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Environmental Restoration

100 Argyle Avenue Ottawa, Ontario

Transportation Impact Assessment



Proposed Residential Development 100 Argyle Avenue

Transportation Impact Assessment

Prepared By:

NOVATECH

Suite 200, 240 Michael Cowpland Drive Ottawa, Ontario K2M 1P6

December 2018

Novatech File: 118116 Ref: R-2018-107



December 10, 2018

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

Attention: Mr. Wally Dubyk

Project Manager, Infrastructure Approvals

Dear Mr. Dubyk:

Reference: 100 Argyle Avenue

Transportation Impact Assessment

Novatech File No. 118116

We are pleased to submit the following Transportation Impact Assessment in support of a Zoning By-Law Amendment for the property at 100 Argyle Avenue, 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 Jennifer Luong, or the undersigned.

Yours truly,

NOVATECH

Joshua Audia, B.Sc.

E.I.T. | Transportation/Traffic



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 licensed¹ or registered² professional in good standing, whose field of expertise [check $\sqrt{\text{appropriate field(s)}}$] is either transportation engineering \square or transportation planning \square .

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.

Dated at Ottawa (City)	this
Name:	Jennifer Luong, P.Eng. (Please Print)
Professional Title:	Senior Project Manager, Transportation/Traffic
Signature of	Individual certifier that s/he meets the above four criteria

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EXECUTIVE SUMMARY

This Transportation Impact Assessment (TIA) has been prepared in support of a Zoning By-Law Amendment for the property located at 100 Argyle Avenue. The approximately 0.16-hectare site is currently occupied by two and a half storeys of commercial offices.

The subject site is designated as General Urban Area on Schedule B of the City of Ottawa's Official Plan. The implemented zoning for the property is General Mixed Use (GM), which allows 'residential, commercial, and institutional uses, or mixed use development in the General Urban Area.' The subject site is also within the boundaries of the Centretown Community Design Plan and Secondary Plan. A Zoning By-Law Amendment is required to seek relief of various performance standards.

The proposed redevelopment will replace the existing 2 ½-storey office building with a 21-storey residential building containing 156 dwelling units, amenity space for residents, and 74 underground parking spaces. The redevelopment is anticipated to be constructed in a single phase with full occupancy in the year 2023.

Access to the proposed redevelopment will be provided by a right-in/right-out (RIRO) access to underground parking on Argyle Avenue at the western limit of the property, a loading access at the eastern limit, and an existing shared access to surface parking and the adjacent property to the west.

The study area for this report will include Argyle Avenue, Catherine Street, O'Connor Street, Metcalfe Street, Elgin Street, and McLeod Street. The study area intersections include the signalized intersections at O'Connor Street/Argyle Avenue, O'Connor Street/Catherine Street, Metcalfe Street West/Argyle Avenue, Metcalfe Street West/Catherine Street/Highway 417 (Exit 119), Elgin Street/Argyle Avenue, and Elgin Street/Catherine Street, as well as the unsignalized intersections at Metcalfe Street East/McLeod Street and Metcalfe Street East/Argyle Avenue.

The selected time periods for the analysis are 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, the weekday AM and PM peak periods will be analyzed for the buildout year 2023 and the horizon year 2028.

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

<u>Forecasting</u>

The net increase in trips generated by the proposed redevelopment is approximately 73 person trips in the AM peak hour and 79 person trips in the PM peak hour, which includes an increase of approximately 26 vehicle trips in the AM peak hour and 27 vehicle trips in the PM peak hour.

Development Design and Parking

Pedestrian facilities will be provided between the building entrances and Argyle Avenue.
 Sidewalks will be depressed and continuous across the accesses, in accordance with City standards.

- Transit stops serving OC Transpo Routes 5, 14, 56, and westbound 101 and 103 are within 400m walking distance of the subject site. Transit stops serving OC Transpo Routes 6, 7, and eastbound 101 and 103 are within 600m walking distance of the subject site.
- All required TDM-supportive design and infrastructure measures in the TDM checklist are met.
- Approximately 74 vehicle parking spaces and 160 bicycle parking spaces are proposed for the redevelopment. The amount of bicycle parking meets the requirements outlined in the ZBL, however the amount of vehicle parking is 14 spaces fewer than the minimum outlined in the ZBL.

Boundary Streets

- Argyle Avenue meets the target TkLOS E and Auto LOS D, but does not meet the target PLOS C or BLOS D. The following recommendations are identified for the City's consideration as funding becomes available.
- The south side of Argyle Avenue can achieve the target PLOS C by widening the sidewalk to 1.8m while maintaining a boulevard width of 2.0m.
- The BLOS of Argyle Avenue can meet the target BLOS D can be achieved by either implementing a 4.0m-wide bike lane plus parking lane, or reducing the operating speed to 50 km/h.

Access Design

- The proposed redevelopment will be served by a two-way underground parking garage access approximately 3.0m east of the western property line. The existing shared RIRO access will be maintained. An access exclusively for garbage collection and deliveries is located approximately at the eastern property line.
- Full-height curb and sidewalks will be reinstated where necessary, and depressed curb and continuous sidewalks will be provided across the full width of the accesses, as per City standards.
- Section 25 (a) of the *Private Approach By-Law* identifies a requirement for properties with a
 frontage of 20m to 34m to have no more than one (1) two-way private approach or two (2)
 one-way private approaches. Considering the loading access will be used exclusively by
 delivery and garbage collection vehicles, the only exclusive access to 100 Argyle Avenue is
 the two-way underground parking garage ramp. The shared access must be maintained for
 the neighbouring property to the west.
- Section 25 (c) of the *Private Approach By-Law* identifies a requirement for two-way accesses to have a width no greater than 9m, as measured at the street line. Section 107 (1)(a) of the ZBL identifies a minimum width requirement of 6.0m for a double traffic lane leading to a parking garage. Any access to an apartment building must also meet Section 107 (1)(aa), which identifies a maximum width requirement of 6.7m for any double traffic lane which leads to 20 or more parking spaces. The proposed underground parking access is approximately 6.0m in width, thereby meeting these requirements.

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- The proposed loading access is approximately 4.7m in width, and the shared access with the property to the west is approximately 3.0m in width.
- Section 25 (I) of the Private Approach By-Law identifies a requirement to provide a minimum distance of 18m between the private approach and the nearest intersecting street line, and a minimum distance of 15m between a two-way private approach and any other private approach. The proposed spacing between the loading access and the underground parking access is 19m.
- The proposed spacing between the underground parking access and the existing shared access is approximately 1.2m. A relaxation of the minimum distance outlined in Section 25 (I) is requested for the spacing between these two accesses.
- Section 25 (o) of the Private Approach By-Law identifies a requirement to provide a minimum spacing of 3m between the nearest edge of the private approach and the property line, as measured at the street line. The spacing between the proposed underground parking access and the western property line is approximately 3.0m, however the spacing between the proposed access and the existing shared access is approximately 1.2m. Section 25 (o) states that a relaxation of the minimum clearance distance from 3m to 0.3m is permissible by the General Manager, provided there are no safety issues associated with doing so.
- Further relaxation of the minimum clearance distance is requested for the loading access, which is proposed to abut the eastern property line. As this access doesn't serve parking, the requirements of the *Private Approach By-Law* are not considered applicable.
- Section 25 (t) of the Private Approach By-Law identifies a requirement that any private approach may not exceed a grade of 2-6% within 9m of the street line. The proposed underground parking access ramp has a grade of 7% approximately 8.2m from the street line. This requirement will be addressed at the Site Plan Control application stage, where the ramp will be brought into compliance or a waiver for this requirement will be requested at that time.
- Implementation of the underground parking access will require a shift of the two existing onstreet parking spaces in front of the subject site, such that the spaces are approximately 7m further east. Removal of the existing site-exclusive access will accommodate this shift, as will the implementation of the loading access at the eastern limit of the site. Based on the parking space dimension regulations outlined by City staff and the *Traffic and Parking By-Law*, two on-street parking spaces can be supported.
- The Transportation Association of Canada outlines a minimum sight distance requirement of 95m for vehicles exiting the accesses to the subject site. Provided the vegetation proposed at the front of the development is non-obstructive, the sight distance requirement is met for all accesses.

Transit

 No capacity problems are anticipated 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.

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Intersection Design

- Based on the results of the intersection MMLOS analysis:
 - No intersections meet the target pedestrian level of service (PLOS);
 - o Only O'Connor Street/Argyle Avenue meets the target bicycle level of service (BLOS);
 - Among intersections with targets, only Metcalfe Street West/Catherine Street/Exit 119 does not meet the target transit level of service (TLOS);
 - Elgin Street/Argyle Avenue and Elgin Street/Catherine Street do not meet the target truck level of service (TkLOS);
 - Metcalfe Street West/Argyle Avenue and Metcalfe Street West/Catherine Street/Exit 119 do not meet the target vehicular level of service (Auto LOS).

Pedestrian Level of Service

 There is limited opportunity in improving the PLOS of any approaches that do not meet the target PLOS C, as major road or timing modifications are required.

Bicycle Level of Service

- The east approach of O'Connor Street/Catherine Street does not meet the target BLOS B, based on left turn characteristics. No recommendations have been made, as Catherine Street is not a cycling route and Gladstone Avenue is a nearby eastwest spine route.
- The south approach of Metcalfe Street West/Catherine Street/Highway 417 (Exit 119) does not meet the target BLOS C, as left turning cyclists are required to cross two lanes of traffic. Accommodation of left turning cyclists onto Catherine Street is not recommended, as Catherine Street is not a cycling route and implementation of a two-stage bike box would be difficult given the configuration of the westbound approaches (Catherine Street and the Exit 119 off-ramp).
- The west approach of Elgin Street/Argyle Avenue does not meet the target BLOS C, based on left turn characteristics. The dual left turn lanes are required based on the existing peak hour turning movement volumes, and no changes have been proposed as part of the Elgin Street Renewal project with respect to the westbound dual left turn lanes.
- The south and east approaches of Elgin Street/Catherine Street do not meet the target BLOS D. The south approach can achieve the target BLOS by reducing the operating speed to 40 km/h, and the Elgin Street Renewal suggests a reduced speed limit of 30 km/h from Lisgar Street to McLeod Street. No changes were recommended for the accommodation of northbound left turning cyclists as part of the Elgin Street Renewal. The peak hour volumes for westbound right turning vehicles justifies a right turn lane, and this lane is carried in the Elgin Street Renewal design.

• Transit Level of Service

The east approach (Catherine Street) of Metcalfe Street West/Catherine Street/ Highway 417 (Exit 119) does not meet the target TLOS D, requiring a 5-second reduction in the delay to achieve the target. Implementation of transit signal priority on Catherine Street as identified in the 2031 RTTP Network Concept may improve the TLOS.

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Truck Level of Service

- The west approach of Elgin Street/Argyle Avenue does not meet the target TkLOS D. It is clear that the Elgin Street Renewal prioritizes the levels of service for pedestrians and cyclists, and it is anticipated that there will be few heavy vehicles approaching Elgin Street from Argyle Avenue.
- The north approach of Elgin Street/Catherine Street does not meet the target TkLOS D. The Elgin Street Renewal functional design identifies a concrete rumble strip/truck apron at this approach, allowing heavy vehicles a greater effective corner radius. While the MMLOS guidelines evaluate this corner as achieving a TkLOS E, in reality the corner is expected to perform acceptably.

Vehicular Level of Service

- The northbound right turn movement at Metcalfe Street West/Argyle Avenue does not meet the target Auto LOS D during the AM peak hour. To achieve the target Auto LOS, a reduction of approximately ten vehicles is required.
- The northwestbound right turn movement (vehicles turning from westbound Highway 417 onto northbound Metcalfe Street West) and the northbound through movement (vehicles continuing on northbound Metcalfe Street West) do not meet the target Auto LOS D during the AM peak hour. To achieve the target, a reduction of 140 vehicles making the northbound right turn movement and a reduction of 60 vehicles making the northbound through movement is required.
- In existing and future traffic conditions, queueing issues were identified for the following movements:
 - O'Connor Street/Argyle Avenue
 - Southbound through (PM peak hour)
 - O'Connor Street/Catherine Street
 - Southbound right turn (AM and PM peak hours)
 - Metcalfe Street West/Catherine Street/Highway 417 (Exit 119)
 - Northbound through (AM peak hour)
 - o Elgin Street/Argyle Avenue
 - Southbound through (PM peak hour)
- The background traffic conditions appear to improve when compared to the existing traffic conditions, attributable 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).
- Compared to the background traffic conditions, the total traffic conditions are anticipated to have marginal increases to the v/c ratios, queue lengths, and delays, as a result of the additional site-generated traffic within the study area. All intersections are anticipated to operate at approximately the same level of service.

1.0 INTRODUCTION

This Transportation Impact Assessment (TIA) has been prepared in support of a Zoning By-Law Amendment for the property located at 100 Argyle Avenue. The approximately 0.16-hectare site is currently occupied by two and a half storeys of commercial offices.

The proposed redevelopment will replace the existing offices with a 21-storey residential building containing 156 units and amenity space for residents. Twelve surface parking spaces and two levels of underground parking containing 31 spaces each have been proposed, for a total of approximately 74 parking spaces.

The subject site is surrounded by the following:

- Argyle Avenue and the Canadian Museum of Nature to the north;
- Elgin Street and Ottawa Police Central Headquarters to the east;
- Catherine Street, Highway 417 and Ottawa Police Central Headquarters to the south;
- O'Connor Street, offices and residences to the west.

A view of the subject site and study area is provided in Figure 1.

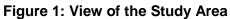
2.0 PROPOSED DEVELOPMENT

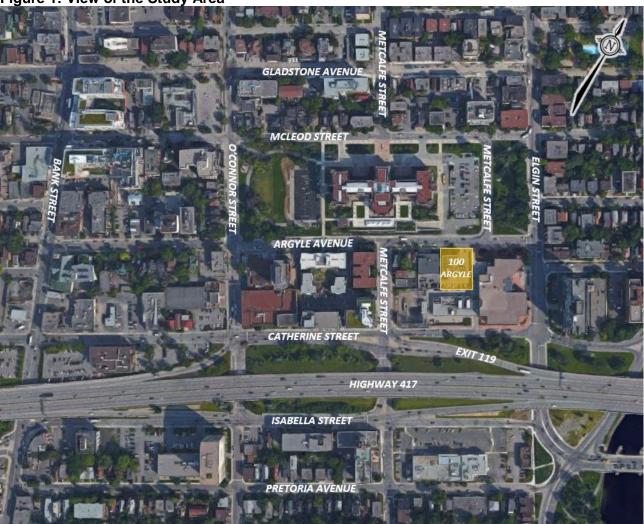
The subject site is designated as General Urban Area on Schedule B of the City of Ottawa's Official Plan. The implemented zoning for the property is General Mixed Use (GM), which allows 'residential, commercial, and institutional uses, or mixed use development in the General Urban Area.' The subject site is also within the boundaries of the Centretown Community Design Plan and Secondary Plan. A Zoning By-Law Amendment is required to seek relief of various performance standards.

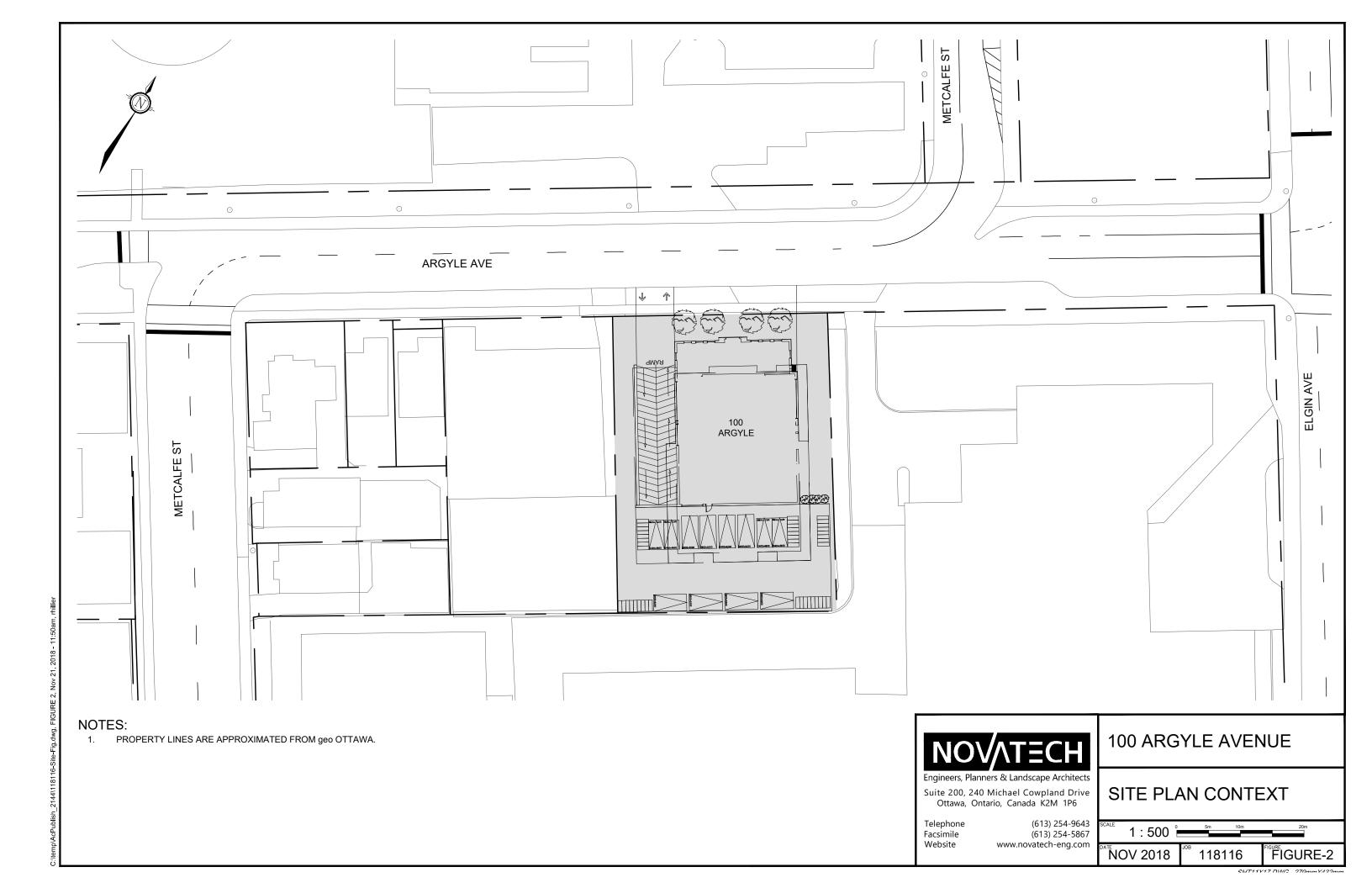
The proposed redevelopment will replace the existing 2 ½-storey office building with a 21-storey residential building containing 156 dwelling units, amenity space for residents, and 74 underground parking spaces. The redevelopment is anticipated to be constructed in a single phase with full occupancy in the year 2023.

Access to the proposed redevelopment will be provided by a right-in/right-out (RIRO) access to underground parking on Argyle Avenue at the western limit of the property, a loading access at the eastern limit, and an existing shared access to surface parking and the adjacent property to the west.

A copy of the conceptual site plan is included in **Appendix A**. A site plan context figure, which includes details of the boundary streets such as pavement markings and sidewalks, is included in **Figure 2**.







3.0 SCREENING

3.1 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. 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 not located along a boundary street that is
 designated as part of the City's Transit Priority, Rapid Transit, or Spine Bicycle Networks, is
 not located in a Design Priority Area or Transit-Oriented Development Zone; further
 assessment is not required based on this trigger.
- Safety Triggers The proposed access is within 150m of adjacent traffic signals, and there
 is a history of traffic collisions on Argyle Avenue between O'Connor Street and Elgin Street;
 further assessment is required based on this trigger.

A copy of the TIA Screening Form is included in **Appendix B**.

4.0 SCOPING

4.1 Existing Conditions

4.1.1 Roadways

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

Argyle Avenue is a generally local roadway that runs on an east-west alignment between Bank Street and the Queen Elizabeth Driveway. Between the two intersections with Metcalfe Street (approximately 120m apart), Argyle Avenue is classified as an arterial roadway. The eastern section of Argyle Avenue (a two-way roadway between Elgin Street and the Queen Elizabeth Driveway) intersects with Elgin Street approximately 15m south of where the western section of Argyle Avenue (a one-way roadway eastbound between Bank Street and Elgin Street) intersects with Elgin Street. Within the study area, Argyle Avenue typically has a two- or three-lane undivided urban cross-section, sidewalks on both sides of the roadway, and an unposted regulatory speed limit of 50 km/h under the Highway Traffic Act. Argyle Avenue is not classified as a truck route. Street parking is permitted except during weekday peak hours (7:00am to 9:00am and 3:30pm to 5:30pm). The right-of-way (ROW) at the subject site is currently 20m. The City of Ottawa's Official Plan does not identify any further ROW protection on Argyle Avenue.

Catherine Street is a one-way arterial roadway in the westbound direction that runs on an east-west alignment between Queen Elizabeth Driveway and Bronson Avenue. West of Metcalfe Street, Catherine Street and Exit 119 of Highway 417 converge, continuing as Catherine Street. West of Bronson Avenue, it continues as the local roadway Raymond Street, before becoming an on-ramp to Highway 417 west of Rochester Street. Within the study area, Catherine Street has a two- to four-lane undivided urban cross-section, sidewalks on the north side of the roadway, and an unposted

regulatory speed limit of 50 km/h. Catherine Street is classified as a truck route, allowing full loads. One-hour street parking is permitted on Catherine Street between Metcalfe Street and Elgin Street on weekdays between 8:00am and 3:30 pm.

O'Connor Street is a one-way arterial roadway in the southbound direction that runs on a north-south alignment between Wellington Street and Isabella Street. South of Isabella Street, O'Connor Street continues as a local roadway until terminating at Holmwood Avenue. Within the study area, O'Connor Street has a two- or three-lane undivided urban cross-section, sidewalks on both sides of the roadway, a bidirectional cycle track on the east side, and an unposted regulatory speed limit of 50 km/h. O'Connor Street is classified as a truck route, allowing full loads. Street parking is permitted north of Argyle Avenue.

Metcalfe Street is generally a one-way arterial roadway in the northbound direction that runs on a north-south alignment in three distinct sections, as a result of the Canadian Museum of Nature's location. South of the museum, Metcalfe Street is a two-way local roadway from Monkland Avenue to Strathcona Avenue. From Strathcona Avenue to Isabella Street, Metcalfe Street is a one-way local roadway, before becoming a one-way arterial roadway between Isabella Street and Wellington Street. Metcalfe Street wraps around the east side of the museum between Argyle Avenue and McLeod Street. Metcalfe Street has a two-lane undivided urban cross-section and an unposted regulatory speed limit of 50 km/h. Within the study area, sidewalks are provided on both sides of the roadway, except between Argyle Avenue and McLeod Street, as there are direct pedestrian connections through the museum site. Metcalfe Street is not classified as a truck route. Within the study area, street parking is not permitted, except for a designated tour bus parking area east of the museum.

McLeod Street is generally a one-way local roadway in the westbound direction that runs on an east-west alignment between Bronson Avenue and the Queen Elizabeth Driveway. Between the two intersections with Metcalfe Street (approximately 125m apart), McLeod Street is classified as an arterial roadway. From Elgin Street to Cartier Street, McLeod Street is a two-way roadway. From Cartier Street to the Queen Elizabeth Driveway, McLeod Street shifts approximately 25m south, and operates as a two-way roadway. Within the study area, McLeod Street has a one- to two-lane undivided urban cross-section, sidewalks on both sides of the roadway, and an unposted regulatory speed limit of 50 km/h. McLeod Street is not classified as a truck route. Street parking is permitted east of the intersection of Metcalfe Street East/McLeod Street and west of the intersection of Metcalfe Street West/McLeod Street.

Elgin Street is a two-way arterial roadway that runs on a north-south alignment between Wellington Street and Isabella Street. At Isabella Street, the roadway transitions into an east-west alignment and continues as Hawthorne Avenue. East of Isabella Street, Hawthorne Avenue is an arterial roadway before becoming a local roadway east of Main Street. Hawthorne Avenue terminates approximately 380m east of Main Street. Within the study area, Elgin Street has a four- to five-lane undivided urban cross-section, sidewalks on both sides of the roadway, and an unposted regulatory speed limit of 50 km/h. Elgin Street is classified as a truck route, allowing full loads. Street parking is permitted within the study in certain sections, except during weekday peak hours (7:00am to 9:00am and 3:30pm to 5:30pm).

4.1.2 Intersections

O'Connor Street/Argyle Avenue

- Signalized four-legged intersection
- One-way vehicular traffic on O'Connor Street and Argyle Avenue
- North Approach: one shared left turn/through lane and one through lane
- West Approach: one shared through/right turn lane
- Bidirectional cycle tracks on northbound and southbound approaches



O'Connor Street/Catherine Street

- Signalized five-legged intersection
- One-way vehicular traffic on O'Connor Street and Catherine Street
- North Approach: two through lanes, one shared through/right turn lane
- East Approach: one left turn lane, one shared left turn/through lane, and two through lanes
- · Westbound left turns on red are prohibited
- Bidirectional cycle tracks on northbound and southbound approaches



Metcalfe Street West/Argyle Avenue

- Signalized three-legged intersection
- One-way traffic on Metcalfe Street West and Argyle Avenue
- South Approach: two right turn lanes
- West Approach: one through lane
- Northbound right turns on red are prohibited



<u>Metcalfe Street/Catherine Street/</u> <u>Highway 417 (Exit 119)</u>

- Signalized five-legged intersection
- One-way traffic on Metcalfe Street, Catherine Street, and Exit 119
- South Approach: one left turn lane and two through lanes
- Northeast Approach: one through lane and one shared through/right turn lane
- Southeast Approach: two through lanes and two right turn lanes
- · Westbound right turns on red are prohibited



Metcalfe Street East/McLeod Street

- Unsignalized three-legged intersection
- One-way traffic on Metcalfe Street East and McLeod Street
- South Approach: two left turn lanes with a PXO Type 'B'
- East Approach: one through lane, stop controlled



Metcalfe Street East/Argyle Avenue

- Unsignalized three-legged intersection
- One-way traffic on Metcalfe Street East and Argyle Avenue
- West Approach: one left turn lane and one shared left turn/through lane



Elgin Street/Argyle Avenue

- Signalized three-legged intersection
- One-way traffic on Argyle Avenue
- North Approach: two through lanes
- South Approach: two through lanes
- West Approach: two left turn lanes and one right turn lane



Elgin Street/Catherine Street

- Signalized four-legged intersection
- One-way traffic on Catherine Street
- North Approach: one through lane and one shared through/right turn lane
- South Approach: one shared left turn/through lane and one through lane
- East Approach: one left turn lane, one through lane, and one right turn lane



4.1.3 Driveways

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

Argyle Avenue, North Side:

 One driveway to the museum at 240 McLeod Street

Argyle Avenue, South Side:

- Seven driveways to residences at 464 Metcalfe Street, and 114, 116, 122 & 150 Argyle Avenue
- One driveway to businesses at 110 Argyle Avenue
- One police station access at 474 Elgin Street

4.1.4 Pedestrian and Cycling Facilities

Concrete and/or unit paver sidewalks are provided on both sides of Argyle Avenue, O'Connor Street, Metcalfe Street, and Elgin Street, and one side of Catherine Street. A bidirectional cycle track is provided on O'Connor Street.

In the City of Ottawa's primary cycling network, O'Connor Street is classified as a Cross-Town Bikeway, Elgin Street is classified as a Local Route, Argyle Avenue is classified as a Spine Route between O'Connor Street and the southern section of Metcalfe Street, and Metcalfe Street is classified as a Spine Route south of Argyle Avenue.

4.1.5 Area Traffic Management

There are no Area Traffic Management (ATM) studies within the study area that have been completed or are currently in progress.

4.1.6 Transit

The nearest bus stops to the subject site are as follows:

Elgin Street

- Stop #2472 for routes 5 and 14 (located at the northwest corner of Elgin Street/Gladstone Avenue)
- Stop #7671 for route 14 (located at the southwest corner of Elgin Street/Gladstone Avenue)
- Stop #2468 for route 5 (located at the southeast corner of Elgin Street/McLeod Street)
- Stop #2473 for route 5 (located at the southwest corner of Elgin Street/McLeod Street)
- Stop #2466 for route 5 (located at the southeast corner of Elgin Street/Argyle Avenue)
- Stop #2476 for route 5 (located at the northwest corner of Elgin Street/Catherine Street)

Metcalfe Street

- Stop #2428 for route 56 (located at the northeast corner of Metcalfe Street/Pretoria Avenue)
- Stop #7628 for route 56 (located at the northwest corner of Metcalfe Street/Pretoria Avenue)

O'Connor Street

- Stop #6894 for routes 101 and 103 (located at the southwest corner of O'Connor Street/Isabella Street)
- Stop #7668 for routes 101 and 103 (located at the northeast corner of O'Connor Street/Catherine Street)

Bank Street

- Stop #7666 for routes 6 and 7 (located between Argyle Avenue and Arlington Avenue)
- Stop #7667 for routes 6 and 7 (located between Argyle Avenue and Flora Street)

Locations of these bus stops are shown in **Figure 3**.

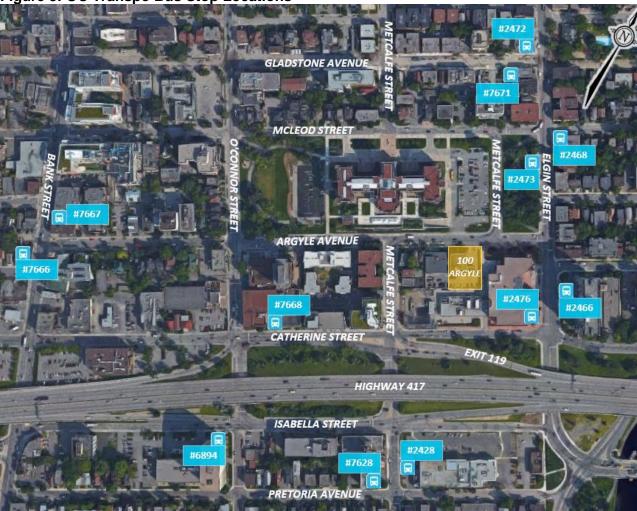


Figure 3: OC Transpo Bus Stop Locations

OC Transpo Route 5 travels between Billings Bridge Station and Rideau Centre. On weekdays, the route operates every 15 minutes from 6:00am to 8:30am and 2:00pm to 6:30pm, and every 30 minutes from 8:30am to 2:00pm and 6:30pm to 12:00am. On weekends, the route operates every 30 minutes from 7:00am to 11:30pm.

OC Transpo Route 6 travels between Rockcliffe and Greenboro Station. On weekdays, the route operates every 10-15 minutes from 6:30am to 7:30pm, and every 30 minutes from 4:30am to 6:30am and 7:30pm to 2:30am. On weekends, the route operates every 10-15 minutes from 9:00am to 9:00pm, and every 30 minutes from 5:30am to 9:00am and 9:00pm to 2:00am.

OC Transpo Route 7 travels between St. Laurent Station and Carleton University. On weekdays, the route operates every 5-10 minutes from 6:30am to 9:00am and 2:00pm to 6:00pm, every 15 minutes from 9:00am to 2:00pm and 6:00pm to 7:00pm, and every 30 minutes from 4:30am to 6:30am and 7:00pm to 1:30am. On weekends, the route operates every 10-15 minutes from 9:00am to 9:00pm, and every 30 minutes from 6:00am to 9:00am and 9:00pm to 12:00am.

OC Transpo Route 14 travels between St. Laurent Station and Carlington. On weekdays, the route operates every 15 minutes from 6:00pm to 6:00pm, and every 30 minutes from 6:00pm to 1:00am. On Saturdays, the route operates every 15 minutes from 12:30pm to 5:00pm, every 20 minutes from 9:30am to 12:30pm and 5:00pm to 8:00pm, and every 30 minutes from 6:30am to 9:30am and 8:00pm to 1:00am. On Sundays, the route operates every 20 minutes from 11:00am to 7:00pm, every 30 minutes from 7:00am to 11:00am and 7:00pm to 10:00pm, and every 60 minutes from 10:00pm to 12:00pm.

OC Transpo Route 56 travels between Hurdman Station and Tunney's Pasture Station. On weekdays, the route operates every 15 minutes from 3:00pm to 5:00pm, and every 30 minutes from 6:00am to 10:00am and 5:00pm to 7:00pm. No service is provided between 10:00am and 3:00pm. This route does not operate on weekends.

OC Transpo Route 101 travels between St. Laurent Station and Bayshore Station. Service extends to Moodie Station during weekday peak hours (6:00am to 8:30am and 3:00pm to 6:00pm). On weekdays, the route operates every 15 minutes from 6:00am to 9:00am and 1:30pm to 6:30pm, and every 20 minutes from 9:00am to 1:30pm and 6:30pm to 10:00pm. On Saturdays, the route operates every 20 minutes from 9:30am to 8:00pm, and every 30 minutes from 6:00am to 9:30am and 8:00pm to 9:30pm. The route does not operate on Sundays.

OC Transpo Route 103 travels between Place d'Orléans and Moodie Station. During the AM peak period, the route operates from Place d'Orléans to Moodie Station every 15 minutes between 6:00am and 9:30am. During the PM peak period, the route operates from Moodie Station to Place d'Orléans every 15 minutes between 3:00pm and 6:30pm.

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

4.1.7 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:

•	O'Connor Street/Argyle Avenue	March 21, 2017
•	O'Connor Street/Catherine Street	March 21, 2017
•	Metcalfe Street West/Argyle Avenue	April 19, 2018
•	Metcalfe Street West/Catherine Street/Highway 417 (Exit 119)	April 4, 2017
•	Metcalfe Street East/McLeod Street	April 13, 2010
•	Elgin Street/Argyle Avenue	May 11, 2016
•	Elgin Street/Catherine Street	May 11, 2016

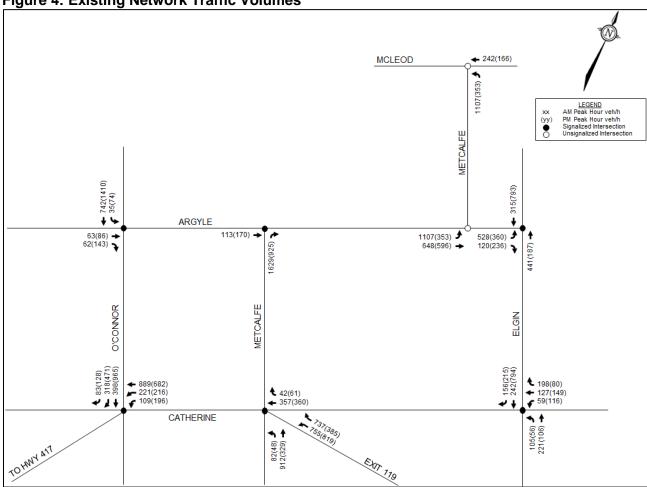
The average annual daily traffic (AADT) of Argyle Avenue at the subject site is 13,980 vehicles/day. The traffic volumes at Metcalfe Street East/Argyle Avenue have been estimated based on the volumes observed at Metcalfe Street East/McLeod Street and Elgin Street/Argyle Avenue.

Comparing the 2010 count of Metcalfe Street East/McLeod Street to the 2017 count at the downstream intersection of Metcalfe Street West/McLeod Street, the 2010 volumes are approximately 60 vehicles higher in the AM peak (4% higher), 45 vehicles higher in the midday peak

(8% higher), and 45 vehicles lower in the PM peak (8% lower). Therefore, the traffic count conducted at Metcalfe Street East/McLeod Street is considered to be representative despite being more than five years old.

Traffic count data is included in **Appendix D**. Traffic volumes within the study area are shown in **Figure 4**.

Figure 4: Existing Network Traffic Volumes



4.1.8 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 E**.

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, 2013 to December 31, 2017 is summarized in **Table 1**.

Table 1: Reported Collisions

Intersection	Number of Reported Collisions
O'Connor Street/Argyle Avenue	35
O'Connor Street/Catherine Street	95
Metcalfe Street West/Argyle Avenue	5
Metcalfe Street West/Catherine Street/Highway 417 (Exit 119)	61
Metcalfe Street East/McLeod Street	1
Metcalfe Street East/Argyle Avenue	0
Elgin Street/Argyle Avenue	10
Elgin Street/Catherine Street	33

O'Connor Street/Argyle Avenue

A total of 35 collisions were reported at this intersection over the last five years, of which there were six rear-end impacts, 12 turning movement impacts, four sideswipe impacts, eight angle impacts, and five single-vehicle/other impacts. Seven of the collisions caused injuries, but none caused fatalities.

Of the six rear-end impacts, five occurred at the southbound approach (five through vehicle incidents) and one occurred at the eastbound approach (one through vehicle incident). Three of the six impacts occurred in poor driving conditions.

All 12 turning movement impacts involved southbound left turning vehicles, and two of the impacts involved cyclists. Three of the 12 impacts occurred in poor driving conditions. Each of the ten impacts between two vehicles occurred before October 2016, when the bidirectional cycle tracks on O'Connor Street opened. Before the implementation of the cycle tracks, the leftmost lane on O'Connor Street at Argyle Avenue was a shared left-turn/through lane. Both cyclist impacts have occurred since the implementation of the bidirectional cycle tracks on O'Connor Street, and involved southbound cyclists. There are multiple signs indicating that left turning traffic must yield to cyclists.

As O'Connor Street and Argyle Avenue are both one-way streets, all eight angle impacts involved a southbound vehicle and an eastbound vehicle. Five of the eight impacts occurred in poor driving conditions.

Of the five single-vehicle/other impacts, three involved pedestrians. Three of the five impacts occurred in poor driving conditions. Each of the three impacts with pedestrians involved a southbound left turning vehicle.

O'Connor Street/Catherine Street

A total of 95 collisions were reported at this intersection over the last five years, of which there were 14 rear-end impacts, six turning movement impacts, 32 sideswipe impacts, 35 angle impacts, and eight single-vehicle/other impacts. Five of the collisions caused injuries, but none caused fatalities.

Of the 14 rear-end impacts, five occurred at the southbound approach (four through vehicle incidents and one right turn incident) and nine occurred at the westbound approach (eight through vehicle incidents and one left turn incident). Six of the 14 impacts occurred in poor driving conditions.

Of the six turning movement impacts, one involved a right turn at the southbound approach, and five involved left turns at the westbound approach. Two of the six impacts occurred in poor driving conditions.

Of the 32 sideswipe impacts, ten occurred at the southbound approach and 22 occurred at the westbound approach. Nine of the 32 impacts occurred in poor driving conditions. Most of these impacts are attributable to lane changes. Weaving is likely present at both approaches, as drivers have limited space and time to enter the correct lane for their route.

As O'Connor Street and Catherine Street are both one-way streets, all 35 angle impacts involved a southbound vehicle and a westbound vehicle. Eleven of the 35 impacts occurred in poor driving conditions. Southbound and westbound traffic have limited visibility of one another, as the Taggart Family YMCA/YWCA is approximately 3.5m from the edge of O'Connor Street and 6.5m from the edge of Catherine Street. The unusual geometry of the intersection may have also had a role in these collisions.

Of the eight single-vehicle/other impacts, one involved a pedestrian. Four impacts involved a southbound vehicle and four impacts involved a westbound vehicle. Four of the eight impacts occurred in poor driving conditions.

Metcalfe Street West/Argyle Avenue

A total of five collisions were reported at this intersection over the last five years, of which there was one rear-end impact, three sideswipe impacts, and one single-vehicle/other impact. Two of the collisions caused injuries, but none caused fatalities. Two of the five collisions occurred in poor driving conditions.

Metcalfe Street West/Catherine Street/Highway 417 (Exit 119)

Collisions on Catherine Street midblock between O'Connor Street and Metcalfe Street have been included in the discussion for this intersection, as the layout is unorthodox and requires weaving for many westbound drivers. The collision data provided by the City specifies vehicle direction, but not the approach. While there are three distinct streams of westbound traffic at this intersection (through vehicles from Catherine Street, through vehicles from Exit 119, and right turning vehicles from Exit 119), they are all combined into a single 'westbound' category.

A total of 61 collisions were reported at this intersection over the last five years, of which there were 17 rear-end impacts, eight turning movement impacts, 15 sideswipe impacts, 14 angle impacts, and seven single-vehicle/other impacts. Ten of the collisions caused injuries, but none caused fatalities.

All 17 rear-end impacts involved westbound through vehicles. Five of the 17 impacts occurred in poor driving conditions. Given that most westbound traffic comes from the approach exiting Highway 417, the majority of these impacts are likely from the exit as well.

Of the eight turning movement impacts, two involved northbound left turns, two involved westbound left turns, and four involved westbound right turns. One of the eight impacts occurred in poor driving conditions.

Of the 15 sideswipe impacts, two occurred at the northbound approach and 13 occurred at the westbound approaches. Five of the 15 impacts occurred in poor driving conditions. Most of these impacts are attributable to lane changes and overtaking.

As Metcalfe Street, Catherine Street, and Exit 119 are all one-way roadways, all 14 angle impacts involved a northbound vehicle and a westbound vehicle. Five of the 14 impacts occurred in poor driving conditions. Visibility of the westbound approaches from the northbound approach is obstructed by vegetation and a slope up to the Highway 417 overpass. The unusual geometry of this intersection may have also had a role in these collisions.

Of the seven single-vehicle/other impacts, three involved pedestrians. In each of these three incidents, the pedestrian was struck by a northbound left turning vehicle. Three of the seven impacts occurred in poor driving conditions.

Metcalfe Street East/McLeod Street

One collision was reported at this intersection over the last five years, a rear-end impact in good driving conditions, which caused no injuries.

Elgin Street/Argyle Avenue

A total of ten collisions were reported at this intersection over the last five years, of which there were two rear-end impacts, five angle impacts, and three single-vehicle/other impacts. One collision caused injuries, but none caused fatalities. Four of the ten collisions occurred in poor driving conditions.

Elgin Street/Catherine Street

A total of 33 collisions were reported at this intersection over the last five years, of which there were six rear-end impacts, 11 turning movement impacts, six sideswipe impacts, eight angle impacts, and two single-vehicle/other impacts. Ten of the collisions caused injuries, but none caused fatalities.

Of the six rear-end impacts, two involved through vehicles at the northbound approach and four involved through vehicles at the southbound approach. Four of the six impacts occurred in poor driving conditions.

Of the 11 turning movement impacts, ten involved left turns at the northbound approach, and one involved a left turn at the southbound approach (where southbound left turns are prohibited, as Catherine Street is a one-way westbound street). Four of the 11 impacts occurred in poor driving conditions. The lack of a protected left turn phase and designated left turn lane may influence drivers to choose insufficient gaps in traffic to attempt a left turn.

Of the six sideswipe impacts, two occurred at each of the northbound, southbound, and westbound approaches. Three of the six impacts occurred in poor driving conditions.

Of the eight angle impacts, four involved a northbound vehicle and a westbound vehicle, and four involved a southbound vehicle and a westbound vehicle. Five of the eight impacts occurred in poor driving conditions.

4.2 Planned Conditions

The City of Ottawa's 2013 Transportation Master Plan (TMP) does not identify any upcoming roadway projects within the study area in its Affordable Road Network. The Rapid Transit and Transit Priority (RTTP) Network identifies Elgin Street in its Affordable Network and Catherine Street/Chamberlain Avenue/Isabella Street in its 2031 Network Concept as Transit Priority Corridors with Isolated Measures. On Elgin Street, transit signal priority will be implemented between Gladstone Avenue and Wellington Street to reduce travel time and delay for OC Transpo Route 5, 6, and 14. Transit signal priority will also be implemented on Catherine Street/Chamberlain Avenue/Isabella Street to improve the reliability of transit trips which bypass downtown between Bronson Avenue and Lees Station.

The 2013 Ottawa Cycling Plan identifies the dedication of segregated cycling facilities, shared lanes, and multi-use pathways on O'Connor Street between Wellington Street and Holmwood Avenue. The facilities are listed as a Phase 1 (2016-2021) project. The section within the study area is complete.

Reconstruction of Elgin Street is currently ongoing between Gloucester Street and Isabella Street. The road modifications associated with the Elgin Street Renewal include lane reductions in favour of wider sidewalks, shared use lanes for cyclists and vehicles, transit facilities (such as bus pads or shelters), and traffic calming measures (such as 30 km/h speed limits and raised intersections at select locations). It is anticipated that construction will be complete in late 2020. A functional design of the Elgin Street Renewal within the study area is shown in **Figure 5**.

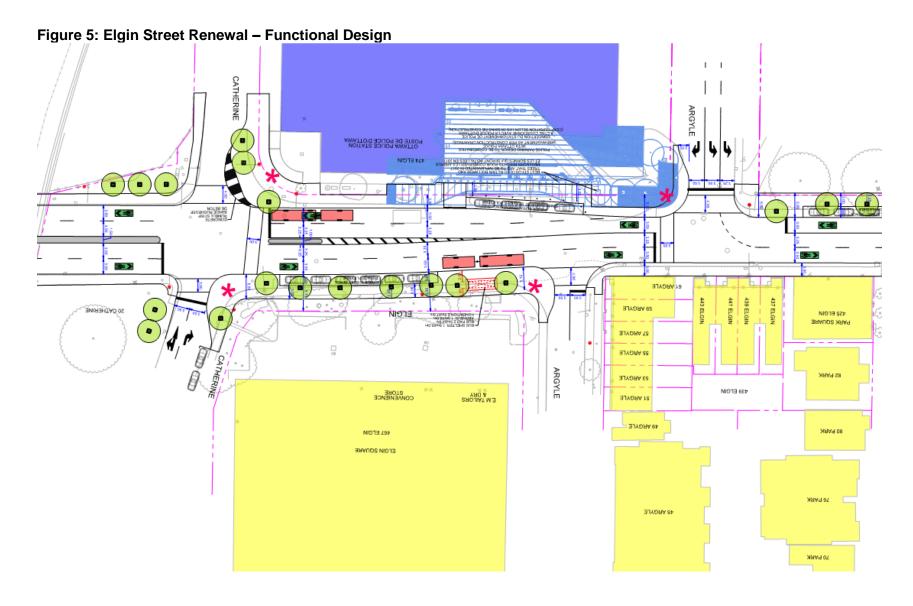
4.3 Study Area and Time Periods

The study area for this report will include Argyle Avenue, Catherine Street, O'Connor Street, Metcalfe Street, Elgin Street, and McLeod Street. The study area intersections include the signalized intersections at O'Connor Street/Argyle Avenue, O'Connor Street/Catherine Street, Metcalfe Street West/Argyle Avenue, Metcalfe Street West/Catherine Street/Highway 417 (Exit 119), Elgin Street/Argyle Avenue, and Elgin Street/Catherine Street, as well as the unsignalized intersections at Metcalfe Street East/McLeod Street and Metcalfe Street East/Argyle Avenue.

A review of Saturday counts at Metcalfe Street West/Catherine Street/Highway 417 (Exit 119) was conducted to identify if analysis of the Saturday peak hour was warranted. Within the study area, Metcalfe Street is the only connection from Highway 417 to Argyle Avenue. Additionally, weekday counts at Metcalfe Street West/Argyle Avenue indicate that Metcalfe Street carries approximately 85-90% of the traffic at this intersection, while Argyle Avenue carries the other 10-15%.

For these reasons, reviewing Metcalfe Street West/Catherine Street/Highway 417 for Saturday volumes can be considered representative of the study area overall. Based on the 2015 Saturday and 2017 weekday counts, the total traffic volumes at all approaches are:

- 2,887 vehicles during the AM peak hour;
- 2,002 vehicles during the PM peak hour;
- 1,888 vehicles during the Sat peak hour.



Looking only at vehicles departing the intersection north on Metcalfe Street West, the volumes are:

- 1,691 vehicles during the AM peak hour;
- 775 vehicles during the PM peak hour;
- 499 vehicles during the Sat peak hour.

Therefore, the selected time periods for the analysis are 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, the weekday AM and PM peak periods will be analyzed for the buildout year 2023 and the horizon year 2028.

4.4 Exemptions Review

This module reviews possible exemptions from the final Transportation Impact Assessment, as outlined in the TIA guidelines. The applicable exemptions for this site are shown in **Table 2**.

Table 2: TIA Exemptions

Module	Element	Exemption Criteria	Exemption Status
Design Review	Component		
4.1	4.1.2 Circulation and Access	Only required for site plans	Not Exempt
Development Design	4.1.3 New Street Networks	Only required for plans of subdivision	Exempt
4.2	4.2.1 Parking Supply	Only required for site plans	Not Exempt
Parking	4.2.2 Spillover Parking	Only required for site plans where parking supply is 15% below unconstrained demand	Exempt
Network Impac	t 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	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	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

The Transportation Demand Management module will be reviewed for the proposed redevelopment as part of the Site Plan Control application. The projected site traffic will not change the role or function of any study area streets (thereby exempting the Neighbourhood Traffic Management module), and the proposed redevelopment will not generate more than 200 person trips during any peak hour, thereby exempting the Network Concept module.

Based on the foregoing, the following modules will be included in the TIA report:

- Module 4.1: Development Design
- Module 4.2: Parking
- Module 4.3: Boundary Streets
- Module 4.4: Access Design
- Module 4.7: Transit
- Module 4.9: Intersection Design

5.0 FORECASTING

5.1 Development-Generated Travel Demand

5.1.1 Trip Generation

Currently, the subject site is occupied by a 2 ½-storey office building, with a total gross floor area of approximately 17,700 ft² (approximated using aerial photography). Trips generated by the existing office building have been estimated using the rates outlined in the *ITE Trip Generation Manual*, 10th *Edition* for the General Office Building land use. While it is acknowledged that the City prefers to estimate traffic volumes at existing developments by conducting traffic counts versus the use of forecasting projections, it is Novatech's position that conducting a count for a development of this size is not cost effective. Using the *ITE Trip Generation Manual* to estimate the number of trips generated by the existing site represents a valid and conservative approach.

The person trips generated by the existing development are summarized in **Table 3**.

Table 3: Existing Commercial Trip Generation

Land Use	ITE	GFA	AM Peak (PPH ⁽¹⁾)			PM Peak (PPH)		
Land USE	Code	GFA	IN	OUT	TOT	IN	OUT	TOT
General Office Building	710	17,700 ft ²	23	4	27	4	24	28

^{1.} PPH: Person Trips Per Hour – Calculated using an ITE Trip to Person Trip factor of 1.28, consistent with the 2017 TIA guidelines

From the previous table, the existing offices are estimated to generate 27 person trips during the AM peak hour and 28 person trips during the PM peak hour.

The proposed redevelopment will include 156 residential units, along with amenities for residents (which are not anticipated to generate any external trips). Trips generated by the proposed residential units during the AM and PM peak hours have been estimated using the recommended rates from the *TRANS Trip Generation Manual*, prepared in 2009 by McCormick Rankin Corporation. The trip generation rates, taken from Table 3.18 of the report, correspond to High-Rise Apartments (10+ floors) in the Core Area. The directional split between inbound and outbound trips are based on the blended splits presented in Table 3.17 of the report.

The estimated number of trips generated by the proposed residential units are shown in **Table 4**.

Table 4: Proposed Residential Trip Generation

Land Use	TRANS	Units	AM	Peak (V	PH)	PM	Peak (V	PH)
Land USE	Rate	Units	IN	OUT	TOT	IN	OUT	ТОТ
High-Rise Apartments	AM: 0.17 PM: 0.16	156 units	7	20	27	16	9	25

It is recognized that use of the *TRANS Trip Generation Manual* is preferred by the City of Ottawa to estimate the trip generation of residential developments. For comparison, the trip generation rates outlined in the *ITE Trips Generation Manual*, 10th Edition for the Multifamily Housing (High-Rise) land use have been included in **Table 5**. The number of person trips generated by the proposed residential units as estimated by the TRANS rates are based on the modal shares presented in Table 3.13 of the TRANS report, while the number of person trips estimated by the ITE rates are based on the 1.28 ITE Trip to Person Trip Factor, consistent with the 2017 TIA Guidelines.

Table 5: Proposed Residential Person Trip Generation

Land Use	TRANS Auto Share		AM	Peak (P	PH)	PM Peak (PPH)		
Lanu USC	IKANS A	TRANS Auto Share		OUT	тот	IN	OUT	TOT
High-Rise Apartments	AM: 27% PM: 23%		24	76	100	66	41	107
Land Use	ITE Code	Units	AM	Peak (P	PH)	PM	Peak (P	PH)
Lanu USE	TIE Code	Ullis	IN	OUT	TOT	IN	OUT	TOT
Multifamily Housing (High-Rise)	222	156 units	18	55	73	48	31	79

Based on the foregoing table, the trip generation rates outlined in the TRANS report can generally be considered comparable to the ITE rates and more conservative. The TRANS rates will be carried forward for the remainder of the TIA report. Subtracting the person trips generated by the existing development, the proposed redevelopment is projected to generate an additional 73 person trips during the AM peak hour and 79 person trips during the PM peak hour.

The modal shares for the development are anticipated to be consistent with the modal shares outlined in the 2011 TRANS O-D Survey Report, specific to the Ottawa Inner Area region. The modal share values applied to the existing offices are based on all observed trips to/within the Ottawa Inner Area in the AM peak hour, and all observed trips from/within the Ottawa Inner Area in the PM peak hour. Conversely, the modal share values applied to the proposed residences are based on all observed trips from/within the Ottawa Inner Area in the AM peak hour, and all observed trips to/within the Ottawa Inner Area in the PM peak hour.

A full breakdown of the projected net increase in person trips by modal share is shown in **Table 6**.

Table 6: Person Trips by Modal Share

Table 0.1 erson 111	Travel Meda Medal Share AM Peak PM Peak										
Travel Mode	Modal Share	IN	OUT	тот	IN	OUT	TOT				
Existing Development											
Off	fice Person Trips	23	4	27	4	24	28				
Auto Driver	35%	7	2	9	2	8	10				
Auto Passenger	10%	3	0	3	0	3	3				
Transit	30%	7	1	8	1	7	8				
Non-Auto	25%	6	1	7	1	6	7				
Proposed Develop	oment										
Residen	tial Person Trips	24	76	100	66	41	107				
Auto Driver	35%	8	27	35	23	14	37				
Auto Passenger	10%	3	7	10	7	4	11				
Transit	20%	5	15	20	13	9	22				
Non-Auto	35%	8	27	35	23	14	37				
Auto Dri	ver (Difference)	1	25	26	21	6	27				
Auto Pa	0	7	7	7	1	8					
Tran	-2	14	12	12	2	14					
Non-A	2	26	28	22	8	30					

Based on the previous table, the proposed redevelopment is projected to generate an additional 26 vehicle trips during the AM peak hour and 27 vehicle trips during the PM peak hour.

5.1.2 Trip Distribution

The assumed distribution of trips generated by the existing and proposed development has been derived from existing traffic patterns within the study area. The distributions for each land use are different however, since offices generate mostly inbound trips during the AM peak hour and mostly outbound trips during the PM peak hour, while residences generate mostly outbound trips during the AM peak hour and mostly inbound trips during the PM peak hour. This is shown in the previous table.

The trip distribution of the existing offices is therefore based on the traffic movements entering the study area during the AM peak hour and exiting the study area during the PM peak hour. Conversely, the trip distribution of the proposed residential building is based on the traffic movements exiting the study area during the AM peak hour and entering the study area during the PM peak hour. Due to many of the streets being one-way roadways, the route of arrivals and departures will be different in the two distributions.

The trip distribution for the existing offices is described as follows:

Arriving

- 15% from the north via O'Connor Street
- 5% from the north on O'Connor Street via McLeod Street
- 5% from the north via Elgin Street
- 35% from the south via Highway 417 (Exit 119)
- 25% from the south via Metcalfe Street West
- 5% from the south via Elgin Street
- 10% from the east via Catherine Street

Departing

- 10% to the north on McLeod Street via Metcalfe Street East
- 10% to the north via Elgin Street
- 25% to the south via O'Connor Street
- 20% to the south on Highway 417 via Catherine Street
- 20% to the south via Elgin Street
- 15% to the west via Catherine Street

The trip distribution for the proposed residential building is described as follows:

<u>Arriving</u>

- 25% from the north via O'Connor Street
- 5% from the north on O'Connor Street via McLeod Street
- 15% from the north via Elgin Street
- 25% from the south via Highway 417 (Exit 119)
- 15% from the south via Metcalfe Street West
- 5% from the south via Elgin Street
- 10% from the east via Catherine Street

Departing

- 30% to the north on McLeod Street via Metcalfe Street East
- 20% to the north via Elgin Street
- 10% to the south via O'Connor Street
- 15% to the south on Highway 417 via Catherine Street
- 5% to the south via Elgin Street
- 20% to the west via Catherine Street

5.1.3 Trip Assignment

The subject site is only accessible on Argyle Avenue, a one-way street. In effect, this means the existing and proposed driveways are right-in/right-out (RIRO) accesses. All inbound trips arrive on Argyle Avenue from either O'Connor Street or Metcalfe Street West, and all outbound trips depart Argyle Avenue at either Metcalfe Street East or Elgin Street.

Based on the existing and proposed land uses, it is anticipated that no pass-by trips or internally captured trips are generated. Trips generated by the existing development are shown in **Figure 6**, trips generated by the proposed redevelopment are shown in **Figure 7**, and the net difference in sitegenerated traffic is shown in **Figure 8**.

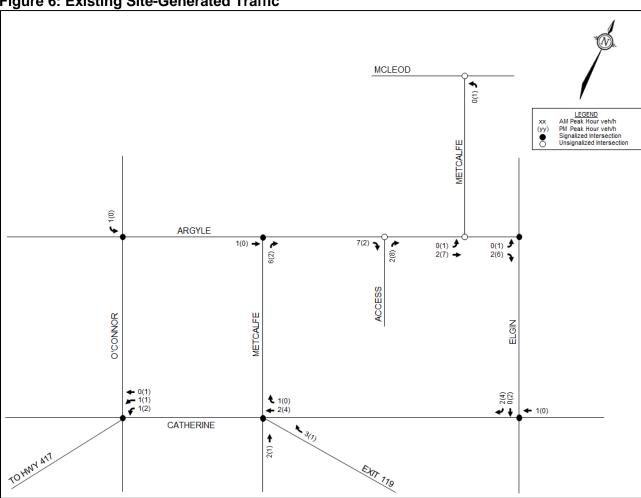


Figure 6: Existing Site-Generated Traffic

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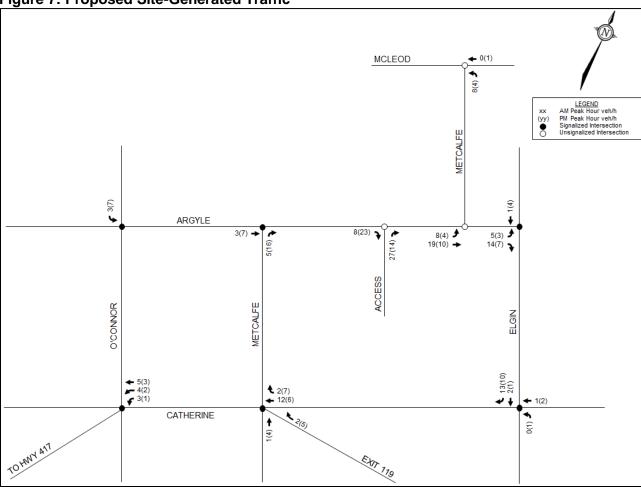
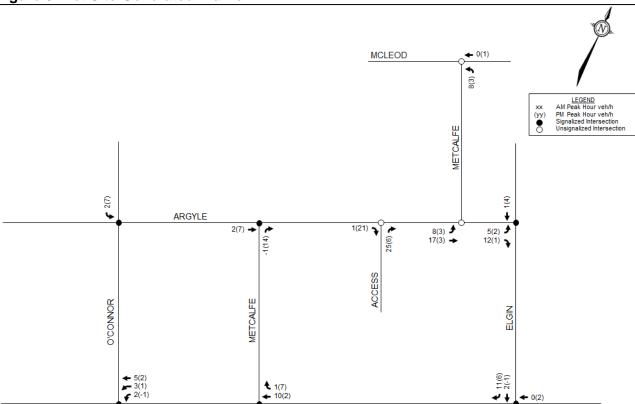


Figure 7: Proposed Site-Generated Traffic

← 0(2)



EXT 119

1 1(7) **1** 10(2)

·1(3) ♦

CATHERINE

Figure 8: Net Site-Generated Traffic

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5.2 Background Traffic

5.2.1 General Background Growth Rate

A rate of background growth has been established through a review of the city of Ottawa's Strategic Long Range Model (comparing snapshots of 2011 and 2031 AM peak volumes), as well as historic traffic counts at Metcalfe Street West/Argyle Avenue. On the roadways within and around the study area, the snapshots suggest a growth rate between -1% and +1% per annum. The historic traffic counts at Metcalfe Street West/Argyle Avenue are similarly inconsistent, showing an increase in volumes between 2015 and 2017, but a decrease between 2017 and 2018.

The City's 2013 TMP projects a 20% growth in population within the 'Inner Area' of Ottawa between 2011 and 2031, equating to a growth rate of approximately 1% per annum. The TMP also outlines transit and non-auto share targets for 2031, based on the observed shares in 2011. For the Inner Area during the AM peak period, the TMP identifies an observed transit share of 15% in 2011 and a target transit share of 20% in 2031 (equating to a growth rate of approximately 1% per annum), as well as an observed non-auto share of 59% in 2011 and a target non-auto share of 64% in 2031 (equating to a growth rate of approximately 0.5% per annum).

Based on the foregoing, no background growth rate will be applied in the analysis, as the evidence for growth is either inconclusive or accounted for with alternative travel modes. The 2023 and 2028 background conditions are therefore assumed to be equal.

5.2.2 Other Area Development

The City of Ottawa's Development Application Search Tool identifies that near the subject site, five redevelopment applications are approved or in the approval process. Transportation Overviews were completed for the following developments:

- 141 Isabella Street (Smart Property Advisors, March 2014)
- 215 McLeod Street (exp., August 2012)
- 320 McLeod Street (Delcan, May 2013)
- 500 Bank Street (Parsons, July 2014)

In each case, the number of trips generated were considered to be insignificant, and no analysis was performed. Similarly, these developments will not be accounted for in the analysis of this application.

A Transportation Brief was completed by Parsons in May 2014 for a proposed redevelopment at 267 O'Connor Street, which would replace the existing office building with a high-rise condominium building with ground-floor retail. The projected net increase in traffic generated by the redevelopment was approximately 58 vph in the AM peak hour and 66 vph in the PM peak hour. To maintain a conservative analysis, outbound trips taking O'Connor Street and inbound trips taking Metcalfe Street have been added to the background traffic. Relevant excerpts of the brief are included in **Appendix F**.

Trips generated by the proposed redevelopment at 267 O'Connor Street are shown in **Figure 9**. The background traffic in 2023 and 2028 is shown in **Figure 10**, and the total traffic in 2023 and 2028 is shown in **Figure 11**.

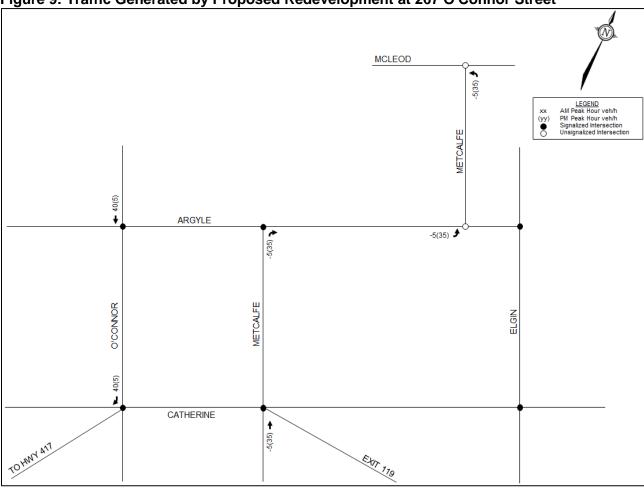
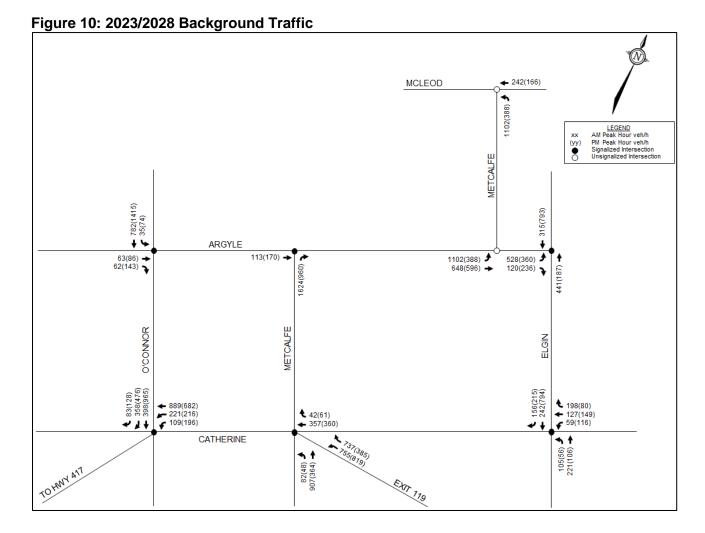
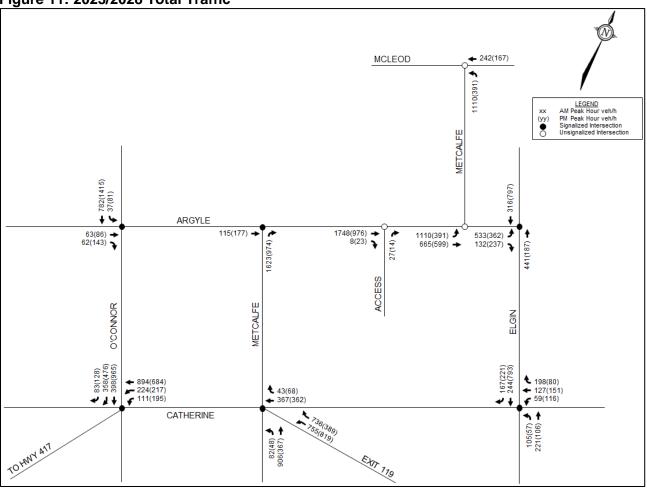


Figure 9: Traffic Generated by Proposed Redevelopment at 267 O'Connor Street







6.0 ANALYSIS

6.1 Development Design

Sidewalk connections will be provided between the building entrance and Argyle Avenue. Sidewalks will be depressed and continuous across the shared access, parking garage access and loading access, in accordance with City standards.

Parking for bicycles will be provided in the surface parking lot, in a ground-floor indoor storage area, and within the underground parking garage. In total, 88 surface bicycle parking spaces and 72 underground bicycle parking spaces will be provided. Further review of the number of bicycle parking spaces is included in Section 6.2: 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. Among the transit stops outlined in Section 4.1.6, all are within a 400m walking distance, except for stops #6894, #7666, and #7667. These three stops are within a 600m walking distance of the subject site.

The stops within 400m walking distance of the subject site provide service to routes 5, 14, and 56, as well as westbound routes 101 and 103. The stops beyond 400m but within 600m walking distance provide service to routes 6 and 7, as well as eastbound routes 101 and 103.

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 G**. All required TDM-supportive design and infrastructure measures in the TDM checklist are met.

On-site garbage collection and deliveries will be accommodated with a loading access on Argyle Avenue at the eastern edge of the property. Trucks will be required to reverse into the access. Further review of the access is included in Section 6.4: Access Design.

The fire route for the development is curbside along Argyle Avenue.

6.2 Parking

The subject site is located in Area B of Schedule 1 and Area X of Schedule 1A of the City of Ottawa's *Zoning By-Law* (ZBL). Minimum parking rates for vehicles and bicycles are summarized in **Table 7**.

Table 7: Parking Requirements

Table III alk	ng Nequirements		
Land Use	Rate	Units/GFA	Required
Vehicle Parki	ing		
Desidential	Parking Rate: 0.5 per dwelling unit after the first 12 units	156 unito	72
Residential	Visitor Rate: 0.1 per dwelling unit after the first 12 units	156 units	14
		Minimum	86
		Provided	74
Bicycle Parkii	ng		
Residential	Minimum Bicycle Rate: 0.5 per dwelling unit	156 units	78
		Minimum	78
		Provided	160

Based on the previous table, the amount of bicycle parking provided meets the requirements. A reduction is required for relief of the minimum vehicular parking requirement, as the development proposes a reduction of 12 parking spaces from the minimum requirement outlined in the ZBL. Due to geotechnical reasons and the location of the water table, a maximum of two underground parking levels can be supported, along with a small section of surface parking at the back of the development.

As the amount of vehicular parking supplied by the proposed development equates to approximately 86% of the required parking under the ZBL, a review of spillover parking is not required under the TIA guidelines.

6.3 Boundary Streets

This section provides a review of the boundary street Argyle Avenue, 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.

Schedule B of the City of Ottawa's Official Plan identifies Argyle Avenue as being in the General Urban Area. Within the boundaries of the subject site, Argyle Avenue is classified as an arterial roadway (between the western and eastern section of Metcalfe Street). Therefore, Argyle Avenue will be evaluated using the targets set for arterial roadways within the General Urban Area.

Since Argyle Avenue does not provide transit service, the transit level of service (TLOS) has not been evaluated. All other modes have been evaluated based on the targets outlined in Exhibit 22 of the MMLOS guidelines.

6.3.1 Pedestrian Level of Service (PLOS)

Exhibit 4 of the MMLOS guidelines has been used to evaluate the segment PLOS of Argyle Avenue. Exhibit 22 of the MMLOS guidelines suggests a target PLOS C for all roadways within the General Urban Area. The results of the segment PLOS analysis are summarized in **Table 8**.

Table 8: PLOS Segment Analysis

Sidewalk Width	Boulevard Width	Avg. Daily Curb Lane Traffic Volume	Presence of On-Street Parking	Operating Speed ⁽¹⁾	Segment PLOS					
Argyle Avenue (north side)										
<u>></u> 2.0m	0m	> 3000 vpd	No	60 km/h	С					
Argyle Avenue (south side)										
1.5m	<u>></u> 2.0m	> 3000 vpd	Yes	60 km/h	D					

^{1.} Operating speed of Argyle Avenue taken as the regulatory speed limit plus 10 km/h

6.3.2 Bicycle Level of Service (BLOS)

Exhibit 11 of the MMLOS guidelines has been used to evaluate the segment BLOS of Argyle Avenue. Exhibit 22 of the MMLOS guidelines suggests a target BLOS D for all roadways with no bike route classification within the General Urban Area. The results of the segment BLOS analysis are summarized in **Table 9**.

Table 9: BLOS Segment Analysis

Road Class	Bike Route	Type of Bikeway	Travel Lanes	Operating Speed	Segment BLOS						
Argyle Avenue (Metcalfe Street West to Metcalfe Street East)											
Arterial	No Class	Mixed Traffic	3	60 km/h	F						

6.3.3 Truck Level of Service (TkLOS)

Exhibit 20 of the MMLOS guidelines has been used to evaluate the segment TkLOS of Argyle Avenue. Both lanes of Argyle Avenue have been evaluated, as access to the Museum of Nature's shipping and receiving zone is provided on Argyle Avenue, approximately 30m west of Metcalfe Street East. Exhibit 22 of the MMLOS guidelines suggests a target TkLOS E for arterial roadways not classified as truck routes within the General Urban Area. The results of the segment TkLOS analysis are summarized in **Table 10**.

