6%	35.6%		35.6%	35.6%	
Maximum Green (s)	47.4	47.4		47.4	47.4		25.3	25.3		25.3	25.3	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.9	1.9		1.9	1.9		3.7	3.7		3.7	3.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	5.6	5.6		5.6	5.6			6.7			6.7	
Lead/Lag							Lag	Lag		Lag	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	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		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	10.0	10.0		10.0	10.0		21.0	21.0		21.0	21.0	
Pedestrian Calls (#/hr)	3	3		5	5		0	0		0	0	
Act Effct Green (s)	69.4	69.4		69.4	69.4			10.0			10.0	
Actuated g/C Ratio	0.77	0.77		0.77	0.77			0.11			0.11	
v/c Ratio	0.01	0.25		0.03	0.58			0.33			0.00	
Control Delay	4.0	3.4		2.3	6.8			13.6			0.0	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	4.0	3.4		2.3	6.8			13.6			0.0	
LOS	A	A		A	A			B			A	
Approach Delay		3.4			6.8			13.6				
Approach LOS		A			A			B				

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 7 (8%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.58			
Intersection Signal Delay: 5.9		Intersection LOS: A	
Intersection Capacity Utilization 65.3%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 2: Elwood Dr & Montreal Rd



Lane Group	Ø3	Ø7
Detector Phase		
Switch Phase		
Minimum Initial (s)	1.0	1.0
Minimum Split (s)	3.0	3.0
Total Split (s)	5.0	5.0
Total Split (%)	6%	6%
Maximum Green (s)	3.0	3.0
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	Ped	Ped
Walk Time (s)	0.0	0.0
Flash Dont Walk (s)	0.0	0.0
Pedestrian Calls (#/hr)	6	6
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		

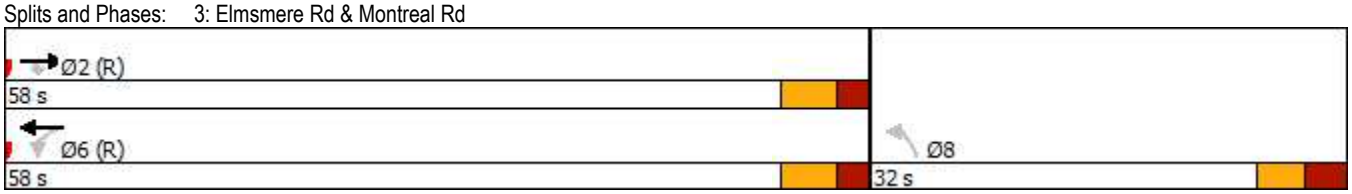
Intersection Summary

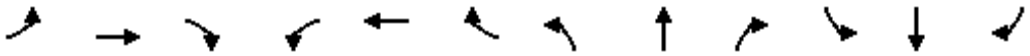
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	565	35	19	1403	31	38
Future Volume (vph)	565	35	19	1403	31	38
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		42.7	79.2		0.0	0.0
Storage Lanes		1	1		1	0
Taper Length (m)			7.6		7.6	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Ped Bike Factor		0.97	1.00		0.98	
Frt		0.850			0.926	
Flt Protected			0.950		0.978	
Satd. Flow (prot)	3262	1502	1558	3325	1559	0
Flt Permitted			0.440		0.978	
Satd. Flow (perm)	3262	1456	718	3325	1558	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		35			38	
Link Speed (k/h)	60			60	40	
Link Distance (m)	289.3			93.2	237.9	
Travel Time (s)	17.4			5.6	21.4	
Confl. Peds. (#/hr)		5	5		1	16
Confl. Bikes (#/hr)						1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	6%	3%	11%	4%	6%	2%
Adj. Flow (vph)	565	35	19	1403	31	38
Shared Lane Traffic (%)						
Lane Group Flow (vph)	565	35	19	1403	69	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2	1	1	2	1	
Detector Template	Thru	Right	Left	Thru	Left	
Leading Detector (m)	30.5	6.1	6.1	30.5	6.1	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	1.8	6.1	6.1	1.8	6.1	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Perm	NA	Perm	
Protected Phases	2			6		
Permitted Phases		2	6		8	
Detector Phase	2	2	6	6	8	

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	
Minimum Split (s)	27.0	27.0	16.0	16.0	27.2	
Total Split (s)	58.0	58.0	58.0	58.0	32.0	
Total Split (%)	64.4%	64.4%	64.4%	64.4%	35.6%	
Maximum Green (s)	52.0	52.0	52.0	52.0	25.8	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.3	
All-Red Time (s)	2.3	2.3	2.3	2.3	2.9	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.2	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	
Walk Time (s)	7.0	7.0			7.0	
Flash Dont Walk (s)	14.0	14.0			14.0	
Pedestrian Calls (#/hr)	5	5			8	
Act Effct Green (s)	71.7	71.7	71.7	71.7	9.6	
Actuated g/C Ratio	0.80	0.80	0.80	0.80	0.11	
v/c Ratio	0.22	0.03	0.03	0.53	0.34	
Control Delay	3.0	2.4	4.5	6.1	23.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	3.0	2.4	4.5	6.1	23.0	
LOS	A	A	A	A	C	
Approach Delay	2.9			6.0	23.0	
Approach LOS	A			A	C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 50 (56%), Referenced to phase 2:EBT and 6:WBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.53			
Intersection Signal Delay: 5.7		Intersection LOS: A	
Intersection Capacity Utilization 61.4%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 3: Elmsmere Rd & Montreal Rd

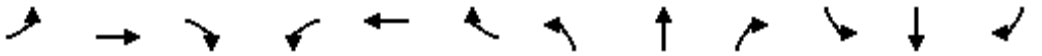




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	627	0	0	1450	6	0	0	0	17	0	53
Future Volume (Veh/h)	16	627	0	0	1450	6	0	0	0	17	0	53
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	16	627	0	0	1450	6	0	0	0	17	0	53
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		113										
pX, platoon unblocked				0.94			0.94	0.94	0.94	0.94	0.94	
vC, conflicting volume	1456			627			1437	2115	314	1798	2112	728
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1456			483			1342	2061	151	1726	2058	728
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			100			100	100	100	68	100	86
cM capacity (veh/h)	461			1014			87	49	819	52	50	366

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	16	418	209	0	967	489	0	70
Volume Left	16	0	0	0	0	0	0	17
Volume Right	0	0	0	0	0	6	0	53
cSH	461	1700	1700	1700	1700	1700	1700	149
Volume to Capacity	0.03	0.25	0.12	0.00	0.57	0.29	0.00	0.47
Queue Length 95th (m)	0.8	0.0	0.0	0.0	0.0	0.0	0.0	16.5
Control Delay (s)	13.1	0.0	0.0	0.0	0.0	0.0	0.0	48.9
Lane LOS	B						A	E
Approach Delay (s)	0.3			0.0			0.0	48.9
Approach LOS							A	E

Intersection Summary				
Average Delay	1.7			
Intersection Capacity Utilization	53.6%	ICU Level of Service	A	
Analysis Period (min)	15			

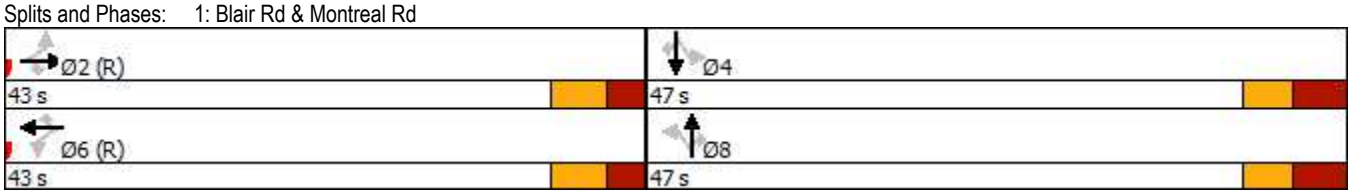


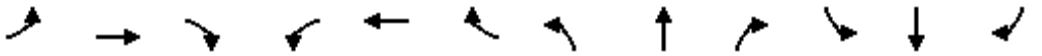
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	127	1151	161	70	661	24	249	125	206	51	112	77
Future Volume (vph)	127	1151	161	70	661	24	249	125	206	51	112	77
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	105.2		68.6	64.0		21.3	27.4		33.5	42.7		33.5
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	7.6			7.6			7.6			7.6		
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		0.98	1.00		0.97	1.00		0.99	1.00		0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1679	3293	1517	1695	3390	1517	1647	1717	1517	1192	1784	1517
Flt Permitted	0.376			0.180			0.685			0.677		
Satd. Flow (perm)	662	3293	1482	321	3390	1474	1183	1717	1495	848	1784	1492
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			161			50			41			77
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		495.7			372.4			636.1			459.9	
Travel Time (s)		29.7			22.3			45.8			33.1	
Confl. Peds. (#/hr)	5		1	1		5	6		3	3		6
Confl. Bikes (#/hr)			1						1			1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	5%	2%	2%	2%	2%	5%	6%	2%	45%	2%	2%
Adj. Flow (vph)	127	1151	161	70	661	24	249	125	206	51	112	77
Shared Lane Traffic (%)												
Lane Group Flow (vph)	127	1151	161	70	661	24	249	125	206	51	112	77
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	2	2	2	6	6	6	8	8	8	4	4	4

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	33.4	33.4	33.4	33.4	33.4	33.4	46.1	46.1	46.1	46.1	46.1	46.1
Total Split (s)	43.0	43.0	43.0	43.0	43.0	43.0	47.0	47.0	47.0	47.0	47.0	47.0
Total Split (%)	47.8%	47.8%	47.8%	47.8%	47.8%	47.8%	52.2%	52.2%	52.2%	52.2%	52.2%	52.2%
Maximum Green (s)	36.6	36.6	36.6	36.6	36.6	36.6	39.9	39.9	39.9	39.9	39.9	39.9
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7	2.7	3.8	3.8	3.8	3.8	3.8	3.8
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	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.4	6.4	7.1	7.1	7.1	7.1	7.1	7.1
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	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None	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	7.0	7.0	7.0
Flash Dont Walk (s)	20.0	20.0	20.0	20.0	20.0	20.0	32.0	32.0	32.0	32.0	32.0	32.0
Pedestrian Calls (#/hr)	1	1	1	5	5	5	3	3	3	6	6	6
Act Effct Green (s)	50.4	50.4	50.4	50.4	50.4	50.4	26.1	26.1	26.1	26.1	26.1	26.1
Actuated g/C Ratio	0.56	0.56	0.56	0.56	0.56	0.56	0.29	0.29	0.29	0.29	0.29	0.29
v/c Ratio	0.34	0.62	0.18	0.39	0.35	0.03	0.73	0.25	0.45	0.21	0.22	0.16
Control Delay	17.4	17.4	3.1	20.3	10.5	0.6	39.9	23.3	21.8	22.6	22.6	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.4	17.4	3.1	20.3	10.5	0.6	39.9	23.3	21.8	22.6	22.6	5.0
LOS	B	B	A	C	B	A	D	C	C	C	C	A
Approach Delay		15.8			11.1			29.9			17.0	
Approach LOS		B			B			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 1 (1%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay: 17.4		Intersection LOS: B	
Intersection Capacity Utilization 91.7%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 1: Blair Rd & Montreal Rd





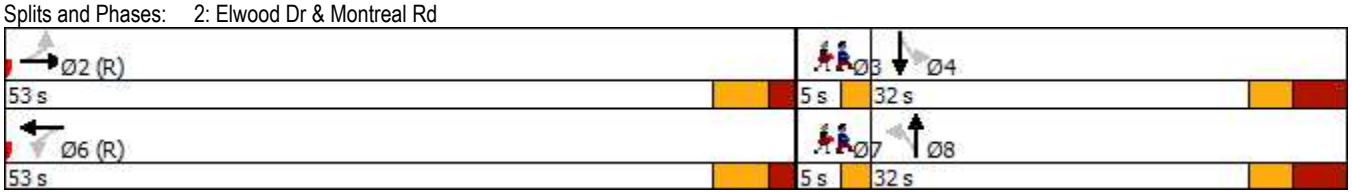
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	1461	28	28	740	3	13	1	24	1	0	3
Future Volume (vph)	3	1461	28	28	740	3	13	1	24	1	0	3
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	39.6		0.0	33.5		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	7.6			7.6			7.6			7.6		
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			0.98			0.99	
Frt		0.997			0.999			0.915			0.899	
Flt Protected	0.950			0.950				0.983			0.988	
Satd. Flow (prot)	1695	3241	0	1695	3321	0	0	1566	0	0	1567	0
Flt Permitted	0.360			0.136				0.715				
Satd. Flow (perm)	638	3241	0	243	3321	0	0	1138	0	0	1581	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			1			24			56	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		372.4			113.5			96.5			81.4	
Travel Time (s)		22.3			6.8			8.7			7.3	
Confl. Peds. (#/hr)	8		7	7		8	3		14	14		3
Confl. Bikes (#/hr)						1						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	6%	22%	2%	4%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	2	2	5	0	0	0
Adj. Flow (vph)	3	1461	28	28	740	3	13	1	24	1	0	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	1489	0	28	743	0	0	38	0	0	4	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.07	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		

