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Proposed Mixed-Use Development
530 Brisebois Crescent and Part of 265 Centrum Boulevard
Transportation Impact Assessment

Proposed Mixed-Use Development
530 Brisebois Crescent and Part of 265 Centrum Boulevard

Transportation Impact Assessment

Prepared By:

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

Dated: December 2025
Revised: May 2026

Novatech File: 122170
Ref: R-2025-084

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Engineers, Planners & Landscape Architects

May 12, 2026

City of Ottawa
Planning, Development, and Building Services Department
110 Laurier Avenue West, 4th Floor
Ottawa, ON K1P 1J1

Attention: **Mr. Mike Giampa**
Senior Engineer, Infrastructure Approvals

Dear Mr. Giampa:

Reference: **530 Brisebois Crescent and Part of 265 Centrum Boulevard**
Revised Transportation Impact Assessment
Novatech File No. 122170

We are pleased to submit the following revised Transportation Impact Assessment (TIA), in support of a Zoning By-Law Amendment application at the above addresses, for your review and signoff. The structure and format of this report is in accordance with the City of Ottawa's *Revised Transportation Impact Assessment Guidelines* (June 2023).

The original TIA was submitted in December 2025 and has since been revised to address City comments.

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, P.Eng.
Project Engineer | Transportation

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

Certification Form for Transportation Impact Assessment (TIA) Study Program Manager

TIA Plan Reports

On April 14, 2022, the Province's Bill 109 received Royal Assent providing legislative direction to implement the More Homes for Everyone Act, 2022 aiming to increase the supply of a range of housing options to make housing more affordable. Revisions have been made to the TIA guidelines to comply with Bill 109 and streamline the process for applicants and staff.

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 they meet the four criteria listed below.

Certification

- ☑ 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 (Update Effective July 2023);
- ☑ 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;
- ☑ 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

City of Ottawa
Transportation Engineering Services
Planning, Real Estate and Economic Development
110 Laurier Avenue West, 4th fl.
Ottawa, ON K1P 1J1
Tel. : 613-580-2424
Fax: 613-560-6006

☑ I am either a licensed or registered[1] professional in good standing, whose field of expertise [check ✓ appropriate field(s)]:

☑ is either transportation engineering

☐ or transportation planning.

Dated at Ottawa (City) this 12th day of May, 20 26.

Name: Jennifer Luong, P.Eng.

Professional Title: Senior Project Manager

Jennifer Luong

Signature of Individual certifier that they meet the above four criteria

Office Contact Information (Please Print)	
Address:	240 Michael Cowpland Drive, Suite 200
City / Postal Code:	Ottawa, ON K2M 1P6
Telephone / Extension:	613-254-9643 x 254
E-Mail Address:	j.luong@novatech-eng.com

Stamp

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

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EXECUTIVE SUMMARY

Novatech was retained by Forum Asset Management (Forum), c/o EP Real Estate Development Ltd., to prepare a Transportation Impact Assessment (TIA) in support of a Zoning By-Law Amendment application for the properties located at 530 Brisebois Crescent and Part of 265 Centrum Boulevard, as part of an ongoing P3 partnership between Forum and the City of Ottawa. The two properties are bisected by Brisebois Crescent.

The 265 Centrum Boulevard parcel is located at the northwest corner of Centrum Boulevard and Brisebois Crescent (East), and is approximately 0.36 hectares in area. The 530 Brisebois Crescent parcel is located on the north side of Brisebois Crescent between the two intersections with Centrum Boulevard, and is approximately 0.71 hectares in area. Both parcels are currently vacant.

The subject site is surrounded by the following:

- Ottawa Road 174 to the north,
- Centrum Boulevard, followed by vacant lands or residential buildings to the south,
- Brisebois Crescent, followed by the Cumberland Seniors Park to the east, and
- Community and City services or a Holiday Inn hotel to the west.

The proposed development concept includes the following:

- Building A (30 storeys, 530 Brisebois Crescent): 312 residential dwellings and 30 parking spaces within a single-level garage;
- Building B/C (35 and 40 storeys, 530 Brisebois Crescent): 818 residential dwellings and 68 parking spaces within a single-level garage;
- Community Centre (3 storeys, 265 Centrum Boulevard): 38,933 ft^2 and 34 parking spaces within a single-level garage;
- Building D (30 storeys, 265 Centrum Boulevard): 312 residential dwellings and 2,852 ft^2 gross floor area (GFA) of retail space;
- Building E (6 storeys, 265 Centrum Boulevard): 63 residential dwellings, 4,887 ft^2 GFA of retail space, and 31 parking spaces for Buildings D/E within a single-level garage.

In total, approximately 1,500 purpose-built rental residential dwellings, 6,135 ft^2 of retail space, and a 38,933 ft^2 community centre are conceptually proposed. The subject development will include three new driveways to Brisebois Crescent. The subject development will be constructed in multiple phases, with an expected buildout year of 2035.

The subject development is designated as ‘Town Centre,’ ‘Hub’, and ‘Evolving Neighbourhood’ on Schedule B8 of the City of Ottawa’s *Official Plan*. The implemented zoning for the subject parcels is ‘Mixed-Use Centre – Orléans Town Centre Subzone’ (MC14[1413] or MC14[1520]), and both parcels are located within the boundaries of the *Orléans Corridor Secondary Plan*. Per Schedule A of the *Secondary Plan*, the 265 Centrum Boulevard parcel is ‘Orléans Town Centre’ and the 530 Brisebois Crescent parcel is ‘Station Area – Periphery’ and ‘Station Core.'

A zoning by-law amendment is required to allow more than 100 dwelling units at 530 Brisebois Crescent and more than 200 dwelling units at 265 Centrum Boulevard, as well as allowing building heights greater than 85m above sea level. The amendment is required to bring the zoning into conformance with the designated maximum height of 40 storeys per the *Orléans Corridor Secondary Plan*, and to facilitate the proposed residential and mixed-use development.

The study area for this report includes the boundary streets Centrum Boulevard and Brisebois Crescent, as well as the intersections at Place d'Orléans Drive/Highway 174 EB On-Ramp, Place d'Orléans Drive/Centrum Boulevard, Centrum Boulevard/Brisebois Crescent (West), Centrum Boulevard/Prestone Drive, Centrum Boulevard/ Brisebois Crescent (East), and St. Joseph Boulevard/Prestone Drive.

The selected time periods for this report are the weekday AM and PM peak hours, as they represent the 'worst case' combination of site generated traffic and adjacent street traffic. The ultimate buildout year 2035 and horizon year 2040 have been considered.

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

Site-Generated Traffic

- The proposed development is projected to generate the following number of external peak hour trips:
    - 277 vehicle trips, 256 transit trips, and 76 non-auto trips during the AM peak hour;
    - 286 vehicle trips, 250 transit trips, and 79 non-auto trips during the PM peak hour.

Development Design and Parking

- It is anticipated that the minimum required stopping sight distance (SSD) will be provided at all accesses. The desired intersection sight distance (ISD) can be accommodated at the proposed accesses for Buildings A and B/C, provided that any future landscaping and building envelopes are designed appropriately and future vegetation is maintained. The desired ISD for left turns can be accommodated at the proposed access for Building D/E. The ISD for right turns is based on the future building envelope of the community centre. The community centre is a placeholder and will be subject to design from the City of Ottawa. Details are unknown at this time.

- Based on the concept plan, entrances to Buildings A and B/C, including townhouse entrances on the ground floor, will connect to the existing sidewalk on the north side of Brisebois Crescent. Entrances to Building D/E will connect to the existing sidewalks on the inside of Brisebois Crescent and north side of Centrum Boulevard.

- An open space is proposed between Buildings A and B/C to provide an active transportation connection to the future Orléans Town Centre O-Train Station. A pedestrian crossover (PXO) should be implemented at this location on Brisebois Crescent as part of the future station, aligning with the north-south pedestrian connection through the Bayview development to Centrum Boulevard. The existing tactile walking surface indicators (TWSIs) and curb depressions at the bend of Brisebois Crescent to the east should be removed when the new PXO is implemented.

- The concept plan identifies interior bike parking spaces on the ground floors and/or within the underground parking garages of each proposed building.

- It is anticipated that all proposed entrances will be within 400m walking distance of the future Orléans Town Centre LRT Station and existing bus stops on Centrum Boulevard and Prestone Drive, and within 600m walking distance of existing bus stops on Place d'Orléans Drive.

- The number of conceptual parking spaces in each proposed building meets the minimum requirements outlined in the City's 2008-250 ZBL but does not fully meet the requirements of the city's new 2026-50 ZBL. Consideration of the less restrictive bicycle parking rates is requested. The number of vehicle parking, bicycle parking, loading spaces, and accessible parking spaces will be reviewed as part of future Site Plan Control applications.

Boundary Streets

- Centrum Boulevard meets the target PLOS A but does not meet the target BLOS B. Brisebois Crescent does not meet the target PLOS A and BLOS B.

- To meet the target BLOS B along Centrum Boulevard, bike lanes are required in both directions of the roadway, which will result in a BLOS A. This is identified for the City's consideration.

- To meet the target PLOS A along Brisebois Crescent, an offset from motor vehicle travel lane is required. To meet the target BLOS B, painted bike lanes are required. This is identified for the City's consideration.

Transit

- The proposed development does not include any driveways on a street that serves transit vehicles, and the majority of site transit traffic are anticipated to use O-Train Line 1.

- The addition of site-generated transit traffic that is expected to use a bus is anticipated to have marginal impacts to transit delays.

Network Concept

- There is residual capacity throughout the study area, both in existing and future conditions.

Intersection Multi-Modal Level of Service (MMLOS)

- The results of the intersections MMLOS analysis can be summarized as follows:
    - No study area intersection meets the target PLOS;
    - No study area intersection meets the target BLOS;
    - All the study area intersections meet the target TLOS; and
    - All the study area intersections meet the target Auto LOS.

- At Place d'Orléans Drive/Highway 174 EB On-Ramp, the east leg has a crossing distance of two vehicle travel lanes. There is limited opportunity in improving the PLOS at east leg without eliminating the northbound right turn channel.

- At Place d'Orléans Drive/Centrum Boulevard, the north and south approaches have a crossing distance of five vehicle lanes, and the east and west approaches have a crossing distance of four vehicle lanes. There is limited opportunity in improving the PLOS at each approach without reducing the number of travel lanes and would require protected intersection signalization measures (Leading Pedestrian Interval (LPI), No Right Turn on Red (NRTOR), etc.) to reduce the right-turn and left-turn conflicts. There is limited opportunity in improving the delay score for pedestrians without incurring major delays for vehicles.

- At St. Joseph Boulevard/Prestone Drive, the north and south approaches have a crossing distance of five vehicle lanes, and the east and west approaches have a crossing distance of seven vehicle lanes. There is limited opportunity in improving the PLOS at each approach without reducing the number of travel lanes and would require protected intersection signalization measures (Leading Pedestrian Interval (LPI), No Right Turn on Red (NRTOR), etc.) to reduce the right-turn and left-turn conflicts.

- At all the signalized study area intersections except for the Place d'Orléans Drive/Highway 174 EB On-Ramp, none of the approaches meet the target BLOS based on the right turn and left turn characteristics. A protected intersection design (protected corners/crossrides) would be required for all approaches to meet the target BLOS. This is identified for the City's consideration.

Existing, Background, and Total Traffic Operations

- In all existing, background, and total traffic conditions, all study area intersections are projected to operate at an acceptable level of service. There are no queue lengths that extend into upstream intersections or exceed auxiliary lane storage lengths.

- All proposed accesses are projected to operate at an acceptable level of service.

- Signalization warrants have been reviewed at Centrum Boulevard/Brisebois Crescent (West), Centrum Boulevard/Brisebois Crescent (East), and Centrum Boulevard/Prestone Drive intersections for 2040 total traffic conditions. None of the intersections satisfy the warrants.

The proposed development is recommended from a transportation perspective.

1.0 SCREENING

1.1 Introduction

Novatech was retained by Forum Asset Management (Forum), c/o EP Real Estate Development Ltd., to prepare a Transportation Impact Assessment (TIA) in support of a Zoning By-Law Amendment application for the properties located at 530 Brisebois Crescent and Part of 265 Centrum Boulevard, as part of an ongoing P3 partnership between Forum and the City of Ottawa. The two properties are bisected by Brisebois Crescent.

The 265 Centrum Boulevard parcel is located at the northwest corner of Centrum Boulevard and Brisebois Crescent (East), and is approximately 0.36 hectares in area. The 530 Brisebois Crescent parcel is located on the north side of Brisebois Crescent between the two intersections with Centrum Boulevard, and is approximately 0.71 hectares in area. Both parcels are currently vacant.

The subject site is surrounded by the following:

- Ottawa Road 174 to the north,
- Centrum Boulevard, followed by vacant lands or residential buildings to the south,
- Brisebois Crescent, followed by the Cumberland Seniors Park to the east, and
- Community and City services or a Holiday Inn hotel to the west.

An aerial of the vicinity around the subject site is provided in **Figure 1**.

Figure 1: View of the Subject Site

1.2 Proposed Development

The proposed development concept includes the following:

- Building A (30 storeys, 530 Brisebois Crescent): 312 residential dwellings and 30 parking spaces within a single-level garage;
- Building B/C (35 and 40 storeys, 530 Brisebois Crescent): 818 residential dwellings and 68 parking spaces within a single-level garage;
- Community Centre (3 storeys, 265 Centrum Boulevard): 38,933 ft^2 and 34 parking spaces within a single-level garage;
- Building D (30 storeys, 265 Centrum Boulevard): 312 residential dwellings and 2,852 ft^2 gross floor area (GFA) of retail space;
- Building E (6 storeys, 265 Centrum Boulevard): 63 residential dwellings, 4,887 ft^2 GFA of retail space, and 31 parking spaces for Buildings D/E within a single-level garage.

In total, approximately 1,500 purpose-built rental residential dwellings, 6,135 ft^2 of retail space, and a 38,933 ft^2 community centre are conceptually proposed. The subject development will include three new driveways to Brisebois Crescent. The subject development will be constructed in multiple phases, with an expected buildout year of 2035.

The subject development is designated as 'Town Centre,' 'Hub', and 'Evolving Neighbourhood' on Schedule B8 of the City of Ottawa's *Official Plan*. The implemented zoning for the subject parcels is 'Mixed-Use Centre – Orléans Town Centre Subzone' (MC14[1413] or MC14[1520]), and both parcels are located within the boundaries of the *Orléans Corridor Secondary Plan*. Per Schedule A of the *Secondary Plan*, the 265 Centrum Boulevard parcel is 'Orléans Town Centre' and the 530 Brisebois Crescent parcel is 'Station Area – Periphery' and 'Station Core.'

A zoning by-law amendment is required to allow more than 100 dwelling units at 530 Brisebois Crescent and more than 200 dwelling units at 265 Centrum Boulevard, as well as allowing building heights greater than 85m above sea level. The amendment is required to bring the zoning into conformance with the designated maximum height of 40 storeys per the *Orléans Corridor Secondary Plan,* and to facilitate the proposed residential and mixed-use development. A copy of the concept plan is included in **Appendix A**.

1.3 Screening Form

The City's *Revised 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, which is included in **Appendix B**. The trigger results are as follows:

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

- Location Triggers – The development is located within a Hub, Protected Major Transit Station Area (PMTSA), and Design Priority Area (DPA); further assessment is **required** based on this trigger.

- Safety Triggers – The existing curvature of Brisebois Crescent results in limited sight lines; further assessment is **required** based on this trigger.

2.0 SCOPING

2.1 Existing Conditions

2.1.1 Roadways

All roadways within the study area fall under the jurisdiction of the City of Ottawa. The roadway network of the greater area surrounding the subject site is illustrated in **Figure 2**.

Ottawa Road 174 is a City freeway that generally runs on an east-west alignment between Highway 417 and east of Trim Road, where it continues as an arterial roadway to the City boundary. Within the study area, Ottawa Road 174 has a posted speed limit of 80 km/h and a four-lane divided rural cross-section.

Place d'Orléans Drive is an arterial roadway that runs on a curvilinear alignment between two intersections with St. Joseph Boulevard that are approximately 500m apart. At the eastern intersection with St. Joseph Boulevard, Place d'Orléans Drive continues south as Duford Drive. Within the study area, Place d'Orléans Drive has a posted speed limit of 60 km/h and generally has a four-lane undivided urban cross-section with sidewalks on both sides. Place d'Orléans Drive is classified as a truck route, allowing full loads. Street parking is not permitted.

St. Joseph Boulevard is an arterial roadway that generally runs on an east-west alignment between Ottawa Road 174 and Trim Road. West of Ottawa Road 174, the roadway continues as Montreal Road. East of Trim Road, the roadway continues as Old Montreal Road. Within the study area, St. Joseph Boulevard has a posted speed limit of 60 km/h east of Prestone Drive and 50 km/h west of Prestone Drive, and generally has a four-lane divided urban cross-section with sidewalks on both sides. St. Joseph Boulevard is classified as a truck route, allowing full loads. Street parking is not permitted.

Prestone Drive is a roadway that runs on a curvilinear alignment between Centrum Boulevard and Amiens Street. The sections of Prestone Drive from Centrum Boulevard to St. Joseph Boulevard and Tompkins Avenue to Amiens Street are designated as a collector roadway, and the section from St. Joseph Boulevard to Tompkins Avenue is designated as a major collector roadway. Within the study area, Prestone Drive has a posted speed limit of 40 km/h and sidewalks are provided on both sides. North of St. Joseph Boulevard, Prestone Drive has a four-lane divided urban cross-section. South of St. Joseph Boulevard, Prestone Drive generally has a two-lane undivided urban cross-section. Prestone Drive is not classified as a truck route. Street parking is not permitted.

Centrum Boulevard is a collector roadway that runs on an east-west alignment, starting at Place d'Orléans Drive and terminating approximately 670m to the east. Within the study area, Centrum Boulevard has a posted speed limit of 40 km/h, and generally has a two-lane undivided urban cross-section with sidewalks on both sides. Centrum Boulevard is not classified as a truck route. Street parking is designated in painted angle parking spaces on select areas of Centrum Boulevard. Along the subject site's frontage, Centrum Boulevard has a right-of-way (ROW) width of approximately 26m. No widening is required, per Schedule C16 of the City's *Official Plan*.

Brisebois Crescent is a local roadway that runs on a curvilinear alignment between two intersections with Centrum Boulevard that are approximately 375m apart. Within the study area, Brisebois Crescent has an unposted regulatory speed limit of 50 km/h, and generally has a two-lane undivided urban cross-section with a sidewalk on one side. Brisebois Crescent is not classified as a truck route. Street parking is designated in painted perpendicular parking spaces on the south side of Brisebois Crescent. Along the subject site's frontage, Brisebois Crescent has ROW widths of approximately 11m (north-south section) and 18m (east-west section). No widening is required, per Schedule C16 of the City's *Official Plan*.

Figure 2: Roadway Network

2.1.2 Intersections

Place d'Orléans Drive/Ottawa Road 174 EB Ramp

- Signalized three-legged intersection
- Stop control for northbound left turn and eastbound through movements
- South Approach (Place d'Orléans Drive):
  two left turn lanes and one channelized right turn lane
- East Approach (Ottawa Road 174 EB Ramp):
  two receiving lanes for eastbound vehicles, merging into one east of intersection
- West Approach (Place d'Orléans Drive):
  one through lane and two free-flow right turn lanes
- Standard crosswalks on east approach

Place d'Orléans Drive/Centrum Boulevard

- Signalized four-legged intersection
- North Approach (Place d'Orléans Drive):
  one shared left turn/through lane and one shared through/right turn lane
- South Approach (Place d'Orléans Drive):
  one shared left turn/through lane and one shared through/right turn lane
- East Approach (Centrum Boulevard):
  one left turn lane, one through lane, and one right turn channel
- West Approach (Place d'Orléans Shopping Centre):
  one left turn lane, one through lane, and one channelized right turn lane
- Standard crosswalks on east/west approaches
- Zebra-striped crosswalks on north/south approaches

Centrum Boulevard/Brisebois Crescent (West)

- Unsignalized four-legged intersection
- Stop-controlled on north and south approaches
- North Approach (Brisebois Crescent):
  one shared left turn/through/right turn lane
- South Approach (access to 210-240 Centrum):
  one shared left turn/through/right turn lane
- East Approach (Centrum Boulevard):
  one shared left turn/through/right turn lane
- West Approach (Centrum Boulevard):
  one shared left turn/through/right turn lane
- Standard crosswalks on north approach

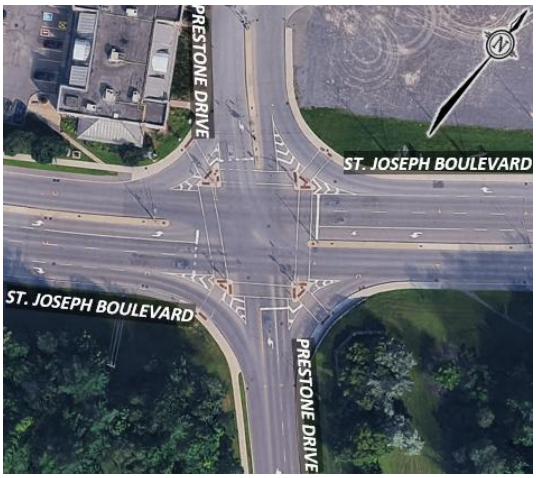
Centrum Boulevard/Prestone Drive

- Unsignalized three-legged intersection
- All-way stop-controlled
- South Approach (Prestone Drive): one left turn lane and one right turn lane
- East Approach (Centrum Boulevard): one shared left turn/through lane
- West Approach (Centrum Boulevard): one shared through/right turn lane
- Standard crosswalks on all approaches

Centrum Boulevard/Brisebois Crescent (East)

- Unsignalized three-legged intersection
- Stop-controlled on north approach
- North Approach (Brisebois Crescent): one shared left turn/right turn lane
- East Approach (Centrum Boulevard): one shared through/right turn lane
- West Approach (Centrum Boulevard): one shared left turn/through lane
- Corner triangle ROW protection of 3m x 9m per Schedule C16 of the city's *OP* for a local/collector intersection has been provided and is shown on the proposed concept plan.

St. Joseph Boulevard/Prestone Drive



- Signalized four-legged intersection
- North Approach (Prestone Drive): one left turn lane, one through lane, and one right turn channel
- South Approach (Prestone Drive): one left turn lane, one through lane, and one right turn channel
- East Approach (St. Joseph Boulevard): one left turn lane, two through lanes, and one channelized right turn lane
- West Approach (St. Joseph Boulevard): one left turn lane, two through lanes, and one channelized right turn lane
- Standard crosswalks on all approaches

2.1.3 Driveways

In accordance with the *TIA Guidelines*, a review of the existing adjacent driveways along the boundary roads are provided as follows:

Brisebois Crescent, north side

- Three driveways serving the hotel at 500 Brisebois Crescent.

Brisebois Crescent, south side

- Four driveways serving the Shenkman Arts Centre (245 Centrum Boulevard) or Peter D. Clark Place (255 Centrum Boulevard);
- Two driveways serving the Ruddy Family YMCA (265 Centrum Boulevard).

Centrum Boulevard, north side

- Three driveways serving residential uses at 325 and 345 Centrum Boulevard.

Centrum Boulevard, south side

- One driveway serving a vacant lot at 290 Centrum Boulevard;
- Five driveways serving residential uses at 310, 320, and 330 Centrum Boulevard.

2.1.4 Pedestrian and Cycling Facilities

Within the study area, sidewalks are provided on both sides of Place d'Orléans Drive, Centrum Boulevard, Prestone Drive, and St. Joseph Boulevard. On Brisebois Crescent, a sidewalk is provided on the inside of the two north-south sections, and on the north side of the east-west section. A Type D Pedestrian Crossover (PXO) is provided on Centrum Boulevard east of the intersection with Brisebois Crescent (West).

Within the study area, St. Joseph Boulevard is identified in the Crosstown Bikeway Network. There are no cycling facilities on any study area roadways.

The pedestrian and cycling network of the greater area surrounding the subject site is illustrated in **Figure 3**.

2.1.5 Area Traffic Management

Within the study area, there are no Neighbourhood Traffic Calming studies that are in progress. Bulbouts along Centrum Boulevard are provided to delineate angle parking areas on both sides of the roadway.

2.1.6 Transit

The locations of OC Transpo bus stops relevant to the subject site are described in **Table 1**, and are shown in **Figure 4**. A summary of the various routes which serve the study area is included in **Table 2**. Detailed route information and an excerpt from the OC Transpo System Map are included in **Appendix C**.

Figure 3: Pedestrian and Cycling Network

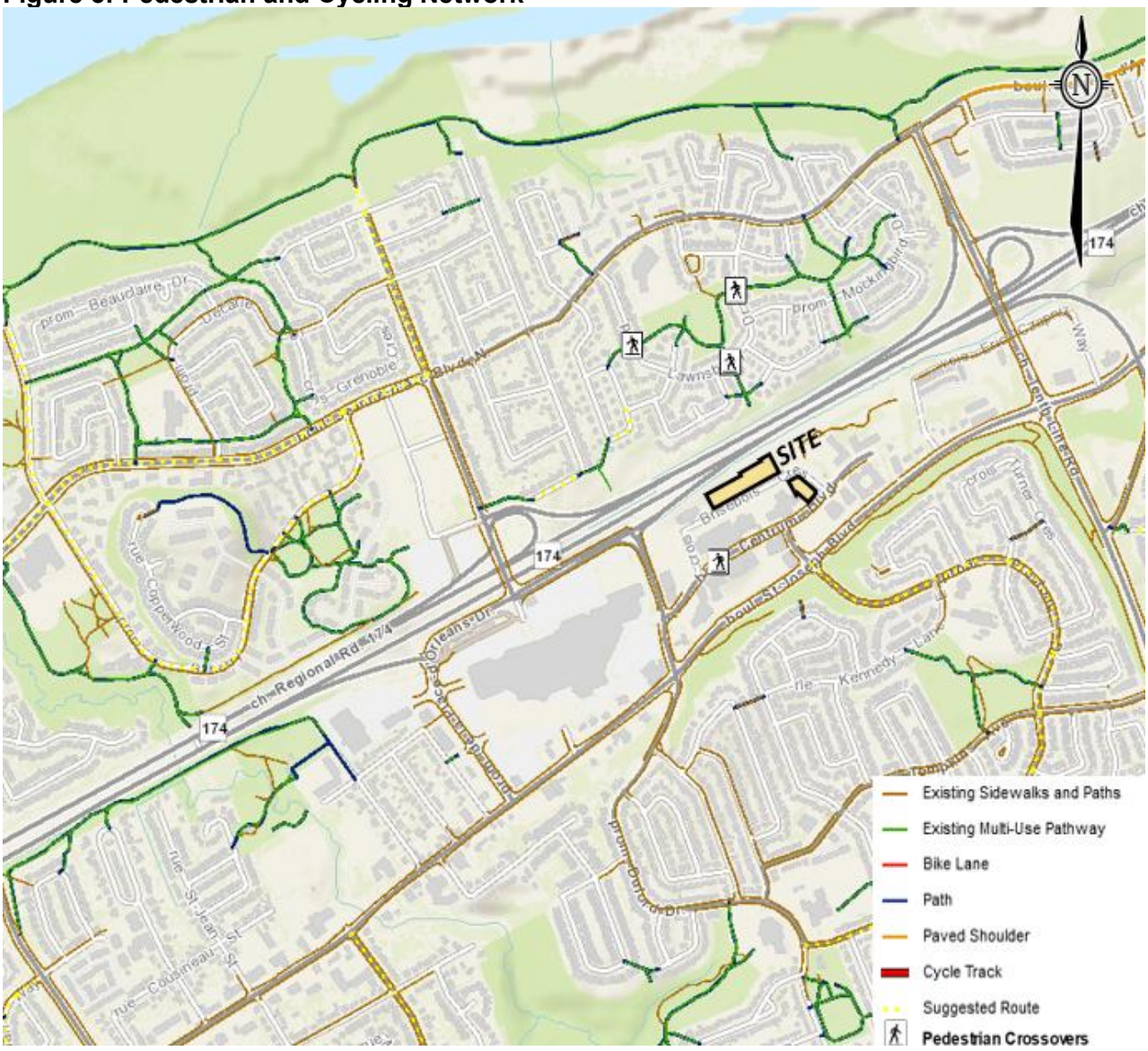


Table 1: OC Transpo Transit Stops

Stop	Location	Routes Serviced
#2627	South side of Centrum Boulevard, west of Prestone Drive	35, 36, 302
#5637	East side of Place d'Orléans Drive, south of Centrum Boulevard	33, 234
#5924	North side of Centrum Boulevard, west of Prestone Drive	35, 36, 302
#5925	North side of Centrum Boulevard, west of Brisebois Crescent	35, 36, 302
#5926	East side of Prestone Drive, north of St. Joseph Boulevard	36, 302
#7844	North side of St. Joseph Boulevard, east of Prestone Drive	36, 302
#7845	West side of Prestone Drive, south of Centrum Boulevard	35, 36, 302
#8108	South side of St. Joseph Boulevard, east of Prestone Drive	36, 302
#8532	West side of Place d'Orléans Drive, south of Place d'Orléans Mall	33, 234
#8893	South side of Centrum Boulevard, west of Brisebois Crescent	35, 36, 302
#2626	North side of St. Joseph Boulevard, east of Place d'Orléans Drive	Not Serviced
#5649	North side of St. Joseph Boulevard, west of Prestone Drive	Not Serviced

Figure 4: OC Transpo Bus Stop Locations

Note: Stops #2626 and #5649 are not currently serviced.

Table 2: OC Transpo Route Information

Route	From ↔ To	Frequency
33	Portobello ↔ Blair	All day service, seven days a week; 15- to 30-min headways
35	Avalon ↔ Blair	All day service, seven days a week; 30- to 60-min headways
36	Innes ↔ Place d'Orléans	All day service, seven days a week; 30- to 60-min headways
234	Blair ↔ Tenth Line	Peak period service, weekdays; 30-min headways
302	St-Laurent / Place d'Orléans ↔ Cumberland	Village shopping route, Tuesdays only during select times

2.1.7 Existing Traffic Volumes

Weekday traffic counts completed by the City of Ottawa or coordinated by Novatech or CGH Transportation have been used to determine the existing pedestrian, cyclist, and vehicular traffic volumes. These counts were completed on the dates listed below:

- Place d'Orléans/Ottawa Road 174 EB Ramp — April 14, 2026 (Nova)
- Place d'Orléans Drive/Centrum Boulevard — June 18, 2024 (City)
- Centrum Boulevard/Brisebois Crescent (West) — March 12, 2020 (CGH)
- Centrum Boulevard/Prestone Drive — February 14, 2023 (CGH)
- Centrum Boulevard/Brisebois Crescent (East) — February 8, 2023 (CGH)
- St. Joseph Boulevard/Prestone Drive — October 29, 2024 (City)
- St. Joseph Boulevard/ Place d'Orléans/Duford Drive — October 29, 2024 (City)

Excluding the traffic count at Place d'Orléans Drive/Centrum Boulevard, it is noted that active transportation volumes observed may be lower than typical conditions, as the other counts were conducted outside of the warmest months.

Based on the traffic count data, the average annual daily traffic (AADT) of Centrum Boulevard is approximated as follows:

- Centrum Boulevard: 3,580 vehicles per day (at Brisebois Crescent West); 1,020 vehicles per day (at Brisebois Crescent East);
- Brisebois Crescent West: 500 vehicles per day;
- Brisebois Crescent East: 120 vehicles per day.

All traffic count data previously discussed are included in **Appendix D**. Traffic volumes are shown in **Figure 5**.

Based on Google Earth Street Imagery dated June 2021, the intersection at Place d'Orléans/Ottawa Road 174 EB Ramp was signalized and based on imagery dated September 2025, it was replaced by stop control. It was observed by Novatech that the city crew reinstalled the traffic signal on the day of the traffic count (April 14, 2026) and the installation occurred between 8:30 AM and 2:45 PM.

2.1.8 Collision Records

Historical collision data from the last five full years available was obtained from the City's Public Works and Service Department for the study area intersections and midblock segments. 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, which are defined in the *Revised TIA Guidelines* as 'more than six collisions in five years' for any one movement. The number of collisions at each intersection from 2019 to 2022 and 2024 is summarized in **Table 3**.

Figure 5: Existing Traffic Volumes

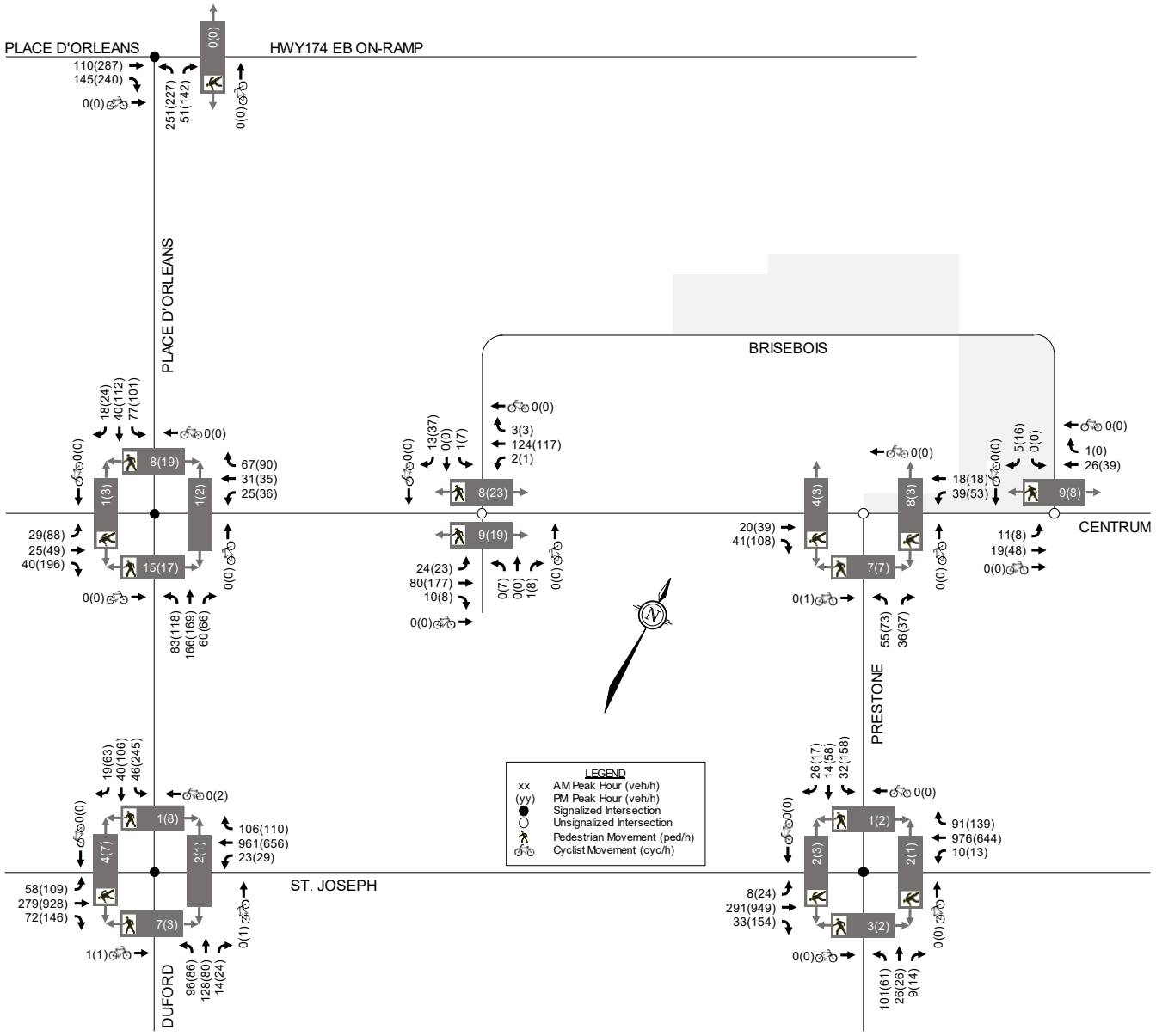


Table 3: Reported Collisions

Location	Impact Types						Total
	Approach	Angle	Rear End	Sideswipe	Turning Movement	SMV[1]/ Other	
Place d'Orléans Dr/ Ottawa Rd 174 EB Ramp	-	-	2	-	1	3	**6**
Place d'Orléans Dr/ Centrum Blvd	-	3	1	-	-	-	**4**
Centrum Blvd/ Brisebois Cres W	-	-	-	-	-	-	**0**
Centrum Blvd/ Prestone Dr	-	-	1	-	-	-	**1**
Centrum Blvd/ Brisebois Cres E	-	-	-	-	-	-	**0**
St. Joseph Blvd/ Prestone Dr	-	6	1	-	-	4	**11**
Centrum Blvd btwn Place d'Orléans Dr & Brisebois Cres W	1	-	-	-	-	-	**1**
Centrum Blvd btwn Brisebois Cres W & Prestone Dr	-	2	-	-	-	-	**2**
Centrum Blvd btwn Prestone Dr & Brisebois Cres E	-	-	-	-	-	-	**0**
Centrum Blvd btwn Brisebois Cres E & end of road	-	-	-	-	-	-	**0**
Prestone Dr btwn Centrum Blvd & St. Joseph Blvd	-	-	1	-	-	-	**1**
Brisebois Cres btwn Centrum Blvd & Centrum Blvd	-	-	-	-	-	-	**0**

1. SMV = Single Motor Vehicle

Place d'Orléans Drive/Ottawa Road 174 EB Ramp

A total of six collisions were reported at this intersection, consisting of two rear-end impacts, one turning movement impact, and three single vehicle/other impacts. Three of the six collisions (50%) occurred in poor driving conditions. No collisions involved pedestrians or cyclists.

Place d'Orléans Drive/Centrum Boulevard

A total of four collisions were reported at this intersection, consisting of three angle impacts and one rear-end impact. No collisions resulted in injuries or fatalities. One of the four collisions (25%) occurred in poor driving conditions. No collisions involved pedestrians or cyclists.

Centrum Boulevard/Prestone Drive

One collision was reported at this intersection, which was a rear-end impact that did not result in injuries or fatalities. This collision occurred in poor driving conditions, and did not involve pedestrians or cyclists.

St. Joseph Boulevard/Prestone Drive

A total of 11 collisions were reported at this intersection, consisting of six angle impacts, one rear-end impact, and four single vehicle/other impacts. Two collisions resulted in injuries, and no collisions resulted in fatalities. Six of the 11 collisions (54%) occurred in poor driving conditions. One collision involved a pedestrian, and no collisions involved cyclists.

Centrum Boulevard between Place d'Orléans Drive & Brisebois Crescent (West)
One collision was reported along this segment, which was an approaching impact that did not result in injuries or fatalities. This collision occurred in fair driving conditions, and did not involve pedestrians or cyclists.

Centrum Boulevard between Brisebois Crescent (West) & Prestone Drive
Two collisions were reported along this segment, which were both angle impacts that did not result in injuries or fatalities. Both collisions occurred in poor driving conditions, and neither involved pedestrians or cyclists.

Prestone Drive between Centrum Boulevard & St. Joseph Boulevard
One collision was reported along this segment, which was a rear-end impact that did not result in injuries or fatalities. This collision occurred in poor driving conditions, and did not involve pedestrians or cyclists.

2.2 Planned Conditions

2.2.1 Planned Transportation Projects

Transit Projects
Within the study area, the City's *2025 Transportation Master Plan (TMP)* identifies the O-Train Line 1 extension from Blair Station to Trim Station as 'existing rapid transit,' as construction is ongoing at the time of this report. Revenue service is planned for 2026. Of the stations being constructed, the closest is Place d'Orléans Station, which is located north of Place d'Orléans Shopping Centre and immediately west of Champlain Street. Pedestrian bridges will connect transit riders to the Park and Ride north of Highway 174 and the shopping centre south of Highway 417 and Place d'Orléans Drive.

A future O-Train station is identified adjacent to the subject development in the Needs-Based Transit Network, and is referred to as 'Orléans Town Centre Station.' To our knowledge, there are no design plans available for this station. The Needs-Based and Priority Transit Networks also identify Tenth Line Road (east of the study area) as a transit priority corridor from Ottawa Road 174 to Charlemagne Boulevard.

Roadway Projects
The *2025 TMP* does not identify roadway projects in its Needs-Based or Priority Networks in the study area. West of the study area, the *2025 TMP* identifies a Phase 1 Mainstreet Improvement project on St. Joseph Boulevard (from Jeanne d'Arc Boulevard to Belcourt Boulevard).

Active Transportation Projects
Within the study area, the City's *2025 TMP* identifies a Phase 1 prioritization cycling project on St. Joseph Boulevard (from Forest Valley Drive to Tenth Line Road). The City's *Orléans Corridor Secondary Plan* (passed by City Council in September 2022) outlines improvements to the St. Joseph Boulevard corridor. Between the western intersection with Place d'Orléans Drive and Prestone Drive, the existing divided cross-section of St. Joseph Boulevard will be reduced to an interim condition with two through lanes, a two-way left-turn lane (TWLTL), buffered on-road bike lanes, and 2.0m-wide sidewalks on both sides of the roadway. In the ultimate condition, St. Joseph Boulevard will include one through lane in each direction and a TWLTL, 4.0m- to 5.0m-wide inner boulevards, 2.0m-wide cycle tracks, 2.5m- to 3.0m-wide outer boulevards, and 3.0m-wide sidewalks on both sides of the roadway.

Between Prestone Drive and Tenth Line Road, the existing cross-section of St. Joseph Boulevard will be reduced to an interim condition with one 3.75m-wide vehicle lane, a 1.85m-wide buffer zone, raised shoulders, and a 2.0m-bike lane in each direction, with the approximately 5.0m-wide median being maintained. In the ultimate condition, the median will be removed, and St. Joseph Boulevard will include one 4.0m-wide vehicle lane in each direction, with 4.0m-wide boulevards, 2.0m-wide cycle tracks, and 2.0m-wide sidewalks on both sides of the roadway. Cross-section renderings of the existing, interim, and ultimate conditions prepared by Parsons in July 2022 are included in **Appendix F**.

2.2.2 Other Area Developments

Based on a review of the City's Development Application Search Tool, there are multiple other developments that were significant enough to include traffic projections, and are in proximity of the subject site that are under construction, approved, or are in the approval process. These developments are summarized as follows.

211 Centrum Boulevard
A TIA was prepared by CGH Transportation in April 2021, in support of a retirement home with 397 units and accesses to Brisebois Crescent. The TIA identifies an estimated buildout year of 2024, but development has not occurred at the time of this report.

265 Centrum Boulevard (Bayview)
This site is adjacent to the subject 265 Centrum Boulevard parcel, and is referred to as the 'Bayview Development' throughout this report. A TIA was prepared by CGH Transportation in February 2024, in support of a mixed-use development with 1,127 residential dwellings, 8,967 ft^2 of retail space, 31,570 ft^2 of office space, and accesses to Brisebois Crescent. The TIA identifies a buildout year of 2028 for this development.

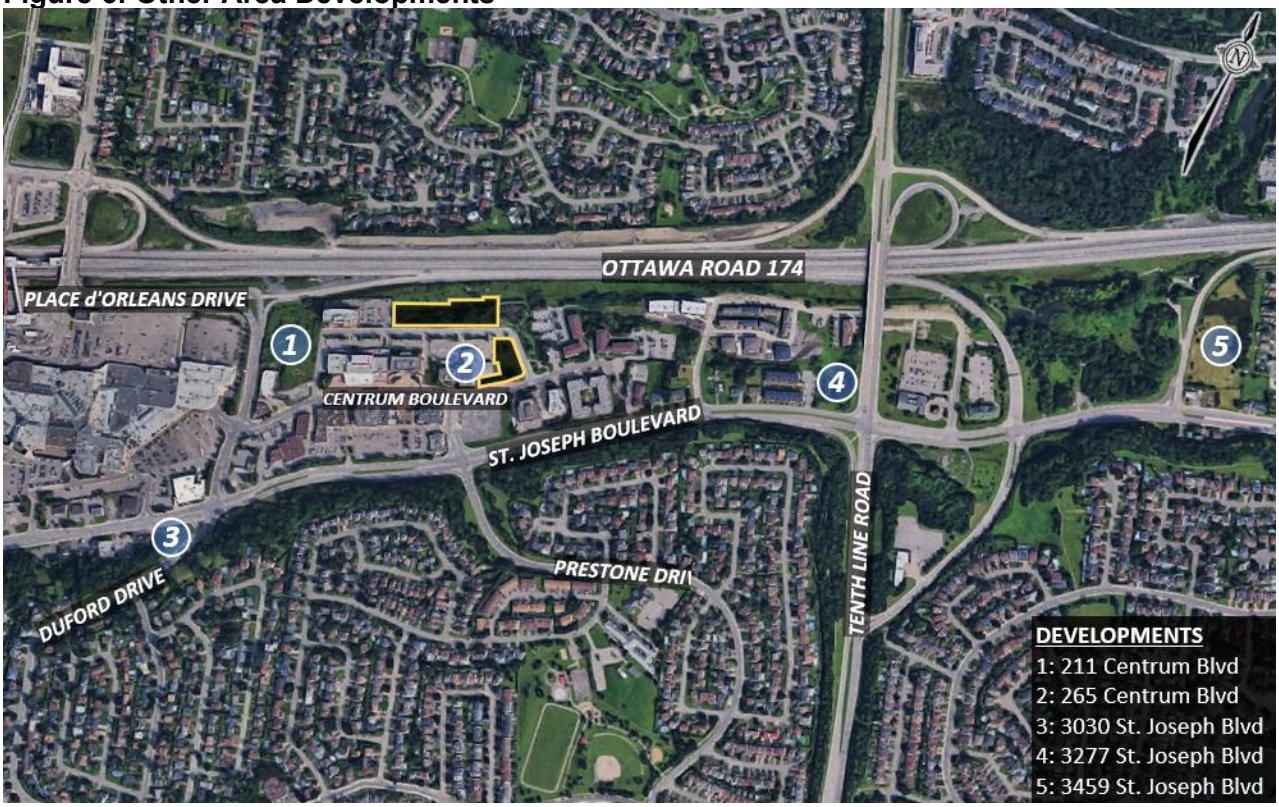
3030 St. Joseph Boulevard
A TIA was prepared by CGH Transportation in March 2024, in support of a mixed-use development with 206 residential dwellings, 2,050 ft^2 of retail space, and access to St. Joseph Boulevard. The TIA identifies an estimated buildout year of 2025, but development has not occurred at the time of this report.

3277 St. Joseph Boulevard
A TIA was prepared by Novatech in January 2023, in support of a residential development with 273 dwellings and access to St. Joseph Boulevard and Lionel-Rheo Private. The TIA identifies an estimated buildout year of 2024, but development has not occurred at the time of this report.

3459-3479 St. Joseph Boulevard
A TIA was prepared by Novatech in December 2024, in support of a residential development with 326 dwellings and access to St. Joseph Boulevard and the eastbound Ottawa Road 174 on-ramp. The TIA identifies an estimated buildout year of 2025, but development has not occurred at the time of this report.

A map indicating the approximate location of each development is included in **Figure 6**.

Figure 6: Other Area Developments



2.3 Study Area and Time Periods

The study area for this report includes the boundary streets Centrum Boulevard and Brisebois Crescent, as well as the intersections at Place d'Orléans Drive/Highway 174 EB On-Ramp, Place d'Orléans Drive/Centrum Boulevard, Centrum Boulevard/Brisebois Crescent (West), Centrum Boulevard/Prestone Drive, Centrum Boulevard/ Brisebois Crescent (East), and St. Joseph Boulevard/Prestone Drive.

The intersections at St. Joseph Boulevard/Place d'Orléans Drive/Duford Drive and Prestone Drive/ River Ridge Crescent/Kennedy Lane have not been included, as site-generated traffic volumes (estimated in Section 2.5) are projected to generate less than 4% of total volumes at the St. Joseph Boulevard/ Place d'Orléans Drive/Duford Drive intersection and approximately 5% of the two-way traffic on Prestone Drive south of St. Joseph Boulevard.

The selected time periods for this report are the weekday AM and PM peak hours, as they represent the 'worst case' combination of site generated traffic and adjacent street traffic. The ultimate buildout year 2035 and horizon year 2040 have been considered.

2.4 Access Design

The proposed development includes three new full-movement accesses to Brisebois Crescent. Two new accesses to the 530 Brisebois Crescent parcel are proposed along the east-west section of Brisebois Crescent, and one new access to the 265 Centrum Boulevard parcel is proposed along the eastern north-south section of Brisebois Crescent. Based on the City's new *Access By-Law*, a minimum of 45m of frontage is required to permit two private approaches to that frontage. This requirement is met, as both subject parcels have more than 45m of frontage to Brisebois Crescent. The design of each proposed access (including parameters such as width, grade, etc.) will be evaluated as part of future Site Plan Control applications. The location of each proposed access from a sightlines perspective has been evaluated in this TIA.

A review of stopping sight distance (SSD) and intersection sight distance (ISD) requirements at the proposed access locations has been conducted, in accordance with the minimum requirements outlined in the Transportation Association of Canada (TAC)'s *Geometric Design Guide for Canadian Roads*. The centreline radius of Brisebois Crescent's eastern curve is approximately 16m. This centreline radius is consistent for roadways with a design speed less than 30 km/h. In the interest of maintaining a conservative review, a design speed of 30 km/h on Brisebois Crescent has been considered in selecting the SSD and ISD requirements, which are:

- SSD: 35m required;
- ISD, looking right to turn left out of access: 65m desired;
- ISD, looking left to turn right out of access: 55m desired.

It is anticipated that the minimum required SSD will be provided at all accesses. The desired ISD can be accommodated at the proposed accesses for Buildings A and B/C, provided that any future landscaping and building envelopes are designed appropriately and future vegetation is maintained. The desired ISD for left turns can be accommodated at the proposed access for Building D/E. The ISD for right turns is based on the future building envelope of the community centre. The community centre is a placeholder and will be subject to design from the City of Ottawa. Details are unknown at this time. Sight distances will be reviewed at the Site Plan Control application stage, once detailed building designs are known.

2.5 Development-Generated Travel Demand

2.5.1 Trip Generation

Proposed Residential Trip Generation

The number of peak hour person trips generated by the proposed development has been estimated using the *TRANS Trip Generation Manual*, which present peak period trip generation rates and mode shares for different types of housing for the AM and PM peak periods. The data is divided into trip generation rates and mode shares for Single-Family Detached Housing, Low-Rise Multifamily Housing (one or two storeys), and High-Rise Multifamily Housing (three or more storeys). For the High-Rise Multifamily Housing land use, the process of converting the trip generation estimates from peak period to peak hour is shown below.

The *TRANS Trip Generation Manual* identifies the subject site as being located within the Orléans district, which has the following observed mode shares for high-rise multifamily housing during the peak periods.

- Auto Driver: 54% in AM peak, 61% in PM peak;
- Auto Passenger: 7% in AM peak, 13% in PM peak;
- Transit: 29% in AM peak, 21% in PM peak;
- Cyclist: 0% in AM peak, 0% in PM peak;
- Pedestrian: 10% in AM peak, 6% in PM peak.

The mode shares for the proposed residential component are assumed to generally follow the high-rise residential mode shares observed in the Orléans district, with a 15% increase in the transit share to reflect the proximity to the future Orléans Town Centre Station. This approach is consistent with the TIA prepared in support of the Bayview development at 265 Centrum Boulevard (i.e. immediately west of the proposed Buildings D and E). The assumed residential mode shares can be summarized as: 40% driver, 10% passenger, 40% transit, 0% cyclist, and 10% pedestrian. If Orléans Town Centre Station were not constructed, a 55% driver share and 25% transit share would be anticipated.

The process of converting the trip generation estimates from peak period to peak hour is shown in the following tables. The estimated number of person trips generated by the proposed development during the AM and PM peak periods are shown in **Table 4**. A breakdown of these trips by mode share is shown in **Table 5**.

Table 4: Proposed Residential – Peak Period Trip Generation

Land Use	TRANS Rate	Units	AM Peak Period (ppp[1])			PM Peak Period (ppp)		
			IN	OUT	TOT	IN	OUT	TOT
High-Rise Multifamily Housing	AM: 0.80 PM: 0.90	1,505 units	373	831	*1,204*	786	569	*1,355*

1. ppp: Person Trips per Peak Period

Table 5: Proposed Residential – Peak Period Trips by Mode Share

Travel Mode	Mode Share	AM Peak Period			PM Peak Period		
		IN	OUT	TOT	IN	OUT	TOT
Residential Trips		**373**	**831**	***1,204***	**786**	**569**	***1,355***
Auto Driver	40%	150	332	*482*	314	228	*542*
Auto Passenger	10%	37	83	*120*	79	57	*136*
Transit	40%	150	332	*482*	314	228	*542*
Cyclist	0%	-	-	*0*	-	-	*0*
Pedestrian	10%	36	84	*120*	79	56	*135*

A cyclist share of 0% has been considered based on the current pattern and infrastructure. Planned active transportation projects are noted in Section 2.2.1. It is acknowledged that a higher cycling share may be achieved. Anticipated on-site provisions for sustainable modes are described in Section 4.1.1 and will be reviewed as part of future Site Plan Control applications.

Table 4 of the *TRANS Trip Generation Manual* includes adjustment factors to convert the estimated number of trips generated for each mode from peak period to peak hour. A breakdown of the peak hour trips by mode is shown in **Table 6**.

Table 6: Proposed Residential – Peak Hour Trips by Mode Share

Travel Mode	Adj. Factor		AM Peak Hour			PM Peak Hour		
	AM	PM	IN	OUT	TOT	IN	OUT	TOT
Auto Driver	0.48	0.44	72	160	*232*	138	100	*238*
Auto Passenger	0.48	0.44	18	40	*58*	35	25	*60*
Transit	0.55	0.47	82	183	*265*	148	107	*255*
Cyclist	0.58	0.48	-	-	*0*	-	-	*0*
Pedestrian	0.58	0.52	22	48	*70*	41	30	*71*
Peak Hour Person Trips			**194**	**431**	***625***	**362**	**262**	***624***

From the previous table, the proposed residential component is estimated to generate 625 person trips (including 232 vehicle trips) during the AM peak hour, and 624 person trips (including 238 vehicle trips) during the PM peak hour. If the Orléans Town Centre is not constructed and a 55% driver share were achieved, this would result in an additional 180 to 200 residential vehicle trips during the peak hours.

Proposed Retail and Community Centre Trip Generation

The number of person trips generated by the proposed ground-floor retail spaces and community centre has been estimated using the trip generation rates in the *ITE Trip Generation Manual, 11th Edition*. Retail trips have been estimated using the Shopping Centre (code 820) land use rates, and community centre trips have been estimated using the Recreational Community Center (code 495) land use rates. The *TRANS Trip Generation Manual* identifies the following observed mode shares for retail developments within Orléans during the weekday peak hours. It is assumed to be applicable to both of the proposed retail and community centre uses.

- Auto Driver: 77% in AM peak, 71% in PM peak;
- Auto Passenger: 14% in AM peak, 20% in PM peak;
- Transit: 3% in AM peak, 2% in PM peak;
- Cyclist: 0% in AM peak, 1% in PM peak;
- Pedestrian: 6% in AM peak, 5% in PM peak.

The mode shares for the proposed retail and community centre components are assumed to generally follow the retail mode shares observed in the Orléans district, with a 10% increase in the transit share to reflect the proximity to the future Orléans Town Centre Station and a 10% increase in the pedestrian share to reflect that the subject site is adjacent or in close proximity to the existing residential/hotel uses, as well as future planned residential development. The assumed retail/community centre mode shares can be summarized as: 55% driver, 20% passenger, 10% transit, 0% cyclist, and 15% pedestrian. If Orléans Town Centre Station were not constructed, a 65% driver share and 0% transit share would be anticipated.

The estimated number of person trips generated by the proposed retail and community centre uses are shown in **Table 7**, and broken down by mode share in **Table 8**.

Table 7: Proposed Retail/Community Centre – Peak Hour Trip Generation

Land Use	ITE Code	GFA	AM Peak Hour (pph[1])			PM Peak Hour (pph)		
			IN	OUT	TOT	IN	OUT	TOT
Shopping Centre	820	6,135 ft^2	4	2	*6*	13	14	*27*
Rec Community Centre	495	38,933 ft^2	63	32	*95*	58	66	*124*
		Total	**67**	**34**	***101***	**71**	**80**	***151***

1. pph: Person Trips per Peak Hour – Calculated using an ITE Trip to Person Trip factor of 1.28, consistent with the *TIA Guidelines*

Table 8: Proposed Retail/Community Centre – Peak Hour Trips by Mode Share

Travel Mode	Mode Share	AM Peak Hour			PM Peak Hour		
		IN	OUT	TOT	IN	OUT	TOT
Retail Trips		**4**	**2**	***6***	**13**	**14**	***27***
Auto Driver	55%	2	1	*3*	7	7	*14*
Auto Passenger	20%	1	-	*1*	3	3	*6*
Transit	10%	-	1	*1*	1	2	*3*
Cyclist	0%	-	-	*0*	-	-	*0*
Pedestrian	15%	1	-	*1*	2	2	*4*
Community Centre Trips		**63**	**32**	***95***	**58**	**66**	***124***
Auto Driver	55%	34	18	*52*	32	36	*68*
Auto Passenger	20%	13	6	*19*	12	13	*25*
Transit	10%	7	3	*10*	6	6	*12*
Cyclist	0%	-	-	*0*	-	-	*0*
Pedestrian	15%	9	5	*14*	8	11	*19*

From the previous tables, the proposed retail component is estimated to generate six person trips (including three vehicle trips) during the AM peak hour, and 27 person trips (including 14 vehicle trips) during the PM peak hour. The proposed community centre is estimated to generate 95 person trips (including 52 vehicle trips) during the AM peak hour, and 124 person trips (including 68 vehicle trips) during the PM peak hour. If the Orléans Town Centre is not constructed and a 65% driver share were achieved, this would result in an additional one to four retail vehicle trips and ten to 13 community centre vehicle trips during the peak hours.

The estimated number of person trips generated by all components of the proposed development is shown in **Table 9**.

Table 9: Total Trip Generation by Mode Share

Travel Mode	AM Peak Hour			PM Peak Hour		
	IN	OUT	TOT	IN	OUT	TOT
Total Person Trips	**261**	**465**	***726***	**433**	**342**	***775***
Auto Driver	108	179	*287*	177	143	*320*
Auto Passenger	32	46	*78*	50	41	*91*
Transit	89	187	*276*	155	115	*270*
Cyclist	-	-	*0*	-	-	*0*
Pedestrian	32	53	*85*	51	43	*94*

In total, the proposed development is estimated to generate the following number of trips:

- 726 person trips (including 287 vehicle trips) during the AM peak hour;
- 775 person trips (including 320 vehicle trips) during the PM peak hour.

Pass-by Trips

The subject site is not anticipated to generate any pass-by trips, as Brisebois Crescent is a loop with two connections to Centrum Boulevard, and Centrum Boulevard is a dead-end roadway east of the study area (i.e. the number of drivers 'passing by' and stopping at the subject site is anticipated to be zero). A reduction in external trips has been applied to account for internally captured trips, as described below.

Internally Captured Trips

It is anticipated that some trips generated by the proposed development may be internally captured (i.e. residents may travel downstairs to the ground-floor retail spaces or the community centre). The *ITE Trip Generation Handbook* identifies internal trip rates between residential and retail land uses, and these rates have been used to estimate the number of internally captured trips at buildout of the proposed development. Internally captured trips between the proposed land uses have been estimated using the methodology outlined in the *ITE Trip Generation Handbook* and the *NCHRP Report 684 Estimator* spreadsheet tool (developed by the Texas A&M Transportation Institute in 2010). As the tool does not specifically have a Community Centre land use, community centre trips have been added to the retail trips. Person trips have been entered directly into the spreadsheet where required, as the tool's method of estimating person trips is incompatible with the results shown in the previous tables. The internal capture worksheets are included in **Appendix G**.

Internally captured trip estimates by the proposed development is presented in **Table 10**.

Table 10: Internally Captured Trips – Proposed Development

Trip Type		AM Peak Hour			PM Peak Hour		
		IN	OUT	TOT	IN	OUT	TOT
Residential Trips	**Vehicle**	**72**	**160**	***232***	**138**	**100**	***238***
	Transit	**82**	**183**	***265***	**148**	**107**	***255***
	Non-Auto	**22**	**48**	***70***	**41**	**30**	***71***
Internal Adjustment	Vehicle	-2	-2	*-4*	-10	-3	*-13*
	Transit	-6	-12	*-18*	-12	-5	*-17*
	Non-Auto	-3	-5	*-8*	-7	-4	*-11*
External Trips	Vehicle	70	158	*228*	128	97	*225*
	Transit	76	171	*247*	136	102	*238*
	Non-Auto	19	43	*62*	34	26	*60*
Retail and Community Centre Trips	**Vehicle**	**36**	**19**	***55***	**39**	**43**	***82***
	Transit	**7**	**4**	***11***	**7**	**8**	***15***
	Non-Auto	**10**	**5**	***15***	**10**	**13**	***23***
Internal Adjustment	Vehicle	-3	-3	*-6*	-5	-16	*-21*
	Transit	-1	-1	*-2*	-1	-2	*-3*
	Non-Auto	-1	-	*-1*	-	-4	*-4*
External Trips	Vehicle	33	16	*49*	34	27	*61*
	Transit	6	3	*9*	6	6	*12*
	Non-Auto	9	5	*14*	10	9	*19*
Total External Trips	**Vehicle**	**103**	**174**	***277***	**162**	**124**	***286***
	Transit	**82**	**174**	***256***	**142**	**108**	***250***
	Non-Auto	**28**	**48**	***76***	**44**	**35**	***79***

From the previous table, the proposed development is projected to generate the following number of external peak hour trips:

- 277 vehicle trips, 256 transit trips, and 76 non-auto trips during the AM peak hour;
- 286 vehicle trips, 250 transit trips, and 79 non-auto trips during the PM peak hour.

It is noted that there is a disconnect between the estimated vehicle trip generation and the proposed number of parking spaces on-site at full buildout. The proposed parking supply at buildout includes approximately 135 residential parking spaces and 30 community centre parking spaces. Buildout will be considered relative to construction of the Orléans Town Centre LRT Station, which will be located north of Building A. The timing for this station and the Tenth Line LRT station is unknown as they are not included in the Priority Transit Network. The provision of surface parking will be considered to meet interim parking demands as needed for the initial buildings, which will be replaced when the later buildings are constructed. The estimated vehicle trip generation exceeds the ultimate parking supply by 100 vehicles during each peak hour. The assumed driver shares of 40% (for residential trips) and 55% (for retail/community centre trips) will likely be lower, as the adjacent future transit stations are constructed. Updated plans, projections, and studies will be required as part of future Site Plan Control applications. The trip generation projections within this TIA are considered conservative.

2.5.2 Trip Distribution

The assumed distribution of residential trips has been estimated by generally considering the typical commuter patterns (i.e. outbound volumes during the AM peak hour and inbound volumes during the PM peak hour), with a large increase to trips to/from the north to reflect trips using Ottawa Road 174. The large increase in residential trips to/from the north via Place d'Orléans Drive is intended to reflect that trips to/from destinations to the west (including all of Ottawa proper) are more likely to use Highway 174 (a City Freeway) versus St. Joseph Boulevard (an arterial with frequent signalized intersections).

The assumed distribution of retail and community centre trips has been estimated by considering the two-way midday peak hour volumes.

The assumed distributions are summarized as follows:

Residential Distribution

- 60% to/from the north via Place d'Orléans Dr;
- 10% to/from the south via Place d'Orléans Dr;
- 5% to/from the south via Prestone Dr;
- 15% to/from the east via St. Joseph Blvd;
- 10% to/from the west via St. Joseph Blvd.

Retail and Community Centre Distribution

- 10% to/from the north via Place d'Orléans Dr;
- 15% to/from the south via Place d'Orléans Dr;
- 5% to/from the south via Prestone Dr;
- 35% to/from the east via St. Joseph Blvd;
- 35% to/from the west via St. Joseph Blvd.

2.5.3 Trip Assignment

Residential trips have been assigned to the three proposed accesses, based on the number of units closest to each driveway. For example, Buildings B and C are closest to the westernmost access, and trips generated by those 809 dwellings are assigned to that access.

It is recognized that some retail and community centre trips will park in existing parking spaces along Centrum Boulevard or Brisebois Crescent. For the purposes of this report, all retail and community centre trips have conservatively been assigned to the Building D/E access.

Therefore, the trip assignment at each proposed access is summarized as follows:

Western Access to Brisebois Crescent (within Building B/C)

- 55% of all residential trips
    - Trips to/from Place d'Orléans Drive are assumed to enter and exit via Centrum Boulevard/Brisebois Crescent (West);
    - Trips to/from Prestone Drive and St. Joseph Boulevard are assumed to enter and exit via Centrum Boulevard/Brisebois Crescent (East).

Central Access to Brisebois Crescent (within Building A)

- 20% of all residential trips
    - Trips to/from Place d'Orléans Drive are assumed to enter and exit via Centrum Boulevard/Brisebois Crescent (West);
    - Trips to/from Prestone Drive and St. Joseph Boulevard are assumed to enter and exit via Centrum Boulevard/Brisebois Crescent (East).

Eastern Access to Brisebois Crescent (within Building D)

- 25% of all residential trips
    - Trips to/from Place d'Orléans are assumed to be split evenly between the two Centrum Boulevard/Brisebois Crescent intersections;
    - Trips to/from Prestone Drive and St. Joseph Boulevard are assumed to enter and exit via Centrum Boulevard/Brisebois Crescent (East).

- 100% of all retail and community centre trips
    - Trips to/from Place d'Orléans are assumed to be split evenly between the two Centrum Boulevard/Brisebois Crescent intersections;
    - Trips to/from Prestone Drive and St. Joseph Boulevard are assumed to enter and exit via Centrum Boulevard/Brisebois Crescent (East).

Based on the above, the distribution of site-generated traffic volumes to the study area intersections are shown in the following figures:

- Site-generated residential traffic volumes are shown in **Figure 7**;
- Site-generated retail and community centre traffic volumes are shown in **Figure 8**;
- Total site-generated traffic volumes are shown in **Figure 9**.

