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Proposed Mixed-Use Development 3437 Innes Road, Ottawa Transportation Impact Assessment



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**Proposed Mixed-Use Development
3437 Innes Road
Transportation Impact Assessment**

Prepared By:

NOVATECH
Suite 200, 240 Michael Cowpland Drive
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April 2022

Novatech File: 117077
Ref: R-2022-005

April 11, 2022

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

Attention: Mr. Mike Giampa
Senior Engineer, Infrastructure Applications

Dear Mr. Giampa:

Reference: 3437 Innes Road
Transportation Impact Assessment
Novatech File No. 117077

We are pleased to submit the following Transportation Impact Assessment (TIA), in support of a Zoning By-Law Amendment application at 3437 Innes Road, for your review and signoff. The structure and format of this report is in accordance with the City of Ottawa Transportation Impact Assessment Guidelines (June 2017).

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

Yours truly,

NOVATECH



Joshua Audia, B.Sc.
E.I.T. | Transportation/Traffic



TIA Plan Reports

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

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

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

CERTIFICATION

1. I have reviewed and have a sound understanding of the objectives, needs and requirements of the City of Ottawa's Official Plan, Transportation Master Plan and the Transportation Impact Assessment (2017) Guidelines;
2. I have a sound knowledge of industry standard practice with respect to the preparation of transportation impact assessment reports, including multi modal level of service review;
3. I have substantial experience (more than 5 years) in undertaking and delivering transportation impact studies (analysis, reporting and geometric design) with strong background knowledge in transportation planning, engineering or traffic operations; and
4. I am either a licensed¹ or registered² professional in good standing, whose field of expertise [check ☒ appropriate field(s)] is either transportation engineering ☒ or transportation planning ☐.

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

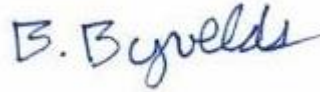
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Dated at Ottawa this 11th day of April, 2022.
(City)

Name: Brad Byvelds, P.Eng.
(Please Print)

Professional Title: Project Coordinator, Transportation/Traffic



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

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EXECUTIVE SUMMARY

This Transportation Impact Assessment (TIA) has been prepared for the property located at 3437 Innes Road, in support of a Zoning By-Law Amendment application for the site. The subject site is approximately 0.20 hectares in size and is currently occupied by a single-detached dwelling. The subject site is currently served by one driveway to Innes Road.

The subject site is surrounded by the following:

- Residences, followed by Loranger Court to the north,
- Innes Road, followed by a medical office and residences to the south,
- Pagé Road, followed by commercial uses to the east, and
- Residences, followed by Orléans Boulevard to the west.

The subject site is designated as 'General Urban Area' on Schedule B of the City of Ottawa's Official Plan. The implemented zoning for 3437 Innes Road is 'Residential First Density' (R1). In 2017, the adjacent property to the east at 3443 Innes Road was rezoned to 'Local Commercial' (LC). The proposed Zoning By-Law Amendment seeks to extend the previously established LC Zone so that it includes both 3437 and 3443 Innes Road.

For the purposes of this report, the development opportunity for the combined sites at 3437 and 3443 Innes Road has been considered. The combined development is anticipated to consist of a single six-storey building, with approximately 5,530 ft² gross floor area (GFA) of ground-floor commercial space, and approximately 123 dwellings on the above-ground floors. Access is assumed to be provided to both Innes Road and Pagé Road. It is anticipated that the proposed development will be constructed in a single phase, with a buildout year of 2023.

The study area for this report includes the following intersections:

- Innes Road/Orléans Boulevard
- Innes Road/Pagé Road
- Innes Road/Lamarche Avenue
- Innes Road/473m East of Pagé Road

The selected time periods for the analysis are the weekday AM and PM peak hours, as they represent the 'worst case' combination of site generated traffic and adjacent street traffic. Analysis will be completed for the 2023 build-out year and 2028 horizon year.

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

Forecasting

- The proposed development is projected to generate 66 person trips (including 39 vehicle trips) during the AM peak hour and 96 person trips (including 61 vehicle trips) during the PM peak hour.

Neighbourhood Traffic Management

- The proposed development is anticipated to generate additional two-way traffic volumes on Pagé Road of four vph in the AM peak hour and six vph in the PM peak hour. Traffic calming measures have already been implemented on Pagé Road north of Innes Road, and therefore no additional traffic calming measures are identified as a part of the proposed development.

Transit

- The proposed development is projected to generate 14 transit trips during the AM peak hour and 16 transit trips during the PM peak hour.
- All peak hour transit trips generated by the proposed development will be served by OC Transpo Routes 25, 34, 131, or 231. No capacity issues are anticipated for these routes.

Intersection MMLOS

- The results of the intersection MMLOS analysis can be summarized as follows:
 - No signalized intersections meet the target PLOS;
 - No signalized intersections meet the target BLOS;
 - Innes Road/Pagé Road and Innes Road/473m East of Pagé Road meet the target TLOS, while Innes Road/Orléans Boulevard does not;
 - Innes Road/Orléans Boulevard meets the target TkLOS, while Innes Road/Pagé Road and Innes Road/473m East of Pagé Road do not.
- There is limited opportunity in improving any intersection to the target PLOS C without reducing the number of travel lanes or restricting turning movements.
- To achieve the target BLOS B, a protected intersection design is required at all signalized intersections.
- No recommendations to improve the TkLOS at Innes Road/Pagé Road and Innes Road/473m East of Pagé Road are identified.

Existing Traffic Operations

- During the peak hours, the following movements are identified as over-capacity:
 - Innes Road/Orléans Boulevard
 - Southbound right turn and eastbound left turn during the AM peak hour;
 - Eastbound through during the PM peak hour.
- During the AM peak hour, the average (50th-percentile) and maximum (95th-percentile) queue lengths of the southbound right turn movement at Innes Road/Orléans Boulevard exceed the storage length provided.
- During the PM peak hour, the maximum queue length of the southbound left turn movement at Innes Road/Orléans Boulevard exceeds the storage length provided, but is captured within the taper.

Background Traffic Operations

- By the 2028 background scenario, the following movements are identified as over-capacity:
 - Innes Road/Orléans Boulevard
 - Southbound right turn and westbound through during the AM peak hour;
 - Eastbound through during the PM peak hour.
 - Innes Road/Lamarche Avenue
 - Eastbound through during the PM peak hour.
- During the AM peak hour, the average and maximum queue lengths of the southbound right turn movement at Innes Road/Orléans Boulevard exceed the storage length provided.
- During the PM peak hour, the maximum queue length of the southbound left turn movement at Innes Road/Orléans Boulevard exceeds the storage length provided, but is captured within the taper.

Total Traffic Operations

- The addition of site-generated traffic is anticipated to have a marginal impact to peak hour traffic operations within the study area.

1.0 SCREENING

1.1 Introduction

This Transportation Impact Assessment (TIA) has been prepared for the property located at 3437 Innes Road, in support of a Zoning By-Law Amendment application for the site. The subject site is approximately 0.20 hectares in size and is currently occupied by a single-detached dwelling. The subject site is currently served by one driveway to Innes Road.

The subject site is surrounded by the following:

- Residences, followed by Loranger Court to the north,
- Innes Road, followed by a medical office and residences to the south,
- Pagé Road, followed by commercial uses to the east, and
- Residences, followed by Orléans Boulevard to the west.

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

1.2 Proposed Development

The subject site is designated as 'General Urban Area' on Schedule B of the City of Ottawa's Official Plan. The implemented zoning for 3437 Innes Road is 'Residential First Density' (R1). In 2017, the adjacent property to the east at 3443 Innes Road was rezoned to 'Local Commercial' (LC). The proposed Zoning By-Law Amendment seeks to extend the previously established LC Zone so that it includes both 3437 and 3443 Innes Road.

For the purposes of this report, the development opportunity for the combined sites at 3437 and 3443 Innes Road has been considered. The combined development is anticipated to consist of a single six-storey building, with approximately 5,530 ft² gross floor area (GFA) of ground-floor commercial space, and approximately 123 dwellings on the above-ground floors. Access is assumed to be provided to both Innes Road and Pagé Road. It is anticipated that the proposed development will be constructed in a single phase, with a buildout year of 2023.

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

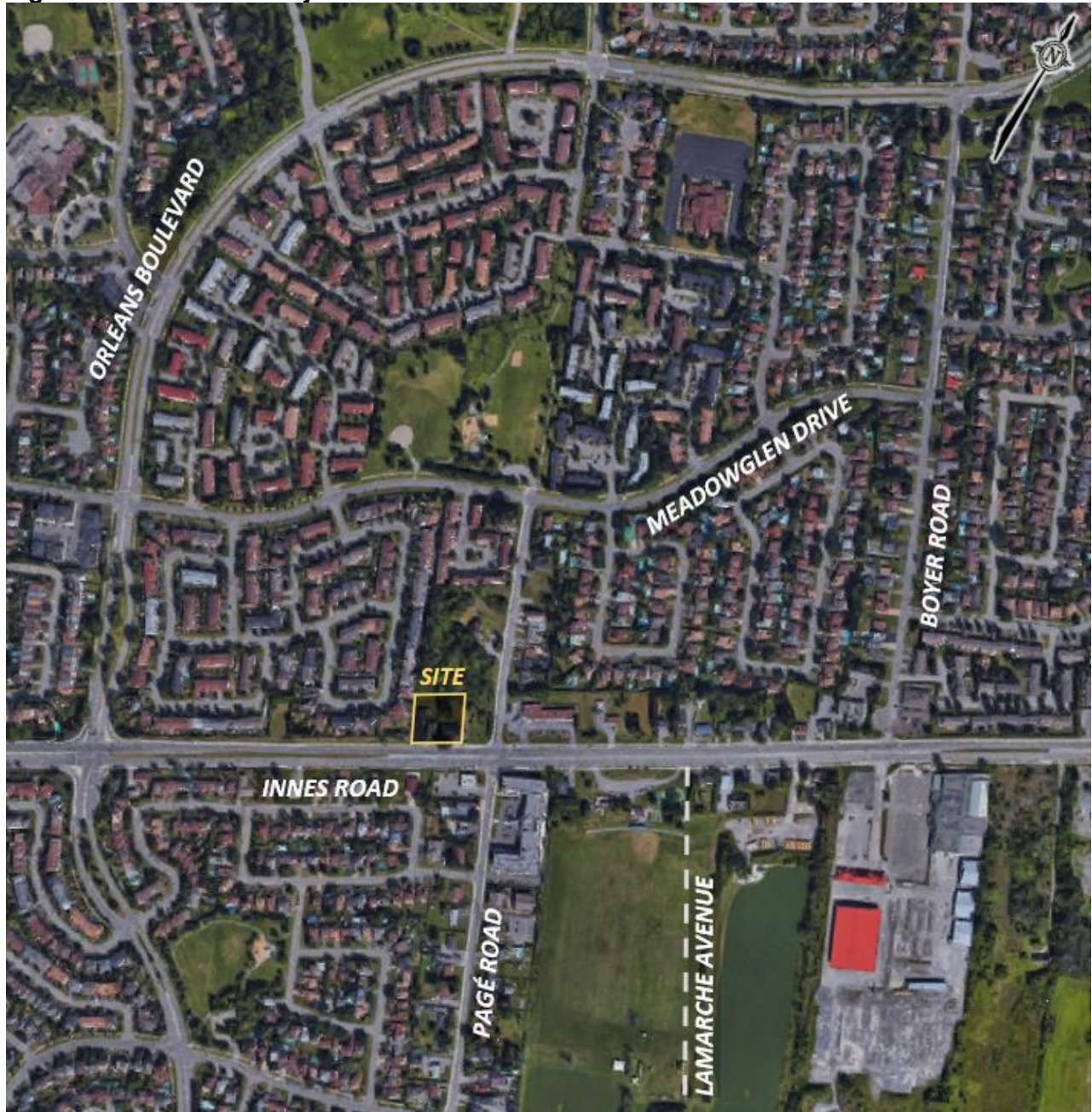
1.3 Screening Form

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 overall development on the combined site at 3437-3443 Innes Road is expected to generate over 60 peak hour person trips; further assessment is **required** based on this trigger.
- Location Triggers – The development proposes a new driveway to Innes Road, which is a spine cycling route; further assessment is **required** based on this trigger.

- Safety Triggers – The proposed access to Innes Road is within the area of influence of a signalized intersection, located within an auxiliary lane for that intersection, and makes use of an existing median break; further assessment is **required** based on this trigger.

Figure 1: View of the Subject Site



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.

Innes Road is an arterial roadway that generally runs on an east-west alignment between St. Laurent Boulevard and Dunning Road. West of St. Laurent Boulevard, the roadway continues as Industrial Avenue. Between the western and eastern intersections with the Blackburn Hamlet Bypass, Innes Road acts as a major collector. Within the study area, Innes Road has a five-lane urban cross-section with a centre two-way left turn lane (TWLTL) between Pagé Road and Frank Bender Street, and a four-lane divided urban cross-section with turn lanes at intersections west of Pagé Road. Bike lanes and sidewalks are provided on both sides of the roadway, and the roadway has a posted speed limit of 60 km/h. Innes Road is classified as a truck route, allowing full loads. Street parking is not permitted. The City of Ottawa's Official Plan identifies a right-of-way (ROW) protection of 37.5m at Innes Road within the study area, and therefore a widening may be required along the site frontage.

Orléans Boulevard is an arterial roadway that generally runs on a north-south alignment between St. Joseph Boulevard and Navan Road. North of St. Joseph Boulevard, Orléans Boulevard operates as a major collector, collector, or local roadway. Within the study area, Orléans Boulevard has a four-lane divided urban cross-section, sidewalks on both sides of the roadway, and a posted speed limit of 50 km/h. The speed limit increases to 60 km/h approximately 90m north of Innes Road. Orléans Boulevard is classified as a truck route with restricted loads north of Innes Road, and is not classified as a truck route south of Innes Road. Street parking is not permitted.

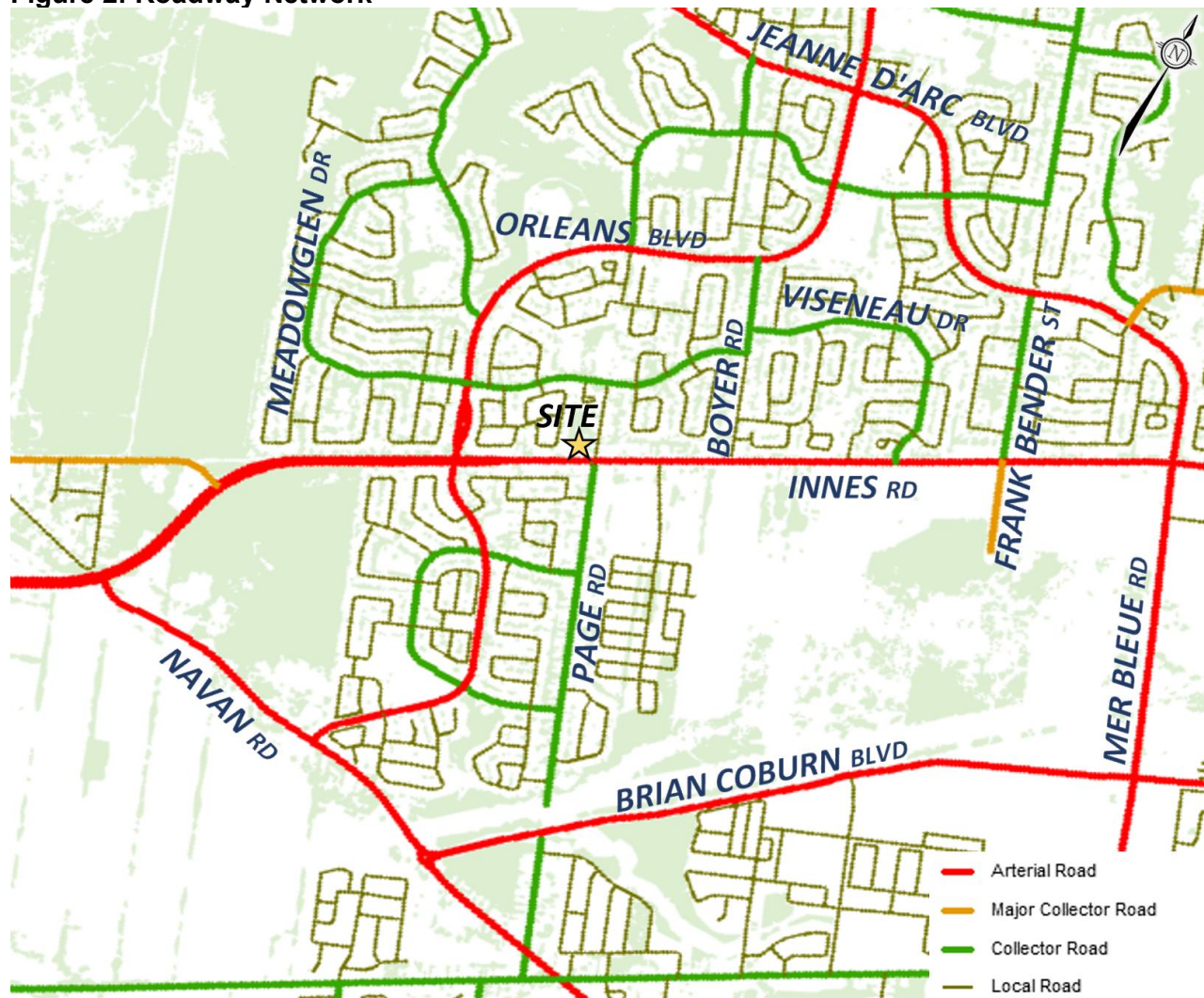
Pagé Road runs on a north-south alignment between Innes Road and Renaud Road, and has a posted speed limit of 40 km/h. North of Innes Road, Pagé Road is a local roadway with a two-lane undivided rural cross-section and an at-grade sidewalk on the west side. South of Innes Road, Pagé Road is a collector roadway with a two-lane undivided urban cross-section and sidewalks on both sides of the roadway. Pagé Road is not classified as a truck route. Street parking is permitted on one side of the roadway.

Lamarche Avenue is a local roadway that runs on a north-south alignment between Innes Road and Ponthieu Crescent/Beaugency Street. Within the study area, Lamarche Avenue has a two-lane undivided urban cross-section, a multi-use pathway on the west side, and an unposted speed limit of 50 km/h. Lamarche Avenue is not classified as a truck route. Street parking is permitted on one side of the roadway.

Boyer Road is a local roadway north of Innes Road, and runs on a north-south alignment between Innes Road and Meadowglen Drive. The roadway terminates in a cul-de-sac immediately north of Innes Road. North of Meadowglen Drive, Boyer Road is a collector roadway which runs on a north-south alignment between Meadowglen Drive and Orléans Boulevard. Within the study area, Boyer Road has a two-lane undivided urban cross-section, with no sidewalks, and a posted speed limit of 40 km/h. Boyer Road is not classified as a truck route. Street parking is permitted on one side of the roadway.

The roadway of the greater area surrounding the subject site is illustrated in **Figure 2**.

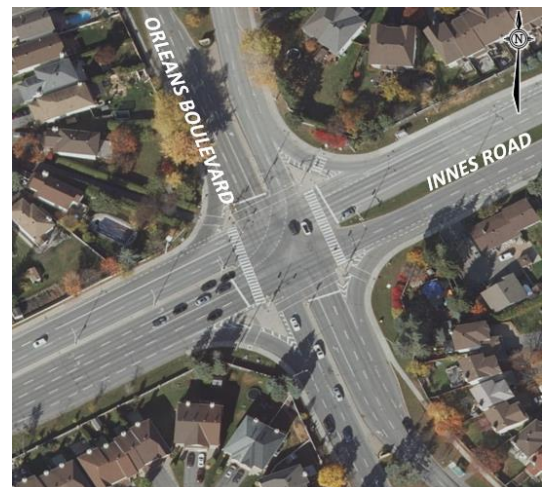
Figure 2: Roadway Network



2.1.2 Intersections

Innes Road/Orléans Boulevard

- Signalized four-legged intersection
- North/South Approaches (Orléans Boulevard): one left turn lane, two through lanes, and one channelized right turn lane
- East Approach (Innes Road): one left turn lane, two through lanes, one transit queue jump lane, and one channelized right turn lane
- West Approach (Innes Road): two left turn lanes, two through lanes, and one channelized right turn lane
- Eastbound bike lanes provided on east leg; westbound bike lanes provided on east/west legs



Innes Road/Pagé Road

- Signalized four-legged intersection
- North/South Approaches (Pagé Road): one shared left turn/through/right turn lane
- East/West Approaches (Innes Road): one left turn lane, one through lane, and one shared through/right turn lane
- Bike lanes on east and west approaches



Innes Road/Lamarche Avenue

- Unsignalized three-legged intersection
- South Approach (Lamarche Avenue): one shared left turn/right turn lane
- East Approach (Innes Road): one two-way left turn lane and two through lanes
- West Approach (Innes Road): one two-way left turn lane, one through lane, and one shared through/right turn lane
- Bike lanes on east and west approaches



Innes Road/473m East of Pagé Road

- Signalized four-legged intersection
- North/South Approaches (accesses to 3604-3636 or 3615 Innes Road): one shared left turn/through/right turn lane
- East/West Approaches (Innes Road): one left turn lane, one through lane, and one shared through/right turn lane
- Bike lanes on east and west approaches



2.1.3 Driveways

In accordance with the 2017 TIA Guidelines, a review of adjacent driveways along the boundary roads are provided as follows:

Innes Road, North Side

- Two driveways to commercial/gas station uses at 3469 Innes Road
- One driveway to a former commercial building at 3497 Innes Road

Innes Road, South Side

- One driveway to a residence at 3484 Innes Road
- One driveway to a former driving range at 240 Lamarche Avenue

Pagé Road, East Side

- One driveway to commercial/gas station uses at 3469 Innes Road
- Nine driveways to residences at 2247, 2249, 2253, 2257, 2259, 2267, 2269, and 2275 Pagé Road

Pagé Road, West Side

- Two driveways to a residence at 2260 Pagé Road

2.1.4 Pedestrian and Cycling Facilities

Concrete sidewalks are provided on both sides of Orléans Boulevard, Innes Road east of Orléans Boulevard, and Pagé Road south of Innes Road. Sidewalks are also provided on the west side of Pagé Road north of Innes Road, and on the north side of Innes Road west of Orléans Boulevard. An asphalt multi-use pathway is provided on the west side of Lamarche Avenue. On-street bike lanes are provided in both directions on Innes Road east of Orléans Boulevard. West of Orléans Boulevard, the westbound bike lane on Innes Road continues before connecting to a multi-use pathway west of the study area.

In the City of Ottawa's primary cycling network, Innes Road is designated as both a Spine Route and Crosstown Bikeway, Pagé Road is designated as a Spine Route, and Orléans Boulevard and Boyer Road are designated as Local Routes.

2.1.5 Transit

The locations of OC Transpo bus stops in the vicinity of the subject site are described in **Table 1**, and are shown in **Figure 3**. 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**.

Table 1: OC Transpo Transit Stops

Stop	Location	Routes Served
#1194	North side of Innes Road, west of Pagé Road	25, 612, 648
#1219	North side of Innes Road, west of Boyer Road	25, 612, 648
#1399	South side of Meadowglen Drive, west of Loranger Court	131, 231, 611, 631, 648
#1401	North side of Meadowglen Drive, west of Loranger Court	131, 231, 611, 631, 648
#1504	South side of Innes Road, east of Orléans Boulevard	25, 648
#2452	East side of Orléans Boulevard, between Innes Road and Meadowglen Drive	34, 634, 635
#2645	North side of Innes Road, east of Orléans Boulevard	25, 612, 648
#2651	West side of Orléans Boulevard, between Innes Road and Pineglade Crescent	34, 612, 622, 634, 641
#7735	South side of Innes Road, east of Pagé Road	25, 612, 648
#7751	South side of Meadowglen Drive, between Pagé Road and Thornecrest Street	131, 231, 611, 631, 648
#7755	North side of Meadowglen Drive, east of Asperview Way	131, 231, 611, 631, 648
#8129	South side of Innes Road, west of Boyer Road	25, 612, 648

Table 2: OC Transpo Route Information

Route	From ↔ To	Frequency
25	Millennium ↔ La Cité/Blair	All day service, seven days a week; 7- to 30-minute headways
34	Renaud ↔ Blair	All day service, seven days a week; 30-minute headways
131	Fallingbrook ↔ Chapel Hill	All day service, seven days a week; 30-minute headways
231	Meadowglen ↔ Blair	Peak period service, weekdays only; 30-minute headways in peak direction only
611	Orléans ↔ Gisèle Lalonde H.S.	Service at select times on school days only
612	Renaud ↔ Beatrice Desloges H.S./ Gisèle Lalonde H.S.	Service at select times on school days only
622	Renaud ↔ Colonel By H.S./ Gloucester H.S./Lester B. Pearson H.S.	Service at select times on school days only
634	Mer Bleue ↔ Place d'Orléans	Service at select times on school days only
635	Orléans ↔ Cairine Wilson S.S.	Service at select times on school days only
648	Orléans ↔ Louis Riel H.S.	Service at select times on school days only

Figure 3: OC Transpo Bus Stop Locations



2.1.6 Area Traffic Management

Within the study area, there are no Area Traffic Management (ATM) studies that have been completed or are in progress.

Relating to traffic calming measures within the study area, three speed humps have been implemented on Pagé Road between Innes Road and Meadowglen Drive. Signage at each speed bump indicate that vehicles are intended to slow to 30 km/h at those points, where Pagé Road otherwise has a posted speed limit of 40 km/h.

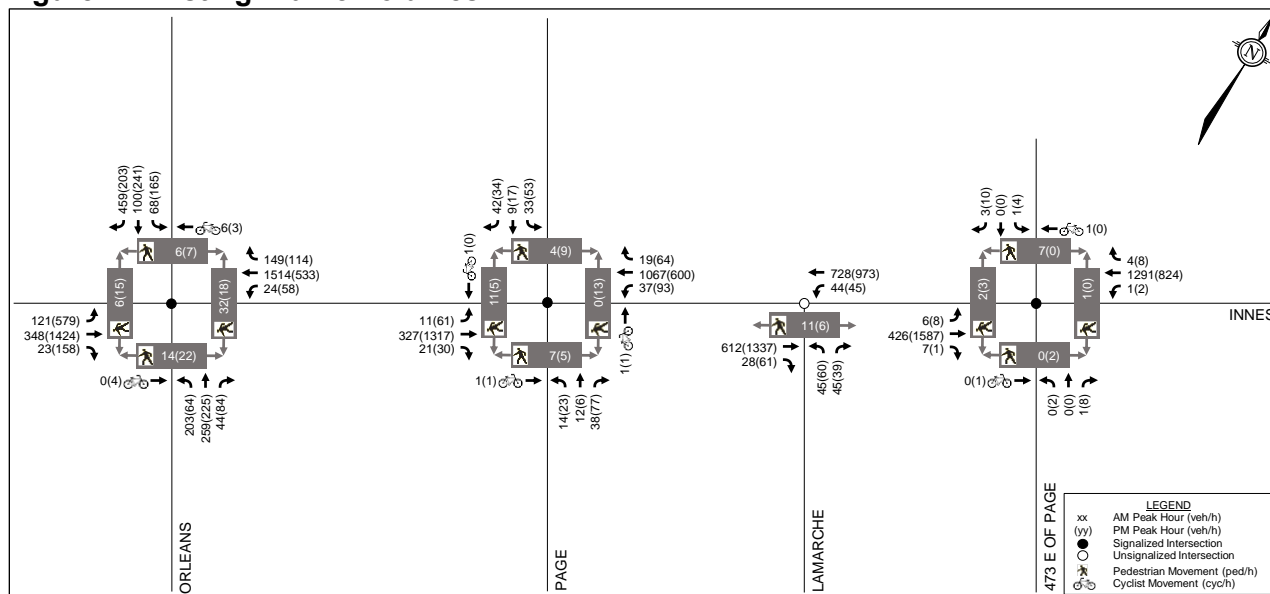
2.1.7 Existing Traffic Volumes

Weekday traffic counts were completed by the City or coordinated by Parsons in support of a different development application at 3490 Innes Road, which is discussed further in Section 2.2.2. These counts have been used to determine the existing pedestrian, cyclist, and vehicular traffic volumes at the study area intersections. The counts were completed on the dates listed below:

• Innes Road/Orléans Boulevard	May 3, 2017	(City)
• Innes Road/Pagé Road	January 8, 2019	(City)
• Innes Road/Lamarche Avenue	August 5, 2021	(Parsons)
• Innes Road/473m East of Pagé Road	January 31, 2019	(City)

The traffic count data for these intersections are included in **Appendix D**. Peak hour pedestrian, cyclist, and vehicular traffic volumes within the study area are shown in **Figure 4**.

Figure 4: Existing Traffic Volumes



Based on the count data for Innes Road/Orléans Boulevard, the average annual daily traffic (AADT) on Innes Road east of Orléans Boulevard is approximately 26,700 vehicles per day.

2.1.8 Collision Records

Historical collision data from the last five years was obtained from the City's Public Works and Service Department for the study area. There are no collision records available for Innes Road/Lamarche Avenue, as this intersection has only recently been constructed. 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 City's 2017 TIA Guidelines as 'more than six collisions in five years for any one movement.' The number of collisions at each intersection from January 1, 2015 to December 31, 2019 is summarized in **Table 3**.

Table 3: Reported Collisions

Intersection or Street Segment	Impact Types					Total
	Angle	Rear End	Sideswipe	Turn Mvmt	SMV ⁽¹⁾ /Other	
Innes Road/ Orléans Boulevard	7	35	4	18	4	68
Innes Road/ Pagé Road	3	14	2	6	6	31
Innes Road/ 473m East of Pagé Road	1	3	-	-	1	5
Innes Road btwn Orléans Boulevard & Pagé Road	-	6	2	-	-	8
Innes Road btwn Pagé Road & 473m East of Pagé Road	5	5	3	1	1	15

1. SMV = Single Motor Vehicle

Innes Road/Orléans Boulevard

A total of 68 collisions were reported at this intersection over the last five years, of which there were seven angle impacts, 35 rear-end impacts, four sideswipe impacts, 18 turning movement impacts, and four single vehicle/other impacts. Nineteen collisions resulted in injuries, but none caused fatalities. Thirty-two of the 68 collisions (47%) occurred in poor driving conditions. Three collisions involved pedestrians and no collisions involved cyclists.

Of the seven angle impacts, all involved a southbound vehicle and a westbound vehicle. Five of the seven impacts involved a southbound right-turning vehicle and a westbound through vehicle, and were the result of southbound drivers improperly yielding the right-of-way to westbound drivers.

Of the 35 rear-end impacts, five involved northbound vehicles (one unknown incident and four right-turn incidents), seven involved southbound vehicles (three through incidents and four right-turn incidents), 14 involved eastbound vehicles (two left-turn incidents, six through incidents, and six right-turn incidents), and nine involved westbound vehicles (one unknown incident, seven through incidents, and one right-turn incident). The number of rear-end collisions are likely a function of high traffic volumes at this intersection.

Of the 18 turning movement impacts, 11 involved a northbound left-turning vehicle and a southbound through vehicle, five involved a southbound left-turning vehicle and a northbound through vehicle, and two involved a westbound left-turning vehicle and an eastbound through vehicle. The northbound left turn has protected plus permitted phasing during the peak hours, and a fully protected left turn phase would likely reduce this type of collision.

Of the four single vehicle/other impacts, three involved pedestrians. Of these three impacts, two involved a northbound left turning vehicle failing to yield the right-of-way and one involved an eastbound through vehicle disobeying the traffic control.

Innes Road/Pagé Road

A total of 31 collisions were reported at this intersection over the last five years, of which there were three angle impacts, 14 rear-end impacts, two sideswipe impacts, six turning movement impacts, and six single vehicle/other impacts. Ten collisions resulted in injuries, but none caused fatalities. Nineteen of the 31 collisions (61%) occurred in poor driving conditions. Three collisions involved pedestrians and one collision involved a cyclist.

Of the 14 rear-end impacts, five involved eastbound through vehicles and nine involved westbound through vehicles. The number of rear-end collisions are likely a function of high traffic volumes on Innes Road.

Of the six single vehicle/other impacts, three involved pedestrians. Of these three impacts, two involved a northbound left turning vehicle failing to yield the right-of-way and one involved a northbound through vehicle (unknown circumstances).

Innes Road/473m East of Pagé Road

A total of five collisions were reported at this intersection over the last five years, of which there was one angle impact, three rear-end impacts, and one single vehicle/other impact. One collision resulted in injuries, and none caused fatalities. Two of the five collisions (40%) occurred in poor driving conditions. No collisions involved pedestrians or cyclists.

Innes Road between Orléans Boulevard and Pagé Road

A total of eight collisions were reported along this segment over the last five years, of which there were six rear-end impacts and two sideswipe impacts. One collision resulted in injuries, but none caused fatalities. Two of the eight collisions (25%) occurred in poor driving conditions. No collisions involved pedestrians or cyclists.

Innes Road between Pagé Road and 473m East of Pagé Road

A total of 15 collisions were reported along this segment over the last five years, of which there were five angle impacts, five rear-end impacts, three sideswipe impacts, one turning movement impact, and one single vehicle/other impact. Three collisions resulted in injuries, but none caused fatalities. Four of the 15 collisions (27%) occurred in poor driving conditions. No collisions involved pedestrians or cyclists.

2.2 Planned Conditions

2.2.1 Planned Roadway and Transit Projects

The City's 2013 Transportation Master Plan (TMP) identifies future roadway projects within the study area in its Affordable Road Network and Network Concepts. The Network Concept includes a widening of the existing Blackburn Hamlet Bypass from four to six lanes, between the western intersection with Innes Road and Navan Road. In the Affordable Network, the Blackburn Hamlet Bypass Extension was identified as a Phase 2 (2020-2025) project, and would include a new four-lane roadway between Innes Road and Navan Road.

However, due to feasibility concerns, the Environmental Assessment (EA) process was reinitiated for the Brian Coburn Boulevard/Cumberland Transitway Extension. The study produced interim and ultimate conditions for a new alignment of the Brian Coburn Boulevard/Cumberland Transitway Extension. In the interim condition, bus lanes will be provided in both directions on Innes Road at Anderson Road, and in both directions on the Blackburn Hamlet Bypass at the western intersection with Innes Road and at Navan Road. In the ultimate condition, the Brian Coburn Boulevard extension will generally follow the alignment of Renaud Road south of the Blackburn Hamlet Bypass, with the Cumberland Transitway running immediately north of the extension.

Per discussions with City staff, signalization of the Innes Road/Lamarche Avenue intersection, as well as auxiliary eastbound right turn and westbound left turn lanes, are assumed to be in place by the horizon year of this study (2028).

The Affordable Rapid Transit and Transit Priority (RTTP) Network identifies Innes Road and Brian Coburn Boulevard west of Tenth Line Road as Transit Priority Corridors with Isolated Measures. Transit signal priority and queue jump lanes will be implemented at select intersections. Peak period bus lanes and transit signal priority are identified for the Blackburn Hamlet Bypass between Innes Road and Brian Coburn Boulevard, which may include the repurposing of general purpose lanes.

The 2031 RTTP Network Concept includes the Cumberland Transitway, which will run between Blair Road and Frank Kenny Road. A corridor for the future transitway has been reserved by the City, immediately north of Brian Coburn Boulevard (south of the study area).

The 2013 Ottawa Cycling Plan identifies a Phase 3 (2026-2031) project north of the study area. The Orléans East-West Neighbourhood Bikeway project will include shared use lanes on Viseneau Drive and Meadowglen Drive. Additionally, a major pathway link between Innes Road and Brian Coburn Boulevard is identified within the East Urban Community, which is anticipated to be constructed beyond the timeline of this study.

The 2013 Ottawa Pedestrian Plan identifies a Phase 3 (2026-2031) project north of the study area. A new sidewalk will be provided along the entire south/west side of Meadowglen Drive between Forest Valley Drive and Boyer Road, in addition to the existing sidewalk on the entire north/east side of Meadowglen Drive.

2.2.2 Other Area Developments

In proximity of the proposed development, there are multiple other developments that have recently been completed, are under construction, approved, or are in the approval process. These developments are summarized as follows:

Orléans Village Subdivision

A Transportation Impact Study (TIS) was prepared by Parsons in December 2016 and later revised in April 2017 and August 2017, in support of a subdivision that will be accessed via Innes Road/Lamarche Avenue. The development consists of 534 residential dwellings. Per the TIS, buildout of Phase 1 of the development was anticipated to occur in 2021, and full buildout is anticipated to occur in 2024. The TIS also recommended signalization of the Innes Road/Lamarche Avenue intersection, as well as a 35m westbound left turn lane and a 50m eastbound right turn lane. It is understood that these improvements will be implemented as their respective warrants are met.

3490 Innes Road

A TIA was prepared by Parsons in October 2021, in support of a mixed-use development. Four options are currently being considered, and the TIA included analysis for the option that would generate the most traffic during the weekday peak hours. This option includes five mid-rise buildings with 525 residential dwellings and approximately 41,300 ft² of ground-floor commercial/retail uses. Buildout of the development is anticipated to occur in three phases, with an ultimate buildout year of 2031.

3598 Innes Road

A TIA was prepared by Tranplan Associates in September 2018, in support of an automatic car wash facility. This facility is now open, but was not completed prior to the traffic counts included in Section 2.1.7.

3610 Innes Road

A TIA was prepared by Novatech in October 2019 and later revised in April 2020, in support of a subdivision. The development consists of 456 residential dwellings. Per the TIA, buildout of the development is anticipated to occur in 2023.

3817-3843 Innes Road

A TIA was prepared by D.J. Halpenny & Associates Ltd. in March 2021, in support of a residential development. The development includes three low- or mid-rise buildings, with a total of 97 residential dwellings. Per the TIA, buildout of the development is anticipated to occur in 2024.

Richcraft Trailsedge North

A TIA was prepared by Castleglenn Consultants in April 2021, in support of a subdivision. The development consists of 2,040 residential dwellings and an employment area that will support approximately 830 jobs. Per the TIA, buildout of the residential portion is anticipated to occur in 2047, and the buildout year of the employment portion is unknown at the time of writing.

2.3 Study Area and Time Periods

The study area for this report includes the following intersections:

- Innes Road/Orléans Boulevard
- Innes Road/Pagé Road
- Innes Road/Lamarche Avenue
- Innes Road/473m East of Pagé Road

The selected time periods for the analysis are the weekday AM and PM peak hours, as they represent the 'worst case' combination of site generated traffic and adjacent street traffic. Analysis will be completed for the 2023 build-out year and 2028 horizon year.

2.4 Exemptions Review

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

Table 4: TIA Exemptions

Module	Element	Exemption Criteria	Status
Design Review Component			
4.1 Development Design	4.1.2 Circulation and Access	• Only required for site plans	Exempt
	4.1.3 New Street Networks	• Only required for plans of subdivision	Exempt
4.2 Parking	4.2.1 Parking Supply	• Only required for site plans	Exempt
	4.2.2 Spillover Parking	• Only required for site plans where parking supply is 15% below unconstrained demand	Exempt

Module	Element	Exemption Criteria	Status
Network Impact Component			
4.5 Transportation Demand Management	<i>All elements</i>	<ul style="list-style-type: none"> Not required for non-residential site plans expected to have fewer than 60 employees and/or students on location at any given time 	Not Exempt
4.6 Neighbourhood Traffic Management	4.6.1 Adjacent Neighbourhoods	<ul style="list-style-type: none"> Only required when the development relies on local or collector streets for access and total volumes exceed ATM capacity thresholds 	Not Exempt
4.8 Network Concept	<i>All elements</i>	<ul style="list-style-type: none"> Only required when proposed development generates more than 200 person-trips during the peak hour in excess of the equivalent volume permitted by the established zoning 	Exempt

As this TIA is being prepared in support of a Zoning By-law Amendment application and details of the on-site design have not been finalized, the Design Review components of the *TIA Guidelines* are exempt. These components of the *TIA Guidelines* will be reviewed as part of a future Site Plan Control application. As the proposed development is anticipated to generate less than 200 person trips, Module 4.8 - Network Concept is also exempt. Based on the foregoing, the following modules will be included in the TIA report:

- Module 4.5: Transportation Demand Management
- Module 4.6: Neighbourhood Traffic Management
- Module 4.7: Transit
- Module 4.9: Intersection Design

3.0 FORECASTING

3.1 Development-Generated Travel Demand

3.1.1 Trip Generation

The proposed development will include approximately 123 residential dwellings and 5,530 ft² GFA of ground-floor commercial space. Trips generated by the proposed residences have been estimated using the relevant rates provided in the *TRANS Trip Generation Manual Summary Report*, prepared in October 2020 by WSP Global Inc. The manual includes data to estimate the trip generation and mode shares for residential uses, divided into single-family detached housing, low-rise multifamily housing (one to two storeys), and high-rise multifamily housing (three or more storeys). Trips generated by the proposed commercial uses have been estimated using the *ITE Trip Generation Manual, 11th Edition*, specific to the Strip Retail Plaza land use (land use code 822). Relevant excerpts from the *TRANS Trip Generation Manual* and *ITE Trip Generation Manual* are included in **Appendix F**.