Table 10: TkLOS Segment Analysis

Curb Lane Width	Number of Travel Lanes Per Direction	Segment TkLOS
Argyle Avenue (north lane)		
> 3.7m	2	A
Argyle Avenue (south lane)		
<u><</u> 3.0m	2	E

6.3.4 Vehicular Level of Service (Auto LOS)

Exhibit 22 of the MMLOS guidelines suggests a target Auto LOS D for all roadways within the General Urban Area. The typical lane capacity along the study area roadways are based on the City's guidelines for the TRANS Long-Range Transportation Model. The lane capacity along Argyle Avenue has been estimated based on roadway classification and general characteristics (i.e. suburban with limited access, urban with on-street parking, etc.). The results of the Auto LOS analysis are summarized in **Table 11**.

Table 11: Auto LOS Segment Analysis

	Directional	Traffic \	Traffic Volumes		V/C Ratio	and LOS				
Direction	Capacity	AM Peak PM Peak		AM I	Peak	PM F	Peak			
	Capacity	AW Feak	AWI Peak PIVI Peak		LOS	V/C	LOS			
Argyle Avenue (Metcalfe Street West to Metcalfe Street East)										
Eastbound	2,400 vph	1,738	1,150	0.72	С	0.48	Α			

6.3.5 Segment MMLOS Summary

A summary of the results of the segment MMLOS analysis for the boundary street Argyle Avenue is provided in **Table 12**.

Table 12: Segment MMLOS Summary

Table 121 ooginens	Segment	Argyle Avenue
	Sidewalk Width	1.5m
c	Boulevard Width	> 2.0m
<u>=</u>	Average Daily Curb Lane Traffic Volume	> 3000 vpd
est	On-Street Parking	Yes
Pedestrian	Operating Speed	60 km/h
_	Level of Service	D
	Target	С
	Road Classification	Arterial
	Bike Route Classification	No Class
44	Type of Bikeway	Mixed Traffic
Cyclist	Travel Lanes	3
Š	Centerline Type	-
	Operating Speed	60 km/h
	Level of Service	F
	Target	D
	Lane Width	<u><</u> 3.0m
Truck	Travel Lanes (per direction)	2
Ę	Level of Service	Е
	Target	E
Auto	Level of Service	С
Au	Target	D

Argyle Avenue meets the target TkLOS E and Auto LOS D, but does not meet the target PLOS C or BLOS D. A discussion on improving these levels of service is provided below.

The south side of Argyle Avenue does not achieve the target PLOS C. The sidewalk is approximately 1.5m with a boulevard width of 2.3m. It is therefore feasible to achieve the target PLOS C, by widening the sidewalk to 1.8m while maintaining a boulevard width of 2.0m. This is identified for the City's consideration as funding becomes available.

The bicycle level of service on Argyle Avenue is failing. The target BLOS D can be achieved by either implementing a 4.0m wide bike lane plus parking lane, or reducing the operating speed to 50 km/h. This is also identified for the City's consideration as funding becomes available.

6.4 Access Design

The subject site is currently served by a shared RIRO access on Argyle Avenue with the adjacent property to the west, and a RIRO access on Argyle Avenue approximately 5.0m west of the eastern property line.

The proposed redevelopment will be served by a two-way underground parking garage access approximately 3.0m east of the western property line. The existing shared RIRO access will be maintained. The proposed redevelopment will also have a loading access for garbage collection and deliveries, located approximately at the eastern property line. Full-height curb and sidewalks will be reinstated where necessary, and depressed curb and continuous sidewalks will be provided across the full width of the accesses, as per City standards.

Section 25 (a) of the City of Ottawa's *Private Approach By-Law* identifies a requirement for properties with a frontage of 20m to 34m to have no more than one (1) two-way private approach or two (2) one-way private approaches. Considering the loading access will be used exclusively by delivery and garbage collection vehicles, the only exclusive access to 100 Argyle Avenue is the two-way underground parking garage ramp. The shared access must be maintained for the neighbouring property to the west.

Section 25 (c) of the *Private Approach By-Law* identifies a requirement for two-way accesses to have a width no greater than 9m, as measured at the street line. Section 107 (1)(a) of the *Zoning By-Law* identifies a minimum width requirement of 6.0m for a double traffic lane leading to a parking garage. Despite Section 107 (1)(a), any apartment building access must also meet Section 107 (1)(aa), which identifies a maximum width requirement of 6.7m for any double traffic lane which leads to 20 or more parking spaces. The proposed underground parking access is approximately 6.0m in width, thereby meeting these requirements.

The proposed loading access is approximately 4.7m in width, and the shared access with the property to the west is approximately 3.0m in width.

Section 25 (I) of the *Private Approach By-Law* identifies a requirement to provide a minimum distance of 18m between the private approach and the nearest intersecting street line, as measured at the street line. Section 25 (I) identifies a requirement to provide a minimum distance of 15m between a two-way private approach and any other private approach. The proposed spacing between the loading access and the underground parking access is 19m.

The proposed spacing between the underground parking access and the existing shared access is approximately 1.2m. As there is only an opportunity to provide two levels of underground parking due to geotechnical restrictions, the existing access will continue to serve both the subject site and the neighbouring property, in an effort to provide as much parking as possible. The minimum spacing can be met by shifting the underground parking access to be adjacent to the loading access, however the spacing between the underground access and Metcalfe Street East would then be less than the 18m minimum. Additionally, there is an access to the adjacent police station approximately 3.3m east of the property line, meaning three accesses would be implemented within 18m of Metcalfe Street East. This configuration is considered less desirable than the proposed access configuration.

Therefore, a relaxation of the minimum distance is requested for the spacing between the underground parking garage and the shared access.

Section 25 (o) of the *Private Approach By-Law* identifies a requirement to provide a minimum spacing of 3m between the nearest edge of the private approach and the property line, as measured at the street line. The spacing between the proposed underground parking access and the western property line is approximately 3.0m, however the spacing between the proposed access and the existing access is 1.2m. Section 25 (o) states that a relaxation of the minimum clearance distance from 3m to 0.3m is permissible by the General Manager, provided there are no safety issues associated with doing so. The shared access will serve 12 new residential spaces on the subject property and approximately 20 office spaces on the adjacent property to the west. The majority of traffic using the shared access will be inbound in the AM while traffic at the underground parking access will be outbound, and vice versa in the PM. The one-way nature of Argyle Avenue will help reduce the number of potential conflict points compared to a two-way road with adjacent accesses.

Further relaxation of the minimum clearance distance is requested for the loading access, which is proposed to abut the eastern property line. As this access doesn't serve parking, the requirements of the *Private Approach By-Law* are not considered applicable.

Section 25 (t) of the *Private Approach By-Law* identifies a requirement that any private approach may not exceed a grade of 2-6% within 9m of the street line. The proposed underground parking access ramp has a grade of 7% approximately 8.2m from the street line, which is less than the 9m identified. This requirement will be addressed at the Site Plan Control application stage, where the ramp will be brought into compliance or a waiver for this requirement will be requested at that time.

Implementation of the proposed underground parking access will require a shift of the two existing on-street parking spaces in front of the subject site, such that the spaces are approximately 7m further east. Removal of the existing exclusive site access will accommodate this shift, as well as the implementation of the loading access at the eastern limit of the site. The City's *Traffic and Parking By-Law* states that on-street parking spaces must be located a minimum distance of 1.5m from any private approach, and City staff have confirmed that on-street parking spaces must be 5.5m in length. Considering these dimensions, two on-street parking spaces can be provided, resulting in no net loss of on-street parking spaces.

The Transportation Association of Canada (TAC) outlines a minimum sight distance requirement of 95m for vehicles exiting the accesses to the subject site, which is approximately the distance to the upstream intersection at Metcalfe Street West/Argyle Avenue. Provided the vegetation proposed at the front of the development is non-obstructive, the sight distance requirement is met for all accesses.

6.5 Transit

The assumed trip distribution for transit trips has been simplified based on the vehicular trip distribution outlined in Section 5.1.2, and can be summarized as follows:

- 50% to/from the north via Route 5, at stops #2466 (outbound) and #2476 (inbound);
- 20% to/from the south via Route 5, at stops #2476 (outbound) and #2466 (inbound);

- 15% to/from the east via Route 56, at stops #2428 (outbound) and #7628 (inbound) and Routes 101 or 103, at stop #7668 (inbound);
- 15% to/from the west via Route 56, at stops #7628 (outbound) and #2428 (inbound) and Routes 101 or 103, at stop #7668 (outbound).

Applying these distribution percentages to the projected net transit trip volumes presented in **Table 6** results in an overall net increase at the following transit stops:

AM Peak Hour

- + 6 passengers (7 boarding, -1 alighting) at stop #2466;
- + 2 passengers (3 boarding, -1 alighting) at stop #2476;
- + 2 passengers (2 boarding, 0 alighting) at stop #2428;
- + 1 passenger (1 boarding, 0 alighting) at stop #7628;
- + 1 passenger (1 boarding, 0 alighting) at stop #7668.

PM Peak Hour

- + 3 passengers (1 boarding, 2 alighting) at stop #2466;
- + 7 passengers (1 boarding, 6 alighting) at stop #2476;
- + 2 passengers (0 boarding, 2 alighting) at stop #2428;
- + 1 passenger (0 boarding, 1 alighting) at stop #7628;
- + 1 passenger (0 boarding, 1 alighting) at stop #7668.

Based on the projected increase in transit trip volumes due to the proposed redevelopment, no capacity problems are anticipated 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.

6.6 Intersection Design

6.6.1 Intersection MMLOS Analysis

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 the General Urban Area except for Elgin Street, which has been evaluated based on the targets for Traditional Main Streets.

Evaluation of the MMLOS for Elgin Street is based on the Elgin Street Renewal. A functional design of the renewal within the study area was presented in **Figure 5**. All other roadways have been evaluated based on existing conditions.

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

Intersection	PL	os	BL	os	TL	os	Tkl	OS	Auto	LOS
	Actual	Target								
O'Connor Street/	E	С	Α	В			D	D	D	D
Argyle Avenue	_		_ ^	Ь	-	-	D	D		D
O'Connor Street/	Е	0	F	D	_	7	7	7	_	7
Catherine Street	=	С	-	В	D	D	D	D	D	D
Metcalfe Street West/	D	С		С			D	Е	Е	D
Argyle Avenue	ן ו		_		-	-	D	_	_	D
Metcalfe Street West/	F	С	F	С	E	J	В	D	F	D
Catherine Street/Hwy 417 (Exit 119)	-		-		-	D	Ь	ט		U
Elgin Street/	С	В	F	С	В	7	F	7	С	7
Argyle Avenue	C	В	-		В	D	-	D	C	D
Elgin Street/		Б		_		7		7		7
Catherine Street	D	В	F	С	С	D	Е	D	С	D
Metcalfe Street East/									_	7
McLeod Street ⁽¹⁾	_	_	-	_	-	-	_	_	D	D
Argyle Avenue/	•		•		_	_			В	D
Site Access ⁽¹⁾	-	-	-	-	-	-	•	-	Ь	U

^{1.} Unsignalized intersection, evaluated for Auto LOS only

Based on the results of the intersection MMLOS analysis:

- No intersections meet the target pedestrian level of service (PLOS);
- Only O'Connor Street/Argyle Avenue meets the target bicycle level of service (BLOS);
- Among intersections with targets, only Metcalfe Street West/Catherine Street/Exit 119 does not meet the target transit level of service (TLOS);
- Elgin Street/Argyle Avenue and Elgin Street/Catherine Street do not meet the target truck level of service (TkLOS);
- Metcalfe Street West/Argyle Avenue and Metcalfe Street West/Catherine Street/Exit 119 do not meet the target vehicular level of service (Auto LOS).

The following sections outline a further discussion for each intersection.

6.6.1.1 O'Connor Street/Argyle Avenue

O'Connor Street/Argyle Avenue does not meet the target PLOS C.

All crosswalks meet the target PLOS based on PETSI score. The north and south crosswalks do not meet the target PLOS based on delay score. To achieve the target PLOS C, the effective walk time for pedestrians would require an increase of approximately 12 seconds. This increase would come at the expense of vehicles and cyclists on O'Connor Street, which carries far more traffic than Argyle Avenue. Therefore, no recommendations have been made in improving the PLOS.

6.6.1.2 O'Connor Street/Catherine Street

O'Connor Street/Catherine Street does not meet the target PLOS C or BLOS B.

All crosswalks meet the target PLOS based on PETSI score. The southwest crosswalk (crossing the on-ramp to Highway 417) does not meet the target PLOS based on delay score. To achieve the target PLOS C, the effective walk time for pedestrians would require an increase of approximately

16 seconds. This increase would come at the expense of traffic on O'Connor Street wishing to enter Highway 417, which is already the critical movement for this intersection. Therefore, no recommendations have been made in improving the PLOS.

The east approach does not meet the target BLOS B, based on left turn characteristics. To meet the target, a two-stage left-turn bike box, cycle tracks, and a reduction in the operating speed to 40 km/h is required. The desirable cycling facility selection tool included in *Ontario Traffic Manual* (OTM) – *Book 12* does recommend cycle tracks on Catherine Street, however Catherine Street is not a cycling route and Gladstone Avenue is a nearby east-west spine route. Therefore, no recommendations have been made in improving the BLOS. The desirable cycling facility selection tool in OTM Book 12 is included in **Figure 12**.

When looking at 95th-percentile volumes, the Synchro analysis identifies over-capacity queueing for the southbound right turn movement. Without allocating more green time to this movement (at the expense of westbound traffic and/or pedestrians crossing the southwest crosswalk), there is limited opportunity in improving the vehicular level of service. Prior to the O'Connor Street Bikeway, traffic turning right onto Catherine Street and traffic bearing right onto Highway 417 west each had dedicated lanes. With the implementation of the bikeway, these movements were combined into a single shared lane to prioritize and make room for the bidirectional cycle tracks.

6.6.1.3 Metcalfe Street West/Argyle Avenue

Metcalfe Street West/Argyle Avenue does not meet the target PLOS C or Auto LOS D.

Both crosswalks meet the target PLOS based on PETSI score. The south crosswalk does not meet the target PLOS based on delay score. To achieve the target PLOS C, the effective walk time for pedestrians would require an increase of approximately 10 seconds. This increase would come at the expense of traffic on Metcalfe Street West wishing to head towards the downtown core. Therefore, no recommendations have been made in improving the PLOS.

The northbound right turn movement does not meet the target Auto LOS D during the AM peak hour. To achieve the target, a reduction of approximately ten vehicles is required.

6.6.1.4 Metcalfe Street West/Catherine Street/Highway 417 (Exit 119)

Metcalfe Street West/Catherine Street/Highway 417 (Exit 119) does not meet the target PLOS C, BLOS C, TLOS D, or Auto LOS D.

The west crosswalk does not meet the target PLOS based on PETSI score. Neither crosswalk meets the target PLOS based on delay score. There are limited opportunities in improving the PLOS at this intersection without reducing the number of travel lanes or incurring major delays for vehicles. Therefore, no recommendations have been made in improving the PLOS.

The south approach does not meet the target BLOS, based on left turn characteristics (left turning cyclists are required to cross two lanes). Metcalfe Street is a spine cycling route, however Catherine Street is not. The desirable cycling facility selection tool included in OTM Book 12 recommends cycle tracks on Metcalfe Street. Accommodation of left turning cyclists onto Catherine Street is not recommended as Catherine Street is not a cycling route and implementation of a two-stage bike box would be difficult given the configuration of the westbound approaches (Catherine Street and the Exit 119 off-ramp). Therefore, no recommendations have been made in improving the BLOS.

The east approach (Catherine Street) does not meet the target TLOS D. Implementation of transit signal priority on Catherine Street as identified in the 2031 RTTP Network Concept may improve the TLOS. No other recommendations have been made in improving the TLOS.

The northwestbound right turn movement (vehicles turning from westbound Highway 417 onto northbound Metcalfe Street) does not meet the target Auto LOS D during the AM peak hour. To achieve the target, a reduction of approximately 140 vehicles during the AM peak is required. The northbound through movement (vehicles continuing on northbound Metcalfe Street West) does not meet the target Auto LOS D during the AM peak hour. To achieve the target, a reduction of approximately 60 vehicles during the AM peak is required. The Synchro analysis identifies overcapacity queueing for the northbound through movement at both 50th-percentile and 95th-percentile volumes. As there are two conflicting movements that both fail to meet the target Auto LOS, there is limited opportunity in adjusting the signal timing to improve the level of service at these two approaches.

6.6.1.5 Elgin Street/Argyle Avenue

Elgin Street/Argyle Avenue does not meet the target PLOS B, BLOS C, or TkLOS D.

Both crosswalks meet the target PLOS based on PETSI score. The south crosswalk does not meet the target PLOS based on delay score. To achieve the target PLOS B, the effective walk time for pedestrians would require an increase of approximately four seconds. This increase would come at the expense of traffic on Elgin Street, however the signal timing for this intersection may change upon completion of the Elgin Street Renewal. No recommendations have been made in improving the PLOS.

The west approach does not meet the target BLOS, based on left turn characteristics. Left turning cyclists are required to interact with vehicles using dual left turn lanes. The dual left turn lanes are required based on the existing peak hour turning movement volumes (360 vph to 530 vph), and no changes have been proposed as part of the Elgin Street Renewal project with respect to the westbound dual left turn lanes.

The west approach does not meet the target TkLOS D. It is clear that the Elgin Street Renewal prioritizes the levels of service for pedestrians and cyclists, and it is anticipated that there will be few heavy vehicles approaching Elgin Street from Argyle Avenue. For these reasons, no recommendations have been made in improving the TkLOS.

6.6.1.6 Elgin Street/Catherine Street

Elgin Street/Catherine Street does not meet the target PLOS B, BLOS C, or TkLOS D.

The north and west crosswalks do not meet the target PLOS based on PETSI score. The north crosswalk also does not meet the target PLOS based on delay score. There are limited opportunities in improving the PLOS at this intersection without reducing the number of travel lanes, restricting turning movements, or incurring major delays for vehicles. No changes are proposed as part of the Elgin Street Renewal project with respect to the north crossing. The west crossing is improved relative to the existing intersection geometry.

The south approach does not meet the target BLOS based on left turn characteristics, and the east approach does not meet the target BLOS based on left and right turn characteristics. The south approach can achieve the target BLOS by reducing the operating speed to 40 km/h. The Elgin Street Renewal suggests a reduced speed limit of 30 km/h from Lisgar Street to McLeod Street. No changes were recommended for the accommodation of northbound left turning cyclists as part of the Elgin Street Renewal. Similarly, the left turn characteristics of the east approach can achieve the target BLOS by reducing the operating speed to 40 km/h. With respect to the right turn characteristics, a right turn lane of less than 25m is required. The peak hour volumes for westbound right turning vehicles (200 vph) justifies a right turn lane, and this lane is carried in the Elgin Street Renewal design.

The north approach does not meet the target TkLOS D. The Elgin Street Renewal functional design identifies a concrete rumble strip/truck apron at this approach, allowing heavy vehicles a greater effective corner radius. While the MMLOS guidelines evaluate this corner as achieving a TkLOS E, in reality the corner is expected to perform acceptably. Therefore, no recommendations have been made in improving the TkLOS, as none are required.

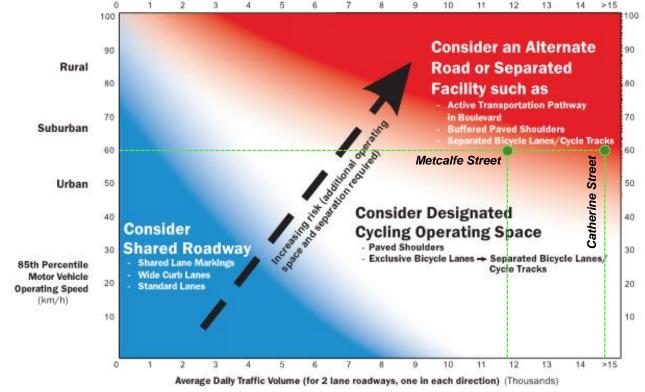


Figure 12: Desirable Cycling Facility Selection Tool

Footnotes: - This nomograph is the first of a three step bicycle facility selection process,, and should not be used by itself as the justification for facility selection (see Steps 2 and 3). The nomograph simply helps practitioners pre-select a desirable cycling facility type, however the context of the situation governs the final decision.

- The nomograph has been adapted for the North American context and is based on international examples and research for two lane roadways. It is, however, still applicable for multi-lane roadways. For these situations, designers should consider the operating speed, total combined traffic volume and traffic mix of the vehicles traveling in the lanes immediately adjacent to the cycling facilities:
- Consider a Separated Facility or an Alternate Road for roadways with an AADT greater than 15,000 vehicles and an operating speed of greater then 50 km/h.
- For rural and suburban locations this nomograph assumes good sightlines are provided for all road users. In urban areas, there are typically more frequent conflict points at driveways, midblock crossings and intersections (especially on multi-lane roads), as well as on road segments with on street parking. This needs to be considered when assessing risk exposure in urban environments since it will influence the selection of a suitable facility type.

6.6.2 2023/2028 Background Intersection Operations

For all existing, background, and total traffic scenarios, there are two points in the Synchro network where the geometry does not reflect reality, due to limitations in the programming of Synchro. The two situations are described below.

The intersection of Metcalfe Street West/Catherine Street/Highway 417 (Exit 119) is set up as a cluster, with two nodes using one signal controller. SimTraffic simulations identify space for northbound traffic to stop in between the two nodes, whereas in reality, this likely does not occur. The results of the Synchro analysis are unaffected by this inconsistency.

The intersection of Metcalfe Street East/McLeod Street has been adjusted geometrically. The northbound left movement at Metcalfe Street East has been coded as a northbound through movement, and the westbound through movement at McLeod Street has been coded as a westbound right turn movement. The speed of traffic on Metcalfe Street East has been reduced to simulate turning speed. When the intersection is drawn as it exists in reality, Synchro identifies impossibly high delays on McLeod Street, due to the unorthodox nature of the intersection.

Intersection capacity analysis has been completed for the background traffic conditions in 2023 and 2028. The intersection parameters used in the analysis are consistent with the 2017 TIA Guidelines (Saturation Flow Rate: 1800 vphpl, Peak Hour Factor: 1.0). The results of the Synchro analysis for the AM and PM peak periods are summarized in **Table 14**. Approaches where queueing issues have been identified are listed with the associated 50th- and 95th-percentile queue lengths in **Table 15**. Signal timing plans are included in **Appendix I**. Detailed reports are included in **Appendix J**.

Table 14: 2023/2028 Background – Intersection Operations

5		AM Pea	ak	PM Peak			
Intersection	Max v/c or Delay	LOS	Movement	Max v/c or Delay	LOS	Movement	
O'Connor Street/ Argyle Avenue	0.40	А	EBT	0.72	С	EBT	
O'Connor Street/ Catherine Street	0.66	В	SBR	0.78	С	SBR	
Metcalfe Street West/ Argyle Avenue	0.77	С	NBR	0.68	В	EBT	
Metcalfe Street West/ Catherine Street/ Highway 417 (Exit 119)	1.00	E	NWBR	0.69	В	NWBR	
Elgin Street/ Argyle Avenue	0.69	В	EBL	0.70	В	EBR	
Elgin Street/ Catherine Street	0.33	А	WBR	0.67	В	SBT	
Metcalfe Street East/ McLeod Street ⁽¹⁾	20 sec	С	WBT	11 sec	В	WBT	

^{1.} Unsignalized intersection

Table 15: 2023/2028 Background - Queues Over Capacity

			AM	Peak			PM I	Peak	
Intersection	Mvmt	v/c	LOS	50 th % Queue (m)	95 th % Queue (m)	v/c	LOS	50 th % Queue (m)	95 th % Queue (m)
O'Connor Street/ Argyle Avenue	SBT	0.39	Α	25	34	0.69	В	73	94
O'Connor Street/ Catherine Street	SBR	0.66	В	40	#110	0.78	С	19	#171
Metcalfe Street West/ Catherine Street/ Hwy 417 (Exit 119)	NBT	0.86	D	71	#101	0.40	Α	28	40
Elgin Street/ Argyle Avenue	SBT	0.29	Α	16	33	0.68	В	50	#143

^{#:} volume for the 95th percentile cycle exceeds capacity

Based on the previous tables, 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).

6.6.3 2023/2028 Total Intersection Operations

Intersection capacity analysis has been completed for the total traffic conditions in 2023 and 2028. The intersection parameters used in the analysis are consistent with the 2017 TIA Guidelines (Saturation Flow Rate: 1800 vphpl, Peak Hour Factor: 1.0). The results of the Synchro analysis for the AM and PM peak periods are summarized in **Table 16**. Approaches where queueing issues have been identified are listed with the associated 50th- and 95th-percentile queue lengths in **Table 17**. Signal timing plans are included in **Appendix I**. Detailed reports are included in **Appendix J**.

Table 16: 2023/2028 Total – Intersection Operations

	,	AM Pea	ık	PM Peak			
Intersection	Max v/c or Delay	LOS	Movement	Max v/c or Delay	LOS	Movement	
O'Connor Street/ Argyle Avenue	0.40	Α	EBT	0.72	С	EBT	
O'Connor Street/ Catherine Street	0.66	В	SBR	0.78	С	SBR	
Metcalfe Street West/ Argyle Avenue	0.77	С	NBR	0.69	В	EBT	
Metcalfe Street West/ Catherine Street/ Highway 417 (Exit 119)	1.00	E	NWBR	0.70	В	NWBR	
Elgin Street/ Argyle Avenue	0.69	В	EBL	0.70	В	EBR	
Elgin Street/ Catherine Street	0.33	Α	WBR	0.67	В	SBT	
Metcalfe Street East/ McLeod Street ⁽¹⁾	20 sec	С	WBT	11 sec	В	WBT	
Argyle Avenue/ Site Access ⁽¹⁾	13 sec	В	NBR	11 sec	В	NBR	

^{1.} Unsignalized intersection

Table 17: 2023/2028 Total – Queues Over Capacit	Table	17:	2023/2028	Total -	Queues	Over	Capacit
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		AM Peak				PM Peak			
Intersection	Mvmt	v/c	Los	50 th % Queue (m)	95 th % Queue (m)	v/c	LOS	50 th % Queue (m)	95 th % Queue (m)
O'Connor Street/ Argyle Avenue	SBT	0.39	Α	25	34	0.69	В	74	95
O'Connor Street/ Catherine Street	SBR	0.66	В	40	#109	0.78	С	19	#171
Metcalfe Street West/ Catherine Street/ Hwy 417 (Exit 119)	NBT	0.86	D	71	#100	0.40	Α	28	40
Elgin Street/ Argyle Avenue	SBT	0.29	Α	17	34	0.69	В	51	#145

^{#:} volume for the 95th percentile cycle exceeds capacity

Compared to the background traffic conditions, marginal increases to the v/c ratios, queue lengths, and delays are anticipated as a result of the additional site-generated traffic within the study area. The results are still improvements compared to the existing traffic conditions, again due to the differences in the Peak Hour Factor.

7.0 CONCLUSIONS AND RECOMMENDATIONS

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

Forecasting

The net increase in trips generated by the proposed redevelopment is approximately 73
person trips in the AM peak hour and 79 person trips in the PM peak hour, which includes an
increase of approximately 26 vehicle trips in the AM peak hour and 27 vehicle trips in the PM
peak hour.

Development Design and Parking

- Pedestrian facilities will be provided between the building entrances and Argyle Avenue.
 Sidewalks will be depressed and continuous across the accesses, in accordance with City standards.
- Transit stops serving OC Transpo Routes 5, 14, 56, and westbound 101 and 103 are within 400m walking distance of the subject site. Transit stops serving OC Transpo Routes 6, 7, and eastbound 101 and 103 are within 600m walking distance of the subject site.
- All required TDM-supportive design and infrastructure measures in the TDM checklist are met.
- Approximately 74 vehicle parking spaces and 160 bicycle parking spaces are proposed for the redevelopment. The amount of bicycle parking meets the requirements outlined in the ZBL, however the amount of vehicle parking is 14 spaces fewer than the minimum outlined in the ZBL.

Boundary Streets

- Argyle Avenue meets the target TkLOS E and Auto LOS D, but does not meet the target PLOS C or BLOS D. The following recommendations are identified for the City's consideration as funding becomes available.
- The south side of Argyle Avenue can achieve the target PLOS C by widening the sidewalk to 1.8m while maintaining a boulevard width of 2.0m.
- The BLOS of Argyle Avenue can meet the target BLOS D can be achieved by either implementing a 4.0m-wide bike lane plus parking lane, or reducing the operating speed to 50 km/h.

Access Design

- The proposed redevelopment will be served by a two-way underground parking garage access approximately 3.0m east of the western property line. The existing shared RIRO access will be maintained. An access exclusively for garbage collection and deliveries is located approximately at the eastern property line.
- Full-height curb and sidewalks will be reinstated where necessary, and depressed curb and continuous sidewalks will be provided across the full width of the accesses, as per City standards.
- Section 25 (a) of the *Private Approach By-Law* identifies a requirement for properties with a frontage of 20m to 34m to have no more than one (1) two-way private approach or two (2) one-way private approaches. Considering the loading access will be used exclusively by delivery and garbage collection vehicles, the only exclusive access to 100 Argyle Avenue is the two-way underground parking garage ramp. The shared access must be maintained for the neighbouring property to the west.
- Section 25 (c) of the Private Approach By-Law identifies a requirement for two-way accesses to have a width no greater than 9m, as measured at the street line. Section 107 (1)(a) of the ZBL identifies a minimum width requirement of 6.0m for a double traffic lane leading to a parking garage. Any access to an apartment building must also meet Section 107 (1)(aa), which identifies a maximum width requirement of 6.7m for any double traffic lane which leads to 20 or more parking spaces. The proposed underground parking access is approximately 6.0m in width, thereby meeting these requirements.
- The proposed loading access is approximately 4.7m in width, and the shared access with the property to the west is approximately 3.0m in width.
- Section 25 (I) of the Private Approach By-Law identifies a requirement to provide a minimum distance of 18m between the private approach and the nearest intersecting street line, and a minimum distance of 15m between a two-way private approach and any other private approach. The proposed spacing between the loading access and the underground parking access is 19m.
- The proposed spacing between the underground parking access and the existing shared access is approximately 1.2m. A relaxation of the minimum distance outlined in Section 25 (I) is requested for the spacing between these two accesses.

- Section 25 (o) of the *Private Approach By-Law* identifies a requirement to provide a minimum spacing of 3m between the nearest edge of the private approach and the property line, as measured at the street line. The spacing between the proposed underground parking access and the western property line is approximately 3.0m, however the spacing between the proposed access and the existing shared access is approximately 1.2m. Section 25 (o) states that a relaxation of the minimum clearance distance from 3m to 0.3m is permissible by the General Manager, provided there are no safety issues associated with doing so.
- Further relaxation of the minimum clearance distance is requested for the loading access, which is proposed to abut the eastern property line. As this access doesn't serve parking, the requirements of the *Private Approach By-Law* are not considered applicable.
- Section 25 (t) of the Private Approach By-Law identifies a requirement that any private approach may not exceed a grade of 2-6% within 9m of the street line. The proposed underground parking access ramp has a grade of 7% approximately 8.2m from the street line. This requirement will be addressed at the Site Plan Control application stage, where the ramp will be brought into compliance or a waiver for this requirement will be requested at that time.
- Implementation of the underground parking access will require a shift of the two existing onstreet parking spaces in front of the subject site, such that the spaces are approximately 7m further east. Removal of the existing site-exclusive access will accommodate this shift, as will the implementation of the loading access at the eastern limit of the site. Based on the parking space dimension regulations outlined by City staff and the *Traffic and Parking By-Law*, two on-street parking spaces can be supported.
- The Transportation Association of Canada outlines a minimum sight distance requirement of 95m for vehicles exiting the accesses to the subject site. Provided the vegetation proposed at the front of the development is non-obstructive, the sight distance requirement is met for all accesses.

Transit

 No capacity problems are anticipated 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.

Intersection Design

- Based on the results of the intersection MMLOS analysis:
 - No intersections meet the target pedestrian level of service (PLOS);
 - Only O'Connor Street/Argyle Avenue meets the target bicycle level of service (BLOS);
 - Among intersections with targets, only Metcalfe Street West/Catherine Street/Exit 119 does not meet the target transit level of service (TLOS);
 - Elgin Street/Argyle Avenue and Elgin Street/Catherine Street do not meet the target truck level of service (TkLOS);
 - Metcalfe Street West/Argyle Avenue and Metcalfe Street West/Catherine Street/Exit
 119 do not meet the target vehicular level of service (Auto LOS).

Pedestrian Level of Service

 There is limited opportunity in improving the PLOS of any approaches that do not meet the target PLOS C, as major road or timing modifications are required.

Bicycle Level of Service

- The east approach of O'Connor Street/Catherine Street does not meet the target BLOS B, based on left turn characteristics. No recommendations have been made, as Catherine Street is not a cycling route and Gladstone Avenue is a nearby eastwest spine route.
- The south approach of Metcalfe Street West/Catherine Street/Highway 417 (Exit 119) does not meet the target BLOS C, as left turning cyclists are required to cross two lanes of traffic. Accommodation of left turning cyclists onto Catherine Street is not recommended, as Catherine Street is not a cycling route and implementation of a two-stage bike box would be difficult given the configuration of the westbound approaches (Catherine Street and the Exit 119 off-ramp).
- The west approach of Elgin Street/Argyle Avenue does not meet the target BLOS C, based on left turn characteristics. The dual left turn lanes are required based on the existing peak hour turning movement volumes, and no changes have been proposed as part of the Elgin Street Renewal project with respect to the westbound dual left turn lanes.
- The south and east approaches of Elgin Street/Catherine Street do not meet the target BLOS D. The south approach can achieve the target BLOS by reducing the operating speed to 40 km/h, and the Elgin Street Renewal suggests a reduced speed limit of 30 km/h from Lisgar Street to McLeod Street. No changes were recommended for the accommodation of northbound left turning cyclists as part of the Elgin Street Renewal. The peak hour volumes for westbound right turning vehicles justifies a right turn lane, and this lane is carried in the Elgin Street Renewal design.

Transit Level of Service

The east approach (Catherine Street) of Metcalfe Street West/Catherine Street/ Highway 417 (Exit 119) does not meet the target TLOS D, requiring a 5-second reduction in the delay to achieve the target. Implementation of transit signal priority on Catherine Street as identified in the 2031 RTTP Network Concept may improve the TLOS.

• Truck Level of Service

- The west approach of Elgin Street/Argyle Avenue does not meet the target TkLOS D. It is clear that the Elgin Street Renewal prioritizes the levels of service for pedestrians and cyclists, and it is anticipated that there will be few heavy vehicles approaching Elgin Street from Argyle Avenue.
- The north approach of Elgin Street/Catherine Street does not meet the target TkLOS D. The Elgin Street Renewal functional design identifies a concrete rumble strip/truck apron at this approach, allowing heavy vehicles a greater effective corner radius. While the MMLOS guidelines evaluate this corner as achieving a TkLOS E, in reality the corner is expected to perform acceptably.

- Vehicular Level of Service
 - The northbound right turn movement at Metcalfe Street West/Argyle Avenue does not meet the target Auto LOS D during the AM peak hour. To achieve the target Auto LOS, a reduction of approximately ten vehicles is required.
 - The northwestbound right turn movement (vehicles turning from westbound Highway 417 onto northbound Metcalfe Street West) and the northbound through movement (vehicles continuing on northbound Metcalfe Street West) do not meet the target Auto LOS D during the AM peak hour. To achieve the target, a reduction of 140 vehicles making the northbound right turn movement and a reduction of 60 vehicles making the northbound through movement is required.
- In existing and future traffic conditions, queueing issues were identified for the following movements:
 - O'Connor Street/Argyle Avenue
 - Southbound through (PM peak hour)
 - O'Connor Street/Catherine Street
 - Southbound right turn (AM and PM peak hours)
 - Metcalfe Street West/Catherine Street/Highway 417 (Exit 119)
 - Northbound through (AM peak hour)
 - Elgin Street/Argyle Avenue
 - Southbound through (PM peak hour)
- The background traffic conditions appear to improve when compared to the existing traffic conditions, attributable 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).
- Compared to the background traffic conditions, the total traffic conditions are anticipated to have marginal increases to the v/c ratios, queue lengths, and delays, as a result of the additional site-generated traffic within the study area. All intersections are anticipated to operate at approximately the same level of service.

NOVATECH

Prepared by:

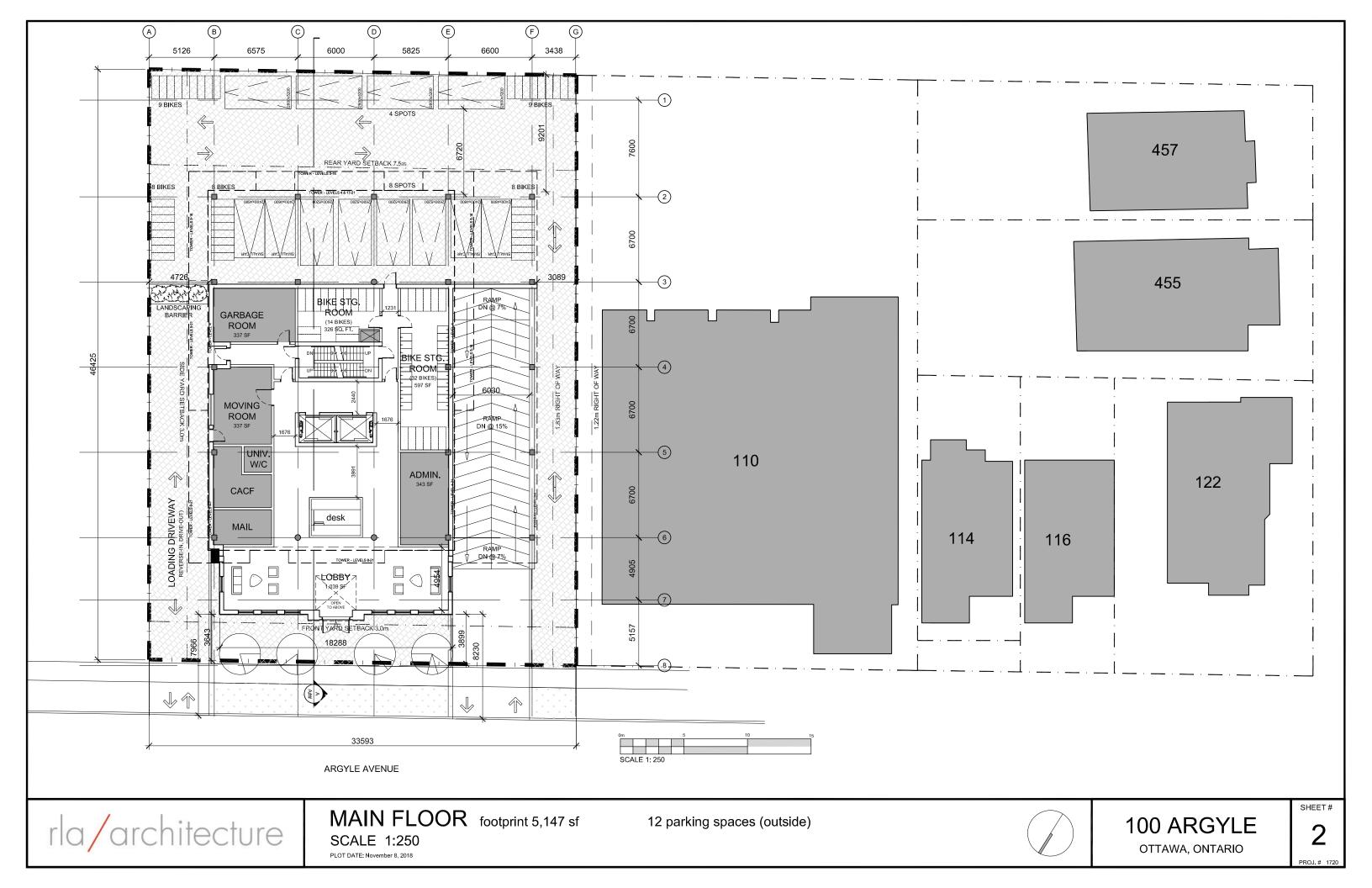
Joshua Audia, B.Sc. E.I.T., Transportation/Traffic Reviewed by:



Jennifer Luong, P.Eng. Senior Project Manager, Transportation/Traffic

APPENDIX A

Conceptual Site Plan



APPENDIX B

TIA Screening Form



City of Ottawa 2017 TIA Guidelines Screening Form

1. Description of Proposed Development

Municipal Address	100 Argyle Avenue
Description of Location	The approximately 0.16-hectare property is located midblock between Metcalfe Street and Elgin Street
Land Use Classification	High-Rise Residential
Development Size (units)	156 dwellings
Development Size (m²)	_
Number of Accesses and Locations	- One underground parking access on Argyle Avenue, near western limits of the property
	- One shared access with property to the west on Argyle Avenue
	- One loading access on Argyle Avenue, near eastern limits of the property
Phase of Development	1
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 m²
Destination retail	1,000 m ²
Gas station or convenience market	75 m²

^{*} 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.



Transportation Impact Assessment Screening Form

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, <u>the TIA Study is complete</u>. If one or more of the triggers is satisfied, <u>the TIA Study must continue into the next stage</u> (Screening and Scoping).

APPENDIX C

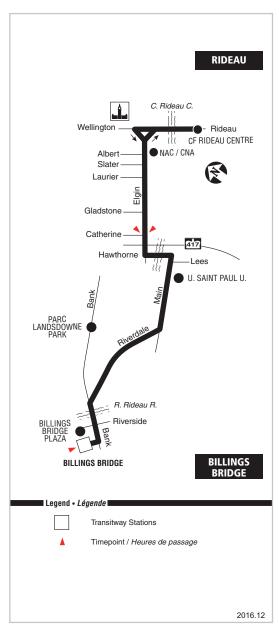
OC Transpo Route Maps



5 RIDEAU BILLINGS BRIDGE

7 days a week / 7 jours par semaine

All day service Service toute la journée



Effective / En vigueur Dec. 25 déc. 2016



7 days a week / 7 jours par semaine

All day service Service toute la journée





Transitway & Station / Station et Transitway



No early morning service / Aucun service matinal Line 2 – O-Train Trillium Line Ligne 2 - O-Train LigneTrillium Park & Ride / Parc-o-Bus

Timepoint / Heures de passage

2017.06

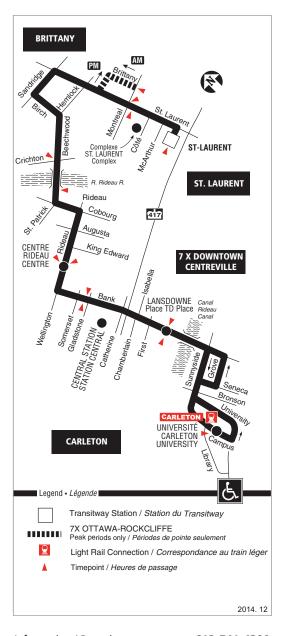




ST. LAURENT CARLETON

7 days a week / 7 jours par semaine

All day service Service toute la journée



Effective / En vigueur Sept 5 sept 2004

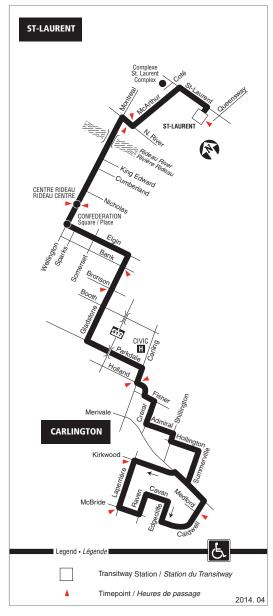




ST-LAURENT CARLINGTON

7 days a week / 7 jours par semaine

All day service Service toute la journée



Information / Renseignement	613-741-4390		
Customer Relations Service à la clientèle	613-842-3600		
Lost and Found / Objets perdus	613-563-4011		
Schedule / Horaire	613-560-1000		
Text / Texto	560560		
plus your four digit bus stop number / plus votre numéro d'arrêt à quatre chiffres			

Effective / En vigueur Sept 5 sept 2004

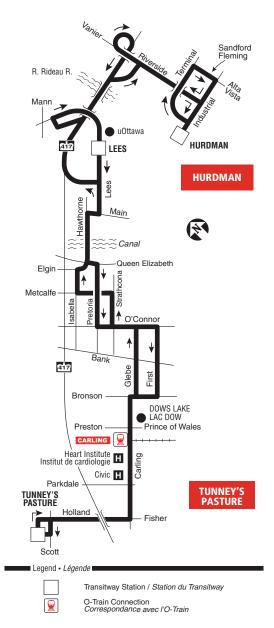




Local

Monday to Friday / Lundi au vendredi

Peak periods only Périodes de pointe seulement



2017.04





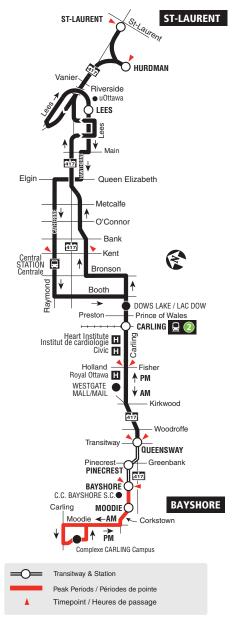
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ST-LAURENT BAYSHORE

Local

Monday to Saturday / Lundi ay samedi

No Sunday service Aucun service le dimanche



2017.12

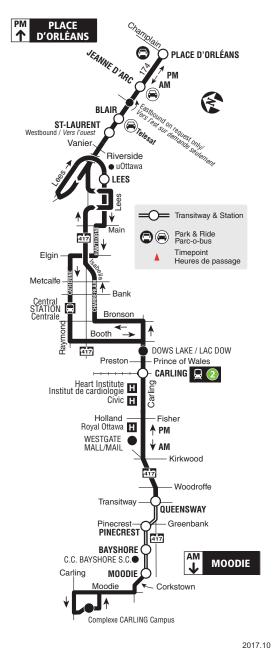




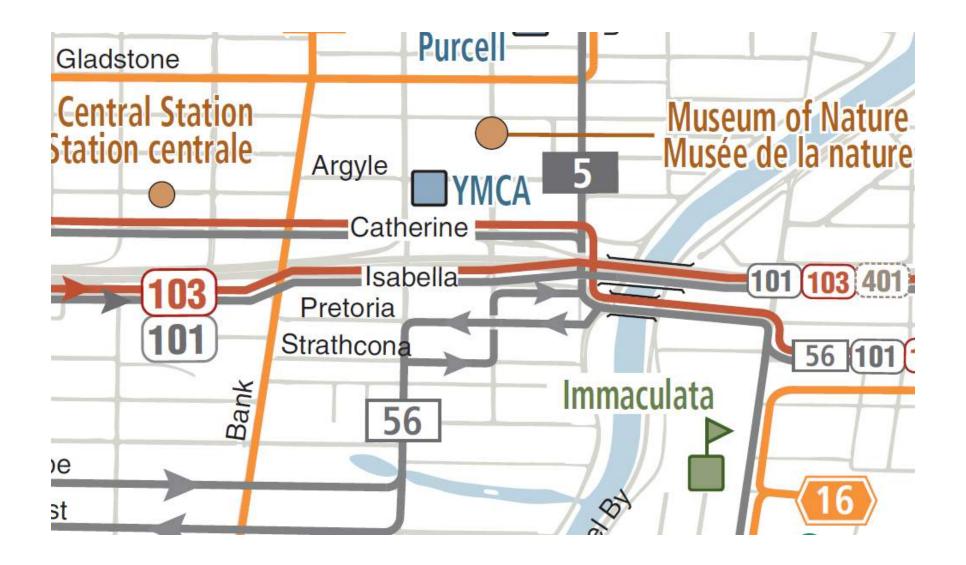
Local

Monday to FRIDAY / Lundi au vendredi

Peak Periods Only Périodes de pointe seulement







APPENDIX D

Traffic Count Data



Work Order

36790

Turning Movement Count - Full Study Summary Report

ARGYLE AVE @ O'CONNOR ST

Survey Date: Tuesday, March 21, 2017

Total Observed U-Turns

AADT Factor

Northbound: 0 Eastbound: 0

Southbound: 0
Westbound: 0

1.00

Full Study

								-	u 0	,									
			0'0	CONN	OR S	Т						Α	RGYLE	E AVE					
	N	orthbo	ound		;	Southbo	ound		_		Eastbo	ound		٧	Vestbo	ound			
Period	LT	ST	RT	NB TOT	LT	ST	RT	SB TOT	STR TOT	LT	ST	RT	EB TOT	LT	ST	RT	WB TOT	STR TOT	Gran Tota
07:00 08:00	0	0	0	0	20	605	0	625	625	0	34	47	81	0	0	0	0	81	70
08:00 09:00	0	0	0	0	32	718	0	750	750	0	71	63	134	0	0	0	0	134	88
09:00 10:00	0	0	0	0	34	750	0	784	784	0	53	62	115	0	0	0	0	115	899
11:30 12:30	0	0	0	0	42	837	0	879	879	0	50	61	111	0	0	0	0	111	990
12:30 13:30	0	0	0	0	44	784	0	828	828	0	53	76	129	0	0	1	1	130	958
15:00 16:00	0	0	0	0	50	1359	0	1409	1409	0	46	125	171	0	0	0	0	171	158
16:00 17:00	0	0	0	0	54	1399	0	1453	1453	0	67	133	200	0	0	0	0	200	165
17:00 18:00	0	0	0	0	78	1391	0	1469	1469	0	73	130	203	0	0	0	0	203	1672
Sub Total	0	0	0	0	354	7843	0	8197	8197	0	447	697	1144	0	0	1	1	1145	9342
U Turns				0				0	0				0				0	0	0
Total	0	0	0	0	354	7843	0	8197	8197	0	447	697	1144	0	0	1	1	1145	934
EQ 12Hr	0	0	0	0	492	10902	0	11394	11394	0	621	969	1590	0	0	1	1	1591	1298
Note: These v	alues ar	e calcul	ated by	/ multiply	ing the	e totals by	y the a	ppropria	te expansi	ion fact	or.		1	.39					
AVG 12Hr	0	0	0	0	492	10902	0	11394	11394	0	621	969	1590	0	0	1	1	1591	1298
Note: These v	olumes a	are calc	ulated	by multi	olying t	the Equiv	alent 1	2 hr. tota	als by the	AADT f	actor.		1	.00					
AVG 24Hr	0	0	0	0	645	14281	0	14926	14926	0	814	1269	2083	0	0	2	2	2085	17011
Note: These v	olumes a	are calc	ulated	by multi	olying t	he Avera	ge Dai	ly 12 hr.	totals by	12 to 24	4 expans	sion fac	ctor. 1	.31					

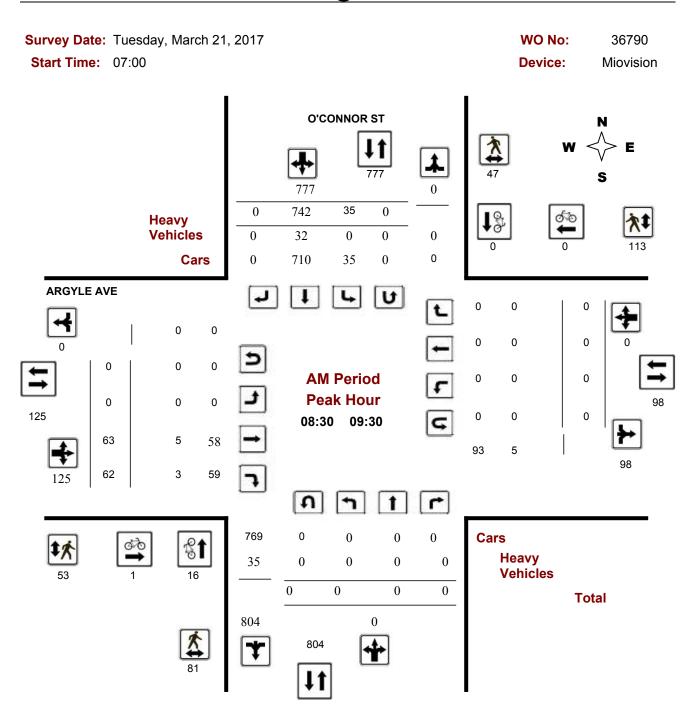
Comments:

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



Turning Movement Count - Peak Hour Diagram

ARGYLE AVE @ O'CONNOR ST

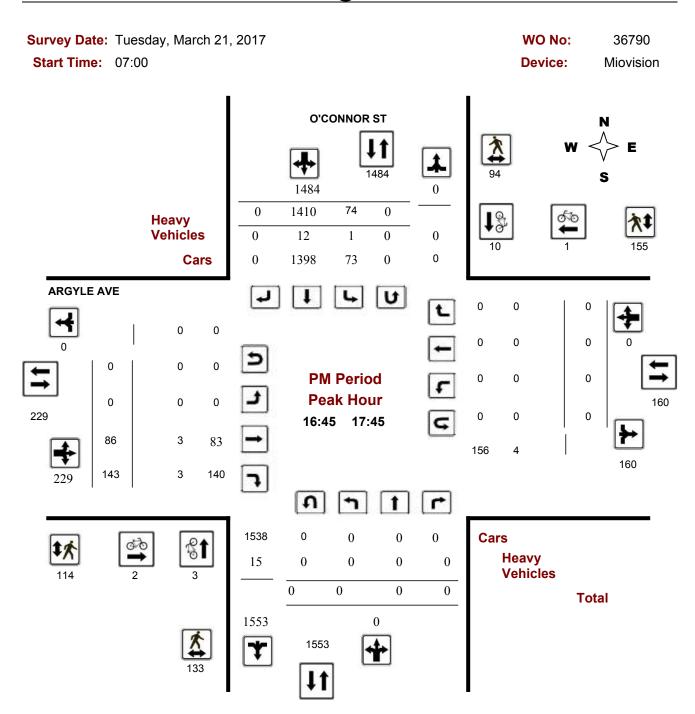


Comments



Turning Movement Count - Peak Hour Diagram

ARGYLE AVE @ O'CONNOR ST



Comments

2018-Jul-25 Page 4 of 4

 Study Name
 5299277 - Catherine St/HWY 417 and O'Connor SI

 Start Date
 Tuesday, March 21, 2017 7:00 AM

 End Date
 Tuesday, March 21, 2017 6:00 PM

Site Code 36132103

Report Summary

				Si	outhbo	und					V	/estbou	ınd					N	orthbo	und					Nort	theastb	ound					E	astbou	nd					Cross	swalk
Time Period	Class.		BR																					BR	BL												Total		Ped	Total
Peak 1	Lights	79	316	369	0	0	764	0	0	844	216	102	0	1162	0	0	0	0	0	0	0	471	0	0	0	0	0	0	532	0	0	0	0	0	0	923	1926	N	26	26
Specified Period	%	95%	99%	93%	0%	0%	96%	0%	0%	95%	98%	94%	0%	95%	0%	0%	0%	0%	0%	0%	0%	93%	0%	0%	0%	0%	0%	0%	99%	0%	0%	0%	0%	0%	0%	95%	95%		100%	
7:00 AM - 10:00 AM	Other Vehicles	4	2	29	0	0	35	0	0	45	5	7	0	57	0	0	0	0	0	0	0	36	0	0	0	0	0	0	7	0	0	0	0	0	0	49	92	E	73	73
One Hour Peak	%	5%	1%	7%	0%	0%	4%	0%	0%	5%	2%	6%	0%	5%	0%	0%	0%	0%	0%	0%	0%	7%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	5%	5%		100%	
8:15 AM - 9:15 AM	Bicycles on Road	0	0	0	0	0	0	17	0	0	0	0	0	0	0	0	17	0	0	0	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17	S	25	25
	%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%		100%	
	Total	83	318	398	0	0	799	17	0	889	221	109	0	1219	0	0	17	0	0	0	17	507	0	0	0	0	0	0	539	0	0	0	0	0	0	972	2035	SW	39	39
	PHF	0.83	0.84	0.9	0	0	0.9	0.61	0	0.98	0.81	0.88	0	0.98	0	0	0.61	0	0	0	0.61	0.94	0	0	0	0	0	0	0.83	0	0	0	0	0	0	0.97	0.95		100%	
	Approach %						39%	1%						60%	0%						1%	25%						0%	26%						0%	48%		W	49	49
																																			/ -				100%	
																																							212	212
Peak 2		400	224	400						476	242	400						0				cor		0					E00			0					1734			
	Lights	100	321	493	0	0	914		0				0	820	0	0	0	·	0	0	0	625	0		0	0	0	0	533	0	U	Ŭ	0	0	0	576		N	12	12
Specified Period 11:30 AM - 1:30 PM	% Other Vehicles	95%	100%	98%	0%	0%	98%		0%	94% 28	98%	97%	0%	96% 37	0%	0%	0%	0%	0%	0%	0%	98% 14	0%	0%	0%	0%	0%	0%	99%	0%	0%	0%	0%	0%	0%	95% 32	97% 51	-	100%	25
One Hour Peak		4	-		-	_	14	0	_		5	4	-		-	_	_	U	U	-				_	0	-	-	_	-	_	0	U	-	_				-		25
11:45 AM - 12:45 PM	%	4%	0%	2%	0%	0%	2%		0%	6% O	2%	3%	0%	4% 0	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	5%	3%	s	100%	2
11:45 AW - 12:45 PW	Bicycles on Road %	1%	0%	0%	0%	0%	0%	0	0%	0%	0%	0%	0%	0%	0	0%	0%	0%	0	0%	0%	2	0	0%	0	0%	0	0%	0	0%	0	0%	0%	0%	0%	1	3	3	100%	3
	Total	105	321	505	0%	0%	931	0%	0%	504	217	136	0%	857	0%	0%	0%	0%	0%	0%	0%	641	0%	0%	0%	0%	0%	0%	538	0%	076	0%	0%	0%	0%	0% 609	1788	SW	20	20
	PHF		0.94	0.96	-	0	0.96		0	0.85	0.88	0.79	0	0.93	0	0	0	0	0	0	0	0.97	0	0	0	0	0	0	0.91	0	0	0	0	0	0	0.87	0.98	3**	100%	20
	Approach %	0.51	0.54	0.50	·	Ü		0%	"	0.03	0.00	0.75	·		0%	"	Ü	·	Ü	Ü	0%	36%	"	Ü	Ü	Ü	Ŭ	0%	30%	"	Ü		Ü	Ü	0%	34%	0.50	w	12	12
	эрргоден зо						3270							4070							0,0							0,0							/ 0,0				100%	
																																			/ -				72	72
Peak 3	Lights	123	470	948	0	0	1541	. 0	0	653	215	187	0	1055	0	0	0	0	0	0	0	1135	0	0	0	0	0	0	685	0	0	0	0	0	0	776	2596	N	19	19
Specified Period	%	96%	100%	97%	0%	0%	98%	0%	0%	96%	100%	95%	0%	96%	0%	0%	0%	0%	0%	0%	0%	97%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	96%	97%		100%	
3:00 PM - 6:00 PM	Other Vehicles	5	1	17	0	0	23	0	0	29	1	9	0	39	0	0	0	0	0	0	0	26	0	0	0	0	0	0	2	0	0	0	0	0	0	34	62	Ε	69	69
One Hour Peak	%	4%	0%	2%	0%	0%	1%	0%	0%	4%	0%	5%	0%	4%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	2%		100%	
3:45 PM - 4:45 PM	Bicycles on Road	0	1	8	0	0	9	5	0	0	0	0	0	0	0	0	5	0	0	0	5	8	0	0	0	0	0	0	1	0	0	0	0	0	0	0	14	S	13	13
	%	0%	0%	1%	0%	0%	1%		0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	100%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%		100%	
	Total	128	472	973	0	0	1573		0	682	216	196	0	1094	0	0	5	0	0	0	5	1169	0	0	0	0	0	0	688	0	0	0	0	0	0	810	2672	SW	38	38
	PHF	0.86	0.93	0.94	0	0	0.98	0.42	0	0.82	0.9	0.94	0	0.92	0	0	0.42	0	0	0	0.42	0.96	0	0	0	0	0	0	0.92	0	0	0	0	0	0	0.85	0.96		100%	
	Approach %						59%	0%						41%	0%						0%	44%						0%	26%						0%	30%		W	34	34
																																							100%	
																																							173	173

 Study Name
 5299277 - Catherine 5t/HWY 417 and O'Connor St

 Start Date
 Tuesday, March 21, 2017 7:00 AM

 End Date
 Tuesday, March 21, 2017 6:00 PM

 Site Code
 36132103

Road Volumes

TMV	Movement																													Grand
	Southboun	d					Westboun	ıd					Northbou	nd					Northeastbour					Eastbound	i					Total
Interval 3/21/2017 7:00	R 10	BR 65	61	0	0	136	R	149	18	0	BL 34	201	R O	1	0	0	HL 0	1		U BL	HL 0	HR 0	0	R 0	0	0	0	HR 0	0	338
Lights	9	62	56	0	0	127	0	141	17	0	33	191	0	0	0	0	0	0		0 0	0	0	0	0	0	0	0	0	0	318
Other Vehicles Bicycles on Road	1 0	3 0	5 0	0	0	9	0	8	0	0	0	10 0	0	0	0	0	0	0		0 0	0	0	0	0	0	0	0	0	0	19 1
3/21/2017 7:15	13	68	74	0	0	155	0	188	21	0	37	246	0	1	0	0	0	1		0 0	0	0	0	0	0	0	0	0	0	402
Lights Other Vehicles	12 1	66 2	71 3	0	0	149 6	0	177 11	20 1	0	37 0	234 12	0	0	0	0	0	0		0 0	0	0	0	0	0	0	0	0	0	383 18
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0 0	0	0	0	0	0	0	0	0	0	1
3/21/2017 7:30 Lights	18 18	94 94	100 99	0	0	212 211	0	191 181	31 28	0	47 47	269 256	0	0	0	0	0	0		0 0	0	0	0	0	0	0	0	0	0	481 467
Other Vehicles	0	0	1	0	0	1	0	10	3	0	0	13	0	0	0	0	0	0		0 0	0	0	0	0	0	0	0	0	0	14
3/21/2017 7:45	21	79	101	0	0	201	0	212	24	0	55	0 291	0	1	0	0	0	1		0 0	0	0	0	0	0	0	0	0	0	0 493
Lights	21	78	98	0	0	197	0	206	24	0	55	285	0	0	0	0	0	0		0 0	0	0	0	0	0	0	0	0	0	482
Other Vehicles Bicycles on Road	0	0	3	0	0	4 0	0	6	0	0	0	6	0	0	0	0	0	0		0 0	0	0	0	0	0	0	0	0	0	10 1
3/21/2017 8:00	26	75	113	0	0	214	0	205	20	0	59	284	0	7	0	0	0	7		0 0	0	0	0	0	0	0	0	0	0	505
Lights Other Vehicles	24	75 0	110 3	0	0	209	0	197 8	20 0	0	59	276 8	0	0	0	0	0	0		0 0	0	0	0	0	0	0	0	0	0	485 13
Bicycles on Road	0	0	0	0	0	0	ō	0	0	0	0	0	0	7	0	0	0	7	0	0 0	0	0	0	ō	0	0	0	0	ō	7
3/21/2017 8:15 Lights	21 19	73 73	83 77	0	0	177 169	0	225 210	25 24		51 50	301 284	0	7	0	0	0	7		0 0	0	0	0	0	0	0	0	0	0	485 453
Other Vehicles	2	0	6	0	0	8	0	15	1	0	1	17	0	0	0	0	0	0	0	0 0	0	ō	0	0	0	0	0	0	ō	25
Bicycles on Road 3/21/2017 8:30	0 17	0 95	0 111	0	0	0 223	0	0 213	0 24	0	0 68	0 305	0	7	0	0	0	7		0 0	0	0	0	0	0	0	0	0	0	7 534
3/21/2017 8:30 Lights	16	95 95	105	0	0	216	0	205	24	0	67	296	0	0	0	0	0	0		0 0	0	0	0	0	0	0	0	0	0	512
Other Vehicles	1	0	6	0	0	7	0	8	0	0	1 0	9	0	0	0	0	0	0		0 0	0	0	0	0	0	0	0	0	0	16 6
3/21/2017 8:45	25	71	100	0	0	196	0	225	31	0	54	310	0	4	0	0	0	4	-	0 0	0	0	0	0	0	0	0	0	0	510
Lights	25 0	70 1	92 8	0	0	187	0	213	29 2	0	53	295 15	0	0	0	0	0	0		0 0	0	0	0	0	0	0	0	0	0	482 24
Other Vehicles Bicycles on Road	0	0	0	0	0	0	0	12 0	0	0	0	0	0	4	0	0	0	4	_	0 0	0	0	0	0	0	0	0	0	0	4
3/21/2017 9:00	20	79	104	0	0	203	0	226	29	0	48	303	0	0	0	0	0	0		0 0	0	0	0	0	0	0	0	0	0	506
Lights Other Vehicles	19 1	78 1	95 9	0	0	192 11	0	216 10	25 4	0	46 2	287 16	0	0	0	0	0	0		0 0	0	0	0	0	0	0	0	0	0	479 27
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0 0	0	0	0	0	0	0	0	0	0	0
3/21/2017 9:15 Lights	26 24	67 64	82 76	0	0	175 164	0	149 138	22 19	0	46 45	217 202	0	0	0	0	0	2		0 0	0	0	0	0	0	0	0	0	0	394 366
Other Vehicles	1	3	6	0	0	10	ō	11	3	0	1	15	0	0	0	0	0	0	0	0 0	0	0	0	ō	0	ō	0	0	0	25
3/21/2017 9:30	25	0 87	0 113	0	0	225	0	155	0 28	0	57	0 240	0	1	0	0	0	2	-	0 0	0	0	0	0	0	0	0	0	0	3 466
Lights	25	84	108	0	0	217	0	145	26		55	226	0	0	0	0	0	0	0	0 0	0	0	0	0	0	0	0	0	0	443
Other Vehicles Bicycles on Road	0	3	4	0	0	7	0	10 0	2	0	0	14 0	0	0	0	0	0	0		0 0	0	0	0	0	0	0	0	0	0	21 2
3/21/2017 9:45	23	69	100	0	0	192	0	114	26	0	51	191	0	0	0	0	0	0	0	0 0	0	0	0	0	0	0	0	0	0	383
Lights Other Vehicles	20 3	69 0	99 1	0	0	188 4	0	105 9	24 1	0	49	178 12	0	0	0	0	0	0		0 0	0	0	0	0	0	0	0	0	0	366 16
Bicycles on Road	0	0	0	0	0	0	ő	0	1	0	0	1	0	ō	0	0	0	0	0	0 0	0	0	0	ő	0	0	0	0	ő	1
3/21/2017 11:30 Lights	29 28	77 77	111 108	0	0	217 213	0	139 133	34 29	0	45 43	218 205	0	0	0	0	0	0		0 0	0	0	0	0	0	0	0	0	0	435 418
Other Vehicles	0	0	3	0	0	3	0	6	5	0	2	13	0	0	0	0	0	0		0 0	0	0	0	0	0	0	0	0	0	16
Bicycles on Road 3/21/2017 11:45	1 27	75	123	0	0	1 225	0	0 148	0 43	0	0 40	0 231	0	0	0	0	0	0	-	0 0	0	0	0	0	0	0	0	0	0	1 456
Lights	26	75	120	0	0	225	0	148	42	0	38	222	0	0	0	0	0	0	0	0 0	0	0	0	0	0	0	0	0	0	443
Other Vehicles Bicycles on Road	1	0	3	0	0	4	0	6	1	0	2	9	0	0	0	0	0	0		0 0	0	0	0	0	0	0	0	0	0	13 0
3/21/2017 12:00	25	85	132	0	0	242	0	121	30	0	62	213	0	0	0	0	0	0	0	0 0	0	0	0	0	0	0	0	0	0	455
Lights Other Vehicles	25 0	85 0	127 4	0	0	237 4	0	111 10	29 1	0	61	201 12	0	0	0	0	0	0		0 0	0	0	0	0	0	0	0	0	0	438 16
Bicycles on Road	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0		0 0	0	0	0	0	0	0	0	0	0	1
3/21/2017 12:15	24	83	125	0	0	232 227	0	119	32	0	58 58	209	0	0	0	0	0	0		0 0	0	0	0	0	0	0	0	0	0	441 428
Lights Other Vehicles	21 2	83 0	123 1	0	0	227 3	0	112 7	31 1	0	58 0	201 8	0	0	0	0	0	0		0 0	0	0	0	0	0	0	0	0	0	428 11
Bicycles on Road	1	0	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0		0 0	0	0	0	0	0	0	0	0	0	2
3/21/2017 12:30 Lights	29 28	78 78	125 123	0	0	232 229	0	116 111	31 30	0	57 55	204 196	0	0	0	0	0	0		0 0	0	0	0	0	0	0	0	0	0	436 425
Other Vehicles	1	0	2	0	0	3	0	5	1	0	2	8	0	0	0	0	0	0		0 0	0	0	0	0	0	0	0	0	0	11
3/21/2017 12:45	30	0 86	106	0	0	222	0	115	33	0	58	206	0	0	0	0	0	0		0 0	0	0	0	0	0	0	0	0	0	0 428
Lights	29	82	102	0	0	213	0	113	33	0	56	202	0	0	0	0	0	0	0	0 0	0	0	0	0	0	0	0	0	0	415
Other Vehicles Bicycles on Road	0	4 0	4	0	0	8	0	2	0	0	0	4 0	0	0	0	0	0	0		0 0	0	0	0	0	0	0	0	0	0	12 1
3/21/2017 13:00	28	69	112	0	0	209	0	105	30	0	58	193	0	0	0	0	0	0	0	0 0	0	0	0	0	0	0	0	0	0	402
Lights Other Vehicles	28 0	69 0	109 2	0	0	206 2	0	103	30 0	0	57 1	190 2	0	0	0	0	0	0		0 0	0	0	0	0	0	0	0	0	0	396 4
Bicycles on Road	0	0	1	0	0	1	0	1	0	0	0	1	0	0	0	0	0	0		0 0	0	0	0	0	0	0	0	0	0	2
3/21/2017 13:15	31 29	72 70	109 103	0	0	212 202	0	124 117	30 29	0	63 62	217 208	0	0	0	0	0	0	_	0 0	0	0	0	0	0	0	0	0	0	429 410
Lights Other Vehicles	29	70 2	103 4	0	0	8	0	7	29 1	0	1	9	0	0	0	0	0	0		0 0	0	0	0	0	0	0	0	0	0	410 17
Bicycles on Road	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0		0 0	0	0	0	0	0	0	0	0	0	2
3/21/2017 15:00 Lights	17 17	133 132	218 213	0	0	368 362	0	113 104	42 41	1	86 85	242 231	0	1 0	0	0	0	1 0		0 0	0	0	0	0	0	0	0	0	0	611 593
Other Vehicles	0	1	3	0	0	4	0	9	1	0	1	11	0	0	0	0	0	0		0 0	0	0	0	0	0	0	0	0	ō	15