Figure 7: Site-Generated Residential Traffic Volumes

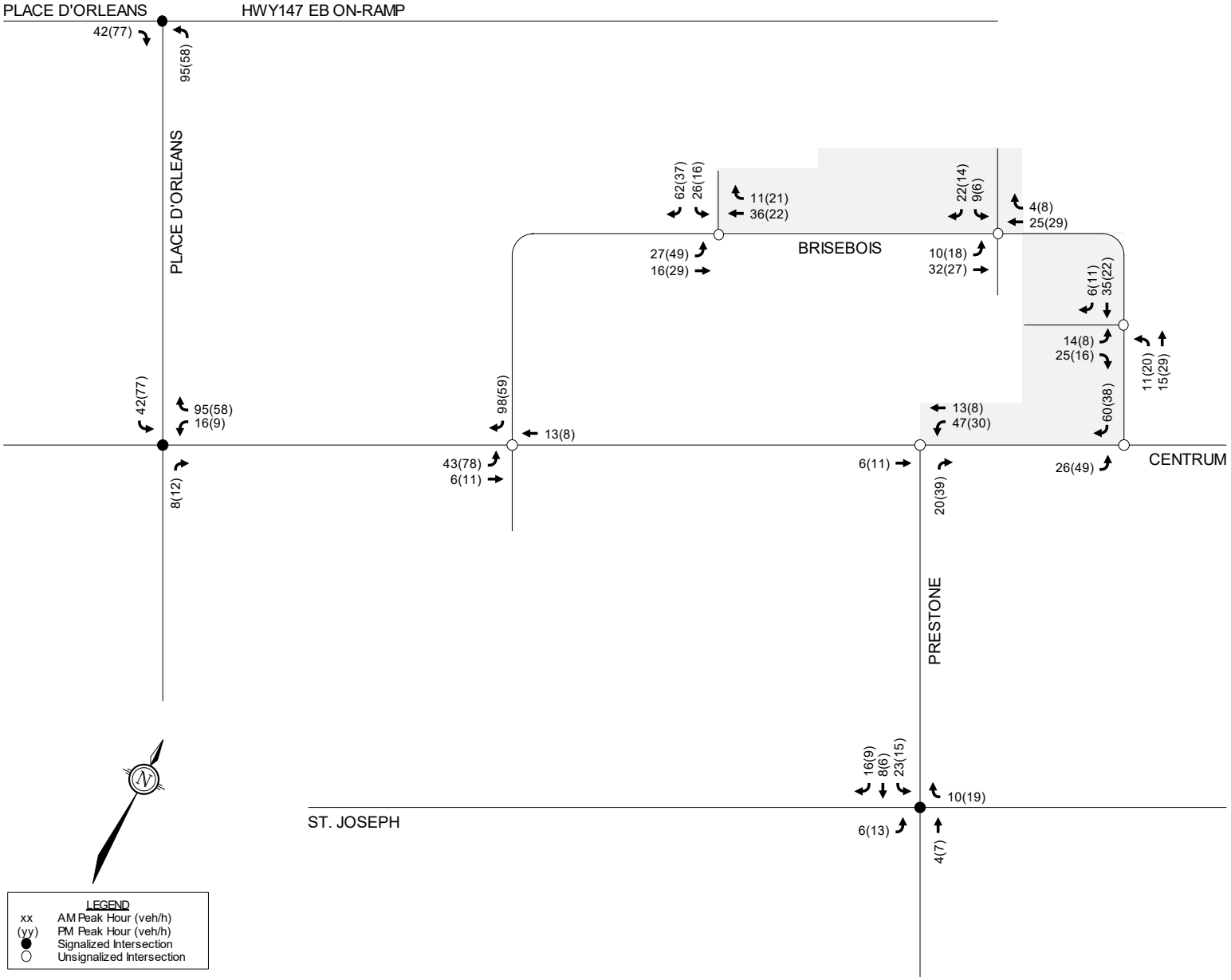


Figure 8: Site-Generated Retail and Community Centre Traffic Volumes

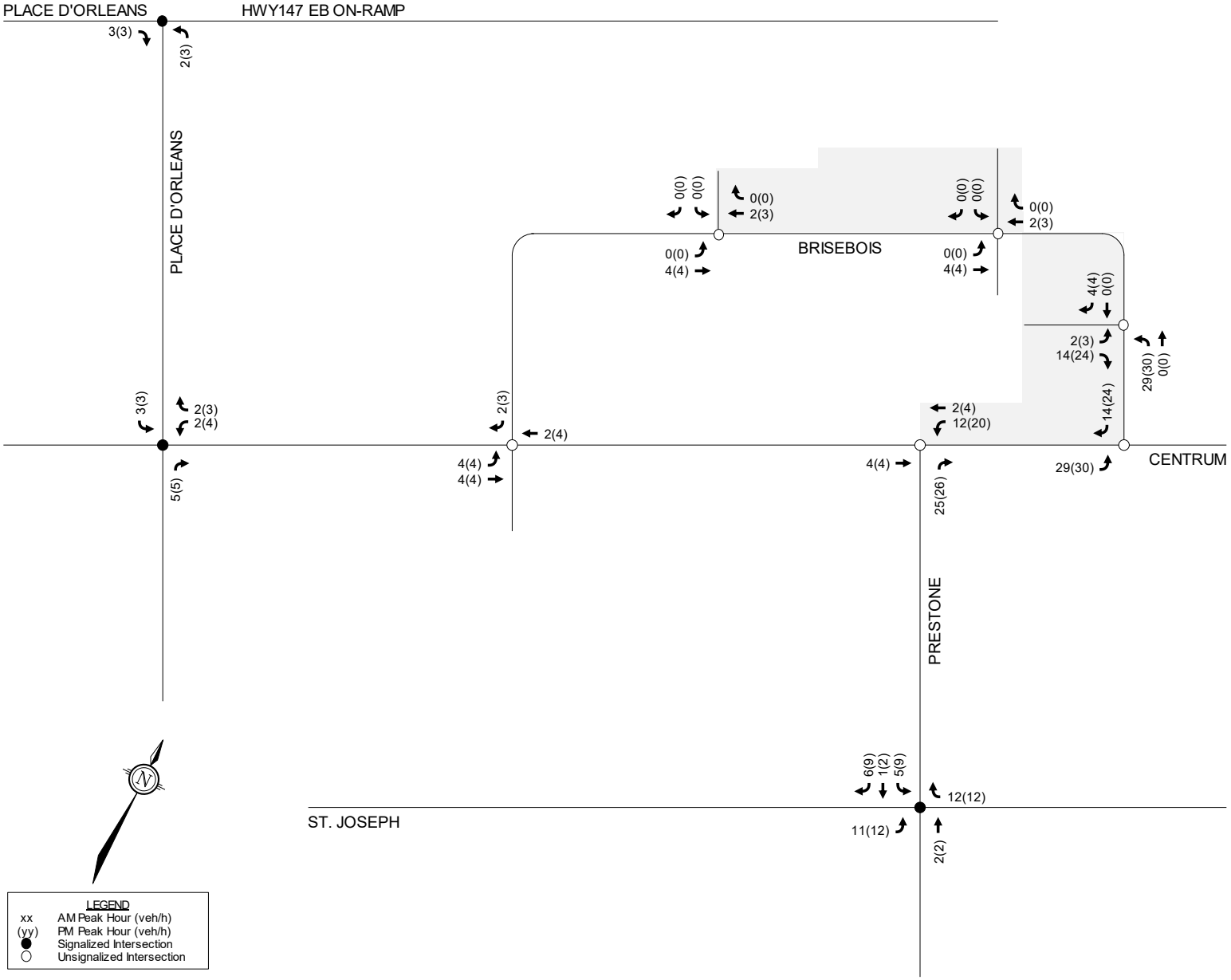
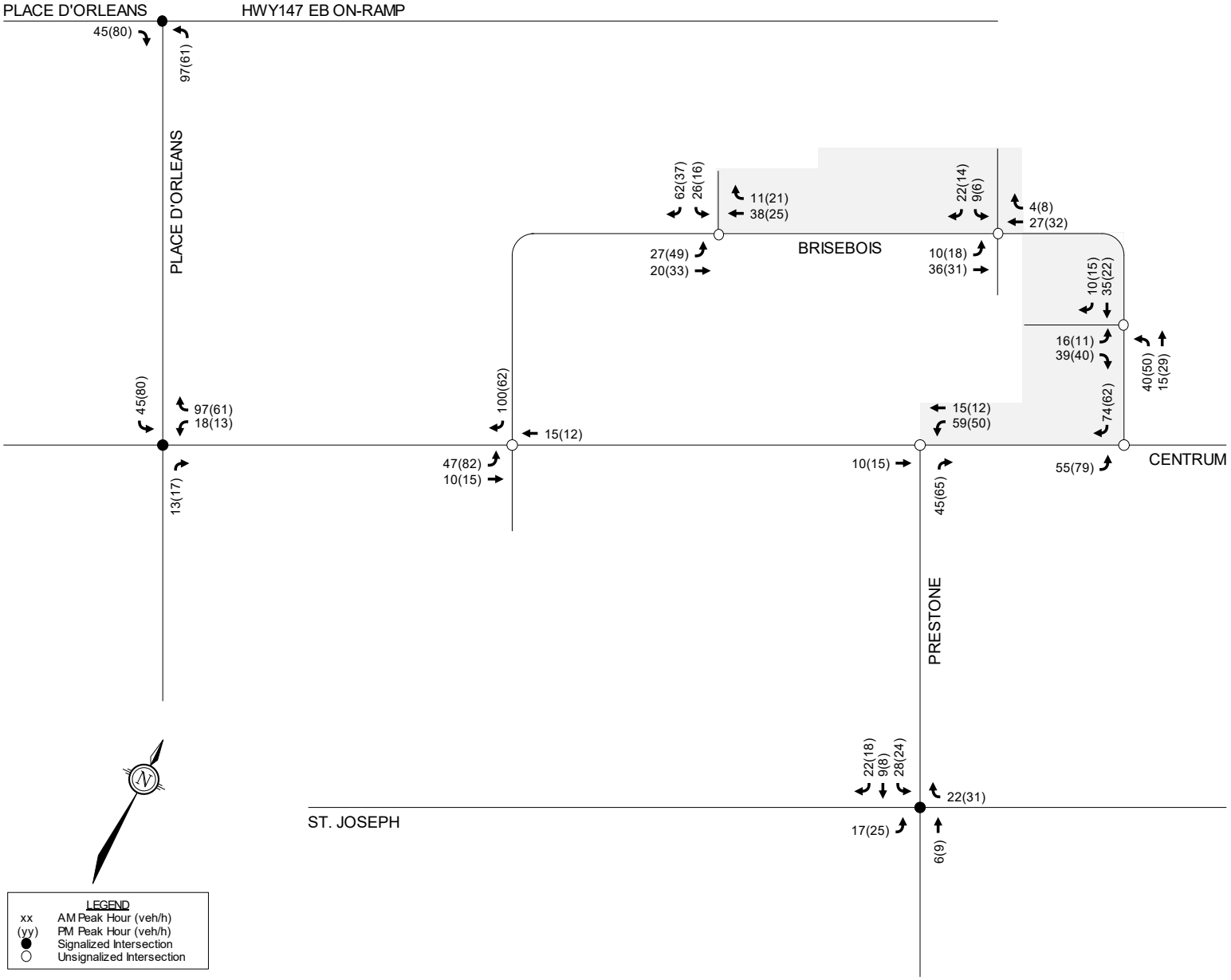


Figure 9: Total Site-Generated Traffic Volumes



2.6 Exemptions Review

This module reviews possible exemptions from the final TIA, as outlined in the *Revised TIA Guidelines*. The applicable exemptions for this site are shown in **Table 11**.

Table 11: TIA Exemptions

Module	Element	Exemption Criteria	Status
4.1 Development Design	*4.1.2* Circulation and Access	• Required for site plan control and zoning by-law amendment applications	Not Exempt
	4.1.3 New Street Networks	• Required for draft plan of subdivision applications	Exempt
4.2 Parking	*All elements*	• Required for site plan control and zoning by-law amendment applications	Not Exempt
4.6 Neighbourhood Traffic Calming	*All elements*	• If all of the following criteria are met: 1. Access is provided to a collector or local roadway 2. Application is for zoning by-law amendment or draft plan of subdivision 3. Development generates more than 75 vehicle trips 4. Site trip infiltration is expected, and site-generated traffic will increase peak volumes by 50% or more along the route between the site and an arterial 5. The subject street segment is adjacent to two or more of the following significant sensitive land uses: o School (within 250m walking distance) o Park o Retirement/older adult facility o Licensed child care centre o Community centre o 50+% of adjacent properties along the route(s) are occupied by residential lands and at least ten dwellings are occupied	Exempt
4.7 Transit	*4.7.1* Transit Route Capacity	• Required when proposed development generates more than 75 transit trips	Not Exempt
	4.7.2 Transit Priority Requirements	• Required when proposed development generates more than 75 vehicle trips	Not Exempt
4.8 Network Concept	*All elements*	• Required when proposed development generates more than 200 peak hour person trips in excess of the equivalent volume permitted by the established zoning	Not Exempt
4.9 Intersection Design	*All elements*	• Required when proposed development generates more than 75 vehicle trips	Not Exempt

Based on the foregoing, the following modules are 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 4.5: Transportation Demand Management
- Module 4.7: Transit
- Module 4.8: Network Concept
- Module 4.9: Intersection Design

3.0 FORECASTING

3.1 Other Area Developments

As first discussed in Section 2.2.2, the following developments are in proximity of the subject site, and transportation studies with projections were prepared in support of those applications. Relevant excerpts of the studies are included in **Appendix H**.

211 Centrum Boulevard
The development includes 397 retirement units and accesses to Brisebois Crescent. The TIA identifies an estimated buildout year of 2024, but development has not occurred at the time of this report. Projected volumes generated by this development have been added to the 2035 and 2040 background conditions.

265 Centrum Boulevard (Bayview)
The development includes 1,127 residential dwellings, 8,967 ft^2 of retail space, 31,570 ft^2 of office space, and accesses to Brisebois Crescent. The TIA identifies a buildout year of 2028. Projected volumes generated by this development have been added to the 2035 and 2040 background conditions.

3030 St. Joseph Boulevard
The development includes 206 residential dwellings, 2,050 ft^2 of retail space, and access to St. Joseph Boulevard. The TIA identifies an estimated buildout year of 2025, but development has not occurred at the time of this report. Projected volumes generated by this development have been added to the 2035 and 2040 background conditions.

3277 St. Joseph Boulevard
The development includes 273 residential dwellings and access to St. Joseph Boulevard and Lionel-Rheo Private. The TIA identifies an estimated buildout year of 2024, but development has not occurred at the time of this report. Projected volumes generated by this development have been added to the 2035 and 2040 background conditions.

3459-3479 St. Joseph Boulevard
The development includes 326 residential dwellings and access to St. Joseph Boulevard and the eastbound Ottawa Road 174 on-ramp. The TIA identifies an estimated buildout year of 2025, but development has not occurred at the time of this report. Projected volumes generated by this development have been added to the 2035 and 2040 background conditions.

3.2 General Background Growth Rate

A review of the City's *Strategic Long-Range Model* (comparing snapshots of 2022 and 2046 AM peak hour volumes) has been conducted. The snapshots are included in **Appendix I**. A review of the long-range snapshots estimate annual growth rates of -1% to 1% on Place d'Orléans Drive, Centrum Boulevard, and Prestone Drive, and annual growth rates of 2% to 4% on St. Joseph Boulevard. A 2% per annum growth rate has been applied to through volumes on St. Joseph Boulevard, and a 0% per annum growth rate has been applied to all other movements.

3.3 Future Traffic Volume Figures

The figures below present the following traffic conditions:

- Other area development-generated traffic volumes in 2035/2040 are shown in **Figure 10**;
- Background traffic volumes in 2035 are shown in **Figure 11**;
- Background traffic volumes in 2040 are shown in **Figure 12**;
- Total traffic volumes in 2035 are shown in **Figure 13**;
- Total traffic volumes in 2040 are shown in **Figure 14**.

3.4 Demand Rationalization

A review of the existing and background intersection operations has been conducted to determine where traffic volumes exceed capacity within the study area, using Synchro 11 software. The intersection parameters used in the analysis are consistent with the *TIA Guidelines* (Saturated Flow Rate: 1,800 vphpl, Peak Hour Factor: 0.9 in existing conditions and 1.0 in future conditions). Signal timing plans have been obtained from the City and are included in **Appendix J**.

Per Exhibit 2 of the *2025 Multi-Modal Level of Service (MMLOS) Guidelines*, the City's target vehicular level of service (Auto LOS) at all the study area intersections is an Auto LOS E, as they are within 600m of a rapid transit station or in a hub. This equates to a vehicle-to-capacity (v/c) ratio of 1.00 at signalized intersections, and a maximum delay of 50 seconds at unsignalized intersections.

3.4.1 Existing Traffic Conditions

Intersection capacity analysis of the AM and PM peak hours has been conducted for the existing traffic conditions. The results of the analysis are summarized in **Table 12**. Detailed Synchro reports are included in **Appendix K**.

Table 12: Existing Traffic Operations

Intersection	AM Peak Hour			PM Peak Hour		
	Max v/c or Delay	LOS	Mvmt	Max v/c or Delay	LOS	Mvmt
Place d'Orléans Drive/ Ottawa Road 174 EB Ramp(1)	0.24	A	EBT	0.51	A	EBT
Place d'Orléans Drive/ Centrum Boulevard(1)	0.33	A	WBT/R	0.50	A	EBR
Centrum Boulevard/ Brisebois Crescent (West)(2)	10 sec	A	NBL/T/R	11 sec	B	NBL/T/R
Centrum Boulevard/ Prestone Drive(2)	8 sec	A	NBL	8 sec	A	NBL
Centrum Boulevard/ Brisebois Crescent (East)(2)	9 sec	A	SBR	9 sec	A	SBR
St. Joseph Boulevard/ Prestone Drive(1)	0.46	A	NBL	0.64	B	SBL

1. Signalized intersection
2. Unsignalized intersection

From the previous table, all study area intersections operate at an acceptable level of service. There are no queue lengths that extend into upstream intersections or exceed auxiliary lane storage lengths.

Figure 10: Other Area Development-Generated Traffic Volumes

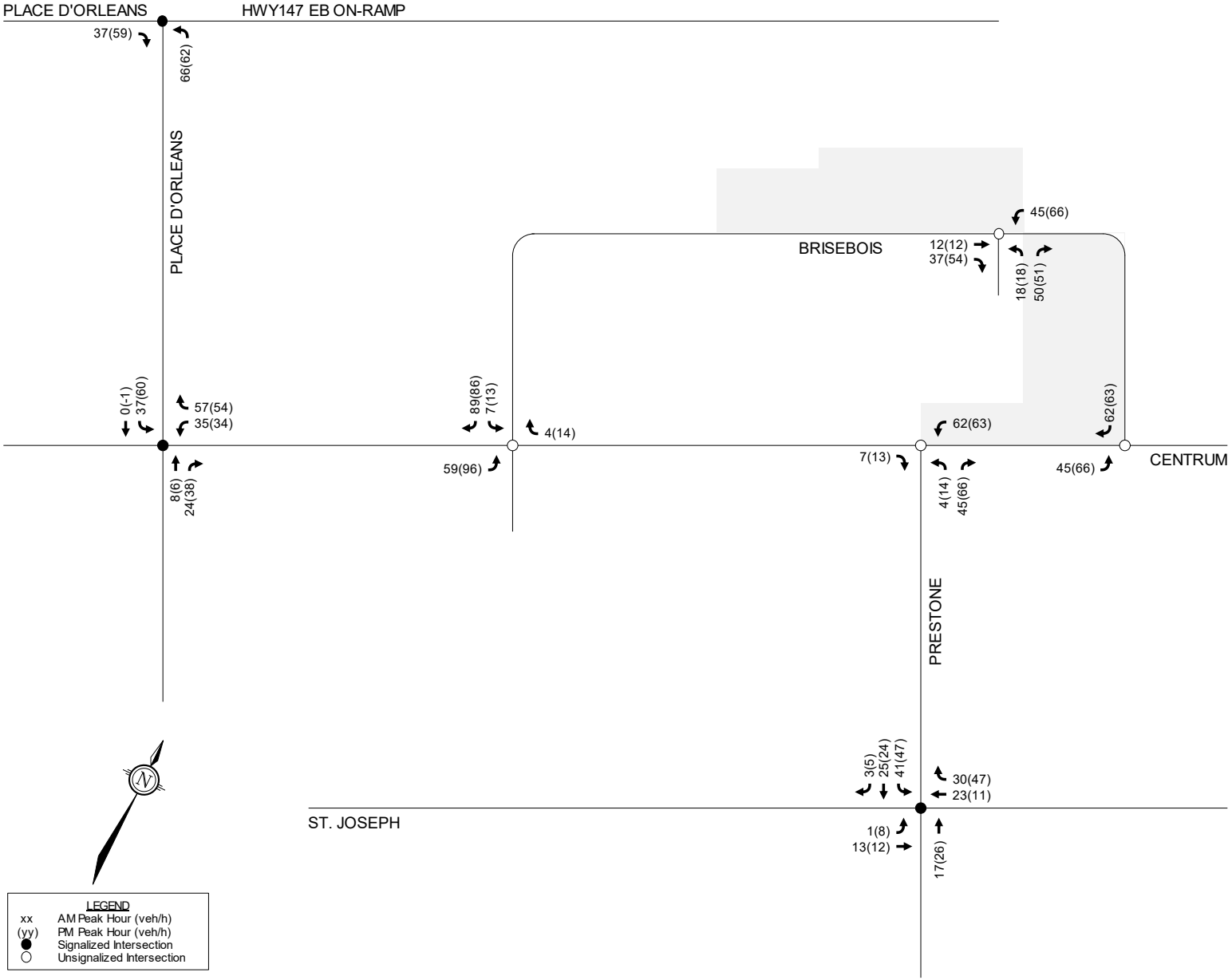


Figure 11: 2035 Background Traffic Volumes

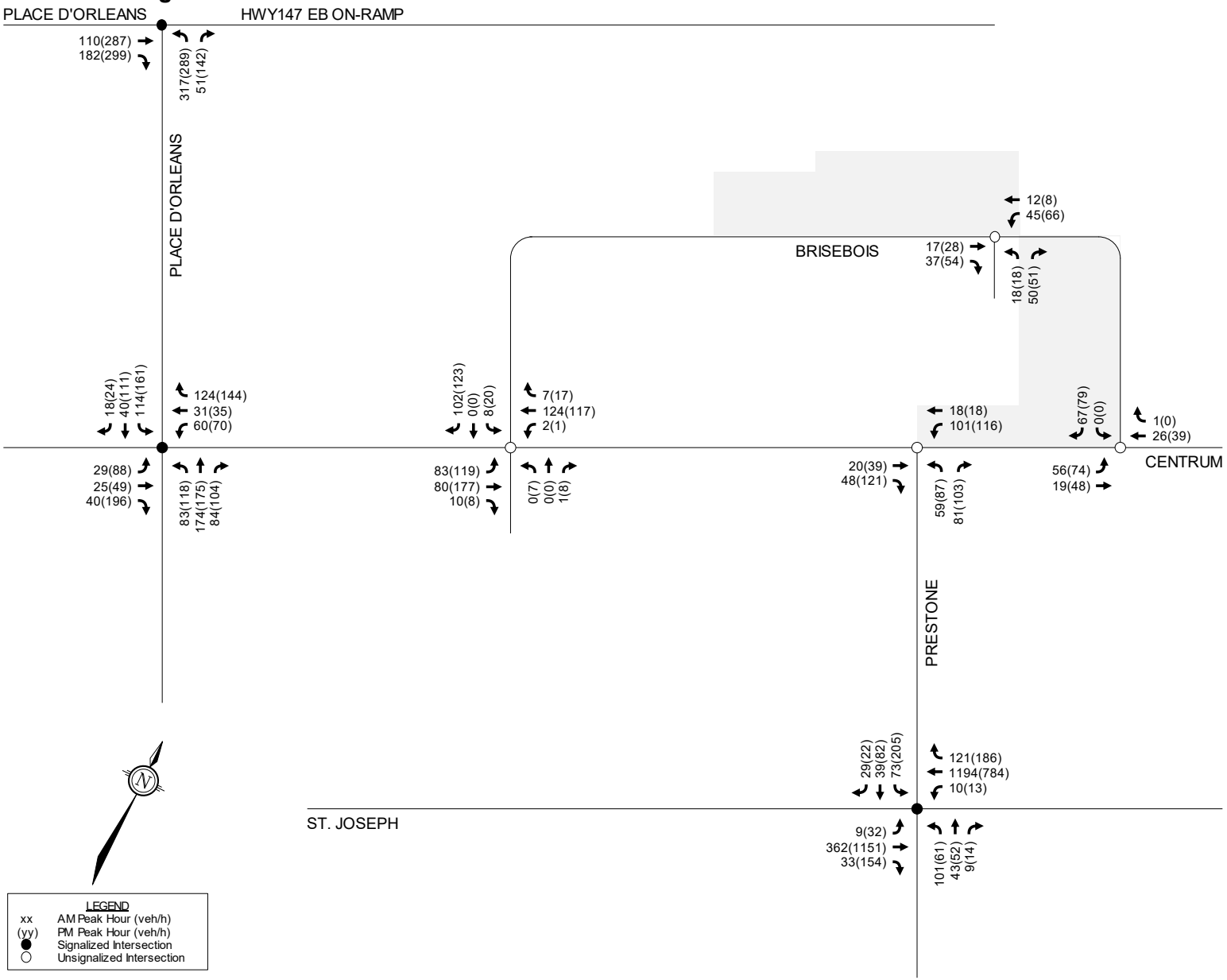


Figure 12: 2040 Background Traffic Volumes

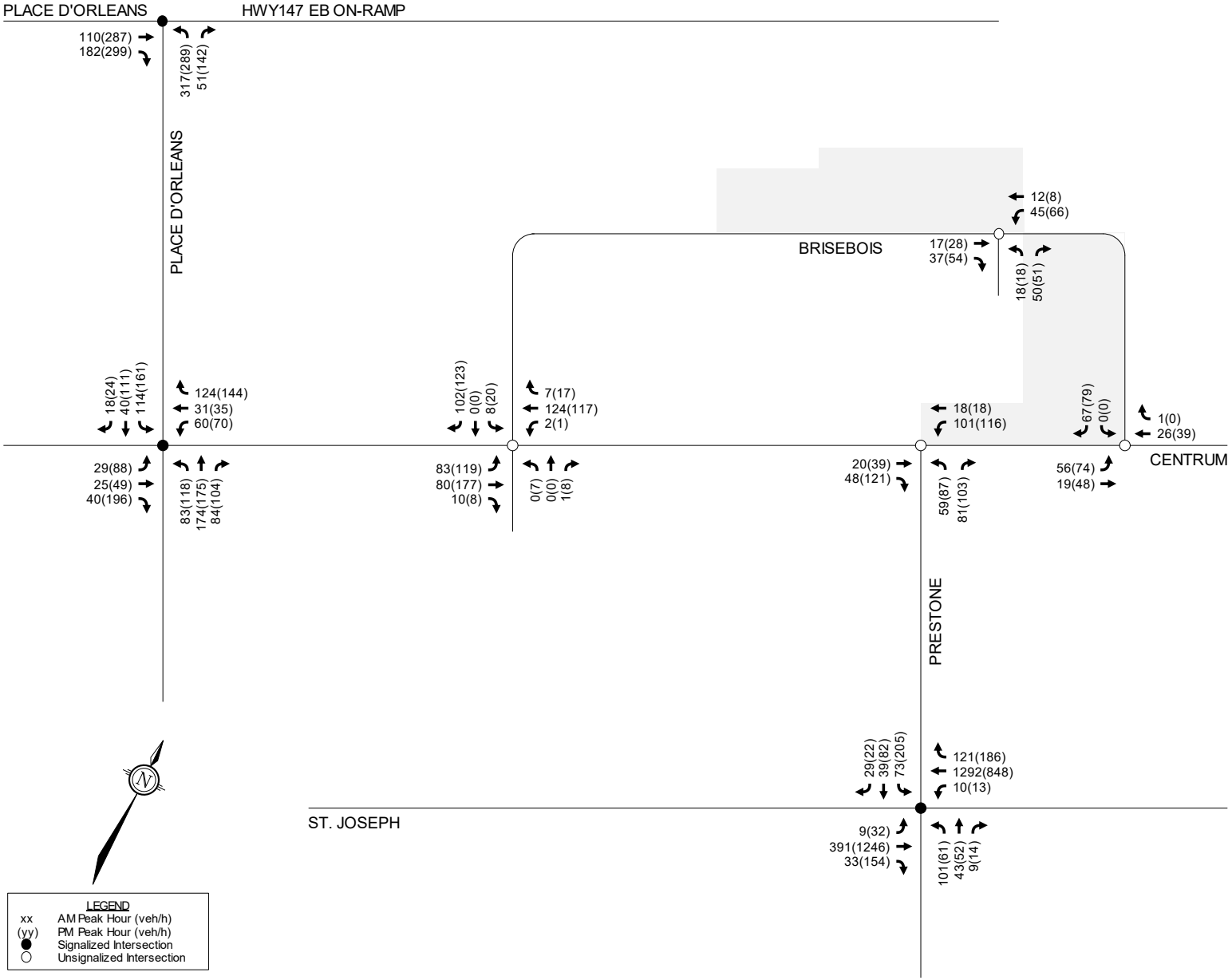


Figure 13: 2035 Total Traffic Volumes

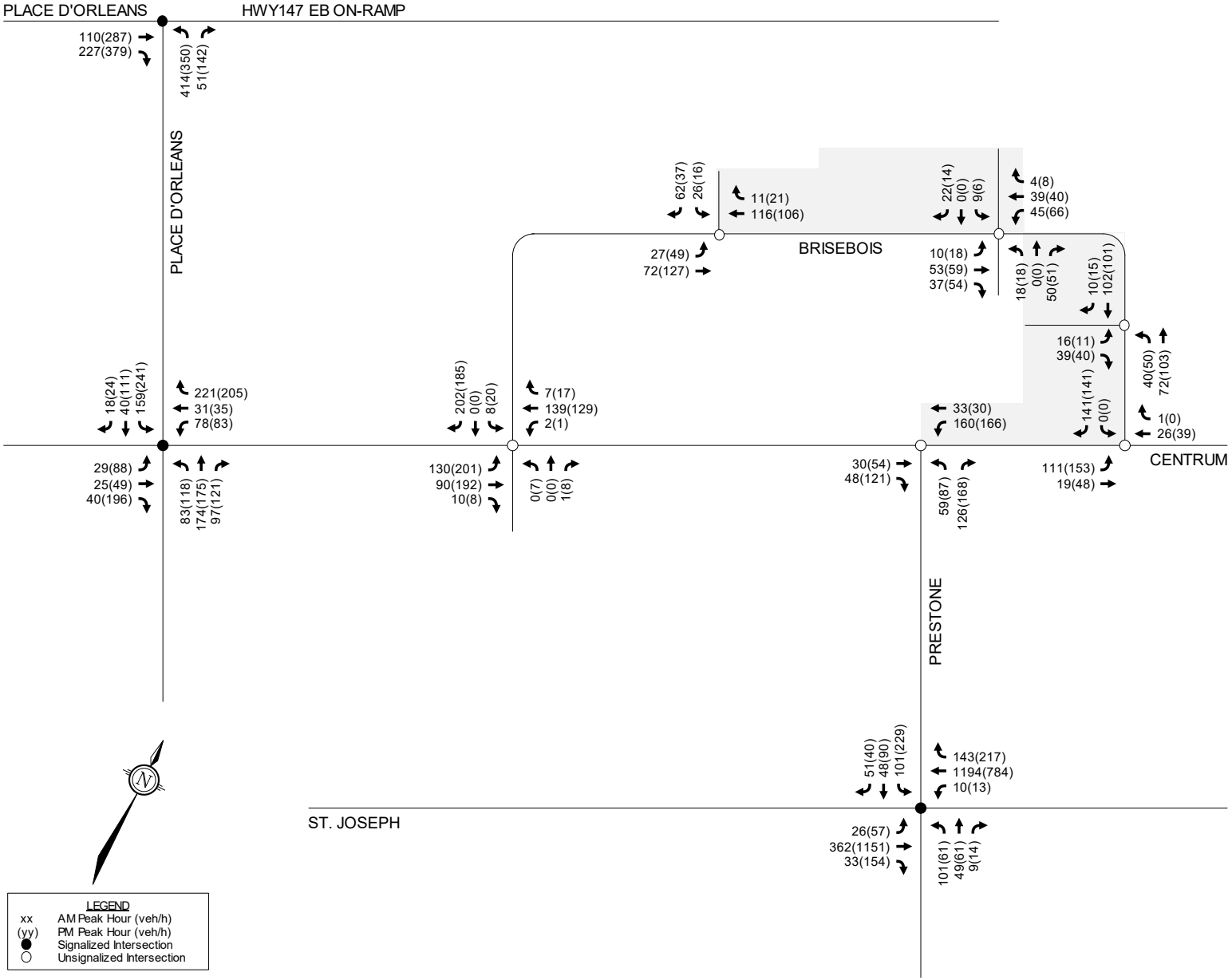
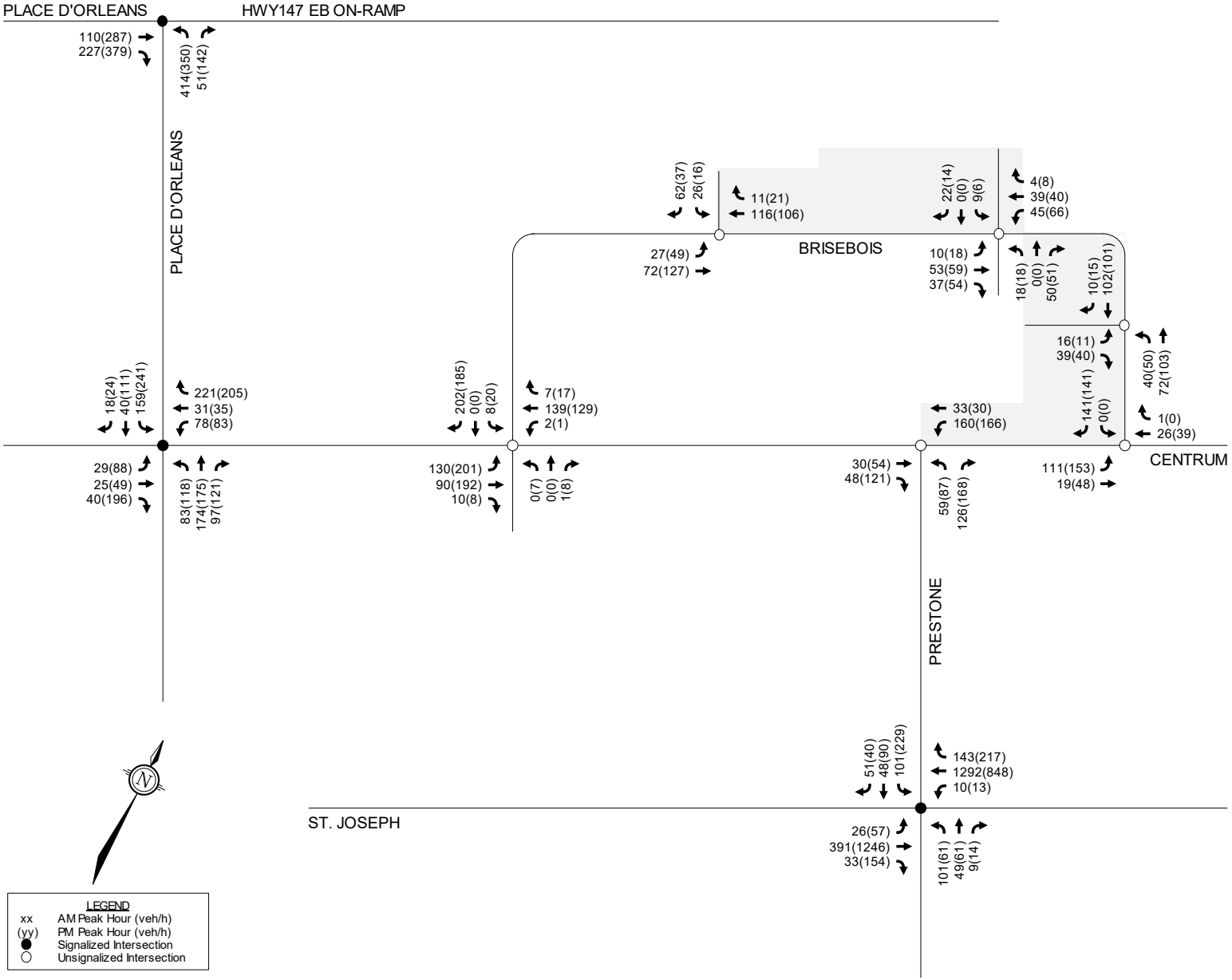


Figure 14: 2040 Total Traffic Volumes



3.4.2 2035 Background Traffic Conditions

Intersection capacity analysis of the AM and PM peak hours has been conducted for the 2035 background traffic conditions. The results of the analysis are summarized in **Table 13**. Detailed Synchro reports are included in **Appendix L**.

Table 13: 2035 Background Traffic Operations

Intersection	AM Peak Hour			PM Peak Hour		
	Max v/c or Delay	LOS	Mvmt	Max v/c or Delay	LOS	Mvmt
Place d'Orléans Drive/ Ottawa Road 174 EB Ramp(1)	0.24	A	NBL	0.47	A	EBT
Place d'Orléans Drive/ Centrum Boulevard(1)	0.42	A	WBT/R	0.51	A	EBL
Centrum Boulevard/ Brisebois Crescent (West)(2)	10 sec	A	NBL/T/R	14 sec	B	NBL/T/R
Centrum Boulevard/ Prestone Drive(2)	8 sec	A	WBL/T	9 sec	A	WBL/T
Centrum Boulevard/ Brisebois Crescent (East)(2)	9 sec	A	SBR	9 sec	A	SBR
St. Joseph Boulevard/ Prestone Drive(1)	0.48	A	WBT	0.71	C	SBL

1. Signalized intersection
2. Unsignalized intersection

From the previous table, all study area intersections are projected to operate at an acceptable level of service. There are no queue lengths that extend into upstream intersections or exceed auxiliary lane storage lengths.

3.4.3 2040 Background Traffic Conditions

Intersection capacity analysis of the AM and PM peak hours has been conducted for the 2040 background traffic conditions. The results of the analysis are summarized in **Table 14**. Detailed Synchro reports are included in **Appendix L**.

Table 14: 2040 Background Traffic Operations

Intersection	AM Peak Hour			PM Peak Hour		
	Max v/c or Delay	LOS	Mvmt	Max v/c or Delay	LOS	Mvmt
Place d'Orléans Drive/ Ottawa Road 174 EB Ramp(1)	0.24	A	NBL	0.47	A	EBT
Place d'Orléans Drive/ Centrum Boulevard(1)	0.42	A	WBT/R	0.51	A	EBL
Centrum Boulevard/ Brisebois Crescent (West)(2)	10 sec	A	NBL/T/R	14 sec	B	NBL/T/R
Centrum Boulevard/ Prestone Drive(2)	8 sec	A	WBL/T	9 sec	A	WBL/T
Centrum Boulevard/ Brisebois Crescent (East)(2)	9 sec	A	SBR	9 sec	A	SBR
St. Joseph Boulevard/ Prestone Drive(1)	0.52	A	WBT	0.71	C	SBL

1. Signalized intersection
2. Unsignalized intersection

From the previous table, all study area intersections are projected to operate at an acceptable level of service. There are no queue lengths that extend into upstream intersections or exceed auxiliary lane storage lengths.

4.0 ANALYSIS

4.1 Development Design

4.1.1 Design for Sustainable Modes

Based on the concept plan, entrances to Buildings A and B/C, including townhouse entrances on the ground floor, will connect to the existing sidewalk on the north side of Brisebois Crescent. Entrances to Building D/E will connect to the existing sidewalks on the inside of Brisebois Crescent and north side of Centrum Boulevard. An open space is proposed between Buildings A and B/C to provide an active transportation connection to the future Orléans Town Centre O-Train Station. A PXO should be implemented at this location on Brisebois Crescent as part of the future station, aligning with the north-south pedestrian connection through the Bayview development to Centrum Boulevard. The existing tactile walking surface indicators (TWSIs) and curb depressions at the bend of Brisebois Crescent to the east should be removed when the new PXO is implemented.

The concept plan identifies interior bike parking spaces on the ground floors and/or within the underground parking garages of each proposed building. The specific locations of interior and exterior bike parking spaces, as well as any other on-site bike infrastructure, will be confirmed as part of future Site Plan Control applications.

OC Transpo's service design guideline for peak period service is to provide service within a five-minute (400m) walk of home, work, or school for 95% of urban residents. It is anticipated that all proposed entrances will be within 400m walking distance of the future Orléans Town Centre LRT Station. Additionally, it is anticipated that all proposed entrances will be within 400m walking distance of existing bus stops on Centrum Boulevard and Prestone Drive (served by routes 35, 36, and 302), and within 600m walking distance of existing bus stops on Place d'Orléans Drive (served by routes 33 and 234).

A review of the *Transportation Demand Management (TDM)-Supportive Development Design and Infrastructure Checklist* will be conducted in subsequent Site Plan Control applications.

4.1.2 Circulation and Access

It is recognized that the Exemptions Review (included in Section 2.6) identifies that this module is not exempt. However, a review of garbage truck, fire truck, and loading vehicle turning movements will be reviewed at the Site Plan Control application stage, once more site plan details are known.

4.2 Parking

4.2.1 Zoning By-Law 2008-250

The subject site is located in Area C of Schedule 1 and Area Z of Schedule 1A of the City's 2008-250 ZBL. Minimum vehicle parking rates, accessible parking rates, bicycle parking rates, and loading space rates for the proposed development, plus maximum vehicle parking rates, are identified in Section 101, 102, 111, and 113 of the ZBL, or the City's *Accessibility Design Standards*. The parking requirements for these different criteria are summarized as follows.

Minimum vehicle parking (per Section 101/102 of the ZBL)

- Residential (resident): no minimum requirement
- Residential (visitor): 0.1 spaces per dwelling after the first 12, to a max of 30 per building
- Retail: no minimum requirement
- Community centre: no minimum requirement

Maximum vehicle parking (per Section 103 of the ZBL)

- Residential: 1.75 spaces per dwelling (combined resident/visitor requirement)
- Retail: 4.0 spaces per 100 m^2 GFA
- Community centre: no maximum requirement

Minimum bicycle parking (per Section 111 of the ZBL)

- Residential: 0.5 spaces per dwelling
- Retail: 1.0 spaces per 250 m^2 GFA
- Community centre: 1.0 spaces per 1,500 m^2 GFA

Minimum loading (per Section 113 of the ZBL)

- Residential: no minimum requirement
- Retail: no minimum when use is less than 1,000 m^2 GFA
- Community centre: 2 spaces when use is 2,000 to 4,999 m^2 GFA

Minimum accessible parking (per Section 3.1 of the City's *Accessibility Design Standards*)

- 2 parking spaces required when total parking is 26 to 50 (1 Type A + 1 Type B)
- 3 parking spaces required when total parking is 51 to 75 (1 Type A + 2 Type B)

The parking requirements for each building is shown in **Table 15**.

Table 15: Parking Requirements

Bldg	Dwellings, GFA, or Parking Supply	Parking Requirement				
		Minimum Vehicle	Maximum Vehicle	Minimum Bicycle	Minimum Loading	Minimum Accessible
A	312 dwellings 30 parking spaces 156 bicycle spaces	30	546	156	-	2
B/C	818 dwellings 68 parking spaces 409 bicycle spaces	30	1,432	409	-	3
D/E	375 dwellings 570 m^2 retail 3,616 m^2 community 65 parking spaces 191 bicycle spaces	30	679	191	2	3

The number of conceptual vehicle parking spaces in each proposed building meets the minimum requirements outlined in the City's 2008-250 ZBL. The number of vehicle parking, bicycle parking, loading spaces, and accessible parking spaces will be confirmed as part of future Site Plan Control applications.

4.2.2 Zoning By-Law 2026-50

The subject site is located in Area E of Schedule A1 and Area A of Schedule A3 of the City's 2026-50 ZBL. Minimum visitor vehicle parking rates, accessible parking rates, bicycle parking rates, electric vehicle (EV) parking rates and loading space rates for the proposed development, are identified in Sections 602, 603, 610, 611, and 613 of the ZBL, or the City's *Accessibility Design Standards*. The parking requirements for these different criteria are summarized as follows.

Minimum visitor vehicle parking (per Section 603 of the ZBL)

- Residential (visitor): no minimum requirement (site falls within Area A of Schedule A3)

Minimum loading (per Section 610 of the ZBL)

- Residential: no minimum requirement
- Retail: no minimum when use is less than 1,000 m^2 GFA
- Community centre: 2 spaces when use is 2,000 to 4,999 m^2 GFA

Minimum electric vehicle parking (per Section 611 of the ZBL)

- Residential: 25% of the resident spaces provided
- Retail: no minimum requirement
- Community centre: no minimum requirement

Minimum bicycle parking (per Section 613 of the ZBL)

- Residential (short term): minimum 2 spaces plus additional 1 space per 20 dwelling units where a building contains more than 21 dwelling units
- Residential (long term): 0.75 spaces per dwelling
- Residential (inclusive): minimum of 5% of the spaces provided
- Retail (up to 999 m^2): 2.0 spaces with an additional 1 space per 250m^2 above 250m^2
- Community centre: 10.0, of which 2 must be inclusive, with an additional 1 space per 100m^2 above 500m^2

Minimum accessible parking (per Section 3.1 of the City's *Accessibility Design Standards*)

- 2 parking spaces required when total parking is 26 to 50 (1 Type A + 1 Type B)
- 3 parking spaces required when total parking is 51 to 75 (1 Type A + 2 Type B)

The parking requirements for each building is shown in **Table 16**.

Table 16: Parking Requirements

Bldg	Dwellings, GFA, or Parking Supply	Parking Requirement				
		Minimum Visitor	Minimum Loading	Minimum EV	Minimum Bicycle	Minimum Accessible
A	312 dwellings 30 parking spaces 156 bicycle spaces	0	-	8	ST: 18 LT: 234 Inc: 13	2
B/C	818 dwellings 68 parking spaces 409 bicycle spaces	0	-	17	ST: 43 LT: 614 Inc: 33	3
D/E	375 dwellings 570 m^2 retail 65 parking spaces 191 bicycle spaces	0	2	8	ST: 25 LT: 281 Inc: 15	3

Note: ST = Short term, LT = Long term, Inc = Inclusive

Based on the foregoing, the 2008-250 ZBL is more restrictive for minimum vehicle parking. The conceptual EV and bicycle parking does not fully meet the requirements outlined in the City's 2026-50 ZBL. Consideration of the less restrictive bicycle parking rates is requested. The number of vehicle parking, bicycle parking, loading spaces, and accessible parking spaces will be reviewed as part of future Site Plan Control applications.

4.3 Boundary Streets

This section provides a review of the boundary frontages to Centrum Boulevard and Brisebois Crescent, using complete streets principles. The city's *2025 Multi-Modal Level of Service (MMLOS) Guidelines* were used to evaluate the levels of service for each alternative mode of transportation on the boundary streets. The MMLOS review has been conducted based on existing conditions.

Based on Schedule C8 of the city's *Official Plan*, the subject site falls under a Hub (Place d'Orléans). Based on Exhibit 2 of the *MMLOS Guidelines*, Centrum Boulevard and Brisebois Crescent have been evaluated using the 'Downtown Core, Inner Urban, Hub and/or Special District' targets. A detailed MMLOS review of the boundary streets is included in **Appendix M**. A summary of the segment MMLOS results is provided in **Table 17**. Neither boundary street (the segments being evaluated) has any transit service, therefore TLOS has not been evaluated.

Table 17: Segment MMLOS Summary

Segment	PLOS		BLOS		TLOS		PRLOS
	Actual	Target	Actual	Target	Actual	Target	Actual
Centrum Boulevard b/w Prestone Drive and Brisebois Crescent (East)	A	A	C	B	N/A		A
Brisebois Crescent (East-West Segment)	B		D				C
Brisebois Crescent (North-South Segment)	B		D				C

Based on the foregoing, Centrum Boulevard meets the target PLOS but does not meet the target BLOS. Brisebois Crescent does not meet the target PLOS and BLOS.

To meet the target BLOS B along Centrum Boulevard, bike lanes are required in both directions of the roadway, which will result in a BLOS A. This is identified for the city's consideration.

Brisebois Crescent generally has a pedestrian facility only on one side of the roadway. The segment of Brisebois Crescent (N-S direction) where it meets Centrum Boulevard has a sidewalk on the west side and an asphalt pathway on the east side. This asphalt pathway forms a part of the Royal 22nd Regiment Park; however, it runs parallel to the roadway and provides connectivity to the sidewalk on Brisebois Crescent (E-W direction).

Brisebois Crescent generally achieves a PLOS B. To meet the target PLOS A, an offset from motor vehicle travel lane is required. To meet the target BLOS B, painted bike lanes are required. This is identified for the city's consideration.

4.4 Transportation Demand Management

4.4.1 Context for TDM

In total, the proposed development conceptually includes approximately 1,500 dwellings, 6,135 ft^2 of retail space, and a 38,933 ft^2 community centre. Based on the conceptual unit counts, a preliminary breakdown of the residential dwellings by unit type (i.e. studio, one-bedroom, two-bedroom, etc.) is summarized as follows:

- 128 studio units (8%);
- 571 one-bedroom units (38%);
- 647 two-bedroom units (43%);
- 159 three-bedroom units (11%).

4.4.2 Need and Opportunity

The subject development is designated as 'Town Centre,' 'Hub', and 'Evolving Neighbourhood' on Schedule B8 of the City of Ottawa's *Official Plan*. The implemented zoning for the subject parcels is 'Mixed-Use Centre – Orléans Town Centre Subzone' (MC14[1413] or MC14[1520]). In the *Orléans Corridor Secondary Plan*, the 265 Centrum Boulevard parcel is designated as 'Orléans Town Centre' and the 530 Brisebois Crescent parcel is designated as 'Station Area – Periphery' and 'Station Core.'

As discussed in Section 2.5.1, the weekday peak hour driver shares within the Orléans district are 54% to 61% for residential generators and 71% to 77% for commercial generators. It is anticipated that the mode share targets specified in Section 2.5.1 (40% for the proposed residential and 55% for the proposed commercial) are attainable. Most sites within Orléans are not currently or planned to be adjacent to rapid transit, whereas the proposed development is within walking distance of the future Orléans Town Centre Station. The Place d'Orléans Shopping Centre is immediately west of the study area, and there are other commercial areas and parks/recreation amenities within the study area. Additionally, the number of proposed parking spaces is anticipated to result in lower driver shares than assumed in this TIA.

4.4.3 TDM Program

A review of the City's *TDM Measures Checklist* will be conducted by the proponent as part of future Site Plan Control applications.

4.5 Transit

4.5.1 Transit Route Capacity

Based on the trip generation estimates presented in Section 2.5.1, the conceptual development is anticipated to generate the following number of external transit trips:

- AM peak: 247 residential trips (76 in, 171 out) and 9 retail/community trips (6 in, 3 out);
- PM peak: 238 residential trips (136 in, 102 out) and 12 retail/community trips (6 in, 6 out);

A significant majority of site-generated transit trips are anticipated to use O-Train Line 1 (Algonquin–Trim), which is anticipated to be in operation prior to completion of the proposed development. A small proportion are anticipated to board and alight buses at stops #2627 and #5924 (for routes 35 or 36), and at stops #5637 and #8532 (for route 33). No site transit trips were assumed to use Route 234 due to the availability of Line 1. Route 302 does not serve the study area during the peak hours.

Data from the *2011 TRANS O-D Survey Report* suggests that approximately 60% of trips originating in Orléans remain within the district, approximately 40% of trips are destined for districts west of Orléans, and a negligible number of trips are destined for the eastern rural districts. For the purposes of this study, all transit trips to/from districts west of Orléans have been assigned to use the LRT, and transit trips within Orléans have been split evenly between the LRT and OC Routes 33, 35, and 36.

A summary of the assumed transit distributions is included in **Table 18**.

Table 18: Transit Distribution

Route, Terminus	Stop	Distribution		AM Peak Hour			PM Peak Hour		
		IN	OUT	IN	OUT	TOT	IN	OUT	TOT
Line 1, east (Trim)	Orléans Town Centre	60%	10%	45	17	*62*	81	10	*91*
Line 1, west (Algonquin)	Orléans Town Centre	10%	60%	7	103	*110*	13	62	*75*
Route 33, east (Portobello)	#8532	10%	0%	-	17	*17*	-	10	*10*
Route 33, west (Blair)	#5637	0%	10%	8	-	*8*	14	-	*14*
Route 35, east (Avalon)	#2627	10%	0%	-	17	*17*	-	10	*10*
Route 35, west (Blair)	#5924	0%	10%	8	-	*8*	14	-	*14*
Route 36, east (Innes)	#2627	10%	0%	-	17	*17*	-	10	*10*
Route 36, west (Place d'Orléans)	#5924	0%	10%	8	-	*8*	14	-	*14*

O-Train Line 1 (east to/from Trim)

During the peak hours, the proposed development is projected to generate an additional 17 AM boarding trips, 45 AM alighting trips, 10 PM boarding trips, and 81 PM alighting trips at Orléans Town Centre Station. Assuming Line 1 runs on five-minute headways during weekday peak hours (consistent with existing LRT schedules), this averages to an addition of two AM boardings, four AM alightings, one PM boarding, and seven PM alightings per train.

O-Train Line 1 (west to/from Algonquin)
During the peak hours, the proposed development is projected to generate an additional 103 AM boarding trips, seven AM alighting trips, 62 PM boarding trips, and 13 PM alighting trips at Orléans Town Centre Station. Assuming five-minute headways, this averages to an addition of nine AM boardings, one AM alighting, five PM boardings, and one PM alighting per train.

OC Route 33 (east to Portobello)
During the peak hours, the proposed development is projected to generate 17 AM boarding trips and eight PM boarding trips at stop #8532. Assuming 15-minute headways, this averages to an addition of five AM boardings and two PM boardings per bus.

OC Route 33 (west to Blair)
During the peak hours, the proposed development is projected to generate eight AM alighting trips and 14 PM alighting trips at stop #5637. Assuming 15-minute headways, this averages to an addition of two AM alightings and four PM alightings per bus.

OC Route 35 (east to Avalon)
During the peak hours, the proposed development is projected to generate 17 AM boarding trips and eight PM boarding trips at stop #2627. Assuming 30-minute headways, this averages to an addition of nine AM boardings and four PM boardings per bus.

OC Route 35 (west to Blair)
During the peak hours, the proposed development is projected to generate eight AM alighting trips and 14 PM alighting trips at stop #5924. Assuming 30-minute headways, this averages to an addition of four AM alightings and seven PM alightings per bus.

OC Route 36 (east to Innes)
During the peak hours, the proposed development is projected to generate 17 AM boarding trips and eight PM boarding trips at stop #2627. Assuming 30-minute headways, this averages to an addition of nine AM boardings and four PM boardings per bus.

OC Route 36 (west to Place d'Orléans)
During the peak hours, the proposed development is projected to generate eight AM alighting trips and 14 PM alighting trips at stop #5924. Assuming 30-minute headways, this averages to an addition of four AM alightings and seven PM alightings per bus.

4.5.2 Transit Priority Requirements

The proposed development does not include any driveways on a street that serves transit vehicles, and the majority of site-generated transit traffic are anticipated to use O-Train Line 1. The addition of site-generated transit traffic that is expected to use a bus is anticipated to have marginal impacts to transit delays. As discussed in Section 2.2.1, there are no other transit priority measures that are identified within the study area in the *2025 TMP*.

4.6 Network Concept

A review of the future lane capacities at the boundaries of the study area (i.e. screenline) has been conducted. The location of the screenline is shown in **Figure 15**.

The directional capacities for Place d'Orléans Drive, St. Joseph Boulevard, and Prestone Drive have been estimated using the City's TRANS road capacities for arterial or major collector roadways in suburban areas. The assumed lane capacities are 1,000 passenger car equivalents (PCEs) per hour per lane for arterial roadways (Place d'Orléans Drive and St. Joseph Boulevard) and 800 passenger car equivalents per hour per lane for major collector roadways (Prestone Drive).

The existing peak direction volumes, 2040 background peak direction volumes, and 2040 total peak direction volumes have been reviewed. Traffic volumes have been converted into PCEs by increasing the volumes by the percentage of heavy vehicles for each direction. The results are shown in **Table 19**.

Figure 15: Screenline Location

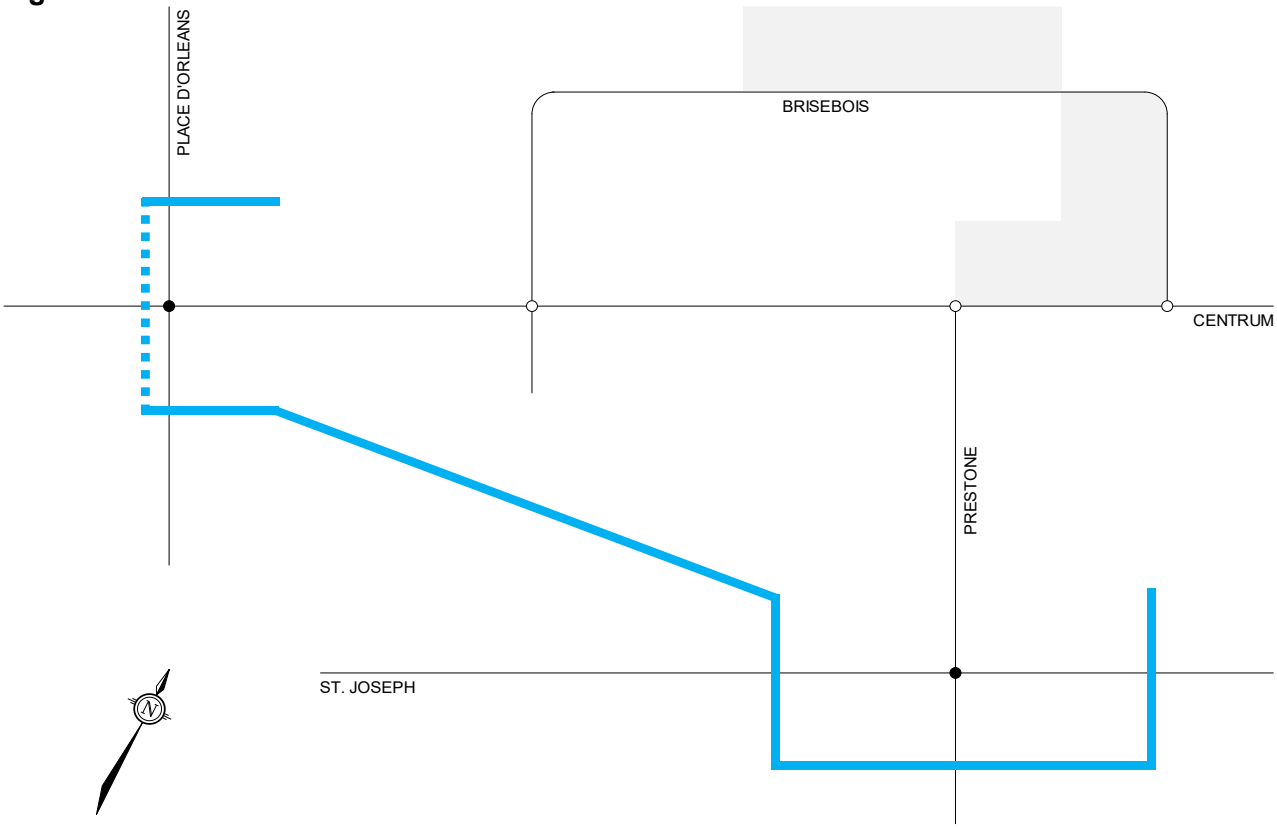


Table 19: Study Area Volumes and Performance

Roadway	Capacity (vph)[1]	Directional Volumes		Directional PCEs		v/c Ratio and LOS		Deficiencies	
		AM	PM	AM	PM	AM	PM	AM	PM
Existing Traffic Volumes									
Place d'Orléans Dr (N)	2,000	262	347	283	368	0.14 [A]	0.18 [A]	-	-
Place d'Orléans Dr (S)	2,000	309	353	324	364	0.16 [A]	0.18 [A]	-	-
St. Joseph Blvd (E)	2,000	1,077	1,121	1,099	1,132	0.55 [A]	0.57 [A]	-	-
St. Joseph Blvd (W)	2,000	1,103	1,127	1,125	1,138	0.56 [A]	0.57 [A]	-	-
Prestone Dr (S)	800	136	225	141	230	0.18 [A]	0.29 [A]	-	-
Overall	**8,800**	**2,887**	**3,173**	**2,972**	**3,232**	**0.34 [A]**	**0.37 [A]**	**-**	**-**
2040 Background Volumes									
Place d'Orléans Dr (N)	2,000	327	407	353	431	0.18 [A]	0.22 [A]	-	-
Place d'Orléans Dr (S)	2,000	341	397	358	409	0.18 [A]	0.20 [A]	-	-
St. Joseph Blvd (E)	2,000	1,423	1,465	1,451	1,480	0.72 [C]	0.74 [C]	-	-
St. Joseph Blvd (W)	2,000	1,422	1,432	1,450	1,446	0.72 [C]	0.72 [C]	-	-
Prestone Dr (S)	800	153	249	159	254	0.20 [A]	0.32 [A]	-	-
Overall	**8,800**	**3,666**	**3,950**	**3,771**	**4,020**	**0.43 [A]**	**0.46 [A]**	**-**	**-**
2040 Total Volumes									
Place d'Orléans Dr (N)	2,000	424	468	458	496	0.23 [A]	0.25 [A]	-	-
Place d'Orléans Dr (S)	2,000	354	414	372	426	0.19 [A]	0.21 [A]	-	-
St. Joseph Blvd (E)	2,000	1,445	1,489	1,474	1,504	0.74 [C]	0.75 [C]	-	-
St. Joseph Blvd (W)	2,000	1,444	1,457	1,472	1,472	0.74 [C]	0.74 [C]	-	-
Prestone Dr (S)	800	159	257	165	262	0.21 [A]	0.33 [A]	-	-
Overall	**8,800**	**3,826**	**4,085**	**3,941**	**4,160**	**0.45 [A]**	**0.47 [A]**	**-**	**-**

1. vph: vehicle trips per hour

As shown in the previous table, there is residual capacity throughout the study area, both in existing and future conditions.

4.7 Intersection Design

4.7.1 Intersection MMLOS

This section provides a review of the signalized study area intersections using complete streets principles. All intersections within the study area have been evaluated for PLOS, BLOS, TLOS, and Auto LOS. The selected targets are based on the targets for 'downtown core, inner urban, hub, and/or special district'. It is noted that the Place d'Orléans Drive/Highway 174 EB On-Ramp and the Place d'Orléans Drive/Centrum Boulevard intersections fall 'within 600m of a rapid transit station' policy area; however, the targets for it are the same as for a hub. St. Joseph Boulevard within the study area is designated as a crosstown bikeway. The full intersection MMLOS analysis is included in **Appendix M**. A summary of the results is shown in **Table 20**.

Table 20: Intersection MMLOS Summary

Intersection	PLOS		BLOS		TLOS		Auto LOS	
	Actual	Target	Actual	Target	Actual	Target	Actual	Target
Place d'Orléans Drive/ Highway 174 EB On-Ramp	B (B)	A	D (D)	B	A (A)	E	A (A)	E
Place d'Orléans Drive/ Centrum Boulevard	C (C)		E (E)	B	A (A)		A (A)	
St. Joseph Boulevard/ Prestone Drive	D (D)		E (E)	A	B (B)		A (A)	

Note: AM(PM)

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

- None of the study area intersections meets the target PLOS;
- None of the study area intersection meets the target BLOS;
- All the study area intersections meet the target TLOS; and
- All the study area intersections meet the target Auto LOS.

Place d'Orléans Drive/Highway 174 EB On-Ramp
The intersection does not meet the target PLOS A or BLOS B.

A crosswalk is provided only on the east leg. The east leg has a crossing distance of two vehicle lanes. There is limited opportunity in improving the PLOS at east leg without eliminating the northbound right turn channel. The east approach does not meet the City's vehicle/ pedestrian conflict threshold for zebra-striped crosswalks (greater than 400,000 vehicle/pedestrian conflicts over an eight-hour period).

The south approach (cyclists crossing the east leg) does not meet the target BLOS B. In general, cyclists do not face any left-turn conflicts (north approach does not exist and both lanes on south approach turn left) and right-turn is prohibited (east approach is Highway 174 EB On-Ramp). Cyclists crossing the east leg would be making the northbound left turn from the right most lane.

Place d'Orléans Drive/Centrum Boulevard
The intersection does not meet the target PLOS A or BLOS B.

The north and south approaches have a crossing distance of five vehicle lanes, and the east and west approaches have a crossing distance of four vehicle lanes. There is limited opportunity in improving the PLOS at each approach without reducing the number of travel lanes and would require protected intersection signalization measures (Leading Pedestrian Interval (LPI), No Right Turn on Red (NRTOR), etc.) to reduce the right-turn and left-turn conflicts. The east and west approaches do not meet the City's vehicle/ pedestrian conflict threshold for zebra-striped crosswalks (greater than 400,000 vehicle/pedestrian conflicts over an eight-hour period). There is limited opportunity in improving the delay score for pedestrians without incurring major delays for vehicles.

None of the approaches meet the target BLOS based on the right turn and left turn characteristics. A protected intersection design (protected corners/crossrides) would be required for all approaches to meet the target BLOS. This is identified for the City's consideration.

St. Joseph Boulevard/Prestone Drive
The intersection does not meet the target PLOS C or BLOS A.

The north and south approaches have a crossing distance of five vehicle lanes, and the east and west approaches have a crossing distance of seven vehicle lanes. There is limited opportunity in improving the PLOS at each approach without reducing the number of travel lanes and would require protected intersection signalization measures (Leading Pedestrian Interval (LPI), No Right Turn on Red (NRTOR), etc.) to reduce the right-turn and left-turn conflicts. No approaches meet the City's vehicle/pedestrian conflict threshold for zebra-striped crosswalks. There is limited opportunity in improving the delay score for pedestrians without incurring major delays for vehicles.

None of the approaches meet the target BLOS based on the right turn and left turn characteristics. A protected intersection design (protected corners/crossrides) would be required for all approaches to meet the target BLOS. This is identified for the City's consideration as the St. Joseph Boulevard corridor is reconstructed.

4.7.2 2035 Total Traffic Conditions

Intersection capacity analysis of the AM and PM peak hours has been conducted for the 2035 total traffic conditions. The results of the analysis are summarized in **Table 21**. Detailed Synchro reports are included in **Appendix N**.

Table 21: 2035 Total Traffic Operations

Intersection	AM Peak Hour			PM Peak Hour		
	Max v/c or Delay	LOS	Mvmt	Max v/c or Delay	LOS	Mvmt
Place d'Orléans Drive/ Ottawa Road 174 EB Ramp(1)	0.33	A	NBL	0.46	A	EBT
Place d'Orléans Drive/ Centrum Boulevard(1)	0.57	A	WBT/R	0.68	B	EBL
Centrum Boulevard/ Brisebois Crescent (West)(2)	11 sec	B	SBL/T/R	19 sec	C	NBL/T/R
Centrum Boulevard/ Prestone Drive(2)	9 sec	A	WBL/T	10 sec	A	WBL/T
Centrum Boulevard/ Brisebois Crescent (East)(2)	9 sec	A	SBR	9 sec	A	SBR
St. Joseph Boulevard/ Prestone Drive(1)	0.48	A	WBT	0.76	C	SBL
Site Access to Buildings B/C(2)	10 sec	A	SBL/R	10 sec	A	SBL/R
Site Access to Building A/Bayview(2)	10 sec	A	NBL/R	10 sec	A	SBL/R
Site Access to Buildings D/E(2)	10 sec	A	EBL/R	9 sec	A	EBL/R

1. Signalized intersection
2. Unsignalized intersection

From the previous table, all study area intersections and proposed accesses are projected to operate at an acceptable level of service. There are no queue lengths that extend into upstream intersections or exceed auxiliary lane storage lengths.

4.7.3 2040 Total Traffic Conditions

Intersection capacity analysis of the AM and PM peak hours has been conducted for the 2040 total traffic conditions. The results of the analysis are summarized in **Table 22**. Detailed Synchro reports are included in **Appendix N**.

Table 22: 2040 Total Traffic Operations

Intersection	AM Peak Hour			PM Peak Hour		
	Max v/c or Delay	LOS	Mvmt	Max v/c or Delay	LOS	Mvmt
Place d'Orléans Drive/ Ottawa Road 174 EB Ramp(1)	0.33	A	NBL	0.46	A	EBT
Place d'Orléans Drive/ Centrum Boulevard(1)	0.57	A	WBT/R	0.72	C	EBL
Centrum Boulevard/ Brisebois Crescent (West)(2)	11 sec	B	SBL/T/R	19 sec	C	NBL/T/R
Centrum Boulevard/ Prestone Drive(2)	9 sec	A	WBL/T	10 sec	A	WBL/T
Centrum Boulevard/ Brisebois Crescent (East)(2)	9 sec	A	SBR	9 sec	A	SBR
St. Joseph Boulevard/ Prestone Drive(1)	0.52	A	WBT	0.76	C	SBL
Site Access to Buildings B/C(2)	10 sec	A	SBL/R	10 sec	A	SBL/R
Site Access to Building A/Bayview(2)	10 sec	A	NBL/R	10 sec	A	SBL/R
Site Access to Buildings D/E(2)	10 sec	A	EBL/R	9 sec	A	EBL/R

1. Signalized intersection
2. Unsignalized intersection

From the previous table, all study area intersections and proposed accesses are projected to operate at an acceptable level of service. There are no queue lengths that extend into upstream intersections or exceed auxiliary lane storage lengths.