The *TRANS Trip Generation Manual* identifies the subject site as being located in the Orléans district. The observed peak hour mode shares for residential and commercial trips in the Orléans district are summarized in **Table 5**.

Table 5: Orléans District – Observed Mode Shares

Mode	High-Rise Residential		Commercial	
	AM	PM	AM	PM
Auto Driver	54%	60%	77%	71%
Auto Passenger	7%	13%	14%	20%
Transit	29%	21%	3%	2%
Cyclist	0%	0%	0%	1%
Pedestrian	10%	6%	2%	5%

One set of mode shares has been assumed for both of the proposed land uses. The assumed mode shares for the proposed development are therefore summarized as follows:

Residential Dwellings

- Auto Driver: 55% during peak hours;
- Auto Passenger: 10% during peak hours;
- Transit: 25% during peak hours;
- Cyclist: 0% during peak hours;
- Pedestrian: 10% during peak hours.

Ground-Floor Commercial

- Auto Driver: 75% during peak hours;
- Auto Passenger: 15% during peak hours;
- Transit: 5% during peak hours;
- Cyclist: 0% during peak hours;
- Pedestrian: 5% during peak hours.

Residential Trip Generation

For the High-Rise Multifamily Housing land use, 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 dwellings for the AM and PM peak periods are shown in **Table 6**. A breakdown of these trips by modal share is shown in **Table 7**.

Table 6: 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	123	30	68	98	64	47	111

1. ppp: Person Trips per Peak Period

Table 7: Proposed Residential – Peak Period Trips by Mode Share

Travel Mode	Mode Share	AM Peak Period			PM Peak Period		
		IN	OUT	TOT	IN	OUT	TOT
Peak Period Person Trips		30	68	98	64	47	111
Auto Driver	55%	17	37	54	35	26	61
Auto Passenger	10%	3	7	10	7	4	11
Transit	25%	7	17	24	16	12	28
Cyclist	0%	-	-	0	-	-	0
Pedestrian	10%	3	7	10	6	5	11

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 8**.

Table 8: 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	8	18	26	15	11	26
Auto Passenger	0.48	0.44	1	3	4	3	2	5
Transit	0.55	0.47	4	9	13	8	6	14
Cyclist	0.58	0.48	-	-	0	-	-	0
Pedestrian	0.58	0.52	2	4	6	3	2	5
Peak Hour Person Trips			15	34	49	29	21	50

From the previous table, the proposed six-storey mixed-use building is estimated to generate 49 residential person trips (including 26 vehicle trips) during the AM peak hour, and 50 residential person trips (including 26 vehicle trips) during the PM peak hour.

Commercial Trip Generation

For the commercial space, the trip generation estimates are shown in the following tables. The estimated number of person trips generated by the proposed commercial space during the peak hours is shown in **Table 9**. A breakdown of these trips by modal share is shown in **Table 10**.

Table 9: Proposed Commercial – Peak Hour Trip Generation

Land Use	ITE Code	GFA	AM Peak Hour (pph ⁽¹⁾)			PM Peak Hour (pph)		
			IN	OUT	TOT	IN	OUT	TOT
Strip Retail Plaza	822	5,530 ft ²	10	7	17	23	23	46

1. pph: Person Trips per Hour – calculated using an ITE Trip to Person Trip Factor of 1.28, consistent with the 2017 TIA Guidelines

Table 10: Proposed Commercial – Peak Hour Trips by Mode Share

Travel Mode	Mode Share	AM Peak Hour			PM Peak Hour		
		IN	OUT	TOT	IN	OUT	TOT
Peak Hour Person Trips		10	7	17	23	23	46
Auto Driver	75%	8	5	13	17	18	35
Auto Passenger	15%	1	1	2	4	3	7
Transit	5%	1	-	1	1	1	2
Cyclist	0%	-	-	0	-	-	0
Pedestrian	5%	-	1	1	1	1	2

From the previous table, the proposed commercial space is estimated to generate 17 person trips (including 13 vehicle trips) during the AM peak hour, and 46 person trips (including 35 vehicle trips) during the PM peak hour.

Trip Generation Summary

It is recognized that as a multi-use building, the proposed development is likely to generate internally captured trips (for example, residents of the building may walk to the ground-floor commercial uses) or pass-by trips. However, no deduction has been made to account for these types of trips, as the commercial uses are not known at this time. This simplifying assumption results in a more conservative analysis.

The estimated number of peak hour trips generated by the proposed development are shown in **Table 11**.

Table 11: Proposed Development – Total Peak Hour Trips

Travel Mode	AM Peak Hour			PM Peak Hour		
	IN	OUT	TOT	IN	OUT	TOT
Residential Person Trips	15	34	49	29	21	50
Auto Driver	8	18	26	15	11	26
Auto Passenger	1	3	4	3	2	5
Transit	4	9	13	8	6	14
Cyclist	-	-	0	-	-	0
Pedestrian	2	4	6	3	2	5
Commercial Person Trips	10	7	17	23	23	46
Auto Driver	8	5	13	17	18	35
Auto Passenger	1	1	2	4	3	7
Transit	1	-	1	1	1	2
Cyclist	-	-	0	-	-	0
Pedestrian	-	1	1	1	1	2
Total Additional Trips	25	41	66	52	44	96
Auto Driver	16	23	39	32	29	61
Auto Passenger	2	4	6	7	5	12
Transit	5	9	14	9	7	16
Cyclist	-	-	0	-	-	0
Pedestrian	2	5	7	4	3	7

In total, the proposed development is projected to generate 66 person trips (including 39 vehicle trips) during the AM peak hour and 96 person trips (including 61 vehicle trips) during the PM peak hour.

3.1.2 Trip Distribution

The assumed distribution of trips generated by the proposed development has been derived from existing traffic patterns within the study area and logical trip routing. For the residential use, the existing typical commuter pattern has been considered (i.e. outbound volumes during the AM peak hour and inbound volumes during the PM peak hour). For the commercial uses, the two-way PM peak hour volumes have been considered. The assumed trip distributions for each use are summarized as follows:

Residential Distribution

- 15% to/from the north via Orléans Boulevard;
- 5% to/from the north via Pagé Road;
- 5% to/from the south via Orléans Boulevard;
- 15% to/from the east via Innes Road;
- 60% to/from the west via Innes Road.

Commercial Distribution

- 15% to/from the north via Orléans Boulevard;
- 5% to/from the north via Pagé Road;
- 10% to/from the south via Orléans Boulevard;
- 5% to/from the south via Pagé Road;
- 30% to/from the east via Innes Road;
- 35% to/from the west via Innes Road.

3.1.3 Trip Assignment

The location and design of any on-site accesses to the subject site will be confirmed at the Site Plan Control stage. For the purposes of this analysis, it has been assumed that full-movement accesses will be provided on both Innes Road and Pagé Road. A detailed review of access operations and any required turn prohibitions will be conducted as part of the future Site Plan Control application.

Based on the concept plan, the access to Pagé Road will serve a parking area at the back of the building, while the access to Innes Road will serve a front parking area and a parking garage. Assuming the minimum parking requirements will be met, the access to Pagé Road will serve approximately 10% of the total parking and the access to Innes Road will serve the other 90%. Apart from assigning all trips arriving/departing via Pagé Road to the Pagé Road access, trips from all directions have been assigned proportionately to the two proposed accesses, as described below.

Innes Road Access

- 90% of trips to the north and south via Orléans Boulevard;
- 90% of trips from the east via Innes Road;
- 90% of trips to the west via Innes Road.

Pagé Road Access

- 10% of trips from the north and south via Orléans Boulevard;
- 100% of trips to the north and south via Pagé Road;
- 10% of trips to the east via Innes Road;
- 10% of trips from the west via Innes Road.

3.2 Background Traffic

3.2.1 General Background Growth Rate

A rate of background growth has been established through a review of the City's 2013 TMP and Strategic Long-Range Model, comparing snapshots of 2011 and 2031 AM peak hour volumes. Section 2.3 of the TMP projects a 33% growth in population for the Orléans area between 2011 and 2031, translating to an annual growth rate of approximately 1.4%. The snapshots indicate traffic volume reductions on Innes Road due to the opening of Brian Coburn Boulevard, which acts as an alternate east-west arterial route. The snapshots do not consistently identify traffic increases or reductions on Orléans Boulevard between 2011 and 2031. To account for potential developments in the area that are not discussed below, a 1% background growth has been applied to the through volumes on the arterial roadways within the study area (i.e. Innes Road and Orléans Boulevard).

Relevant excerpts of the 2013 TMP and Strategic Long-Range Model are included in **Appendix G**.

3.2.2 Other Area Developments

In proximity of the proposed development, there are multiple other developments that have recently been completed, are under construction, approved, or are in the approval process. These developments are summarized as follows. Relevant excerpts of the transportation studies prepared in support of these developments are included in **Appendix H**.

Orléans Village Subdivision

This subdivision consists of 534 residential dwellings, and is currently under construction. In the TIS, 50% of the development was anticipated to be built out in 2020, and full buildout is anticipated to occur in 2024. Traffic generated by Phase 1 is assumed to have been captured by the existing traffic count at Innes Road/Lamarche Avenue. Since Phase 1 represents 50% of the development, the turning volumes at Innes Road/Lamarche Avenue have been doubled in the 2028 background conditions to represent ultimate buildout of this development.

3490 Innes Road

Five mid-rise buildings with 525 residential dwellings and approximately 41,300 ft² of ground-floor commercial/retail uses are proposed, and this application is currently in the approval process. Buildout of the development is anticipated to occur in three phases, with an ultimate buildout year of 2031. Since this buildout year is beyond the horizon year of this study, traffic generated by this development has not been added to the 2023 or 2028 background conditions.

3598 Innes Road

An automatic car wash facility is now open, but was not operational prior to the traffic counts included in Section 2.1.7. Traffic generated by this development has been added to the 2023 or 2028 background conditions, based on the TIA prepared by Tranplan Associates.

3610 Innes Road

This proposed development consists of 456 residential dwellings, and this application is currently in the approval process. Per the TIA, buildout of the development is anticipated to occur in 2023. Therefore, traffic generated by this development has been added to the 2023 and 2028 background conditions.

3817-3843 Innes Road

This proposed development includes three low- or mid-rise buildings with a total of 97 residential dwellings, and this application is currently in the approval process. Per the TIA, buildout of the development is anticipated to occur in 2024. Therefore, traffic generated by this development has been added to the 2028 background conditions.

Richcraft Trailsedge North

Approximately 2,040 residential dwellings and an employment area that will support 830 jobs are proposed. Per the TIA, buildout of the residential portion is anticipated to occur in 2047 (with buildout of Phase 1 occurring in 2037), and the buildout year of the employment portion is unknown at the time of writing. Since this buildout year is beyond the horizon year of this study, traffic generated by this development has not been added to the 2023 or 2028 background conditions.

3.2.3 Existing Traffic Volume Balancing

To account for discrepancies in the different traffic counts conducted, the existing through traffic volumes have been balanced throughout the study area for any through movements with discrepancies greater than 10%. The balanced existing traffic volumes are shown in **Figure 5**.

3.3 Future Conditions

The figures below present the following traffic conditions:

- Proposed site-generated traffic volumes are shown in **Figure 6**;
- Other area development-generated traffic volumes in 2023 are shown in **Figure 7**;
- Other area development-generated traffic volumes in 2028 are shown in **Figure 8**;
- Background traffic volumes in 2023 are shown in **Figure 9**;
- Background traffic volumes in 2028 are shown in **Figure 10**;
- Total traffic volumes in 2023 are shown in **Figure 11**;
- Total traffic volumes in 2028 are shown in **Figure 12**.

Figure 5: Balanced Existing Traffic Volumes

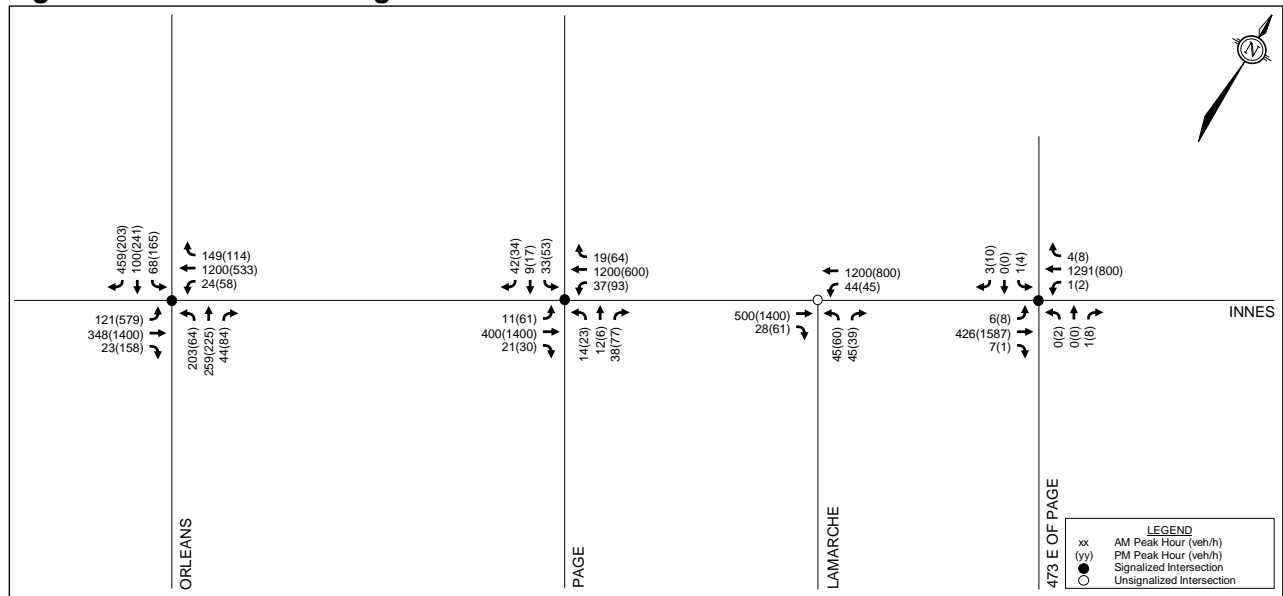


Figure 6: Proposed Site-Generated Traffic Volumes

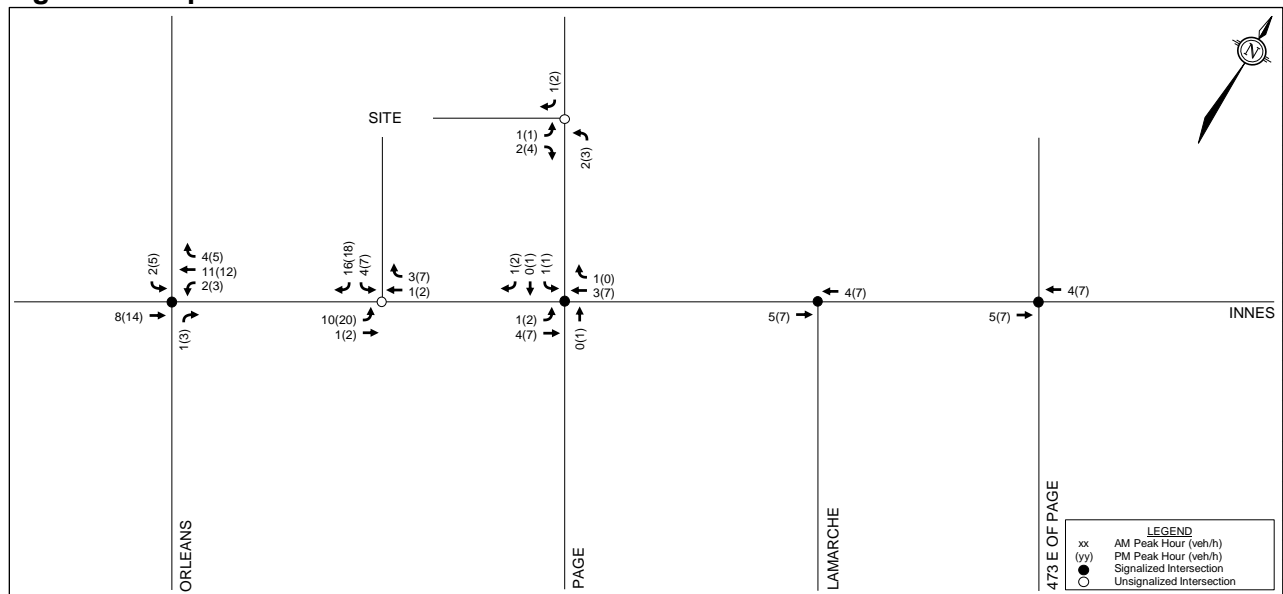


Figure 7: 2023 Other Area Development-Generated Traffic Volumes

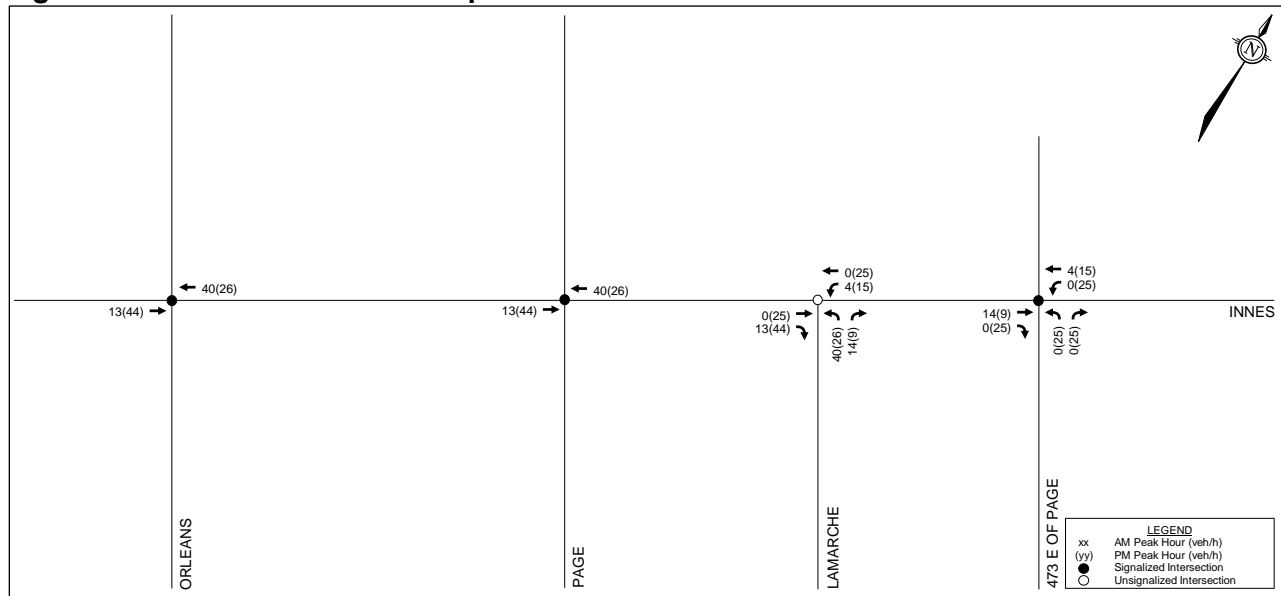


Figure 8: 2028 Other Area Development-Generated Traffic Volumes

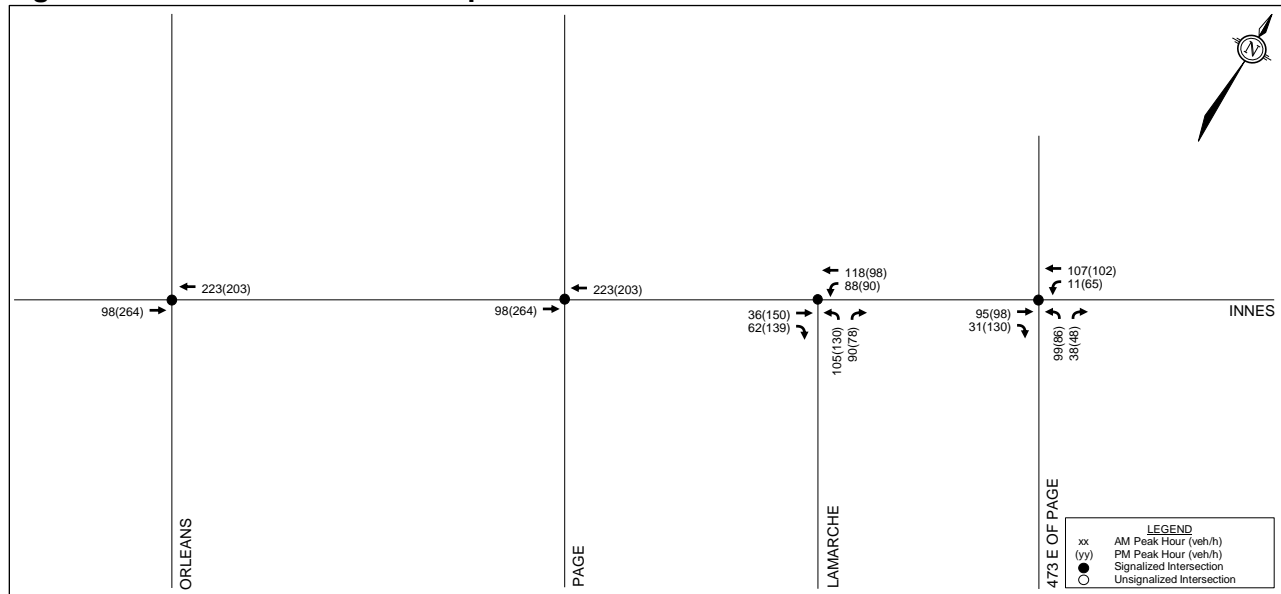


Figure 9: 2023 Background Traffic Volumes

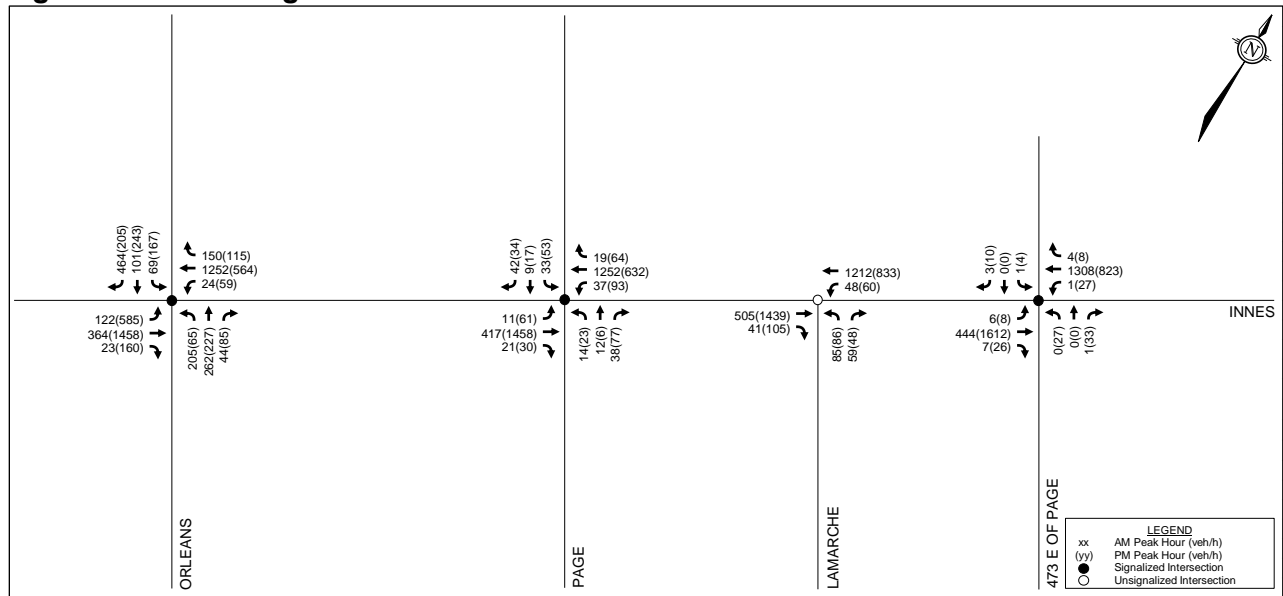


Figure 10: 2028 Background Traffic Volumes



Figure 11: 2023 Total Traffic Volumes

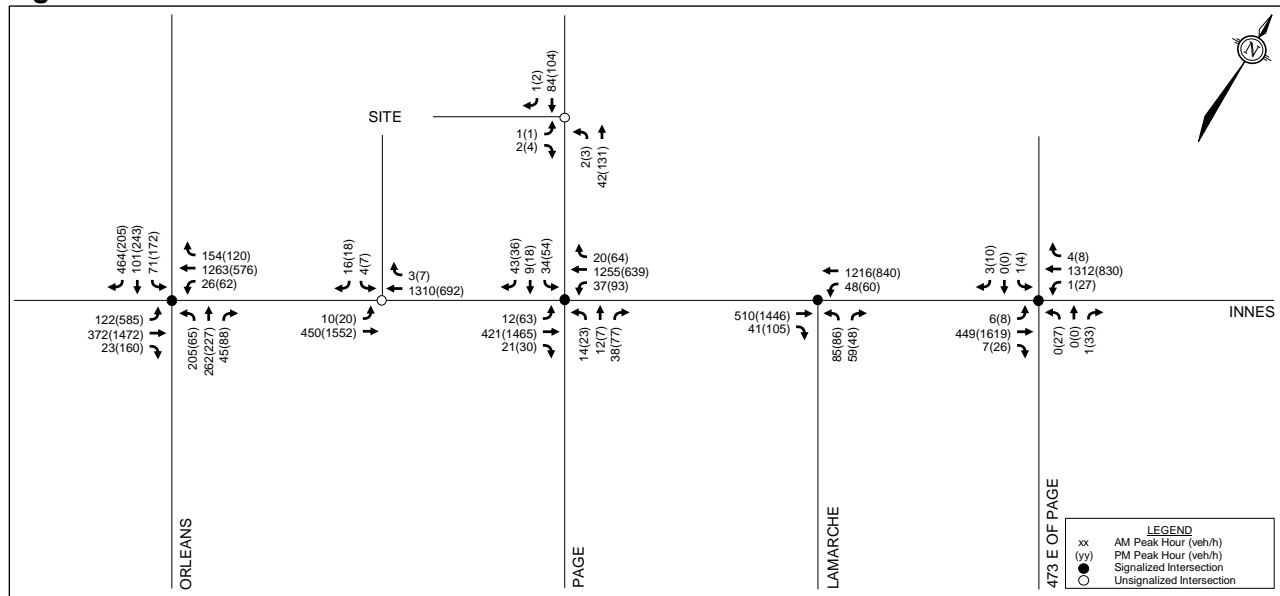
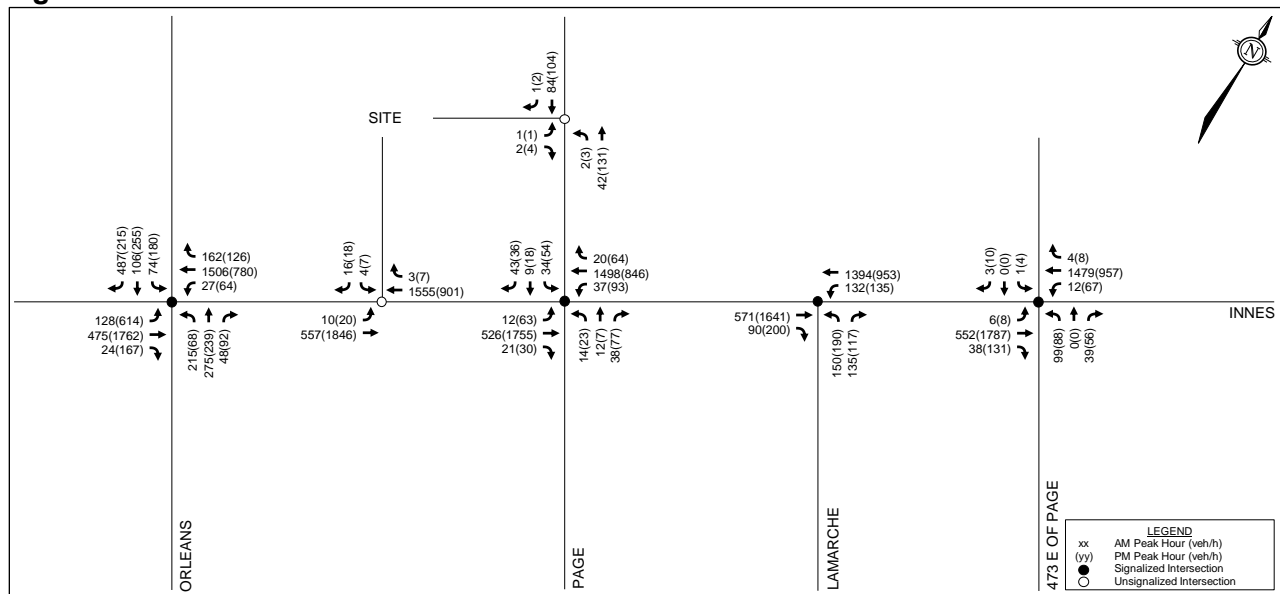


Figure 12: 2028 Total Traffic Volumes



3.4 Demand Rationalization

A review of the existing and background intersection operations has been conducted to determine if/when traffic volumes exceed capacity within the study area. The intersection parameters used in the analysis are consistent with the *2017 TIA Guidelines* (Saturated Flow Rate: 1,800 vphpl, Peak Hour Factor: 0.9 in existing conditions and 1.0 in future conditions). Per Exhibit 22 of the *Multi-Modal Level of Service (MMLOS) Guidelines*, the target vehicular level of service (Auto LOS) at all study area intersections is an Auto LOS D, which equates to a maximum vehicle-to-capacity (v/c) ratio of 0.90. Signal timing plans have been obtained from the City, and are included in **Appendix I**.

3.4.1 Existing Intersection Operations

Intersection capacity analysis has been conducted for the existing traffic conditions. The results of the analysis are summarized in **Table 12** and **Table 13** for the weekday AM and PM peak hours. Detailed Synchro reports are included in **Appendix J**.

Table 12: Existing Traffic Operations

Intersection	Period	Critical Movements			Intersection		
		Max v/c or Delay	LOS	Mvmt	v/c	Delay	LOS
Innes Road/ Orléans Boulevard ⁽¹⁾	AM	1.19	F	SBR	0.92	53 sec	E
		0.91	E	EBL			
	PM	1.00	E	EBT	0.87	45 sec	D
Innes Road/ Pagé Road ⁽¹⁾	AM	0.55	A	WBT/R	0.52	8 sec	A
	PM	0.72	C	WBL	0.65	11 sec	B
Innes Road/ Lamarche Avenue ⁽¹⁾	AM	14 sec	B	NBL/R	-		
	PM	27 sec	D	NBL/R			
Innes Road/ 473m East of Pagé Road ⁽¹⁾	AM	0.46	A	WBT/R	0.46	5 sec	A
	PM	0.59	A	EBT/R	0.58	3 sec	A

1. Signalized intersection

2. Unsignalized intersection

Table 13: Existing Queues

Intersection	Mvmt	Storage/ Spacing ⁽¹⁾	AM Peak			PM Peak		
			v/c [LOS]	50 th % Queue (m)	95 th % Queue (m)	v/c [LOS]	50 th % Queue (m)	95 th % Queue (m)
Innes Road/ Orléans Boulevard	SBL	55m	0.38 [A]	16	30	0.79 [C]	34	#63
	SBR	60m	1.19 [F]	~115	#177	0.45 [A]	0	17
	EBL	140m	0.91 [E]	17	#35	0.90 [D]	64	#91
	EBT	820m	0.25 [A]	29	40	1.00 [E]	~195	#235

1: Indicates the storage length for auxiliary lanes or the spacing to the nearest upstream intersection/access for through lanes

#: Volume for the 95th percentile cycle exceeds capacity

~: Approach is above capacity

From the previous tables, there are three movements at Innes Road/Orléans Boulevard that exceed the target v/c ratio during the weekday peak hours. The approximate required reduction in volumes to meet the target Auto LOS for each over-capacity movement is included below.

AM Peak Hour

- Innes Road/Orléans Boulevard
 - Southbound right turn (v/c: 1.19): reduction of 140 vehicles required;
 - Eastbound left turn (v/c: 0.91): reduction of 10 vehicles required.

PM Peak Hour

- Innes Road/Orléans Boulevard
 - Eastbound through (v/c: 1.00): reduction of 140 vehicles required.

Detailed Synchro reports of an alternative scenario with these reduced volumes is included in **Appendix J**.

During the AM peak hour, the average (50th-percentile) and maximum (95th-percentile) queue lengths of the southbound right turn movement at Innes Road/Orléans Boulevard exceed the storage length provided.

During the PM peak hour, the maximum queue length of the southbound left turn movement at Innes Road/Orléans Boulevard exceeds the storage length provided, but is captured within the taper.

3.4.2 2023 Background Intersection Operations

Intersection capacity analysis has been conducted for the 2023 background traffic conditions. The results of the analysis are summarized in **Table 14** and **Table 15** for the weekday AM and PM peak hours. Detailed Synchro reports are included in **Appendix K**.

Table 14: 2023 Background Traffic Operations

Intersection	Period	Critical Movements			Intersection		
		Max v/c or Delay	LOS	Mvmt	v/c	Delay	LOS
Innes Road/ Orléans Boulevard ⁽¹⁾	AM	1.06	F	SBR	0.84	44 sec	D
	PM	0.91	E	EBT	0.80	38 sec	C
Innes Road/ Pagé Road ⁽¹⁾	AM	0.49	A	WBT/R	0.47	7 sec	A
	PM	0.62	B	EBT/R	0.59	9 sec	A
Innes Road/ Lamarche Avenue ⁽²⁾	AM	16 sec	C	NBL/R	-		
	PM	29 sec	D	NBL/R			
Innes Road/ 473m East of Pagé Road ⁽¹⁾	AM	0.42	A	WBT/R	0.42	3 sec	A
	PM	0.60	A	EBT/R	0.58	4 sec	A

1. Signalized intersection

2. Unsignalized intersection

Table 15: 2023 Background Queues

Intersection	Mvmt	Storage/ Spacing ⁽¹⁾	AM Peak			PM Peak		
			v/c [LOS]	50 th % Queue (m)	95 th % Queue (m)	v/c [LOS]	50 th % Queue (m)	95 th % Queue (m)
Innes Road/ Orléans Boulevard	SBL	55m	0.34 [A]	14	28	0.75 [C]	30	#52
	SBR	60m	1.06 [F]	~87	#148	0.42 [A]	0	13
	EBL	140m	0.83 [D]	15	#31	0.85 [D]	57	#76
	EBT	820m	0.24 [A]	27	37	0.91 [E]	~172	#213

1: Indicates the storage length for auxiliary lanes or the spacing to the nearest upstream intersection/access for through lanes

#: Volume for the 95th percentile cycle exceeds capacity

~: Approach is above capacity

From the previous tables, there are two movements at Innes Road/Orléans Boulevard that are projected to exceed the target v/c ratio during the weekday peak hours. Operations at some movements throughout the study area improve compared to existing conditions, due to differences in the Peak Hour Factor parameter. The approximate required reduction in volumes to meet the target Auto LOS for each over-capacity movement is included below.

AM Peak Hour

- Innes Road/Orléans Boulevard
 - Southbound right turn (v/c: 1.07): reduction of 100 vehicles required.

PM Peak Hour

- Innes Road/Orléans Boulevard
 - Eastbound through (v/c: 0.97): reduction of 20 vehicles required.

Detailed Synchro reports of an alternative scenario with these reduced volumes is included in **Appendix K**.

During the AM peak hour, the average and maximum queue lengths of the southbound right turn movement at Innes Road/Orléans Boulevard exceed the storage length provided.

During the PM peak hour, the maximum queue length of the southbound left turn movement at Innes Road/Orléans Boulevard exceeds the storage length provided, but is captured within the taper.

3.4.3 2028 Background Intersection Operations

Intersection capacity analysis has been conducted for the 2028 background traffic conditions. The results of the analysis are summarized in **Table 16** and **Table 17** for the weekday AM and PM peak hours. Detailed Synchro reports are included in **Appendix K**.

Table 16: 2028 Background Traffic Operations

Intersection	Period	Critical Movements			Intersection		
		Max v/c	LOS	Mvmt	v/c	Delay	LOS
Innes Road/ Orléans Boulevard ⁽¹⁾	AM	1.14	F	SBR	0.97	55 sec	E
		0.98	E	WBT			
	PM	1.10	F	EBT	0.96	58 sec	E
Innes Road/ Pagé Road ⁽¹⁾	AM	0.58	A	WBT/R	0.58	6 sec	A
	PM	0.89	D	WBL	0.71	12 sec	C
Innes Road/ Lamarche Avenue ⁽¹⁾	AM	0.81	D	NBL/R	0.54	13 sec	A
	PM	0.92	E	EBT	0.89	19 sec	D
Innes Road/ 473m East of Pagé Road ⁽¹⁾	AM	0.58	A	WBT/R	0.58	9 sec	A
	PM	0.72	C	EBT/R	0.70	7 sec	B

1. Signalized intersection

Table 17: 2028 Background Queues

Intersection	Mvmt	Storage/ Spacing ⁽¹⁾	AM Peak			PM Peak		
			v/c [LOS]	50 th % Queue (m)	95 th % Queue (m)	v/c [LOS]	50 th % Queue (m)	95 th % Queue (m)
Innes Road/ Orléans Boulevard	SBL	55m	0.36 [A]	15	29	0.77 [C]	32	#58
	SBR	60m	1.14 [F]	~104	#165	0.44 [A]	0	15
	EBL	140m	0.87 [D]	16	#33	0.88 [D]	60	#84
	EBT	820m	0.30 [A]	37	48	1.10 [F]	~236	#277

1: Indicates the storage length for auxiliary lanes or the spacing to the nearest upstream intersection/access for through lanes

#: Volume for the 95th percentile cycle exceeds capacity

~: Approach is above capacity

From the previous tables, there are three movements at Innes Road/Orléans Boulevard and one movement at Innes Road/Lamarche Avenue that are projected to exceed the target v/c ratio during the weekday peak hours. The approximate required reduction in volumes to meet the target Auto LOS for each over-capacity movement is included below.

AM Peak Hour

- Innes Road/Orléans Boulevard
 - Southbound right turn (v/c: 1.14): reduction of 130 vehicles required;
 - Westbound through (v/c: 0.98): reduction of 80 vehicles required.

PM Peak Hour

- Innes Road/Orléans Boulevard
 - Eastbound through (v/c: 1.14): reduction of 320 vehicles required.
- Innes Road/Lamarche Avenue
 - Eastbound through (v/c: 0.92): reduction of 40 vehicles required.

Detailed Synchro reports of an alternative scenario with these reduced volumes is included in **Appendix K**.

During the AM peak hour, the average and maximum queue lengths of the southbound right turn movement at Innes Road/Orléans Boulevard exceed the storage length provided.

During the PM peak hour, the maximum queue length of the southbound left turn movement at Innes Road/Orléans Boulevard exceeds the storage length provided, but is captured within the taper.

Traffic throughout the study area could be displaced or alleviated through a combination of increased use of non-auto modes of transportation, alternate times of travel for drivers using the study area to make use of off-peak capacity, and alternate routes of travel. Further descriptions of these options are described below.