Bicycles on Road	0	0	2	0	0	2	I 0	0	0	0	0	0	l o	1	0	0	0	1	Ιo	0	0	0	0	0	0	0	0	0	0	0	3
3/21/2017 15:15	27	138	233	0	0	398	0	125	36	0	75	236	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	635
Lights	27	137	229	0	0	393	o	114	34	0	75	223	o	0	0	0	0	0	o	0	0	0	Ó	0	o	0	0	0	0	0	616
Other Vehicles	0	1	4	0	0	5	0	11	2	0	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	ō	0	0	0	0	0	ō	1
3/21/2017 15:30	26	134	236	0	0	396	0	129	39	0	68	236	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	632
Lights	26	134	234	0	0	394	0	121	39	0	67	227	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ō	621
Other Vehicles	0	0	1	0	0	1	0	8	0	0	1	9	0	ō	0	0	ō	ō	ō	0	0	0	0	ō	0	0	0	0	0	ō	10
Bicycles on Road	0	0	1	0	n	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	n	0	0	0	0	o o	0	0	0	1
3/21/2017 15:45	37	123	238	0	0	398	0	135	47	0	56	238	0	2	0	0	0	2	0	0	0	n	0	0	0	0	0	0	0	0	638
Lights	37	123	231	0	n	391	١٠	123	44	0	55	222	l ő	0	n	0	0	0	0	0	n	n	0	0	١٠	0	0	0	0	0	613
Other Vehicles	0	0	6	0	n	6	١٠	12	3	0	1	16	l ő	0	0	0	0	0	0	0	0	n	0	0	١٠	0	0	0	0	ō	22
Bicycles on Road	0	0	1	0	0	1	١٠	0	0	0	0	0	١٠	2	0	0	0	,	0	0	0	0	0	o	١٠	0	0	0	0	0	3
3/21/2017 16:00	26	127	247	0	0	400	0	164	50	0	60	274	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	674
	24	126	247	0	0	396	0	158	48	0	60	266	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	662
Lights	24	1 1	1	0	0	4	"	150	40	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12
Other Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles on Road	30	109	258		0	397	0	207	47	0	44	298	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	695
3/21/2017 16:15	30 27	109		0	U		0			0			0		-	0	-		_	0	0	0	-	-	0	0	0	0	-	-	
Lights			247	0	U	382	0	201	45	-	44	290	0	0	0	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	672
Other Vehicles	3	0	8	0	0	11	0	6	2	0	0	8	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	19
Bicycles on Road	0	1	3	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	4
3/21/2017 16:30	35	113	230	0	0	378	0	176	52	0	56	284	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	665
Lights	35	113	224	0	0	372	0	171	50	0	56	277	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	649
Other Vehicles	0	0	2	0	0	2	0	5	2	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
Bicycles on Road	0	0	4	0	0	4	0	0	0	0	0	0	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	7
3/21/2017 16:45	47	97	229	0	0	373	0	148	33	0	47	228	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	601
Lights	46	97	222	0	0	365	0	143	32	0	47	222	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	587
Other Vehicles	1	0	3	0	0	4	0	4	1	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
Bicycles on Road	0	0	4	0	0	4	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
3/21/2017 17:00	44	102	253	0	0	399	0	185	47	0	58	290	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	689
Lights	44	102	250	0	0	396	0	182	46	0	57	285	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	681
Other Vehicles	0	0	0	0	0	0	0	3	1	0	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
Bicycles on Road	0	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
3/21/2017 17:15	43	91	251	0	0	385	0	229	45	0	43	317	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	702
Lights	43	91	243	0	0	377	0	223	45	0	41	309	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	686
Other Vehicles	0	0	6	0	0	6	0	6	0	0	2	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14
Bicycles on Road	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
3/21/2017 17:30	37	112	180	0	0	329	0	187	47	0	33	267	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	597
Lights	37	112	174	0	0	323	0	180	46	0	32	258	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	581
Other Vehicles	0	0	4	0	0	4	0	7	1	0	1	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13
Bicycles on Road	0	0	2	0	0	2	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3
3/21/2017 17:45	34	102	153	0	0	289	0	190	51	0	31	272	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	561
Lights	33	101	148	0	0	282	0	186	50	0	31	267	0	Ó	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	549
Other Vehicles	1	1	1	0	0	3	0	4	1	0	0	5	0	Ó	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
Bicycles on Road	0	0	4	0	0	4	0	0	0	0	0	0	0	ō	ō	0	0	0	ō	0	0	0	ō	ō	0	0	0	0	0	ō	4
Grand Total	871	2928	4811	0	0	8610	0	5227	1098	1	1705	8031	0	38	0	0	0	38	0	0	0	0	0	0	0	0	0	0	0	0	16679



Work Order

35173

Turning Movement Count - Full Study Summary Report

ARGYLE AVE W @ METCALFE ST

Survey Date: Tuesday, February 10, 2015

Total Observed U-Turns

AADT Factor

Northbound: 0 Eastbound: 0

Southbound: 0 Westbound: 0

1.00

Full Study

								•	un Ott	,									
			M	ETCALI	FE ST							AR	GYLE	AVE V	٧				
	N	orthb	ound		S	outhbo	ound				Eastbo	ound		٧	Vestbo	ound			
Period	LT	ST	RT	NB TOT	LT	ST	RT	SB TOT	STR TOT	LT	ST	RT	EB TOT	LT	ST	RT	WB TOT	STR TOT	Gran Tota
07:00 08:00	0	0	1022	1022	0	0	0	0	1022	0	82	0	82	0	0	0	0	82	1104
08:00 09:00	0	0	1408	1408	0	0	0	0	1408	0	133	0	133	0	0	0	0	133	154 ⁻
09:00 10:00	0	0	933	933	0	0	0	0	933	0	112	0	112	0	0	0	0	112	1045
11:30 12:30	0	0	582	582	0	0	0	0	582	0	91	0	91	0	0	0	0	91	673
12:30 13:30	0	0	603	603	0	0	0	0	603	0	82	0	82	0	0	0	0	82	685
15:00 16:00	0	0	555	555	0	0	0	0	555	0	160	0	160	0	0	0	0	160	715
16:00 17:00	0	0	581	581	0	0	0	0	581	0	197	0	197	0	0	0	0	197	778
17:00 18:00	0	0	732	732	0	0	0	0	732	0	218	0	218	0	0	0	0	218	950
Sub Total	0	0	6416	6416	0	0	0	0	6416	0	1075	0	1075	0	0	0	0	1075	7491
U Turns				0				0	0				0				0	0	0
Total	0	0	6416	6416	0	0	0	0	6416	0	1075	0	1075	0	0	0	0	1075	7491
EQ 12Hr	0	0	8918	8918	0	0	0	0	8918	0	1494	0	1494	0	0	0	0	1494	10412
Note: These v	alues are	e calcu	ılated b	y multiply	ing the	totals by	the ap	propriat	e expansi	on fact	or.		1	.39					
AVG 12Hr	0	0	8918	8918	0	0	0	0	8918	0	1494	0	1494	0	0	0	0	1494	10412
Note: These v	olumes a	are cal	culated	by multip	lying the	e Equiva	alent 12	2 hr. tota	ls by the	AADT	factor.		1	.00					
AVG 24Hr	0	0	11683	11683	0	0	0	0	11683	0	1957	0	1957	0	0	0	0	1957	13640
Note: These v	olumes a	are cal	culated	by multip	lying the	e Avera	ge Dail	y 12 hr.	totals by	12 to 2	4 expans	sion fac	tor. 1	.31					

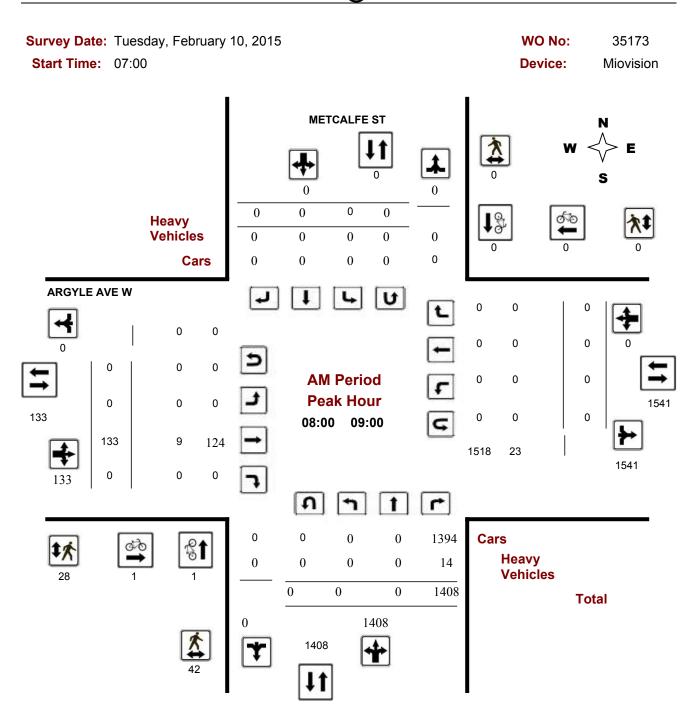
Comments:

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



Turning Movement Count - Peak Hour Diagram

ARGYLE AVE W @ METCALFE ST

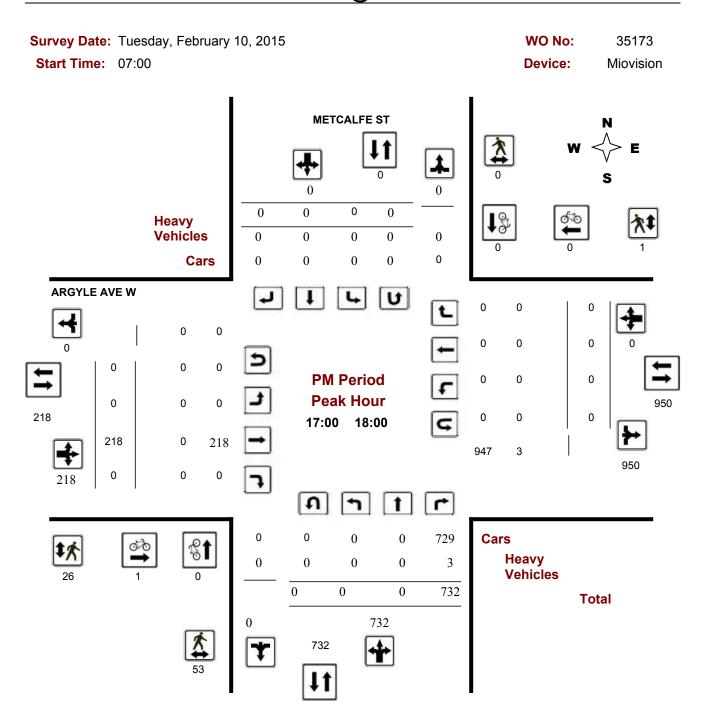


Comments



Turning Movement Count - Peak Hour Diagram

ARGYLE AVE W @ METCALFE ST



Comments



Work Order

36831

Turning Movement Count - Full Study Summary Report

ARGYLE AVE W @ METCALFE ST

Survey Date: Tuesday, April 04, 2017

Total Observed U-Turns

AADT Factor

Northbound: 0 Eastbound: 0

Southbound:

0

0

.90

_ - -- -

Westbound:

Full Study

			М	ETCALI	E ST					,		AR	GYLE	AVE V	V				
_	N	orthb	ound		S	outhbo	ound		_		Eastbo	ound		١	Vestbo	ound			
Period	LT	ST	RT	NB TOT	LT	ST	RT	SB TOT	STR TOT	LT	ST	RT	EB TOT	LT	ST	RT	WB TOT	STR TOT	Grand Total
07:00 08:00	0	0	1368	1368	0	0	0	0	1368	0	69	0	69	0	0	0	0	69	1437
08:00 09:00	0	0	1697	1697	0	0	0	0	1697	0	120	0	120	0	0	0	0	120	1817
09:00 10:00	0	0	1282	1282	0	0	0	0	1282	0	115	0	115	0	0	0	0	115	1397
11:30 12:30	0	0	680	680	0	0	0	0	680	0	95	0	95	0	0	0	0	95	775
12:30 13:30	0	0	704	704	0	0	0	0	704	0	117	0	117	0	0	0	0	117	821
15:00 16:00	0	0	633	633	0	0	0	0	633	0	121	0	121	0	0	0	0	121	754
16:00 17:00	0	0	615	615	0	0	0	0	615	0	154	0	154	0	0	0	0	154	769
17:00 18:00	0	0	770	770	0	0	0	0	770	0	165	0	165	0	0	0	0	165	935
Sub Total	0	0	7749	7749	0	0	0	0	7749	0	956	0	956	0	0	0	0	956	8705
U Turns				0				0	0				0				0	0	0
Total	0	0	7749	7749	0	0	0	0	7749	0	956	0	956	0	0	0	0	956	8705
EQ 12Hr	0	0	10771	10771	0	0	0	0	10771	0	1329	0	1329	0	0	0	0	1329	12100
Note: These v	alues are	e calcu	ılated b	y multiply	ing the	totals by	the ap	propriat	e expansi	ion fact	or.		1	.39					
AVG 12Hr	0	0	9694	9694	0	0	0	0	9694	0	1196	0	1196	0	0	0	0	1196	10890
Note: These v	olumes a	are cal	culated	by multip	lying the	e Equiva	alent 12	2 hr. tota	ls by the	AADT 1	factor.			90					
AVG 24Hr	0	0	12699	12699	0	0	0	0	12699	0	1567	0	1567	0	0	0	0	1567	14266
Note: These v	olumes a	are cal	culated	by multip	lying the	e Avera	ge Dail	y 12 hr.	totals by	12 to 2	4 expans	sion fac	tor. 1	.31					

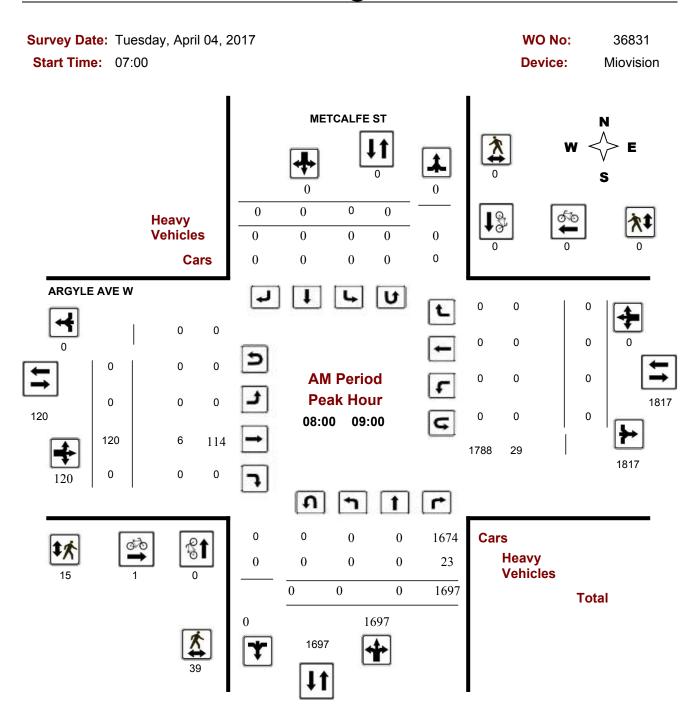
Comments:

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



Turning Movement Count - Peak Hour Diagram

ARGYLE AVE W @ METCALFE ST

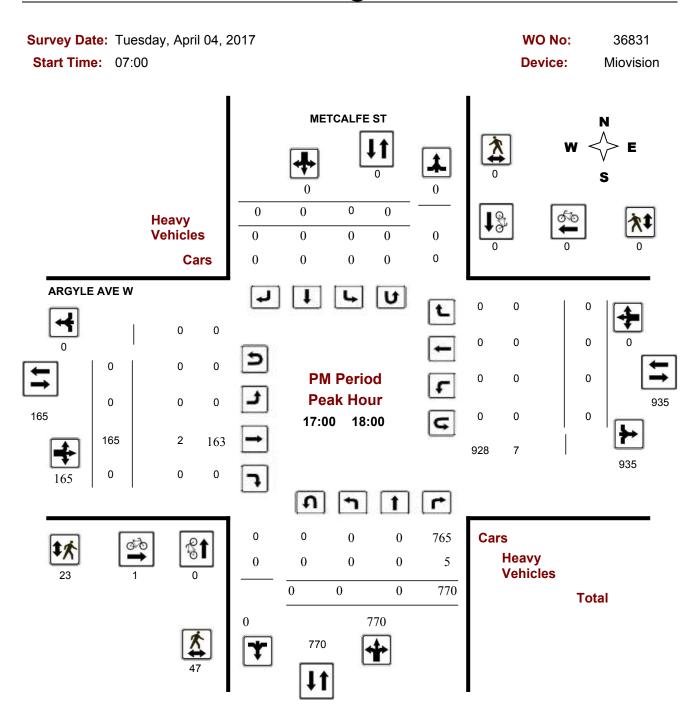


Comments



Turning Movement Count - Peak Hour Diagram

ARGYLE AVE W @ METCALFE ST



Comments



Work Order 37768

Turning Movement Count - Full Study Summary Report

ARGYLE AVE W @ METCALFE ST

Survey Date: Thursday, April 19, 2018

Total Observed U-Turns

AADT Factor

Northbound: 0 Eastbound: 0 Southbound:

0 Westbound: 0 .90

Full Study

ST 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ound RT 51 31 34 33 19 148 915	NB TOT 51 31 34 33 19	S LT 0 0 0	ST 0 0 0	RT 0 0	SB TOT 0	STR TOT 51	LT 0	Eastbo ST	RT	EB TOT	LT	Vestbo ST	RT	WB TOT	STR TOT	
0 0 0 0 0	51 31 34 33 19	51 31 34 33	0 0	0	0	TOT 0	TOT 51				TOT		ST				Grand Tota
0 0 0 0 0	31 34 33 19 148	31 34 33	0	0	0			0	9	^	_						
0 0 0 0	34 33 19 148	34 33	0			0	0.4		9	0	9	0	0	0	0	9	60
0 0 0	33 19 148	33		0	Λ		31	0	0	0	0	0	0	0	0	0	31
0 0 0	19 148		0		U	0	34	0	7	0	7	0	0	0	0	7	41
0	148	19		0	0	0	33	0	2	0	2	0	0	0	0	2	35
0			0	0	0	0	19	0	3	0	3	0	0	0	0	3	22
	915	148	0	0	0	0	148	0	2	0	2	0	0	0	0	2	150
0	5.10	915	0	0	0	0	915	0	15	1	16	0	0	0	0	16	931
	1320	1320	0	0	0	0	1320	0	66	0	66	0	0	0	0	66	1386
0	1629	1629	0	0	0	0	1629	0	113	0	113	0	0	0	0	113	1742
0	1049	1049	0	0	0	0	1049	0	119	0	119	0	0	0	0	119	1168
0	737	737	0	0	0	0	737	0	115	0	115	0	0	0	0	115	852
0	746	746	0	0	0	0	746	0	99	0	99	0	0	0	0	99	845
0	728	728	0	0	0	0	728	0	103	0	103	0	0	0	0	103	831
0	690	690	0	0	0	0	690	0	104	0	104	0	0	0	0	104	794
0	642	642	0	0	0	0	642	0	109	0	109	0	0	0	0	109	751
0	744	744	0	0	0	0	744	0	138	0	138	0	0	0	0	138	882
0	825	825	0	0	0	0	825	0	173	0	173	0	0	0	0	173	998
0	910	910	0	0	0	0	910	0	176	0	176	0	0	0	0	176	1086
0	768	768	0	0	0	0	768	0	182	0	182	0	0	0	0	182	950
0	623	623	0	0	0	0	623	0	115	0	115	0	0	0	0	115	738
0	375	375	0	0	0	0	375	0	69	0	69	0	0	0	0	69	444
0	344	344	0	0	0	0	344	0	55	0	55	0	0	0	0	55	399
0	255	255	0	0	0	0	255	0	39	0	39	0	0	0	0	39	294
0	13616	13616	0	0	0	0	13616	0	1813	1	1814	0	0	0	0	1814	15430
		0				0	0				0				0	0	0
0	13616	13699	0	0	0	0	13699	0	1813	1	1834	0	0	0	0	1834	15533
		19042	0	0	0	0	19042	0	2548	1	2549	0	0	0	0	2549	21591
			ing the f	iotais by	tne ap	propriat	e expansi	on fact	Or.		1.	ა ყ					
are o	0 0 0 0 0 0 0 0 0	0 746 0 728 0 690 0 642 0 744 0 825 0 910 0 768 0 623 0 375 0 344 0 255 0 13616 0 19042 are calculated by	0 746 746 0 728 728 0 690 690 0 642 642 0 744 744 0 825 825 0 910 910 0 768 768 0 623 623 0 375 375 0 344 344 0 255 255 0 13616 13616 0 0 13616 13699 0 19042 19042 are calculated by multiply	0 746 746 0 0 728 728 0 0 690 690 0 0 642 642 0 0 744 744 0 0 825 825 0 0 910 910 0 0 768 768 0 0 623 623 0 0 375 375 0 0 344 344 0 0 255 255 0 0 13616 13616 0 0 0 19042 19042 0 are calculated by multiplying the	0 746 746 0 0 0 728 728 0 0 0 690 690 0 0 0 642 642 0 0 0 744 744 0 0 0 910 910 0 0 0 768 768 0 0 0 375 375 0 0 0 344 344 0 0 0 13616 13616 0 0 0 13616 13699 0 0 0 19042 19042 0 0	0 746 746 0 0 0 0 728 728 0 0 0 0 690 690 0 0 0 0 642 642 0 0 0 0 744 744 0 0 0 0 910 910 0 0 0 0 768 768 0 0 0 0 375 375 0 0 0 0 344 344 0 0 0 0 13616 13616 0 0 0 0 13616 13699 0 0 0 0 19042 19042 0 0 0	0 746 746 0 0 0 0 0 728 728 0 0 0 0 0 690 0 0 0 0 0 0 642 642 0 0 0 0 0 744 744 0 0 0 0 0 825 825 0 0 0 0 0 910 910 0 0 0 0 0 768 768 0 0 0 0 0 375 375 0 0 0 0 0 344 344 0 0 0 0 0 13616 13616 0 0 0 0 0 13616 13699 0 0 0 0 0 19042 19042 0 0 0 0	0 746 746 0 0 0 0 746 0 728 728 0 0 0 0 728 0 690 690 0 0 0 0 690 0 642 642 0 0 0 0 642 0 744 744 0 0 0 0 744 0 825 825 0 0 0 0 825 0 910 910 0 0 0 0 910 0 768 768 0 0 0 0 768 0 623 623 0 0 0 0 375 0 344 344 0 0 0 0 344 0 255 255 0 0 0 0 13616 0 13616 13616 0 0 0 0 13699 0 19042 19042 0 <td< td=""><td>0 746 746 0 0 0 746 0 0 728 728 0 0 0 0 728 0 0 690 690 0 0 0 0 690 0 0 642 642 0 0 0 0 642 0 0 744 744 0 0 0 0 744 0 0 825 825 0 0 0 0 325 0 0 910 910 0 0 0 0 910 0 0 768 768 0 0 0 0 768 0 0 375 375 0 0 0 0 375 0 0 344 344 0 0 0 0 344 0 0 13616 13616 0 0 0 0 13616 0 0 13616 13699 0</td><td>0 746 746 0 0 0 746 0 99 0 728 728 0 0 0 0 728 0 103 0 690 690 0 0 0 0 690 0 104 0 642 642 0 0 0 0 642 0 109 0 744 744 0 0 0 0 744 0 138 0 825 825 0 0 0 0 825 0 173 0 910 910 0 0 0 0 910 0 176 0 768 768 0 0 0 0 768 0 182 0 623 623 0 0 0 0 375 0 69 0 344 344 0 0 0 344 0 55 0 255 255 0 0</td><td>0 746 746 0 0 0 746 0 99 0 0 728 728 0 0 0 0 728 0 103 0 0 690 690 0 0 0 0 690 0 104 0 0 642 642 0 0 0 0 642 0 109 0 0 744 744 0 0 0 0 744 0 138 0 0 825 825 0 0 0 0 825 0 173 0 0 910 910 0 0 0 910 0 176 0 0 768 768 0 0 0 768 0 182 0 0 375 375 0 0 0 375 0 69 0 0 344 344 0 0 0 344 0 55 <td< td=""><td>0 746 746 0 0 0 0 746 0 99 0 99 0 728 728 0 0 0 0 728 0 103 0 103 0 690 690 0 0 0 0 690 0 104 0 104 0 642 642 0 0 0 642 0 109 0 109 0 744 744 0 0 0 744 0 138 0 138 0 825 825 0 0 0 825 0 173 0 173 0 910 910 0 0 0 0 910 0 176 0 176 0 768 768 0 0 0 768 0 182 0 182 0 375 375 0 0 0 375 0 69 0 69 0</td><td>0 746 746 0 0 0 746 0 99 0 99 0 0 728 728 0 0 0 0 728 0 103 0 103 0 0 690 690 0 0 0 690 0 104 0 104 0 0 642 642 0 0 0 642 0 109 0 109 0 0 744 744 0 0 0 744 0 138 0 138 0 0 825 825 0 0 0 744 0 173 0 173 0 173 0 176 0 176 0 176 0 176 0 176 0 182 0 182 0 182 0 182 0 182 0 182 0 185</td><td>0 746 746 0 0 0 746 0 99 0 99 0 0 0 0 0 0 728 0 103 0 103 0 103 0</td><td>0 746 746 0 0 0 746 0 99 0 99 0</td><td>0 746 746 0 0 0 746 0 99 0 99 0 0 0 0 0 0 0 0 0 99 0 99 0 <td< td=""><td>0 746 746 0 0 0 746 0 99 0 99 0 0 0 0 99 0 0 0 0 0 99 0 99 0 0 0 0 0 0 0 0 103 0 103 0 0 0 0 0 103 0 103 0 0 0 0 103 0 0 0 0 103 0 0 0 0 104 0 104 0 0 0 0 104 0 0 0 104 0 0 0 109 0 0 0 109 0 0 0 109 0 0 0 109 0 0 0 0 109 0 109 0 0 0 0 176 0 176 0 176 0 0 0 <t< td=""></t<></td></td<></td></td<></td></td<>	0 746 746 0 0 0 746 0 0 728 728 0 0 0 0 728 0 0 690 690 0 0 0 0 690 0 0 642 642 0 0 0 0 642 0 0 744 744 0 0 0 0 744 0 0 825 825 0 0 0 0 325 0 0 910 910 0 0 0 0 910 0 0 768 768 0 0 0 0 768 0 0 375 375 0 0 0 0 375 0 0 344 344 0 0 0 0 344 0 0 13616 13616 0 0 0 0 13616 0 0 13616 13699 0	0 746 746 0 0 0 746 0 99 0 728 728 0 0 0 0 728 0 103 0 690 690 0 0 0 0 690 0 104 0 642 642 0 0 0 0 642 0 109 0 744 744 0 0 0 0 744 0 138 0 825 825 0 0 0 0 825 0 173 0 910 910 0 0 0 0 910 0 176 0 768 768 0 0 0 0 768 0 182 0 623 623 0 0 0 0 375 0 69 0 344 344 0 0 0 344 0 55 0 255 255 0 0	0 746 746 0 0 0 746 0 99 0 0 728 728 0 0 0 0 728 0 103 0 0 690 690 0 0 0 0 690 0 104 0 0 642 642 0 0 0 0 642 0 109 0 0 744 744 0 0 0 0 744 0 138 0 0 825 825 0 0 0 0 825 0 173 0 0 910 910 0 0 0 910 0 176 0 0 768 768 0 0 0 768 0 182 0 0 375 375 0 0 0 375 0 69 0 0 344 344 0 0 0 344 0 55 <td< td=""><td>0 746 746 0 0 0 0 746 0 99 0 99 0 728 728 0 0 0 0 728 0 103 0 103 0 690 690 0 0 0 0 690 0 104 0 104 0 642 642 0 0 0 642 0 109 0 109 0 744 744 0 0 0 744 0 138 0 138 0 825 825 0 0 0 825 0 173 0 173 0 910 910 0 0 0 0 910 0 176 0 176 0 768 768 0 0 0 768 0 182 0 182 0 375 375 0 0 0 375 0 69 0 69 0</td><td>0 746 746 0 0 0 746 0 99 0 99 0 0 728 728 0 0 0 0 728 0 103 0 103 0 0 690 690 0 0 0 690 0 104 0 104 0 0 642 642 0 0 0 642 0 109 0 109 0 0 744 744 0 0 0 744 0 138 0 138 0 0 825 825 0 0 0 744 0 173 0 173 0 173 0 176 0 176 0 176 0 176 0 176 0 182 0 182 0 182 0 182 0 182 0 182 0 185</td><td>0 746 746 0 0 0 746 0 99 0 99 0 0 0 0 0 0 728 0 103 0 103 0 103 0</td><td>0 746 746 0 0 0 746 0 99 0 99 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Work Order 37768

Turning Movement Count - Full Study Summary Report

					AR	GYL	E A	VE	W @	ME	TCAL	_FE	ST						
AVG 24Hr	0		0 22450	22450	0	0	0	0	22450	0	3004	2	3006	0	0	0	0	3006	25456
Note: These v	olumes a	are	calculated	by multip	lying the	e Averaç	je Daily	12 hr.	totals by 1	2 to 2	4 expans	ion fac	tor. 1.	.31					

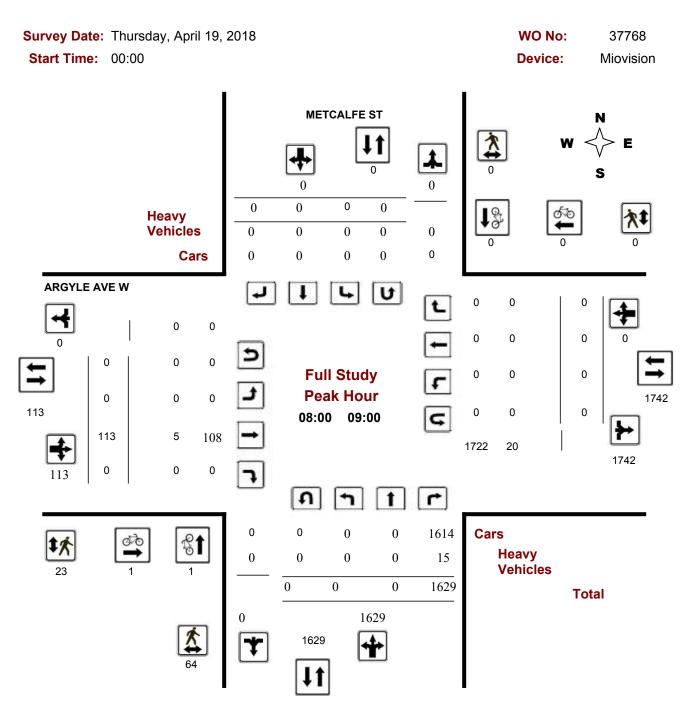
Comments:

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



Turning Movement Count - Peak Hour Diagram

ARGYLE AVE W @ METCALFE ST



Comments

Study Name 5215431- Catherine and Metcalfe - (Sat)-Oct 24th
Start Date Saturday, October 24, 2015 9:00 AM

End Date Saturday, October 24, 2015 9:00 PM

Site Code

Report Summary

		South	bound		West	bound		1	Northwe	estboun	d		North	bound		East	bound			Cros	swalk
Time Period	Class.	- 1	0	R	Т	ı	0	BR	BL	I	0	Т	L	1	0	- 1	0	Total		Ped	Total
Peak 1	Lights	0	528	39	196	235	0	427	1236	1663	0	62	44	106	0	0	1476	2004	N	4	4
Specified Period	%	0%	99%	100%	98%	98%	0%	99%	96%	97%	0%	97%	96%	96%	0%	0%	97%	97%		100%	
9:00 AM - 12:00 PM	Other Vehicles	0	8	0	3	3	0	6	46	52	0	2	2	4	0	0	51	59	Ε	0	0
One Hour Peak	%	0%	1%	0%	2%	1%	0%	1%	4%	3%	0%	3%	4%	4%	0%	0%	3%	3%		0%	
9:45 AM - 10:45 AM	Bicycles on Road	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	1	SE	1	1
	%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		100%	
	Total	0	536	39	200	239	0	433	1282	1715	0	64	46	110	0	0	1528	2064	S	0	0
	PHF	0	0.91	0.51	0.93	0.87	0	0.93	0.98	0.99	0	0.64	0.77	0.74	0	0	0.98	0.98		0%	
	Approach %	0%	26%			12%	0%			83%	0%			5%	0%	0%	74%		W	21	21
																				100%	
																				26	26
Peak 2	Lights	0	549	94	255	349	0	332	1179	1511	0	123	38	161	0	0	1472	2021	N	5	5
Specified Period	%	0%	99%	100%	100%	100%	0%	100%	98%	99%	0%	95%	95%	95%	0%	0%	98%	99%		100%	
12:00 PM - 9:00 PM	Other Vehicles	0	1	0	1	1	0	0	20	20	0	1	2	3	0	0	23	24	Ε	1	1
One Hour Peak	%	0%	0%	0%	0%	0%	0%	0%	2%	1%	0%	1%	5%	2%	0%	0%	2%	1%		100%	
4:45 PM - 5:45 PM	Bicycles on Road	0	6	0	0	0	0	0	0	0	0	6	0	6	0	0	0	6	SE	0	0
	%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	5%	0%	4%	0%	0%	0%	0%		0%	
	Total	0	556	94	256	350	0	332	1199	1531	0	130	40	170	0	0	1495	2051	S	1	1
	PHF	0	0.93	0.81	0.88	0.86	0	0.95	0.98	0.97	0	0.79	0.83	0.89	0	0	0.97	0.98		100%	
	Approach %	0%	27%			17%	0%			75%	0%			8%	0%	0%	73%		W	42	42
																				100%	
																				49	49

Study Name 5299279 - Catherine and Metcalfe - Apr - 4th

Start Date Tuesday, April 04, 2017 7:00 AM End Date Tuesday, April 04, 2017 6:00 PM Site Code 36830103

Report Summary

	Southbound										W	estbou	nd					Norti	hwesti	hound					No	rthbou	ınd					F:	astbou	nd					Cross	walk
Time Period	Class.	R			L	U		0	R			HL			0	HR	BR	BL				0	HR	R			U		0	R	BR	T	1			0	Total		Ped	
Peak 1	Lights	0	0	0	0	0	0	1677	_	342	0	0	0	382	0	_	729		0	0	1460		0	0	908	82	0	990	0	0	0	0	0	0	0		2832	N	18	
Specified Period	%	0%	0%	0%	0%	0%	0%			95%	0%	0%	0%	95%	0%		99%			0%	98%	0%	0%	0%			0%	100%	0%	0%	0%	0%	0%	0%	0%	97%	98%		100%	
7:00 AM - 10:00 AM	Other Vehicles	0	0	0	0	0	0	14	2	15	0	0	0	17	0	0	8	24	0	0	32	0	0	0	4	0	0	4	0	0	0	0	0	0	0	39	53	Ε	0	0
One Hour Peak	%	0%	0%	0%	0%	0%	0%	1%	5%	4%	0%	0%	0%	4%	0%	0%	1%	3%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	2%		0%	
8:00 AM - 9:00 AM	Bicycles on Road	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	SE	0	0
	%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		0%	
	Total	0	0	0	0	0	0	1691	42	359	0	0	0	401	0	0	737	755	0	0	1492	0	0	0	912	82	0	994	0	0	0	0	0	0	0	1196	2887	S	0	0
	PHF	0	0	0	0	0	0	0.93	0.52	0.95	0	0	0	0.88	0	0	0.92	0.94	0	0	0.97	0	0	0	0.93	0.89	0	0.93	0	0	0	0	0	0	0	0.98	0.95		0%	
	Approach %						0%	59%						14%	0%						52%	0%						34%	0%						0%	41%		W	7	7
																																							100%	
																																							25	25
Peak 2	I labor		0	0		0	١.	CEC	20	204	0	0		222	0		274	472	0	0	747	0		0	254	70		422	0		0		0	0		046	4500		42	4.2
Specified Period	Lights %	100%	0	0	0	0	1	656	28	294 96%	0	0	0	322 95%	0		274		0	0	747 97%	0	0	0	354 98%	78 100%	0	432 98%	0	0	0	0	0	0	0	846 97%	1502 97%	N		12
11:30 AM - 1:30 PM	Other Vehicles		0%	0%	0%	0%	0	97% 18	4	11	0% 0	0%	0%	15	0% 0	0%	98% 6	18	0% 0	0%	24	0% 0	0% 0	0%	8	100%	0%	8	0%	0% 0	0%	0%	0%	0%	0%	29	47	Е	100%	0
One Hour Peak	%	0%	0%	0%	0%	0%	0%	3%	13%	4%	0%	0%	0%	4%	0%	0%	2%	4%	0%	0%	3%	0%	0%	0%	2%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	3%	3%	L	0%	U
12:15 PM - 1:15 PM	Bicycles on Road	0.0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	SE	0	0
	%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		0%	
	Total	1	0	0	0	0	1	674	32	306	0	0	0	338	0	0	280		0	0	771	0	0	0	362	78	0	440	0	0	0	0	0	0	0			S	0	0
	PHF	0.25	0	0	0	0		0.87		0.88	0	0	0	0.92	0	0		0.91	0	0	0.84	0	0	0	0.9	0.81	0	0.93	0	0	0	0	0	0	0	0.89			0%	
	Approach %						0%	43%						22%	0%						50%	0%						28%	0%						0%	57%		W	17	17
																																							100%	
																																							29	29
Peak 3	Lights	0	0	0	0	0	0	771	1		0	0	0	410	0		382		0	0	1193		0	0	328	48	0	376	0	0	0	0	0	0	0		1979	N		11
Specified Period	%	0%	0%	0%	0%	0%	0%	99%	100%		0%	0%	0%	97%	0%	0%	99%	99%	0%	0%	99%	0%	0%	0%	100%	100%	0%	100%	0%	0%	0%	0%	0%	0%	0%	98%	99%	Е	100%	0
3:00 PM - 6:00 PM One Hour Peak	Other Vehicles	0%	0	0	0	0			0	11 3%	0	0	0	11	0		3	8	0	0	11	0	0	0	0%	0%	0	1 0%	0	0	-	0	0	0	0	19	23	E	0%	0
5:00 PM - 6:00 PM	% Bicycles on Road	0%	0%	0%	0%	0%	0%	1% 0	0%	0	0%	0%	0%	3%	0%	0%	1% 0	1% 0	0%	0%	0	0% 0	0% 0	0%	0%	0%	0%	0%	0%	0% 0	0%	0%	0%	0%	0%	2% O	1%	SE	0%	0
3.00 FIVI - 0.00 FIVI	%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	JL.	0%	U
	Total	0,0	0,0	0.0	0.0	0	0	775	61	360	0,0	0	0	421	0	0	385	819	0	0	1204	0	0	0	329	48	0	377	0	0	0.00	0.0	0	0	0	1227		S	0	0
	PHF	0	0	0	0	0	0	0.95	0.85		0	0	0	0.92	0	0		0.95	_	0	0.89	0	0	0		0.75	0	0.81	0	0	0	0	0	0	0	0.95		,	0%	ŭ
	Approach %			-	-			39%			_	-		21%	-	-	20		-	-	60%		_	-				19%	-	_			_	-	0%	61%		w		27
																																							100%	
																																							38	38

Study Name 5299279 - Catherine and Metcalfe - Apr - 4th Start Date Tuesday, April 04, 2017 7:00 AM End Date Tuesday, April 04, 2017 6:00 PM Site Code 36330103

Road Volume

Septiminal Control of the control of	Koau voiu																													
Service 1	TMV	Movement	t																											
STATE OF THE PARTY		Southbo	und				Total	Wasthaun	nd.				otal	Northworthound				Total	Northhound				Total	Earthound					Total	Grand Total
Septiminal	Interval		unu T	BL			IUIdi		T T		U H		Uldi			HR	BR	IOIdi	R 1			HR	IUIAI					BR	IUIdi	Total
Servicing S		-	0	0	0			8		0	-				-		143		0 11		-	-		0	0	0	-	0		502
September 1															0															
Section 1					0					-					0									0	0					
Service 1		0	-	0	0	-	0	9		0					0						-	-		0	0	-	-	0		622
Secondary Column		0	-	0	0			8		0				165 0	0						0			0	0	0				
STATE OF STA		0		0	0					0				0 0	0						0			0	0	0				
Service 1	4/4/2017 7:30	0	-		-					-					0									0	-					617
Sevente 1		0																						0						
September 1				0	0										0						0			0	0					
Series Se				0	0					0					0						0		189	0	0	0				659
Submitted C																								0						
Advantage 1					0				-	0				0 0	0									0	0	0				
Serverseles					0					0				200 0	0									0	0	0				701
Seven-Mented 9 6 6 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9		0	-	0	0					0				192 0	0						0			0	0					685
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September 1					0									0 0										-						759
Separation Sep	Lights	0					0	19			0 0) 1	109	180 0		0	190	370	0 24	13 23		0	266	0				0	0	745
				0	0				3	0			4		0						0			0	0	0				
Special Specia				0	0				89	0			99		0						0			0	0	0				700
Secretary 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Lights	0	0	0	_	0	0	9	83	0	0 0)	92	181 0	0	0	161	342	0 23	30 21	0	0	251	0	0	0	0	0	0	685
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Section Sect					0				90				96		0									0	0					727
Section Member Column Co	Lights	0	0	0	0	-	0	6		0	0 0)			0				0 22		-	-		0	0	-	-		ō	717
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Lights O		-	-	-	0								-		0		-	-	-		-	-	-	0	0		-			
Observations O		0	-	0	0	-				-					0						-	-		0	0	-	-			
MAPATATAT 1239 MAPATATAT 1239 MAPATATATATATATATATATATATATATATATATATATA		0	-	0	0					0			6	6 0	0						0			0	0	0				
Lights No 0 0 0 0 0 0 11 58 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0					0									0 0										-	0					
Observerholds		0			_																			0	-					
### AFFATT 13:00 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		0																						0						
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Lights 0 0 0 0 0 0 0 0 0 0 8 677 0 0 0 0 75 102 0 0 0 79 121 0 0 4 21 0 0 0 115 0 0 0 0 0 0 0 0 0 12 10 0 0 10 0 0 0 0					ō				1	0			1	0 0	0		0							0	0					
Ober-Verbeicks		0		0	0								75 T		0									0	0					383
Becycles on Road O O O O O O O O O		0		0	0					0				102 0 8 n	0						0			0	0					
Lights 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Bicycles on Road		0	0	0	0	0	0	0	0	0 0)	0			0	0	0	0 0	0	0	0	0	0			0	0	0	0
Other-Yewhorkies 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0													85											0	-					356
Beycles on Road 0 0 0 0 0 0 0 0 0																								0						
A A D D D D D D D D D D D D D D D D D	Bicycles on Road				0		0		0	-	0 0)	0	0 0	0		0	0	0 0	0		0	0	0	0		0	0	0	0
Other-Vehicles 0 0 0 0 0 0 0 0 0 0 1 3 0 0 0 0 0 0 1 1 3 0 0 0 0				0	0			4		0					0									0	0	0				376
Bicycles on Road 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Lights Other Vehicles								81						0									0						
Lights 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0					0				0						0									0	0					
Other-Vehicles 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		0	0	0	0					0					0									0	0					370
Bicycles on fload 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		0	0	0	0					0				102 0	0						0			0	0					356
4/4/201712:45 0 0 0 0 0 0 0 0 0		0		0	0					0				0 0	0						0			0	0					
Other-Vehicles 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	4/4/2017 12:45	0																						0	-					439
Bicycles on fload 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 1 0		0																						0						
4/4/20713:00 0 0 0 0 0 0 0 0 12 62 0 0 0 0 74 112 0 0 0 74 185 0 83 22 0 0 0 105 0 0 0 0 0 0 365 Ughts 0 0 0 0 0 11 61 0 0 0 72 111 0 0 0 74 185 0 81 22 0 0 0 103 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0					0				1				1		0									0	0					
Other-Vehicles 0 0 0 0 0 0 0 0 0 1 1 1 0 0 0 0 2 1 0 0 0 0			0	0	0	0	_	12	62	0	-		74	112 0	0		74	186			0	-	105	0	0	0	0	-	0	365
Bicycles niced 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Lights				0			11	61	0				111 0	0			185	0 8	1 22			103	0	0					360
4/4/2017 13:15 0 0 0 0 0 0 0 0 0 6 79 0 0 0 85 117 0 0 0 78 195 0 88 8 0 0 96 0 0 0 0 0 0 0 376 187 187 0 88 8 0 0 96 0 0 0 0 0 0 0 0 363 187 187 187 188 189 189 189 189 189 189 189 189 189					0			1	1	0					0									0	0					
ughts 0 0 0 0 0 0 6 74 0 0 80 111 0 0 76 187 0 88 8 0 0 96 0		-	-	-	0								-				-				-	-		0	0		-			376
Other Vehicles 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Lights	0	0	0	0	0	0	6			0 0				0	0			0 8			0	96	0	0			0	0	363
4/4/201715:00 0 0 0 0 0 0 0 13 121 0 0 0 134 134 0 0 0 65 199 0 66 14 0 0 80 0 0 0 0 0 0 413 119 0 0 0 132 129 0 0 0 64 193 0 65 14 0 0 79 0 0 0 0 0 0 0 0 0 404	Other Vehicles	0	-	0	0				-	0	-		5		0		_	-			0	-		0	0	-	-		-	13
Lights 0 0 0 0 0 0 13 119 0 0 0 132 129 0 0 0 64 193 0 65 14 0 0 79 0 0 0 0 0 404				-	0																									
																		193					79						0	404
		0	0	0	0					0					0									0	0					

Bicycles on Road	0	0	0	0	0	0	I 0	0	0	0	0	0	I 0	0	0	0	0	0	l o	0	0	0	0	0	I 0	0	0	0	0	0	l o
4/4/2017 15:15	0	0	0	0	0	0	14	114	0	0	0	128	155	0	0	0	71	226	0	69	15	0	0	84	0	0	0	0	0	0	438
Lights	ō	ō	0	ō	0	0	14	109	0	0	0	123	150	ō	0	0	70	220	0	69	15	ō	0	84	0	0	0	0	ō	0	427
Other Vehicles	0	ō	0	ō	0	0	0	5	0	0	0	5	5	ō	0	0	1	6	0	0	0	0	0	0	0	0	0	0	ō	0	11
Bicycles on Road	0	0	0	ō	0	0	0	0	0	0	0	0	0	0	0	0	0	ō	0	0	0	0	0	ō	0	0	0	0	ō	0	0
4/4/2017 15:30	0	0	0	0	0	0	19	110	0	0	0	129	187	0	0	0	77	264	0	63	13	0	0	76	0	0	0	0	0	0	469
Lights	0	0	0	0	0	0	19	107	0	0	0	126	177	0	0	0	74	251	0	63	12	0	0	75	0	0	0	0	0	0	452
Other Vehicles	0	ō	0	ō	0	0	0	3	0	0	0	3	10	ō	0	0	3	13	0	0	1	0	0	1	0	0	0	0	ō	0	17
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4/4/2017 15:45	0	0	0	0	0	0	11	92	0	0	0	103	162	0	0	0	92	254	0	65	12	0	0	77	0	0	0	0	0	0	434
Lights	0	0	0	0	0	0	11	90	0	0	0	101	156	0	0	0	92	248	0	65	10	0	0	75	0	0	0	0	0	0	424
Other Vehicles	0	0	0	0	0	0	0	2	0	0	0	2	6	0	0	0	0	6	0	0	2	0	0	2	0	0	0	0	0	0	10
Bicycles on Road	0	0	0	0	n	0	0	0	0	0	0	0	i .	0	0	0	0	0	0	0	0	n	0	0	0	0	0	0	0	0	0
4/4/2017 16:00	0	0	0	0	0	0	7	94	0	0	0	101	182	0	0	0	71	253	0	59	10	0	0	69	0	0	0	0	0	0	423
Lights	ō	0	0	0	n	0	7	92	0	0	0	99	177	ō	0	0	71	248	١٠	59	10	n	0	69	ا آ	0	0	0	0	0	416
Other Vehicles	0	0	0	0	0	0	ĺ	2	0	0	0	2	5	0	0	0	0	5	0	0	0	0	0	0	١،	0	0	0	0	0	7
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ا آ	0	0	0	0	0	Ó
4/4/2017 16:15	0	0	0	0	0	0	11	92	0	0	0	103	181	0	0	0	114	295	0	54	8		0	62	0	0	0	0	0	0	460
Lights	0	0	0	0	n	0	11	87	0	0	0	98	177	0	0	0	113	290	0	54	8	n	0	62	ا آ	0	0	0	0	0	450
Other Vehicles	0	0	0	0	n	0	0	5	0	0	0	5	Α	ō	0	0	1	5	Ö	0	0	n	0	0	ا آ	0	0	0	0	0	10
Bicycles on Road	0	0	0	0	n	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	n	0	0	ا آ	0	0	0	0	0	0
4/4/2017 16:30	0	0	0	0	0	0	14	99	0	0	0	113	198	0	0	0	83	281	0	44	7	0	0	51	0	0	0	0	0	0	445
Lights	0	0	0	0	n	0	14	98	0	0	0	112	196	ō	0	0	83	279	0	44	7	n	0	51	ا آ	0	0	0	0	0	442
Other Vehicles	0	0	0	0	n	0	0	1	0	0	0	1	2	ō	0	0	0	2	0	0	ó	n	0	0	ا آ	0	0	0	0	0	3
Bicycles on Road	0	0	0	ō	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ō	0	0	0	0	0	0	0
4/4/2017 16:45	0	0	0	0	0	0	12	97	0	0	0	109	217	0	0	0	94	311	0	52	15	0	0	67	0	0	0	0	0	0	487
Lights	0	0	0	0	0	0	12	96	0	0	0	108	216	ō	0	0	94	310	0	51	15	0	0	66	ا آ	0	0	0	0	0	484
Other Vehicles	0	0	0	0	n	0	0	1	0	0	0	1	1	ō	0	0	0	1	0	1	0	0	0	1	ا آ	0	0	0	0	0	3
Bicycles on Road	0	0	0	0	n	0	0	0	0	0	0	0	0	0	0	0	0	ō	0	0	0	n	0	ō	ا آ	0	0	0	0	0	0
4/4/2017 17:00	0	0	0	0	0	0	16	98	0	0	0	114	216	0	0	0	124	340	0	57	10		0	67	0	0	0	0	0	0	521
Lights	0	0	0	0	n	0	16	96	0	0	0	112	214	0	0	0	123	337	0	56	10	n	0	66	ا آ	0	0	0	0	0	515
Other Vehicles	0	0	0	0	n	0	0	2	0	0	0	2	2	ō	0	0	1	3	0	1	0	n	0	1	ا آ	0	0	0	0	0	6
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ا آ	0	0	0	0	0	0
4/4/2017 17:15	0	0	0	0	0	0	13	97	0	0	0	110	190	0	0	0	88	278	0	77	8	0	0	85	0	0	0	0	0	0	473
Lights	0	0	0	0	0	0	13	93	0	0	0	106	189	0	0	0	88	277	0	77	8	0	0	85	ا آ	0	0	0	0	0	468
Other Vehicles	0	0	0	0	0	0	0	4	0	0	0	4	1	0	0	0	0	1	0	0	0	0	0	0	ا آ	0	0	0	0	0	5
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ō	0	0	0	0	0	0	ا آ	0	0	0	0	0	ő
4/4/2017 17:30	0	0	0	0	0	0	18	83	0	0	0	101	202	0	0	0	90	292	0	95	14	0	0	109	0	0	0	0	0	0	502
Lights	0	0	0	0	0	0	18	79	0	0	0	97	200	0	0	0	88	288	١،	95	14	0	0	109	l ő	0	0	0	0	0	494
Other Vehicles	0	0	0	0	0	0	0	4	0	0	0	4	200	0	0	0	2	4	0	0	0	0	0	0	١،	0	0	0	0	0	8
Bicycles on Road	0	0	0	0	0	0	1 0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	١،	0	0	0	0	0	ů
4/4/2017 17:45	0	0	0	0	0	0	14	82	0	0	0	96	211	0	0	0	83	294	0	100	16	0	0	116	0	0	0	0	0	0	506
Lights	0	0	0	0	0	0	14	81	0	0	0	95	208	0	0	0	83	291	0	100	16	0	0	116	١،	0	0	0	0	0	502
Other Vehicles	0	0	0	0	0	0	0	1	0	0	0	1	3	0	0	0	0	3	0	0	0	0	0	0	١،	0	0	0	0	0	4
Bicycles on Road	0	0	0	0	0	0	1 0	0	0	0	0	0	1 0	0	0	0	0	0	0	0	0	0	0	0	l ő	0	0	0	0	0	0
Grand Total	1	0	0	0	0	1	354	2720	0	0	0	3074	5289	0	0	0	3620	8909	0	3722	489	0	0	4211	0	0	0	0	0	0	16195
Grand Total	1	U	U	U	U	1	334	2/20	J	0	U	3074	3209	U	U	U	3020	0309		3/22	409	J	0	4211		U	J	U	U	U	10193



Work Order 33669

Turning Movement Count - Full Study Summary Report

MCLEOD ST E @ METCALFE ST E

Survey Date: Tuesday, April 13, 2010 Total Observed U-Turns

AADT Factor

.90

Northbound: 0 Eastbound: 0

Southbound: 0
Westbound: 0

Full Study

			ME.	TCALF	E ST E	Ξ				MCLEOD ST E									
-	Northbound				Southbound			_	Eastbound				Westbound						
Period	LT	ST	RT	NB TOT	LT	ST	RT	SB TOT	STR TOT	LT	ST	RT	EB TOT	LT	ST	RT	WB TOT	STR TOT	Grand Tota
07:30 08:30	1042	0	0	1042	0	0	0	0	1042	0	0	0	0	0	222	0	222	222	1264
08:30 09:30	980	0	0	980	0	0	0	0	980	0	0	0	0	0	241	0	241	241	1221
11:30 12:30	437	0	0	437	0	0	0	0	437	0	0	0	0	0	104	0	104	104	541
12:30 13:30	433	0	0	433	0	0	0	0	433	0	0	0	0	0	121	0	121	121	554
14:00 15:00	361	0	0	361	0	0	0	0	361	0	0	0	0	0	118	0	118	118	479
15:00 16:00	372	0	0	372	0	0	0	0	372	0	0	0	0	0	129	0	129	129	501
16:00 17:00	338	0	0	338	0	0	0	0	338	0	0	0	0	0	137	0	137	137	475
17:00 18:00	333	0	0	333	0	0	0	0	333	0	0	0	0	0	166	0	166	166	499
Sub Total	4296	0	0	4296	0	0	0	0	4296	0	0	0	0	0	1238	0	1238	1238	5534
U Turns				0				0	0				0				0	0	0
Total	4296	0	0	4296	0	0	0	0	4296	0	0	0	0	0	1238	0	1238	1238	5534
EQ 12Hr	5971	0	0	5971	0	0	0	0	5971	0	0	0	0	0	1721	0	1721	1721	7692
Note: These	values ar	e calcul	ated by	y multiply	ing the	totals by	the ap	propriate	e expansi	on facto	or.		1.	.39					
AVG 12Hr	5374	0	0	5374	0	0	0	0	5374	0	0	0	0	0	1549	0	1549	1549	6923
Note: These	volumes a	are calc	ulated	by multip	lying the	e Equiva	alent 12	2 hr. tota	ls by the	AADT fa	actor.		.9.	90					
AVG 24Hr	7040	0	0	7040	0	0	0	0	7040	0	0	0	0	0	2029	0	2029	2029	9069
Note: These	volumes a	are calc	ulated	by multip	lying the	e Avera	ge Dail	y 12 hr. 1	totals by	12 to 24	expans	ion fac	tor. 1	.31					

Comments:

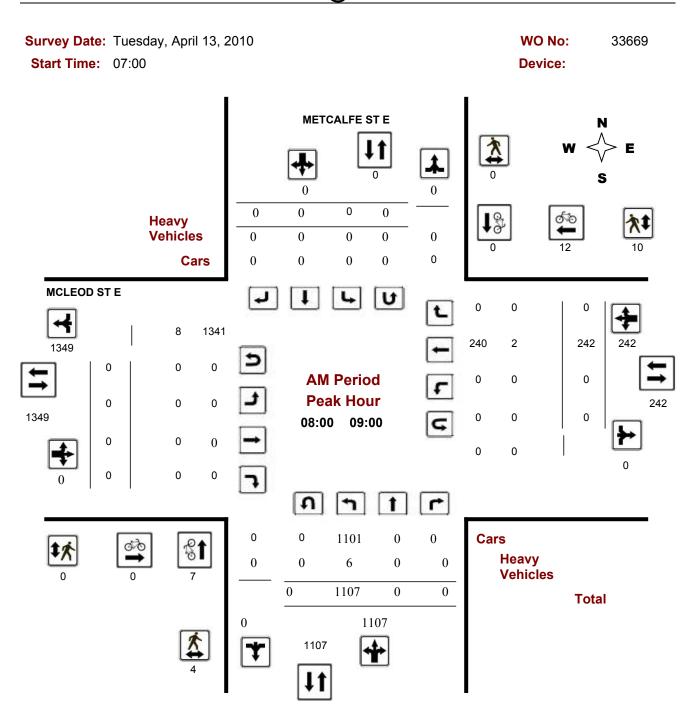
Note: U-Turns provided for approach totals. Refer to 'U-Turn' Report for specific breakdown.

2018-Aug-01 Page 1 of 1



Turning Movement Count - Peak Hour Diagram

MCLEOD ST E @ METCALFE ST E



Comments

2018-Aug-01 Page 1 of 4



Turning Movement Count - Peak Hour Diagram

MCLEOD ST E @ METCALFE ST E

Survey Date: Tuesday, April 13, 2010 WO No: **Start Time:** 07:00 Device: **METCALFE ST E** Heavy **Vehicles** Cars MCLEOD ST E U **PM Period Peak Hour** 16:30 17:30 Ð • Cars Heavy **Vehicles Total** *

Comments

2018-Aug-01 Page 4 of 4



Work Order

36832

Turning Movement Count - Full Study Summary Report

MCLEOD ST W @ METCALFE ST

Survey Date: Tuesday, April 04, 2017

Total Observed U-Turns

AADT Factor

Northbound: 0 Eastbound: 0

Southbound: 0 Westbound: 0

.90

Full Study

			ME	ETCALI	E ST				MCLEOD ST W										
	N	orthbo	ound		Southbound					Eastbound					Westb	ound			
Period	LT	ST	RT	NB TOT	LT	ST	RT	SB TOT	STR TOT	LT	ST	RT	EB TOT	LT	ST	RT	WB TOT	STR TOT	Grand Tota
07:00 08:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	60	989	1049	1049	1049
08:00 09:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	75	1216	1291	1291	1291
09:00 10:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	116	854	970	970	970
11:30 12:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	96	396	492	492	492
12:30 13:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	94	418	512	512	512
15:00 16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	107	387	494	494	494
16:00 17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	109	405	514	514	514
17:00 18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	145	420	565	565	565
Sub Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	802	5085	5887	5887	5887
U Turns				0				0	0				0				0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	802	5085	5887	5887	5887
EQ 12Hr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1115	7068	8183	8183	8183
Note: These v	alues ar	e calcul	ated by	multiply	ing the	totals by	the ap	propriate	e expansi	on facto	or.		1.	.39					
AVG 12Hr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1003	6361	7365	7365	7365
Note: These v	olumes	are calc	ulated	by multip	lying the	e Equiva	alent 12	2 hr. total	s by the	AADT fa	actor.		.9	90					
AVG 24Hr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1314	8333	9648	9648	9648
Note: These v	olumes a	are calc	ulated	by multip	lying the	e Avera	ge Dail	y 12 hr. t	otals by	12 to 24	expans	sion fac	tor. 1	.31					

Comments:

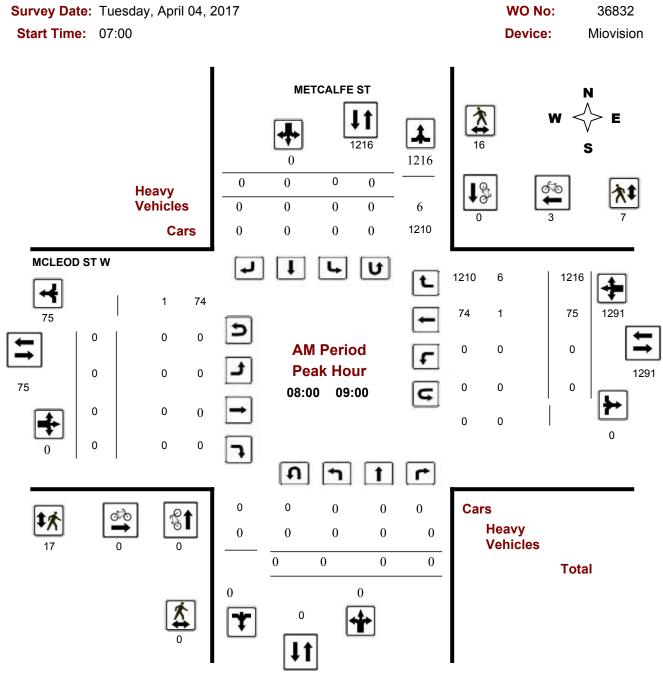
Note: U-Turns provided for approach totals. Refer to 'U-Turn' Report for specific breakdown.