At the request of the city, signalization warrants have been reviewed for the 2040 total traffic volumes at the following intersections:

- Centrum Boulevard/Brisebois Crescent (West): 47% satisfied
- Centrum Boulevard//Brisebois Crescent (East): 24% satisfied
- Centrum Boulevard/Prestone Drive: 38% satisfied

None of the three intersections satisfy the signalization warrants. Copies of the warrants are included in **Appendix O**.

5.0 CONCLUSIONS AND RECOMMENDATIONS

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

Site-Generated Traffic

- The proposed development is projected to generate the following number of external peak hour trips:
  - 277 vehicle trips, 256 transit trips, and 76 non-auto trips during the AM peak hour;
  - 286 vehicle trips, 250 transit trips, and 79 non-auto trips during the PM peak hour.

Development Design and Parking

- It is anticipated that the minimum required stopping sight distance (SSD) will be provided at all accesses. The desired intersection sight distance (ISD) can be accommodated at the proposed accesses for Buildings A and B/C, provided that any future landscaping and building envelopes are designed appropriately and future vegetation is maintained. The desired ISD for left turns can be accommodated at the proposed access for Building D/E. The ISD for right turns is based on the future building envelope of the community centre. The community centre is a placeholder and will be subject to design from the City of Ottawa. Details are unknown at this time.

- Based on the concept plan, entrances to Buildings A and B/C, including townhouse entrances on the ground floor, will connect to the existing sidewalk on the north side of Brisebois Crescent. Entrances to Building D/E will connect to the existing sidewalks on the inside of Brisebois Crescent and north side of Centrum Boulevard.

- An open space is proposed between Buildings A and B/C to provide an active transportation connection to the future Orléans Town Centre O-Train Station. A pedestrian crossover (PXO) should be implemented at this location on Brisebois Crescent as part of the future station, aligning with the north-south pedestrian connection through the Bayview development to Centrum Boulevard. The existing tactile walking surface indicators (TWSIs) and curb depressions at the bend of Brisebois Crescent to the east should be removed when the new PXO is implemented.

- The concept plan identifies interior bike parking spaces on the ground floors and/or within the underground parking garages of each proposed building.

- It is anticipated that all proposed entrances will be within 400m walking distance of the future Orléans Town Centre LRT Station and existing bus stops on Centrum Boulevard and Prestone Drive, and within 600m walking distance of existing bus stops on Place d'Orléans Drive.

- The number of conceptual parking spaces in each proposed building meets the minimum requirements outlined in the City's 2008-250 ZBL but does not fully meet the requirements of the city's new 2026-50 ZBL. Consideration of the less restrictive bicycle parking rates is requested. The number of vehicle parking, bicycle parking, loading spaces, and accessible parking spaces will be reviewed as part of future Site Plan Control applications.

Boundary Streets

- Centrum Boulevard meets the target PLOS A but does not meet the target BLOS B. Brisebois Crescent does not meet the target PLOS A and BLOS B.

- To meet the target BLOS B along Centrum Boulevard, bike lanes are required in both directions of the roadway, which will result in a BLOS A. This is identified for the City's consideration.

- To meet the target PLOS A along Brisebois Crescent, an offset from motor vehicle travel lane is required. To meet the target BLOS B, painted bike lanes are required. This is identified for the City's consideration.

Transit

- The proposed development does not include any driveways on a street that serves transit vehicles, and the majority of site transit traffic are anticipated to use O-Train Line 1.

- The addition of site-generated transit traffic that is expected to use a bus is anticipated to have marginal impacts to transit delays.

Network Concept

- There is residual capacity throughout the study area, both in existing and future conditions.

Intersection Multi-Modal Level of Service (MMLOS)

- The results of the intersections MMLOS analysis can be summarized as follows:
    - No study area intersection meets the target PLOS;
    - No study area intersection meets the target BLOS;
    - All the study area intersections meet the target TLOS; and
    - All the study area intersections meet the target Auto LOS.

- At Place d'Orléans Drive/Highway 174 EB On-Ramp, the east leg has a crossing distance of two vehicle travel lanes. There is limited opportunity in improving the PLOS at east leg without eliminating the northbound right turn channel.

- At Place d'Orléans Drive/Centrum Boulevard, the north and south approaches have a crossing distance of five vehicle lanes, and the east and west approaches have a crossing distance of four vehicle lanes. There is limited opportunity in improving the PLOS at each approach without reducing the number of travel lanes and would require protected intersection signalization measures (Leading Pedestrian Interval (LPI), No Right Turn on Red (NRTOR), etc.) to reduce the right-turn and left-turn conflicts. There is limited opportunity in improving the delay score for pedestrians without incurring major delays for vehicles.

- At St. Joseph Boulevard/Prestone Drive, the north and south approaches have a crossing distance of five vehicle lanes, and the east and west approaches have a crossing distance of seven vehicle lanes. There is limited opportunity in improving the PLOS at each approach without reducing the number of travel lanes and would require protected intersection signalization measures (Leading Pedestrian Interval (LPI), No Right Turn on Red (NRTOR), etc.) to reduce the right-turn and left-turn conflicts.

- At all the signalized study area intersections except for the Place d'Orléans Drive/Highway 174 EB On-Ramp, none of the approaches meet the target BLOS based on the right turn and left turn characteristics. A protected intersection design (protected corners/crossrides) would be required for all approaches to meet the target BLOS. This is identified for the City's consideration.

Existing, Background, and Total Traffic Operations

- In all existing, background, and total traffic conditions, all study area intersections are projected to operate at an acceptable level of service. There are no queue lengths that extend into upstream intersections or exceed auxiliary lane storage lengths.

- All proposed accesses are projected to operate at an acceptable level of service.

- Signalization warrants have been reviewed at Centrum Boulevard/Brisebois Crescent (West), Centrum Boulevard/Brisebois Crescent (East), and Centrum Boulevard/Prestone Drive intersections for 2040 total traffic conditions. None of the intersections satisfy the warrants.

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

NOVATECH

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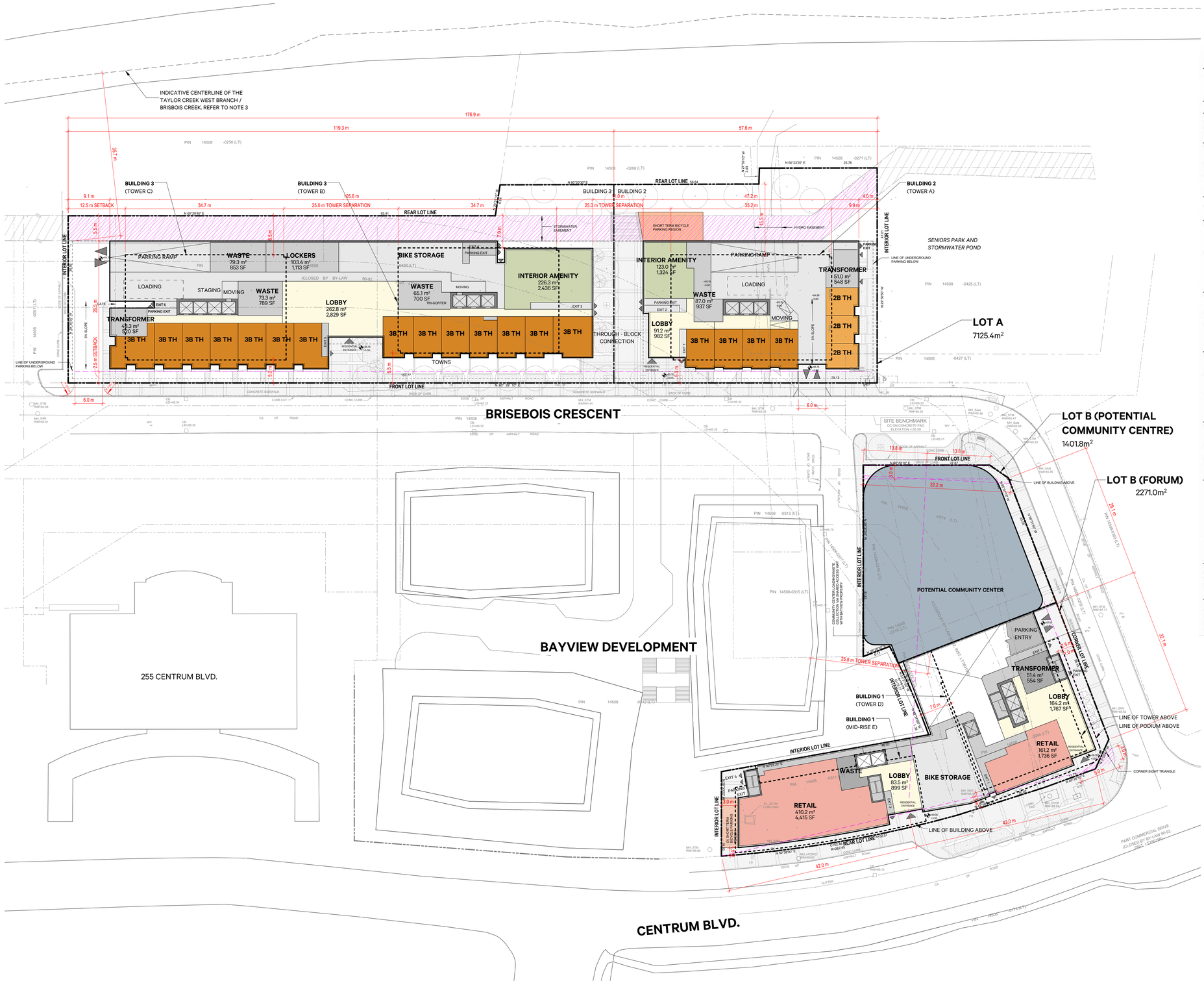
Project Engineer | Transportation

Reviewed by:

Jennifer Luong, P.Eng.
Senior Project Manager | Transportation

APPENDIX A

Concept Plan



SITE INFORMATION AND STAT SUMMARY

LOTS	**PIN**
	14508-0264 (LT), 14508-0276 (LT), 14508-0311 (LT), 14508-0314 (LT), 14508-0316 (LT), 14508-0318(LT), 14508-0426 (LT), 14508-0428(LT),
ZONING	MC14[1413] (LOT A), MC14[1520] S152 (LOT B)

SITE AREA	**10,798 m²**
LOT A (FORUM BUILDINGS 2 AND 3)	7,125 m²
LOT B (FORUM BUILDING 1)	2,271 m²
LOT B (COMMUNITY CENTRE)	1,402 m²

UNITS		**1505**
BUILDING 1	TOWER D	312
	MID-RISE E	63
BUILDING 2	TOWER A	312
BUILDING 3	TOWER B +C	818

SPECIFIC PROVISIONS	**REQUIRED**	**PROVIDED**
MINIMUM LOT AREA	NO MIN	10,798 m²
SETBACKS		
LOT A		
FRONT YARD SETBACK	3.0m	2.5m
CORNER YARD SETBACK	3.0m	N/A
INTERIOR SIDE YARD SETBACK	3.0m	4.0m
REAR YARD SETBACK	2.0m	5.5m
LOT B		
FRONT YARD SETBACK	3.0m	0.0m
CORNER YARD SETBACK	3.0m	2.5m
INTERIOR SIDE YARD SETBACK	3.0m	0.0m
REAR YARD SETBACK	6.0m	0.0m

MAXIMUM BUILDING HEIGHT			
BUILDING 1	TOWER D	n/a	100.7m
	MID-RISE E	n/a	31.2m
BUILDING 2	TOWER A	n/a	100.3m
BUILDING 3	TOWER B	n/a	115.3m
	TOWER C	n/a	130.3m

PARKING RATES		**REQUIRED**	**PROVIDED**
BUILDING 1	TOTAL	**30**	**31**
	APARTMENTS	0	
	VISITOR	30 p/building	
BUILDING 2	TOTAL	**30**	**30**
	APARTMENTS	0	
	VISITOR	30 p/building	
BUILDING 3	TOTAL	**38**	**68**
	APARTMENTS	0	
	VISITOR	30 p/building	

BIKE PARKING - TOTAL REQUIRED 0.5			
BUILDING 1	TOTAL	**191**	**191**
	RESIDENT	0.5 p/unit = 158	
	COMMERCIAL	1/250m² = 3	
BUILDING 2	TOTAL	**156**	**156**
	RESIDENT	0.5 p/unit = 156	
BUILDING 3	TOTAL	**409**	**409**
	RESIDENT	0.5 p/unit = 409	

AMENITY AREA		**Min 3m² per unit**	
BUILDING 1 (TOWER D)	TOTAL	936 m²	**962 m²**
	INTERIOR COMMUNAL		709 m²
	EXTERIOR COMMUNAL		253 m²
BUILDING 1 (MID-RISE E)	TOTAL	189 m²	**192 m²**
	INTERIOR COMMUNAL		128 m²
	EXTERIOR COMMUNAL		64 m²
BUILDING 2	TOTAL	936 m²	**1,046 m²**
	INTERIOR COMMUNAL		693 m²
	EXTERIOR COMMUNAL		353 m²
BUILDING 3	TOTAL	2,454 m²	**2,471 m²**
	INTERIOR COMMUNAL		1,662 m²
	EXTERIOR COMMUNAL		809 m²

GFA - CITY OF OTTAWA	
BUILDING 1 (TOWER D)	18,235 m²
BUILDING 1 (MID-RISE E)	3,358 m²
BUILDING 2	3,358 m²
BUILDING 3	46,989 m²

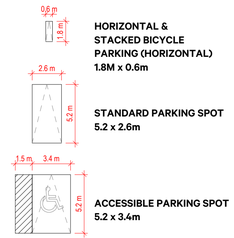
NOTES

1. THE BASE PLAN (LOT LINES, EXISTING ROADS AND SURROUNDING AREAS) IS BASED ON THE TOPOGRAPHICAL PLAN OF SURVEY OF J.D. BARNES LIMITED - REFERENCE NUMBER 22-10-112-00.
2. DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.

NO.	DATE	REVISION/COMMENT
1	2025-12-12	Issued for ZBA
2	2026-02-20	Reissued for ZBA
3	2026-05-11	Reissued for ZBA

NOTES

1. THE BASE PLAN (LOT LINES, EXISTING ROADS AND SURROUNDING AREAS) IS BASED ON THE TOPOGRAPHICAL PLAN OF SURVEY OF J.D. BARNES LIMITED - REFERENCE NUMBER 22-10-112-00.
2. DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.
3. INDICATIVE LOCATION OF THE TAYLOR CREEK WEST BRANCH/BRISBOIS CREEK CENTRELINE DRIVED USING QGIS FROM "PL_ES_WATERCOURSE FEATURE SET," WHICH IS MAINTAINED BY THE MINISTRY OF NATURAL RESOURCES AND FORESTRY ONTARIO AS PART OF THE HYDROLOGY NETWORK (OHN) OHN_WATERCOURSE FEATURE. FEATURE SET PROJECTED USING COORDINATE REFERENCE SYSTEM (CRS) NAD 1983 MTM 9 (32189), ONE OF THE CRS LISTED ON THE GEOOTTAWA WEBSITE.



HORIZONTAL & STACKED BICYCLE PARKING (HORIZONTAL)
1.8M x 0.6m

STANDARD PARKING SPOT
5.2 x 2.6m

ACCESSIBLE PARKING SPOT
5.2 x 3.4m

SvN
110 Adelaide St. E.
Toronto, ON M5C 1K9
info@svn-ap.com
416.593.6499

530 Brisebois Cres
Part of 265 Centrum Blvd (Forum Lands)

Forum Asset Management

OVERALL SITE PLAN

PROJECT		DRAWN	MC
SCALE	As indicated	CHECKED	RN
DATE	10/12/2025		

0-A101

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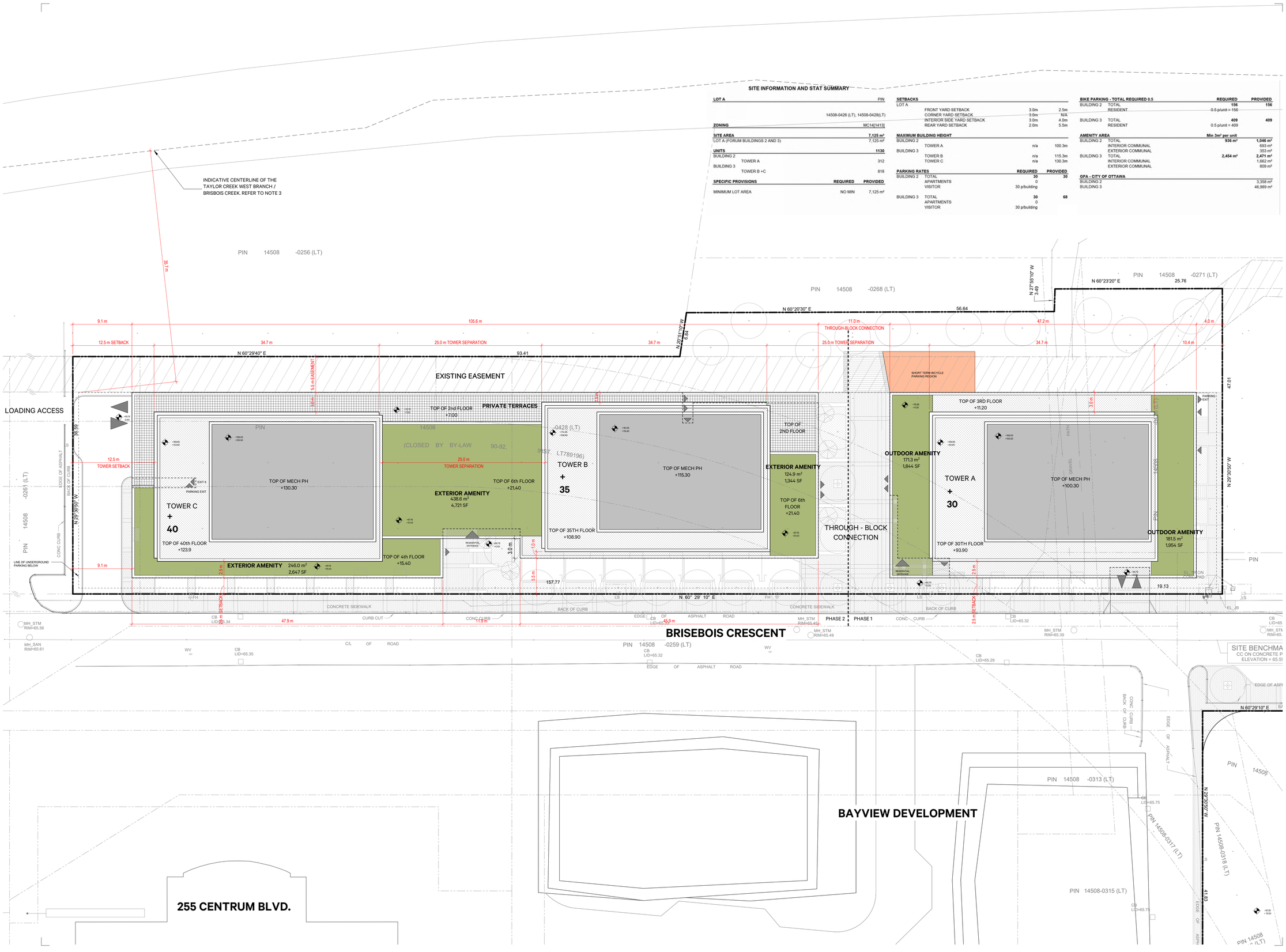

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THIS DRAWING IS NOT TO BE USED FOR CONSTRUCTION UNTIL ISSUED FOR THAT PURPOSE BY THE DESIGNER.

PRIOR TO COMMENCEMENT OF THE WORK THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, DATUMS AND LEVELS TO IDENTIFY ANY ERRORS AND OMISSIONS; ASCERTAIN ANY DISCREPANCIES BETWEEN THIS DRAWING AND THE FULL CONTRACT DOCUMENTS; AND BRING THESE ITEMS TO THE ATTENTION OF THE OWNERS FOR CLARIFICATION.

NO.	DATE	REVISION/COMMENT
1	2025-12-12	Issued for ZBA
2	2026-02-20	Reissued for ZBA
3	2026-05-11	Reissued for ZBA

NOTES

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Toronto, ON M5C 1K9
info@svn-ap.com
416.503.0499

530 Brisebois Cres
Part of 265 Centrum Blvd (Forum Lands)

Forum Asset Management

LOT A - SITE PLAN

PROJECT		DRAWN	MC
SCALE	1 : 250	CHECKED	RN
DATE	10/12/2025		

1-A101

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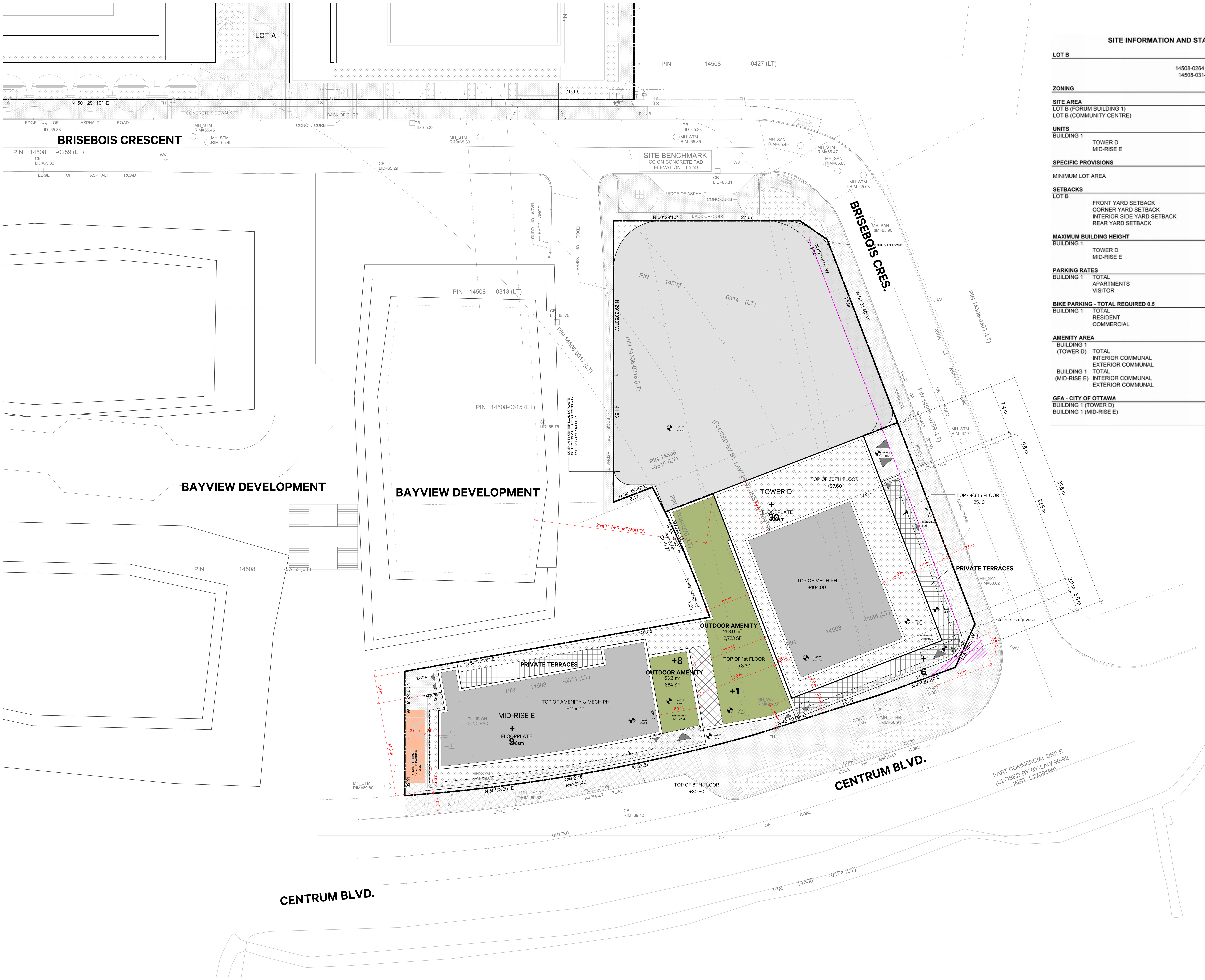
Autodesk Docs://265 Centrum/42365-Centrum_ARCH-MAIN_R24.rvt



SITE INFORMATION AND STAT SUMMARY

LOT B			PIN
			14508-0264 (LT), 14508-0276 (LT), 14508-0311 (LT), 14508-0314 (LT), 14508-0316 (LT), 14508-0318(LT)
ZONING			MC14[1520] S152 (LOT B)
SITE AREA			**3,673 m²**
LOT B (FORUM BUILDING 1)			2,271 m²
LOT B (COMMUNITY CENTRE)			1,402 m²
UNITS			**375**
BUILDING 1			
	TOWER D		312
	MID-RISE E		63
SPECIFIC PROVISIONS		**REQUIRED**	**PROVIDED**
MINIMUM LOT AREA		NO MIN	3,673 m²
SETBACKS			
LOT B			
	FRONT YARD SETBACK	3.0m	0.0m
	CORNER YARD SETBACK	3.0m	2.5m
	INTERIOR SIDE YARD SETBACK	3.0m	0.0m
	REAR YARD SETBACK	6.0m	0.0m
MAXIMUM BUILDING HEIGHT			
BUILDING 1			
	TOWER D	n/a	100.7m
	MID-RISE E	n/a	31.2m
PARKING RATES		**REQUIRED**	**PROVIDED**
BUILDING 1	TOTAL	**30**	**31**
	APARTMENTS	0	
	VISITOR	30 p/building	
BIKE PARKING - TOTAL REQUIRED 0.5			
BUILDING 1	TOTAL	**191**	**191**
	RESIDENT	0.5 p/unit = 188	
	COMMERCIAL	1/250m² = 3	
AMENITY AREA		**Min 3m² per unit**	
BUILDING 1 (TOWER D)	TOTAL	**936 m²**	**962 m²**
	INTERIOR COMMUNAL		709 m²
	EXTERIOR COMMUNAL		253 m²
BUILDING 1 (MID-RISE E)	TOTAL	**189 m²**	**192 m²**
	INTERIOR COMMUNAL		128 m²
	EXTERIOR COMMUNAL		64 m²
GFA - CITY OF OTTAWA			
BUILDING 1 (TOWER D)			18,235 m²
BUILDING 1 (MID-RISE E)			3,358 m²

NO.	DATE	REVISION/COMMENT
1	2025-12-12	Issued for ZBA
2	2026-02-20	Reissued for ZBA
3	2026-05-11	Reissued for ZBA

NOTES

1. THE BASE PLAN (LOT LINES, EXISTING ROADS AND SURROUNDING AREAS) IS BASED ON THE TOPOGRAPHICAL PLAN OF SURVEY OF J.D. BARNES LIMITED - REFERENCE NUMBER 22-10-112-00.
2. DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0,3048.

HORIZONTAL & STACKED BICYCLE PARKING (HORIZONTAL) 1.8M x 0.6m

STANDARD PARKING SPOT 5.2 x 2.6m

ACCESSIBLE PARKING SPOT 5.2 x 3.4m

SvN
110 Adelaide St. E.
Toronto, ON M5C 1K9
info@svn-ap.com
416.593.6499

530 Brisebois Cres
Part of 265 Centrum Blvd (Forum Lands)

Forum Asset Management

LOT B - SITE PLAN

PROJECT		DRAWN	MC
SCALE	1 : 250	CHECKED	RN
DATE	10/12/2025		

2-A101

5/11/2026 4:54:55 PM

Autodesk Docs://265 Centrum/42305-Centrum_ARCH-MAIN_R24.rvt

APPENDIX B

TIA Screening Form

City of Ottawa 2017 TIA Guidelines TIA Screening

1. Description of Proposed Development

Municipal Address	265 Centrum Blvd & 530 Brisebois Cres
Description of Location	NW of Brisebois/Centrum and north of Brisebois
Land Use Classification	Residential, Retail, & Community Centre
Development Size (units)	1,505 residential units
Development Size square metre (m^2)	570 m2 retail // 3,617 m2 community centre
Number of Accesses and Locations	3 to Brisebois
Phase of Development	
Buildout Year	2035

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.

Table notes:

1. Table 2, Table 3 & Table 4 TRANS Trip Generation Manual
2. Institute of Transportation Engineers (ITE) Trip Generation Manual 11.1 Ed.

Land Use Type	Minimum Development Size
Single-family homes	**60 units**
Multi-Use Family (Low-Rise)[1]	**90 units**
Multi-Use Family (High-Rise)[1]	**150 units**
Office[2]	**1,400 m^2**
Industrial[2]	**7,000 m^2**
Fast-food restaurant or coffee shop[2]	**110 m^2**
Destination retail[2]	**1,800 m^2**
Gas station or convenience market[2]	**90 m^2**

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

3. Location Triggers

	Yes	No
Does the development propose a new driveway to a boundary street that is designated as part of the Transit Priority Network, Rapid Transit network or Cross-Town Bikeways?	☐	☑
Is the development in a Hub, a Protected Major Transit Station Area (PMTSA), or a Design Priority Area (DPA)?[2]	☑	☐

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 kilometers per hour (km/h) 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 metre [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?	☐	☑

[2] Hubs are identified in Schedules B1 to B8 of the City of Ottawa Official Plan. PMTSAs are identified in Schedule C1 of the Official Plan. DPAs are identified in Schedule C7A and C7B of the Official. See Chapter 4 for a list of City of Ottawa Planning and Engineering documents that support the completion of TIA.

	Yes	No
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

Results of Screening	Yes	No
Does the development satisfy the Trip Generation Trigger?	☑	☐
Does the development satisfy the Location Trigger?	☑	☐
Does the development satisfy the Safety Trigger?	☑	☐

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

APPENDIX C

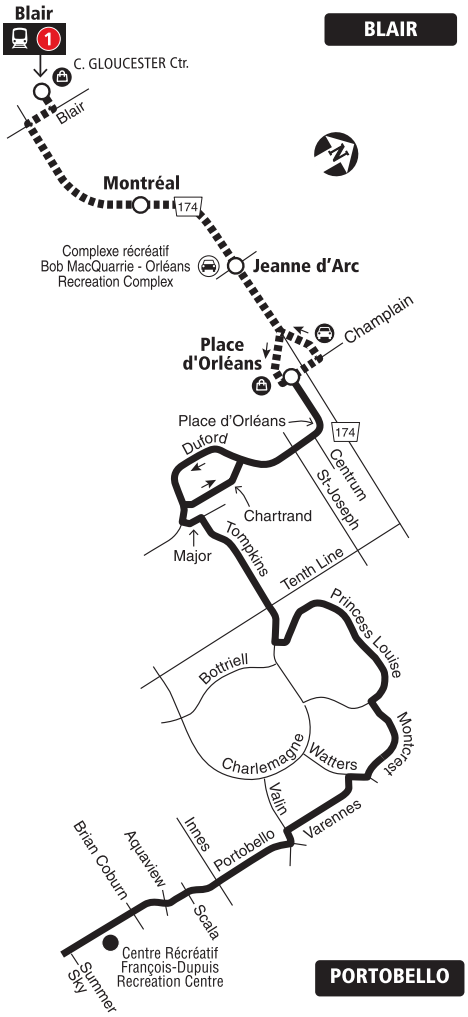
OC Transpo Route Maps

33 PLACE D'ORLÉANS BLAIR / PORTOBELLO

Local

7 days a week / 7 jours par semaine

All day service
Service toute la journée



04.2025

- Station
- Peak period and select midday trips / Périodes de pointe et trajets sélectionnés en mi-journée
- Park & Ride / Parc relais
- Shopping Centre / Centre commercial

2025.04

This route starts on April 27, 2025 when the New Ways to Bus network comes into effect.

Ce circuit sera mis en service le 27 avril 2025, lorsque le réseau L'autobus réinventé entrera en vigueur.

Customer Service / Service à la clientèle **613-560-5000**

Security / Sécurité **613-741-2478**

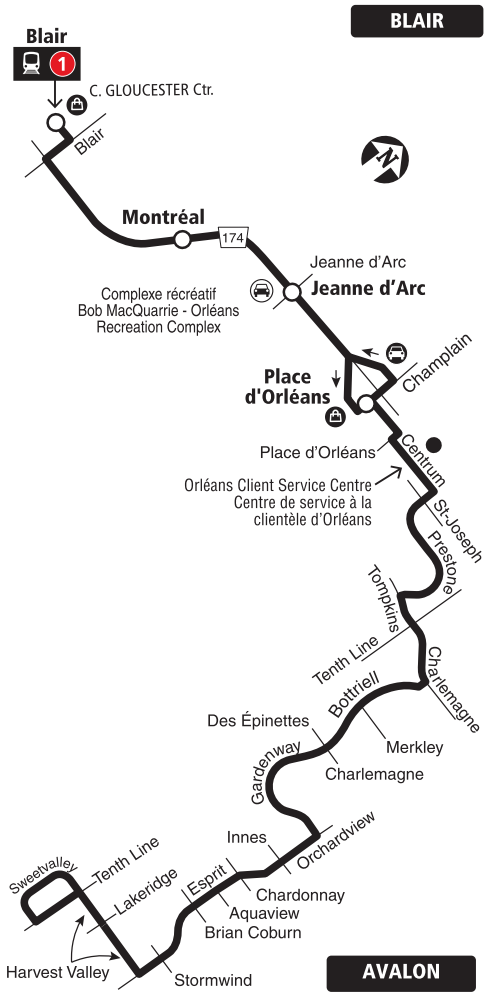
OC Transpo **octranspo.com**

35 AVALON / BLAIR

Local

7 days a week / 7 jours par semaine

All day service
Service toute la journée



04.2025

- Station
- Park & Ride / Parc relais
- Shopping Centre / Centre commercial

2025.04

This route starts on April 27, 2025 when the New Ways to Bus network comes into effect.

Ce circuit sera mis en service le 27 avril 2025, lorsque le réseau L'autobus réinventé entrera en vigueur.

Customer Service / Service à la clientèle **613-560-5000**

Security / Sécurité **613-741-2478**

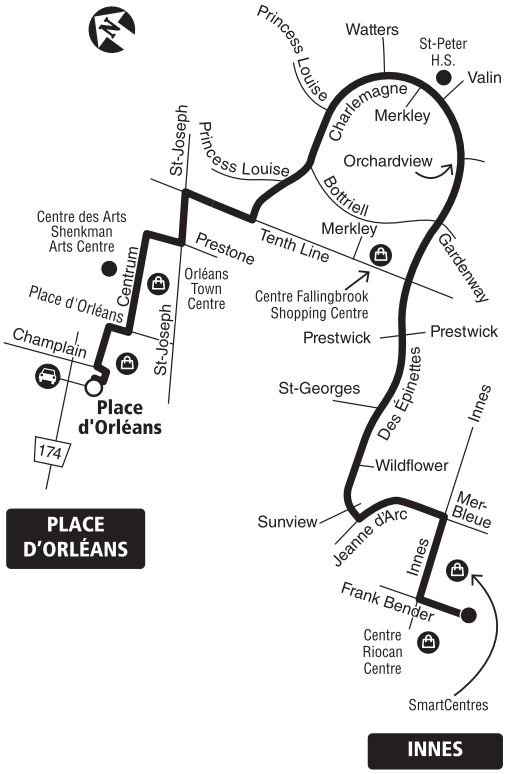
OC Transpo **octranspo.com**

36 INNES PLACE D'ORLÉANS

Local

7 days a week / 7 jours par semaine

All day service
Service toute la journée



04.2025

- Station
- Park & Ride / Parc relais
- Shopping Centre / Centre commercial

2025.04

This route starts on April 27, 2025 when the New Ways to Bus network comes into effect.

Ce circuit sera mis en service le 27 avril 2025, lorsque le réseau L'autobus réinventé entrera en vigueur.

Customer Service / Service à la clientèle **613-560-5000**

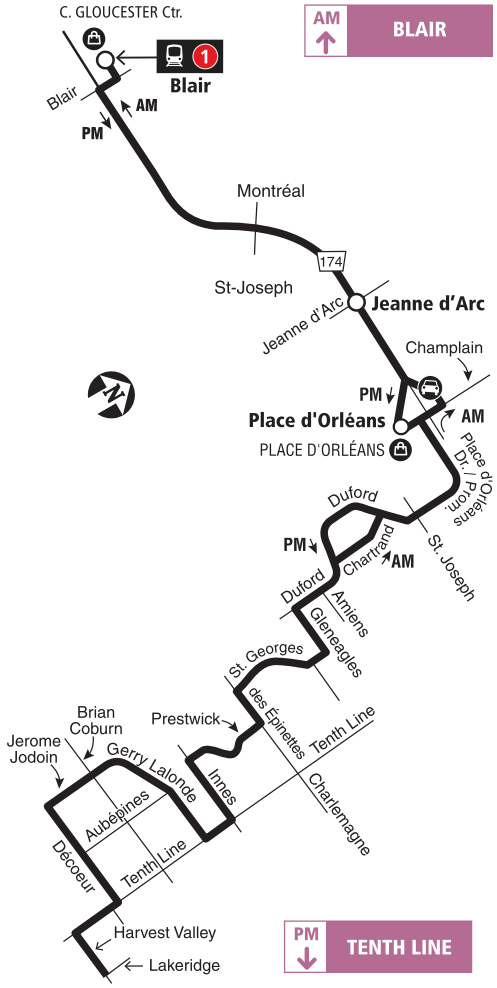
Security / Sécurité **613-741-2478**

OC Transpo **octranspo.com**

234 Connexion

BLAIR
TENTH LINE

Monday to Friday / Lundi au vendredi
Peak periods only
Périodes de pointe seulement



04.2025

- Station
- Park & Ride / Parc relais
- Shopping Centre / Centre commercial

2025.04

This route starts on April 27, 2025 when the New Ways to Bus network comes into effect.

Ce circuit sera mis en service le 27 avril 2025, lorsque le réseau L'autobus réinventé entrera en vigueur.

Customer Service / Service à la clientèle **613-560-5000**

Security / Sécurité **613-741-2478**

OC Transpo **octranspo.com**

302 Local

ST-LAURENT
CUMBERLAND, SARSFIELD, NAVAN

Tuesday only / Mardi seulement

Selected time periods

Périodes sélectionnées

04.2025

Station

Park & Ride / Parc relais

Shopping Centre / Centre commercial

2019.08

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

Text / Texto 560560

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

Customer Relations
Service à la clientèle **613-560-5000**

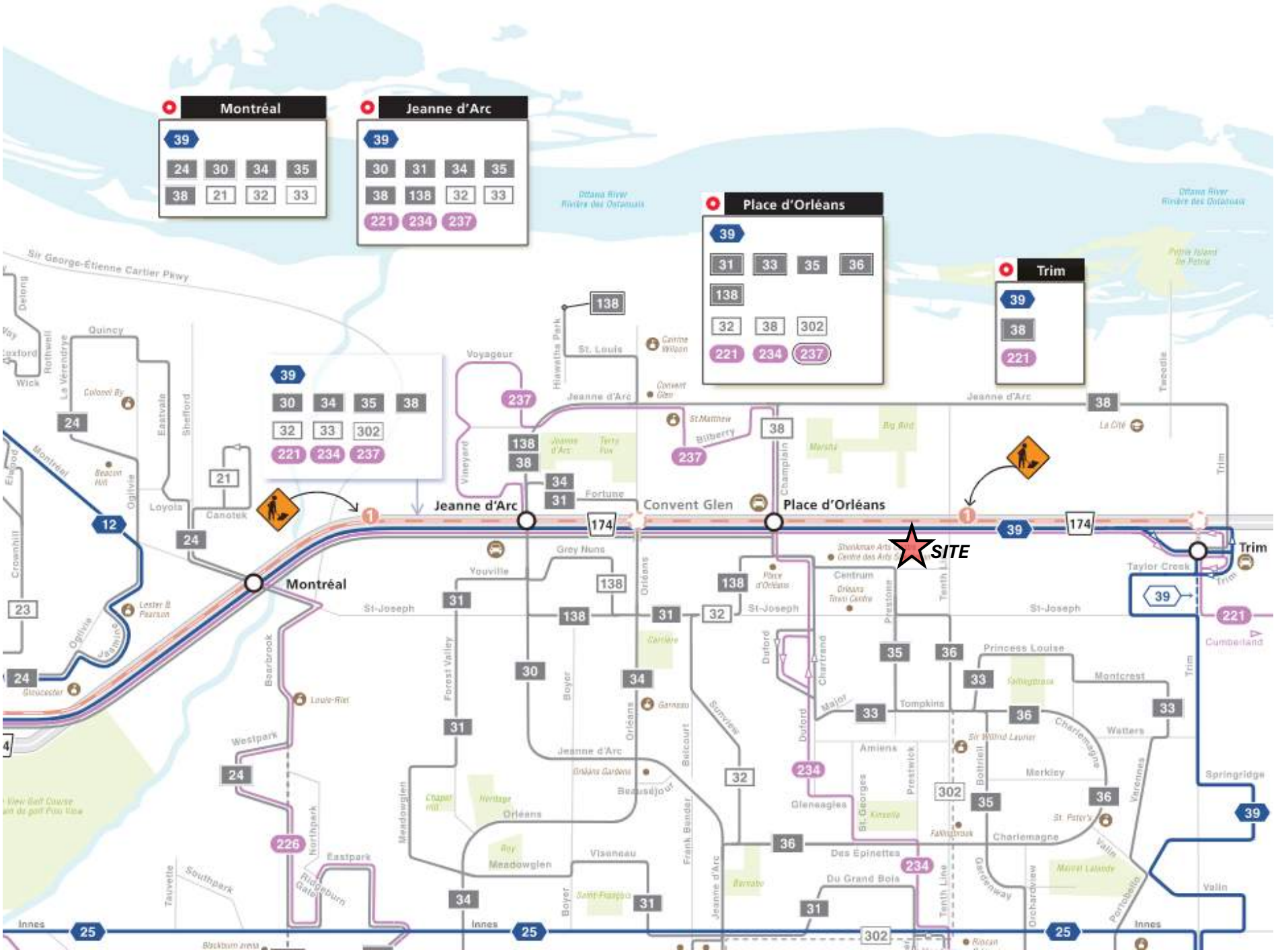
Lost and Found / Objets perdus..... **613-563-4011**

Security / Sécurité..... **613-741-2478**

Effective December 25, 2016
En vigueur 25 décembre 2016

OC Transpo

INFO 613-560-5000
octranspo.com


Montréal
39
24 30 34 35
38 21 32 33
Jeanne d'Arc
39
30 31 34 35
38 138 32 33
221 234 237
Place d'Orléans
39
31 33 35 36
138
32 38 302
221 234 237
Trim
39
38
221
39
30 34 35 38
32 33 302
221 234 237
SITE
Jeanne d'Arc
Convent Glen
Place d'Orléans
Montréal
Trim
Sir George-Étienne Cartier Pkwy
Ottawa River
Rivière des Outaouais
Quincy
Colonel By
Beacon Hill
Loyola
Canotek
Eastvale
Sheffield
Ogilvie
Montréal
Elmwood
Crownhill
Lester B Pearson
Gloucester
Jeanne d'Arc
Westpark
Louis-Riel
Baxbrook
Northpark
Eastpark
Southpark
Tauvette
Richelburn Gate
Blackburn Trail
Innes
Voyageur
Vineyard
Hiawatha Park
St. Louis
Carme Wilson
Convent Glen
St.Matthew
Bilberry
Fortune
Champlain
Big Bird
Marsh
La Cité
Tweedie
Youville
Grey Nuns
St-Joseph
Forest Valley
Boyer
Orléans
Cardinal
Garneau
Sunview
Belcourt
Frank Bender
Jeanne d'Arc
Orléans Gardens
Beauséjour
Chapel Hill
Heritage
Orléans
Roy
Meadowglen
Visneau
Saint-François
Barrette
Centrum
Orléans Town Centre
Place d'Orléans
Shenkman Arts Centre
Prestone
Tenth Line
Dufford
Chartrand
Major
Tompkins
Princess Louise
Montcrest
Wetters
Charlemagne
Merkley
Bothrell
Sir Wilfrid Laurier
Amiens
Prestwick
St. Georges
Gleneagles
Des Epinettes
Du Grand Bois
Orchardview
Portobello
Vallin
Varennes
Springridge
Taylor Creek
Cumberland
Trim
Tweedie
Petite Island
De Petrie

APPENDIX D

Traffic Count Data

Transportation Services - Traffic Services

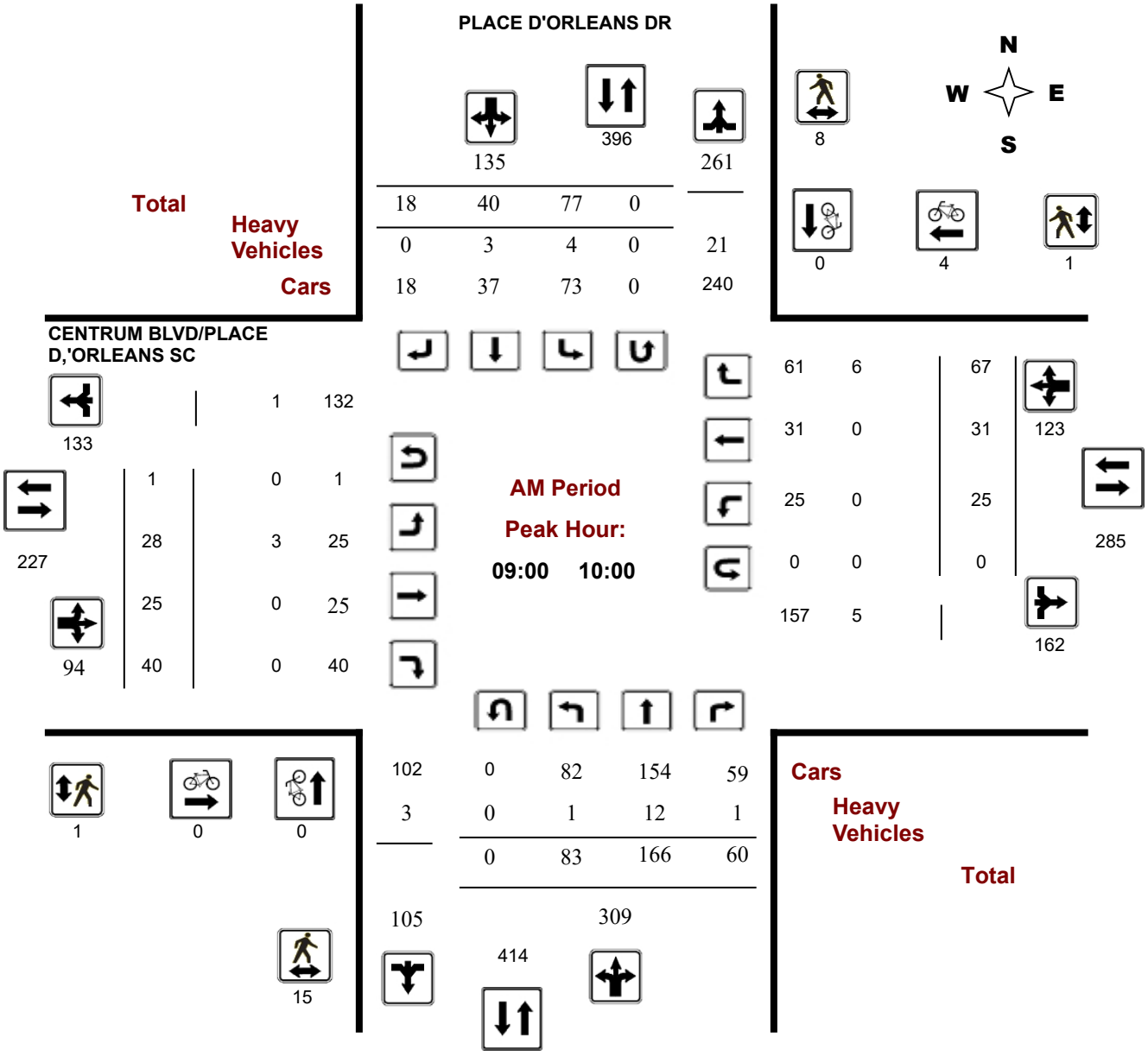
Turning Movement Count - Study Results

PLACE D'ORLEANS DR @ CENTRUM BLVD/PLACE D'ORLEANS SC

Survey Date: Tuesday, June 18, 2024 **WO No:** 41945

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

AM Period Peak Hour Diagram



Total	18	40	77	0
Heavy Vehicles	0	3	4	0
Cars	18	37	73	0

	1	0	1	
	28	3	25	
	25	0	25	
	40	0	40	

	61	6		
	31	0		
	25	0		
	0	0		
	157	5		

	67			
	31			
	25			
	0			

	102	0	82	154	59
	3	0	1	12	1
		0	83	166	60

Transportation Services - Traffic Services

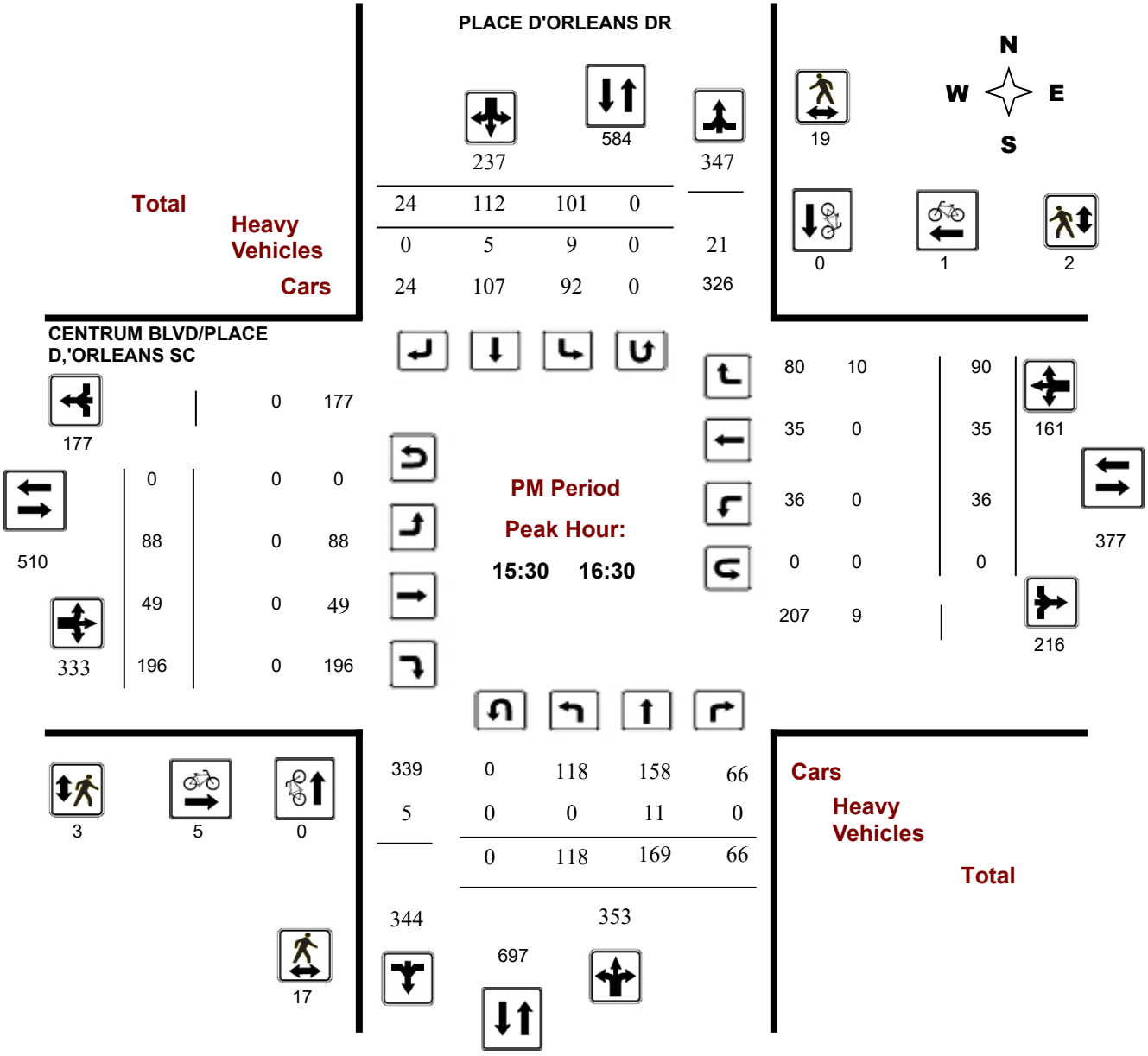
Turning Movement Count - Study Results

PLACE D'ORLEANS DR @ CENTRUM BLVD/PLACE D'ORLEANS SC

Survey Date: Tuesday, June 18, 2024 **WO No:** 41945

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

PM Period Peak Hour Diagram



Transportation Services - Traffic Services

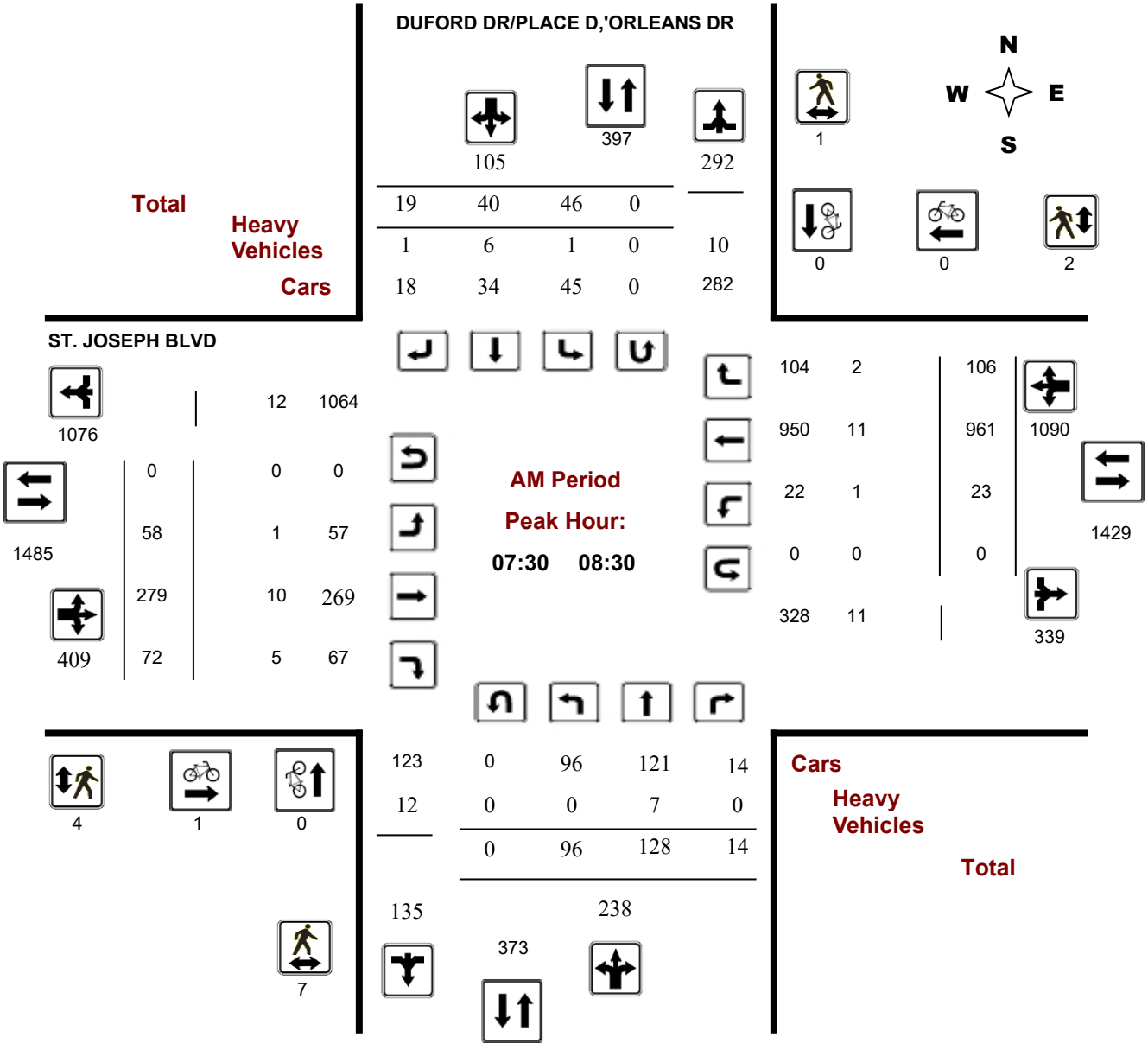
Turning Movement Count - Study Results

ST. JOSEPH BLVD @ DUFORD DR/PLACE D'ORLEANS DR

Survey Date: Tuesday, October 29, 2024 **WO No:** 42343

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

AM Period Peak Hour Diagram



Transportation Services - Traffic Services

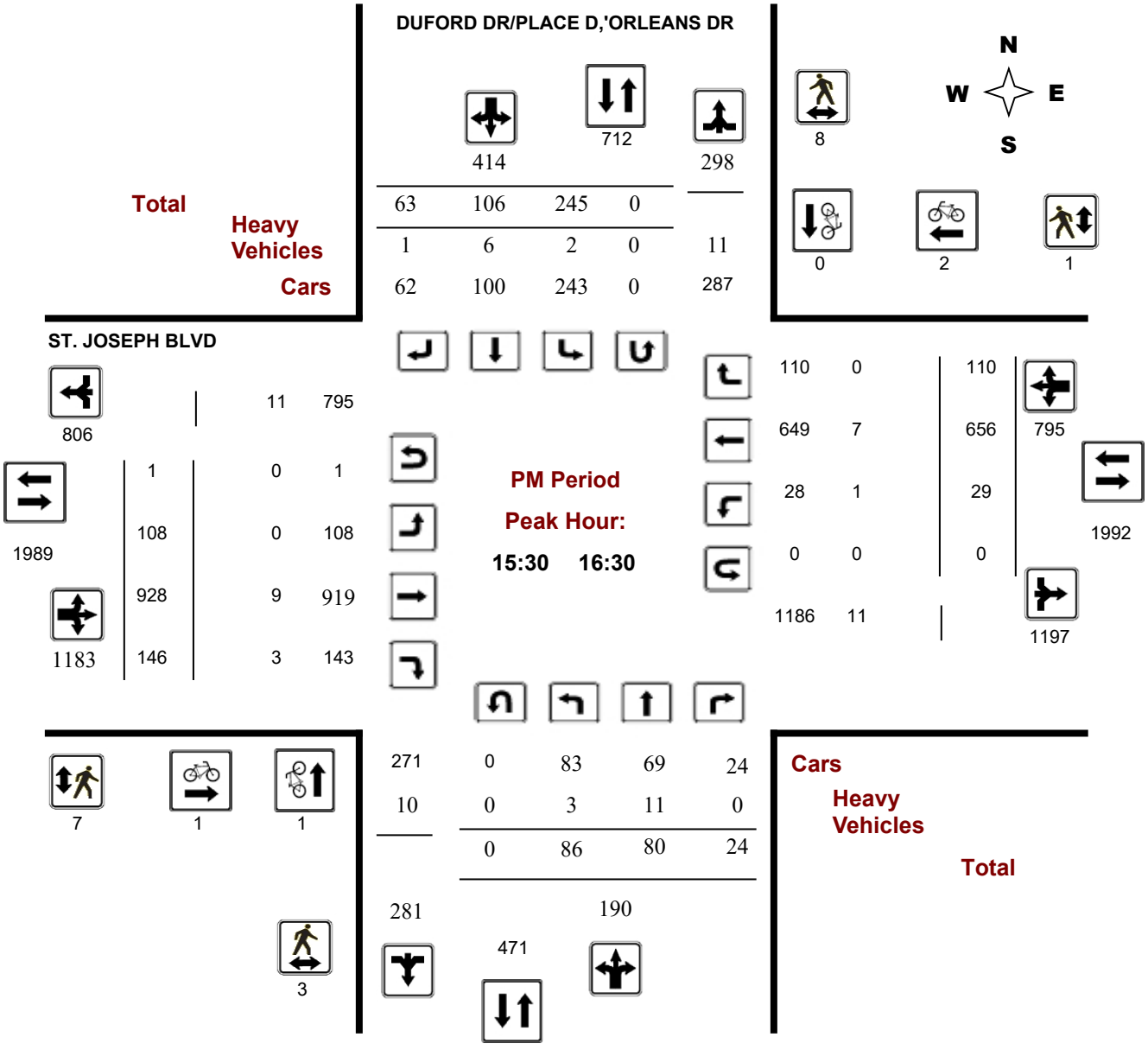
Turning Movement Count - Study Results

ST. JOSEPH BLVD @ DUFORD DR/PLACE D'ORLEANS DR

Survey Date: Tuesday, October 29, 2024 **WO No:** 42343

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

PM Period Peak Hour Diagram



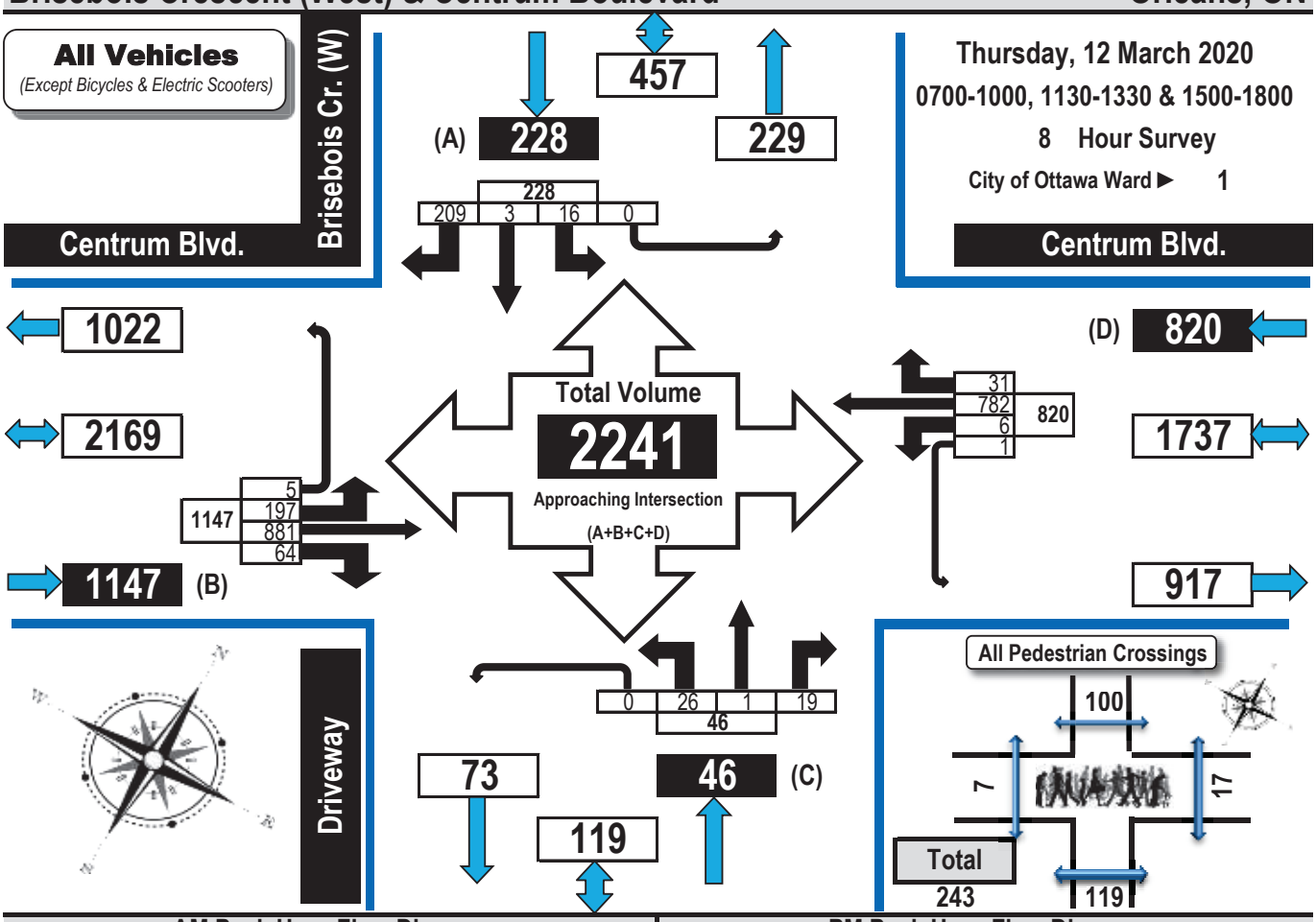
Turning Movement Count
Summary, AM and PM Peak Hour Flow Diagrams

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

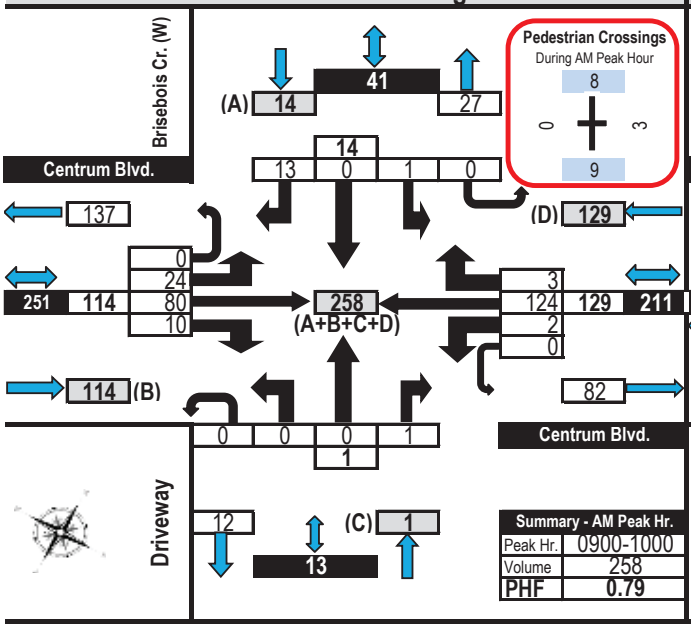
Brisebois Crescent (West) & Centrum Boulevard — Orléans, ON

All Vehicles
(Except Bicycles & Electric Scooters)

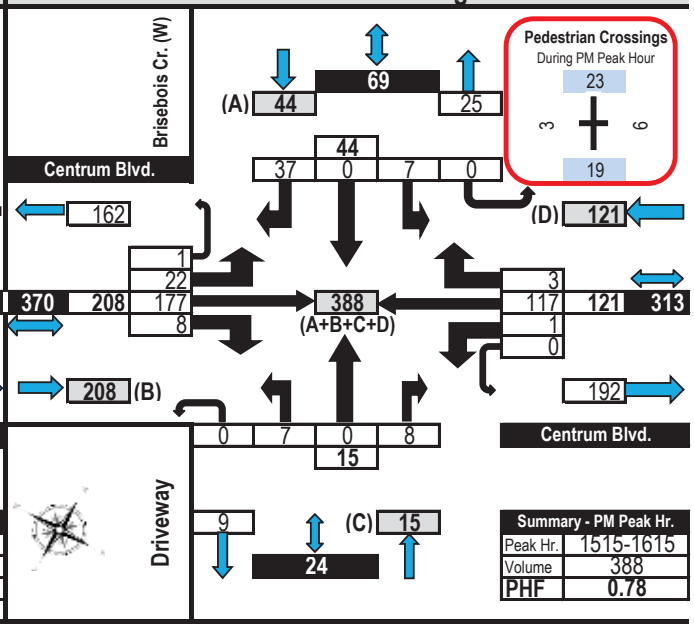
Thursday, 12 March 2020
0700-1000, 1130-1330 & 1500-1800
8 Hour Survey
City of Ottawa Ward ▶ 1