Lane Group	Ø3	Ø7
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (m)		
Storage Lanes		
Taper Length (m)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Bus Blockages (#/hr)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(m)		
Link Offset(m)		
Crosswalk Width(m)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (k/h)		
Number of Detectors		
Detector Template		
Leading Detector (m)		
Trailing Detector (m)		
Detector 1 Position(m)		
Detector 1 Size(m)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Detector 2 Position(m)		
Detector 2 Size(m)		
Detector 2 Type		
Detector 2 Channel		
Detector 2 Extend (s)		
Turn Type		
Protected Phases	3	7
Permitted Phases		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	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	
Minimum Split (s)	22.6	22.6		22.6	22.6		32.7	32.7		32.7	32.7	
Total Split (s)	53.0	53.0		53.0	53.0		32.0	32.0		32.0	32.0	
Total Split (%)	58.9%	58.9%		58.9%	58.9%		35.6%	35.6%		35.6%	35.6%	
Maximum Green (s)	47.4	47.4		47.4	47.4		25.3	25.3		25.3	25.3	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.9	1.9		1.9	1.9		3.7	3.7		3.7	3.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	5.6	5.6		5.6	5.6			6.7			6.7	
Lead/Lag							Lag	Lag		Lag	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	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		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	10.0	10.0		10.0	10.0		21.0	21.0		21.0	21.0	
Pedestrian Calls (#/hr)	7	7		8	8		0	0		0	0	
Act Effct Green (s)	69.4	69.4		69.4	69.4			10.0			10.0	
Actuated g/C Ratio	0.77	0.77		0.77	0.77			0.11			0.11	
v/c Ratio	0.01	0.60		0.15	0.29			0.26			0.02	
Control Delay	3.7	4.8		5.8	4.0			24.8			0.2	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	3.7	4.8		5.8	4.0			24.8			0.2	
LOS	A	A		A	A			C			A	
Approach Delay		4.8			4.1			24.8			0.3	
Approach LOS		A			A			C			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 8 (9%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.60			
Intersection Signal Delay: 4.9		Intersection LOS: A	
Intersection Capacity Utilization 67.1%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 2: Elwood Dr & Montreal Rd



Lane Group	Ø3	Ø7
Detector Phase		
Switch Phase		
Minimum Initial (s)	1.0	1.0
Minimum Split (s)	3.0	3.0
Total Split (s)	5.0	5.0
Total Split (%)	6%	6%
Maximum Green (s)	3.0	3.0
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	Ped	Ped
Walk Time (s)	0.0	0.0
Flash Dont Walk (s)	0.0	0.0
Pedestrian Calls (#/hr)	5	5
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		

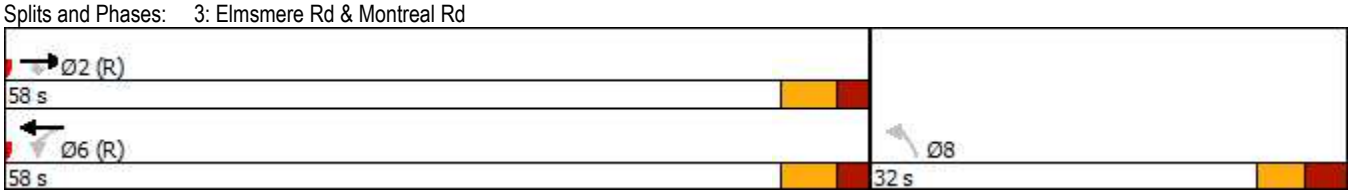
Intersection Summary

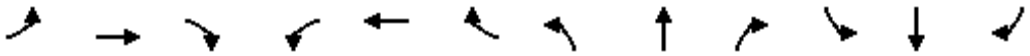
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1364	45	30	697	33	39
Future Volume (vph)	1364	45	30	697	33	39
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		42.7	79.2		0.0	0.0
Storage Lanes		1	1		1	0
Taper Length (m)			7.6		7.6	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Ped Bike Factor		0.97	1.00		0.99	
Frt		0.850			0.927	
Flt Protected			0.950		0.978	
Satd. Flow (prot)	3262	1502	1558	3325	1571	0
Flt Permitted			0.177		0.978	
Satd. Flow (perm)	3262	1456	290	3325	1569	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		39			39	
Link Speed (k/h)	60			60	40	
Link Distance (m)	289.3			93.2	237.9	
Travel Time (s)	17.4			5.6	21.4	
Confl. Peds. (#/hr)		5	5		2	7
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	6%	3%	11%	4%	6%	2%
Adj. Flow (vph)	1364	45	30	697	33	39
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1364	45	30	697	72	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2	1	1	2	1	
Detector Template	Thru	Right	Left	Thru	Left	
Leading Detector (m)	30.5	6.1	6.1	30.5	6.1	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	1.8	6.1	6.1	1.8	6.1	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Perm	NA	Perm	
Protected Phases	2			6		
Permitted Phases		2	6		8	
Detector Phase	2	2	6	6	8	
Switch Phase						

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	
Minimum Split (s)	27.0	27.0	16.0	16.0	27.2	
Total Split (s)	58.0	58.0	58.0	58.0	32.0	
Total Split (%)	64.4%	64.4%	64.4%	64.4%	35.6%	
Maximum Green (s)	52.0	52.0	52.0	52.0	25.8	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.3	
All-Red Time (s)	2.3	2.3	2.3	2.3	2.9	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.2	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	
Walk Time (s)	7.0	7.0			7.0	
Flash Dont Walk (s)	14.0	14.0			14.0	
Pedestrian Calls (#/hr)	5	5			7	
Act Effct Green (s)	71.6	71.6	71.6	71.6	9.7	
Actuated g/C Ratio	0.80	0.80	0.80	0.80	0.11	
v/c Ratio	0.53	0.04	0.13	0.26	0.35	
Control Delay	4.5	2.0	6.3	4.1	23.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	4.5	2.0	6.3	4.1	23.3	
LOS	A	A	A	A	C	
Approach Delay	4.4			4.2	23.3	
Approach LOS	A			A	C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 52 (58%), Referenced to phase 2:EBT and 6:WBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.53			
Intersection Signal Delay: 5.0		Intersection LOS: A	
Intersection Capacity Utilization 57.5%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 3: Elmsmere Rd & Montreal Rd

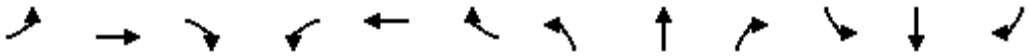




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	71	1410	0	0	742	24	0	0	0	9	0	29
Future Volume (Veh/h)	71	1410	0	0	742	24	0	0	0	9	0	29
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	71	1410	0	0	742	24	0	0	0	9	0	29
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		113										
pX, platoon unblocked				0.76			0.76	0.76	0.76	0.76	0.76	
vC, conflicting volume	766			1410			1952	2318	705	1601	2306	383
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	766			900			1616	2099	0	1152	2083	383
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	92			100			100	100	100	92	100	95
cM capacity (veh/h)	843			568			47	36	821	108	36	615

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	71	940	470	0	495	271	0	38
Volume Left	71	0	0	0	0	0	0	9
Volume Right	0	0	0	0	0	24	0	29
cSH	843	1700	1700	1700	1700	1700	1700	291
Volume to Capacity	0.08	0.55	0.28	0.00	0.29	0.16	0.00	0.13
Queue Length 95th (m)	2.1	0.0	0.0	0.0	0.0	0.0	0.0	3.4
Control Delay (s)	9.7	0.0	0.0	0.0	0.0	0.0	0.0	19.2
Lane LOS	A						A	C
Approach Delay (s)	0.5			0.0			0.0	19.2
Approach LOS							A	C

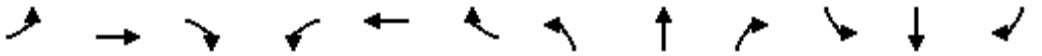
Intersection Summary				
Average Delay	0.6			
Intersection Capacity Utilization	57.8%	ICU Level of Service	B	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	627	0	0	1450	6	0	0	0	10	0	53
Future Volume (Veh/h)	16	627	0	0	1450	6	0	0	0	10	0	53
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	16	627	0	0	1450	6	0	0	0	10	0	53
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		113										
pX, platoon unblocked				0.94			0.94	0.94	0.94	0.94	0.94	
vC, conflicting volume	1456			627			1437	2115	314	1798	2112	728
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1456			483			1342	2061	151	1726	2058	728
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			100			100	100	100	81	100	86
cM capacity (veh/h)	461			1014			87	49	819	52	50	366

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	16	418	209	0	967	489	0	63
Volume Left	16	0	0	0	0	0	0	10
Volume Right	0	0	0	0	0	6	0	53
cSH	461	1700	1700	1700	1700	1700	1700	188
Volume to Capacity	0.03	0.25	0.12	0.00	0.57	0.29	0.00	0.34
Queue Length 95th (m)	0.8	0.0	0.0	0.0	0.0	0.0	0.0	10.6
Control Delay (s)	13.1	0.0	0.0	0.0	0.0	0.0	0.0	33.6
Lane LOS	B						A	D
Approach Delay (s)	0.3			0.0			0.0	33.6
Approach LOS							A	D

Intersection Summary				
Average Delay	1.1			
Intersection Capacity Utilization	53.2%	ICU Level of Service		A
Analysis Period (min)	15			

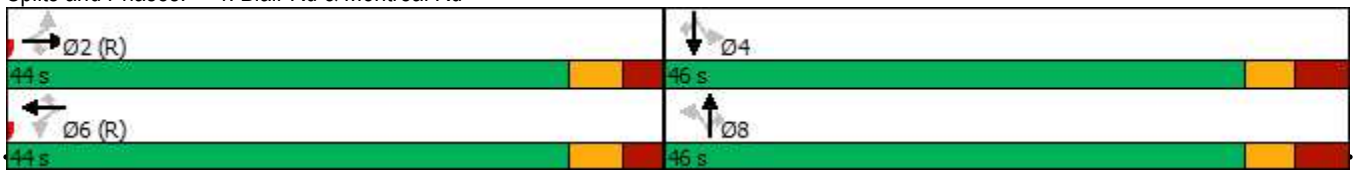


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	553	173	184	1233	24	149	94	60	27	164	136
Future Volume (vph)	41	553	173	184	1233	24	149	94	60	27	164	136
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	105.2		68.6	64.0		21.3	27.4		33.5	42.7		33.5
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	7.6			7.6			7.6			7.6		
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					0.97			0.98	1.00		0.99
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1679	3293	1517	1695	3390	1517	1647	1717	1517	1192	1784	1517
Flt Permitted	0.176			0.444			0.653			0.696		
Satd. Flow (perm)	311	3293	1517	792	3390	1471	1132	1717	1493	871	1784	1498
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			173			50			60			41
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		495.7			372.4			636.1			459.9	
Travel Time (s)		29.7			22.3			45.8			33.1	
Confl. Peds. (#/hr)	4					4			5	5		
Confl. Bikes (#/hr)						4						1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	5%	2%	2%	2%	2%	5%	6%	2%	45%	2%	2%
Adj. Flow (vph)	41	553	173	184	1233	24	149	94	60	27	164	136
Shared Lane Traffic (%)												
Lane Group Flow (vph)	41	553	173	184	1233	24	149	94	60	27	164	136
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	2	2	2	6	6	6	8	8	8	4	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	10.0	10.0	10.0
Minimum Split (s)	33.4	33.4	33.4	33.4	33.4	33.4	46.1	46.1	46.1	46.1	46.1	46.1
Total Split (s)	44.0	44.0	44.0	44.0	44.0	44.0	46.0	46.0	46.0	46.0	46.0	46.0
Total Split (%)	48.9%	48.9%	48.9%	48.9%	48.9%	48.9%	51.1%	51.1%	51.1%	51.1%	51.1%	51.1%
Maximum Green (s)	37.6	37.6	37.6	37.6	37.6	37.6	38.9	38.9	38.9	38.9	38.9	38.9
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7	2.7	3.8	3.8	3.8	3.8	3.8	3.8
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	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.4	6.4	7.1	7.1	7.1	7.1	7.1	7.1
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	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None	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	7.0	7.0	7.0
Flash Dont Walk (s)	20.0	20.0	20.0	20.0	20.0	20.0	32.0	32.0	32.0	32.0	32.0	32.0
Pedestrian Calls (#/hr)	0	0	0	4	4	4	5	5	5	0	0	0
Act Effct Green (s)	56.3	56.3	56.3	56.3	56.3	56.3	20.2	20.2	20.2	20.2	20.2	20.2
Actuated g/C Ratio	0.63	0.63	0.63	0.63	0.63	0.63	0.22	0.22	0.22	0.22	0.22	0.22
v/c Ratio	0.21	0.27	0.17	0.37	0.58	0.03	0.59	0.24	0.16	0.14	0.41	0.37
Control Delay	15.8	10.0	2.8	8.5	8.4	0.4	38.3	26.9	6.3	24.5	30.5	20.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.8	10.0	2.8	8.5	8.4	0.4	38.3	26.9	6.3	24.5	30.5	20.4
LOS	B	B	A	A	A	A	D	C	A	C	C	C
Approach Delay		8.7			8.3			28.4			25.8	
Approach LOS		A			A			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 14 (16%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.59			
Intersection Signal Delay: 12.5		Intersection LOS: B	
Intersection Capacity Utilization 87.2%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 4: Blair Rd & Montreal Rd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	602	9	15	1441	2	16	0	20	0	0	1
Future Volume (vph)	2	602	9	15	1441	2	16	0	20	0	0	1
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	39.6		0.0	33.5		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	7.6			7.6			7.6			7.6		
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			0.99			0.98	
Frt		0.998						0.925			0.865	
Flt Protected	0.950			0.950				0.978				
Satd. Flow (prot)	1695	3247	0	1695	3325	0	0	1585	0	0	1520	0
Flt Permitted	0.145			0.420				0.332				
Satd. Flow (perm)	259	3247	0	747	3325	0	0	537	0	0	1520	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2						56			89	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		372.4			113.5			96.5			81.4	
Travel Time (s)		22.3			6.8			8.7			7.3	
Confl. Peds. (#/hr)	5		3	3		5	3		6	6		3
Confl. Bikes (#/hr)						4						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	6%	22%	2%	4%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	2	2	5	0	0	0
Adj. Flow (vph)	2	602	9	15	1441	2	16	0	20	0	0	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	611	0	15	1443	0	0	36	0	0	1	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.07	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	Ø3	Ø7
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (m)		
Storage Lanes		
Taper Length (m)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Bus Blockages (#/hr)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(m)		
Link Offset(m)		
Crosswalk Width(m)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (k/h)		
Number of Detectors		
Detector Template		
Leading Detector (m)		
Trailing Detector (m)		
Detector 1 Position(m)		
Detector 1 Size(m)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Detector 2 Position(m)		
Detector 2 Size(m)		
Detector 2 Type		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA			NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	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	
Minimum Split (s)	22.6	22.6		22.6	22.6		32.7	32.7		32.7	32.7	
Total Split (s)	53.0	53.0		53.0	53.0		32.0	32.0		32.0	32.0	
Total Split (%)	58.9%	58.9%		58.9%	58.9%		35.6%	35.6%		35.6%	35.6%	
Maximum Green (s)	47.4	47.4		47.4	47.4		25.3	25.3		25.3	25.3	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.9	1.9		1.9	1.9		3.7	3.7		3.7	3.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	5.6	5.6		5.6	5.6			6.7			6.7	
Lead/Lag							Lag	Lag		Lag	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	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		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	10.0	10.0		10.0	10.0		21.0	21.0		21.0	21.0	
Pedestrian Calls (#/hr)	3	3		5	5		0	0		0	0	
Act Effct Green (s)	69.4	69.4		69.4	69.4			10.0			10.0	
Actuated g/C Ratio	0.77	0.77		0.77	0.77			0.11			0.11	
v/c Ratio	0.01	0.24		0.03	0.56			0.33			0.00	
Control Delay	4.0	3.4		2.4	6.6			13.6			0.0	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	4.0	3.4		2.4	6.6			13.6			0.0	
LOS	A	A		A	A			B			A	
Approach Delay		3.4			6.6			13.6				
Approach LOS		A			A			B				