2018-Aug-01 Page 1 of 1



Turning Movement Count - Peak Hour Diagram

MCLEOD ST W @ METCALFE ST



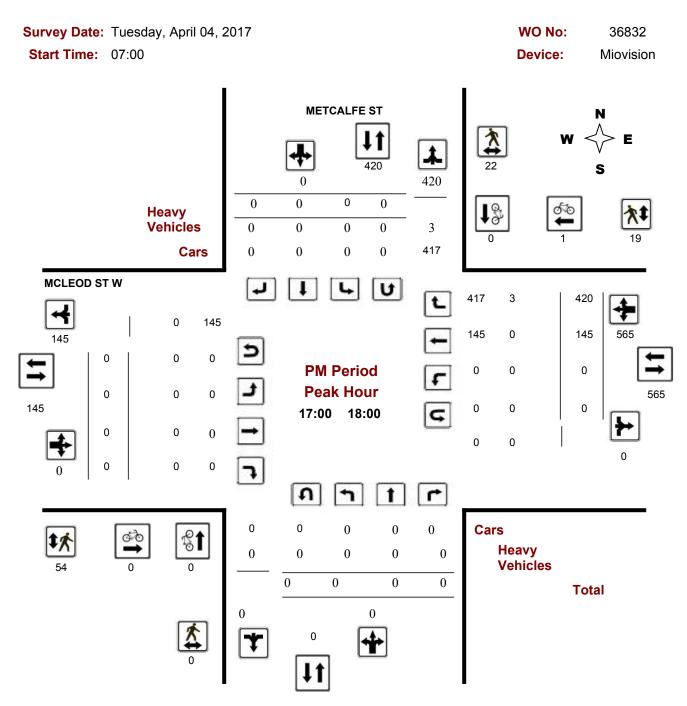
Comments

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Turning Movement Count - Peak Hour Diagram

MCLEOD ST W @ METCALFE ST



Comments

2018-Aug-01 Page 4 of 4



Work Order 35909

Turning Movement Count - Full Study Summary Report

ARGYLE AVE N @ ELGIN ST

Survey Date: Wednesday, May 11, 2016

Total Observed U-Turns

AADT Factor

Northbound: 0 Eastbound: 0

Southbound: 0 Westbound: 0

.90

Full Study

								•	u 0 t	aay									
				ELGIN	ST							AF	RGYLE	AVE N	1				
_	Northbound			Southbound				-		Eastbound			Westbound						
Period	LT	ST	RT	NB TOT	LT	ST	RT	SB TOT	STR TOT	LT	ST	RT	EB TOT	LT	ST	RT	WB TOT	STR TOT	Grand Total
07:00 08:00	0	336	0	336	0	253	0	253	589	387	0	105	492	0	0	0	0	492	1081
08:00 09:00	0	426	0	426	0	315	0	315	741	536	0	126	662	0	0	0	0	662	1403
09:00 10:00	0	243	0	243	0	293	0	293	536	398	0	127	525	0	0	0	0	525	1061
11:30 12:30	0	190	0	190	0	384	0	384	574	319	0	162	481	0	0	0	0	481	1055
12:30 13:30	0	159	0	159	0	441	1	442	601	279	0	107	386	0	0	0	0	386	987
15:00 16:00	0	150	0	150	0	675	0	675	825	294	0	156	450	0	0	0	0	450	1275
16:00 17:00	0	185	0	185	0	796	0	796	981	319	0	206	525	0	0	0	0	525	1506
17:00 18:00	0	198	0	198	0	704	2	706	904	368	0	236	604	0	0	0	0	604	1508
Sub Total	0	1887	0	1887	0	3861	3	3864	5751	2900	0	1225	4125	0	0	0	0	4125	9876
U Turns				0				0	0				0				0	0	0
Total	0	1887	0	1887	0	3861	3	3864	5751	2900	0	1225	4125	0	0	0	0	4125	9876
EQ 12Hr	0	2623	0	2623	0	5367	4	5371	7994	4031	0	1703	5734	0	0	0	0	5734	13728
Note: These v	alues a	re calcul	ated by	y multiply	ing the	totals by	y the ap	opropriat	e expan	sion fact	or.		1	.39					
AVG 12Hr	0	2361	0	2361	0	4830	4	4834	7195	3628	0	1532	5160	0	0	0	0	5160	12355
Note: These v	olumes	are calc	ulated	by multip	lying th	ne Equiv	alent 1	2 hr. tota	ls by the	AADT f	actor.		.9	90					
AVG 24Hr	0	3092	0	3092	0	6327	5	6332	9424	4753	0	2008	6760	0	0	0	0	6760	16184
Note: These v	olumes	are calc	ulated	by multip	lying th	ne Avera	ige Dail	y 12 hr. i	totals by	12 to 24	expan	sion fac	ctor. 1	.31					

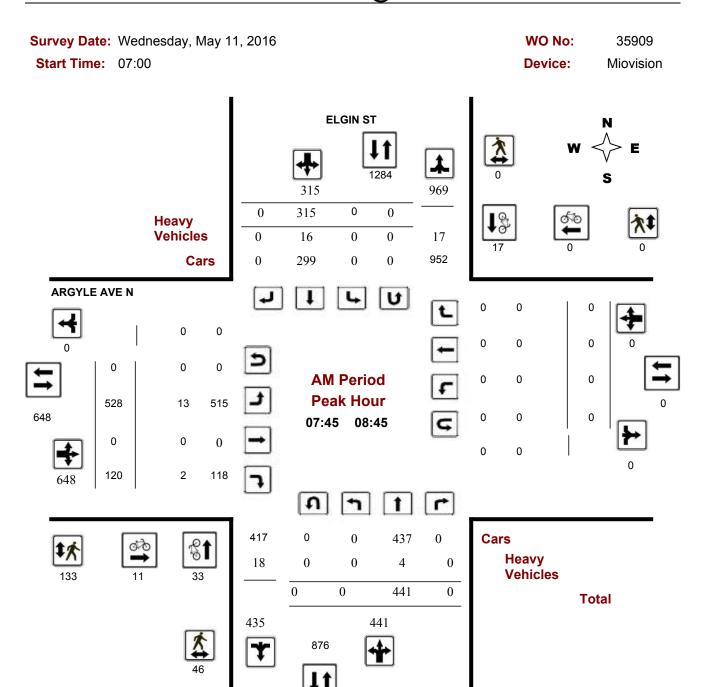
Comments:

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



Turning Movement Count - Peak Hour Diagram

ARGYLE AVE N @ ELGIN ST

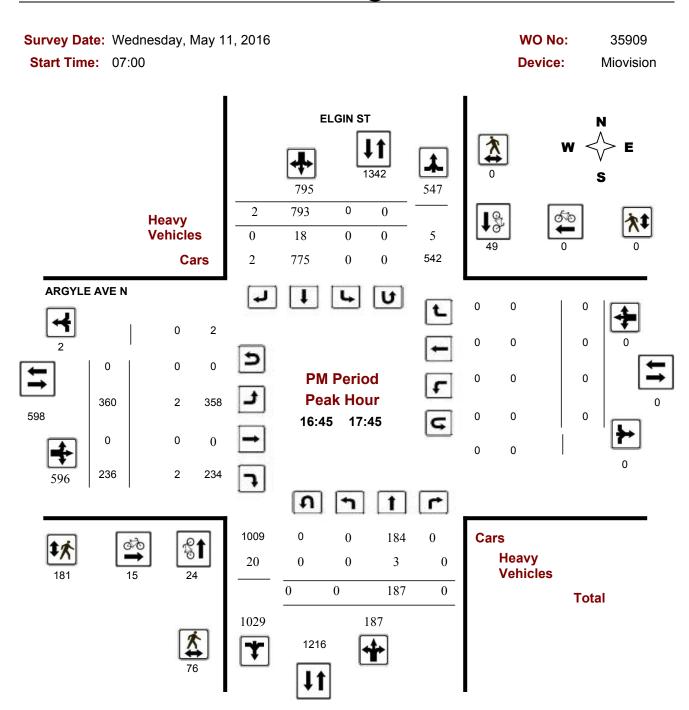


Comments



Turning Movement Count - Peak Hour Diagram

ARGYLE AVE N @ ELGIN ST



Comments



Work Order 35907

Turning Movement Count - Full Study Summary Report

CATHERINE ST @ ELGIN ST

Survey Date: Wednesday, May 11, 2016

Total Observed U-Turns

AADT Factor

Northbound: 0 Eastbound: 0

Southbound: 1 Westbound: 0

.90

Full Study

				ELGIN	ST					CATHERINE ST									
•	1	Northbo	ound		Southbound				_	Eastbound				Westbound					
Period	LT	ST	RT	NB TOT	LT	ST	RT	SB TOT	STR TOT	LT	ST	RT	EB TOT	LT	ST	RT	WB TOT	STR TOT	Grand Total
07:00 08:00	79	184	0	263	0	212	116	328	591	0	0	0	0	44	79	155	278	278	869
08:00 09:00	103	214	0	317	0	254	146	400	717	0	0	0	0	54	131	198	383	383	1100
09:00 10:00	73	128	0	201	0	229	162	391	592	0	0	0	0	41	88	95	224	224	816
11:30 12:30	66	113	0	179	0	327	204	531	710	0	0	0	0	61	102	61	224	224	934
12:30 13:30	79	103	0	182	0	313	216	529	711	0	0	0	0	43	94	50	187	187	898
15:00 16:00	76	75	0	151	0	565	245	810	961	0	0	0	0	107	155	82	344	344	1305
16:00 17:00	56	106	0	162	0	794	215	1009	1171	0	0	0	0	116	149	80	345	345	1516
17:00 18:00	55	90	0	145	0	678	199	877	1022	0	0	0	0	103	117	98	318	318	1340
Sub Total	587	1013	0	1600	0	3372	1503	4875	6475	0	0	0	0	569	915	819	2303	2303	8778
U Turns				0				1	1				0				0	0	1
Total	587	1013	0	1600	0	3372	1503	4876	6476	0	0	0	0	569	915	819	2303	2303	8779
EQ 12Hr	816	1408	0	2224	0	4687	2089	6778	9002	0	0	0	0	791	1272	1138	3201	3201	12203
Note: These	values a	re calcul	ated by	/ multiply	ing the	totals b	y the ap	opropriat	e expansi	on facto	or.		1	.39					
AVG 12Hr	734	1267	0	2002	0	4218	1880	6100	8102	0	0	0	0	712	1145	1025	2881	2881	10983
Note: These	volumes	are calc	ulated	by multip	lying th	ne Equiv	/alent 1	2 hr. tota	ils by the	AADT fa	actor.			90					
AVG 24Hr	962	1660	0	2622	0	5526	2463	7991	10613	0	0	0	0	932	1500	1342	3774	3774	14387
Note: These	volumes	are calc	ulated	by multip	lying th	he Aver	age Dail	ly 12 hr.	totals by	12 to 24	expans	ion fac	tor. ′	1.31					

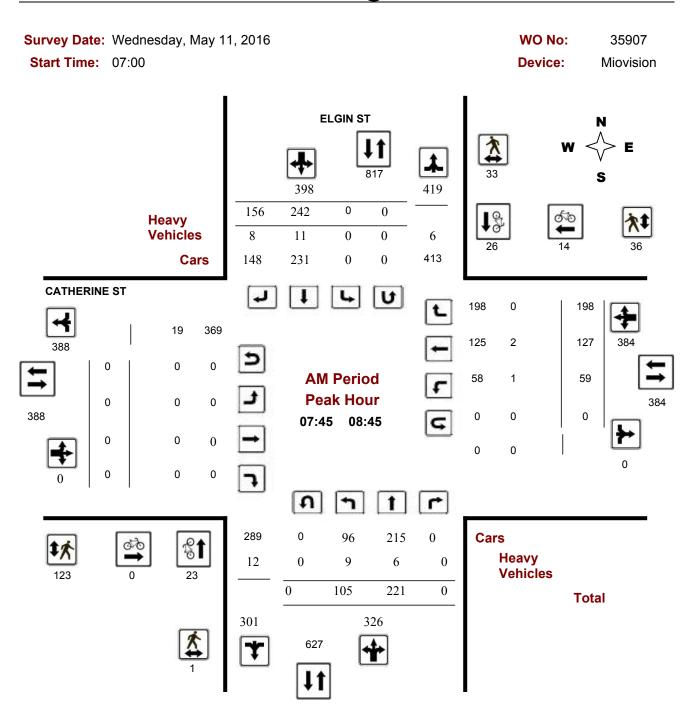
Comments:

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



Turning Movement Count - Peak Hour Diagram

CATHERINE ST @ ELGIN ST

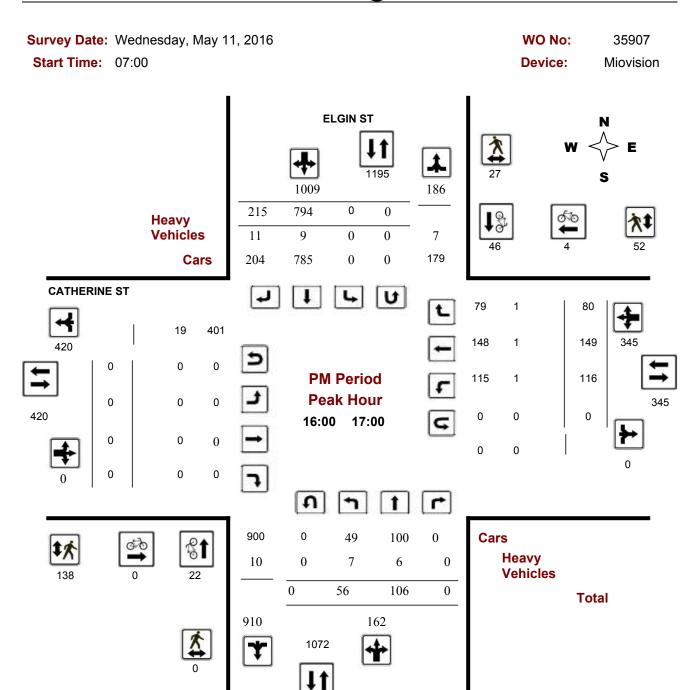


Comments



Turning Movement Count - Peak Hour Diagram

CATHERINE ST @ ELGIN ST



Comments

APPENDIX E

Collision Records



City Operations - Transportation Services

Collision Details Report - Public Version

From: January 1, 2013 **To:** December 31, 2017

Location: ARGYLE AVE @ O'CONNOR ST

Traffic Control: Traffic signal Total Collisions: 35

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2013-Apr-20, Sat,10:40	Clear	Sideswipe	P.D. only	Wet	South	Pulling away from shoulder or curb		Other motor vehicle	
					South	Changing lanes	Automobile, station wagon	Other motor vehicle	
2013-Apr-24, Wed,19:19	Rain	Angle	P.D. only	Wet	South	Going ahead	Passenger van	Other motor vehicle	
					East	Going ahead	Pick-up truck	Other motor vehicle	
2013-Jun-13, Thu,16:40	Clear	Turning movement	P.D. only	Dry	South	Turning left	Pick-up truck	Other motor vehicle	
					South	Turning left	Automobile, station wagon	Other motor vehicle	
2013-Mar-13, Wed,14:00	Clear	Sideswipe	P.D. only	Dry	South	Changing lanes	Automobile, station wagon	Other motor vehicle	
					South	Turning left	Pick-up truck	Other motor vehicle	
2013-Aug-13, Tue,15:40	Clear	Rear end	P.D. only	Dry	South	Slowing or stopping	Pick-up truck	Other motor vehicle	
					South	Stopped	Pick-up truck	Other motor vehicle	
2013-Aug-29, Thu,15:27	Clear	Turning movement	P.D. only	Dry	South	Turning left	Automobile, station wagon	Other motor vehicle	

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					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2013-Nov-13, Wed,12:50	Clear	Turning movement	P.D. only	Dry	South	Turning left	Automobile, station wagon	Other motor vehicle	
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2013-Nov-26, Tue,08:45	Clear	SMV other	Non-fatal injury	Wet	South	Turning left	Passenger van	Pedestrian	1
2013-Dec-19, Thu,15:14	Clear	Turning movement	P.D. only	Dry	South	Turning left	Automobile, station wagon	Other motor vehicle	
					South	Going ahead	Pick-up truck	Other motor vehicle	
2014-Jan-02, Thu,17:31	Clear	Angle	P.D. only	Wet	East	Going ahead	Automobile, station wagon	Other motor vehicle	
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2014-Jan-02, Thu,23:08	Clear	Turning movement	P.D. only	Packed snow	South	Turning left	Automobile, station wagon	Other motor vehicle	
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2014-Jan-08, Wed,15:16	Clear	Turning movement	P.D. only	Wet	South	Turning left	Automobile, station wagon	Other motor vehicle	
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2014-Feb-11, Tue,08:20	Clear	Rear end	P.D. only	Loose snow	South	Overtaking	Automobile, station wagon	Other motor vehicle	
					South	Stopped	Delivery van	Other motor vehicle	

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2014-Feb-11, Tue,20:37	Clear	SMV other	Non-fatal injury	Wet	South	Turning left	Automobile, station wagon	Pedestrian	1
2014-Feb-13, Thu,10:50	Clear	Rear end	Non-fatal injury	Dry	South	Going ahead	Delivery van	Other motor vehicle	
					South	Slowing or stopping	g Automobile, station wagon	Other motor vehicle	
2014-Jun-02, Mon,13:57	Clear	Angle	P.D. only	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle	
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2014-Jul-14, Mon,18:20	Clear	Rear end	P.D. only	Dry	South	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
					South	Stopped	Pick-up truck	Other motor vehicle	
2014-Oct-25, Sat,21:23	Rain	Turning movement	P.D. only	Wet	South	Turning left	Automobile, station wagon	Other motor vehicle	
					South	Going ahead	Pick-up truck	Other motor vehicle	
2014-Oct-25, Sat,23:42	Clear	Angle	P.D. only	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle	
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2014-Dec-17, Wed,06:45	Rain	Angle	P.D. only	Wet	South	Turning left	Automobile, station wagon	Other motor vehicle	
					East	Going ahead	Pick-up truck	Other motor vehicle	
2015-Feb-04, Wed,14:16	Snow	Rear end	P.D. only	Loose snow	South	Slowing or stopping	Pick-up truck	Other motor vehicle	
					South	Stopped	Pick-up truck	Other motor vehicle	

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2015-Feb-11, Wed,12:06	Clear	Angle	P.D. only	Wet	South	Going ahead	Pick-up truck	Other motor vehicle	
					East	Going ahead	Passenger van	Other motor vehicle	
2015-Mar-05, Thu,13:19	Clear	Turning movement	P.D. only	Dry	South	Turning left	Automobile, station wagon	Other motor vehicle	
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2015-Apr-10, Fri,15:00	Rain	Rear end	P.D. only	Wet	East	Going ahead	Automobile, station wagon	Other motor vehicle	
					East	Going ahead	Passenger van	Other motor vehicle	
2015-Jun-26, Fri,16:45	Clear	Sideswipe	P.D. only	Dry	South	Changing lanes	Pick-up truck	Other motor vehicle	
					South	Going ahead	Passenger van	Other motor vehicle	
2015-Sep-17, Thu,09:36	Clear	Angle	Non-fatal injury	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle	
					East	Turning right	Automobile, station wagon	Other motor vehicle	
2015-Oct-24, Sat,09:06	Clear	SMV other	Non-fatal injury	Dry	South	Going ahead	Automobile, station wagon	Pedestrian	1
2015-Nov-06, Fri,19:57	Clear	Turning movement	P.D. only	Dry	South	Turning left	Automobile, station wagon	Other motor vehicle	
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2016-Mar-16, Wed,15:53	Clear	Turning movement	P.D. only	Dry	South	Turning left	Unknown	Other motor vehicle	

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					South	Going ahead	Automobile, station wagon	Other motor vehicle
2016-Apr-28, Thu,10:29	Clear	Sideswipe	P.D. only	Dry	South	Changing lanes	Automobile, station wagon	Other motor vehicle
					South	Going ahead	Ambulance	Other motor vehicle
2016-Nov-30, Wed,14:11	Rain	SMV other	P.D. only	Wet	South	Turning left	Truck - closed	Other
2017-Apr-27, Thu,15:10	Clear	Turning movement	Non-fatal injury	Dry	South	Turning left	Automobile, station wagon	Cyclist
					South	Going ahead	Bicycle	Other motor vehicle
2017-May-05, Fri,20:47	Rain	Angle	P.D. only	Wet	South	Going ahead	Automobile, station wagon	Other motor vehicle
					East	Going ahead	Automobile, station wagon	Other motor vehicle
2017-Sep-01, Fri,00:00	Clear	SMV unattended vehicle	P.D. only	Dry	Unknown	Unknown	Unknown	Unattended vehicle
2017-Nov-13, Mon,17:30	Clear	Turning movement	Non-fatal injury	Dry	South	Turning left	Automobile, station wagon	Cyclist
					South	Going ahead	Bicycle	Other motor vehicle

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City Operations - Transportation Services

Collision Details Report - Public Version

From: January 1, 2012 **To:** December 31, 2017

Location: ARGYLE AVE N @ ELGIN ST

Traffic Control: Traffic signal Total Collisions: 3

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuve	r Vehicle type	First Event	No. Ped
2012-May-04, Fri,09:30	Clear	Rear end	P.D. only	Wet	East	Turning left	Automobile, station wagon	Other motor vehicle	
					East	Turning left	Pick-up truck	Other motor vehicle	
2012-Nov-01, Thu,11:00	Clear	Angle	P.D. only	Dry	East	Turning right	Automobile, station wagon	Other motor vehicle	
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2012-Nov-23, Fri,20:15	Clear	Angle	P.D. only	Dry	East	Turning right	Automobile, station wagon	Other motor vehicle	
					North	Going ahead	Automobile, station wagon	Other motor vehicle	

Location: ARGYLE AVE S @ ELGIN ST

Traffic Control: Stop sign Total Collisions: 5

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuve	r Vehicle type	First Event	No. Ped
2013-May-16, Thu,17:04	Clear	Other	P.D. only	Dry	East	Reversing	Truck - dump	Other motor vehicle	
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2013-Jun-06, Thu,17:20	Rain	Angle	P.D. only	Wet	West	Turning right	Automobile, station wagon	Other motor vehicle	
					North	Going ahead	Automobile, station wagon	Other motor vehicle	

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2016-Aug-07, Sun,14:22	Clear	Angle	P.D. only	Dry	South	Turning left	Passenger van	Other motor vehicle
					East	Turning left	Automobile, station wagon	Other motor vehicle
2017-Jan-18, Wed,14:17	Snow	Rear end	P.D. only	Packed snow	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle
					East	Slowing or stopping	Automobile, station wagon	Other motor vehicle
2017-Feb-11, Sat,05:00	Snow	Angle	P.D. only	Packed snow	South	Slowing or stopping	Automobile, station wagon	Other motor vehicle
					East	Turning left	Automobile, station wagon	Other motor vehicle

Location: ARGYLE AVE W @ METCALFE ST

Traffic Control: Traffic signal Total Collisions: 5

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuve	er Vehicle type	First Event	No. Ped
2014-Feb-03, Mon,22:00	Clear	Turning movement	P.D. only	Dry	North	Turning right	Unknown	Other motor vehicle	
					North	Turning right	Automobile, station wagon	Other motor vehicle	
2015-Jul-24, Fri,12:50	Clear	Sideswipe	Non-fatal injury	Dry	East	Going ahead	Bicycle	Other motor vehicle	
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2016-Jun-22, Wed,07:47	Clear	Sideswipe	P.D. only	Dry	East	Going ahead	Pick-up truck	Other motor vehicle	
					East	Going ahead	Pick-up truck	Other motor vehicle	

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2017-Mar-06, Mon,18:56	Freezing Rain	Sideswipe	P.D. only	Ice	North	Turning right	Automobile, station wagon	Other motor vehicle
					North	Turning right	Automobile, station wagon	Other motor vehicle
2017-Jul-12, Wed,23:30	Rain	SMV other	Non-fatal injury	Wet	North	Turning right	Automobile, station wagon	Curb

Location: CATHERINE ST @ ELGIN ST

Traffic Control: Traffic signal Total Collisions: 33

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuve	r Vehicle type	First Event	No. Ped
2012-Jan-18, Wed,14:40	Rain	Angle	Non-fatal injury	Loose snow	North	Going ahead	Automobile, station wagon	Other motor vehicle	
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2012-Apr-05, Thu,00:00	Clear	SMV other	P.D. only	Dry	South	Going ahead	Automobile, station wagon	Pole (utility, power)	
2012-Jun-26, Tue,18:50	Clear	Sideswipe	P.D. only	Dry	South	Changing lanes	Automobile, station wagon	Other motor vehicle	
					South	Going ahead	Pick-up truck	Other motor vehicle	
2012-Aug-15, Wed,12:09	Clear	Turning movement	P.D. only	Dry	North	Turning left	Pick-up truck	Other motor vehicle	
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2012-Nov-18, Sun,00:00	Clear	Rear end	P.D. only	Dry	North	Going ahead	Automobile, station wagon	Other motor vehicle	
					North	Stopped	Automobile, station wagon	Other motor vehicle	

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West Going ahead Automobile, station wagon Other motor vehicle	2012-Nov-22, Thu,09:33	Clear	Angle	P.D. only	Dry	North	Going ahead	Automobile, station wagon	Other motor vehicle
South Stopped Police vehicle 2013-May-21, Tue, 20:40 Rain Angle Non-fatal injury Wet South Going ahead Automobile, station wagon vehicle 2013-Jul-05, Fri, 15:06 Clear Turning movement P.D. only Dry North Turning left Sation wagon vehicle 2013-Dec-13, Fri, 15:26 Clear Turning movement Non-fatal injury Dry North Turning left Sation wagon vehicle 2013-Dec-13, Fri, 15:26 Clear Turning movement Non-fatal injury Dry North Turning left Sation wagon vehicle 2013-Dec-13, Fri, 15:26 Clear Turning movement Non-fatal injury Dry North Turning left Sation wagon vehicle 2013-Dec-13, Fri, 15:26 Clear Turning movement Non-fatal injury Dry North Turning left Sation wagon vehicle 2013-Dec-13, Fri, 15:26 Clear Turning movement South Going ahead Automobile, Sation wagon vehicle 2013-Dec-19, Thu, 16:15 Clear Turning movement P.D. only Slush South Turning right Pick-up truck Other motor vehicle 2013-Dec-19, Thu, 16:15 Clear Turning movement P.D. only Wet North Changing lanes Sation wagon vehicle 2014-Apr-08, Tue, 11:46 Rain Sideswipe P.D. only Wet North Changing lanes Sation wagon vehicle vehicle 2014-Apr-08, Tue, 11:46 Rain Sideswipe P.D. only Wet North Changing lanes Sation wagon vehicle Vehicle Vehicle Vehicle Vehicle						West	Going ahead	Automobile,	
South Stopped Police vehicle Other motor vehicle	2013-Feb-19, Tue,13:57	Snow	Rear end	P.D. only	Loose snow	South	Going ahead		
West Going ahead Automobile, station wagon vehicle						South	Stopped	_	Other motor
Station wagon Vehicle	2013-May-21, Tue,20:40	Rain	Angle	Non-fatal injury	Wet	South	Going ahead		
South Going ahead Pick-up truck Other motor vehicle 2013-Dec-13, Fri, 15:26 Clear Turning movement Non-fatal injury Dry North Turning left station wagon vehicle South Going ahead Automobile, station wagon vehicle South Going ahead Pick-up truck Other motor vehicle North Turning left Automobile, station wagon vehicle South Turning right Pick-up truck Other motor vehicle South Turning left Automobile, station wagon vehicle						West	Going ahead		
vehicle 2013-Dec-13, Fri,15:26 Clear Turning movement Non-fatal injury Dry North Turning left station wagon vehicle South Going ahead Automobile, station wagon vehicle South Going ahead Automobile, station wagon vehicle Other motor vehicle North Turning left Automobile, station wagon vehicle Other motor vehicle	2013-Jul-05, Fri,15:06	Clear	Turning movement	P.D. only	Dry	North	Turning left		
South Going ahead Automobile, station wagon vehicle Turning movement P.D. only Slush South Turning right Pick-up truck Other motor vehicle North Turning left Automobile, station wagon vehicle South Turning right Pick-up truck Other motor vehicle North Turning left Automobile, station wagon vehicle South Turning right Pick-up truck Other motor vehicle Other motor vehicle South Turning left Automobile, station wagon vehicle South Turning left Other motor vehicle South Turning left Automobile, station wagon vehicle South Going ahead Pick-up truck Other motor vehicle South Going ahead Pick-up truck Other motor vehicle						South	Going ahead	Pick-up truck	
South Going ahead Automobile, Station wagon vehicle 2013-Dec-19, Thu,16:15 Clear Turning movement P.D. only Slush South Turning right Pick-up truck Other motor vehicle North Turning left Automobile, Station wagon vehicle 2014-Apr-08, Tue,11:46 Rain Sideswipe P.D. only Wet North Changing lanes Station wagon vehicle North Going ahead Pick-up truck Other motor vehicle 2014-Apr-08, Tue,11:46 Rain Other motor vehicle	2013-Dec-13, Fri,15:26	Clear	Turning movement	Non-fatal injury	Dry	North	Turning left		
station wagon vehicle 2013-Dec-19, Thu,16:15 Clear Turning movement P.D. only Slush South Turning right Pick-up truck Other motor vehicle North Turning left Automobile, station wagon vehicle 2014-Apr-08, Tue,11:46 Rain Sideswipe P.D. only Wet North Changing lanes Automobile, station wagon vehicle North Going ahead Pick-up truck Other motor vehicle Other motor vehicle						South	Going ahead		
North Turning left Automobile, station wagon vehicle 2014-Apr-08, Tue,11:46 Rain Sideswipe P.D. only Wet North Changing lanes station wagon vehicle North Going ahead Pick-up truck Other motor						South	Going ahead		
2014-Apr-08, Tue,11:46 Rain Sideswipe P.D. only Wet North Changing lanes Automobile, station wagon vehicle North Going ahead Pick-up truck Other motor	2013-Dec-19, Thu,16:15	Clear	Turning movement	P.D. only	Slush	South	Turning right	Pick-up truck	
station wagon vehicle North Going ahead Pick-up truck Other motor						North	Turning left		
	2014-Apr-08, Tue,11:46	Rain	Sideswipe	P.D. only	Wet	North	Changing lanes		
						North	Going ahead	Pick-up truck	

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2014-Jul-23, Wed,17:14	Clear	Sideswipe	P.D. only	Dry	South	Changing lanes	Automobile, station wagon	Other motor vehicle
					South	Going ahead	Automobile, station wagon	Other motor vehicle
2014-Aug-31, Sun,23:28	Clear	Turning movement	P.D. only	Dry	North	Turning left	Pick-up truck	Other motor vehicle
					South	Going ahead	Automobile, station wagon	Other motor vehicle
2014-Nov-19, Wed,14:32	Clear	Turning movement	P.D. only	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle
					South	Going ahead	Automobile, station wagon	Other motor vehicle
2015-Feb-04, Wed,14:57	Snow	Rear end	Non-fatal injury	Loose snow	North	Slowing or stopping	g Pick-up truck	Other motor vehicle
					North	Stopped	Automobile, station wagon	Other motor vehicle
2015-Feb-18, Wed,13:00	Clear	Angle	Non-fatal injury	Wet	North	Going ahead	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2015-May-31, Sun,18:58	Clear	Turning movement	P.D. only	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle
					South	Going ahead	Pick-up truck	Other motor vehicle
2016-Jan-12, Tue,19:58	Snow	Turning movement	Non-fatal injury	Wet	North	Turning left	Automobile, station wagon	Other motor vehicle
					South	Going ahead	Automobile, station wagon	Other motor vehicle
2016-Jan-30, Sat,23:21	Clear	Turning movement	Non-fatal injury	Wet	North	Turning left	Automobile, station wagon	Other motor vehicle

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					South	•	Automobile, station wagon	Other motor vehicle
2016-Apr-05, Tue,09:58	Clear	Rear end	Non-fatal injury	Dry	South		Automobile, station wagon	Other motor vehicle
					South	Slowing or stopping	Pick-up truck	Other motor vehicle
2016-Apr-28, Thu,17:29	Clear	Angle	P.D. only	Dry	West		Automobile, station wagon	Other motor vehicle
					South	•	Automobile, station wagon	Other motor vehicle
2016-Dec-08, Thu,19:42	Snow	Rear end	P.D. only	Loose snow	South	Slowing or stopping	Automobile, station wagon	Other motor vehicle
					South	Slowing or stopping	Automobile, station wagon	Other motor vehicle
2016-Dec-16, Fri,18:10	Clear	Turning movement	Non-fatal injury	Slush	North	Turning left	Automobile, station wagon	Other motor vehicle
					South	Going ahead	Passenger van	Other motor vehicle
2016-Dec-23, Fri,06:39	Clear	Angle	P.D. only	Slush	South		Automobile, station wagon	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2017-Feb-15, Wed,08:20	Snow	Sideswipe	P.D. only	Loose snow	West	Turning left	Unknown	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2017-Feb-15, Wed,19:11	Snow	Sideswipe	P.D. only	Loose snow	West	Turning right	Unknown	Other motor vehicle
					West		Automobile, station wagon	Other motor vehicle

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2017-Feb-20, Mon,13:15	Clear	Sideswipe	P.D. only	Dry	North	Changing lanes	Automobile, station wagon	Other motor vehicle
					North	Going ahead	Automobile, station wagon	Other motor vehicle
2017-Jun-06, Tue,04:00	Rain	Rear end	P.D. only	Wet	South	Going ahead	Automobile, station wagon	Other motor vehicle
					South	Stopped	Automobile, station wagon	Other motor vehicle
2017-Jul-17, Mon,15:31	Clear	Turning movement	P.D. only	Dry	South	Turning left	Automobile, station wagon	Other motor vehicle
					North	Going ahead	Pick-up truck	Other motor vehicle
2017-Nov-16, Thu,12:41	Clear	SMV other	P.D. only	Dry	West	Turning left	Automobile, station wagon	Ran off road
2017-Nov-23, Thu,17:59	Clear	Angle	P.D. only	Dry	North	Going ahead	Passenger van	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2017-Dec-23, Sat,14:21	Snow	Angle	Non-fatal injury	Loose snow	South	Going ahead	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle

Location: CATHERINE ST @ METCALFE ST

Traffic Control: Traffic signal Total Collisions: 55

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuve	er Vehicle type	First Event	No. Ped
2012-Jan-10, Tue,09:00	Clear	Angle	P.D. only	Wet	West	Turning right	Automobile, station wagon	Other motor vehicle	

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					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2012-Jan-10, Tue,14:32	Clear	Angle	P.D. only	Wet	West	Going ahead	Automobile, station wagon	Other motor vehicle	
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2012-Feb-05, Sun,11:30	Clear	SMV other	Non-fatal injury	Dry	North	Turning left	Automobile, station wagon	Pedestrian	1
2012-Feb-11, Sat,16:25	Clear	Angle	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2012-Feb-20, Mon,12:27	Clear	Angle	Non-fatal injury	Dry	North	Going ahead	Passenger van	Other motor vehicle	
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2012-Apr-10, Tue,08:45	Clear	SMV other	Non-fatal injury	Wet	North	Turning left	Automobile, station wagon	Pedestrian	1
2012-May-08, Tue,14:02	Rain	Rear end	P.D. only	Wet	West	Going ahead	Automobile, station wagon	Other motor vehicle	
					West	Stopped	Pick-up truck	Other motor vehicle	
2012-May-10, Thu,14:22	Clear	Sideswipe	P.D. only	Dry	West	Changing lanes	Pick-up truck	Other motor vehicle	
					West	Going ahead	Truck - dump	Other motor vehicle	
2012-Dec-24, Mon,11:37	Clear	Angle	P.D. only	Wet	North	Going ahead	Automobile, station wagon	Other motor vehicle	

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					West	Going ahead	Delivery van	Other motor vehicle
2013-Feb-09, Sat,20:09	Snow	SMV unattended vehicle	P.D. only	Loose snow	West	Unknown	Unknown	Unattended vehicle
2013-Feb-16, Sat,16:54	Clear	Turning movement	P.D. only	Dry	West	Turning right	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2013-Mar-11, Mon,01:36	Clear	Rear end	Non-fatal injury	Wet	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle
					West	Stopped	Police vehicle	Other motor vehicle
2013-Aug-30, Fri,00:59	Clear	Angle	P.D. only	Dry	North	Going ahead	Police vehicle	Other motor vehicle
					West	Going ahead	Pick-up truck	Other motor vehicle
2013-Sep-21, Sat,19:20	Rain	Turning movement	P.D. only	Wet	West	Turning right	Automobile, station wagon	Other motor vehicle
					West	Turning right	Automobile, station wagon	Other motor vehicle
2013-Dec-25, Wed,12:48	Clear	Angle	Non-fatal injury	Dry	North	Going ahead	Passenger van	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2014-Jan-22, Wed,09:53	Clear	Turning movement	P.D. only	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle
					North	Going ahead	Automobile, station wagon	Other motor vehicle

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2014-Mar-30, Sun,23:18	Clear	Sideswipe	P.D. only	Dry	East	Turning left	Truck and trailer	Other motor vehicle	
					East	Turning left	Automobile, station wagon	Other motor vehicle	
2014-Apr-13, Sun,11:00	Clear	Rear end	P.D. only	Dry	West	Going ahead	Pick-up truck	Other motor vehicle	
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2014-Apr-26, Sat,22:25	Rain	Sideswipe	P.D. only	Wet	West	Going ahead	Automobile, station wagon	Other motor vehicle	
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2014-May-14, Wed,14:00	Clear	Other	P.D. only	Dry	East	Reversing	Pick-up truck	Other motor vehicle	
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2014-May-23, Fri,16:33	Clear	Turning movement	P.D. only	Dry	West	Turning right	Pick-up truck	Other motor vehicle	
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2014-Jun-10, Tue,08:52	Clear	Angle	P.D. only	Dry	North	Going ahead	Pick-up truck	Other motor vehicle	
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2014-Jul-04, Fri,09:00	Clear	SMV other	Non-fatal injury	Dry	North	Turning left	Automobile, station wagon	Pedestrian	1
2014-Jul-11, Fri,11:10	Clear	Rear end	Non-fatal injury	Dry	West	Slowing or stopping	g Pick-up truck	Other motor vehicle	
					West	Stopped	Automobile, station wagon	Other motor vehicle	

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2014-Jul-25, Fri,13:16	Clear	Angle	P.D. only	Dry	North	Going ahead	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2014-Sep-03, Wed,09:01	Clear	Sideswipe	P.D. only	Dry	West	Changing lanes	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2014-Sep-22, Mon,08:53	Clear	SMV other	P.D. only	Dry	North	Turning left	Truck and trailer	Pole (utility, power)
2014-Sep-25, Thu,12:17	Clear	Turning movement	P.D. only	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2014-Oct-31, Fri,00:00	Clear	Angle	P.D. only	Dry	North	Going ahead	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2015-Jan-25, Sun,16:24	Clear	Sideswipe	P.D. only	Dry	West	Changing lanes	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2015-Feb-21, Sat,21:23	Snow	Rear end	P.D. only	Packed snow	West	Slowing or stopping	g Police vehicle	Other motor vehicle
					West	Stopped	Pick-up truck	Other motor vehicle
2015-Apr-17, Fri,17:20	Clear	Turning movement	P.D. only	Dry	West	Going ahead	Pick-up truck	Other motor vehicle

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					West	•	Automobile, station wagon	Other motor vehicle
2015-Jun-14, Sun,22:20	Clear	Sideswipe	P.D. only	Dry	West	Going ahead	Pick-up truck	Other motor vehicle
					West		Automobile, station wagon	Other motor vehicle
2015-Jul-29, Wed,11:52	Clear	Rear end	Non-fatal injury	Dry	West	Going ahead	Pick-up truck	Other motor vehicle
					West	Stopped	Police vehicle	Other motor vehicle
2015-Aug-12, Wed,18:00	Clear	Angle	P.D. only	Dry	West		Automobile, station wagon	Other motor vehicle
					North	Going ahead	Pick-up truck	Other motor vehicle
2015-Aug-20, Thu,16:29	Clear	Rear end	P.D. only	Dry	West		Automobile, station wagon	Other motor vehicle
					West	•	Automobile, station wagon	Other motor vehicle
2015-Aug-28, Fri,12:09	Clear	Rear end	P.D. only	Dry	West S	Slowing or stopping	Pick-up truck	Other motor vehicle
					West		Automobile, station wagon	Other motor vehicle
2015-Sep-09, Wed,13:59	Clear	Rear end	P.D. only	Dry	West S	Slowing or stopping	Automobile, station wagon	Other motor vehicle
					West	Stopped	Pick-up truck	Other motor vehicle
2015-Sep-10, Thu,08:23	Clear	Rear end	P.D. only	Dry	West	Going ahead	Truck - dump	Other motor vehicle
					West		Automobile, station wagon	Other motor vehicle

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2015-Oct-22, Thu,11:50	Clear	Sideswipe	P.D. only	Dry	West	Changing lanes	Pick-up truck	Other motor vehicle
					West		Automobile, station wagon	Other motor vehicle
2015-Dec-10, Thu,18:00	Clear	Turning movement	P.D. only	Dry	West		Automobile, station wagon	Other motor vehicle
					West		Automobile, station wagon	Other motor vehicle
2016-Jan-11, Mon,10:19	Snow	Rear end	P.D. only	Ice	West		Automobile, station wagon	Other motor vehicle
					West	Stopped	Municipal transit bus	Other motor vehicle
2016-Oct-06, Thu,09:35	Clear	Rear end	P.D. only	Dry	West	Changing lanes		Other motor vehicle
					West	Slowing or stopping	_	Other motor vehicle
2016-Nov-27, Sun,19:30	Clear	Turning movement	P.D. only	Dry	North	Turning left	Pick-up truck	Other motor vehicle
					North		Automobile, station wagon	Other motor vehicle
2016-Dec-23, Fri,07:57	Clear	Sideswipe	P.D. only	Wet	North		Automobile, station wagon	Other motor vehicle
					North	Changing lanes		Other motor vehicle
2017-Jan-06, Fri,20:00	Clear	Sideswipe	P.D. only	Wet	East	Unknown	Pick-up truck	Other motor vehicle
					East	Unknown	Truck and trailer	Other motor vehicle

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2017-Feb-01, Wed,20:24	Snow	Angle	Non-fatal injury	Wet	North West	Going ahead	Automobile, station wagon Automobile, station wagon	Other motor vehicle Other motor vehicle
2017-Apr-01, Sat,18:51	Clear	Sideswipe	P.D. only	Dry	North	Changing lanes	Automobile, station wagon	Other motor vehicle
					North	Going ahead	Pick-up truck	Other motor vehicle
2017-Sep-04, Mon,13:00	Clear	Angle	P.D. only	Wet	North	Going ahead	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Pick-up truck	Other motor vehicle
2017-Nov-06, Mon,13:23	Clear	Angle	P.D. only	Dry	North	Going ahead	Pick-up truck	Other motor vehicle
					West	Going ahead	Truck - dump	Other motor vehicle
2017-Nov-30, Thu,15:25	Rain	Sideswipe	P.D. only	Wet	West	Changing lanes	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Municipal transit bus	Other motor vehicle
2017-Dec-08, Fri,09:12	Clear	Sideswipe	P.D. only	Dry	West	Changing lanes	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2017-Jul-17, Mon,16:00	Clear	Rear end	P.D. only	Dry	West	Unknown	Pick-up truck	Other motor vehicle
					West	Stopped	Automobile, station wagon	Other motor vehicle
2017-Jul-21, Fri,17:10	Clear	Sideswipe	P.D. only	Dry	West	Changing lanes	Automobile, station wagon	Other motor vehicle

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					West	Going ahead	Automobile, station wagon	Other motor vehicle
2017-Oct-09, Mon,19:40	Clear	Rear end	P.D. only	Dry	West	Unknown	Automobile, station wagon	Other motor vehicle
					West	Stopped	Automobile, station wagon	Other motor vehicle
					West	Stopped	Automobile, station wagon	Other motor vehicle

Location: CATHERINE ST btwn METCALFE ST & ELGIN ST

Traffic Control: No control

Total Collisions: 10

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Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuve	r Venicie type	First Event	No. Ped
2012-Jan-11, Wed,00:00	Clear	SMV unattended vehicle	P.D. only	Dry	West	Unknown	Unknown	Unattended vehicle	
2012-Feb-20, Mon,13:00	Unknown	SMV other	P.D. only	Unknown	Unknown	Unknown	Police vehicle	Snowbank/drift	
2012-Dec-24, Mon,15:40	Clear	SMV unattended vehicle	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Unattended vehicle	
2013-Jun-27, Thu,13:05	Clear	Other	P.D. only	Dry	North	Reversing	Police vehicle	Other motor vehicle	
					South	Stopped	Police vehicle	Other motor vehicle	
2014-Oct-03, Fri,10:55	Clear	SMV unattended vehicle	P.D. only	Dry	West	Going ahead	Police vehicle	Unattended vehicle	
2015-Jan-31, Sat,18:00	Snow	SMV unattended vehicle	P.D. only	Wet	Unknown	Unknown	Unknown	Unattended vehicle	
2016-Nov-03, Thu,12:59	Clear	Sideswipe	P.D. only	Wet	West	Changing lanes	Automobile, station wagon	Other motor vehicle	

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					West	Going ahead	Passenger van	Other motor vehicle
2017-May-02, Tue,12:38	Rain	SMV unattended vehicle	P.D. only	Wet	West	Going ahead	Pick-up truck	Unattended vehicle
2017-Oct-16, Mon,00:00	Clear	SMV unattended vehicle	P.D. only	Dry	Unknown	Unknown	Unknown	Unattended vehicle
2017-Nov-09, Thu,15:00	Clear	SMV unattended vehicle	P.D. only	Dry	West	Unknown	Unknown	Unattended vehicle

Location: CATHERINE ST btwn O'CONNOR ST & TO BE DETERMINED

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
2013-Aug-28, Wed,22:43	Clear	Rear end	P.D. only	Dry	West	Slowing or stopping Pick-up truck	Other motor vehicle	
					West	Slowing or stopping Automobile, station wagon	Other motor vehicle	
					West	Slowing or stopping Automobile, station wagon	Other motor vehicle	
2015-Jan-12, Mon,11:08	Clear	Other	P.D. only	Wet	East	Going ahead Snow plow	Pole (utility, power)	
					West	Going ahead Pick-up truck	Other motor vehicle	
2017-Nov-03, Fri,11:35	Clear	Rear end	P.D. only	Dry	West	Slowing or stopping Pick-up truck	Other motor vehicle	
					West	Stopped Passenger van	Other motor vehicle	

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Location: CATHERINE ST btwn TO BE DETERMINED & METCALFE ST (2)

Traffic Control: No control

Total Collisions: 3

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuve	r Vehicle type	First Event	No. Ped
2014-Sep-23, Tue,07:40	Clear	Sideswipe	P.D. only	Dry	West	Changing lanes	Automobile, station wagon	Other motor vehicle	
					West	Stopped	Pick-up truck	Other motor vehicle	
2016-Jan-08, Fri,17:34	Clear	Rear end	Non-fatal injury	Wet	West	Slowing or stopping	g Police vehicle	Skidding/sliding	
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2016-Jun-16, Thu,15:22	Clear	Sideswipe	P.D. only	Dry	West	Changing lanes	Pick-up truck	Other motor vehicle	
					West	Going ahead	Pick-up truck	Other motor vehicle	

Location: CATHERINE ST/HWY 417 O'CONN IC119BR76 @ O'CONN

Traffic Control: Traffic signal Total Collisions: 95

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuve	r Vehicle type	First Event	No. Ped
2012-Jan-03, Tue,16:25	Clear	Angle	P.D. only	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle	
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
					West	Going ahead	Pick-up truck	Other motor vehicle	
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
	0.1							0.11	
2012-Jun-27, Wed,10:36	Clear	Sideswipe	P.D. only	Dry	West	Changing lanes	Automobile, station wagon	Other motor vehicle	
					West	Going ahead	Pick-up truck	Other motor vehicle	

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2012-Jul-17, Tue,23:07	Clear	Angle	Non-fatal injury	Dry	South West	Going ahead Going ahead	Automobile, station wagon Automobile,	Other motor vehicle Other motor
						•	station wagon	vehicle
2012-Jul-26, Thu,21:20	Clear	Angle	P.D. only	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2012-Aug-09, Thu,00:15	Clear	Angle	P.D. only	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2012-Aug-26, Sun,22:42	Clear	Angle	P.D. only	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2012-Sep-01, Sat,00:04	Clear	Sideswipe	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle
					West	Changing lanes	Automobile, station wagon	Other motor vehicle
2012-Sep-02, Sun,19:04	Clear	Other	P.D. only	Dry	East	Reversing	Pick-up truck	Other motor vehicle
					West	Stopped	Automobile, station wagon	Other motor vehicle
2012-Sep-25, Tue,21:30	Clear	Rear end	P.D. only	Dry	West	Slowing or stopping	g Pick-up truck	Other motor vehicle
					West	Stopped	Automobile, station wagon	Other motor vehicle
2012-Dec-25, Tue,21:10	Clear	Angle	P.D. only	Dry	West	Turning right	Automobile, station wagon	Other motor vehicle

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					South	Going ahead	Automobile, station wagon	Other motor vehicle
2013-Jan-17, Thu,09:31	Clear	Sideswipe	P.D. only	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle
					South	Changing lanes	Pick-up truck	Other motor vehicle
2013-Jan-23, Wed,09:57	Clear	Angle	P.D. only	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Pick-up truck	Other motor vehicle
2013-Feb-08, Fri,11:43	Snow	Sideswipe	P.D. only	Loose snow	South	Going ahead	Pick-up truck	Other motor vehicle
					South	Turning right	Pick-up truck	Other motor vehicle
2013-Feb-16, Sat,20:00	Clear	Sideswipe	P.D. only	Dry	South	Changing lanes	Pick-up truck	Other motor vehicle
					South	Going ahead	Pick-up truck	Other motor vehicle
2013-Feb-17, Sun,02:00	Clear	Rear end	P.D. only	Dry	West	Turning left	Pick-up truck	Other motor vehicle
					West	Turning left	Pick-up truck	Other motor vehicle
2013-Mar-20, Wed,09:41	Clear	Angle	P.D. only	Wet	South	Going ahead	Pick-up truck	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2013-May-29, Wed,12:45	Clear	Angle	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle
					South	Going ahead	Passenger van	Other motor vehicle

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2013-Jun-03, Mon,12:20	Clear	Sideswipe	P.D. only	Dry	West	Changing lanes	Truck - dump	Other motor vehicle
					West	Changing lanes	Automobile, station wagon	Other motor vehicle
					West	Stopped	Delivery van	Other motor vehicle
2013-Jun-11, Tue,15:30	Rain	Rear end	P.D. only	Wet	South	Going ahead	Automobile, station wagon	Other motor vehicle
					South	Stopped	Pick-up truck	Other motor vehicle
2013-Jun-14, Fri,11:04	Clear	Sideswipe	P.D. only	Dry	South	Changing lanes	Automobile, station wagon	Other motor vehicle
					South	Going ahead	Passenger van	Other motor vehicle
					South	Stopped	Passenger van	Other motor vehicle
2013-Jun-22, Sat,16:10	Clear	Sideswipe	P.D. only	Dry	West	Changing lanes	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Passenger van	Other motor vehicle
2013-Jun-24, Mon,12:10	Clear	Angle	P.D. only	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2013-Jul-07, Sun,08:00	Clear	Angle	P.D. only	Dry	South	Going ahead	Pick-up truck	Other motor vehicle
					West	Going ahead	Pick-up truck	Other motor vehicle
2013-Jul-15, Mon,12:28	Clear	Turning movement	P.D. only	Dry	West	Turning left	Pick-up truck	Other motor vehicle

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					West	Going ahead	Pick-up truck	Other motor vehicle
2013-Aug-19, Mon,19:20	Clear	Angle	P.D. only	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2013-Sep-16, Mon,19:54	Clear	Angle	P.D. only	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2013-Nov-06, Wed,10:55	Clear	Turning movement	P.D. only	Dry	West	Turning left	Truck - tractor	Other motor vehicle
					West	Turning left	Automobile, station wagon	Other motor vehicle
2013-Nov-12, Tue,08:35	Clear	Rear end	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle
					West	Stopped	Pick-up truck	Other motor vehicle
2014-Jan-21, Tue,20:01	Clear	Angle	P.D. only	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2014-Feb-11, Tue,11:35	Clear	Sideswipe	P.D. only	Dry	West	Changing lanes	Truck - dump	Other motor vehicle
					West	Changing lanes	Automobile, station wagon	Other motor vehicle
2014-May-01, Thu,08:51	Rain	Sideswipe	P.D. only	Wet	West	Changing lanes	Pick-up truck	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle

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					West	Going ahead	Automobile, station wagon	Other motor vehicle
2014-May-23, Fri,11:50	Clear	Sideswipe	P.D. only	Dry	South	Changing lanes	Pick-up truck	Other motor vehicle
					South	Going ahead	Automobile, station wagon	Other motor vehicle
2014-Jul-06, Sun,22:47	Rain	Sideswipe	P.D. only	Wet	West	Changing lanes	Pick-up truck	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2014-Jul-13, Sun,09:57	Rain	Angle	P.D. only	Wet	South	Going ahead	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Pick-up truck	Other motor vehicle
2014-Jul-17, Thu,17:41	Clear	Turning movement	P.D. only	Dry	West	Turning left	Passenger van	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2014-Sep-18, Thu,08:44	Clear	Sideswipe	P.D. only	Dry	West	Changing lanes	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Truck - dump	Other motor vehicle
2014-Sep-28, Sun,17:03	Clear	Angle	P.D. only	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2014-Dec-08, Mon,15:40	Clear	Sideswipe	P.D. only	Dry	West	Turning left	Truck - closed	Other motor vehicle
					West	Stopped	Pick-up truck	Other motor vehicle

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2014-Dec-11, Thu,16:51	Clear	Other	P.D. only	Wet	East	Reversing	Passenger van	Other motor vehicle
					West	•	Automobile, station wagon	Other motor vehicle
2014-Dec-22, Mon,14:30	Clear	Rear end	P.D. only	Dry	South	Slowing or stopping	Automobile, station wagon	Other motor vehicle
					South		Automobile, station wagon	Other motor vehicle
2015-Jan-03, Sat,12:40	Snow	SMV other	Non-fatal injury	Wet	South	•	Automobile, station wagon	Ran off road
2015-Jan-04, Sun,18:43	Clear	Angle	P.D. only	Slush	South		Automobile, station wagon	Other motor vehicle
					West	•	Automobile, station wagon	Other motor vehicle
2015-Jan-15, Thu,10:39	Clear	Turning movement	P.D. only	Wet	West	Turning left	Truck and trailer	Other motor vehicle
					West	Turning left	Passenger van	Other motor vehicle
2015-Jan-16, Fri,19:00	Clear	Rear end	P.D. only	Slush	South	Going ahead	Pick-up truck	Other motor vehicle
					South		Automobile, station wagon	Other motor vehicle
2015-Jan-22, Thu,10:01	Clear	Sideswipe	P.D. only	Dry	West	Changing lanes	Automobile, station wagon	Other motor vehicle
					West		Automobile, station wagon	Other motor vehicle
2015-Jan-27, Tue,08:10	Clear	Rear end	P.D. only	Ice	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle

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					West	Stopped	Automobile, station wagon	Other motor vehicle
2015-Feb-02, Mon,10:04	Snow	SMV other	P.D. only	Packed snow	West	Going ahead	Automobile, station wagon	Pole (sign, parking meter)
2015-Mar-07, Sat,10:38	Clear	Rear end	P.D. only	Dry	West	Slowing or stopping	g Automobile, station wagon	Other motor vehicle
					West	Stopped	Pick-up truck	Other motor vehicle
2015-Mar-13, Fri,14:12	Clear	Angle	P.D. only	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Pick-up truck	Other motor vehicle
2015-Mar-30, Mon,08:10	Rain	Sideswipe	P.D. only	Wet	West	Changing lanes	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2015-Apr-26, Sun,20:58	Clear	SMV other	P.D. only	Dry	South	Slowing or stopping	g Automobile, station wagon	Pole (sign, parking meter)
2015-May-01, Fri,14:58	Clear	Angle	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle
					South	Going ahead	Automobile, station wagon	Other motor vehicle
2015-May-07, Thu,22:04	Clear	Turning movement	P.D. only	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Pick-up truck	Other motor vehicle
2015-Jun-09, Tue,11:20	Rain	Rear end	P.D. only	Wet	West	Slowing or stopping	g Automobile, station wagon	Other motor vehicle

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					West	Going ahead	Automobile, station wagon	Other motor vehicle	
					West	Stopped	Police vehicle	Other motor vehicle	
2015-Jun-10, Wed,21:38	Clear	Angle	P.D. only	Wet	South	Turning right	Automobile, station wagon	Other motor vehicle	
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2015-Jul-01, Wed,12:30	Rain	Angle	P.D. only	Wet	West	Going ahead	Pick-up truck	Ran off road	
					South	Going ahead	Pick-up truck	Other motor vehicle	
2015-Jul-03, Fri,15:20	Clear	Turning movement	P.D. only	Dry	South	Turning right	Automobile, station wagon	Other motor vehicle	
					South	Going ahead	Pick-up truck	Other motor vehicle	
2015-Jul-23, Thu,16:57	Clear	Sideswipe	P.D. only	Dry	South	Changing lanes	Passenger van	Other motor vehicle	
					South	Slowing or stopping	g Automobile, station wagon	Other motor vehicle	
2015-Aug-14, Fri,11:53	Clear	SMV other	Non-fatal injury	Dry	South	Turning right	Pick-up truck	Pedestrian	1
2015-Aug-18, Tue,16:07	Clear	Sideswipe	P.D. only	Dry	West	Changing lanes	Pick-up truck	Other motor vehicle	
					West	Turning left	Pick-up truck	Other motor vehicle	
2015-Aug-26, Wed,13:22	Clear	Sideswipe	P.D. only	Dry	West	Turning left	Truck - dump	Other motor vehicle	
					West	Turning left	Police vehicle	Other motor vehicle	

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2015-Oct-22, Thu,10:38	Clear	Sideswipe	P.D. only	Dry	West	Changing lanes	Truck - dump	Other motor vehicle
					West	Changing lanes		Other motor vehicle
2015-Nov-29, Sun,14:28	Clear	Angle	P.D. only	Dry	South	Going ahead	Pick-up truck	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2015-Dec-23, Wed,18:09	Rain	Angle	Non-fatal injury	Wet	South	Going ahead	Pick-up truck	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2015-Dec-01, Tue,15:50	Rain	Sideswipe	P.D. only	Wet	West	Changing lanes	Truck and trailer	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2016-Jan-19, Tue,14:18	Clear	Sideswipe	P.D. only	Loose snow	West	Changing lanes	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Pick-up truck	Other motor vehicle
2016-Jan-25, Mon,20:06	Clear	Angle	P.D. only	Wet	South	Going ahead	Pick-up truck	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2016-Jan-28, Thu,16:00	Clear	Rear end	P.D. only	Dry	South	Turning right	Automobile, station wagon	Other motor vehicle
					South	Turning right	Automobile, station wagon	Other motor vehicle
2016-Feb-18, Thu,08:23	Snow	SMV other	P.D. only	Ice	South	Going ahead	Automobile, station wagon	Skidding/sliding

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2016-May-14, Sat,13:44	Clear	Angle	P.D. only	Dry	West		Automobile, station wagon	Other motor vehicle
					South	Going ahead	Automobile, station wagon	Other motor vehicle
2016-Jul-04, Mon,16:21	Clear	Sideswipe	P.D. only	Dry	West		Automobile, station wagon	Other motor vehicle
					West	Going ahead	Truck and trailer	Other motor vehicle
2016-Jul-11, Mon,19:04	Clear	Rear end	P.D. only	Dry	West	Changing lanes	Unknown	Other motor vehicle
					West		Automobile, station wagon	Other motor vehicle
2016-Jul-31, Sun,09:40	Clear	Other	P.D. only	Dry	East	Reversing	Pick-up truck	Other motor vehicle
					West		Automobile, station wagon	Other motor vehicle
2016-Aug-14, Sun,01:38	Clear	Angle	P.D. only	Dry	South		Automobile, station wagon	Other motor vehicle
_					West		Automobile, station wagon	Other motor vehicle
2016-Oct-02, Sun,08:59	Rain	Rear end	P.D. only	Wet	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle
					West		Automobile, station wagon	Other motor vehicle
2016-Oct-13, Thu,09:06	Rain	Sideswipe	P.D. only	Wet	South	Unknown	Unknown	Other motor vehicle
					South	Stopped	Pick-up truck	Other motor vehicle

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2016-Oct-24, Mon,10:25	Clear	Sideswipe	P.D. only	Dry	West	Unknown	Truck and trailer	Other motor vehicle
					West	Going ahead	Truck - tank	Other motor vehicle
2016-Dec-08, Thu,17:16	Snow	Sideswipe	P.D. only	Wet	South	Changing lanes	Pick-up truck	Other motor vehicle
					South	•	Automobile, station wagon	Other motor vehicle
2016-May-30, Mon,09:35	Clear	Sideswipe	P.D. only	Dry	South		Automobile, station wagon	Other motor vehicle
					South	Going ahead	Automobile, station wagon	Other motor vehicle
2017-Jan-31, Tue,14:50	Clear	Rear end	P.D. only	Dry	South		Automobile, station wagon	Other motor vehicle
_					South	Slowing or stopping	•	Other motor vehicle
2017-Feb-11, Sat,15:35	Clear	Angle	P.D. only	Wet	West		Automobile, station wagon	Other motor vehicle
					South	Going ahead	Automobile, station wagon	Other motor vehicle
2017-Mar-27, Mon,06:22	Freezing Rain	Angle	P.D. only	Wet	West	Going ahead	Pick-up truck	Other motor vehicle
					South	Going ahead	Pick-up truck	Other motor vehicle
2017-Apr-19, Wed,16:41	Rain	Sideswipe	P.D. only	Wet	South	Unknown	Unknown	Other motor vehicle
					South		Automobile, station wagon	Other motor vehicle
2017-Jul-01, Sat,16:30	Clear	Angle	P.D. only	Dry	South		Automobile, station wagon	Other motor vehicle

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					East	•	Automobile, station wagon	Other motor vehicle
2017-Jul-07, Fri,09:40	Clear	Angle	P.D. only	Dry	West	Turning left	Truck and trailer	Other motor vehicle
					South		Automobile, station wagon	Other motor vehicle
2017-Aug-04, Fri,17:08	Clear	Angle	P.D. only	Dry	South		Automobile, station wagon	Other motor vehicle
					West	•	Automobile, station wagon	Other motor vehicle
2017-Aug-17, Thu,07:35	Clear	Angle	P.D. only	Dry	West		Automobile, station wagon	Other motor vehicle
					South	•	Automobile, station wagon	Other motor vehicle
2017-Sep-03, Sun,10:09	Rain	Angle	P.D. only	Wet	South		Automobile, station wagon	Other motor vehicle
					West	•	Automobile, station wagon	Other motor vehicle
2017-Sep-12, Tue,15:43	Clear	Sideswipe	P.D. only	Dry	West	Changing lanes	Automobile, station wagon	Other motor vehicle
					West	Slowing or stopping	Automobile, station wagon	Other motor vehicle
2017-Nov-02, Thu,09:50	Rain	Angle	P.D. only	Wet	South	•	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Pick-up truck	Other motor vehicle
					West		Automobile, station wagon	Other motor vehicle
2017-Nov-15, Wed,18:33	Clear	Sideswipe	P.D. only	Dry	West		Automobile, station wagon	Other motor vehicle

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					West	Going ahead	Passenger van	Other motor vehicle
2017-Dec-09, Sat,16:56	Snow	Rear end	Non-fatal injury	Slush	West	Slowing or stopping Pick-up truck		Other motor vehicle
					West	Stopped	Automobile, station wagon	Other motor vehicle
2017-Dec-15, Fri,19:30	Snow	Sideswipe	P.D. only	Loose snow	West	Changing lanes	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
2017-Dec-21, Thu,02:14	Clear	Angle	P.D. only	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Pick-up truck	Other motor vehicle
2017-Jul-02, Sun,10:15	Clear	Sideswipe	P.D. only	Dry	West	Changing lanes	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle

Location: ELGIN ST btwn ARGYLE AVE & ARGYLE AVE

Traffic Control: No control

Total Collisions: 2

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuve	er Vehicle type	First Event	No. Ped
2016-Aug-05, Fri,16:17	Clear	Other	P.D. only	Dry	South	Reversing	Construction equipment	Other motor vehicle	
					North	Stopped	Automobile, station wagon	Other motor vehicle	
2017-Oct-13, Fri,16:47	Clear	SMV unattended vehicle	Non-fatal injury	Dry	South	Going ahead	Automobile, station wagon	Unattended vehicle	

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Location: ELGIN ST btwn ARGYLE AVE & CATHERINE ST

Traffic Control: No control

Total Collisions: 4

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuve	r Vehicle type	First Event	No. Ped
2013-Dec-20, Fri,09:45	Snow	Angle	P.D. only	Loose snow	North	Reversing	Automobile, station wagon	Other motor vehicle	
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2014-Apr-01, Tue,10:20	Clear	Angle	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle	
					South	Going ahead	Pick-up truck	Other motor vehicle	
2015-Sep-17, Thu,08:50	Clear	SMV other	Non-fatal injury	Dry	East	Turning left	Police vehicle	Pedestrian	1
2017-Jan-17, Tue,15:12	Other	Other	P.D. only	Other	Unknown	Unknown	Unknown	Other motor vehicle	
					North	Unknown	Automobile, station wagon	Other motor vehicle	

Location: METCALFE ST btwn ARGYLE AVE & CATHERINE ST

Traffic Control: No control

Total Collisions: 1

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2014-Jun-04, Wed,00:00	Unknown	SMV unattended vehicle	P.D. only	Unknown	West	Unknown	Unknown	Unattended vehicle	

Location: METCALFE ST btwn CATHERINE ST & CATHERINE ST

Traffic Control: No control

Total Collisions: 1

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuve	er Vehicle type	First Event	No. Ped
2016-Feb-14, Sun,13:30	Clear	Rear end	P.D. only	Ice	East	Slowing or stopping Automobile, station wagon		Other motor vehicle	
					East	Stopped	Automobile, station wagon	Other motor vehicle	

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Location: O'CONNOR ST btwn ARGYLE AVE & CATHERINE ST

Traffic Control: No control

Total Collisions: 5

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2012-Sep-17, Mon,19:10	Clear	Sideswipe	P.D. only	Dry	South	Changing lanes	Automobile, station wagon	Other motor vehicle	
					South	Going ahead	Truck-other	Other motor vehicle	
2014-Feb-14, Fri,15:25	Snow	Sideswipe	P.D. only	Loose snow	South	Changing lanes	Automobile, station wagon	Other motor vehicle	
					South	Going ahead	Passenger van	Other motor vehicle	
2014-Sep-17, Wed,09:01	Clear	Rear end	P.D. only	Dry	South	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
					South	Stopped	Pick-up truck	Other motor vehicle	
2015-Sep-02, Wed,10:57	Clear	Sideswipe	P.D. only	Dry	South	Changing lanes	Pick-up truck	Other motor vehicle	
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2015-Oct-20, Tue,15:50	Clear	Rear end	Non-fatal injury	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle	
					South	Stopped	Automobile, station wagon	Other motor vehicle	
					South	Stopped	Automobile, station wagon	Other motor vehicle	

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City Operations - Transportation Services

Collision Details Report - Public Version

From: January 1, 2012 To: December 31, 2017

Location: MCLEOD ST E @ METCALFE ST E

Traffic Control: No control

Total Collisions: 1

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver Vehicle type	First Event	No. Ped
2016-Jul-22, Fri,09:00	Clear	Rear end	P.D. only	Dry	West	Going ahead Automobile, station wago	Other motor n vehicle	
					West	Slowing or stopping Automobile, station wage		

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APPENDIX F Excerpts of Transportation Brief for 267 O'Connor Street

1. Introduction

From the information provided, a residential development consisting of approximately 510 high-rise condominium units and approximately 4,300 ft² of ground floor retail is being proposed, which will be constructed in 2 phases. The proposed site is bound by O'Connor Street to the west, MacLaren Street to the north and Gilmour Street to the south, with access to/from MacLaren Street. The site, which is municipally known as 267 O'Connor, is currently occupied by a 6 storey office building and a pay & display parking lot. The local context of the site is provided as Figure 1 and the proposed Site Plan is provided as Figure 2.

Figure 1: Local Context

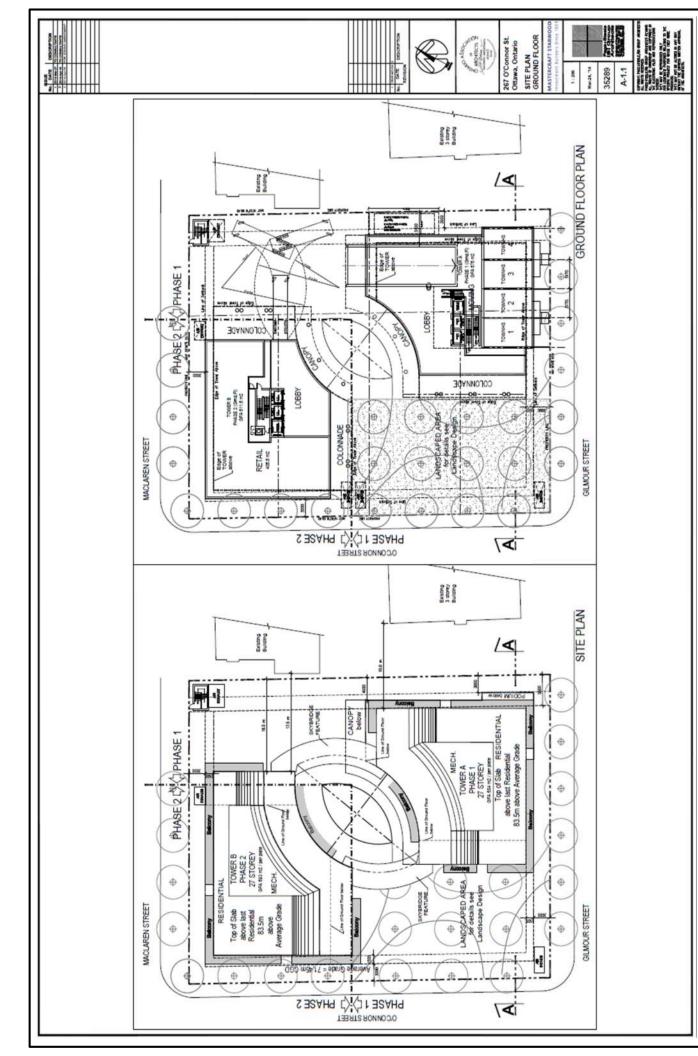


Based on the ensuing trip generation and our review of the City's Transportation Impact Assessment Guidelines (TIA), the proposed development is projected to generate a net increase of less than the City's threshold for requiring a Transportation Impact Assessment. As such, no further traffic analysis is required. However, this modified Transportation Brief has been prepared to assist in the application/review process and captures only the relevant transportation issues, which are as follows:

- Existing traffic conditions at adjacent intersections;
- Future site trip generation; and
- Site Plan issues, including pedestrian access, proposed vehicle access, parking, loading and circulation layout.

For the purpose of this assessment, projected conditions assumes full build-out of Phases 1 and 2.



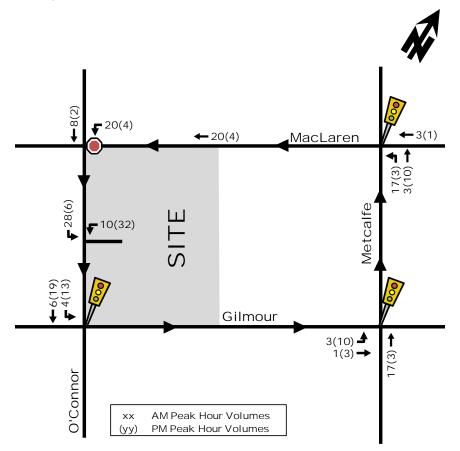




Given the proposed site is currently occupied by an approximate 50,000 ft² office building and a pay/display parking lot, which will be replaced by the proposed development, peak hour traffic counts were conducted at the existing site driveway connection to O'Connor Street to obtain existing peak hour site-generated trips. Assuming the same traffic distribution as the 'new' site-generated trips, the observed office/parking lot site-generated trips were removed from the study area network to obtain a 'net' increase in total projected peak hour traffic volumes. Existing office/parking lot site-generated traffic is illustrated as Figure 6 and it equates to 38 veh/h two-way total during both the morning and afternoon peak hours.

Removing the office/parking lot site-generated traffic, the projected 'net' increase in study area traffic is approximately 58 and 66 veh/h during the weekday morning and afternoon peak hours, respectively. This amount of 'new' traffic equates to approximately 1 new vehicle every minute.

Figure 6: Existing Site-Generated Traffic Volumes

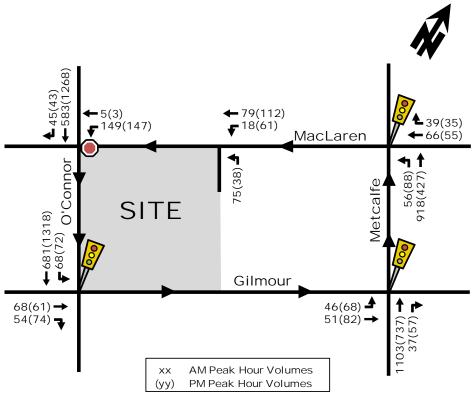




4. FUTURE TRAFFIC OPERATIONS

For the purpose of this study, the total projected traffic volumes were derived by superimposing site-generated traffic volumes (Figure 5) onto existing traffic volumes (Figure 3) and existing office/parking lot site-generated traffic volumes (Figure 6) were removed (i.e. Figure 5 + Figure 3 – Figure 6 = Total 'net' projected traffic volumes). The resulting total 'net' projected traffic volumes are illustrated as Figure 7.

Figure 7: Total Projected 'Net' Traffic Volumes



The following Table 7 provides a summary of projected performances of study area intersections at full site build-out. The SYNCHRO model output of projected conditions is provided within Appendix C.

Table 7: Projected Performance of Study Area Intersections

Weekday AM Peak (PM Peak)												
	'Critical Mov	ement′	'Intersection as a Whole'									
LoS	max. v/c or avg. delay (s)	Movement	Delay (s)	LoS	v/c 0.34(0.19) 0.26(0.37) 0.41(0.31)							
A(A)	0.35(0.20)	NBT(WBT)	3.3(3.0)	A(A)	0.34(0.19)							
A(A)	0.34(0.38)	EBT(EBT)	7.3(7.2)	A(A)	0.26(0.37)							
A(A)	0.43(0.31)	NBT(NBT)	9.8(10.0)	A(A)	0.41(0.31)							
B(B)	11.5(13.9)	WBL(WBL)	2.3(1.4)	-	-							
A(B)	9.6(10.4)	NBL(NBL)	5.0(4.1)	-	-							
	A(A) A(A) A(A) B(B) A(B)	Critical Movement of Control of C	'Critical Movement' LoS max. v/c or avg. delay (s) Movement A(A) 0.35(0.20) NBT(WBT) A(A) 0.34(0.38) EBT(EBT) A(A) 0.43(0.31) NBT(NBT) B(B) 11.5(13.9) WBL(WBL) A(B) 9.6(10.4) NBL(NBL)	'Critical Movement' 'Intersection LoS max. v/c or avg. delay (s) Movement Delay (s) A(A) 0.35(0.20) NBT(WBT) 3.3(3.0) A(A) 0.34(0.38) EBT(EBT) 7.3(7.2) A(A) 0.43(0.31) NBT(NBT) 9.8(10.0) B(B) 11.5(13.9) WBL(WBL) 2.3(1.4) A(B) 9.6(10.4) NBL(NBL) 5.0(4.1)	Critical Movement' 'Intersection as an armonic of the content of the co							

Note: Analysis of signalized intersections assumes a PHF of 0.95 and a saturation flow rate of 1800 veh/h/lane.



APPENDIX G Transportation Demand Management

TDM-Supportive Development Design and Infrastructure Checklist:

Residential Developments (multi-family or condominium)

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

	TDM-s	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)	☐ - N/A; no rapid transit routes in area
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-s	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 onroad 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-s	supportive design & infrastructure measures: Residential developments	Check if completed & add descriptions, explanations or plan/drawing references
	2.	WALKING & CYCLING: END-OF-TRIP FACILITY	TIES
	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 multifamily 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-s	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)	

APPENDIX H

Intersection MMLOS

Review of the multi-modal levels of service has been conducted at the signalized intersections within the study area. The MMLOS evaluations are based on existing conditions for intersections at O'Connor Street and Metcalfe Street, and based on the Elgin Street Renewal for intersections at Elgin Street. The functional design of the Elgin Street Renewal within the study area is included in **Figure 5** of the TIA.

Pedestrian Level of Service (PLOS)

Exhibit 5 of the Addendum to the MMLOS guidelines has been used to evaluate the PLOS at all signalized intersections within the study area. Exhibit 22 of the MMLOS guidelines suggests a target PLOS B for Traditional Main Streets (Elgin Street) and a target PLOS C for all roadways within the General Urban Area (O'Connor Street, Metcalfe Street West, Argyle Avenue, and Catherine Street). The results of the intersection PLOS analysis are summarized in the following tables:

- Intersections at O'Connor Street: Tables 1 and 2:
- Intersections at Metcalfe Street West: **Tables 3** and **4**;
- Intersections at Elgin Street: Tables 5 and 6.

Bicycle Level of Service (BLOS)

Exhibit 12 of the MMLOS guidelines has been used to evaluate the BLOS at all signalized intersections within the study area. Within the General Urban Area, Exhibit 22 of the MMLOS guidelines suggests a target BLOS B for Cross-Town Bikeways (O'Connor Street), a target BLOS C for Spine Routes (Argyle Avenue between O'Connor Street and Metcalfe Street West, and Metcalfe Street West south of Argyle Avenue), and a target BLOS D for roadways with no bike classification (Catherine Street, and Argyle Avenue between Metcalfe Street West and Elgin Street). On Traditional Main Streets, Exhibit 22 of the MMLOS guidelines suggests a target BLOS C for Local Routes (Elgin Street). The results of the intersection BLOS analysis are summarized in the following tables:

- Intersections at O'Connor Street: **Table 7**;
- Intersections at Metcalfe Street West: Table 8;
- Intersections at Elgin Street: Table 9.

Transit Level of Service (TLOS)

Exhibit 16 of the MMLOS guidelines has been used to evaluate the existing TLOS at relevant intersections within the study area. Regardless of land use designation, Transit Priority Corridors with Isolated Measures (Elgin Street and Catherine Street) have a suggested target TLOS D. As no other roadways provide transit service, only Elgin Street and Catherine Street have been evaluated for TLOS.

The results of the intersection TLOS analysis are summarized in Table 10.

Truck Level of Service (TkLOS)

Exhibit 21 of the MMLOS guidelines has been used to evaluate the TkLOS at all intersections within the study area. Within the General Urban Area, Exhibit 22 of the MMLOS guidelines suggests a target TkLOS D for arterial roadways designated as truck routes (O'Connor Street and Catherine Street), and a target TkLOS E for arterial roadways not designated as truck routes (Metcalfe Street and Argyle Avenue between Metcalfe Street West and East). On Traditional Main Streets, Exhibit 22 of the MMLOS guidelines suggests a target TkLOS D for arterial roadways designated as truck routes (Elgin Street). No targets for TkLOS are set for local roadways (Argyle Avenue between O'Connor Street and Metcalfe Street West, and Argyle Avenue between Metcalfe Street East and Elgin Street).

The results of the intersection TkLOS analysis are summarized in Table 11.

Vehicular Level of Service (Auto LOS)

Exhibit 22 of the MMLOS guidelines suggests a target Auto LOS D for Traditional Main Streets and all roadways within the General Urban Area. Synchro analysis was performed to evaluate the performance of all intersections during the AM and PM peak hours. The intersection parameters used in the analysis are consistent with the 2017 TIA Guidelines (Saturation Flow Rate: 1800 vphpl, Peak Hour Factor: 0.9). Signal timing plans are included in **Appendix I**. Detailed Synchro reports are included in **Appendix J**.

- The results of the intersection Auto LOS analysis are summarized in **Table 12**.
- Approaches where queueing issues have been identified are listed with the associated 50thand 95th-percentile queue lengths are summarized in **Table 13**.

Intersection MMLOS Summary

A summary of the results of the intersection MMLOS analysis is provided in the following tables:

- Intersections at O'Connor Street: Table 14;
- Intersections at Metcalfe Street West: Table 15:
- Intersections at Elgin Street: Table 16.