AM Peak Hour Flow Diagram



PM Peak Hour Flow Diagram



ACCURATE TRUSTED TRAFFIC DATA

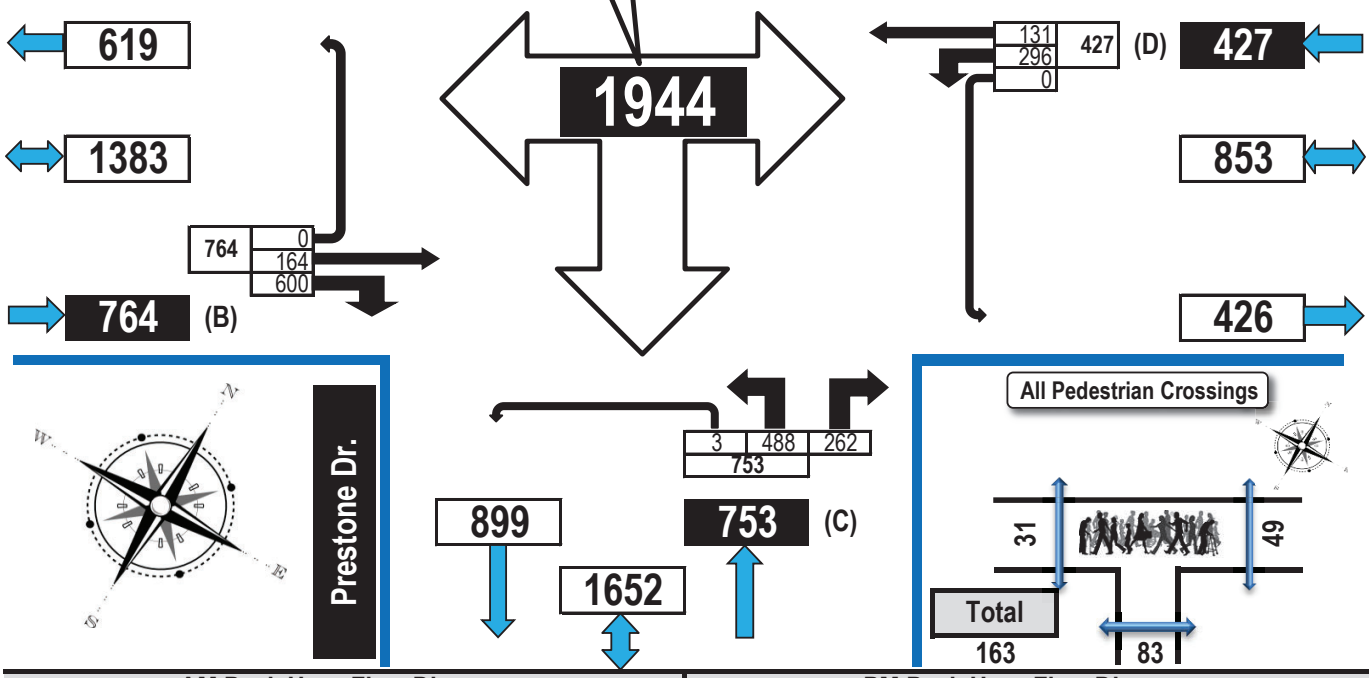
Turning Movement Count
Summary, AM and PM Peak Hour Flow Diagrams
All Vehicles Except Bicycles

Centrum Boulevard & Prestone Drive — Orléans, ON

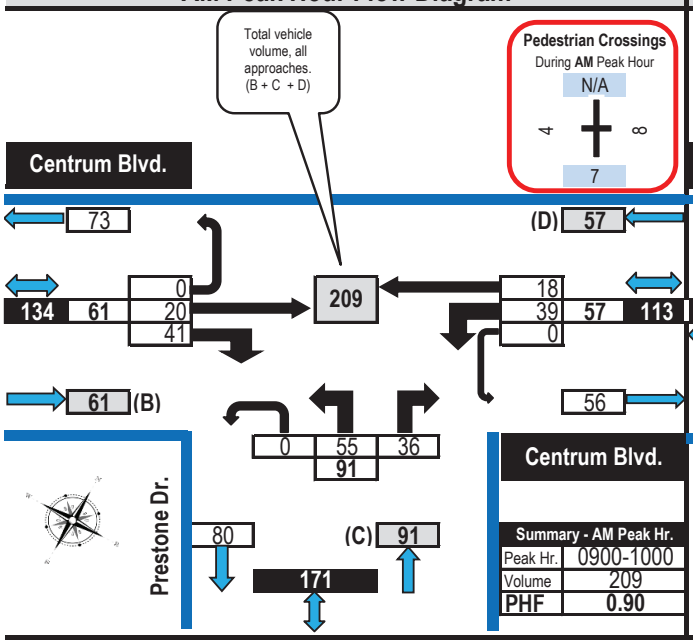
All Vehicles
(Except Bicycles & Electric Scooters)

Total vehicle volume, all approaches. (B + C + D)

Tuesday, February 14, 2023
0700-1000, 1130-1330 & 1500-1800
8 Hour Survey
City of Ottawa Ward ► 1

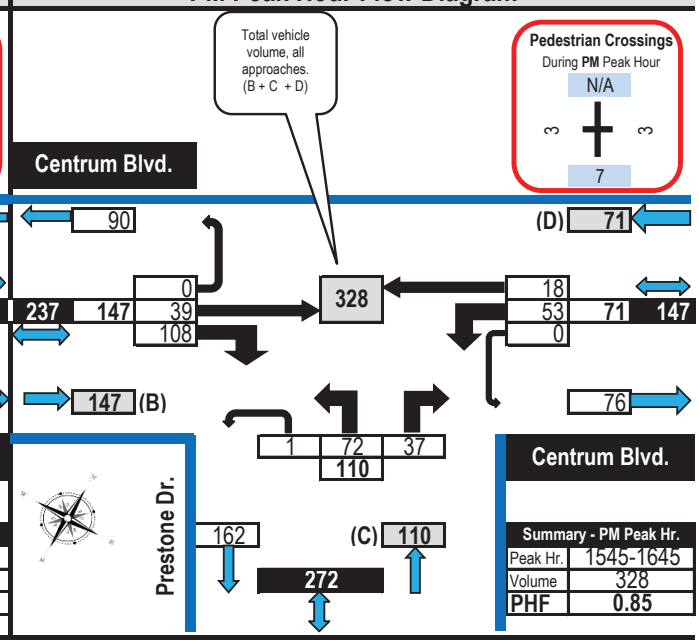


AM Peak Hour Flow Diagram



Summary - AM Peak Hr.	
Peak Hr.	0900-1000
Volume	209
PHF	0.90

PM Peak Hour Flow Diagram



Summary - PM Peak Hr.	
Peak Hr.	1545-1645
Volume	328
PHF	0.85

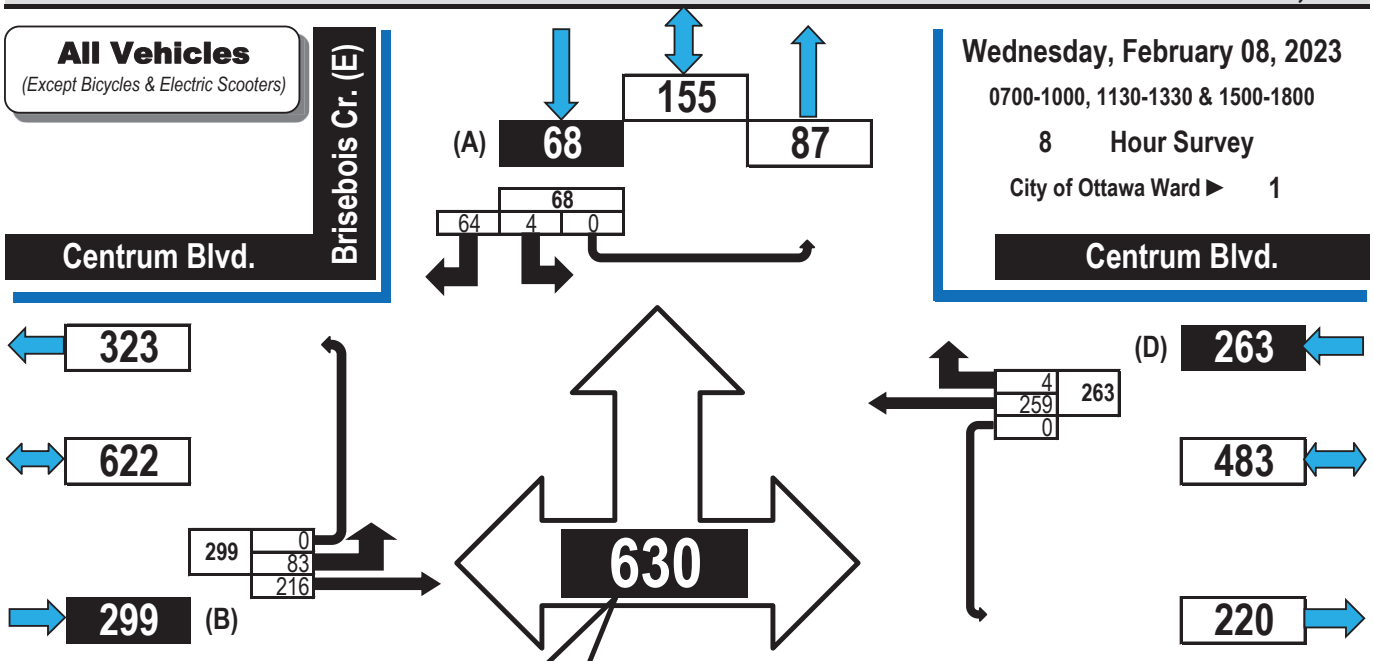
ACCURATE TRUSTED TRAFFIC DATA

Turning Movement Count
Summary, AM and PM Peak Hour Flow Diagrams
All Vehicles Except Bicycles

Brisebois Crescent East & Centrum Boulevard — Orléans, ON

All Vehicles
(Except Bicycles & Electric Scooters)

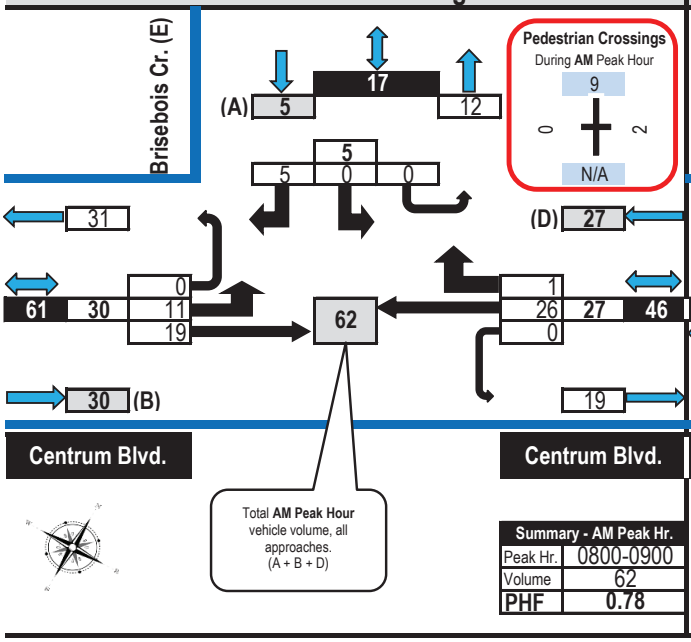
Wednesday, February 08, 2023
0700-1000, 1130-1330 & 1500-1800
8 Hour Survey
City of Ottawa Ward ▶ 1



Total vehicle volume, all approaches. (A + B + D)

All Pedestrian Crossings
65
4
12
Total
81

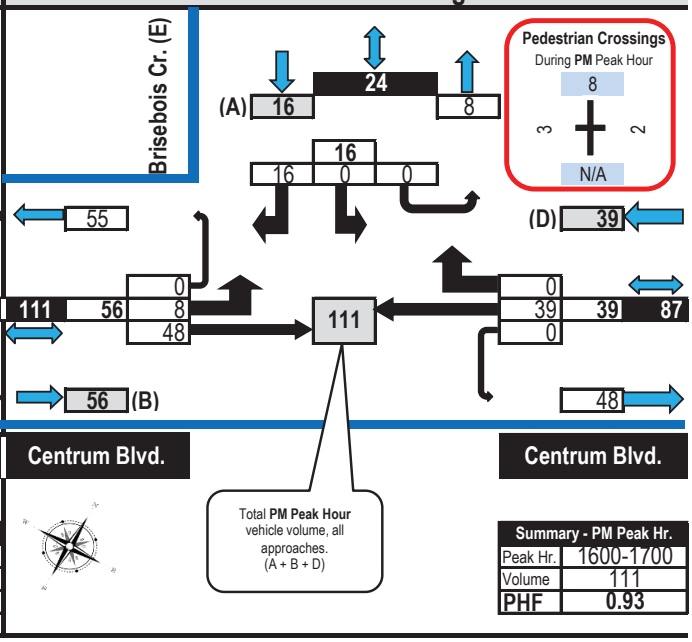
AM Peak Hour Flow Diagram



Total AM Peak Hour vehicle volume, all approaches. (A + B + D)

Summary - AM Peak Hr.	
Peak Hr.	0800-0900
Volume	62
PHF	0.78

PM Peak Hour Flow Diagram



Total PM Peak Hour vehicle volume, all approaches. (A + B + D)

Summary - PM Peak Hr.	
Peak Hr.	1600-1700
Volume	111
PHF	0.93

Transportation Services - Traffic Services

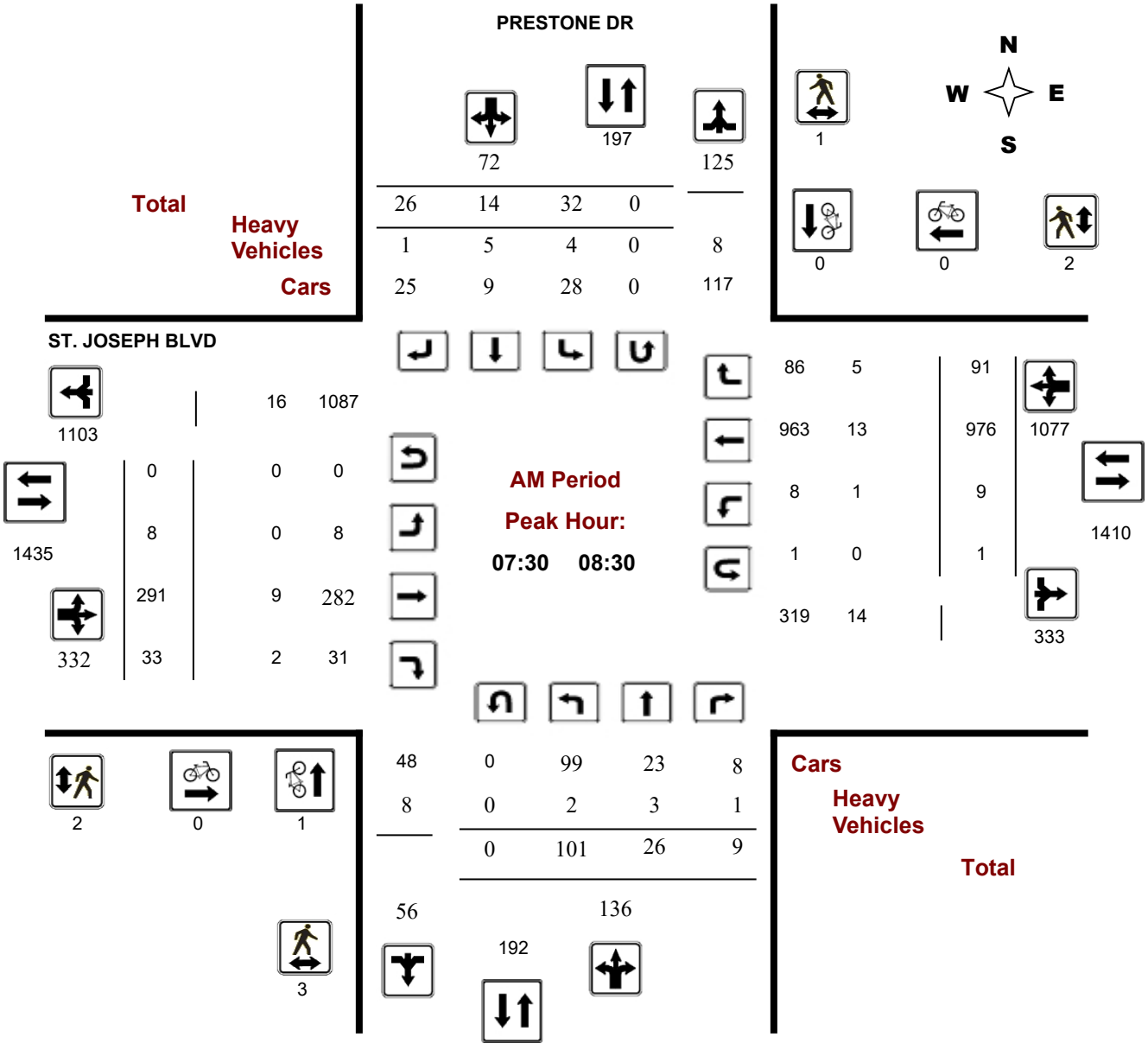
Turning Movement Count - Study Results

PRESTONE DR @ ST. JOSEPH BLVD

Survey Date: Tuesday, October 29, 2024 **WO No:** 42342

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

AM Period Peak Hour Diagram



Transportation Services - Traffic Services

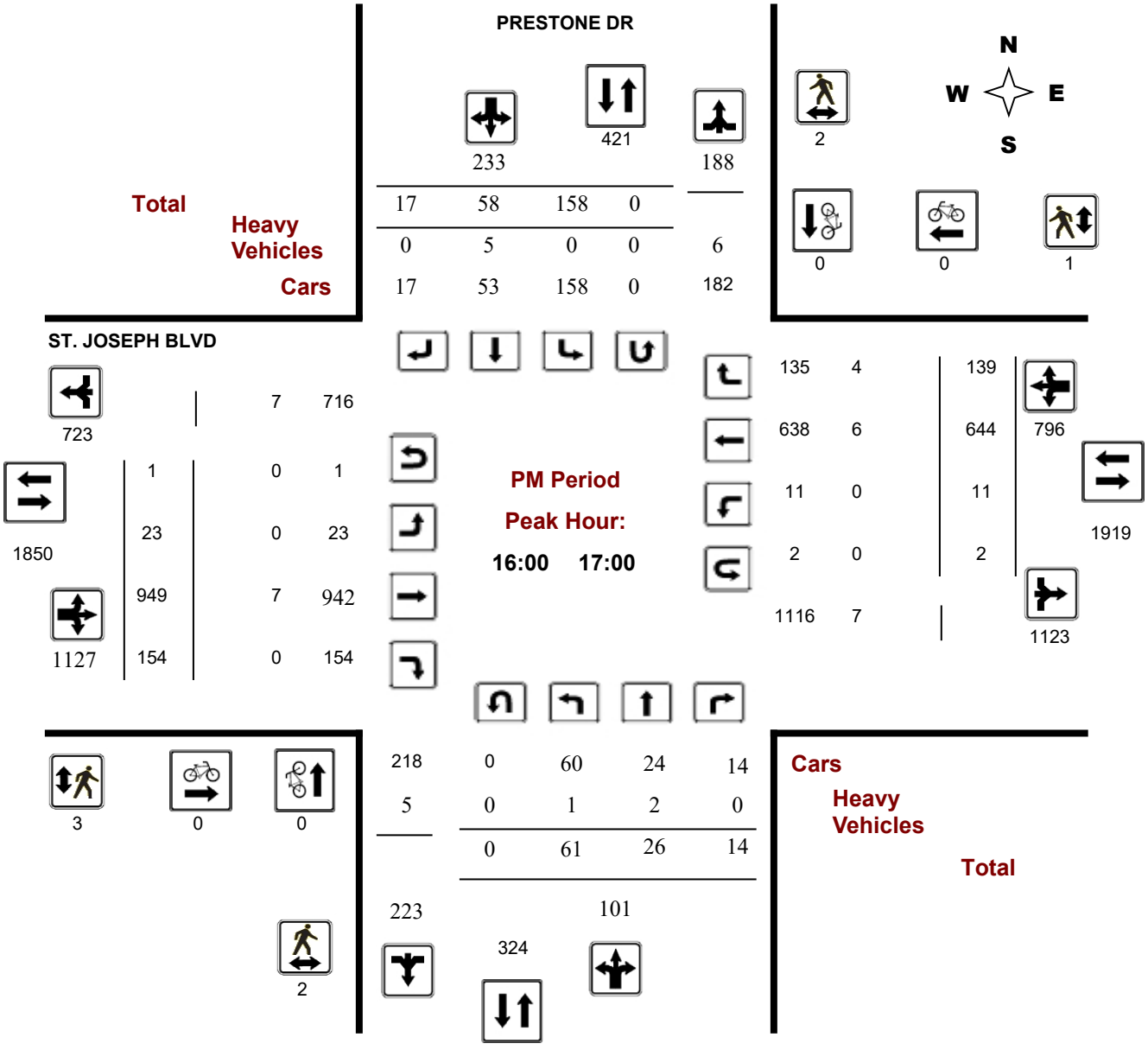
Turning Movement Count - Study Results

PRESTONE DR @ ST. JOSEPH BLVD

Survey Date: Tuesday, October 29, 2024 **WO No:** 42342

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

PM Period Peak Hour Diagram

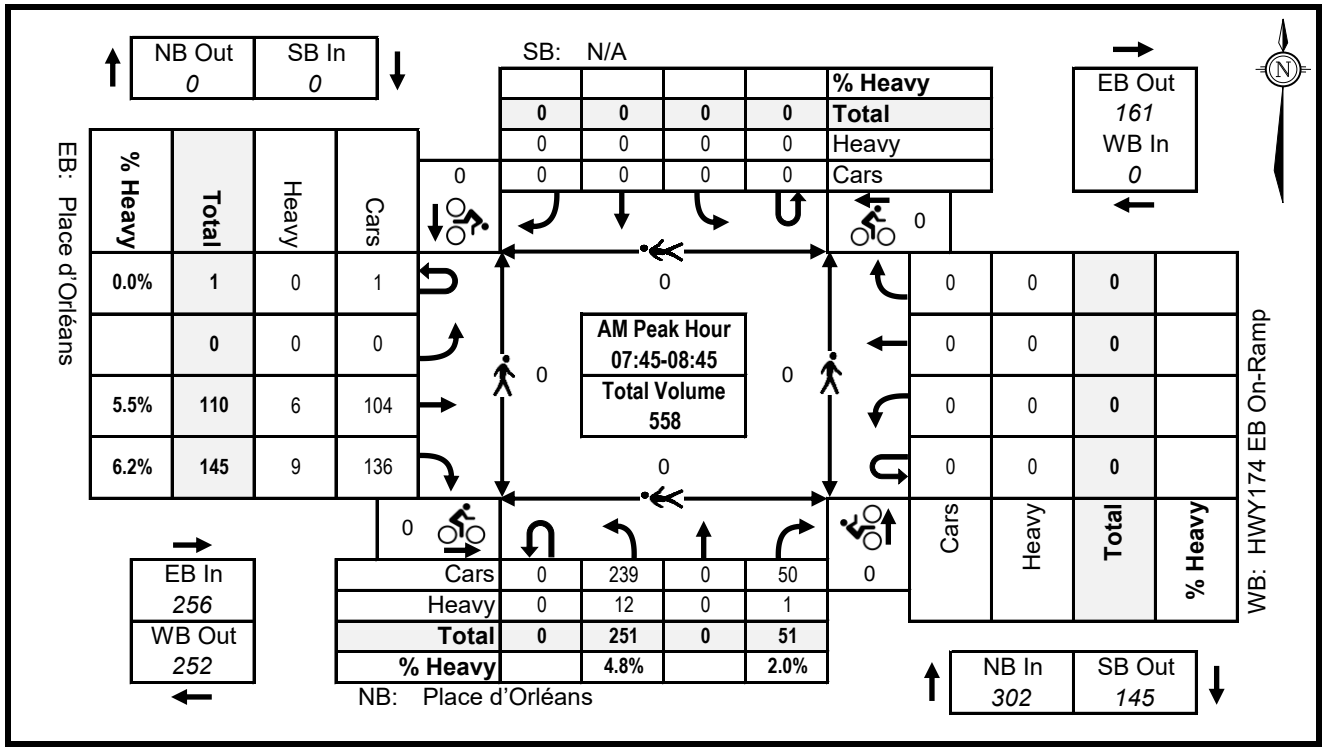


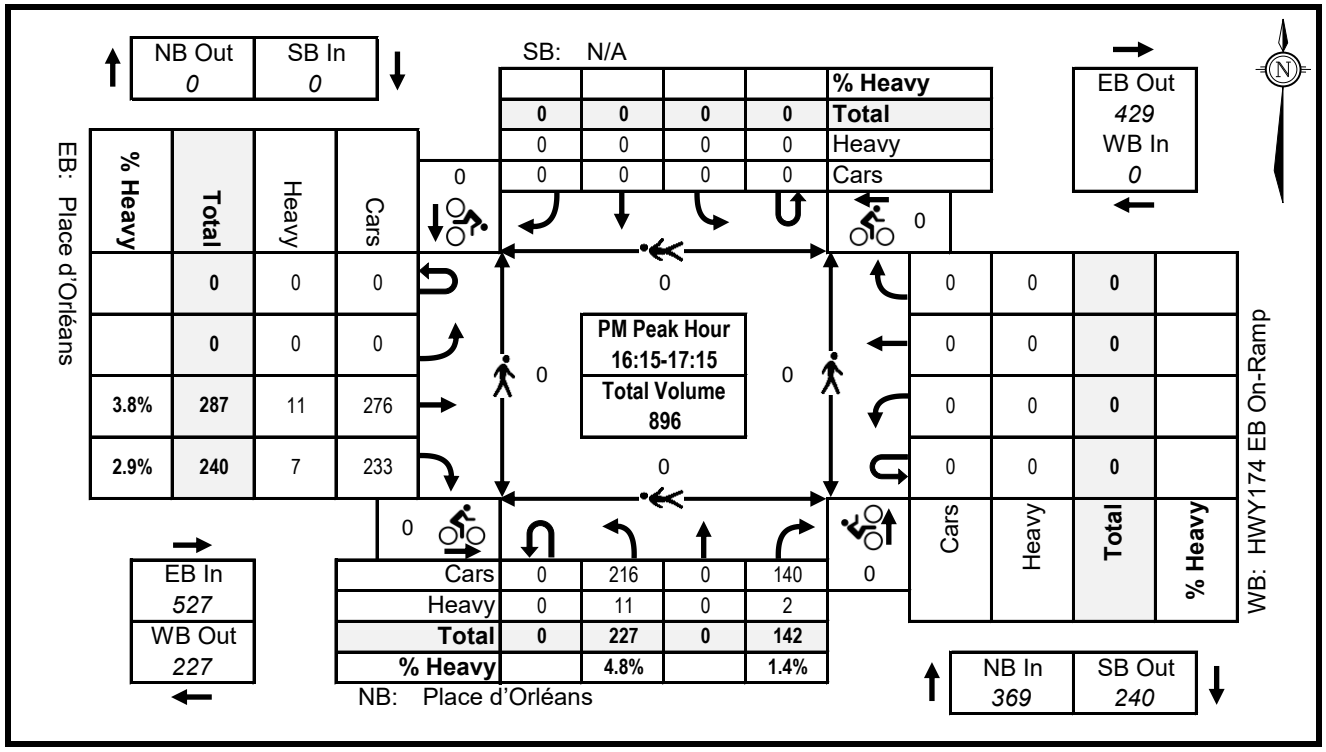
NOVATECH
Engineers, Planners & Landscape Architects

Place d'Orléans and HWY174 EB On-Ramp

TURNING MOVEMENT COUNT
PEAK HOUR SUMMARIES

Date: Tuesday, April 14, 2026
Survey Hours: 07:00-10:00, 11:30-13:30, 15:00-18:00
Surveyor(s): Bob Cameron and Cole Sheets





Transportation Services - Traffic Services

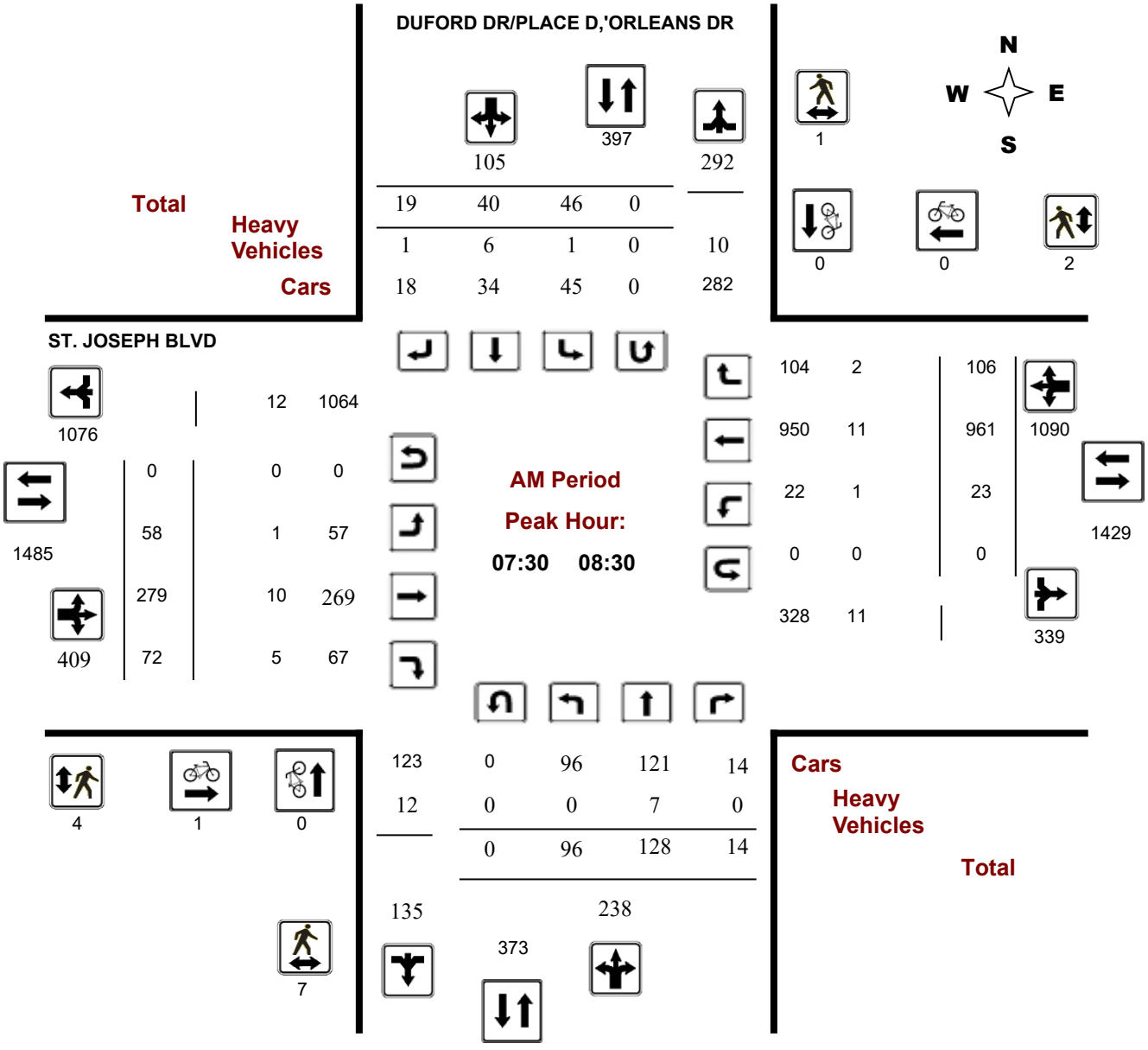
Turning Movement Count - Study Results

ST. JOSEPH BLVD @ DUFORD DR/PLACE D'ORLEANS DR

Survey Date: Tuesday, October 29, 2024 **WO No:** 42343

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

AM Period Peak Hour Diagram



Transportation Services - Traffic Services

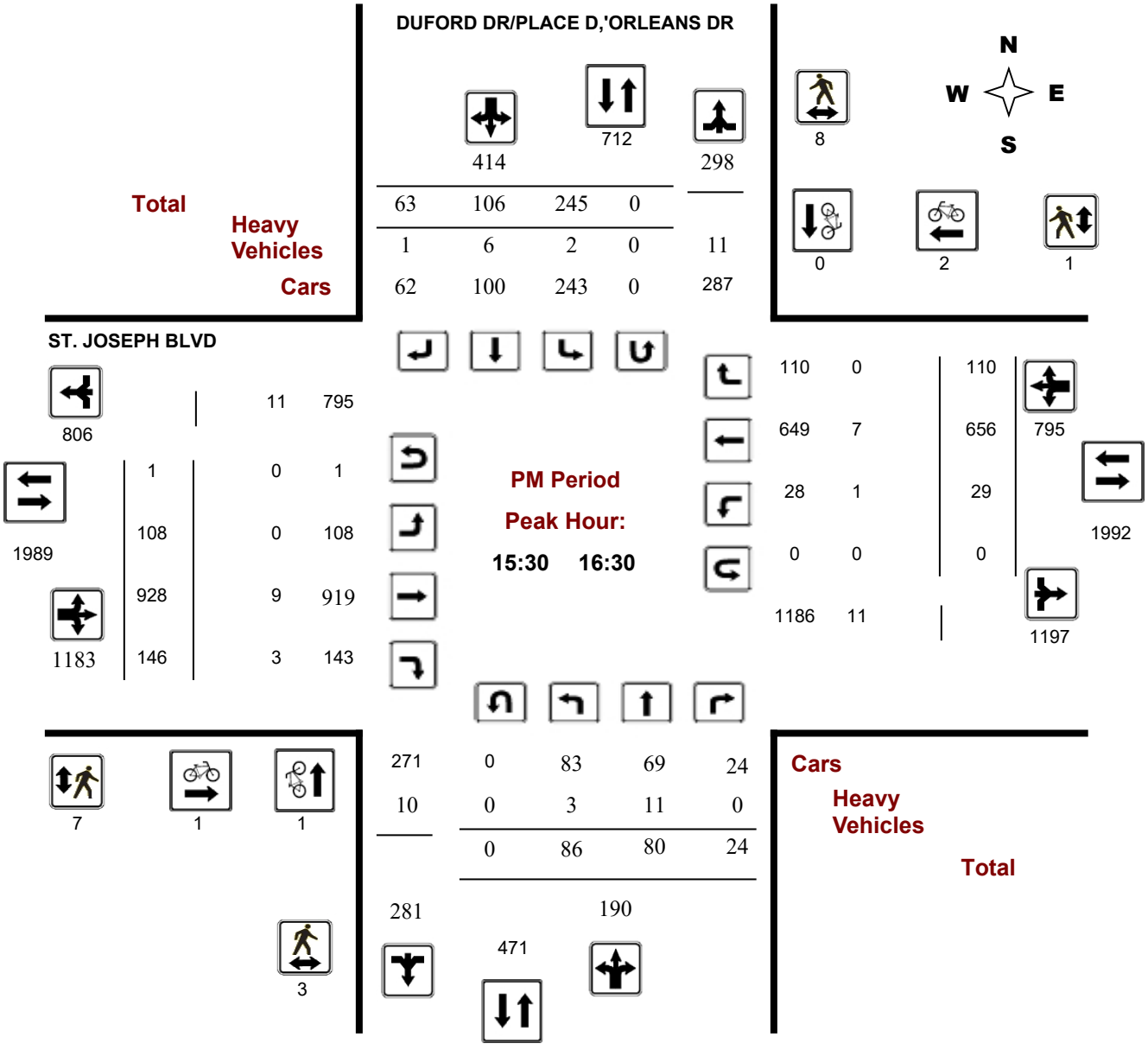
Turning Movement Count - Study Results

ST. JOSEPH BLVD @ DUFORD DR/PLACE D'ORLEANS DR

Survey Date: Tuesday, October 29, 2024 **WO No:** 42343

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

PM Period Peak Hour Diagram



APPENDIX E

Collision Records

Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2019 **To:** December 31, 2024

Location: CENTRUM BLVD @ PRESTONE DR

Traffic Control: Stop sign **Total Collisions:** 1

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2019-Feb-02, Sat,10:11	Snow	Rear end	P.D. only	Packed snow	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	

Location: CENTRUM BLVD btwn BRISEBOIS CRES & PRESTONE DR

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

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2019-Nov-12, Tue,10:30	Snow	Angle	P.D. only	Loose snow	North	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Dec-04, Wed,11:46	Freezing Rain	Angle	P.D. only	Loose snow	North	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	

Location: CENTRUM BLVD btwn PLACE D'ORLEANS DR & BRISEBOIS CRES

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
2020-Feb-05, Wed,09:35	Clear	Approaching	P.D. only	Dry	West	Stopped	Pick-up truck	Other motor vehicle	0
					East	Going ahead	Pick-up truck	Other motor vehicle	

Location: PLACE D'ORLEANS DR @ CENTRUM BLVD/PLACE D'ORLEANS SC

Traffic Control: Traffic signal **Total Collisions:** 4

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2019-Jan-31, Thu,13:44	Clear	Angle	P.D. only	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Turning left	Automobile, station wagon	Other motor vehicle	
2021-Feb-18, Thu,16:25	Clear	Rear end	P.D. only	Wet	North	Going ahead	Pick-up truck	Other motor vehicle	0
					North	Stopped	Pick-up truck	Other motor vehicle	

Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2019 **To:** December 31, 2024

Location: PLACE D'ORLEANS DR @ CENTRUM BLVD/PLACE D'ORLEANS SC

Traffic Control: Traffic signal **Total Collisions:** 4

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2022-Nov-19, Sat,15:15	Snow	Angle	P.D. only	Wet	West	Stopped	Passenger van	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2024-Feb-24, Sat,15:00	Clear	Angle	P.D. only	Wet	North	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	

Location: PRESTONE DR @ ST. JOSEPH BLVD

Traffic Control: Traffic signal **Total Collisions:** 11

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2019-Jan-23, Wed,12:18	Snow	Angle	Non-fatal injury	Loose snow	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Jan-27, Sun,05:30	Snow	SMV other	P.D. only	Loose snow	East	Going ahead	Automobile, station wagon	Curb	0
2019-Feb-19, Tue,10:34	Clear	Angle	P.D. only	Dry	North	Turning right	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Passenger van	Other motor vehicle	
2020-Jan-17, Fri,09:13	Clear	SMV other	Non-fatal injury	Dry	South	Turning left	Automobile, station wagon	Pedestrian	1
2021-Jan-13, Wed,16:08	Snow	SMV other	P.D. only	Slush	West	Turning right	Pick-up truck	Skidding/sliding	0
2021-Feb-22, Mon,16:12	Snow	Angle	P.D. only	Slush	West	Turning right	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Municipal transit bus	Other motor vehicle	
2021-Nov-16, Tue,15:00	Clear	Angle	P.D. only	Dry	East	Turning right	Unknown	Other motor vehicle	0
					North	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
2022-Jan-14, Fri,17:55	Clear	SMV other	P.D. only	Dry	South	Turning left	Automobile, station wagon	Pole (utility, power)	0
2022-Mar-26, Sat,19:23	Clear	Angle	P.D. only	Dry	East	Going ahead	Pick-up truck	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2024-Dec-03, Tue,09:20	Clear	Rear end	P.D. only	Wet	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	

Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2019 **To:** December 31, 2024

Location: PRESTONE DR @ ST. JOSEPH BLVD

Traffic Control: Traffic signal **Total Collisions:** 11

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2024-Dec-09, Mon,14:00	Clear	Angle	P.D. only	Ice	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	

Location: PRESTONE DR btwn CENTRUM BLVD & ST. JOSEPH BLVD

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
2024-Nov-12, Tue,20:05	Clear	Rear end	P.D. only	Other	East	Stopped	Automobile, station wagon	Other motor vehicle	0
					East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	

Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2019 **To:** December 31, 2024

Location: OR174 CHAMPLAIN IC102R15 @ PLACE D'ORLEANS DR

Traffic Control: Traffic signal **Total Collisions:** 6

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2019-Oct-08, Tue,21:53	Clear	SMV other	P.D. only	Dry	East	Slowing or stopping	Police vehicle	Curb	0
2021-Feb-05, Fri,23:13	Drifting Snow	SMV other	P.D. only	Loose snow	East	Going ahead	Pick-up truck	Fence/noice barrier	0
2021-Feb-16, Tue,09:00	Snow	Rear end	P.D. only	Packed snow	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Pick-up truck	Other motor vehicle	
2021-Dec-13, Mon,17:00	Clear	Rear end	P.D. only	Dry	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
2022-Mar-30, Wed,23:43	Rain	SMV other	P.D. only	Wet	East	Going ahead	Automobile, station wagon	Pole (utility, power)	0
2022-Jun-29, Wed,15:21	Clear	Turning movement	Non-fatal injury	Dry	North	Turning left	Passenger van	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	

Location: OR174 IC102 RAMP15 btwn OR174 IC102 RAMP15 & PLACE D'ORLEANS DR WB/NB

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
2022-Apr-23, Sat,05:00	Clear	SMV other	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Curb	0

Location: PLACE D'ORLEANS DR @ CENTRUM BLVD/PLACE D'ORLEANS SC

Traffic Control: Traffic signal **Total Collisions:** 5

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2019-Jan-31, Thu,13:44	Clear	Angle	P.D. only	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Turning left	Automobile, station wagon	Other motor vehicle	
2021-Feb-18, Thu,16:25	Clear	Rear end	P.D. only	Wet	North	Going ahead	Pick-up truck	Other motor vehicle	0
					North	Stopped	Pick-up truck	Other motor vehicle	
2022-Nov-19, Sat,15:15	Snow	Angle	P.D. only	Wet	West	Stopped	Passenger van	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	

Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2019 **To:** December 31, 2024

Location: PLACE D'ORLEANS DR @ CENTRUM BLVD/PLACE D'ORLEANS SC

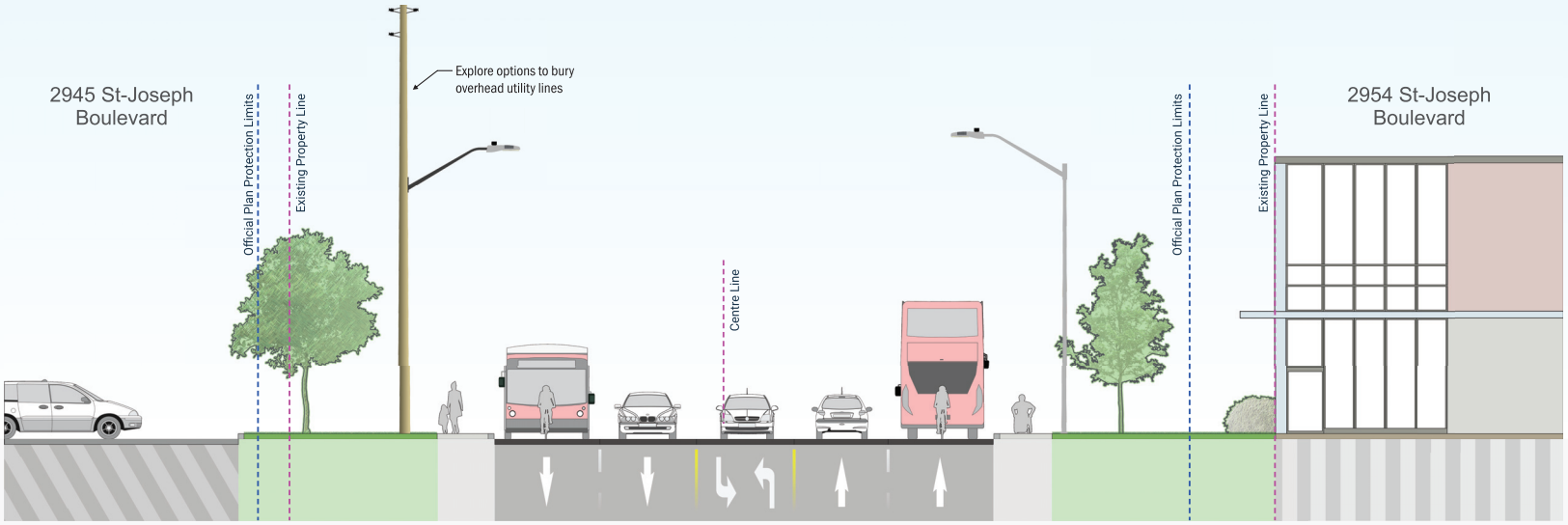
Traffic Control: Traffic signal **Total Collisions:** 5

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2024-Feb-22, Thu,15:30	Clear	Rear end	P.D. only	Wet	East	Stopped	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Pick-up truck	Other motor vehicle	
2024-Feb-24, Sat,15:00	Clear	Angle	P.D. only	Wet	North	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	

APPENDIX F

St. Joseph Boulevard Cross-Sections

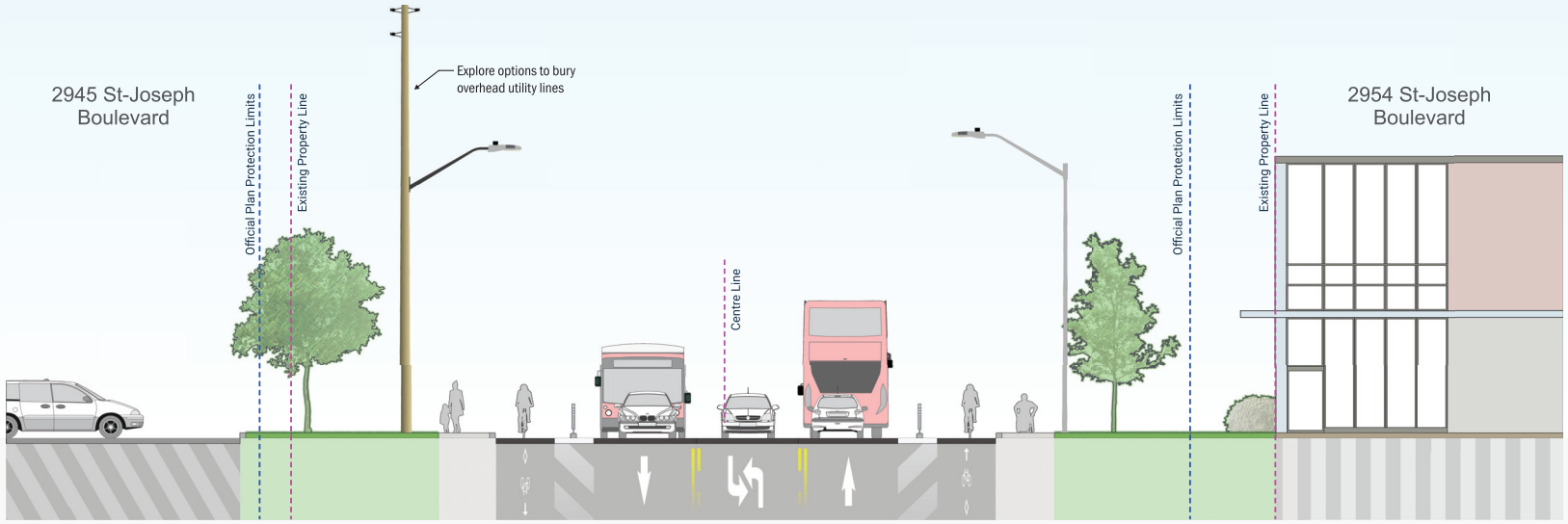
St. Joseph Boulevard
East of Place D'Orléans Drive - Looking East
Viewpoint 5 - Existing



PARSONS

July 2022

St. Joseph Boulevard
East of Place D'Orléans Drive - Looking East
Viewpoint 5 - Interim Option



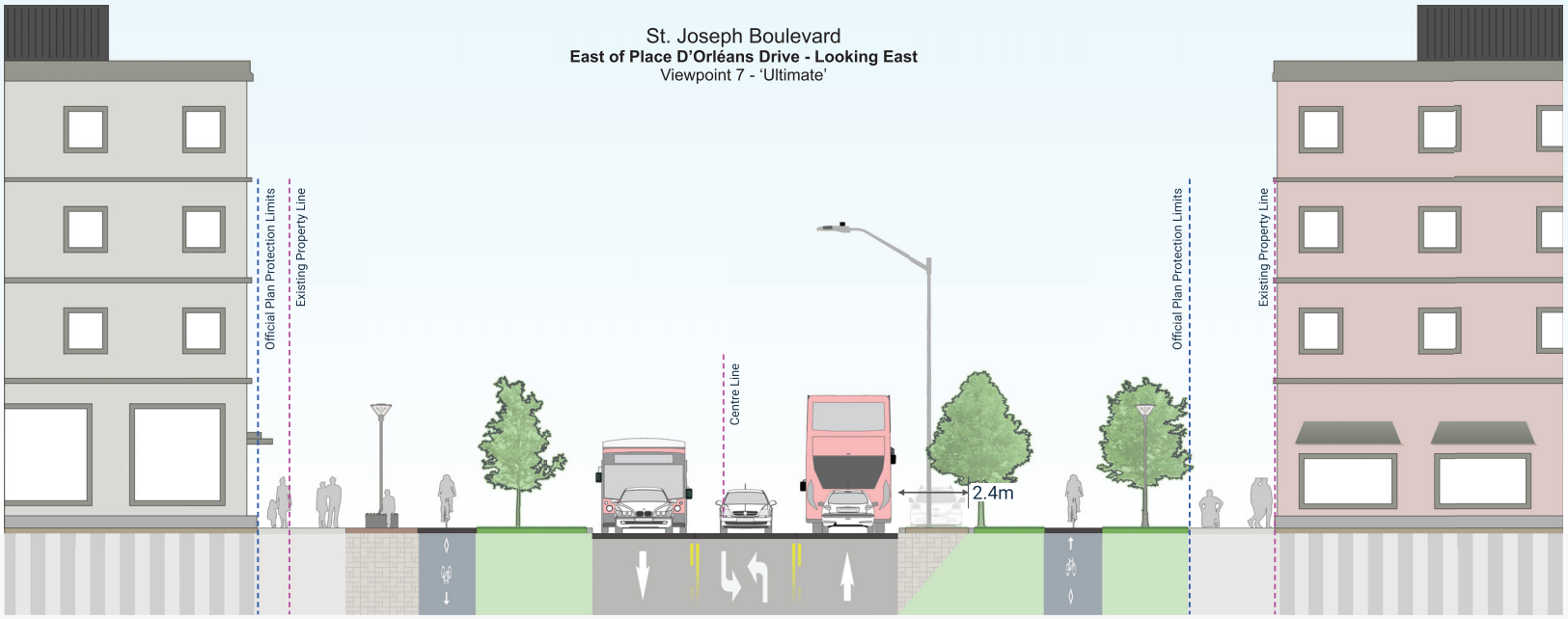
PARSONS

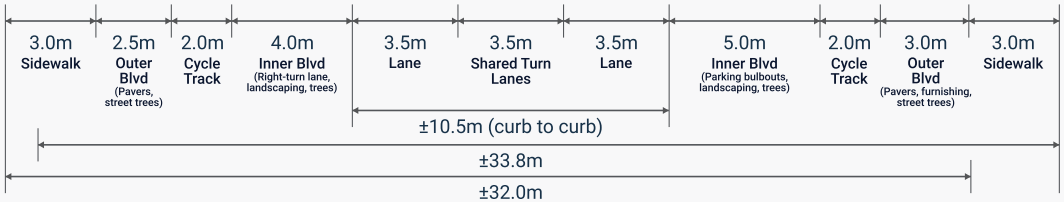
July 2022

St. Joseph Boulevard

East of Place D'Orléans Drive - Looking East

Viewpoint 7 - 'Ultimate'





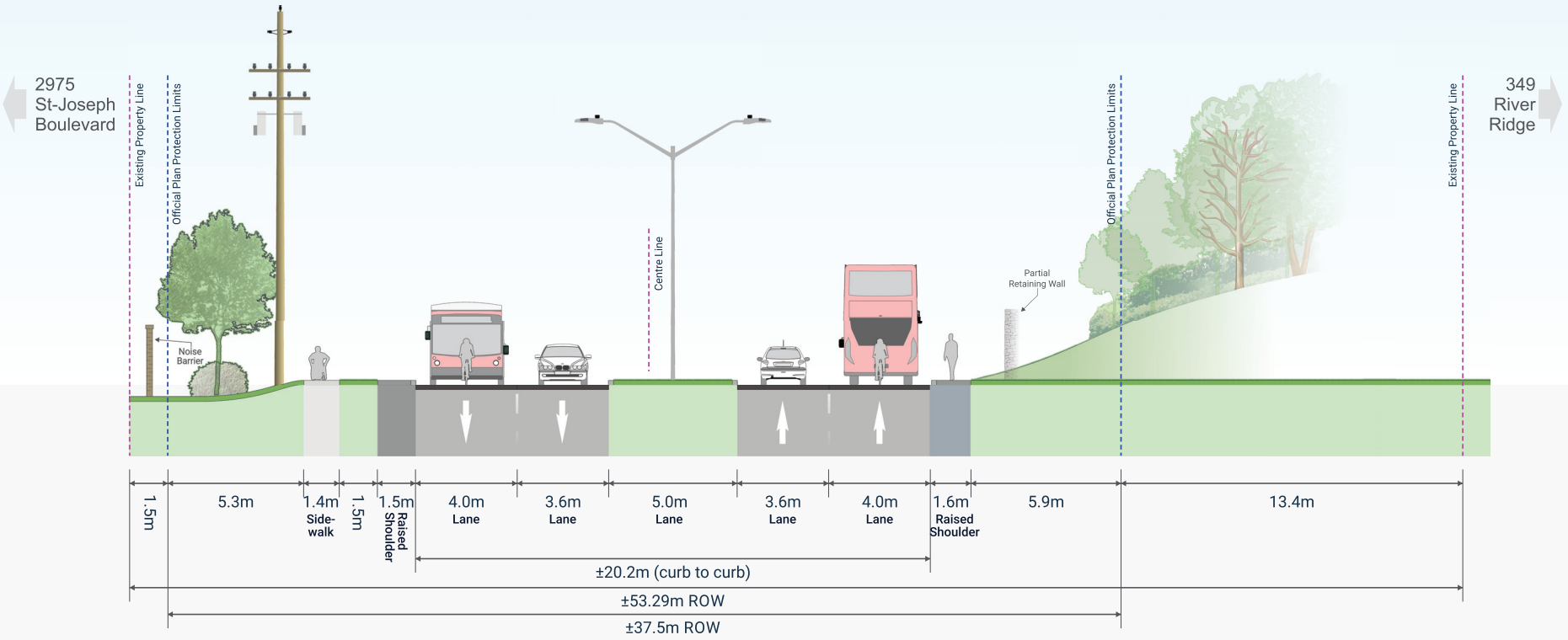
PARSONS

July 2022

St. Joseph Boulevard

West of Promenade Prestone Drive - Looking East

Viewpoint 6 - Existing



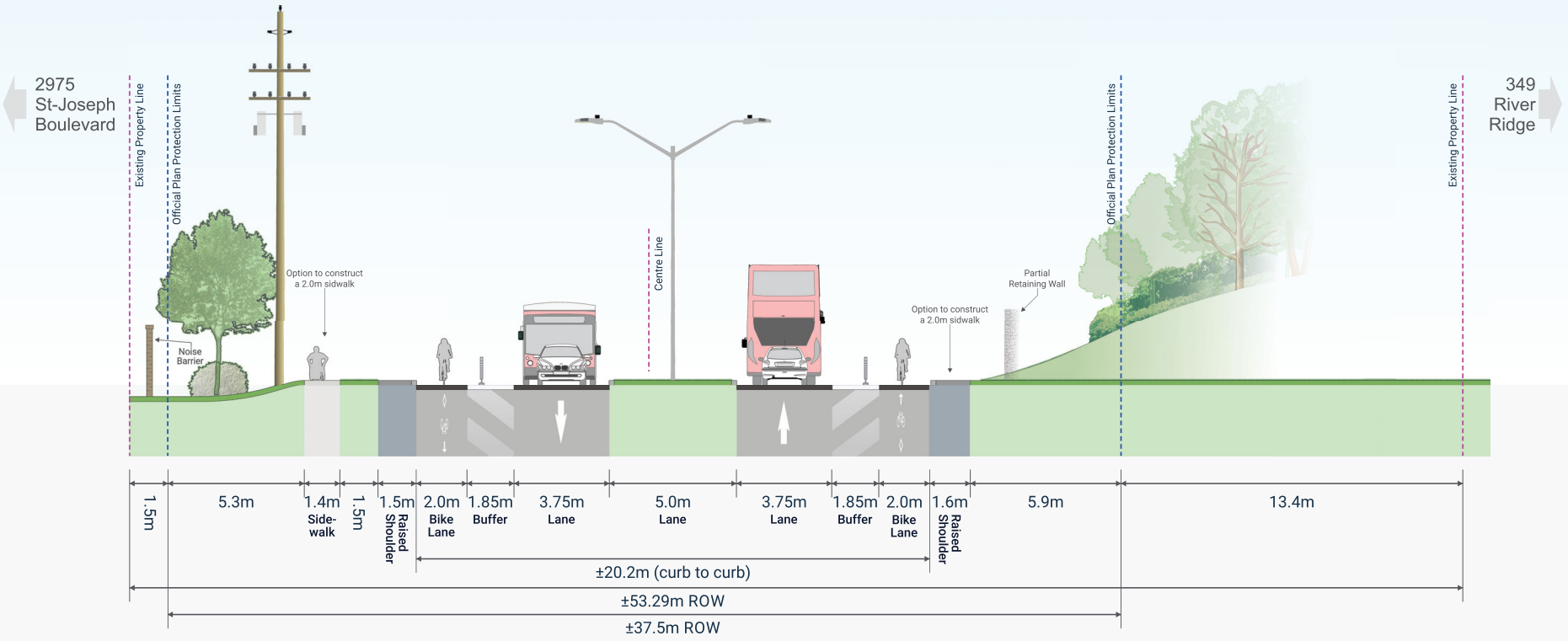
PARSONS

July 2022

St. Joseph Boulevard

West of Promenade Prestone Drive - Looking East

Viewpoint 6 - Interim Option



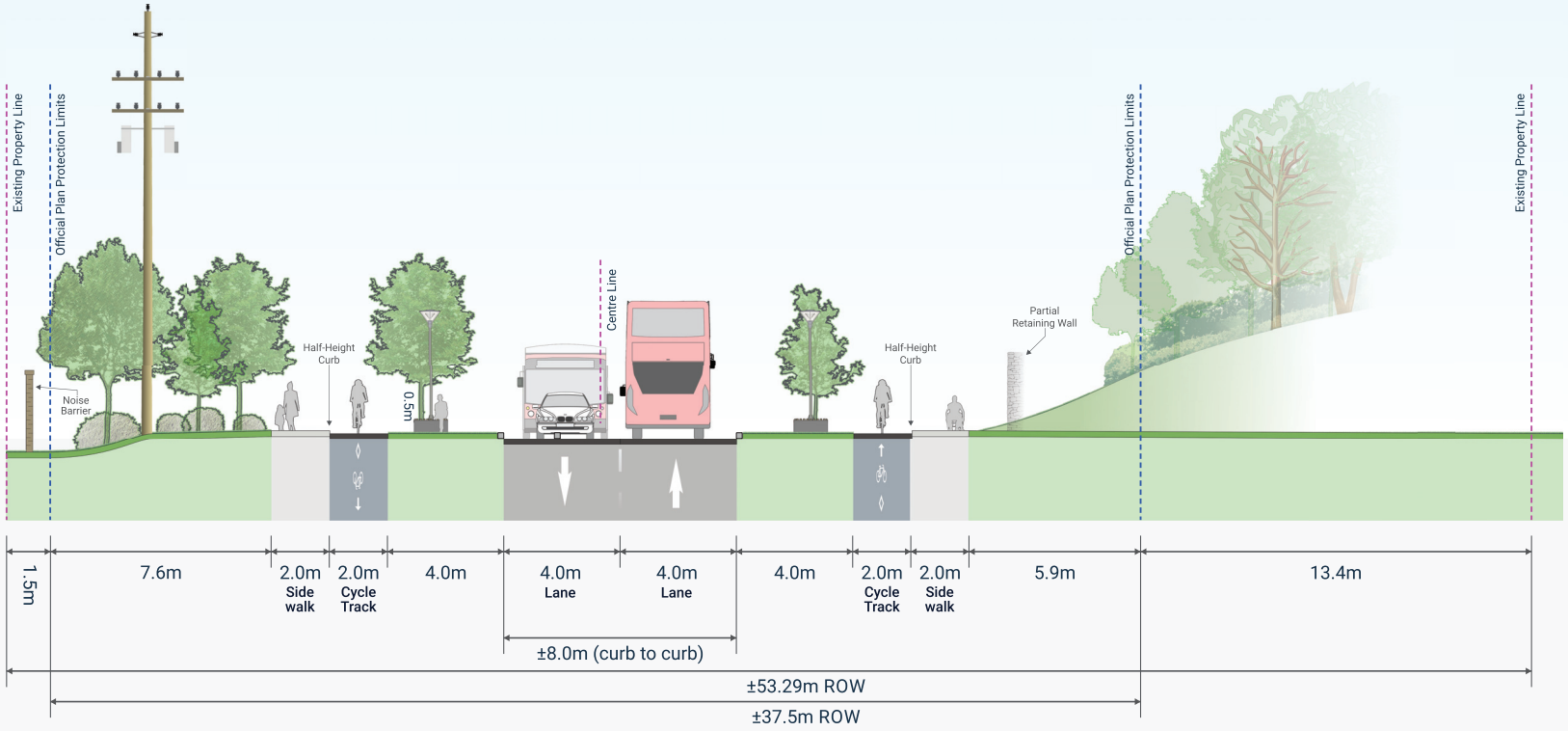
PARSONS

July 2022

St. Joseph Boulevard

West of Promenade Prestone Drive - Looking East

Viewpoint 6 - 'Ultimate'



PARSONS

July 2022

APPENDIX G

Internal Capture Worksheets

NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:	122170	**Organization:**	Novatech
Project Location:	265 Centrum & 530 Brisebois	**Performed By:**	J. Audia
Scenario Description:	Full Site Development	**Date:**	11/1/2025
Analysis Year:	Buildout	**Checked By:**	
Analysis Period:	**AM Street Peak Hour**	**Date:**	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips[3]		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office				0		
Retail				55	36	19
Restaurant				0		
Cinema/Entertainment				0		
Residential				232	72	160
Hotel				0		
All Other Land Uses[2]				0		
				287	108	179

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.[4]	% Transit	% Non-Motorized	Veh. Occ.[4]	% Transit	% Non-Motorized
Office						
Retail		10%	15%		10%	15%
Restaurant						
Cinema/Entertainment						
Residential		40%	10%		40%	10%
Hotel						
All Other Land Uses[2]						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		0	0	4	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	4	0	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	726	261	465
Internal Capture Percentage	2%	3%	2%
External Vehicle-Trips[5]	277	103	174
External Transit-Trips[6]	256	82	174
External Non-Motorized Trips[6]	76	28	48

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	6%	12%
Restaurant	N/A	N/A
Cinema/Entertainmen	N/A	N/A
Residential	2%	1%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

[3]Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

[4]Enter vehicle occupancy assumed in Table 1-A vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made to Tables 5-A, 9-A (O and D). Enter transit, non-motorized percentages that will result with proposed mixed-use project complete.

[5]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A.

[6]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Project Name:	122170
Analysis Period:	AM Street Peak Hour

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
		Vehicle-Trips	Person-Trips*		Vehicle-Trips	Person-Trips*
Office		0	0		0	0
Retail		36	67		19	34
Restaurant		0	0		0	0
Cinema/Entertainment		0	0		0	0
Residential		72	194		160	431
Hotel		0	0		0	0

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	10		4	0	5	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	9	4	86	0		0
Hotel	0	0	0	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		21	0	0	0	0
Retail	0		0	0	4	0
Restaurant	0	5		0	10	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	11	0	0		0
Hotel	0	3	0	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	4	63	67	33	6	9
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	4	190	194	70	76	19
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	4	30	34	16	3	5
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	4	427	431	158	171	43
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:	122170	**Organization:**	Novatech
Project Location:	265 Centrum & 530 Brisebois	**Performed By:**	J. Audia
Scenario Description:	Full Site Development	**Date:**	11/1/2025
Analysis Year:	Buildout	**Checked By:**	
Analysis Period:	**PM Street Peak Hour**	**Date:**	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips[3]		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office				0		
Retail				82	39	43
Restaurant				0		
Cinema/Entertainment				0		
Residential				238	138	100
Hotel				0		
All Other Land Uses[2]				0		
				320	177	143

Table 2-P: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.[4]	% Transit	% Non-Motorized	Veh. Occ.[4]	% Transit	% Non-Motorized
Office						
Retail		10%	15%		10%	15%
Restaurant						
Cinema/Entertainment						
Residential		40%	10%		40%	10%
Hotel						
All Other Land Uses[2]						

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		0	0	21	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	7	0	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary

	Total	Entering	Exiting
All Person-Trips	775	433	342
Internal Capture Percentage	7%	6%	8%
External Vehicle-Trips[5]	286	162	124
External Transit-Trips[6]	250	142	108
External Non-Motorized Trips[6]	79	44	35

Table 6-P: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	10%	26%
Restaurant	N/A	N/A
Cinema/Entertainmen	N/A	N/A
Residential	6%	3%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

[3]Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

[4]Enter vehicle occupancy assumed in Table 1-P vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be

[5]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P.

[6]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Project Name:	122170
Analysis Period:	PM Street Peak Hour

Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-P (D): Entering Trips			Table 7-P (O): Exiting Trips		
		Vehicle-Trips	Person-Trips*		Vehicle-Trips	Person-Trips*
Office		0	0		0	0
Retail		39	71		43	80
Restaurant		0	0		0	0
Cinema/Entertainment		0	0		0	0
Residential		138	362		100	262
Hotel		0	0		0	0

Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	2		23	3	21	4
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	10	110	55	0		8
Hotel	0	0	0	0	0	

Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		6	0	0	14	0
Retail	0		0	0	167	0
Restaurant	0	36		0	58	0
Cinema/Entertainment	0	3	0		14	0
Residential	0	7	0	0		0
Hotel	0	1	0	0	0	

Table 9-P (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	7	64	71	34	6	10
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	21	341	362	128	136	34
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

Table 9-P (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	21	59	80	27	6	9
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	7	255	262	97	102	26
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

APPENDIX H

Other Area Developments

1 Screening

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

2 Existing and Planned Conditions

2.1 Proposed Development

The proposed development located at 211 Centrum Boulevard, currently zoned as Mixed-Use Centre (MC), is planned to include 397 retirement home units across one nine- and one 17-storey building connected by a four-storey podium to be built in a single phase for occupancy by 2024. The proposed design includes 282 underground parking spaces and 21 space surface lot accommodating visitor parking. Access to the underground garage will be via an access to Brisebois Crescent and an access to the surface lot will be via a drop-off loop on Brisebois Crescent. Figure 1 illustrates the Study Area Context and Figure 2 illustrates the proposed concept plan.