Increased Use of Non-Auto Modes

As discussed in Section 2.2.1, future improvements to the transit, cyclist, and pedestrian networks are anticipated within proximity of the study area. These improvements will include transit priority measures on Innes Road, Brian Coburn Boulevard, and the Blackburn Hamlet Bypass, the future Cumberland Transitway, and improved cyclist and pedestrian connectivity north of the study area.

Alternate Travel Times

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

Alternate Travel Routes

As congestion increases within the study area, some motorists may choose alternate routes of travel outside of the study area. North-south routes that are alternative to Orléans Boulevard include Mer Bleue Road/Jeanne d'Arc Boulevard, Tenth Line Road, and Trim Road. East-west routes that are alternative to Innes Road include Ottawa Road 174, St. Joseph Boulevard, and Brian Coburn Boulevard.

4.0 ANALYSIS

4.1 Transportation Demand Management

4.1.1 Context for TDM

A breakdown of the proposed residential dwellings by type (i.e. studio, one-bedroom, two-bedroom, etc.), and the specific commercial uses are not known at this time. It is anticipated that the residential unit mix will be known at the Site Plan Control application stage.

4.1.2 Need and Opportunity

The subject site is designated as 'General Urban Area' on Schedule B of the City's Official Plan, and will be rezoned to 'Local Commercial' (LC). Therefore, the assumed mode shares for the proposed development generally follow the mode shares of the Orléans district, per the *TRANS Trip Generation Manual*.

As discussed in Section 2.2.1, there are planned transit priority measures on Innes Road, Brian Coburn Boulevard, and the Blackburn Hamlet Bypass. These measures are anticipated to improve the transit share of the proposed development and the Orléans district. Therefore, failure to meet the peak hour driver share targets of 55% for the proposed residences and 75% for the proposed commercial uses is not anticipated.

4.1.3 TDM Program

A review of the City's *TDM Measures Checklists* for new developments will be conducted by the proponent as part of a future Site Plan Control application.

4.2 Neighbourhood Traffic Management

The *2017 TIA Guidelines* identify two-way peak hour traffic volume thresholds for considering when a Neighbourhood Traffic Management (NTM) plan should be developed, when the site relies on local or collector roadways for access. The NTM two-way volume thresholds (in vehicles per hour, or vph) are as follows:

- 120 vph for local roadways;
- 300 vph for collector roadways;
- 600 vph for major collector roadways.

The proposed development can be accessed via Pagé Road north of Innes Road. Based on the latest traffic count at Innes Road/Pagé Road, existing volumes on Pagé Road already exceed the 120 vph threshold, with 126 vph in the AM peak hour and 235 vph in the PM peak hour. As shown in **Figure 6**, the proposed development is anticipated to generate additional two-way traffic volumes on Pagé Road of four vph in the AM peak hour and six vph in the PM peak hour.

Traffic calming measures have already been implemented on Pagé Road north of Innes Road, as three speed humps have been implemented on Pagé Road between Innes Road and Meadowglen Drive. Signage at each speed bump indicate that vehicles are intended to slow to 30 km/h at those points, where Pagé Road otherwise has a posted speed limit of 40 km/h. No additional traffic calming measures are identified as a part of the proposed development.

4.3 Transit

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

- 14 transit trips (five inbound trips and nine outbound trips) during the AM peak hour;
- 16 transit trips (nine inbound trips and seven outbound trips) during the PM peak hour.

All site-generated transit trips are anticipated to board and alight buses at the stops listed in Section 2.1.6, which includes stops on Innes Road, Orléans Boulevard, or Meadowglen Drive. It is assumed that any school transit trips occur outside the peak hours, and all peak hour transit trips generated by the proposed development will be served by OC Transpo Routes 25, 34, 131, or 231. No capacity issues are anticipated for these routes, based on the above trip estimates.

4.4 Intersection Design

4.4.1 Intersection MMLOS Review

This section provides a review of the existing signalized study area intersections using complete streets principles. The signalized intersections within the study area have been evaluated for pedestrian level of service (PLOS), bicycle level of service (BLOS), transit level of service (TLOS), and truck level of service (TkLOS). Based on Schedule B of the City's Official Plan, the MMLOS targets associated with the 'General Urban Area' have been used to evaluate Innes Road/Orléans Boulevard, and the MMLOS targets associated with 'Arterial Mainstreets' have been used to evaluate Innes Road/Pagé Road and Innes Road/473m East of Pagé Road. All intersections have been evaluated based on existing conditions.

The full intersection MMLOS analysis is included in **Appendix M**. A summary of the results is shown in **Table 18**.

Table 18: Intersection MMLOS Summary

Intersection	PLOS		BLOS		TLOS		TkLOS	
	Actual	Target	Actual	Target	Actual	Target	Actual	Target
Innes Road/Orléans Boulevard	F	C	F	B	F	D	A	D
Innes Road/Pagé Road	F		F		C		E	
Innes Road/473m East of Pagé Road	F		F		B		F	

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

- No signalized intersections meet the target PLOS;
- No signalized intersections meet the target BLOS;
- Innes Road/Pagé Road and Innes Road/473m East of Pagé Road meet the target TLOS, while Innes Road/Orléans Boulevard does not;
- Innes Road/Orléans Boulevard meets the target TkLOS, while Innes Road/Pagé Road and Innes Road/473m East of Pagé Road do not.

Innes Road/Orléans Boulevard

This intersection does not meet the target PLOS C, BLOS B, or TLOS D.

All approaches have a divided cross-section with a width equivalent to ten lanes crossed or more (assuming a lane width equals 3.5m, per the *MMLOS Guidelines*). There is limited opportunity in improving any approach to the target PLOS C without reducing the number of travel lanes or restricting turning movements. All approaches meet the City's vehicle/pedestrian conflict threshold for zebra-striped crosswalks (greater than 400,000 vehicle/pedestrian conflicts over an eight-hour period), and the east and west approaches have had zebra-striped crosswalks recently implemented. There is limited opportunity in improving the delay score for pedestrians crossing at the east and west approaches, without incurring major delays for vehicles.

All approaches do not achieve the target BLOS B, based on both left turn and right turn characteristics. To achieve this target, a protected intersection would be required, and would involve the removal of all right turn channels. This is identified for the City's consideration.

All approaches do not achieve the target TLOS D. It is anticipated that transit delays will improve once the isolated transit priority measures described in Section 2.2.1 are implemented.

Innes Road/Pagé Road

This intersection does not meet the target PLOS C, BLOS B, or TkLOS D.

All approaches have a cross-section with a width equivalent to six lanes crossed or more. There is limited opportunity in improving any approach to the target PLOS C. The east and west approaches meet the City's vehicle/pedestrian conflict threshold for zebra-striped crosswalks, which could be considered to improve the level of comfort for pedestrians. There is limited opportunity in improving the delay score for pedestrians crossing at the east and west approaches, without incurring major delays for vehicles.

The east and west approaches do not achieve the target BLOS B, based on left turn characteristics. Per Exhibit 12, two-stage left-turn bike boxes would be required to achieve the target, and would therefore require a restriction to right turns on red (RTOR) for northbound and southbound vehicles. This is identified for the City's consideration. It is recommended that if bike boxes are pursued, that they are implemented holistically along the Innes Road where applicable, rather than at only select intersections.

The east and west approaches do not achieve the target TkLOS D. Given that Pagé Road is primarily a residential street, and the volume of heavy vehicles turning onto Pagé Road is anticipated to be low, no modifications to the curb radii are recommended.

Innes Road/473m East of Pagé Road

This intersection does not meet the target PLOS C, BLOS B, or TkLOS D.

The south, east, and west approaches have a cross-section with a width equivalent to six lanes crossed or more. There is limited opportunity in improving these approaches to the target PLOS C. The north approach could be improved to the target PLOS C by reducing the width from an equivalent of four lanes crossed to three. No other modifications are identified.

The south, east, and west approaches do not achieve the target BLOS B, based on left turn characteristics. Per Exhibit 12, two-stage left-turn bike boxes would be required to achieve the target, and would therefore require RTOR restrictions for northbound, southbound, and westbound vehicles. This is identified for the City's consideration. It is recommended that if bike boxes are pursued, that they are implemented holistically along the Innes Road where applicable, rather than at select intersections.

The east approach does not achieve the target TkLOS D. Given the layout and size of the commercial site at 3615 Innes Road, it is anticipated that large trucks do not enter and exit the site for loading and deliveries. Therefore, no modifications are recommended.

4.4.2 2023 Total Intersection Operations

Intersection capacity analysis has been conducted for the 2023 total traffic conditions. The results of the analysis are summarized in **Table 19** and **Table 20** for the weekday AM and PM peak hours. Detailed Synchro reports are included in **Appendix N**.

Table 19: 2023 Total Traffic Operations

Intersection	Period	Critical Movements			Intersection		
		Max v/c or Delay	LOS	Mvmt	v/c	Delay	LOS
Innes Road/ Orléans Boulevard ⁽¹⁾	AM	1.06	F	SBR	0.84	44 sec	D
	PM	0.93	E	EBT	0.81	39 sec	D
Innes Road/ Pagé Road ⁽¹⁾	AM	0.52	A	WBT/R	0.49	8 sec	A
	PM	0.62	B	EBT/R	0.59	9 sec	A
Innes Road/ Lamarche Avenue ⁽²⁾	AM	15 sec	B	NBL/R	-		
	PM	29 sec	D	NBL/R			
Innes Road/ 473m East of Pagé Road ⁽¹⁾	AM	0.42	A	WBT/R	0.42	3 sec	A
	PM	0.60	A	EBT/R	0.58	4 sec	A
Innes Road/ Site Access ⁽²⁾	AM	15 sec	B	SBL/R	-		
	PM	10 sec	A	SBL/R			
Pagé Road/ Site Access ⁽²⁾	AM	9 sec	A	EBL/R	-		
	PM	9 sec	A	EBL/R			

1. Signalized intersection

2. Unsignalized intersection

Table 20: 2023 Total Queues

Intersection	Mvmt	Storage/ Spacing ⁽¹⁾	AM Peak			PM Peak		
			v/c [LOS]	50 th % Queue (m)	95 th % Queue (m)	v/c [LOS]	50 th % Queue (m)	95 th % Queue (m)
Innes Road/ Orléans Boulevard	SBL	55m	0.35 [A]	15	28	0.76 [C]	31	#56
	SBR	60m	1.06 [F]	~88	#148	0.42 [A]	0	13
	EBL	140m	0.83 [D]	15	#31	0.85 [D]	57	#76
	EBT	820m	0.24 [A]	28	38	0.93 [E]	~176	#216

1: Indicates the storage length for auxiliary lanes or the spacing to the nearest upstream intersection/access for through lanes

#: Volume for the 95th percentile cycle exceeds capacity

~: Approach is above capacity

Compared to the 2023 background traffic conditions, the addition of site-generated traffic is anticipated to have a marginal impact to peak hour traffic operations within the study area.

4.4.3 2028 Total Intersection Operations

Intersection capacity analysis has been conducted for the 2028 background traffic conditions. The results of the analysis are summarized in **Table 21** and **Table 22** for the weekday AM and PM peak hours. Detailed Synchro reports are included in **Appendix N**.

Table 21: 2028 Total Traffic Operations

Intersection	Period	Critical Movements			Intersection		
		Max v/c or Delay	LOS	Mvmt	v/c	Delay	LOS
Innes Road/ Orléans Boulevard ⁽¹⁾	AM	1.15	F	SBR	0.97	56 sec	E
		0.99	E	WBT			
	PM	1.12	F	EBT	0.98	61 sec	E
Innes Road/ Pagé Road ⁽¹⁾	AM	0.61	B	WBT/R	0.58	6 sec	A
	PM	0.90	D	WBL	0.72	12 sec	C
Innes Road/ Lamarche Avenue ⁽¹⁾	AM	0.81	D	NBL/R	0.54	12 sec	A
	PM	0.92	E	EBT	0.89	19 sec	D
Innes Road/ 473m East of Pagé Road ⁽¹⁾	AM	0.58	A	WBT/R	0.58	9 sec	A
	PM	0.72	C	EBT/R	0.70	8 sec	B
Innes Road/ Site Access ⁽²⁾	AM	18 sec	C	SBL/R	-		
	PM	10 sec	A	SBL/R			
Pagé Road/ Site Access ⁽²⁾	AM	9 sec	A	EBL/R	-		
	PM	9 sec	A	EBL/R			

1. Signalized intersection

2. Unsignalized intersection

Table 22: 2028 Total Queues

Intersection	Mvmt	Storage/ Spacing ⁽¹⁾	AM Peak			PM Peak		
			v/c [LOS]	50 th % Queue (m)	95 th % Queue (m)	v/c [LOS]	50 th % Queue (m)	95 th % Queue (m)
Innes Road/ Orléans Boulevard	SBL	55m	0.37 [A]	15	29	0.79 [C]	33	#61
	SBR	60m	1.15 [F]	~105	#166	0.44 [A]	0	15
	EBL	140m	0.87 [D]	16	#33	0.88 [D]	60	#84
	EBT	820m	0.31 [A]	37	49	1.12 [F]	~240	#280

1: Indicates the storage length for auxiliary lanes or the spacing to the nearest upstream intersection/access for through lanes

#: Volume for the 95th percentile cycle exceeds capacity

~: Approach is above capacity

Compared to the 2028 background traffic conditions, the addition of site-generated traffic is anticipated to have a marginal impact to peak hour traffic operations within the study area.

5.0 CONCLUSIONS AND RECOMMENDATIONS

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

Forecasting

- The proposed development is projected to generate 66 person trips (including 39 vehicle trips) during the AM peak hour and 96 person trips (including 61 vehicle trips) during the PM peak hour.

Neighbourhood Traffic Management

- The proposed development is anticipated to generate additional two-way traffic volumes on Pagé Road of four vph in the AM peak hour and six vph in the PM peak hour. Traffic calming measures have already been implemented on Pagé Road north of Innes Road, and therefore no additional traffic calming measures are identified as a part of the proposed development.

Transit

- The proposed development is projected to generate 14 transit trips during the AM peak hour and 16 transit trips during the PM peak hour.
- All peak hour transit trips generated by the proposed development will be served by OC Transpo Routes 25, 34, 131, or 231. No capacity issues are anticipated for these routes.

Intersection MMLOS

- The results of the intersection MMLOS analysis can be summarized as follows:
 - No signalized intersections meet the target PLOS;
 - No signalized intersections meet the target BLOS;
 - Innes Road/Pagé Road and Innes Road/473m East of Pagé Road meet the target TLOS, while Innes Road/Orléans Boulevard does not;
 - Innes Road/Orléans Boulevard meets the target TkLOS, while Innes Road/Pagé Road and Innes Road/473m East of Pagé Road do not.
- There is limited opportunity in improving any intersection to the target PLOS C without reducing the number of travel lanes or restricting turning movements.
- To achieve the target BLOS B, a protected intersection design is required at all signalized intersections.
- No recommendations to improve the TkLOS at Innes Road/Pagé Road and Innes Road/473m East of Pagé Road are identified.

Existing Traffic Operations

- During the peak hours, the following movements are identified as over-capacity:
 - Innes Road/Orléans Boulevard
 - Southbound right turn and eastbound left turn during the AM peak hour;
 - Eastbound through during the PM peak hour.
- During the AM peak hour, the average (50th-percentile) and maximum (95th-percentile) queue lengths of the southbound right turn movement at Innes Road/Orléans Boulevard exceed the storage length provided.
- During the PM peak hour, the maximum queue length of the southbound left turn movement at Innes Road/Orléans Boulevard exceeds the storage length provided, but is captured within the taper.

Background Traffic Operations

- By the 2028 background scenario, the following movements are identified as over-capacity:
 - Innes Road/Orléans Boulevard
 - Southbound right turn and westbound through during the AM peak hour;
 - Eastbound through during the PM peak hour.
 - Innes Road/Lamarche Avenue
 - Eastbound through during the PM peak hour.
- During the AM peak hour, the average and maximum queue lengths of the southbound right turn movement at Innes Road/Orléans Boulevard exceed the storage length provided.

- During the PM peak hour, the maximum queue length of the southbound left turn movement at Innes Road/Orléans Boulevard exceeds the storage length provided, but is captured within the taper.

Total Traffic Operations

- The addition of site-generated traffic is anticipated to have a marginal impact to peak hour traffic operations within the study area.

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

NOVATECH

Prepared by:



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Reviewed by:

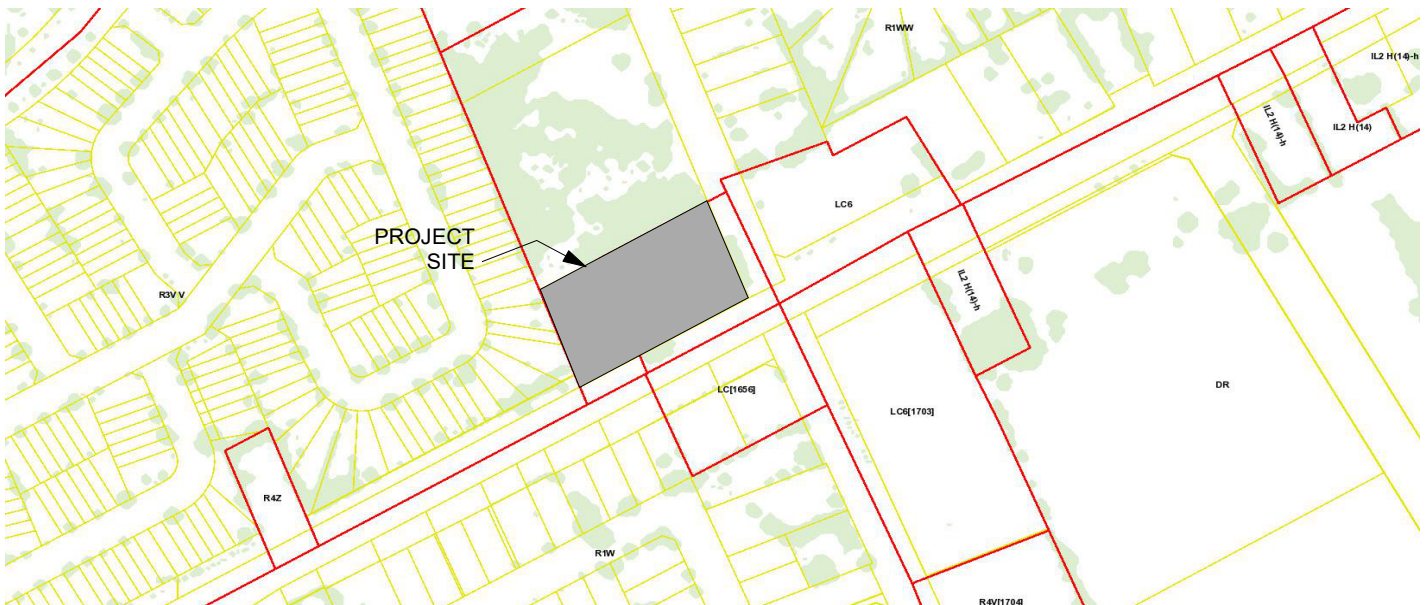


Brad Byvelde, P.Eng.
Project Manager,
Transportation/Traffic

APPENDIX A

Concept Plan

SITE CONTEXT



LEGEND

SURFACES

	GRASS
	RIVERSTONE
	CONCRETE PAVERS
	POURED CONCRETE
	ASPHALT PAVING
	PROPOSED NEW BUILDING
	EXISTING BUILDING TO REMAIN
	EXISTING BUILDING TO BE DEMOLISHED

LINES

	PROPERTY LINE
	SETBACK LINE
	EXISTING FENCE
	NEW FENCE
	OVERHEAD WIRES

VEGETATION

	TREE: EXISTING TO REMAIN
	TREE: EXISTING TO BE REMOVED
	TREE: NEW PROPOSED
	SHRUB: NEW PROPOSED

SYMBOLS

	DIRECTIONAL ARROWS
	BUILDING ACCESS
	BUILDING EGRESS
	SIAMESE CONNECTION
	UTILITY POLE
	FIRE HYDRANT
	CATCH BASIN / MANHOLE
	DEPRESSED CURB
	LANDSCAPE LIGHT
	LIGHT POLE
	WALL MOUNTED LIGHT
	EXISTING GRADE ELEVATION
	PROPOSED GRADE ELEVATION
	LOT CORNERS

PARKING

	BIKE PARKING H: HORIZONTAL 0.6M x 1.8M V: VERTICAL 0.5M x 1.5M S: STACKED 0.37M x 1.8M
	CAR PARKING R: RESIDENTIAL V: VISITOR
	BF PARKING R: RESIDENTIAL V: VISITOR
	BF PARKING (TYPE A) R: RESIDENTIAL V: VISITOR
	BF PARKING (TYPE B) R: RESIDENTIAL V: VISITOR

GENERAL NOTES

NOTE-A :

- ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS AND SPECIFICATIONS, INCLUDING OTHER CONSULTANTS DRAWINGS AND SPECIFICATIONS. ANY DISCREPANCIES BETWEEN DRAWINGS WILL BE REPORTED TO THE PROJECT LEAD IMMEDIATELY FOR CLARIFICATION PRIOR TO COMMENCING ANY CONSTRUCTION.

NOTE-B :

- ALL GENERAL SITE INFORMATION AND CONDITIONS HAVE BEEN COMPILED FROM EXISTING PLANS AND SURVEYS.

NOTE-C :

- CONTRACTOR IS RESPONSIBLE TO CHECK AND VERIFY ALL DIMENSIONS ON SITE AND REPORT ALL ERRORS AND / OR OMISSIONS TO THE ARCHITECT.

NOTE-D :

- REFER TO LANDSCAPE PLAN FOR ALL EXTERIOR LANDSCAPING.

NOTE-E :

- DO NOT SCALE DRAWINGS.

NOTE-F :

- ALL CONTRACTORS MUST COMPLY WITH ALL APPLICABLE CODES AND REGULATIONS.

SURVEY INFO

TOPOGRAPHIC SURVEY OF :

#####

GRAPHIC SCALE

PROJECT INFORMATION

SITE SUMMARY

ADDRESS	#####
CURRENT ZONING	#####
SITE AREA	#####
PROPOSED USE	#####
BUILDING AREA	0.00 m²

ZONING SUMMARY

	REQUIRED	PROPOSED
LOT AREA	0.00 m²	0.00 m²
LOT WIDTH	0.00 m	0.00 m
MIN. LOT WIDTH	0.00 m	0.00 m
MAX. BUILDING HEIGHT	0.00 m	0.00 m
MAX. PARAPET HEIGHT	0.00 m	0.00 m
SET BACKS: - FRONT YARD	0.00 m (min.) 0.00 m (max.)	0.00 m (min.) 0.00 m (max.)
- CORNER SIDE YARD	0.00 m (min.) 0.00 m (max.)	0.00 m (min.) 0.00 m (max.)
- INTERIOR SIDE YARD	0.00 m (min.) 0.00 m (max.)	0.00 m (min.) 0.00 m (max.)
- REAR YARD	0.00 m (min.) 0.00 m (max.)	0.00 m (min.) 0.00 m (max.)
- ADDITIONAL REQ	0.00 m	0.00 m
MIN LANDSCAPED AREA	0.00 m²	0.00 m²

VEHICULAR PARKING

	REQUIRED	PROPOSED
MIN PARKING SPACES	0	0
MIN VISITOR PARKING SPACES	0	0
MIN ACCESSIBLE PRKG SPACES	0	0
Incl. in total parking count		

BICYCLE PARKING

	REQUIRED	PROPOSED
MIN PARKING SPACES	0	0

WASTE MANAGEMENT CONTAINERS

	REQUIRED	PROPOSED
GARBAGE (0.11 y³ / unit)	0	0
RECYCLING (0.038 y³ / unit)	0	0
ORGANICS	0	0

AMENITY AREA

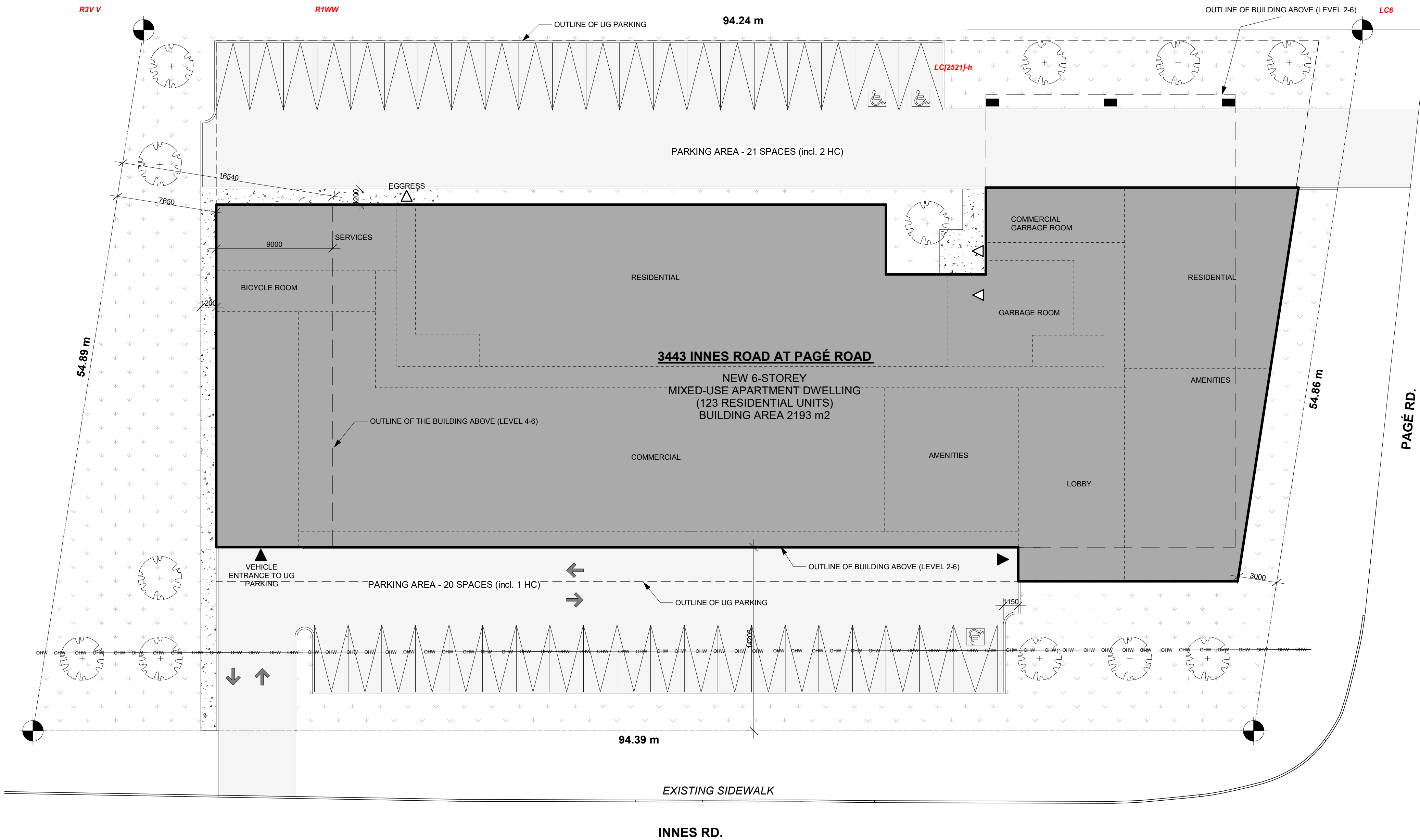
	REQUIRED	PROPOSED
PRIVATE	0.00 m²	0.00 m²
COMMUNAL	0.00 m²	0.00 m²

BUILDING SUMMARY

	UNITS	GFA - OBC	GFA - CITY
#####	0	0.00 m²	0.00 m²
#####	0	0.00 m²	0.00 m²
#####	0	0.00 m²	0.00 m²
#####	0	0.00 m²	0.00 m²
#####	0	0.00 m²	0.00 m²
#####	0	0.00 m²	0.00 m²
#####	0	0.00 m²	0.00 m²
#####	0	0.00 m²	0.00 m²
#####	0	0.00 m²	0.00 m²
#####	0	0.00 m²	0.00 m²

KEYNOTE DESCRIPTIONS

- sample
- sample
- sample
- sample
- sample
- sample
- sample
- sample
- sample
- sample



1 SITE PLAN -PRES 24x36-
1 : 200

APPENDIX B

TIA Screening Form

City of Ottawa 2017 TIA Guidelines Screening Form

1. Description of Proposed Development

Municipal Address	3437 Innes Road
Description of Location	Located on the north side of Innes Road, approximately 65m west of Pagé Road
Land Use Classification	Mixed-Use Building (commercial at grade, residential on upper floor)
Development Size (units)	Approx. 123 dwellings
Development Size (m ²)	Approx. 5,530 ft² (514 m²) GFA of commercial space
Number of Accesses and Locations	One access to Innes Road and one access to Pagé Road
Phase of Development	1
Buildout Year	2023

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

2. Trip Generation Trigger

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

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

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

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

3. Location Triggers

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

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

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

4. Safety Triggers

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

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

5. Summary

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

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

APPENDIX C

OC Transpo Route Maps

25

Fréquent

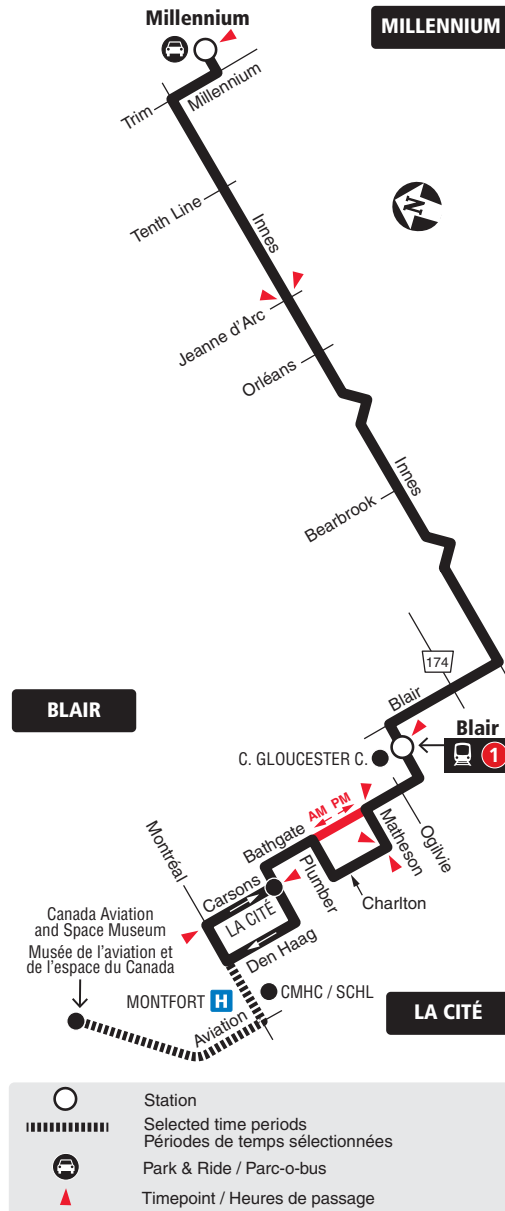
MILLENNIUM

LA CITÉ
BLAIR

7 days a week / 7 jours par semaine

All day service

Service toute la journée



2020.07



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

Text / Texto560560

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

Customer Service

Service à la clientèle 613-741-4390

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

Security / Sécurité..... 613-741-2478

Effective August 8, 2020

En vigueur 8 août 2020



INFO 613-741-4390
octranspo.com

34

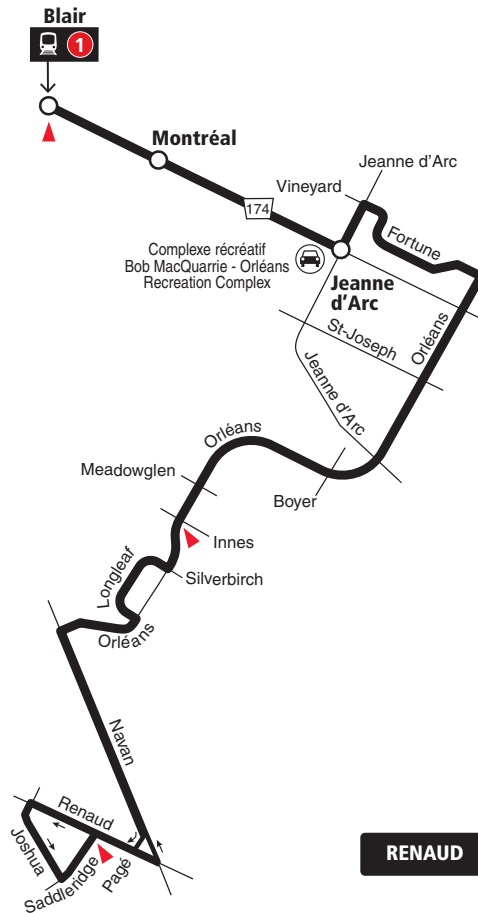
**RENAUD
BLAIR**

Local

7 days a week / 7 jours par semaine

All day service
Service toute la journée

BLAIR



RENAUD

- Station
- 🚌 Park & Ride / Parc-o-bus
- ▲ Timepoint / Heures de passage

2019.07



1



**Future route after O-Train Line 1 is open
Trajet du circuit après l'ouverture
de la Ligne 1 de l'O-Train**

Lost and Found / Objets perdus..... 613-563-4011
Security / Sécurité 613-741-2478

OC Transpo

INFO 613-741-4390
octranspo.com

131

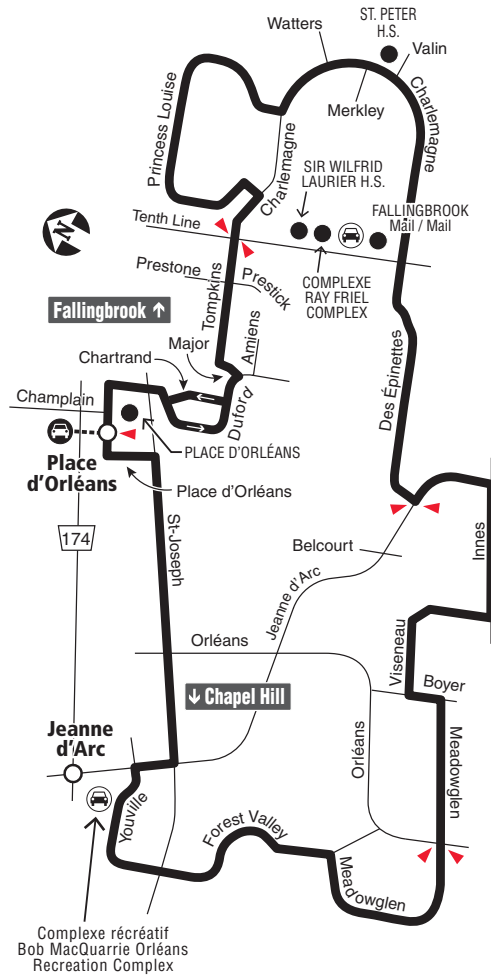
FALLINGBROOK CHAPEL HILL

Local

7 days a week / 7 jours par semaine

All day service

Service toute la journée



Station



Park & Ride / Parc-o-bus



Timepoint / Heures de passage

2019.06



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

Text / Texto560560

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

Customer Service

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

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

Security / Sécurité **613-741-2478**

Effective September 2, 2018

En vigueur 2 septembre 2018



INFO 613-741-4390
octranspo.com

231

MEADOWGLEN BLAIR

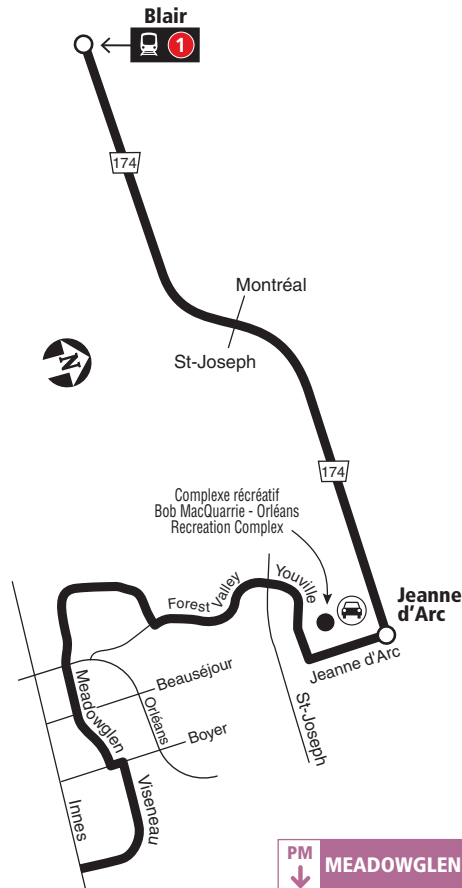
Connexion

Monday to Friday / Lundi au vendredi

Peak periods only

Périodes de pointe seulement

AM
↑
BLAIR



PM
↓
MEADOWGLEN



Station



Park & Ride / Parc-o-bus

2019.07



1



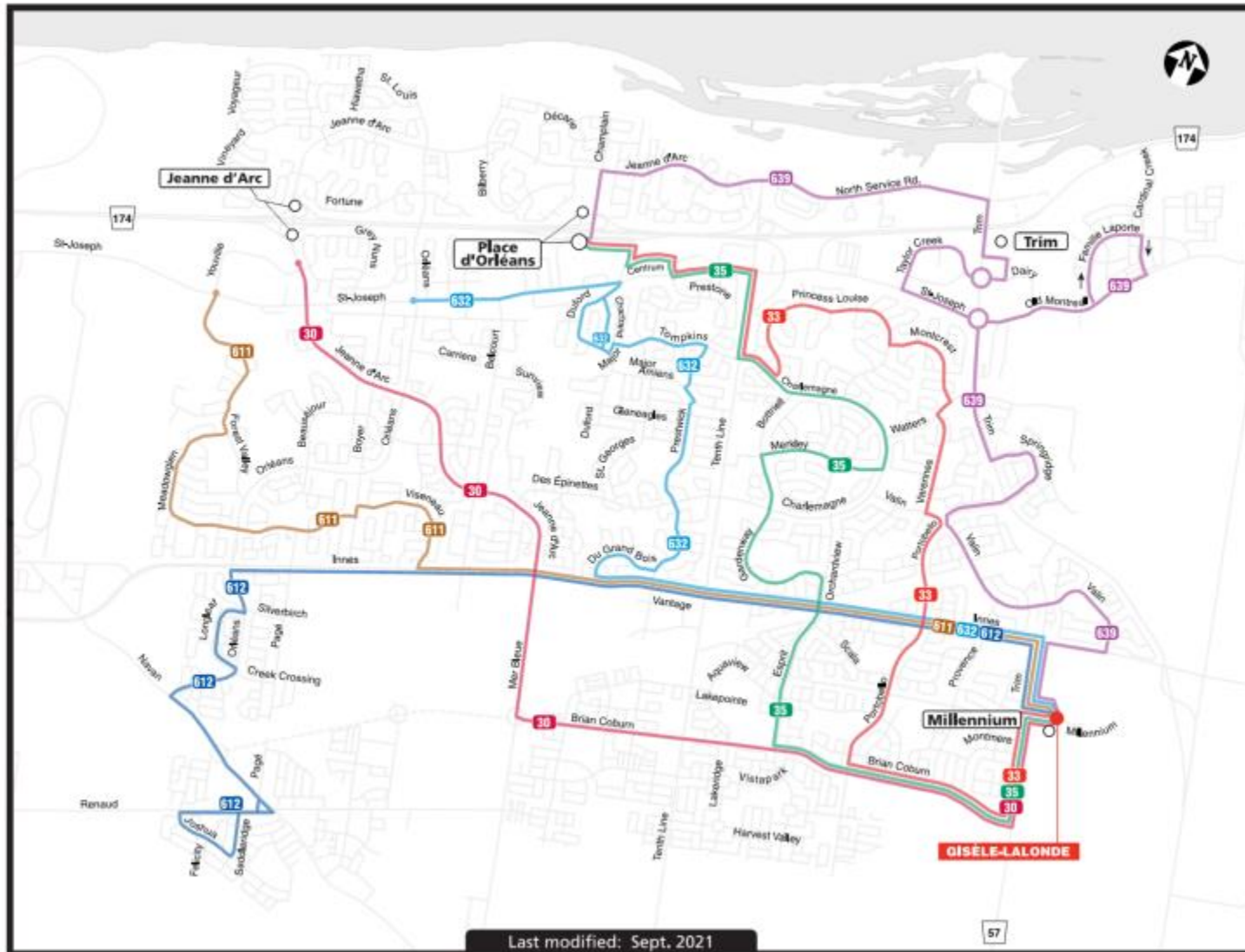
Future route after O-Train Line 1 is open
Trajet du circuit après l'ouverture
de la Ligne 1 de l'O-Train