Intersection MMLOS Analysis 100 Argyle Avenue

Table 1: PLOS Intersection Analysis – O'Connor Street/Argyle Avenue

CRITERIA	North Approach		South Approach		East Approach		West Approach	
			PETSI SCORE					
CROSSING DISTANCE CONDITIONS	3							
Median > 2.4m in Width	No		No	00	No	400	No	400
Lanes Crossed (3.5m Lane Width)	4	88	4	88	2	120	2	120
SIGNAL PHASING AND TIMING				•				•
Left Turn Conflict	No Left Turn/Prohibited	0	No Left Turn/Prohibited	0	Permissive	-8	No Left Turn/Prohibited	0
Right Turn Conflict	No Right Turn/Prohibited	0	Permissive or Yield	-5	No Right Turn/Prohibited	0	No Right Turn/Prohibited	0
Right Turn on Red	N/A	0	RTOR Allowed	-3	N/A	0	N/A	0
Leading Pedestrian Interval	No	-2	No	-2	No	-2	No	-2
CORNER RADIUS								
Parallel Radius	No Right Turn	0	> 5m to 10m	-5	No Right Turn	0	No Right Turn	0
Parallel Right Turn Channel	No Right Turn	0	No Right Turn Channel	-4	No Right Turn	0	No Right Turn	0
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	Standard	-7	Standard	-7	Standard	-7	Standard	-7
	PETSI SCORE	79		62		103		111
	LOS	В		С		Α		Α
			DELAY SCOR	E				
Cycle Length		100		100		100		100
Pedestrian Walk Time		10.4		10.4		61.8		61.8
	DELAY SCORE	40.1		40.1		7.3		7.3
	Los	E		E		Α		Α
	OVERALL	Е		Е		Α		Α

Table 2: PLOS Intersection Analysis – O'Connor Street/Catherine Street

CRITERIA	North Approach		South Approach		East Approach		West Approach		Southwest Approach	
				PE	TSI SCORE					
CROSSING DISTANCE CONDITIONS										
Median > 2.4m in Width	No	88	No	88	No	72	No	88	No	120
Lanes Crossed (3.5m Lane Width)	4	00	4	00	5	7 /2	4	00	2	120
SIGNAL PHASING AND TIMING										
Left Turn Conflict	No Left Turn/Prohibited	0	Permissive	-8	No Left Turn/Prohibited	0	No Left Turn/Prohibited	0	Permissive	-8
Right Turn Conflict	No Right Turn/Prohibited	0	No Right Turn/Prohibited	0	No Right Turn/Prohibited	0	Permissive or Yield	-5	No Right Turn/Prohibited	0
Right Turn on Red	N/A	0	N/A	0	N/A	0	RTOR Allowed	-3	N/A	0
Leading Pedestrian Interval	No	-2	No	-2	No	-2	No	-2	No	-2
CORNER RADIUS										
Parallel Radius	No Right Turn	0	No Right Turn	0	No Right Turn	0	> 3m to 5m	-4	No Right Turn	0
Parallel Right Turn Channel	No Right Turn	0	No Right Turn	0	No Right Turn	0	No Right Turn Channel	-4	No Right Turn	0
Perpendicular Radius	N/A	0	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	N/A	0
CROSSING TREATMENT	-									
Treatment	Standard	-7	Standard	-7	Standard	-7	Standard	-7	Standard	-7
	PETSI SCORE	79		71		63		63		103
	LOS	В		С		С		С		Α
				DEI	AY SCORE					
Cycle Length		100		100		90		90		100
Pedestrian Walk Time		26.1		26.1		30.1		30.1		7.1
	DELAY SCORE	27.3		27.3		19.9		19.9		43.2
	LOS	С		С		В		В		E
	OVERALL	С		С		С		С		E

Intersection MMLOS Analysis 100 Argyle Avenue

Table 3: PLOS Intersection Analysis - Metcalfe Street West/Argyle Avenue

CRITERIA	North Approach		South Approach		East Approach		West Approach	
			PETSI SCORE					
CROSSING DISTANCE CONDITIONS								
Median > 2.4m in Width	N/A		No		N/A		No	400
Lanes Crossed (3.5m Lane Width)	N/A	0	4	88	N/A	0	2	120
SIGNAL PHASING AND TIMING				•		•		
Left Turn Conflict	N/A	0	No Left Turn/Prohibited	0	N/A	0	No Left Turn/Prohibited	0
Right Turn Conflict	N/A	0	No Right Turn/Prohibited	0	N/A	0	No Right Turn/Prohibited	0
Right Turn on Red	N/A	0	N/A	0	N/A	0	N/A	0
Leading Pedestrian Interval	N/A	0	No	-2	N/A	0	No	-2
CORNER RADIUS	<u> </u>							
Parallel Radius	N/A	0	No Right Turn	0	N/A	0	No Right Turn	0
Parallel Right Turn Channel	N/A	0	No Right Turn	0	N/A	0	No Right Turn	0
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	<u> </u>							
Treatment	N/A	0	Standard	-7	N/A	0	Standard	-7
	PETSI SCORE	-		79		-		111
	LOS	-		В		-		Α
			DELAY SCOR	E				
Cycle Length		-		100		-		100
Pedestrian Walk Time		-		12.6		-		63.5
	DELAY SCORE	-		38.2		-		6.7
	LOS	-		D		-		Α
	OVERALL	-		D	•	-		Α

Table 4: PLOS Intersection Analysis – Metcalfe Street West/Catherine Street/Highway 417 (Exit 119)

CRITERIA	North Approach		South Approach		East Approach		West Approach	
			PETSI SCORE					
CROSSING DISTANCE CONDITIONS	S							
Median > 2.4m in Width	No	88	N/A	0	N/A	0	Yes	30
Lanes Crossed (3.5m Lane Width)	4	00	N/A	0	N/A	0	8	30
SIGNAL PHASING AND TIMING								
Left Turn Conflict	No Left Turn/Prohibited	0	N/A	0	N/A	0	Permissive	-8
Right Turn Conflict	Protected	0	N/A	0	N/A	0	No Right Turn/Prohibited	0
Right Turn on Red	RTOR Prohibited	0	N/A	0	N/A	0	N/A	0
Leading Pedestrian Interval	No	-2	N/A	0	N/A	0	No	-2
CORNER RADIUS					-			
Parallel Radius	> 5m to 10m	-5	N/A	0	N/A	0	No Right Turn	0
Parallel Right Turn Channel	No Right Turn Channel	-4	N/A	0	N/A	0	No Right Turn	0
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	Standard	-7	N/A	0	N/A	0	Standard	-7
	PETSI SCORE	70		-		-		13
	LOS	С		-		-		F
			DELAY SCORE					
Cycle Length		90		-		-		100
Pedestrian Walk Time		7.7		-		-		19.7
	DELAY SCORE	37.6		-		-		32.2
	Los	D		-		-		D
	OVERALL	D		-		-	•	F

Intersection MMLOS Analysis 100 Argyle Avenue

Table 5: PLOS Intersection Analysis – Elgin Street/Argyle Avenue

CRITERIA	North Approach		South Approach		East Approach		West Approach	
			PETSI SCORE					
CROSSING DISTANCE CONDITIONS								
Median > 2.4m in Width	N/A	0	No	405	N/A	0	No	105
Lanes Crossed (3.5m Lane Width)	N/A	0	3	105	N/A	0	3	105
SIGNAL PHASING AND TIMING	·			•		*	•	
Left Turn Conflict	N/A	0	No Left Turn/Prohibited	0	N/A	0	No Left Turn/Prohibited	0
Right Turn Conflict	N/A	0	Permissive or Yield	-5	N/A	0	No Right Turn/Prohibited	0
Right Turn on Red	N/A	0	RTOR Allowed	-3	N/A	0	N/A	0
Leading Pedestrian Interval	N/A	0	No	-2	N/A	0	No	-2
CORNER RADIUS	<u>. </u>							
Parallel Radius	N/A	0	> 5m to 10m	-5	N/A	0	No Right Turn	0
Parallel Right Turn Channel	N/A	0	No Right Turn Channel	-4	N/A	0	No Right Turn	0
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	N/A	0	Standard	-7	N/A	0	Standard	-7
	PETSI SCORE			79		-		96
	LOS	-		В		-		Α
			DELAY SCOR	E				
Cycle Length		-		75		-		75
Pedestrian Walk Time		-		16.1		-		31.4
	DELAY SCORE	-		23.1		-		12.7
	LOS	-		С		-		В
	OVERALL	-		С		-		В

Table 6: PLOS Intersection Analysis – Elgin Street/Catherine Street

CRITERIA	CRITERIA North Approach		South Approach		East Approach		West Approach	
			PETSI SCORE					
CROSSING DISTANCE CONDITIONS	S							
Median > 2.4m in Width	No	88	N/A	0	No	120	No	105
Lanes Crossed (3.5m Lane Width)	4	00	N/A	0	2	120	3	105
SIGNAL PHASING AND TIMING								
Left Turn Conflict	No Left Turn/Prohibited	0	N/A	0	No Left Turn/Prohibited	0	Permissive	-8
Right Turn Conflict	Permissive or Yield	-5	N/A	0	No Right Turn/Prohibited	0	Permissive or Yield	-5
Right Turn on Red	RTOR Allowed	-3	N/A	0	N/A	0	RTOR Allowed	-3
Leading Pedestrian Interval	No	-2	N/A	0	No	-2	No	-2
CORNER RADIUS								
Parallel Radius	> 5m to 10m	-5	N/A	0	No Right Turn	0	> 10m to 15m	-6
Parallel Right Turn Channel	No Right Turn Channel	-4	N/A	0	No Right Turn	0	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	Standard	-7	N/A	0	Standard	-7	Standard	-7
	PETSI SCORE	62		-		111		70
	LOS	С		-		Α		С
			DELAY SCORE					
Cycle Length		75		-		75		75
Pedestrian Walk Time		6.9		-		24.4		24.4
	DELAY SCORE	30.9		-		17.1		17.1
	Los	D		-		В		В
	OVERALL	D		-	•	В	•	С

Table 7: BLOS Intersection Analysis – O'Connor Street

Approach	Bikeway Facility Type	Criteria	Travel Lanes and/or Speed	BLOS
O'Connor Street/	Argyle Avenue			
North Approach	Cycle Track	Right Turn Lane Characteristics	No right turn	-
North Approach	Cycle Track	Left Turn Accommodation	No lanes crossed, cyclists to the left of vehicular traffic	А
South Approach	Cycle Trock	Right Turn Lane Characteristics	Cycle track remains to the right of right turn lane	А
	Cycle Track	Left Turn Accommodation	No left turn	-
Mast Approach	Mixed Troffic	Right Turn Lane Characteristics	Shared through/right turn lane	Α
West Approach	Mixed Traffic	Left Turn Accommodation	No left turn	-
O'Connor Street/	Catherine Stree	et		
North Approach	Cycle Trock	Right Turn Lane Characteristics	Two-stage bike box (may be used for right turns)	А
North Approach	Cycle Track	Left Turn Accommodation	No left turn	-
South Approach	Cyclo Track	Right Turn Lane Characteristics	No right turn	-
South Approach	Cycle Track	Left Turn Accommodation	Two-stage bike box	Α
Foot Approach	Mixed Traffic	Right Turn Lane Characteristics	Shared through/right turn lane	А
East Approach	wiixeu ITailic	Left Turn Accommodation	Two lanes crossed; ≥ 50 km/h	F

Table 8: BLOS Intersection Analysis – Metcalfe Street West

Approach	Bikeway Facility Type	Criteria	Travel Lanes and/or Speed	BLOS
Metcalfe Street/A	rgyle Avenue			
Courth Approach	Mixed Traffic	Right Turn Lane Characteristics	No through	-
South Approach	wixed frame	Left Turn Accommodation	No left turn	-
West Approach	Mixed Troffic	Right Turn Lane Characteristics	No right turn	-
west Approach	Mixed Traffic	Left Turn Accommodation	No left turn	-
Metcalfe Street/C	atherine Street	:/Highway 417 (Exi	t 119)	
South Approach	Mixed Traffic	Right Turn Lane Characteristics	No right turn	-
South Approach	wixed frame	Left Turn Accommodation	Two lanes crossed; ≥ 50 km/h	F
East Approach	Mixed Traffic	Right Turn Lane Characteristics	Shared through/right turn lane	А
(Catherine Street)	wiixed Frailic	Left Turn Accommodation	No left turn	-

Table 9: BLOS Intersection Analysis – Elgin Street

Approach	Bikeway Facility Type	Criteria	Travel Lanes and/or Speed	BLOS
Elgin Street/Argy	le Avenue			
North Approach	Mixed Traffic	Right Turn Lane Characteristics	No right turn	-
Попп Арргоасп	wixed frame	Left Turn Accommodation	No left turn	-
South Approach	Mixed Traffic	Right Turn Lane Characteristics	No right turn	-
South Approach	Wilked Hallic	Left Turn Accommodation	No left turn	-
West Approach	Mixed Traffic	Right Turn Lane Characteristics	No through	Α
West Approach	Mixeu Trailic	Left Turn Accommodation	Dual left turn lanes	F
Elgin Street/Cath	erine Street			
North Approach	Mixed Traffic	Right Turn Lane Characteristics	Shared through/right turn lane	А
North Approach	Mixed Trailic	Left Turn Accommodation	No left turn	-
Cauth Annacach	Missad Troffia	Right Turn Lane Characteristics	No right turn	-
South Approach	Mixed Traffic	Left Turn Accommodation	One lane crossed; > 50 km/h	F
Foot Approach	Mixed Traffic	Right Turn Lane Characteristics	Right turn lane between 25m and 50m, turning speed ≤ 25 km/h	D
East Approach	wixed Frailic	Left Turn Accommodation	No lane crossed; ≥ 50 km/h	D

Table 10: TLOS Intersection Analysis

o intersection Analysis									
Approach	Delay ⁽¹⁾	TLOS							
O'Connor Street/Cather	rine Street								
East Approach 30 sec D									
Metcalfe Street West/Catherine Street/Highway 417 (Exit 119)									
East Approach (Catherine Street) ⁽²⁾	35 sec	E							
Elgin Street/Argyle Ave	nue								
North Approach	10 sec	В							
South Approach	10 sec	В							
Elgin Street/Catherine Street									
North Approach	15 sec	С							
South Approach	15 sec	С							

Delay based on existing traffic outputs from Synchro analysis
 Transit service approaches intersection from Catherine Street only

Table 11: TkLOS Intersection Analysis

Approach	Effective Corner Radius	Number of Receiving Lanes on Departure from Intersection	TkLOS						
O'Connor Street/Argy	le Avenue								
West Approach	< 10m	3	D						
O'Connor Street/Catherine Street									
North Approach	< 10m	3	D						
Metcalfe Street West/Argyle Avenue									
South Approach	< 10m	2	D						
Metcalfe Street West/0	Catherine Street/Highwa	ay 417 (Exit 119)							
East Approach	10m to 15m	2	В						
Southeast Approach	> 15m	2	Α						
Elgin Street/Argyle Av	renue								
West Approach	< 10m	1	F						
Elgin Street/Catherine	Street								
North Approach	10m to 15m	1	E						
East Approach	< 10m	2	D						

Table 12: Auto LOS Intersection Analysis - Existing

	,	AM Pea	ık		PM Pea	nk
Intersection	Max v/c or Delay	Los	Movement	Max v/c or Delay	Los	Movement
O'Connor Street/ Argyle Avenue	0.44	Α	EBT	0.84	D	EBT
O'Connor Street/ Catherine Street	0.67	В	SBR	0.86	D	SBR
Metcalfe Street West/ Argyle Avenue	0.91	E	NBR	0.72	С	EBT
Metcalfe Street West/ Catherine Street/ Highway 417 (Exit 119)	1.11	F	NWBR	0.77	С	NWBR
Elgin Street/ Argyle Avenue	0.71	С	EBL	0.79	С	SBT
Elgin Street/ Catherine Street	0.33	Α	NBT/WBR	0.74	С	SBT
Metcalfe Street East/ McLeod Street ⁽¹⁾	26 sec	D	WBT	11 sec	В	WBT
Argyle Avenue/ Site Access ⁽¹⁾	14 sec	В	NBR	11 sec	В	NBR

^{1.} Unsignalized intersection

Table 13: Existing Queues Over Capacity

_			AM	Peak		PM Peak				
Intersection	Mvmt	v/c	LOS	50 th % Queue (m)	95 th % Queue (m)	v/c	LOS	50 th % Queue (m)	95 th % Queue (m)	
O'Connor Street/ Argyle Avenue	SBT	0.41	Α	27	36	0.76	С	90	#115	
O'Connor Street/ Catherine Street	SBR	0.67	В	41	#111	0.86	D	22	m#189	
Metcalfe Street West/ Catherine Street/ Hwy 417 (Exit 119)	NBT	0.96	Е	~83	#120	0.40	А	28	40	
Elgin Street/ Argyle Avenue	SBT	0.33	Α	20	41	0.79	С	71	#175	

m: volume for the 95th percentile queue is metered by an upstream signal #: volume for the 95th percentile cycle exceeds capacity ~: approach is above capacity

Table 14: Intersection MMLOS Summary – O'Connor Street

	Intersection		O'Connor Street	/Argyle Avenue		O'Connor Street/Catherine Street					
	intersection	North	South	East	West	North	South	East	West	Southwest	
	Island Refuge	No	No	No	No	No	No	No	No	No	
	Lanes	4	4	2	2	4	4	5	4	2	
	Conflicting Left Turns	No Left Turn	No Left Turn	Permissive	No Left Turn	No Left Turn	Permissive	No Left Turn	No Left Turn	Permissive	
	Conflicting Right Turns	No Right Turn	Permissive/Yield	No Right Turn	No Right Turn	No Right Turn	No Right Turn	No Right Turn	Permissive/Yield	No Right Turn	
	Right Turn on Red	-	RTOR Allowed	-	-	-	-	-	RTOR Allowed	-	
_	Ped Leading Interval	No	No	No	No	No	No	No	No	No	
<u>a</u> .	Parallel Radius	-	> 5m to 10m	-	-	-	-	-	> 3m to 5m	-	
Pedestrian	Parallel Channel	-	No Channel	=	-	-	-	-	No Channel	-	
ě	Perpendicular Radius	-	-	-	-	-	-	-	-	-	
ě	Perpendicular Channel	-	-	-	-	-	-	-	-	-	
-	Crosswalk Type	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard	
	PETSI Score	79	62	103	111	79	71	63	63	103	
	Delay Score	40.1	40.1	7.3	7.3	27.3	27.3	19.9	19.9	43.2	
	Level of Service	Е	Е	A	A	С	С	С	С	Е	
	Level of Service		E					Е			
	Target							С			
	Type of Bikeway	Cycle Track	Cycle Track	=	Mixed Traffic	Cycle Track	Cycle Track	Mixed Traffic	-	=	
	Turning Speed	Slow	Slow	=	Slow	Slow	Slow	Slow	-	-	
	Right Turn Storage	-	-	=	-	-	-	=	-	-	
	Dual Right Turn Lanes	-	-	-	No	No	-	No	-	•	
بد	Shared Through-Right Lane	-	-	-	Yes	Yes	-	Yes	-	-	
<u>:</u>	Bike Box	No	-	-	-	Yes	Yes	No	-	-	
Cyclist	Lanes Crossed for Left Turns	0	-	-	-	-	-	2	-	-	
ပ	Dual Left Turn Lanes	No	-	-	-	-	No	No	-	-	
	Approach Speed	60 km/h	60 km/h	-	60 km/h	60 km/h	60 km/h	60 km/h	-	-	
	Level of Service	A	A	-	A	А	A	F	-	-	
			P					F			
	Target			3				В			
t	Average Signal Delay	-	-	-	-	-	-	30 sec	-	-	
ısi	Level of Comice	-	-	•	-	-	-	D	-		
Transit	Level of Service							D			
F	Target							D			
	Turning Radius	-	-	-	< 10m	< 10m	-	-	-	-	
*	Receiving Lanes	-	-	-	3	3	-	-	-	-	
Truck		-	_	•	D	D	_	•	-	•	
Ĕ	Level of Service)				D			
	Target							D			
Auto	Level of Service	D				D					
Ā	Target)				D			

Table 15: Intersection MMLOS Summary – Metcalfe Street West

	Intersection		Metcalfe Street W	est/Argyle Avenue			Metcalfe Street Wes	t/Catherine Street/Hi	ghway 417 (Exit 119)	
	intersection	North	South	East	West	North	South	East	West	Southeast
	Island Refuge	-	No	-	No	No	-	-	Yes	-
	Lanes	-	4	-	2	4	-	-	8	-
	Conflicting Left Turns	-	No Left Turn	-	No Left Turn	No Left Turn	-	-	Permissive	-
	Conflicting Right Turns	-	No Right Turn	-	No Right Turn	Protected	-	-	No Right Turn	-
	Right Turn on Red	-	-	-	-	RTOR Prohibited	-	-	-	-
_	Ped Leading Interval	-	No	-	No	No	-	-	No	-
<u>a</u>	Parallel Radius	-	-	-	-	> 5m to 10m	-	-	-	-
Pedestrian	Parallel Channel	-	-	-	-	No Channel	-	-	-	-
ě	Perpendicular Radius	-	-	-	-	-	-	-	-	-
, a	Perpendicular Channel	-	-	-	-	-	-	-	-	-
	Crosswalk Type	-	Standard	-	Standard	Standard	-	-	Standard	-
	PETSI Score	-	79	-	111	70	-	-	13	-
	Delay Score	-	38.2	-	6.7	37.6	-	-	32.2	-
	Level of Service	-	D	-	A	D	-	-	F	-
								F		
	Target							С		
	Type of Bikeway	-	Mixed Traffic	-	Mixed Traffic	-	Mixed Traffic	Mixed Traffic	-	-
	Turning Speed	=	Slow	=	-	-	Slow	Slow	-	-
	Right Turn Storage	-	-	-	-	-	-	-	-	-
	Dual Right Turn Lanes	-	-	-	-	-	-	No	-	-
پې	Shared Through-Right Lane	-	No	-	-	-	-	Yes	-	-
Cyclist	Bike Box	-	-	-	-	-	No	-	-	-
25	Lanes Crossed for Left Turns	-	-	-	-	-	2	-	-	-
ပ	Dual Left Turn Lanes	-	-	-	-	-	No	-	-	-
	Approach Speed	-	60 km/h	-	60 km/h	-	60 km/h	60 km/h	-	-
	Level of Service	-	-	-	-	-	F	А	-	•
	Level of Service			-				F		
	Target							С		
- 11	Average Signal Delay	-	-	-	-	-	-	35 sec	-	-
Transit		-	-	•	_	_	_	Е	-	
ä	Level of Service							Е		
Ĕ_	Target							D		
	Turning Radius	-	< 10m	-	-	-	-	10m to 15m	-	> 15m
	Receiving Lanes	-	2	-		-	-	2	-	2
Truck		-	D	-	-	<u>.</u>	-	В	_	A
5	Level of Service)	•			В		
	Towns									
	Target							D		
0	Level of Service							F		
Auto										
•	Target)				D		
	<u> </u>									

Table 16: Intersection MMLOS Summary – Elgin Street

	o. Intersection MM200 odininary		Elgin Street/Arg	yle Avenue			Elgin Street/C	atherine Street			
	Intersection	North	South	East	West	North	South	East	West		
	Island Refuge	-	No	-	No	No	-	No	No		
	Lanes	-	3	-	3	4	-	2	3		
	Conflicting Left Turns	-	No Left Turn	-	No Left Turn	No Left Turn	-	No Left Turn	Permissive		
	Conflicting Right Turns	-	Permissive/Yield	=	No Right Turn	Permissive/Yield	-	No Right Turn	Permissive/Yield		
	Right Turn on Red	-	RTOR Allowed	-	-	RTOR Allowed	-	-	RTOR Allowed		
	Ped Leading Interval	-	No	=	No	No	-	No	No		
an	Parallel Radius	-	> 5m to 10m	-	-	> 5m to 10m	-	-	> 10m to 15m		
Pedestrian	Parallel Channel	-	No Channel	-	-	No Channel	-	-	No Channel		
<u>es</u>	Perpendicular Radius	-	-	=	-	-	-	-	-		
φ	Perpendicular Channel	-	-	-	-	-	-	-	-		
<u> </u>	Crosswalk Type	-	Standard	=	Standard	Standard	-	Standard	Standard		
	PETSI Score	-	79	=	96	62	-	111	70		
	Delay Score	-	23.1	=	12.7	30.9	-	17.1	17.1		
	Level of Comice	-	С		В	D	-	В	С		
	Level of Service		С					D			
	Target		В			B					
	Type of Bikeway	Mixed Traffic	Mixed Traffic	-	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	-		
	Turning Speed	-	-	-	Slow	Slow	Slow	Slow	-		
	Right Turn Storage	-	-	-	-	-	-	25m to 50m	-		
	Dual Right Turn Lanes	-	-	-	No	No	-	No	-		
	Shared Through-Right Lane	-	-	-	No	Yes	-	No	-		
<u>:S</u>	Bike Box	-	-	-	No	-	No	No	-		
Cyclist	Lanes Crossed for Left Turns	-	-	-	1	-	1	1	-		
0	Dual Left Turn Lanes	-	-	-	Yes	-	No	No	-		
	Approach Speed	60 km/h	60 km/h	-	60 km/h	60 km/h	60 km/h	60 km/h	-		
		-	-		F	Α	F	D	-		
	Level of Service		F			F					
	Target		С					С			
	Average Signal Delay	10 sec	10 sec	-	-	15 sec	15 sec	-	-		
<u>Si</u>		В	В		-	C	С	-	_		
Transit	Level of Service		В		_			C	·		
Ĕ	Target		D					D			
	Turning Radius	-	-	-	< 10m	10m to 15m	-	< 10m	-		
~	Receiving Lanes	-	-	-	1	1	-	2	-		
2		_	-		F	Е	<u>-</u>	D	-		
Truck	Level of Service		F					<u> </u>			
	Target		D					 D			
Auto	Level of Service		С					С			
Ā	Target		D					D			
4	Target		D					D			

APPENDIX I

Signal Timing Plans

City of Ottawa, Transportation Services Department

Traffic Signal Operations Unit

Intersection:Main:O'ConnorSide:ArgyleController:ATC-3TSD:5488Author:Sarah SaadeDate:19-Jul-2018

Existing Timing Plans[†]

Plan

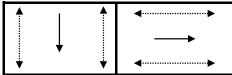
Ped Minimum Time

	AM Peak	Off Peak	PM Peak	Night	Walk	DW	A+R
	1	2	3	4			
Cycle	90	80	100	65			
Offset	16	4	17	6			
SB Thru	66	53	73	38	14	6	3.3+1.9
EB Thru	24	27	27	27	7	11	3.3+2.3

Phasing Sequence[‡]

Plan:





Schedule

Weekday

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

Weekend

Time	Plan
0:15	4
6:30	2
22:00	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

City of Ottawa, Transportation Services Department

Traffic Signal Operations Unit

Intersection:	Main:	O'Connor	Side:	Catherin	е
Controller:	MS-320	0		TSD:	5031
Author:	Sarah S	Saade		Date:	19-Jul-2018

Existing Timing Plans[†]

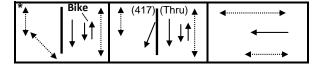
Plan

Ped Minimum Time

	AM Peak	Off Peak	PM Peak	Night	Walk	DW	A+R
	1	2	3	4			
Cycle	90	80	100	70			
Offset	40	5	25	5			
SB Thru	48	53	59	47	7	12	3.3+2.6
NB/SB Bike	48	53	59	47	7	12	3.3+2.6
Ped Xing 417 Ramp	18	18	18	20	7	5	3.3+2.6
SB 417	30	35	41	27	-	-	3.3+2.6
WB Thru	42	27	41	23	7	9	3.3+2.6

Phasing Sequence[‡]

Plan: All



Notes:

- 1) The NS and EW ped crossings have a ped recall
- 2) The SB 417 movement has a maximum recall
- 3) If the 417 ped crossing is not actuated, the time will be given to the SB 417 movement

Schedule

Weekday

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

Weekend

Time	Plan
0:15	4
6:30	2
22:00	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

City of Ottawa, Transportation Services Department

Traffic Signal Operations Unit

Intersection: Main: Metcalfe Side: Argyle

Controller: MS-3200 TSD: 6626

Author: Sarah Saade Date: 19-Jan-2018

Existing Timing Plans[†]

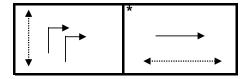
Plan

Ped Minimum Time

	AM Peak	Off Peak	PM Peak	Night	Walk	DW	A+R
	1	2	3	4			
Cycle	90	80	100	65			
Offset	75	12	18	Х			
NB Thru	69	59	74	44	33	5	3.3+2.2
EB Thru	21	21	26	21	7	8	3.3+2.1

Phasing Sequence[‡]

Plan: All



Notes:

1) NB right on red is prohibited.

Schedule

Weekday

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

Weekend

Time	Plan
0:15	4
6:30	2
22:00	4

Notes

(fp): Fully Protected Left Turn

→ Pedestrian signal

^{†:} 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

City of Ottawa, Transportation Services Department

Traffic Signal Operations Unit

Intersection: Main: Catherine / 417 WB Side: Metcalfe

Controller: MS-3200 TSD: <u>5078</u>

Author: Sarah Saade Date: 19-Jul-2018

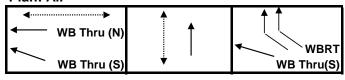
Existing Timing Plans[†]

Plan Ped Minimum Time

	AM Peak	Off Peak	PM Peak	Night	Walk	DW	A+R
	1	2	3	4			
Cycle	90	80	100	70			
Offset	45	47	63	47			
WB Thru (N)	26	30	41	25	7	12	3.3+3.0
WB Thru (S)	56	50	67	42	-	-	3.3+3.0
NB Thru	34	30	33	28	15	7	3.3+3.0
WB Right (fp)	30	20	26	17	-	-	3.3+2.0

Phasing Sequence[‡]

Plan: All



Schedule

Weekday

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

Weekend

Time	Plan
0:15	4
6:30	2
22:00	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

City of Ottawa, Transportation Services Department

Traffic Signal Operations Unit

 Intersection:
 Main:
 Elgin
 Side:
 Argyle

 Controller:
 MS-3200
 TSD:
 5087

 Author:
 Sarah Saade
 Date:
 19-Jul-2018

Existing Timing Plans[†]

Plan

Ped Minimum Time

	AM Peak	Off Peak	PM Peak	Night	Walk	DW	A+R
_	1	2	3	4			
Cycle	75	65	75	60			
Offset	5	59	3	45			
NB Thru	45	40	45	35	-	-	3.3+2.3
SB Thru	45	40	45	35	7	8	3.3+2.3
EB	30	25	30	25	7	9	3.3+1.6

Phasing Sequence[‡]

Plan:



Schedule

Weekday

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

Weekend

Time	Plan
0:15	4
6:30	2
22:00	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

City of Ottawa, Transportation Services Department

Traffic Signal Operations Unit

Intersection: Main: Elgin Side: Catherine

Controller: ATC-3 TSD: 5261

Author: Sarah Saade Date: 19-Jul-2018

Existing Timing Plans[†]

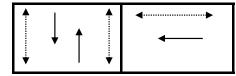
Plan

Ped Minimum Time

	AM Peak	Off Peak	PM Peak	Night	Walk	DW	A+R
	1	2	3	4			
Cycle	75	65	75	60			
Offset	2	63	7	45			
NB Thru	42	32	42	27	8	12	3.3+2.3
SB Thru	42	32	42	27	8	12	3.3+2.3
WB Thru	33	33	33	33	7	20	3.3+2.8

Phasing Sequence[‡]

Plan: All



Schedule

Weekday

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

Weekend

Time	Plan
0:15	4
6:30	2
22:00	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

APPENDIX J

Synchro Analysis

	۶	→	•	•	+	•	1	†	/	/	+	✓
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		f)									4₽	
Traffic Volume (vph)	0	63	62	0	0	0	0	0	0	35	742	0
Future Volume (vph)	0	63	62	0	0	0	0	0	0	35	742	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor		0.93									0.99	
Frt		0.933										
Flt Protected											0.998	
Satd. Flow (prot)	0	1341	0	0	0	0	0	0	0	0	3158	0
Flt Permitted											0.998	
Satd. Flow (perm)	0	1341	0	0	0	0	0	0	0	0	3122	0
Right Turn on Red	•		Yes	-	•	Yes	-	-	Yes	Yes	<u> </u>	Yes
Satd. Flow (RTOR)		50							. 00		32	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		170.3			173.0			119.0			124.7	
Travel Time (s)		12.3			12.5			8.6			9.0	
Confl. Peds. (#/hr)		12.0	81		12.0			0.0		113	0.0	
Confl. Bikes (#/hr)			1							110		16
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 (%)	0.90	8%	5%	0.90	0.90	0.90	0.90	0.90	0.90	0.90	4%	2%
Parking (#/hr)	0 70	0	J /0	0 70	0 70	0 70	0 70	0 70	0 70	0 70	0	2 /0
Adj. Flow (vph)	0	70	69	0	0	0	0	0	0	39	824	0
Shared Lane Traffic (%)	U	70	09	U	U	U	U	U	U	39	024	U
Lane Group Flow (vph)	0	139	0	0	0	0	0	0	0	0	863	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
		Left			Left		Left	Left			Left	
Lane Alignment Median Width(m)	Left	0.0	Right	Left	0.0	Right	Leit	0.0	Right	Left	0.0	Right
Link Offset(m)		2.0			-2.0			0.0			0.0	
		4.0			-2.0 4.9			4.9			4.9	
Crosswalk Width(m)		4.0			4.9			4.9			4.9	
Two way Left Turn Lane	1.06	4 04	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1 12	1.06
Headway Factor	24	1.21	1.06 14	1.06	1.06	1.06 14	1.06	1.06	1.06 14	1.06 24	1.13	1.06
Turning Speed (k/h)	24	NIA	14	24		14	24		14		NIA	14
Turn Type		NA								Perm	NA	
Protected Phases		4								C	6	
Permitted Phases		00.0								6	05.0	
Minimum Split (s)		23.6								25.2	25.2	
Total Split (s)		24.0								66.0	66.0	
Total Split (%)		26.7%								73.3%	73.3%	
Maximum Green (s)		18.4								60.8	60.8	
Yellow Time (s)		3.3								3.3	3.3	
All-Red Time (s)		2.3								1.9	1.9	
Lost Time Adjust (s)		0.0									0.0	
Total Lost Time (s)		5.6									5.2	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)		7.0								14.0	14.0	
Flash Dont Walk (s)		11.0								6.0	6.0	
Pedestrian Calls (#/hr)		40								40	40	
Act Effct Green (s)		18.4									60.8	
Actuated g/C Ratio		0.20									0.68	
v/c Ratio		0.44									0.41	
Control Delay		25.2									6.9	
Queue Delay		0.0									0.0	
Queue Delay		0.0									0.0	

J.Audia, Novatech Synchro 10 Report

	•	→	•	•	←	1	1	†	<u> </u>	>		1
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		С									Α	
Approach Delay		25.2									6.9	
Approach LOS		С									Α	
Queue Length 50th (m)		12.2									27.0	
Queue Length 95th (m)		28.1									36.2	
Internal Link Dist (m)		146.3			149.0			95.0			100.7	
Turn Bay Length (m)												
Base Capacity (vph)		313									2119	
Starvation Cap Reductn		0									0	
Spillback Cap Reductn		0									0	
Storage Cap Reductn		0									0	
Reduced v/c Ratio		0.44									0.41	
Intersection Summary												
Area Type:	Other											
Cycle Length: 90												
Actuated Cycle Length: 90												
Offset: 16 (18%), Referenced to	o phase 6:SB	TL, Start	of Green									
Natural Cycle: 50												
Control Type: Pretimed												
Maximum v/c Ratio: 0.44												
Intersection Signal Delay: 9.5					tersection l							
Intersection Capacity Utilization	า 77.6%			IC	U Level of	Service D						
Analysis Period (min) 15												
Onlite and Discours 4, 010 and	0											
Splits and Phases: 1: O'Coni	nor & Argyle											
								-	→ Ø4			
								24	4s			
K.								Г				

J.Audia, Novatech Synchro 10 Report

	•	*	←	ļ	لر	4			
Lane Group	WBL2	WBL	WBT	SBT	SBR	SBR2	Ø5		
Lane Configurations	*		ተተተ	^	Ž.				
Traffic Volume (vph)	109	221	889	398	318	83			
Future Volume (vph)	109	221	889	398	318	83			
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800			
Lane Util. Factor	1.00	0.91	0.91	0.95	1.00	0.95			
Ped Bike Factor	0.96				0.93				
Frt					0.850				
Flt Protected	0.950		0.990						
Satd. Flow (prot)	1647	0	4712	3293	1519	0			
FIt Permitted	0.950		0.990						
Satd. Flow (perm)	1577	0	4712	3293	1419	0			
Right Turn on Red	Yes					Yes			
Satd. Flow (RTOR)	121				107				
Link Speed (k/h)			50	50					
Link Distance (m)			92.1	119.0					
Travel Time (s)			6.6	8.6					
Confl. Peds. (#/hr)	25					49			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90			
Heavy Vehicles (%)	5%	2%	5%	5%	1%	5%			
Adj. Flow (vph)	121	246	988	442	353	92			
Shared Lane Traffic (%)									
Lane Group Flow (vph)	121	0	1234	442	445	0			
Enter Blocked Intersection	No	No	No	No	No	No			
Lane Alignment	Left	Left	Left	Left	Right	Right			
Median Width(m)			3.7	0.0					
Link Offset(m)			0.0	0.0					
Crosswalk Width(m)			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)	24	24			24	14			
Number of Detectors	1	1	2	2	1				
Detector Template	Left	Left	Thru	Thru	Right				
Leading Detector (m)	6.1	6.1	30.5	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)	6.1	6.1	1.8	1.8	6.1				
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+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			CI+Ex	CI+Ex					
Detector 2 Channel									
Detector 2 Extend (s)			0.0	0.0					
Turn Type	Perm	Perm	NA	NA	custom				
Protected Phases			8	1			5		
Permitted Phases	8	8			6				
Detector Phase	8	8	8	1	6				
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		5.0		
Minimum Split (s)	21.9	21.9	21.9	24.9	15.9		17.9		
Total Split (s)	42.0	42.0	42.0	48.0	30.0		18.0		

J.Audia, Novatech Synchro 10 Report

	€	F	•	ļ	لر	4		
Lane Group	WBL2	WBL	WBT	SBT	SBR	SBR2	Ø5	
Total Split (%)	46.7%	46.7%	46.7%	53.3%	33.3%		20%	
Maximum Green (s)	36.1	36.1	36.1	42.1	24.1		12.1	
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		3.3	
All-Red Time (s)	2.6	2.6	2.6	2.6	2.6		2.6	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0			
Total Lost Time (s)	5.9		5.9	5.9	5.9			
Lead/Lag					Lag		Lead	
Lead-Lag Optimize?					Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	
Recall Mode	Max	Max	Max	C-Max	Max		None	
Walk Time (s)	7.0	7.0	7.0	7.0	0.0		7.0	
Flash Dont Walk (s)	9.0	9.0	9.0	12.0	0.0		5.0	
Pedestrian Calls (#/hr)	30	30	30	20	0		15	
Act Effct Green (s)	36.1		36.1	42.1	38.5			
Actuated g/C Ratio	0.40		0.40	0.47	0.43			
v/c Ratio	0.17		0.65	0.29	0.67			
Control Delay	11.9		33.3	10.6	19.4			
Queue Delay	0.0		0.0	0.0	0.0			
Total Delay	11.9		33.3	10.6	19.4			
LOS	В		С	В	В			
Approach Delay			31.4	15.0				
Approach LOS			С	В				
Queue Length 50th (m)	3.1		63.6	22.9	40.5			
Queue Length 95th (m)	m17.9		78.2	32.8	#111.0			
Internal Link Dist (m)			68.1	95.0				
Turn Bay Length (m)								
Base Capacity (vph)	705		1890	1540	668			
Starvation Cap Reductn	0		0	0	0			
Spillback Cap Reductn	0		0	0	0			
Storage Cap Reductn	0		0	0	0			
Reduced v/c Ratio	0.17		0.65	0.29	0.67			

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 40 (44%), Referenced to phase 1:SBT, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.67

Intersection Signal Delay: 24.9

Intersection Capacity Utilization 58.9%

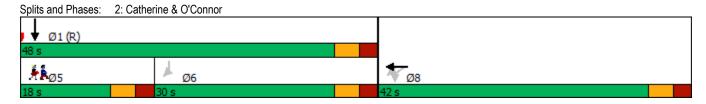
Intersection LOS: C
ICU Level of Service B

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



	-	•	•	←	•	~
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations		LDIX	VVDL	VVDI	NDL	NDIX 7 7
Traffic Volume (vph)	↑ 113	0	0	0	0	1629
Future Volume (vph)	113	0	0	0	0	1629
	1800	1800	1800	1800	1800	1800
Ideal Flow (vphpl) Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.88
	1.00	1.00	1.00	1.00	1.00	
Frt						0.850
Flt Protected	4535	^	^	^	^	0000
Satd. Flow (prot)	1575	0	0	0	0	2696
Flt Permitted						
Satd. Flow (perm)	1575	0	0	0	0	2696
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (k/h)	50			50	50	
Link Distance (m)	173.0			76.9	69.3	
Travel Time (s)	12.5			5.5	5.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	0.30	0%	0%	0.30	1%
Parking (#/hr)	0	J /0	J /0	J /0	J /0	1 /0
	126	0	0	^	^	1810
Adj. Flow (vph)	120	0	0	0	0	1010
Shared Lane Traffic (%)	100	^	_	^	^	4040
Lane Group Flow (vph)	126	0	0	0	0	1810
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Left
Median Width(m)	0.0			0.0	0.0	
Link Offset(m)	0.0			0.0	1.0	
Crosswalk Width(m)	8.0			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.21	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	1.21	14	24	1.00	24	24
Number of Detectors	2	דו	47		47	1
Detector Template	Thru					Right
						6.1
Leading Detector (m)	30.5					
Trailing Detector (m)	0.0					0.0
Detector 1 Position(m)	0.0					0.0
Detector 1 Size(m)	1.8					6.1
Detector 1 Type	CI+Ex					CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0					0.0
Detector 1 Queue (s)	0.0					0.0
Detector 1 Delay (s)	0.0					0.0
Detector 2 Position(m)	28.7					0.0
	1.8					
Detector 2 Size(m)						
Detector 2 Type	CI+Ex					
Detector 2 Channel						
Detector 2 Extend (s)	0.0					
Turn Type	NA					Prot
Protected Phases	4					2
Permitted Phases						
Detector Phase	4					2
Switch Phase						
Minimum Initial (s)	10.0					10.0
Minimum Split (s)	20.4					43.5
Total Split (s)	21.0					69.0
Total Split (%)	23.3%					76.7%

	-	•	•	←	•	<i>></i>	
_ane Group	EBT	EBR	WBL	WBT	NBL	NBR	
Maximum Green (s)	15.6					63.5	
ellow Time (s)	3.3					3.3	
All-Red Time (s)	2.1					2.2	
ost Time Adjust (s)	0.0					0.0	
otal Lost Time (s)	5.4					5.5	
Lead/Lag	J. T					0.0	
ead-Lag Optimize?							
/ehicle Extension (s)	3.0					3.0	
Recall Mode	None					C-Max	
Walk Time (s)	7.0					33.0	
Flash Dont Walk (s)	8.0					5.0	
Pedestrian Calls (#/hr)	30					10	
Act Effct Green (s)	12.7					66.4	
Actuated g/C Ratio	0.14					0.74	
//c Ratio	0.14					0.74	
Control Delay	48.4					5.7	
Queue Delay	0.0					22.7	
Total Delay	48.4					28.4	
.OS	40.4 D					20.4 C	
Approach Delay	48.4				28.4	U	
Approach LOS	40.4 D				20.4 C		
	20.2				U	17.4	
Queue Length 50th (m)	36.2					m12.0	
Queue Length 95th (m)	149.0			52.9	45.3	11112.0	
nternal Link Dist (m)	149.0			52.9	45.3		
Furn Bay Length (m)	273					1989	
Base Capacity (vph)							
Starvation Cap Reductn	0					254	
Spillback Cap Reductn	0					0	
Storage Cap Reductn	0 46					0	
Reduced v/c Ratio	0.46					1.04	
ntersection Summary							
rea Type:	Other						
ycle Length: 90							
actuated Cycle Length: 90							
Offset: 75 (83%), Reference	ed to phase 2:NE	R, Start o	f Green				
latural Cycle: 90							
Control Type: Actuated-Coo	ordinated						
Maximum v/c Ratio: 0.91							
ntersection Signal Delay: 29	9.7			Int	ersection	LOS: C	
tersection Capacity Utiliza	ation 77.6%			IC	U Level of	Service D	
nalysis Period (min) 15							
Volume for 95th percen	ntile queue is met	tered by u	ostream s	ignal.			
Splits and Phases: 3: Me	tcalfe W & Argyle	Э					
•	to and the writing you						
r Ø2 (R)							₩04

	•	†	×	t		
Lane Group	WBR	NBT	SWT	SWR	Ø6	
Lane Configurations	77	^	↑ 1≽			
Traffic Volume (vph)	737	912	357	42		
Future Volume (vph)	737	912	357	42		
Ideal Flow (vphpl)	1800	1800	1800	1800		
Storage Length (m)	0.0	1000	1000	200.0		
Storage Lanes	2			1		
Taper Length (m)	2			- 1		
Lane Util. Factor	0.88	0.95	0.95	0.95		
	0.00	0.95	1.00	0.95		
Ped Bike Factor	0.050					
Frt	0.850		0.984			
Flt Protected	2222	0.40.4	2222			
Satd. Flow (prot)	2696	3424	3290	0		
Flt Permitted						
Satd. Flow (perm)	2696	3424	3290	0		
Right Turn on Red				No		
Satd. Flow (RTOR)						
Link Speed (k/h)		50	50			
Link Distance (m)		22.1	184.1			
Travel Time (s)		1.6	13.3			
Confl. Peds. (#/hr)				18		
Confl. Bikes (#/hr)				2		
Peak Hour Factor	0.90	0.90	0.90	0.90		
Heavy Vehicles (%)	1%	1%	3%	3%		
Adj. Flow (vph)	819	1013	397	47		
Shared Lane Traffic (%)	019	1013	331	41		
Lane Group Flow (vph)	819	1013	444	0		
Enter Blocked Intersection	No	No	No	No		
Lane Alignment	Right	Left	Left	Right		
Median Width(m)		0.0	0.0			
Link Offset(m)		0.0	0.0			
Crosswalk Width(m)		2.0	10.0			
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.06	1.06		
Turning Speed (k/h)	24			14		
Turn Type	Prot	NA	NA			
Protected Phases	1	8	2		6	
Permitted Phases						
Minimum Split (s)	15.3	28.3	25.3		16.3	
Total Split (s)	30.0	34.0	26.0		56.0	
Total Split (%)	33.3%	37.8%	28.9%		62%	
Maximum Green (s)	24.7	27.7	19.7		49.7	
Yellow Time (s)	3.3	3.3	3.3		3.3	
All-Red Time (s)	2.0	3.0	3.0		3.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	5.3	6.3	6.3			
Lead/Lag	Lead	0.0	Lag			
Lead-Lag Optimize?	Yes	45.0	Yes		0.0	
Walk Time (s)	0.0	15.0	7.0		0.0	
Flash Dont Walk (s)	0.0	7.0	12.0		0.0	
Pedestrian Calls (#/hr)	0	5	10		0	
Act Effct Green (s)	24.7	27.7	19.7			
Actuated g/C Ratio	0.27	0.31	0.22			
v/c Ratio Control Delay	1.11 99.4	0.96 14.2	0.62 36.1			

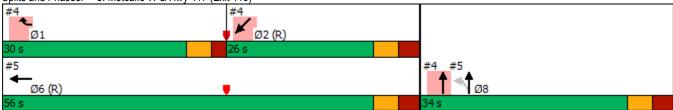
	•	†	×	t		
Lane Group	WBR	NBT	SWT	SWR	Ø6	
Queue Delay	0.7	0.0	0.0			
Total Delay	100.1	14.2	36.1			
LOS	F	В	D			
Approach Delay		14.2	36.1			
Approach LOS		В	D			
Queue Length 50th (m)	~85.3	1.9	33.7			
Queue Length 95th (m)	#120.7	m#5.6	48.0			
Internal Link Dist (m)		0.1	160.1			
Turn Bay Length (m)						
Base Capacity (vph)	739	1053	720			
Starvation Cap Reductn	0	0	0			
Spillback Cap Reductn	81	0	0			
Storage Cap Reductn	0	0	0			
Reduced v/c Ratio	1.24	0.96	0.62			
Intersection Summary						
Area Type:	Other					
Cycle Length: 90						
Actuated Cycle Length: 90						
Offset: 45 (50%), Referenced	to phase 2:S'	WT and 6:,	Start of G	reen		
Natural Cycle: 90						
Control Type: Pretimed						
Maximum v/c Ratio: 1.11						
Intersection Signal Delay: 49					ntersection LOS: D	
Intersection Capacity Utilizati	on 84.6%			IC	CU Level of Service E	
Analysis Period (min) 15						
 Volume exceeds capacity 			nfinite.			
Queue shown is maximun						
# 95th percentile volume ex			າay be lonເ	ger.		
Queue shown is maximun						
m Volume for 95th percenti	lle queue is me	etered by u	pstream si	gnal.		
Splits and Phases: 4: Cath	erine & Metca	lfe W & Hv	/y 417 (Exi	it 119)		
#4 Ø1 30 s			4 ✓ Ø2 (R	1)		
#5						#4 #5
Ø6 (R)						↑ ↑ ↑ _{Ø8}
20 (17)						

	۶	→	•	•	+	•	1	†	/	/	+	✓
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					44		ř	^				
Traffic Volume (vph)	0	0	0	0	755	0	82	912	0	0	0	0
Future Volume (vph)	0	0	0	0	755	0	82	912	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor							0.99					
Frt												
Flt Protected							0.950					
Satd. Flow (prot)	0	0	0	0	3390	0	1712	3424	0	0	0	0
FIt Permitted							0.950					
Satd. Flow (perm)	0	0	0	0	3390	0	1697	3424	0	0	0	0
Right Turn on Red			Yes			No	No		No			Yes
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		82.6			121.1			97.0			22.1	
Travel Time (s)		5.9			8.7			7.0			1.6	
Confl. Peds. (#/hr)							7					
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 (%)	0%	0%	0%	0%	2%	0%	1%	1%	0%	0%	0%	0%
Adj. Flow (vph)	0	0	0	0	839	0	91	1013	0	0	0	0
Shared Lane Traffic (%)	•	•	-	•		•			-	-	•	-
Lane Group Flow (vph)	0	0	0	0	839	0	91	1013	0	0	0	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)	Loit	0.0	rugiit	Lon	0.0	rugiit	Lon	3.7	rugiit	Lon	3.7	rugiit
Link Offset(m)		0.0			0.0			-1.0			0.0	
Crosswalk Width(m)		2.0			2.0			6.0			2.0	
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	1.00	14	24		14	24		14	24		14
Turn Type					NA		Perm	NA				
Protected Phases					6			8				
Permitted Phases							8	•				
Minimum Split (s)					16.3		28.3	28.3				
Total Split (s)					56.0		34.0	34.0				
Total Split (%)					62.2%		37.8%	37.8%				
Maximum Green (s)					49.7		27.7	27.7				
Yellow Time (s)					3.3		3.3	3.3				
All-Red Time (s)					3.0		3.0	3.0				
Lost Time Adjust (s)					0.0		0.0	0.0				
Total Lost Time (s)					6.3		6.3	6.3				
Lead/Lag					0.0		0.0	0.0				
Lead-Lag Optimize?												
Walk Time (s)					0.0		15.0	15.0				
Flash Dont Walk (s)					0.0		7.0	7.0				
Pedestrian Calls (#/hr)					0.0		5	5				
Act Effct Green (s)					49.7		27.7	27.7				
Actuated g/C Ratio					0.55		0.31	0.31				
v/c Ratio					0.45		0.17	0.96				
Control Delay					13.0		24.0	51.8				
Queue Delay					0.0		0.0	0.6				
Total Delay					13.0		24.0	52.4				
LOS					13.0 B		24.0 C	52.4 D				
					13.0		U	50.0				
Approach Delay					13.0			50.0				

Lane Group	Ø1	Ø2
Lane Configurations	~ .	
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
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)		
Peak Hour Factor		
Heavy Vehicles (%)		
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)		
Turn Type		
Protected Phases	1	2
Permitted Phases	'	
Minimum Split (s)	15.3	25.3
Total Split (s)	30.0	26.0
Total Split (%)	33%	29%
Maximum Green (s)	24.7	19.7
Yellow Time (s)	3.3	3.3
All-Red Time (s)	2.0	3.0
Lost Time Adjust (s)	2.0	3.0
Total Lost Time (s)		
Lead/Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes
Walk Time (s)	0.0	7.0
Flash Dont Walk (s)	0.0	12.0
Pedestrian Calls (#/hr)	0.0	12.0
Act Effct Green (s)	U	10
Actuated g/C Ratio		
v/c Ratio Control Delay		
Queue Delay		
Total Delay LOS		
Approach Delay		

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBF
Approach LOS					В			D				
Queue Length 50th (m)					39.2		10.6	82.8				
Queue Length 95th (m)					51.6		20.8	#120.3				
Internal Link Dist (m)		58.6			97.1			73.0			0.1	
Turn Bay Length (m)												
Base Capacity (vph)					1872		522	1053				
Starvation Cap Reductn					0		0	0				
Spillback Cap Reductn					0		0	5				
Storage Cap Reductn					0		0	0				
Reduced v/c Ratio					0.45		0.17	0.97				
Intersection Summary												
Area Type:	Other											
Cycle Length: 90												
Actuated Cycle Length: 90												
Offset: 45 (50%), Referenced	to phase 2:SV	VT and 6:,	Start of G	reen								
Natural Cycle: 90												
Control Type: Pretimed												
Maximum v/c Ratio: 1.11												
Intersection Signal Delay: 34.0)			In	tersection L	OS: C						
Intersection Capacity Utilization	n 59.1%			IC	CU Level of	Service B						
Analysis Period (min) 15												
# 95th percentile volume exc	ceeds capacit	y, queue m	າay be lonເ	jer.								
Queue shown is maximum	after two cycl	es.										

Splits and Phases: 5: Metcalfe W & Hwy 417 (Exit 119)



Lane Group	Ø1	Ø2
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	ሻሻ	EBR	NDL	<u>↑</u>	<u> </u>	ODIN
Traffic Volume (vph)	77 528	120	0	TT 441	T 315	0
Future Volume (vph)	528	120	0	441	315	0
	528 1800					1800
Ideal Flow (vphpl)		1800	1800	1800	1800	
Storage Length (m)	40.0	0.0	0.0			0.0
Storage Lanes	1	1	0			0
Taper Length (m)	10.0	4	2.5		4	4
Lane Util. Factor	0.97	1.00	1.00	0.95	1.00	1.00
Ped Bike Factor		0.86				
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	3288	1365	0	3424	1733	0
Flt Permitted	0.950					
Satd. Flow (perm)	3288	1179	0	3424	1733	0
Right Turn on Red		Yes				No
Satd. Flow (RTOR)		133				
Link Speed (k/h)	50	100		50	50	
Link Distance (m)	66.8			118.2	109.3	
Travel Time (s)	4.8	40		8.5	7.9	
Confl. Peds. (#/hr)		46				
Confl. Bikes (#/hr)		11				
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	0%	1%	5%	0%
Parking (#/hr)		0				
Adj. Flow (vph)	587	133	0	490	350	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	587	133	0	490	350	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	7.4	ragni	LGIL	0.0	0.0	ragni
	1.0			0.0	0.0	
Link Offset(m)						
Crosswalk Width(m)	2.0			1.6	1.6	
Two way Left Turn Lane		4 - 1			4	
Headway Factor	1.06	1.21	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24	14	24			14
Number of Detectors	1	1		2	2	
Detector Template	Left	Right		Thru	Thru	
Leading Detector (m)	6.1	6.1		30.5	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	6.1		1.8	1.8	
Detector 1 Type	CI+Ex	CI+Ex		Cl+Ex	Cl+Ex	
	OI+EX	CITEX		CITEX	CITEX	
Detector 1 Channel	0.0	0.0		0.0	0.0	
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	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				CI+Ex	CI+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4	1 01111		2	6	
Permitted Phases	4	4			U	
i cittilleu Filases		4				

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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Detector Phase	4	4		2	6	
Switch Phase						
Minimum Initial (s)	10.0	10.0		10.0	10.0	
Minimum Split (s)	20.9	20.9		20.6	20.6	
Total Split (s)	30.0	30.0		45.0	45.0	
Total Split (%)	40.0%	40.0%		60.0%	60.0%	
Maximum Green (s)	25.1	25.1		39.4	39.4	
Yellow Time (s)	3.3	3.3		3.3	3.3	
All-Red Time (s)	1.6	1.6		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.9	4.9		5.6	5.6	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Recall Mode	None	None		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	9.0	9.0		8.0	8.0	
Pedestrian Calls (#/hr)	20	20		50	50	
Act Effct Green (s)	19.0	19.0		45.5	45.5	
Actuated g/C Ratio	0.25	0.25		0.61	0.61	
v/c Ratio	0.71	0.33		0.24	0.33	
Control Delay	29.9	6.4		5.2	9.2	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	29.9	6.4		5.2	9.2	
LOS	С	Α		Α	Α	
Approach Delay	25.6			5.2	9.2	
Approach LOS	С			Α	Α	
Queue Length 50th (m)	36.0	0.0		6.8	19.7	
Queue Length 95th (m)	45.3	10.0		17.0	40.6	
Internal Link Dist (m)	42.8			94.2	85.3	
Turn Bay Length (m)	40.0					
Base Capacity (vph)	1100	483		2077	1051	
Starvation Cap Reductn	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	
Storage Cap Reductn	0	0		0	0	
Reduced v/c Ratio	0.53	0.28		0.24	0.33	
Intersection Summary						
Area Type:	Other					
Cycle Length: 75						
Actuated Cycle Length: 75						
Offset: 5 (7%), Referenced t	o phase 2:NBT	and 6:SBT	, Start of	Green		
Natural Cycle: 45						
Control Type: Actuated-Coo	rdinated					
Maximum v/c Ratio: 0.71						
Intersection Signal Delay: 15	5.5			In	tersection I	OS: B
Intersection Capacity Utilizat					U Level of	
Analysis Period (min) 15						
, , , , , , , , , , , , , , , , , , , ,						



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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					ર્ન	7		41₽			ħβ	
Traffic Volume (vph)	0	0	0	59	127	198	105	221	0	0	242	156
Future Volume (vph)	0	0	0	59	127	198	105	221	0	0	242	156
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	0.0		45.0
Storage Lanes	0		0	0		1	0		0	0		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor						0.95		0.96			0.90	
Frt						0.850					0.941	
Flt Protected					0.984			0.984				
Satd. Flow (prot)	0	0	0	0	1773	1532	0	3233	0	0	2809	0
Flt Permitted					0.984			0.706				
Satd. Flow (perm)	0	0	0	0	1773	1459	0	2226	0	0	2809	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)						220					173	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		184.1			122.5			274.3			118.2	
Travel Time (s)		13.3			8.8			19.7			8.5	
Confl. Peds. (#/hr)						33	123					123
Confl. Bikes (#/hr)						14						26
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 (%)	0%	0%	0%	1%	1%	1%	10%	3%	0%	0%	4%	4%
Adj. Flow (vph)	0	0	0	66	141	220	117	246	0	0	269	173
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	207	220	0	363	0	0	442	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0	J		0.0	J		0.0	J -		0.0	J -
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	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
Turn Type			• • •	Perm	NA	Perm	Perm	NA			NA	• •
Protected Phases					8			2			6	
Permitted Phases				8		8	2	-			•	
Minimum Split (s)				33.0	33.0	33.0	25.6	25.6			25.6	
Total Split (s)				33.0	33.0	33.0	42.0	42.0			42.0	
Total Split (%)				44.0%	44.0%	44.0%	56.0%	56.0%			56.0%	
Maximum Green (s)				26.9	26.9	26.9	36.4	36.4			36.4	
Yellow Time (s)				3.3	3.3	3.3	3.3	3.3			3.3	
All-Red Time (s)				2.8	2.8	2.8	2.3	2.3			2.3	
Lost Time Adjust (s)				2.0	0.0	0.0	2.0	0.0			0.0	
Total Lost Time (s)					6.1	6.1		5.6			5.6	
Lead/Lag					0.1	0.1		5.0			3.0	
Lead-Lag Optimize?												
Walk Time (s)				7.0	7.0	7.0	8.0	8.0			0 0	
Flash Dont Walk (s)				19.9	7.0 19.9	7.0 19.9	12.0	12.0			8.0 12.0	
Pedestrian Calls (#/hr)				15	15	15	50	50			50	
Act Effet Green (s)					26.9	26.9		36.4			36.4	
Actuated g/C Ratio					0.36	0.36		0.49			0.49	
v/c Ratio					0.33	0.33		0.34			0.30	
Control Delay					19.3	4.2		13.0			4.1	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay					0.0	0.0		0.0			0.0	
Total Delay					19.3	4.2		13.0			4.1	
LOS					В	Α		В			Α	
Approach Delay					11.5			13.0			4.1	
Approach LOS					В			В			Α	
Queue Length 50th (m)					19.2	0.0		14.5			2.6	
Queue Length 95th (m)					33.7	11.7		22.7			3.6	
Internal Link Dist (m)		160.1			98.5			250.3			94.2	
Turn Bay Length (m)												
Base Capacity (vph)					635	664		1080			1452	
Starvation Cap Reductn					0	0		0			0	
Spillback Cap Reductn					0	0		0			0	
Storage Cap Reductn					0	0		0			0	
Reduced v/c Ratio					0.33	0.33		0.34			0.30	
Intersection Summary												
Area Type:	Other											
Cycle Length: 75												
Actuated Cycle Length: 75												
Offset: 2 (3%), Referenced to	phase 2:NBT	L and 6:SE	BT, Start of	Green								
Natural Cycle: 60												
Control Type: Pretimed												
Maximum v/c Ratio: 0.34												
Intersection Signal Delay: 9.3	00.00/				tersection I							
Intersection Capacity Utilizatio	n 63.2%			IC	U Level of	Service B						
Analysis Period (min) 15												
Splits and Phases: 7: Elgin	& Catherine											
Ø2 (R)												
42 s												
1		_				+2	_					
▼ Ø6 (R)						₩ Ø	8					

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Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations		#	^				
Traffic Volume (vph)	0	242	1107	0	0	0	
Future Volume (vph)	0	242	1107	0	0	0	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	1.00	
Ped Bike Factor							
Frt		0.865					
Flt Protected							
Satd. Flow (prot)	0	1559	3424	0	0	0	
Flt Permitted							
Satd. Flow (perm)	0	1559	3424	0	0	0	
Link Speed (k/h)	50		50			50	
Link Distance (m)	66.5		123.3			115.3	
Travel Time (s)	4.8		8.9			8.3	
Confl. Peds. (#/hr)	4						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	
Heavy Vehicles (%)	0%	1%	1%	0%	0%	0%	
Adj. Flow (vph)	0	269	1230	0	0	0	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	269	1230	0	0	0	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Right	Left	Left	
Median Width(m)	0.0		0.0			0.0	
Link Offset(m)	3.7		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)	24	14		14	24		
Sign Control	Stop		Free			Free	
Intersection Summary							
Area Type:	Other						
Control Type: Unsignalized							
Intersection Capacity Utilization 57.7% ICU Level of Service B							
Analysis Period (min) 15							

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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	ተተ _ጉ					7
Traffic Volume (vph)	1753	7	0	0	0	2
Future Volume (vph)	1753	7	0	0	0	2
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.999					0.865
Flt Protected						
Satd. Flow (prot)	4704	0	0	0	0	1574
FIt Permitted						
Satd. Flow (perm)	4704	0	0	0	0	1574
Link Speed (k/h)	50			50	50	
Link Distance (m)	76.9			40.1	59.5	
Travel Time (s)	5.5			2.9	4.3	
Confl. Bikes (#/hr)		1				1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	0%	0%	0%	0%	0%
Parking (#/hr)	0					
Adj. Flow (vph)	1948	8	0	0	0	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1956	0	0	0	0	2
Enter Blocked Intersection	Yes	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	2.0			2.0	2.0	
Two way Left Turn Lane						
Headway Factor	1.10	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	
Intersection Summary						

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 45.9%
Analysis Period (min) 15

ICU Level of Service A

Synchro 10 Report J.Audia, Novatech

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Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	ሻ	41₽				
Traffic Volume (vph)	1107	648	0	0	0	0
Future Volume (vph)	1107	648	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00	1.00
Frt						
Flt Protected	0.950	0.978				
Satd. Flow (prot)	1543	3176	0	0	0	0
Flt Permitted	0.950	0.978				
Satd. Flow (perm)	1543	3176	0	0	0	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		40.1	66.8		123.3	
Travel Time (s)		2.9	4.8		8.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	0%	0%	0%	0%
Adj. Flow (vph)	1230	720	0	0	0	0
Shared Lane Traffic (%)	48%					
Lane Group Flow (vph)	640	1310	0	0	0	0
Enter Blocked Intersection	Yes	Yes	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		0.0	
Link Offset(m)		0.0	0.0		-2.0	
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)	24			14	24	14
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilization	on 57.7%			IC	U Level of	Service B
Analysis Period (min) 15						