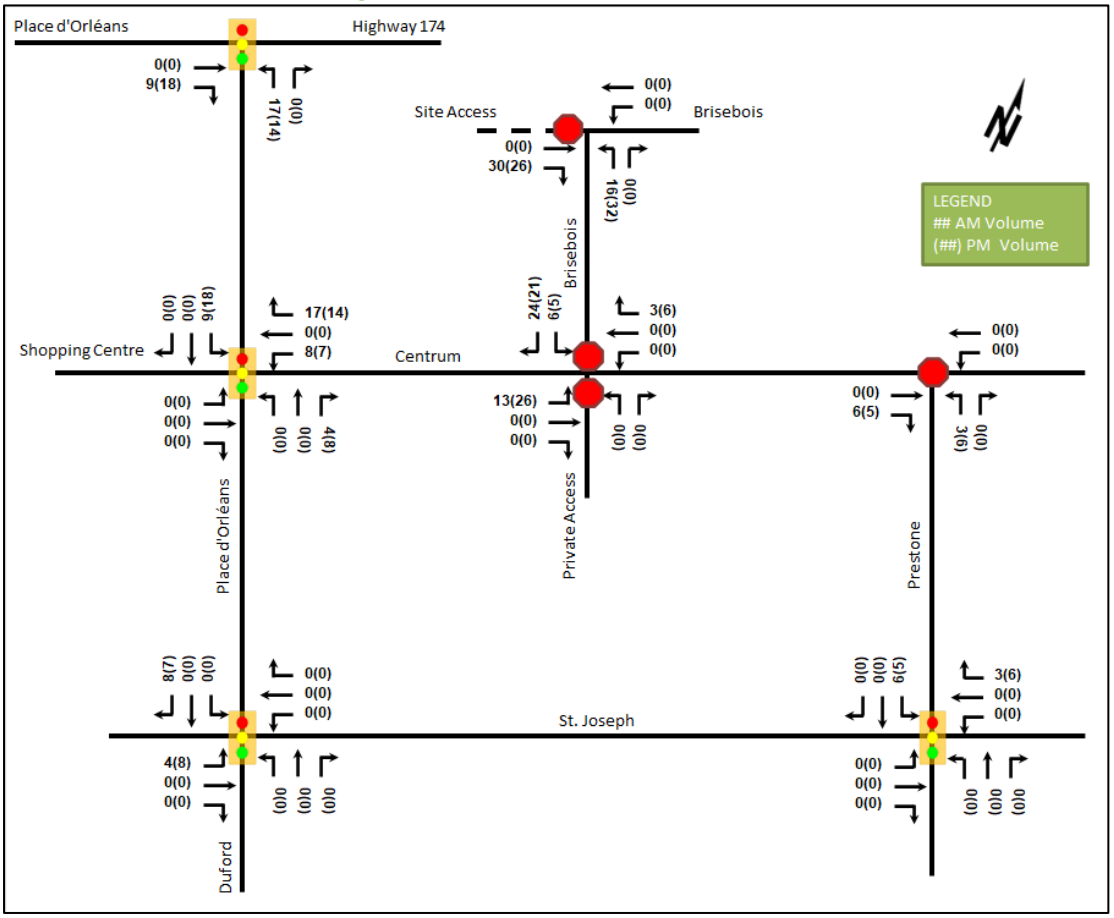
Figure 1: Area Context Plan

Source: http://maps.ottawa.ca/geoOttawa/ Accessed: December 4, 2019

5.3 Trip Assignment

Using the distribution outlined above, turning movement splits, and access to major transportation infrastructure, the trips generated by the site have been assigned to the Study Area road network. Figure 9 illustrates the new site generated volumes.

Figure 9: New Site Generation Auto Volumes



6 Background Network Travel Demand

6.1 Transportation Network Plans

The transportation network plans were discussed in Section 2.3.1 and are not anticipated to impact to site, trip generation, or distribution.

6.2 Background Growth

A review of the background projections from the City's TRANS Regional Model for the 2011 and 2031 horizons was completed to determine the background growth for each of the study area roadways. Table 13 summarizes the results of the model and the projections are provided in Appendix E.

1 Screening

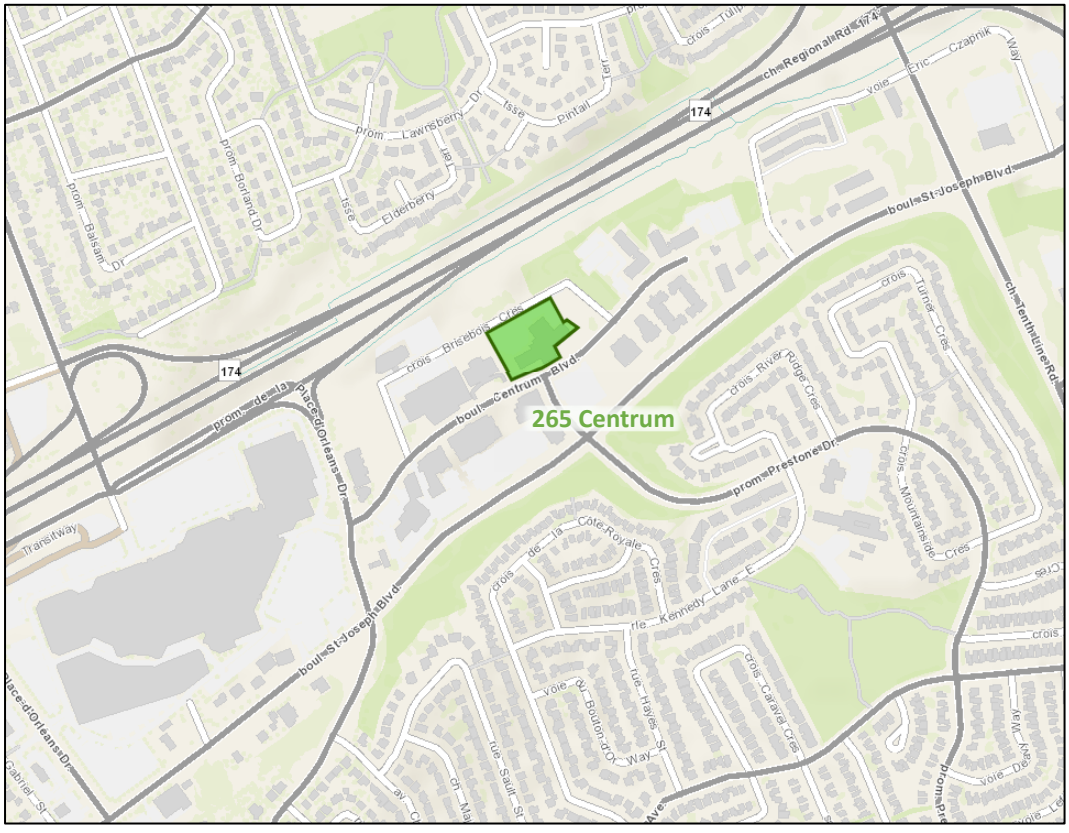
This study has been prepared according to the City of Ottawa's 2017 Transportation Impact Assessment (TIA) Guidelines, prior to the June 2023 updates. Accordingly, a Step 1 Screening Form has been prepared and is included as Appendix A, along with the Certification Form for the TIA Study PM. As shown in the Screening Form, a TIA is required including the Design Review component and the Network Impact Component. This study has been prepared to support a zoning bylaw amendment and site plan applications.

2 Existing and Planned Conditions

2.1 Proposed Development

The development site is located at 265 Centrum Boulevard within the Mixed-Use Centre Zone (MC14[1520] S152), Place d'Orleans Protected Major Transit Station Area (PMTSA) and design priority area. The existing site was a YMCA, now closed, and it will be replaced with three towers, two residential towers including 764 units, and one mix-used tower including 363 residential units, 8,967 sq. ft retail space, and 31,570 sq. ft office space. The site plan proposes a total of 516 vehicle parking spaces and 1,256 bicycle parking spaces. The existing perpendicular street parking spaces along Brisebois Crescent are proposed to be replaced with parallel street parking spaces. The preliminary accesses are proposed to include three along Brisebois Crescent, and the existing two accesses on Brisebois Crescent will be removed. Build-out is anticipated to occur in a single phase by 2028. Figure 1 illustrates the study area context. Figure 2 illustrates the proposed concept plan.

Figure 1: Area Context Plan



Source: http://maps.ottawa.ca/geoOttawa/ Accessed: January 31, 2023

To/From	Via
South	20% Prestone Drive (S) 10% Place d'Orleans (S)
East	25% St Joseph (E)
West	20% Regional 174 (W) (via Place d'Orléans (N)) 10% St Joseph (W) (via Place d'Orléans Drive) (S)
Total	**100%**

Figure 12: New Site Generation Auto Volumes

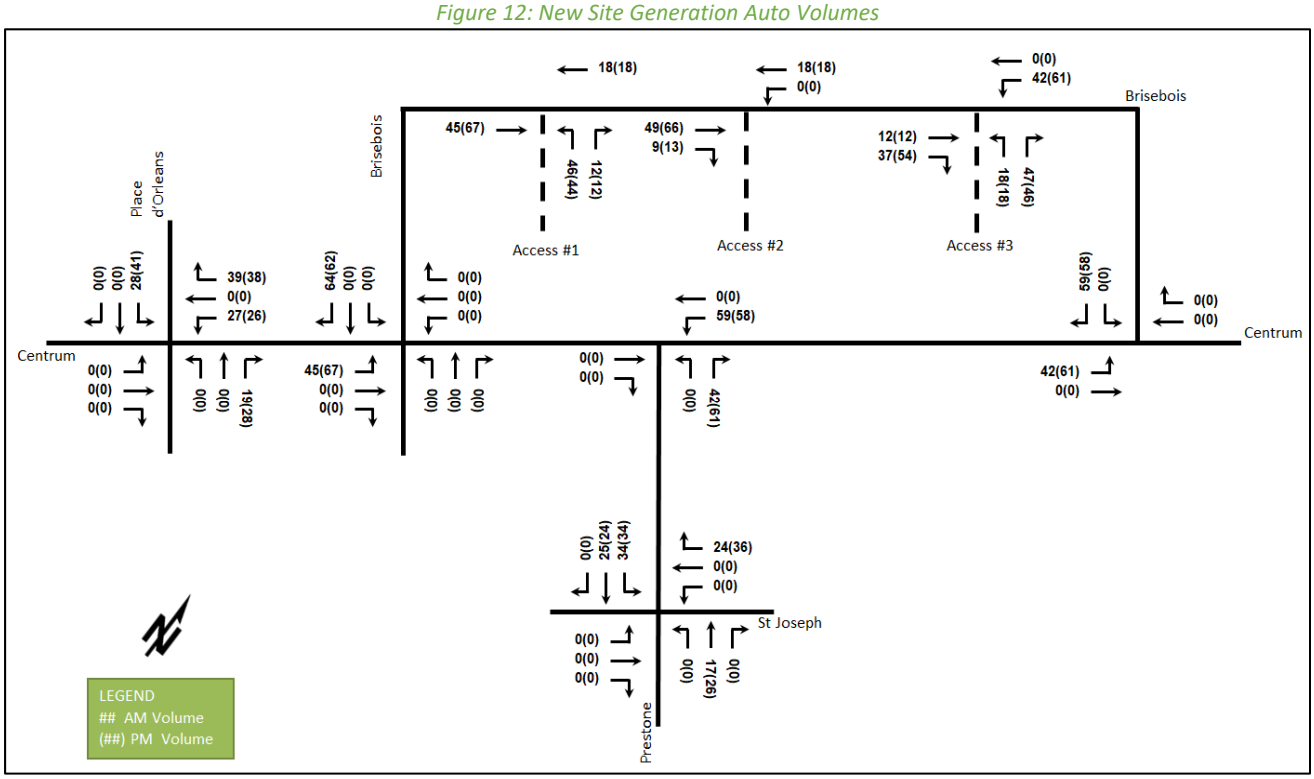
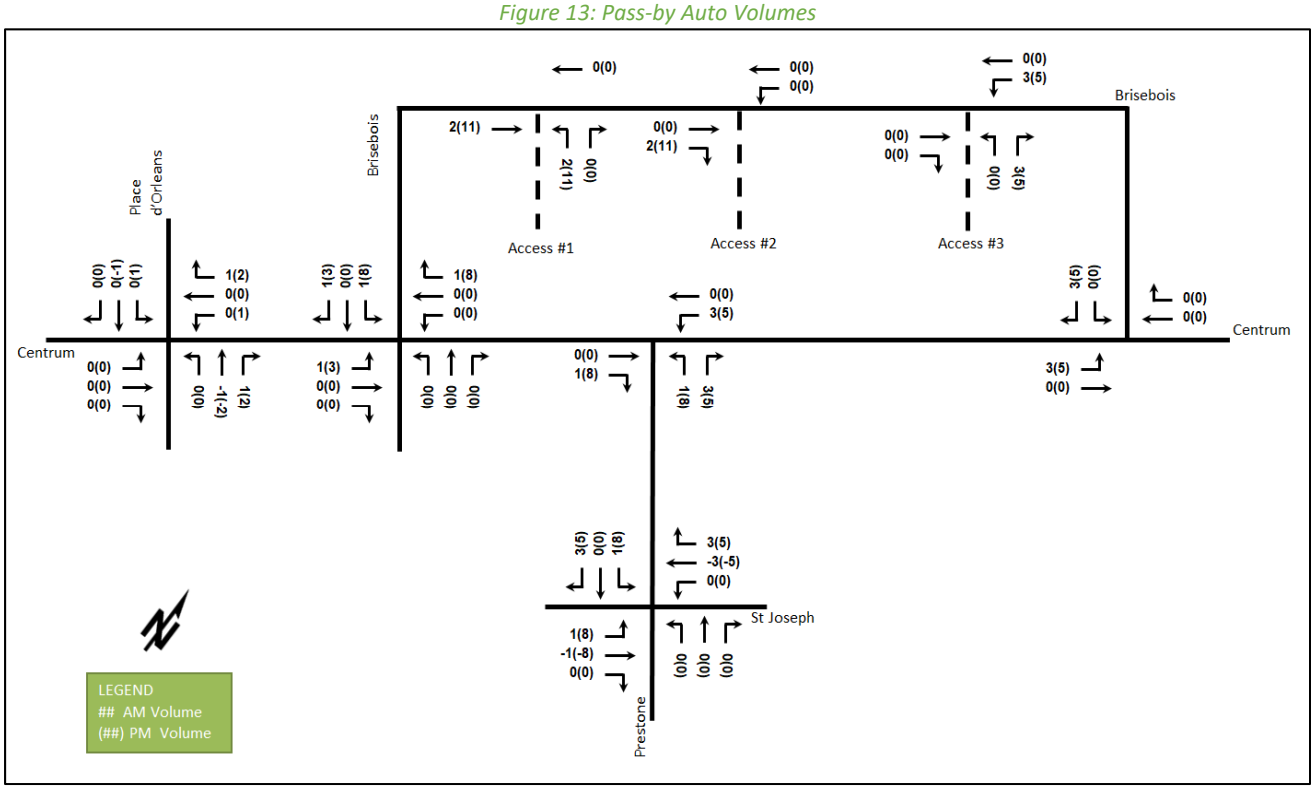


Figure 13: Pass-by Auto Volumes



6 Background Network Travel Demands

6.1 Transportation Network Plans

The transportation network plans were discussed in Section 2.3. The Place d'Orleans station Light Rail Transit (LRT) project is the only confirmed project within the study horizons and has been included.

6.2 Background Growth

A review of the background projections from the City's TRANS Regional Model for the 2011 and 2031 horizons was completed to determine the background growth for each of the study area roadways. The background TRANS model growth rates are summarized in Table 15 and the TRANS model plots are provided in Appendix F.

Table 15: TRANS Regional Model Projections – Study Area Growth Rates

Street	TRANS Rate		2011 to Existing		Existing to 2031	
	Eastbound	Westbound	Eastbound	Westbound	Eastbound	Westbound
Centrum Blvd	0.21%	0.34%	7.74%	-6.68%	-10.10%	11.89%
St Joseph Blvd	0.17%	3.06%	7.71%	3.27%	-10.17%	2.74%
	Northbound	**Southbound**	**Northbound**	**Southbound**	**Northbound**	**Southbound**
Prestone Dr	-0.46%	-0.53%	-8.12%	0.97%	12.25%	-2.73%
Place d'Orleans Dr	3.71%	-0.24%	4.08%	23.91%	3.15%	-27.94%

A comparison of the TRANS volumes and the existing volumes, the eastbound movement along Centrum Boulevard and the southbound moment along Place d'Orleans Drive show negative growth rates which are likely to have been underestimated and development may not have progressed linearly. Table 16 summarizes the recommended growth rates to be considered within the study area.

1 Screening

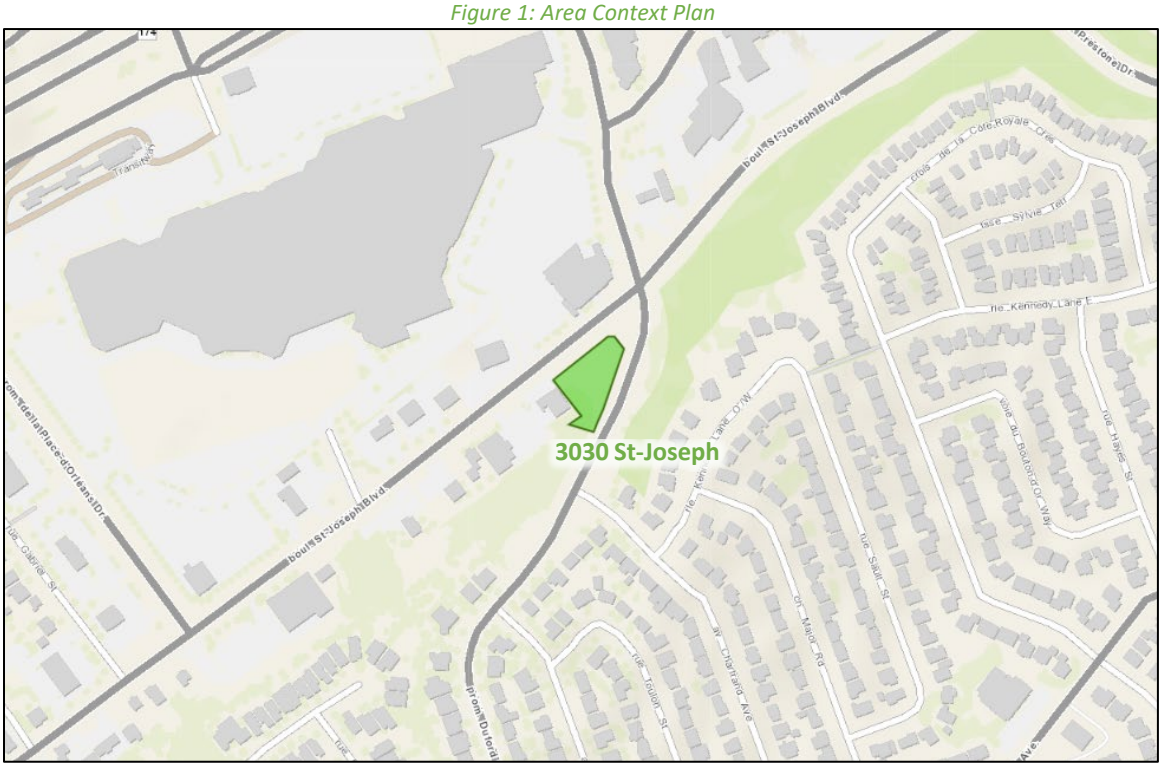
This study has been prepared according to the City of Ottawa's 2017 Transportation Impact Assessment (TIA) Guidelines, and was initially prepared before the 2023 Revisions to the TIA Guidelines. Accordingly, a Step 1 Screening Form has been prepared and is included as Appendix A, along with the Certification Form for the TIA Study PM. As shown in the Screening Form, a TIA is required including the Design Review component and the Network Impact Component. This study has been prepared to support a zoning by-law amendment and site plan application.

2 Existing and Planned Conditions

2.1 Proposed Development

The development site is located at 3030 St-Joseph Boulevard and is zoned as Arterial Mainstreet Zone (AM3[2705] S438). The development is proposed as an 18-storey mixed-used building comprising 206 residential dwelling units and 2,050 sq. ft. of commercial space, to be built by 2025. A similar building layout for a 16-storey tower as was previously approved for a prior zoning amendment. The development is to be accessed by a right-in/right-out access on St-Joseph Boulevard, and a total of 145 vehicle parking spaces and 213 bicycle parking spaces are proposed. The development is within the Orléans Corridor Secondary Plan Study area. Figure 1 illustrates the study area context. Figure 2 illustrates the proposed concept plan.

Figure 1: Area Context Plan



Source: http://maps.ottawa.ca/geoOttawa/ Accessed: April 25, 2023

Table 13: OD Survey Distribution – Orleans

To/From	% of Trips
North	5%
South	30%
East	25%
West	40%
Total	**100%**

5.4 Trip Assignment

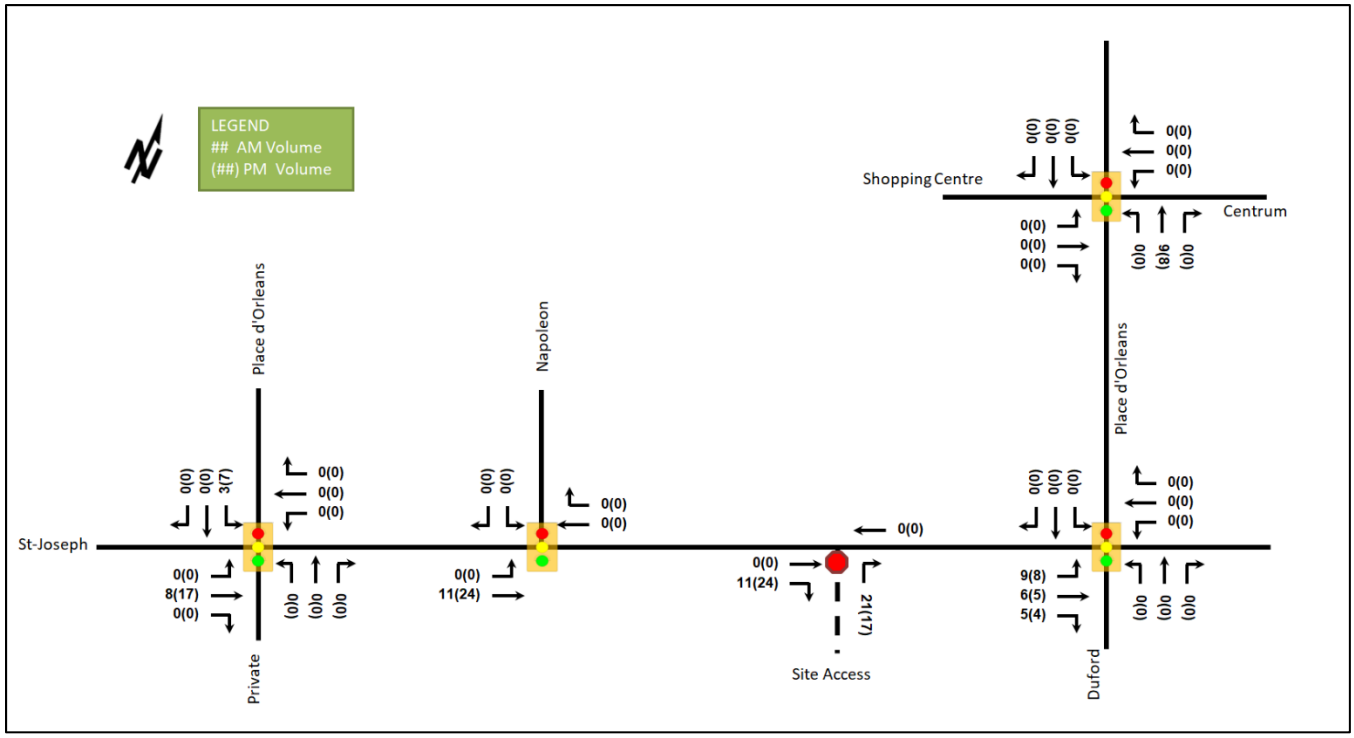
Using the distribution outlined above, turning movement splits, and access to major transportation infrastructure, the trips generated by the site have been assigned to the study area road network. Table 14 summarizes the proportional assignment to the study area roadways,

Figure 13 illustrates the new site generated volumes and Figure 14 illustrates the pass-by volumes.

Table 14: Trip Assignment

To/From	Inbound Via	Outbound Via
North	5% Place d'Orleans Drive W (N)	5% Place d'Orleans Drive E (W)
South	30% St-Joseph Boulevard (W)	20% Duford Drive (S) 10% St-Joseph Boulevard (E)
East	25% Place d'Orleans Drive W (N)	25% St-Joseph Boulevard (E)
West	40% St-Joseph Boulevard (W)	40% Place d'Orleans Drive E (N)/Highway 417
Total	**100%**	**100%**

Figure 13: New Site Generated Auto Volumes



1.2 Proposed Development

On Schedule B8 of the City of Ottawa's Official Plan, the subject site is designated as 'Hub,' 'Corridor – Mainstreet' (St. Joseph Boulevard), and 'Corridor – Minor' (Tenth Line Road). The subject site is also located within the Orléans Town Centre Secondary Plan area. The implemented zoning for the property is the Residential Fifth-Density, Subzone Z (R5Z[1363] and R5Z[1415]), which permits the proposed land uses.

The proposed development will consist of two apartment buildings of nine-storeys each. The easterly building (referred to as 'Building A') will step down to five storeys at the north end to comply with the zoning requirements. It will include 172 dwellings, and the westerly building (referred to as 'Building B') will include 101 dwellings. In total, the proposed development will therefore include 273 dwellings, as well as 185 vehicle parking spaces within a multi-level parking garage.

Access to the proposed development will be provided via one driveway to St. Joseph Boulevard and one driveway to Lionel-Rhéo Private. Vehicles entering the site via one driveway will be able to exit via the other driveway, as the parking garages below Buildings A and B will connect. The proposed development is anticipated to be completed in a single phase, with a buildout year of 2024.

A copy of the proposed site plan is included in **Appendix A**.

1.3 Screening Form

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

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

- Location Triggers – The development proposes new driveways to a Spine Cycling Route (St. Joseph Boulevard) and is located in a Design Priority Area (Orléans Town Centre); further assessment **is required** based on this trigger.

- Safety Triggers – A proposed driveway within 150m of a signalized intersection, and there is a documented history of traffic operations/safety concerns on the boundary streets within 500m of the development; further assessment **is required** based on this trigger.

2.0 SCOPING

2.1 Existing Conditions

2.1.1 Roadways

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

St. Joseph Boulevard is an arterial roadway that generally runs on an east-west alignment between Ottawa Road 174 and Trim Road. West of Ottawa Road 174, the roadway continues as Montreal Road, Rideau Street, and Wellington Street. East of Trim Road, the roadway continues as Old Montreal Road. Within the study area, St. Joseph Boulevard has a four-lane divided urban cross-

Figure 8: Site-Generated Traffic Volumes

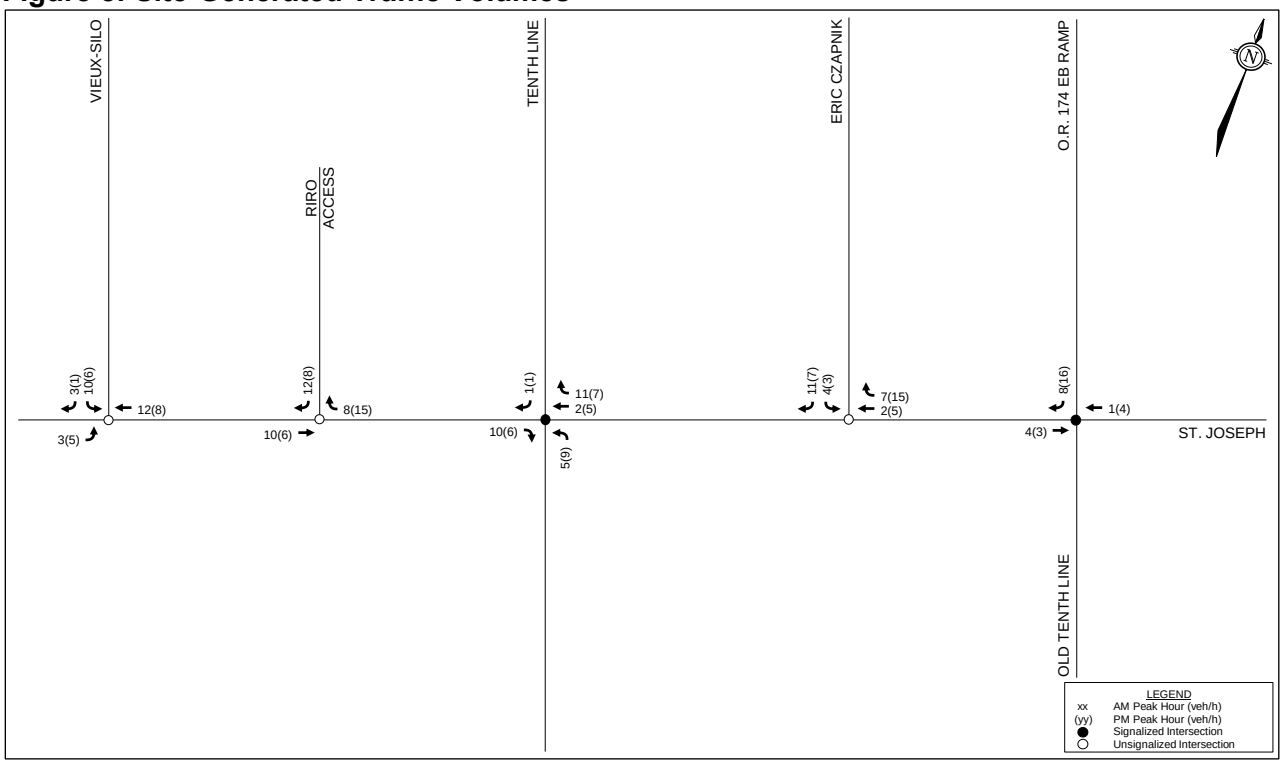
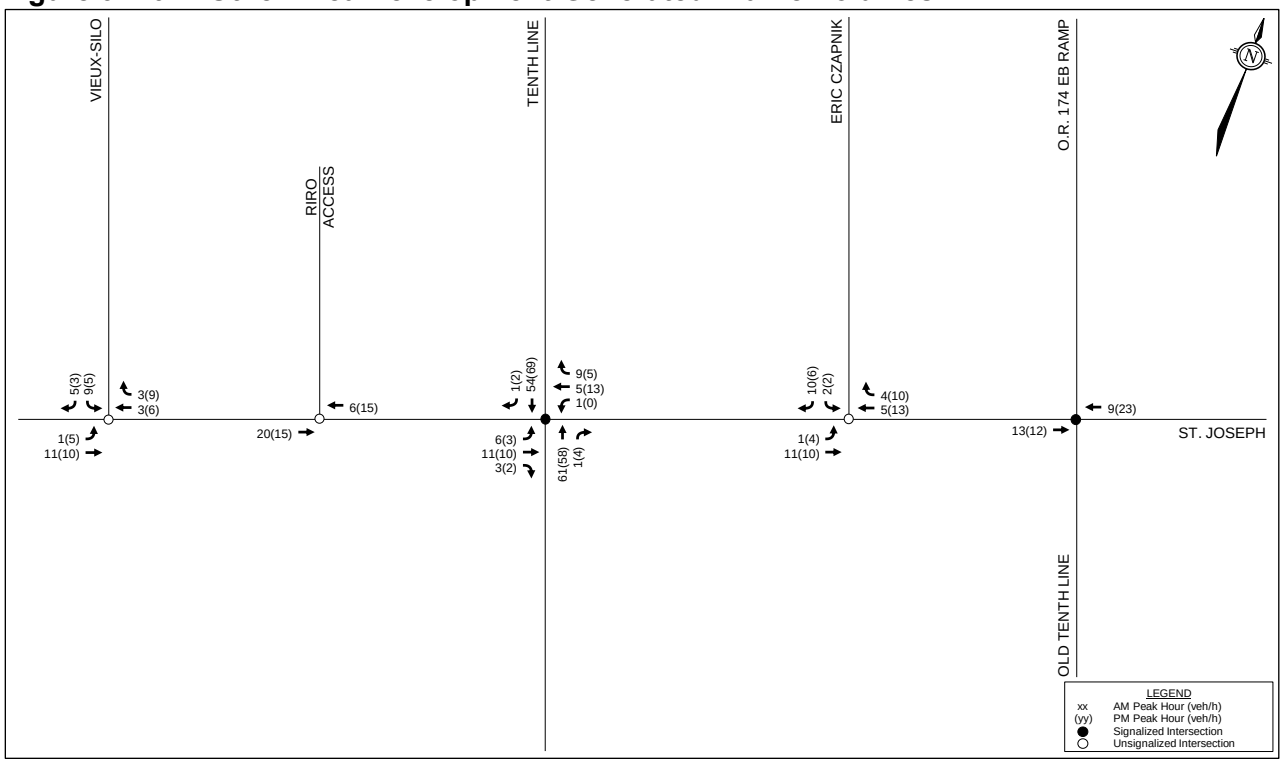


Figure 9: 2024 Other Area Development-Generated Traffic Volumes



1.2 Proposed Development

A TIA dated July 2022 was prepared in support of a Zoning By-law Amendment application for the subject property. This application proposed 326 apartment units with access on both St. Joseph Boulevard and the OR174 eastbound on-ramp.

The proposed development is consistent with the previously proposed development and will contain 326 apartment units. There are two proposed driveways, one to St. Joseph Boulevard and one to the OR174 eastbound on-ramp. The connection to the on-ramp will be right-in, right-out, left-out, while the connection to St. Joseph Boulevard will be full movement. Modifications will be required to the OR 174 Eastbound On-Ramp to accommodate two-way traffic from the site driveway connection to St. Joseph Boulevard. The proposed site plan is included in **Appendix A**. Construction of the proposed development is anticipated in 2025.

The City of Ottawa's Official Plan locates the subject site within the Suburban (east) Transect, with a 'Neighbourhood' designation on Schedule B8. The subject site is also located within the Orléans Corridor Secondary Plan.

A copy of the site plan is included in **Appendix A**.

1.3 Screening Form

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

- Trip Generation Trigger – The development is not expected to generate a net additional 60 peak hour person trips compared to previously completed TIA; further assessment is **not required** based on this trigger.
- Location Triggers – The development proposes a connection to St. Joseph Boulevard which is in the City's Cross-Town Bikeway; further assessment **is required** based on this trigger.
- Safety Triggers – The proposed driveway to St. Joseph Boulevard is within the right turning lane for the OR174 eastbound on-ramp intersection and uses the existing median break on St. Joseph Boulevard; further assessment **is required** based on this trigger.

2.0 SCOPING

2.1 Existing Conditions

2.1.1 Roadways

Ottawa Regional Road 174 (OR174, Queensway) is a four-lane divided City freeway and is classified as a truck route, allowing full loads. It runs east-west and has a posted speed limit of 100km/h in the vicinity of the subject site. The westbound on-ramps and off-ramp connect to Tenth Line Road and the eastbound on-ramp and off-ramp connect to St. Joseph Boulevard to the west of the site. The OR174 EB on-ramp immediately to the west of the site has an advisory speed of 50km/h. A speed study was recently conducted along the ramp at the location of the proposed access. Results showed a mean speed of 58km/h and an 85th percentile speed of 67km/h, approximately 14% of drivers were in compliance with the 50km/h advisory speed limit. Results from the speed survey can be found in **Appendix C**.

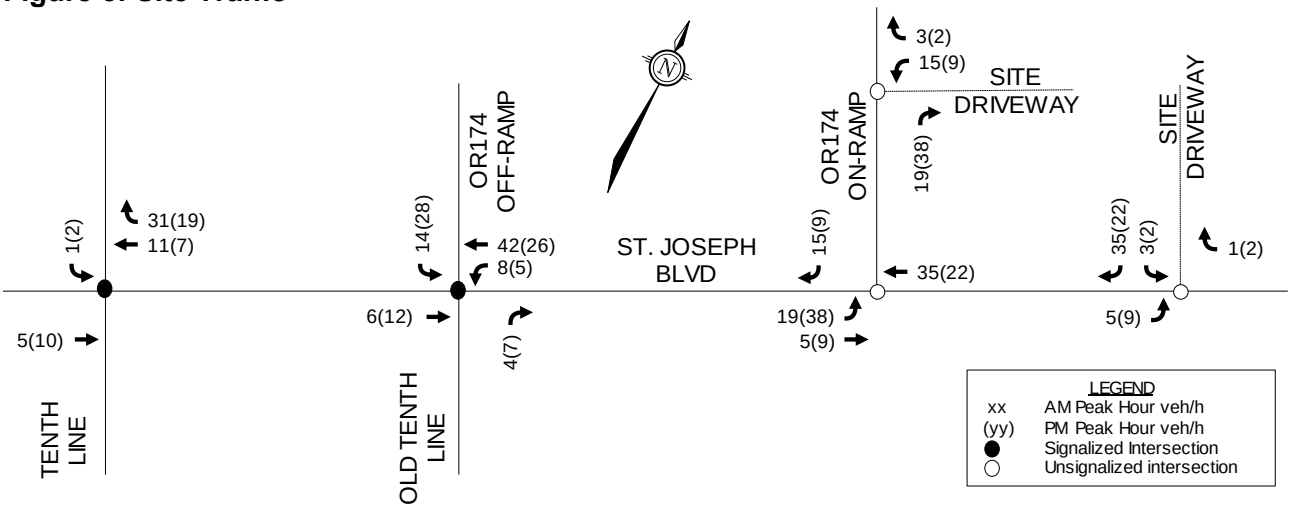
- 55% to/from the west via OR174
- 20% to/from the west via St. Joseph Boulevard
- 15% to/from the south via Old Tenth Line Road
- 5% to/from the east via OR174
- 5% to/from the east via St. Joseph Boulevard

The assignment of site generated trips has applied the following assumptions:

- 80% of the inbound trips from the west or south will use the on-ramp driveway with the remainder using the St Joseph driveway; and,
- 30% of the outbound trips to the west or south will use the on-ramp driveway with the remainder using the St Joseph driveway.

Traffic generated by the site based on the 2020 TRANS Trip Generation methodology is summarized in **Figure 5**.

Figure 5: Site Traffic



2.6 Access Design

The site will be served by two connections, one to St. Joseph Boulevard and one to the OR174 EB on-ramp. The connection to the on-ramp will be right-in, right-out, left-out, while the connection to St. Joseph Boulevard will be full movement. The OR174 eastbound ramp between St. Joseph Boulevard and the site access will be re-designated to a collector road from City Freeway. Modifications will be required to the OR174 EB on-ramp to accommodate two-way traffic from the site driveway connection to St. Joseph Boulevard.

A functional design of the proposed roadway modifications is provided in **Appendix G**. A Roadway Modification Approval letter will be provided under a separate cover. Additional approvals from the Ministry of Transportation of Ontario (MTO) may be required if OR 174 changes ownership in advance of the roadway modifications.

The access configurations with respect to design guidelines and requirements of the City's Private Approach By-law are summarized below:

APPENDIX I

Long-Range Model Snapshots

TRANS Regional Model

Version 1.01 - Assigned December 09, 2024

AM Peak Hour Total Traffic Volume

Place d'Orleans

2022 Model

User Initials: AJ
Plot Prepared: August 08, 2025
EMME Scenario: 22002

TRANS

Legend

AM Peak Hour Total Traffic Volume

1000 2000 3000 4000 5000

N

Distance (m)

50 100 150 200

Nightingale Street

Marsha Park

Royal 22e Régiment Park

Regional Road 174

Prestone Drive

Monica Crescent

Kennedy Lane East

Farm Boy

TRANS Regional Model

Version 1.01 - Assigned December 09, 2024

AM Peak Hour Total Traffic Volume

Place d'Orleans

2046 Model

User Initials: AJ
Plot Prepared: August 08, 2025
EMME Scenario: 46001

Legend

AM Peak Hour Total Traffic Volume

1000 2000 3000 4000 5000

N

Distance (m)

50 100 150 200

Marsha Park

Royal 22e Régiment Park

Nightingale St

Regional Road 174

Prestone Drive

Monica Crescent

Kennedy Lane East

Farm Boy

The TRANS model is continuously refined & maintained, and all information is provided in good faith. However, model outputs are provided "as is", and no warranty or guarantee is provided as to the accuracy, reliability or reasonableness of the results. In using this data, you agree to accept any and all risks arising from any incorrect, incomplete, or misleading information.

Recipients are required to use caution and professional judgement in using and interpreting model outputs. In particular, caution should be used when focusing on a geographically limited area (such as a single road or intersection), as the model is primarily designed to simulate regional-scale phenomena and has been calibrated at a regional level.

As general good practice, it is recommended that the user confirm the network coding within the area of interest, and compare base year forecasts against traffic count data to assess the extent to which the model may be over- or under-estimating the travel demand.

APPENDIX J

Signal Timing Plans

Traffic Signal Timing

City of Ottawa, Public Works Department

Traffic Signal Operations Unit

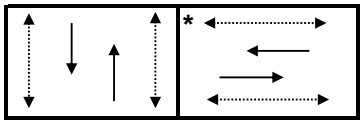
Intersection:	***Main:*** Place d'Orleans	***Side:***	Centrum
Controller:	**MS 3200**	**TSD:**	**5888**
Author:	Kymen Kwan	**Date:**	14-Aug-2025

Existing Timing Plans†

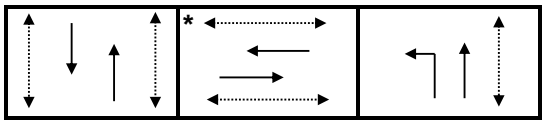
	Plan					**Ped Minimum Time**		
	AM Peak 1	**Off Peak** 2	**PM Peak** 3	**Night** 4	**Weekend** 5	***Walk***	***DW***	***A+R***
Cycle	75	75	85	70	90			
Offset	75	X	85	X	90			
NB Thru	43	43	53	38	58	12	18	3.3+2.7
SB Thru	43	43	53	38	46	12	18	3.3+2.7
EB Thru	32	32	32	32	32	10	15	3.3+2.7
WB Thru	32	32	32	32	32	10	15	3.3+2.7
NB Left	-	-	-	-	12	-	-	3.3+2.3

Phasing Sequence‡

Plan: **1, 2, 3, 4**



Plan: **5**



Notes: 1) For Plan 5, the NB Left Turn movement has as minimum recall of 6s green

Schedule

Weekday

Time	Plan
0:10	4
6:30	1
9:30	2
15:00	3
18:30	2
22:00	4

Saturday

Time	Plan
0:10	4
7:00	2
9:00	5
20:00	4

Sunday

Time	Plan
0:10	4
7:00	2
10:00	5
17:00	2
19:00	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

Cost is $63.94 ($56.58 + HST)

Traffic Signal Timing

City of Ottawa, Public Works Department

Traffic Signal Operations Unit

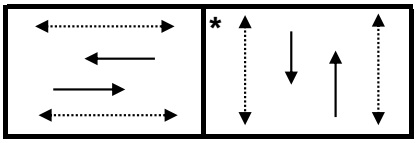
Intersection:	***Main:*** St. Joseph	***Side:***	Prestone
Controller:	**MS 3200**	**TSD:**	**5807**
Author:	Kymen Kwan	**Date:**	14-Aug-2025

Existing Timing Plans†

	Plan					**Ped Minimum Time**		
	AM Peak 1	**Off Peak** 2	**PM Peak** 3	**Night** 4	**Weekend** 5	***Walk***	***DW***	***A+R***
Cycle	80	80	80	60	80			
Offset	X	X	X	X	X			
EB Thru	51	51	51	31	46	7	11	3.3+2.4
WB Thru	51	51	51	31	46	7	11	3.3+2.4
NB Thru	29	29	29	29	34	7	16	3.3+2.7
SB Thru	29	29	29	29	34	7	16	3.3+2.7

Phasing Sequence‡

Plan: All



Schedule

Weekday

Time	Plan
0:10	4
6:30	1
9:00	2
15:00	3
18:30	2
22:00	4

Saturday

Time	Plan
0:10	4
7:00	2
9:00	5
20:00	4

Sunday

Time	Plan
0:10	4
7:00	2
10:00	5
17:00	2
19:00	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

Cost is $63.94 ($56.58 + HST)

Traffic Signal Timing

City of Ottawa, Public Works Department

Traffic Signal Operations Unit

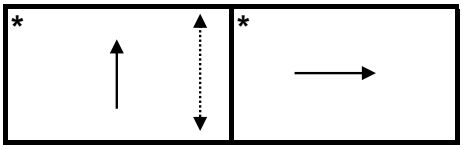
Intersection:	***Main:***	Place d'Orleans	***Side:***	Hwy 174 EB On Ramp
Controller:	**ATC 3**		**TSD:**	**5529**
Author:	Kymen Kwan		**Date:**	23-Apr-2026

Existing Timing Plans†

	Plan				**Ped Minimum Time**		
	AM Peak 1	**Off Peak** 2	**PM Peak** 3	**Night** 4	***Walk***	***DW***	***A+R***
Cycle	Free	Free	Free	Free			
Offset	-	-	-	-			
NB Thru	max=44.8	max=44.8	max=44.8	max=34.8	15	5	3.3+1.5
EB Thru	max=35.7	max=35.7	max=45.7	max=35.7	-	-	3.3+2.4

Phasing Sequence‡

Plan: All



Notes: 1) The NB Thru has a minimum recall of 10s

Schedule

Weekday

Time	Plan
0:10	4
6:30	1
9:30	2
15:00	3
18:30	2
22:00	4

Saturday

Time	Plan
0:15	4
7:00	2
20:00	4

Sunday

Time	Plan
0:15	4
7:00	2
19:00	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

▬ ▬ ► Bike Signal

═ ═ ► Transit Signal

Cost is $63.94 ($56.58 + HST)

APPENDIX K

Existing Synchro Analysis

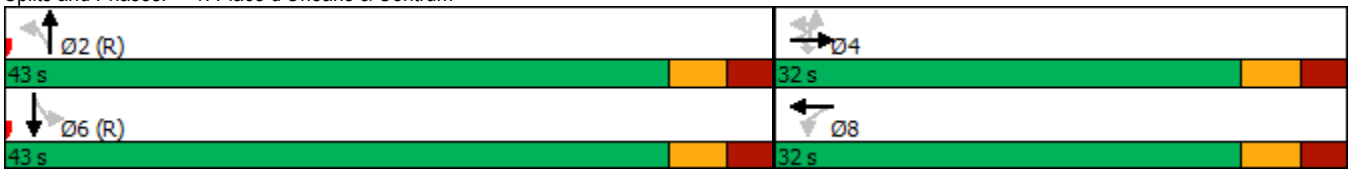
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	1	28	25	40	25	31	67	83	166	60	77	40
Future Volume (vph)	1	28	25	40	25	31	67	83	166	60	77	40
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0		20.0	50.0		0.0	0.0		0.0	0.0	
Storage Lanes		1		1	1		0	0		0	0	
Taper Length (m)		10.0			20.0			10.0			10.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor		0.99		0.97	0.99	0.99			1.00			1.00
Frt				0.850		0.897			0.971			0.980
Flt Protected		0.950			0.950				0.987			0.972
Satd. Flow (prot)	0	1628	1861	1582	1768	1560	0	0	3265	0	0	3221
Flt Permitted		0.687			0.739				0.832			0.702
Satd. Flow (perm)	0	1170	1861	1542	1358	1560	0	0	2752	0	0	2325
Right Turn on Red				Yes			Yes			Yes		
Satd. Flow (RTOR)				44		74			56			20
Link Speed (k/h)			30			40			60			60
Link Distance (m)			58.1			146.1			115.4			185.7
Travel Time (s)			7.0			13.1			6.9			11.1
Confl. Peds. (#/hr)		8		15	15		8	1		1	1	
Confl. Bikes (#/hr)							4					
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	1%	10%	1%	1%	1%	1%	9%	1%	7%	2%	5%	8%
Adj. Flow (vph)	1	31	28	44	28	34	74	92	184	67	86	44
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	32	28	44	28	108	0	0	343	0	0	150
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA	Left	Left
Median Width(m)			6.0			6.0			0.0			0.0
Link Offset(m)			0.0			0.0			0.0			0.0
Crosswalk Width(m)			5.0			5.0			5.0			5.0
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	14	24		14	24		14	24		14	24	
Number of Detectors	1	1	2	1	1	2		1	2		1	2
Detector Template	Left	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru
Leading Detector (m)	2.0	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 1 Size(m)	2.0	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 2 Position(m)			9.4			9.4			9.4			9.4
Detector 2 Size(m)			0.6			0.6			0.6			0.6
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			0.0
Turn Type	Perm	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA
Protected Phases			4			8			2			6
Permitted Phases	4	4		4	8			2			6	
Detector Phase	4	4	4	4	8	8		2	2		6	6

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	18
Future Volume (vph)	18
Ideal Flow (vphpl)	1800
Storage Length (m)	0.0
Storage Lanes	0
Taper Length (m)	
Lane Util. Factor	0.95
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	Yes
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	1
Confl. Bikes (#/hr)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	1%
Adj. Flow (vph)	20
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(m)	
Link Offset(m)	
Crosswalk Width(m)	
Two way Left Turn Lane	
Headway Factor	1.01
Turning Speed (k/h)	14
Number of Detectors	
Detector Template	
Leading Detector (m)	
Trailing Detector (m)	
Detector 1 Position(m)	
Detector 1 Size(m)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(m)	
Detector 2 Size(m)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0		10.0	10.0		10.0	10.0
Minimum Split (s)	31.0	31.0	31.0	31.0	31.0	31.0		36.0	36.0		36.0	36.0
Total Split (s)	32.0	32.0	32.0	32.0	32.0	32.0		43.0	43.0		43.0	43.0
Total Split (%)	42.7%	42.7%	42.7%	42.7%	42.7%	42.7%		57.3%	57.3%		57.3%	57.3%
Maximum Green (s)	26.0	26.0	26.0	26.0	26.0	26.0		37.0	37.0		37.0	37.0
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3		3.3	3.3		3.3	3.3
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7	2.7		2.7	2.7		2.7	2.7
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0			0.0			0.0
Total Lost Time (s)		6.0	6.0	6.0	6.0	6.0			6.0			6.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0
Recall Mode	None	None	None	None	None	None		C-Max	C-Max		C-Max	C-Max
Walk Time (s)	10.0	10.0	10.0	10.0	10.0	10.0		12.0	12.0		12.0	12.0
Flash Dont Walk (s)	15.0	15.0	15.0	15.0	15.0	15.0		18.0	18.0		18.0	18.0
Pedestrian Calls (#/hr)	5	5	5	5	5	5		5	5		5	5
Act Effct Green (s)		13.0	13.0	13.0	13.0	13.0			54.4			54.4
Actuated g/C Ratio		0.17	0.17	0.17	0.17	0.17			0.73			0.73
v/c Ratio		0.16	0.09	0.15	0.12	0.33			0.17			0.09
Control Delay		25.7	23.9	8.3	24.6	12.6			4.9			5.1
Queue Delay		0.0	0.0	0.0	0.0	0.0			0.0			0.0
Total Delay		25.7	23.9	8.3	24.6	12.6			4.9			5.1
LOS		C	C	A	C	B			A			A
Approach Delay			17.8			15.1			4.9			5.1
Approach LOS			B			B			A			A
Queue Length 50th (m)		3.8	3.3	0.0	3.3	4.0			5.2			2.2
Queue Length 95th (m)		7.9	7.1	5.7	7.2	12.0			16.7			8.5
Internal Link Dist (m)			34.1			122.1			91.4			161.7
Turn Bay Length (m)				20.0	50.0							
Base Capacity (vph)		405	645	563	470	589			2011			1691
Starvation Cap Reductn		0	0	0	0	0			0			0
Spillback Cap Reductn		0	0	0	0	0			0			0
Storage Cap Reductn		0	0	0	0	0			0			0
Reduced v/c Ratio		0.08	0.04	0.08	0.06	0.18			0.17			0.09

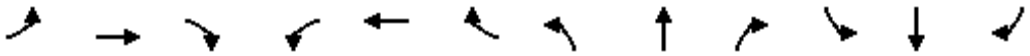
Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 75			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.33			
Intersection Signal Delay: 8.7		Intersection LOS: A	
Intersection Capacity Utilization 78.3%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 1: Place d'Orleans & Centrum



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

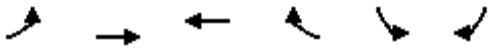


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	80	10	2	124	3	0	0	1	1	0	13
Future Volume (vph)	24	80	10	2	124	3	0	0	1	1	0	13
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.988			0.997			0.865			0.874	
Flt Protected		0.989			0.999						0.997	
Satd. Flow (prot)	0	1770	0	0	1819	0	0	813	0	0	1622	0
Flt Permitted		0.989			0.999						0.997	
Satd. Flow (perm)	0	1770	0	0	1819	0	0	813	0	0	1622	0
Link Speed (k/h)		40			40			30			50	
Link Distance (m)		146.1			240.1			67.4			116.9	
Travel Time (s)		13.1			21.6			8.1			8.4	
Confl. Peds. (#/hr)	8		9	9		8						
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 (%)	1%	5%	1%	1%	3%	1%	1%	1%	100%	1%	1%	1%
Adj. Flow (vph)	27	89	11	2	138	3	0	0	1	1	0	14
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	127	0	0	143	0	0	1	0	0	15	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)		4.0			4.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		5.0			5.0			5.0			5.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 30.3%		ICU Level of Service A	
Analysis Period (min) 15			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	20	41	39	18	55	36
Future Volume (vph)	20	41	39	18	55	36
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.909					0.850
Flt Protected				0.967	0.950	
Satd. Flow (prot)	1529	0	0	1778	1669	1582
Flt Permitted				0.967	0.950	
Satd. Flow (perm)	1529	0	0	1778	1669	1582
Link Speed (k/h)	40			40	40	
Link Distance (m)	240.1			132.6	112.3	
Travel Time (s)	21.6			11.9	10.1	
Confl. Peds. (#/hr)		7	7		4	6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	15%	1%	5%	7%	1%
Adj. Flow (vph)	22	46	43	20	61	40
Shared Lane Traffic (%)						
Lane Group Flow (vph)	68	0	0	63	61	40
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	R NA	L NA	Left	Left	Right
Median Width(m)	0.0			0.0	6.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	5.0			5.0	5.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		14	24		24	14
Sign Control	Stop			Stop	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 21.8%		ICU Level of Service A	
Analysis Period (min) 15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	11	19	26	1	0	5
Future Volume (vph)	11	19	26	1	0	5
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.995		0.865	
Flt Protected		0.982				
Satd. Flow (prot)	0	1783	1852	0	1610	0
Flt Permitted		0.982				
Satd. Flow (perm)	0	1783	1852	0	1610	0
Link Speed (k/h)		40	40		50	
Link Distance (m)		132.6	155.2		53.9	
Travel Time (s)		11.9	14.0		3.9	
Confl. Peds. (#/hr)	9			9		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	8%	1%	1%	1%	1%	1%
Adj. Flow (vph)	12	21	29	1	0	6
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	33	30	0	6	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		4.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		5.0	5.0		5.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 18.4%		ICU Level of Service A	
Analysis Period (min) 15			

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	8	291	33	1	9	976	91	101	26	9	32	14
Future Volume (vph)	8	291	33	1	9	976	91	101	26	9	32	14
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	60.0		120.0		45.0		120.0	50.0		0.0	0.0	
Storage Lanes	1		1		1		1	1		0	1	
Taper Length (m)	30.0				35.0			45.0			10.0	
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.97		1.00		0.99	1.00	1.00		1.00	0.99
Frt			0.850				0.850		0.962			0.903
Flt Protected	0.950				0.950			0.950			0.950	
Satd. Flow (prot)	1768	3468	1508	0	1636	3502	1522	1751	1638	0	1595	1463
Flt Permitted	0.238				0.556			0.728			0.732	
Satd. Flow (perm)	443	3468	1468	0	953	3502	1502	1339	1638	0	1226	1463
Right Turn on Red			Yes				Yes			Yes		
Satd. Flow (RTOR)			41				101		10			29
Link Speed (k/h)		50				60			40			40
Link Distance (m)		252.5				369.8			344.1			112.3
Travel Time (s)		18.2				22.2			31.0			10.1
Confl. Peds. (#/hr)	1		3		3		1	2		2	2	
Confl. Bikes (#/hr)										1		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	1%	3%	6%	1%	10%	2%	5%	2%	10%	10%	12%	35%
Adj. Flow (vph)	9	323	37	1	10	1084	101	112	29	10	36	16
Shared Lane Traffic (%)												
Lane Group Flow (vph)	9	323	37	0	11	1084	101	112	39	0	36	45
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	L NA	Left	R NA	R NA	L NA	Left	R NA	L NA	Left	R NA	L NA	Left
Median Width(m)		6.0				6.0			4.0			6.0
Link Offset(m)		0.0				0.0			0.0			0.0
Crosswalk Width(m)		5.0				5.0			5.0			5.0
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24		14	14	24		14	24		14	24	
Number of Detectors	1	2	1	1	1	2	1	1	2		1	2
Detector Template	Left	Thru	Right	Left	Left	Thru	Right	Left	Thru		Left	Thru
Leading Detector (m)	2.0	10.0	2.0	2.0	2.0	10.0	2.0	2.0	10.0		2.0	10.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	2.0	0.6	2.0	2.0	0.6		2.0	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)		9.4				9.4			9.4			9.4
Detector 2 Size(m)		0.6				0.6			0.6			0.6
Detector 2 Type		Cl+Ex				Cl+Ex			Cl+Ex			Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0				0.0			0.0			0.0
Turn Type	Perm	NA	Perm	Perm	Perm	NA	Perm	Perm	NA		Perm	NA
Protected Phases		2				6			8			4
Permitted Phases	2		2	6	6		6	8			4	
Detector Phase	2	2	2	6	6	6	6	8	8		4	4

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	26
Future Volume (vph)	26
Ideal Flow (vphpl)	1800
Storage Length (m)	0.0
Storage Lanes	0
Taper Length (m)	
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	Yes
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	2
Confl. Bikes (#/hr)	
Peak Hour Factor	0.90
Heavy Vehicles (%)	4%
Adj. Flow (vph)	29
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Enter Blocked Intersection	No
Lane Alignment	R NA
Median Width(m)	
Link Offset(m)	
Crosswalk Width(m)	
Two way Left Turn Lane	
Headway Factor	1.01
Turning Speed (k/h)	14
Number of Detectors	
Detector Template	
Leading Detector (m)	
Trailing Detector (m)	
Detector 1 Position(m)	
Detector 1 Size(m)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(m)	
Detector 2 Size(m)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0		10.0	10.0
Minimum Split (s)	23.7	23.7	23.7	23.7	23.7	23.7	23.7	29.0	29.0		29.0	29.0
Total Split (s)	51.0	51.0	51.0	51.0	51.0	51.0	51.0	29.0	29.0		29.0	29.0
Total Split (%)	63.8%	63.8%	63.8%	63.8%	63.8%	63.8%	63.8%	36.3%	36.3%		36.3%	36.3%
Maximum Green (s)	45.3	45.3	45.3	45.3	45.3	45.3	45.3	23.0	23.0		23.0	23.0
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3		3.3	3.3
All-Red Time (s)	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.7	2.7		2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.7	5.7	5.7		5.7	5.7	5.7	6.0	6.0		6.0	6.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Recall Mode	Max	Max	Max	Max	Max	Max	Max	None	None		None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	16.0	16.0		16.0	16.0
Pedestrian Calls (#/hr)	5	5	5	5	5	5	5	5	5		5	5
Act Effct Green (s)	51.1	51.1	51.1		51.1	51.1	51.1	13.1	13.1		13.1	13.1
Actuated g/C Ratio	0.72	0.72	0.72		0.72	0.72	0.72	0.18	0.18		0.18	0.18
v/c Ratio	0.03	0.13	0.03		0.02	0.43	0.09	0.46	0.13		0.16	0.15
Control Delay	6.5	5.3	2.3		6.2	7.0	1.9	31.6	19.4		25.0	13.5
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	6.5	5.3	2.3		6.2	7.0	1.9	31.6	19.4		25.0	13.5
LOS	A	A	A		A	A	A	C	B		C	B
Approach Delay		5.0				6.6			28.4			18.6
Approach LOS		A				A			C			B
Queue Length 50th (m)	0.3	6.0	0.0		0.4	26.7	0.0	12.1	2.9		3.7	1.6
Queue Length 95th (m)	2.3	15.9	3.1		2.5	60.9	5.4	24.1	9.1		9.9	8.2
Internal Link Dist (m)		228.5				345.8			320.1			88.3
Turn Bay Length (m)	60.0		120.0		45.0		120.0	50.0				
Base Capacity (vph)	317	2485	1064		683	2510	1105	433	537		397	493
Starvation Cap Reductn	0	0	0		0	0	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0	0	0	0		0	0
Reduced v/c Ratio	0.03	0.13	0.03		0.02	0.43	0.09	0.26	0.07		0.09	0.09

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 71.3
Natural Cycle: 60
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.46
Intersection Signal Delay: 8.6 Intersection LOS: A
Intersection Capacity Utilization 51.2% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 5: Prestone & St. Joseph

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

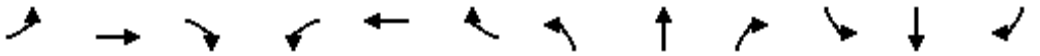
Intersection Summary

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	110	145	0	0	251	51
Future Volume (vph)	110	145	0	0	251	51
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0	0.0		0.0	30.0
Storage Lanes		2	0		2	1
Taper Length (m)			10.0		10.0	
Lane Util. Factor	1.00	0.88	1.00	1.00	0.97	1.00
Frt		0.850				0.850
Flt Protected					0.950	
Satd. Flow (prot)	1790	2653	0	0	3300	1567
Flt Permitted					0.950	
Satd. Flow (perm)	1790	2653	0	0	3300	1567
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		161				57
Link Speed (k/h)	60			50	60	
Link Distance (m)	170.2			126.7	236.9	
Travel Time (s)	10.2			9.1	14.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	6%	2%	2%	5%	2%
Adj. Flow (vph)	122	161	0	0	279	57
Shared Lane Traffic (%)						
Lane Group Flow (vph)	122	161	0	0	279	57
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	8.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	5.0			5.0	5.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		14	24		24	14
Turn Type	NA	Perm			Prot	Perm
Protected Phases	4				2	
Permitted Phases		4				2
Detector Phase	4	4			2	2
Switch Phase						
Minimum Initial (s)	10.0	10.0			10.0	10.0
Minimum Split (s)	15.7	15.7			24.8	24.8
Total Split (s)	35.7	35.7			44.8	44.8
Total Split (%)	44.3%	44.3%			55.7%	55.7%
Maximum Green (s)	30.0	30.0			40.0	40.0
Yellow Time (s)	3.3	3.3			3.3	3.3
All-Red Time (s)	2.4	2.4			1.5	1.5
Lost Time Adjust (s)	0.0	0.0			0.0	0.0
Total Lost Time (s)	5.7	5.7			4.8	4.8
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0			3.0	3.0
Recall Mode	None	None			Min	Min
Walk Time (s)					15.0	15.0
Flash Dont Walk (s)					5.0	5.0
Pedestrian Calls (#/hr)					5	5
Act Effct Green (s)	10.3	10.3			14.4	14.4
Actuated g/C Ratio	0.29	0.29			0.41	0.41

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
v/c Ratio	0.24	0.18			0.21	0.09
Control Delay	10.9	3.3			7.2	2.7
Queue Delay	0.0	0.0			0.0	0.0
Total Delay	10.9	3.3			7.2	2.7
LOS	B	A			A	A
Approach Delay	6.6				6.4	
Approach LOS	A				A	
Queue Length 50th (m)	3.7	0.0			4.4	0.0
Queue Length 95th (m)	14.8	4.6			8.2	3.0
Internal Link Dist (m)	146.2			102.7	212.9	
Turn Bay Length (m)						30.0
Base Capacity (vph)	1557	2329			3212	1527
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	0.08	0.07			0.09	0.04

Intersection Summary			
Area Type:	Other		
Cycle Length: 80.5			
Actuated Cycle Length: 35.5			
Natural Cycle: 45			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.24			
Intersection Signal Delay: 6.5		Intersection LOS: A	
Intersection Capacity Utilization 25.4%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 11: Place d'Orleans & HWY174 EB On-Ramp

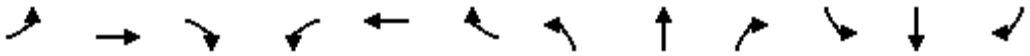


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	88	49	196	36	35	90	118	169	66	101	112	24
Future Volume (vph)	88	49	196	36	35	90	118	169	66	101	112	24
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		20.0	50.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		1	1		0	0		0	0		0
Taper Length (m)	10.0			20.0			10.0			10.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor	0.98		0.97	0.98	0.98			0.99			1.00	
Frt			0.850		0.892			0.972			0.985	
Flt Protected	0.950			0.950				0.984			0.979	
Satd. Flow (prot)	1768	1861	1582	1768	1515	0	0	3290	0	0	3233	0
Flt Permitted	0.668			0.722				0.753			0.693	
Satd. Flow (perm)	1224	1861	1531	1322	1515	0	0	2515	0	0	2287	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			218		100			52			23	
Link Speed (k/h)		30			40			60			60	
Link Distance (m)		58.1			146.1			115.4			185.7	
Travel Time (s)		7.0			13.1			6.9			11.1	
Confl. Peds. (#/hr)	19		17	17		19	3		2	2		3
Confl. Bikes (#/hr)			5			1						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	1%	1%	1%	1%	1%	11%	1%	6%	1%	9%	5%	1%
Adj. Flow (vph)	98	54	218	40	39	100	131	188	73	112	124	27
Shared Lane Traffic (%)												
Lane Group Flow (vph)	98	54	218	40	139	0	0	392	0	0	263	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA	Left	Left	Right
Median Width(m)		6.0			6.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		5.0			5.0			5.0			5.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	8	8		2	2		6	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	31.0	31.0	31.0	31.0	31.0		36.0	36.0		36.0	36.0	
Total Split (s)	32.0	32.0	32.0	32.0	32.0		53.0	53.0		53.0	53.0	
Total Split (%)	37.6%	37.6%	37.6%	37.6%	37.6%		62.4%	62.4%		62.4%	62.4%	
Maximum Green (s)	26.0	26.0	26.0	26.0	26.0		47.0	47.0		47.0	47.0	
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7		2.7	2.7		2.7	2.7	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0			0.0			0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	10.0	10.0	10.0	10.0	10.0		12.0	12.0		12.0	12.0	
Flash Dont Walk (s)	15.0	15.0	15.0	15.0	15.0		18.0	18.0		18.0	18.0	
Pedestrian Calls (#/hr)	5	5	5	5	5		5	5		5	5	
Act Effct Green (s)	14.3	14.3	14.3	14.3	14.3			58.7			58.7	
Actuated g/C Ratio	0.17	0.17	0.17	0.17	0.17			0.69			0.69	
v/c Ratio	0.48	0.17	0.50	0.18	0.41			0.22			0.17	
Control Delay	38.1	29.1	8.0	29.5	13.6			5.3			5.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0			0.0	
Total Delay	38.1	29.1	8.0	29.5	13.6			5.3			5.4	
LOS	D	C	A	C	B			A			A	
Approach Delay		19.0			17.2			5.3			5.4	
Approach LOS		B			B			A			A	
Queue Length 50th (m)	13.9	7.2	0.0	5.4	5.2			7.3			4.9	
Queue Length 95th (m)	22.8	13.5	13.7	11.0	16.1			19.5			14.0	
Internal Link Dist (m)		34.1			122.1			91.4			161.7	
Turn Bay Length (m)			20.0	50.0								
Base Capacity (vph)	374	569	619	404	532			1752			1586	
Starvation Cap Reductn	0	0	0	0	0			0			0	
Spillback Cap Reductn	0	0	0	0	0			0			0	
Storage Cap Reductn	0	0	0	0	0			0			0	
Reduced v/c Ratio	0.26	0.09	0.35	0.10	0.26			0.22			0.17	

Intersection Summary			
Area Type:	Other		
Cycle Length: 85			
Actuated Cycle Length: 85			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.50			
Intersection Signal Delay: 11.3		Intersection LOS: B	
Intersection Capacity Utilization 92.9%		ICU Level of Service F	
Analysis Period (min) 15			