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 7 (8%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.56			
Intersection Signal Delay: 5.8		Intersection LOS: A	
Intersection Capacity Utilization 63.9%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 7: Elwood Dr & Montreal Rd

Lane Group	Ø3	Ø7
Detector 2 Channel		
Detector 2 Extend (s)		
Turn Type		
Protected Phases	3	7
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	1.0	1.0
Minimum Split (s)	3.0	3.0
Total Split (s)	5.0	5.0
Total Split (%)	6%	6%
Maximum Green (s)	3.0	3.0
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	Ped	Ped
Walk Time (s)	0.0	0.0
Flash Dont Walk (s)	0.0	0.0
Pedestrian Calls (#/hr)	6	6
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		

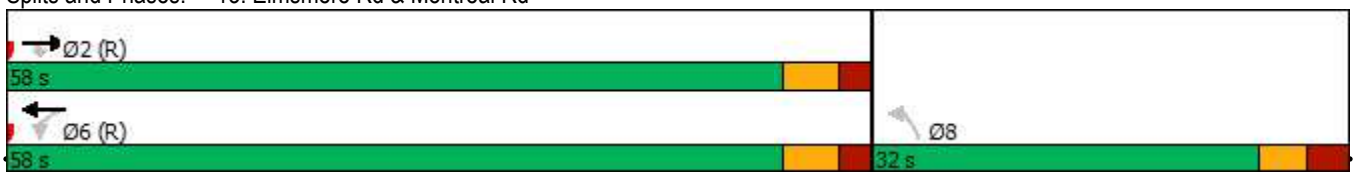
Intersection Summary

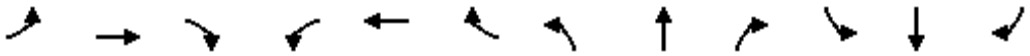
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	546	35	19	1343	31	38
Future Volume (vph)	546	35	19	1343	31	38
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		42.7	79.2		0.0	0.0
Storage Lanes		1	1		1	0
Taper Length (m)			7.6		7.6	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Ped Bike Factor		0.97	1.00		0.98	
Frt		0.850			0.926	
Flt Protected			0.950		0.978	
Satd. Flow (prot)	3262	1502	1558	3325	1559	0
Flt Permitted			0.448		0.978	
Satd. Flow (perm)	3262	1456	731	3325	1558	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		35			38	
Link Speed (k/h)	60			60	40	
Link Distance (m)	289.3			93.2	237.9	
Travel Time (s)	17.4			5.6	21.4	
Confl. Peds. (#/hr)		5	5		1	16
Confl. Bikes (#/hr)						1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	6%	3%	11%	4%	6%	2%
Adj. Flow (vph)	546	35	19	1343	31	38
Shared Lane Traffic (%)						
Lane Group Flow (vph)	546	35	19	1343	69	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2	1	1	2	1	
Detector Template	Thru	Right	Left	Thru	Left	
Leading Detector (m)	30.5	6.1	6.1	30.5	6.1	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	1.8	6.1	6.1	1.8	6.1	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Perm	NA	Perm	
Protected Phases	2			6		
Permitted Phases		2	6		8	
Detector Phase	2	2	6	6	8	
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	
Minimum Split (s)	27.0	27.0	16.0	16.0	27.2	
Total Split (s)	58.0	58.0	58.0	58.0	32.0	
Total Split (%)	64.4%	64.4%	64.4%	64.4%	35.6%	
Maximum Green (s)	52.0	52.0	52.0	52.0	25.8	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.3	
All-Red Time (s)	2.3	2.3	2.3	2.3	2.9	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.2	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	
Walk Time (s)	7.0	7.0			7.0	
Flash Dont Walk (s)	14.0	14.0			14.0	
Pedestrian Calls (#/hr)	5	5			8	
Act Effct Green (s)	71.7	71.7	71.7	71.7	9.6	
Actuated g/C Ratio	0.80	0.80	0.80	0.80	0.11	
v/c Ratio	0.21	0.03	0.03	0.51	0.34	
Control Delay	3.0	2.4	4.5	5.8	23.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	3.0	2.4	4.5	5.8	23.0	
LOS	A	A	A	A	C	
Approach Delay	2.9			5.8	23.0	
Approach LOS	A			A	C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 50 (56%), Referenced to phase 2:EBT and 6:WBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.51			
Intersection Signal Delay: 5.6		Intersection LOS: A	
Intersection Capacity Utilization 59.6%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 13: Elmsmere Rd & Montreal Rd

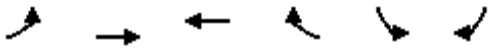




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	601	0	0	1391	8	0	0	0	21	0	65
Future Volume (Veh/h)	21	601	0	0	1391	8	0	0	0	21	0	65
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	21	601	0	0	1391	8	0	0	0	21	0	65
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		113										
pX, platoon unblocked				0.95			0.95	0.95	0.95	0.95	0.95	
vC, conflicting volume	1399			601			1404	2042	300	1738	2038	700
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1399			466			1314	1988	149	1667	1984	700
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	96			100			100	100	100	64	100	83
cM capacity (veh/h)	484			1033			88	55	825	58	55	382

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	21	401	200	0	927	472	0	86
Volume Left	21	0	0	0	0	0	0	21
Volume Right	0	0	0	0	0	8	0	65
cSH	484	1700	1700	1700	1700	1700	1700	161
Volume to Capacity	0.04	0.24	0.12	0.00	0.55	0.28	0.00	0.53
Queue Length 95th (m)	1.0	0.0	0.0	0.0	0.0	0.0	0.0	20.3
Control Delay (s)	12.8	0.0	0.0	0.0	0.0	0.0	0.0	50.3
Lane LOS	B						A	F
Approach Delay (s)	0.4			0.0			0.0	50.3
Approach LOS							A	F

Intersection Summary				
Average Delay	2.2			
Intersection Capacity Utilization	53.0%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	621	1393	1	2	6
Future Volume (Veh/h)	2	621	1393	1	2	6
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	2	621	1393	1	2	6
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		204	326			
pX, platoon unblocked	0.84				0.86	0.84
vC, conflicting volume	1394				1708	697
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1092				1304	264
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				98	99
cM capacity (veh/h)	534				130	618

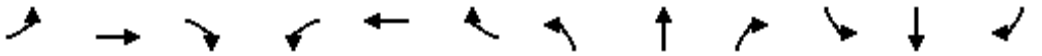
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	209	414	929	465	8
Volume Left	2	0	0	0	2
Volume Right	0	0	0	1	6
cSH	534	1700	1700	1700	319
Volume to Capacity	0.00	0.24	0.55	0.27	0.03
Queue Length 95th (m)	0.1	0.0	0.0	0.0	0.6
Control Delay (s)	0.2	0.0	0.0	0.0	16.6
Lane LOS	A				C
Approach Delay (s)	0.1		0.0		16.6
Approach LOS					C

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	50.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	16	0	22	7	0	70
Future Volume (Veh/h)	16	0	22	7	0	70
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	16	0	22	7	0	70
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	96	26			29	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	96	26			29	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	100			100	
cM capacity (veh/h)	904	1050			1584	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	16	29	70
Volume Left	16	0	0
Volume Right	0	7	0
cSH	904	1700	1584
Volume to Capacity	0.02	0.02	0.00
Queue Length 95th (m)	0.4	0.0	0.0
Control Delay (s)	9.1	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.1	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	13.9%	ICU Level of Service	A
Analysis Period (min)	15		

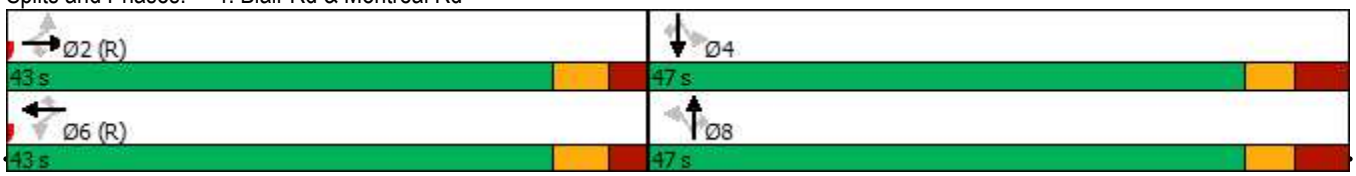


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	122	1109	173	70	639	24	237	121	200	50	108	74
Future Volume (vph)	122	1109	173	70	639	24	237	121	200	50	108	74
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	105.2		68.6	64.0		21.3	27.4		33.5	42.7		33.5
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	7.6			7.6			7.6			7.6		
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		0.98	1.00		0.97	1.00		0.99	1.00		0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1679	3293	1517	1695	3390	1517	1647	1717	1517	1192	1784	1517
Flt Permitted	0.389			0.196			0.687			0.679		
Satd. Flow (perm)	685	3293	1482	350	3390	1474	1187	1717	1495	851	1784	1492
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			173			50			41			74
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		495.7			372.4			636.1			459.9	
Travel Time (s)		29.7			22.3			45.8			33.1	
Confl. Peds. (#/hr)	5		1	1		5	6		3	3		6
Confl. Bikes (#/hr)			1						1			1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	5%	2%	2%	2%	2%	5%	6%	2%	45%	2%	2%
Adj. Flow (vph)	122	1109	173	70	639	24	237	121	200	50	108	74
Shared Lane Traffic (%)												
Lane Group Flow (vph)	122	1109	173	70	639	24	237	121	200	50	108	74
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	2	2	2	6	6	6	8	8	8	4	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	10.0	10.0	10.0
Minimum Split (s)	33.4	33.4	33.4	33.4	33.4	33.4	46.1	46.1	46.1	46.1	46.1	46.1
Total Split (s)	43.0	43.0	43.0	43.0	43.0	43.0	47.0	47.0	47.0	47.0	47.0	47.0
Total Split (%)	47.8%	47.8%	47.8%	47.8%	47.8%	47.8%	52.2%	52.2%	52.2%	52.2%	52.2%	52.2%
Maximum Green (s)	36.6	36.6	36.6	36.6	36.6	36.6	39.9	39.9	39.9	39.9	39.9	39.9
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7	2.7	3.8	3.8	3.8	3.8	3.8	3.8
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	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.4	6.4	7.1	7.1	7.1	7.1	7.1	7.1
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	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None	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	7.0	7.0	7.0
Flash Dont Walk (s)	20.0	20.0	20.0	20.0	20.0	20.0	32.0	32.0	32.0	32.0	32.0	32.0
Pedestrian Calls (#/hr)	1	1	1	5	5	5	3	3	3	6	6	6
Act Effct Green (s)	51.2	51.2	51.2	51.2	51.2	51.2	25.3	25.3	25.3	25.3	25.3	25.3
Actuated g/C Ratio	0.57	0.57	0.57	0.57	0.57	0.57	0.28	0.28	0.28	0.28	0.28	0.28
v/c Ratio	0.31	0.59	0.19	0.35	0.33	0.03	0.71	0.25	0.44	0.21	0.22	0.16
Control Delay	16.4	16.4	3.1	17.2	10.2	0.6	39.4	23.7	22.0	23.1	23.0	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.4	16.4	3.1	17.2	10.2	0.6	39.4	23.7	22.0	23.1	23.0	5.2
LOS	B	B	A	B	B	A	D	C	C	C	C	A
Approach Delay		14.7			10.6			29.7			17.3	
Approach LOS		B			B			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 1 (1%), 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: 16.8		Intersection LOS: B	
Intersection Capacity Utilization 89.8%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 4: Blair Rd & Montreal Rd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	1410	28	28	719	3	13	1	24	1	0	3
Future Volume (vph)	3	1410	28	28	719	3	13	1	24	1	0	3
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	39.6		0.0	33.5		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	7.6			7.6			7.6			7.6		
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			0.98			0.99	
Frt		0.997			0.999			0.915			0.899	
Flt Protected	0.950			0.950				0.983			0.988	
Satd. Flow (prot)	1695	3241	0	1695	3321	0	0	1566	0	0	1567	0
Flt Permitted	0.369			0.146				0.715				
Satd. Flow (perm)	654	3241	0	261	3321	0	0	1138	0	0	1581	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			1			24			56	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		372.4			113.5			96.5			81.4	
Travel Time (s)		22.3			6.8			8.7			7.3	
Confl. Peds. (#/hr)	8		7	7		8	3		14	14		3
Confl. Bikes (#/hr)						1						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	6%	22%	2%	4%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	2	2	5	0	0	0
Adj. Flow (vph)	3	1410	28	28	719	3	13	1	24	1	0	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	1438	0	28	722	0	0	38	0	0	4	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.07	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	Ø3	Ø7
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (m)		
Storage Lanes		
Taper Length (m)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Bus Blockages (#/hr)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(m)		
Link Offset(m)		
Crosswalk Width(m)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (k/h)		
Number of Detectors		
Detector Template		
Leading Detector (m)		
Trailing Detector (m)		
Detector 1 Position(m)		
Detector 1 Size(m)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Detector 2 Position(m)		
Detector 2 Size(m)		
Detector 2 Type		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	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	
Minimum Split (s)	22.6	22.6		22.6	22.6		32.7	32.7		32.7	32.7	
Total Split (s)	53.0	53.0		53.0	53.0		32.0	32.0		32.0	32.0	
Total Split (%)	58.9%	58.9%		58.9%	58.9%		35.6%	35.6%		35.6%	35.6%	
Maximum Green (s)	47.4	47.4		47.4	47.4		25.3	25.3		25.3	25.3	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.9	1.9		1.9	1.9		3.7	3.7		3.7	3.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	5.6	5.6		5.6	5.6			6.7			6.7	
Lead/Lag							Lag	Lag		Lag	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	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		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	10.0	10.0		10.0	10.0		21.0	21.0		21.0	21.0	
Pedestrian Calls (#/hr)	7	7		8	8		0	0		0	0	
Act Effct Green (s)	69.4	69.4		69.4	69.4			10.0			10.0	
Actuated g/C Ratio	0.77	0.77		0.77	0.77			0.11			0.11	
v/c Ratio	0.01	0.58		0.14	0.28			0.26			0.02	
Control Delay	3.7	4.4		5.4	4.0			24.8			0.2	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	3.7	4.4		5.4	4.0			24.8			0.2	
LOS	A	A		A	A			C			A	
Approach Delay		4.4			4.0			24.8			0.3	
Approach LOS		A			A			C			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 8 (9%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.58			
Intersection Signal Delay: 4.6		Intersection LOS: A	
Intersection Capacity Utilization 65.7%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 7: Elwood Dr & Montreal Rd