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Traffic Volume (vph)	Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	Lane Configurations		ĵ.									414	
Ideal Flow (yr)hgr)	Traffic Volume (vph)	0		143	0	0	0	0	0	0	74		0
Lane Ulli Factor	Future Volume (vph)	0	86	143	0	0	0	0	0	0	74	1410	0
Ped Bike Factor	Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Fit Protected 0.916	Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
File Protected 1247	Ped Bike Factor		0.86									0.98	
Satis Flow (prom)	Frt		0.916										
File Permitted	Flt Protected											0.998	
Satt Flow (ptrm)	Satd. Flow (prot)	0	1247	0	0	0	0	0	0	0	0	3246	0
Right Turn on Red	Flt Permitted											0.998	
Right Turn on Red	Satd. Flow (perm)	0	1247	0	0	0	0	0	0	0	0	3184	0
Satic Flow (RTOR)				Yes			Yes			Yes	Yes		Yes
Link Speed (k/h)			49									28	
Link Distance (m) 170.3 173.0 119.0 1247 Travel Time (s) 12.3 12.5 8.6 9.0 Confl. Peds. (#hr) 133 12.5 8.6 9.0 Confl. Peds. (#hr) 133 133 155 155 150 150 150 150 150 150 150 150			50			50			50			50	
Travel Time (s)						173.0			119.0			124.7	
Confi. Bikes (#hr)													
Confl. Bikes (#/hr)				133							155		
Peak Hour Factor 0.90 0.													13
Heavy Vehicles (%)		0.90	0.90		0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	
Parking (#hr)													
Adj. Flow (vph) 0 96 159 0 0 0 0 0 82 1567 0 Shared Lane Tradfic (%) Lane Group Flow (vph) 0 255 0		0,0		0,0	0,0	0,0	0,0	0,70	• 70	0,0	. , ,		0 70
Shared Lane Traffic (%) Lane Group Flow (ph) 0 255 0 0 0 0 0 0 0 0 0		0		159	0	0	0	0	0	0	82		0
Lane Group Flow (vph)		•	00	100	•	•	•			•	02	1001	J
Enter Blocked Intersection		0	255	0	0	0	0	0	0	0	0	1649	0
Left Left Left Right Left Right Left Right Left Right Left Right Left Right Right Left Right Right				_					~	~	~		
Median Width(m) 0.0 0.0 0.0 0.0 Link Offset(m) 2.0 -2.0 0.0 0.0 Crosswalk Width(m) 4.0 4.9 4.9 4.9 Two way Left Turn Lane Headway Factor 1.06 1.21 1.06 1.00 1.00 1.00													
Link Offset(m) 2.0 -2.0 0.0 0.0 Crosswalk Width(m) 4.0 4.9 4.9 4.9 Two way Left Turn Lane Headway Factor 1.06 1.21 1.06		LOIL		ragin	Loit		rtigrit	LOIL		rtigiit	LOIL		rtigitt
Crosswalk Width(m) 4.0 4.9 4.9 4.9 4.9 1.06													
Two way Left Turn Lane Headway Factor 1.06 1.21 1.06													
Headway Factor 1.06 1.21 1.06			٦.0			7.5			7.5			т.5	
Turning Speed (k/h) 24 14 24 26 28 28 28 28 25.2		1.06	1 21	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1 13	1.06
Turn Type NA Perm NA Protected Phases 4 6 Permitted Phases 6 Minimum Split (s) 23.6 25.2 25.2 Total Split (s) 27.0 73.0 73.0° Total Split (%) 27.0% 73.0% 73.0% Maximum Green (s) 21.4 67.8 67.8 Yellow Time (s) 3.3 3.3 3.3 All-Red Time (s) 2.3 1.9 1.9 Lost Time Adjust (s) 0.0 0.0 Total Lost Time (s) 5.6 5.2 Lead/Lag 5.6 5.2 Lead/Lag Optimize? 5.6 5.2 Walk Time (s) 7.0 14.0 14.0 Flash Dont Walk (s) 11.0 6.0 6.0 Pedestrian Calls (#/hr) 50 50 Act Lefted Green (s) 21.4 67.8 Act Ludated g/C Ratio 0.21 0.68 V/c Ratio 0.84 0.76 Control Delay 5			1.21			1.00			1.00			1.10	
Protected Phases 4 6 Permitted Phases 6 6 Minimum Split (s) 23.6 25.2 25.2 Total Split (s) 27.0 73.0 73.0 Total Split (%) 27.0% 73.0% 73.0% Maximum Green (s) 21.4 67.8 67.8 Yellow Time (s) 3.3 3.3 3.3 All-Red Time (s) 2.3 1.9 1.9 Lost Time Adjust (s) 0.0 0.0 0.0 Total Lost Time (s) 5.6 5.2 Lead/Lag Detimize? 5.2 5.2 Walk Time (s) 7.0 14.0 14.0 Flash Dont Walk (s) 11.0 6.0 6.0 Pedestrian Calls (#hr) 50 50 50 Act Effet Green (s) 21.4 67.8 67.8 Act added g/C Ratio 0.21 0.68 0.68 v/c Ratio 0.84 0.76 0.60 Control Delay 54.7 13.5 0.0		4 7	NΔ	17	2 ¬		17	2 7		17		NΔ	17
Permitted Phases 6 Minimum Split (s) 23.6 25.2 25.2 Total Split (s) 27.0 73.0 73.0 Total Split (%) 27.0% 73.0% 73.0% Maximum Green (s) 21.4 67.8 67.8 Yellow Time (s) 3.3 3.3 3.3 3.3 All-Red Time (s) 2.3 1.9 1.9 Lost Time Adjust (s) 0.0 0.0 Total Lost Time (s) 5.6 5.2 Lead/Lag 5.6 5.2 Lead/Lag 5.6 5.2 Lead/Lag Optimize? 7.0 14.0 14.0 Flash Dont Walk (s) 11.0 6.0 6.0 Pedestrian Calls (#/hr) 50 50 Act Effet Green (s) 21.4 67.8 Actuated g/C Ratio 0.21 0.68 V/c Ratio 0.84 0.76 Control Delay 54.7 13.5 Queue Delay 0.0 0.0	• • • • • • • • • • • • • • • • • • • •										i Giiii		
Minimum Split (s) 23.6 25.2 25.2 Total Split (s) 27.0 73.0 73.0 Total Split (%) 27.0% 73.0% 73.0% Maximum Green (s) 21.4 67.8 67.8 Yellow Time (s) 3.3 3.3 3.3 All-Red Time (s) 2.3 1.9 1.9 Lost Time Adjust (s) 0.0 0.0 Total Lost Time (s) 5.6 5.2 Lead/Lag 5.2 5.2 Lead/Lag Optimize? 7.0 14.0 14.0 Walk Time (s) 7.0 14.0 14.0 Flash Dont Walk (s) 11.0 6.0 6.0 Pedestrian Calls (#/hr) 50 50 Act Effet Green (s) 21.4 67.8 Act Leffet Green (s) 21.4 67.8 Actuated g/C Ratio 0.21 0.68 v/c Ratio 0.84 0.76 Control Delay 54.7 13.5 Queue Delay 0.0 0.0			7								6	U	
Total Split (s) 27.0 73.0 73.0 Total Split (%) 27.0% 73.0% 73.0% Maximum Green (s) 21.4 67.8 67.8 Yellow Time (s) 3.3 3.3 3.3 All-Red Time (s) 2.3 1.9 1.9 Lost Time Adjust (s) 0.0 0.0 Total Lost Time (s) 5.6 5.2 Lead/Lag 5.2 5.2 Lead-Lag Optimize? Walk Time (s) 14.0 14.0 Walk Time (s) 7.0 14.0 14.0 Flash Dont Walk (s) 11.0 6.0 6.0 Pedestrian Calls (#/hr) 50 50 50 Act Effot Green (s) 21.4 67.8 Actuated g/C Ratio 0.21 67.8 V/c Ratio 0.84 0.76 Control Delay 54.7 13.5 Queue Delay 0.0 0.0			23.6									25.2	
Total Split (%) 27.0% 73.0% 73.0% Maximum Green (s) 21.4 67.8 67.8 Yellow Time (s) 3.3 3.3 3.3 All-Red Time (s) 2.3 1.9 1.9 Lost Time Adjust (s) 0.0 0.0 Total Lost Time (s) 5.6 5.2 Lead/Lag Lead-Lag Optimize? Walk Time (s) 7.0 14.0 14.0 Flash Dont Walk (s) 11.0 6.0 6.0 Pedestrian Calls (#/hr) 50 50 Act Effct Green (s) 21.4 67.8 Actuated g/C Ratio 0.21 0.68 v/c Ratio 0.84 0.76 Control Delay 54.7 13.5 Queue Delay 0.0 0.0													
Maximum Green (s) 21.4 67.8 67.8 Yellow Time (s) 3.3 3.3 3.3 All-Red Time (s) 2.3 1.9 1.9 Lost Time Adjust (s) 0.0 0.0 Total Lost Time (s) 5.6 5.2 Lead/Lag Lead-Lag Optimize? Walk Time (s) 7.0 14.0 14.0 Flash Dont Walk (s) 11.0 6.0 6.0 Pedestrian Calls (#/hr) 50 50 Act Effct Green (s) 21.4 67.8 Actuated g/C Ratio 0.21 0.68 v/c Ratio 0.84 0.76 Control Delay 54.7 13.5 Queue Delay 0.0 0.0													
Yellow Time (s) 3.3 3.3 3.3 All-Red Time (s) 2.3 1.9 1.9 Lost Time Adjust (s) 0.0 0.0 Total Lost Time (s) 5.6 5.2 Lead/Lag Lead-Lag Optimize? Walk Time (s) 7.0 14.0 14.0 Flash Dont Walk (s) 11.0 6.0 6.0 Pedestrian Calls (#/hr) 50 50 50 Act Effct Green (s) 21.4 67.8 Actuated g/C Ratio 0.21 0.68 v/c Ratio 0.84 0.76 Control Delay 54.7 13.5 Queue Delay 0.0 0.0													
All-Red Time (s) 2.3 1.9 1.9 Lost Time Adjust (s) 0.0 0.0 Total Lost Time (s) 5.6 5.2 Lead/Lag Lead-Lag Optimize? Walk Time (s) 7.0 14.0 14.0 Flash Dont Walk (s) 11.0 6.0 6.0 Pedestrian Calls (#/hr) 50 50 50 Act Effct Green (s) 21.4 67.8 Actuated g/C Ratio 0.21 0.68 v/c Ratio 0.84 0.76 Control Delay 54.7 13.5 Queue Delay 0.0 0.0													
Lost Time Adjust (s) 0.0 Total Lost Time (s) 5.6 Lead/Lag Lead-Lag Optimize? Walk Time (s) 7.0 Flash Dont Walk (s) 11.0 Pedestrian Calls (#/hr) 50 Act Effct Green (s) 21.4 Actuated g/C Ratio 0.21 V/c Ratio 0.84 Control Delay 54.7 Queue Delay 0.0	()												
Total Lost Time (s) 5.6 5.2 Lead/Lag Lead-Lag Optimize? Walk Time (s) 7.0 14.0 14.0 Flash Dont Walk (s) 11.0 6.0 6.0 Pedestrian Calls (#/hr) 50 50 50 Act Effct Green (s) 21.4 67.8 Actuated g/C Ratio 0.21 0.68 v/c Ratio 0.84 0.76 Control Delay 54.7 13.5 Queue Delay 0.0 0.0											1.9		
Lead/Lag Lead-Lag Optimize? Walk Time (s) 7.0 14.0 14.0 Flash Dont Walk (s) 11.0 6.0 6.0 Pedestrian Calls (#/hr) 50 50 50 Act Effct Green (s) 21.4 67.8 Actuated g/C Ratio 0.21 0.68 v/c Ratio 0.84 0.76 Control Delay 54.7 13.5 Queue Delay 0.0 0.0	, , ,												
Lead-Lag Optimize? Walk Time (s) 7.0 14.0 14.0 Flash Dont Walk (s) 11.0 6.0 6.0 Pedestrian Calls (#/hr) 50 50 50 Act Effct Green (s) 21.4 67.8 Actuated g/C Ratio 0.21 0.68 v/c Ratio 0.84 0.76 Control Delay 54.7 13.5 Queue Delay 0.0 0.0			5.0									5.2	
Walk Time (s) 7.0 14.0 14.0 Flash Dont Walk (s) 11.0 6.0 6.0 Pedestrian Calls (#/hr) 50 50 50 Act Effct Green (s) 21.4 67.8 Actuated g/C Ratio 0.21 0.68 v/c Ratio 0.84 0.76 Control Delay 54.7 13.5 Queue Delay 0.0 0.0													
Flash Dont Walk (s) 11.0 6.0 6.0 Pedestrian Calls (#/hr) 50 50 Act Effct Green (s) 21.4 67.8 Actuated g/C Ratio 0.21 0.68 v/c Ratio 0.84 0.76 Control Delay 54.7 13.5 Queue Delay 0.0 0.0			7.0								14.0	140	
Pedestrian Calls (#/hr) 50 50 50 Act Effct Green (s) 21.4 67.8 Actuated g/C Ratio 0.21 0.68 v/c Ratio 0.84 0.76 Control Delay 54.7 13.5 Queue Delay 0.0 0.0													
Act Effct Green (s) 21.4 67.8 Actuated g/C Ratio 0.21 0.68 v/c Ratio 0.84 0.76 Control Delay 54.7 13.5 Queue Delay 0.0 0.0	()												
Actuated g/C Ratio 0.21 0.68 v/c Ratio 0.84 0.76 Control Delay 54.7 13.5 Queue Delay 0.0 0.0											50		
v/c Ratio 0.84 0.76 Control Delay 54.7 13.5 Queue Delay 0.0 0.0													
Control Delay 54.7 13.5 Queue Delay 0.0 0.0													
Queue Delay 0.0 0.0													
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Total Delay 54.7 13.5													
	I otal Delay		54.7									13.5	

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		→	*	•	•		7	T		*	¥	*
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		D									В	
Approach Delay		54.7									13.5	
Approach LOS		D									В	
Queue Length 50th (m)		35.9									89.9	
Queue Length 95th (m)		#75.0									115.4	
Internal Link Dist (m)		146.3			149.0			95.0			100.7	
Turn Bay Length (m)												
Base Capacity (vph)		305									2167	
Starvation Cap Reductn		0									0	
Spillback Cap Reductn		0									7	
Storage Cap Reductn		0									0	
Reduced v/c Ratio		0.84									0.76	
Intersection Summary												
Area Type:	Other											
Cycle Length: 100												
Actuated Cycle Length: 100												
Offset: 17 (17%), Referenced	I to phase 6:SI	BTL, Start	of Green									
Natural Cycle: 65												
Control Type: Pretimed												
Maximum v/c Ratio: 0.84												
Intersection Signal Delay: 19.					tersection							
Intersection Capacity Utilization	on 70.7%			IC	CU Level of	Service C						
Analysis Period (min) 15												
# 95th percentile volume ex			າay be lonເ	ger.								
Queue shown is maximum	n after two cyc	les.										
Splits and Phases: 1: O'Co	onnor & Argyle											
									_			
								Ŀ	® 4			
								27	7 s			
735 (D)								- 1				
▼ Ø6 (R)												

	•	*	←	ļ	لر	4			
Lane Group	WBL2	WBL	WBT	SBT	SBR	SBR2	Ø5		
Lane Configurations	*		^ ^	^	Ž.				
Traffic Volume (vph)	196	216	682	965	471	128			
Future Volume (vph)	196	216	682	965	471	128			
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800			
Lane Util. Factor	1.00	0.91	0.91	0.95	1.00	0.95			
Ped Bike Factor	0.98				0.96				
Frt					0.850				
Flt Protected	0.950		0.988						
Satd. Flow (prot)	1647	0	4753	3390	1522	0			
Flt Permitted	0.950		0.988						
Satd. Flow (perm)	1607	0	4753	3390	1460	0			
Right Turn on Red	Yes					Yes			
Satd. Flow (RTOR)	96				96				
Link Speed (k/h)			50	50					
Link Distance (m)			92.1	119.0					
Travel Time (s)			6.6	8.6					
Confl. Peds. (#/hr)	13					34			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90			
Heavy Vehicles (%)	5%	1%	4%	2%	1%	4%			
Adj. Flow (vph)	218	240	758	1072	523	142			
Shared Lane Traffic (%)					020				
Lane Group Flow (vph)	218	0	998	1072	665	0			
Enter Blocked Intersection	No	No	No	No	No	No			
Lane Alignment	Left	Left	Left	Left	Right	Right			
Median Width(m)	Loit	Lon	3.7	0.0	rugiit	rugin			
Link Offset(m)			0.0	0.0					
Crosswalk Width(m)			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)	24	24			24	14			
Number of Detectors	1	1	2	2	1				
Detector Template	Left	Left	Thru	Thru	Right				
Leading Detector (m)	6.1	6.1	30.5	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)	6.1	6.1	1.8	1.8	6.1				
Detector 1 Type	CI+Ex	Cl+Ex	CI+Ex	CI+Ex	Cl+Ex				
Detector 1 Channel	J LA	J. <u>L</u> X	J. L.	J L/(J. L.				
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)	0.0	0.0	28.7	28.7	0.0				
Detector 2 Size(m)			1.8	1.8					
Detector 2 Type			CI+Ex	CI+Ex					
Detector 2 Channel			O. LA	OI. EX					
Detector 2 Extend (s)			0.0	0.0					
Turn Type	Perm	Perm	NA	NA	custom				
Protected Phases	. 01111	. 0.111	8	1	5550111		5		
Permitted Phases	8	8			6				
Detector Phase	8	8	8	1	6				
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		10.0		
Minimum Split (s)	21.9	21.9	21.9	24.9	15.9		17.9		
Total Split (s)	41.0	41.0	41.0	59.0	41.0		18.0		
· otal opin (o)	71.0	11.0	11.0	55.0	71.0		10.0		

	•	*	←	↓	لر	4					
Lane Group	WBL2	WBL	WBT	SBT	SBR	SBR2	Ø5				
Total Split (%)	41.0%	41.0%	41.0%	59.0%	41.0%		18%				
Maximum Green (s)	35.1	35.1	35.1	53.1	35.1		12.1				
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		3.3				
All-Red Time (s)	2.6	2.6	2.6	2.6	2.6		2.6				
_ost Time Adjust (s)	0.0		0.0	0.0	0.0						
Total Lost Time (s)	5.9		5.9	5.9	5.9						
_ead/Lag					Lag		Lead				
_ead-Lag Optimize?					Yes		Yes				
/ehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0				
Recall Mode	Max	Max	Max	C-Max	Max		None				
Walk Time (s)	7.0	7.0	7.0	7.0	0.0		7.0				
Flash Dont Walk (s)	9.0	9.0	9.0	12.0	0.0		5.0				
Pedestrian Calls (#/hr)	10	10	10	15	0		15				
Act Effct Green (s)	35.1		35.1	53.1	49.5						
Actuated g/C Ratio	0.35		0.35	0.53	0.50						
/c Ratio	0.35		0.60	0.60	0.86						
Control Delay	13.4		21.2	9.7	21.9						
Queue Delay	0.0		0.0	0.7	3.1						
Total Delay	13.4		21.2	10.4	25.0						
_OS	В		С	В	C						
Approach Delay			19.8	16.0							
Approach LOS			В	В							
Queue Length 50th (m)	23.8		58.9	28.1	21.9						
Queue Length 95th (m)	43.7		74.5		m#189.0						
nternal Link Dist (m)			68.1	95.0							
Γurn Bay Length (m)											
Base Capacity (vph)	626		1668	1800	771						
Starvation Cap Reductn	0		0	376	49						
Spillback Cap Reductn	0		0	0	0						
Storage Cap Reductn	0		0	0	0						
Reduced v/c Ratio	0.35		0.60	0.75	0.92						
ntersection Summary											
Area Type:	Other										
Cycle Length: 100											
Actuated Cycle Length: 100											
Offset: 25 (25%), Referenced	I to phase 1:S	BT, Start o	f Green								
Natural Cycle: 90											

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 17.6 Intersection LOS: B
Intersection Capacity Utilization 67.5% ICU Level of Service C

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



	-	•	•	←	•	~
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations		LDIX	WDL	WDI	NDL	777
	↑ 170	0	0	0	0	925
Traffic Volume (vph) Future Volume (vph)	170		0	0	0	925
		1900				
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.88
Frt						0.850
Flt Protected	1000	^	^	^	^	0000
Satd. Flow (prot)	1622	0	0	0	0	2696
Flt Permitted	1000					0000
Satd. Flow (perm)	1622	0	0	0	0	2696
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (k/h)	50			50	50	
Link Distance (m)	173.0			76.9	69.3	
Travel Time (s)	12.5			5.5	5.0	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	1%	0%	0%	0%	0%	1%
Parking (#/hr)	0	- 70	- 70	- 70	5 / 0	. , ,
Adj. Flow (vph)	189	0	0	0	0	1028
Shared Lane Traffic (%)	103	U	U	U	U	1020
Lane Group Flow (vph)	189	0	0	0	0	1028
Enter Blocked Intersection	No	No	No	No	No	No
				Left	Left	Left
Lane Alignment	Left	Right	Left			Len
Median Width(m)	0.0			0.0	0.0	
Link Offset(m)	0.0			0.0	1.0	
Crosswalk Width(m)	8.0			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.21	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)		14	24		24	24
Number of Detectors	2					1
Detector Template	Thru					Right
Leading Detector (m)	30.5					6.1
Trailing Detector (m)	0.0					0.0
Detector 1 Position(m)	0.0					0.0
Detector 1 Size(m)	1.8					6.1
Detector 1 Type	CI+Ex					CI+Ex
Detector 1 Channel	CITEX					OITEX
	0.0					0.0
Detector 1 Extend (s)	0.0					0.0
Detector 1 Queue (s)	0.0					0.0
Detector 1 Delay (s)	0.0					0.0
Detector 2 Position(m)	28.7					
Detector 2 Size(m)	1.8					
Detector 2 Type	CI+Ex					
Detector 2 Channel						
Detector 2 Extend (s)	0.0					
						Prot
Turn Type	NA					2
Turn Type Protected Phases	NA 4					_
Protected Phases	NA 4					
Protected Phases Permitted Phases	4					
Protected Phases Permitted Phases Detector Phase						2
Protected Phases Permitted Phases Detector Phase Switch Phase	4					2
Protected Phases Permitted Phases Detector Phase Switch Phase Minimum Initial (s)	4 10.0					10.0
Protected Phases Permitted Phases Detector Phase Switch Phase Minimum Initial (s) Minimum Split (s)	4 4 10.0 20.4					2 10.0 43.5
Protected Phases Permitted Phases Detector Phase Switch Phase Minimum Initial (s)	4 10.0					10.0

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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	
Maximum Green (s)	20.6				,,,,,	68.5	
Yellow Time (s)	3.3					3.3	
All-Red Time (s)	2.1					2.2	
Lost Time Adjust (s)	0.0					0.0	
Total Lost Time (s)	5.4					5.5	
Lead/Lag	<u> </u>					0.0	
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0					3.0	
Recall Mode	None					C-Max	
Walk Time (s)	7.0					33.0	
Flash Dont Walk (s)	8.0					5.0	
Pedestrian Calls (#/hr)	30					10	
Act Effct Green (s)	16.3					72.8	
	0.16					0.73	
Actuated g/C Ratio							
v/c Ratio	0.72					0.52	
Control Delay	54.2					3.9	
Queue Delay	0.0					0.5	
Total Delay	54.2					4.3	
LOS	D				4.0	Α	
Approach Delay	54.2				4.3		
Approach LOS	D				Α		
Queue Length 50th (m)	30.2					5.7	
Queue Length 95th (m)	m36.3					54.8	
Internal Link Dist (m)	149.0			52.9	45.3		
Turn Bay Length (m)							
Base Capacity (vph)	334					1963	
Starvation Cap Reductn	0					467	
Spillback Cap Reductn	0					0	
Storage Cap Reductn	0					0	
Reduced v/c Ratio	0.57					0.69	
Intersection Summary							
Area Type:	Other						
Cycle Length: 100							
Actuated Cycle Length: 100							
Offset: 18 (18%), Referenced	to phase 2:NB	R, Start of	Green				
Natural Cycle: 65	· ·						
Control Type: Actuated-Coord	dinated						
Maximum v/c Ratio: 0.72							
Intersection Signal Delay: 12.	1			Int	ersection I	OS: B	
Intersection Capacity Utilization					U Level of		
Analysis Period (min) 15	011 1 011 70				0 20.0.0.		
m Volume for 95th percentil	le queue is met	ered by up	stream si	gnal.			
Splits and Phases: 3: Metc	alfe W & Argyle)					
r ∕ø2 (R)							→ Ø4

	•	†	×	t		
Lane Group	WBR	NBT	SWT	SWR	Ø6	
Lane Configurations	777	<u>↑</u>	<u> </u>	JVII	20	
Traffic Volume (vph)	385	329	360	61		
Future Volume (vph)	385	329	360	61		
Ideal Flow (vphpl)	1800	1800	1800	1800		
Storage Length (m)	0.0	1000	1000	200.0		
Storage Lanes	2			1		
Taper Length (m)				-		
Lane Util. Factor	0.88	0.95	0.95	0.95		
Ped Bike Factor	-0.00	0.00	1.00	0.00		
Frt	0.850		0.978			
Flt Protected	0.000		0.070			
Satd. Flow (prot)	2696	3424	3270	0		
Flt Permitted	2030	J4Z4	3270	U		
Satd. Flow (perm)	2696	3424	3270	0		
	2090	3424	32/0	No		
Right Turn on Red				INO		
Satd. Flow (RTOR)		ΕO	50			
Link Speed (k/h)		50	50			
Link Distance (m)		22.1	184.1			
Travel Time (s)		1.6	13.3	44		
Confl. Peds. (#/hr)	0.00	0.00	0.00	11		
Peak Hour Factor	0.90	0.90	0.90	0.90		
Heavy Vehicles (%)	1%	1%	3%	3%		
Adj. Flow (vph)	428	366	400	68		
Shared Lane Traffic (%)						
Lane Group Flow (vph)	428	366	468	0		
Enter Blocked Intersection	No	No	No	No		
Lane Alignment	Right	Left	Left	Right		
Median Width(m)		0.0	0.0			
Link Offset(m)		0.0	0.0			
Crosswalk Width(m)		2.0	10.0			
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.06	1.06		
Turning Speed (k/h)	24			14		
Turn Type	Prot	NA	NA			
Protected Phases	1	8	2		6	
Permitted Phases	·	_				
Minimum Split (s)	15.3	28.3	25.3		16.3	
Total Split (s)	26.0	33.0	41.0		67.0	
Total Split (%)	26.0%	33.0%	41.0%		67%	
Maximum Green (s)	20.070	26.7	34.7		60.7	
Yellow Time (s)	3.3	3.3	3.3		3.3	
All-Red Time (s)	2.0	3.0	3.0		3.0	
	0.0	0.0	0.0		3.0	
Lost Time Adjust (s)						
Total Lost Time (s)	5.3	6.3	6.3			
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes	45.0	Yes		0.0	
Walk Time (s)	0.0	15.0	7.0		0.0	
Flash Dont Walk (s)	0.0	7.0	12.0		0.0	
Pedestrian Calls (#/hr)	0	5	10		0	
Act Effct Green (s)	20.7	26.7	34.7			
Actuated g/C Ratio	0.21	0.27	0.35			
v/c Ratio	0.77	0.40	0.41			
Control Delay	47.7	2.4	26.3			
Queue Delay	0.0	0.0	0.0			
-						

	•	†	×	t	
Lane Group	WBR	NBT	SWT	SWR	Ø6
Total Delay	47.7	2.4	26.3		
LOS	D	Α	С		
Approach Delay		2.4	26.3		
Approach LOS		Α	С		
Queue Length 50th (m)	41.1	0.5	33.1		
Queue Length 95th (m)	#59.8	0.8	45.8		
Internal Link Dist (m)		0.1	160.1		
Turn Bay Length (m)					
Base Capacity (vph)	558	914	1134		
Starvation Cap Reductn	0	0	0		
Spillback Cap Reductn	0	0	0		
Storage Cap Reductn	0	0	0		
Reduced v/c Ratio	0.77	0.40	0.41		
Intersection Summary					
Area Type:	Other				
Cycle Length: 100					
Actuated Cycle Length: 100					
Offset: 63 (63%), Referenced t	to phase 2:SW	/T and 6:,	Start of G	reen	
Natural Cycle: 70					
Control Type: Pretimed					
Maximum v/c Ratio: 0.77					
Intersection Signal Delay: 26.6				I	ntersection LOS: C
Intersection Capacity Utilization	n 54.6%				CU Level of Service A
Analysis Period (min) 15					
# 95th percentile volume exc			nay be long	ger.	
Queue shown is maximum	after two cycle	es.			
Splits and Phases: 4: Cathe	rine & Metcalf	~ \/\	n, 117 (Evi	+ 110\	
#4	#4	C VV Q I IV	/y 417 (LXI	1113)	
Ø1	,	Ø2 (R)			
26 s	41				
#5					#4_#5_
4 — Ø6 (R)					↑ ↑ øs

Lane Group EBL EBT EBR WBL WBT WBR NBL NBT NBR SBL S Lane Configurations	BT SBR
	, ODI (
Traffic Volume (vph) 0 0 0 0 819 0 48 329 0 0	0 0
Future Volume (vph) 0 0 0 0 819 0 48 329 0 0	0 0
	00 1800
	00 1.00
Ped Bike Factor 0.99	1.00
Frt	
Fit Protected 0.950	
Satd. Flow (prot) 0 0 0 0 3390 0 1712 3424 0 0	0 0
Fit Permitted 0.950	0
Satd. Flow (perm) 0 0 0 0 3390 0 1696 3424 0 0	0 0
	Yes
	res
Satd. Flow (RTOR)	-0
	50
	2.1
	.6
Confl. Peds. (#/hr) 7	
	90 0.90
	% 0%
Adj. Flow (vph) 0 0 0 910 0 53 366 0 0	0 0
Shared Lane Traffic (%)	
Lane Group Flow (vph) 0 0 0 910 0 53 366 0 0	0 0
	No No
	eft Right
	3.7
Link Offset(m) 0.0 0.0 -1.0	0.0
Crosswalk Width(m) 2.0 2.0 6.0	2.0
Two way Left Turn Lane	
	06 1.06
Turning Speed (k/h) 24 14 24 14 24 14 24	14
Turn Type NA Perm NA	
Protected Phases 6 8	
Permitted Phases 8	
Minimum Split (s) 16.3 28.3 28.3	
Total Split (s) 67.0 33.0 33.0	
Total Split (%) 67.0% 33.0% 33.0%	
Maximum Green (s) 60.7 26.7 26.7	
Yellow Time (s) 3.3 3.3 3.3	
All-Red Time (s) 3.0 3.0 3.0	
Lost Time Adjust (s) 0.0 0.0 0.0	
Total Lost Time (s) 6.3 6.3 6.3	
Lead/Lag	
Lead-Lag Optimize?	
Walk Time (s) 0.0 15.0 15.0	
Flash Dont Walk (s) 0.0 7.0 7.0	
Pedestrian Calls (#/hr) 0 5 5	
Act Effct Green (s) 60.7 26.7 26.7	
Actuated g/C Ratio 0.61 0.27 0.27	
v/c Ratio 0.44 0.12 0.40	
Control Delay 11.4 28.7 31.7	
LINDID LIDION	
Queue Delay 0.0 0.0 0.0	
Total Delay 11.4 28.7 31.7	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS					В			С				
Queue Length 50th (m)					42.4		7.2	28.2				
Queue Length 95th (m)					54.5		15.9	40.3				
Internal Link Dist (m)		58.6			97.1			73.0			0.1	
Turn Bay Length (m)												
Base Capacity (vph)					2057		452	914				
Starvation Cap Reductn					0		0	0				
Spillback Cap Reductn					0		0	0				
Storage Cap Reductn					0		0	0				
Reduced v/c Ratio					0.44		0.12	0.40				
Intersection Summary												
Area Type:	Other											
Cycle Length: 100												
Actuated Cycle Length: 100												
Offset: 63 (63%), Referenced to	to phase 2:SV	VT and 6:,	Start of G	Green								
Natural Cycle: 70												
Control Type: Pretimed												
Maximum v/c Ratio: 0.77												
Intersection Signal Delay: 17.7				In	tersection l	LOS: B						
Intersection Capacity Utilizatio	n 44.0%			IC	U Level of	Service A						
Analysis Period (min) 15												
Splits and Phases: 5: Metca	Ife W & Hwy	417 (Exit 1	19)									
#4 Ø1	#4	Ø2 (R)	,									

Lane Group	Ø1	Ø2
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	ችሽ	EDR.	NDL	<u>ND1</u>	<u>361</u>	ODK
Traffic Volume (vph)	360	236	0	TT 187	T 793	0
Future Volume (vph)	360	236	0	187	793 793	0
Ideal Flow (vphpl)	1800 40.0	1800	1800 0.0	1800	1800	1800 0.0
Storage Length (m)		0.0				
Storage Lanes	10.0	1	0			0
Taper Length (m)	10.0	4.00	2.5	0.05	4.00	4.00
Lane Util. Factor	0.97	1.00	1.00	0.95	1.00	1.00
Ped Bike Factor		0.79				
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	3321	1379	0	3390	1767	0
Flt Permitted	0.950					
Satd. Flow (perm)	3321	1092	0	3390	1767	0
Right Turn on Red		Yes				No
Satd. Flow (RTOR)		119				
Link Speed (k/h)	50	110		50	50	
Link Opeed (NII) Link Distance (m)	66.8			118.2	109.3	
Travel Time (s)	4.8			8.5	7.9	
	4.0	70		ŏ.5	1.9	
Confl. Peds. (#/hr)		76				
Confl. Bikes (#/hr)		15	0.00	0.00	0.00	0.00
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	1%	1%	0%	2%	3%	0%
Parking (#/hr)		0				
Adj. Flow (vph)	400	262	0	208	881	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	400	262	0	208	881	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	7.4	ragni	LGIL	0.0	0.0	ragni
	1.0			0.0	0.0	
Link Offset(m)						
Crosswalk Width(m)	2.0			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	1.06	1.21	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24	14	24			14
Number of Detectors	1	1		2	2	
Detector Template	Left	Right		Thru	Thru	
Leading Detector (m)	6.1	6.1		30.5	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	6.1		1.8	1.8	
Detector 1 Type	CI+Ex	Cl+Ex		CI+Ex	Cl+Ex	
	CITEX	CITEX		OI+EX	CITEX	
Detector 1 Channel	0.0	0.0		0.0	0.0	
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	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	CI+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4	1 01111		2	6	
Permitted Phases	4	4			U	
I CHIIILLEU FIIASES		4				

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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Detector Phase	4	4		2	6	
Switch Phase	·			_		
Minimum Initial (s)	10.0	10.0		10.0	10.0	
Minimum Split (s)	20.9	20.9		20.6	20.6	
Total Split (s)	30.0	30.0		45.0	45.0	
Total Split (%)	40.0%	40.0%		60.0%	60.0%	
Maximum Green (s)	25.1	25.1		39.4	39.4	
Yellow Time (s)	3.3	3.3		3.3	3.3	
All-Red Time (s)	1.6	1.6		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.9	4.9		5.6	5.6	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Recall Mode	None	None		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	9.0	9.0		8.0	8.0	
Pedestrian Calls (#/hr)	30	30		50	50	
Act Effct Green (s)	17.2	17.2		47.3	47.3	
Actuated g/C Ratio	0.23	0.23		0.63	0.63	
v/c Ratio	0.53	0.77		0.10	0.79	
Control Delay	26.9	28.8		5.5	19.6	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	26.9	28.8		5.5	19.6	
LOS	C	C		A	В	
Approach Delay	27.7			5.5	19.6	
Approach LOS	C			Α	В	
Queue Length 50th (m)	24.0	17.5		3.1	71.2	
Queue Length 95th (m)	30.0	35.9		9.0	#174.9	
Internal Link Dist (m)	42.8	55.5		94.2	85.3	
Turn Bay Length (m)	40.0			07. <u>L</u>	00.0	
Base Capacity (vph)	1111	444		2138	1114	
Starvation Cap Reductn	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	
Storage Cap Reductin	0	0		0	0	
Reduced v/c Ratio	0.36	0.59		0.10	0.79	
	0.50	0.00		0.10	0.13	
Intersection Summary	Othor					
Area Type:	Other					
Cycle Length: 75						
Actuated Cycle Length: 75	O NET		01-1 (1			
Offset: 3 (4%), Referenced to	o phase 2:NBT	and 6:SBT	, Start of C	reen		
Natural Cycle: 60	1					
Control Type: Actuated-Cool	rainated					
Maximum v/c Ratio: 0.79						
Intersection Signal Delay: 21					tersection I	
Intersection Capacity Utilizat	tion 73.4%			IC	CU Level of	Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 6: Elgin & Argyle



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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					ર્ન	7		4₽			∱ β	
Traffic Volume (vph)	0	0	0	116	149	80	56	106	0	0	794	215
Future Volume (vph)	0	0	0	116	149	80	56	106	0	0	794	215
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	0.0		45.0
Storage Lanes	0		0	0		1	0		0	0		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor						0.96		0.99			0.94	
Frt						0.850					0.968	
Flt Protected					0.979			0.983				
Satd. Flow (prot)	0	0	0	0	1764	1532	0	3185	0	0	3059	0
Flt Permitted	•		•	•	0.979	1002	•	0.618	•	•	0000	
Satd. Flow (perm)	0	0	0	0	1764	1476	0	1977	0	0	3059	0
Right Turn on Red	0	0	Yes	U	1704	Yes	U	1077	No	U	0000	Yes
Satd. Flow (RTOR)			163			89			INO		64	163
Link Speed (k/h)		50			50	03		50			50	
Link Distance (m)		184.1			122.5			274.3			118.2	
Travel Time (s)		13.3			8.8			19.7				
Confl. Peds. (#/hr)		13.3			0.0	27	138	19.7			8.5	138
, ,							130					
Confl. Bikes (#/hr)	0.00	0.00	0.00	0.00	0.00	4	0.00	0.00	0.00	0.00	0.00	46
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 (%)	0%	0%	0%	1%	1%	1%	10%	5%	0%	0%	2%	4%
Adj. Flow (vph)	0	0	0	129	166	89	62	118	0	0	882	239
Shared Lane Traffic (%)					20-	20		100			1101	
Lane Group Flow (vph)	0	0	0	0	295	89	0	180	0	0	1121	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	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
Turn Type				Perm	NA	Perm	Perm	NA			NA	
Protected Phases					8			2			6	
Permitted Phases				8		8	2					
Minimum Split (s)				33.0	33.0	33.0	25.6	25.6			25.6	
Total Split (s)				33.0	33.0	33.0	42.0	42.0			42.0	
Total Split (%)				44.0%	44.0%	44.0%	56.0%	56.0%			56.0%	
Maximum Green (s)				26.9	26.9	26.9	36.4	36.4			36.4	
Yellow Time (s)				3.3	3.3	3.3	3.3	3.3			3.3	
All-Red Time (s)				2.8	2.8	2.8	2.3	2.3			2.3	
Lost Time Adjust (s)					0.0	0.0		0.0			0.0	
Total Lost Time (s)					6.1	6.1		5.6			5.6	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)				7.0	7.0	7.0	8.0	8.0			8.0	
Flash Dont Walk (s)				19.9	19.9	19.9	12.0	12.0			12.0	
Pedestrian Calls (#/hr)				10.3	10.9	10.3	50	50			50	
Act Effct Green (s)				- 10	26.9	26.9	- 30	36.4			36.4	
Actuated g/C Ratio					0.36	0.36		0.49			0.49	
v/c Ratio					0.36	0.36		0.49			0.49	
					21.5	4.9					12.1	
Control Delay					21.0	4.9		11.6			12.1	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay					0.0	0.0		0.0			0.4	
Total Delay					21.5	4.9		11.6			12.5	
LOS					С	Α		В			В	
Approach Delay					17.7			11.6			12.5	
Approach LOS					В			В			В	
Queue Length 50th (m)					29.0	0.0		6.6			40.1	
Queue Length 95th (m)					48.3	7.7		11.7			35.2	
Internal Link Dist (m)		160.1			98.5			250.3			94.2	
Turn Bay Length (m)												
Base Capacity (vph)					632	586		959			1517	
Starvation Cap Reductn					0	0		0			95	
Spillback Cap Reductn					0	0		0			0	
Storage Cap Reductn					0	0		0			0	
Reduced v/c Ratio					0.47	0.15		0.19			0.79	
Intersection Summary												
Area Type:	Other											
Cycle Length: 75												
Actuated Cycle Length: 75												
Offset: 7 (9%), Referenced to p	ohase 2:NBT	L and 6:SE	BT, Start of	f Green								
Natural Cycle: 65												
Control Type: Pretimed												
Maximum v/c Ratio: 0.74												
Intersection Signal Delay: 13.6					tersection l							
Intersection Capacity Utilization	n 77.0%			IC	CU Level of	Service D						
Analysis Period (min) 15												
Splits and Phases: 7: Elgin 8	& Catherine											
Ø2 (R)												
42 s												
12.3						4.0						



Synchro 10 Report J.Audia, Novatech

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Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		#	^			
Traffic Volume (vph)	0	166	353	0	0	0
Future Volume (vph)	0	166	353	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.865				
Flt Protected						
Satd. Flow (prot)	0	1543	3424	0	0	0
Flt Permitted						
Satd. Flow (perm)	0	1543	3424	0	0	0
Link Speed (k/h)	50		50			50
Link Distance (m)	66.1		123.1			95.9
Travel Time (s)	4.8		8.9			6.9
Confl. Peds. (#/hr)	19					
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	2%	1%	0%	0%	0%
Adj. Flow (vph)	0	184	392	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	184	392	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	0.0		0.0			0.0
Link Offset(m)	3.7		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)	24	14		14	24	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilization	on 27.8%			ICI	J Level of	Service A
Analysis Period (min) 15						

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EBT	EBR	WBL	WBT	NBL	NBR
ተ ተ ቤ					*
941	2	0	0	0	8
941	2	0	0	0	8
1800	1800	1800	1800	1800	1800
0.91	0.91	1.00	1.00	1.00	1.00
					0.865
4756	0	0	0	0	1574
4756	0	0	0	0	1574
50			50	50	
76.9			40.1	59.5	
5.5			2.9	4.3	
	1				1
0.90	0.90	0.90	0.90	0.90	0.90
1%	0%	0%	0%	0%	0%
0					
1046	2	0	0	0	9
1048	0	0	0	0	9
Yes	No	No	No	No	No
Left	Right	Left	Left	Left	Right
0.0	Ĭ		0.0	0.0	Ĭ
0.0			0.0	0.0	
2.0			2.0	2.0	
1.10	1.06	1.06	1.06	1.06	1.06
	14	24		24	14
Free			Free	Stop	
	941 941 1800 0.91 4756 4756 50 76.9 5.5 0.90 1% 0 1046 1048 Yes Left 0.0 0.0 2.0	941 2 941 2 1800 1800 0.91 0.91 4756 0 4756 0 50 76.9 5.5 1 0.90 0.90 1% 0% 0 1046 2 1048 0 Yes No Left Right 0.0 0.0 2.0 1.10 1.06 14	941 2 0 941 2 0 1800 1800 1800 0.91 0.91 1.00 4756 0 0 4756 0 0 50 76.9 5.5 1 0.90 0.90 0.90 1% 0% 0% 0 1046 2 0 1048 0 0 Yes No No Left Right Left 0.0 0.0 2.0 1.10 1.06 1.06 14 24	941 2 0 0 941 2 0 0 1800 1800 1800 1800 0.91 0.91 1.00 1.00 4756 0 0 0 50 50 50 76.9 40.1 5.5 2.9 1 0.90 0.90 0.90 0.90 1% 0% 0% 0% 0% 0 1046 2 0 0 1048 0 0 0 0 Yes No No No No Left Right Left Left 0.0 0.0 0.0 0.0 2.0 2.0 2.0	941 2 0 0 0 941 2 0 0 0 1800 1800 1800 1800 1800 0.91 0.91 1.00 1.00 1.00 4756 0 0 0 0 0 50 50 50 50 50 50 76.9 40.1 59.5 5.5 2.9 4.3 1 0.90 0.90 0.90 0.90 0.90 0.90 0.90 1% 0% 0% 0% 0% 0% 0 0 0 0 0 0 1046 2 0 0 0 0 1048 0 0 0 0 0 1048 0 0 0 0 0 Yes No No No No No 1048 0 0 0 0

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 29.2%
Analysis Period (min) 15

ICU Level of Service A

Synchro 10 Report J.Audia, Novatech

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Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	ሻ	41₽				
Traffic Volume (vph)	353	596	0	0	0	0
Future Volume (vph)	353	596	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00	1.00
Frt						
Flt Protected	0.950	0.996				
Satd. Flow (prot)	1558	3266	0	0	0	0
Flt Permitted	0.950	0.996				
Satd. Flow (perm)	1558	3266	0	0	0	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		40.1	66.8		123.1	
Travel Time (s)		2.9	4.8		8.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	1%	1%	0%	0%	0%	0%
Adj. Flow (vph)	392	662	0	0	0	0
Shared Lane Traffic (%)	13%					
Lane Group Flow (vph)	341	713	0	0	0	0
Enter Blocked Intersection	Yes	Yes	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		0.0	
Link Offset(m)		0.0	0.0		-2.0	
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)	24			14	24	14
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilizati	on 27.8%			IC	U Level of	Service A
Analysis Period (min) 15						

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		f)									41₽	
Traffic Volume (vph)	0	63	62	0	0	0	0	0	0	35	782	0
Future Volume (vph)	0	63	62	0	0	0	0	0	0	35	782	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor		0.93									0.99	
Frt		0.933										
Flt Protected		0.000									0.998	
Satd. Flow (prot)	0	1341	0	0	0	0	0	0	0	0	3158	0
Flt Permitted		1011									0.998	
Satd. Flow (perm)	0	1341	0	0	0	0	0	0	0	0	3123	0
Right Turn on Red		10-71	Yes		•	Yes	•	- U	Yes	Yes	0120	Yes
Satd. Flow (RTOR)		49	103			103			103	103	32	103
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		170.3			173.0			119.0			124.7	
Travel Time (s)		12.3			12.5			8.6			9.0	
()		12.3	81		12.5			0.0		113	9.0	
Confl. Peds. (#/hr)										113		40
Confl. Bikes (#/hr)	4.00	4.00	1	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	16
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 (%)	0%	8%	5%	0%	0%	0%	0%	0%	0%	0%	4%	2%
Parking (#/hr)		0	00								0	
Adj. Flow (vph)	0	63	62	0	0	0	0	0	0	35	782	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	125	0	0	0	0	0	0	0	0	817	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		2.0			-2.0			0.0			0.0	
Crosswalk Width(m)		4.0			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.06	1.21	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.13	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Turn Type		NA								Perm	NA	
Protected Phases		4									6	
Permitted Phases										6		
Minimum Split (s)		23.6								25.2	25.2	
Total Split (s)		24.0								66.0	66.0	
Total Split (%)		26.7%								73.3%	73.3%	
Maximum Green (s)		18.4								60.8	60.8	
Yellow Time (s)		3.3								3.3	3.3	
All-Red Time (s)		2.3								1.9	1.9	
Lost Time Adjust (s)		0.0									0.0	
Total Lost Time (s)		5.6									5.2	
Lead/Lag		0.0									V. <u>–</u>	
Lead-Lag Optimize?												
Walk Time (s)		7.0								14.0	14.0	
Flash Dont Walk (s)		11.0								6.0	6.0	
Pedestrian Calls (#/hr)		40								40	40	
Act Effct Green (s)		18.4								+∪	60.8	
Actuated g/C Ratio		0.20									0.68	
v/c Ratio		0.40									0.00	
Control Delay											6.7	
		23.7										
Queue Delay Total Delay		23.7 0.0 23.7									0.7 0.0 6.7	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		С									Α	
Approach Delay		23.7									6.7	
Approach LOS		С									Α	
Queue Length 50th (m)		10.3									25.0	
Queue Length 95th (m)		24.9									33.6	
Internal Link Dist (m)		146.3			149.0			95.0			100.7	
Turn Bay Length (m)												
Base Capacity (vph)		313									2120	
Starvation Cap Reductn		0									0	
Spillback Cap Reductn		0									0	
Storage Cap Reductn		0									0	
Reduced v/c Ratio		0.40									0.39	
Intersection Summary												
Area Type:	Other											
Cycle Length: 90												
Actuated Cycle Length: 90												
Offset: 16 (18%), Reference	ed to phase 6:SE	BTL, Start	of Green									
Natural Cycle: 50												
Control Type: Pretimed												
Maximum v/c Ratio: 0.40												
Intersection Signal Delay: 9					tersection							
Intersection Capacity Utiliza	tion 77.4%			IC	CU Level of	Service D						
Analysis Period (min) 15												
Splits and Phases: 1: 0'C	Connor & Argyle											
								Π.	→ Ø4			
								-	4 s			
								2	15			
Ø6 (R)												
66 e												

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Lane Group	WBL2	WBL	WBT	SBT	SBR	SBR2	Ø5		
Lane Configurations	*		^ ^	^	Ž.				
Traffic Volume (vph)	109	221	889	398	358	83			
Future Volume (vph)	109	221	889	398	358	83			
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800			
Lane Util. Factor	1.00	0.91	0.91	0.95	1.00	0.95			
Ped Bike Factor	0.96				0.93				
Frt					0.850				
Flt Protected	0.950		0.990						
Satd. Flow (prot)	1647	0	4711	3293	1520	0			
Flt Permitted	0.950		0.990						
Satd. Flow (perm)	1577	0	4711	3293	1420	0			
Right Turn on Red	Yes					Yes			
Satd. Flow (RTOR)	109				107				
Link Speed (k/h)			50	50					
Link Distance (m)			92.1	119.0					
Travel Time (s)			6.6	8.6					
Confl. Peds. (#/hr)	25					49			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00			
Heavy Vehicles (%)	5%	2%	5%	5%	1%	5%			
Adj. Flow (vph)	109	221	889	398	358	83			
Shared Lane Traffic (%)									
Lane Group Flow (vph)	109	0	1110	398	441	0			
Enter Blocked Intersection	No	No	No	No	No	No			
Lane Alignment	Left	Left	Left	Left	Right	Right			
Median Width(m)	Lon	Lon	3.7	0.0	rugiit	rugin			
Link Offset(m)			0.0	0.0					
Crosswalk Width(m)			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)	24	24			24	14			
Number of Detectors	1	1	2	2	1				
Detector Template	Left	Left	Thru	Thru	Right				
Leading Detector (m)	6.1	6.1	30.5	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)	6.1	6.1	1.8	1.8	6.1				
Detector 1 Type	CI+Ex	Cl+Ex	CI+Ex	CI+Ex	CI+Ex				
Detector 1 Channel	Jr. Ex	O. P. L.A	OI LA	O. LA	OI · EX				
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)	0.0	0.0	28.7	28.7	0.0				
Detector 2 Size(m)			1.8	1.8					
Detector 2 Type			CI+Ex	CI+Ex					
Detector 2 Channel			OI LX	OI! LX					
Detector 2 Extend (s)			0.0	0.0					
Turn Type	Perm	Perm	NA	NA	custom				
Protected Phases	. 01111	. 51111	8	1	GGGGGTT		5		
Permitted Phases	8	8	-		6				
Detector Phase	8	8	8	1	6				
Switch Phase			-						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		10.0		
Minimum Split (s)	21.9	21.9	21.9	24.9	15.9		17.9		
Total Split (s)	42.0	42.0	42.0	48.0	30.0		18.0		
rotal opin (o)	72.0	12.0	12.0	70.0	30.0		10.0		

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Lane Group	WBL2	WBL	WBT	SBT	SBR	SBR2	Ø5	
Total Split (%)	46.7%	46.7%	46.7%	53.3%	33.3%		20%	
Maximum Green (s)	36.1	36.1	36.1	42.1	24.1		12.1	
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		3.3	
All-Red Time (s)	2.6	2.6	2.6	2.6	2.6		2.6	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0			
Total Lost Time (s)	5.9		5.9	5.9	5.9			
Lead/Lag					Lag		Lead	
Lead-Lag Optimize?					Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	
Recall Mode	Max	Max	Max	C-Max	Max		None	
Walk Time (s)	7.0	7.0	7.0	7.0	0.0		7.0	
Flash Dont Walk (s)	9.0	9.0	9.0	12.0	0.0		5.0	
Pedestrian Calls (#/hr)	30	30	30	20	0		15	
Act Effct Green (s)	36.1		36.1	42.1	38.5			
Actuated g/C Ratio	0.40		0.40	0.47	0.43			
v/c Ratio	0.16		0.59	0.26	0.66			
Control Delay	11.7		31.0	10.3	19.2			
Queue Delay	0.0		0.0	0.0	0.0			
Total Delay	11.7		31.0	10.3	19.2			
LOS	В		С	В	В			
Approach Delay			29.3	15.0				
Approach LOS			С	В				
Queue Length 50th (m)	2.2		55.6	20.3	39.7			
Queue Length 95th (m)	16.9		69.9	29.4	#109.3			
Internal Link Dist (m)			68.1	95.0				
Turn Bay Length (m)								
Base Capacity (vph)	697		1889	1540	669			
Starvation Cap Reductn	0		0	0	0			
Spillback Cap Reductn	0		0	0	0			
Storage Cap Reductn	0		0	0	0			
Reduced v/c Ratio	0.16		0.59	0.26	0.66			
Intersection Summary								
Area Type:	Other							
Cycle Length: 90								
Actuated Cycle Length: 90								
Offset: 40 (44%), Reference	ed to phase 1:SI	BT, Start c	of Green					
Natural Cycle: 75								
Control Type: Actuated-Coc	ordinated							
Maximum v/a Datio: 0.66								

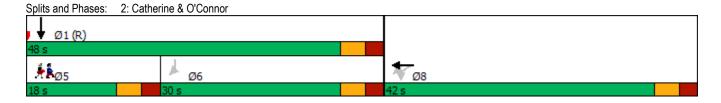
Maximum v/c Ratio: 0.66 Intersection Signal Delay: 23.5 Intersection Capacity Utilization 61.5%

Intersection LOS: C ICU Level of Service B

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.



	-	\rightarrow	•	←	4	~
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	<u> </u>	בטונ	TTDL	1101	HUL	77.77
Traffic Volume (vph)	T 113	0	0	0	0	1624
Future Volume (vph)	113	0	0	0	0	1624
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.88
Frt	1.00	1.00	1.00	1.00	1.00	0.850
Flt Protected						0.000
	1575	0	0	0	0	2696
Satd. Flow (prot)	10/0	0	U	U	U	2090
Flt Permitted	1575	0	0	0	0	2696
Satd. Flow (perm)	10/0		U	0	U	
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (k/h)	50			50	50	
Link Distance (m)	173.0			76.9	69.3	
Travel Time (s)	12.5			5.5	5.0	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	4%	0%	0%	0%	0%	1%
Parking (#/hr)	0					
Adj. Flow (vph)	113	0	0	0	0	1624
Shared Lane Traffic (%)						
Lane Group Flow (vph)	113	0	0	0	0	1624
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Left
Median Width(m)	0.0	rtigrit	Leit	0.0	0.0	LGIL
	0.0			0.0	1.0	
Link Offset(m)						
Crosswalk Width(m)	8.0			4.9	4.9	
Two way Left Turn Lane	4.04	4.00	4.00	4.00	4.00	4.00
Headway Factor	1.21	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)		14	24		24	24
Number of Detectors	2					1
Detector Template	Thru					Right
Leading Detector (m)	30.5					6.1
Trailing Detector (m)	0.0					0.0
Detector 1 Position(m)	0.0					0.0
Detector 1 Size(m)	1.8					6.1
Detector 1 Type	CI+Ex					CI+Ex
Detector 1 Channel	OI. LX					OI. LX
Detector 1 Extend (s)	0.0					0.0
Detector 1 Queue (s)	0.0					0.0
Detector 1 Delay (s)	0.0					0.0
Detector 2 Position(m)	28.7					
Detector 2 Size(m)	1.8					
Detector 2 Type	CI+Ex					
Detector 2 Channel						
Detector 2 Extend (s)	0.0					
Turn Type	NA					Prot
Protected Phases	4					2
Permitted Phases						
Detector Phase	4					2
						_
Switch Phase						
Switch Phase Minimum Initial (s)						10 0
Minimum Initial (s)	10.0					10.0
Minimum Initial (s) Minimum Split (s)	10.0 20.4					43.5
Minimum Initial (s)	10.0					

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_ane Group	EBT	EBR	WBL	WBT	NBL	NBR	
Maximum Green (s)	15.6					63.5	
Yellow Time (s)	3.3					3.3	
All-Red Time (s)	2.1					2.2	
_ost Time Adjust (s)	0.0					0.0	
Total Lost Time (s)	5.4					5.5	
_ead/Lag							
_ead-Lag Optimize?							
Vehicle Extension (s)	3.0					3.0	
Recall Mode	None					C-Max	
Nalk Time (s)	7.0					33.0	
Flash Dont Walk (s)	8.0					5.0	
Pedestrian Calls (#/hr)	30					10	
Act Effct Green (s)	12.5					70.8	
Actuated g/C Ratio	0.14					0.79	
//c Ratio	0.14					0.73	
Control Delay	46.9					3.7	
Queue Delay	0.0					1.0	
Total Delay	46.9					4.8	
-OS	40.9 D					4.0 A	
Approach Delay	46.9				4.8	A	
Approach LOS	40.9 D				4.0 A		
Queue Length 50th (m)	18.1				A	14.3	
Queue Length 95th (m)	33.2					m9.9	
nternal Link Dist (m)	149.0			52.9	45.3	1119.9	
Furn Bay Length (m)	149.0			52.9	40.0		
Base Capacity (vph)	273					2121	
	0					254	
Starvation Cap Reductn Spillback Cap Reductn	0					0	
Storage Cap Reductn	0					0	
Reduced v/c Ratio	0.41					0.87	
Reduced Wc Rallo	0.41					0.67	
ntersection Summary							
Area Type:	Other						
Cycle Length: 90							
Actuated Cycle Length: 90							
Offset: 75 (83%), Referenced	to phase 2:NE	K, Start of	Green				
Natural Cycle: 75							
Control Type: Actuated-Coord	dinated						
Maximum v/c Ratio: 0.77							
ntersection Signal Delay: 7.5					tersection		
ntersection Capacity Utilization	on 77.4%			IC	U Level of	Service D	
Analysis Period (min) 15							
m Volume for 95th percentil	e queue is me	tered by up	ostream si	ignal.			
Splits and Phases: 3: Metc	alfe W & Argyl	Э					
		-					
r¹Ø2 (R)							→ Ø4

	•	†	×	t		
Lane Group	WBR	NBT	SWT	SWR	Ø6	
Lane Configurations	77	^	♦ %			
Traffic Volume (vph)	737	907	357	42		
Future Volume (vph)	737	907	357	42		
Ideal Flow (vphpl)	1800	1800	1800	1800		
Storage Length (m)	0.0			200.0		
Storage Lanes	2			1		
Taper Length (m)	_			•		
Lane Util. Factor	0.88	0.95	0.95	0.95		
Ped Bike Factor	0.00	0.00	1.00	0.00		
Frt	0.850		0.984			
Flt Protected	0.000		0.001			
Satd. Flow (prot)	2696	3424	3290	0		
Flt Permitted	2000	0727	0230	U		
Satd. Flow (perm)	2696	3424	3290	0		
Right Turn on Red	2030	J424	3230	No		
Satd. Flow (RTOR)				INO		
, ,		50	50			
Link Speed (k/h) Link Distance (m)		22.1	184.1			
		1.6	184.1			
Travel Time (s)		1.0	13.3	18		
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)	4.00	4.00	4.00	2		
Peak Hour Factor	1.00	1.00	1.00	1.00		
Heavy Vehicles (%)	1%	1%	3%	3%		
Adj. Flow (vph)	737	907	357	42		
Shared Lane Traffic (%)			222			
Lane Group Flow (vph)	737	907	399	0		
Enter Blocked Intersection	No	No	No	No		
Lane Alignment	Right	Left	Left	Right		
Median Width(m)		0.0	0.0			
Link Offset(m)		0.0	0.0			
Crosswalk Width(m)		2.0	10.0			
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.06	1.06		
Turning Speed (k/h)	24			14		
Turn Type	Prot	NA	NA			
Protected Phases	1	8	2		6	
Permitted Phases						
Minimum Split (s)	15.3	28.3	25.3		16.3	
Total Split (s)	30.0	34.0	26.0		56.0	
Total Split (%)	33.3%	37.8%	28.9%		62%	
Maximum Green (s)	24.7	27.7	19.7		49.7	
Yellow Time (s)	3.3	3.3	3.3		3.3	
All-Red Time (s)	2.0	3.0	3.0		3.0	
Lost Time Adjust (s)	0.0	0.0	0.0			
Total Lost Time (s)	5.3	6.3	6.3			
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Walk Time (s)	0.0	15.0	7.0		0.0	
Flash Dont Walk (s)	0.0	7.0	12.0		0.0	
Pedestrian Calls (#/hr)	0.0	5	10		0.0	
Act Effct Green (s)	24.7	27.7	19.7			
Actuated g/C Ratio	0.27	0.31	0.22			
v/c Ratio	1.00	0.86	0.55			
Control Delay	66.6	7.7	34.7			
Control Dolay	00.0	1.1	U 1 .1			

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Lane Group	WBR	NBT	SWT	SWR	Ø6	
Queue Delay	13.2	0.0	0.0			
Total Delay	79.9	7.7	34.7			
LOS	Е	Α	С			
Approach Delay		7.7	34.7			
Approach LOS		Α	С			
Queue Length 50th (m)	66.4	1.4	29.8			
Queue Length 95th (m)	#104.0	m#5.6	43.0			
Internal Link Dist (m)		0.1	160.1			
Turn Bay Length (m)						
Base Capacity (vph)	739	1053	720			
Starvation Cap Reductn	0	0	0			
Spillback Cap Reductn	32	0	0			
Storage Cap Reductn	0	0	0			
Reduced v/c Ratio	1.04	0.86	0.55			
Intersection Summary						
Area Type:	Other					
Cycle Length: 90						
Actuated Cycle Length: 90						
Offset: 45 (50%), Reference	ed to phase 2:S'	WT and 6:,	Start of G	ireen		
Natural Cycle: 90						
Control Type: Pretimed						
Maximum v/c Ratio: 1.00						
Intersection Signal Delay: 3					tersection LOS: D	
Intersection Capacity Utiliza	ation 84.4%			IC	CU Level of Service E	
Analysis Period (min) 15						
# 95th percentile volume			nay be long	ger.		
Queue shown is maximu						
m Volume for 95th percer	ntile queue is me	etered by u	pstream s	ignal.		
Splits and Phases: 4: Ca	therine & Metca	lfe W & Hv	vy 417 (Ex	it 119)		
#4 Ø1 30 s			6 s Ø2 (F	R)		
#5 Ø6 (R)						#4 #5

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					44		7	44				
Traffic Volume (vph)	0	0	0	0	755	0	82	907	0	0	0	0
Future Volume (vph)	0	0	0	0	755	0	82	907	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor							0.99					
Frt												
Flt Protected							0.950					
Satd. Flow (prot)	0	0	0	0	3390	0	1712	3424	0	0	0	0
Flt Permitted							0.950					
Satd. Flow (perm)	0	0	0	0	3390	0	1697	3424	0	0	0	0
Right Turn on Red			Yes			No	No		No			Yes
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		82.6			121.1			97.0			22.1	
Travel Time (s)		5.9			8.7			7.0			1.6	
Confl. Peds. (#/hr)							7					
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 (%)	0%	0%	0%	0%	2%	0%	1%	1%	0%	0%	0%	0%
Adj. Flow (vph)	0	0	0	0	755	0	82	907	0	0	0	0
Shared Lane Traffic (%)	•	•	•	•		-			•	•	•	•
Lane Group Flow (vph)	0	0	0	0	755	0	82	907	0	0	0	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)	Lon	0.0	rugiit	Lon	0.0	rugiit	2010	3.7	rugiit	Loit	3.7	rugiit
Link Offset(m)		0.0			0.0			-1.0			0.0	
Crosswalk Width(m)		2.0			2.0			6.0			2.0	
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
Turn Type					NA		Perm	NA				• •
Protected Phases					6			8				
Permitted Phases							8	•				
Minimum Split (s)					16.3		28.3	28.3				
Total Split (s)					56.0		34.0	34.0				
Total Split (%)					62.2%		37.8%	37.8%				
Maximum Green (s)					49.7		27.7	27.7				
Yellow Time (s)					3.3		3.3	3.3				
All-Red Time (s)					3.0		3.0	3.0				
Lost Time Adjust (s)					0.0		0.0	0.0				
Total Lost Time (s)					6.3		6.3	6.3				
Lead/Lag					0.0		0.0	0.0				
Lead-Lag Optimize?												
Walk Time (s)					0.0		15.0	15.0				
Flash Dont Walk (s)					0.0		7.0	7.0				
Pedestrian Calls (#/hr)					0.0		5	5				
Act Effct Green (s)					49.7		27.7	27.7				
Actuated g/C Ratio					0.55		0.31	0.31				
v/c Ratio					0.40		0.16	0.86				
Control Delay					12.4		23.7	39.3				
Queue Delay					0.0		0.0	0.0				
Total Delay					12.4		23.7	39.4				
LOS					12.4 B		23.7 C	39. 4 D				
Approach Delay					12.4		U	38.1				
Approach Delay					12.4			JU. 1				

Lane Group	Ø1	Ø2
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
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)		
Peak Hour Factor		
Heavy Vehicles (%)		
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)		
Turn Type		
Protected Phases	1	2
Permitted Phases		
Minimum Split (s)	15.3	25.3
Total Split (s)	30.0	26.0
Total Split (%)	33%	29%
Maximum Green (s)	24.7	19.7
Yellow Time (s)	3.3	3.3
All-Red Time (s)	2.0	3.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes
Walk Time (s)	0.0	7.0
Flash Dont Walk (s)	0.0	12.0
Pedestrian Calls (#/hr)	0	10
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS					В			D				
Queue Length 50th (m)					34.1		9.4	71.1				
Queue Length 95th (m)					45.5		19.1	#100.5				
Internal Link Dist (m)		58.6			97.1			73.0			0.1	
Turn Bay Length (m)												
Base Capacity (vph)					1872		522	1053				
Starvation Cap Reductn					0		0	0				
Spillback Cap Reductn					0		0	2				
Storage Cap Reductn					0		0	0				
Reduced v/c Ratio					0.40		0.16	0.86				
Intersection Summary												
Area Type:	Other											
Cycle Length: 90												
Actuated Cycle Length: 90												
Offset: 45 (50%), Referenced	to phase 2:S\	NT and 6:,	Start of G	reen								
Natural Cycle: 90												
Control Type: Pretimed												
Maximum v/c Ratio: 1.00												
Intersection Signal Delay: 27.0				In	itersection I	LOS: C						
Intersection Capacity Utilization	n 59.0%			IC	CU Level of	Service B						
Analysis Period (min) 15												
# 95th percentile volume exc	ceeds capacit	y, queue n	nay be long	ger.								

Queue shown is maximum after two cycles.