Splits and Phases: 1: Place d'Orleans & Centrum

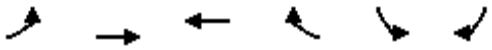


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	177	8	1	117	3	7	0	8	7	0	37
Future Volume (vph)	23	177	8	1	117	3	7	0	8	7	0	37
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.995			0.997			0.929			0.887	
Flt Protected		0.994						0.977			0.992	
Satd. Flow (prot)	0	1811	0	0	1787	0	0	1689	0	0	1638	0
Flt Permitted		0.994						0.977			0.992	
Satd. Flow (perm)	0	1811	0	0	1787	0	0	1689	0	0	1638	0
Link Speed (k/h)		40			40			30			50	
Link Distance (m)		146.1			240.1			67.4			116.9	
Travel Time (s)		13.1			21.6			8.1			8.4	
Confl. Peds. (#/hr)	23		19	19		23						
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 (%)	1%	3%	1%	1%	5%	1%	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	26	197	9	1	130	3	8	0	9	8	0	41
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	232	0	0	134	0	0	17	0	0	49	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)		4.0			4.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		5.0			5.0			5.0			5.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 28.4%		ICU Level of Service A	
Analysis Period (min) 15			

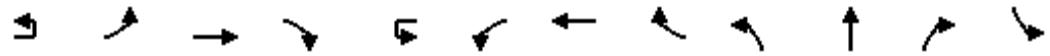
Lane Group	EBT	EBR	WBL	WBT	NBU	NBL	NBR
Lane Configurations							
Traffic Volume (vph)	39	108	53	18	1	72	37
Future Volume (vph)	39	108	53	18	1	72	37
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							
Frt	0.901						0.850
Flt Protected				0.964		0.950	
Satd. Flow (prot)	1607	0	0	1794	0	1611	1582
Flt Permitted				0.964		0.950	
Satd. Flow (perm)	1607	0	0	1794	0	1611	1582
Link Speed (k/h)	40			40		40	
Link Distance (m)	240.1			132.6		112.3	
Travel Time (s)	21.6			11.9		10.1	
Confl. Peds. (#/hr)		7	7			3	3
Confl. Bikes (#/hr)		1					
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	1%	7%	1%	1%	1%	11%	1%
Adj. Flow (vph)	43	120	59	20	1	80	41
Shared Lane Traffic (%)							
Lane Group Flow (vph)	163	0	0	79	0	81	41
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	R NA	L NA	Left	R NA	Left	Right
Median Width(m)	0.0			0.0		6.0	
Link Offset(m)	0.0			0.0		0.0	
Crosswalk Width(m)	5.0			5.0		5.0	
Two way Left Turn Lane							
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		14	24		14	24	14
Sign Control	Stop			Stop		Stop	

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

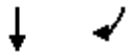


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	8	48	39	0	0	16
Future Volume (vph)	8	48	39	0	0	16
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt					0.865	
Flt Protected		0.993				
Satd. Flow (prot)	0	1848	1825	0	1610	0
Flt Permitted		0.993				
Satd. Flow (perm)	0	1848	1825	0	1610	0
Link Speed (k/h)		40	40		50	
Link Distance (m)		132.6	155.2		53.9	
Travel Time (s)		11.9	14.0		3.9	
Confl. Peds. (#/hr)	8			8		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	1%	1%	3%	1%	1%	1%
Adj. Flow (vph)	9	53	43	0	0	18
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	62	43	0	18	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		4.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		5.0	5.0		5.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 19.8%		ICU Level of Service A	
Analysis Period (min) 15			



Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	1	23	949	154	2	11	644	139	61	26	14	158
Future Volume (vph)	1	23	949	154	2	11	644	139	61	26	14	158
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)		60.0		120.0		45.0		120.0	50.0		0.0	0.0
Storage Lanes		1		1		1		1	1		0	1
Taper Length (m)		30.0				35.0			45.0			10.0
Lane Util. Factor	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		0.98		1.00		0.99	1.00	1.00		1.00
Frt				0.850				0.850		0.947		
Flt Protected		0.950				0.950			0.950			0.950
Satd. Flow (prot)	0	1768	3537	1582	0	1768	3537	1551	1751	1669	0	1768
Flt Permitted		0.368				0.236			0.703			0.728
Satd. Flow (perm)	0	684	3537	1544	0	439	3537	1529	1292	1669	0	1354
Right Turn on Red				Yes				Yes			Yes	
Satd. Flow (RTOR)				171				154		16		
Link Speed (k/h)			50				60			40		
Link Distance (m)			252.5				369.8			344.1		
Travel Time (s)			18.2				22.2			31.0		
Confl. Peds. (#/hr)		2		2		2		2	3		1	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	3%	2%	9%	1%	1%
Adj. Flow (vph)	1	26	1054	171	2	12	716	154	68	29	16	176
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	27	1054	171	0	14	716	154	68	45	0	176
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	L NA	Left	R NA	R NA	L NA	Left	R NA	L NA	Left	R NA	L NA
Median Width(m)			6.0				6.0			4.0		
Link Offset(m)			0.0				0.0			0.0		
Crosswalk Width(m)			5.0				5.0			5.0		
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	14	24		14	14	24		14	24		14	24
Number of Detectors	1	1	2	1	1	1	2	1	1	2		1
Detector Template	Left	Left	Thru	Right	Left	Left	Thru	Right	Left	Thru		Left
Leading Detector (m)	2.0	2.0	10.0	2.0	2.0	2.0	10.0	2.0	2.0	10.0		2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Detector 1 Size(m)	2.0	2.0	0.6	2.0	2.0	2.0	0.6	2.0	2.0	0.6		2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Detector 2 Position(m)			9.4				9.4			9.4		
Detector 2 Size(m)			0.6				0.6			0.6		
Detector 2 Type			Cl+Ex				Cl+Ex			Cl+Ex		
Detector 2 Channel												
Detector 2 Extend (s)			0.0				0.0			0.0		
Turn Type	Perm	Perm	NA	Perm	Perm	Perm	NA	Perm	Perm	NA		Perm
Protected Phases			2				6			8		
Permitted Phases	2	2		2	6	6		6	8			4
Detector Phase	2	2	2	2	6	6	6	6	8	8		4
Switch Phase												

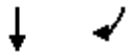


Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	58	17
Future Volume (vph)	58	17
Ideal Flow (vphpl)	1800	1800
Storage Length (m)		0.0
Storage Lanes		0
Taper Length (m)		
Lane Util. Factor	1.00	1.00
Ped Bike Factor	1.00	
Frt	0.966	
Flt Protected		
Satd. Flow (prot)	1701	0
Flt Permitted		
Satd. Flow (perm)	1701	0
Right Turn on Red		Yes
Satd. Flow (RTOR)	19	
Link Speed (k/h)	40	
Link Distance (m)	112.3	
Travel Time (s)	10.1	
Confl. Peds. (#/hr)		3
Peak Hour Factor	0.90	0.90
Heavy Vehicles (%)	8%	1%
Adj. Flow (vph)	64	19
Shared Lane Traffic (%)		
Lane Group Flow (vph)	83	0
Enter Blocked Intersection	No	No
Lane Alignment	Left	R NA
Median Width(m)	6.0	
Link Offset(m)	0.0	
Crosswalk Width(m)	5.0	
Two way Left Turn Lane		
Headway Factor	1.01	1.01
Turning Speed (k/h)		14
Number of Detectors	2	
Detector Template	Thru	
Leading Detector (m)	10.0	
Trailing Detector (m)	0.0	
Detector 1 Position(m)	0.0	
Detector 1 Size(m)	0.6	
Detector 1 Type	Cl+Ex	
Detector 1 Channel		
Detector 1 Extend (s)	0.0	
Detector 1 Queue (s)	0.0	
Detector 1 Delay (s)	0.0	
Detector 2 Position(m)	9.4	
Detector 2 Size(m)	0.6	
Detector 2 Type	Cl+Ex	
Detector 2 Channel		
Detector 2 Extend (s)	0.0	
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Detector Phase	4	
Switch Phase		

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0		10.0
Minimum Split (s)	23.7	23.7	23.7	23.7	23.7	23.7	23.7	23.7	29.0	29.0		29.0
Total Split (s)	51.0	51.0	51.0	51.0	51.0	51.0	51.0	51.0	29.0	29.0		29.0
Total Split (%)	63.8%	63.8%	63.8%	63.8%	63.8%	63.8%	63.8%	63.8%	36.3%	36.3%		36.3%
Maximum Green (s)	45.3	45.3	45.3	45.3	45.3	45.3	45.3	45.3	23.0	23.0		23.0
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3		3.3
All-Red Time (s)	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.7	2.7		2.7
Lost Time Adjust (s)		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)		5.7	5.7	5.7		5.7	5.7	5.7	6.0	6.0		6.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max	None	None		None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	16.0	16.0		16.0
Pedestrian Calls (#/hr)	5	5	5	5	5	5	5	5	5	5		5
Act Effct Green (s)		48.2	48.2	48.2		48.2	48.2	48.2	15.2	15.2		15.2
Actuated g/C Ratio		0.64	0.64	0.64		0.64	0.64	0.64	0.20	0.20		0.20
v/c Ratio		0.06	0.46	0.16		0.05	0.32	0.15	0.26	0.13		0.64
Control Delay		7.1	8.5	1.7		7.4	7.2	1.8	25.8	16.9		37.7
Queue Delay		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0
Total Delay		7.1	8.5	1.7		7.4	7.2	1.8	25.8	16.9		37.7
LOS		A	A	A		A	A	A	C	B		D
Approach Delay			7.5				6.3			22.3		
Approach LOS			A				A			C		
Queue Length 50th (m)		1.1	30.7	0.0		0.6	18.3	0.0	7.1	2.9		20.1
Queue Length 95th (m)		4.8	58.3	6.8		3.2	36.1	6.5	15.9	9.5		36.6
Internal Link Dist (m)			228.5				345.8			320.1		
Turn Bay Length (m)		60.0		120.0		45.0		120.0	50.0			
Base Capacity (vph)		438	2268	1051		281	2268	1035	396	523		415
Starvation Cap Reductn		0	0	0		0	0	0	0	0		0
Spillback Cap Reductn		0	0	0		0	0	0	0	0		0
Storage Cap Reductn		0	0	0		0	0	0	0	0		0
Reduced v/c Ratio		0.06	0.46	0.16		0.05	0.32	0.15	0.17	0.09		0.42

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 75.2			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.64			
Intersection Signal Delay: 10.3		Intersection LOS: B	
Intersection Capacity Utilization 53.7%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 5: Prestone & St. Joseph



Lane Group	SBT	SBR
Minimum Initial (s)	10.0	
Minimum Split (s)	29.0	
Total Split (s)	29.0	
Total Split (%)	36.3%	
Maximum Green (s)	23.0	
Yellow Time (s)	3.3	
All-Red Time (s)	2.7	
Lost Time Adjust (s)	0.0	
Total Lost Time (s)	6.0	
Lead/Lag		
Lead-Lag Optimize?		
Vehicle Extension (s)	3.0	
Recall Mode	None	
Walk Time (s)	7.0	
Flash Dont Walk (s)	16.0	
Pedestrian Calls (#/hr)	5	
Act Effct Green (s)	15.2	
Actuated g/C Ratio	0.20	
v/c Ratio	0.23	
Control Delay	19.9	
Queue Delay	0.0	
Total Delay	19.9	
LOS	B	
Approach Delay	32.0	
Approach LOS	C	
Queue Length 50th (m)	6.6	
Queue Length 95th (m)	16.0	
Internal Link Dist (m)	88.3	
Turn Bay Length (m)		
Base Capacity (vph)	535	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.16	

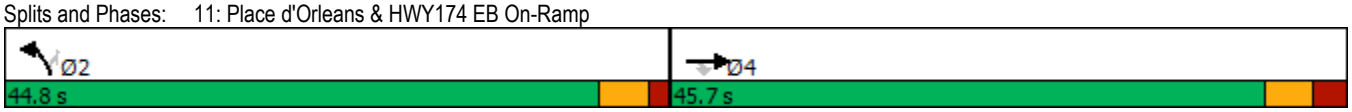
Intersection Summary

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	287	240	0	0	227	142
Future Volume (vph)	287	240	0	0	227	142
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0	0.0		0.0	30.0
Storage Lanes		2	0		2	1
Taper Length (m)			10.0		10.0	
Lane Util. Factor	1.00	0.88	1.00	1.00	0.97	1.00
Frt		0.850				0.850
Flt Protected					0.950	
Satd. Flow (prot)	1808	2731	0	0	3300	1567
Flt Permitted					0.950	
Satd. Flow (perm)	1808	2731	0	0	3300	1567
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		267				158
Link Speed (k/h)	60			50	60	
Link Distance (m)	170.2			126.7	236.9	
Travel Time (s)	10.2			9.1	14.2	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	3%	2%	2%	5%	2%
Adj. Flow (vph)	319	267	0	0	252	158
Shared Lane Traffic (%)						
Lane Group Flow (vph)	319	267	0	0	252	158
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	8.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	5.0			5.0	5.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		97	97		97	97
Turn Type	NA	Perm			Prot	Perm
Protected Phases	4				2	
Permitted Phases		4				2
Detector Phase	4	4			2	2
Switch Phase						
Minimum Initial (s)	10.0	10.0			10.0	10.0
Minimum Split (s)	15.7	15.7			24.8	24.8
Total Split (s)	45.7	45.7			44.8	44.8
Total Split (%)	50.5%	50.5%			49.5%	49.5%
Maximum Green (s)	40.0	40.0			40.0	40.0
Yellow Time (s)	3.3	3.3			3.3	3.3
All-Red Time (s)	2.4	2.4			1.5	1.5
Lost Time Adjust (s)	0.0	0.0			0.0	0.0
Total Lost Time (s)	5.7	5.7			4.8	4.8
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0			3.0	3.0
Recall Mode	None	None			Min	Min
Walk Time (s)					15.0	15.0
Flash Dont Walk (s)					5.0	5.0
Pedestrian Calls (#/hr)					5	5
Act Effct Green (s)	12.1	12.1			11.8	11.8
Actuated g/C Ratio	0.35	0.35			0.34	0.34

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
v/c Ratio	0.51	0.24			0.23	0.25
Control Delay	12.7	2.3			9.0	3.3
Queue Delay	0.0	0.0			0.0	0.0
Total Delay	12.7	2.3			9.0	3.3
LOS	B	A			A	A
Approach Delay	8.0				6.8	
Approach LOS	A				A	
Queue Length 50th (m)	10.9	0.0			4.0	0.0
Queue Length 95th (m)	34.4	5.2			11.0	7.0
Internal Link Dist (m)	146.2			102.7	212.9	
Turn Bay Length (m)						30.0
Base Capacity (vph)	1746	2646			3186	1518
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	0.18	0.10			0.08	0.10

Intersection Summary			
Area Type:	Other		
Cycle Length: 90.5			
Actuated Cycle Length: 34.7			
Natural Cycle: 45			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.51			
Intersection Signal Delay: 7.5		Intersection LOS: A	
Intersection Capacity Utilization 34.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 11: Place d'Orleans & HWY174 EB On-Ramp



APPENDIX L

Background Synchro Analysis

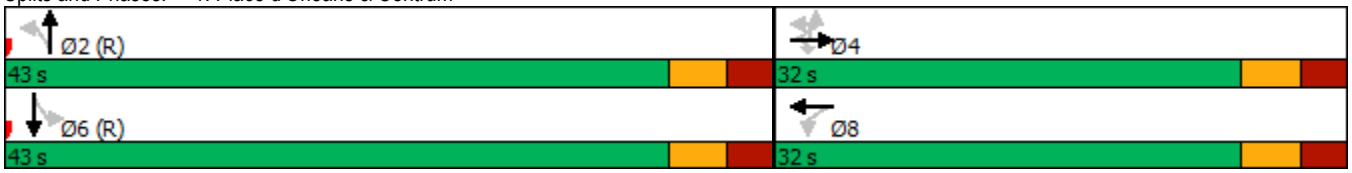
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	1	28	25	40	60	31	124	83	174	84	114	40
Future Volume (vph)	1	28	25	40	60	31	124	83	174	84	114	40
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0		20.0	50.0		0.0	0.0		0.0	0.0	
Storage Lanes		1		1	1		0	0		0	0	
Taper Length (m)		10.0			20.0			10.0			10.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor		0.99		0.97	0.99	0.98			0.99			1.00
Frt				0.850		0.880			0.963			0.984
Flt Protected		0.950			0.950				0.988			0.968
Satd. Flow (prot)	0	1628	1861	1582	1768	1514	0	0	3241	0	0	3225
Flt Permitted		0.659			0.741				0.838			0.662
Satd. Flow (perm)	0	1123	1861	1542	1361	1514	0	0	2748	0	0	2204
Right Turn on Red				Yes			Yes			Yes		
Satd. Flow (RTOR)				44		124			84			18
Link Speed (k/h)			30			40			60			60
Link Distance (m)			58.1			146.1			115.4			185.7
Travel Time (s)			7.0			13.1			6.9			11.1
Confl. Peds. (#/hr)		8		15	15		8	1		1	1	
Confl. Bikes (#/hr)							4					
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	10%	1%	1%	1%	1%	9%	1%	7%	2%	5%	8%
Adj. Flow (vph)	1	28	25	40	60	31	124	83	174	84	114	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	29	25	40	60	155	0	0	341	0	0	172
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA	Left	Left
Median Width(m)			6.0			6.0			0.0			0.0
Link Offset(m)			0.0			0.0			0.0			0.0
Crosswalk Width(m)			5.0			5.0			5.0			5.0
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	14	24		14	24		14	24		14	24	
Number of Detectors	1	1	2	1	1	2		1	2		1	2
Detector Template	Left	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru
Leading Detector (m)	2.0	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 1 Size(m)	2.0	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 2 Position(m)			9.4			9.4			9.4			9.4
Detector 2 Size(m)			0.6			0.6			0.6			0.6
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			0.0
Turn Type	Perm	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA
Protected Phases			4			8			2			6
Permitted Phases	4	4		4	8			2			6	
Detector Phase	4	4	4	4	8	8		2	2		6	6

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	18
Future Volume (vph)	18
Ideal Flow (vphpl)	1800
Storage Length (m)	0.0
Storage Lanes	0
Taper Length (m)	
Lane Util. Factor	0.95
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	Yes
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	1
Confl. Bikes (#/hr)	
Peak Hour Factor	1.00
Heavy Vehicles (%)	1%
Adj. Flow (vph)	18
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(m)	
Link Offset(m)	
Crosswalk Width(m)	
Two way Left Turn Lane	
Headway Factor	1.01
Turning Speed (k/h)	14
Number of Detectors	
Detector Template	
Leading Detector (m)	
Trailing Detector (m)	
Detector 1 Position(m)	
Detector 1 Size(m)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(m)	
Detector 2 Size(m)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0		10.0	10.0		10.0	10.0
Minimum Split (s)	31.0	31.0	31.0	31.0	31.0	31.0		36.0	36.0		36.0	36.0
Total Split (s)	32.0	32.0	32.0	32.0	32.0	32.0		43.0	43.0		43.0	43.0
Total Split (%)	42.7%	42.7%	42.7%	42.7%	42.7%	42.7%		57.3%	57.3%		57.3%	57.3%
Maximum Green (s)	26.0	26.0	26.0	26.0	26.0	26.0		37.0	37.0		37.0	37.0
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3		3.3	3.3		3.3	3.3
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7	2.7		2.7	2.7		2.7	2.7
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0			0.0			0.0
Total Lost Time (s)		6.0	6.0	6.0	6.0	6.0			6.0			6.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0
Recall Mode	None	None	None	None	None	None		C-Max	C-Max		C-Max	C-Max
Walk Time (s)	10.0	10.0	10.0	10.0	10.0	10.0		12.0	12.0		12.0	12.0
Flash Dont Walk (s)	15.0	15.0	15.0	15.0	15.0	15.0		18.0	18.0		18.0	18.0
Pedestrian Calls (#/hr)	5	5	5	5	5	5		5	5		5	5
Act Effct Green (s)		13.0	13.0	13.0	13.0	13.0			50.0			50.0
Actuated g/C Ratio		0.17	0.17	0.17	0.17	0.17			0.67			0.67
v/c Ratio		0.15	0.08	0.13	0.25	0.42			0.18			0.12
Control Delay		25.4	23.7	7.5	27.5	11.0			4.7			5.5
Queue Delay		0.0	0.0	0.0	0.0	0.0			0.0			0.0
Total Delay		25.4	23.7	7.5	27.5	11.0			4.7			5.5
LOS		C	C	A	C	B			A			A
Approach Delay			17.4			15.6			4.7			5.5
Approach LOS			B			B			A			A
Queue Length 50th (m)		3.4	2.9	0.0	7.2	3.6			4.6			2.7
Queue Length 95th (m)		7.5	6.6	5.1	12.6	13.5			15.3			9.7
Internal Link Dist (m)			34.1			122.1			91.4			161.7
Turn Bay Length (m)				20.0	50.0							
Base Capacity (vph)		389	645	563	471	605			1859			1474
Starvation Cap Reductn		0	0	0	0	0			0			0
Spillback Cap Reductn		0	0	0	0	0			0			0
Storage Cap Reductn		0	0	0	0	0			0			0
Reduced v/c Ratio		0.07	0.04	0.07	0.13	0.26			0.18			0.12

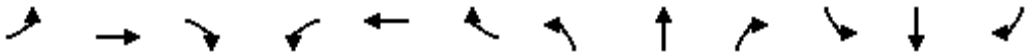
Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 75			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.42			
Intersection Signal Delay: 9.2		Intersection LOS: A	
Intersection Capacity Utilization 90.4%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 1: Place d'Orleans & Centrum



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

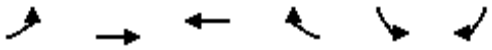


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	83	80	10	2	124	7	0	0	1	8	0	102
Future Volume (vph)	83	80	10	2	124	7	0	0	1	8	0	102
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.992			0.993			0.865			0.875	
Flt Protected		0.977			0.999						0.996	
Satd. Flow (prot)	0	1772	0	0	1813	0	0	813	0	0	1622	0
Flt Permitted		0.977			0.999						0.996	
Satd. Flow (perm)	0	1772	0	0	1813	0	0	813	0	0	1622	0
Link Speed (k/h)		40			40			30			50	
Link Distance (m)		146.1			240.1			67.4			116.9	
Travel Time (s)		13.1			21.6			8.1			8.4	
Confl. Peds. (#/hr)	8		9	9		8						
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 (%)	1%	5%	1%	1%	3%	1%	1%	1%	100%	1%	1%	1%
Adj. Flow (vph)	83	80	10	2	124	7	0	0	1	8	0	102
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	173	0	0	133	0	0	1	0	0	110	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)		4.0			4.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		5.0			5.0			5.0			5.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	43.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	20	48	101	18	59	81
Future Volume (vph)	20	48	101	18	59	81
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.905					0.850
Flt Protected				0.959	0.950	
Satd. Flow (prot)	1518	0	0	1774	1669	1582
Flt Permitted				0.959	0.950	
Satd. Flow (perm)	1518	0	0	1774	1669	1582
Link Speed (k/h)	40			40	40	
Link Distance (m)	240.1			132.6	112.3	
Travel Time (s)	21.6			11.9	10.1	
Confl. Peds. (#/hr)		7	7		4	6
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	5%	15%	1%	5%	7%	1%
Adj. Flow (vph)	20	48	101	18	59	81
Shared Lane Traffic (%)						
Lane Group Flow (vph)	68	0	0	119	59	81
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	R NA	L NA	Left	Left	Right
Median Width(m)	0.0			0.0	6.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	5.0			5.0	5.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		14	24		24	14
Sign Control	Stop			Stop	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 25.5%		ICU Level of Service A	
Analysis Period (min) 15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	56	19	26	1	0	67
Future Volume (vph)	56	19	26	1	0	67
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.995		0.865	
Flt Protected		0.964				
Satd. Flow (prot)	0	1706	1852	0	1610	0
Flt Permitted		0.964				
Satd. Flow (perm)	0	1706	1852	0	1610	0
Link Speed (k/h)		40	40		50	
Link Distance (m)		132.6	155.2		53.9	
Travel Time (s)		11.9	14.0		3.9	
Confl. Peds. (#/hr)	9			9		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	8%	1%	1%	1%	1%	1%
Adj. Flow (vph)	56	19	26	1	0	67
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	75	27	0	67	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		4.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		5.0	5.0		5.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 22.0%		ICU Level of Service A	
Analysis Period (min) 15			

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	9	362	33	1	9	1194	121	101	43	9	73	39
Future Volume (vph)	9	362	33	1	9	1194	121	101	43	9	73	39
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	60.0		120.0		45.0		120.0	50.0		0.0	0.0	
Storage Lanes	1		1		1		1	1		0	1	
Taper Length (m)	30.0				35.0			45.0			10.0	
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.97		1.00		0.99	1.00	1.00		1.00	0.99
Frt			0.850				0.850		0.974			0.936
Flt Protected	0.950				0.950			0.950			0.950	
Satd. Flow (prot)	1768	3468	1508	0	1637	3502	1522	1751	1660	0	1595	1436
Flt Permitted	0.205				0.536			0.713			0.723	
Satd. Flow (perm)	382	3468	1468	0	920	3502	1502	1312	1660	0	1211	1436
Right Turn on Red			Yes				Yes			Yes		
Satd. Flow (RTOR)			41				121		9			29
Link Speed (k/h)		50				60			40			40
Link Distance (m)		252.5				369.8			344.1			112.3
Travel Time (s)		18.2				22.2			31.0			10.1
Confl. Peds. (#/hr)	1		3		3		1	2		2	2	
Confl. Bikes (#/hr)										1		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	3%	6%	1%	10%	2%	5%	2%	10%	10%	12%	35%
Adj. Flow (vph)	9	362	33	1	9	1194	121	101	43	9	73	39
Shared Lane Traffic (%)												
Lane Group Flow (vph)	9	362	33	0	10	1194	121	101	52	0	73	68
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	L NA	Left	R NA	R NA	L NA	Left	R NA	L NA	Left	R NA	L NA	Left
Median Width(m)		6.0				6.0			4.0			6.0
Link Offset(m)		0.0				0.0			0.0			0.0
Crosswalk Width(m)		5.0				5.0			5.0			5.0
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24		14	14	24		14	24		14	24	
Number of Detectors	1	2	1	1	1	2	1	1	2		1	2
Detector Template	Left	Thru	Right	Left	Left	Thru	Right	Left	Thru		Left	Thru
Leading Detector (m)	2.0	10.0	2.0	2.0	2.0	10.0	2.0	2.0	10.0		2.0	10.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	2.0	0.6	2.0	2.0	0.6		2.0	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)		9.4				9.4			9.4			9.4
Detector 2 Size(m)		0.6				0.6			0.6			0.6
Detector 2 Type		Cl+Ex				Cl+Ex			Cl+Ex			Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0				0.0			0.0			0.0
Turn Type	Perm	NA	Perm	Perm	Perm	NA	Perm	Perm	NA		Perm	NA
Protected Phases		2				6			8			4
Permitted Phases	2		2	6	6		6	8			4	
Detector Phase	2	2	2	6	6	6	6	8	8		4	4

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	29
Future Volume (vph)	29
Ideal Flow (vphpl)	1800
Storage Length (m)	0.0
Storage Lanes	0
Taper Length (m)	
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	Yes
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	2
Confl. Bikes (#/hr)	
Peak Hour Factor	1.00
Heavy Vehicles (%)	4%
Adj. Flow (vph)	29
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Enter Blocked Intersection	No
Lane Alignment	R NA
Median Width(m)	
Link Offset(m)	
Crosswalk Width(m)	
Two way Left Turn Lane	
Headway Factor	1.01
Turning Speed (k/h)	14
Number of Detectors	
Detector Template	
Leading Detector (m)	
Trailing Detector (m)	
Detector 1 Position(m)	
Detector 1 Size(m)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(m)	
Detector 2 Size(m)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0		10.0	10.0
Minimum Split (s)	23.7	23.7	23.7	23.7	23.7	23.7	23.7	29.0	29.0		29.0	29.0
Total Split (s)	51.0	51.0	51.0	51.0	51.0	51.0	51.0	29.0	29.0		29.0	29.0
Total Split (%)	63.8%	63.8%	63.8%	63.8%	63.8%	63.8%	63.8%	36.3%	36.3%		36.3%	36.3%
Maximum Green (s)	45.3	45.3	45.3	45.3	45.3	45.3	45.3	23.0	23.0		23.0	23.0
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3		3.3	3.3
All-Red Time (s)	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.7	2.7		2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.7	5.7	5.7		5.7	5.7	5.7	6.0	6.0		6.0	6.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Recall Mode	Max	Max	Max	Max	Max	Max	Max	None	None		None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	16.0	16.0		16.0	16.0
Pedestrian Calls (#/hr)	5	5	5	5	5	5	5	5	5		5	5
Act Effct Green (s)	50.1	50.1	50.1		50.1	50.1	50.1	12.9	12.9		12.9	12.9
Actuated g/C Ratio	0.71	0.71	0.71		0.71	0.71	0.71	0.18	0.18		0.18	0.18
v/c Ratio	0.03	0.15	0.03		0.02	0.48	0.11	0.42	0.17		0.33	0.24
Control Delay	6.7	5.3	2.1		6.1	7.4	1.8	30.5	21.3		28.5	17.4
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	6.7	5.3	2.1		6.1	7.4	1.8	30.5	21.3		28.5	17.4
LOS	A	A	A		A	A	A	C	C		C	B
Approach Delay		5.1				6.9			27.3			23.1
Approach LOS		A				A			C			C
Queue Length 50th (m)	0.3	6.6	0.0		0.3	29.8	0.0	10.9	4.4		7.7	4.0
Queue Length 95th (m)	2.4	17.7	2.6		2.4	70.0	5.8	22.2	11.7		17.0	12.3
Internal Link Dist (m)		228.5				345.8			320.1			88.3
Turn Bay Length (m)	60.0		120.0		45.0		120.0	50.0				
Base Capacity (vph)	272	2477	1060		657	2501	1107	432	553		399	493
Starvation Cap Reductn	0	0	0		0	0	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0	0	0	0		0	0
Reduced v/c Ratio	0.03	0.15	0.03		0.02	0.48	0.11	0.23	0.09		0.18	0.14

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 70.1
Natural Cycle: 60
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.48
Intersection Signal Delay: 9.2 — Intersection LOS: A
Intersection Capacity Utilization 57.6% — ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 5: Prestone & St. Joseph

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

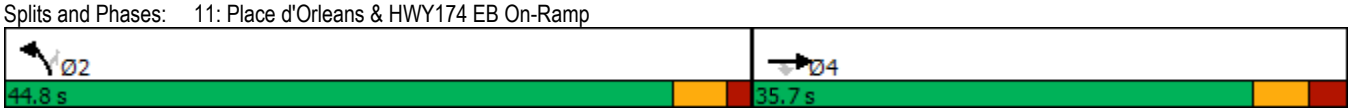
Intersection Summary

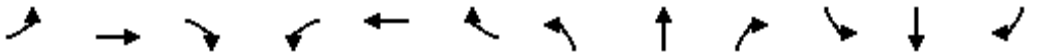
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	110	182	0	0	317	51
Future Volume (vph)	110	182	0	0	317	51
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0	0.0		0.0	30.0
Storage Lanes		2	0		2	1
Taper Length (m)			10.0		10.0	
Lane Util. Factor	1.00	0.88	1.00	1.00	0.97	1.00
Frt		0.850				0.850
Flt Protected					0.950	
Satd. Flow (prot)	1790	2653	0	0	3300	1567
Flt Permitted					0.950	
Satd. Flow (perm)	1790	2653	0	0	3300	1567
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		182				51
Link Speed (k/h)	60			50	60	
Link Distance (m)	187.8			187.3	232.2	
Travel Time (s)	11.3			13.5	13.9	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	5%	6%	2%	2%	5%	2%
Adj. Flow (vph)	110	182	0	0	317	51
Shared Lane Traffic (%)						
Lane Group Flow (vph)	110	182	0	0	317	51
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	8.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	5.0			5.0	5.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		97	97		97	97
Turn Type	NA	Perm			Prot	Perm
Protected Phases	4				2	
Permitted Phases		4				2
Detector Phase	4	4			2	2
Switch Phase						
Minimum Initial (s)	10.0	10.0			10.0	10.0
Minimum Split (s)	15.7	15.7			24.8	24.8
Total Split (s)	35.7	35.7			44.8	44.8
Total Split (%)	44.3%	44.3%			55.7%	55.7%
Maximum Green (s)	30.0	30.0			40.0	40.0
Yellow Time (s)	3.3	3.3			3.3	3.3
All-Red Time (s)	2.4	2.4			1.5	1.5
Lost Time Adjust (s)	0.0	0.0			0.0	0.0
Total Lost Time (s)	5.7	5.7			4.8	4.8
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0			3.0	3.0
Recall Mode	None	None			Min	Min
Walk Time (s)					15.0	15.0
Flash Dont Walk (s)					5.0	5.0
Pedestrian Calls (#/hr)					5	5
Act Effct Green (s)	10.3	10.3			14.1	14.1
Actuated g/C Ratio	0.29	0.29			0.40	0.40

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
v/c Ratio	0.21	0.20			0.24	0.08
Control Delay	10.7	3.2			7.4	2.7
Queue Delay	0.0	0.0			0.0	0.0
Total Delay	10.7	3.2			7.4	2.7
LOS	B	A			A	A
Approach Delay	6.0				6.8	
Approach LOS	A				A	
Queue Length 50th (m)	3.3	0.0			5.1	0.0
Queue Length 95th (m)	13.6	4.9			9.2	2.9
Internal Link Dist (m)	163.8			163.3	208.2	
Turn Bay Length (m)						30.0
Base Capacity (vph)	1568	2348			3240	1539
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	0.07	0.08			0.10	0.03

Intersection Summary			
Area Type:	Other		
Cycle Length: 80.5			
Actuated Cycle Length: 35.1			
Natural Cycle: 45			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.24			
Intersection Signal Delay: 6.4		Intersection LOS: A	
Intersection Capacity Utilization 26.6%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 11: Place d'Orleans & HWY174 EB On-Ramp





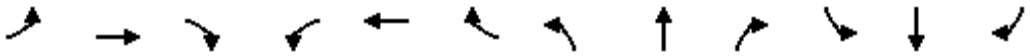
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	88	49	196	70	35	144	118	175	104	161	111	24
Future Volume (vph)	88	49	196	70	35	144	118	175	104	161	111	24
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		20.0	50.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		1	1		0	0		0	0		0
Taper Length (m)	10.0			20.0			10.0			10.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor	0.99		0.97	0.98	0.97			0.99			1.00	
Frt			0.850		0.879			0.961			0.988	
Flt Protected	0.950			0.950				0.985			0.974	
Satd. Flow (prot)	1768	1861	1582	1768	1477	0	0	3257	0	0	3211	0
Flt Permitted	0.562			0.725				0.761			0.638	
Satd. Flow (perm)	1030	1861	1531	1328	1477	0	0	2514	0	0	2101	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			196		144			94			17	
Link Speed (k/h)		30			40			60			60	
Link Distance (m)		58.1			146.1			115.4			185.7	
Travel Time (s)		7.0			13.1			6.9			11.1	
Confl. Peds. (#/hr)	19		17	17		19	3		2	2		3
Confl. Bikes (#/hr)			5			1						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	1%	1%	1%	1%	11%	1%	6%	1%	9%	5%	1%
Adj. Flow (vph)	88	49	196	70	35	144	118	175	104	161	111	24
Shared Lane Traffic (%)												
Lane Group Flow (vph)	88	49	196	70	179	0	0	397	0	0	296	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA	Left	Left	Right
Median Width(m)		6.0			6.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		5.0			5.0			5.0			5.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	8	8		2	2		6	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	31.0	31.0	31.0	31.0	31.0		36.0	36.0		36.0	36.0	
Total Split (s)	32.0	32.0	32.0	32.0	32.0		53.0	53.0		53.0	53.0	
Total Split (%)	37.6%	37.6%	37.6%	37.6%	37.6%		62.4%	62.4%		62.4%	62.4%	
Maximum Green (s)	26.0	26.0	26.0	26.0	26.0		47.0	47.0		47.0	47.0	
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7		2.7	2.7		2.7	2.7	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0			0.0			0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	10.0	10.0	10.0	10.0	10.0		12.0	12.0		12.0	12.0	
Flash Dont Walk (s)	15.0	15.0	15.0	15.0	15.0		18.0	18.0		18.0	18.0	
Pedestrian Calls (#/hr)	5	5	5	5	5		5	5		5	5	
Act Effct Green (s)	14.2	14.2	14.2	14.2	14.2			58.8			58.8	
Actuated g/C Ratio	0.17	0.17	0.17	0.17	0.17			0.69			0.69	
v/c Ratio	0.51	0.16	0.47	0.32	0.49			0.22			0.20	
Control Delay	41.4	28.9	8.0	32.9	12.6			4.7			5.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0			0.0	
Total Delay	41.4	28.9	8.0	32.9	12.6			4.7			5.8	
LOS	D	C	A	C	B			A			A	
Approach Delay		19.9			18.3			4.7			5.8	
Approach LOS		B			B			A			A	
Queue Length 50th (m)	12.6	6.6	0.0	9.7	4.7			6.2			5.8	
Queue Length 95th (m)	21.2	12.5	13.1	17.0	17.0			17.7			16.4	
Internal Link Dist (m)		34.1			122.1			91.4			161.7	
Turn Bay Length (m)			20.0	50.0								
Base Capacity (vph)	315	569	604	406	551			1768			1459	
Starvation Cap Reductn	0	0	0	0	0			0			0	
Spillback Cap Reductn	0	0	0	0	0			0			0	
Storage Cap Reductn	0	0	0	0	0			0			0	
Reduced v/c Ratio	0.28	0.09	0.32	0.17	0.32			0.22			0.20	

Intersection Summary

Area Type: Other
Cycle Length: 85
Actuated Cycle Length: 85
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.51
Intersection Signal Delay: 11.6 Intersection LOS: B
Intersection Capacity Utilization 94.9% ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 1: Place d'Orleans & Centrum

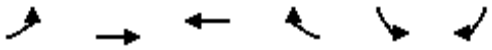


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	119	177	8	1	117	17	7	0	8	20	0	123
Future Volume (vph)	119	177	8	1	117	17	7	0	8	20	0	123
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.996			0.983			0.928			0.884	
Flt Protected		0.981						0.977			0.993	
Satd. Flow (prot)	0	1798	0	0	1769	0	0	1688	0	0	1634	0
Flt Permitted		0.981						0.977			0.993	
Satd. Flow (perm)	0	1798	0	0	1769	0	0	1688	0	0	1634	0
Link Speed (k/h)		40			40			30			50	
Link Distance (m)		146.1			240.1			67.4			116.9	
Travel Time (s)		13.1			21.6			8.1			8.4	
Confl. Peds. (#/hr)	23		19	19		23						
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 (%)	1%	3%	1%	1%	5%	1%	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	119	177	8	1	117	17	7	0	8	20	0	123
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	304	0	0	135	0	0	15	0	0	143	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		4.0			4.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		5.0			5.0			5.0			5.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	47.6%	ICU Level of Service	A
Analysis Period (min)	15		

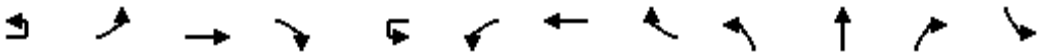
Lane Group	EBT	EBR	WBL	WBT	NBU	NBL	NBR
Lane Configurations							
Traffic Volume (vph)	39	121	116	18	1	86	103
Future Volume (vph)	39	121	116	18	1	86	103
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							
Frt	0.898						0.850
Flt Protected				0.959		0.950	
Satd. Flow (prot)	1600	0	0	1785	0	1611	1582
Flt Permitted				0.959		0.950	
Satd. Flow (perm)	1600	0	0	1785	0	1611	1582
Link Speed (k/h)	40			40		40	
Link Distance (m)	240.1			132.6		112.3	
Travel Time (s)	21.6			11.9		10.1	
Confl. Peds. (#/hr)		7	7			3	3
Confl. Bikes (#/hr)		1					
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	7%	1%	1%	1%	11%	1%
Adj. Flow (vph)	39	121	116	18	1	86	103
Shared Lane Traffic (%)							
Lane Group Flow (vph)	160	0	0	134	0	87	103
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	R NA	L NA	Left	R NA	Left	Right
Median Width(m)	0.0			0.0		6.0	
Link Offset(m)	0.0			0.0		0.0	
Crosswalk Width(m)	5.0			5.0		5.0	
Two way Left Turn Lane							
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		14	24		14	24	14
Sign Control	Stop			Stop		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 34.8%		ICU Level of Service A	
Analysis Period (min) 15			

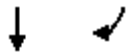


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	74	48	39	0	0	79
Future Volume (vph)	74	48	39	0	0	79
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt					0.865	
Flt Protected		0.971				
Satd. Flow (prot)	0	1807	1825	0	1610	0
Flt Permitted		0.971				
Satd. Flow (perm)	0	1807	1825	0	1610	0
Link Speed (k/h)		40	40		50	
Link Distance (m)		132.6	155.2		53.9	
Travel Time (s)		11.9	14.0		3.9	
Confl. Peds. (#/hr)	8			8		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	1%	3%	1%	1%	1%
Adj. Flow (vph)	74	48	39	0	0	79
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	122	39	0	79	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		4.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		5.0	5.0		5.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 25.5%		ICU Level of Service A	
Analysis Period (min) 15			



Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	1	31	1151	154	2	11	784	186	61	52	14	205
Future Volume (vph)	1	31	1151	154	2	11	784	186	61	52	14	205
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)		60.0		120.0		45.0		120.0	50.0		0.0	0.0
Storage Lanes		1		1		1		1	1		0	1
Taper Length (m)		30.0				35.0			45.0			10.0
Lane Util. Factor	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		0.98		1.00		0.99	1.00	1.00		1.00
Frt				0.850				0.850		0.968		
Flt Protected		0.950				0.950			0.950			0.950
Satd. Flow (prot)	0	1768	3537	1582	0	1768	3537	1551	1751	1691	0	1768
Flt Permitted		0.335				0.202			0.690			0.714
Satd. Flow (perm)	0	623	3537	1544	0	376	3537	1529	1268	1691	0	1328
Right Turn on Red				Yes				Yes			Yes	
Satd. Flow (RTOR)				154				186		14		
Link Speed (k/h)			50				60			40		
Link Distance (m)			252.5				369.8			344.1		
Travel Time (s)			18.2				22.2			31.0		
Confl. Peds. (#/hr)		2		2		2		2	3		1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	3%	2%	9%	1%	1%
Adj. Flow (vph)	1	31	1151	154	2	11	784	186	61	52	14	205
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	32	1151	154	0	13	784	186	61	66	0	205
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	L NA	Left	R NA	R NA	L NA	Left	R NA	L NA	Left	R NA	L NA
Median Width(m)			6.0				6.0			4.0		
Link Offset(m)			0.0				0.0			0.0		
Crosswalk Width(m)			5.0				5.0			5.0		
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	14	24		14	14	24		14	24		14	24
Number of Detectors	1	1	2	1	1	1	2	1	1	2		1
Detector Template	Left	Left	Thru	Right	Left	Left	Thru	Right	Left	Thru		Left
Leading Detector (m)	2.0	2.0	10.0	2.0	2.0	2.0	10.0	2.0	2.0	10.0		2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Detector 1 Size(m)	2.0	2.0	0.6	2.0	2.0	2.0	0.6	2.0	2.0	0.6		2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Detector 2 Position(m)			9.4				9.4			9.4		
Detector 2 Size(m)			0.6				0.6			0.6		
Detector 2 Type			Cl+Ex				Cl+Ex			Cl+Ex		
Detector 2 Channel												
Detector 2 Extend (s)			0.0				0.0			0.0		
Turn Type	Perm	Perm	NA	Perm	Perm	Perm	NA	Perm	Perm	NA		Perm
Protected Phases			2				6			8		
Permitted Phases	2	2		2	6	6		6	8			4
Detector Phase	2	2	2	2	6	6	6	6	8	8		4
Switch Phase												

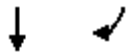


Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	82	22
Future Volume (vph)	82	22
Ideal Flow (vphpl)	1800	1800
Storage Length (m)		0.0
Storage Lanes		0
Taper Length (m)		
Lane Util. Factor	1.00	1.00
Ped Bike Factor	1.00	
Frt	0.968	
Flt Protected		
Satd. Flow (prot)	1703	0
Flt Permitted		
Satd. Flow (perm)	1703	0
Right Turn on Red		Yes
Satd. Flow (RTOR)	17	
Link Speed (k/h)	40	
Link Distance (m)	112.3	
Travel Time (s)	10.1	
Confl. Peds. (#/hr)		3
Peak Hour Factor	1.00	1.00
Heavy Vehicles (%)	8%	1%
Adj. Flow (vph)	82	22
Shared Lane Traffic (%)		
Lane Group Flow (vph)	104	0
Enter Blocked Intersection	No	No
Lane Alignment	Left	R NA
Median Width(m)	6.0	
Link Offset(m)	0.0	
Crosswalk Width(m)	5.0	
Two way Left Turn Lane		
Headway Factor	1.01	1.01
Turning Speed (k/h)		14
Number of Detectors	2	
Detector Template	Thru	
Leading Detector (m)	10.0	
Trailing Detector (m)	0.0	
Detector 1 Position(m)	0.0	
Detector 1 Size(m)	0.6	
Detector 1 Type	Cl+Ex	
Detector 1 Channel		
Detector 1 Extend (s)	0.0	
Detector 1 Queue (s)	0.0	
Detector 1 Delay (s)	0.0	
Detector 2 Position(m)	9.4	
Detector 2 Size(m)	0.6	
Detector 2 Type	Cl+Ex	
Detector 2 Channel		
Detector 2 Extend (s)	0.0	
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Detector Phase	4	
Switch Phase		

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0		10.0
Minimum Split (s)	23.7	23.7	23.7	23.7	23.7	23.7	23.7	23.7	29.0	29.0		29.0
Total Split (s)	51.0	51.0	51.0	51.0	51.0	51.0	51.0	51.0	29.0	29.0		29.0
Total Split (%)	63.8%	63.8%	63.8%	63.8%	63.8%	63.8%	63.8%	63.8%	36.3%	36.3%		36.3%
Maximum Green (s)	45.3	45.3	45.3	45.3	45.3	45.3	45.3	45.3	23.0	23.0		23.0
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3		3.3
All-Red Time (s)	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.7	2.7		2.7
Lost Time Adjust (s)		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)		5.7	5.7	5.7		5.7	5.7	5.7	6.0	6.0		6.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max	None	None		None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	16.0	16.0		16.0
Pedestrian Calls (#/hr)	5	5	5	5	5	5	5	5	5	5		5
Act Effct Green (s)		47.7	47.7	47.7		47.7	47.7	47.7	16.5	16.5		16.5
Actuated g/C Ratio		0.63	0.63	0.63		0.63	0.63	0.63	0.22	0.22		0.22
v/c Ratio		0.08	0.52	0.15		0.06	0.35	0.18	0.22	0.18		0.71
Control Delay		7.8	9.6	1.8		8.0	8.0	1.8	24.8	19.5		40.9
Queue Delay		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0
Total Delay		7.8	9.6	1.8		8.0	8.0	1.8	24.8	19.5		40.9
LOS		A	A	A		A	A	A	C	B		D
Approach Delay			8.6				6.8			22.0		
Approach LOS			A				A			C		
Queue Length 50th (m)		1.4	38.4	0.0		0.6	22.6	0.0	6.4	5.3		24.1
Queue Length 95th (m)		5.5	66.1	6.5		3.1	40.0	7.0	14.6	13.5		43.1
Internal Link Dist (m)			228.5				345.8			320.1		
Turn Bay Length (m)		60.0		120.0		45.0		120.0	50.0			
Base Capacity (vph)		391	2223	1028		236	2223	1030	385	523		403
Starvation Cap Reductn		0	0	0		0	0	0	0	0		0
Spillback Cap Reductn		0	0	0		0	0	0	0	0		0
Storage Cap Reductn		0	0	0		0	0	0	0	0		0
Reduced v/c Ratio		0.08	0.52	0.15		0.06	0.35	0.18	0.16	0.13		0.51

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 75.9			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.71			
Intersection Signal Delay: 11.5		Intersection LOS: B	
Intersection Capacity Utilization 62.0%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 5: Prestone & St. Joseph



Lane Group	SBT	SBR
Minimum Initial (s)	10.0	
Minimum Split (s)	29.0	
Total Split (s)	29.0	
Total Split (%)	36.3%	
Maximum Green (s)	23.0	
Yellow Time (s)	3.3	
All-Red Time (s)	2.7	
Lost Time Adjust (s)	0.0	
Total Lost Time (s)	6.0	
Lead/Lag		
Lead-Lag Optimize?		
Vehicle Extension (s)	3.0	
Recall Mode	None	
Walk Time (s)	7.0	
Flash Dont Walk (s)	16.0	
Pedestrian Calls (#/hr)	5	
Act Effct Green (s)	16.5	
Actuated g/C Ratio	0.22	
v/c Ratio	0.27	
Control Delay	21.0	
Queue Delay	0.0	
Total Delay	21.0	
LOS	C	
Approach Delay	34.2	
Approach LOS	C	
Queue Length 50th (m)	9.1	
Queue Length 95th (m)	19.7	
Internal Link Dist (m)	88.3	
Turn Bay Length (m)		
Base Capacity (vph)	529	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.20	

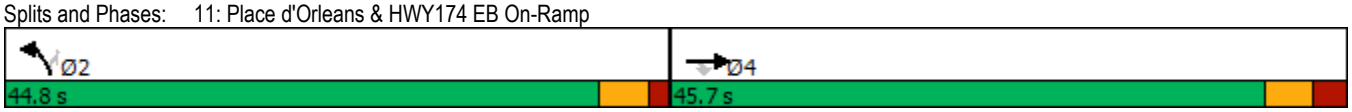
Intersection Summary

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	287	299	0	0	289	142
Future Volume (vph)	287	299	0	0	289	142
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0	0.0		0.0	30.0
Storage Lanes		2	0		2	1
Taper Length (m)			10.0		10.0	
Lane Util. Factor	1.00	0.88	1.00	1.00	0.97	1.00
Frt		0.850				0.850
Flt Protected					0.950	
Satd. Flow (prot)	1808	2731	0	0	3300	1567
Flt Permitted					0.950	
Satd. Flow (perm)	1808	2731	0	0	3300	1567
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		299				142
Link Speed (k/h)	50			50	60	
Link Distance (m)	187.8			187.3	232.2	
Travel Time (s)	13.5			13.5	13.9	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	4%	3%	2%	2%	5%	2%
Adj. Flow (vph)	287	299	0	0	289	142
Shared Lane Traffic (%)						
Lane Group Flow (vph)	287	299	0	0	289	142
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	8.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	5.0			5.0	5.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		97	97		97	97
Turn Type	NA	Perm			Prot	Perm
Protected Phases	4				2	
Permitted Phases		4				2
Detector Phase	4	4			2	2
Switch Phase						
Minimum Initial (s)	10.0	10.0			10.0	10.0
Minimum Split (s)	15.7	15.7			24.8	24.8
Total Split (s)	45.7	45.7			44.8	44.8
Total Split (%)	50.5%	50.5%			49.5%	49.5%
Maximum Green (s)	40.0	40.0			40.0	40.0
Yellow Time (s)	3.3	3.3			3.3	3.3
All-Red Time (s)	2.4	2.4			1.5	1.5
Lost Time Adjust (s)	0.0	0.0			0.0	0.0
Total Lost Time (s)	5.7	5.7			4.8	4.8
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0			3.0	3.0
Recall Mode	None	None			Min	Min
Walk Time (s)					15.0	15.0
Flash Dont Walk (s)					5.0	5.0
Pedestrian Calls (#/hr)					5	5
Act Effct Green (s)	11.7	11.7			11.8	11.8
Actuated g/C Ratio	0.34	0.34			0.34	0.34

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
v/c Ratio	0.47	0.26			0.26	0.23
Control Delay	12.3	2.4			8.9	3.2
Queue Delay	0.0	0.0			0.0	0.0
Total Delay	12.3	2.4			8.9	3.2
LOS	B	A			A	A
Approach Delay	7.2				7.0	
Approach LOS	A				A	
Queue Length 50th (m)	9.6	0.0			4.6	0.0
Queue Length 95th (m)	31.0	5.6			11.9	6.3
Internal Link Dist (m)	163.8			163.3	208.2	
Turn Bay Length (m)						30.0
Base Capacity (vph)	1753	2658			3200	1524
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	0.11			0.09	0.09

Intersection Summary			
Area Type:	Other		
Cycle Length: 90.5			
Actuated Cycle Length: 34.3			
Natural Cycle: 45			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.47			
Intersection Signal Delay: 7.1		Intersection LOS: A	
Intersection Capacity Utilization 34.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 11: Place d'Orleans & HWY174 EB On-Ramp



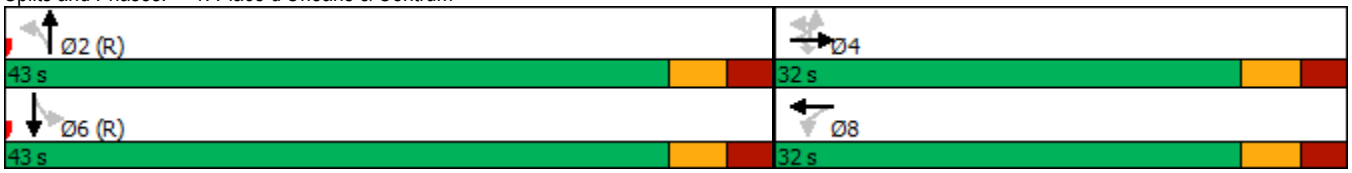
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	1	28	25	40	60	31	124	83	174	84	114	40
Future Volume (vph)	1	28	25	40	60	31	124	83	174	84	114	40
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0		20.0	50.0		0.0	0.0		0.0	0.0	
Storage Lanes		1		1	1		0	0		0	0	
Taper Length (m)		10.0			20.0			10.0			10.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor		0.99		0.97	0.99	0.98			0.99			1.00
Frt				0.850		0.880			0.963			0.984
Flt Protected		0.950			0.950				0.988			0.968
Satd. Flow (prot)	0	1628	1861	1582	1768	1514	0	0	3241	0	0	3225
Flt Permitted		0.659			0.741				0.838			0.662
Satd. Flow (perm)	0	1123	1861	1542	1361	1514	0	0	2748	0	0	2204
Right Turn on Red				Yes			Yes			Yes		
Satd. Flow (RTOR)				44		124			84			18
Link Speed (k/h)			30			40			60			60
Link Distance (m)			58.1			146.1			115.4			185.7
Travel Time (s)			7.0			13.1			6.9			11.1
Confl. Peds. (#/hr)		8		15	15		8	1		1	1	
Confl. Bikes (#/hr)							4					
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	10%	1%	1%	1%	1%	9%	1%	7%	2%	5%	8%
Adj. Flow (vph)	1	28	25	40	60	31	124	83	174	84	114	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	29	25	40	60	155	0	0	341	0	0	172
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA	Left	Left
Median Width(m)			6.0			6.0			0.0			0.0
Link Offset(m)			0.0			0.0			0.0			0.0
Crosswalk Width(m)			5.0			5.0			5.0			5.0
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	14	24		14	24		14	24		14	24	
Number of Detectors	1	1	2	1	1	2		1	2		1	2
Detector Template	Left	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru
Leading Detector (m)	2.0	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 1 Size(m)	2.0	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 2 Position(m)			9.4			9.4			9.4			9.4
Detector 2 Size(m)			0.6			0.6			0.6			0.6
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			0.0
Turn Type	Perm	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA
Protected Phases			4			8			2			6
Permitted Phases	4	4		4	8			2			6	
Detector Phase	4	4	4	4	8	8		2	2		6	6

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	18
Future Volume (vph)	18
Ideal Flow (vphpl)	1800
Storage Length (m)	0.0
Storage Lanes	0
Taper Length (m)	
Lane Util. Factor	0.95
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	Yes
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	1
Confl. Bikes (#/hr)	
Peak Hour Factor	1.00
Heavy Vehicles (%)	1%
Adj. Flow (vph)	18
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(m)	
Link Offset(m)	
Crosswalk Width(m)	
Two way Left Turn Lane	
Headway Factor	1.01
Turning Speed (k/h)	14
Number of Detectors	
Detector Template	
Leading Detector (m)	
Trailing Detector (m)	
Detector 1 Position(m)	
Detector 1 Size(m)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(m)	
Detector 2 Size(m)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0		10.0	10.0		10.0	10.0
Minimum Split (s)	31.0	31.0	31.0	31.0	31.0	31.0		36.0	36.0		36.0	36.0
Total Split (s)	32.0	32.0	32.0	32.0	32.0	32.0		43.0	43.0		43.0	43.0
Total Split (%)	42.7%	42.7%	42.7%	42.7%	42.7%	42.7%		57.3%	57.3%		57.3%	57.3%
Maximum Green (s)	26.0	26.0	26.0	26.0	26.0	26.0		37.0	37.0		37.0	37.0
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3		3.3	3.3		3.3	3.3
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7	2.7		2.7	2.7		2.7	2.7
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0			0.0			0.0
Total Lost Time (s)		6.0	6.0	6.0	6.0	6.0			6.0			6.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0
Recall Mode	None	None	None	None	None	None		C-Max	C-Max		C-Max	C-Max
Walk Time (s)	10.0	10.0	10.0	10.0	10.0	10.0		12.0	12.0		12.0	12.0
Flash Dont Walk (s)	15.0	15.0	15.0	15.0	15.0	15.0		18.0	18.0		18.0	18.0
Pedestrian Calls (#/hr)	5	5	5	5	5	5		5	5		5	5
Act Effct Green (s)		13.0	13.0	13.0	13.0	13.0			50.0			50.0
Actuated g/C Ratio		0.17	0.17	0.17	0.17	0.17			0.67			0.67
v/c Ratio		0.15	0.08	0.13	0.25	0.42			0.18			0.12
Control Delay		25.4	23.7	7.5	27.5	11.0			4.7			5.5
Queue Delay		0.0	0.0	0.0	0.0	0.0			0.0			0.0
Total Delay		25.4	23.7	7.5	27.5	11.0			4.7			5.5
LOS		C	C	A	C	B			A			A
Approach Delay			17.4			15.6			4.7			5.5
Approach LOS			B			B			A			A
Queue Length 50th (m)		3.4	2.9	0.0	7.2	3.6			4.6			2.7
Queue Length 95th (m)		7.5	6.6	5.1	12.6	13.5			15.3			9.7
Internal Link Dist (m)			34.1			122.1			91.4			161.7
Turn Bay Length (m)				20.0	50.0							
Base Capacity (vph)		389	645	563	471	605			1859			1474
Starvation Cap Reductn		0	0	0	0	0			0			0
Spillback Cap Reductn		0	0	0	0	0			0			0
Storage Cap Reductn		0	0	0	0	0			0			0
Reduced v/c Ratio		0.07	0.04	0.07	0.13	0.26			0.18			0.12

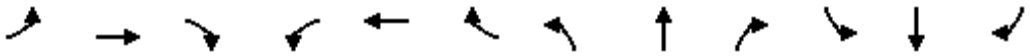
Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 75			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.42			
Intersection Signal Delay: 9.2		Intersection LOS: A	
Intersection Capacity Utilization 90.4%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 1: Place d'Orleans & Centrum



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

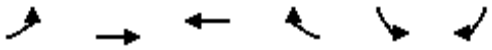


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	83	80	10	2	124	7	0	0	1	8	0	102
Future Volume (vph)	83	80	10	2	124	7	0	0	1	8	0	102
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.992			0.993			0.865			0.875	
Flt Protected		0.977			0.999						0.996	
Satd. Flow (prot)	0	1772	0	0	1813	0	0	813	0	0	1622	0
Flt Permitted		0.977			0.999						0.996	
Satd. Flow (perm)	0	1772	0	0	1813	0	0	813	0	0	1622	0
Link Speed (k/h)		40			40			30			50	
Link Distance (m)		146.1			240.1			67.4			116.9	
Travel Time (s)		13.1			21.6			8.1			8.4	
Confl. Peds. (#/hr)	8		9	9		8						
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 (%)	1%	5%	1%	1%	3%	1%	1%	1%	100%	1%	1%	1%
Adj. Flow (vph)	83	80	10	2	124	7	0	0	1	8	0	102
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	173	0	0	133	0	0	1	0	0	110	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)		4.0			4.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		5.0			5.0			5.0			5.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	43.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	20	48	101	18	59	81
Future Volume (vph)	20	48	101	18	59	81
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.905					0.850
Flt Protected				0.959	0.950	
Satd. Flow (prot)	1518	0	0	1774	1669	1582
Flt Permitted				0.959	0.950	
Satd. Flow (perm)	1518	0	0	1774	1669	1582
Link Speed (k/h)	40			40	40	
Link Distance (m)	240.1			132.6	112.3	
Travel Time (s)	21.6			11.9	10.1	
Confl. Peds. (#/hr)		7	7		4	6
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	5%	15%	1%	5%	7%	1%
Adj. Flow (vph)	20	48	101	18	59	81
Shared Lane Traffic (%)						
Lane Group Flow (vph)	68	0	0	119	59	81
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	R NA	L NA	Left	Left	Right
Median Width(m)	0.0			0.0	6.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	5.0			5.0	5.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		14	24		24	14
Sign Control	Stop			Stop	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 25.5%		ICU Level of Service A	
Analysis Period (min) 15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	56	19	26	1	0	67
Future Volume (vph)	56	19	26	1	0	67
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.995		0.865	
Flt Protected		0.964				
Satd. Flow (prot)	0	1706	1852	0	1610	0
Flt Permitted		0.964				
Satd. Flow (perm)	0	1706	1852	0	1610	0
Link Speed (k/h)		40	40		50	
Link Distance (m)		132.6	155.2		53.9	
Travel Time (s)		11.9	14.0		3.9	
Confl. Peds. (#/hr)	9			9		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	8%	1%	1%	1%	1%	1%
Adj. Flow (vph)	56	19	26	1	0	67
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	75	27	0	67	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		4.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		5.0	5.0		5.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 22.0%		ICU Level of Service A	
Analysis Period (min) 15			

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	9	391	33	1	9	1292	121	101	43	9	73	39
Future Volume (vph)	9	391	33	1	9	1292	121	101	43	9	73	39
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	60.0		120.0		45.0		120.0	50.0		0.0	0.0	
Storage Lanes	1		1		1		1	1		0	1	
Taper Length (m)	30.0				35.0			45.0			10.0	
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.97		1.00		0.99	1.00	1.00		1.00	0.99
Frt			0.850				0.850		0.974			0.936
Flt Protected	0.950				0.950			0.950			0.950	
Satd. Flow (prot)	1768	3468	1508	0	1637	3502	1522	1751	1660	0	1595	1436
Flt Permitted	0.179				0.521			0.713			0.723	
Satd. Flow (perm)	333	3468	1468	0	894	3502	1502	1312	1660	0	1211	1436
Right Turn on Red			Yes				Yes			Yes		
Satd. Flow (RTOR)			41				121		9			29
Link Speed (k/h)		50				60			40			40
Link Distance (m)		252.5				369.8			344.1			112.3
Travel Time (s)		18.2				22.2			31.0			10.1
Confl. Peds. (#/hr)	1		3		3		1	2		2	2	
Confl. Bikes (#/hr)										1		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	3%	6%	1%	10%	2%	5%	2%	10%	10%	12%	35%
Adj. Flow (vph)	9	391	33	1	9	1292	121	101	43	9	73	39
Shared Lane Traffic (%)												
Lane Group Flow (vph)	9	391	33	0	10	1292	121	101	52	0	73	68
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	L NA	Left	R NA	R NA	L NA	Left	R NA	L NA	Left	R NA	L NA	Left
Median Width(m)		6.0				6.0			4.0			6.0
Link Offset(m)		0.0				0.0			0.0			0.0
Crosswalk Width(m)		5.0				5.0			5.0			5.0
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24		14	14	24		14	24		14	24	
Number of Detectors	1	2	1	1	1	2	1	1	2		1	2
Detector Template	Left	Thru	Right	Left	Left	Thru	Right	Left	Thru		Left	Thru
Leading Detector (m)	2.0	10.0	2.0	2.0	2.0	10.0	2.0	2.0	10.0		2.0	10.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	2.0	0.6	2.0	2.0	0.6		2.0	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)		9.4				9.4			9.4			9.4
Detector 2 Size(m)		0.6				0.6			0.6			0.6
Detector 2 Type		Cl+Ex				Cl+Ex			Cl+Ex			Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0				0.0			0.0			0.0
Turn Type	Perm	NA	Perm	Perm	Perm	NA	Perm	Perm	NA		Perm	NA
Protected Phases		2				6			8			4
Permitted Phases	2		2	6	6		6	8			4	
Detector Phase	2	2	2	6	6	6	6	8	8		4	4

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	29
Future Volume (vph)	29
Ideal Flow (vphpl)	1800
Storage Length (m)	0.0
Storage Lanes	0
Taper Length (m)	
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	Yes
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	2
Confl. Bikes (#/hr)	
Peak Hour Factor	1.00
Heavy Vehicles (%)	4%
Adj. Flow (vph)	29
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Enter Blocked Intersection	No
Lane Alignment	R NA
Median Width(m)	
Link Offset(m)	
Crosswalk Width(m)	
Two way Left Turn Lane	
Headway Factor	1.01
Turning Speed (k/h)	14
Number of Detectors	
Detector Template	
Leading Detector (m)	
Trailing Detector (m)	
Detector 1 Position(m)	
Detector 1 Size(m)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(m)	
Detector 2 Size(m)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0		10.0	10.0
Minimum Split (s)	23.7	23.7	23.7	23.7	23.7	23.7	23.7	29.0	29.0		29.0	29.0
Total Split (s)	51.0	51.0	51.0	51.0	51.0	51.0	51.0	29.0	29.0		29.0	29.0
Total Split (%)	63.8%	63.8%	63.8%	63.8%	63.8%	63.8%	63.8%	36.3%	36.3%		36.3%	36.3%
Maximum Green (s)	45.3	45.3	45.3	45.3	45.3	45.3	45.3	23.0	23.0		23.0	23.0
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3		3.3	3.3
All-Red Time (s)	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.7	2.7		2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.7	5.7	5.7		5.7	5.7	5.7	6.0	6.0		6.0	6.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Recall Mode	Max	Max	Max	Max	Max	Max	Max	None	None		None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	16.0	16.0		16.0	16.0
Pedestrian Calls (#/hr)	5	5	5	5	5	5	5	5	5		5	5
Act Effct Green (s)	50.1	50.1	50.1		50.1	50.1	50.1	12.9	12.9		12.9	12.9
Actuated g/C Ratio	0.71	0.71	0.71		0.71	0.71	0.71	0.18	0.18		0.18	0.18
v/c Ratio	0.04	0.16	0.03		0.02	0.52	0.11	0.42	0.17		0.33	0.24
Control Delay	6.8	5.3	2.1		6.1	7.9	1.8	30.5	21.3		28.5	17.4
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	6.8	5.3	2.1		6.1	7.9	1.8	30.5	21.3		28.5	17.4
LOS	A	A	A		A	A	A	C	C		C	B
Approach Delay		5.1				7.3			27.3			23.1
Approach LOS		A				A			C			C
Queue Length 50th (m)	0.3	7.3	0.0		0.3	33.7	0.0	10.9	4.4		7.7	4.0
Queue Length 95th (m)	2.4	19.1	2.6		2.4	78.9	5.8	22.2	11.7		17.0	12.3
Internal Link Dist (m)		228.5				345.8			320.1			88.3
Turn Bay Length (m)	60.0		120.0		45.0		120.0	50.0				
Base Capacity (vph)	237	2477	1060		638	2501	1107	432	553		399	493
Starvation Cap Reductn	0	0	0		0	0	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0	0	0	0		0	0
Reduced v/c Ratio	0.04	0.16	0.03		0.02	0.52	0.11	0.23	0.09		0.18	0.14