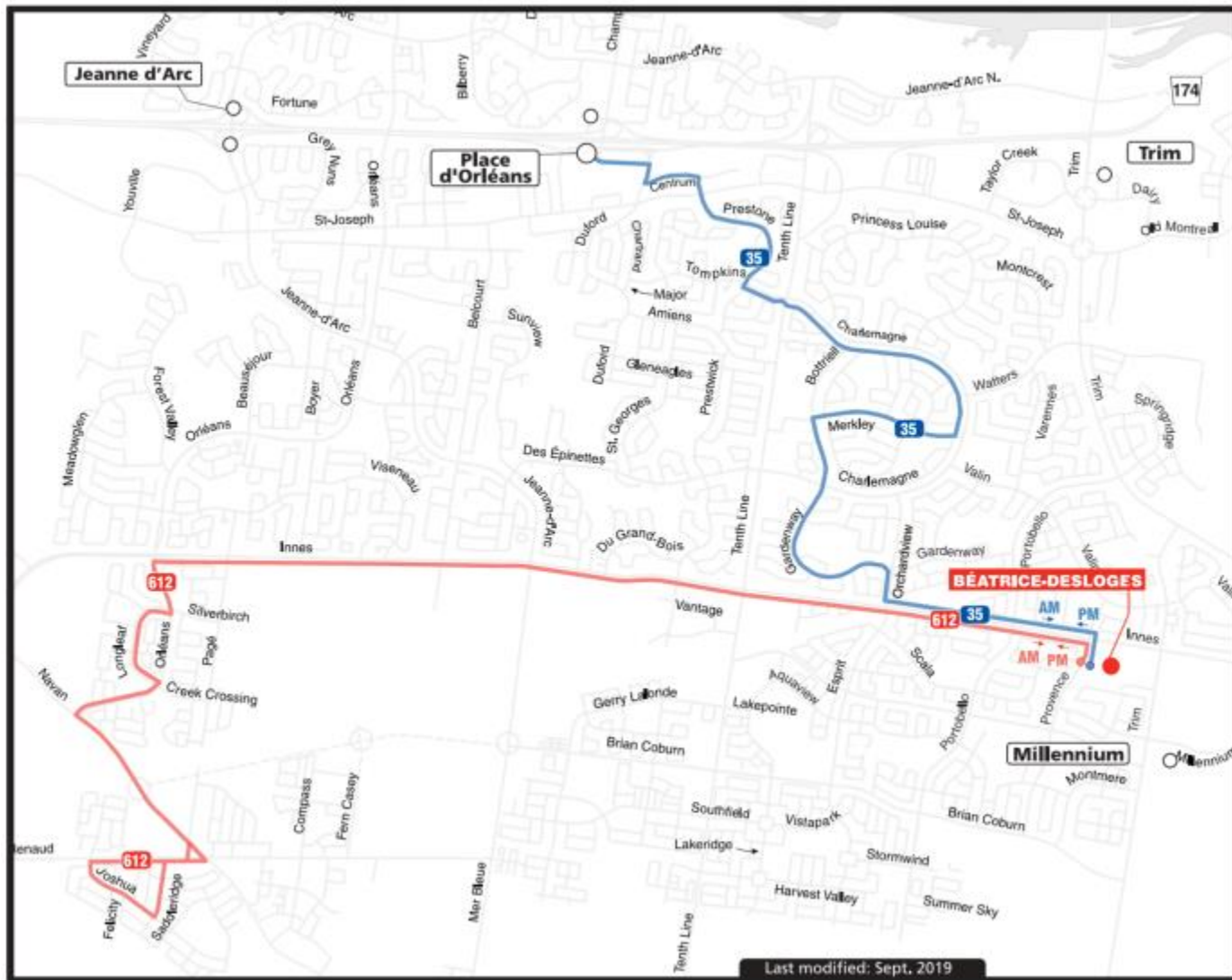
Lost and Found / Objets perdus..... 613-563-4011

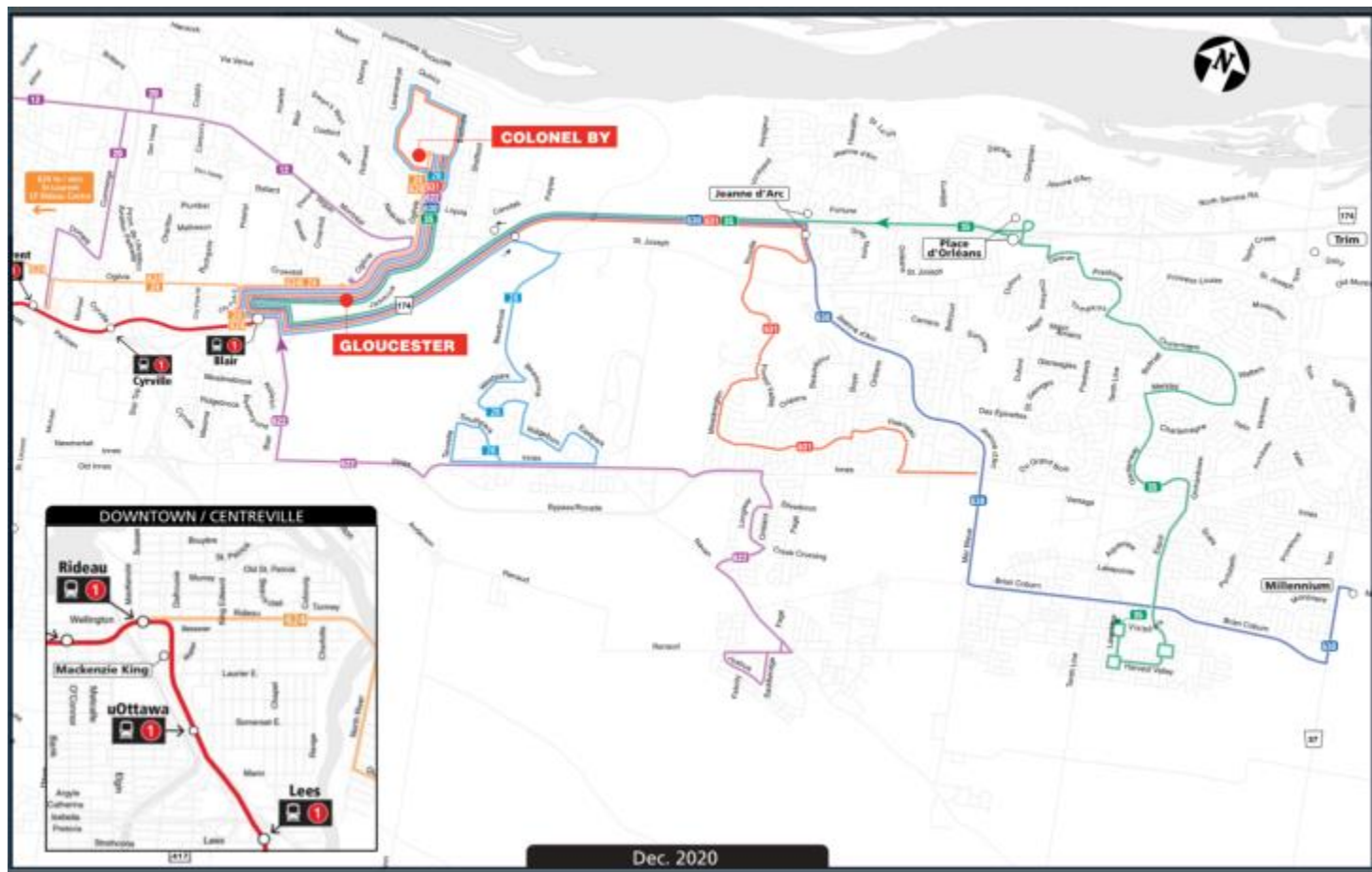
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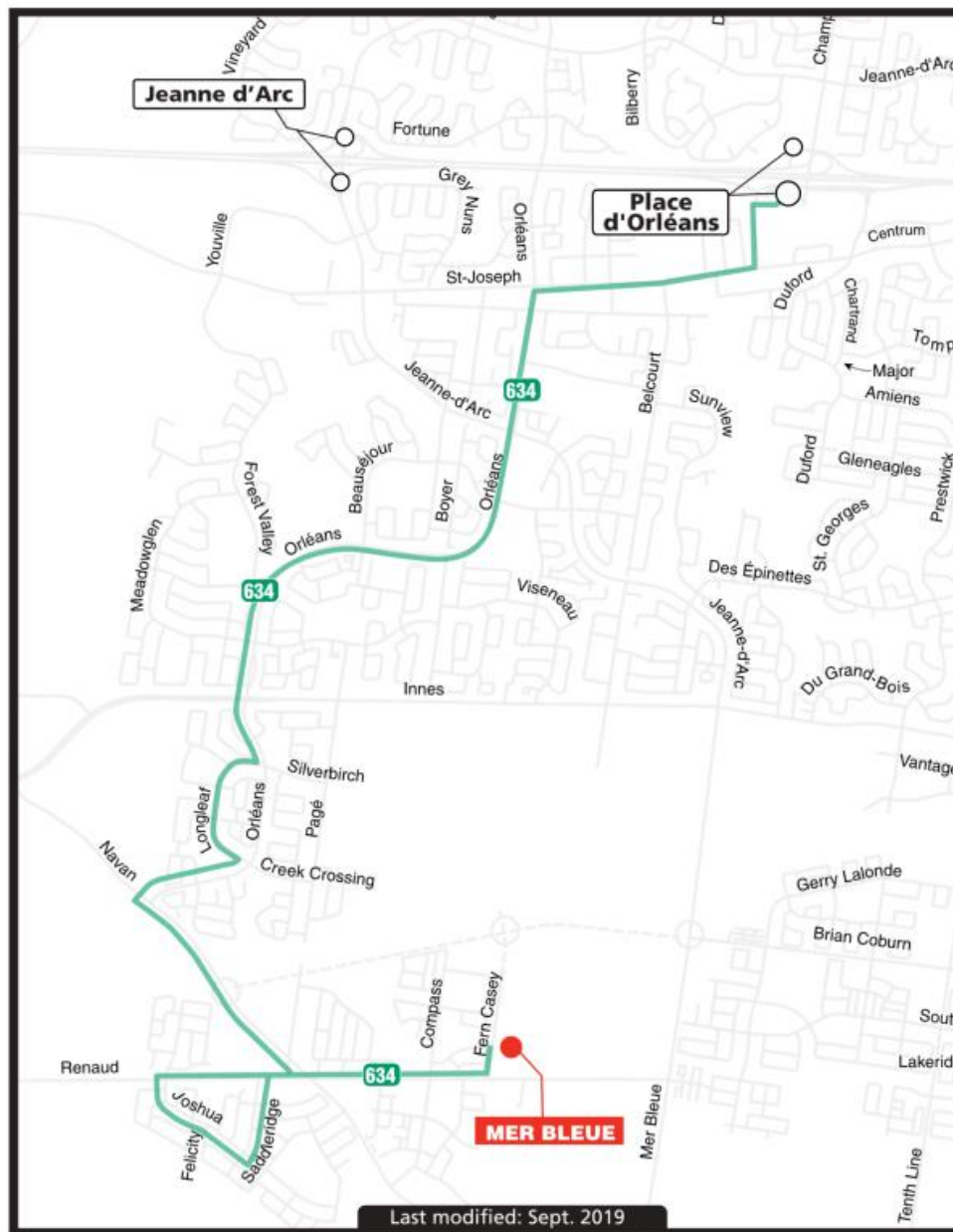


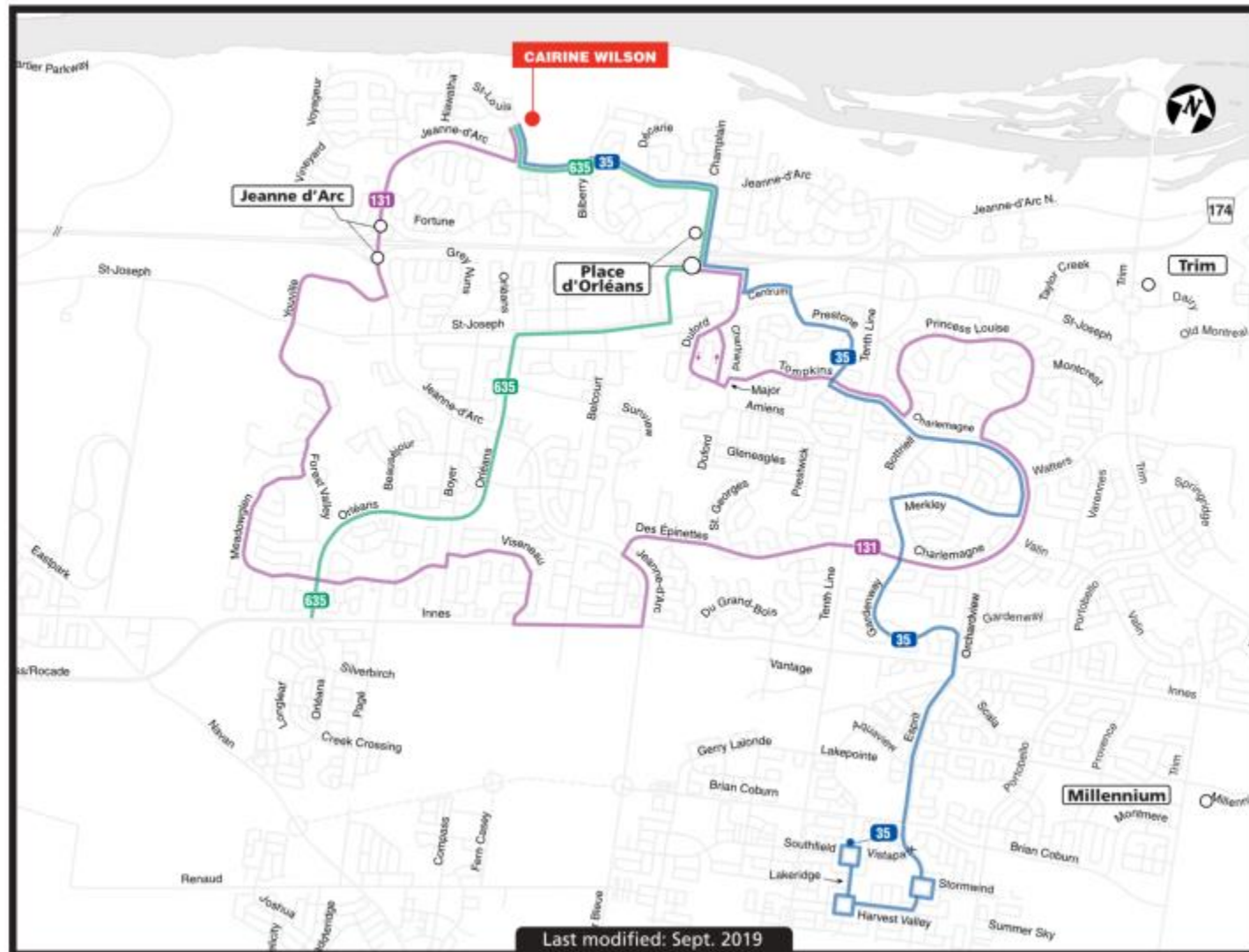
INFO 613-741-4390
octranspo.com

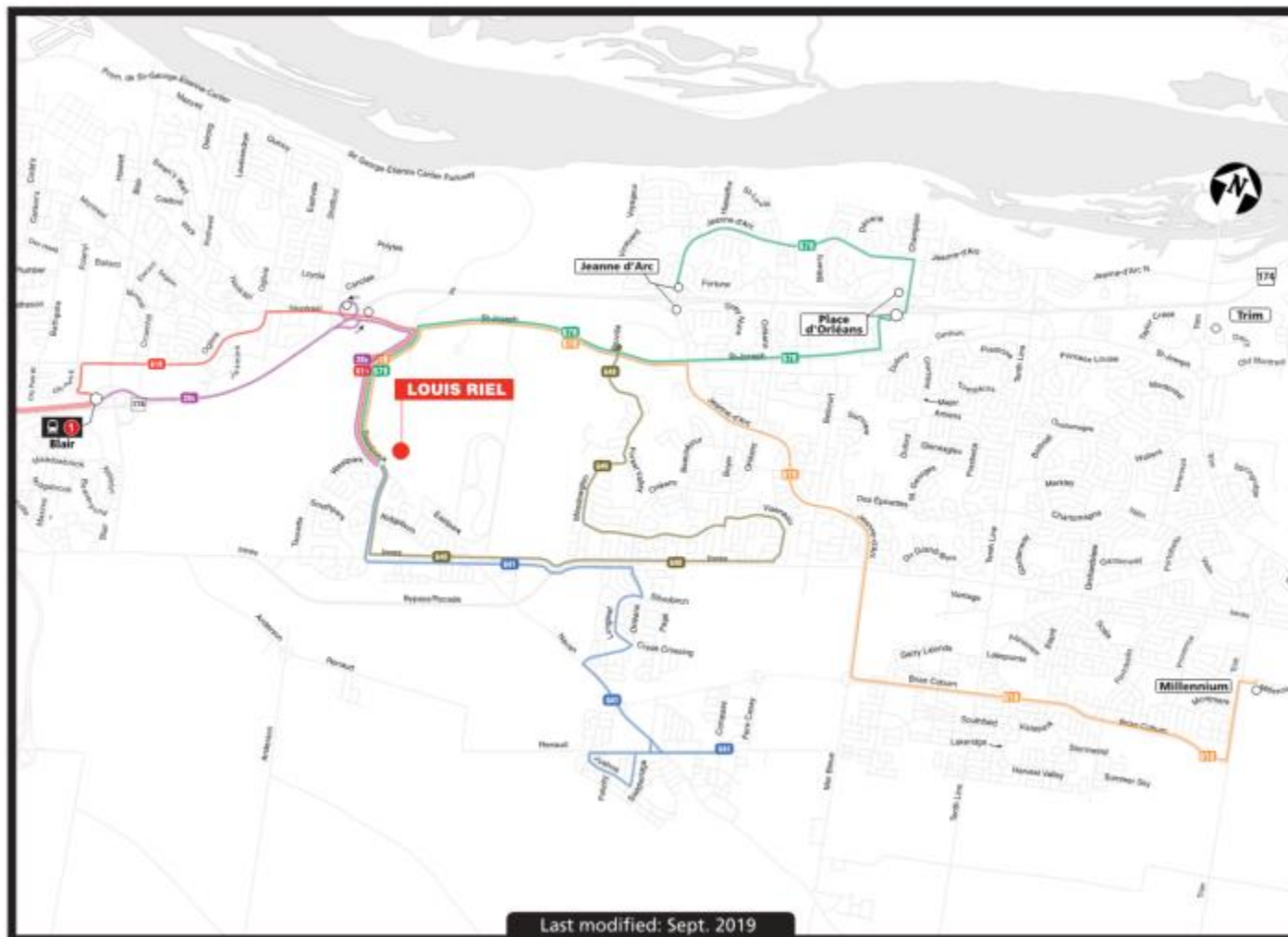


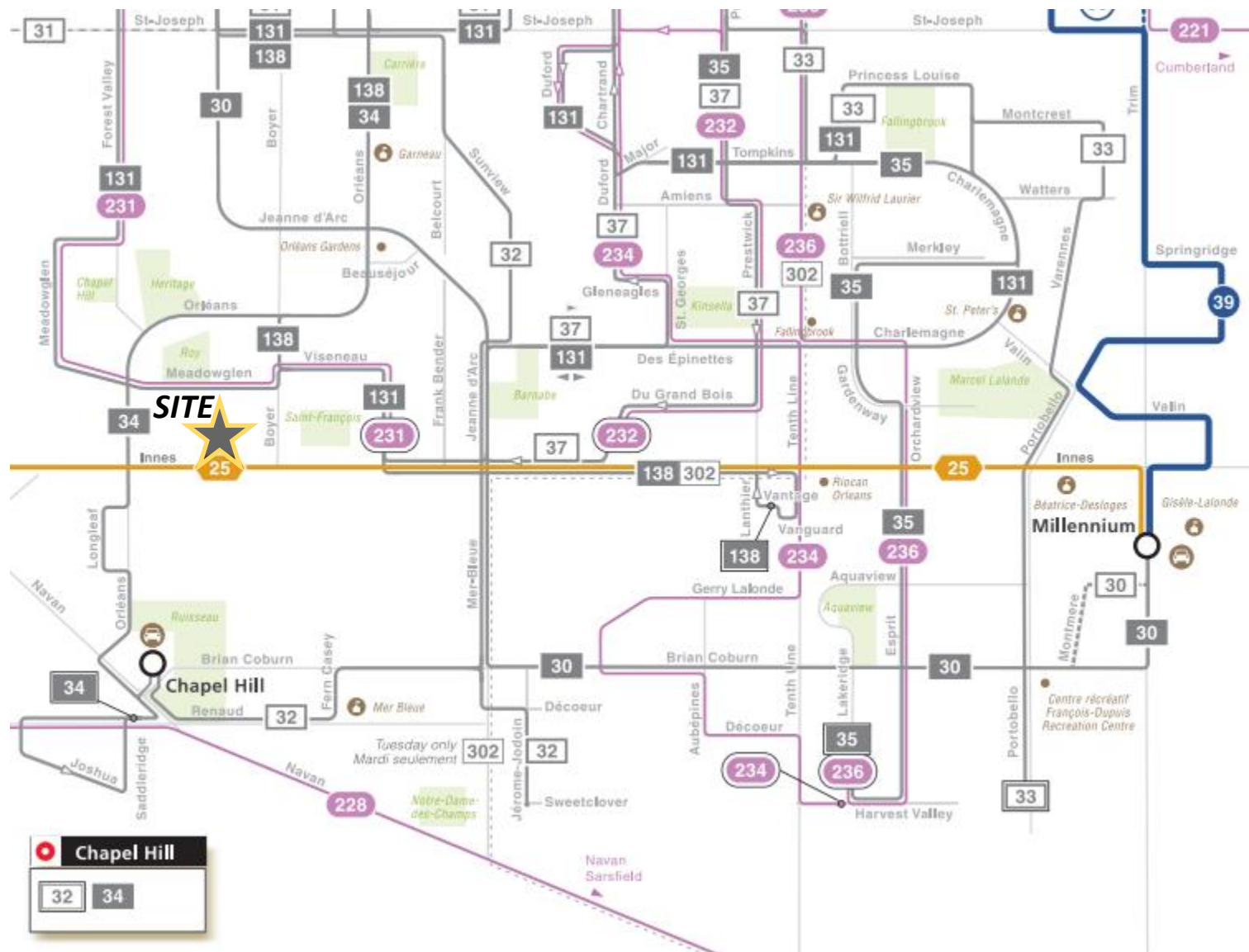












APPENDIX D

Traffic Count Data

Turning Movement Count - Peak Hour Diagram

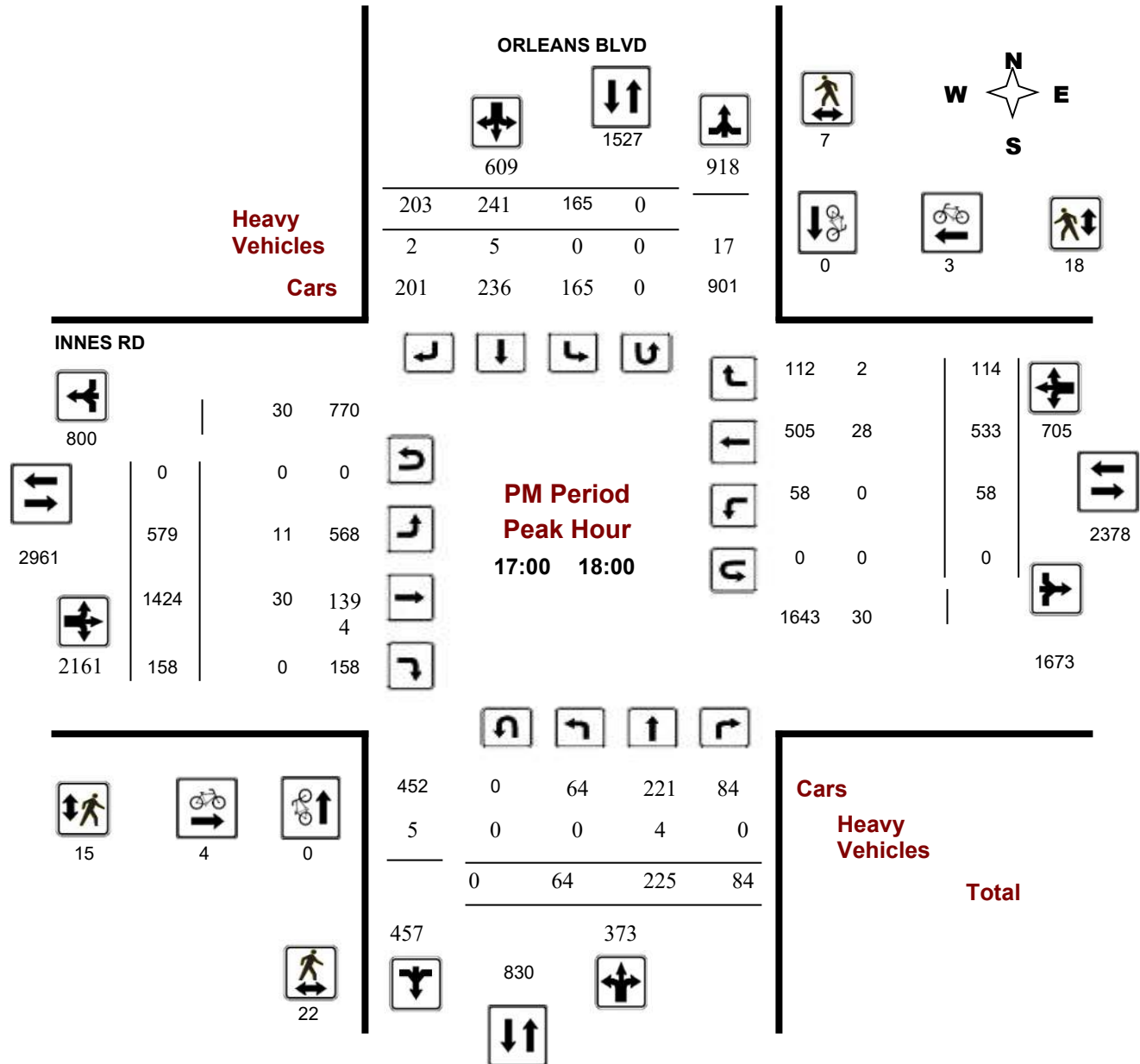
INNES RD @ ORLEANS BLVD

Survey Date: Wednesday, May 03, 2017

Start Time: 07:00

WO No: 36978

Device: Miovision





Transportation Services - Traffic Services

Turning Movement Count - Study Results

INNES RD @ ORLEANS BLVD

Survey Date: Wednesday, May 03, 2017

WO No: 36978

Start Time: 07:00

Device: Miovision

Full Study Summary (8 HR Standard)

Survey Date: Wednesday, May 03, 2017

Total Observed U-Turns

AADT Factor

Northbound: 1 Southbound: 3
Eastbound: 1 Westbound: 6
.90

ORLEANS BLVD

INNES RD

Period	Northbound				Southbound				STR TOT	Eastbound				Westbound				STR TOT	Grand Total
	LT	ST	RT	NB TOT	LT	ST	RT	SB TOT		LT	ST	RT	EB TOT	LT	ST	RT	WB TOT		
07:00 08:00	203	259	44	506	68	100	459	627	1133	121	348	23	492	24	1514	149	1687	2179	3312
08:00 09:00	131	214	45	390	101	136	439	676	1066	140	392	29	561	27	1126	129	1282	1843	2909
09:00 10:00	90	135	56	281	139	91	284	514	795	161	431	34	626	28	763	107	898	1524	2319
11:30 12:30	41	99	59	199	132	99	224	455	654	209	676	48	933	39	646	158	843	1776	2430
12:30 13:30	52	90	61	203	152	95	221	468	671	186	769	48	1003	43	678	131	852	1855	2526
15:00 16:00	40	152	56	248	171	199	203	573	821	428	1206	98	1732	56	598	147	801	2533	3354
16:00 17:00	48	186	80	314	182	210	210	602	916	563	1417	121	2101	49	581	196	826	2927	3843
17:00 18:00	64	225	84	373	165	241	203	609	982	579	1424	158	2161	58	533	114	705	2866	3848
Sub Total	669	1360	485	2514	1110	1171	2243	4524	7038	2387	6663	559	9609	324	6439	1131	7894	17503	24541
U Turns	1			1	3			3	4	1			1	6			6	7	11
Total	670	1360	485	2515	1113	1171	2243	4527	7042	2388	6663	559	9610	330	6439	1131	7900	17510	24552
EQ 12Hr	931	1890	674	3495	1547	1628	3118	6293	9788	3319	9262	777	13358	459	8950	1572	10981	24339	34127
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.													1.39						
AVG 12Hr	838	1701	607	3146	1392	1465	2806	5663	8809	2987	8336	699	12022	413	8055	1415	9883	21905	30714
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.													.90						
AVG 24Hr	1098	2228	795	4121	1824	1919	3676	7419	11540	3913	10920	916	15749	541	10552	1854	12947	28696	40236

Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor. **1.31**

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



Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

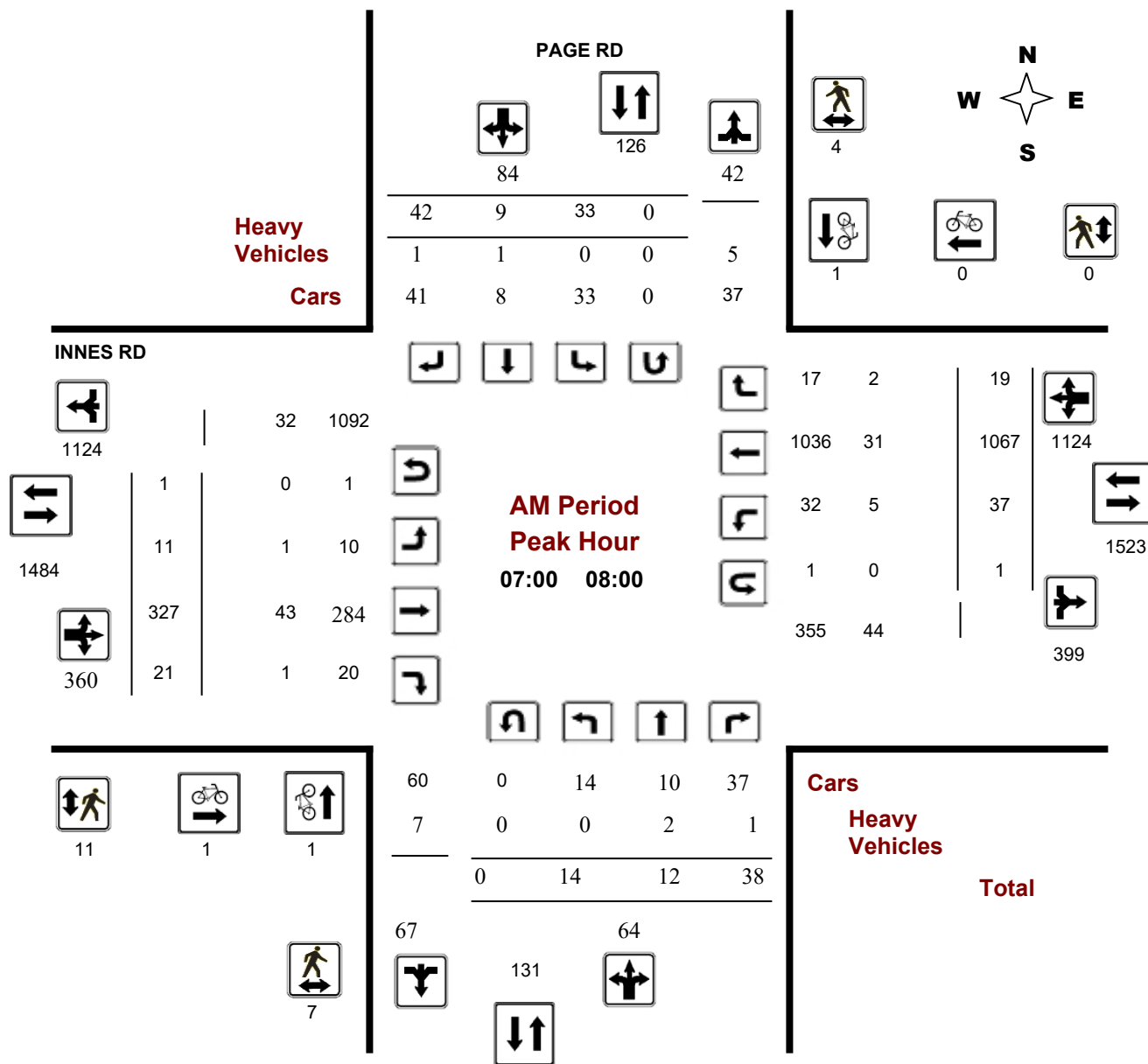
INNES RD @ PAGE RD

Survey Date: Tuesday, January 08, 2019

Start Time: 07:00

WO No: 38221

Device: Miovision



Turning Movement Count - Peak Hour Diagram

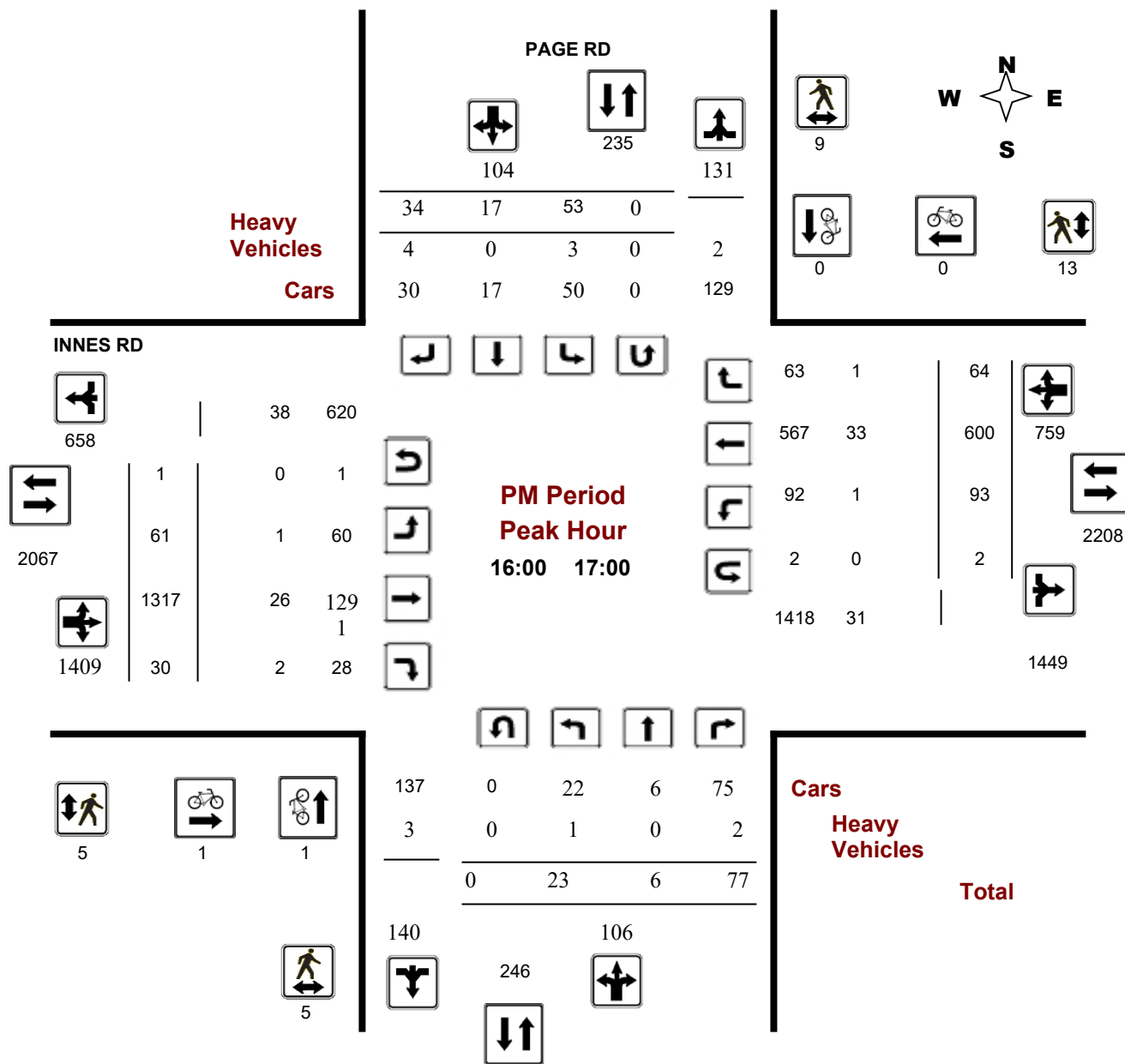
INNES RD @ PAGE RD

Survey Date: Tuesday, January 08, 2019

Start Time: 07:00

WO No: 38221

Device: Miovision





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



De Lamarche Avenue & Innes Road

Orléans, ON

All Vehicles

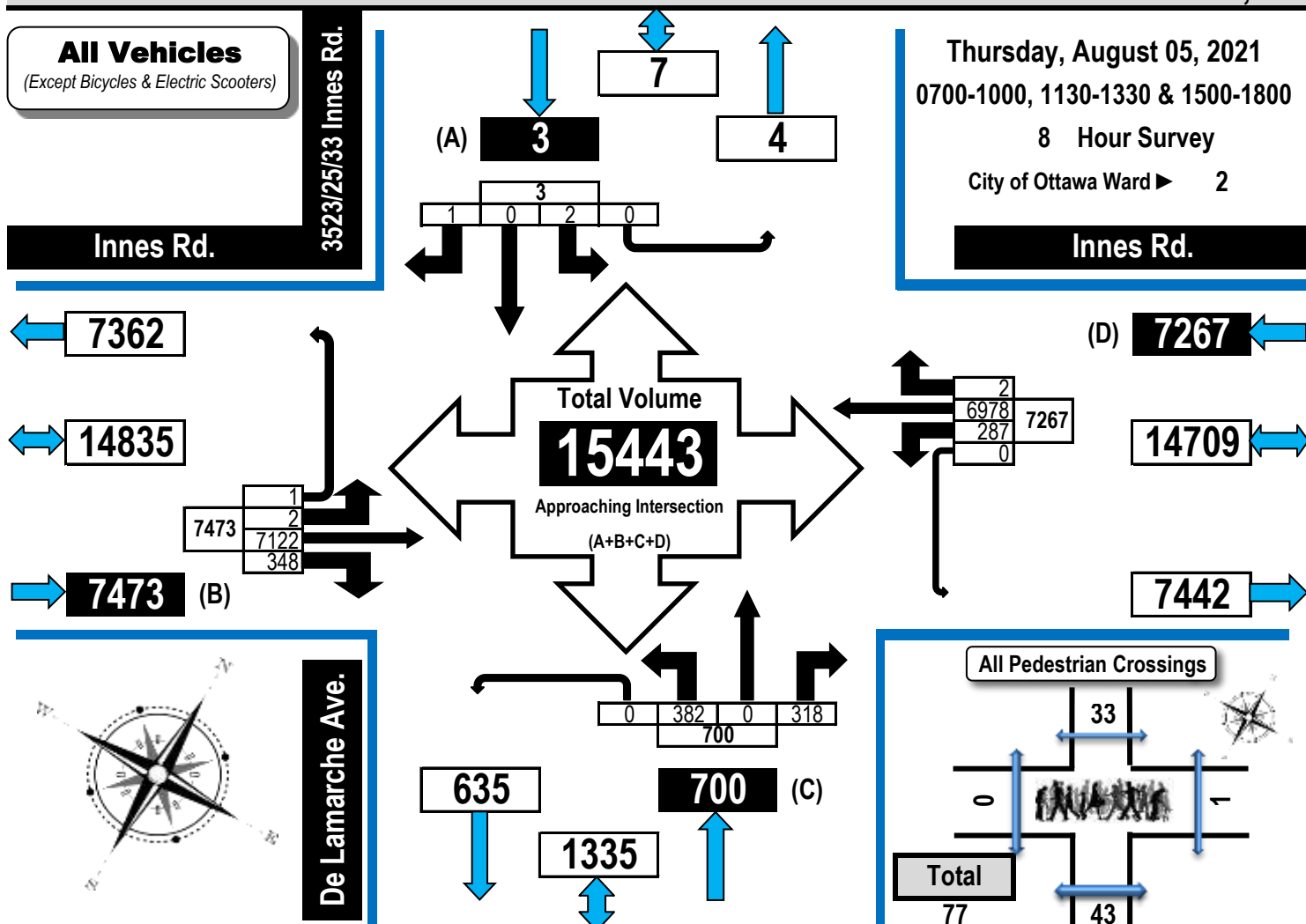
(Except Bicycles & Electric Scooters)