Lane Group	Ø3	Ø7
Detector 2 Channel		
Detector 2 Extend (s)		
Turn Type		
Protected Phases	3	7
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	1.0	1.0
Minimum Split (s)	3.0	3.0
Total Split (s)	5.0	5.0
Total Split (%)	6%	6%
Maximum Green (s)	3.0	3.0
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	Ped	Ped
Walk Time (s)	0.0	0.0
Flash Dont Walk (s)	0.0	0.0
Pedestrian Calls (#/hr)	5	5
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		

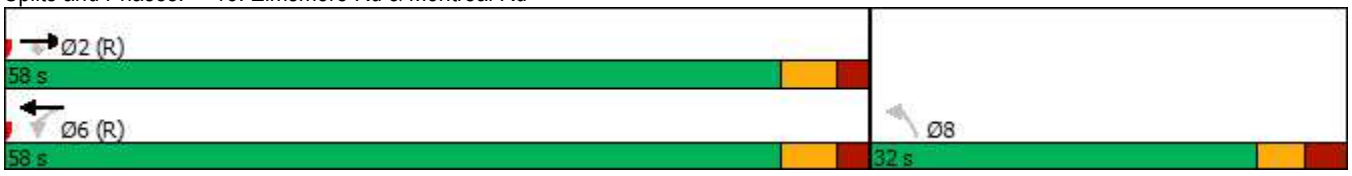
Intersection Summary

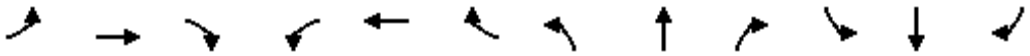
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1306	45	30	671	33	39
Future Volume (vph)	1306	45	30	671	33	39
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		42.7	79.2		0.0	0.0
Storage Lanes		1	1		1	0
Taper Length (m)			7.6		7.6	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Ped Bike Factor		0.97	1.00		0.99	
Frt		0.850			0.927	
Flt Protected			0.950		0.978	
Satd. Flow (prot)	3262	1502	1558	3325	1571	0
Flt Permitted			0.190		0.978	
Satd. Flow (perm)	3262	1456	311	3325	1569	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		41			39	
Link Speed (k/h)	60			60	40	
Link Distance (m)	289.3			93.2	237.9	
Travel Time (s)	17.4			5.6	21.4	
Confl. Peds. (#/hr)		5	5		2	7
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	6%	3%	11%	4%	6%	2%
Adj. Flow (vph)	1306	45	30	671	33	39
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1306	45	30	671	72	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2	1	1	2	1	
Detector Template	Thru	Right	Left	Thru	Left	
Leading Detector (m)	30.5	6.1	6.1	30.5	6.1	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	1.8	6.1	6.1	1.8	6.1	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Turn Type	NA	Perm	Perm	NA	Perm	
Protected Phases	2			6		
Permitted Phases		2	6		8	
Detector Phase	2	2	6	6	8	
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	
Minimum Split (s)	27.0	27.0	16.0	16.0	27.2	
Total Split (s)	58.0	58.0	58.0	58.0	32.0	
Total Split (%)	64.4%	64.4%	64.4%	64.4%	35.6%	
Maximum Green (s)	52.0	52.0	52.0	52.0	25.8	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.3	
All-Red Time (s)	2.3	2.3	2.3	2.3	2.9	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.2	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	
Walk Time (s)	7.0	7.0			7.0	
Flash Dont Walk (s)	14.0	14.0			14.0	
Pedestrian Calls (#/hr)	5	5			7	
Act Effct Green (s)	71.6	71.6	71.6	71.6	9.7	
Actuated g/C Ratio	0.80	0.80	0.80	0.80	0.11	
v/c Ratio	0.50	0.04	0.12	0.25	0.35	
Control Delay	4.2	1.9	6.0	4.0	23.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	4.2	1.9	6.0	4.0	23.3	
LOS	A	A	A	A	C	
Approach Delay	4.1			4.1	23.3	
Approach LOS	A			A	C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 52 (58%), Referenced to phase 2:EBT and 6:WBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.50			
Intersection Signal Delay: 4.7		Intersection LOS: A	
Intersection Capacity Utilization 55.8%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 13: Elmsmere Rd & Montreal Rd

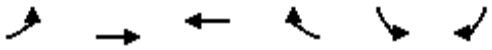




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	81	1352	0	0	713	27	0	0	0	11	0	37
Future Volume (Veh/h)	81	1352	0	0	713	27	0	0	0	11	0	37
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	81	1352	0	0	713	27	0	0	0	11	0	37
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		113										
pX, platoon unblocked				0.77			0.77	0.77	0.77	0.77	0.77	
vC, conflicting volume	740			1352			1908	2254	676	1564	2240	370
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	740			872			1589	2037	0	1146	2019	370
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	91			100			100	100	100	90	100	94
cM capacity (veh/h)	862			596			49	39	840	111	40	627

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	81	901	451	0	475	265	0	48
Volume Left	81	0	0	0	0	0	0	11
Volume Right	0	0	0	0	0	27	0	37
cSH	862	1700	1700	1700	1700	1700	1700	303
Volume to Capacity	0.09	0.53	0.27	0.00	0.28	0.16	0.00	0.16
Queue Length 95th (m)	2.4	0.0	0.0	0.0	0.0	0.0	0.0	4.2
Control Delay (s)	9.6	0.0	0.0	0.0	0.0	0.0	0.0	19.1
Lane LOS	A						A	C
Approach Delay (s)	0.5			0.0			0.0	19.1
Approach LOS							A	C

Intersection Summary				
Average Delay	0.8			
Intersection Capacity Utilization	56.1%	ICU Level of Service		B
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	1358	737	2	1	4
Future Volume (Veh/h)	5	1358	737	2	1	4
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	5	1358	737	2	1	4
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		205	325			
pX, platoon unblocked	1.00				0.78	1.00
vC, conflicting volume	739				1427	370
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	731				962	360
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				99	99
cM capacity (veh/h)	866				197	634

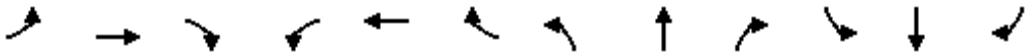
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	458	905	491	248	5
Volume Left	5	0	0	0	1
Volume Right	0	0	0	2	4
cSH	866	1700	1700	1700	439
Volume to Capacity	0.01	0.53	0.29	0.15	0.01
Queue Length 95th (m)	0.1	0.0	0.0	0.0	0.3
Control Delay (s)	0.2	0.0	0.0	0.0	13.3
Lane LOS	A				B
Approach Delay (s)	0.1		0.0		13.3
Approach LOS					B

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	53.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	10	0	95	13	0	38
Future Volume (Veh/h)	10	0	95	13	0	38
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	10	0	95	13	0	38
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	140	102			108	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	140	102			108	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	100			100	
cM capacity (veh/h)	854	954			1483	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	10	108	38
Volume Left	10	0	0
Volume Right	0	13	0
cSH	854	1700	1483
Volume to Capacity	0.01	0.06	0.00
Queue Length 95th (m)	0.3	0.0	0.0
Control Delay (s)	9.3	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.3	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	16.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	601	0	0	1391	8	0	0	0	13	0	65
Future Volume (Veh/h)	21	601	0	0	1391	8	0	0	0	13	0	65
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	21	601	0	0	1391	8	0	0	0	13	0	65
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		113										
pX, platoon unblocked				0.95			0.95	0.95	0.95	0.95	0.95	
vC, conflicting volume	1399			601			1404	2042	300	1738	2038	700
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1399			466			1314	1988	149	1667	1984	700
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	96			100			100	100	100	78	100	83
cM capacity (veh/h)	484			1033			88	55	825	58	55	382

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	21	401	200	0	927	472	0	78
Volume Left	21	0	0	0	0	0	0	13
Volume Right	0	0	0	0	0	8	0	65
cSH	484	1700	1700	1700	1700	1700	1700	198
Volume to Capacity	0.04	0.24	0.12	0.00	0.55	0.28	0.00	0.39
Queue Length 95th (m)	1.0	0.0	0.0	0.0	0.0	0.0	0.0	13.3
Control Delay (s)	12.8	0.0	0.0	0.0	0.0	0.0	0.0	34.6
Lane LOS	B						A	D
Approach Delay (s)	0.4			0.0			0.0	34.6
Approach LOS							A	D