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 70.1
Natural Cycle: 60
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.52
Intersection Signal Delay: 9.3 Intersection LOS: A
Intersection Capacity Utilization 60.4% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 5: Prestone & St. Joseph

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

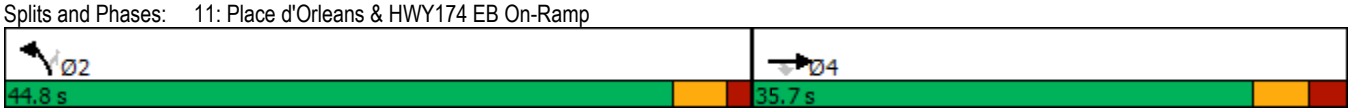
Intersection Summary

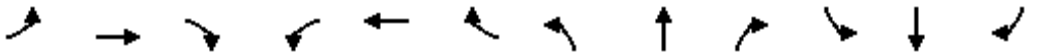
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	110	182	0	0	317	51
Future Volume (vph)	110	182	0	0	317	51
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0	0.0		0.0	30.0
Storage Lanes		2	0		2	1
Taper Length (m)			10.0		10.0	
Lane Util. Factor	1.00	0.88	1.00	1.00	0.97	1.00
Frt		0.850				0.850
Flt Protected					0.950	
Satd. Flow (prot)	1790	2653	0	0	3300	1567
Flt Permitted					0.950	
Satd. Flow (perm)	1790	2653	0	0	3300	1567
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		182				51
Link Speed (k/h)	60			50	60	
Link Distance (m)	187.8			187.3	232.2	
Travel Time (s)	11.3			13.5	13.9	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	5%	6%	2%	2%	5%	2%
Adj. Flow (vph)	110	182	0	0	317	51
Shared Lane Traffic (%)						
Lane Group Flow (vph)	110	182	0	0	317	51
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	8.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	5.0			5.0	5.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		97	97		97	97
Turn Type	NA	Perm			Prot	Perm
Protected Phases	4				2	
Permitted Phases		4				2
Detector Phase	4	4			2	2
Switch Phase						
Minimum Initial (s)	10.0	10.0			10.0	10.0
Minimum Split (s)	15.7	15.7			24.8	24.8
Total Split (s)	35.7	35.7			44.8	44.8
Total Split (%)	44.3%	44.3%			55.7%	55.7%
Maximum Green (s)	30.0	30.0			40.0	40.0
Yellow Time (s)	3.3	3.3			3.3	3.3
All-Red Time (s)	2.4	2.4			1.5	1.5
Lost Time Adjust (s)	0.0	0.0			0.0	0.0
Total Lost Time (s)	5.7	5.7			4.8	4.8
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0			3.0	3.0
Recall Mode	None	None			Min	Min
Walk Time (s)					15.0	15.0
Flash Dont Walk (s)					5.0	5.0
Pedestrian Calls (#/hr)					5	5
Act Effct Green (s)	10.3	10.3			14.1	14.1
Actuated g/C Ratio	0.29	0.29			0.40	0.40

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
v/c Ratio	0.21	0.20			0.24	0.08
Control Delay	10.7	3.2			7.4	2.7
Queue Delay	0.0	0.0			0.0	0.0
Total Delay	10.7	3.2			7.4	2.7
LOS	B	A			A	A
Approach Delay	6.0				6.8	
Approach LOS	A				A	
Queue Length 50th (m)	3.3	0.0			5.1	0.0
Queue Length 95th (m)	13.6	4.9			9.2	2.9
Internal Link Dist (m)	163.8			163.3	208.2	
Turn Bay Length (m)						30.0
Base Capacity (vph)	1568	2348			3240	1539
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	0.07	0.08			0.10	0.03

Intersection Summary			
Area Type:	Other		
Cycle Length: 80.5			
Actuated Cycle Length: 35.1			
Natural Cycle: 45			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.24			
Intersection Signal Delay: 6.4		Intersection LOS: A	
Intersection Capacity Utilization 26.6%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 11: Place d'Orleans & HWY174 EB On-Ramp





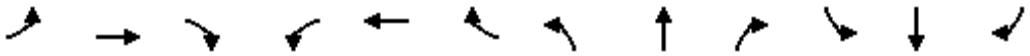
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	88	49	196	70	35	144	118	175	104	161	111	24
Future Volume (vph)	88	49	196	70	35	144	118	175	104	161	111	24
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		20.0	50.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		1	1		0	0		0	0		0
Taper Length (m)	10.0			20.0			10.0			10.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor	0.99		0.97	0.98	0.97			0.99			1.00	
Frt			0.850		0.879			0.961			0.988	
Flt Protected	0.950			0.950				0.985			0.974	
Satd. Flow (prot)	1768	1861	1582	1768	1477	0	0	3257	0	0	3211	0
Flt Permitted	0.562			0.725				0.761			0.638	
Satd. Flow (perm)	1030	1861	1531	1328	1477	0	0	2514	0	0	2101	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			196		144			94			17	
Link Speed (k/h)		30			40			60			60	
Link Distance (m)		58.1			146.1			115.4			185.7	
Travel Time (s)		7.0			13.1			6.9			11.1	
Confl. Peds. (#/hr)	19		17	17		19	3		2	2		3
Confl. Bikes (#/hr)			5			1						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	1%	1%	1%	1%	11%	1%	6%	1%	9%	5%	1%
Adj. Flow (vph)	88	49	196	70	35	144	118	175	104	161	111	24
Shared Lane Traffic (%)												
Lane Group Flow (vph)	88	49	196	70	179	0	0	397	0	0	296	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA	Left	Left	Right
Median Width(m)		6.0			6.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		5.0			5.0			5.0			5.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	8	8		2	2		6	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	31.0	31.0	31.0	31.0	31.0		36.0	36.0		36.0	36.0	
Total Split (s)	32.0	32.0	32.0	32.0	32.0		53.0	53.0		53.0	53.0	
Total Split (%)	37.6%	37.6%	37.6%	37.6%	37.6%		62.4%	62.4%		62.4%	62.4%	
Maximum Green (s)	26.0	26.0	26.0	26.0	26.0		47.0	47.0		47.0	47.0	
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7		2.7	2.7		2.7	2.7	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0			0.0			0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	10.0	10.0	10.0	10.0	10.0		12.0	12.0		12.0	12.0	
Flash Dont Walk (s)	15.0	15.0	15.0	15.0	15.0		18.0	18.0		18.0	18.0	
Pedestrian Calls (#/hr)	5	5	5	5	5		5	5		5	5	
Act Effct Green (s)	14.2	14.2	14.2	14.2	14.2			58.8			58.8	
Actuated g/C Ratio	0.17	0.17	0.17	0.17	0.17			0.69			0.69	
v/c Ratio	0.51	0.16	0.47	0.32	0.49			0.22			0.20	
Control Delay	41.4	28.9	8.0	32.9	12.6			4.7			5.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0			0.0	
Total Delay	41.4	28.9	8.0	32.9	12.6			4.7			5.8	
LOS	D	C	A	C	B			A			A	
Approach Delay		19.9			18.3			4.7			5.8	
Approach LOS		B			B			A			A	
Queue Length 50th (m)	12.6	6.6	0.0	9.7	4.7			6.2			5.8	
Queue Length 95th (m)	21.2	12.5	13.1	17.0	17.0			17.7			16.4	
Internal Link Dist (m)		34.1			122.1			91.4			161.7	
Turn Bay Length (m)			20.0	50.0								
Base Capacity (vph)	315	569	604	406	551			1768			1459	
Starvation Cap Reductn	0	0	0	0	0			0			0	
Spillback Cap Reductn	0	0	0	0	0			0			0	
Storage Cap Reductn	0	0	0	0	0			0			0	
Reduced v/c Ratio	0.28	0.09	0.32	0.17	0.32			0.22			0.20	

Intersection Summary

Area Type: Other
Cycle Length: 85
Actuated Cycle Length: 85
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.51
Intersection Signal Delay: 11.6 Intersection LOS: B
Intersection Capacity Utilization 94.9% ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 1: Place d'Orleans & Centrum

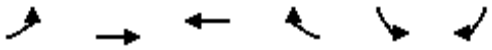


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	119	177	8	1	117	17	7	0	8	20	0	123
Future Volume (vph)	119	177	8	1	117	17	7	0	8	20	0	123
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.996			0.983			0.928			0.884	
Flt Protected		0.981						0.977			0.993	
Satd. Flow (prot)	0	1798	0	0	1769	0	0	1688	0	0	1634	0
Flt Permitted		0.981						0.977			0.993	
Satd. Flow (perm)	0	1798	0	0	1769	0	0	1688	0	0	1634	0
Link Speed (k/h)		40			40			30			50	
Link Distance (m)		146.1			240.1			67.4			116.9	
Travel Time (s)		13.1			21.6			8.1			8.4	
Confl. Peds. (#/hr)	23		19	19		23						
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 (%)	1%	3%	1%	1%	5%	1%	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	119	177	8	1	117	17	7	0	8	20	0	123
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	304	0	0	135	0	0	15	0	0	143	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		4.0			4.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		5.0			5.0			5.0			5.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	47.6%	ICU Level of Service	A
Analysis Period (min)	15		

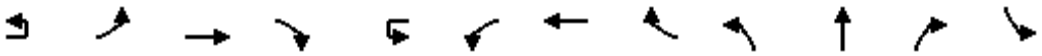
Lane Group	EBT	EBR	WBL	WBT	NBU	NBL	NBR
Lane Configurations							
Traffic Volume (vph)	39	121	116	18	1	86	103
Future Volume (vph)	39	121	116	18	1	86	103
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							
Frt	0.898						0.850
Flt Protected				0.959		0.950	
Satd. Flow (prot)	1600	0	0	1785	0	1611	1582
Flt Permitted				0.959		0.950	
Satd. Flow (perm)	1600	0	0	1785	0	1611	1582
Link Speed (k/h)	40			40		40	
Link Distance (m)	240.1			132.6		112.3	
Travel Time (s)	21.6			11.9		10.1	
Confl. Peds. (#/hr)		7	7			3	3
Confl. Bikes (#/hr)		1					
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	7%	1%	1%	1%	11%	1%
Adj. Flow (vph)	39	121	116	18	1	86	103
Shared Lane Traffic (%)							
Lane Group Flow (vph)	160	0	0	134	0	87	103
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	R NA	L NA	Left	R NA	Left	Right
Median Width(m)	0.0			0.0		6.0	
Link Offset(m)	0.0			0.0		0.0	
Crosswalk Width(m)	5.0			5.0		5.0	
Two way Left Turn Lane							
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		14	24		14	24	14
Sign Control	Stop			Stop		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 34.8%		ICU Level of Service A	
Analysis Period (min) 15			

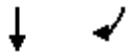


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	74	48	39	0	0	79
Future Volume (vph)	74	48	39	0	0	79
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt					0.865	
Flt Protected		0.971				
Satd. Flow (prot)	0	1807	1825	0	1610	0
Flt Permitted		0.971				
Satd. Flow (perm)	0	1807	1825	0	1610	0
Link Speed (k/h)		40	40		50	
Link Distance (m)		132.6	155.2		53.9	
Travel Time (s)		11.9	14.0		3.9	
Confl. Peds. (#/hr)	8			8		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	1%	3%	1%	1%	1%
Adj. Flow (vph)	74	48	39	0	0	79
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	122	39	0	79	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		4.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		5.0	5.0		5.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 25.5%		ICU Level of Service A	
Analysis Period (min) 15			



Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	1	31	1246	154	2	11	848	186	61	52	14	205
Future Volume (vph)	1	31	1246	154	2	11	848	186	61	52	14	205
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)		60.0		120.0		45.0		120.0	50.0		0.0	0.0
Storage Lanes		1		1		1		1	1		0	1
Taper Length (m)		30.0				35.0			45.0			10.0
Lane Util. Factor	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		0.98		1.00		0.99	1.00	1.00		1.00
Frt				0.850				0.850		0.968		
Flt Protected		0.950				0.950			0.950			0.950
Satd. Flow (prot)	0	1768	3537	1582	0	1768	3537	1551	1751	1691	0	1768
Flt Permitted		0.308				0.175			0.690			0.714
Satd. Flow (perm)	0	573	3537	1544	0	326	3537	1529	1268	1691	0	1328
Right Turn on Red				Yes				Yes			Yes	
Satd. Flow (RTOR)				154				186		14		
Link Speed (k/h)			50				60			40		
Link Distance (m)			252.5				369.8			344.1		
Travel Time (s)			18.2				22.2			31.0		
Confl. Peds. (#/hr)		2		2		2		2	3		1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	3%	2%	9%	1%	1%
Adj. Flow (vph)	1	31	1246	154	2	11	848	186	61	52	14	205
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	32	1246	154	0	13	848	186	61	66	0	205
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	L NA	Left	R NA	R NA	L NA	Left	R NA	L NA	Left	R NA	L NA
Median Width(m)			6.0				6.0			4.0		
Link Offset(m)			0.0				0.0			0.0		
Crosswalk Width(m)			5.0				5.0			5.0		
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	14	24		14	14	24		14	24		14	24
Number of Detectors	1	1	2	1	1	1	2	1	1	2		1
Detector Template	Left	Left	Thru	Right	Left	Left	Thru	Right	Left	Thru		Left
Leading Detector (m)	2.0	2.0	10.0	2.0	2.0	2.0	10.0	2.0	2.0	10.0		2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Detector 1 Size(m)	2.0	2.0	0.6	2.0	2.0	2.0	0.6	2.0	2.0	0.6		2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Detector 2 Position(m)			9.4				9.4			9.4		
Detector 2 Size(m)			0.6				0.6			0.6		
Detector 2 Type			Cl+Ex				Cl+Ex			Cl+Ex		
Detector 2 Channel												
Detector 2 Extend (s)			0.0				0.0			0.0		
Turn Type	Perm	Perm	NA	Perm	Perm	Perm	NA	Perm	Perm	NA		Perm
Protected Phases			2				6			8		
Permitted Phases	2	2		2	6	6		6	8			4
Detector Phase	2	2	2	2	6	6	6	6	8	8		4
Switch Phase												

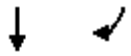


Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	82	22
Future Volume (vph)	82	22
Ideal Flow (vphpl)	1800	1800
Storage Length (m)		0.0
Storage Lanes		0
Taper Length (m)		
Lane Util. Factor	1.00	1.00
Ped Bike Factor	1.00	
Frt	0.968	
Flt Protected		
Satd. Flow (prot)	1703	0
Flt Permitted		
Satd. Flow (perm)	1703	0
Right Turn on Red		Yes
Satd. Flow (RTOR)	17	
Link Speed (k/h)	40	
Link Distance (m)	112.3	
Travel Time (s)	10.1	
Confl. Peds. (#/hr)		3
Peak Hour Factor	1.00	1.00
Heavy Vehicles (%)	8%	1%
Adj. Flow (vph)	82	22
Shared Lane Traffic (%)		
Lane Group Flow (vph)	104	0
Enter Blocked Intersection	No	No
Lane Alignment	Left	R NA
Median Width(m)	6.0	
Link Offset(m)	0.0	
Crosswalk Width(m)	5.0	
Two way Left Turn Lane		
Headway Factor	1.01	1.01
Turning Speed (k/h)		14
Number of Detectors	2	
Detector Template	Thru	
Leading Detector (m)	10.0	
Trailing Detector (m)	0.0	
Detector 1 Position(m)	0.0	
Detector 1 Size(m)	0.6	
Detector 1 Type	Cl+Ex	
Detector 1 Channel		
Detector 1 Extend (s)	0.0	
Detector 1 Queue (s)	0.0	
Detector 1 Delay (s)	0.0	
Detector 2 Position(m)	9.4	
Detector 2 Size(m)	0.6	
Detector 2 Type	Cl+Ex	
Detector 2 Channel		
Detector 2 Extend (s)	0.0	
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Detector Phase	4	
Switch Phase		

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0		10.0
Minimum Split (s)	23.7	23.7	23.7	23.7	23.7	23.7	23.7	23.7	29.0	29.0		29.0
Total Split (s)	51.0	51.0	51.0	51.0	51.0	51.0	51.0	51.0	29.0	29.0		29.0
Total Split (%)	63.8%	63.8%	63.8%	63.8%	63.8%	63.8%	63.8%	63.8%	36.3%	36.3%		36.3%
Maximum Green (s)	45.3	45.3	45.3	45.3	45.3	45.3	45.3	45.3	23.0	23.0		23.0
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3		3.3
All-Red Time (s)	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.7	2.7		2.7
Lost Time Adjust (s)		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)		5.7	5.7	5.7		5.7	5.7	5.7	6.0	6.0		6.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max	None	None		None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	16.0	16.0		16.0
Pedestrian Calls (#/hr)	5	5	5	5	5	5	5	5	5	5		5
Act Effct Green (s)		47.7	47.7	47.7		47.7	47.7	47.7	16.5	16.5		16.5
Actuated g/C Ratio		0.63	0.63	0.63		0.63	0.63	0.63	0.22	0.22		0.22
v/c Ratio		0.09	0.56	0.15		0.06	0.38	0.18	0.22	0.18		0.71
Control Delay		7.9	10.1	1.8		8.2	8.2	1.8	24.8	19.5		40.9
Queue Delay		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0
Total Delay		7.9	10.1	1.8		8.2	8.2	1.8	24.8	19.5		40.9
LOS		A	B	A		A	A	A	C	B		D
Approach Delay			9.2				7.1			22.0		
Approach LOS			A				A			C		
Queue Length 50th (m)		1.5	43.4	0.0		0.6	25.1	0.0	6.4	5.3		24.1
Queue Length 95th (m)		5.6	74.2	6.5		3.1	44.0	7.0	14.6	13.5		43.1
Internal Link Dist (m)			228.5				345.8			320.1		
Turn Bay Length (m)		60.0		120.0		45.0		120.0	50.0			
Base Capacity (vph)		360	2223	1028		204	2223	1030	385	523		403
Starvation Cap Reductn		0	0	0		0	0	0	0	0		0
Spillback Cap Reductn		0	0	0		0	0	0	0	0		0
Storage Cap Reductn		0	0	0		0	0	0	0	0		0
Reduced v/c Ratio		0.09	0.56	0.15		0.06	0.38	0.18	0.16	0.13		0.51

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 75.9			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.71			
Intersection Signal Delay: 11.6		Intersection LOS: B	
Intersection Capacity Utilization 64.8%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 5: Prestone & St. Joseph



Lane Group	SBT	SBR
Minimum Initial (s)	10.0	
Minimum Split (s)	29.0	
Total Split (s)	29.0	
Total Split (%)	36.3%	
Maximum Green (s)	23.0	
Yellow Time (s)	3.3	
All-Red Time (s)	2.7	
Lost Time Adjust (s)	0.0	
Total Lost Time (s)	6.0	
Lead/Lag		
Lead-Lag Optimize?		
Vehicle Extension (s)	3.0	
Recall Mode	None	
Walk Time (s)	7.0	
Flash Dont Walk (s)	16.0	
Pedestrian Calls (#/hr)	5	
Act Effct Green (s)	16.5	
Actuated g/C Ratio	0.22	
v/c Ratio	0.27	
Control Delay	21.0	
Queue Delay	0.0	
Total Delay	21.0	
LOS	C	
Approach Delay	34.2	
Approach LOS	C	
Queue Length 50th (m)	9.1	
Queue Length 95th (m)	19.7	
Internal Link Dist (m)	88.3	
Turn Bay Length (m)		
Base Capacity (vph)	529	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.20	

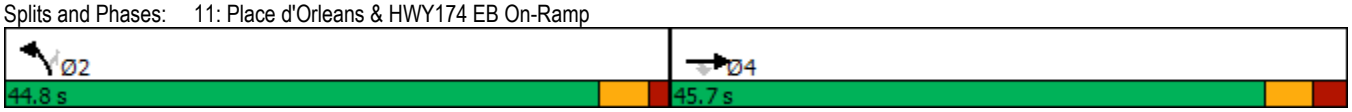
Intersection Summary

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	287	299	0	0	289	142
Future Volume (vph)	287	299	0	0	289	142
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0	0.0		0.0	30.0
Storage Lanes		2	0		2	1
Taper Length (m)			10.0		10.0	
Lane Util. Factor	1.00	0.88	1.00	1.00	0.97	1.00
Frt		0.850				0.850
Flt Protected					0.950	
Satd. Flow (prot)	1808	2731	0	0	3300	1567
Flt Permitted					0.950	
Satd. Flow (perm)	1808	2731	0	0	3300	1567
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		299				142
Link Speed (k/h)	50			50	60	
Link Distance (m)	187.8			187.3	232.2	
Travel Time (s)	13.5			13.5	13.9	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	4%	3%	2%	2%	5%	2%
Adj. Flow (vph)	287	299	0	0	289	142
Shared Lane Traffic (%)						
Lane Group Flow (vph)	287	299	0	0	289	142
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	8.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	5.0			5.0	5.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		14	24		24	14
Turn Type	NA	Perm			Prot	Perm
Protected Phases	4				2	
Permitted Phases		4				2
Detector Phase	4	4			2	2
Switch Phase						
Minimum Initial (s)	10.0	10.0			10.0	10.0
Minimum Split (s)	15.7	15.7			24.8	24.8
Total Split (s)	45.7	45.7			44.8	44.8
Total Split (%)	50.5%	50.5%			49.5%	49.5%
Maximum Green (s)	40.0	40.0			40.0	40.0
Yellow Time (s)	3.3	3.3			3.3	3.3
All-Red Time (s)	2.4	2.4			1.5	1.5
Lost Time Adjust (s)	0.0	0.0			0.0	0.0
Total Lost Time (s)	5.7	5.7			4.8	4.8
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0			3.0	3.0
Recall Mode	None	None			Min	Min
Walk Time (s)					15.0	15.0
Flash Dont Walk (s)					5.0	5.0
Pedestrian Calls (#/hr)					5	5
Act Effct Green (s)	11.7	11.7			11.8	11.8
Actuated g/C Ratio	0.34	0.34			0.34	0.34

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
v/c Ratio	0.47	0.26			0.26	0.23
Control Delay	12.3	2.4			8.9	3.2
Queue Delay	0.0	0.0			0.0	0.0
Total Delay	12.3	2.4			8.9	3.2
LOS	B	A			A	A
Approach Delay	7.2				7.0	
Approach LOS	A				A	
Queue Length 50th (m)	9.6	0.0			4.6	0.0
Queue Length 95th (m)	31.0	5.6			11.9	6.3
Internal Link Dist (m)	163.8			163.3	208.2	
Turn Bay Length (m)						30.0
Base Capacity (vph)	1753	2658			3200	1524
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	0.11			0.09	0.09

Intersection Summary			
Area Type:	Other		
Cycle Length: 90.5			
Actuated Cycle Length: 34.3			
Natural Cycle: 45			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.47			
Intersection Signal Delay: 7.1		Intersection LOS: A	
Intersection Capacity Utilization 34.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 11: Place d'Orleans & HWY174 EB On-Ramp



APPENDIX M

MMLOS Analysis

Multi-Modal Level of Service - Segments Form

Project: 530 Brisebois Crescent and Part of 265 Centrum Boulevard
Consultant: Novatech Engineering Consultants Ltd.
Date: Apr 16, 2026
Scenario: Existing Conditions

	Segment Name	Centrum Boulevard				Brisebois Crescent (East-West Segment)				Brisebois Crescent (North-South Segment)			
	OP Transect / Policy Area	Downtown Core, Inner Urban,Hub and/or Special District				Downtown Core, Inner Urban,Hub and/or Special District				Downtown Core, Inner Urban,Hub and/or Special District			
	Segment Component	Majority (>50%)		Critical		Majority (>50%)		Critical		Majority (>50%)		Critical	
	Side of Street	North Side	South Side	North Side	South Side	North Side	South Side	North Side	South Side	West Side	East Side	West Side	East Side
Pedestrian	**PLOS Inputs**												
	Posted Speed (km/h)	40 km/h		40 km/h		50 km/h		50 km/h		50 km/h		50 km/h	
	Two-Way ADT	1,554		1,554		120		120		120		120	
	Pedestrian Facility	Sidewalk	Sidewalk	Sidewalk	Sidewalk	Sidewalk	None	Sidewalk	None	Sidewalk	None	Sidewalk	None
	Does the facility meet the TMP Sidewalk or MUP Policy? If not, for MUPs, does the location have a low volume of peak daily users AND are pedestrian volumes likely less than 20% of total users?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No
	Facility Width (m)	3.00m	1.80m	2.80m	1.50m	2.00m	-	2.00m	-	2.80m		2.80m	
	Offset from Motor Vehicle Travel Lanes (m)	≥ 3.0m	≥ 3.0m	< 0.5m	-	< 0.5m	-	< 0.5m	-	< 0.5m	-	< 0.5m	-
	Presence of Adjacent Parking?	Yes	Yes	-	-	-	-	-	-	-	-	-	-
	General Purpose Curb Lane ADT	≤ 3000	≤ 3000	≤ 3000	-	≤ 3000	-	≤ 3000	-	≤ 3000	-	≤ 3000	-
	Max. Distance between Controlled Crossings (m)	≤ 200m	≤ 200m	≤ 200m	≤ 200m	-	-	-	-	-	-	-	-
	Score	**5.00**	**5.00**	**4.25**	**2.00**	**4.25**	**-**	**4.25**	**-**	**4.25**	**-**	**4.25**	**-**
	PLOS	**A**	**A**	**B**	**D**	**B**	**-**	**B**	**-**	**B**	**-**	**B**	**-**
	Target PLOS	**A**				**A**				**A**			
Bicycle	**BLOS Inputs**												
	Cycling Route Classification	**Elsewhere**				**Elsewhere**				**Elsewhere**			
	Cycling Facility	Shared Operating Space	Shared Operating Space	Shared Operating Space	Shared Operating Space	Shared Operating Space	Shared Operating Space	Shared Operating Space	Shared Operating Space	Shared Operating Space	Shared Operating Space	Shared Operating Space	Shared Operating Space
	Is the minimum level of separation provided according to OTM Book 18 Pre-Selection Nomograph - Rural Context (Figure 5.6)? (for paved shoulders)	-	-	-	-	-	-	-	-	-	-	-	-
	Facility Operation	-	-	-	-	-	-	-	-	-	-	-	-
	Pedestrian/Cyclist Volume	-	-	-	-	-	-	-	-	-	-	-	-
	Facility Width	-	-	-	-	-	-	-	-	-	-	-	-
	Boulevard/Buffer Width (excluding curb)	-	-	-	-	-	-	-	-	-	-	-	-
	Unsignalized Roadway Crossing Type (where cyclists are required to yield)	None	None	None	None	None	None	None	None	None	None	None	None
	Number of Travel Lanes at Crossing	-	-	-	-	-	-	-	-	-	-	-	-
	Crossing includes Median Refuge (≥ 2.7m)	-	-	-	-	-	-	-	-	-	-	-	-
	Cross-street Posted Speed (km/h)	-	-	-	-	-	-	-	-	-	-	-	-
	Cycling Path Blockages (e.g. bus stops and/or loading zones)	Rare	Rare	Rare	Rare	Rare	Rare	Rare	Rare	Rare	Rare	Rare	Rare
	Score	**3.30**	**3.30**	**3.30**	**3.30**	**1.60**	**1.60**	**1.60**	**1.60**	**1.60**	**1.60**	**1.60**	**1.60**
	BLOS	**C**	**C**	**C**	**C**	**D**	**D**	**D**	**D**	**D**	**D**	**D**	**D**
	Target BLOS	**B**				**B**				**B**			
Transit	**TLOS Inputs**												
	Transit Facility	**Mixed Traffic**				**Select Transit Designation**				**Select Transit Designation**			
	Facility Type	Mixed Traffic	Mixed Traffic										
	Expected Transit Running Time	Slightly Impeded	Slightly Impeded										
	Transit Travel Speed (if available)	Enter Speed (if available)	Enter Speed (if available)										
	TLOS	**C**	**C**			**-**	**-**			**-**	**-**		
	Target TLOS	**E (D for frequent transit routes)**				**-**				**-**			
Public Realm	**PRLOS Inputs**												
	Context	Mainstreet or active frontage street within a Hub, Special District, or Village	Mainstreet or active frontage street within a Hub, Special District, or Village			Other Streets	Other Streets			Other Streets	Other Streets		
	Inner Boulevard Width	≥ 4.0m	≥ 4.0m			≤ 0.6m	≤ 0.6m			≤ 0.6m	0.6-1.19m		
	Middle Boulevard Width	≤ 0.5m	≤ 0.5m			≤ 0.5m	≤ 0.5m			≤ 0.5m	≤ 0.5m		
	Outer Boulevard (Frontage) Width	-	-			≤ 0.5m	≤ 0.5m			≤ 0.5m	≤ 0.5m		
	Transit Route on Segment?	No	No			No	No			No	No		
	Bus Stop Elements	-	-			-	-			-	-		
	Number of Midblock Traffic Lanes (both travel directions)	≤ 2				≤ 2				≤ 2			
	Score	**27.00**	**24.00**			**20.10**	**14.10**			**20.10**	**15.00**		
	PRLOS	**A**	**B**			**C**	**D**			**C**	**D**		
		A				**C**				**C**			

Multi-Modal Level of Service - Intersections Form

Project: 530 Brisebois Crescent and Part of 265 Centrum Boulevard
Consultant: Novatech Engineering Consultants Ltd.
Date: Apr 27, 2026
Scenario: Existing Conditions (AM Peak Hour)

	Intersection Name	Place d'Orléans Drive/Centrum Boulevard				St. Joseph Boulevard/Prestone Drive				Place d'Orléans Drive/HWY174 EB On-Ramp			
	OP Transect / Policy Area	Downtown Core, Inner Urban,Hub and/or Special District				Downtown Core, Inner Urban,Hub and/or Special District				Downtown Core, Inner Urban,Hub and/or Special District			
Pedestrian	PLOS Inputs												
	Pedestrians Crossing the	North Leg	South Leg	East Leg	West Leg	North Leg	South Leg	East Leg	West Leg	North Leg	South Leg	East Leg	West Leg
	Number of Travel Lanes Crossed	5	5	4	4	5	5	7	7	No Crosswalk	No Crosswalk	1-3	No Crosswalk
	Median Refuge (≥2.7m)	No	No	No	No	No	No	No	No	-	-	No	-
	Crosswalk Treatment	Zebra Stripe Hi-Vis Markings	Zebra Stripe Hi-Vis Markings	Std Transverse Markings	Std Transverse Markings	Std Transverse Markings	Std Transverse Markings	Std Transverse Markings	Std Transverse Markings	-	-	Std Transverse Markings	-
	Signal Cycle Length (sec)	75.0				80.0				80.5			
	Effective Walk Time (sec)	11.0	11.0	19.0	19.0	34.3	34.3	7.0	7.0	-	-	35.0	-
	Conflict with Right-Turn Vehicles (For PLOS & BLOS)	WBR	EBR	NBR	SBR	WBR	EBR	NBR	SBR	WBR	EBR	NBR	SBR
	Right-Turn Geometry	Conventional Right-Turn Channel	Conventional Right-Turn Channel	Right-Turn With No Channel	Right-Turn With No Channel	Conventional Right-Turn Channel	Conventional Right-Turn Channel	Conventional Right-Turn Channel	Conventional Right-Turn Channel	No Right-Turn / Prohib.	Conventional Right-Turn Channel	Conventional Right-Turn Channel	No Right-Turn / Prohib.
	Right-Turn Signal Phasing	-	-	Permissive	Permissive	-	-	-	-	-	-	-	-
	Right-Turn Volume	≤ 150 veh/h	≤ 150 veh/h	≤ 150 veh/h	≤ 150 veh/h	≤ 150 veh/h	≤ 150 veh/h	≤ 150 veh/h	≤ 150 veh/h	-	≤ 150 veh/h	≤ 150 veh/h	-
	Right-Turn Effective Corner Radius	-	-	> 8m	> 8m	-	-	-	-	-	-	-	-
	Cross-street Posted Speed (km/h)	40 km/h		60 km/h		60 km/h		40 km/h		60 km/h		80 km/h	
	Conflict with Left-Turn Vehicles (For PLOS & BLOS)	EBL	WBL	SBL	NBL	EBL	WBL	SBL	NBL	EBL	WBL	SBL	NBL
	Left-Turn Signal Phasing	Perm or Prot+Perm	Perm or Prot+Perm	Perm or Prot+Perm	Perm or Prot+Perm	Perm or Prot+Perm	Perm or Prot+Perm	Perm or Prot+Perm	Perm or Prot+Perm	No Left-Turn / Prohib.	No Left-Turn / Prohib.	No Left-Turn / Prohib.	Perm or Prot+Perm
	Left-Turn Volume	≤ 50 veh/h	≤ 50 veh/h	> 50 to 100 veh/h	> 50 to 100 veh/h	≤ 50 veh/h	≤ 50 veh/h	≤ 50 veh/h	> 100 veh/h	-	-	-	> 100 veh/h
	Left-Turn Opposing Lanes	-	-	≥ 2	≥ 2	-	-	-	-	-	-	-	-
	Score	2.85	2.85	3.50	3.50	2.95	2.95	1.45	1.25	-	-	4.15	-
	PLOS	C	C	B	B	C	C	E	E	-	-	B	-
		C				D				B			
	Target PLOS	A				A				A			
Bicycle	BLOS Inputs												
	Cycling Route Classification	Elsewhere				Cross-Town Bikeway				Elsewhere			
	Cyclists Crossing the	North Leg	South Leg	East Leg	West Leg	North Leg	South Leg	East Leg	West Leg	North Leg	South Leg	East Leg	West Leg
	Type of Cycling Facility Across Leg	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic			Mixed Traffic	
	Two-Way ADT (in Cyclist Travel Direction)	4,358		6,237		19,869		3,609				3,778	
	Floating Bike Lane or Right-Turn Lane Crossover Approaching the Crossing?	No	No	No	No	No	No	No	No			No	
	Crossride Operation	-	-	-	-	-	-	-	-			-	
	Target Crossride Setback Met?	-	-	-	-	-	-	-	-			-	
	Right-Turn Vehicle Volume from Adjacent Roadway > 100 veh/h?	-	-	-	-	-	-	-	-			-	
	Cyclist Left-Turn Operation	WBL	EBL	NBL	SBL	WBL	EBL	NBL	SBL	WBL	EBL	NBL	SBL
	Cyclist Left-Turn Treatment Type	General Purpose Through-Left or Single Left-Turn Lane	General Purpose Through-Left or Single Left-Turn Lane	General Purpose Through-Left or Single Left-Turn Lane	General Purpose Through-Left or Single Left-Turn Lane	General Purpose Through-Left or Single Left-Turn Lane	General Purpose Through-Left or Single Left-Turn Lane	General Purpose Through-Left or Single Left-Turn Lane	General Purpose Through-Left or Single Left-Turn Lane			No Left-Turn	
	Vehicle Lanes Crossed by Cyclists	One Lane Crossed	One Lane Crossed	One Lane Crossed	One Lane Crossed	Two or More Lanes Crossed	Two or More Lanes Crossed	One Lane Crossed	One Lane Crossed			-	
	Score	60	60	0	0	10	10	60	20	-	-	60	-
	BLOS	D	D	F	F	F	F	D	E	-	-	D	-
		E				E				D			
	Target BLOS	B				A				B			
Transit	TLOS Inputs												
	Transit Facility	Mixed Traffic				Mixed Traffic				Mixed Traffic			
	Vehicles Travelling	Southbound	Northbound	Westbound	Eastbound	Southbound	Northbound	Westbound	Eastbound	Southbound	Northbound	Westbound	Eastbound
	Average Transit Delay (if available)	≤ 10 sec	≤ 10 sec	11-20 sec		11-20 sec	21-35 sec	≤ 10 sec			≤ 10 sec		≤ 10 sec
	Example Transit Priority Treatment	-	-	-		-	-	-			-		-
	TLOS	A	A	B	-	B	C	A	-	-	A	-	A
		A				B				A			
	Target TLOS	E (D for frequent transit routes)				E (D for frequent transit routes)				E (D for frequent transit routes)			
Auto	AutoLOS Inputs												
	Overall Intersection Volume to Capacity Ratio	0 to 0.60				0 to 0.60				0 to 0.60			
	Individual Movements V/C Ratios and Queue Lengths	See Separate Traffic Operations Table				See Separate Traffic Operations Table				See Separate Traffic Operations Table			
	AutoLOS	A				A				A			
	Target AutoLOS	E				E				E			

Multi-Modal Level of Service - Intersections Form

Project: 530 Brisebois Crescent and Part of 265 Centrum Boulevard
Consultant: Novatech Engineering Consultants Ltd.
Date: Apr 27, 2026
Scenario: Existing Conditions (PM Peak Hour)

	Intersection Name	Place d'Orléans Drive/Centrum Boulevard				St. Joseph Boulevard/Prestone Drive				Place d'Orléans Drive/HWY174 EB On-Ramp			
	OP Transect / Policy Area	Downtown Core, Inner Urban,Hub and/or Special District				Downtown Core, Inner Urban,Hub and/or Special District				Downtown Core, Inner Urban,Hub and/or Special District			
Pedestrian	PLOS Inputs												
	Pedestrians Crossing the	North Leg	South Leg	East Leg	West Leg	North Leg	South Leg	East Leg	West Leg	North Leg	South Leg	East Leg	West Leg
	Number of Travel Lanes Crossed	5	5	4	4	5	5	7	7	No Crosswalk	No Crosswalk	1-3	No Crosswalk
	Median Refuge (≥2.7m)	No	No	No	No	No	No	No	No	-	-	No	-
	Crosswalk Treatment	Zebra Stripe Hi-Vis Markings	Zebra Stripe Hi-Vis Markings	Std Transverse Markings	Std Transverse Markings	Std Transverse Markings	Std Transverse Markings	Std Transverse Markings	Std Transverse Markings	-	-	Std Transverse Markings	-
	Signal Cycle Length (sec)	85.0				80.0				90.5			
	Effective Walk Time (sec)	11.0	11.0	29.0	29.0	34.3	34.3	7.0	7.0	-	-	35.0	-
	Conflict with Right-Turn Vehicles (For PLOS & BLOS)	WBR	EBR	NBR	SBR	WBR	EBR	NBR	SBR	WBR	EBR	NBR	SBR
	Right-Turn Geometry	Conventional Right-Turn Channel	Conventional Right-Turn Channel	Right-Turn With No Channel	Right-Turn With No Channel	Conventional Right-Turn Channel	Conventional Right-Turn Channel	Conventional Right-Turn Channel	Conventional Right-Turn Channel	No Right-Turn / Prohib.	Conventional Right-Turn Channel	Conventional Right-Turn Channel	No Right-Turn / Prohib.
	Right-Turn Signal Phasing	-	-	Permissive	Permissive	-	-	-	-	-	-	-	-
	Right-Turn Volume	≤ 150 veh/h	> 150 to 300 veh/h	≤ 150 veh/h	≤ 150 veh/h	≤ 150 veh/h	> 150 to 300 veh/h	≤ 150 veh/h	≤ 150 veh/h	-	> 150 to 300 veh/h	≤ 150 veh/h	-
	Right-Turn Effective Corner Radius	-	-	> 8m	> 8m	-	-	-	-	-	-	-	-
	Cross-street Posted Speed (km/h)	40 km/h		60 km/h		60 km/h		40 km/h		60 km/h		80 km/h	
	Conflict with Left-Turn Vehicles (For PLOS & BLOS)	EBL	WBL	SBL	NBL	EBL	WBL	SBL	NBL	EBL	WBL	SBL	NBL
	Left-Turn Signal Phasing	Perm or Prot+Perm	Perm or Prot+Perm	Perm or Prot+Perm	Perm or Prot+Perm	Perm or Prot+Perm	Perm or Prot+Perm	Perm or Prot+Perm	Perm or Prot+Perm	No Left-Turn / Prohib.	No Left-Turn / Prohib.	No Left-Turn / Prohib.	Perm or Prot+Perm
	Left-Turn Volume	> 50 to 100 veh/h	≤ 50 veh/h	> 100 veh/h	> 100 veh/h	≤ 50 veh/h	≤ 50 veh/h	> 100 veh/h	> 50 to 100 veh/h	-	-	-	> 100 veh/h
	Left-Turn Opposing Lanes	≤ 1	-	-	-	-	-	-	≤ 1	-	-	-	-
	Score	2.70	2.70	3.65	3.65	2.95	2.95	1.25	1.45	-	-	4.15	-
	PLOS	C	C	B	B	C	C	E	E	-	-	B	-
		C				D				B			
	Target PLOS	A				A				A			
Bicycle	BLOS Inputs												
	Cycling Route Classification	Elsewhere				Cross-Town Bikeway				Elsewhere			
	Cyclists Crossing the	North Leg	South Leg	East Leg	West Leg	North Leg	South Leg	East Leg	West Leg	North Leg	South Leg	East Leg	West Leg
	Type of Cycling Facility Across Leg	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Traffic			Mixed Traffic	
	Two-Way ADT (in Cyclist Travel Direction)	4,358		6,237		19,869		3,609				3,778	
	Floating Bike Lane or Right-Turn Lane Crossover Approaching the Crossing?	No	No	No	No	No	No	No	No			No	
	Crossride Operation	-	-	-	-	-	-	-	-			-	
	Target Crossride Setback Met?	-	-	-	-	-	-	-	-			-	
	Right-Turn Vehicle Volume from Adjacent Roadway > 100 veh/h?	-	-	-	-	-	-	-	-			-	
	Cyclist Left-Turn Operation	WBL	EBL	NBL	SBL	WBL	EBL	NBL	SBL	WBL	EBL	NBL	SBL
	Cyclist Left-Turn Treatment Type	General Purpose Through-Left or Single Left-Turn Lane	General Purpose Through-Left or Single Left-Turn Lane	General Purpose Through-Left or Single Left-Turn Lane	General Purpose Through-Left or Single Left-Turn Lane	General Purpose Through-Left or Single Left-Turn Lane	General Purpose Through-Left or Single Left-Turn Lane	General Purpose Through-Left or Single Left-Turn Lane	General Purpose Through-Left or Single Left-Turn Lane			No Left-Turn	
	Vehicle Lanes Crossed by Cyclists	One Lane Crossed	One Lane Crossed	One Lane Crossed	One Lane Crossed	Two or More Lanes Crossed	Two or More Lanes Crossed	One Lane Crossed	One Lane Crossed			-	
	Score	60	60	0	0	10	10	20	60	-	-	60	-
	BLOS	D	D	F	F	F	F	E	D	-	-	D	-
		E				E				D			
	Target BLOS	B				A				B			
Transit	TLOS Inputs												
	Transit Facility	Mixed Traffic				Mixed Traffic				Mixed Traffic			
	Vehicles Travelling	Southbound	Northbound	Westbound	Eastbound	Southbound	Northbound	Westbound	Eastbound	Southbound	Northbound	Westbound	Eastbound
	Average Transit Delay (if available)	≤ 10 sec	≤ 10 sec	11-20 sec		21-35 sec	21-35 sec	≤ 10 sec			≤ 10 sec		≤ 10 sec
	Example Transit Priority Treatment	-	-	-		-	-	-			-		-
	TLOS	A	A	B	-	C	C	A	-	-	A	-	A
		A				B				A			
	Target TLOS	E (D for frequent transit routes)				E (D for frequent transit routes)				E (D for frequent transit routes)			
Auto	AutoLOS Inputs												
	Overall Intersection Volume to Capacity Ratio	0 to 0.60				0 to 0.60				0 to 0.60			
	Individual Movements V/C Ratios and Queue Lengths	See Separate Traffic Operations Table				See Separate Traffic Operations Table				See Separate Traffic Operations Table			
	AutoLOS	A				A				A			
	Target AutoLOS	E				E				E			

APPENDIX N

Total Synchro Analysis

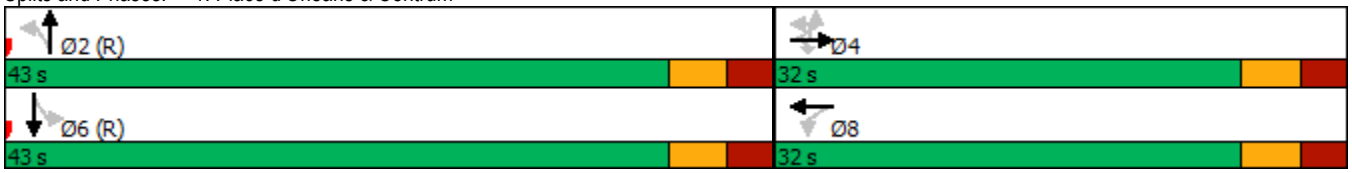
Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	1	28	25	40	78	31	221	83	174	97	159	40
Future Volume (vph)	1	28	25	40	78	31	221	83	174	97	159	40
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0		20.0	50.0		0.0	0.0		0.0	0.0	
Storage Lanes		1		1	1		0	0		0	0	
Taper Length (m)		10.0			20.0			10.0			10.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor		1.00		0.97	0.99	0.98			0.99			1.00
Frt				0.850		0.868			0.959			0.988
Flt Protected		0.950			0.950				0.988			0.965
Satd. Flow (prot)	0	1628	1861	1582	1768	1482	0	0	3228	0	0	3231
Flt Permitted		0.420			0.741				0.830			0.621
Satd. Flow (perm)	0	716	1861	1542	1361	1482	0	0	2712	0	0	2078
Right Turn on Red				Yes			Yes			Yes		
Satd. Flow (RTOR)				44		221			97			18
Link Speed (k/h)			30			40			60			60
Link Distance (m)			58.1			146.1			115.4			185.7
Travel Time (s)			7.0			13.1			6.9			11.1
Confl. Peds. (#/hr)		8		15	15		8	1		1	1	
Confl. Bikes (#/hr)							4					
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	10%	1%	1%	1%	1%	9%	1%	7%	2%	5%	8%
Adj. Flow (vph)	1	28	25	40	78	31	221	83	174	97	159	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	29	25	40	78	252	0	0	354	0	0	217
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA	Left	Left
Median Width(m)			6.0			6.0			0.0			0.0
Link Offset(m)			0.0			0.0			0.0			0.0
Crosswalk Width(m)			5.0			5.0			5.0			5.0
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	14	24		14	24		14	24		14	24	
Number of Detectors	1	1	2	1	1	2		1	2		1	2
Detector Template	Left	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru
Leading Detector (m)	2.0	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 1 Size(m)	2.0	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 2 Position(m)			9.4			9.4			9.4			9.4
Detector 2 Size(m)			0.6			0.6			0.6			0.6
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			0.0
Turn Type	Perm	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA
Protected Phases			4			8			2			6
Permitted Phases	4	4		4	8			2			6	
Detector Phase	4	4	4	4	8	8		2	2		6	6

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	18
Future Volume (vph)	18
Ideal Flow (vphpl)	1800
Storage Length (m)	0.0
Storage Lanes	0
Taper Length (m)	
Lane Util. Factor	0.95
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	Yes
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	1
Confl. Bikes (#/hr)	
Peak Hour Factor	1.00
Heavy Vehicles (%)	1%
Adj. Flow (vph)	18
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(m)	
Link Offset(m)	
Crosswalk Width(m)	
Two way Left Turn Lane	
Headway Factor	1.01
Turning Speed (k/h)	14
Number of Detectors	
Detector Template	
Leading Detector (m)	
Trailing Detector (m)	
Detector 1 Position(m)	
Detector 1 Size(m)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(m)	
Detector 2 Size(m)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0		10.0	10.0		10.0	10.0
Minimum Split (s)	31.0	31.0	31.0	31.0	31.0	31.0		36.0	36.0		36.0	36.0
Total Split (s)	32.0	32.0	32.0	32.0	32.0	32.0		43.0	43.0		43.0	43.0
Total Split (%)	42.7%	42.7%	42.7%	42.7%	42.7%	42.7%		57.3%	57.3%		57.3%	57.3%
Maximum Green (s)	26.0	26.0	26.0	26.0	26.0	26.0		37.0	37.0		37.0	37.0
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3		3.3	3.3		3.3	3.3
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7	2.7		2.7	2.7		2.7	2.7
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0			0.0			0.0
Total Lost Time (s)		6.0	6.0	6.0	6.0	6.0			6.0			6.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0
Recall Mode	None	None	None	None	None	None		C-Max	C-Max		C-Max	C-Max
Walk Time (s)	10.0	10.0	10.0	10.0	10.0	10.0		12.0	12.0		12.0	12.0
Flash Dont Walk (s)	15.0	15.0	15.0	15.0	15.0	15.0		18.0	18.0		18.0	18.0
Pedestrian Calls (#/hr)	5	5	5	5	5	5		5	5		5	5
Act Effct Green (s)		13.3	13.3	13.3	13.3	13.3			49.7			49.7
Actuated g/C Ratio		0.18	0.18	0.18	0.18	0.18			0.66			0.66
v/c Ratio		0.23	0.08	0.13	0.33	0.57			0.19			0.16
Control Delay		28.4	23.3	7.4	28.7	10.6			4.7			5.8
Queue Delay		0.0	0.0	0.0	0.0	0.0			0.0			0.0
Total Delay		28.4	23.3	7.4	28.7	10.6			4.7			5.8
LOS		C	C	A	C	B			A			A
Approach Delay			18.1			14.9			4.7			5.8
Approach LOS			B			B			A			A
Queue Length 50th (m)		3.5	2.9	0.0	9.5	3.6			4.6			3.6
Queue Length 95th (m)		7.8	6.6	5.1	15.6	16.3			15.4			12.4
Internal Link Dist (m)			34.1			122.1			91.4			161.7
Turn Bay Length (m)				20.0	50.0							
Base Capacity (vph)		248	645	563	471	658			1830			1383
Starvation Cap Reductn		0	0	0	0	0			0			0
Spillback Cap Reductn		0	0	0	0	0			0			0
Storage Cap Reductn		0	0	0	0	0			0			0
Reduced v/c Ratio		0.12	0.04	0.07	0.17	0.38			0.19			0.16

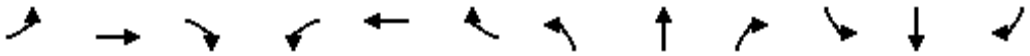
Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 75			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.57			
Intersection Signal Delay: 9.6		Intersection LOS: A	
Intersection Capacity Utilization 90.4%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 1: Place d'Orleans & Centrum



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

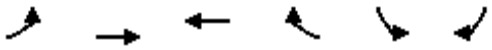


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	90	10	2	139	7	0	0	1	8	0	202
Future Volume (vph)	130	90	10	2	139	7	0	0	1	8	0	202
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.994			0.994			0.865			0.870	
Flt Protected		0.973			0.999						0.998	
Satd. Flow (prot)	0	1773	0	0	1815	0	0	813	0	0	1616	0
Flt Permitted		0.973			0.999						0.998	
Satd. Flow (perm)	0	1773	0	0	1815	0	0	813	0	0	1616	0
Link Speed (k/h)		40			40			30			50	
Link Distance (m)		146.1			240.1			67.4			116.9	
Travel Time (s)		13.1			21.6			8.1			8.4	
Confl. Peds. (#/hr)	8		9	9		8						
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 (%)	1%	5%	1%	1%	3%	1%	1%	1%	100%	1%	1%	1%
Adj. Flow (vph)	130	90	10	2	139	7	0	0	1	8	0	202
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	230	0	0	148	0	0	1	0	0	210	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)		4.0			4.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		5.0			5.0			5.0			5.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 53.1%		ICU Level of Service A	
Analysis Period (min) 15			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	30	48	160	33	59	126
Future Volume (vph)	30	48	160	33	59	126
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.917					0.850
Flt Protected				0.960	0.950	
Satd. Flow (prot)	1551	0	0	1775	1669	1582
Flt Permitted				0.960	0.950	
Satd. Flow (perm)	1551	0	0	1775	1669	1582
Link Speed (k/h)	40			40	40	
Link Distance (m)	240.1			132.6	112.3	
Travel Time (s)	21.6			11.9	10.1	
Confl. Peds. (#/hr)		7	7		4	6
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	5%	15%	1%	5%	7%	1%
Adj. Flow (vph)	30	48	160	33	59	126
Shared Lane Traffic (%)						
Lane Group Flow (vph)	78	0	0	193	59	126
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	R NA	L NA	Left	Left	Right
Median Width(m)	0.0			0.0	6.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	5.0			5.0	5.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		14	24		24	14
Sign Control	Stop			Stop	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 29.8%		ICU Level of Service A	
Analysis Period (min) 15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	111	19	26	1	0	141
Future Volume (vph)	111	19	26	1	0	141
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.995		0.865	
Flt Protected		0.959				
Satd. Flow (prot)	0	1685	1852	0	1610	0
Flt Permitted		0.959				
Satd. Flow (perm)	0	1685	1852	0	1610	0
Link Speed (k/h)		40	40		50	
Link Distance (m)		132.6	155.2		53.9	
Travel Time (s)		11.9	14.0		3.9	
Confl. Peds. (#/hr)	9			9		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	8%	1%	1%	1%	1%	1%
Adj. Flow (vph)	111	19	26	1	0	141
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	130	27	0	141	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		4.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		5.0	5.0		5.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 30.1%		ICU Level of Service A	
Analysis Period (min) 15			

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	26	362	33	1	9	1194	143	101	49	9	101	48
Future Volume (vph)	26	362	33	1	9	1194	143	101	49	9	101	48
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	60.0		120.0		45.0		120.0	50.0		0.0	0.0	
Storage Lanes	1		1		1		1	1		0	1	
Taper Length (m)	30.0				35.0			45.0			10.0	
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.97		1.00		0.99	1.00	1.00		1.00	0.99
Frt			0.850				0.850		0.977			0.923
Flt Protected	0.950				0.950			0.950			0.950	
Satd. Flow (prot)	1768	3468	1508	0	1637	3502	1522	1751	1666	0	1595	1447
Flt Permitted	0.205				0.536			0.693			0.719	
Satd. Flow (perm)	382	3468	1468	0	920	3502	1502	1275	1666	0	1205	1447
Right Turn on Red			Yes				Yes			Yes		
Satd. Flow (RTOR)			41				143		9			51
Link Speed (k/h)		50				60			40			40
Link Distance (m)		252.5				369.8			344.1			112.3
Travel Time (s)		18.2				22.2			31.0			10.1
Confl. Peds. (#/hr)	1		3		3		1	2		2	2	
Confl. Bikes (#/hr)										1		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	3%	6%	1%	10%	2%	5%	2%	10%	10%	12%	35%
Adj. Flow (vph)	26	362	33	1	9	1194	143	101	49	9	101	48
Shared Lane Traffic (%)												
Lane Group Flow (vph)	26	362	33	0	10	1194	143	101	58	0	101	99
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	L NA	Left	R NA	R NA	L NA	Left	R NA	L NA	Left	R NA	L NA	Left
Median Width(m)		6.0				6.0			4.0			6.0
Link Offset(m)		0.0				0.0			0.0			0.0
Crosswalk Width(m)		5.0				5.0			5.0			5.0
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24		14	14	24		14	24		14	24	
Number of Detectors	1	2	1	1	1	2	1	1	2		1	2
Detector Template	Left	Thru	Right	Left	Left	Thru	Right	Left	Thru		Left	Thru
Leading Detector (m)	2.0	10.0	2.0	2.0	2.0	10.0	2.0	2.0	10.0		2.0	10.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	2.0	0.6	2.0	2.0	0.6		2.0	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)		9.4				9.4			9.4			9.4
Detector 2 Size(m)		0.6				0.6			0.6			0.6
Detector 2 Type		Cl+Ex				Cl+Ex			Cl+Ex			Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0				0.0			0.0			0.0
Turn Type	Perm	NA	Perm	Perm	Perm	NA	Perm	Perm	NA		Perm	NA
Protected Phases		2				6			8			4
Permitted Phases	2		2	6	6		6	8			4	
Detector Phase	2	2	2	6	6	6	6	8	8		4	4

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	51
Future Volume (vph)	51
Ideal Flow (vphpl)	1800
Storage Length (m)	0.0
Storage Lanes	0
Taper Length (m)	
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	Yes
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	2
Confl. Bikes (#/hr)	
Peak Hour Factor	1.00
Heavy Vehicles (%)	4%
Adj. Flow (vph)	51
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Enter Blocked Intersection	No
Lane Alignment	R NA
Median Width(m)	
Link Offset(m)	
Crosswalk Width(m)	
Two way Left Turn Lane	
Headway Factor	1.01
Turning Speed (k/h)	14
Number of Detectors	
Detector Template	
Leading Detector (m)	
Trailing Detector (m)	
Detector 1 Position(m)	
Detector 1 Size(m)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(m)	
Detector 2 Size(m)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0		10.0	10.0
Minimum Split (s)	23.7	23.7	23.7	23.7	23.7	23.7	23.7	29.0	29.0		29.0	29.0
Total Split (s)	51.0	51.0	51.0	51.0	51.0	51.0	51.0	29.0	29.0		29.0	29.0
Total Split (%)	63.8%	63.8%	63.8%	63.8%	63.8%	63.8%	63.8%	36.3%	36.3%		36.3%	36.3%
Maximum Green (s)	45.3	45.3	45.3	45.3	45.3	45.3	45.3	23.0	23.0		23.0	23.0
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3		3.3	3.3
All-Red Time (s)	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.7	2.7		2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.7	5.7	5.7		5.7	5.7	5.7	6.0	6.0		6.0	6.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Recall Mode	Max	Max	Max	Max	Max	Max	Max	None	None		None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	16.0	16.0		16.0	16.0
Pedestrian Calls (#/hr)	5	5	5	5	5	5	5	5	5		5	5
Act Effct Green (s)	49.9	49.9	49.9		49.9	49.9	49.9	13.1	13.1		13.1	13.1
Actuated g/C Ratio	0.71	0.71	0.71		0.71	0.71	0.71	0.19	0.19		0.19	0.19
v/c Ratio	0.10	0.15	0.03		0.02	0.48	0.13	0.42	0.18		0.45	0.32
Control Delay	7.5	5.4	2.2		6.2	7.6	1.7	30.5	21.7		31.6	16.1
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	7.5	5.4	2.2		6.2	7.6	1.7	30.5	21.7		31.6	16.1
LOS	A	A	A		A	A	A	C	C		C	B
Approach Delay		5.3				6.9			27.3			24.0
Approach LOS		A				A			C			C
Queue Length 50th (m)	0.9	6.8	0.0		0.3	30.7	0.0	10.9	5.0		11.0	4.9
Queue Length 95th (m)	5.1	17.7	2.6		2.4	70.0	6.3	22.3	12.7		22.5	15.0
Internal Link Dist (m)		228.5				345.8			320.1			88.3
Turn Bay Length (m)	60.0		120.0		45.0		120.0	50.0				
Base Capacity (vph)	271	2466	1056		654	2491	1109	419	554		396	510
Starvation Cap Reductn	0	0	0		0	0	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0	0	0	0		0	0
Reduced v/c Ratio	0.10	0.15	0.03		0.02	0.48	0.13	0.24	0.10		0.26	0.19

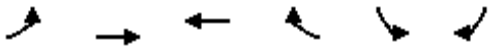
Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 70.2
Natural Cycle: 60
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.48
Intersection Signal Delay: 9.7 Intersection LOS: A
Intersection Capacity Utilization 57.6% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 5: Prestone & St. Joseph

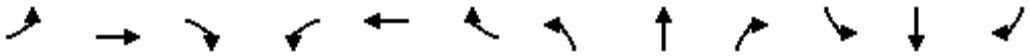
Lane Group	SBR
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Walk Time (s)	
Flash Dont Walk (s)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



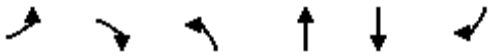
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	27	67	104	11	26	62
Future Volume (vph)	27	67	104	11	26	62
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.987		0.905	
Flt Protected		0.986			0.985	
Satd. Flow (prot)	0	1817	1819	0	1643	0
Flt Permitted		0.986			0.985	
Satd. Flow (perm)	0	1817	1819	0	1643	0
Link Speed (k/h)		50	50		30	
Link Distance (m)		128.6	157.6		54.1	
Travel Time (s)		9.3	11.3		6.5	
Confl. Peds. (#/hr)	10			10		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	27	67	104	11	26	62
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	94	115	0	88	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		4.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		0.0	0.0		5.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	97			97	97	97
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 24.2%		ICU Level of Service A	
Analysis Period (min) 15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	48	37	45	27	4	18	0	50	9	0	22
Future Volume (vph)	10	48	37	45	27	4	18	0	50	9	0	22
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	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.947			0.993			0.901			0.904	
Flt Protected		0.995			0.971			0.987			0.986	
Satd. Flow (prot)	0	1737	0	0	1777	0	0	1639	0	0	1643	0
Flt Permitted		0.995			0.971			0.987			0.986	
Satd. Flow (perm)	0	1737	0	0	1777	0	0	1639	0	0	1643	0
Link Speed (k/h)		50			50			30			30	
Link Distance (m)		157.6			37.2			41.9			54.8	
Travel Time (s)		11.3			2.7			5.0			6.6	
Confl. Peds. (#/hr)	10		10	10		10						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	10	48	37	45	27	4	18	0	50	9	0	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	95	0	0	76	0	0	68	0	0	31	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)		0.0			0.0			5.0			5.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	97		97	97		97	97		97	97		97
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 23.9%		ICU Level of Service A	
Analysis Period (min) 15			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	16	39	40	60	97	10
Future Volume (vph)	16	39	40	60	97	10
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.904				0.987	
Flt Protected	0.986			0.980		
Satd. Flow (prot)	1643	0	0	1806	1819	0
Flt Permitted	0.986			0.980		
Satd. Flow (perm)	1643	0	0	1806	1819	0
Link Speed (k/h)	30			50	50	
Link Distance (m)	51.9			53.9	38.7	
Travel Time (s)	6.2			3.9	2.8	
Confl. Peds. (#/hr)			10			10
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	16	39	40	60	97	10
Shared Lane Traffic (%)						
Lane Group Flow (vph)	55	0	0	100	107	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	4.0			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	5.0			0.0	0.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	97	97	97			97
Sign Control	Stop			Free	Free	

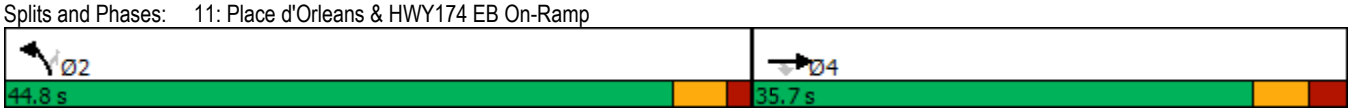
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 22.5%		ICU Level of Service A	
Analysis Period (min) 15			

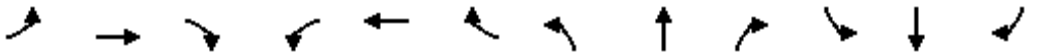
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	110	227	0	0	414	51
Future Volume (vph)	110	227	0	0	414	51
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0	0.0		0.0	30.0
Storage Lanes		2	0		2	1
Taper Length (m)			10.0		10.0	
Lane Util. Factor	1.00	0.88	1.00	1.00	0.97	1.00
Frt		0.850				0.850
Flt Protected					0.950	
Satd. Flow (prot)	1790	2653	0	0	3300	1567
Flt Permitted					0.950	
Satd. Flow (perm)	1790	2653	0	0	3300	1567
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		227				51
Link Speed (k/h)	50			50	60	
Link Distance (m)	181.8			197.4	237.3	
Travel Time (s)	13.1			14.2	14.2	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	5%	6%	2%	2%	5%	2%
Adj. Flow (vph)	110	227	0	0	414	51
Shared Lane Traffic (%)						
Lane Group Flow (vph)	110	227	0	0	414	51
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	8.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	5.0			5.0	5.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		97	97		97	97
Turn Type	NA	Perm			Prot	Perm
Protected Phases	4				2	
Permitted Phases		4				2
Detector Phase	4	4			2	2
Switch Phase						
Minimum Initial (s)	10.0	10.0			10.0	10.0
Minimum Split (s)	15.7	15.7			24.8	24.8
Total Split (s)	35.7	35.7			44.8	44.8
Total Split (%)	44.3%	44.3%			55.7%	55.7%
Maximum Green (s)	30.0	30.0			40.0	40.0
Yellow Time (s)	3.3	3.3			3.3	3.3
All-Red Time (s)	2.4	2.4			1.5	1.5
Lost Time Adjust (s)	0.0	0.0			0.0	0.0
Total Lost Time (s)	5.7	5.7			4.8	4.8
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0			3.0	3.0
Recall Mode	None	None			Min	Min
Walk Time (s)					15.0	15.0
Flash Dont Walk (s)					5.0	5.0
Pedestrian Calls (#/hr)					5	5
Act Effct Green (s)	10.1	10.1			12.7	12.7
Actuated g/C Ratio	0.30	0.30			0.38	0.38

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
v/c Ratio	0.20	0.24			0.33	0.08
Control Delay	10.7	3.0			8.0	2.7
Queue Delay	0.0	0.0			0.0	0.0
Total Delay	10.7	3.0			8.0	2.7
LOS	B	A			A	A
Approach Delay	5.5				7.4	
Approach LOS	A				A	
Queue Length 50th (m)	3.3	0.0			6.9	0.0
Queue Length 95th (m)	13.6	5.4			11.9	2.9
Internal Link Dist (m)	157.8			173.4	213.3	
Turn Bay Length (m)						30.0
Base Capacity (vph)	1623	2427			3292	1563
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	0.07	0.09			0.13	0.03

Intersection Summary			
Area Type:	Other		
Cycle Length: 80.5			
Actuated Cycle Length: 33.5			
Natural Cycle: 45			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.33			
Intersection Signal Delay: 6.6		Intersection LOS: A	
Intersection Capacity Utilization 29.6%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 11: Place d'Orleans & HWY174 EB On-Ramp





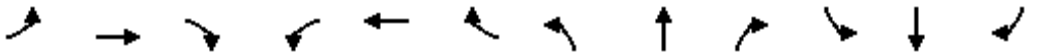
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	88	49	196	83	35	205	118	175	121	241	111	24
Future Volume (vph)	88	49	196	83	35	205	118	175	121	241	111	24
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		20.0	50.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		1	1		0	0		0	0		0
Taper Length (m)	10.0			20.0			10.0			10.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor	0.99		0.97	0.98	0.97			0.99			1.00	
Frt			0.850		0.872			0.956			0.990	
Flt Protected	0.950			0.950				0.986			0.969	
Satd. Flow (prot)	1768	1861	1582	1768	1456	0	0	3244	0	0	3188	0
Flt Permitted	0.410			0.725				0.741			0.615	
Satd. Flow (perm)	753	1861	1531	1328	1456	0	0	2436	0	0	2021	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			196		205			118			13	
Link Speed (k/h)		30			40			60			60	
Link Distance (m)		58.1			146.1			115.4			185.7	
Travel Time (s)		7.0			13.1			6.9			11.1	
Confl. Peds. (#/hr)	19		17	17		19	3		2	2		3
Confl. Bikes (#/hr)			5			1						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	1%	1%	1%	1%	11%	1%	6%	1%	9%	5%	1%
Adj. Flow (vph)	88	49	196	83	35	205	118	175	121	241	111	24
Shared Lane Traffic (%)												
Lane Group Flow (vph)	88	49	196	83	240	0	0	414	0	0	376	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA	Left	Left	Right
Median Width(m)		6.0			6.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		5.0			5.0			5.0			5.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	8	8		2	2		6	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	31.0	31.0	31.0	31.0	31.0		36.0	36.0		36.0	36.0	
Total Split (s)	32.0	32.0	32.0	32.0	32.0		53.0	53.0		53.0	53.0	
Total Split (%)	37.6%	37.6%	37.6%	37.6%	37.6%		62.4%	62.4%		62.4%	62.4%	
Maximum Green (s)	26.0	26.0	26.0	26.0	26.0		47.0	47.0		47.0	47.0	
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7		2.7	2.7		2.7	2.7	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0			0.0			0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	10.0	10.0	10.0	10.0	10.0		12.0	12.0		12.0	12.0	
Flash Dont Walk (s)	15.0	15.0	15.0	15.0	15.0		18.0	18.0		18.0	18.0	
Pedestrian Calls (#/hr)	5	5	5	5	5		5	5		5	5	
Act Effct Green (s)	14.7	14.7	14.7	14.7	14.7			58.3			58.3	
Actuated g/C Ratio	0.17	0.17	0.17	0.17	0.17			0.69			0.69	
v/c Ratio	0.68	0.15	0.46	0.36	0.57			0.24			0.27	
Control Delay	56.4	28.3	7.7	33.5	12.0			4.7			6.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0			0.0	
Total Delay	56.4	28.3	7.7	33.5	12.0			4.7			6.5	
LOS	E	C	A	C	B			A			A	
Approach Delay		23.6			17.5			4.7			6.5	
Approach LOS		C			B			A			A	
Queue Length 50th (m)	12.8	6.5	0.0	11.4	4.6			6.5			8.5	
Queue Length 95th (m)	22.9	12.5	13.1	19.5	19.2			17.7			21.8	
Internal Link Dist (m)		34.1			122.1			91.4			161.7	
Turn Bay Length (m)			20.0	50.0								
Base Capacity (vph)	230	569	604	406	587			1707			1389	
Starvation Cap Reductn	0	0	0	0	0			0			0	
Spillback Cap Reductn	0	0	0	0	0			0			0	
Storage Cap Reductn	0	0	0	0	0			0			0	
Reduced v/c Ratio	0.38	0.09	0.32	0.20	0.41			0.24			0.27	