Thursday, August 05, 2021

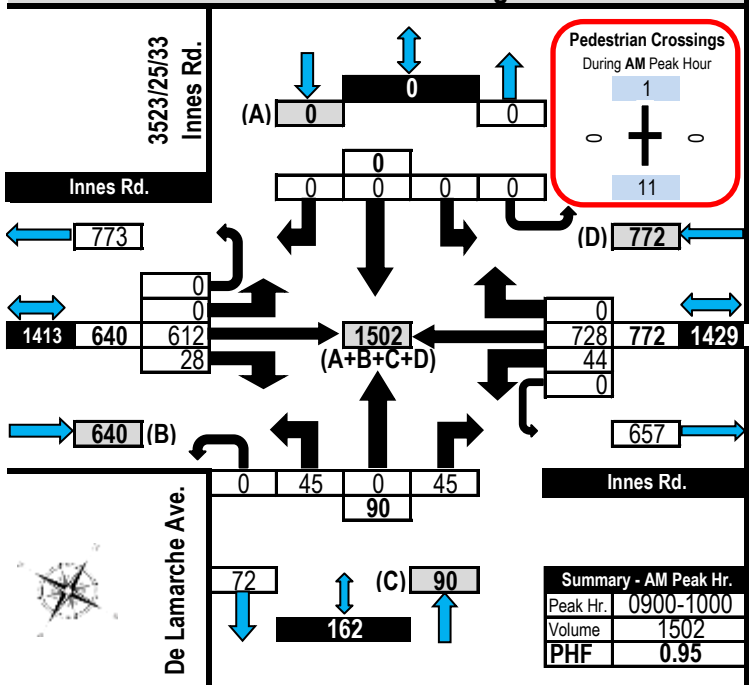
0700-1000, 1130-1330 & 1500-1800

8 Hour Survey

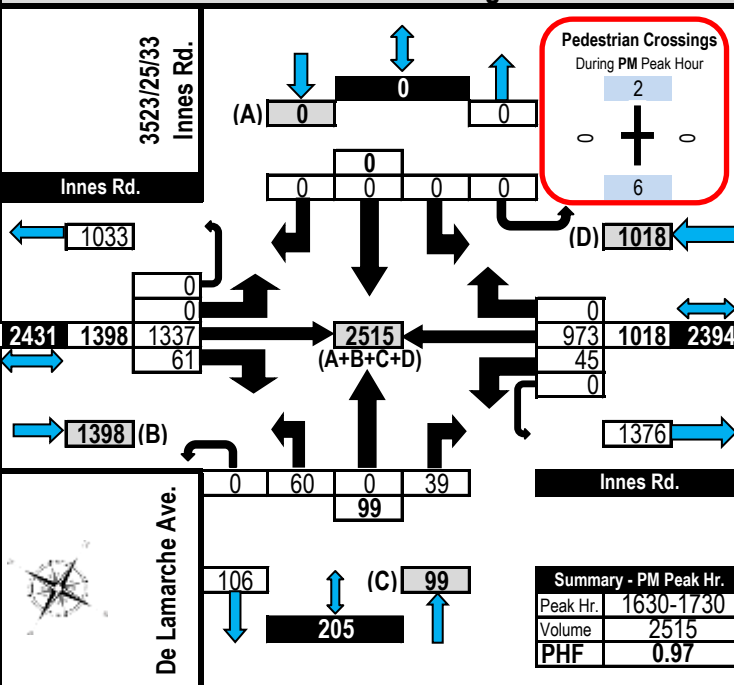
City of Ottawa Ward 2



AM Peak Hour Flow Diagram



PM Peak Hour Flow Diagram



Turning Movement Count - Peak Hour Diagram

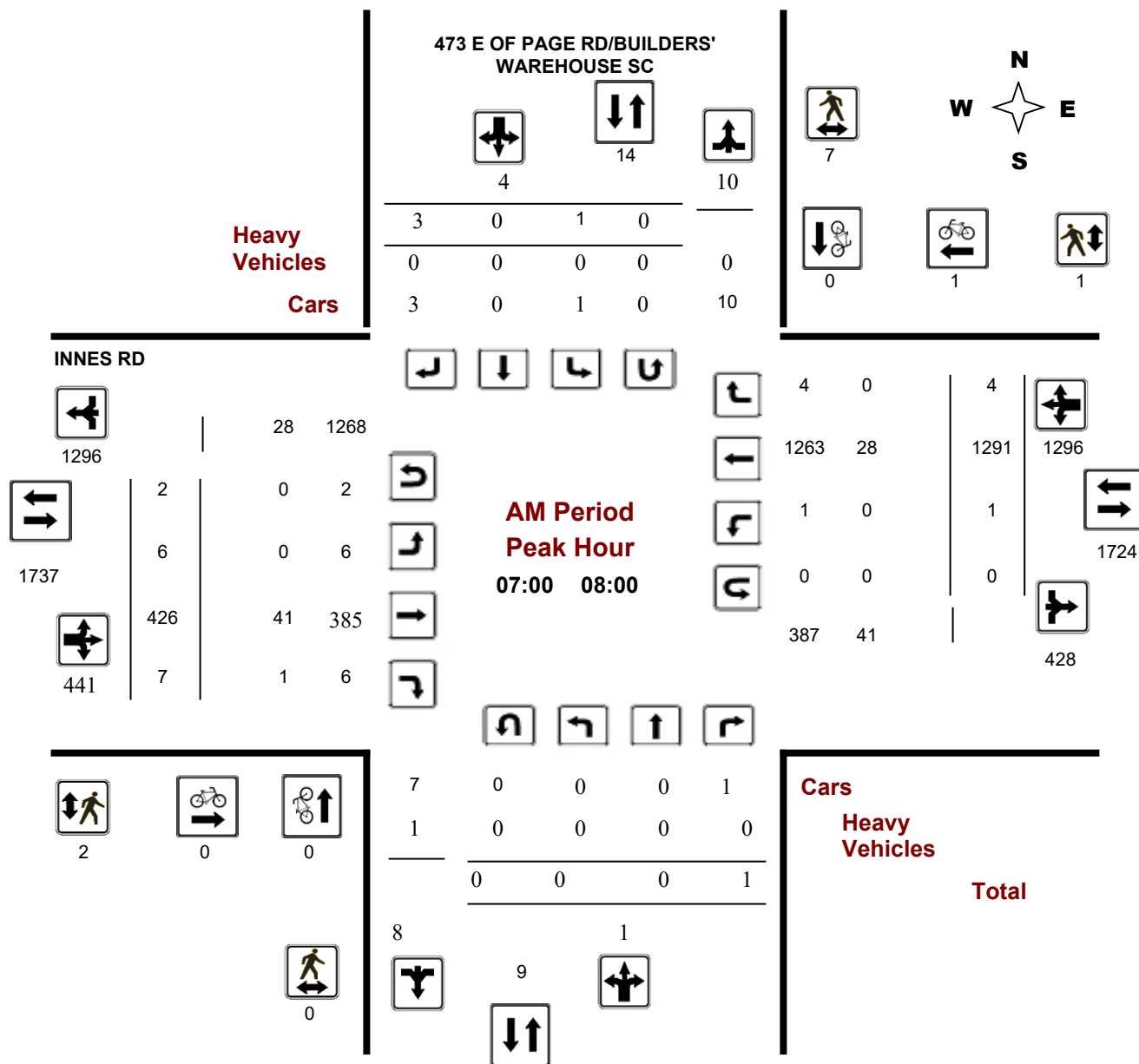
INNES RD @ 473 E OF PAGE RD/BUILDERS' WAREHOUSE

Survey Date: Thursday, January 31, 2019

Start Time: 07:00

WO No: 38223

Device: Miovision



Comments

Turning Movement Count - Peak Hour Diagram

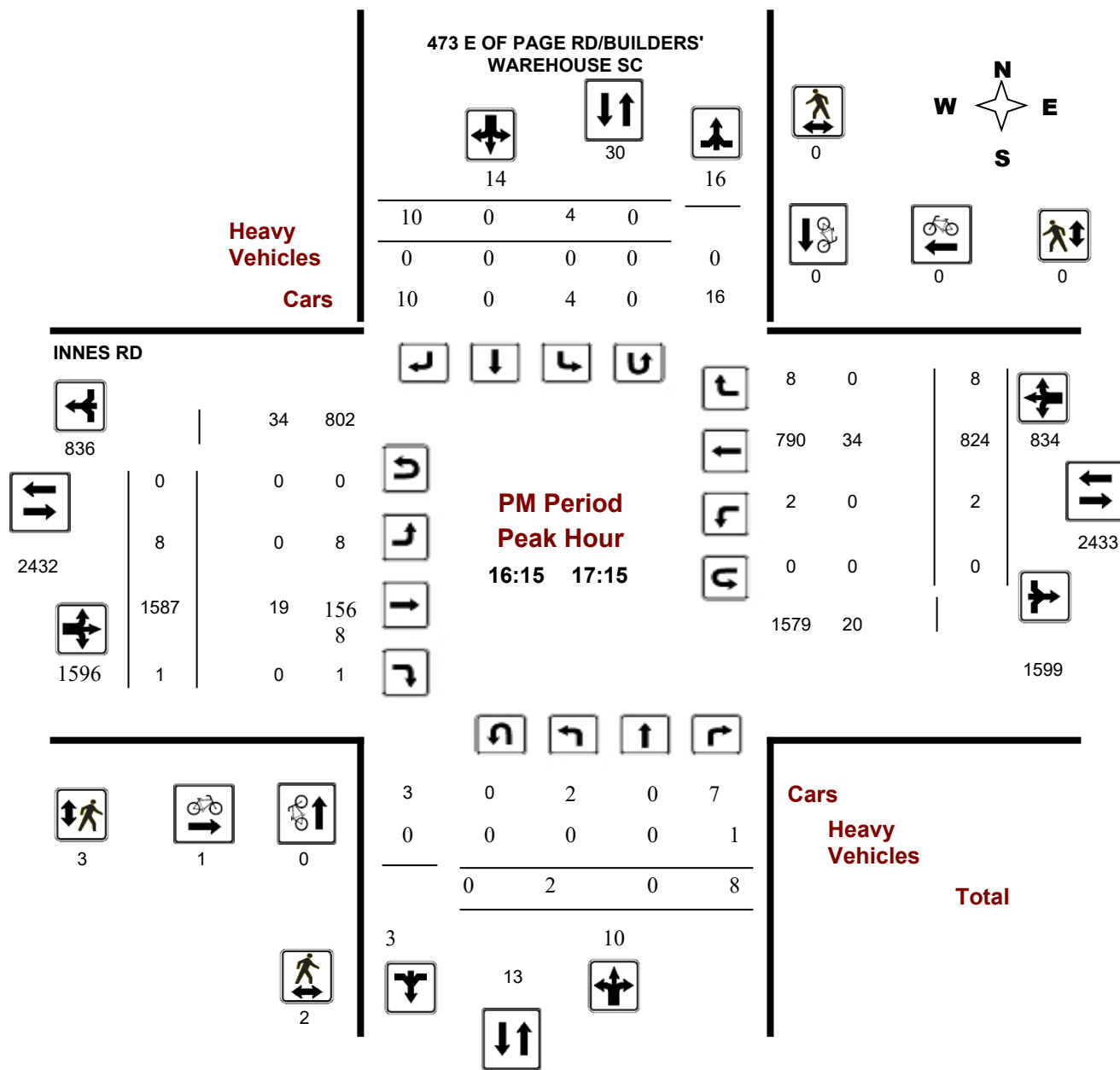
INNES RD @ 473 E OF PAGE RD/BUILDERS' WAREHOUSE

Survey Date: Thursday, January 31, 2019

Start Time: 07:00

WO No: 38223

Device: Miovision



Comments

APPENDIX E

Collision Records



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2015 **To:** December 31, 2019

Location: INNES RD @ 473 E OF PAGE RD/BUILDERS' WAREHOUS

Traffic Control: Traffic signal

Total Collisions: 5

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	Vehicle type	First Event	No. Ped
2015-Jan-21, Wed,08:18	Rain	Rear end	P.D. only	Wet	West	Slowing or stopping	Pick-up truck	Other motor vehicle	0
					West	Stopped	Passenger van	Other motor vehicle	
2016-Jun-30, Thu,06:35	Clear	Rear end	Non-fatal injury	Dry	West	Slowing or stopping	Motorcycle	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2017-Jul-05, Wed,15:30	Clear	Rear end	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Slowing or stopping	Pick-up truck	Other motor vehicle	
2018-Jan-02, Tue,11:15	Snow	SMV other	P.D. only	Ice	East	Making "U" turn	Automobile, station wagon	Snowbank/drift	0
2018-May-28, Mon,12:27	Clear	Angle	P.D. only	Dry	North	Turning left	Pick-up truck	Other motor vehicle	0
					West	Turning left	Automobile, station wagon	Other motor vehicle	

Location: INNES RD @ ORLEANS BLVD

Traffic Control: Traffic signal

Total Collisions: 68

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	Vehicle type	First Event	No. Ped
2015-Jan-06, Tue,08:51	Clear	Rear end	Non-fatal injury	Dry	West	Going ahead	Pick-up truck	Other motor vehicle	0
					West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
2015-Jan-27, Tue,11:59	Clear	Rear end	P.D. only	Dry	South	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2015-Jan-31, Sat,14:30	Clear	Rear end	P.D. only	Dry	South	Turning right	Automobile, station wagon	Other motor vehicle	0
					South	Turning right	Automobile, station wagon	Other motor vehicle	
2015-May-03, Sun,17:07	Clear	Rear end	P.D. only	Dry	East	Slowing or stopping	Pick-up truck	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2015-May-22, Fri,16:27	Clear	Angle	P.D. only	Dry	South	Turning right	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Municipal transit bus	Other motor vehicle	



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2015 **To:** December 31, 2019

Location: INNES RD @ ORLEANS BLVD

Traffic Control: Traffic signal

Total Collisions: 68

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	Vehicle type	First Event	No. Ped
2015-Jul-09, Thu,17:10	Clear	Rear end	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2015-Jul-14, Tue,08:10	Clear	Rear end	Non-fatal injury	Dry	South	Turning right	Pick-up truck	Other motor vehicle	0
					South	Turning right	Automobile, station wagon	Other motor vehicle	
2015-Aug-27, Thu,18:04	Clear	SMV other	P.D. only	Dry	South	Turning right	Automobile, station wagon	Pole (sign, parking meter)	0
2015-Sep-01, Tue,11:55	Clear	Angle	P.D. only	Dry	South	Turning right	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Municipal transit bus	Other motor vehicle	
2015-Oct-18, Sun,09:49	Clear	Angle	P.D. only	Dry	South	Turning right	Pick-up truck	Other motor vehicle	0
					West	Going ahead	Municipal transit bus	Other motor vehicle	
2015-Oct-21, Wed,15:45	Clear	Rear end	P.D. only	Dry	West	Slowing or stopping	Passenger van	Other motor vehicle	0
					West	Stopped	Pick-up truck	Other motor vehicle	
2015-Oct-28, Wed,13:51	Rain	Turning movement	P.D. only	Wet	South	Turning left	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2016-Jan-19, Tue,18:45	Clear	Rear end	P.D. only	Dry	North	Unknown	Automobile, station wagon	Other motor vehicle	0
					North	Stopped	Pick-up truck	Other motor vehicle	
2016-Jan-25, Mon,18:40	Clear	Rear end	P.D. only	Dry	West	Unknown	Unknown	Other motor vehicle	0
					West	Stopped	Pick-up truck	Other motor vehicle	
2016-Feb-23, Tue,19:59	Clear	Rear end	Non-fatal injury	Packed snow	South	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					South	Slowing or stopping	Passenger van	Other motor vehicle	
2016-Mar-12, Sat,21:07	Clear	Angle	P.D. only	Dry	South	Turning right	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Pick-up truck	Other motor vehicle	
2016-Apr-12, Tue,18:41	Clear	Rear end	Non-fatal injury	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2015 **To:** December 31, 2019

Location: INNES RD @ ORLEANS BLVD

Traffic Control: Traffic signal

Total Collisions: 68

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	Vehicle type	First Event	No. Ped
2016-Apr-28, Thu,10:30	Clear	Turning movement	P.D. only	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2016-May-22, Sun,11:04	Clear	Turning movement	P.D. only	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2016-Jun-09, Thu,19:16	Clear	Rear end	P.D. only	Dry	North	Turning right	Automobile, station wagon	Other motor vehicle	0
					North	Turning right	Passenger van	Other motor vehicle	
2016-Jul-10, Sun,21:52	Clear	Turning movement	P.D. only	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle	0
					South	Going ahead	Pick-up truck	Other motor vehicle	
2016-Jul-21, Thu,13:08	Clear	Rear end	Non-fatal injury	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Pick-up truck	Other motor vehicle	
					West	Stopped	Pick-up truck	Other motor vehicle	
2016-Jul-28, Thu,16:00	Clear	Rear end	P.D. only	Dry	East	Slowing or stopping	Pick-up truck	Other motor vehicle	0
					East	Slowing or stopping	Pick-up truck	Other motor vehicle	
2016-Oct-13, Thu,09:41	Rain	Turning movement	Non-fatal injury	Wet	North	Turning left	Automobile, station wagon	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2016-Oct-14, Fri,08:16	Clear	Angle	P.D. only	Dry	South	Turning right	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Municipal transit bus	Other motor vehicle	
2016-Oct-22, Sat,01:34	Clear	Rear end	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle	0
					East	Turning left	Passenger van	Other motor vehicle	
2016-Oct-26, Wed,11:22	Clear	Turning movement	P.D. only	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle	0
					South	Going ahead	Pick-up truck	Other motor vehicle	



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2015 **To:** December 31, 2019

Location: INNES RD @ ORLEANS BLVD

Traffic Control: Traffic signal

Total Collisions: 68

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	Vehicle type	First Event	No. Ped
2016-Nov-02, Wed,17:03	Clear	Angle	Non-fatal injury	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
					East	Turning left	Automobile, station wagon	Other motor vehicle	
					East	Turning left	Automobile, station wagon	Other motor vehicle	
					East	Turning left	Pick-up truck	Other motor vehicle	
2016-Dec-08, Thu,19:01	Snow	Turning movement	Non-fatal injury	Slush	North	Going ahead	Automobile, station wagon	Other motor vehicle	0
					South	Turning left	Automobile, station wagon	Other motor vehicle	
2017-Jan-02, Mon,13:43	Clear	Rear end	P.D. only	Dry	West	Turning right	Pick-up truck	Other motor vehicle	0
					West	Turning right	Automobile, station wagon	Other motor vehicle	
2017-Jan-13, Fri,14:41	Clear	Rear end	Non-fatal injury	Dry	East	Turning left	Pick-up truck	Other motor vehicle	0
					East	Turning left	Pick-up truck	Other motor vehicle	
2017-Jan-22, Sun,16:30	Clear	Rear end	P.D. only	Dry	South	Turning right	Automobile, station wagon	Other motor vehicle	0
					South	Turning right	Passenger van	Other motor vehicle	
2017-Feb-15, Wed,09:00	Snow	Rear end	P.D. only	Loose snow	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2017-Mar-06, Mon,16:38	Freezing Rain	Turning movement	Non-fatal injury	Wet	South	Turning left	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2017-Mar-30, Thu,18:22	Clear	Rear end	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2017-Apr-02, Sun,11:32	Clear	Sideswipe	P.D. only	Dry	South	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2017-May-18, Thu,08:47	Clear	SMV other	Non-fatal injury	Dry	East	Going ahead	Pick-up truck	Pedestrian	1
2017-Jun-02, Fri,13:39	Clear	Turning movement	P.D. only	Dry	South	Turning left	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Pick-up truck	Other motor vehicle	



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2015 **To:** December 31, 2019

Location: INNES RD @ ORLEANS BLVD

Traffic Control: Traffic signal

Total Collisions: 68

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	Vehicle type	First Event	No. Ped
2017-Jun-22, Thu,16:30	Clear	Rear end	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Pick-up truck	Other motor vehicle	
2017-Jun-29, Thu,16:10	Rain	Sideswipe	P.D. only	Wet	East	Changing lanes	Delivery van	Other motor vehicle	0
					East	Turning left	Automobile, station wagon	Other motor vehicle	
2017-Sep-07, Thu,07:24	Rain	Rear end	P.D. only	Wet	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
					West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
2017-Nov-16, Thu,18:28	Rain	Turning movement	P.D. only	Wet	East	Going ahead	Unknown	Other motor vehicle	0
					West	Turning left	Automobile, station wagon	Other motor vehicle	
2017-Nov-22, Wed,16:17	Clear	Angle	Non-fatal injury	Dry	West	Going ahead	Pick-up truck	Other motor vehicle	0
					South	Turning left	Automobile, station wagon	Other motor vehicle	
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Jan-05, Fri,17:49	Clear	Rear end	P.D. only	Dry	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Jan-16, Tue,17:54	Freezing Rain	Rear end	P.D. only	Ice	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Jan-27, Sat,14:15	Clear	Rear end	Non-fatal injury	Wet	South	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Feb-11, Sun,19:15	Snow	Turning movement	P.D. only	Loose snow	North	Turning left	Automobile, station wagon	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Mar-13, Tue,15:15	Snow	Turning movement	Non-fatal injury	Wet	South	Turning left	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Jun-15, Fri,16:03	Clear	Rear end	P.D. only	Dry	West	Going ahead	Truck - closed	Other motor vehicle	0
					West	Stopped	Pick-up truck	Other motor vehicle	



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2015 **To:** December 31, 2019

Location: INNES RD @ ORLEANS BLVD

Traffic Control: Traffic signal

Total Collisions: 68

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	Vehicle type	First Event	No. Ped
2018-Sep-23, Sun,19:56	Clear	Sideswipe	P.D. only	Dry	West	Unknown	Unknown	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Sep-25, Tue,12:23	Clear	Sideswipe	P.D. only	Dry	West	Changing lanes	Unknown	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Oct-13, Sat,14:17	Clear	Rear end	P.D. only	Dry	North	Turning right	Automobile, station wagon	Other motor vehicle	0
					North	Turning right	Automobile, station wagon	Other motor vehicle	
2018-Nov-16, Fri,06:26	Snow	Rear end	P.D. only	Loose snow	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Dec-02, Sun,15:02	Rain	SMV other	Non-fatal injury	Wet	North	Turning left	Automobile, station wagon	Pedestrian	1
2018-Dec-09, Sun,16:49	Clear	Turning movement	P.D. only	Wet	North	Turning left	Automobile, station wagon	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Dec-29, Sat,17:52	Clear	Rear end	Non-fatal injury	Dry	South	Turning right	Automobile, station wagon	Other motor vehicle	0
					South	Turning right	Automobile, station wagon	Other motor vehicle	
2019-Jan-26, Sat,20:02	Clear	Turning movement	P.D. only	Ice	North	Turning left	Automobile, station wagon	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Jan-31, Thu,15:30	Clear	Rear end	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Unknown	Unknown	Other motor vehicle	
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2019-May-02, Thu,09:00	Rain	Rear end	P.D. only	Wet	North	Turning right	Automobile, station wagon	Other motor vehicle	0
					North	Turning right	Automobile, station wagon	Other motor vehicle	
2019-Jun-25, Tue,19:45	Clear	Rear end	P.D. only	Dry	North	Turning right	Automobile, station wagon	Other motor vehicle	0
					North	Turning right	Pick-up truck	Other motor vehicle	
2019-Jul-26, Fri,15:43	Clear	Rear end	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2015 **To:** December 31, 2019

Location: INNES RD @ ORLEANS BLVD

Traffic Control: Traffic signal

Total Collisions: 68

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2019-Aug-01, Thu,10:20	Clear	Turning movement	P.D. only	Dry	North	Turning left	Passenger van	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Aug-08, Thu,15:02	Clear	Rear end	P.D. only	Dry	East	Going ahead	Pick-up truck	Other motor vehicle	0
					East	Stopped	Delivery van	Other motor vehicle	
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2019-Oct-17, Thu,05:49	Rain	Turning movement	Non-fatal injury	Wet	North	Turning left	Automobile, station wagon	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Nov-03, Sun,16:10	Rain	Turning movement	P.D. only	Wet	North	Turning left	Automobile, station wagon	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Nov-15, Fri,21:26	Clear	Turning movement	Non-fatal injury	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Turning left	Automobile, station wagon	Other motor vehicle	
2019-Nov-27, Wed,17:16	Rain	SMV other	Non-fatal injury	Wet	North	Turning left	Automobile, station wagon	Pedestrian	1
2019-Dec-03, Tue,23:30	Clear	Rear end	P.D. only	Dry	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Unknown	Other motor vehicle	

Location: INNES RD @ PAGE RD

Traffic Control: Traffic signal

Total Collisions: 31

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2015-Jan-14, Wed,08:40	Clear	Rear end	P.D. only	Ice	West	Slowing or stopping	Pick-up truck	Other motor vehicle	0
					West	Stopped	Pick-up truck	Other motor vehicle	
2015-Feb-20, Fri,07:15	Clear	Rear end	P.D. only	Loose snow	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Pick-up truck	Other motor vehicle	



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2015 **To:** December 31, 2019

Location: INNES RD @ PAGE RD

Traffic Control: Traffic signal

Total Collisions: 31

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	Vehicle type	First Event	No. Ped
2015-Jul-14, Tue,18:58	Clear	Rear end	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2015-Jul-21, Tue,13:20	Clear	Rear end	Non-fatal injury	Dry	East	Slowing or stopping	Pick-up truck	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2015-Jul-30, Thu,20:45	Clear	Turning movement	Non-fatal injury	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2015-Sep-28, Mon,08:12	Clear	Angle	P.D. only	Dry	West	Turning right	School bus	Other motor vehicle	0
					North	Stopped	Construction equipment	Other motor vehicle	
2015-Oct-11, Sun,17:24	Clear	Turning movement	Non-fatal injury	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2015-Dec-04, Fri,17:43	Clear	Rear end	Non-fatal injury	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Pick-up truck	Other motor vehicle	
2016-Mar-23, Wed,10:52	Clear	Rear end	P.D. only	Dry	West	Going ahead	Delivery van	Other motor vehicle	0
					West	Stopped	Truck - closed	Other motor vehicle	
2016-Oct-22, Sat,11:07	Rain	Sideswipe	P.D. only	Wet	East	Changing lanes	Pick-up truck	Other motor vehicle	0
					East	Going ahead	Pick-up truck	Other motor vehicle	
2016-Nov-03, Thu,07:05	Clear	SMV other	Non-fatal injury	Dry	North	Turning left	Pick-up truck	Pedestrian	1
2016-Nov-04, Fri,21:47	Clear	Turning movement	P.D. only	Dry	West	Turning left	Pick-up truck	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2016-Nov-23, Wed,06:45	Clear	Rear end	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Pick-up truck	Other motor vehicle	
2017-Feb-01, Wed,13:36	Clear	Rear end	P.D. only	Wet	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2015 **To:** December 31, 2019

Location: INNES RD @ PAGE RD

Traffic Control: Traffic signal

Total Collisions: 31

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	Vehicle type	First Event	No. Ped
2017-Jun-01, Thu,12:22	Clear	Turning movement	Non-fatal injury	Dry	North	Turning left	Automobile, station wagon	Cyclist	0
					South	Going ahead	Bicycle	Other motor vehicle	
2017-Nov-03, Fri,18:30	Clear	Rear end	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2017-Nov-20, Mon,08:01	Freezing Rain	Rear end	P.D. only	Ice	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
					East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
2017-Nov-23, Thu,16:52	Snow	Sideswipe	P.D. only	Wet	West	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
2017-Nov-29, Wed,16:51	Clear	Angle	Non-fatal injury	Dry	West	Going ahead	Pick-up truck	Other motor vehicle	0
					South	Going ahead	Truck - dump	Other motor vehicle	
2018-Jan-26, Fri,16:54	Clear	Turning movement	P.D. only	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-May-14, Mon,18:39	Clear	SMV other	Non-fatal injury	Dry	North	Turning left	Automobile, station wagon	Pedestrian	1
2018-Jun-04, Mon,00:00	Clear	SMV other	Non-fatal injury	Dry	North	Going ahead	Unknown	Pedestrian	1
2018-Jul-16, Mon,21:34	Clear	SMV other	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Debris on road	0
2018-Oct-01, Mon,17:10	Clear	Other	P.D. only	Dry	South	Reversing	Pick-up truck	Other motor vehicle	0
					North	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Nov-13, Tue,08:12	Snow	Rear end	P.D. only	Loose snow	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Nov-13, Tue,14:54	Rain	Rear end	Non-fatal injury	Wet	East	Going ahead	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, 2015 **To:** December 31, 2019

Location: INNES RD @ PAGE RD

Traffic Control: Traffic signal

Total Collisions: 31

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	Vehicle type	First Event	No. Ped
2019-Jan-28, Mon,07:30	Clear	Rear end	P.D. only	Packed snow	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2019-Mar-08, Fri,20:50	Clear	Turning movement	P.D. only	Dry	West	Turning left	Unknown	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Jun-06, Thu,23:42	Clear	Angle	P.D. only	Dry	West	Turning right	Automobile, station wagon	Other motor vehicle	0
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2019-Jun-18, Tue,06:21	Clear	Rear end	P.D. only	Dry	East	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Municipal transit bus	Other motor vehicle	
2019-Sep-13, Fri,19:43	Clear	SMV other	P.D. only	Dry	West	Turning left	Automobile, station wagon	Curb	0



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2015 **To:** December 31, 2019

Location: INNES RD btwn INNES RD & PAGE RD

Traffic Control: No control

Total Collisions: 8

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	Vehicle type	First Event	No. Ped
2015-Jan-22, Thu,08:53	Clear	Rear end	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2015-May-05, Tue,07:24	Clear	Rear end	P.D. only	Dry	West	Going ahead	Pick-up truck	Other motor vehicle	0
					West	Stopped	Pick-up truck	Other motor vehicle	
					West	Stopped	Pick-up truck	Other motor vehicle	
2015-May-13, Wed,07:45	Clear	Rear end	P.D. only	Dry	West	Unknown	Unknown	Other motor vehicle	0
					West	Going ahead	Pick-up truck	Other motor vehicle	
					West	Going ahead	Pick-up truck	Other motor vehicle	
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2015-Jul-16, Thu,08:07	Clear	Sideswipe	P.D. only	Dry	East	Unknown	Unknown	Other motor vehicle	0
					East	Stopped	Municipal transit bus	Other motor vehicle	
2015-Oct-03, Sat,15:49	Clear	Sideswipe	P.D. only	Dry	East	Going ahead	Pick-up truck	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2015-Oct-08, Thu,15:19	Clear	Rear end	P.D. only	Dry	East	Slowing or stopping	Pick-up truck	Other motor vehicle	0
					East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
					East	Changing lanes	Automobile, station wagon	Other motor vehicle	



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2015 **To:** December 31, 2019

Location: INNES RD btwn INNES RD & PAGE RD

Traffic Control: No control

Total Collisions: 8

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	Vehicle type	First Event	No. Ped
2016-Nov-19, Sat,18:49	Clear	Rear end	Non-reportable	Dry	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2017-Oct-20, Fri,06:12	Clear	Rear end	Non-fatal injury	Dry	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Pick-up truck	Other motor vehicle	

Location: INNES RD btwn PAGE RD & 473 E OF PAGE RD/BUILDERS' WAREHOUSE SC

Traffic Control: No control

Total Collisions: 15

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	Vehicle type	First Event	No. Ped
2015-Jan-14, Wed,09:38	Clear	Rear end	P.D. only	Dry	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Pick-up truck	Other motor vehicle	
2015-Nov-30, Mon,09:51	Clear	Rear end	Non-fatal injury	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Pick-up truck	Other motor vehicle	
2016-Feb-17, Wed,20:46	Clear	Angle	P.D. only	Packed snow	South	Turning right	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2016-Apr-20, Wed,16:58	Clear	Sideswipe	P.D. only	Dry	West	Overtaking	Pick-up truck	Other motor vehicle	0
					West	Going ahead	Pick-up truck	Other motor vehicle	
2016-Sep-30, Fri,18:25	Clear	Rear end	Non-fatal injury	Dry	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Passenger van	Other motor vehicle	
2016-Oct-19, Wed,17:00	Clear	Angle	Non-fatal injury	Dry	South	Turning right	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2017-Jan-31, Tue,16:38	Clear	Sideswipe	P.D. only	Dry	East	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Pick-up truck	Other motor vehicle	
2017-Feb-01, Wed,06:49	Clear	Rear end	P.D. only	Loose snow	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2015 **To:** December 31, 2019

Location: INNES RD btwn PAGE RD & 473 E OF PAGE RD/BUILDERS' WAREHOUSE SC

Traffic Control: No control

Total Collisions: 15

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	Vehicle type	First Event	No. Ped
2017-Jun-01, Thu,01:16	Clear	Sideswipe	P.D. only	Dry	East	Unknown	Unknown	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2017-Nov-14, Tue,16:12	Clear	Rear end	P.D. only	Dry	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Police vehicle	Other motor vehicle	
2018-Apr-26, Thu,18:06	Clear	Turning movement	P.D. only	Dry	East	Going ahead	Pick-up truck	Other motor vehicle	0
					East	Making "U" turn	Automobile, station wagon	Other motor vehicle	
2018-Nov-22, Thu,14:37	Clear	Angle	P.D. only	Dry	South	Turning right	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Dec-31, Mon,21:30	Snow	Angle	P.D. only	Packed snow	South	Turning right	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Apr-21, Sun,19:26	Clear	SMV other	P.D. only	Dry	West	Slowing or stopping	Automobile, station wagon	Ran off road	0
2019-Jul-10, Wed,07:15	Clear	Angle	P.D. only	Dry	South	Turning right	Truck - closed	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	

Location: INNES RD EB btwn ORLEANS BLVD & INNES RD

Traffic Control: No control

Total Collisions: 4

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	Vehicle type	First Event	No. Ped
2015-Oct-05, Mon,18:56	Clear	Sideswipe	Non-fatal injury	Dry	East	Changing lanes	Pick-up truck	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2015-Dec-07, Mon,17:05	Clear	Sideswipe	P.D. only	Dry	East	Unknown	Unknown	Other motor vehicle	0
					East	Going ahead	Pick-up truck	Other motor vehicle	
2016-Mar-20, Sun,16:55	Clear	Rear end	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Pick-up truck	Other motor vehicle	



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2015 To: December 31, 2019

Location: INNES RD EB btwn ORLEANS BLVD & INNES RD

Traffic Control: No control

Total Collisions: 4

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	Vehicle type	First Event	No. Ped
2017-Jan-05, Thu,09:44	Clear	Sideswipe	P.D. only	Wet	West	Merging	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Municipal transit bus	Other motor vehicle	

Location: INNES RD WB btwn ORLEANS BLVD & INNES RD

Traffic Control: No control

Total Collisions: 5

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	Vehicle type	First Event	No. Ped
2016-Jan-19, Tue,18:20	Snow	Rear end	P.D. only	Slush	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Changing lanes	Pick-up truck	Other motor vehicle	
2016-May-21, Sat,16:15	Clear	Rear end	P.D. only	Dry	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					West	Slowing or stopping	Pick-up truck	Other motor vehicle	
2016-Dec-04, Sun,06:02	Clear	SMV other	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Ran off road	0
2019-Jan-21, Mon,16:45	Clear	Rear end	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2019-Mar-05, Tue,16:38	Snow	Rear end	P.D. only	Wet	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
					West	Going ahead	Automobile, station wagon	Other motor vehicle	

APPENDIX F

Excerpts from Trip Generation Manuals

3.2 Recommended Residential Trip Generation Rates

A blended trip rate was developed from the three data sources through application of a rank-sum weighting process, considering the strengths and weaknesses of each dataset for the dwelling type in question. The recommended blended **residential person-trip rates** are presented in **Table 3**. All rates represent person-trips per dwelling unit and are to be applied to the **AM or PM peak period**.

Table 3: Recommended Residential Person-trip Rates

ITE Land Use Code	Dwelling Unit Type	Period	Person-Trip Rate
210	Single-detached	AM	2.05
		PM	2.48
220	Multi-Unit (Low-Rise)	AM	1.35
		PM	1.58
221 & 222	Multi-Unit (High-Rise)	AM	0.80
		PM	0.90

3.3 Adjustment Factors – Peak Period to Peak Hour

The various trip generation data sources require some adjustment to standardize the data for developing robust blended trip rates. The peak period conversion factor in **Table 4** may be used where applicable to develop trip generation rate estimates in the desired format.