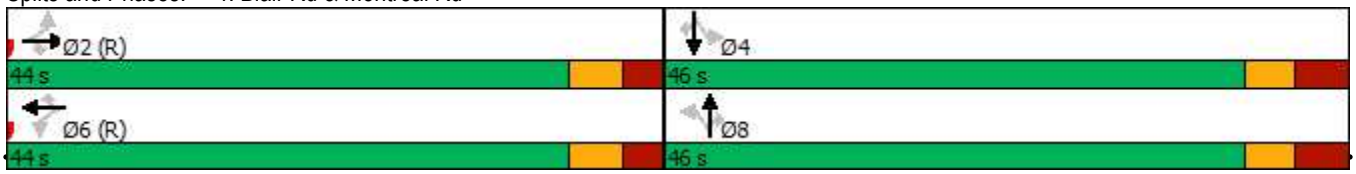
Intersection Summary				
Average Delay	1.4			
Intersection Capacity Utilization	52.5%	ICU Level of Service		A
Analysis Period (min)	15			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	579	182	192	1291	25	156	98	63	27	170	142
Future Volume (vph)	42	579	182	192	1291	25	156	98	63	27	170	142
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	105.2		68.6	64.0		21.3	27.4		33.5	42.7		33.5
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	7.6			7.6			7.6			7.6		
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					0.97			0.98	1.00		0.99
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1679	3293	1517	1695	3390	1517	1647	1717	1517	1192	1784	1517
Flt Permitted	0.159			0.430			0.645			0.694		
Satd. Flow (perm)	281	3293	1517	767	3390	1471	1118	1717	1493	868	1784	1498
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			182			50			63			41
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		495.7			372.4			636.1			459.9	
Travel Time (s)		29.7			22.3			45.8			33.1	
Confl. Peds. (#/hr)	4					4			5	5		
Confl. Bikes (#/hr)						4						1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	5%	2%	2%	2%	2%	5%	6%	2%	45%	2%	2%
Adj. Flow (vph)	42	579	182	192	1291	25	156	98	63	27	170	142
Shared Lane Traffic (%)												
Lane Group Flow (vph)	42	579	182	192	1291	25	156	98	63	27	170	142
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	2	2	2	6	6	6	8	8	8	4	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	10.0	10.0	10.0
Minimum Split (s)	33.4	33.4	33.4	33.4	33.4	33.4	46.1	46.1	46.1	46.1	46.1	46.1
Total Split (s)	44.0	44.0	44.0	44.0	44.0	44.0	46.0	46.0	46.0	46.0	46.0	46.0
Total Split (%)	48.9%	48.9%	48.9%	48.9%	48.9%	48.9%	51.1%	51.1%	51.1%	51.1%	51.1%	51.1%
Maximum Green (s)	37.6	37.6	37.6	37.6	37.6	37.6	38.9	38.9	38.9	38.9	38.9	38.9
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7	2.7	3.8	3.8	3.8	3.8	3.8	3.8
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	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.4	6.4	7.1	7.1	7.1	7.1	7.1	7.1
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	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None	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	7.0	7.0	7.0
Flash Dont Walk (s)	20.0	20.0	20.0	20.0	20.0	20.0	32.0	32.0	32.0	32.0	32.0	32.0
Pedestrian Calls (#/hr)	0	0	0	4	4	4	5	5	5	0	0	0
Act Effct Green (s)	55.9	55.9	55.9	55.9	55.9	55.9	20.6	20.6	20.6	20.6	20.6	20.6
Actuated g/C Ratio	0.62	0.62	0.62	0.62	0.62	0.62	0.23	0.23	0.23	0.23	0.23	0.23
v/c Ratio	0.24	0.28	0.18	0.40	0.61	0.03	0.61	0.25	0.16	0.14	0.42	0.38
Control Delay	17.4	10.3	2.7	9.7	9.5	0.8	39.1	26.7	6.1	24.2	30.3	20.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.4	10.3	2.7	9.7	9.5	0.8	39.1	26.7	6.1	24.2	30.3	20.7
LOS	B	B	A	A	A	A	D	C	A	C	C	C
Approach Delay		9.0			9.3			28.7			25.8	
Approach LOS		A			A			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 14 (16%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.61			
Intersection Signal Delay: 13.2		Intersection LOS: B	
Intersection Capacity Utilization 88.9%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 4: Blair Rd & Montreal Rd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	629	9	15	1508	2	16	0	20	0	0	1
Future Volume (vph)	2	629	9	15	1508	2	16	0	20	0	0	1
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	39.6		0.0	33.5		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	7.6			7.6			7.6			7.6		
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			0.99			0.98	
Frt		0.998						0.925			0.865	
Flt Protected	0.950			0.950				0.978				
Satd. Flow (prot)	1695	3248	0	1695	3325	0	0	1585	0	0	1520	0
Flt Permitted	0.132			0.407				0.332				
Satd. Flow (perm)	236	3248	0	724	3325	0	0	537	0	0	1520	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2						56			85	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		372.4			113.5			96.5			81.4	
Travel Time (s)		22.3			6.8			8.7			7.3	
Confl. Peds. (#/hr)	5		3	3		5	3		6	6		3
Confl. Bikes (#/hr)						4						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	6%	22%	2%	4%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	2	2	5	0	0	0
Adj. Flow (vph)	2	629	9	15	1508	2	16	0	20	0	0	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	2	638	0	15	1510	0	0	36	0	0	1	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.07	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	Ø3	Ø7
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (m)		
Storage Lanes		
Taper Length (m)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Bus Blockages (#/hr)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(m)		
Link Offset(m)		
Crosswalk Width(m)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (k/h)		
Number of Detectors		
Detector Template		
Leading Detector (m)		
Trailing Detector (m)		
Detector 1 Position(m)		
Detector 1 Size(m)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Detector 2 Position(m)		
Detector 2 Size(m)		
Detector 2 Type		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA			NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	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	
Minimum Split (s)	22.6	22.6		22.6	22.6		32.7	32.7		32.7	32.7	
Total Split (s)	53.0	53.0		53.0	53.0		32.0	32.0		32.0	32.0	
Total Split (%)	58.9%	58.9%		58.9%	58.9%		35.6%	35.6%		35.6%	35.6%	
Maximum Green (s)	47.4	47.4		47.4	47.4		25.3	25.3		25.3	25.3	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.9	1.9		1.9	1.9		3.7	3.7		3.7	3.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	5.6	5.6		5.6	5.6			6.7			6.7	
Lead/Lag							Lag	Lag		Lag	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	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		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	10.0	10.0		10.0	10.0		21.0	21.0		21.0	21.0	
Pedestrian Calls (#/hr)	3	3		5	5		0	0		0	0	
Act Effct Green (s)	69.4	69.4		69.4	69.4			10.0			10.0	
Actuated g/C Ratio	0.77	0.77		0.77	0.77			0.11			0.11	
v/c Ratio	0.01	0.25		0.03	0.59			0.33			0.00	
Control Delay	4.0	3.4		2.3	6.9			13.6			0.0	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	4.0	3.4		2.3	6.9			13.6			0.0	
LOS	A	A		A	A			B			A	
Approach Delay		3.4			6.8			13.6				
Approach LOS		A			A			B				

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 7 (8%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.59			
Intersection Signal Delay: 5.9		Intersection LOS: A	
Intersection Capacity Utilization 65.8%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 7: Elwood Dr & Montreal Rd

Lane Group	Ø3	Ø7
Detector 2 Channel		
Detector 2 Extend (s)		
Turn Type		
Protected Phases	3	7
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	1.0	1.0
Minimum Split (s)	3.0	3.0
Total Split (s)	5.0	5.0
Total Split (%)	6%	6%
Maximum Green (s)	3.0	3.0
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	Ped	Ped
Walk Time (s)	0.0	0.0
Flash Dont Walk (s)	0.0	0.0
Pedestrian Calls (#/hr)	6	6
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		

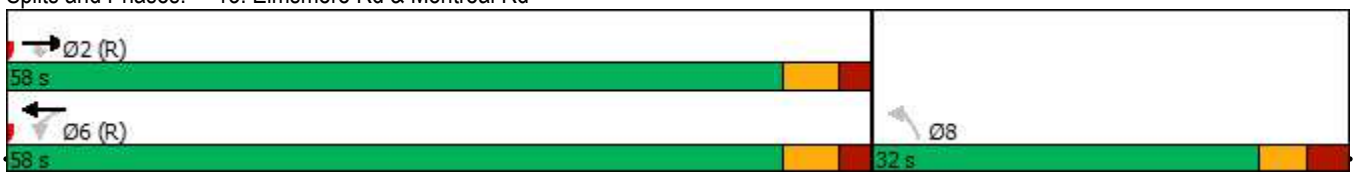
Intersection Summary

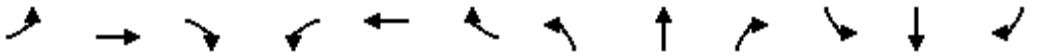
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	571	35	19	1406	31	38
Future Volume (vph)	571	35	19	1406	31	38
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		42.7	79.2		0.0	0.0
Storage Lanes		1	1		1	0
Taper Length (m)			7.6		7.6	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Ped Bike Factor		0.97	1.00		0.98	
Frt		0.850			0.926	
Flt Protected			0.950		0.978	
Satd. Flow (prot)	3262	1502	1558	3325	1559	0
Flt Permitted			0.437		0.978	
Satd. Flow (perm)	3262	1456	713	3325	1558	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		35			38	
Link Speed (k/h)	60			60	40	
Link Distance (m)	289.3			93.2	237.9	
Travel Time (s)	17.4			5.6	21.4	
Confl. Peds. (#/hr)		5	5		1	16
Confl. Bikes (#/hr)						1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	6%	3%	11%	4%	6%	2%
Adj. Flow (vph)	571	35	19	1406	31	38
Shared Lane Traffic (%)						
Lane Group Flow (vph)	571	35	19	1406	69	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2	1	1	2	1	
Detector Template	Thru	Right	Left	Thru	Left	
Leading Detector (m)	30.5	6.1	6.1	30.5	6.1	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	1.8	6.1	6.1	1.8	6.1	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Perm	NA	Perm	
Protected Phases	2			6		
Permitted Phases		2	6		8	
Detector Phase	2	2	6	6	8	
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	
Minimum Split (s)	27.0	27.0	16.0	16.0	27.2	
Total Split (s)	58.0	58.0	58.0	58.0	32.0	
Total Split (%)	64.4%	64.4%	64.4%	64.4%	35.6%	
Maximum Green (s)	52.0	52.0	52.0	52.0	25.8	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.3	
All-Red Time (s)	2.3	2.3	2.3	2.3	2.9	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.2	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	
Walk Time (s)	7.0	7.0			7.0	
Flash Dont Walk (s)	14.0	14.0			14.0	
Pedestrian Calls (#/hr)	5	5			8	
Act Effct Green (s)	71.7	71.7	71.7	71.7	9.6	
Actuated g/C Ratio	0.80	0.80	0.80	0.80	0.11	
v/c Ratio	0.22	0.03	0.03	0.53	0.34	
Control Delay	3.0	2.4	4.5	6.1	23.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	3.0	2.4	4.5	6.1	23.0	
LOS	A	A	A	A	C	
Approach Delay	2.9			6.1	23.0	
Approach LOS	A			A	C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 50 (56%), Referenced to phase 2:EBT and 6:WBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.53			
Intersection Signal Delay: 5.7		Intersection LOS: A	
Intersection Capacity Utilization 61.4%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 13: Elmsmere Rd & Montreal Rd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	629	0	0	1456	8	0	0	0	21	0	65
Future Volume (Veh/h)	21	629	0	0	1456	8	0	0	0	21	0	65
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	21	629	0	0	1456	8	0	0	0	21	0	65
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		113										
pX, platoon unblocked				0.94			0.94	0.94	0.94	0.94	0.94	
vC, conflicting volume	1464			629			1464	2135	314	1816	2131	732
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1464			484			1370	2082	151	1744	2078	732
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	95			100			100	100	100	58	100	82
cM capacity (veh/h)	457			1013			79	47	819	50	48	364

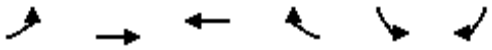
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	21	419	210	0	971	493	0	86
Volume Left	21	0	0	0	0	0	0	21
Volume Right	0	0	0	0	0	8	0	65
cSH	457	1700	1700	1700	1700	1700	1700	144
Volume to Capacity	0.05	0.25	0.12	0.00	0.57	0.29	0.00	0.60
Queue Length 95th (m)	1.1	0.0	0.0	0.0	0.0	0.0	0.0	23.6
Control Delay (s)	13.3	0.0	0.0	0.0	0.0	0.0	0.0	61.5
Lane LOS	B						A	F
Approach Delay (s)	0.4			0.0			0.0	61.5
Approach LOS							A	F

Intersection Summary				
Average Delay	2.5			
Intersection Capacity Utilization	54.9%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	16	0	22	7	0	70
Future Volume (Veh/h)	16	0	22	7	0	70
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	16	0	22	7	0	70
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	96	26			29	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	96	26			29	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	100			100	
cM capacity (veh/h)	904	1050			1584	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	16	29	70
Volume Left	16	0	0
Volume Right	0	7	0
cSH	904	1700	1584
Volume to Capacity	0.02	0.02	0.00
Queue Length 95th (m)	0.4	0.0	0.0
Control Delay (s)	9.1	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.1	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	13.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	649	1459	1	2	6
Future Volume (Veh/h)	2	649	1459	1	2	6
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	2	649	1459	1	2	6
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		203	327			
pX, platoon unblocked	0.82				0.84	0.82
vC, conflicting volume	1460				1788	730
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1130				1339	243
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				98	99
cM capacity (veh/h)	506				121	624

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	218	433	973	487	8
Volume Left	2	0	0	0	2
Volume Right	0	0	0	1	6
cSH	506	1700	1700	1700	306
Volume to Capacity	0.00	0.25	0.57	0.29	0.03
Queue Length 95th (m)	0.1	0.0	0.0	0.0	0.6
Control Delay (s)	0.2	0.0	0.0	0.0	17.1
Lane LOS	A				C
Approach Delay (s)	0.1		0.0		17.1
Approach LOS					C