Intersection Summary

Area Type: Other
Cycle Length: 85
Actuated Cycle Length: 85
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.68
Intersection Signal Delay: 12.4 Intersection LOS: B
Intersection Capacity Utilization 97.1% ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 1: Place d'Orleans & Centrum

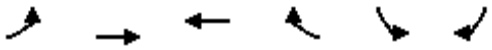


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	201	192	8	1	129	17	7	0	8	20	0	185
Future Volume (vph)	201	192	8	1	129	17	7	0	8	20	0	185
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.997			0.984			0.928			0.878	
Flt Protected		0.976						0.977			0.995	
Satd. Flow (prot)	0	1794	0	0	1770	0	0	1688	0	0	1626	0
Flt Permitted		0.976						0.977			0.995	
Satd. Flow (perm)	0	1794	0	0	1770	0	0	1688	0	0	1626	0
Link Speed (k/h)		40			40			30			50	
Link Distance (m)		146.1			240.1			67.4			116.9	
Travel Time (s)		13.1			21.6			8.1			8.4	
Confl. Peds. (#/hr)	23		19	19		23						
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 (%)	1%	3%	1%	1%	5%	1%	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	201	192	8	1	129	17	7	0	8	20	0	185
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	401	0	0	147	0	0	15	0	0	205	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)		4.0			4.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		5.0			5.0			5.0			5.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 57.5%		ICU Level of Service B	
Analysis Period (min) 15			

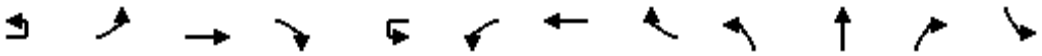
Lane Group	EBT	EBR	WBL	WBT	NBU	NBL	NBR
Lane Configurations							
Traffic Volume (vph)	54	121	166	30	1	86	168
Future Volume (vph)	54	121	166	30	1	86	168
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							
Frt	0.907						0.850
Flt Protected				0.959		0.950	
Satd. Flow (prot)	1622	0	0	1785	0	1611	1582
Flt Permitted				0.959		0.950	
Satd. Flow (perm)	1622	0	0	1785	0	1611	1582
Link Speed (k/h)	40			40		40	
Link Distance (m)	240.1			132.6		112.3	
Travel Time (s)	21.6			11.9		10.1	
Confl. Peds. (#/hr)		7	7			3	3
Confl. Bikes (#/hr)		1					
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	7%	1%	1%	1%	11%	1%
Adj. Flow (vph)	54	121	166	30	1	86	168
Shared Lane Traffic (%)							
Lane Group Flow (vph)	175	0	0	196	0	87	168
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	R NA	L NA	Left	R NA	Left	Right
Median Width(m)	0.0			0.0		6.0	
Link Offset(m)	0.0			0.0		0.0	
Crosswalk Width(m)	5.0			5.0		5.0	
Two way Left Turn Lane							
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		14	24		14	24	14
Sign Control	Stop			Stop		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 39.0%		ICU Level of Service A	
Analysis Period (min) 15			

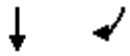


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	153	48	39	0	0	141
Future Volume (vph)	153	48	39	0	0	141
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt					0.865	
Flt Protected		0.963				
Satd. Flow (prot)	0	1793	1825	0	1610	0
Flt Permitted		0.963				
Satd. Flow (perm)	0	1793	1825	0	1610	0
Link Speed (k/h)		40	40		50	
Link Distance (m)		132.6	155.2		53.9	
Travel Time (s)		11.9	14.0		3.9	
Confl. Peds. (#/hr)	8			8		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	1%	3%	1%	1%	1%
Adj. Flow (vph)	153	48	39	0	0	141
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	201	39	0	141	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		4.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		5.0	5.0		5.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 34.2%		ICU Level of Service A	
Analysis Period (min) 15			



Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	1	56	1151	154	2	11	784	217	61	61	14	229
Future Volume (vph)	1	56	1151	154	2	11	784	217	61	61	14	229
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)		60.0		120.0		45.0		120.0	50.0		0.0	0.0
Storage Lanes		1		1		1		1	1		0	1
Taper Length (m)		30.0				35.0			45.0			10.0
Lane Util. Factor	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		0.98		1.00		0.99	1.00	1.00		1.00
Frt				0.850				0.850		0.972		
Flt Protected		0.950				0.950			0.950			0.950
Satd. Flow (prot)	0	1768	3537	1582	0	1768	3537	1551	1751	1696	0	1768
Flt Permitted		0.332				0.198			0.674			0.708
Satd. Flow (perm)	0	617	3537	1544	0	368	3537	1529	1239	1696	0	1317
Right Turn on Red				Yes				Yes			Yes	
Satd. Flow (RTOR)				154				217		14		
Link Speed (k/h)			50				60			40		
Link Distance (m)			252.5				369.8			344.1		
Travel Time (s)			18.2				22.2			31.0		
Confl. Peds. (#/hr)		2		2		2		2	3		1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	3%	2%	9%	1%	1%
Adj. Flow (vph)	1	56	1151	154	2	11	784	217	61	61	14	229
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	57	1151	154	0	13	784	217	61	75	0	229
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	L NA	Left	R NA	R NA	L NA	Left	R NA	L NA	Left	R NA	L NA
Median Width(m)			6.0				6.0			4.0		
Link Offset(m)			0.0				0.0			0.0		
Crosswalk Width(m)			5.0				5.0			5.0		
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	14	24		14	14	24		14	24		14	24
Number of Detectors	1	1	2	1	1	1	2	1	1	2		1
Detector Template	Left	Left	Thru	Right	Left	Left	Thru	Right	Left	Thru		Left
Leading Detector (m)	2.0	2.0	10.0	2.0	2.0	2.0	10.0	2.0	2.0	10.0		2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Detector 1 Size(m)	2.0	2.0	0.6	2.0	2.0	2.0	0.6	2.0	2.0	0.6		2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Detector 2 Position(m)			9.4				9.4			9.4		
Detector 2 Size(m)			0.6				0.6			0.6		
Detector 2 Type			Cl+Ex				Cl+Ex			Cl+Ex		
Detector 2 Channel												
Detector 2 Extend (s)			0.0				0.0			0.0		
Turn Type	Perm	Perm	NA	Perm	Perm	Perm	NA	Perm	Perm	NA		Perm
Protected Phases			2				6			8		
Permitted Phases	2	2		2	6	6		6	8			4
Detector Phase	2	2	2	2	6	6	6	6	8	8		4
Switch Phase												

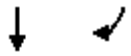


Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	90	40
Future Volume (vph)	90	40
Ideal Flow (vphpl)	1800	1800
Storage Length (m)		0.0
Storage Lanes		0
Taper Length (m)		
Lane Util. Factor	1.00	1.00
Ped Bike Factor	1.00	
Frt	0.954	
Flt Protected		
Satd. Flow (prot)	1687	0
Flt Permitted		
Satd. Flow (perm)	1687	0
Right Turn on Red		Yes
Satd. Flow (RTOR)	28	
Link Speed (k/h)	40	
Link Distance (m)	112.3	
Travel Time (s)	10.1	
Confl. Peds. (#/hr)		3
Peak Hour Factor	1.00	1.00
Heavy Vehicles (%)	8%	1%
Adj. Flow (vph)	90	40
Shared Lane Traffic (%)		
Lane Group Flow (vph)	130	0
Enter Blocked Intersection	No	No
Lane Alignment	Left	R NA
Median Width(m)	6.0	
Link Offset(m)	0.0	
Crosswalk Width(m)	5.0	
Two way Left Turn Lane		
Headway Factor	1.01	1.01
Turning Speed (k/h)		14
Number of Detectors	2	
Detector Template	Thru	
Leading Detector (m)	10.0	
Trailing Detector (m)	0.0	
Detector 1 Position(m)	0.0	
Detector 1 Size(m)	0.6	
Detector 1 Type	Cl+Ex	
Detector 1 Channel		
Detector 1 Extend (s)	0.0	
Detector 1 Queue (s)	0.0	
Detector 1 Delay (s)	0.0	
Detector 2 Position(m)	9.4	
Detector 2 Size(m)	0.6	
Detector 2 Type	Cl+Ex	
Detector 2 Channel		
Detector 2 Extend (s)	0.0	
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Detector Phase	4	
Switch Phase		

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0		10.0
Minimum Split (s)	23.7	23.7	23.7	23.7	23.7	23.7	23.7	23.7	29.0	29.0		29.0
Total Split (s)	51.0	51.0	51.0	51.0	51.0	51.0	51.0	51.0	29.0	29.0		29.0
Total Split (%)	63.8%	63.8%	63.8%	63.8%	63.8%	63.8%	63.8%	63.8%	36.3%	36.3%		36.3%
Maximum Green (s)	45.3	45.3	45.3	45.3	45.3	45.3	45.3	45.3	23.0	23.0		23.0
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3		3.3
All-Red Time (s)	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.7	2.7		2.7
Lost Time Adjust (s)		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)		5.7	5.7	5.7		5.7	5.7	5.7	6.0	6.0		6.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max	None	None		None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	16.0	16.0		16.0
Pedestrian Calls (#/hr)	5	5	5	5	5	5	5	5	5	5		5
Act Effct Green (s)		46.5	46.5	46.5		46.5	46.5	46.5	17.5	17.5		17.5
Actuated g/C Ratio		0.61	0.61	0.61		0.61	0.61	0.61	0.23	0.23		0.23
v/c Ratio		0.15	0.53	0.15		0.06	0.36	0.21	0.21	0.19		0.76
Control Delay		8.9	10.2	1.9		8.4	8.5	1.8	24.3	19.9		42.9
Queue Delay		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0
Total Delay		8.9	10.2	1.9		8.4	8.5	1.8	24.3	19.9		42.9
LOS		A	B	A		A	A	A	C	B		D
Approach Delay			9.2				7.1			21.9		
Approach LOS			A				A			C		
Queue Length 50th (m)		2.9	41.4	0.0		0.6	24.4	0.0	6.4	6.3		27.5
Queue Length 95th (m)		8.9	66.1	6.5		3.1	40.0	7.6	14.7	15.1		48.4
Internal Link Dist (m)			228.5				345.8			320.1		
Turn Bay Length (m)		60.0		120.0		45.0		120.0	50.0			
Base Capacity (vph)		379	2173	1008		226	2173	1023	377	526		400
Starvation Cap Reductn		0	0	0		0	0	0	0	0		0
Spillback Cap Reductn		0	0	0		0	0	0	0	0		0
Storage Cap Reductn		0	0	0		0	0	0	0	0		0
Reduced v/c Ratio		0.15	0.53	0.15		0.06	0.36	0.21	0.16	0.14		0.57

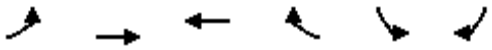
Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 75.7			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay: 12.2		Intersection LOS: B	
Intersection Capacity Utilization 83.5%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 5: Prestone & St. Joseph



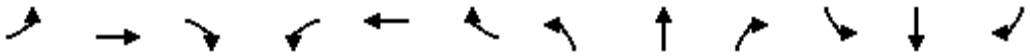
Lane Group	SBT	SBR
Minimum Initial (s)	10.0	
Minimum Split (s)	29.0	
Total Split (s)	29.0	
Total Split (%)	36.3%	
Maximum Green (s)	23.0	
Yellow Time (s)	3.3	
All-Red Time (s)	2.7	
Lost Time Adjust (s)	0.0	
Total Lost Time (s)	6.0	
Lead/Lag		
Lead-Lag Optimize?		
Vehicle Extension (s)	3.0	
Recall Mode	None	
Walk Time (s)	7.0	
Flash Dont Walk (s)	16.0	
Pedestrian Calls (#/hr)	5	
Act Effct Green (s)	17.5	
Actuated g/C Ratio	0.23	
v/c Ratio	0.32	
Control Delay	20.0	
Queue Delay	0.0	
Total Delay	20.0	
LOS	C	
Approach Delay	34.6	
Approach LOS	C	
Queue Length 50th (m)	10.8	
Queue Length 95th (m)	22.9	
Internal Link Dist (m)	88.3	
Turn Bay Length (m)		
Base Capacity (vph)	532	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.24	

Intersection Summary



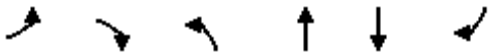
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	49	111	98	21	16	37
Future Volume (vph)	49	111	98	21	16	37
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.976		0.906	
Flt Protected		0.985			0.985	
Satd. Flow (prot)	0	1815	1799	0	1645	0
Flt Permitted		0.985			0.985	
Satd. Flow (perm)	0	1815	1799	0	1645	0
Link Speed (k/h)		50	50		30	
Link Distance (m)		128.6	157.6		54.1	
Travel Time (s)		9.3	11.3		6.5	
Confl. Peds. (#/hr)	10			10		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	49	111	98	21	16	37
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	160	119	0	53	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		4.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		0.0	0.0		5.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	97			97	97	97
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 25.7%		ICU Level of Service A	
Analysis Period (min) 15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	43	54	66	32	8	18	0	51	6	0	14
Future Volume (vph)	18	43	54	66	32	8	18	0	51	6	0	14
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	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.937			0.990			0.900			0.905	
Flt Protected		0.992			0.970			0.987			0.985	
Satd. Flow (prot)	0	1713	0	0	1770	0	0	1637	0	0	1643	0
Flt Permitted		0.992			0.970			0.987			0.985	
Satd. Flow (perm)	0	1713	0	0	1770	0	0	1637	0	0	1643	0
Link Speed (k/h)		50			50			30			30	
Link Distance (m)		157.6			37.2			41.9			54.8	
Travel Time (s)		11.3			2.7			5.0			6.6	
Confl. Peds. (#/hr)	10		10	10		10						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	18	43	54	66	32	8	18	0	51	6	0	14
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	115	0	0	106	0	0	69	0	0	20	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)		0.0			0.0			5.0			5.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	97		97	97		97	97		97	97		97
Sign Control		Free			Free			Stop			Stop	

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



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	11	40	50	95	85	15
Future Volume (vph)	11	40	50	95	85	15
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.894				0.980	
Flt Protected	0.989			0.983		
Satd. Flow (prot)	1630	0	0	1812	1806	0
Flt Permitted	0.989			0.983		
Satd. Flow (perm)	1630	0	0	1812	1806	0
Link Speed (k/h)	30			50	50	
Link Distance (m)	51.9			53.9	38.7	
Travel Time (s)	6.2			3.9	2.8	
Confl. Peds. (#/hr)			10			10
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	11	40	50	95	85	15
Shared Lane Traffic (%)						
Lane Group Flow (vph)	51	0	0	145	100	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	4.0			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	5.0			0.0	0.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	97	97	97			97
Sign Control	Stop			Free	Free	

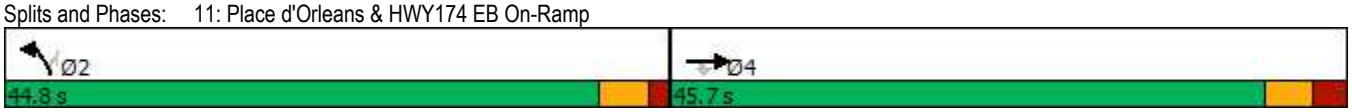
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 24.9%		ICU Level of Service A	
Analysis Period (min) 15			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	287	379	0	0	350	142
Future Volume (vph)	287	379	0	0	350	142
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0	0.0		0.0	30.0
Storage Lanes		2	0		2	1
Taper Length (m)			10.0		10.0	
Lane Util. Factor	1.00	0.88	1.00	1.00	0.97	1.00
Frt		0.850				0.850
Flt Protected					0.950	
Satd. Flow (prot)	1808	2731	0	0	3300	1567
Flt Permitted					0.950	
Satd. Flow (perm)	1808	2731	0	0	3300	1567
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		379				142
Link Speed (k/h)	50			50	60	
Link Distance (m)	181.8			197.4	237.3	
Travel Time (s)	13.1			14.2	14.2	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	4%	3%	2%	2%	5%	2%
Adj. Flow (vph)	287	379	0	0	350	142
Shared Lane Traffic (%)						
Lane Group Flow (vph)	287	379	0	0	350	142
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	8.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	5.0			5.0	5.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		97	97		97	97
Turn Type	NA	Perm			Prot	Perm
Protected Phases	4				2	
Permitted Phases		4				2
Detector Phase	4	4			2	2
Switch Phase						
Minimum Initial (s)	10.0	10.0			10.0	10.0
Minimum Split (s)	15.7	15.7			31.5	31.5
Total Split (s)	45.7	45.7			44.8	44.8
Total Split (%)	50.5%	50.5%			49.5%	49.5%
Maximum Green (s)	40.0	40.0			40.0	40.0
Yellow Time (s)	3.3	3.3			3.3	3.3
All-Red Time (s)	2.4	2.4			1.5	1.5
Lost Time Adjust (s)	0.0	0.0			0.0	0.0
Total Lost Time (s)	5.7	5.7			4.8	4.8
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0			3.0	3.0
Recall Mode	None	None			Min	Min
Walk Time (s)					15.0	15.0
Flash Dont Walk (s)					5.0	5.0
Pedestrian Calls (#/hr)					5	5
Act Effct Green (s)	11.9	11.9			11.7	11.7
Actuated g/C Ratio	0.34	0.34			0.34	0.34

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
v/c Ratio	0.46	0.32			0.31	0.23
Control Delay	12.1	2.3			9.5	3.2
Queue Delay	0.0	0.0			0.0	0.0
Total Delay	12.1	2.3			9.5	3.2
LOS	B	A			A	A
Approach Delay	6.5				7.7	
Approach LOS	A				A	
Queue Length 50th (m)	9.6	0.0			5.7	0.0
Queue Length 95th (m)	30.7	6.1			14.7	6.6
Internal Link Dist (m)	157.8			173.4	213.3	
Turn Bay Length (m)						30.0
Base Capacity (vph)	1747	2652			3189	1519
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	0.14			0.11	0.09

Intersection Summary			
Area Type:	Other		
Cycle Length: 90.5			
Actuated Cycle Length: 34.5			
Natural Cycle: 50			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.46			
Intersection Signal Delay: 7.0		Intersection LOS: A	
Intersection Capacity Utilization 35.2%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 11: Place d'Orleans & HWY174 EB On-Ramp



Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	1	28	25	40	78	31	221	83	174	97	159	40
Future Volume (vph)	1	28	25	40	78	31	221	83	174	97	159	40
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0		20.0	50.0		0.0	0.0		0.0	0.0	
Storage Lanes		1		1	1		0	0		0	0	
Taper Length (m)		10.0			20.0			10.0			10.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor		1.00		0.97	0.99	0.98			0.99			1.00
Frt				0.850		0.868			0.959			0.988
Flt Protected		0.950			0.950				0.988			0.965
Satd. Flow (prot)	0	1628	1861	1582	1768	1482	0	0	3228	0	0	3231
Flt Permitted		0.420			0.741				0.830			0.621
Satd. Flow (perm)	0	716	1861	1542	1361	1482	0	0	2712	0	0	2078
Right Turn on Red				Yes			Yes			Yes		
Satd. Flow (RTOR)				44		221			97			18
Link Speed (k/h)			30			40			60			60
Link Distance (m)			58.1			146.1			115.4			185.7
Travel Time (s)			7.0			13.1			6.9			11.1
Confl. Peds. (#/hr)		8		15	15		8	1		1	1	
Confl. Bikes (#/hr)							4					
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	10%	1%	1%	1%	1%	9%	1%	7%	2%	5%	8%
Adj. Flow (vph)	1	28	25	40	78	31	221	83	174	97	159	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	29	25	40	78	252	0	0	354	0	0	217
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA	Left	Left
Median Width(m)			6.0			6.0			0.0			0.0
Link Offset(m)			0.0			0.0			0.0			0.0
Crosswalk Width(m)			5.0			5.0			5.0			5.0
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	14	24		14	24		14	24		14	24	
Number of Detectors	1	1	2	1	1	2		1	2		1	2
Detector Template	Left	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru
Leading Detector (m)	2.0	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 1 Size(m)	2.0	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 2 Position(m)			9.4			9.4			9.4			9.4
Detector 2 Size(m)			0.6			0.6			0.6			0.6
Detector 2 Type			Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)			0.0			0.0			0.0			0.0
Turn Type	Perm	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA
Protected Phases			4			8			2			6
Permitted Phases	4	4		4	8			2			6	
Detector Phase	4	4	4	4	8	8		2	2		6	6

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	18
Future Volume (vph)	18
Ideal Flow (vphpl)	1800
Storage Length (m)	0.0
Storage Lanes	0
Taper Length (m)	
Lane Util. Factor	0.95
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	Yes
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	1
Confl. Bikes (#/hr)	
Peak Hour Factor	1.00
Heavy Vehicles (%)	1%
Adj. Flow (vph)	18
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Enter Blocked Intersection	No
Lane Alignment	Right
Median Width(m)	
Link Offset(m)	
Crosswalk Width(m)	
Two way Left Turn Lane	
Headway Factor	1.01
Turning Speed (k/h)	14
Number of Detectors	
Detector Template	
Leading Detector (m)	
Trailing Detector (m)	
Detector 1 Position(m)	
Detector 1 Size(m)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(m)	
Detector 2 Size(m)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	

Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0		10.0	10.0		10.0	10.0
Minimum Split (s)	31.0	31.0	31.0	31.0	31.0	31.0		36.0	36.0		36.0	36.0
Total Split (s)	32.0	32.0	32.0	32.0	32.0	32.0		43.0	43.0		43.0	43.0
Total Split (%)	42.7%	42.7%	42.7%	42.7%	42.7%	42.7%		57.3%	57.3%		57.3%	57.3%
Maximum Green (s)	26.0	26.0	26.0	26.0	26.0	26.0		37.0	37.0		37.0	37.0
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3		3.3	3.3		3.3	3.3
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7	2.7		2.7	2.7		2.7	2.7
Lost Time Adjust (s)		0.0	0.0	0.0	0.0	0.0			0.0			0.0
Total Lost Time (s)		6.0	6.0	6.0	6.0	6.0			6.0			6.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0
Recall Mode	None	None	None	None	None	None		C-Max	C-Max		C-Max	C-Max
Walk Time (s)	10.0	10.0	10.0	10.0	10.0	10.0		12.0	12.0		12.0	12.0
Flash Dont Walk (s)	15.0	15.0	15.0	15.0	15.0	15.0		18.0	18.0		18.0	18.0
Pedestrian Calls (#/hr)	5	5	5	5	5	5		5	5		5	5
Act Effct Green (s)		13.3	13.3	13.3	13.3	13.3			49.7			49.7
Actuated g/C Ratio		0.18	0.18	0.18	0.18	0.18			0.66			0.66
v/c Ratio		0.23	0.08	0.13	0.33	0.57			0.19			0.16
Control Delay		28.4	23.3	7.4	28.7	10.6			4.7			5.8
Queue Delay		0.0	0.0	0.0	0.0	0.0			0.0			0.0
Total Delay		28.4	23.3	7.4	28.7	10.6			4.7			5.8
LOS		C	C	A	C	B			A			A
Approach Delay			18.1			14.9			4.7			5.8
Approach LOS			B			B			A			A
Queue Length 50th (m)		3.5	2.9	0.0	9.5	3.6			4.6			3.6
Queue Length 95th (m)		7.8	6.6	5.1	15.6	16.3			15.4			12.4
Internal Link Dist (m)			34.1			122.1			91.4			161.7
Turn Bay Length (m)				20.0	50.0							
Base Capacity (vph)		248	645	563	471	658			1830			1383
Starvation Cap Reductn		0	0	0	0	0			0			0
Spillback Cap Reductn		0	0	0	0	0			0			0
Storage Cap Reductn		0	0	0	0	0			0			0
Reduced v/c Ratio		0.12	0.04	0.07	0.17	0.38			0.19			0.16

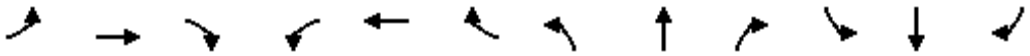
Intersection Summary

Area Type: Other
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.57
Intersection Signal Delay: 9.6 Intersection LOS: A
Intersection Capacity Utilization 90.4% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 1: Place d'Orleans & Centrum

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

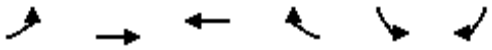


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	90	10	2	139	7	0	0	1	8	0	202
Future Volume (vph)	130	90	10	2	139	7	0	0	1	8	0	202
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.994			0.994			0.865			0.870	
Flt Protected		0.973			0.999						0.998	
Satd. Flow (prot)	0	1773	0	0	1815	0	0	813	0	0	1616	0
Flt Permitted		0.973			0.999						0.998	
Satd. Flow (perm)	0	1773	0	0	1815	0	0	813	0	0	1616	0
Link Speed (k/h)		40			40			30			50	
Link Distance (m)		146.1			240.1			67.4			116.9	
Travel Time (s)		13.1			21.6			8.1			8.4	
Confl. Peds. (#/hr)	8		9	9		8						
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 (%)	1%	5%	1%	1%	3%	1%	1%	1%	100%	1%	1%	1%
Adj. Flow (vph)	130	90	10	2	139	7	0	0	1	8	0	202
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	230	0	0	148	0	0	1	0	0	210	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)		4.0			4.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		5.0			5.0			5.0			5.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 53.1%		ICU Level of Service A	
Analysis Period (min) 15			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	30	48	160	33	59	126
Future Volume (vph)	30	48	160	33	59	126
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.917					0.850
Flt Protected				0.960	0.950	
Satd. Flow (prot)	1551	0	0	1775	1669	1582
Flt Permitted				0.960	0.950	
Satd. Flow (perm)	1551	0	0	1775	1669	1582
Link Speed (k/h)	40			40	40	
Link Distance (m)	240.1			132.6	112.3	
Travel Time (s)	21.6			11.9	10.1	
Confl. Peds. (#/hr)		7	7		4	6
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	5%	15%	1%	5%	7%	1%
Adj. Flow (vph)	30	48	160	33	59	126
Shared Lane Traffic (%)						
Lane Group Flow (vph)	78	0	0	193	59	126
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	R NA	L NA	Left	Left	Right
Median Width(m)	0.0			0.0	6.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	5.0			5.0	5.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		14	24		24	14
Sign Control	Stop			Stop	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 29.8%		ICU Level of Service A	
Analysis Period (min) 15			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	111	19	26	1	0	141
Future Volume (vph)	111	19	26	1	0	141
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.995		0.865	
Flt Protected		0.959				
Satd. Flow (prot)	0	1685	1852	0	1610	0
Flt Permitted		0.959				
Satd. Flow (perm)	0	1685	1852	0	1610	0
Link Speed (k/h)		40	40		50	
Link Distance (m)		132.6	155.2		53.9	
Travel Time (s)		11.9	14.0		3.9	
Confl. Peds. (#/hr)	9			9		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	8%	1%	1%	1%	1%	1%
Adj. Flow (vph)	111	19	26	1	0	141
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	130	27	0	141	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		4.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		5.0	5.0		5.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 30.1%		ICU Level of Service A	
Analysis Period (min) 15			

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	26	391	33	1	9	1292	143	101	49	9	101	48
Future Volume (vph)	26	391	33	1	9	1292	143	101	49	9	101	48
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	60.0		120.0		45.0		120.0	50.0		0.0	0.0	
Storage Lanes	1		1		1		1	1		0	1	
Taper Length (m)	30.0				35.0			45.0			10.0	
Lane Util. Factor	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.97		1.00		0.99	1.00	1.00		1.00	0.99
Frt			0.850				0.850		0.977			0.923
Flt Protected	0.950				0.950			0.950			0.950	
Satd. Flow (prot)	1768	3468	1508	0	1637	3502	1522	1751	1666	0	1595	1447
Flt Permitted	0.178				0.521			0.693			0.719	
Satd. Flow (perm)	331	3468	1468	0	894	3502	1502	1275	1666	0	1205	1447
Right Turn on Red			Yes				Yes			Yes		
Satd. Flow (RTOR)			41				143		9			51
Link Speed (k/h)		50				60			40			40
Link Distance (m)		252.5				369.8			344.1			112.3
Travel Time (s)		18.2				22.2			31.0			10.1
Confl. Peds. (#/hr)	1		3		3		1	2		2	2	
Confl. Bikes (#/hr)										1		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	3%	6%	1%	10%	2%	5%	2%	10%	10%	12%	35%
Adj. Flow (vph)	26	391	33	1	9	1292	143	101	49	9	101	48
Shared Lane Traffic (%)												
Lane Group Flow (vph)	26	391	33	0	10	1292	143	101	58	0	101	99
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	L NA	Left	R NA	R NA	L NA	Left	R NA	L NA	Left	R NA	L NA	Left
Median Width(m)		6.0				6.0			4.0			6.0
Link Offset(m)		0.0				0.0			0.0			0.0
Crosswalk Width(m)		5.0				5.0			5.0			5.0
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24		14	14	24		14	24		14	24	
Number of Detectors	1	2	1	1	1	2	1	1	2		1	2
Detector Template	Left	Thru	Right	Left	Left	Thru	Right	Left	Thru		Left	Thru
Leading Detector (m)	2.0	10.0	2.0	2.0	2.0	10.0	2.0	2.0	10.0		2.0	10.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	2.0	0.6	2.0	2.0	2.0	0.6	2.0	2.0	0.6		2.0	0.6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)		9.4				9.4			9.4			9.4
Detector 2 Size(m)		0.6				0.6			0.6			0.6
Detector 2 Type		Cl+Ex				Cl+Ex			Cl+Ex			Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0				0.0			0.0			0.0
Turn Type	Perm	NA	Perm	Perm	Perm	NA	Perm	Perm	NA		Perm	NA
Protected Phases		2				6			8			4
Permitted Phases	2		2	6	6		6	8			4	
Detector Phase	2	2	2	6	6	6	6	8	8		4	4

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	51
Future Volume (vph)	51
Ideal Flow (vphpl)	1800
Storage Length (m)	0.0
Storage Lanes	0
Taper Length (m)	
Lane Util. Factor	1.00
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	Yes
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	2
Confl. Bikes (#/hr)	
Peak Hour Factor	1.00
Heavy Vehicles (%)	4%
Adj. Flow (vph)	51
Shared Lane Traffic (%)	
Lane Group Flow (vph)	0
Enter Blocked Intersection	No
Lane Alignment	R NA
Median Width(m)	
Link Offset(m)	
Crosswalk Width(m)	
Two way Left Turn Lane	
Headway Factor	1.01
Turning Speed (k/h)	14
Number of Detectors	
Detector Template	
Leading Detector (m)	
Trailing Detector (m)	
Detector 1 Position(m)	
Detector 1 Size(m)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(m)	
Detector 2 Size(m)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0		10.0	10.0
Minimum Split (s)	23.7	23.7	23.7	23.7	23.7	23.7	23.7	29.0	29.0		29.0	29.0
Total Split (s)	51.0	51.0	51.0	51.0	51.0	51.0	51.0	29.0	29.0		29.0	29.0
Total Split (%)	63.8%	63.8%	63.8%	63.8%	63.8%	63.8%	63.8%	36.3%	36.3%		36.3%	36.3%
Maximum Green (s)	45.3	45.3	45.3	45.3	45.3	45.3	45.3	23.0	23.0		23.0	23.0
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3		3.3	3.3
All-Red Time (s)	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.7	2.7		2.7	2.7
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.7	5.7	5.7		5.7	5.7	5.7	6.0	6.0		6.0	6.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0
Recall Mode	Max	Max	Max	Max	Max	Max	Max	None	None		None	None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	16.0	16.0		16.0	16.0
Pedestrian Calls (#/hr)	5	5	5	5	5	5	5	5	5		5	5
Act Effct Green (s)	49.9	49.9	49.9		49.9	49.9	49.9	13.1	13.1		13.1	13.1
Actuated g/C Ratio	0.71	0.71	0.71		0.71	0.71	0.71	0.19	0.19		0.19	0.19
v/c Ratio	0.11	0.16	0.03		0.02	0.52	0.13	0.42	0.18		0.45	0.32
Control Delay	7.9	5.4	2.2		6.2	8.0	1.7	30.5	21.7		31.6	16.1
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	7.9	5.4	2.2		6.2	8.0	1.7	30.5	21.7		31.6	16.1
LOS	A	A	A		A	A	A	C	C		C	B
Approach Delay		5.3				7.4			27.3			24.0
Approach LOS		A				A			C			C
Queue Length 50th (m)	0.9	7.5	0.0		0.3	34.8	0.0	10.9	5.0		11.0	4.9
Queue Length 95th (m)	5.3	19.1	2.6		2.4	78.9	6.3	22.3	12.7		22.5	15.0
Internal Link Dist (m)		228.5				345.8			320.1			88.3
Turn Bay Length (m)	60.0		120.0		45.0		120.0	50.0				
Base Capacity (vph)	235	2466	1056		636	2491	1109	419	554		396	510
Starvation Cap Reductn	0	0	0		0	0	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0	0	0	0		0	0
Reduced v/c Ratio	0.11	0.16	0.03		0.02	0.52	0.13	0.24	0.10		0.26	0.19

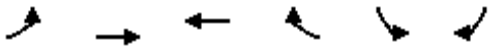
Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 70.2
Natural Cycle: 60
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.52
Intersection Signal Delay: 9.8 Intersection LOS: A
Intersection Capacity Utilization 60.4% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 5: Prestone & St. Joseph

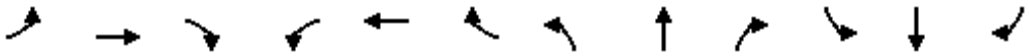
Lane Group	SBR
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Maximum Green (s)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	
Recall Mode	
Walk Time (s)	
Flash Dont Walk (s)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



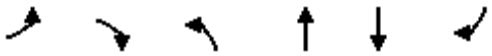
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	27	67	104	11	26	62
Future Volume (vph)	27	67	104	11	26	62
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.987		0.905	
Flt Protected		0.986			0.985	
Satd. Flow (prot)	0	1817	1819	0	1643	0
Flt Permitted		0.986			0.985	
Satd. Flow (perm)	0	1817	1819	0	1643	0
Link Speed (k/h)		50	50		30	
Link Distance (m)		128.6	157.6		54.1	
Travel Time (s)		9.3	11.3		6.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	27	67	104	11	26	62
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	94	115	0	88	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		4.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		0.0	0.0		5.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 24.2%		ICU Level of Service A	
Analysis Period (min) 15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	48	37	45	27	4	18	0	50	9	0	22
Future Volume (vph)	10	48	37	45	27	4	18	0	50	9	0	22
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	1.00	1.00	1.00
Frt		0.947			0.993			0.901			0.904	
Flt Protected		0.995			0.971			0.987			0.986	
Satd. Flow (prot)	0	1737	0	0	1777	0	0	1639	0	0	1643	0
Flt Permitted		0.995			0.971			0.987			0.986	
Satd. Flow (perm)	0	1737	0	0	1777	0	0	1639	0	0	1643	0
Link Speed (k/h)		50			50			30			30	
Link Distance (m)		157.6			37.2			41.9			54.8	
Travel Time (s)		11.3			2.7			5.0			6.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	10	48	37	45	27	4	18	0	50	9	0	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	95	0	0	76	0	0	68	0	0	31	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)		0.0			0.0			5.0			5.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 23.2%		ICU Level of Service A	
Analysis Period (min) 15			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	16	39	40	60	97	10
Future Volume (vph)	16	39	40	60	97	10
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.904				0.987	
Flt Protected	0.986			0.980		
Satd. Flow (prot)	1643	0	0	1806	1819	0
Flt Permitted	0.986			0.980		
Satd. Flow (perm)	1643	0	0	1806	1819	0
Link Speed (k/h)	30			50	50	
Link Distance (m)	51.9			53.9	38.7	
Travel Time (s)	6.2			3.9	2.8	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	16	39	40	60	97	10
Shared Lane Traffic (%)						
Lane Group Flow (vph)	55	0	0	100	107	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	4.0			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	5.0			0.0	0.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	

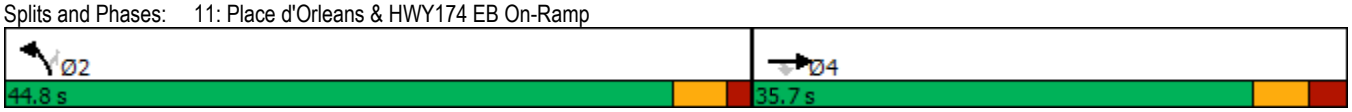
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 22.5%		ICU Level of Service A	
Analysis Period (min) 15			

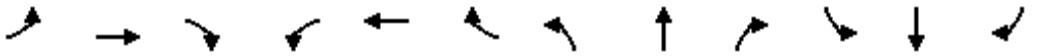
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	110	227	0	0	414	51
Future Volume (vph)	110	227	0	0	414	51
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0	0.0		0.0	30.0
Storage Lanes		2	0		2	1
Taper Length (m)			10.0		10.0	
Lane Util. Factor	1.00	0.88	1.00	1.00	0.97	1.00
Frt		0.850				0.850
Flt Protected					0.950	
Satd. Flow (prot)	1790	2653	0	0	3300	1567
Flt Permitted					0.950	
Satd. Flow (perm)	1790	2653	0	0	3300	1567
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		227				51
Link Speed (k/h)	60			50	60	
Link Distance (m)	181.8			197.4	237.3	
Travel Time (s)	10.9			14.2	14.2	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	5%	6%	2%	2%	5%	2%
Adj. Flow (vph)	110	227	0	0	414	51
Shared Lane Traffic (%)						
Lane Group Flow (vph)	110	227	0	0	414	51
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	8.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	5.0			5.0	5.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		14	24		24	14
Turn Type	NA	Perm			Prot	Perm
Protected Phases	4				2	
Permitted Phases		4				2
Detector Phase	4	4			2	2
Switch Phase						
Minimum Initial (s)	10.0	10.0			10.0	10.0
Minimum Split (s)	15.7	15.7			24.8	24.8
Total Split (s)	35.7	35.7			44.8	44.8
Total Split (%)	44.3%	44.3%			55.7%	55.7%
Maximum Green (s)	30.0	30.0			40.0	40.0
Yellow Time (s)	3.3	3.3			3.3	3.3
All-Red Time (s)	2.4	2.4			1.5	1.5
Lost Time Adjust (s)	0.0	0.0			0.0	0.0
Total Lost Time (s)	5.7	5.7			4.8	4.8
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0			3.0	3.0
Recall Mode	None	None			Min	Min
Walk Time (s)					15.0	15.0
Flash Dont Walk (s)					5.0	5.0
Pedestrian Calls (#/hr)					5	5
Act Effct Green (s)	10.1	10.1			12.7	12.7
Actuated g/C Ratio	0.30	0.30			0.38	0.38

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
v/c Ratio	0.20	0.24			0.33	0.08
Control Delay	10.7	3.0			8.0	2.7
Queue Delay	0.0	0.0			0.0	0.0
Total Delay	10.7	3.0			8.0	2.7
LOS	B	A			A	A
Approach Delay	5.5				7.4	
Approach LOS	A				A	
Queue Length 50th (m)	3.3	0.0			6.9	0.0
Queue Length 95th (m)	13.6	5.4			11.9	2.9
Internal Link Dist (m)	157.8			173.4	213.3	
Turn Bay Length (m)						30.0
Base Capacity (vph)	1623	2427			3292	1563
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	0.07	0.09			0.13	0.03

Intersection Summary			
Area Type:	Other		
Cycle Length: 80.5			
Actuated Cycle Length: 33.5			
Natural Cycle: 45			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.33			
Intersection Signal Delay: 6.6		Intersection LOS: A	
Intersection Capacity Utilization 29.6%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 11: Place d'Orleans & HWY174 EB On-Ramp





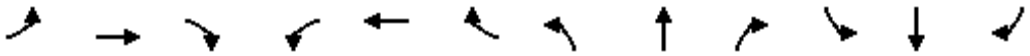
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	88	49	196	83	35	205	118	175	121	241	111	24
Future Volume (vph)	88	49	196	83	35	205	118	175	121	241	111	24
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		20.0	50.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		1	1		0	0		0	0		0
Taper Length (m)	10.0			20.0			10.0			10.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor	0.99		0.97	0.98	0.97			0.99			1.00	
Frt			0.850		0.872			0.956			0.990	
Flt Protected	0.950			0.950				0.986			0.969	
Satd. Flow (prot)	1768	1861	1582	1768	1456	0	0	3244	0	0	3188	0
Flt Permitted	0.410			0.725				0.741			0.615	
Satd. Flow (perm)	753	1861	1531	1328	1456	0	0	2436	0	0	2021	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			196		205			118			13	
Link Speed (k/h)		30			40			60			60	
Link Distance (m)		58.1			146.1			115.4			185.7	
Travel Time (s)		7.0			13.1			6.9			11.1	
Confl. Peds. (#/hr)	19		17	17		19	3		2	2		3
Confl. Bikes (#/hr)			5			1						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	1%	1%	1%	1%	11%	1%	6%	1%	9%	5%	1%
Adj. Flow (vph)	88	49	196	83	35	205	118	175	121	241	111	24
Shared Lane Traffic (%)												
Lane Group Flow (vph)	88	49	196	83	240	0	0	414	0	0	376	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA	Left	Left	Right
Median Width(m)		6.0			6.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		5.0			5.0			5.0			5.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	8	8		2	2		6	6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	31.0	31.0	31.0	31.0	31.0		36.0	36.0		36.0	36.0	
Total Split (s)	32.0	32.0	32.0	32.0	32.0		53.0	53.0		53.0	53.0	
Total Split (%)	37.6%	37.6%	37.6%	37.6%	37.6%		62.4%	62.4%		62.4%	62.4%	
Maximum Green (s)	26.0	26.0	26.0	26.0	26.0		47.0	47.0		47.0	47.0	
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7		2.7	2.7		2.7	2.7	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0			0.0			0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		C-Max	C-Max		C-Max	C-Max	
Walk Time (s)	10.0	10.0	10.0	10.0	10.0		12.0	12.0		12.0	12.0	
Flash Dont Walk (s)	15.0	15.0	15.0	15.0	15.0		18.0	18.0		18.0	18.0	
Pedestrian Calls (#/hr)	5	5	5	5	5		5	5		5	5	
Act Effct Green (s)	14.7	14.7	14.7	14.7	14.7			58.3			58.3	
Actuated g/C Ratio	0.17	0.17	0.17	0.17	0.17			0.69			0.69	
v/c Ratio	0.68	0.15	0.46	0.36	0.57			0.24			0.27	
Control Delay	56.4	28.3	7.7	33.5	12.0			4.7			6.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0			0.0			0.0	
Total Delay	56.4	28.3	7.7	33.5	12.0			4.7			6.5	
LOS	E	C	A	C	B			A			A	
Approach Delay		23.6			17.5			4.7			6.5	
Approach LOS		C			B			A			A	
Queue Length 50th (m)	12.8	6.5	0.0	11.4	4.6			6.5			8.5	
Queue Length 95th (m)	22.9	12.5	13.1	19.5	19.2			17.7			21.8	
Internal Link Dist (m)		34.1			122.1			91.4			161.7	
Turn Bay Length (m)			20.0	50.0								
Base Capacity (vph)	230	569	604	406	587			1707			1389	
Starvation Cap Reductn	0	0	0	0	0			0			0	
Spillback Cap Reductn	0	0	0	0	0			0			0	
Storage Cap Reductn	0	0	0	0	0			0			0	
Reduced v/c Ratio	0.38	0.09	0.32	0.20	0.41			0.24			0.27	

Intersection Summary

Area Type: Other
Cycle Length: 85
Actuated Cycle Length: 85
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.68
Intersection Signal Delay: 12.4 Intersection LOS: B
Intersection Capacity Utilization 97.1% ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 1: Place d'Orleans & Centrum

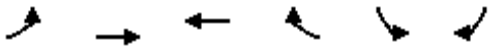


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	201	192	8	1	129	17	7	0	8	20	0	185
Future Volume (vph)	201	192	8	1	129	17	7	0	8	20	0	185
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.997			0.984			0.928			0.878	
Flt Protected		0.976						0.977			0.995	
Satd. Flow (prot)	0	1794	0	0	1770	0	0	1688	0	0	1626	0
Flt Permitted		0.976						0.977			0.995	
Satd. Flow (perm)	0	1794	0	0	1770	0	0	1688	0	0	1626	0
Link Speed (k/h)		40			40			30			50	
Link Distance (m)		146.1			240.1			67.4			116.9	
Travel Time (s)		13.1			21.6			8.1			8.4	
Confl. Peds. (#/hr)	23		19	19		23						
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 (%)	1%	3%	1%	1%	5%	1%	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	201	192	8	1	129	17	7	0	8	20	0	185
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	401	0	0	147	0	0	15	0	0	205	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)		4.0			4.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		5.0			5.0			5.0			5.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 57.5%		ICU Level of Service B	
Analysis Period (min) 15			

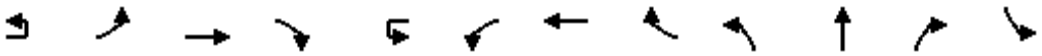
Lane Group	EBT	EBR	WBL	WBT	NBU	NBL	NBR
Lane Configurations							
Traffic Volume (vph)	54	121	166	30	1	86	168
Future Volume (vph)	54	121	166	30	1	86	168
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							
Frt	0.907						0.850
Flt Protected				0.959		0.950	
Satd. Flow (prot)	1622	0	0	1785	0	1611	1582
Flt Permitted				0.959		0.950	
Satd. Flow (perm)	1622	0	0	1785	0	1611	1582
Link Speed (k/h)	40			40		40	
Link Distance (m)	240.1			132.6		112.3	
Travel Time (s)	21.6			11.9		10.1	
Confl. Peds. (#/hr)		7	7			3	3
Confl. Bikes (#/hr)		1					
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	7%	1%	1%	1%	11%	1%
Adj. Flow (vph)	54	121	166	30	1	86	168
Shared Lane Traffic (%)							
Lane Group Flow (vph)	175	0	0	196	0	87	168
Enter Blocked Intersection	No	No	No	No	No	No	No
Lane Alignment	Left	R NA	L NA	Left	R NA	Left	Right
Median Width(m)	0.0			0.0		6.0	
Link Offset(m)	0.0			0.0		0.0	
Crosswalk Width(m)	5.0			5.0		5.0	
Two way Left Turn Lane							
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		14	24		14	24	14
Sign Control	Stop			Stop		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 39.0%		ICU Level of Service A	
Analysis Period (min) 15			

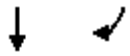


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	153	48	39	0	0	141
Future Volume (vph)	153	48	39	0	0	141
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt					0.865	
Flt Protected		0.963				
Satd. Flow (prot)	0	1793	1825	0	1610	0
Flt Permitted		0.963				
Satd. Flow (perm)	0	1793	1825	0	1610	0
Link Speed (k/h)		40	40		50	
Link Distance (m)		132.6	155.2		53.9	
Travel Time (s)		11.9	14.0		3.9	
Confl. Peds. (#/hr)	8			8		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	1%	3%	1%	1%	1%
Adj. Flow (vph)	153	48	39	0	0	141
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	201	39	0	141	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		4.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		5.0	5.0		5.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 34.2%		ICU Level of Service A	
Analysis Period (min) 15			



Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	1	56	1246	154	2	11	848	217	61	61	14	229
Future Volume (vph)	1	56	1246	154	2	11	848	217	61	61	14	229
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)		60.0		120.0		45.0		120.0	50.0		0.0	0.0
Storage Lanes		1		1		1		1	1		0	1
Taper Length (m)		30.0				35.0			45.0			10.0
Lane Util. Factor	0.95	1.00	0.95	1.00	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		0.98		1.00		0.99	1.00	1.00		1.00
Frt				0.850				0.850		0.972		
Flt Protected		0.950				0.950			0.950			0.950
Satd. Flow (prot)	0	1768	3537	1582	0	1768	3537	1551	1751	1696	0	1768
Flt Permitted		0.305				0.171			0.674			0.708
Satd. Flow (perm)	0	567	3537	1544	0	318	3537	1529	1239	1696	0	1317
Right Turn on Red				Yes				Yes			Yes	
Satd. Flow (RTOR)				154				217		14		
Link Speed (k/h)			50				60			40		
Link Distance (m)			252.5				369.8			344.1		
Travel Time (s)			18.2				22.2			31.0		
Confl. Peds. (#/hr)		2		2		2		2	3		1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	3%	2%	9%	1%	1%
Adj. Flow (vph)	1	56	1246	154	2	11	848	217	61	61	14	229
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	57	1246	154	0	13	848	217	61	75	0	229
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	R NA	L NA	Left	R NA	R NA	L NA	Left	R NA	L NA	Left	R NA	L NA
Median Width(m)			6.0				6.0			4.0		
Link Offset(m)			0.0				0.0			0.0		
Crosswalk Width(m)			5.0				5.0			5.0		
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	14	24		14	14	24		14	24		14	24
Number of Detectors	1	1	2	1	1	1	2	1	1	2		1
Detector Template	Left	Left	Thru	Right	Left	Left	Thru	Right	Left	Thru		Left
Leading Detector (m)	2.0	2.0	10.0	2.0	2.0	2.0	10.0	2.0	2.0	10.0		2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Detector 1 Size(m)	2.0	2.0	0.6	2.0	2.0	2.0	0.6	2.0	2.0	0.6		2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Detector 2 Position(m)			9.4				9.4			9.4		
Detector 2 Size(m)			0.6				0.6			0.6		
Detector 2 Type			Cl+Ex				Cl+Ex			Cl+Ex		
Detector 2 Channel												
Detector 2 Extend (s)			0.0				0.0			0.0		
Turn Type	Perm	Perm	NA	Perm	Perm	Perm	NA	Perm	Perm	NA		Perm
Protected Phases			2				6			8		
Permitted Phases	2	2		2	6	6		6	8			4
Detector Phase	2	2	2	2	6	6	6	6	8	8		4
Switch Phase												

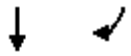


Lane Group	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	90	40
Future Volume (vph)	90	40
Ideal Flow (vphpl)	1800	1800
Storage Length (m)		0.0
Storage Lanes		0
Taper Length (m)		
Lane Util. Factor	1.00	1.00
Ped Bike Factor	1.00	
Frt	0.954	
Flt Protected		
Satd. Flow (prot)	1687	0
Flt Permitted		
Satd. Flow (perm)	1687	0
Right Turn on Red		Yes
Satd. Flow (RTOR)	28	
Link Speed (k/h)	40	
Link Distance (m)	112.3	
Travel Time (s)	10.1	
Confl. Peds. (#/hr)		3
Peak Hour Factor	1.00	1.00
Heavy Vehicles (%)	8%	1%
Adj. Flow (vph)	90	40
Shared Lane Traffic (%)		
Lane Group Flow (vph)	130	0
Enter Blocked Intersection	No	No
Lane Alignment	Left	R NA
Median Width(m)	6.0	
Link Offset(m)	0.0	
Crosswalk Width(m)	5.0	
Two way Left Turn Lane		
Headway Factor	1.01	1.01
Turning Speed (k/h)		14
Number of Detectors	2	
Detector Template	Thru	
Leading Detector (m)	10.0	
Trailing Detector (m)	0.0	
Detector 1 Position(m)	0.0	
Detector 1 Size(m)	0.6	
Detector 1 Type	Cl+Ex	
Detector 1 Channel		
Detector 1 Extend (s)	0.0	
Detector 1 Queue (s)	0.0	
Detector 1 Delay (s)	0.0	
Detector 2 Position(m)	9.4	
Detector 2 Size(m)	0.6	
Detector 2 Type	Cl+Ex	
Detector 2 Channel		
Detector 2 Extend (s)	0.0	
Turn Type	NA	
Protected Phases	4	
Permitted Phases		
Detector Phase	4	
Switch Phase		

Lane Group	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0		10.0
Minimum Split (s)	23.7	23.7	23.7	23.7	23.7	23.7	23.7	23.7	29.0	29.0		29.0
Total Split (s)	51.0	51.0	51.0	51.0	51.0	51.0	51.0	51.0	29.0	29.0		29.0
Total Split (%)	63.8%	63.8%	63.8%	63.8%	63.8%	63.8%	63.8%	63.8%	36.3%	36.3%		36.3%
Maximum Green (s)	45.3	45.3	45.3	45.3	45.3	45.3	45.3	45.3	23.0	23.0		23.0
Yellow Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3		3.3
All-Red Time (s)	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.7	2.7		2.7
Lost Time Adjust (s)		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)		5.7	5.7	5.7		5.7	5.7	5.7	6.0	6.0		6.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max	None	None		None
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	16.0	16.0		16.0
Pedestrian Calls (#/hr)	5	5	5	5	5	5	5	5	5	5		5
Act Effct Green (s)		46.5	46.5	46.5		46.5	46.5	46.5	17.5	17.5		17.5
Actuated g/C Ratio		0.61	0.61	0.61		0.61	0.61	0.61	0.23	0.23		0.23
v/c Ratio		0.16	0.57	0.15		0.07	0.39	0.21	0.21	0.19		0.76
Control Delay		9.2	10.8	1.9		8.7	8.7	1.8	24.3	19.9		42.9
Queue Delay		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0
Total Delay		9.2	10.8	1.9		8.7	8.7	1.8	24.3	19.9		42.9
LOS		A	B	A		A	A	A	C	B		D
Approach Delay			9.8				7.3			21.9		
Approach LOS			A				A			C		
Queue Length 50th (m)		2.9	46.7	0.0		0.6	27.0	0.0	6.4	6.3		27.5
Queue Length 95th (m)		9.1	74.2	6.5		3.2	44.0	7.6	14.7	15.1		48.4
Internal Link Dist (m)			228.5				345.8			320.1		
Turn Bay Length (m)		60.0		120.0		45.0		120.0	50.0			
Base Capacity (vph)		348	2173	1008		195	2173	1023	377	526		400
Starvation Cap Reductn		0	0	0		0	0	0	0	0		0
Spillback Cap Reductn		0	0	0		0	0	0	0	0		0
Storage Cap Reductn		0	0	0		0	0	0	0	0		0
Reduced v/c Ratio		0.16	0.57	0.15		0.07	0.39	0.21	0.16	0.14		0.57

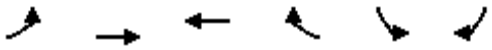
Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 75.7			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay: 12.4		Intersection LOS: B	
Intersection Capacity Utilization 86.3%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 5: Prestone & St. Joseph



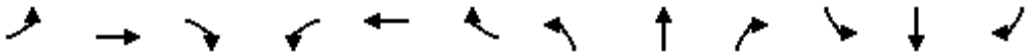
Lane Group	SBT	SBR
Minimum Initial (s)	10.0	
Minimum Split (s)	29.0	
Total Split (s)	29.0	
Total Split (%)	36.3%	
Maximum Green (s)	23.0	
Yellow Time (s)	3.3	
All-Red Time (s)	2.7	
Lost Time Adjust (s)	0.0	
Total Lost Time (s)	6.0	
Lead/Lag		
Lead-Lag Optimize?		
Vehicle Extension (s)	3.0	
Recall Mode	None	
Walk Time (s)	7.0	
Flash Dont Walk (s)	16.0	
Pedestrian Calls (#/hr)	5	
Act Effct Green (s)	17.5	
Actuated g/C Ratio	0.23	
v/c Ratio	0.32	
Control Delay	20.0	
Queue Delay	0.0	
Total Delay	20.0	
LOS	C	
Approach Delay	34.6	
Approach LOS	C	
Queue Length 50th (m)	10.8	
Queue Length 95th (m)	22.9	
Internal Link Dist (m)	88.3	
Turn Bay Length (m)		
Base Capacity (vph)	532	
Starvation Cap Reductn	0	
Spillback Cap Reductn	0	
Storage Cap Reductn	0	
Reduced v/c Ratio	0.24	

Intersection Summary



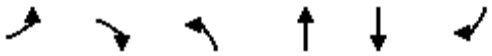
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	49	111	98	21	16	37
Future Volume (vph)	49	111	98	21	16	37
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.976		0.906	
Flt Protected		0.985			0.985	
Satd. Flow (prot)	0	1815	1799	0	1645	0
Flt Permitted		0.985			0.985	
Satd. Flow (perm)	0	1815	1799	0	1645	0
Link Speed (k/h)		50	50		30	
Link Distance (m)		128.6	157.6		54.1	
Travel Time (s)		9.3	11.3		6.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	49	111	98	21	16	37
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	160	119	0	53	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		0.0	0.0		4.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		0.0	0.0		5.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	97			97	97	97
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 25.7%		ICU Level of Service A	
Analysis Period (min) 15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	43	54	66	32	8	18	0	51	6	0	14
Future Volume (vph)	18	43	54	66	32	8	18	0	51	6	0	14
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	1.00	1.00	1.00
Frt		0.937			0.990			0.900			0.905	
Flt Protected		0.992			0.970			0.987			0.985	
Satd. Flow (prot)	0	1713	0	0	1770	0	0	1637	0	0	1643	0
Flt Permitted		0.992			0.970			0.987			0.985	
Satd. Flow (perm)	0	1713	0	0	1770	0	0	1637	0	0	1643	0
Link Speed (k/h)		50			50			30			30	
Link Distance (m)		157.6			37.2			41.9			54.8	
Travel Time (s)		11.3			2.7			5.0			6.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	18	43	54	66	32	8	18	0	51	6	0	14
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	115	0	0	106	0	0	69	0	0	20	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)		0.0			0.0			5.0			5.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	97		97	97		97	97		97	97		97
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 25.0%		ICU Level of Service A	
Analysis Period (min) 15			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	11	40	50	95	85	15
Future Volume (vph)	11	40	50	95	85	15
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.894				0.980	
Flt Protected	0.989			0.983		
Satd. Flow (prot)	1630	0	0	1812	1806	0
Flt Permitted	0.989			0.983		
Satd. Flow (perm)	1630	0	0	1812	1806	0
Link Speed (k/h)	30			50	50	
Link Distance (m)	51.9			53.9	38.7	
Travel Time (s)	6.2			3.9	2.8	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	11	40	50	95	85	15
Shared Lane Traffic (%)						
Lane Group Flow (vph)	51	0	0	145	100	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	4.0			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	5.0			0.0	0.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	97	97	97			97
Sign Control	Stop			Free	Free	

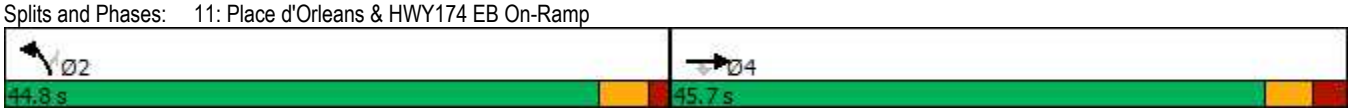
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 24.9%		ICU Level of Service A	
Analysis Period (min) 15			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	287	379	0	0	350	142
Future Volume (vph)	287	379	0	0	350	142
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0	0.0		0.0	30.0
Storage Lanes		2	0		2	1
Taper Length (m)			10.0		10.0	
Lane Util. Factor	1.00	0.88	1.00	1.00	0.97	1.00
Frt		0.850				0.850
Flt Protected					0.950	
Satd. Flow (prot)	1808	2731	0	0	3300	1567
Flt Permitted					0.950	
Satd. Flow (perm)	1808	2731	0	0	3300	1567
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		379				142
Link Speed (k/h)	60			50	60	
Link Distance (m)	181.8			197.4	237.3	
Travel Time (s)	10.9			14.2	14.2	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	4%	3%	2%	2%	5%	2%
Adj. Flow (vph)	287	379	0	0	350	142
Shared Lane Traffic (%)						
Lane Group Flow (vph)	287	379	0	0	350	142
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	8.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	5.0			5.0	5.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)		97	97		97	97
Turn Type	NA	Perm			Prot	Perm
Protected Phases	4				2	
Permitted Phases		4				2
Detector Phase	4	4			2	2
Switch Phase						
Minimum Initial (s)	10.0	10.0			10.0	10.0
Minimum Split (s)	15.7	15.7			24.8	24.8
Total Split (s)	45.7	45.7			44.8	44.8
Total Split (%)	50.5%	50.5%			49.5%	49.5%
Maximum Green (s)	40.0	40.0			40.0	40.0
Yellow Time (s)	3.3	3.3			3.3	3.3
All-Red Time (s)	2.4	2.4			1.5	1.5
Lost Time Adjust (s)	0.0	0.0			0.0	0.0
Total Lost Time (s)	5.7	5.7			4.8	4.8
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0			3.0	3.0
Recall Mode	None	None			Min	Min
Walk Time (s)					15.0	15.0
Flash Dont Walk (s)					5.0	5.0
Pedestrian Calls (#/hr)					5	5
Act Effct Green (s)	11.9	11.9			11.7	11.7
Actuated g/C Ratio	0.34	0.34			0.34	0.34

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
v/c Ratio	0.46	0.32			0.31	0.23
Control Delay	12.1	2.3			9.5	3.2
Queue Delay	0.0	0.0			0.0	0.0
Total Delay	12.1	2.3			9.5	3.2
LOS	B	A			A	A
Approach Delay	6.5				7.7	
Approach LOS	A				A	
Queue Length 50th (m)	9.6	0.0			5.7	0.0
Queue Length 95th (m)	30.7	6.1			14.7	6.6
Internal Link Dist (m)	157.8			173.4	213.3	
Turn Bay Length (m)						30.0
Base Capacity (vph)	1747	2652			3189	1519
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	0.14			0.11	0.09

Intersection Summary			
Area Type:	Other		
Cycle Length: 90.5			
Actuated Cycle Length: 34.5			
Natural Cycle: 45			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.46			
Intersection Signal Delay: 7.0		Intersection LOS: A	
Intersection Capacity Utilization 35.2%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 11: Place d'Orleans & HWY174 EB On-Ramp



APPENDIX O

Signalization Warrants

NOVATECH
Engineers, Planners & Landscape Architects

TRAFFIC SIGNAL JUSTIFICATION
USING PROJECTED VOLUMES

LOCATION: **Centrum Boulevard** **at** **Brisebois Crescent (West)**

YEAR: **2040 (Total Conditions)**

JUSTIFICATION	DESCRIPTION	MINIMUM REQUIREMENT		COMPLIANCE		
		FREE FLOW	RESTRICTED FLOW	SECTIONAL		ENTIRE % (2)
		OPERATING SPEED ≥ 70KM/H	**OPERATING SPEED < 70 KM/H**	NUMERICAL	PERCENT	
1. MINIMUM VEHICULAR WARRANT	A. Vehicle volume, all approaches (average hour)	480 600 (2 or more lane approach)	**720** **900 (2 or more lane approach)**	339	47%	47%
	B. Vehicle volume along minor street (average hour)	120 180 (tee intersection)	**170** **255 (tee intersection)**	108	64%	
2. DELAY TO CROSS TRAFFIC	A. Vehicle volume along major street (average hour)	480 600 (2 or more lane approach)	**720** **900 (2 or more lane approach**	231	32%	12%
	B (1). Combined vehicle and pedestrian volume crossing the major street (average hour)	50	**75**	9	12%	

NOTES

1) For definition of crossing volume refer to the Ontario Traffic Manual Book 12, Section 4.5 (July 2024).
2) The lowest sectional percentage governs the entire Justification.
3) Average hourly volumes estimated from peak hour volumes, AHV = PM / 2 or AHV = (AM + PM) / 4.

NOVATECH
Engineers, Planners & Landscape Architects

TRAFFIC SIGNAL JUSTIFICATION
USING PROJECTED VOLUMES

LOCATION: **Centrum Boulevard** **at** **Brisebois Crescent (East)**

YEAR: **2040 (Total Conditions)**

JUSTIFICATION	DESCRIPTION	MINIMUM REQUIREMENT		COMPLIANCE		
		FREE FLOW	RESTRICTED FLOW	SECTIONAL		ENTIRE % (2)
		OPERATING SPEED ≥ 70KM/H	**OPERATING SPEED < 70 KM/H**	NUMERICAL	PERCENT	
1. MINIMUM VEHICULAR WARRANT	A. Vehicle volume, all approaches (average hour)	480 600 (2 or more lane approach)	**720** **900 (2 or more lane approach)**	170	24%	24%
	B. Vehicle volume along minor street (average hour)	120 180 (tee intersection)	**170** **255 (tee intersection)**	71	28%	
2. DELAY TO CROSS TRAFFIC	A. Vehicle volume along major street (average hour)	480 600 (2 or more lane approach)	**720** **900 (2 or more lane approach**	99	14%	0%
	B (1). Combined vehicle and pedestrian volume crossing the major street (average hour)	50	**75**	0	0%	

NOTES

1) For definition of crossing volume refer to the Ontario Traffic Manual Book 12, Section 4.5 (July 2024).
2) The lowest sectional percentage governs the entire Justification.
3) Average hourly volumes estimated from peak hour volumes, AHV = PM / 2 or AHV = (AM + PM) / 4.

Engineers, Planners & Landscape Architects

TRAFFIC SIGNAL JUSTIFICATION
USING PROJECTED VOLUMES

LOCATION: **Centrum Boulevard** **at** **Prestone Drive**

YEAR: **2040 (Total Conditions)**

JUSTIFICATION	DESCRIPTION	MINIMUM REQUIREMENT		COMPLIANCE		
		FREE FLOW	**RESTRICTED FLOW**	SECTIONAL		ENTIRE % (2)
		OPERATING SPEED ≥ 70KM/H	**OPERATING SPEED < 70 KM/H**	NUMERICAL	PERCENT	
1. MINIMUM VEHICULAR WARRANT	A. Vehicle volume, all approaches (average hour)	480 600 (2 or more lane approach)	**720** **900 (2 or more lane approach)**	271	38%	38%
	B. Vehicle volume along minor street (average hour)	120 180 (tee intersection)	**170** **255 (tee intersection)**	110	43%	
2. DELAY TO CROSS TRAFFIC	A. Vehicle volume along major street (average hour)	480 600 (2 or more lane approach)	**720** **900 (2 or more lane approach**	161	22%	22%
	B (1). Combined vehicle and pedestrian volume crossing the major street (average hour)	50	**75**	37	49%	

NOTES

1) For definition of crossing volume refer to the Ontario Traffic Manual Book 12, Section 4.5 (July 2024).
2) The lowest sectional percentage governs the entire Justification.
3) Average hourly volumes estimated from peak hour volumes, AHV = PM / 2 or AHV = (AM + PM) / 4.