Table 4: Adjustment Factors for Residential Trip Generation Rates

Factor	Application	Apply To	Period	Value
Peak Period Conversion Factor	Peak period to peak hour conversion. Because the 2020 TRANS Trip Generation Study reports trip generation rates by peak period, factors must be applied if the practitioner requires peak hour rates. In practice, the conversion to peak hour trip rates should occur after the application of modal shares.	Person-trip rates per peak period	AM	0.50
			PM	0.44
		Vehicle trip rates per peak period	AM	0.48
			PM	0.44
		Transit trip rates per peak period	AM	0.55
			PM	0.47
		Cycling trip rates per peak period	AM	0.58
			PM	0.48
		Walking trip rates per peak period	AM	0.58
			PM	0.52

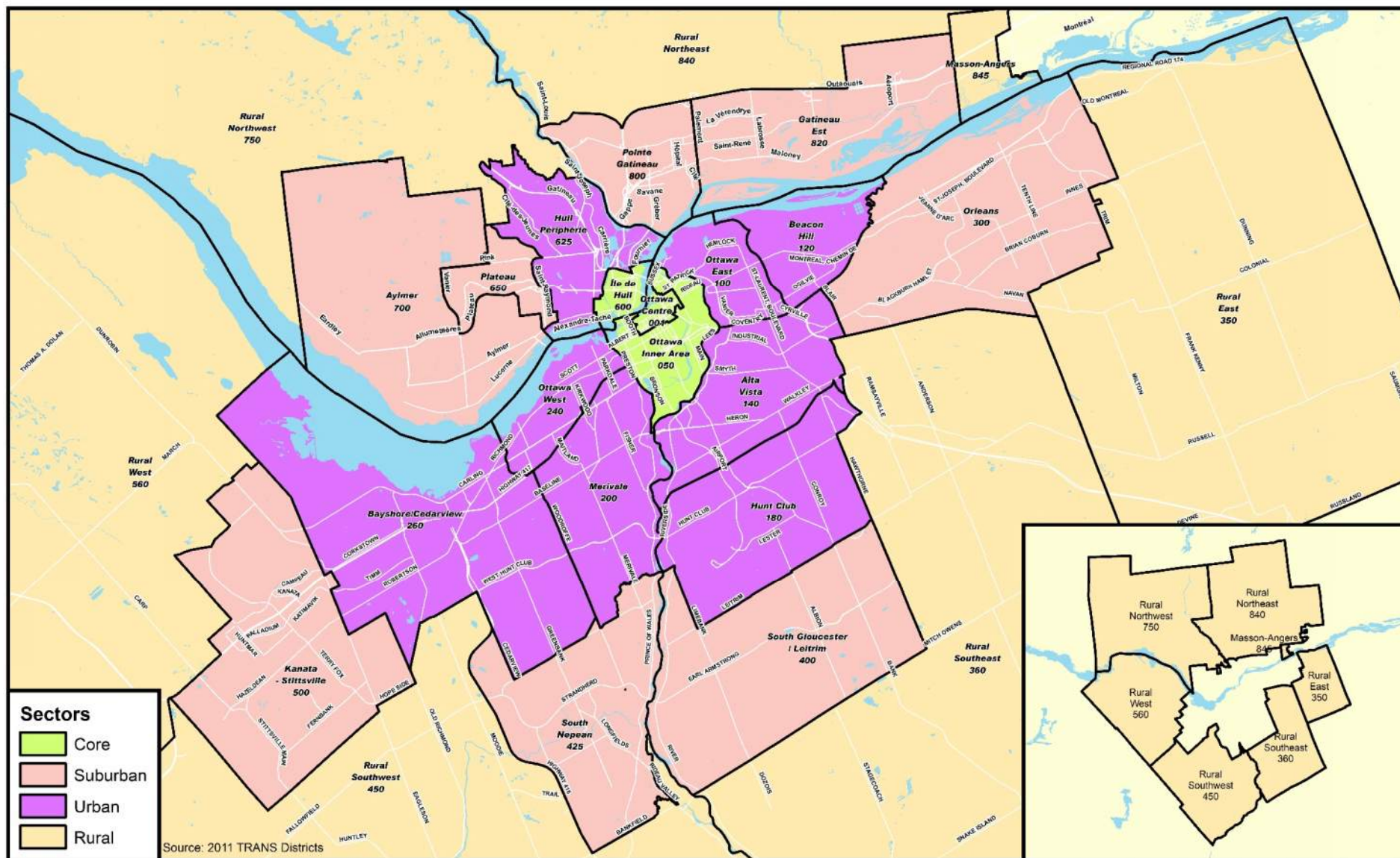


Figure 1: National Capital Region by Sector

Table 8: Residential Mode Share for High-Rise Multifamily Housing

District	Period	Mode				
		Auto Driver	Auto Pass.	Transit	Cycling	Walking
Ottawa Centre	AM	18%	2%	26%	1%	52%
	PM	17%	9%	21%	1%	52%
Ottawa Inner Area	AM	26%	6%	28%	5%	34%
	PM	25%	8%	21%	6%	39%
Île de Hull	AM	27%	3%	37%	12%	21%
	PM	26%	8%	27%	11%	28%
Ottawa East	AM	39%	7%	38%	2%	13%
	PM	40%	14%	28%	3%	15%
Beacon Hill	AM	48%	9%	30%	3%	10%
	PM	52%	16%	28%	0%	4%
Alta Vista	AM	38%	12%	42%	2%	7%
	PM	45%	16%	28%	2%	9%
Hunt Club	AM	39%	6%	44%	1%	9%
	PM	44%	11%	35%	2%	9%
Merivale	AM	41%	6%	42%	2%	8%
	PM	41%	11%	33%	2%	13%
Ottawa West	AM	28%	11%	41%	3%	16%
	PM	33%	11%	26%	7%	23%
Bayshore/Cedarview	AM	40%	12%	38%	2%	8%
	PM	40%	15%	33%	1%	11%
Hull Périphérie	AM	48%	11%	30%	1%	10%
	PM	47%	15%	23%	3%	13%
Orleans	AM	54%	7%	29%	0%	10%
	PM	61%	13%	21%	0%	6%
South Gloucester / Leitrim	AM	50%	15%	25%	1%	9%
	PM	53%	17%	21%	1%	9%
South Nepean	AM	58%	6%	30%	2%	4%
	PM	54%	15%	25%	0%	7%
Kanata - Stittsville	AM	43%	26%	28%	0%	4%
	PM	55%	19%	21%	0%	5%
Plateau	AM	53%	9%	35%	3%	1%
	PM	65%	7%	25%	2%	1%
Aylmer	AM	45%	17%	25%	0%	13%
	PM	31%	21%	23%	4%	20%
Pointe Gatineau	AM	44%	15%	24%	3%	14%
	PM	52%	15%	20%	2%	11%
Gatineau Est	AM	53%	10%	25%	0%	12%
	PM	61%	10%	25%	0%	4%
Masson-Angers	AM	63%	15%	19%	0%	3%
	PM	64%	18%	16%	0%	1%
Other Rural Districts	AM	63%	15%	19%	0%	3%
	PM	64%	18%	16%	0%	1%

5 RESIDENTIAL DIRECTIONAL SPLITS

After calculating the total person trips generated by the development and applying the appropriate modal shares, directional factors can be applied to estimate the number of inbound and outbound trips by vehicle. The vehicle trip directional splits were developed for both the AM and PM peak periods². The vehicle trip directional splits, as shown in **Table 9**, have been developed for the NCR based on a review of the local trip generator surveys as well as the latest published data in the *ITE Trip Generation Manual* (10th Edition).

Table 9: Recommended Vehicle Trip Directional Splits (Peak Period)

ITE Land Use Code	Dwelling Unit Type	Period	Inbound	Outbound
210	Single-detached	AM	30%	70%
		PM	62%	38%
220	Multi-Unit (Low-Rise)	AM	30%	70%
		PM	56%	44%
221 & 222	Multi-Unit (High-Rise)	AM	31%	69%
		PM	58%	42%

6 NON-RESIDENTIAL MODE SHARE

Mode shares were developed for three types of non-residential development: schools (elementary and high school); employment generators; and commercial (retail) generators. These mode shares were developed through data provided by the Ville de Gatineau from local school surveys as well as the TRANS Origin-Destination Survey. The non-residential mode shares presented below are limited and do not capture all development types. For data on the travel characteristics associated with colleges and universities, transportation terminals, and sports and entertainment venues in the National Capital Region, practitioners should refer to the various reports for the TRANS *Special Generators Survey* (2013), which are posted on the TRANS website. For other development types, practitioners may need to carry out their own local generator data collection where necessary.

² A directional split for active transportation was calculated based on the local generator surveys for low-rise and mid-rise land uses. The splits are mostly in-line with the vehicle directional splits, which could be used as a rough assumption for areas with lower vehicle mode share.

District	Mode				
	Auto Driver	Auto Pass.	Transit	Cycling	Walking
Masson-Angers	89%	3%	2%	1%	6%
Rural Districts	85%	5%	9%	1%	1%

6.3 Commercial Generators

All trips classified as “shopping, household maintenance” from the 2011 TRANS Origin-Destination Survey were analyzed to define the mode share for trips to commercial establishments. **Table 13** provides the mode share by district during the AM and PM peak periods for commercial generator trips. These mode shares do not include restaurant or recreation trips. Although the mode shares were calculated for trips to the generator, for most commercial developments, a similar mode share would apply for trips from the generator. In general, the sample size for shopping trips during the AM peak period tends to be low, and the results should be used with caution, particularly for districts with lower retail activity. Where the sample size for a district was less than the pre-defined cut-off, the mode share for the wider area has been applied.

Table 13: Commercial Generator Mode Share by District

District	Period	Mode				
		Auto Driver	Auto Pass.	Transit	Cycling	Walking
Ottawa Centre	AM	28%	3%	48%	1%	20%
	PM	19%	12%	30%	2%	37%
Ottawa Inner Area	AM	39%	2%	16%	3%	40%
	PM	22%	4%	12%	4%	58%
Île de Hull	AM	34%	2%	30%	2%	32%
	PM	22%	7%	18%	3%	50%
Ottawa East	AM	57%	10%	15%	1%	17%
	PM	55%	18%	11%	1%	15%
Beacon Hill	AM	67%	12%	8%	0%	14%
	PM	59%	18%	7%	1%	13%
Alta Vista	AM	64%	9%	12%	1%	14%
	PM	60%	20%	9%	0%	11%
Hunt Club	AM	70%	6%	7%	0%	17%
	PM	65%	19%	8%	1%	7%
Merivale	AM	71%	19%	1%	0%	9%
	PM	61%	16%	8%	1%	14%
Ottawa West	AM	55%	11%	11%	0%	23%
	PM	50%	16%	11%	5%	18%
Bayshore/Cedarview	AM	64%	15%	4%	0%	17%
	PM	62%	20%	6%	1%	11%
Hull Périphérie	AM	77%	8%	5%	0%	10%
	PM	60%	12%	9%	5%	14%

District	Period	Mode				
		Auto Driver	Auto Pass.	Transit	Cycling	Walking
Orleans	AM	77%	14%	3%	0%	6%
	PM	71%	20%	2%	1%	5%
South Gloucester / Leitrim	AM	74%	13%	4%	0%	10%
	PM	70%	22%	2%	0%	6%
South Nepean	AM	74%	14%	1%	0%	11%
	PM	61%	27%	1%	0%	11%
Kanata - Stittsville	AM	81%	12%	5%	0%	2%
	PM	73%	22%	1%	0%	4%
Plateau	AM	74%	13%	4%	0%	10%
	PM	70%	22%	2%	0%	6%
Aylmer	AM	74%	13%	4%	0%	10%
	PM	70%	15%	1%	0%	14%
Pointe Gatineau	AM	76%	17%	2%	0%	5%
	PM	72%	22%	1%	1%	4%
Gatineau Est	AM	74%	13%	4%	0%	10%
	PM	75%	21%	1%	0%	3%
Masson-Angers	AM	87%	9%	0%	0%	3%
	PM	86%	12%	1%	0%	2%
Other Rural Districts	AM	87%	9%	0%	0%	3%
	PM	80%	14%	1%	2%	4%

7 INFLUENCING FACTORS

Beyond geographic area and dwelling type, there are other factors that influence a person's trip decision-making. The demographic and built environment factors described in the proceeding sections have been found to influence travel behaviour. This section discusses the merits of these additional factors and it is up to the discretion of the practitioner whether to account for these factors in trip generation analyses.

Age

A review of the 2011 TRANS Origin-Destination Survey data demonstrated that the daily number of trips that a person makes is consistent regardless of age, the variability comes with the time of day that the trips are made. School-aged children and adults aged approximately 30 to 50 travel the most during peak periods, while adults aged approximately 18 to 25 and seniors make fewer peak period trips. In terms of mode share, auto driver use increases between age 16 and 30, then remains consistent until a person's 70s, when it declines. Younger people use significantly more sustainable transportation (i.e. active transportation and transit) until age 30, and children and seniors travel more than other ages as auto passengers. An example of when consideration of age might influence the trip generation analysis would be a seniors' residence; in this case practitioners should consider lowering the trip rates during the peak periods and

Land Use: 822

Strip Retail Plaza (<40k)

Description

A strip retail plaza is an integrated group of commercial establishments that is planned, developed, owned, and managed as a unit. Each study site in this land use has less than 40,000 square feet of gross leasable area (GLA). Because a strip retail plaza is open-air, the GLA is the same as the gross floor area of the building.

The 40,000 square feet GFA threshold between strip retail plaza and shopping plaza (Land Use 821) was selected based on an examination of the overall shopping center/plaza database. No shopping plaza with a supermarket as its anchor is smaller than 40,000 square feet GLA.

Shopping center (>150k) (Land use 820), shopping plaza (40-150k) (Land Use 821), and factory outlet center (Land Use 823) are related uses.

Additional Data

The technical appendices provide supporting information on time-of-day distributions for this land use. The appendices can be accessed through either the ITETripGen web app or the trip generation resource page on the ITE website (<https://www.ite.org/technical-resources/topics/trip-and-parking-generation/>).

The sites were surveyed in the 1980s, the 1990s, the 2000s, and the 2010s in Alberta (CAN), California, Delaware, Florida, New Jersey, Ontario (CAN), South Dakota, Vermont, Washington, and Wisconsin.

Source Numbers

304, 358, 423, 428, 437, 507, 715, 728, 936, 960, 961, 974, 1009

Strip Retail Plaza (<40k) (822)

Vehicle Trip Ends vs: 1000 Sq. Ft. GLA

On a: Weekday,

Peak Hour of Adjacent Street Traffic,

One Hour Between 7 and 9 a.m.

Setting/Location: General Urban/Suburban

Number of Studies: 5

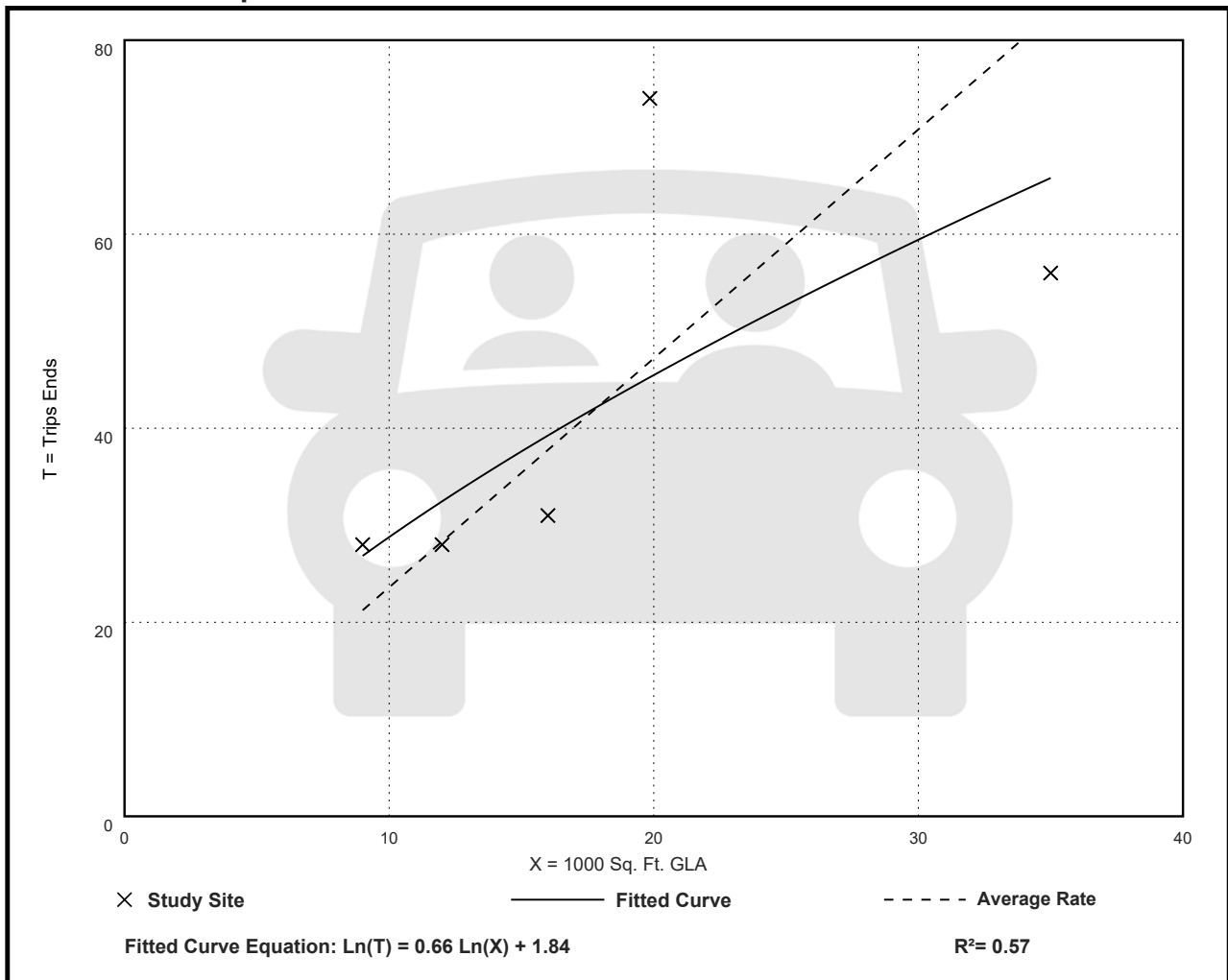
Avg. 1000 Sq. Ft. GLA: 18

Directional Distribution: 60% entering, 40% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
2.36	1.60 - 3.73	0.94

Data Plot and Equation



Strip Retail Plaza (<40k) (822)

Vehicle Trip Ends vs: 1000 Sq. Ft. GLA

On a: Weekday,

Peak Hour of Adjacent Street Traffic,

One Hour Between 4 and 6 p.m.

Setting/Location: General Urban/Suburban

Number of Studies: 25

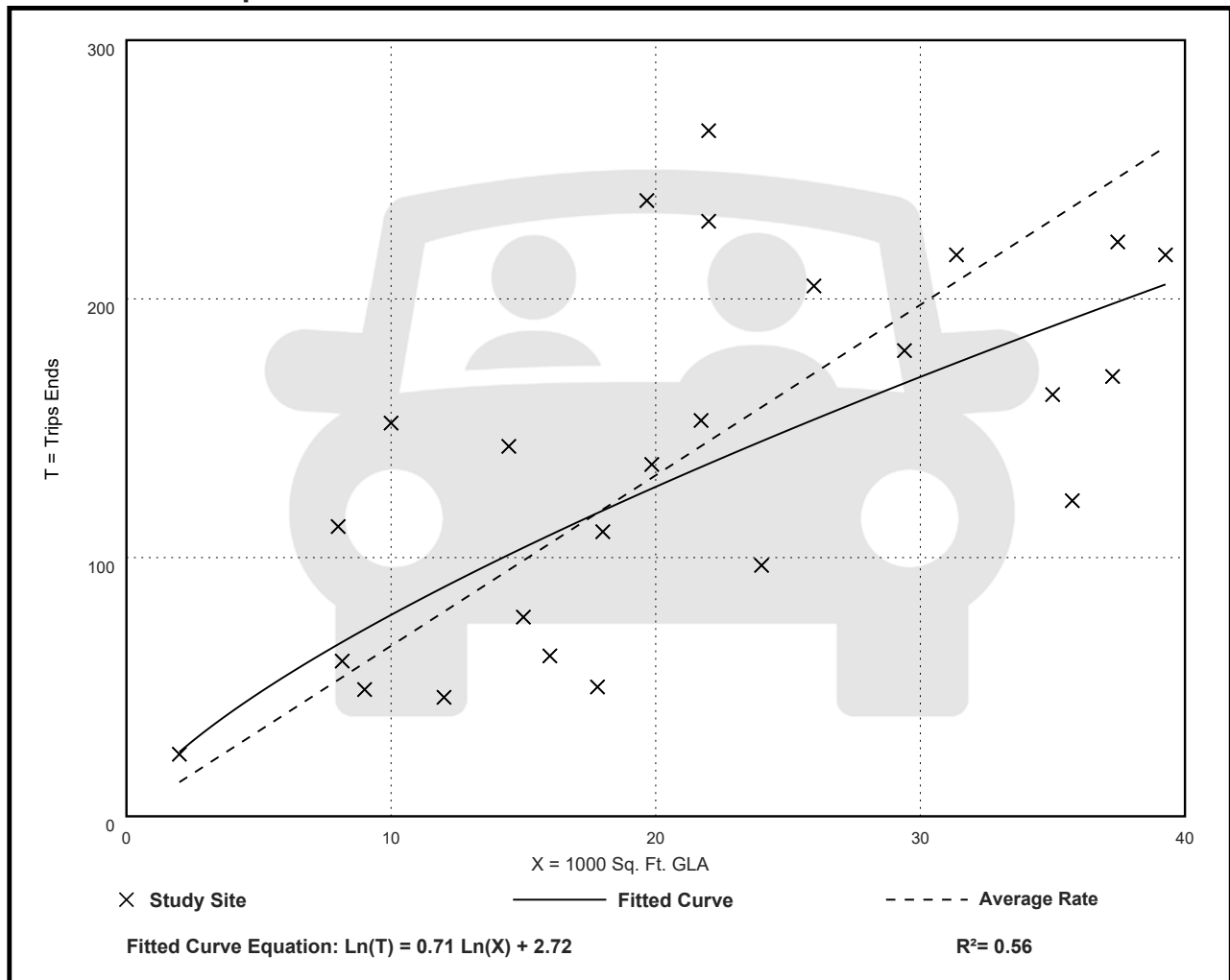
Avg. 1000 Sq. Ft. GLA: 21

Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
6.59	2.81 - 15.20	2.94

Data Plot and Equation



APPENDIX G

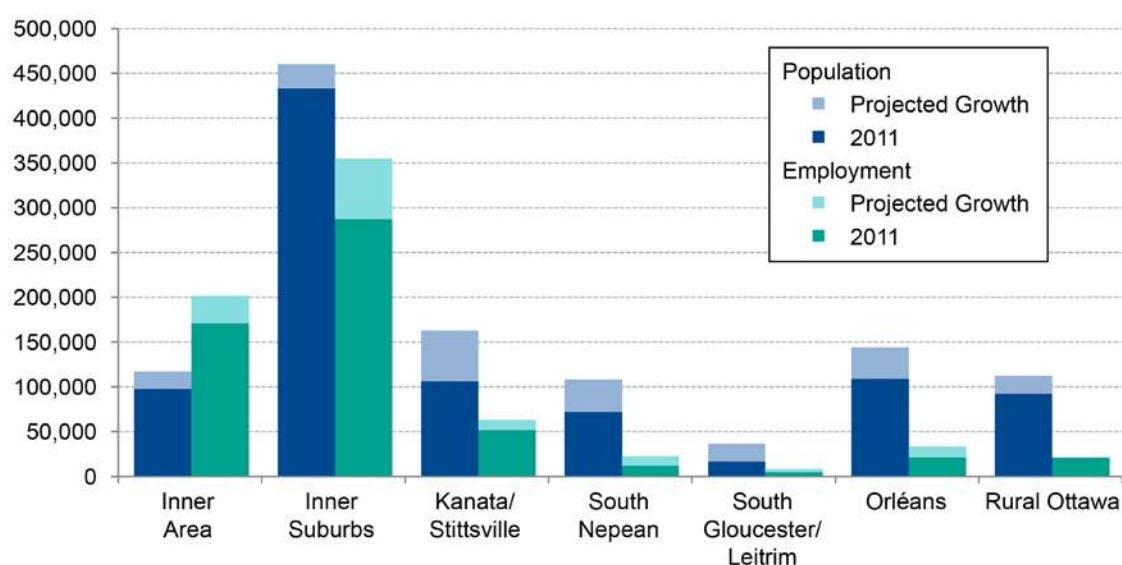
Excerpts from City of Ottawa's 2013 TMP and Strategic Long-Range Model

2.3 Population and Employment in 2031

Where growth will occur. The City has prepared population and employment growth projections for the period from 2011 to 2031 (see Exhibit 2.10). The City expects a 23% increase in population from 922,000 to 1.14 million people, and a 24% increase in employment from 565,000 to 703,000 jobs. Although infill development and intensification are forecast to increase the population of Ottawa's Inner Area and Inner Suburbs by about 46,000 people over the next 18 years, most growth (about 168,000 people) will occur in the Outer Suburbs. In contrast, 72% of employment growth will occur inside the Greenbelt.

Exhibit 2.10 Population and Employment: 2011 Actual and 2031 Projections

Area	Population			Employment		
	2011	2031	Growth and distribution	2011	2031	Growth & distribution
Inner Area	97,200	116,400	19,200 (9%)	170,600	201,800	31,200 (23%)
Inner Suburbs	432,500	459,300	26,800 (13%)	287,400	355,300	67,900 (49%)
Kanata/Stittsville	105,200	162,000	56,800 (27%)	51,300	62,500	11,200 (8%)
Barrhaven	71,200	107,400	36,200 (17%)	11,100	21,800	10,700 (8%)
Riverside South/Leitrim	15,900	35,800	19,900 (9%)	4,000	7,800	3,800 (3%)
Orléans	108,200	143,400	35,200 (16%)	20,600	33,000	12,400 (9%)
Rural Ottawa	91,400	111,700	20,300 (9%)	20,000	20,900	900 (1%)
Total	922,000	1,135,900	213,900 (100%)	564,900	703,200	138,100 (100%)



TRANS Regional Model

Version 2.15 - Assigned June 16, 2020

AM Peak Hour Total Traffic Volume

Network Mapping

2011 Model - Base case

N/A

User Initials: TIMW

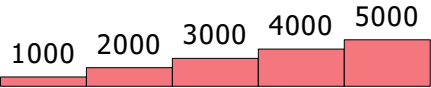
Plot Prepared: May 31, 2021

EMME Scenario: 21711



Legend

AM Peak Hour Total Traffic Volume



Distance (m)



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.

TRANS Regional Model

Version 2.15 - Assigned June 16, 2020

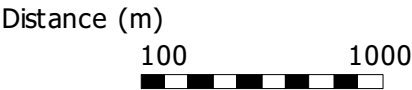
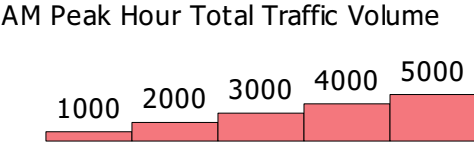
AM Peak Hour Total Traffic Volume
Network Mapping

2031 Model - Base case
N/A

User Initials: TIMW
Plot Prepared: May 31, 2021
EMME Scenario: 21711



Legend



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.

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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 H

Other Area Developments

Transportation Impact Study

1 INTRODUCTION

From the information provided, a residential development consisting of approximately 534 residential units (single family homes and town homes) is being proposed on the property municipally known as 3490 Innes Road. These lands are currently zoned for employment land use, therefore a rezoning is required to develop the site as residential. The property in its entirety extends south of Innes Road for approximately 1 km and from approximately 50 to 400 m east of Pagé Road. The land is currently occupied by a golf range/mini-putt and farmland. As shown in Figure 1: Site Context, the proposed residential development is planned on the southern end of the site located approximately 325 m south of Innes Road. Future development is planned on the lands north of the planned residential community, which is not included in the analysis herein. The proposed Site Plan is provided as Figure 2.

Figure 1: Site Context



As part of the Rezoning and Draft Plan of Subdivision Application processes, the City of Ottawa requires submission of a formal Transportation Impact Assessment (TIA) consistent with their guidelines dated October 2006. With respect to these guidelines and through discussions with the City of Ottawa, a Transportation Impact Study (TIS) is considered the appropriate type of study for the subject rezoning.

The proposed development is expected to be constructed in two phases. For the purpose of this assessment, Phase 1 will consist of half of the units (approximately 267 units) and is expected to be built by 2020, and Phase 2, consisting of the remainder of units (267 units) is expected to be constructed by 2024.

Figure 6: Phase 1 'New' Site-Generated Traffic Volumes

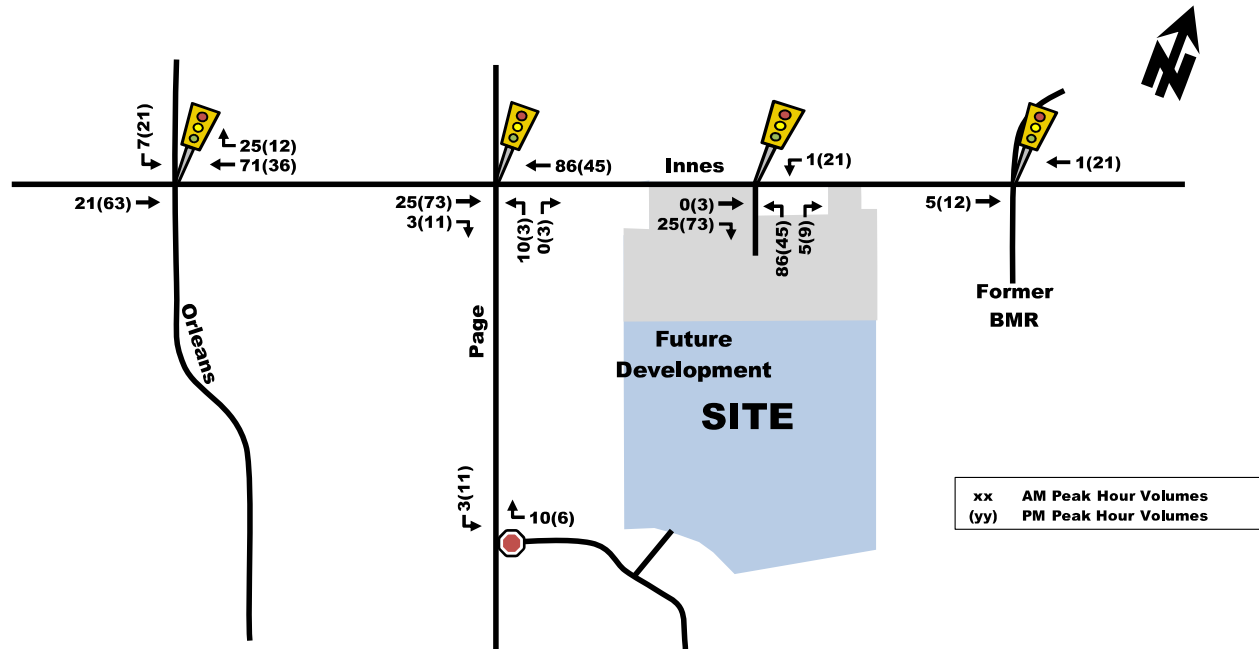


Figure 7: Phases 1 and 2 'New' Site-Generated Traffic Volumes

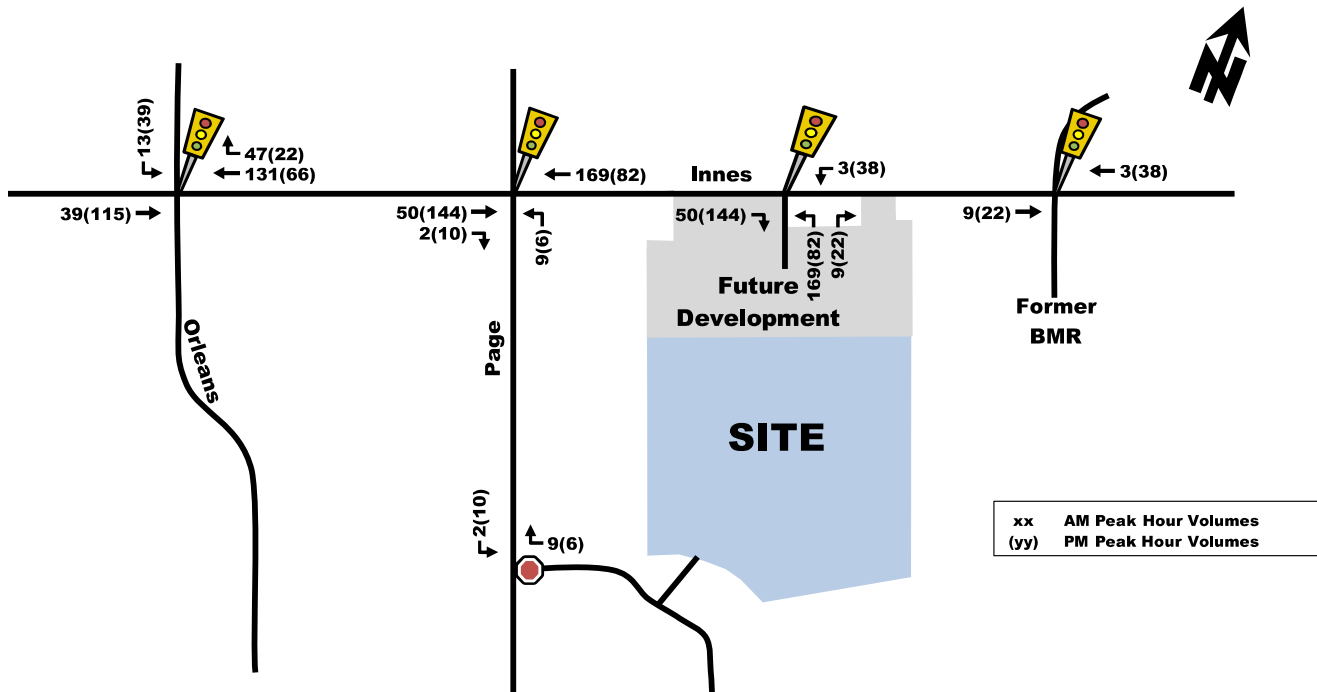


Exhibit 2.1: Existing Traffic Control and Lane Configurations

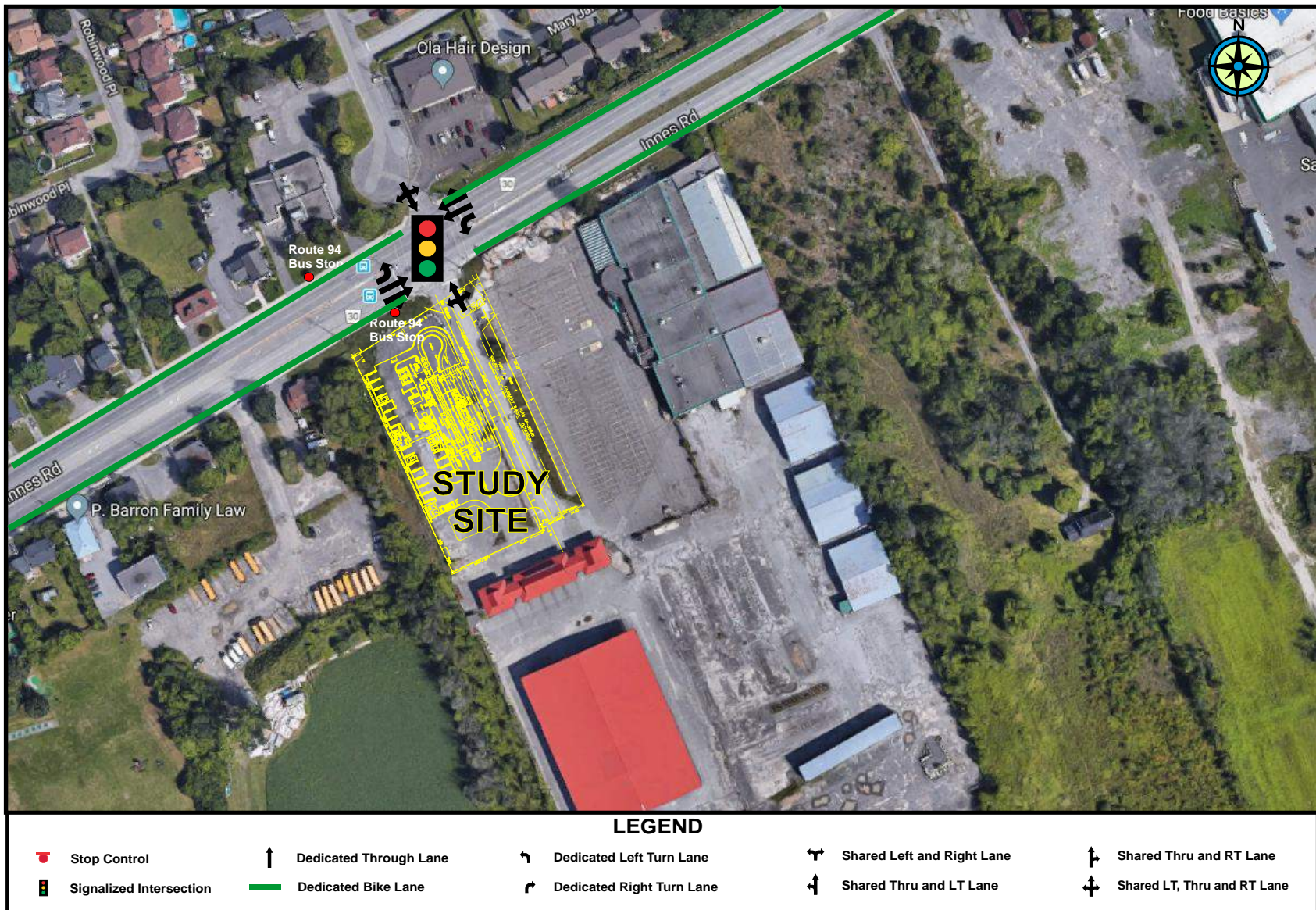


Exhibit 3.1: Site and Total Traffic Volumes

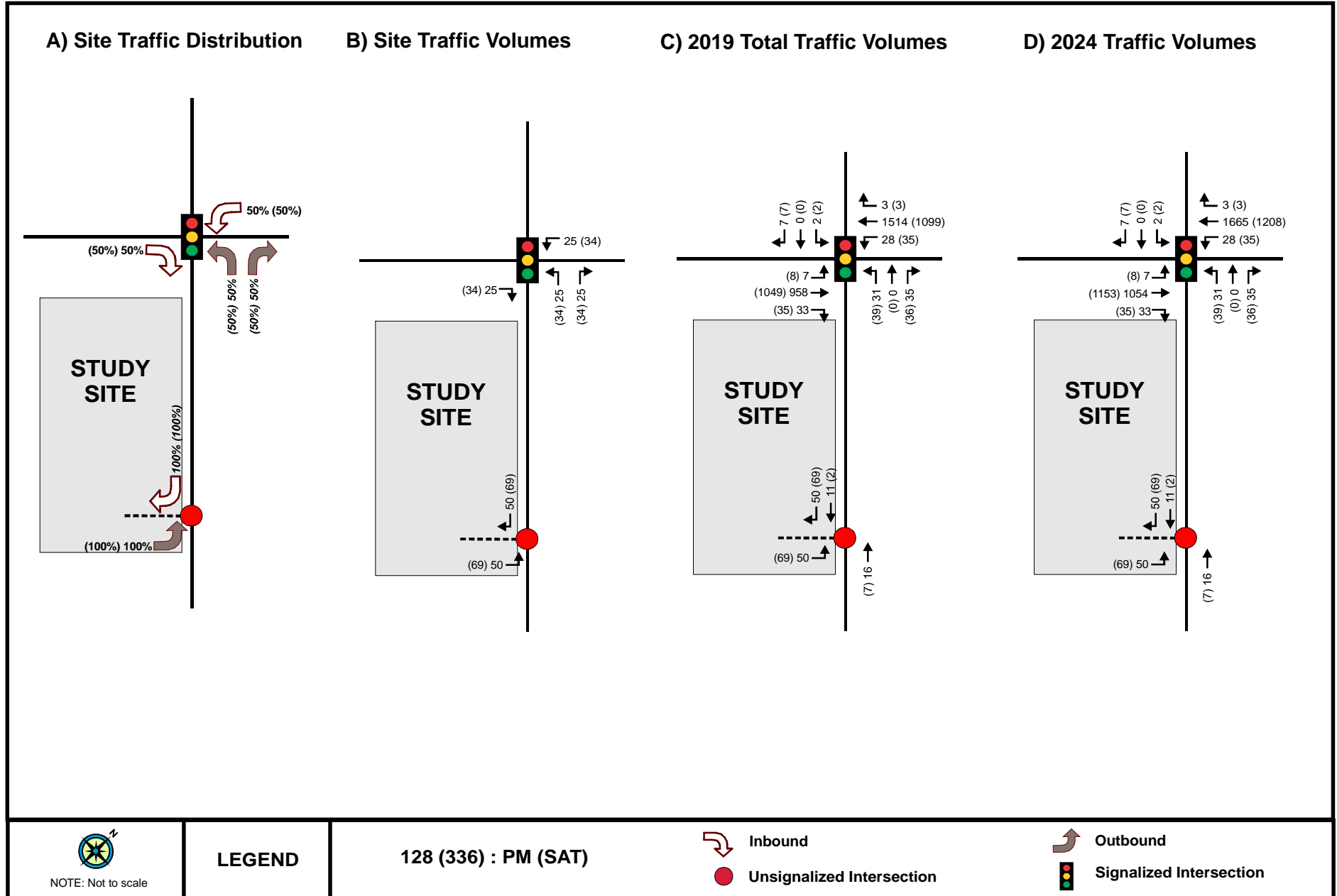


Figure 1: View of the Subject Site



In 2023 and 2028, trips to/from the east generated by the lower-density units and all trips generated by the medium-density units have all been assigned to the Innes Road/473m East of Pagé Road connection. Trips to/from the west generated by the lower-density units have been assigned to the Innes Road/Caivan Access and Innes Road/473m East of Pagé Road connections, with a majority of trips assigned to Innes Road/473m East of Pagé Road. The assumed trip assignment by 2023 and 2028 is described as follows:

Lower-Density Portion

- Innes Road/Caivan Access: 20% of trips to/from the west;
- Innes Road/473m East of Pagé Road: 100% of trips to/from the east and 80% of trips to/from the west.

Medium-Density Portion

- Innes Road/473m East of Pagé Road: 100% of trips to/from the east and west.