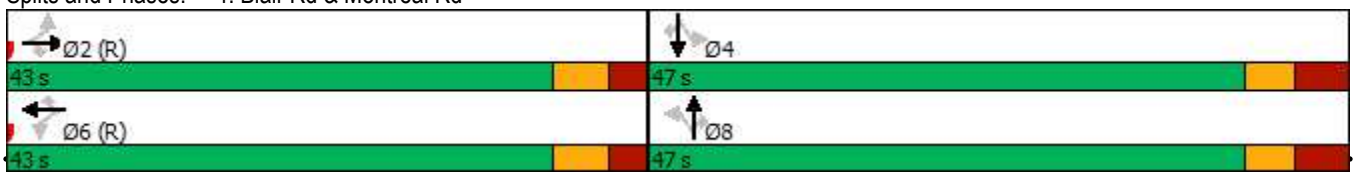
Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	52.6%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	127	1162	161	73	669	25	249	125	210	52	112	77
Future Volume (vph)	127	1162	161	73	669	25	249	125	210	52	112	77
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	105.2		68.6	64.0		21.3	27.4		33.5	42.7		33.5
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (m)	7.6			7.6			7.6			7.6		
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		0.98	1.00		0.97	1.00		0.99	1.00		0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1679	3293	1517	1695	3390	1517	1647	1717	1517	1192	1784	1517
Flt Permitted	0.372			0.176			0.685			0.677		
Satd. Flow (perm)	655	3293	1482	314	3390	1474	1183	1717	1495	848	1784	1492
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			161			50			41			77
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		495.7			372.4			636.1			459.9	
Travel Time (s)		29.7			22.3			45.8			33.1	
Confl. Peds. (#/hr)	5		1	1		5	6		3	3		6
Confl. Bikes (#/hr)			1						1			1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	5%	2%	2%	2%	2%	5%	6%	2%	45%	2%	2%
Adj. Flow (vph)	127	1162	161	73	669	25	249	125	210	52	112	77
Shared Lane Traffic (%)												
Lane Group Flow (vph)	127	1162	161	73	669	25	249	125	210	52	112	77
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			3.7			3.7	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1	6.1	30.5	6.1
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1	6.1	1.8	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	2	2	2	6	6	6	8	8	8	4	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	10.0	10.0	10.0
Minimum Split (s)	33.4	33.4	33.4	33.4	33.4	33.4	46.1	46.1	46.1	46.1	46.1	46.1
Total Split (s)	43.0	43.0	43.0	43.0	43.0	43.0	47.0	47.0	47.0	47.0	47.0	47.0
Total Split (%)	47.8%	47.8%	47.8%	47.8%	47.8%	47.8%	52.2%	52.2%	52.2%	52.2%	52.2%	52.2%
Maximum Green (s)	36.6	36.6	36.6	36.6	36.6	36.6	39.9	39.9	39.9	39.9	39.9	39.9
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7	2.7	3.8	3.8	3.8	3.8	3.8	3.8
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	0.0
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.4	6.4	7.1	7.1	7.1	7.1	7.1	7.1
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	3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None	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	7.0	7.0	7.0
Flash Dont Walk (s)	20.0	20.0	20.0	20.0	20.0	20.0	32.0	32.0	32.0	32.0	32.0	32.0
Pedestrian Calls (#/hr)	1	1	1	5	5	5	3	3	3	6	6	6
Act Effct Green (s)	50.4	50.4	50.4	50.4	50.4	50.4	26.1	26.1	26.1	26.1	26.1	26.1
Actuated g/C Ratio	0.56	0.56	0.56	0.56	0.56	0.56	0.29	0.29	0.29	0.29	0.29	0.29
v/c Ratio	0.35	0.63	0.18	0.42	0.35	0.03	0.73	0.25	0.45	0.21	0.22	0.16
Control Delay	17.6	17.6	3.1	21.9	10.5	0.7	39.9	23.3	22.1	22.7	22.6	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.6	17.6	3.1	21.9	10.5	0.7	39.9	23.3	22.1	22.7	22.6	5.0
LOS	B	B	A	C	B	A	D	C	C	C	C	A
Approach Delay		16.0			11.3			29.9			17.0	
Approach LOS		B			B			C			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 1 (1%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay: 17.6		Intersection LOS: B	
Intersection Capacity Utilization 92.0%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 4: Blair Rd & Montreal Rd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	1476	28	28	752	3	13	1	24	1	0	3
Future Volume (vph)	3	1476	28	28	752	3	13	1	24	1	0	3
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	39.6		0.0	33.5		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	7.6			7.6			7.6			7.6		
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			0.98			0.99	
Frt		0.997			0.999			0.915			0.899	
Flt Protected	0.950			0.950				0.983			0.988	
Satd. Flow (prot)	1695	3241	0	1695	3321	0	0	1566	0	0	1567	0
Flt Permitted	0.355			0.133				0.715				
Satd. Flow (perm)	630	3241	0	237	3321	0	0	1138	0	0	1581	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			1			24			56	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		372.4			113.5			96.5			81.4	
Travel Time (s)		22.3			6.8			8.7			7.3	
Confl. Peds. (#/hr)	8		7	7		8	3		14	14		3
Confl. Bikes (#/hr)						1						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	6%	22%	2%	4%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	2	2	5	0	0	0
Adj. Flow (vph)	3	1476	28	28	752	3	13	1	24	1	0	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	1504	0	28	755	0	0	38	0	0	4	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.9			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.07	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	

Lane Group	Ø3	Ø7
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (m)		
Storage Lanes		
Taper Length (m)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Bus Blockages (#/hr)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(m)		
Link Offset(m)		
Crosswalk Width(m)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (k/h)		
Number of Detectors		
Detector Template		
Leading Detector (m)		
Trailing Detector (m)		
Detector 1 Position(m)		
Detector 1 Size(m)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Detector 2 Position(m)		
Detector 2 Size(m)		
Detector 2 Type		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	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	
Minimum Split (s)	22.6	22.6		22.6	22.6		32.7	32.7		32.7	32.7	
Total Split (s)	53.0	53.0		53.0	53.0		32.0	32.0		32.0	32.0	
Total Split (%)	58.9%	58.9%		58.9%	58.9%		35.6%	35.6%		35.6%	35.6%	
Maximum Green (s)	47.4	47.4		47.4	47.4		25.3	25.3		25.3	25.3	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.9	1.9		1.9	1.9		3.7	3.7		3.7	3.7	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	5.6	5.6		5.6	5.6			6.7			6.7	
Lead/Lag							Lag	Lag		Lag	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	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		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	10.0	10.0		10.0	10.0		21.0	21.0		21.0	21.0	
Pedestrian Calls (#/hr)	7	7		8	8		0	0		0	0	
Act Effct Green (s)	69.4	69.4		69.4	69.4			10.0			10.0	
Actuated g/C Ratio	0.77	0.77		0.77	0.77			0.11			0.11	
v/c Ratio	0.01	0.60		0.15	0.30			0.26			0.02	
Control Delay	3.7	4.9		6.0	4.1			24.8			0.2	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	3.7	4.9		6.0	4.1			24.8			0.2	
LOS	A	A		A	A			C			A	
Approach Delay		4.9			4.1			24.8			0.3	
Approach LOS		A			A			C			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 8 (9%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.60			
Intersection Signal Delay: 5.0		Intersection LOS: A	
Intersection Capacity Utilization 67.6%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 7: Elwood Dr & Montreal Rd

Lane Group	Ø3	Ø7
Detector 2 Channel		
Detector 2 Extend (s)		
Turn Type		
Protected Phases	3	7
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	1.0	1.0
Minimum Split (s)	3.0	3.0
Total Split (s)	5.0	5.0
Total Split (%)	6%	6%
Maximum Green (s)	3.0	3.0
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	Ped	Ped
Walk Time (s)	0.0	0.0
Flash Dont Walk (s)	0.0	0.0
Pedestrian Calls (#/hr)	5	5
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		

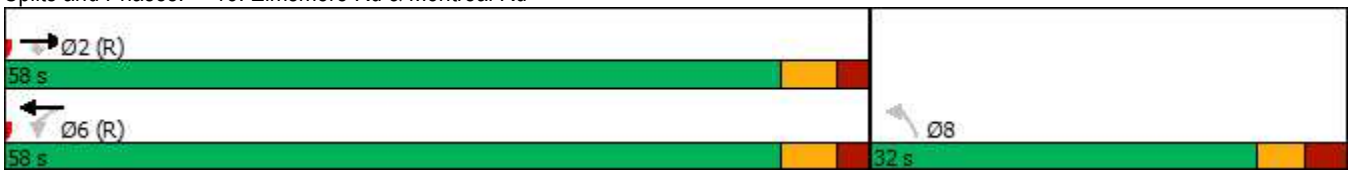
Intersection Summary

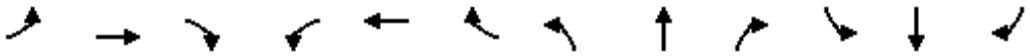
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1367	45	30	702	33	39
Future Volume (vph)	1367	45	30	702	33	39
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		42.7	79.2		0.0	0.0
Storage Lanes		1	1		1	0
Taper Length (m)			7.6		7.6	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Ped Bike Factor		0.97	1.00		0.99	
Frt		0.850			0.927	
Flt Protected			0.950		0.978	
Satd. Flow (prot)	3262	1502	1558	3325	1571	0
Flt Permitted			0.176		0.978	
Satd. Flow (perm)	3262	1456	288	3325	1569	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		39			39	
Link Speed (k/h)	60			60	40	
Link Distance (m)	289.3			93.2	237.9	
Travel Time (s)	17.4			5.6	21.4	
Confl. Peds. (#/hr)		5	5		2	7
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	6%	3%	11%	4%	6%	2%
Adj. Flow (vph)	1367	45	30	702	33	39
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1367	45	30	702	72	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	4.9			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2	1	1	2	1	
Detector Template	Thru	Right	Left	Thru	Left	
Leading Detector (m)	30.5	6.1	6.1	30.5	6.1	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	1.8	6.1	6.1	1.8	6.1	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)	28.7			28.7		
Detector 2 Size(m)	1.8			1.8		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Turn Type	NA	Perm	Perm	NA	Perm	
Protected Phases	2			6		
Permitted Phases		2	6		8	
Detector Phase	2	2	6	6	8	
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	
Minimum Split (s)	27.0	27.0	16.0	16.0	27.2	
Total Split (s)	58.0	58.0	58.0	58.0	32.0	
Total Split (%)	64.4%	64.4%	64.4%	64.4%	35.6%	
Maximum Green (s)	52.0	52.0	52.0	52.0	25.8	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.3	
All-Red Time (s)	2.3	2.3	2.3	2.3	2.9	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.2	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	
Walk Time (s)	7.0	7.0			7.0	
Flash Dont Walk (s)	14.0	14.0			14.0	
Pedestrian Calls (#/hr)	5	5			7	
Act Effct Green (s)	71.6	71.6	71.6	71.6	9.7	
Actuated g/C Ratio	0.80	0.80	0.80	0.80	0.11	
v/c Ratio	0.53	0.04	0.13	0.27	0.35	
Control Delay	4.6	2.0	6.3	4.1	23.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	4.6	2.0	6.3	4.1	23.3	
LOS	A	A	A	A	C	
Approach Delay	4.5			4.2	23.3	
Approach LOS	A			A	C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 52 (58%), Referenced to phase 2:EBT and 6:WBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.53			
Intersection Signal Delay: 5.0		Intersection LOS: A	
Intersection Capacity Utilization 57.5%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 13: Elmsmere Rd & Montreal Rd

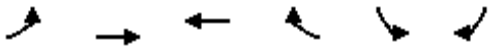




Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	81	1415	0	0	745	27	0	0	0	11	0	37
Future Volume (Veh/h)	81	1415	0	0	745	27	0	0	0	11	0	37
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	81	1415	0	0	745	27	0	0	0	11	0	37
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		113										
pX, platoon unblocked				0.75			0.75	0.75	0.75	0.75	0.75	
vC, conflicting volume	772			1415			1986	2349	708	1628	2336	386
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	772			895			1654	2136	0	1178	2118	386
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	90			100			100	100	100	89	100	94
cM capacity (veh/h)	839			568			42	33	817	102	34	612

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	81	943	472	0	497	275	0	48
Volume Left	81	0	0	0	0	0	0	11
Volume Right	0	0	0	0	0	27	0	37
cSH	839	1700	1700	1700	1700	1700	1700	285
Volume to Capacity	0.10	0.55	0.28	0.00	0.29	0.16	0.00	0.17
Queue Length 95th (m)	2.4	0.0	0.0	0.0	0.0	0.0	0.0	4.5
Control Delay (s)	9.7	0.0	0.0	0.0	0.0	0.0	0.0	20.2
Lane LOS	A						A	C
Approach Delay (s)	0.5			0.0			0.0	20.2
Approach LOS							A	C

Intersection Summary				
Average Delay	0.8			
Intersection Capacity Utilization	58.0%	ICU Level of Service		B
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	1422	772	2	1	4
Future Volume (Veh/h)	5	1422	772	2	1	4
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	5	1422	772	2	1	4
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		202	328			
pX, platoon unblocked	0.99				0.76	0.99
vC, conflicting volume	774				1494	387
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	754				964	363
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				99	99
cM capacity (veh/h)	845				191	628

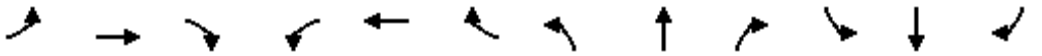
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	479	948	515	259	5
Volume Left	5	0	0	0	1
Volume Right	0	0	0	2	4
cSH	845	1700	1700	1700	431
Volume to Capacity	0.01	0.56	0.30	0.15	0.01
Queue Length 95th (m)	0.1	0.0	0.0	0.0	0.3
Control Delay (s)	0.2	0.0	0.0	0.0	13.5
Lane LOS	A				B
Approach Delay (s)	0.1		0.0		13.5
Approach LOS					B

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	55.2%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	10	0	95	13	0	38
Future Volume (Veh/h)	10	0	95	13	0	38
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	10	0	95	13	0	38
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	140	102			108	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	140	102			108	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	100			100	
cM capacity (veh/h)	854	954			1483	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	10	108	38
Volume Left	10	0	0
Volume Right	0	13	0
cSH	854	1700	1483
Volume to Capacity	0.01	0.06	0.00
Queue Length 95th (m)	0.3	0.0	0.0
Control Delay (s)	9.3	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.3	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	16.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	629	0	0	1456	8	0	0	0	10	0	65
Future Volume (Veh/h)	21	629	0	0	1456	8	0	0	0	10	0	65
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	21	629	0	0	1456	8	0	0	0	10	0	65
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)		113										
pX, platoon unblocked				0.94			0.94	0.94	0.94	0.94	0.94	
vC, conflicting volume	1464			629			1464	2135	314	1816	2131	732
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1464			484			1370	2082	151	1744	2078	732
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	95			100			100	100	100	80	100	82
cM capacity (veh/h)	457			1013			79	47	819	50	48	364

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	21	419	210	0	971	493	0	75
Volume Left	21	0	0	0	0	0	0	10
Volume Right	0	0	0	0	0	8	0	65
cSH	457	1700	1700	1700	1700	1700	1700	198
Volume to Capacity	0.05	0.25	0.12	0.00	0.57	0.29	0.00	0.38
Queue Length 95th (m)	1.1	0.0	0.0	0.0	0.0	0.0	0.0	12.5
Control Delay (s)	13.3	0.0	0.0	0.0	0.0	0.0	0.0	33.8
Lane LOS	B						A	D
Approach Delay (s)	0.4			0.0			0.0	33.8
Approach LOS							A	D

Intersection Summary				
Average Delay	1.3			
Intersection Capacity Utilization	54.2%	ICU Level of Service		A
Analysis Period (min)	15			

APPENDIX J

Transportation Demand Management Checklists

TDM-Supportive Development Design and Infrastructure Checklist:
Residential Developments (multi-family or condominium)