Splits and Phases: 5: Metcalfe W & Hwy 417 (Exit 119)

#4

Ø1

30 s

#5

Ø6 (R)

5: Metcalfe W & Hwy 417 (Exit 119)

#4

#4

Ø2 (R)

31 s

Lane Group	Ø1	Ø2
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

	٠	*	1	†	ļ	1
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	ሻሻ	ZDK *	NDL	<u>↑</u>	<u> </u>	ODIN
Traffic Volume (vph)	7 7 528	120	0	TT 441	T 315	0
	528	120	0	441	315	0
Future Volume (vph)						
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	40.0	0.0	0.0			0.0
Storage Lanes	1	1	0			0
Taper Length (m)	10.0	4.22	2.5		4	
Lane Util. Factor	0.97	1.00	1.00	0.95	1.00	1.00
Ped Bike Factor		0.86				
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	3288	1365	0	3424	1733	0
Flt Permitted	0.950					
Satd. Flow (perm)	3288	1179	0	3424	1733	0
Right Turn on Red	0200	Yes		↓ != !		No
Satd. Flow (RTOR)		120				140
Link Speed (k/h)	50	120		50	50	
	66.8			118.2	109.3	
Link Distance (m)						
Travel Time (s)	4.8	40		8.5	7.9	
Confl. Peds. (#/hr)		46				
Confl. Bikes (#/hr)		11				
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	2%	0%	1%	5%	0%
Parking (#/hr)		0				
Adj. Flow (vph)	528	120	0	441	315	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	528	120	0	441	315	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left		Left	Left	Left	
		Right	Leit			Right
Median Width(m)	7.4			0.0	0.0	
Link Offset(m)	1.0			0.0	0.0	
Crosswalk Width(m)	2.0			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	1.06	1.21	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24	14	24			14
Number of Detectors	1	1		2	2	
Detector Template	Left	Right		Thru	Thru	
Leading Detector (m)	6.1	6.1		30.5	30.5	
Trailing Detector (m)	0.1	0.0		0.0	0.0	
	0.0					
Detector 1 Position(m)		0.0		0.0	0.0	
Detector 1 Size(m)	6.1	6.1		1.8	1.8	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	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				CI+Ex	Cl+Ex	
Detector 2 Channel				OIFLA	OLITEX	
				0.0	0.0	
Detector 2 Extend (s)	Durt	D		0.0	0.0	
		Perm				
	4			2	6	
Permitted Phases		4				
Turn Type Protected Phases Permitted Phases	Prot 4	Perm 4		NA 2	0.0 NA 6	

	•	•	•	†		✓
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Detector Phase	4	4		2	6	
Switch Phase	<u>'</u>	·		_		
Minimum Initial (s)	10.0	10.0		10.0	10.0	
Minimum Split (s)	20.9	20.9		20.6	20.6	
Total Split (s)	30.0	30.0		45.0	45.0	
Total Split (%)	40.0%	40.0%		60.0%	60.0%	
Maximum Green (s)	25.1	25.1		39.4	39.4	
Yellow Time (s)	3.3	3.3		3.3	3.3	
All-Red Time (s)	1.6	1.6		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.9	4.9		5.6	5.6	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Recall Mode	None	None		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	9.0	9.0		8.0	8.0	
Pedestrian Calls (#/hr)	20	20		50	50	
Act Effct Green (s)	17.6	17.6		46.9	46.9	
Actuated g/C Ratio	0.23	0.23		0.63	0.63	
v/c Ratio	0.69	0.33		0.21	0.29	
Control Delay	30.6	7.0		4.7	8.1	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	30.6	7.0		4.7	8.1	
LOS	С	Α		Α	Α	
Approach Delay	26.3			4.7	8.1	
Approach LOS	С			Α	Α	
Queue Length 50th (m)	32.6	0.0		5.8	16.3	
Queue Length 95th (m)	42.3	10.0		14.8	33.4	
Internal Link Dist (m)	42.8			94.2	85.3	
Turn Bay Length (m)	40.0					
Base Capacity (vph)	1100	474		2141	1084	
Starvation Cap Reductn	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	
Storage Cap Reductn	0	0		0	0	
Reduced v/c Ratio	0.48	0.25		0.21	0.29	
Intersection Summary						
Area Type:	Other					
Cycle Length: 75						
Actuated Cycle Length: 75						
Offset: 5 (7%), Referenced to	o phase 2:NBT	and 6:SBT	, Start of	Green		
Natural Cycle: 45						
Control Type: Actuated-Cool	rdinated					
Maximum v/c Ratio: 0.69						
Intersection Signal Delay: 15					tersection l	
Intersection Capacity Utilizat	tion 42.1%			IC	CU Level of	Service A
Analysis Period (min) 15						



		۶	→	•	•	←	•	4	†	/	/	↓	4
Traffic Volume (vph) 0 0 0 59 127 198 105 221 0 0 0 242 156 felder Flow (vph) 0 0 0 59 127 198 105 221 0 0 0 242 156 felder Flow (vph) 1800 1800 1800 1800 1800 1800 1800 180	Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph) 0 0 0 59 127 198 105 221 0 0 0 242 156 felder Flow (vph) 0 0 0 59 127 198 105 221 0 0 0 242 156 felder Flow (vph) 1800 1800 1800 1800 1800 1800 1800 180	Lane Configurations					ર્ની	7		414			Αĵγ	
	Traffic Volume (vph)	0	0	0	59	127	198	105		0	0		156
Storage Length (m)	Future Volume (vph)	0	0	0	59	127	198	105	221	0	0	242	156
Storage Lanes	Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Taper Length (m)	Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	0.0		45.0
Lane Util. Factor	Storage Lanes	0		0	0		1	0		0	0		1
Ped Bike Factor	Taper Length (m)	2.5			2.5			2.5			2.5		
Fit Fit Frotected		1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	0.95
Filt Principated 1984 0.984 0.984 0.084 0.									0.96			0.90	
Satis Flow (proft) 0							0.850					0.941	
FILP Permitted	Flt Protected												
Satid Flow (perm) 0	Satd. Flow (prot)	0	0	0	0		1379	0		0	0	2808	0
Right Turn on Red	Flt Permitted												
Satto Flow (RTOR)		0	0		0	1773		0	2286		0	2808	
Link Distance (m) 184.1 122.5 274.3 118.2 Travel Time (s) 13.3 8.8 19.7 8.5 Confl. Bikes (#/hr) 33 123 224.3 123 Confl. Bikes (#/hr) 414 26 26 Peak Hour Factor 1.00				Yes						No			Yes
Link Distance (m)							198						
Travel Time (s)													
Confi. Bikes (#hr)													
Confi. Bikes (#hr)			13.3			8.8			19.7			8.5	
Peak Hour Factor 1.00 1.								123					
Heavy Vehicles (%)													
Parking (#/hr)													
Adj. Flow (vph)		0%	0%	0%	1%	1%		10%	3%	0%	0%	4%	4%
Shared Lane Traffic (%) Lane Group Flow (vph) 0 0 0 0 0 0 186 198 0 326 0 0 338 0													
Lane Group Flow (vph)		0	0	0	59	127	198	105	221	0	0	242	156
Enter Blocked Intersection													
Left Left Left Right Left Right Left Right Left Right Left Left Right Left Left Left Right Left Lef													
Median Width(m) 0.0													
Link Offset(m) 0.0 0.0 0.0 0.0 0.0 Crosswalk Width(m) 1.6 1.6 1.6 1.6 Two way Left Turn Lane Headway Factor 1.06		Left		Right	Left		Right	Left		Right	Left		Right
Crosswalk Width(m)													
Two way Left Turn Lane Headway Factor 1.06 1.06 1.06 1.06 1.06 1.06 1.06 1.06													
Headway Factor 1.06			1.6			1.6			1.6			1.6	
Turning Speed (k/h) 24 14 24 14 24 14 24 14 24 14 7 14 14 24 14 24 14 14 24 14 14 24 14 14 24 14													
Turn Type Perm NA Perm NA Perm NA NA Protected Phases 8 8 2 6 Permitted Phases 8 8 2 8 Minimum Split (s) 33.0 33.0 25.6 25.6 25.6 Total Split (s) 33.0 33.0 33.0 42.0 42.0 42.0 Total Split (s) 44.0% 44.0% 44.0% 42.0 42.0 42.0 Total Split (s) 26.9 26.9 36.4 36.4 36.4 36.4 Yellow Time (s) 2.8 2.8 2.8 2.3 2.3 2.3 Lost Time (s) 2.8 2.8 2.8 2.3 2.3 2.3 Lost Time (s) 5.6 5.6 5.6 5.6 5.6 Lead/Lag 5.6 5.6 5.6 5.6 Lead/Lag 7.0 7.0 7.0 8.0 8.0 Flash Dont Walk (s) 19.9 19.9 <td></td> <td></td> <td>1.06</td> <td></td> <td></td> <td>1.06</td> <td></td> <td></td> <td>1.06</td> <td></td> <td></td> <td>1.06</td> <td></td>			1.06			1.06			1.06			1.06	
Protected Phases 8 2 6 Permitted Phases 8 8 2 Minimum Split (s) 33.0 33.0 33.0 25.6 25.6 Total Split (s) 33.0 33.0 33.0 42.0 42.0 42.0 Total Split (%) 44.0% 44.0% 44.0% 56.0% 56.0% 56.0% Maximum Green (s) 26.9 26.9 26.9 36.4 36.4 36.4 Yellow Time (s) 3.3 2.3 2.3 2.3 2.3 2.3 2.3 2.5 2.5 6.6 5.6 5.6		24		14						14	24		14
Permitted Phases 8 8 2 Minimum Split (s) 33.0 33.0 25.6 25.6 25.6 Total Split (s) 33.0 33.0 33.0 42.0 42.0 42.0 Total Split (%) 44.0% 44.0% 44.0% 56.0% 56.0% 56.0% Maximum Green (s) 26.9 26.9 26.9 36.4 36.4 36.4 Yellow Time (s) 3.3 3.3 3.3 3.3 3.3 3.3 3.3 All-Red Time (s) 2.8 2.8 2.8 2.3 2.3 2.3 Lost Time Adjust (s) 0.0 0.0 0.0 0.0 0.0 0.0 Total Lost Time (s) 6.1 6.1 5.6 5.6 5.6 Lead/Lag Lead-Lag Optimize? Valk Time (s) 7.0 7.0 8.0 8.0 8.0 Flash Dont Walk (s) 19.9 19.9 19.9 12.0 12.0 12.0 Pedestrian Calls (#/hr) 15 1					Perm		Perm	Perm					
Minimum Split (s) 33.0 33.0 33.0 25.6 25.6 25.6 Total Split (s) 33.0 33.0 33.0 42.0 42.0 42.0 Total Split (%) 44.0% 44.0% 44.0% 56.0% 56.0% 56.0% Maximum Green (s) 26.9 26.9 26.9 36.4 36.4 36.4 Yellow Time (s) 3.3 3.3 3.3 3.3 3.3 3.3 3.3 All-Red Time (s) 2.8 2.8 2.8 2.3 2.3 2.3 Lost Time Adjust (s) 0.0 0.0 0.0 0.0 0.0 Total Lost Time (s) 6.1 6.1 5.6 5.6 Lead/Lag Ead-Lag Optimize? 5.6 5.6 5.6 Walk Time (s) 7.0 7.0 7.0 8.0 8.0 8.0 Flash Dont Walk (s) 19.9 19.9 19.9 12.0 12.0 12.0 Pedestrian Calls (#/hr) 15 15 50 50 50 Act Effct Green (s) 26.9 26.9 36.4<						8			2			6	
Total Split (s) 33.0 33.0 33.0 42.0 42.0 42.0 Total Split (%) 44.0% 44.0% 46.0% 56.0% 56.0% 56.0% Maximum Green (s) 26.9 26.9 26.9 36.4 36.4 36.4 Yellow Time (s) 3.3 3.3 3.3 3.3 3.3 3.3 All-Red Time (s) 2.8 2.8 2.8 2.3 2.3 2.3 Lost Time Adjust (s) 0.0 0.0 0.0 0.0 0.0 0.0 Total Lost Time (s) 6.1 6.1 5.6 5.6 5.6 Lead/Lag Use and Lag Optimize? Valid Time (s) 8.0 8.0 8.0 Walk Time (s) 7.0 7.0 7.0 8.0 8.0 8.0 Flash Dont Walk (s) 19.9 19.9 19.9 12.0 12.0 12.0 Pedestrian Calls (#/hr) 15 15 50 50 50 Act Effct Green (s) 26.9													
Total Split (%) 44.0% 44.0% 44.0% 56.0% 56.0% Maximum Green (s) 26.9 26.9 26.9 36.4 36.4 36.4 Yellow Time (s) 3.3 3.3 3.3 3.3 3.3 3.3 All-Red Time (s) 2.8 2.8 2.8 2.3 2.3 2.3 Lost Time Adjust (s) 0.0 0.0 0.0 0.0 0.0 0.0 Total Lost Time (s) 6.1 6.1 5.6 5.6 5.6 Lead/Lag Lead-Lag Optimize? Valk Time (s) 8.0 8.0 8.0 Flash Dont Walk (s) 19.9 19.9 19.9 12.0 12.0 12.0 Pedestrian Calls (#/hr) 15 15 15 50 50 50 Act Effct Green (s) 26.9 26.9 36.4 36.4 36.4 Actuated g/C Ratio 0.36 0.36 0.49 0.49													
Maximum Green (s) 26.9 26.9 26.9 36.4 36.4 36.4 Yellow Time (s) 3.3 3.3 3.3 3.3 3.3 3.3 All-Red Time (s) 2.8 2.8 2.8 2.3 2.3 2.3 Lost Time Adjust (s) 0.0 0.0 0.0 0.0 0.0 Total Lost Time (s) 6.1 6.1 5.6 5.6 Lead/Lag Lead/Lag Ead-Lag Optimize? Valk Time (s) 8.0 8.0 Walk Time (s) 7.0 7.0 7.0 8.0 8.0 8.0 Flash Dont Walk (s) 19.9 19.9 19.9 12.0 12.0 12.0 Pedestrian Calls (#/hr) 15 15 15 50 50 50 Act Effct Green (s) 26.9 26.9 36.4 36.4 Actuated g/C Ratio 0.36 0.36 0.49 0.49													
Yellow Time (s) 3.3 3.6 3.0 0.0 0.0 0.0													
All-Red Time (s) 2.8 2.8 2.8 2.3 2.3 2.3 2.3 Lost Time Adjust (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 Total Lost Time (s) 6.1 6.1 5.6 5.6 5.6 Lead/Lag Lead-Lag Optimize? Walk Time (s) 7.0 7.0 7.0 8.0 8.0 8.0 8.0 8.0 Flash Dont Walk (s) 19.9 19.9 19.9 12.0 12.0 12.0 Pedestrian Calls (#/hr) 15 15 15 50 50 50 Act Effct Green (s) 26.9 26.9 36.4 36.4 Actuated g/C Ratio 0.36 0.36 0.49 0.49													
Lost Time Adjust (s) 0.0 0.0 0.0 0.0 Total Lost Time (s) 6.1 6.1 5.6 5.6 Lead/Lag Lead-Lag Optimize? Walk Time (s) 7.0 7.0 7.0 8.0 8.0 8.0 Flash Dont Walk (s) 19.9 19.9 19.9 12.0 12.0 12.0 Pedestrian Calls (#/hr) 15 15 15 50 50 50 Act Effct Green (s) 26.9 26.9 36.4 36.4 Actuated g/C Ratio 0.36 0.36 0.49 0.49													
Total Lost Time (s) 6.1 6.1 5.6 5.6 Lead/Lag Lead-Lag Optimize? Walk Time (s) 7.0 7.0 7.0 8.0 8.0 8.0 Flash Dont Walk (s) 19.9 19.9 12.0 12.0 12.0 Pedestrian Calls (#/hr) 15 15 15 50 50 Act Effct Green (s) 26.9 26.9 36.4 36.4 Actuated g/C Ratio 0.36 0.36 0.49 0.49					2.8			2.3					
Lead/Lag Lead-Lag Optimize? Valk Time (s) 7.0 7.0 7.0 8.0 8.0 8.0 Flash Dont Walk (s) 19.9 19.9 12.0 12.0 12.0 Pedestrian Calls (#/hr) 15 15 15 50 50 Act Effct Green (s) 26.9 26.9 36.4 36.4 Actuated g/C Ratio 0.36 0.36 0.49 0.49													
Lead-Lag Optimize? Walk Time (s) 7.0 7.0 7.0 8.0 8.0 8.0 Flash Dont Walk (s) 19.9 19.9 19.0 12.0 12.0 Pedestrian Calls (#/hr) 15 15 50 50 Act Effct Green (s) 26.9 26.9 36.4 36.4 Actuated g/C Ratio 0.36 0.36 0.49 0.49						6.1	6.1		5.6			5.6	
Walk Time (s) 7.0 7.0 7.0 8.0 8.0 Flash Dont Walk (s) 19.9 19.9 19.9 12.0 12.0 12.0 Pedestrian Calls (#/hr) 15 15 15 50 50 Act Effct Green (s) 26.9 26.9 36.4 36.4 Actuated g/C Ratio 0.36 0.36 0.49 0.49													
Flash Dont Walk (s) 19.9 19.9 19.9 12.0 12.0 12.0 Pedestrian Calls (#/hr) 15 15 15 50 50 Act Effct Green (s) 26.9 26.9 36.4 36.4 Actuated g/C Ratio 0.36 0.36 0.49 0.49													
Pedestrian Calls (#/hr) 15 15 50 50 Act Effct Green (s) 26.9 26.9 36.4 36.4 Actuated g/C Ratio 0.36 0.36 0.49 0.49	` '												
Act Effct Green (s) 26.9 26.9 36.4 36.4 Actuated g/C Ratio 0.36 0.36 0.49 0.49													
Actuated g/C Ratio 0.36 0.36 0.49 0.49					15			50					
•													
v/c Ratio 0.29 0.33 0.29 0.28													
	v/c Ratio					0.29	0.33		0.29			0.28	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBF
Control Delay					18.8	4.5		12.5			4.1	
Queue Delay					0.0	0.0		0.0			0.0	
Total Delay					18.8	4.5		12.5			4.1	
LOS					В	Α		В			Α	
Approach Delay					11.4			12.5			4.1	
Approach LOS					В			В			Α	
Queue Length 50th (m)					17.0	0.0		12.6			2.3	
Queue Length 95th (m)					30.4	11.2		20.2			8.3	
Internal Link Dist (m)		160.1			98.5			250.3			94.2	
Turn Bay Length (m)												
Base Capacity (vph)					635	597		1109			1443	
Starvation Cap Reductn					0	0		0			0	
Spillback Cap Reductn					0	0		0			0	
Storage Cap Reductn					0	0		0			0	
Reduced v/c Ratio					0.29	0.33		0.29			0.28	
Intersection Summary												
	Other											
Cycle Length: 75												
Actuated Cycle Length: 75												
Offset: 2 (3%), Referenced to pl	hase 2:NBT	L and 6:SE	BT, Start of	Green								
Natural Cycle: 60												
Control Type: Pretimed												
Maximum v/c Ratio: 0.33												
Intersection Signal Delay: 9.1					tersection I							
Intersection Capacity Utilization	63.2%			IC	U Level of	Service B						
Analysis Period (min) 15												
Splits and Phases: 7: Elgin &	Catherine											
↑ Ø2 (R)												
42 s												
√ Ø6 (R)						₹ ø	8					

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Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		7	^			
Traffic Volume (vph)	0	242	1102	0	0	0
Future Volume (vph)	0	242	1102	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.865				
Flt Protected						
Satd. Flow (prot)	0	1559	3424	0	0	0
Flt Permitted						
Satd. Flow (perm)	0	1559	3424	0	0	0
Link Speed (k/h)	50		50			50
Link Distance (m)	74.6		120.8			108.0
Travel Time (s)	5.4		8.7			7.8
Confl. Peds. (#/hr)	4					
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	1%	1%	0%	0%	0%
Adj. Flow (vph)	0	242	1102	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	242	1102	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	0.0		0.0	.		0.0
Link Offset(m)	3.7		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)	24	14		14	24	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilization	on 57.6%			IC	U Level of	Service B
Analysis Period (min) 15						

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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	ተ ተ ኈ					7
Traffic Volume (vph)	1750	0	0	0	0	0
Future Volume (vph)	1750	0	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt						
Flt Protected						
Satd. Flow (prot)	4709	0	0	0	0	1820
FIt Permitted						
Satd. Flow (perm)	4709	0	0	0	0	1820
Link Speed (k/h)	50			50	50	
Link Distance (m)	76.9			40.1	59.5	
Travel Time (s)	5.5			2.9	4.3	
Confl. Bikes (#/hr)		1				1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	0%	0%	0%	0%	0%
Parking (#/hr)	0					
Adj. Flow (vph)	1750	0	0	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1750	0	0	0	0	0
Enter Blocked Intersection	Yes	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	2.0			2.0	2.0	
Two way Left Turn Lane						
Headway Factor	1.10	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 39.0%
Analysis Period (min) 15

ICU Level of Service A

Synchro 10 Report J.Audia, Novatech

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Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	*	414				
Traffic Volume (vph)	1102	648	0	0	0	0
Future Volume (vph)	1102	648	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00	1.00
Frt						
Fit Protected	0.950	0.978				
Satd. Flow (prot)	1543	3176	0	0	0	0
Flt Permitted	0.950	0.978				
Satd. Flow (perm)	1543	3176	0	0	0	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		40.1	66.8		120.8	
Travel Time (s)		2.9	4.8		8.7	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	2%	0%	0%	0%	0%
Adj. Flow (vph)	1102	648	0	0	0	0
Shared Lane Traffic (%)	48%					
Lane Group Flow (vph)	573	1177	0	0	0	0
Enter Blocked Intersection	Yes	Yes	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		0.0	
Link Offset(m)		0.0	0.0		-2.0	
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)	24			14	24	14
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilization	on 57.6%			IC	U Level of	Service B
Analysis Period (min) 15						

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		ĵ.									41₽	
Traffic Volume (vph)	0	86	143	0	0	0	0	0	0	74	1415	0
Future Volume (vph)	0	86	143	0	0	0	0	0	0	74	1415	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor		0.86									0.98	
Frt		0.916										
Flt Protected											0.998	
Satd. Flow (prot)	0	1247	0	0	0	0	0	0	0	0	3246	0
Flt Permitted											0.998	
Satd. Flow (perm)	0	1247	0	0	0	0	0	0	0	0	3184	0
Right Turn on Red	•		Yes	•		Yes	•		Yes	Yes		Yes
Satd. Flow (RTOR)		67							. 00		28	. 00
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		170.3			173.0			119.0			124.7	
Travel Time (s)		12.3			12.5			8.6			9.0	
Confl. Peds. (#/hr)		12.0	133		12.0			0.0		155	3.0	
Confl. Bikes (#/hr)			2							100		13
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 (%)	0%	3%	3%	0%	0%	0%	0%	0%	0%	1.00	1.00	0%
	U /0	0	J /0	U /0	U /0	U /0	U /0	U /0	U /0	1 /0	0	U /0
Parking (#/hr)	0	86	143	٥	0	٥	٥	٥	٥	74	1415	0
Adj. Flow (vph)	0	00	143	0	U	0	0	0	0	74	1410	0
Shared Lane Traffic (%)	0	000	0	0	0	0	0	0	0	0	4.400	0
Lane Group Flow (vph)	0	229	0	0	0	0	0	0	0	0	1489	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		2.0			-2.0			0.0			0.0	
Crosswalk Width(m)		4.0			4.9			4.9			4.9	
Two way Left Turn Lane	4.00	4.04	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.40	4.00
Headway Factor	1.06	1.21	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.13	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Turn Type		NA								Perm	NA	
Protected Phases		4								_	6	
Permitted Phases										6		
Minimum Split (s)		23.6								25.2	25.2	
Total Split (s)		27.0								73.0	73.0	
Total Split (%)		27.0%								73.0%	73.0%	
Maximum Green (s)		21.4								67.8	67.8	
Yellow Time (s)		3.3								3.3	3.3	
All-Red Time (s)		2.3								1.9	1.9	
Lost Time Adjust (s)		0.0									0.0	
Total Lost Time (s)		5.6									5.2	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)		7.0								14.0	14.0	
Flash Dont Walk (s)		11.0								6.0	6.0	
Pedestrian Calls (#/hr)		50								50	50	
Act Effct Green (s)		21.4									67.8	
Actuated g/C Ratio		0.21									0.68	
v/c Ratio		0.72									0.69	
Control Delay		39.7									11.6	
Queue Delay		0.0									0.0	
Total Delay		39.7									11.6	
											. 1.0	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBF
LOS		D									В	
Approach Delay		39.7									11.6	
Approach LOS		D									В	
Queue Length 50th (m)		27.1									73.3	
Queue Length 95th (m)		#57.2									93.8	
Internal Link Dist (m)		146.3			149.0			95.0			100.7	
Turn Bay Length (m)												
Base Capacity (vph)		319									2167	
Starvation Cap Reductn		0									0	
Spillback Cap Reductn		0									4	
Storage Cap Reductn		0									0	
Reduced v/c Ratio		0.72									0.69	
Intersection Summary												
<i>7</i> I	Other											
Cycle Length: 100												
Actuated Cycle Length: 100												
Offset: 17 (17%), Referenced to	o phase 6:SB	BTL, Start o	of Green									
Natural Cycle: 60												
Control Type: Pretimed												
Maximum v/c Ratio: 0.72												
Intersection Signal Delay: 15.3					tersection I							
Intersection Capacity Utilization	า 70.8%			IC	CU Level of	Service C						
Analysis Period (min) 15												
# 95th percentile volume exce			ay be long	jer.								
Queue shown is maximum a	after two cycle	es.										
Splits and Phases: 1: O'Con	nor & Argyle											
	3,10								→ Ø4			
								27	S		- 3	100
Ø6 (R)												100

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Lane Group	WBL2	WBL	WBT	SBT	SBR	SBR2	Ø5		
Lane Configurations	*		ተ ተተ	^	Ž.				
Traffic Volume (vph)	196	216	682	965	476	128			
Future Volume (vph)	196	216	682	965	476	128			
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800			
Lane Util. Factor	1.00	0.91	0.91	0.95	1.00	0.95			
Ped Bike Factor	0.98				0.96				
Frt	0.00				0.850				
Flt Protected	0.950		0.988		0.000				
Satd. Flow (prot)	1647	0	4753	3390	1522	0			
Flt Permitted	0.950		0.988	0000	1022				
Satd. Flow (perm)	1607	0	4753	3390	1460	0			
Right Turn on Red	Yes		1700	0000	1100	Yes			
Satd. Flow (RTOR)	98				96	100			
Link Speed (k/h)	30		50	50	30				
Link Distance (m)			92.1	119.0					
Travel Time (s)			6.6	8.6					
Confl. Peds. (#/hr)	13		0.0	0.0		34			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00			
Heavy Vehicles (%)	5%	1%	4%	2%	1.00	4%			
Adj. Flow (vph)	196	216	682	965	476	128			
Shared Lane Traffic (%)	190	210	002	905	470	120			
Lane Group Flow (vph)	196	0	898	965	604	0			
Enter Blocked Intersection	No	No	No No	No	No	No			
	Left		Left						
Lane Alignment	Leit	Left	3.7	Left 0.0	Right	Right			
Median Width(m)			0.0	0.0					
Link Offset(m)			4.9	4.9					
Crosswalk Width(m)			4.9	4.9					
Two way Left Turn Lane	1.00	1.00	1.00	1.00	1.00	1.00			
Headway Factor	1.06 24	1.06	1.06	1.06	1.06 24	1.06			
Turning Speed (k/h)		24	2	2		14			
Number of Detectors	1	1	2	2	1				
Detector Template	Left	Left	Thru	Thru	Right				
Leading Detector (m)	6.1	6.1	30.5	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)	6.1	6.1	1.8	1.8	6.1				
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex				
Detector 1 Channel									
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0				
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			CI+Ex	CI+Ex					
Detector 2 Channel									
Detector 2 Extend (s)			0.0	0.0					
Turn Type	Perm	Perm	NA	NA	custom				
Protected Phases			8	1			5		
Permitted Phases	8	8			6				
Detector Phase	8	8	8	1	6				
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		10.0		
Minimum Split (s)	21.9	21.9	21.9	24.9	15.9		17.9		
Total Split (s)	41.0	41.0	41.0	59.0	41.0		18.0		
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Lane Group	WBL2	WBL	WBT	SBT	SBR	SBR2	Ø5	
Total Split (%)	41.0%	41.0%	41.0%	59.0%	41.0%		18%	
Maximum Green (s)	35.1	35.1	35.1	53.1	35.1		12.1	
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		3.3	
All-Red Time (s)	2.6	2.6	2.6	2.6	2.6		2.6	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0			
Total Lost Time (s)	5.9		5.9	5.9	5.9			
Lead/Lag					Lag		Lead	
Lead-Lag Optimize?					Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	
Recall Mode	Max	Max	Max	C-Max	Max		None	
Walk Time (s)	7.0	7.0	7.0	7.0	0.0		7.0	
Flash Dont Walk (s)	9.0	9.0	9.0	12.0	0.0		5.0	
Pedestrian Calls (#/hr)	10	10	10	15	0		15	
Act Effct Green (s)	35.1		35.1	53.1	49.5			
Actuated g/C Ratio	0.35		0.35	0.53	0.50			
v/c Ratio	0.31		0.54	0.54	0.78			
Control Delay	12.8		20.4	9.4	18.7			
Queue Delay	0.0		0.0	0.4	1.1			
Total Delay	12.8		20.4	9.8	19.8			
LOS	В		С	Α	В			
Approach Delay			19.0	13.7				
Approach LOS			В	В				
Queue Length 50th (m)	20.1		51.7	22.1	18.7			
Queue Length 95th (m)	38.5		65.9	31.3	#170.8			
Internal Link Dist (m)			68.1	95.0				
Turn Bay Length (m)								
Base Capacity (vph)	627		1668	1800	771			
Starvation Cap Reductn	0		0	375	46			
Spillback Cap Reductn	0		0	0	0			
Storage Cap Reductn	0		0	0	0			
Reduced v/c Ratio	0.31		0.54	0.68	0.83			
Intersection Summary								
Area Type:	Other							
Cycle Length: 100								
Actuated Cycle Length: 100								
Offset: 25 (25%), Referenced	to phase 1:SI	BT, Start o	f Green					

Natural Cycle: 90

Control Type: Actuated-Coordinated

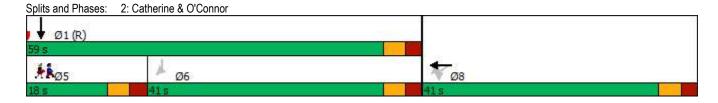
Maximum v/c Ratio: 0.78 Intersection Signal Delay: 15.9 Intersection Capacity Utilization 67.8%

Intersection LOS: B ICU Level of Service C

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.



Synchro 10 Report J.Audia, Novatech

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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	<u></u>	LUIT	TTDL	וטייי	HUL	77.77
Traffic Volume (vph)	170	0	0	0	0	960
Future Volume (vph)	170	0	0	0	0	960
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.88
Frt	1.00	1.00	1.00	1.00	1.00	0.850
Flt Protected						0.000
	1622	0	0	0	0	2696
Satd. Flow (prot)	1022	0	U	U	U	2090
Flt Permitted	1622	0	0	0	0	2696
Satd. Flow (perm)	1022		U	0	U	
Right Turn on Red		No				No
Satd. Flow (RTOR)						
Link Speed (k/h)	50			50	50	
Link Distance (m)	173.0			76.9	69.3	
Travel Time (s)	12.5			5.5	5.0	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	0%	0%	0%	0%	1%
Parking (#/hr)	0					
Adj. Flow (vph)	170	0	0	0	0	960
Shared Lane Traffic (%)						
Lane Group Flow (vph)	170	0	0	0	0	960
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Left
Median Width(m)	0.0	rtigrit	Loit	0.0	0.0	LOIL
Link Offset(m)	0.0			0.0	1.0	
	8.0				4.9	
Crosswalk Width(m)	0.0			4.9	4.9	
Two way Left Turn Lane	1.01	1.00	1.00	1.00	1.00	1.00
Headway Factor	1.21	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)		14	24		24	24
Number of Detectors	2					1
Detector Template	Thru					Right
Leading Detector (m)	30.5					6.1
Trailing Detector (m)	0.0					0.0
Detector 1 Position(m)	0.0					0.0
Detector 1 Size(m)	1.8					6.1
Detector 1 Type	CI+Ex					CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0					0.0
Detector 1 Queue (s)	0.0					0.0
Detector 1 Delay (s)	0.0					0.0
Detector 2 Position(m)	28.7					0.0
	1.8					
Detector 2 Size(m)						
Detector 2 Type	CI+Ex					
Detector 2 Channel						
Detector 2 Extend (s)	0.0					
Turn Type	NA					Prot
Protected Phases	4					2
Permitted Phases						
Detector Phase	4					2
Switch Phase						
Minimum Initial (s)	10.0					10.0
Minimum Split (s)	20.4					43.5
Total Split (s)	26.0					74.0
Total Split (%)	26.0%					74.0%
i otal opiit (70)	20.070					1-1.0/0

Area Type: Other Cycle Length: 100 Actuated Cycle Length: 100 Offset: 18 (18%), Referenced to phase 2:NBR, Start of Green Natural Cycle: 65 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.68 Intersection Signal Delay: 11.3 Intersection LOS: B Intersection Capacity Utilization 70.8% ICU Level of Service C Analysis Period (min) 15 In Volume for 95th percentile queue is metered by upstream signal. Splits and Phases: 3: Metcalfe W & Argyle		-	•	•	•	•	/	
Maximum Green (s) 20.6 68.5 (fellow Time (s) 3.3 3.3 All-Red Time (s) 2.1 2.2 Lost Time Adjust (s) 0.0 0.0 Total Lost Time (s) 5.4 5.5 Lost Time (s) 5.0 Lost Time (s) 7.0 3.0 Recall Mode None C-Max Walk Time (s) 7.0 33.0 Lost Lost Time (s) 7.0 33.0 Lost Lost Time (s) 7.0 10 Lost Lost Time (sterical Lost Time (sterical Lost Time (sterical Los	ane Group	FBT	FBR	WBI	WBT	NBI	NBR	
A								
All-Red Time (s)								
Cost Time Adjust (s) 0.0 0.0								
Total Lost Time (s) 5.4 5.5 cead/Lag Cead/L								
Lead-Lag Optimize? / Jehicle Extension (s) 3.0 3.0 Recall Mode None C-Max / Walk Time (s) 7.0 33.0 - Recall Mode None C-Max / Walk Time (s) 7.0 33.0 - Recall Mode None C-Max / Walk Time (s) 7.0 33.0 - Recall Mode None C-Max / Walk Time (s) 7.0 33.0 - Recall Mode None C-Max / Walk Time (s) 8.0 5.0 - Redestrian Calls (#/hr) 30 10 - Rect Effct Green (s) 15.5 73.6 - Rectured g/C Ratio 0.16 0.74 / Walk Ratio 0.68 0.48 - Rectured Both Control Delay 53.9 3.4 - Rectured Delay 53.9 3.4 - Rectured Delay 53.9 3.8 - Rectured Delay 53.9 3.8 - Reproach LOS D A A - Reproach LOS D A B - Reproach LOS D A A - Reproach LOS D A B - Reproach LOS D A A - Reproach LOS D A B - Reproach LOS D B - Rectured LOS D B - Reproach LOS D B - Rectured LOS D B -								
Lead-Lag Optimize?		0.1					0.0	
Vehicle Extension (s) 3.0 3.0								
Recall Mode		3.0					3.0	
Nalk Time (s) 7.0 33.0								
Flash Dont Walk (s) 8.0 5.0 Pedestrian Calls (#hr) 30 10 Act Effct Green (s) 15.5 73.6 Actuated g/C Ratio 0.16 0.74 Actuated g/C Ratio 0.68 0.48 Control Delay 53.9 3.4 Dueue Delay 0.0 0.4 Crotal Delay 53.9 3.8 DOS D AA Approach Delay 53.9 3.8 Approach LOS D A Approach LOS D A Approach LOS D A Dueue Length 50th (m) 27.2 5.0 Dueue Length 95th (m) m37.3 53.6 Internal Link Dist (m) 149.0 52.9 45.3 Turn Bay Length (m) Base Capacity (vph) 334 1983 Barvation Cap Reductn 0 479 Spillback Cap Reductn 0 0 479 Borlibback Cap Reductn 0 0 0 Borlibback Cap Reductn 0 0 0 Borlibback Cap Reductn 0 0 0 Control Type: Other Cycle Length: 100 Actuated Cycle Length: 100 Diffset: 18 (18%), Referenced to phase 2:NBR, Start of Green Natural Cycle: 65 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.68 Intersection Signal Delay: 11.3 Intersection LOS: B Intersection Capacity Utilization 70.8% Intersection Capacity Ut								
Pedestrian Calls (#/hr) 30 10 Act Effc Green (s) 15.5 73.6 Actuated g/C Ratio 0.16 0.74 Actuated g/C Ratio 0.68 0.48 Dontrol Delay 53.9 3.4 Queue Delay 0.0 0.4 Potal Delay 53.9 3.8 Approach Delay 53.9 3.8 Approach Delay 53.9 3.8 Approach Delay 53.9 3.8 Approach LOS D A Approach LOS D A Dueue Length 50th (m) 27.2 5.0 Queue Length 95th (m) m37.3 53.6 Internal Link Dist (m) 149.0 52.9 45.3 Itum Bay Length (m) Base Capacity (vph) 334 1983 Starvation Cap Reductn 0 479 Spillback Cap Reductn 0 0 05 Storage Cap Reductn 0 0 0 Storage Cap Reductn 0 0 0.51 Reduced vic Ratio 0.51 0.64 Intersection Summary Area Type: Other Cycle Length: 100 Actuated Cycle Length: 100 Diffset: 18 (18%), Referenced to phase 2:NBR, Start of Green Valtural Cycle: 65 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.68 Intersection Signal Delay: 11.3 Intersection LOS: B Intersection Capacity Utilization 70.8% Icu Level of Service C Analysis Period (min) 15 In Volume for 95th percentile queue is metered by upstream signal.								
Act Effet Green (s) 15.5 73.6 Actuated g/C Ratio 0.16 0.74 //C Ratio 0.68 0.48 //C Ratio 0.68 0.48 //C Ratio 0.68 0.48 //C Ratio 0.0 0.68 0.48 //C Ratio 0.0 0.0 0.4 //C Ratio 0.0 0.5 //C Ratio								
Actuated g/C Ratio 0.16 0.74 //c Ratio 0.68 0.48 Control Delay 53.9 3.4 Queue Delay 0.0 0.4 Potal Delay 53.9 3.8 LOS D A Approach Delay 53.9 3.8 Approach LOS D A Approach LOS D A Queue Length 50th (m) 27.2 5.0 Queue Length 95th (m) m37.3 53.6 Internal Link Dist (m) 149.0 52.9 45.3 Furn Bay Length (m) Base Capacity (vph) 334 1983 Starvation Cap Reductn 0 479 Spillback Cap Reductn 0 0 0.5 Reduced v/c Ratio 0.51 0.64 Intersection Summary Area Type: Other Cycle Length: 100 Actuated Cycle Ength: 100 Actuated Cycle Ength: 100 Actuated Cycle Ength: 100 Tifset: 18 (18%), Referenced to phase 2:NBR, Start of Green Valural Cycle: 65 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.68 Intersection Capacity Utilization 70.8% Intersection Capacity Utilization 70.8% Intersection Capacity Utilization 70.8% Icu Level of Service C Analysis Period (min) 15 In Volume for 95th percentile queue is metered by upstream signal.								
## CRATIO								
Control Delay 53.9 3.4 Queue Delay 0.0 0.4 Total Delay 53.9 3.8 LOS D A Approach Delay 53.9 3.8 Approach LOS D A Queue Length 50th (m) 27.2 5.0 Queue Length 95th (m) m37.3 53.6 Internal Link Dist (m) 149.0 52.9 45.3 Furn Bay Length (m) Base Capacity (vph) 334 1983 Starvation Cap Reductn 0 479 Spillback Cap Reductn 0 0 98 Reduced v/c Ratio 0.51 0.64 Intersection Summary Area Type: Other Cycle Length: 100 Actuated Cycle Length: 100 Offset: 18 (18%), Referenced to phase 2:NBR, Start of Green Natural Cycle: 65 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.68 Intersection Signal Delay: 11.3 Intersection LOS: B Intersection Capacity Utilization 70.8% ICU Level of Service C Analysis Period (min) 15 In Volume for 95th percentile queue is metered by upstream signal.								
Queue Delay 0.0 0.4								
Storage Cap Reductn	•							
Approach Delay 53.9 3.8 Approach LOS D A Approach LOS D A Dueue Length 50th (m) 27.2 5.0 Dueue Length 95th (m) m37.3 53.6 Internal Link Dist (m) 149.0 52.9 45.3 Furn Bay Length (m) Base Capacity (vph) 334 1983 Starvation Cap Reductn 0 479 Spillback Cap Reductn 0 0 0 Storage Cap Reductn 0 0 0 Reduced v/c Ratio 0.51 0.64 Intersection Summary Area Type: Other Cycle Length: 100 Actuated Cycle Length: 100 Diffset: 18 (18%), Referenced to phase 2:NBR, Start of Green Natural Cycle: 65 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.68 Intersection Signal Delay: 11.3 Intersection LOS: B Intersection Capacity Utilization 70.8% ICU Level of Service C Analysis Period (min) 15 Intersectile W & Argyle Splits and Phases: 3: Metcalfe W & Argyle								
Approach Delay 53.9 A Approach LOS D A A Queue Length 50th (m) 27.2 5.0 Queue Length 95th (m) m37.3 53.6 Internal Link Dist (m) 149.0 52.9 45.3 Furn Bay Length (m) Base Capacity (vph) 334 1983 Starvation Cap Reductn 0 479 Spillback Cap Reductn 0 0 0 Storage Cap Reductn 0 0 0 Reduced v/c Ratio 0.51 0.64 Intersection Summary Area Type: Other Cycle Length: 100 Actuated Cycle Length: 100 Diffset: 18 (18%), Referenced to phase 2:NBR, Start of Green Natural Cycle: 65 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.68 Intersection Signal Delay: 11.3 Intersection LOS: B Intersection Capacity Utilization 70.8% ICU Level of Service C Analysis Period (min) 15 Intersection Upstream signal. Splits and Phases: 3: Metcalfe W & Argyle								
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Internal Link Dist (m) Furn Bay Length (m) Base Capacity (vph) Base C								
Furn Bay Length (m) Base Capacity (vph) 334 1983 Starvation Cap Reductn 0 479 Spillback Cap Reductn 0 0 Storage Cap Reductn 0 0 Reduced v/c Ratio 0.51 0.64 Intersection Summary Area Type: Other Cycle Length: 100 Actuated Cycle Length: 100 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.68 Intersection Signal Delay: 11.3 Intersection LOS: B Intersection Capacity Utilization 70.8% Analysis Period (min) 15 In Volume for 95th percentile queue is metered by upstream signal.					52.9	45.3		
Base Capacity (vph) 334 Starvation Cap Reductn 0 Spillback Cap Reductn 0 Storage Cap Reductn 0 Reduced v/c Ratio 0.51 Reduced v/c Ratio 0.51 Reduced v/c Ratio 0.51 Reduced v/c Ratio 0.64 Intersection Summary Area Type: Cycle Length: 100 Actuated Cycle Length: 100 Offset: 18 (18%), Referenced to phase 2:NBR, Start of Green Natural Cycle: 65 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.68 Intersection Signal Delay: 11.3 Intersection LOS: B Intersection Capacity Utilization 70.8% ICU Level of Service C Analysis Period (min) 15 In Volume for 95th percentile queue is metered by upstream signal.					0			
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Spillback Cap Reductn 0 0 Storage Cap Reductn 0 0 Reduced v/c Ratio 0.51 0.64 Intersection Summary Area Type: Other Cycle Length: 100 Actuated Cycle Length: 100 Diffset: 18 (18%), Referenced to phase 2:NBR, Start of Green Natural Cycle: 65 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.68 Intersection Signal Delay: 11.3 Intersection LOS: B Intersection Capacity Utilization 70.8% ICU Level of Service C Analysis Period (min) 15 In Volume for 95th percentile queue is metered by upstream signal. Splits and Phases: 3: Metcalfe W & Argyle								
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Area Type: Other Cycle Length: 100 Actuated Cycle Length: 100 Offset: 18 (18%), Referenced to phase 2:NBR, Start of Green Natural Cycle: 65 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.68 Intersection Signal Delay: 11.3 Intersection LOS: B Intersection Capacity Utilization 70.8% ICU Level of Service C Analysis Period (min) 15 In Volume for 95th percentile queue is metered by upstream signal. Splits and Phases: 3: Metcalfe W & Argyle	Reduced v/c Ratio							
Area Type: Other Cycle Length: 100 Actuated Cycle Length: 100 Offset: 18 (18%), Referenced to phase 2:NBR, Start of Green Natural Cycle: 65 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.68 Intersection Signal Delay: 11.3 Intersection LOS: B Intersection Capacity Utilization 70.8% ICU Level of Service C Analysis Period (min) 15 In Volume for 95th percentile queue is metered by upstream signal. Splits and Phases: 3: Metcalfe W & Argyle								
Cycle Length: 100 Actuated Cycle Length: 100 Diffset: 18 (18%), Referenced to phase 2:NBR, Start of Green Natural Cycle: 65 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.68 Intersection Signal Delay: 11.3 Intersection LOS: B Intersection Capacity Utilization 70.8% ICU Level of Service C Analysis Period (min) 15 In Volume for 95th percentile queue is metered by upstream signal. Splits and Phases: 3: Metcalfe W & Argyle		0.0						
Actuated Cycle Length: 100 Offset: 18 (18%), Referenced to phase 2:NBR, Start of Green Natural Cycle: 65 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.68 Intersection Signal Delay: 11.3 Intersection Capacity Utilization 70.8% ICU Level of Service C Analysis Period (min) 15 In Volume for 95th percentile queue is metered by upstream signal. Splits and Phases: 3: Metcalfe W & Argyle		Other						
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Natural Cycle: 65 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.68 Intersection Signal Delay: 11.3 Intersection Capacity Utilization 70.8% ICU Level of Service C Analysis Period (min) 15 In Volume for 95th percentile queue is metered by upstream signal. Splits and Phases: 3: Metcalfe W & Argyle								
Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.68 Intersection Signal Delay: 11.3 Intersection Capacity Utilization 70.8% ICU Level of Service C Analysis Period (min) 15 The Volume for 95th percentile queue is metered by upstream signal. Splits and Phases: 3: Metcalfe W & Argyle		ed to phase 2:NE	R, Start o	Green				
Maximum v/c Ratio: 0.68 Intersection Signal Delay: 11.3 Intersection LOS: B ICU Level of Service C Analysis Period (min) 15 Intersection Copyrights and Phases: 3: Metcalfe W & Argyle								
ntersection Signal Delay: 11.3 Intersection LOS: B ntersection Capacity Utilization 70.8% ICU Level of Service C Analysis Period (min) 15 n Volume for 95th percentile queue is metered by upstream signal. Splits and Phases: 3: Metcalfe W & Argyle		ordinated						
ntersection Capacity Utilization 70.8% ICU Level of Service C Analysis Period (min) 15 M Volume for 95th percentile queue is metered by upstream signal. Splits and Phases: 3: Metcalfe W & Argyle								
Analysis Period (min) 15 Mary Volume for 95th percentile queue is metered by upstream signal. Splits and Phases: 3: Metcalfe W & Argyle								
Volume for 95th percentile queue is metered by upstream signal. Splits and Phases: 3: Metcalfe W & Argyle		ation 70.8%			IC	U Level of	Service C	
Splits and Phases: 3: Metcalfe W & Argyle								
We say	m Volume for 95th perce	ntile queue is me	ered by u	ostream s	ignal.			
Aga (n)	Splits and Phases: 3: Me	etcalfe W & Argyle	e					
	f ø2 (R)							

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Lane Group	WBR	NBT	SWT	SWR	Ø6	
Lane Configurations	77	^	† 1>			
Traffic Volume (vph)	385	363	360	61		
Future Volume (vph)	385	363	360	61		
Ideal Flow (vphpl)	1800	1800	1800	1800		
Storage Length (m)	0.0	1000	1000	200.0		
Storage Lanes	2			1		
Taper Length (m)	2			1		
Lane Util. Factor	0.88	0.95	0.95	0.95		
Ped Bike Factor	0.00	0.55	1.00	0.95		
Frt	0.850		0.978			
	0.000		0.970			
Flt Protected	0000	0.40.4	0070	^		
Satd. Flow (prot)	2696	3424	3270	0		
Flt Permitted			00=0			
Satd. Flow (perm)	2696	3424	3270	0		
Right Turn on Red				No		
Satd. Flow (RTOR)						
Link Speed (k/h)		50	50			
Link Distance (m)		22.1	184.1			
Travel Time (s)		1.6	13.3			
Confl. Peds. (#/hr)				11		
Peak Hour Factor	1.00	1.00	1.00	1.00		
Heavy Vehicles (%)	1%	1%	3%	3%		
Adj. Flow (vph)	385	363	360	61		
Shared Lane Traffic (%)	000	000	000	01		
Lane Group Flow (vph)	385	363	421	0		
Enter Blocked Intersection	No	No	No	No		
			Left			
Lane Alignment	Right	Left	0.0	Right		
Median Width(m)		0.0				
Link Offset(m)		0.0	0.0			
Crosswalk Width(m)		2.0	10.0			
Two way Left Turn Lane		,				
Headway Factor	1.06	1.06	1.06	1.06		
Turning Speed (k/h)	24			14		
Turn Type	Prot	NA	NA			
Protected Phases	1	8	2		6	
Permitted Phases						
Minimum Split (s)	15.3	28.3	25.3		16.3	
Total Split (s)	26.0	33.0	41.0		67.0	
Total Split (%)	26.0%	33.0%	41.0%		67%	
Maximum Green (s)	20.7	26.7	34.7		60.7	
Yellow Time (s)	3.3	3.3	3.3		3.3	
All-Red Time (s)	2.0	3.0	3.0		3.0	
()					5.0	
Lost Time Adjust (s)	0.0	0.0	0.0			
Total Lost Time (s)	5.3	6.3	6.3			
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Walk Time (s)	0.0	15.0	7.0		0.0	
Flash Dont Walk (s)	0.0	7.0	12.0		0.0	
Pedestrian Calls (#/hr)	0	5	10		0	
Act Effct Green (s)	20.7	26.7	34.7			
Actuated g/C Ratio	0.21	0.27	0.35			
v/c Ratio	0.69	0.40	0.37			
Control Delay	44.0	2.4	25.7			
Queue Delay	0.0	0.0	0.0			
Quede Delay	0.0	0.0	0.0			

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Lane Group	WBR	NBT	SWT	SWR	Ø6
Total Delay	44.0	2.4	25.7		
LOS	D	Α	С		
Approach Delay		2.4	25.7		
Approach LOS		Α	С		
Queue Length 50th (m)	36.4	0.5	29.3		
Queue Length 95th (m)	52.3	0.7	41.2		
Internal Link Dist (m)		0.1	160.1		
Turn Bay Length (m)					
Base Capacity (vph)	558	914	1134		
Starvation Cap Reductn	0	0	0		
Spillback Cap Reductn	0	0	0		
Storage Cap Reductn	0	0	0		
Reduced v/c Ratio	0.69	0.40	0.37		
Intersection Summary					
	her				
Cycle Length: 100					
Actuated Cycle Length: 100					
Offset: 63 (63%), Referenced to p	hase 2:SV	VT and 6:,	Start of G	reen	
Natural Cycle: 70					
Control Type: Pretimed					
Maximum v/c Ratio: 0.69					
Intersection Signal Delay: 24.5					Intersection LOS: C
Intersection Capacity Utilization 5	5.6%				ICU Level of Service B
Analysis Period (min) 15					
Splits and Phases: 4: Catherine	& Metcali	fe W & Hw	v 417 (Fxi	t 119)	
#4	#4	,	y +17 (EX	(110)	(
Ø1		Ø2 (R)			
26 s	41	5			
#5					#4 #5
← (0)					1 1 a
Ø6 (R)	-				1 20

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					44		7	^				
Traffic Volume (vph)	0	0	0	0	819	0	48	364	0	0	0	0
Future Volume (vph)	0	0	0	0	819	0	48	364	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor							0.99					
Frt												
Flt Protected							0.950					
Satd. Flow (prot)	0	0	0	0	3390	0	1712	3424	0	0	0	0
Flt Permitted							0.950					
Satd. Flow (perm)	0	0	0	0	3390	0	1696	3424	0	0	0	0
Right Turn on Red			Yes			No	No		No			Yes
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		82.6			121.1			97.0			22.1	
Travel Time (s)		5.9			8.7			7.0			1.6	
Confl. Peds. (#/hr)		0.5			0.1		7	1.0			1.0	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	0%	0%	2%	0%	1%	1.00	0%	0%	0%	0%
Adj. Flow (vph)	0 %	0%	0%	0%	819	0 %	48	364	0%	0%	0%	0%
Shared Lane Traffic (%)	U	U	U	U	019	U	40	J0 4	U	U	U	U
Lane Group Flow (vph)	0	0	0	0	819	0	48	364	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
	Left	Left			Left		Left	Left		Left	Left	
Lane Alignment	Leπ	0.0	Right	Left	0.0	Right	Leπ	3.7	Right	Len	3.7	Right
Median Width(m)					0.0							
Link Offset(m)		0.0						-1.0			0.0	
Crosswalk Width(m)		2.0			2.0			6.0			2.0	
Two way Left Turn Lane	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
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
Turn Type					NA		Perm	NA				
Protected Phases					6		_	8				
Permitted Phases							8					
Minimum Split (s)					16.3		28.3	28.3				
Total Split (s)					67.0		33.0	33.0				
Total Split (%)					67.0%		33.0%	33.0%				
Maximum Green (s)					60.7		26.7	26.7				
Yellow Time (s)					3.3		3.3	3.3				
All-Red Time (s)					3.0		3.0	3.0				
Lost Time Adjust (s)					0.0		0.0	0.0				
Total Lost Time (s)					6.3		6.3	6.3				
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)					0.0		15.0	15.0				
Flash Dont Walk (s)					0.0		7.0	7.0				
Pedestrian Calls (#/hr)					0		5	5				
Act Effct Green (s)					60.7		26.7	26.7				
Actuated g/C Ratio					0.61		0.27	0.27				
v/c Ratio					0.40		0.11	0.40				
Control Delay					10.9		28.5	31.6				
Queue Delay					0.0		0.0	0.0				
Total Delay					10.9		28.5	31.6				
LOS					В		C	C				
Approach Delay					10.9			31.3				
. Ipprodon Boldy					10.0			01.0				

Lane Group	Ø1	Ø2
Lane Configurations		~_
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
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)		
Peak Hour Factor		
Heavy Vehicles (%)		
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)		
Turn Type		
Protected Phases	1	2
Permitted Phases		
Minimum Split (s)	15.3	25.3
Total Split (s)	26.0	41.0
Total Split (%)	26%	41%
Maximum Green (s)	20.7	34.7
	3.3	
Yellow Time (s)		3.3
All-Red Time (s)	2.0	3.0
Lost Time Adjust (s)		
Total Lost Time (s)	امتا	Len
Lead/Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes
Walk Time (s)	0.0	7.0
Flash Dont Walk (s)	0.0	12.0
Pedestrian Calls (#/hr)	0	10
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
11		

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS					В			С				
Queue Length 50th (m)					36.8		6.5	28.0				
Queue Length 95th (m)					47.8		14.5	40.0				
Internal Link Dist (m)		58.6			97.1			73.0			0.1	
Turn Bay Length (m)												
Base Capacity (vph)					2057		452	914				
Starvation Cap Reductn					0		0	0				
Spillback Cap Reductn					0		0	0				
Storage Cap Reductn					0		0	0				
Reduced v/c Ratio					0.40		0.11	0.40				
Intersection Summary												
Area Type:	Other											
Cycle Length: 100												
Actuated Cycle Length: 100												
Offset: 63 (63%), Reference	ed to phase 2:SV	VT and 6:,	Start of G	ireen								
Natural Cycle: 70												
Control Type: Pretimed												
Maximum v/c Ratio: 0.69												
Intersection Signal Delay: 1	7.7			In	tersection I	LOS: B						
Intersection Capacity Utiliza	ation 45.0%			IC	U Level of	Service A						
Analysis Period (min) 15												
Splits and Phases: 5: Me	tcalfe W & Hwy	417 (Fxit 1	19)									
#4	#	1	,				.0					- 8

26 s 41 s #4 #5 Ø8 67 s 33 s

Lane Group	Ø1	Ø2
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	ሻሻ	LDIN	HDL	<u>↑</u>	<u> </u>	ODIN
Traffic Volume (vph)	360	236	0	187	7 93	0
Future Volume (vph)	360	236	0	187	793	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	40.0	0.0	0.0	1000	1000	0.0
Storage Lanes	40.0	1	0.0			0.0
						U
Taper Length (m)	10.0	1.00	2.5	0.05	1.00	1.00
Lane Util. Factor	0.97	1.00	1.00	0.95	1.00	1.00
Ped Bike Factor		0.79				
Frt	0.0=0	0.850				
Flt Protected	0.950					
Satd. Flow (prot)	3321	1379	0	3390	1767	0
Flt Permitted	0.950					
Satd. Flow (perm)	3321	1092	0	3390	1767	0
Right Turn on Red		Yes				No
Satd. Flow (RTOR)		150				
Link Speed (k/h)	50			50	50	
Link Distance (m)	66.8			118.2	109.3	
Travel Time (s)	4.8			8.5	7.9	
Confl. Peds. (#/hr)	4.0	76		0.5	1.3	
		15				
Confl. Bikes (#/hr)	1.00		1.00	1.00	1.00	1.00
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	1%	0%	2%	3%	0%
Parking (#/hr)		0	_			_
Adj. Flow (vph)	360	236	0	187	793	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	360	236	0	187	793	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	7.4			0.0	0.0	
Link Offset(m)	1.0			0.0	0.0	
Crosswalk Width(m)	2.0			1.6	1.6	
Two way Left Turn Lane	2.0			1.0	1.0	
	1.06	1.21	1.06	1.06	1.06	1.06
Headway Factor				1.00	1.00	
Turning Speed (k/h)	24	14	24	^	^	14
Number of Detectors	1	1		2	2	
Detector Template	Left	Right		Thru	Thru	
Leading Detector (m)	6.1	6.1		30.5	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	6.1		1.8	1.8	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel	J/					
Detector 1 Extend (s)	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				
Detector 2 Position(m)				28.7	28.7	
Detector 2 Size(m)				1.8	1.8	
Detector 2 Type				Cl+Ex	CI+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				

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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Detector Phase	4	4	HUL	2	6	ODIT
Switch Phase	-				0	
Minimum Initial (s)	10.0	10.0		10.0	10.0	
Minimum Split (s)	20.9	20.9		20.6	20.6	
Total Split (s)	30.0	30.0		45.0	45.0	
Total Split (%)	40.0%	40.0%	(60.0%	60.0%	
Maximum Green (s)	25.1	25.1		39.4	39.4	
Yellow Time (s)	3.3	3.3		3.3	3.3	
All-Red Time (s)	1.6	1.6		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.9	4.9		5.6	5.6	
Lead/Lag	1.5	1.0		3.0	0.0	
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Recall Mode	None	None	(C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	9.0	9.0		8.0	8.0	
Pedestrian Calls (#/hr)	30	30		50	50	
Act Effct Green (s)	15.0	15.0		49.5	49.5	
Actuated g/C Ratio	0.20	0.20		0.66	0.66	
v/c Ratio	0.54	0.70		0.08	0.68	
Control Delay	29.1	21.7		4.7	13.6	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	29.1	21.7		4.7	13.6	
LOS	C	C		A	В	
Approach Delay	26.2			4.7	13.6	
Approach LOS	C			A	В	
Queue Length 50th (m)	22.5	10.1		2.5	50.0	
Queue Length 95th (m)	28.0	26.9		8.0	#143.4	
Internal Link Dist (m)	42.8	20.0		94.2	85.3	
Turn Bay Length (m)	40.0			V 1.L	00.0	
Base Capacity (vph)	1111	465		2236	1165	
Starvation Cap Reductn	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	
Storage Cap Reductin	0	0		0	0	
Reduced v/c Ratio	0.32	0.51		0.08	0.68	
	0.02	0.01		0.00	0.00	
Intersection Summary	Other					
Area Type:	Other					
Cycle Length: 75						
Actuated Cycle Length: 75	to phace O.N.D.T	and C.CD	Chart of O			
Offset: 3 (4%), Referenced	to phase 2:NBT	and 6:SB1	, Start of Gr	een		
Natural Cycle: 60						
Control Type: Actuated-Coc	ordinated					
Maximum v/c Ratio: 0.70	7.0					00.5
Intersection Signal Delay: 1					tersection L	
Intersection Capacity Utiliza	ition 73.4%			10	CU Level of	Service D
Analysis Period (min) 15						

Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.



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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					ર્વ	7		41₽			ħβ	
Traffic Volume (vph)	0	0	0	116	149	80	56	106	0	0	794	215
Future Volume (vph)	0	0	0	116	149	80	56	106	0	0	794	215
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	0.0		45.0
Storage Lanes	0		0	0		1	0		0	0		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor						0.96		0.98			0.94	
Frt						0.850					0.968	
Flt Protected					0.979			0.983				
Satd. Flow (prot)	0	0	0	0	1764	1379	0	3185	0	0	3059	0
Flt Permitted					0.979			0.653				
Satd. Flow (perm)	0	0	0	0	1764	1328	0	2081	0	0	3059	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)						80					63	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		184.1			122.5			274.3			118.2	
Travel Time (s)		13.3			8.8			19.7			8.5	
Confl. Peds. (#/hr)						27	138					138
Confl. Bikes (#/hr)						4						46
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 (%)	0%	0%	0%	1%	1%	1%	10%	5%	0%	0%	2%	4%
Parking (#/hr)						0						
Adj. Flow (vph)	0	0	0	116	149	80	56	106	0	0	794	215
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	265	80	0	162	0	0	1009	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0	J -		0.0	<u> </u>		0.0	<u> </u>		0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.21	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Turn Type				Perm	NA	Perm	Perm	NA			NA	
Protected Phases					8			2			6	
Permitted Phases				8		8	2					
Minimum Split (s)				33.0	33.0	33.0	25.6	25.6			25.6	
Total Split (s)				33.0	33.0	33.0	42.0	42.0			42.0	
Total Split (%)				44.0%	44.0%	44.0%	56.0%	56.0%			56.0%	
Maximum Green (s)				26.9	26.9	26.9	36.4	36.4			36.4	
Yellow Time (s)				3.3	3.3	3.3	3.3	3.3			3.3	
All-Red Time (s)				2.8	2.8	2.8	2.3	2.3			2.3	
Lost Time Adjust (s)					0.0	0.0		0.0			0.0	
Total Lost Time (s)					6.1	6.1		5.6			5.6	
Lead/Lag					• • • • • • • • • • • • • • • • • • • •	• • • • • • • • • • • • • • • • • • • •						
Lead-Lag Optimize?												
Walk Time (s)				7.0	7.0	7.0	8.0	8.0			8.0	
Flash Dont Walk (s)				19.9	19.9	19.9	12.0	12.0			12.0	
Pedestrian Calls (#/hr)				10	10	10	50	50			50	
Act Effct Green (s)				10	26.9	26.9	00	36.4			36.4	
Actuated g/C Ratio					0.36	0.36		0.49			0.49	
v/c Ratio					0.42	0.30		0.49			0.43	
WO I KULO					U.7Z	0.10		0.10			0.01	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SB
Control Delay					20.7	5.2		11.3			11.2	
Queue Delay					0.0	0.0		0.0			0.2	
Total Delay					20.7	5.2		11.3			11.4	
LOS					С	Α		В			В	
Approach Delay					17.1			11.3			11.4	
Approach LOS					В			В			В	
Queue Length 50th (m)					25.6	0.0		5.8			44.2	
Queue Length 95th (m)					43.2	7.3		10.6			30.4	
Internal Link Dist (m)		160.1			98.5			250.3			94.2	
Turn Bay Length (m)												
Base Capacity (vph)					632	527		1009			1517	
Starvation Cap Reductn					0	0		0			92	
Spillback Cap Reductn					0	0		0			0	
Storage Cap Reductn					0	0		0			0	
Reduced v/c Ratio					0.42	0.15		0.16			0.71	
Intersection Summary												
	Other											
Cycle Length: 75												
Actuated Cycle Length: 75												
Offset: 7 (9%), Referenced to p	hase 2:NBT	L and 6:SE	BT, Start of	Green								
Natural Cycle: 60												
Control Type: Pretimed												
Maximum v/c Ratio: 0.67												
Intersection Signal Delay: 12.7				In	tersection	LOS: B						
Intersection Capacity Utilization	77.0%			IC	U Level of	Service D						
Analysis Period (min) 15												
Splits and Phases: 7: Elgin &	Catherine											
4						38						
Ø2 (R)												
14.5						-9						
▼ Ø6 (R)						▼ Ø8	3					

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Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		7	^			
Traffic Volume (vph)	0	166	388	0	0	0
Future Volume (vph)	0	166	388	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.865				
Flt Protected						
Satd. Flow (prot)	0	1543	3424	0	0	0
FIt Permitted						
Satd. Flow (perm)	0	1543	3424	0	0	0
Link Speed (k/h)	50		50			50
Link Distance (m)	75.2		125.3			104.0
Travel Time (s)	5.4		9.0			7.5
Confl. Peds. (#/hr)	19					
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	2%	1%	0%	0%	0%
Adj. Flow (vph)	0	166	388	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	166	388	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	0.0		0.0			0.0
Link Offset(m)	3.7		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)	24	14		14	24	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilization	n 28.8%			IC	U Level of	Service A
Analysis Period (min) 15						

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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	ተ ተኈ					7
Traffic Volume (vph)	984	0	0	0	0	0
Future Volume (vph)	984	0	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt						
Flt Protected						
Satd. Flow (prot)	4755	0	0	0	0	1820
Flt Permitted						
Satd. Flow (perm)	4755	0	0	0	0	1820
Link Speed (k/h)	50			50	50	
Link Distance (m)	76.9			40.1	59.5	
Travel Time (s)	5.5			2.9	4.3	
Confl. Bikes (#/hr)		1				1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	0%	0%	0%	0%	0%
Parking (#/hr)	0					
Adj. Flow (vph)	984	0	0	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	984	0	0	0	0	0
Enter Blocked Intersection	Yes	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	0.0	<u> </u>
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	2.0			2.0	2.0	
Two way Left Turn Lane						
Headway Factor	1.10	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						

Control Type: Unsignalized Intersection Capacity Utilization 23.4% Analysis Period (min) 15

ICU Level of Service A

Synchro 10 Report J.Audia, Novatech

Lane Group EBL EBT WBT WBR SBL SBR Lane Configurations 1
Traffic Volume (vph) 388 596 0 0 0 0 Future Volume (vph) 388 596 0 0 0 0 Ideal Flow (vphpl) 1800 1800 1800 1800 1800 1800 Lane Util. Factor 0.91 0.91 1.00 1.00 1.00 1.00 Frt Flt Protected 0.950 0.995 Satd. Flow (prot) 1558 3263 0 0 0 0 Flt Permitted 0.950 0.995 Satd. Flow (perm) 1558 3263 0 0 0 0 Link Speed (k/h) 50 50 50 50
Traffic Volume (vph) 388 596 0 0 0 0 Future Volume (vph) 388 596 0 0 0 0 Ideal Flow (vphpl) 1800 1800 1800 1800 1800 1800 Lane Util. Factor 0.91 0.91 1.00 1.00 1.00 1.00 Frt Fit Protected 0.950 0.995 Satd. Flow (prot) 1558 3263 0 0 0 0 Fit Permitted 0.950 0.995 0.995 0.995 0.995 0.995 0
Future Volume (vph) 388 596 0 0 0 0 Ideal Flow (vphpl) 1800 1800 1800 1800 1800 1800 Lane Util. Factor 0.91 0.91 1.00 1.00 1.00 1.00 Frt FIt Protected 0.950 0.995 Satd. Flow (prot) 1558 3263 0 0 0 0 Flt Permitted 0.950 0.995 Satd. Flow (perm) 1558 3263 0 0 0 0 Link Speed (k/h) 50 50 50 50
Ideal Flow (vphpl) 1800
Lane Util. Factor 0.91 0.91 1.00 1.00 1.00 1.00 Frt Fit Protected 0.950 0.995 Satd. Flow (prot) 1558 3263 0 0 0 0 Flt Permitted 0.950 0.995 Satd. Flow (perm) 1558 3263 0 0 0 0 Link Speed (k/h) 50 50 50
Fit Protected 0.950 0.995 Satd. Flow (prot) 1558 3263 0 0 0 0 Fit Permitted 0.950 0.995 Satd. Flow (perm) 1558 3263 0 0 0 0 Link Speed (k/h) 50 50 50
Satd. Flow (prot) 1558 3263 0 0 0 0 Flt Permitted 0.950 0.995 0.995 0
Flt Permitted 0.950 0.995 Satd. Flow (perm) 1558 3263 0 0 0 0 Link Speed (k/h) 50 50 50 50
Flt Permitted 0.950 0.995 Satd. Flow (perm) 1558 3263 0 0 0 0 Link Speed (k/h) 50 50 50
Satd. Flow (perm) 1558 3263 0 0 0 0 Link Speed (k/h) 50 50 50
Link Speed (k/h) 50 50 50
. ,
Link Distance (m) 40.1 66.8 125.3
Travel Time (s) 2.9 4.8 9.0
Peak Hour Factor 1.00 1.00 1.00 1.00 1.00 1.00
Heavy Vehicles (%) 1% 1% 0% 0% 0% 0%
Adj. Flow (vph) 388 596 0 0 0 0
Shared Lane Traffic (%) 18%
Lane Group Flow (vph) 318 666 0 0 0 0
Enter Blocked Intersection Yes Yes No No No No
Lane Alignment Left Left Left Right Left Right
Median Width(m) 3.7 3.7 0.0
Link Offset(m) 0.0 0.0 -2.0
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) 24 14 24 14
Sign Control Free Free Stop
Intersection Summary
Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 28.8% ICU Level of Service A
Analysis Period (min) 15

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		f)									414	
Traffic Volume (vph)	0	63	62	0	0	0	0	0	0	37	782	0
Future Volume (vph)	0	63	62	0	0	0	0	0	0	37	782	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor		0.93									0.99	
Frt		0.933										
Flt Protected											0.998	
Satd. Flow (prot)	0	1341	0	0	0	0	0	0	0	0	3158	0
Flt Permitted											0.998	
Satd. Flow (perm)	0	1341	0	0	0	0	0	0	0	0	3122	0
Right Turn on Red			Yes			Yes			Yes	Yes		Yes
Satd. Flow (RTOR)		49									32	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		170.3			173.0			119.0			124.7	
Travel Time (s)		12.3			12.5			8.6			9.0	
Confl. Peds. (#/hr)			81							113		
Confl. Bikes (#/hr)			1									16
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 (%)	0%	8%	5%	0%	0%	0%	0%	0%	0%	0%	4%	2%
Parking (#/hr)		0									0	
Adj. Flow (vph)	0	63	62	0	0	0	0	0	0	37	782	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	125	0	0	0	0	0	0	0	0	819	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		2.0			-2.0			0.0			0.0	
Crosswalk Width(m)		4.0			4.9			4.9			4.9	
Two way Left Turn Lane												
Headway Factor	1.06	1.21	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.13	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Turn Type		NA								Perm	NA	
Protected Phases		4									6	
Permitted Phases										6		
Minimum Split (s)		23.6								25.2	25.2	
Total Split (s)		24.0								66.0	66.0	
Total Split (%)		26.7%								73.3%	73.3%	
Maximum Green (s)		18.4								60.8	60.8	
Yellow Time (s)		3.3								3.3	3.3	
All-Red Time (s)		2.3								1.9	1.9	
Lost Time Adjust (s)		0.0									0.0	
Total Lost Time (s)		5.6									5.2	
Lead/Lag												
Lead-Lag Optimize?		7.0								440	440	
Walk Time (s)		7.0								14.0	14.0	
Flash Dont Walk (s)		11.0								6.0	6.0	
Pedestrian Calls (#/hr)		40								40	40	
Act Effct Green (s)		18.4									60.8	
Actuated g/C Ratio		0.20									0.68	
v/c Ratio		0.40									0.39	
Control Delay		23.7									6.7	
Queue Delay		0.0									0.0	
Total Delay		23.7									6.7	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		С									Α	
Approach Delay		23.7									6.7	
Approach LOS		С									Α	
Queue Length 50th (m)		10.3									25.0	
Queue Length 95th (m)		24.9									33.8	
Internal Link Dist (m)		146.3			149.0			95.0			100.7	
Turn Bay Length (m)												
Base Capacity (vph)		313									2119	
Starvation Cap Reductn		0									0	
Spillback Cap Reductn		0									0	
Storage Cap Reductn		0									0	
Reduced v/c Ratio		0.40									0.39	
Intersection Summary												
Area Type:	Other											
Cycle Length: 90												
Actuated Cycle Length: 90												
Offset: 16 (18%), Reference	ed to phase 6:SE	TL, Start	of Green									
Natural Cycle: 50												
Control Type: Pretimed												
Maximum v/c Ratio: 0.40												
Intersection Signal Delay: 9					tersection l							
Intersection Capacity Utiliza	ation 77.3%			IC	CU Level of	Service D						
Analysis Period (min) 15												
Calita and Phases: 1: 0'	Connor & Araulo											
Splits and Phases: 1: 0'0	Connor & Argyle											
								·	→ Ø4			
									4 s			
k.								F				
▼ Ø6 (R)												
cc -												

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Lane Group	WBL2	WBL	WBT	SBT	SBR	SBR2	Ø5		
Lane Configurations	*		ተ ተተ	^	Ž.				
Traffic Volume (vph)	111	224	894	398	358	83			
Future Volume (vph)	111	224	894	398	358	83			
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800			
Lane Util. Factor	1.00	0.91	0.91	0.95	1.00	0.95			
Ped Bike Factor	0.96				0.93				
Frt					0.850				
Flt Protected	0.950		0.990						
Satd. Flow (prot)	1647	0	4712	3293	1520	0			
Flt Permitted	0.950		0.990						
Satd. Flow (perm)	1577	0	4712	3293	1420	0			
Right Turn on Red	Yes					Yes			
Satd. Flow (RTOR)	111				107				
Link Speed (k/h)			50	50					
Link Distance (m)			92.1	119.0					
Travel Time (s)			6.6	8.6					
Confl. Peds. (#/hr)	25		0.0	0.0		49			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00			
Heavy Vehicles (%)	5%	2%	5%	5%	1%	5%			
Adj. Flow (vph)	111	224	894	398	358	83			
Shared Lane Traffic (%)		LLT	004	030	000	00			
Lane Group Flow (vph)	111	0	1118	398	441	0			
Enter Blocked Intersection	No	No	No	No	No	No			
Lane Alignment	Left	Left	Left	Left	Right	Right			
Median Width(m)	Leit	LGIL	3.7	0.0	ragnt	Right			
Link Offset(m)			0.0	0.0					
Crosswalk Width(m)			4.9	4.9					
Two way Left Turn Lane			4.3	4.3					
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06			
Turning Speed (k/h)	24	24	1.00	1.00	24	1.00			
Number of Detectors	1	1	2	2	1	17			
Detector Template	Left	Left	Thru	Thru	Right				
Leading Detector (m)	6.1	6.1	30.5	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)	6.1	6.1	1.8	1.8	6.1				
Detector 1 Type	CI+Ex	Cl+Ex	CI+Ex	Cl+Ex	CI+Ex				
Detector 1 Channel	CITEX	CITEX	CITEX	CITEX	CITEX				
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				
	0.0	0.0	28.7		0.0				
Detector 2 Position(m)			1.8	28.7 1.8					
Detector 2 Size(m)									
Detector 2 Type			CI+Ex	CI+Ex					
Detector 2 Channel			0.0	0.0					
Detector 2 Extend (s)			0.0	0.0	1				
Turn Type	Perm	Perm	NA	NA	custom		-		
Protected Phases		_	8	1	_		5		
Permitted Phases	8	8	_		6				
Detector Phase	8	8	8	1	6				
Switch Phase	40.0	40.0	40.0	40.0	40.0		40.0		
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		10.0		
Minimum Split (s)	21.9	21.9	21.9	24.9	15.9		17.9		
Total Split (s)	42.0	42.0	42.0	48.0	30.0		18.0		

	€	_	←	ļ	لر	4			
Lane Group	WBL2	WBL	WBT	SBT	SBR	SBR2	Ø5		
Total Split (%)	46.7%	46.7%	46.7%	53.3%	33.3%		20%		
Maximum Green (s)	36.1	36.1	36.1	42.1	24.1		12.1		
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		3.3		
All-Red Time (s)	2.6	2.6	2.6	2.6	2.6		2.6		
Lost Time Adjust (s)	0.0		0.0	0.0	0.0				
Total Lost Time (s)	5.9		5.9	5.9	5.9				
Lead/Lag					Lag		Lead		
Lead-Lag Optimize?					Yes		Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0		
Recall Mode	Max	Max	Max	C-Max	Max		None		
Walk Time (s)	7.0	7.0	7.0	7.0	0.0		7.0		
Flash Dont Walk (s)	9.0	9.0	9.0	12.0	0.0		5.0		
Pedestrian Calls (#/hr)	30	30	30	20	0		15		
Act Effct Green (s)	36.1		36.1	42.1	38.5				
Actuated g/C Ratio	0.40		0.40	0.47	0.43				
v/c Ratio	0.16		0.59	0.26	0.66				
Control Delay	11.6		31.1	10.3	19.2				
Queue Delay	0.0		0.0	0.0	0.0				
Total Delay	11.6		31.1	10.3	19.2				
LOS	В		С	В	В				
Approach Delay			29.4	15.0					
Approach LOS			С	В					
Queue Length 50th (m)	2.3		56.1	20.3	39.6				
Queue Length 95th (m)	m17.0		70.4	29.4	#109.1				
Internal Link Dist (m)			68.1	95.0					
Turn Bay Length (m)									
Base Capacity (vph)	699		1890	1540	669				
Starvation Cap Reductn	0		0	0	0				
Spillback Cap Reductn	0		0	0	0				
Storage Cap Reductn	0		0	0	0				
Reduced v/c Ratio	0.16		0.59	0.26	0.66				
Intersection Summary									
Area Type:	Other								
Cycle Length: 90									
Actuated Cycle Length: 90									
Offset: 40 (44%), Reference	ed to phase 1:S	BT, Start o	f Green						
Natural Cycle: 75									

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.66 Intersection Signal Delay: 23.5 Intersection Capacity Utilization 61.7%

Intersection LOS: C
ICU Level of Service B

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

	→	•	•	←	•	~
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	<u> </u>	_DI(,1DL	,,,,,,	HUL	77
Traffic Volume (vph)	T 115	0	0	0	0	1623
Future Volume (vph)	115	0	0	0	0	1623
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.88
Frt	1.00	1.00	1.00	1.00	1.00	0.850
Flt Protected						0.000
Satd. Flow (prot)	1575	0	0	0	0	2696
Flt Permitted	1373	U	U	U	U	2000
Satd. Flow (perm)	1575	0	0	0	0	2696
Right Turn on Red	1373	No	U	U	U	No
Satd. Flow (RTOR)		NU				INU
	50			50	50	
Link Speed (k/h)	173.0			76.9	69.3	
Link Distance (m) Travel Time (s)	173.0			76.9 5.5		
		1.00	1.00		5.0	1.00
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	4%	0%	0%	0%	0%	1%
Parking (#/hr)	0					
Adj. Flow (vph)	115	0	0	0	0	1623
Shared Lane Traffic (%)						
Lane Group Flow (vph)	115	0	0	0	0	1623
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Left
Median Width(m)	0.0			0.0	0.0	
Link Offset(m)	0.0			0.0	1.0	
Crosswalk Width(m)	8.0			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.21	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)		14	24		24	24
Number of Detectors	2					1
Detector Template	Thru					Right
Leading Detector (m)	30.5					6.1
Trailing Detector (m)	0.0					0.0
Detector 1 Position(m)	0.0					0.0
Detector 1 Size(m)	1.8					6.1
Detector 1 Type	CI+Ex					CI+Ex
Detector 1 Channel	SITEX					OI. LX
Detector 1 Extend (s)	0.0					0.0
Detector 1 Queue (s)	0.0					0.0
Detector 1 Delay (s)	0.0					0.0
						0.0
Detector 2 Position(m)	28.7					
Detector 2 Size(m)	1.8					
Detector 2 Type	CI+Ex					
Detector 2 Channel	2.2					
Detector 2 Extend (s)	0.0					
Turn Type	NA					Prot
Protected Phases	4					2
Permitted Phases						
Detector Phase	4					2
Switch Phase						
Minimum Initial (s)	10.0					10.0
Minimum Split (s)	20.4					43.5
Total Split (s)	21.0					69.0
Total Split (%)	23.3%					76.7%
. July (70)	20.070					1 3.1 70

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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	
Maximum Green (s)	15.6					63.5	
Yellow Time (s)	3.3					3.3	
All-Red Time (s)	2.1					2.2	
Lost Time Adjust (s)	0.0					0.0	
Total Lost Time (s)	5.4					5.5	
Lead/Lag	0.1					0.0	
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0					3.0	
Recall Mode	None					C-Max	
Walk Time (s)	7.0					33.0	
Flash Dont Walk (s)	8.0					5.0	
Pedestrian Calls (#/hr)	30					10	
Act Effct Green (s)	12.5					70.8	
Actuated g/C Ratio	0.14					0.79	
v/c Ratio	0.14					0.79	
Control Delay	47.0					3.7	
Queue Delay	0.0					1.0	
<u> </u>	47.0					4.7	
Total Delay LOS							
	D 47.0				4.7	A	
Approach Delay							
Approach LOS	D				Α	110	
Queue Length 50th (m)	18.4					14.2	
Queue Length 95th (m)	33.6			F0.0	45.0	m9.9	
Internal Link Dist (m)	149.0			52.9	45.3		
Turn Bay Length (m)	070					0404	
Base Capacity (vph)	273					2121	
Starvation Cap Reductn	0					254	
Spillback Cap Reductn	0					0	
Storage Cap Reductn	0					0	
Reduced v/c Ratio	0.42					0.87	
Intersection Summary							
Area Type:	Other						
Cycle Length: 90							
Actuated Cycle Length: 90							
Offset: 75 (83%), Reference	d to phase 2:NE	R, Start o	f Green				
Natural Cycle: 75	·						
Control Type: Actuated-Coor	rdinated						
Maximum v/c Ratio: 0.77							
Intersection Signal Delay: 7.5	5			Int	ersection I	LOS: A	
Intersection Capacity Utilizat					U Level of		
Analysis Period (min) 15							
m Volume for 95th percent	ile queue is met	ered by u	ostream s	ignal.			
Splits and Phases: 3: Met	calfe W & Argyle	<u> </u>					
deserv							
r¹ø2 (R)							→ Ø4

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Lane Group	WBR	NBT	SWT	SWR	Ø6	
Lane Configurations	77	^	♦ %			
Traffic Volume (vph)	736	906	367	43		
Future Volume (vph)	736	906	367	43		
Ideal Flow (vphpl)	1800	1800	1800	1800		
Storage Length (m)	0.0			200.0		
Storage Lanes	2			1		
Taper Length (m)	-			•		
Lane Util. Factor	0.88	0.95	0.95	0.95		
Ped Bike Factor	0.00	0.00	1.00	0.00		
Frt	0.850		0.984			
Flt Protected	0.000		0.001			
Satd. Flow (prot)	2696	3424	3290	0		
Flt Permitted	2000	0727	0230	U		
Satd. Flow (perm)	2696	3424	3290	0		
Right Turn on Red	2000	UT <u>L</u> T	0230	No		
Satd. Flow (RTOR)				IVU		
Link Speed (k/h)		50	50			
Link Speed (k/ll) Link Distance (m)		22.1	184.1			
Travel Time (s)		1.6	13.3			
Confl. Peds. (#/hr)		1.0	13.3	18		
				2		
Confl. Bikes (#/hr)	1.00	1.00	1.00	1.00		
Peak Hour Factor	1.00	1.00	1.00			
Heavy Vehicles (%)	1%	1%	3%	3%		
Adj. Flow (vph)	736	906	367	43		
Shared Lane Traffic (%)	700	000	440	^		
Lane Group Flow (vph)	736	906	410	0		
Enter Blocked Intersection	No	No	No	No		
Lane Alignment	Right	Left	Left	Right		
Median Width(m)		0.0	0.0			
Link Offset(m)		0.0	0.0			
Crosswalk Width(m)		2.0	10.0			
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.06	1.06		
Turning Speed (k/h)	24			14		
Turn Type	Prot	NA	NA			
Protected Phases	1	8	2		6	
Permitted Phases						
Minimum Split (s)	15.3	28.3	25.3		16.3	
Total Split (s)	30.0	34.0	26.0		56.0	
Total Split (%)	33.3%	37.8%	28.9%		62%	
Maximum Green (s)	24.7	27.7	19.7		49.7	
Yellow Time (s)	3.3	3.3	3.3		3.3	
All-Red Time (s)	2.0	3.0	3.0		3.0	
Lost Time Adjust (s)	0.0	0.0	0.0			
Total Lost Time (s)	5.3	6.3	6.3			
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Walk Time (s)	0.0	15.0	7.0		0.0	
Flash Dont Walk (s)	0.0	7.0	12.0		0.0	
Pedestrian Calls (#/hr)	0.0	5	10		0.0	
Act Effct Green (s)	24.7	27.7	19.7			
Actuated g/C Ratio	0.27	0.31	0.22			
v/c Ratio	1.00	0.86	0.57			
Control Delay	66.3	7.7	35.0			
Control Dolay	00.0	1.1	00.0			

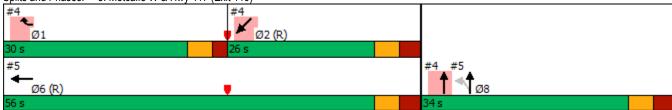
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Lane Group	WBR	NBT	SWT	SWR	Ø6
Queue Delay	12.6	0.0	0.0		
Total Delay	78.9	7.7	35.0		
LOS	Е	Α	С		
Approach Delay		7.7	35.0		
Approach LOS		Α	С		
Queue Length 50th (m)	66.4	1.4	30.8		
Queue Length 95th (m)	#103.8	m#5.6	44.3		
Internal Link Dist (m)		0.1	160.1		
Turn Bay Length (m)					
Base Capacity (vph)	739	1053	720		
Starvation Cap Reductn	0	0	0		
Spillback Cap Reductn	31	0	0		
Storage Cap Reductn	0	0	0		
Reduced v/c Ratio	1.04	0.86	0.57		
Intersection Summary					
Area Type:	Other				
Cycle Length: 90					
Actuated Cycle Length: 90					
Offset: 45 (50%), Reference	ed to phase 2:S'	WT and 6:,	Start of G	reen	
Natural Cycle: 90					
Control Type: Pretimed					
Maximum v/c Ratio: 1.00					
Intersection Signal Delay: 3	8.7			Ir	ntersection LOS: D
Intersection Capacity Utiliza	ntion 84.4%			10	CU Level of Service E
Analysis Period (min) 15					
# 95th percentile volume	exceeds capacit	ty, queue n	nay be long	ger.	
Queue shown is maximu	ım after two cyc	les.	•		
m Volume for 95th percer	ntile queue is me	etered by u	pstream s	ignal.	
Splits and Phases: 4: Car	therine & Metca	lfe W & Hv	vy 417 (Ex	it 119)	
#4 Ø1			€4 Ø2 (F	1)	
#5					#4 #5
← Ø6 (R)					1 1 1 as

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					44		7	44				
Traffic Volume (vph)	0	0	0	0	755	0	82	906	0	0	0	0
Future Volume (vph)	0	0	0	0	755	0	82	906	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor							0.99					
Frt												
Flt Protected							0.950					
Satd. Flow (prot)	0	0	0	0	3390	0	1712	3424	0	0	0	0
Flt Permitted							0.950					
Satd. Flow (perm)	0	0	0	0	3390	0	1697	3424	0	0	0	0
Right Turn on Red			Yes			No	No		No			Yes
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		82.6			121.1			97.0			22.1	
Travel Time (s)		5.9			8.7			7.0			1.6	
Confl. Peds. (#/hr)							7					
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 (%)	0%	0%	0%	0%	2%	0%	1%	1%	0%	0%	0%	0%
Adj. Flow (vph)	0	0	0	0	755	0	82	906	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	755	0	82	906	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.7			3.7	
Link Offset(m)		0.0			0.0			-1.0			0.0	
Crosswalk Width(m)		2.0			2.0			6.0			2.0	
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
Turn Type					NA		Perm	NA				
Protected Phases					6			8				
Permitted Phases							8					
Minimum Split (s)					16.3		28.3	28.3				
Total Split (s)					56.0		34.0	34.0				
Total Split (%)					62.2%		37.8%	37.8%				
Maximum Green (s)					49.7		27.7	27.7				
Yellow Time (s)					3.3		3.3	3.3				
All-Red Time (s)					3.0		3.0	3.0				
Lost Time Adjust (s)					0.0		0.0	0.0				
Total Lost Time (s)					6.3		6.3	6.3				
Lead/Lag					0.0		0.0					
Lead-Lag Optimize?												
Walk Time (s)					0.0		15.0	15.0				
Flash Dont Walk (s)					0.0		7.0	7.0				
Pedestrian Calls (#/hr)					0.0		5	5				
Act Effct Green (s)					49.7		27.7	27.7				
Actuated g/C Ratio					0.55		0.31	0.31				
v/c Ratio					0.40		0.16	0.86				
Control Delay					12.4		23.7	39.3				
Queue Delay					0.0		0.0	0.0				
Total Delay					12.4		23.7	39.3				
LOS					12.4 B		23.7 C	39.3 D				
Approach Delay					12.4		U	38.0				
Approach Delay					1Z. T			50.0				

Lane Group	Ø1	Ø2
Lane Configurations	~ .	
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
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)		
Peak Hour Factor		
Heavy Vehicles (%)		
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)		
Turn Type		
Protected Phases	1	2
Permitted Phases	'	
Minimum Split (s)	15.3	25.3
Total Split (s)	30.0	26.0
Total Split (%)	33%	29%
Maximum Green (s)	24.7	19.7
Yellow Time (s)	3.3	3.3
All-Red Time (s)	2.0	3.0
Lost Time Adjust (s)	2.0	3.0
Total Lost Time (s)		
Lead/Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes
Walk Time (s)	0.0	7.0
Flash Dont Walk (s)	0.0	12.0
Pedestrian Calls (#/hr)	0.0	12.0
Act Effct Green (s)	U	10
Actuated g/C Ratio		
v/c Ratio Control Delay		
Queue Delay		
Total Delay LOS		
Approach Delay		

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS					В			D				
Queue Length 50th (m)					34.1		9.4	71.0				
Queue Length 95th (m)					45.5		19.1	#100.4				
Internal Link Dist (m)		58.6			97.1			73.0			0.1	
Turn Bay Length (m)												
Base Capacity (vph)					1872		522	1053				
Starvation Cap Reductn					0		0	0				
Spillback Cap Reductn					0		0	2				
Storage Cap Reductn					0		0	0				
Reduced v/c Ratio					0.40		0.16	0.86				
Intersection Summary												
Area Type:	Other											
Cycle Length: 90												
Actuated Cycle Length: 90												
Offset: 45 (50%), Referenced	I to phase 2:S	WT and 6:,	Start of G	reen								
Natural Cycle: 90												
Control Type: Pretimed												
Maximum v/c Ratio: 1.00												
Intersection Signal Delay: 26.					tersection l							
Intersection Capacity Utilizati	on 59.0%			IC	CU Level of	Service B						
Analysis Period (min) 15												
# 95th percentile volume ex			nay be lon	ger.								
Queue shown is maximum	n after two cyc	les.										