The EUC MTS identifies that any lands owned by Richcraft will not be developed by 2031. As such, while a connection to the future Richcraft Subdivision will be constructed, no trips have been assigned to this connection.

The EUC CDP identifies a future conceptual access from the Richcraft Subdivision to Innes Road via a right-in/right-out local connection, as well as a connection to Brian Coburn Boulevard south of the study area, via an extension of Fern Casey Boulevard. These connections are considered in the analysis of the EUC, but are not considered in the analysis of this TIA.

Trips generated by the proposed subdivision in the 2021 Phase 1 year, 2023 buildout year, and 2028 horizon year are shown in **Figure 5** and **Figure 6**.

Figure 5: 2021 Site-Generated Traffic

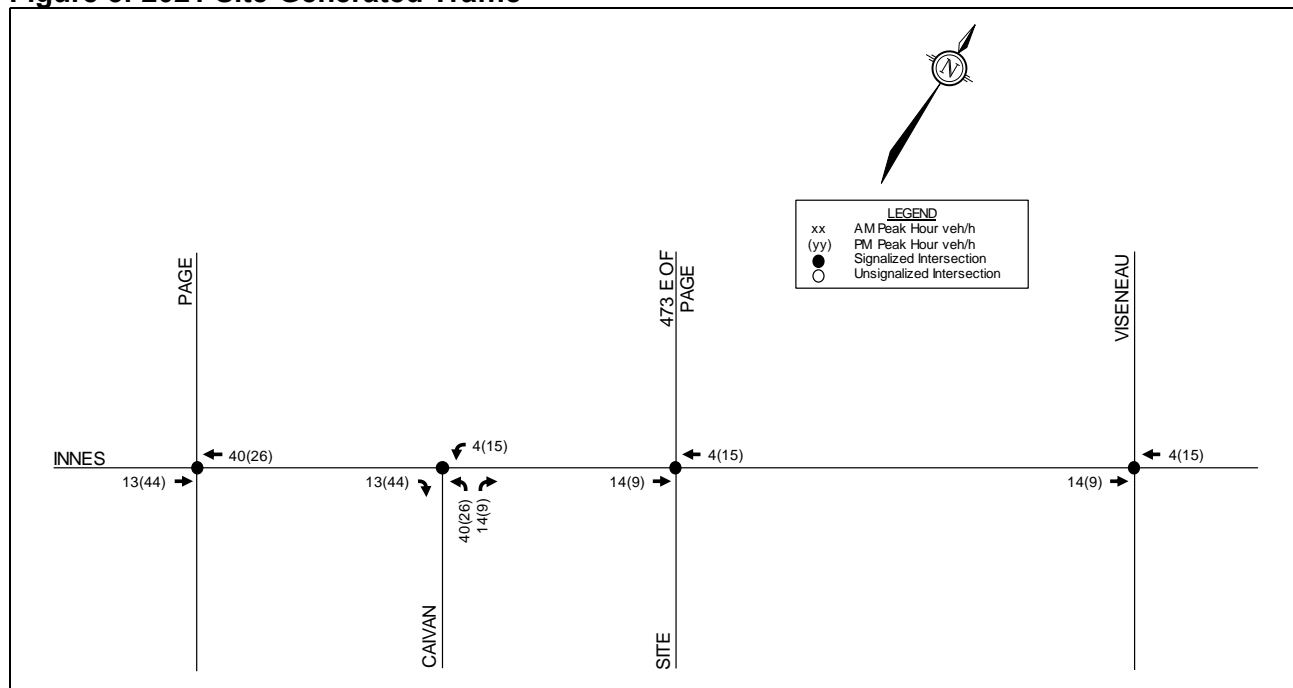
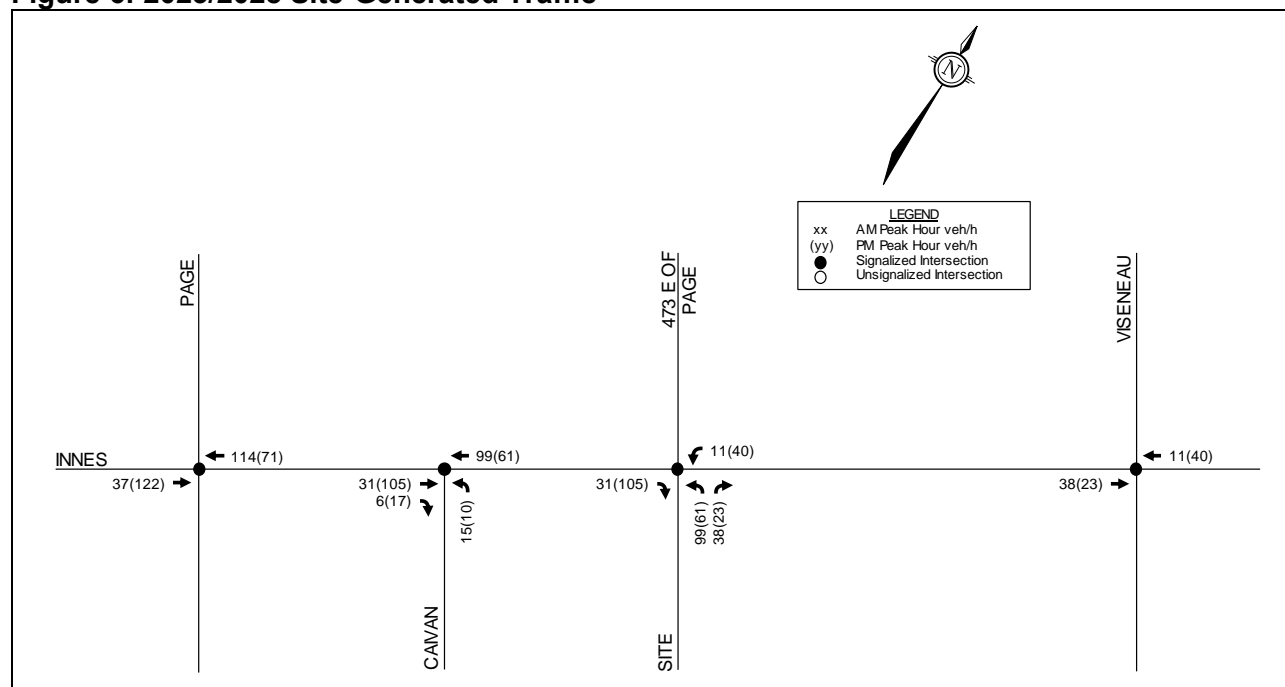


Figure 6: 2023/2028 Site-Generated Traffic

5.2 Background Traffic

5.2.1 General Background Growth Rate

A rate of background growth has been established through a review of the City of Ottawa's 2013 Transportation Master Plan (TMP) and the City's Strategic Long Range Model (comparing snapshots of 2011 and 2031 AM peak hour volumes). Section 2.3 of the TMP projects a 33% growth in the population of the Orléans area between 2011 and 2031, which translates to an annual growth rate of approximately 1.4% per annum. The snapshots indicate traffic volume reductions on Innes Road due to the opening of Brian Coburn Boulevard, which acts as an alternate east-west arterial route. To account for potential developments in the area that are not discussed below, a 1% background growth has been applied to the eastbound and westbound through volumes on Innes Road throughout the study area.

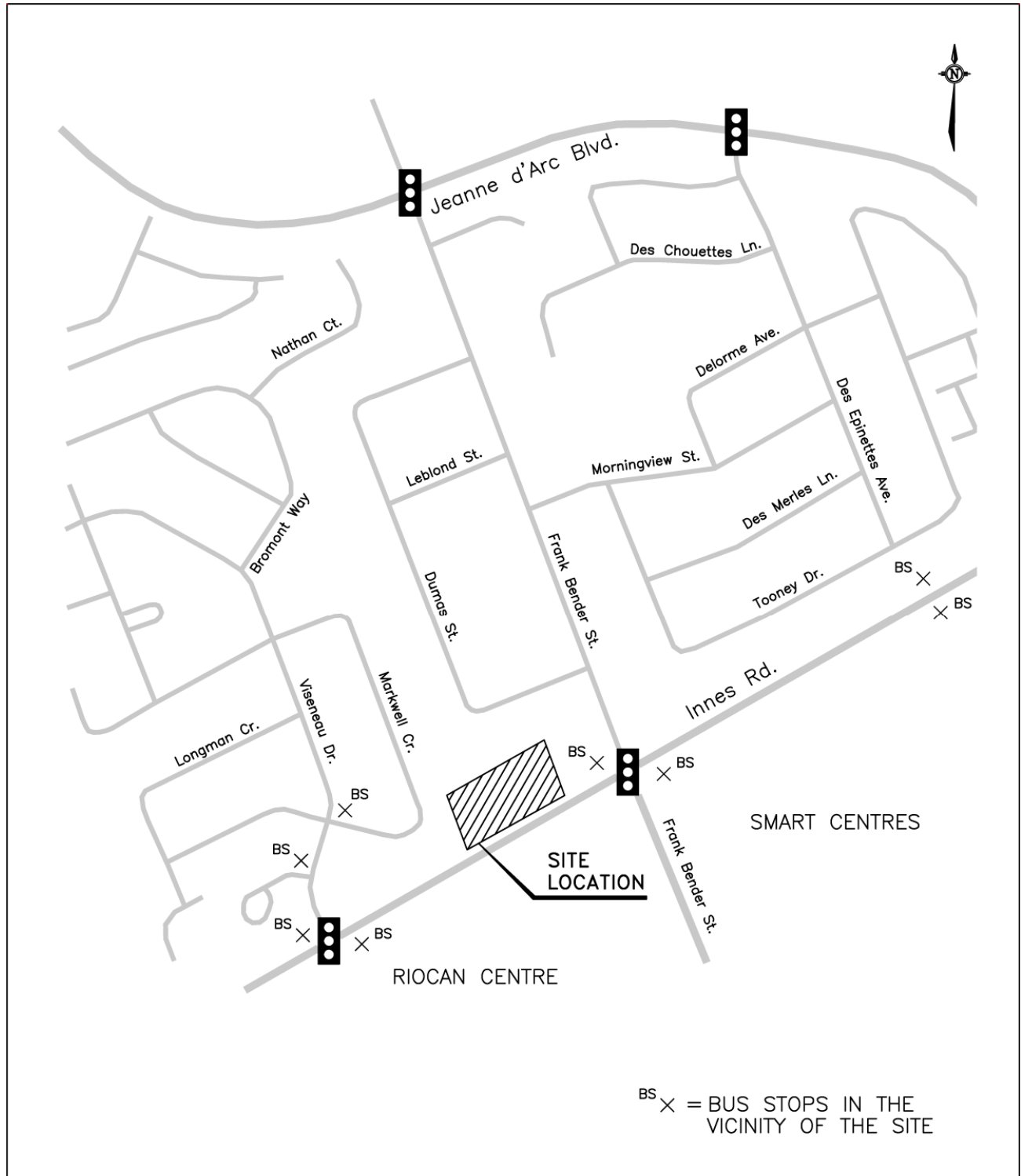
5.2.2 Other Area Developments

Within the study area, multiple developments are anticipated or are in the approval process. The following developments will be added to the background traffic to maintain a conservative analysis. Relevant excerpts of the studies associated with the following developments are included in **Appendix F**. Trips generated by the below developments have been assigned based on the trip distributions described in their respective studies, unless otherwise noted.

3443 Innes Road (Six-Storey Mixed-Use Building)

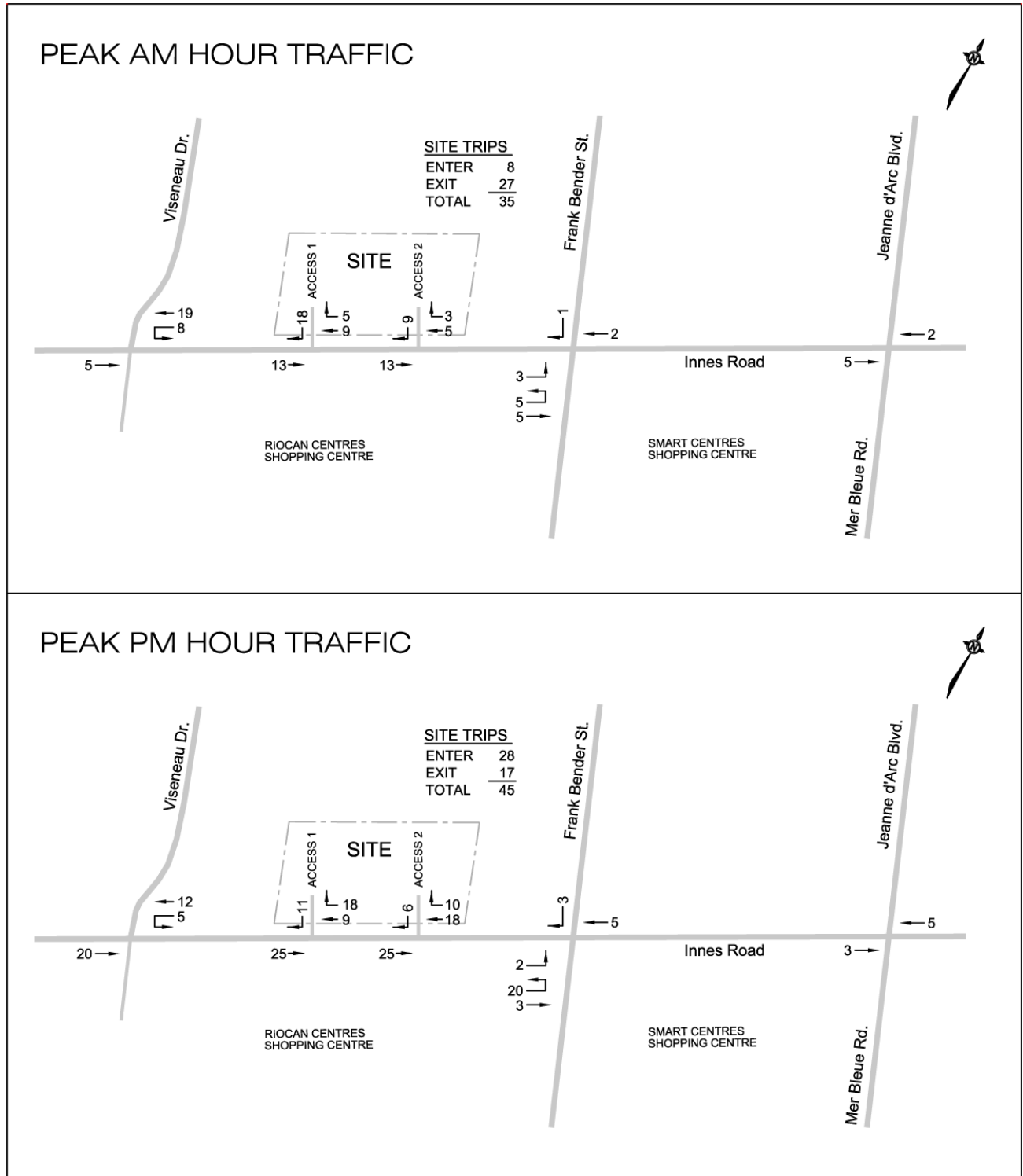
A TIA was prepared by Novatech in December 2017 and later revised in June 2018, in support of a six-storey mixed-use development (Site Plan Application D07-12-17-0169). The development consists of 35 residential units and ground floor commercial units. All trips generated by the development have been added to the background traffic in 2021, 2023, and 2028.

FIGURE 2.1
SITE LOCATION PLAN



NOT TO SCALE

FIGURE 3.1
PEAK AM AND PM HOUR SITE GENERATED TRIPS



NOT TO SCALE

APPENDIX I

Signal Timing Plans

Traffic Signal Timing

City of Ottawa, Transportation Services Department

Traffic Signal Operations Unit

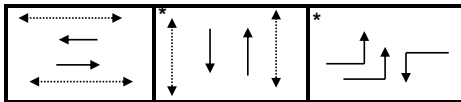
Intersection:	Main: Innes	Side: Orleans
Controller:	ATC 3	TSD: 5916
Author:	Matthew Anderson	Date: 06-Jul-2021

Existing Timing Plans†

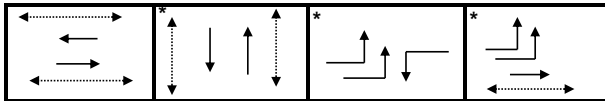
	Plan						Ped Minimum Time		
	AM Peak 1	Off Peak 2	PM Peak 3	Night 4	Weekend 5	AM Heavy 11	Walk	DW	A+R
Cycle	110	90	110	80	90	130			
Offset	79	10	0	X	10	99			
EB Thru	45	42	49	29	42	65	7	13	3.7 + 2.5
WB Thru	45	39	34	29	39	65	7	13	3.7 + 2.5
NB Left	19	-	12	-	-	19	-	-	3.3 + 3.4
NB Thru	52	33	45	33	33	52	7	19	3.3 + 3.4
SB Thru	33	33	33	33	33	33	7	19	3.3 + 3.4
EB Left (fp)	13	18	31	18	18	13	-	-	3.7 + 2.9
WB Left (fp)	13	15	16	18	15	13	-	-	3.7 + 2.5

Phasing Sequence‡

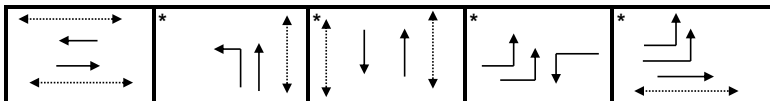
Plan: 4



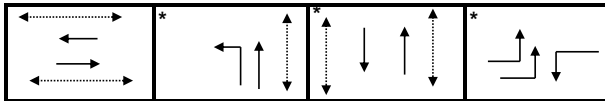
Plan: 2, 5



Plan: 3



Plan: 1, 11



Schedule

Weekday

Time	Plan
0:10	4
6:00	11
9:00	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
19:00	2
20:00	4

Sunday

Time	Plan
0:10	4
7:00	2
10:00	5
18:00	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 \$59.96 (\$53.06 + HST)

Traffic Signal Timing

City of Ottawa, Transportation Services Department

Traffic Signal Operations Unit

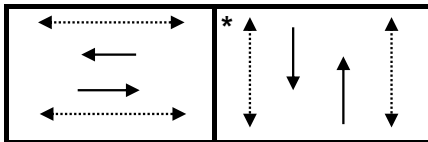
Intersection:	Main: Innes	Side:	Pagé
Controller:	ATC3	TSD:	6676
Author:	Matthew Anderson	Date:	06-Jul-2021

Existing Timing Plans[†]

	Plan					Ped Minimum Time			
	AM Peak 1	Off Peak 2	PM Peak 3	Night 4	Weekend 5	AM Rush 11	Walk	DW	A+R
Cycle	110	90	110	80	90	120			
Offset	26	43	2	X	43	26			
EB Thru	72	52	72	42	52	82	15	18	3.7 + 2.5
WB Thru	72	52	72	42	52	82	15	18	3.7 + 2.5
NB Thru	38	38	38	38	38	38	7	24	3.0 + 3.8
SB Thru	38	38	38	38	38	38	7	24	3.0 + 3.8

Phasing Sequence[‡]

Plan: All



Schedule

Weekday		Saturday		Sunday	
Time	Plan	Time	Plan	Time	Plan
0:10	4	0:10	4	0:10	4
6:00	11	7:00	2	7:00	2
9:00	1	9:00	5	10:00	5
9:30	2	19:00	2	18:00	2
15:00	3	20:00	4	19:00	4
18:30	2				
22:00	4				

Notes

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

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

Asterisk (*) Indicates actuated phase

(fp): Fully Protected Left Turn

◀.....▶ Pedestrian signal

Cost is \$59.96 (\$53.06 + HST)

Traffic Signal Timing

City of Ottawa, Transportation Services Department

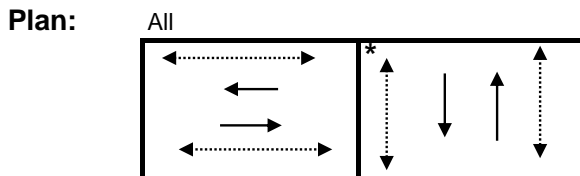
Traffic Signal Operations Unit

Intersection:	Main: Innes	Side: Boyer/Builders Warehouse
Controller:	MS-3200	TSD: 6370
Author:	Jon Pach	Date: 05-Dec-2018

Existing Timing Plans†

	Plan						Ped Minimum Time		
	AM Peak 1	Off Peak 2	PM Peak 3	Night 4	Weekend 5	AM Rush 11	Walk	DW	A+R
Cycle	110	90	110	70	90	120			
Offset	0	43	36	X	43	0			
EB Thru	77	57	77	37	57	87	12	14	3.7 + 2.4
WB Thru	77	57	77	37	57	87	12	14	3.7 + 2.4
NB Thru	33	33	33	33	33	33	7	19	3.3 + 3.0
SB Thru	33	33	33	33	33	33	7	19	3.3 + 3.0

Phasing Sequence‡



Schedule

Weekday

Time	Plan
0:10	4
6:00	11
9:00	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	2
22:00	4

Sunday

Time	Plan
0:10	4
7:00	2
10:00	5
19:00	2
22:00	4

Notes

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

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

Asterisk (*) Indicates actuated phase

(fp): Fully Protected Left Turn

←.....→ Pedestrian signal

























Cost is \$56.50 (\$50 + HST)

APPENDIX J

Existing Synchro Analysis













1: Orleans & Innes
AM Peak Hour

3437-3443 Innes Road
Existing Traffic

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	121	348	23	24	1200	149	203	259	44	68	100	459
Future Volume (vph)	121	348	23	24	1200	149	203	259	44	68	100	459
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	140.0		80.0	105.0		60.0	50.0		50.0	55.0		60.0
Storage Lanes	2		1	1		1	1		1	1		1
Taper Length (m)	40.0			40.0			10.0			20.0		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	1.00		0.96	0.98		0.97	0.99		0.94	0.97		0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	2995	3144	1473	1572	3357	1502	1712	3357	1502	1679	3357	1532
Flt Permitted	0.950			0.950			0.543			0.575		
Satd. Flow (perm)	2986	3144	1416	1547	3357	1462	972	3357	1413	983	3357	1500
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			143			143			82			155
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		264.5			491.4			387.7			301.9	
Travel Time (s)		15.9			29.5			27.9			21.7	
Confl. Peds. (#/hr)	6		14	14		6	6		32	32		6
Confl. Bikes (#/hr)						6						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	12%	10%	5%	10%	3%	3%	1%	3%	3%	3%	3%	1%
Adj. Flow (vph)	134	387	26	27	1333	166	226	288	49	76	111	510
Shared Lane Traffic (%)												
Lane Group Flow (vph)	134	387	26	27	1333	166	226	288	49	76	111	510
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA
Median Width(m)		9.0			7.4			6.0			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	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	18.6	93.0	18.6	18.6	93.0	18.6	18.6	93.0	18.6	18.6	93.0	18.6
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	18.6	5.5	18.6	18.6	5.5	18.6	18.6	5.5	18.6	18.6	5.5	18.6
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	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		87.5			87.5			87.5			87.5	
Detector 2 Size(m)		5.5			5.5			5.5			5.5	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases			2			6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	8	4	4	4

1: Orleans & Innes
AM Peak Hour

3437-3443 Innes Road
Existing Traffic

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.6	26.2	26.2	11.2	26.2	26.2	11.7	32.7	32.7	32.7	32.7	32.7
Total Split (s)	13.0	65.0	65.0	13.0	65.0	65.0	19.0	52.0	52.0	33.0	33.0	33.0
Total Split (%)	10.0%	50.0%	50.0%	10.0%	50.0%	50.0%	14.6%	40.0%	40.0%	25.4%	25.4%	25.4%
Maximum Green (s)	6.4	58.8	58.8	6.8	58.8	58.8	12.3	45.3	45.3	26.3	26.3	26.3
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.9	2.5	2.5	2.5	2.5	2.5	3.4	3.4	3.4	3.4	3.4	3.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.2	6.2	6.2	6.2	6.2	6.7	6.7	6.7	6.7	6.7	6.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		13.0	13.0		13.0	13.0		19.0	19.0	19.0	19.0	19.0
Pedestrian Calls (#/hr)		14	14		6	6		32	32	6	6	6
Act Effct Green (s)	6.4	64.0	64.0	6.5	58.8	58.8	45.3	45.3	45.3	26.3	26.3	26.3
Actuated g/C Ratio	0.05	0.49	0.49	0.05	0.45	0.45	0.35	0.35	0.35	0.20	0.20	0.20
v/c Ratio	0.91	0.25	0.03	0.35	0.88	0.22	0.55	0.25	0.09	0.38	0.16	1.19
Control Delay	114.9	20.6	0.1	71.8	40.3	5.5	38.0	30.9	1.9	51.5	43.5	139.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	114.9	20.6	0.1	71.8	40.3	5.5	38.0	30.9	1.9	51.5	43.5	139.2
LOS	F	C	A	E	D	A	D	C	A	D	D	F
Approach Delay		42.8			37.1			31.2			114.4	
Approach LOS		D			D			C			F	
Queue Length 50th (m)	16.5	29.4	0.0	6.3	147.5	3.0	39.9	25.3	0.0	15.6	11.4	~114.7
Queue Length 95th (m)	#34.6	39.7	0.0	15.5	177.6	14.6	60.2	35.7	2.6	30.0	19.2	#176.9
Internal Link Dist (m)		240.5			467.4			363.7			277.9	
Turn Bay Length (m)	140.0		80.0	105.0		60.0	50.0		50.0	55.0		60.0
Base Capacity (vph)	147	1548	769	82	1518	739	408	1169	545	198	680	427
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.91	0.25	0.03	0.33	0.88	0.22	0.55	0.25	0.09	0.38	0.16	1.19

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 99 (76%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 115

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.19

Intersection Signal Delay: 53.2

Intersection LOS: D

Intersection Capacity Utilization 93.9%

ICU Level of Service F

Analysis Period (min) 15

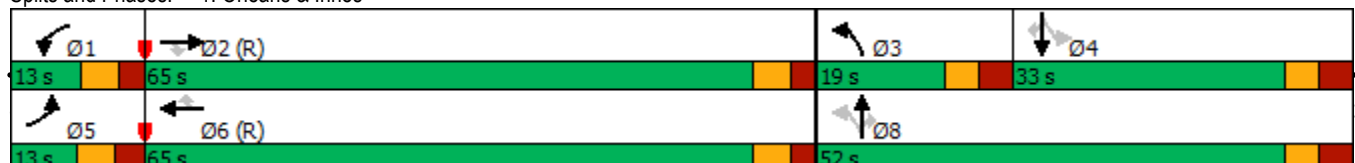
~ Volume exceeds capacity, queue is theoretically infinite.



















Queue shown is maximum after two cycles.













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

Queue shown is maximum after two cycles.

Splits and Phases: 1: Orleans & Innes



												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	400	21	37	1200	19	14	12	38	33	9	42
Future Volume (vph)	11	400	21	37	1200	19	14	12	38	33	9	42
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	100.0		0.0	100.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	35.0			0.0			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		0.99	1.00			0.99			0.99	
Frt		0.993			0.998			0.920			0.932	
Flt Protected	0.950			0.950				0.989			0.981	
Satd. Flow (prot)	1586	3124	0	1503	3348	0	0	1569	0	0	1596	0
Flt Permitted	0.168			0.484				0.915			0.862	
Satd. Flow (perm)	280	3124	0	761	3348	0	0	1448	0	0	1402	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8			2			42			41	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		491.4			238.6			212.5			273.4	
Travel Time (s)		29.5			14.3			19.1			24.6	
Confl. Peds. (#/hr)	4		7	7		4	11					11
Confl. Bikes (#/hr)			1						1			1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	9%	10%	5%	15%	3%	5%	1%	15%	3%	1%	10%	3%
Adj. Flow (vph)	12	444	23	41	1333	21	16	13	42	37	10	47
Shared Lane Traffic (%)												
Lane Group Flow (vph)	12	467	0	41	1354	0	0	71	0	0	94	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	L NA	Left	R NA	L NA	Left	R NA
Median Width(m)		5.0			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		10.0			10.0			5.0			5.0	
Two way Left Turn Lane					Yes							
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	18.6	93.0		18.6	93.0		18.6	93.0		18.6	93.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	18.6	5.5		18.6	5.5		18.6	5.5		18.6	5.5	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		87.5			87.5			87.5			87.5	
Detector 2 Size(m)		5.5			5.5			5.5			5.5	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	39.2	39.2		39.2	39.2		37.8	37.8		37.8	37.8	
Total Split (s)	82.0	82.0		82.0	82.0		38.0	38.0		38.0	38.0	
Total Split (%)	68.3%	68.3%		68.3%	68.3%		31.7%	31.7%		31.7%	31.7%	
Maximum Green (s)	75.8	75.8		75.8	75.8		31.2	31.2		31.2	31.2	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.5	2.5		2.5	2.5		3.8	3.8		3.8	3.8	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	6.2	6.2		6.2	6.2			6.8			6.8	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	15.0	15.0		15.0	15.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	18.0	18.0		18.0	18.0		24.0	24.0		24.0	24.0	
Pedestrian Calls (#/hr)	7	7		4	4		1	1		11	11	
Act Effct Green (s)	88.6	88.6		88.6	88.6			18.4			18.4	
Actuated g/C Ratio	0.74	0.74		0.74	0.74			0.15			0.15	
v/c Ratio	0.06	0.20		0.07	0.55			0.28			0.38	
Control Delay	8.3	6.2		4.6	6.7			21.4			28.3	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	8.3	6.2		4.6	6.7			21.4			28.3	
LOS	A	A		A	A			C			C	
Approach Delay		6.3			6.6			21.4			28.3	
Approach LOS		A			A			C			C	
Queue Length 50th (m)	0.4	9.3		1.5	39.5			6.0			11.1	
Queue Length 95th (m)	3.3	28.2		1.6	14.2			15.5			21.7	
Internal Link Dist (m)		467.4			214.6			188.5			249.4	
Turn Bay Length (m)	100.0			100.0								
Base Capacity (vph)	206	2308		561	2472			407			394	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.06	0.20		0.07	0.55			0.17			0.24	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 26 (22%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.55

Intersection Signal Delay: 8.0

Intersection LOS: A







Intersection Capacity Utilization 61.0%




















ICU Level of Service B













Analysis Period (min) 15

Splits and Phases: 2: Page & Innes



						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↓	↑↑	↓	
Traffic Volume (vph)	500	28	44	1200	45	45
Future Volume (vph)	500	28	44	1200	45	45
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0	35.0		0.0	0.0
Storage Lanes		0	1		1	0
Taper Length (m)			20.0		20.0	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Ped Bike Factor						
Frt	0.992				0.932	
Flt Protected			0.950		0.976	
Satd. Flow (prot)	3330	0	1679	3357	1607	0
Flt Permitted			0.950		0.976	
Satd. Flow (perm)	3330	0	1679	3357	1607	0
Link Speed (k/h)	60			60	50	
Link Distance (m)	238.6			236.8	212.4	
Travel Time (s)	14.3			14.2	15.3	
Confl. Peds. (#/hr)		11	11			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	556	31	49	1333	50	50
Shared Lane Traffic (%)						
Lane Group Flow (vph)	587	0	49	1333	100	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	9.0			9.0	9.0	
Two way Left Turn Lane	Yes			Yes		
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization 47.2%	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)	6	426	7	1	1291	4	0	0	1	1	0	3
Future Volume (vph)	6	426	7	1	1291	4	0	0	1	1	0	3
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	30.0		0.0	40.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (m)	20.0			30.0			20.0			20.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00				1.00				0.99		0.99	
Frt		0.998							0.850		0.899	
Flt Protected	0.950			0.950							0.988	
Satd. Flow (prot)	1712	3137	0	1712	3357	0	0	1802	1532	0	1583	0
Flt Permitted	0.173			0.477							0.914	
Satd. Flow (perm)	311	3137	0	860	3357	0	0	1802	1511	0	1464	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3							442		28	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		236.8			292.8			151.9			62.6	
Travel Time (s)		14.2			17.6			13.7			5.6	
Confl. Peds. (#/hr)	7					7	2		1	1		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%	10%	10%	1%	3%	1%	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	7	473	8	1	1434	4	0	0	1	1	0	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	7	481	0	1	1438	0	0	0	1	0	4	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	L NA	Left	R NA	L NA	Left	R NA
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		9.0			9.0			9.0			9.0	
Two way Left Turn Lane		Yes										
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2	1	1		2
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	18.6	93.0		18.6	93.0		18.6	93.0	18.6	18.6	93.0	
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)	18.6	5.5		18.6	5.5		18.6	5.5	18.6	18.6	5.5	
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)		87.5			87.5			87.5			87.5	
Detector 2 Size(m)		5.5			5.5			5.5			5.5	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA				Perm	Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		
Detector Phase	2	2		6	6		8	8	8	4	4	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	32.1	32.1		35.1	35.1		32.3	32.3	32.3	32.3	32.3	
Total Split (s)	87.0	87.0		87.0	87.0		33.0	33.0	33.0	33.0	33.0	
Total Split (%)	72.5%	72.5%		72.5%	72.5%		27.5%	27.5%	27.5%	27.5%	27.5%	
Maximum Green (s)	80.9	80.9		80.9	80.9		26.7	26.7	26.7	26.7	26.7	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	2.4	2.4		2.4	2.4		3.0	3.0	3.0	3.0	3.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Lost Time (s)	6.1	6.1		6.1	6.1			6.3	6.3		6.3	
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	C-Max	C-Max		C-Max	C-Max		None	None	None	None	None	
Walk Time (s)	12.0	12.0		12.0	12.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	14.0	14.0		14.0	14.0		19.0	19.0	19.0	19.0	19.0	
Pedestrian Calls (#/hr)	1	1		7	7		1	1	1	2	2	
Act Effct Green (s)	112.3	112.3		112.3	112.3				13.2		13.2	
Actuated g/C Ratio	0.94	0.94		0.94	0.94				0.11		0.11	
v/c Ratio	0.02	0.16		0.00	0.46				0.00		0.02	
Control Delay	3.7	1.9		4.0	3.4				0.0		0.2	
Queue Delay	0.0	0.0		0.0	0.0				0.0		0.0	
Total Delay	3.7	1.9		4.0	3.4				0.0		0.2	
LOS	A	A		A	A				A		A	
Approach Delay		1.9			3.4						0.3	
Approach LOS		A			A						A	
Queue Length 50th (m)	0.0	0.0		0.0	0.0				0.0		0.0	
Queue Length 95th (m)	1.7	22.4		0.6	101.7				0.0		0.0	
Internal Link Dist (m)		212.8			268.8			127.9			38.6	
Turn Bay Length (m)	30.0			40.0								
Base Capacity (vph)	291	2936		805	3142				679		347	
Starvation Cap Reductn	0	0		0	0				0		0	
Spillback Cap Reductn	0	0		0	0				0		0	
Storage Cap Reductn	0	0		0	0				0		0	
Reduced v/c Ratio	0.02	0.16		0.00	0.46				0.00		0.01	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.46

Intersection Signal Delay: 3.1

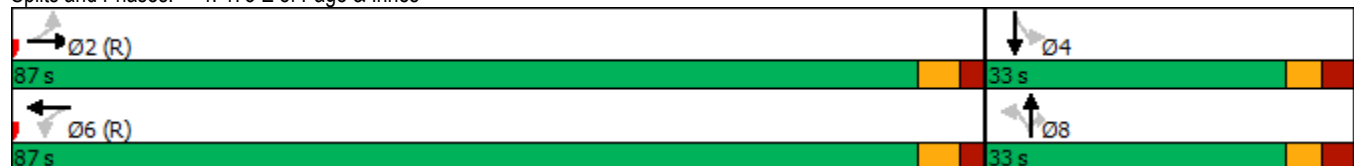
Intersection LOS: A

Intersection Capacity Utilization 57.3%

ICU Level of Service B

























Analysis Period (min) 15

Splits and Phases: 4: 473 E of Page & Innes















1: Orleans & Innes
AM Peak Hour

3437-3443 Innes Road
Existing Traffic (demand rationalization)

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	111	348	23	24	1200	149	203	259	44	68	100	319
Future Volume (vph)	111	348	23	24	1200	149	203	259	44	68	100	319
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	140.0		80.0	105.0		60.0	50.0		50.0	55.0		60.0
Storage Lanes	2		1	1		1	1		1	1		1
Taper Length (m)	40.0			40.0			10.0			20.0		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	1.00		0.96	0.98		0.97	0.99		0.94	0.97		0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	2995	3144	1473	1572	3357	1502	1712	3357	1502	1679	3357	1532
Flt Permitted	0.950			0.950			0.530			0.575		
Satd. Flow (perm)	2986	3144	1416	1547	3357	1462	949	3357	1413	983	3357	1500
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			143			143			82			154
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		264.5			491.4			387.7			301.9	
Travel Time (s)		15.9			29.5			27.9			21.7	
Confl. Peds. (#/hr)	6		14	14		6	6		32	32		6
Confl. Bikes (#/hr)						6						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	12%	10%	5%	10%	3%	3%	1%	3%	3%	3%	3%	1%
Adj. Flow (vph)	123	387	26	27	1333	166	226	288	49	76	111	354
Shared Lane Traffic (%)												
Lane Group Flow (vph)	123	387	26	27	1333	166	226	288	49	76	111	354
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA
Median Width(m)		9.0			7.4			6.0			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	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	18.6	93.0	18.6	18.6	93.0	18.6	18.6	93.0	18.6	18.6	93.0	18.6
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	18.6	5.5	18.6	18.6	5.5	18.6	18.6	5.5	18.6	18.6	5.5	18.6
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	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		87.5			87.5			87.5			87.5	
Detector 2 Size(m)		5.5			5.5			5.5			5.5	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases			2			6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	8	4	4	4

1: Orleans & Innes
AM Peak Hour

3437-3443 Innes Road
Existing Traffic (demand rationalization)

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.6	26.2	26.2	11.2	26.2	26.2	11.7	32.7	32.7	32.7	32.7	32.7
Total Split (s)	13.0	65.0	65.0	13.0	65.0	65.0	19.0	52.0	52.0	33.0	33.0	33.0
Total Split (%)	10.0%	50.0%	50.0%	10.0%	50.0%	50.0%	14.6%	40.0%	40.0%	25.4%	25.4%	25.4%
Maximum Green (s)	6.4	58.8	58.8	6.8	58.8	58.8	12.3	45.3	45.3	26.3	26.3	26.3
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.9	2.5	2.5	2.5	2.5	2.5	3.4	3.4	3.4	3.4	3.4	3.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.2	6.2	6.2	6.2	6.2	6.7	6.7	6.7	6.7	6.7	6.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		13.0	13.0		13.0	13.0		19.0	19.0	19.0	19.0	19.0
Pedestrian Calls (#/hr)		14	14		6	6		32	32	6	6	6
Act Effct Green (s)	7.4	66.9	66.9	6.5	60.8	60.8	42.4	42.4	42.4	23.4	23.4	23.4
Actuated g/C Ratio	0.06	0.51	0.51	0.05	0.47	0.47	0.33	0.33	0.33	0.18	0.18	0.18
v/c Ratio	0.73	0.24	0.03	0.35	0.85	0.22	0.59	0.26	0.10	0.43	0.18	0.89
Control Delay	84.3	19.7	0.1	71.8	37.6	5.5	40.7	32.4	2.0	54.3	44.8	54.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	84.3	19.7	0.1	71.8	37.6	5.5	40.7	32.4	2.0	54.3	44.8	54.1
LOS	F	B	A	E	D	A	D	C	A	D	D	D
Approach Delay		33.6			34.7			33.1			52.3	
Approach LOS		C			C			C			D	
Queue Length 50th (m)	15.1	29.4	0.0	6.3	147.5	3.0	39.9	25.3	0.0	15.6	11.4	47.4
Queue Length 95th (m)	#31.1	39.7	0.0	15.5	177.6	14.6	60.2	35.7	2.6	30.0	19.2	#92.7
Internal Link Dist (m)		240.5			467.4			363.7			277.9	
Turn Bay Length (m)	140.0		80.0	105.0		60.0	50.0		50.0	55.0		60.0
Base Capacity (vph)	169	1619	798	82	1569	759	381	1169	545	198	679	426
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.24	0.03	0.33	0.85	0.22	0.59	0.25	0.09	0.38	0.16	0.83

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 99 (76%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 37.2

Intersection LOS: D

Intersection Capacity Utilization 86.4%

ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 1: Orleans & Innes



























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Dynamic Report













1: Orleans & Innes
PM Peak Hour

3437-3443 Innes Road
Existing Traffic

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	579	1400	158	58	533	114	64	225	84	165	241	203
Future Volume (vph)	579	1400	158	58	533	114	64	225	84	165	241	203
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	140.0		80.0	105.0		60.0	50.0		50.0	55.0		60.0
Storage Lanes	2		1	1		1	1		1	1		1
Taper Length (m)	40.0			40.0			10.0			20.0		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	0.99		0.95	1.00		0.97	0.99		0.97	0.98		0.97
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3288	3357	1532	1712	3293	1517	1712	3390	1532	1712	3390	1532
Flt Permitted	0.950			0.950			0.447			0.597		
Satd. Flow (perm)	3261	3357	1456	1705	3293	1477	796	3390	1479	1058	3390	1485
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			165			230			159			226
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		264.5			491.4			387.7			301.9	
Travel Time (s)		15.9			29.5			27.9			21.7	
Confl. Peds. (#/hr)	7		22	22		7	15		18	18		15
Confl. Bikes (#/hr)			4			3						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	3%	1%	1%	5%	2%	1%	2%	1%	1%	2%	1%
Adj. Flow (vph)	643	1556	176	64	592	127	71	250	93	183	268	226
Shared Lane Traffic (%)												
Lane Group Flow (vph)	643	1556	176	64	592	127	71	250	93	183	268	226
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA
Median Width(m)		9.0			7.4			6.0			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	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	18.6	93.0	18.6	18.6	93.0	18.6	18.6	93.0	18.6	18.6	93.0	18.6
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	18.6	5.5	18.6	18.6	5.5	18.6	18.6	5.5	18.6	18.6	5.5	18.6
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	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		87.5			87.5			87.5			87.5	
Detector 2 Size(m)		5.5			5.5			5.5			5.5	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases			2			6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	8	4	4	4

1: Orleans & Innes
PM Peak Hour

3437-3443 Innes Road
Existing Traffic

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.6	26.2	26.2	11.2	26.2	26.2	11.7	32.7	32.7	32.7	32.7	32.7
Total Split (s)	31.0	49.0	49.0	16.0	34.0	34.0	12.0	45.0	45.0	33.0	33.0	33.0
Total Split (%)	28.2%	44.5%	44.5%	14.5%	30.9%	30.9%	10.9%	40.9%	40.9%	30.0%	30.0%	30.0%
Maximum Green (s)	24.4	42.8	42.8	9.8	27.8	27.8	5.3	38.3	38.3	26.3	26.3	26.3
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.9	2.5	2.5	2.5	2.5	2.5	3.4	3.4	3.4	3.4	3.4	3.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.2	6.2	6.2	6.2	6.2	6.7	6.7	6.7	6.7	6.7	6.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		13.0	13.0		13.0	13.0		19.0	19.0	19.0	19.0	19.0
Pedestrian Calls (#/hr)		22	22		7	7		18	18	15	15	15
Act Effct Green (s)	23.9	51.0	51.0	8.6	32.9	32.9	33.7	33.7	33.7	24.1	24.1	24.1
Actuated g/C Ratio	0.22	0.46	0.46	0.08	0.30	0.30	0.31	0.31	0.31	0.22	0.22	0.22
v/c Ratio	0.90	1.00	0.23	0.48	0.60	0.21	0.25	0.24	0.17	0.79	0.36	0.45
Control Delay	58.9	55.6	4.9	56.4	47.0	10.0	27.3	27.9	0.9	64.6	37.3	7.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.9	55.6	4.9	56.4	47.0	10.0	27.3	27.9	0.9	64.6	37.3	7.6
LOS	E	E	A	E	D	A	C	C	A	E	D	A
Approach Delay		52.7			41.8			21.8			34.8	
Approach LOS		D			D			C			C	
Queue Length 50th (m)	63.8	~195.0	1.3	12.5	44.9	0.0	9.5	18.1	0.0	33.5	23.1	0.0
Queue Length 95th (m)	#91.2	#234.6	13.6	26.3	82.3	21.5	18.7	27.0	0.9	#62.9	34.0	16.9
Internal Link Dist (m)		240.5			467.4			363.7			277.9	
Turn Bay Length (m)	140.0		80.0	105.0		60.0	50.0		50.0	55.0		60.0
Base Capacity (vph)	732	1557	763	152	985	603	288	1180	618	252	810	527
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.88	1.00	0.23	0.42	0.60	0.21	0.25	0.21	0.15	0.73	0.33	0.43

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 115

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.00

Intersection Signal Delay: 44.8

Intersection LOS: D

Intersection Capacity Utilization 90.5%

ICU Level of Service E

Analysis Period (min) 15

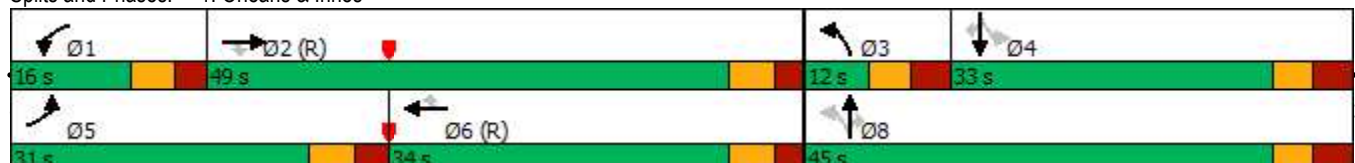
~ Volume exceeds capacity, queue is theoretically infinite.



