Legend

REQUIRED	The Official Plan or Zoning By-law provides related guidance that must be followed
BASIC	The measure is generally feasible and effective, and in most cases would benefit the development and its users
BETTER	The measure could maximize support for users of sustainable modes, and optimize development performance

		TDM-supportive design & infrastructure measures: *Residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
	1.	**WALKING & CYCLING: ROUTES**	
	1.1	**Building location & access points**	
BASIC	1.1.1	Locate building close to the street, and do not locate parking areas between the street and building entrances	☒
BASIC	1.1.2	Locate building entrances in order to minimize walking distances to sidewalks and transit stops/stations	☒
BASIC	1.1.3	Locate building doors and windows to ensure visibility of pedestrians from the building, for their security and comfort	☒
	1.2	**Facilities for walking & cycling**	
REQUIRED	1.2.1	Provide convenient, direct access to stations or major stops along rapid transit routes within 600 metres; minimize walking distances from buildings to rapid transit; provide pedestrian-friendly, weather-protected (where possible) environment between rapid transit accesses and building entrances; ensure quality linkages from sidewalks through building entrances to integrated stops/stations *(see Official Plan policy 4.3.3)*	☒
REQUIRED	1.2.2	Provide safe, direct and attractive pedestrian access from public sidewalks to building entrances through such measures as: reducing distances between public sidewalks and major building entrances; providing walkways from public streets to major building entrances; within a site, providing walkways along the front of adjoining buildings, between adjacent buildings, and connecting areas where people may congregate, such as courtyards and transit stops; and providing weather protection through canopies, colonnades, and other design elements wherever possible *(see Official Plan policy 4.3.12)*	☒

		TDM-supportive design & infrastructure measures: *Residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
REQUIRED	1.2.3	Provide sidewalks of smooth, well-drained walking surfaces of contrasting materials or treatments to differentiate pedestrian areas from vehicle areas, and provide marked pedestrian crosswalks at intersection sidewalks *(see Official Plan policy 4.3.10)*	☒
REQUIRED	1.2.4	Make sidewalks and open space areas easily accessible through features such as gradual grade transition, depressed curbs at street corners and convenient access to extra-wide parking spaces and ramps *(see Official Plan policy 4.3.10)*	☒
REQUIRED	1.2.5	Include adequately spaced inter-block/street cycling and pedestrian connections to facilitate travel by active transportation. Provide links to the existing or planned network of public sidewalks, multi-use pathways and on-road cycle routes. Where public sidewalks and multi-use pathways intersect with roads, consider providing traffic control devices to give priority to cyclists and pedestrians *(see Official Plan policy 4.3.11)*	☒
BASIC	1.2.6	Provide safe, direct and attractive walking routes from building entrances to nearby transit stops	☒
BASIC	1.2.7	Ensure that walking routes to transit stops are secure, visible, lighted, shaded and wind-protected wherever possible	☒
BASIC	1.2.8	Design roads used for access or circulation by cyclists using a target operating speed of no more than 30 km/h, or provide a separated cycling facility	☐
	1.3	**Amenities for walking & cycling**	
BASIC	1.3.1	Provide lighting, landscaping and benches along walking and cycling routes between building entrances and streets, sidewalks and trails	☐
BASIC	1.3.2	Provide wayfinding signage for site access (where required, e.g. when multiple buildings or entrances exist) and egress (where warranted, such as when directions to reach transit stops/stations, trails or other common destinations are not obvious)	☐

		TDM-supportive design & infrastructure measures: *Residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
	2.	**WALKING & CYCLING: END-OF-TRIP FACILITIES**	
	2.1	**Bicycle parking**	
REQUIRED	2.1.1	Provide bicycle parking in highly visible and lighted areas, sheltered from the weather wherever possible *(see Official Plan policy 4.3.6)*	☒
REQUIRED	2.1.2	Provide the number of bicycle parking spaces specified for various land uses in different parts of Ottawa; provide convenient access to main entrances or well-used areas *(see Zoning By-law Section 111)*	☒
REQUIRED	2.1.3	Ensure that bicycle parking spaces and access aisles meet minimum dimensions; that no more than 50% of spaces are vertical spaces; and that parking racks are securely anchored *(see Zoning By-law Section 111)*	☒
BASIC	2.1.4	Provide bicycle parking spaces equivalent to the expected number of resident-owned bicycles, plus the expected peak number of visitor cyclists	☐
	2.2	**Secure bicycle parking**	
REQUIRED	2.2.1	Where more than 50 bicycle parking spaces are provided for a single residential building, locate at least 25% of spaces within a building/structure, a secure area (e.g. supervised parking lot or enclosure) or bicycle lockers *(see Zoning By-law Section 111)*	☒
BETTER	2.2.2	Provide secure bicycle parking spaces equivalent to at least the number of units at condominiums or multi-family residential developments	☐
	2.3	**Bicycle repair station**	
BETTER	2.3.1	Provide a permanent bike repair station, with commonly used tools and an air pump, adjacent to the main bicycle parking area (or secure bicycle parking area, if provided)	☐
	3.	**TRANSIT**	
	3.1	**Customer amenities**	
BASIC	3.1.1	Provide shelters, lighting and benches at any on-site transit stops	☐
BASIC	3.1.2	Where the site abuts an off-site transit stop and insufficient space exists for a transit shelter in the public right-of-way, protect land for a shelter and/or install a shelter	☐
BETTER	3.1.3	Provide a secure and comfortable interior waiting area by integrating any on-site transit stops into the building	☐

		TDM-supportive design & infrastructure measures: *Residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
	4.	**RIDESHARING**	
	4.1	**Pick-up & drop-off facilities**	
BASIC	4.1.1	Provide a designated area for carpool drivers (plus taxis and ride-hailing services) to drop off or pick up passengers without using fire lanes or other no-stopping zones	☐
	5.	**CARSHARING & BIKESHARING**	
	5.1	**Carshare parking spaces**	
BETTER	5.1.1	Provide up to three carshare parking spaces in an R3, R4 or R5 Zone for specified residential uses *(see Zoning By-law Section 94)*	☐
	5.2	**Bikeshare station location**	
BETTER	5.2.1	Provide a designated bikeshare station area near a major building entrance, preferably lighted and sheltered with a direct walkway connection	☐
	6.	**PARKING**	
	6.1	**Number of parking spaces**	
REQUIRED	6.1.1	Do not provide more parking than permitted by zoning, nor less than required by zoning, unless a variance is being applied for	☒
BASIC	6.1.2	Provide parking for long-term and short-term users that is consistent with mode share targets, considering the potential for visitors to use off-site public parking	☐
BASIC	6.1.3	Where a site features more than one use, provide shared parking and reduce the cumulative number of parking spaces accordingly *(see Zoning By-law Section 104)*	☐
BETTER	6.1.4	Reduce the minimum number of parking spaces required by zoning by one space for each 13 square metres of gross floor area provided as shower rooms, change rooms, locker rooms and other facilities for cyclists in conjunction with bicycle parking *(see Zoning By-law Section 111)*	☐
	6.2	**Separate long-term & short-term parking areas**	
BETTER	6.2.1	Provide separate areas for short-term and long-term parking (using signage or physical barriers) to permit access controls and simplify enforcement (i.e. to discourage residents from parking in visitor spaces, and vice versa)	☐

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

Legend

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

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

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

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

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

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

APPENDIX K

Detailed MMLOS Analysis

1.0 SEGMENT MMLOS

1.1.1 Pedestrian Level of Service (PLOS)

Exhibit 4 of the MMLOS guidelines has been used to evaluate the segment PLOS of Montreal Road and Beckenham Lane. Exhibit 22 of the MMLOS guidelines suggests a target PLOS C for a local roadway in the general urban area and on arterial mainstreets. The results of the segment PLOS analysis are summarized in **Table 1**.

Table 1: Segment PLOS

Sidewalk Width (m)	Boulevard Width (m)	Avg. Daily Curb Lane Traffic Volume	Prescence of On-Street Parking	Operating Speed	Segment PLOS
Montreal Road (North Curb)					
> 2.0	0.0	> 3000	No	70 km/h	F
Montreal Road (South Curb)					
1.5	1.5	> 3000	No	70 km/h	E
Beckenham Lane (East Curb)					
0.0	0.0	≤ 3000	No	50 km/h	F
Beckenham Lane (West Curb)					
0.0	0.0	≤ 3000	Yes	50 km/h	F
Cedar Road (North Curb)					
0.0	0.0	≤ 3000	No	50 km/h	F
Cedar Road (South Curb)					
0.0	0.0	≤ 3000	Yes	50 km/h	F

1.1.2 Bicycle Level of Service (BLOS)

Exhibit 11 of the MMLOS guidelines has been used to evaluate the segment BLOS of Montreal Road and Beckenham Lane. Exhibit 22 of the MMLOS guidelines suggests a target BLOS C for Montreal Road and BLOS D for Beckenham Lane. The results of the segment BLOS analysis are summarized in **Table 2**.

Table 2: Segment BLOS

Road Class	Bike Route	Type of Bikeway	Travel Lanes	Operating Speed	Segment BLOS
Montreal Road					
Arterial Road	Spine Route	Mixed Traffic	4	70 km/h	F
Beckenham Lane					
Local Road	-	Mixed Traffic	2	50 km/h	B
Cedar Road					
Local Road	-	Mixed Traffic	2	50 km/h	B

1.1.3 Transit Level of Service (TLOS)

Exhibit 15 of the MMLOS guidelines has been used to evaluate the segment TLOS of Montreal Road. Exhibit 22 of the MMLOS guidelines suggests a target TLOS D for arterial mainstreets along a transit priority corridor (isolated measures). Since Beckenham Lane does not provide

transit service, the transit level of service (TLOS) has not been evaluated. The results of the segment TLOS analysis are summarized in **Table 3**.

Table 3: Segment TLOS

Facility Type	Congestion	Frictions	Incident Potential	Segment TLOS
Montreal Road				
Mixed Traffic	Yes	Medium	Medium	E

1.1.4 Truck Level of Service (TkLOS)

Exhibit 20 of the MMLOS guidelines has been used to evaluate the segment TkLOS of Montreal Road and Beckenham Lane. Exhibit 22 of the MMLOS guidelines suggests a target TkLOS D for Montreal Road and no target for Beckenham Lane. The results of the segment TkLOS analysis are summarized in **Table 4**.

Table 4: Segment TkLOS

Curb Lane Width	Number of Travel Lanes per Direction	Segment TkLOS
Montreal Road		
> 3.7m	2	A
Beckenham Lane		
< 3.3m	1	D

2.0 INTERSECTION MMLOS

2.1.1 Pedestrian Level of Service (PLOS)

Exhibit 5 of the MMLOS guidelines has been used to evaluate the intersection PLOS at Montreal Road/Blair Road, Montreal Road/Elwood Drive, and Montreal Road/Elmsmere Drive. Exhibit 22 of the MMLOS guidelines suggests a target PLOS C for all intersections along arterial mainstreets. The results of the intersection PLOS analysis are shown in **Figures 1**, **2**, and **3**.

Figure 1: Montreal Road/Blair Road PLOS

Criteria	North Approach		South Approach		East Approach		West Approach	
Montreal Road/Blair Road								
PETSI SCORE								
CROSSING DISTANCE CONDITIONS								
Median > 2.4m in Width	No	55	No	23	No	-10	No	39
Lanes Crossed (3.5m Lane Width)	6		8		10 +		7	
SIGNAL PHASING AND TIMING								
Left Turn Conflict	Permissive	-8	Permissive	-8	Permissive	-8	Permissive	-8
Right Turn Conflict	Permissive or Yield	-5	Permissive or Yield	-5	Permissive or Yield	-5	Permissive or Yield	-5
Right Turn on Red	N/A	0	RTOR Allowed	-3	RTOR Allowed	-3	N/A	0
Leading Pedestrian Interval	No	-2	No	-2	No	-2	No	-2
CORNER RADIUS								
Parallel Radius	> 10m to 15m	-6	> 25m	-9	> 10m to 15m	-6	> 10m to 15m	-6
Parallel Right Turn Channel	No Right Turn Channel	-4	onventional without Receivir	0	No Right Turn Channel	-4	onventional without Receivir	0
Perpendicular Radius	> 15m to 25m	-8	N/A	0	N/A	0	> 25m	-9
Perpendicular Right Turn Channel	Conventional without Receiving	0	N/A	0	N/A	0	onventional without Receivir	0
CROSSING TREATMENT								
Treatment	Standard	-7	Standard	-7	Standard	-7	Standard	-7
PETSI SCORE		**15**		**-11**		**-45**		**2**
LOS		**F**		**F**		**F**		**F**
DELAY SCORE								
Cycle Length		90		90		90		90
Pedestrian Walk Time		16.6		16.6		6.9		6.9
DELAY SCORE		**29.9**		**29.9**		**38.4**		**38.4**
LOS		**C**		**C**		**D**		**D**
OVERALL		**F**		**F**		**F**		**F**