Splits and Phases: 5: Metcalfe W & Hwy 417 (Exit 119)



Lane Group	Ø1	Ø2
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

	•	*	1	<u>†</u>	 	4
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		EDK	INDL	<u>NB1</u>		JDR
Traffic Volume (vph)	7 7 533	132	0	TT 441	↑ 316	0
Future Volume (vph)	533	132	0	441	316	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	40.0	0.0	0.0	1000	1000	0.0
	40.0	0.0	0.0			0.0
Storage Lanes	•					U
Taper Length (m)	10.0	1.00	2.5	0.05	1.00	1.00
Lane Util. Factor	0.97	1.00	1.00	0.95	1.00	1.00
Ped Bike Factor		0.86				
Frt	0.050	0.850				
Flt Protected	0.950	4005	•	0.40.4	4700	^
Satd. Flow (prot)	3288	1365	0	3424	1733	0
Flt Permitted	0.950					
Satd. Flow (perm)	3288	1179	0	3424	1733	0
Right Turn on Red		Yes				No
Satd. Flow (RTOR)		132				
Link Speed (k/h)	50			50	50	
Link Distance (m)	66.8			118.2	109.3	
Travel Time (s)	4.8			8.5	7.9	
Confl. Peds. (#/hr)		46		J. U		
Confl. Bikes (#/hr)		11				
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	2%	0%	1.00	5%	0%
	∠ 7/0	2%	U 70	1 70	5 70	U 70
Parking (#/hr)	533	132	0	441	316	0
Adj. Flow (vph)	533	132	0	441	310	0
Shared Lane Traffic (%)	F00	400	_	444	040	_
Lane Group Flow (vph)	533	132	0	441	316	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	7.4			0.0	0.0	
Link Offset(m)	1.0			0.0	0.0	
Crosswalk Width(m)	2.0			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	1.06	1.21	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24	14	24			14
Number of Detectors	1	1	<u> </u>	2	2	
Detector Template	Left	Right		Thru	Thru	
	6.1			30.5		
Leading Detector (m)		6.1			30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	6.1		1.8	1.8	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	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				OI - LX	O1. LX	
Detector 2 Extend (s)				0.0	0.0	
	Prot	Perm		NA	NA	
Turn Type Protected Phases	Prot 4	reim				
Protected Phacec	/			2	6	
Permitted Phases	4	4				

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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Detector Phase	4	4		2	6	
Switch Phase	<u>'</u>	·		_		
Minimum Initial (s)	10.0	10.0		10.0	10.0	
Minimum Split (s)	20.9	20.9		20.6	20.6	
Total Split (s)	30.0	30.0		45.0	45.0	
Total Split (%)	40.0%	40.0%		60.0%	60.0%	
Maximum Green (s)	25.1	25.1		39.4	39.4	
Yellow Time (s)	3.3	3.3		3.3	3.3	
All-Red Time (s)	1.6	1.6		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.9	4.9		5.6	5.6	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Recall Mode	None	None		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	9.0	9.0		8.0	8.0	
Pedestrian Calls (#/hr)	20	20		50	50	
Act Effct Green (s)	17.7	17.7		46.8	46.8	
Actuated g/C Ratio	0.24	0.24		0.62	0.62	
v/c Ratio	0.69	0.35		0.21	0.29	
Control Delay	30.6	7.0		4.7	8.1	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	30.6	7.0		4.7	8.1	
LOS	С	Α		Α	Α	
Approach Delay	25.9			4.7	8.1	
Approach LOS	С			Α	Α	
Queue Length 50th (m)	32.8	0.0		5.8	16.5	
Queue Length 95th (m)	42.5	10.4		14.9	33.7	
Internal Link Dist (m)	42.8			94.2	85.3	
Turn Bay Length (m)	40.0					
Base Capacity (vph)	1100	482		2137	1081	
Starvation Cap Reductn	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	
Storage Cap Reductn	0	0		0	0	
Reduced v/c Ratio	0.48	0.27		0.21	0.29	
Intersection Summary						
Area Type:	Other					
Cycle Length: 75						
Actuated Cycle Length: 75						
Offset: 5 (7%), Referenced to	o phase 2:NBT	and 6:SBT	, Start of	Green		
Natural Cycle: 45						
Control Type: Actuated-Cool	rdinated					
Maximum v/c Ratio: 0.69						
Intersection Signal Delay: 15					tersection l	
Intersection Capacity Utilizat	tion 42.4%			IC	CU Level of	Service A
Analysis Period (min) 15						



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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					र्स	7		4₽			∱ β	
Traffic Volume (vph)	0	0	0	59	127	198	105	221	0	0	244	167
Future Volume (vph)	0	0	0	59	127	198	105	221	0	0	244	167
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	0.0		45.0
Storage Lanes	0		0	0		1	0		0	0		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor						0.95		0.96			0.89	
Frt						0.850					0.939	
Flt Protected					0.984			0.984				
Satd. Flow (prot)	0	0	0	0	1773	1379	0	3233	0	0	2791	0
Flt Permitted					0.984			0.723				
Satd. Flow (perm)	0	0	0	0	1773	1313	0	2276	0	0	2791	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)						198					167	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		184.1			122.5			274.3			118.2	
Travel Time (s)		13.3			8.8			19.7			8.5	
Confl. Peds. (#/hr)						33	123					123
Confl. Bikes (#/hr)						14						26
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 (%)	0%	0%	0%	1%	1%	1%	10%	3%	0%	0%	4%	4%
Parking (#/hr)						0						
Adj. Flow (vph)	0	0	0	59	127	198	105	221	0	0	244	167
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	186	198	0	326	0	0	411	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.21	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Turn Type				Perm	NA	Perm	Perm	NA			NA	
Protected Phases					8			2			6	
Permitted Phases				8		8	2	_				
Minimum Split (s)				33.0	33.0	33.0	25.6	25.6			25.6	
Total Split (s)				33.0	33.0	33.0	42.0	42.0			42.0	
Total Split (%)				44.0%	44.0%	44.0%	56.0%	56.0%			56.0%	
Maximum Green (s)				26.9	26.9	26.9	36.4	36.4			36.4	
Yellow Time (s)				3.3	3.3	3.3	3.3	3.3			3.3	
All-Red Time (s)				2.8	2.8	2.8	2.3	2.3			2.3	
Lost Time Adjust (s)				2.0	0.0	0.0	2.0	0.0			0.0	
Total Lost Time (s)					6.1	6.1		5.6			5.6	
Lead/Lag					0.1	0.1		0.0			0.0	
Lead-Lag Optimize?												
Walk Time (s)				7.0	7.0	7.0	8.0	8.0			8.0	
Flash Dont Walk (s)				19.9	19.9	19.9	12.0	12.0			12.0	
Pedestrian Calls (#/hr)				15.5	15.5	15.5	50	50			50	
Act Effct Green (s)				10	26.9	26.9	30	36.4			36.4	
Actuated g/C Ratio					0.36	0.36		0.49			0.49	
v/c Ratio					0.36	0.33		0.49			0.49	
Wo Nauo					0.23	0.55		0.50			0.23	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBF
Control Delay					18.8	4.5		12.5			4.1	
Queue Delay					0.0	0.0		0.0			0.0	
Total Delay					18.8	4.5		12.5			4.1	
LOS					В	Α		В			Α	
Approach Delay					11.4			12.5			4.1	
Approach LOS					В			В			Α	
Queue Length 50th (m)					17.0	0.0		12.6			2.3	
Queue Length 95th (m)					30.4	11.2		20.2			8.6	
Internal Link Dist (m)		160.1			98.5			250.3			94.2	
Turn Bay Length (m)												
Base Capacity (vph)					635	597		1104			1440	
Starvation Cap Reductn					0	0		0			0	
Spillback Cap Reductn					0	0		0			0	
Storage Cap Reductn					0	0		0			0	
Reduced v/c Ratio					0.29	0.33		0.30			0.29	
Intersection Summary												
	Other											
Cycle Length: 75												
Actuated Cycle Length: 75												
Offset: 2 (3%), Referenced to pl	hase 2:NBT	L and 6:SE	BT, Start of	Green								
Natural Cycle: 60												
Control Type: Pretimed												
Maximum v/c Ratio: 0.33												
Intersection Signal Delay: 9.1					tersection I							
Intersection Capacity Utilization	63.2%			IC	U Level of	Service B						
Analysis Period (min) 15												
Splits and Phases: 7: Elgin &	Catherine											
↑ Ø2 (R)												
42 s												
▼ Ø6 (R)						₩ ø	8					

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Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		1	^			
Traffic Volume (vph)	0	242	1110	0	0	0
Future Volume (vph)	0	242	1110	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.865				
Flt Protected						
Satd. Flow (prot)	0	1559	3424	0	0	0
FIt Permitted						
Satd. Flow (perm)	0	1559	3424	0	0	0
Link Speed (k/h)	50		50			50
Link Distance (m)	75.0		124.2			94.7
Travel Time (s)	5.4		8.9			6.8
Confl. Peds. (#/hr)	4					
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	1%	1%	0%	0%	0%
Adj. Flow (vph)	0	242	1110	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	242	1110	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	0.0		0.0			0.0
Link Offset(m)	3.7		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)	24	14		14	24	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilization	on 58.1%			ICI	U Level of	Service B
Analysis Period (min) 15						

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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	ተ ተኈ					*
Traffic Volume (vph)	1748	8	0	0	0	27
Future Volume (vph)	1748	8	0	0	0	27
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.999					0.865
Flt Protected						
Satd. Flow (prot)	4705	0	0	0	0	1574
Flt Permitted						
Satd. Flow (perm)	4705	0	0	0	0	1574
Link Speed (k/h)	50			50	50	
Link Distance (m)	76.9			40.1	59.5	
Travel Time (s)	5.5			2.9	4.3	
Confl. Bikes (#/hr)		1				1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	0%	0%	0%	0%	0%
Parking (#/hr)	0					
Adj. Flow (vph)	1748	8	0	0	0	27
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1756	0	0	0	0	27
Enter Blocked Intersection	Yes	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0	Ţ.		0.0	0.0	J
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	2.0			2.0	2.0	
Two way Left Turn Lane						
Headway Factor	1.10	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	
Interception Cummens					•	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 45.8%
Analysis Period (min) 15

ICU Level of Service A

Synchro 10 Report J.Audia, Novatech

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Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	ሻ	414				
Traffic Volume (vph)	1110	665	0	0	0	0
Future Volume (vph)	1110	665	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00	1.00
Frt						
Flt Protected	0.950	0.978				
Satd. Flow (prot)	1543	3176	0	0	0	0
Flt Permitted	0.950	0.978				
Satd. Flow (perm)	1543	3176	0	0	0	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		40.1	66.8		124.2	
Travel Time (s)		2.9	4.8		8.9	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	2%	0%	0%	0%	0%
Adj. Flow (vph)	1110	665	0	0	0	0
Shared Lane Traffic (%)	48%					
Lane Group Flow (vph)	577	1198	0	0	0	0
Enter Blocked Intersection	Yes	Yes	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		0.0	
Link Offset(m)		0.0	0.0		-2.0	
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)	24			14	24	14
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilizati	ion 58.1%			IC	U Level of	Service B
Analysis Period (min) 15						

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		ĵ.									41≯	
Traffic Volume (vph)	0	86	143	0	0	0	0	0	0	81	1415	0
Future Volume (vph)	0	86	143	0	0	0	0	0	0	81	1415	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor		0.86									0.98	
Frt		0.916										
Flt Protected											0.997	
Satd. Flow (prot)	0	1247	0	0	0	0	0	0	0	0	3243	0
Flt Permitted											0.997	
Satd. Flow (perm)	0	1247	0	0	0	0	0	0	0	0	3175	0
Right Turn on Red			Yes			Yes			Yes	Yes		Yes
Satd. Flow (RTOR)		67									28	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		170.3			173.0			119.0			124.7	
Travel Time (s)		12.3			12.5			8.6			9.0	
Confl. Peds. (#/hr)		12.0	133		12.0			0.0		155	0.0	
Confl. Bikes (#/hr)			2							100		13
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 (%)	0%	3%	3%	0%	0%	0%	0%	0%	0%	1.00	1.00	0%
Parking (#/hr)	0 70	0	J /0	0 70	0 /0	0 70	0 /0	0 70	0 /0	1 /0	0	0 70
Adj. Flow (vph)	0	86	143	0	0	0	0	0	0	81	1415	0
Shared Lane Traffic (%)	U	00	140	U	U	U	U	U	U	01	1413	U
Lane Group Flow (vph)	0	229	0	0	0	0	0	0	0	0	1496	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)	Leit	0.0	Right	Leit	0.0	Rigiil	Leit	0.0	Nigiti	Leit	0.0	Rigiit
Link Offset(m)		2.0			-2.0			0.0			0.0	
		4.0			4.9			4.9			4.9	
Crosswalk Width(m)		4.0			4.9			4.9			4.9	
Two way Left Turn Lane	1.06	1.21	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.13	1.06
Headway Factor	24	1.21	1.06	24	1.00	1.06	1.06 24	1.00	1.06	24	1.13	1.06
Turning Speed (k/h)	24	NA	14	24		14	24		14		NA	14
Turn Type		1NA 4								Perm		
Protected Phases		4								G	6	
Permitted Phases		00.0								6 25.2	05.0	
Minimum Split (s)		23.6									25.2	
Total Split (s)		27.0								73.0	73.0	
Total Split (%)		27.0%								73.0%	73.0%	
Maximum Green (s)		21.4								67.8	67.8	
Yellow Time (s)		3.3								3.3	3.3	
All-Red Time (s)		2.3								1.9	1.9	
Lost Time Adjust (s)		0.0									0.0	
Total Lost Time (s)		5.6									5.2	
Lead/Lag												
Lead-Lag Optimize?										44.0	440	
Walk Time (s)		7.0								14.0	14.0	
Flash Dont Walk (s)		11.0								6.0	6.0	
Pedestrian Calls (#/hr)		50								50	50	
Act Effct Green (s)		21.4									67.8	
Actuated g/C Ratio		0.21									0.68	
v/c Ratio		0.72									0.69	
Control Delay		39.7									11.7	
Queue Delay		0.0									0.0	
Total Delay		39.7									11.7	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	• NBR	SBL	SBT	SBR
LOS		D									В	
Approach Delay		39.7									11.7	
Approach LOS		D									В	
Queue Length 50th (m)		27.1									74.1	
Queue Length 95th (m)		#57.2									95.1	
Internal Link Dist (m)		146.3			149.0			95.0			100.7	
Turn Bay Length (m)												
Base Capacity (vph)		319									2161	
Starvation Cap Reductn		0									0	
Spillback Cap Reductn		0									3	
Storage Cap Reductn		0									0	
Reduced v/c Ratio		0.72									0.69	
Intersection Summary												
7 I	Other											
Cycle Length: 100												
Actuated Cycle Length: 100												
Offset: 17 (17%), Referenced to	o phase 6:SE	BTL, Start	of Green									
Natural Cycle: 60												
Control Type: Pretimed												
Maximum v/c Ratio: 0.72												
Intersection Signal Delay: 15.4					tersection							
Intersection Capacity Utilization	า 71.0%			IC	CU Level of	Service C						
Analysis Period (min) 15												
# 95th percentile volume exce			າay be lonເ	ger.								
Queue shown is maximum a	after two cycl	es.										
Splits and Phases: 1: O'Con	nor & Argyle											
8								10.	→ Ø4			200
								200			-	100
								20	7 s			-
Ø6 (R)												

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Lane Group	WBL2	WBL	WBT	SBT	SBR	SBR2	Ø5		
Lane Configurations	*		ተ ተተ	^	Ž.				·
Traffic Volume (vph)	195	217	684	965	476	128			
Future Volume (vph)	195	217	684	965	476	128			
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800			
Lane Util. Factor	1.00	0.91	0.91	0.95	1.00	0.95			
Ped Bike Factor	0.98				0.96				
Frt					0.850				
Flt Protected	0.950		0.988						
Satd. Flow (prot)	1647	0	4753	3390	1522	0			
Flt Permitted	0.950		0.988						
Satd. Flow (perm)	1607	0	4753	3390	1460	0			
Right Turn on Red	Yes					Yes			
Satd. Flow (RTOR)	98				96				
Link Speed (k/h)			50	50					
Link Distance (m)			92.1	119.0					
Travel Time (s)			6.6	8.6					
Confl. Peds. (#/hr)	13		0.0	0.0		34			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00			
Heavy Vehicles (%)	5%	1%	4%	2%	1%	4%			
Adj. Flow (vph)	195	217	684	965	476	128			
Shared Lane Traffic (%)	100	211	004	300	410	120			
Lane Group Flow (vph)	195	0	901	965	604	0			
Enter Blocked Intersection	No	No	No	No	No	No			
Lane Alignment	Left	Left	Left	Left	Right	Right			
Median Width(m)	Leit	LGIL	3.7	0.0	ragnt	rtigrit			
Link Offset(m)			0.0	0.0					
Crosswalk Width(m)			4.9	4.9					
Two way Left Turn Lane			4.3	4.3					
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06			
Turning Speed (k/h)	24	24	1.00	1.00	24	1.00			
Number of Detectors	1	1	2	2	1	17			
Detector Template	Left	Left	Thru	Thru	Right				
Leading Detector (m)	6.1	6.1	30.5	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)	6.1	6.1	1.8	1.8	6.1				
Detector 1 Type	CI+Ex	Cl+Ex	CI+Ex	Cl+Ex	CI+Ex				
Detector 1 Channel	CI+EX	CI+EX	CI+EX	CI+EX	CI+EX				
	0.0	0.0	0.0	0.0	0.0				
Detector 1 Extend (s) 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				
	0.0	0.0	28.7		0.0				
Detector 2 Position(m)				28.7 1.8					
Detector 2 Size(m)			1.8						
Detector 2 Type Detector 2 Channel			CI+Ex	CI+Ex					
			0.0	0.0					
Detector 2 Extend (s)			0.0	0.0	1				
Turn Type	Perm	Perm	NA	NA	custom		F		
Protected Phases		_	8	1	_		5		
Permitted Phases	8	8	_		6				
Detector Phase	8	8	8	1	6				
Switch Phase	40.0	40.0	40.0	40.0	40.0		10.0		
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		10.0		
Minimum Split (s)	21.9	21.9	21.9	24.9	15.9		17.9		
Total Split (s)	41.0	41.0	41.0	59.0	41.0		18.0		

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Lane Group	WBL2	WBL	WBT	SBT	SBR	SBR2	Ø5	
Total Split (%)	41.0%	41.0%	41.0%	59.0%	41.0%		18%	
Maximum Green (s)	35.1	35.1	35.1	53.1	35.1		12.1	
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		3.3	
All-Red Time (s)	2.6	2.6	2.6	2.6	2.6		2.6	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0			
Total Lost Time (s)	5.9		5.9	5.9	5.9			
Lead/Lag					Lag		Lead	
Lead-Lag Optimize?					Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	
Recall Mode	Max	Max	Max	C-Max	Max		None	
Walk Time (s)	7.0	7.0	7.0	7.0	0.0		7.0	
Flash Dont Walk (s)	9.0	9.0	9.0	12.0	0.0		5.0	
Pedestrian Calls (#/hr)	10	10	10	15	0		15	
Act Effct Green (s)	35.1		35.1	53.1	49.5			
Actuated g/C Ratio	0.35		0.35	0.53	0.50			
v/c Ratio	0.31		0.54	0.54	0.78			
Control Delay	12.7		20.4	9.4	18.6			
Queue Delay	0.0		0.0	0.5	1.1			
Total Delay	12.7		20.4	9.8	19.8			
LOS	В		С	Α	В			
Approach Delay			19.0	13.6				
Approach LOS			В	В				
Queue Length 50th (m)	19.6		51.9	22.1	18.7			
Queue Length 95th (m)	38.3		66.1	31.3	#170.9			
Internal Link Dist (m)			68.1	95.0				
Turn Bay Length (m)								
Base Capacity (vph)	627		1668	1800	771			
Starvation Cap Reductn	0		0	379	48			
Spillback Cap Reductn	0		0	0	0			
Storage Cap Reductn	0		0	0	0			
Reduced v/c Ratio	0.31		0.54	0.68	0.84			
Intersection Summary								
Area Type:	Other							
Cycle Length: 100								
Actuated Cycle Length: 100								

Actuated Cycle Length: 100 Offset: 25 (25%), Referenced to phase 1:SBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

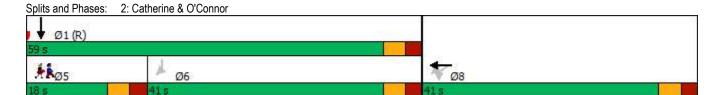
Maximum v/c Ratio: 0.78 Intersection Signal Delay: 15.8 Intersection Capacity Utilization 67.9%

Intersection LOS: B ICU Level of Service C

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.



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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	<u> </u>	2511	1100	,,,,,	IVUL	77
Traffic Volume (vph)	177	0	0	0	0	974
Future Volume (vph)	177	0	0	0	0	974
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.88
Frt	1.00	1.00	1.00	1.00	1.00	0.850
Flt Protected						0.000
Satd. Flow (prot)	1622	0	0	0	0	2696
Flt Permitted	IUZZ	U	U	U	U	2000
Satd. Flow (perm)	1622	0	0	0	0	2696
Right Turn on Red	1022	No	U	U	U	No
Satd. Flow (RTOR)		INU				INU
Link Speed (k/h)	50			50	50	
	173.0			76.9	69.3	
Link Distance (m)					5.0	
Travel Time (s)	12.5	1.00	1.00	5.5		1.00
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	0%	0%	0%	0%	1%
Parking (#/hr)	0					A=:
Adj. Flow (vph)	177	0	0	0	0	974
Shared Lane Traffic (%)						
Lane Group Flow (vph)	177	0	0	0	0	974
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	0.0	
Link Offset(m)	0.0			0.0	1.0	
Crosswalk Width(m)	8.0			4.9	4.9	
Two way Left Turn Lane						
Headway Factor	1.21	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)		14	24		24	24
Number of Detectors	2					1
Detector Template	Thru					Right
Leading Detector (m)	30.5					6.1
Trailing Detector (m)	0.0					0.1
Detector 1 Position(m)	0.0					0.0
Detector 1 Size(m)	1.8					6.1
	CI+Ex					CI+Ex
Detector 1 Type	CI+EX					UI+EX
Detector 1 Channel	0.0					0.0
Detector 1 Extend (s)	0.0					0.0
Detector 1 Queue (s)	0.0					0.0
Detector 1 Delay (s)	0.0					0.0
Detector 2 Position(m)	28.7					
Detector 2 Size(m)	1.8					
Detector 2 Type	CI+Ex					
Detector 2 Channel						
Detector 2 Extend (s)	0.0					
Turn Type	NA					Prot
Protected Phases	4					2
Permitted Phases						
						2
Detector Phase	4					
Detector Phase Switch Phase	4					
Switch Phase						10.0
Switch Phase Minimum Initial (s)	10.0					10.0 43.5
Switch Phase Minimum Initial (s) Minimum Split (s)	10.0 20.4					43.5
Switch Phase Minimum Initial (s)	10.0					

Beautiful Beau		-	•	•	←	•	/	
Maximum Green (s) 20.6 (68.5 fellow Time (s) 3.3 (3.3 All-Red Time (s) 2.1 (2.2 Lost Time Adjust (s) 0.0 (0.0 Clotal Lost Time (s) 5.4 (5.5 Lost Time Adjust (s) 0.0 (0.0 Clotal Lost Time (s) 5.4 (5.5 Lost Time Adjust (s) 0.0 (0.0 Lost Time (s) 5.4 (5.5 Lost Time (s) 5.5 (1.5 Lost Time (s) 5.4 (5.5 Lost Time (s) 5.5 (1.5 Lost Time (s) 7.0 (1.5 Lost Time (s) 7.5 (1.5 Lost Time (state (s. 5.5 (1.5 Lost Time (state (s. 5.5 (1.5 Lost Time (state (s. 5.5 (1.5 Lost	ane Group	FBT	FBR	WBI	WBT	NBI	NBR	
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Lead/Lag Optimize? //ehicle Extension (s) 3.0 3.0 Recall Mode None C-Max //alk Time (s) 7.0 33.0								
Lead-Lag Optimize? Vehicle Extension (s) 3.0 Recall Mode None C-Max Nalk Time (s) 7.0 33.0 Pedestrian Calls (#hr) 30 10 Act Effct Green (s) 15.8 73.3 Actuated g/C Ratio 0.16 0.73 V/c Ratio 0.69 0.49 Control Delay 53.7 3.6 Queue Delay 0.0 0.4 Fotal Delay 53.7 4.0 Approach LOS D A Approach LOS D A Approach LOS D A Queue Length 50th (m) 28.3 5.2 Queue Length 95th (m) 149.0 52.9 45.3 Turn Bay Length (m) Base Capacity (vph) 334 1976 Starvation Cap Reductn 0 0 Reduced Vic Ratio 0.53 0.65 Intersection Summary Area Type: Other Other		0.1					0.0	
Vehicle Extension (s) 3.0 3.0 3.0 Recall Mode None C-Max None								
Recall Mode		3.0					3.0	
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Flash Dont Walk (s) 8.0 5.0 Pedestrian Calls (#/hr) 30 10 Act Effct Green (s) 15.8 73.3 Actuated g/C Ratio 0.16 0.73 //c Ratio 0.69 0.49 Control Delay 53.7 3.6 Queue Delay 0.0 0.4 Control Delay 53.7 3.6 Queue Delay 53.7 4.0 Approach Delay 53.7 4.0 Approach Delay 53.7 4.0 Approach LOS D A Approach LOS D A Approach LOS D A Approach LOS D A Cueue Length 95th (m) 28.3 5.2 Queue Length 95th (m) m39.1 54.3 Internal Link Dist (m) 149.0 52.9 45.3 Internal Link Dist (m) 149.0 52.9 45.3 Internal Link Dist (m) 334 1976 Base Capacity (vph) 3473 Control Type: Other Cycle Length: 100 Offset: 18 (18%), Referenced to phase 2:NBR, Start of Green Natural Cycle: 65 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.69 Intersection Signal Delay: 11.6 Intersection LOS: B Intersection Capacity Utilization 71.0% ICU Level of Service C Analysis Period (min) 15 In Volume for 95th percentile queue is metered by upstream signal.								
Pedestrian Calls (#/hr) 30 10 Act Effc Green (s) 15.8 73.3 Actuated g/C Ratio 0.16 0.73 Actuated g/C Ratio 0.69 0.49 Control Delay 53.7 3.6 Queue Delay 0.0 0.4 Control Delay 53.7 3.6 Queue Delay 0.0 0.4 Total Delay 53.7 4.0 Approach Delay 53.7 4.0 Approach Delay 53.7 4.0 Approach LOS D A Approach LOS D A A Queue Length 50th (m) 28.3 5.2 Queue Length 95th (m) m39.1 5.2 Queue Length 95th (m) 149.0 52.9 45.3 Turn Bay Length (m) Base Capacity (vph) 334 1976 Starvation Cap Reductn 0 473 Spillback Cap Reductn 0 0 Storage Cap Reductn 0 0 Reduced v/c Ratio 0.53 0.65 Intersection Summary Area Type: Other Cycle Length: 100 Actuated Cycle Lengt								
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## Creation								
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Spillback Cap Reductn 0 0 Storage Cap Reductn 0 0 Reduced v/c Ratio 0.53 0.65 Intersection Summary Area Type: Other Cycle Length: 100 Actuated Cycle Length: 100 Offset: 18 (18%), Referenced to phase 2:NBR, Start of Green Natural Cycle: 65 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.69 Intersection Signal Delay: 11.6 Intersection LOS: B Intersection Capacity Utilization 71.0% ICU Level of Service C Analysis Period (min) 15 In Volume for 95th percentile queue is metered by upstream signal. Splits and Phases: 3: Metcalfe W & Argyle								
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Reduced v/c Ratio 0.53 0.65 Intersection Summary Area Type: Other Cycle Length: 100 Actuated Cycle Length: 100 Offset: 18 (18%), Referenced to phase 2:NBR, Start of Green Natural Cycle: 65 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.69 Intersection Signal Delay: 11.6 Intersection LOS: B Intersection Capacity Utilization 71.0% ICU Level of Service C Analysis Period (min) 15 In Volume for 95th percentile queue is metered by upstream signal. Splits and Phases: 3: Metcalfe W & Argyle								
Area Type: Other Cycle Length: 100 Actuated Cycle Length: 100 Offset: 18 (18%), Referenced to phase 2:NBR, Start of Green Natural Cycle: 65 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.69 Intersection Signal Delay: 11.6 Intersection LOS: B Intersection Capacity Utilization 71.0% ICU Level of Service C Analysis Period (min) 15 In Volume for 95th percentile queue is metered by upstream signal. Splits and Phases: 3: Metcalfe W & Argyle								
Area Type: Other Cycle Length: 100 Actuated Cycle Length: 100 Offset: 18 (18%), Referenced to phase 2:NBR, Start of Green Natural Cycle: 65 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.69 Intersection Signal Delay: 11.6 Intersection LOS: B Intersection Capacity Utilization 71.0% ICU Level of Service C Analysis Period (min) 15 In Volume for 95th percentile queue is metered by upstream signal. Splits and Phases: 3: Metcalfe W & Argyle								
Cycle Length: 100 Actuated Cycle Length: 100 Diffset: 18 (18%), Referenced to phase 2:NBR, Start of Green Natural Cycle: 65 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.69 Intersection Signal Delay: 11.6 Intersection LOS: B ICU Level of Service C Analysis Period (min) 15 In Volume for 95th percentile queue is metered by upstream signal. Splits and Phases: 3: Metcalfe W & Argyle		0.11						
Actuated Cycle Length: 100 Offset: 18 (18%), Referenced to phase 2:NBR, Start of Green Natural Cycle: 65 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.69 Intersection Signal Delay: 11.6 Intersection Capacity Utilization 71.0% ICU Level of Service C Analysis Period (min) 15 In Volume for 95th percentile queue is metered by upstream signal. Splits and Phases: 3: Metcalfe W & Argyle		Other						
Offset: 18 (18%), Referenced to phase 2:NBR, Start of Green Natural Cycle: 65 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.69 Intersection Signal Delay: 11.6 Intersection Capacity Utilization 71.0% ICU Level of Service C Analysis Period (min) 15 In Volume for 95th percentile queue is metered by upstream signal. Splits and Phases: 3: Metcalfe W & Argyle		•						
Natural Cycle: 65 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.69 Intersection Signal Delay: 11.6 Intersection Capacity Utilization 71.0% ICU Level of Service C Analysis Period (min) 15 In Volume for 95th percentile queue is metered by upstream signal. Splits and Phases: 3: Metcalfe W & Argyle								
Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.69 Intersection Signal Delay: 11.6 Intersection LOS: B ICU Level of Service C Analysis Period (min) 15 The Volume for 95th percentile queue is metered by upstream signal. Splits and Phases: 3: Metcalfe W & Argyle		ed to phase 2:NE	R, Start o	Green				
Maximum v/c Ratio: 0.69 ntersection Signal Delay: 11.6 ntersection Capacity Utilization 71.0% ICU Level of Service C Analysis Period (min) 15 n Volume for 95th percentile queue is metered by upstream signal. Splits and Phases: 3: Metcalfe W & Argyle								
ntersection Signal Delay: 11.6 Intersection LOS: B ntersection Capacity Utilization 71.0% ICU Level of Service C Analysis Period (min) 15 m Volume for 95th percentile queue is metered by upstream signal. Splits and Phases: 3: Metcalfe W & Argyle	·	ordinated						
ntersection Capacity Utilization 71.0% Analysis Period (min) 15 Modern Volume for 95th percentile queue is metered by upstream signal. Splits and Phases: 3: Metcalfe W & Argyle								
Analysis Period (min) 15 Mary Volume for 95th percentile queue is metered by upstream signal. Splits and Phases: 3: Metcalfe W & Argyle								
Volume for 95th percentile queue is metered by upstream signal. Splits and Phases: 3: Metcalfe W & Argyle		ation 71.0%			IC	U Level of	Service C	
Splits and Phases: 3: Metcalfe W & Argyle								
Wa swo	m Volume for 95th percer	ntile queue is met	tered by u	ostream s	ignal.			
Ago (n)	Splits and Phases: 3: Me	etcalfe W & Argyle	e					
	1 ø2 (R)							

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Lane Group	WBR	NBT	SWT	SWR	Ø6	
Lane Configurations	77	^	♦ %			
Traffic Volume (vph)	389	367	362	68		
Future Volume (vph)	389	367	362	68		
Ideal Flow (vphpl)	1800	1800	1800	1800		
Storage Length (m)	0.0			200.0		
Storage Lanes	2			1		
Taper Length (m)	-			•		
Lane Util. Factor	0.88	0.95	0.95	0.95		
Ped Bike Factor	0.00	0.00	1.00	0.00		
Frt	0.850		0.976			
Flt Protected	0.000		0.010			
Satd. Flow (prot)	2696	3424	3262	0		
Flt Permitted	2000	0727	0202	0		
Satd. Flow (perm)	2696	3424	3262	0		
Right Turn on Red	2000	UTZT	3202	No		
Satd. Flow (RTOR)				110		
Link Speed (k/h)		50	50			
Link Opeed (k/ll) Link Distance (m)		22.1	184.1			
Travel Time (s)		1.6	13.3			
Confl. Peds. (#/hr)		1.0	13.3	11		
Peak Hour Factor	1.00	1.00	1.00	1.00		
	1.00 1%		3%	3%		
Heavy Vehicles (%)		1%				
Adj. Flow (vph)	389	367	362	68		
Shared Lane Traffic (%)	200	207	420	^		
Lane Group Flow (vph)	389	367	430	0		
Enter Blocked Intersection	No	No	No	No		
Lane Alignment	Right	Left	Left	Right		
Median Width(m)		0.0	0.0			
Link Offset(m)		0.0	0.0			
Crosswalk Width(m)		2.0	10.0			
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.06	1.06		
Turning Speed (k/h)	24			14		
Turn Type	Prot	NA	NA			
Protected Phases	1	8	2		6	
Permitted Phases						
Minimum Split (s)	15.3	28.3	25.3		16.3	
Total Split (s)	26.0	33.0	41.0		67.0	
Total Split (%)	26.0%	33.0%	41.0%		67%	
Maximum Green (s)	20.7	26.7	34.7		60.7	
Yellow Time (s)	3.3	3.3	3.3		3.3	
All-Red Time (s)	2.0	3.0	3.0		3.0	
Lost Time Adjust (s)	0.0	0.0	0.0			
Total Lost Time (s)	5.3	6.3	6.3			
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Walk Time (s)	0.0	15.0	7.0		0.0	
Flash Dont Walk (s)	0.0	7.0	12.0		0.0	
Pedestrian Calls (#/hr)	0	5	10		0	
Act Effct Green (s)	20.7	26.7	34.7			
Actuated g/C Ratio	0.21	0.27	0.35			
v/c Ratio	0.70	0.40	0.38			
Control Delay	44.3	2.4	25.8			
Queue Delay	0.0	0.0	0.0			
auduo Bolay	- 0.0	0.0	0.0			

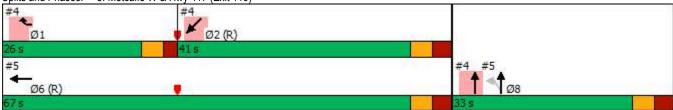
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Lane Group	WBR	NBT	SWT	SWR	Ø6	
Total Delay	44.3	2.4	25.8			
LOS	D	Α	С			
Approach Delay		2.4	25.8			
Approach LOS		Α	С			
Queue Length 50th (m)	36.8	0.6	30.1			
Queue Length 95th (m)	52.9	8.0	42.0			
Internal Link Dist (m)		0.1	160.1			
Turn Bay Length (m)						
Base Capacity (vph)	558	914	1131			
Starvation Cap Reductn	0	0	0			
Spillback Cap Reductn	0	0	0			
Storage Cap Reductn	0	0	0			
Reduced v/c Ratio	0.70	0.40	0.38			
Intersection Summary						
	Other					
Cycle Length: 100						
Actuated Cycle Length: 100						
Offset: 63 (63%), Referenced t	o phase 2:SW	/T and 6:,	Start of G	reen		
Natural Cycle: 70						
Control Type: Pretimed						
Maximum v/c Ratio: 0.70						
Intersection Signal Delay: 24.6					ersection LOS: C	
Intersection Capacity Utilization	า 55.8%			IC	U Level of Service B	
Analysis Period (min) 15						
Splits and Phases: 4: Cather	rine & Metcalf	- \/\	n, 117 (Evi	+ 110\		
#4	#4	CWAIIW	ry 417 (∟∧i	(113)		10 8
		/				
Ø1 26 s	41	Ø2 (R)				•
#5	1 1	•			The same of the sa	#4 #5
—						**************************************
Ø6 (R)						Ø8
F4 C	100				The second secon	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					44		7	^				
Traffic Volume (vph)	0	0	0	0	819	0	48	367	0	0	0	0
Future Volume (vph)	0	0	0	0	819	0	48	367	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor							0.99					
Frt												
Flt Protected							0.950					
Satd. Flow (prot)	0	0	0	0	3390	0	1712	3424	0	0	0	0
Flt Permitted							0.950					
Satd. Flow (perm)	0	0	0	0	3390	0	1696	3424	0	0	0	0
Right Turn on Red			Yes			No	No		No			Yes
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		82.6			121.1			97.0			22.1	
Travel Time (s)		5.9			8.7			7.0			1.6	
Confl. Peds. (#/hr)							7					
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 (%)	0%	0%	0%	0%	2%	0%	1%	1%	0%	0%	0%	0%
Adj. Flow (vph)	0	0	0	0	819	0	48	367	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	819	0	48	367	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0	•		3.7			3.7	
Link Offset(m)		0.0			0.0			-1.0			0.0	
Crosswalk Width(m)		2.0			2.0			6.0			2.0	
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
Turn Type					NA		Perm	NA				
Protected Phases					6			8				
Permitted Phases							8					
Minimum Split (s)					16.3		28.3	28.3				
Total Split (s)					67.0		33.0	33.0				
Total Split (%)					67.0%		33.0%	33.0%				
Maximum Green (s)					60.7		26.7	26.7				
Yellow Time (s)					3.3		3.3	3.3				
All-Red Time (s)					3.0		3.0	3.0				
Lost Time Adjust (s)					0.0		0.0	0.0				
Total Lost Time (s)					6.3		6.3	6.3				
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)					0.0		15.0	15.0				
Flash Dont Walk (s)					0.0		7.0	7.0				
Pedestrian Calls (#/hr)					0		5	5				
Act Effct Green (s)					60.7		26.7	26.7				
Actuated g/C Ratio					0.61		0.27	0.27				
v/c Ratio					0.40		0.11	0.40				
Control Delay					10.9		28.5	31.7				
Queue Delay					0.0		0.0	0.0				
Total Delay					10.9		28.5	31.7				
LOS					В		С	С				
Approach Delay					10.9			31.3				

Lane Group	Ø1	Ø2
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
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)		
Peak Hour Factor		
Heavy Vehicles (%)		
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)		
Turn Type		
Protected Phases	1	2
Permitted Phases		
Minimum Split (s)	15.3	25.3
Total Split (s)	26.0	41.0
Total Split (%)	26%	41%
Maximum Green (s)	20.7	34.7
Yellow Time (s)	3.3	3.3
All-Red Time (s)	2.0	3.0
Lost Time Adjust (s)	,	0.0
Total Lost Time (s)		
Lead/Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes
Walk Time (s)	0.0	7.0
Flash Dont Walk (s)	0.0	12.0
Pedestrian Calls (#/hr)	0	10
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		

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Lane Group	EBL	EBT	EBR	WBL	WBT '	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS					В			С				
Queue Length 50th (m)					36.8		6.5	28.3				
Queue Length 95th (m)					47.8		14.5	40.3				
Internal Link Dist (m)		58.6			97.1			73.0			0.1	
Turn Bay Length (m)												
Base Capacity (vph)					2057		452	914				
Starvation Cap Reductn					0		0	0				
Spillback Cap Reductn					0		0	0				
Storage Cap Reductn					0		0	0				
Reduced v/c Ratio					0.40		0.11	0.40				
Intersection Summary												
Area Type:	Other											
Cycle Length: 100												
Actuated Cycle Length: 100												
Offset: 63 (63%), Referenced t	o phase 2:S\	NT and 6:,	Start of G	reen								
Natural Cycle: 70												
Control Type: Pretimed												
Maximum v/c Ratio: 0.70												
Intersection Signal Delay: 17.8					ntersection LO							
Intersection Capacity Utilization	n 45.1%			IC	CU Level of Se	rvice A						
Analysis Period (min) 15												
Calita and Dhasas: F: Matas	Ifa M. O. Llun.	447 /Evit /	140\									

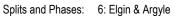
Splits and Phases: 5: Metcalfe W & Hwy 417 (Exit 119)



Lane Group	Ø1	Ø2
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	ሻሻ	EBR	NDL	<u>↑</u>	<u>361</u>	ODIX
Traffic Volume (vph)	362	237	0	TT 187	T 797	0
Future Volume (vph)	362	237	0	187	797 797	0
	1800					
Ideal Flow (vphpl)	40.0	1800	1800 0.0	1800	1800	1800 0.0
Storage Length (m)		0.0				
Storage Lanes	1 100	1	0			0
Taper Length (m)	10.0	4.00	2.5	0.05	4.00	4.00
Lane Util. Factor	0.97	1.00	1.00	0.95	1.00	1.00
Ped Bike Factor		0.79				
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	3321	1379	0	3390	1767	0
Flt Permitted	0.950					
Satd. Flow (perm)	3321	1092	0	3390	1767	0
Right Turn on Red		Yes				No
Satd. Flow (RTOR)		148				
Link Speed (k/h)	50	170		50	50	
Link Distance (m)	66.8			118.2	109.3	
Travel Time (s)	4.8	70		8.5	7.9	
Confl. Peds. (#/hr)		76				
Confl. Bikes (#/hr)		15				
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	1%	0%	2%	3%	0%
Parking (#/hr)		0				
Adj. Flow (vph)	362	237	0	187	797	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	362	237	0	187	797	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	7.4	ragnt	LCIL	0.0	0.0	ragnt
	1.0			0.0	0.0	
Link Offset(m)						
Crosswalk Width(m)	2.0			1.6	1.6	
Two way Left Turn Lane						
Headway Factor	1.06	1.21	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24	14	24			14
Number of Detectors	1	1		2	2	
Detector Template	Left	Right		Thru	Thru	
Leading Detector (m)	6.1	6.1		30.5	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	6.1		1.8	1.8	
Detector 1 Type	CI+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
	CITEX	CITEX		OI+EX	CITEX	
Detector 1 Channel	0.0	0.0		0.0	0.0	
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	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				CI+Ex	CI+Ex	
Detector 2 Channel						
Detector 2 Extend (s)				0.0	0.0	
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4	1 01111		2	6	
Permitted Phases	4	4			U	
I CHIIILLEU FIIASES		4				

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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Detector Phase	4	4		2	6	
Switch Phase	<u> </u>	·		_		
Minimum Initial (s)	10.0	10.0		10.0	10.0	
Minimum Split (s)	20.9	20.9		20.6	20.6	
Total Split (s)	30.0	30.0		45.0	45.0	
Total Split (%)	40.0%	40.0%		60.0%	60.0%	
Maximum Green (s)	25.1	25.1		39.4	39.4	
Yellow Time (s)	3.3	3.3		3.3	3.3	
All-Red Time (s)	1.6	1.6		2.3	2.3	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.9	4.9		5.6	5.6	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Recall Mode	None	None		C-Max	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	9.0	9.0		8.0	8.0	
Pedestrian Calls (#/hr)	30	30		50	50	
Act Effct Green (s)	15.1	15.1		49.4	49.4	
Actuated g/C Ratio	0.20	0.20		0.66	0.66	
v/c Ratio	0.54	0.70		0.08	0.69	
Control Delay	29.0	22.1		4.8	13.9	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	29.0	22.1		4.8	13.9	
LOS	С	С		Α	В	
Approach Delay	26.3			4.8	13.9	
Approach LOS	С			Α	В	
Queue Length 50th (m)	22.6	10.5		2.5	50.9	
Queue Length 95th (m)	28.1	27.2		8.1	#145.1	
Internal Link Dist (m)	42.8			94.2	85.3	
Turn Bay Length (m)	40.0					
Base Capacity (vph)	1111	463		2232	1163	
Starvation Cap Reductn	0	0		0	0	
Spillback Cap Reductn	0	0		0	0	
Storage Cap Reductn	0	0		0	0	
Reduced v/c Ratio	0.33	0.51		0.08	0.69	
Intersection Summary						
	Other					
Cycle Length: 75						
Actuated Cycle Length: 75						
Offset: 3 (4%), Referenced to p	hase 2:NBT	and 6:SB1	Γ, Start of	Green		
Natural Cycle: 60						
Control Type: Actuated-Coordin	nated					
Maximum v/c Ratio: 0.70						
Intersection Signal Delay: 17.5					tersection L	
Intersection Capacity Utilization	173.7%			IC	U Level of	Service D
Analysis Period (min) 15						
# 95th percentile volume exce			nay be long	ger.		
Queue shown is maximum a	after two cyc	les.				





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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					ર્ન	7		4₽			ተ ኈ	
Traffic Volume (vph)	0	0	0	116	151	80	57	106	0	0	793	221
Future Volume (vph)	0	0	0	116	151	80	57	106	0	0	793	221
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	0.0		45.0
Storage Lanes	0		0	0		1	0		0	0		1
Taper Length (m)	2.5			2.5			2.5			2.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	0.95
Ped Bike Factor						0.96		0.98			0.93	
Frt						0.850					0.967	
Flt Protected					0.979			0.983				
Satd. Flow (prot)	0	0	0	0	1764	1379	0	3184	0	0	3051	0
Flt Permitted					0.979			0.649				
Satd. Flow (perm)	0	0	0	0	1764	1328	0	2068	0	0	3051	0
Right Turn on Red			Yes			Yes	•		No	•		Yes
Satd. Flow (RTOR)			100			80			110		66	100
Link Speed (k/h)		50			50	00		50			50	
Link Distance (m)		184.1			122.5			274.3			118.2	
Travel Time (s)		13.3			8.8			19.7			8.5	
Confl. Peds. (#/hr)		10.0			0.0	27	138	13.7			0.0	138
Confl. Bikes (#/hr)						4	100					46
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 (%)	0%	0%	0%	1.00	1.00	1.00	1.00	5%	0%	0%	2%	4%
	0 76	U 70	0 70	1 70	1 70	0	1076	370	070	0 %	Z 70	4 70
Parking (#/hr)	0	0	0	116	151	80	57	106	0	0	793	221
Adj. Flow (vph)	0	U	U	110	101	00	57	100	U	U	193	221
Shared Lane Traffic (%)	0	0	0	0	267	80	٥	163	٥	٥	1014	0
Lane Group Flow (vph)	0	0	0	0			0		0	0	1014	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane	4.00	4.00	4.00	4.00	4.00	4.04	4.00	4.00	4.00	4.00	4.00	4.00
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.21	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	_ 24		14	24		14
Turn Type				Perm	NA	Perm	Perm	NA			NA	
Protected Phases					8			2			6	
Permitted Phases				8		8	2					
Minimum Split (s)				33.0	33.0	33.0	25.6	25.6			25.6	
Total Split (s)				33.0	33.0	33.0	42.0	42.0			42.0	
Total Split (%)				44.0%	44.0%	44.0%	56.0%	56.0%			56.0%	
Maximum Green (s)				26.9	26.9	26.9	36.4	36.4			36.4	
Yellow Time (s)				3.3	3.3	3.3	3.3	3.3			3.3	
All-Red Time (s)				2.8	2.8	2.8	2.3	2.3			2.3	
Lost Time Adjust (s)					0.0	0.0		0.0			0.0	
Total Lost Time (s)					6.1	6.1		5.6			5.6	
Lead/Lag												
Lead-Lag Optimize?												
Walk Time (s)				7.0	7.0	7.0	8.0	8.0			8.0	
Flash Dont Walk (s)				19.9	19.9	19.9	12.0	12.0			12.0	
Pedestrian Calls (#/hr)				10	10	10	50	50			50	
Act Effct Green (s)					26.9	26.9		36.4			36.4	
Actuated g/C Ratio					0.36	0.36		0.49			0.49	
v/c Ratio					0.42	0.15		0.16			0.67	
.,					V. 12	3.10		0.10			0.01	

Control Delay		•	→	•	•	←	•	4	†	~	-	ļ	4
Queue Delay 0.0 0.0 0.0 0.0 0.2 Total Delay 20.8 5.2 11.3 11.5 LOS C A B B Approach Delay 17.2 11.3 11.5 Approach LOS B B B B B Queue Length 50th (m) 25.8 0.0 5.8 44.2 Queue Length 95th (m) 43.4 7.3 10.7 30.0 Internal Link Dist (m) 160.1 98.5 250.3 94.2 Turn Bay Length (m) Base Capacity (vph) 632 527 1003 1514 Starvation Cap Reductn 0 0 0 0 90 Spillback Cap Reductn 0 0 0 0 0 90 Spillback Cap Reductn 0 0 0 0 0 0 Reduced vc Ratio 0.42 0.15 0.16 0.71 Intersection Summary Area Type: Other Cycle Length: 75 Offset: 7 (9%), Referenced to phase 2:NBTL and 6:SBT, Start of Green Natural Cycle: 60 Control Type: Pretimed Maximum vic Ratio: 0.67 Intersection Signal Delay: 12.7 Intersection LOS: B Intersection Gapacity Utilization 77.3% ICU Level of Service D Analysis Period (min) 15 Spilits and Phases: 7: Elgin & Catherine	Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBF
Total Delay	Control Delay					20.8	5.2		11.3				
LOS	Queue Delay					0.0	0.0		0.0			0.2	
Approach Delay 17.2 11.3 11.5 Approach LOS B B B B B B B B B Approach LOS B B B B B B Approach LOS B B B B B B B B B Approach LOS B B B B B B B B B B B B B B B B B B B	Total Delay					20.8	5.2		11.3			11.5	
Approach LOS Approach LOS B B Queue Length 95th (m) 25.8 0.0 5.8 44.2 Queue Length 95th (m) 43.4 7.3 10.7 30.0 Internal Link Dist (m) 160.1 98.5 250.3 94.2 Turn Bay Length (m) Base Capacity (vph) 632 527 1003 1514 Starvation Cap Reductn 0 0 0 0 90 Spillback Cap Reductn 0 0 0 0 0 Storage Cap Reductn 0 0 0 0 0 Reduced v/c Ratio 0.42 0.15 0.16 0.71 Intersection Summary Area Type: Offset: 7 (9%), Referenced to phase 2:NBTL and 6:SBT, Start of Green Natural Cycle: 60 Control Type: Pretimed Maximum v/c Ratio: 0.67 Intersection Capacity Utilization 77.3% ICU Level of Service D Analysis Period (min) 15 Splits and Phases: 7: Elgin & Catherine	LOS					С	Α		В			В	
Queue Length 50th (m)	Approach Delay					17.2			11.3			11.5	
Queue Length 95th (m)	Approach LOS					В			В			В	
Internal Link Dist (m)	Queue Length 50th (m)					25.8			5.8			44.2	
Turn Bay Length (m) Base Capacity (vph) 632 527 1003 1514 Starvation Cap Reductn 0 0 0 0 90 Spillback Cap Reductn 0 0 0 0 0 0 Storage Cap Reductn 0 0 0 0 0 0 Reduced v/c Ratio 0.42 0.15 0.16 0.71 Intersection Summary Area Type: Other Cycle Length: 75 Actuated Cycle Length: 75 Offset: 7 (9%), Referenced to phase 2:NBTL and 6:SBT, Start of Green Natural Cycle: 60 Control Type: Pretimed Maximum v/c Ratio: 0.67 Intersection Signal Delay: 12.7 Intersection LOS: B Intersection Capacity Utilization 77.3% ICU Level of Service D Analysis Period (min) 15 Splits and Phases: 7: Elgin & Catherine	Queue Length 95th (m)					43.4	7.3		10.7			30.0	
Base Capacity (vph) 632 527 1003 1514 Starvation Cap Reductn 0 0 0 0 90 Spillback Cap Reductn 0 0 0 0 0 0 Storage Cap Reductn 0 0 0 0 0 0 Storage Cap Reductn 0 0 0 0 0 0 Reduced v/c Ratio 0.42 0.15 0.16 0.71 Intersection Summary Area Type: Other Cycle Length: 75 Actuated Cycle Length: 75 Offset: 7 (9%), Referenced to phase 2:NBTL and 6:SBT, Start of Green Natural Cycle: 60 Control Type: Pretimed Maximum v/c Ratio: 0.67 Intersection Signal Delay: 12.7 Intersection LOS: B Intersection Capacity Utilization 77.3% ICU Level of Service D Analysis Period (min) 15 Splits and Phases: 7: Elgin & Catherine	Internal Link Dist (m)		160.1			98.5			250.3			94.2	
Starvation Cap Reductn 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Turn Bay Length (m)												
Spillback Cap Reductn 0 0 0 0 0 0 0 0 0 Reduced v/c Ratio 0.42 0.15 0.16 0.71 Intersection Summary Area Type: Other Cycle Length: 75 Actuated Cycle Length: 75 Actuated Cycle Length: 75 Offset: 7 (9%), Referenced to phase 2:NBTL and 6:SBT, Start of Green Natural Cycle: 60 Control Type: Pretimed Maximum v/c Ratio: 0.67 Intersection Signal Delay: 12.7 Intersection LOS: B Intersection Capacity Utilization 77.3% ICU Level of Service D Analysis Period (min) 15 Splits and Phases: 7: Elgin & Catherine	Base Capacity (vph)					632	527		1003			1514	
Storage Cap Reductn 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Starvation Cap Reductn					0	0		0			90	
Reduced v/c Ratio 0.42 0.15 0.16 0.71 Intersection Summary Area Type: Other Cycle Length: 75 Actuated Cycle Length: 75 Offset: 7 (9%), Referenced to phase 2:NBTL and 6:SBT, Start of Green Natural Cycle: 60 Control Type: Pretimed Maximum v/c Ratio: 0.67 Intersection Signal Delay: 12.7 Intersection LOS: B Intersection Capacity Utilization 77.3% ICU Level of Service D Analysis Period (min) 15 Splits and Phases: 7: Elgin & Catherine	Spillback Cap Reductn					0	0		0			0	
Area Type: Other Cycle Length: 75 Cycle Length: 75 Offset: 7 (9%), Referenced to phase 2:NBTL and 6:SBT, Start of Green Natural Cycle: 60 Control Type: Pretimed Maximum v/c Ratio: 0.67 Intersection Signal Delay: 12.7 Intersection LOS: B Intersection Capacity Utilization 77.3% ICU Level of Service D Analysis Period (min) 15 Splits and Phases: 7: Elgin & Catherine	Storage Cap Reductn					~			-			0	
Area Type: Other Cycle Length: 75 Actuated Cycle Length: 75 Offset: 7 (9%), Referenced to phase 2:NBTL and 6:SBT, Start of Green Natural Cycle: 60 Control Type: Pretimed Maximum v/c Ratio: 0.67 Intersection Signal Delay: 12.7 Intersection LOS: B Intersection Capacity Utilization 77.3% ICU Level of Service D Analysis Period (min) 15 Splits and Phases: 7: Elgin & Catherine	Reduced v/c Ratio					0.42	0.15		0.16			0.71	
Cycle Length: 75 Actuated Cycle Length: 75 Offset: 7 (9%), Referenced to phase 2:NBTL and 6:SBT, Start of Green Natural Cycle: 60 Control Type: Pretimed Maximum v/c Ratio: 0.67 Intersection Signal Delay: 12.7 Intersection Capacity Utilization 77.3% ICU Level of Service D Analysis Period (min) 15 Splits and Phases: 7: Elgin & Catherine	Intersection Summary												
Actuated Cycle Length: 75 Offset: 7 (9%), Referenced to phase 2:NBTL and 6:SBT, Start of Green Natural Cycle: 60 Control Type: Pretimed Maximum v/c Ratio: 0.67 Intersection Signal Delay: 12.7 Intersection Capacity Utilization 77.3% ICU Level of Service D Analysis Period (min) 15 Splits and Phases: 7: Elgin & Catherine	Area Type:	Other											
Offset: 7 (9%), Referenced to phase 2:NBTL and 6:SBT, Start of Green Natural Cycle: 60 Control Type: Pretimed Maximum v/c Ratio: 0.67 Intersection Signal Delay: 12.7 Intersection Capacity Utilization 77.3% ICU Level of Service D Analysis Period (min) 15 Splits and Phases: 7: Elgin & Catherine													
Natural Cycle: 60 Control Type: Pretimed Maximum v/c Ratio: 0.67 Intersection Signal Delay: 12.7 Intersection LOS: B Intersection Capacity Utilization 77.3% ICU Level of Service D Analysis Period (min) 15 Splits and Phases: 7: Elgin & Catherine													
Control Type: Pretimed Maximum v/c Ratio: 0.67 Intersection Signal Delay: 12.7 Intersection LOS: B Intersection Capacity Utilization 77.3% ICU Level of Service D Analysis Period (min) 15 Splits and Phases: 7: Elgin & Catherine		phase 2:NBT	L and 6:SE	BT, Start of	Green								
Maximum v/c Ratio: 0.67 Intersection Signal Delay: 12.7 Intersection LOS: B Intersection Capacity Utilization 77.3% ICU Level of Service D Analysis Period (min) 15 Splits and Phases: 7: Elgin & Catherine													
Intersection Signal Delay: 12.7 Intersection LOS: B Intersection Capacity Utilization 77.3% ICU Level of Service D Analysis Period (min) 15 Splits and Phases: 7: Elgin & Catherine													
Intersection Capacity Utilization 77.3% ICU Level of Service D Analysis Period (min) 15 Splits and Phases: 7: Elgin & Catherine													
Analysis Period (min) 15 Splits and Phases: 7: Elgin & Catherine ### Ø2 (R) ### ### ### ### ### ### #### ########													
Splits and Phases: 7: Elgin & Catherine ### ### ### ### ### ### ### ### ### #		n 77.3%			IC	U Level of	Service D						
1 Ø2 (R) 42 s	Analysis Period (min) 15												
1 Ø2 (R) 42 s	Splits and Phases: 7: Elgin 8	& Catherine											
42 s	4												
1	42 s						72						
	₩ Ø6 (R)						2						

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Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		#	^			
Traffic Volume (vph)	0	167	391	0	0	0
Future Volume (vph)	0	167	391	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.865				
Flt Protected						
Satd. Flow (prot)	0	1543	3424	0	0	0
Flt Permitted						
Satd. Flow (perm)	0	1543	3424	0	0	0
Link Speed (k/h)	50		50			50
Link Distance (m)	76.6		125.1			114.6
Travel Time (s)	5.5		9.0			8.3
Confl. Peds. (#/hr)	19					
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	2%	1%	0%	0%	0%
Adj. Flow (vph)	0	167	391	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	167	391	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	0.0		0.0			0.0
Link Offset(m)	3.7		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)	24	14		14	24	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilizati	on 29.0%			IC	J Level of	Service A
Analysis Period (min) 15						

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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	ተ ቀኁ					7
Traffic Volume (vph)	976	23	0	0	0	14
Future Volume (vph)	976	23	0	0	0	14
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.997					0.865
Flt Protected						
Satd. Flow (prot)	4742	0	0	0	0	1574
FIt Permitted						
Satd. Flow (perm)	4742	0	0	0	0	1574
Link Speed (k/h)	50			50	50	
Link Distance (m)	76.9			40.1	59.5	
Travel Time (s)	5.5			2.9	4.3	
Confl. Bikes (#/hr)		1				1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	0%	0%	0%	0%	0%
Parking (#/hr)	0					
Adj. Flow (vph)	976	23	0	0	0	14
Shared Lane Traffic (%)						
Lane Group Flow (vph)	999	0	0	0	0	14
Enter Blocked Intersection	Yes	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	2.0			2.0	2.0	
Two way Left Turn Lane						
Headway Factor	1.10	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	
Intersection Summary						

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 30.4%
Analysis Period (min) 15

ICU Level of Service A

Synchro 10 Report J.Audia, Novatech

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Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	ሻ	4₽				
Traffic Volume (vph)	391	599	0	0	0	0
Future Volume (vph)	391	599	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00	1.00
Frt						
Flt Protected	0.950	0.995				
Satd. Flow (prot)	1558	3263	0	0	0	0
Flt Permitted	0.950	0.995				
Satd. Flow (perm)	1558	3263	0	0	0	0
Link Speed (k/h)		50	50		50	
Link Distance (m)		40.1	66.8		125.1	
Travel Time (s)		2.9	4.8		9.0	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	1%	0%	0%	0%	0%
Adj. Flow (vph)	391	599	0	0	0	0
Shared Lane Traffic (%)	18%					
Lane Group Flow (vph)	321	669	0	0	0	0
Enter Blocked Intersection	Yes	Yes	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.7	3.7		0.0	
Link Offset(m)		0.0	0.0		-2.0	
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)	24			14	24	14
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilizati	on 29.0%			IC	U Level of	Service A
Analysis Period (min) 15						