Figure 2: Montreal Road/Elwood Street PLOS

Criteria	North Approach		South Approach		East Approach		West Approach	
Montreal Road/Elwood Road								
PETSI SCORE								
CROSSING DISTANCE CONDITIONS								
Median > 2.4m in Width	No	120	No	55	No	39	No	39
Lanes Crossed (3.5m Lane Width)	2		6		7		7	
SIGNAL PHASING AND TIMING								
Left Turn Conflict	Permissive	-8	Permissive	-8	Permissive	-8	Permissive	-8
Right Turn Conflict	Permissive or Yield	-5	Permissive or Yield	-5	Permissive or Yield	-5	Permissive or Yield	-5
Right Turn on Red	RTOR Allowed	-3	RTOR Allowed	-3	RTOR Allowed	-3	RTOR Allowed	-3
Leading Pedestrian Interval	No	-2	No	-2	Yes	0	Yes	0
CORNER RADIUS								
Parallel Radius	<3m	-3	> 10m to 15m	-6	> 5m to 10m	-5	<3m	-3
Parallel Right Turn Channel	No Right Turn Channel	-4	No Right Turn Channel	-4	No Right Turn Channel	-4	No Right Turn Channel	-4
Perpendicular Radius	N/A	0	N/A	0	N/A	0	N/A	0
Perpendicular Right Turn Channel	N/A	0	N/A	0	N/A	0	N/A	0
CROSSING TREATMENT								
Treatment	Textured	-4	Standard	-7	Standard	-7	Standard	-7
PETSI SCORE		**91**		**20**		**7**		**9**
LOS		**A**		**F**		**F**		**F**
DELAY SCORE								
Cycle Length		90		90		90		90
Pedestrian Walk Time		37.4		37.4		9.3		9.3
DELAY SCORE		**15.4**		**15.4**		**36.2**		**36.2**
LOS		**B**		**B**		**D**		**D**
OVERALL		**B**		**F**		**F**		**F**

Figure 3: Montreal Road/Elmsmere Road PLOS

Criteria	North Approach		South Approach		East Approach		West Approach	
Montreal Road/Elmsmere Road								
PETSI SCORE								
CROSSING DISTANCE CONDITIONS								
Median > 2.4m in Width			No	72	No	39	No	39
Lanes Crossed (3.5m Lane Width)			5		7		7	
SIGNAL PHASING AND TIMING								
Left Turn Conflict			Permissive	-8	Permissive	-8	Permissive	-8
Right Turn Conflict			Permissive or Yield	-5	Permissive or Yield	-5	No Right Turn/Prohibited	0
Right Turn on Red			RTOR Allowed	-3	N/A	0	RTOR Allowed	-3
Leading Pedestrian Interval			No	-2	No	-2	No	-2
CORNER RADIUS								
Parallel Radius			> 5m to 10m	-5	> 5m to 10m	-5	No Right Turn	0
Parallel Right Turn Channel			No Right Turn Channel	-4	No Right Turn Channel	-4	No Right Turn	0
Perpendicular Radius			N/A	0	N/A	0	N/A	0
Perpendicular Right Turn Channel			N/A	0	N/A	0	N/A	0
CROSSING TREATMENT								
Treatment			Standard	-7	Standard	-7	Standard	-7
PETSI SCORE		**N/A**		**38**		**8**		**19**
LOS		**A**		**E**		**F**		**F**
DELAY SCORE								
Cycle Length		90		90		90		90
Pedestrian Walk Time		10		6.8		38		38
DELAY SCORE		**35.6**		**38.5**		**15**		**15**
LOS		**D**		**D**		**B**		**B**
OVERALL		**D**		**E**		**F**		**F**

2.1.2 Bicycle Level of Service (BLOS)

Exhibit 12 of the MMLOS guidelines has been used to evaluate the intersection BLOS at Montreal Road/Blair Road, Montreal Road/Elwood Drive, and Montreal Road/Elmsmere Drive. Exhibit 22 of the MMLOS guidelines suggests a target BLOS C for arterial mainstreet intersections along spine cycling routes. The results of the segment BLOS analysis are summarized in **Table 5**.

Table 5: Intersection BLOS

Approach	Bikeway Facility Type	Criteria	Travel Lanes and/or Speed	BLOS
Montreal Road/Blair Road				
North Approach	Mixed Traffic	Right Turn Lane Characteristics	Right turn lane 25-50m long, <25km/h	D
		Left Turn Accommodation	One lane crossed, 60km/hr	F
South Approach	Mixed Traffic	Right Turn Lane Characteristics	Right turn lane 25-50m long, <25km/h	D
		Left Turn Accommodation	One lane crossed, 60km/hr	F
East Approach	Mixed Traffic	Right Turn Lane Characteristics	Right turn lane 25-50m long, <25km/h	D
		Left Turn Accommodation	Two lanes crossed, 60km/hr	F
West Approach	Mixed Traffic	Right Turn Lane Characteristics	Right turn lane 25-50m long, >25km/h	F
		Left Turn Accommodation	Two lanes crossed, 70km/hr	F
Montreal Road/Elwood Drive				
North Approach	Mixed Traffic	Right Turn Lane Characteristics	No impact to LTS	A

Approach	Bikeway Facility Type	Criteria	Travel Lanes and/or Speed	BLOS
		Left Turn Accommodation	No lane crossed, <50km/hr	B
South Approach	Mixed Traffic	Right Turn Lane Characteristics	No impact to LTS	A
		Left Turn Accommodation	No lane crossed, <50km/hr	B
East Approach	Mixed Traffic	Right Turn Lane Characteristics	No impact to LTS	A
		Left Turn Accommodation	Two lanes crossed, 70km/hr	F
West Approach	Mixed Traffic	Right Turn Lane Characteristics	No impact to LTS	A
		Left Turn Accommodation	Two lanes crossed, 70km/hr	F
Montreal Road/Elmsmere Road				
South Approach	Mixed Traffic	Right Turn Lane Characteristics	No impact to LTS	A
		Left Turn Accommodation	No lanes crossed, 50km/hr	B
East Approach	Mixed Traffic	Right Turn Lane Characteristics	No right turn	-
		Left Turn Accommodation	Two lanes crossed, 70km/hr	F
West Approach	Mixed Traffic	Right Turn Lane Characteristics	No impact to LTS	A
		Left Turn Accommodation	No left turn	-

2.1.3 Transit Level of Service (TLOS)

Exhibit 16 of the MMLOS guidelines has been used to evaluate the intersection TLOS at Montreal Road/Blair Road, Montreal Road/Elwood Drive, and Montreal Road/Elmsmere Drive. Exhibit 22 of the MMLOS guidelines suggests a target TLOS D for arterial roadways along a transit priority corridor (isolated measures). Since Beckenham Lane does not provide transit service, the transit level of service (TLOS) has not been evaluated. The results of the segment TLOS analysis are summarized in **Table 6**.

Table 6: Intersection TLOS

Approach	Facility Type	Delay[1] AM (PM)	Movement	TLOS
Montreal Road/Blair Road				
North Approach	Mixed Traffic (No TSP)	29 sec (22 sec)	SBT	C
South Approach	Mixed Traffic (No TSP)	26 sec (22 sec)	NBT	C
East Approach	Mixed Traffic (No TSP)	9 sec (11 sec)	WBT	C

West Approach	Mixed Traffic (No TSP)	10 sec (18 sec)	EBT	C
Montreal Road/Elwood Drive				
North Approach	No transit route	-	-	-
South Approach	No transit route	-	-	-
East Approach	Mixed Traffic (No TSP)	7 sec (4 sec)	WBT/R	B
West Approach	Mixed Traffic (No TSP)	3 sec (5 sec)	EBT/R	B
Montreal Road/Elmsmere Road				
North Approach	No transit route	-	-	-
South Approach	No transit route	-	-	-
East Approach	Mixed Traffic (No TSP)	6 sec (4 sec)	WBT	B
West Approach	Mixed Traffic (No TSP)	3 sec (5 sec)	EBT	B

1. Mixed traffic delay based on the critical approach delay in Synchro analysis

2.1.4 Truck Level of Service (TkLOS)

Exhibit 21 of the MMLOS guidelines has been used to evaluate the intersection PLOS at Montreal Road/Blair Road, Montreal Road/Elwood Drive, and Montreal Road/Elmsmere Drive. Exhibit 22 of the MMLOS guidelines suggests a target TkLOS D for intersections along Montreal Road. The results of the segment TkLOS analysis are summarized in **Table 7**.

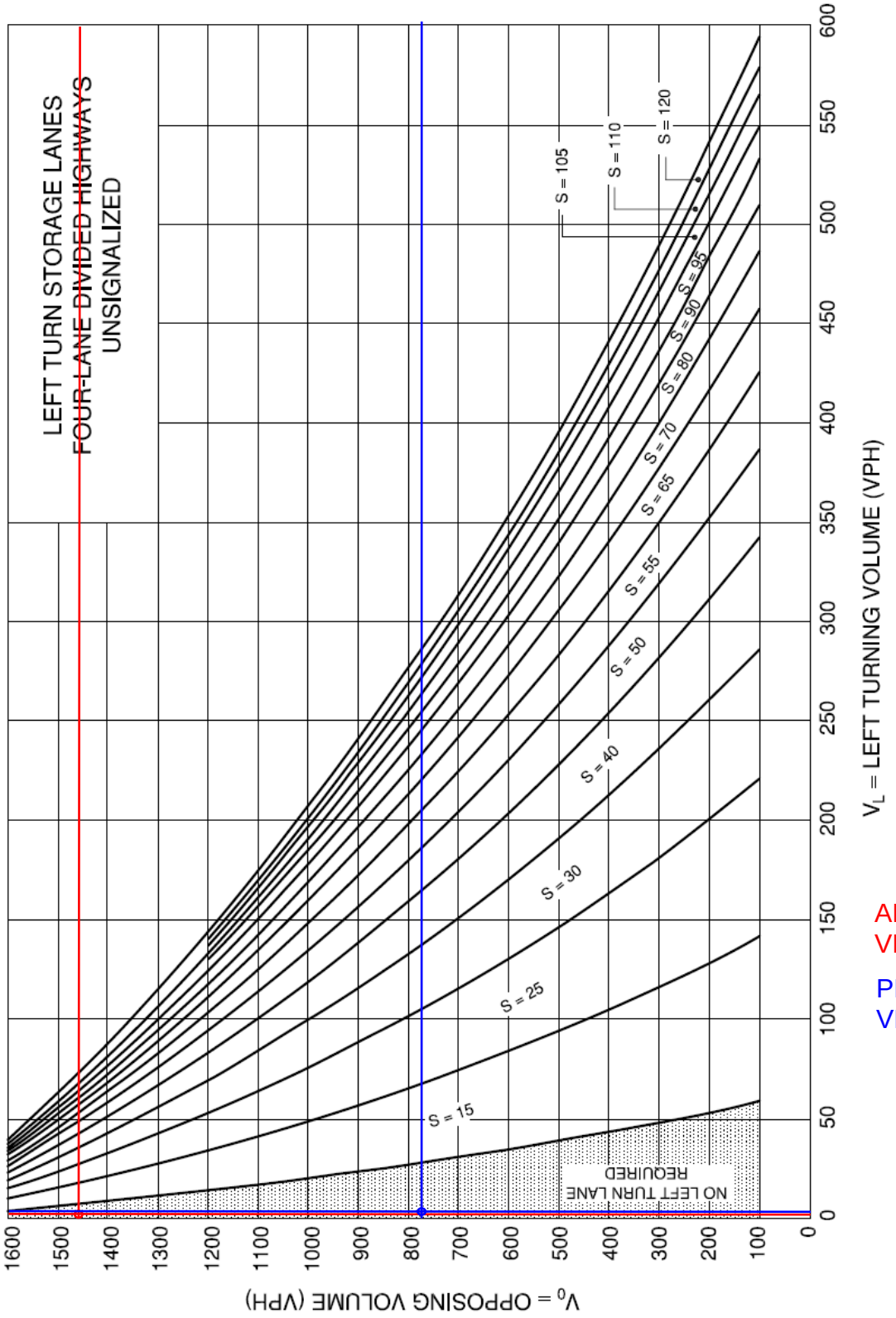
Table 7: Intersection TkLOS

Approach	Effective Corner Radius	Number of Receiving Lanes on Departure from Intersection	LOS
Montreal Road/Blair Road			
North Approach	> 15m	Two	A
South Approach	10-15m	Two	B
East Approach	> 15m	One	C
West Approach	> 15m	Two	A
Montreal Road/Elwood Drive			
North Approach	< 10m	Two	D
South Approach	< 10m	Two	D
East Approach	< 10m	One	F
West Approach	10-15m	One	E
Montreal Road/Elmsmere Road			
South Approach	< 10m	Two	D
East Approach	No Right Turn	-	-
West Approach	< 10m	One	F

APPENDIX L

MTO Left Turn Lane Warrant

Exhibit 9A-32



AM Peak
VL=3 Vo=1460

PM Peak
VL=5 Vo=775

APPENDIX M

OTM Traffic Signalization Warrant

NOVATECH
Engineers, Planners & Landscape Architects

TRAFFIC SIGNAL JUSTIFICATION
USING PROJECTED VOLUMES

LOCATION: Montreal Road **at** Beckenham Lane

YEAR: 2028 (Total)

JUSTIFICATION	DESCRIPTION	MINIMUM REQUIREMENT		COMPLIANCE		
		FREE FLOW	RESTRICTED FLOW	SECTIONAL		ENTIRE % (2)
		OPERATING SPEED > 70KM/H	OPERATING SPEED < 70 KM/H	NUMERICAL	PERCENT	
1. MINIMUM VEHICULAR WARRANT	A. Vehicle volume, all approaches (average hour)	576 720 (2 or more lane approach	864 1080 (2 or more lane approach	1130	157%	16%
	B. Vehicle volume along minor street (average hour)	144 216 (tee intersection)	204 306 (tee intersection)	34	16%	
2. DELAY TO CROSS TRAFFIC	A. Vehicle volume along major street (average hour)	576 720 (2 or more lane approach)	864 1080 (2 or more lane approach	1088	151%	13%
	B (1). Combined vehicle and pedestrian volume crossing the major street (average hour)	60	90	8	13%	

NOTES

1) For definition of crossing volume refer to the Ontario Traffic Manual Book 12, Section 4.5 (Nov. 2007).
2) The lowest sectional percentage governs the entire Justification.
3) Average hourly volumes estimated from peak hour volumes, AHV = PM / 2 or AHV = (AM + PM) / 4.