Queue shown is maximum after two cycles.













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

Queue shown is maximum after two cycles.

Splits and Phases: 1: Orleans & Innes



												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	1400	30	93	600	64	23	6	77	53	17	34
Future Volume (vph)	61	1400	30	93	600	64	23	6	77	53	17	34
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	100.0		0.0	100.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0		0		0		0
Taper Length (m)	35.0			0.0			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	1.00			0.98			0.99	
Frt		0.997			0.986			0.902			0.956	
Flt Protected	0.950			0.950				0.989			0.975	
Satd. Flow (prot)	1695	3375	0	1695	3245	0	0	1542	0	0	1579	0
Flt Permitted	0.359			0.114				0.917			0.765	
Satd. Flow (perm)	637	3375	0	203	3245	0	0	1428	0	0	1232	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			18			32			22	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		491.4			238.6			212.5			273.4	
Travel Time (s)		29.5			14.3			19.1			24.6	
Confl. Peds. (#/hr)	9		5	5		9	5		13	13		5
Confl. Bikes (#/hr)			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 (%)	2%	2%	6%	2%	5%	2%	5%	1%	3%	6%	1%	11%
Adj. Flow (vph)	68	1556	33	103	667	71	26	7	86	59	19	38
Shared Lane Traffic (%)												
Lane Group Flow (vph)	68	1589	0	103	738	0	0	119	0	0	116	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	L NA	Left	R NA	L NA	Left	R NA
Median Width(m)		5.0			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		10.0			10.0			5.0			5.0	
Two way Left Turn Lane					Yes							
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	18.6	93.0		18.6	93.0		18.6	93.0		18.6	93.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	18.6	5.5		18.6	5.5		18.6	5.5		18.6	5.5	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		87.5			87.5			87.5			87.5	
Detector 2 Size(m)		5.5			5.5			5.5			5.5	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	39.2	39.2		39.2	39.2		37.8	37.8		37.8	37.8	
Total Split (s)	72.0	72.0		72.0	72.0		38.0	38.0		38.0	38.0	
Total Split (%)	65.5%	65.5%		65.5%	65.5%		34.5%	34.5%		34.5%	34.5%	
Maximum Green (s)	65.8	65.8		65.8	65.8		31.2	31.2		31.2	31.2	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.5	2.5		2.5	2.5		3.8	3.8		3.8	3.8	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	6.2	6.2		6.2	6.2			6.8			6.8	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	15.0	15.0		15.0	15.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	18.0	18.0		18.0	18.0		24.0	24.0		24.0	24.0	
Pedestrian Calls (#/hr)	5	5		9	9		13	13		5	5	
Act Effct Green (s)	77.8	77.8		77.8	77.8			19.2			19.2	
Actuated g/C Ratio	0.71	0.71		0.71	0.71			0.17			0.17	
v/c Ratio	0.15	0.67		0.72	0.32			0.43			0.50	
Control Delay	2.6	4.9		52.4	11.4			31.5			37.8	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	2.6	4.9		52.4	11.4			31.5			37.8	
LOS	A	A		D	B			C			D	
Approach Delay		4.8			16.4			31.5			37.8	
Approach LOS		A			B			C			D	
Queue Length 50th (m)	1.2	18.6		8.3	19.4			16.3			18.0	
Queue Length 95th (m)	m1.9	m21.8		#46.5	80.6			27.3			28.9	
Internal Link Dist (m)		467.4			214.6			188.5			249.4	
Turn Bay Length (m)	100.0			100.0								
Base Capacity (vph)	450	2386		143	2299			427			365	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.15	0.67		0.72	0.32			0.28			0.32	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 2 (2%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.72

Intersection Signal Delay: 10.9

Intersection LOS: B

Intersection Capacity Utilization 81.2%

ICU Level of Service D

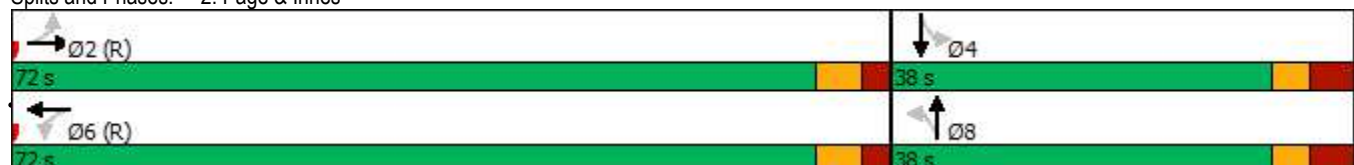
Analysis Period (min) 15







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




















Queue shown is maximum after two cycles.













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

Splits and Phases: 2: Page & Innes



						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↓	↑↑	↓	
Traffic Volume (vph)	1400	61	45	800	60	39
Future Volume (vph)	1400	61	45	800	60	39
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0	35.0		0.0	0.0
Storage Lanes		0	1		1	0
Taper Length (m)			20.0		20.0	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Ped Bike Factor						
Frt	0.994				0.947	
Flt Protected			0.950		0.970	
Satd. Flow (prot)	3337	0	1679	3357	1623	0
Flt Permitted			0.950		0.970	
Satd. Flow (perm)	3337	0	1679	3357	1623	0
Link Speed (k/h)	60			60	50	
Link Distance (m)	238.6			236.8	264.1	
Travel Time (s)	14.3			14.2	19.0	
Confl. Peds. (#/hr)		6	6			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1556	68	50	889	67	43
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1624	0	50	889	110	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	9.0			9.0	9.0	
Two way Left Turn Lane	Yes			Yes		
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	55.6%			ICU Level of Service B		
Analysis Period (min)	15					

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	1587	1	2	800	8	2	0	8	4	0	10
Future Volume (vph)	8	1587	1	2	800	8	2	0	8	4	0	10
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	30.0		0.0	40.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (m)	20.0			30.0			20.0			20.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00						1.00			0.99	
Frt					0.998				0.850		0.901	
Flt Protected	0.950			0.950				0.950			0.987	
Satd. Flow (prot)	1712	3390	0	1712	3319	0	0	1712	1381	0	1584	0
Flt Permitted	0.314			0.111				0.748			0.908	
Satd. Flow (perm)	566	3390	0	200	3319	0	0	1343	1381	0	1457	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					2				31		31	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		236.8			292.8			151.9			62.6	
Travel Time (s)		14.2			17.6			13.7			5.6	
Confl. Peds. (#/hr)			2	2			3					3
Confl. Bikes (#/hr)			1									
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	1%	2%	1%	1%	4%	1%	1%	1%	12%	1%	1%	1%
Adj. Flow (vph)	9	1763	1	2	889	9	2	0	9	4	0	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	9	1764	0	2	898	0	0	2	9	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	L NA	Left	R NA	L NA	Left	R NA
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		9.0			9.0			9.0			9.0	
Two way Left Turn Lane		Yes										
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	18.6	93.0		18.6	93.0		18.6	93.0	18.6	18.6	93.0	
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)	18.6	5.5		18.6	5.5		18.6	5.5	18.6	18.6	5.5	
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)		87.5			87.5			87.5			87.5	
Detector 2 Size(m)		5.5			5.5			5.5			5.5	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		
Detector Phase	2	2		6	6		8	8	8	4	4	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	32.1	32.1		35.1	35.1		32.3	32.3	32.3	32.3	32.3	
Total Split (s)	77.0	77.0		77.0	77.0		33.0	33.0	33.0	33.0	33.0	
Total Split (%)	70.0%	70.0%		70.0%	70.0%		30.0%	30.0%	30.0%	30.0%	30.0%	
Maximum Green (s)	70.9	70.9		70.9	70.9		26.7	26.7	26.7	26.7	26.7	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	2.4	2.4		2.4	2.4		3.0	3.0	3.0	3.0	3.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Lost Time (s)	6.1	6.1		6.1	6.1			6.3	6.3		6.3	
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	C-Max	C-Max		C-Max	C-Max		None	None	None	None	None	
Walk Time (s)	12.0	12.0		12.0	12.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	14.0	14.0		14.0	14.0		19.0	19.0	19.0	19.0	19.0	
Pedestrian Calls (#/hr)	2	2		1	1		1	1	1	3	3	
Act Effct Green (s)	97.8	97.8		97.8	97.8			13.2	13.2		13.2	
Actuated g/C Ratio	0.89	0.89		0.89	0.89			0.12	0.12		0.12	
v/c Ratio	0.02	0.59		0.01	0.30			0.01	0.05		0.07	
Control Delay	1.8	2.7		5.0	3.5			38.0	0.5		5.1	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay	1.8	2.7		5.0	3.5			38.0	0.5		5.1	
LOS	A	A		A	A			D	A		A	
Approach Delay		2.7			3.5			7.3			5.1	
Approach LOS		A			A			A			A	
Queue Length 50th (m)	0.0	0.0		0.0	0.0			0.4	0.0		0.0	
Queue Length 95th (m)	m0.3	44.4		1.0	51.7			2.2	0.3		2.3	
Internal Link Dist (m)		212.8			268.8			127.9			38.6	
Turn Bay Length (m)	30.0			40.0								
Base Capacity (vph)	503	3015		178	2952			325	358		377	
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	0.02	0.59		0.01	0.30			0.01	0.03		0.04	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 36 (33%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.59

Intersection Signal Delay: 3.0

Intersection LOS: A

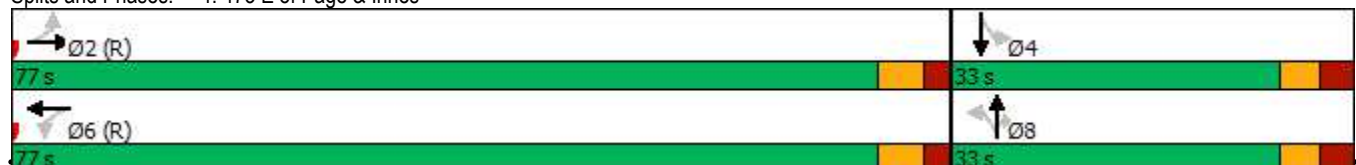
Intersection Capacity Utilization 79.9%

ICU Level of Service D

Analysis Period (min) 15

























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

Splits and Phases: 4: 473 E of Page & Innes















1: Orleans & Innes
PM Peak Hour

3437-3443 Innes Road
Existing Traffic (demand rationalization)

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	579	1260	158	58	533	114	64	225	84	165	241	203
Future Volume (vph)	579	1260	158	58	533	114	64	225	84	165	241	203
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	140.0		80.0	105.0		60.0	50.0		50.0	55.0		60.0
Storage Lanes	2		1	1		1	1		1	1		1
Taper Length (m)	40.0			40.0			10.0			20.0		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	0.99		0.95	0.99		0.97	0.99		0.97	0.98		0.97
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3288	3357	1532	1712	3293	1517	1712	3390	1532	1712	3390	1532
Flt Permitted	0.950			0.950			0.447			0.597		
Satd. Flow (perm)	3261	3357	1456	1703	3293	1477	796	3390	1479	1058	3390	1485
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			165			230			159			226
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		264.5			491.4			387.7			301.9	
Travel Time (s)		15.9			29.5			27.9			21.7	
Confl. Peds. (#/hr)	7		22	22		7	15		18	18		15
Confl. Bikes (#/hr)			4			3						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	3%	1%	1%	5%	2%	1%	2%	1%	1%	2%	1%
Adj. Flow (vph)	643	1400	176	64	592	127	71	250	93	183	268	226
Shared Lane Traffic (%)												
Lane Group Flow (vph)	643	1400	176	64	592	127	71	250	93	183	268	226
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA
Median Width(m)		9.0			7.4			6.0			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	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	18.6	93.0	18.6	18.6	93.0	18.6	18.6	93.0	18.6	18.6	93.0	18.6
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	18.6	5.5	18.6	18.6	5.5	18.6	18.6	5.5	18.6	18.6	5.5	18.6
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	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		87.5			87.5			87.5			87.5	
Detector 2 Size(m)		5.5			5.5			5.5			5.5	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases			2			6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	8	4	4	4

1: Orleans & Innes
PM Peak Hour

3437-3443 Innes Road
Existing Traffic (demand rationalization)

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.6	26.2	26.2	11.2	26.2	26.2	11.7	32.7	32.7	32.7	32.7	32.7
Total Split (s)	31.0	49.0	49.0	16.0	34.0	34.0	12.0	45.0	45.0	33.0	33.0	33.0
Total Split (%)	28.2%	44.5%	44.5%	14.5%	30.9%	30.9%	10.9%	40.9%	40.9%	30.0%	30.0%	30.0%
Maximum Green (s)	24.4	42.8	42.8	9.8	27.8	27.8	5.3	38.3	38.3	26.3	26.3	26.3
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.9	2.5	2.5	2.5	2.5	2.5	3.4	3.4	3.4	3.4	3.4	3.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.2	6.2	6.2	6.2	6.2	6.7	6.7	6.7	6.7	6.7	6.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		13.0	13.0		13.0	13.0		19.0	19.0	19.0	19.0	19.0
Pedestrian Calls (#/hr)		22	22		7	7		18	18	15	15	15
Act Effct Green (s)	23.9	51.0	51.0	8.6	32.9	32.9	33.7	33.7	33.7	24.1	24.1	24.1
Actuated g/C Ratio	0.22	0.46	0.46	0.08	0.30	0.30	0.31	0.31	0.31	0.22	0.22	0.22
v/c Ratio	0.90	0.90	0.23	0.48	0.60	0.21	0.25	0.24	0.17	0.79	0.36	0.45
Control Delay	58.9	39.7	4.9	56.4	47.0	10.0	27.3	27.9	0.9	64.6	37.3	7.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.9	39.7	4.9	56.4	47.0	10.0	27.3	27.9	0.9	64.6	37.3	7.6
LOS	E	D	A	E	D	A	C	C	A	E	D	A
Approach Delay		42.5			41.8			21.8			34.8	
Approach LOS		D			D			C			C	
Queue Length 50th (m)	63.8	~161.1	1.3	12.5	44.9	0.0	9.5	18.1	0.0	33.5	23.1	0.0
Queue Length 95th (m)	#91.2	#200.5	13.6	26.3	82.3	21.5	18.7	27.0	0.9	#62.9	34.0	16.9
Internal Link Dist (m)		240.5			467.4			363.7			277.9	
Turn Bay Length (m)	140.0		80.0	105.0		60.0	50.0		50.0	55.0		60.0
Base Capacity (vph)	732	1557	763	152	985	603	288	1180	618	252	810	527
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.88	0.90	0.23	0.42	0.60	0.21	0.25	0.21	0.15	0.73	0.33	0.43

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 39.0

Intersection LOS: D

Intersection Capacity Utilization 86.4%

ICU Level of Service E

Analysis Period (min) 15

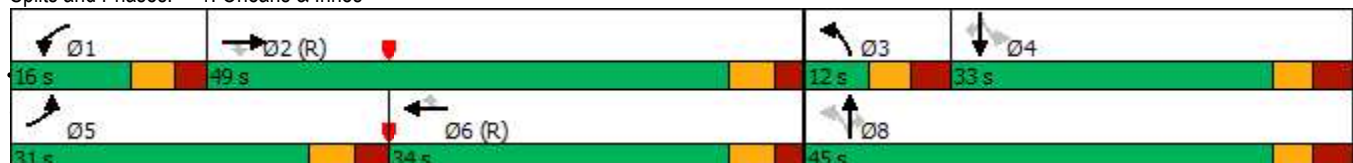
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 1: Orleans & Innes



























APPENDIX K

Background Synchro Analysis













1: Orleans & Innes
AM Peak Hour

3437-3443 Innes Road
2023 Background Traffic

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	122	364	23	24	1252	150	205	262	44	69	101	464
Future Volume (vph)	122	364	23	24	1252	150	205	262	44	69	101	464
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	140.0		80.0	105.0		60.0	50.0		50.0	55.0		60.0
Storage Lanes	2		1	1		1	1		1	1		1
Taper Length (m)	40.0			40.0			10.0			20.0		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	1.00		0.96	0.98		0.97	0.99		0.94	0.97		0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	2995	3144	1473	1572	3357	1502	1712	3357	1502	1679	3357	1532
Flt Permitted	0.950			0.950			0.549			0.590		
Satd. Flow (perm)	2985	3144	1416	1546	3357	1462	983	3357	1413	1008	3357	1500
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			143			143			82			166
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		264.5			491.4			387.7			301.9	
Travel Time (s)		15.9			29.5			27.9			21.7	
Confl. Peds. (#/hr)	6		14	14		6	6		32	32		6
Confl. Bikes (#/hr)						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
Heavy Vehicles (%)	12%	10%	5%	10%	3%	3%	1%	3%	3%	3%	3%	1%
Adj. Flow (vph)	122	364	23	24	1252	150	205	262	44	69	101	464
Shared Lane Traffic (%)												
Lane Group Flow (vph)	122	364	23	24	1252	150	205	262	44	69	101	464
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA
Median Width(m)		9.0			7.4			6.0			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	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	18.6	93.0	18.6	18.6	93.0	18.6	18.6	93.0	18.6	18.6	93.0	18.6
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	18.6	5.5	18.6	18.6	5.5	18.6	18.6	5.5	18.6	18.6	5.5	18.6
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	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		87.5			87.5			87.5			87.5	
Detector 2 Size(m)		5.5			5.5			5.5			5.5	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases			2			6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	8	4	4	4

1: Orleans & Innes
AM Peak Hour

3437-3443 Innes Road
2023 Background Traffic

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.6	26.2	26.2	11.2	26.2	26.2	11.7	32.7	32.7	32.7	32.7	32.7
Total Split (s)	13.0	65.0	65.0	13.0	65.0	65.0	19.0	52.0	52.0	33.0	33.0	33.0
Total Split (%)	10.0%	50.0%	50.0%	10.0%	50.0%	50.0%	14.6%	40.0%	40.0%	25.4%	25.4%	25.4%
Maximum Green (s)	6.4	58.8	58.8	6.8	58.8	58.8	12.3	45.3	45.3	26.3	26.3	26.3
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.9	2.5	2.5	2.5	2.5	2.5	3.4	3.4	3.4	3.4	3.4	3.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.2	6.2	6.2	6.2	6.2	6.7	6.7	6.7	6.7	6.7	6.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		13.0	13.0		13.0	13.0		19.0	19.0	19.0	19.0	19.0
Pedestrian Calls (#/hr)		14	14		6	6		32	32	6	6	6
Act Effct Green (s)	6.4	64.0	64.0	6.4	58.8	58.8	45.3	45.3	45.3	26.5	26.5	26.5
Actuated g/C Ratio	0.05	0.49	0.49	0.05	0.45	0.45	0.35	0.35	0.35	0.20	0.20	0.20
v/c Ratio	0.83	0.24	0.03	0.31	0.82	0.20	0.50	0.22	0.08	0.34	0.15	1.06
Control Delay	100.6	20.5	0.1	70.0	36.8	4.4	36.4	30.6	1.2	49.8	43.3	91.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	100.6	20.5	0.1	70.0	36.8	4.4	36.4	30.6	1.2	49.8	43.3	91.9
LOS	F	C	A	E	D	A	D	C	A	D	D	F
Approach Delay		38.7			34.0			30.4			79.6	
Approach LOS		D			C			C			E	
Queue Length 50th (m)	15.0	27.4	0.0	5.6	133.3	0.9	35.7	22.8	0.0	14.1	10.4	~87.4
Queue Length 95th (m)	#30.8	37.4	0.0	14.0	160.7	11.7	54.8	32.6	1.4	27.6	17.7	#147.6
Internal Link Dist (m)		240.5			467.4			363.7			277.9	
Turn Bay Length (m)	140.0		80.0	105.0		60.0	50.0		50.0	55.0		60.0
Base Capacity (vph)	147	1548	769	82	1518	739	411	1169	545	205	685	437
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.24	0.03	0.29	0.82	0.20	0.50	0.22	0.08	0.34	0.15	1.06

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 99 (76%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 95

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.06

Intersection Signal Delay: 43.5

Intersection LOS: D

Intersection Capacity Utilization 95.8%

ICU Level of Service F

Analysis Period (min) 15

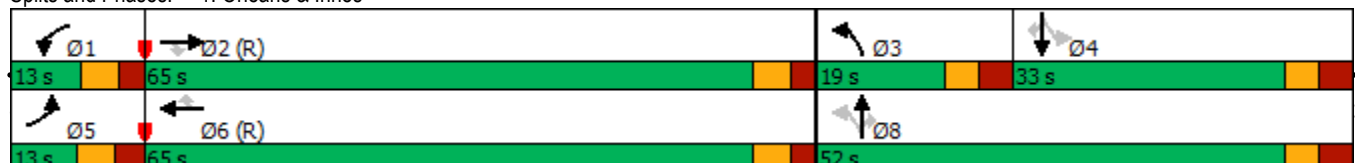
~ Volume exceeds capacity, queue is theoretically infinite.



















Queue shown is maximum after two cycles.













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

Queue shown is maximum after two cycles.

Splits and Phases: 1: Orleans & Innes



												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	417	21	37	1252	19	14	12	38	33	9	42
Future Volume (vph)	11	417	21	37	1252	19	14	12	38	33	9	42
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	100.0		0.0	100.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	35.0			0.0			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		0.99	1.00			0.99			0.99	
Frt		0.993			0.998			0.920			0.932	
Flt Protected	0.950			0.950				0.989			0.981	
Satd. Flow (prot)	1586	3123	0	1503	3348	0	0	1568	0	0	1596	0
Flt Permitted	0.192			0.498				0.918			0.864	
Satd. Flow (perm)	320	3123	0	783	3348	0	0	1452	0	0	1405	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8			2			38			41	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		491.4			238.6			212.5			273.4	
Travel Time (s)		29.5			14.3			19.1			24.6	
Confl. Peds. (#/hr)	4		7	7		4	11					11
Confl. Bikes (#/hr)			1						1			1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	9%	10%	5%	15%	3%	5%	1%	15%	3%	1%	10%	3%
Adj. Flow (vph)	11	417	21	37	1252	19	14	12	38	33	9	42
Shared Lane Traffic (%)												
Lane Group Flow (vph)	11	438	0	37	1271	0	0	64	0	0	84	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	L NA	Left	R NA	L NA	Left	R NA
Median Width(m)		5.0			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		10.0			10.0			5.0			5.0	
Two way Left Turn Lane					Yes							
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	18.6	93.0		18.6	93.0		18.6	93.0		18.6	93.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	18.6	5.5		18.6	5.5		18.6	5.5		18.6	5.5	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		87.5			87.5			87.5			87.5	
Detector 2 Size(m)		5.5			5.5			5.5			5.5	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	39.2	39.2		39.2	39.2		37.8	37.8		37.8	37.8	
Total Split (s)	82.0	82.0		82.0	82.0		38.0	38.0		38.0	38.0	
Total Split (%)	68.3%	68.3%		68.3%	68.3%		31.7%	31.7%		31.7%	31.7%	
Maximum Green (s)	75.8	75.8		75.8	75.8		31.2	31.2		31.2	31.2	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.5	2.5		2.5	2.5		3.8	3.8		3.8	3.8	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	6.2	6.2		6.2	6.2			6.8			6.8	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	15.0	15.0		15.0	15.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	18.0	18.0		18.0	18.0		24.0	24.0		24.0	24.0	
Pedestrian Calls (#/hr)	7	7		4	4		1	1		11	11	
Act Effct Green (s)	93.2	93.2		93.2	93.2			18.4			18.4	
Actuated g/C Ratio	0.78	0.78		0.78	0.78			0.15			0.15	
v/c Ratio	0.04	0.18		0.06	0.49			0.25			0.34	
Control Delay	8.0	5.8		4.6	5.9			21.2			25.8	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	8.0	5.8		4.6	5.9			21.2			25.8	
LOS	A	A		A	A			C			C	
Approach Delay		5.9			5.8			21.2			25.8	
Approach LOS		A			A			C			C	
Queue Length 50th (m)	0.4	8.6		1.3	35.6			5.4			9.0	
Queue Length 95th (m)	3.1	26.3		1.6	14.9			14.4			19.2	
Internal Link Dist (m)		467.4			214.6			188.5			249.4	
Turn Bay Length (m)	100.0			100.0								
Base Capacity (vph)	248	2427		607	2600			405			395	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.04	0.18		0.06	0.49			0.16			0.21	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 26 (22%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.49

Intersection Signal Delay: 7.3

Intersection LOS: A

Intersection Capacity Utilization 62.6%

ICU Level of Service B







Analysis Period (min) 15




















Splits and Phases: 2: Page & Innes















3: Lamarche & Innes
AM Peak Hour

3437-3443 Innes Road
2023 Background Traffic

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↓	↑↑	↓	
Traffic Volume (vph)	505	41	48	1212	85	59
Future Volume (vph)	505	41	48	1212	85	59
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0	35.0		0.0	0.0
Storage Lanes		0	1		1	0
Taper Length (m)			20.0		20.0	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Ped Bike Factor						
Frt	0.989				0.945	
Flt Protected			0.950		0.971	
Satd. Flow (prot)	3320	0	1679	3357	1621	0
Flt Permitted			0.950		0.971	
Satd. Flow (perm)	3320	0	1679	3357	1621	0
Link Speed (k/h)	60			60	50	
Link Distance (m)	238.6			236.8	306.6	
Travel Time (s)	14.3			14.2	22.1	
Confl. Peds. (#/hr)		11	11			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	505	41	48	1212	85	59
Shared Lane Traffic (%)						
Lane Group Flow (vph)	546	0	48	1212	144	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	9.0			9.0	9.0	
Two way Left Turn Lane	Yes			Yes		
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization 50.8%	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)	6	444	7	1	1308	4	0	0	1	1	0	3
Future Volume (vph)	6	444	7	1	1308	4	0	0	1	1	0	3
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	30.0		0.0	40.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (m)	20.0			30.0			20.0			20.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00				1.00				0.99		0.99	
Frt		0.998							0.850		0.899	
Flt Protected	0.950			0.950							0.988	
Satd. Flow (prot)	1712	3137	0	1712	3357	0	0	1802	1532	0	1583	0
Flt Permitted	0.200			0.491							0.914	
Satd. Flow (perm)	360	3137	0	885	3357	0	0	1802	1511	0	1464	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			1				467		28	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		236.8			292.8			151.9			62.6	
Travel Time (s)		14.2			17.6			13.7			5.6	
Confl. Peds. (#/hr)	7					7	2		1	1		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%	10%	10%	1%	3%	1%	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	6	444	7	1	1308	4	0	0	1	1	0	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	6	451	0	1	1312	0	0	0	1	0	4	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	L NA	Left	R NA	L NA	Left	R NA
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		9.0			9.0			9.0			9.0	
Two way Left Turn Lane		Yes										
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2	1	1		2
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	18.6	93.0		18.6	93.0		18.6	93.0	18.6	18.6	93.0	
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)	18.6	5.5		18.6	5.5		18.6	5.5	18.6	18.6	5.5	
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)		87.5			87.5			87.5			87.5	
Detector 2 Size(m)		5.5			5.5			5.5			5.5	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA				Perm	Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		
Detector Phase	2	2		6	6		8	8	8	4	4	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	32.1	32.1		35.1	35.1		32.3	32.3	32.3	32.3	32.3	
Total Split (s)	87.0	87.0		87.0	87.0		33.0	33.0	33.0	33.0	33.0	
Total Split (%)	72.5%	72.5%		72.5%	72.5%		27.5%	27.5%	27.5%	27.5%	27.5%	
Maximum Green (s)	80.9	80.9		80.9	80.9		26.7	26.7	26.7	26.7	26.7	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	2.4	2.4		2.4	2.4		3.0	3.0	3.0	3.0	3.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Lost Time (s)	6.1	6.1		6.1	6.1			6.3	6.3		6.3	
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	C-Max	C-Max		C-Max	C-Max		None	None	None	None	None	
Walk Time (s)	12.0	12.0		12.0	12.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	14.0	14.0		14.0	14.0		19.0	19.0	19.0	19.0	19.0	
Pedestrian Calls (#/hr)	1	1		7	7		1	1	1	2	2	
Act Effct Green (s)	112.3	112.3		112.3	112.3				13.2		13.2	
Actuated g/C Ratio	0.94	0.94		0.94	0.94				0.11		0.11	
v/c Ratio	0.02	0.15		0.00	0.42				0.00		0.02	
Control Delay	3.5	1.9		4.0	3.2				0.0		0.2	
Queue Delay	0.0	0.0		0.0	0.0				0.0		0.0	
Total Delay	3.5	1.9		4.0	3.2				0.0		0.2	
LOS	A	A		A	A				A		A	
Approach Delay		1.9			3.2						0.3	
Approach LOS		A			A						A	
Queue Length 50th (m)	0.0	0.0		0.0	0.0				0.0		0.0	
Queue Length 95th (m)	1.5	21.0		0.6	87.2				0.0		0.0	
Internal Link Dist (m)		212.8			268.8			127.9			38.6	
Turn Bay Length (m)	30.0			40.0								
Base Capacity (vph)	337	2936		828	3142				699		347	
Starvation Cap Reductn	0	0		0	0				0		0	
Spillback Cap Reductn	0	0		0	0				0		0	
Storage Cap Reductn	0	0		0	0				0		0	
Reduced v/c Ratio	0.02	0.15		0.00	0.42				0.00		0.01	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.42

Intersection Signal Delay: 2.8

Intersection LOS: A

Intersection Capacity Utilization 57.8%

ICU Level of Service B

























Analysis Period (min) 15

Splits and Phases: 4: 473 E of Page & Innes















1: Orleans & Innes
AM Peak Hour

3437-3443 Innes Road
2023 Background Traffic (demand rationalization)

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	122	364	23	24	1252	150	205	262	44	69	101	364
Future Volume (vph)	122	364	23	24	1252	150	205	262	44	69	101	364
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	140.0		80.0	105.0		60.0	50.0		50.0	55.0		60.0
Storage Lanes	2		1	1		1	1		1	1		1
Taper Length (m)	40.0			40.0			10.0			20.0		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	1.00		0.96	0.98		0.97	0.99		0.94	0.97		0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	2995	3144	1473	1572	3357	1502	1712	3357	1502	1679	3357	1532
Flt Permitted	0.950			0.950			0.535			0.590		
Satd. Flow (perm)	2985	3144	1416	1546	3357	1462	957	3357	1413	1008	3357	1500
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			143			143			82			165
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		264.5			491.4			387.7			301.9	
Travel Time (s)		15.9			29.5			27.9			21.7	
Confl. Peds. (#/hr)	6		14	14		6	6		32	32		6
Confl. Bikes (#/hr)						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
Heavy Vehicles (%)	12%	10%	5%	10%	3%	3%	1%	3%	3%	3%	3%	1%
Adj. Flow (vph)	122	364	23	24	1252	150	205	262	44	69	101	364
Shared Lane Traffic (%)												
Lane Group Flow (vph)	122	364	23	24	1252	150	205	262	44	69	101	364
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA
Median Width(m)		9.0			7.4			6.0			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	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	18.6	93.0	18.6	18.6	93.0	18.6	18.6	93.0	18.6	18.6	93.0	18.6
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	18.6	5.5	18.6	18.6	5.5	18.6	18.6	5.5	18.6	18.6	5.5	18.6
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	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		87.5			87.5			87.5			87.5	
Detector 2 Size(m)		5.5			5.5			5.5			5.5	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases			2			6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	8	4	4	4

1: Orleans & Innes
AM Peak Hour

3437-3443 Innes Road
2023 Background Traffic (demand rationalization)

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.6	26.2	26.2	11.2	26.2	26.2	11.7	32.7	32.7	32.7	32.7	32.7
Total Split (s)	13.0	65.0	65.0	13.0	65.0	65.0	19.0	52.0	52.0	33.0	33.0	33.0
Total Split (%)	10.0%	50.0%	50.0%	10.0%	50.0%	50.0%	14.6%	40.0%	40.0%	25.4%	25.4%	25.4%
Maximum Green (s)	6.4	58.8	58.8	6.8	58.8	58.8	12.3	45.3	45.3	26.3	26.3	26.3
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.9	2.5	2.5	2.5	2.5	2.5	3.4	3.4	3.4	3.4	3.4	3.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.2	6.2	6.2	6.2	6.2	6.7	6.7	6.7	6.7	6.7	6.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		13.0	13.0		13.0	13.0		19.0	19.0	19.0	19.0	19.0
Pedestrian Calls (#/hr)		14	14		6	6		32	32	6	6	6
Act Effct Green (s)	7.4	67.0	67.0	6.4	60.8	60.8	42.3	42.3	42.3	23.3	23.3	23.3
Actuated g/C Ratio	0.06	0.52	0.52	0.05	0.47	0.47	0.33	0.33	0.33	0.18	0.18	0.18
v/c Ratio	0.72	0.22	0.03	0.31	0.80	0.20	0.54	0.24	0.09	0.38	0.17	0.90
Control Delay	83.8	19.5	0.1	70.0	34.7	4.4	38.7	32.0	1.2	52.2	44.5	53.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	83.8	19.5	0.1	70.0	34.7	4.4	38.7	32.0	1.2	52.2	44.5	53.6
LOS	F	B	A	E	C	A	D	C	A	D	D	D
Approach Delay		34.0			32.1			32.1			51.7	
Approach LOS		C			C			C			D	
Queue Length 50th (m)	15.0	27.4	0.0	5.6	133.3	0.9	35.7	22.8	0.0	14.1	10.4	47.4
Queue Length 95th (m)	#30.8	37.4	0.0	14.0	160.7	11.7	54.8	32.6	1.4	27.6	17.7	#93.7
Internal Link Dist (m)		240.5			467.4			363.7			277.9	
Turn Bay Length (m)	140.0		80.0	105.0		60.0	50.0		50.0	55.0		60.0
Base Capacity (vph)	169	1620	798	82	1571	760	382	1169	545	203	679	435
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.22	0.03	0.29	0.80	0.20	0.54	0.22	0.08	0.34	0.15	0.84

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 99 (76%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 95

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 35.9

Intersection LOS: D

Intersection Capacity Utilization 89.3%

ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 1: Orleans & Innes



























0.0000, No reason

Dynamic Report













1: Orleans & Innes
PM Peak Hour

3437-3443 Innes Road
2023 Background Traffic

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	585	1458	160	59	564	115	65	227	85	167	243	205
Future Volume (vph)	585	1458	160	59	564	115	65	227	85	167	243	205
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	140.0		80.0	105.0		60.0	50.0		50.0	55.0		60.0
Storage Lanes	2		1	1		1	1		1	1		1
Taper Length (m)	40.0			40.0			10.0			20.0		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	0.99		0.95	1.00		0.97	0.99		0.97	0.98		0.97
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3288	3357	1532	1712	3293	1517	1712	3390	1532	1712	3390	1532
Flt Permitted	0.950			0.950			0.465			0.610		
Satd. Flow (perm)	3260	3357	1456	1704	3293	1477	828	3390	1479	1081	3390	1485
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			165			230			159			225
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		264.5			491.4			387.7			301.9	
Travel Time (s)		15.9			29.5			27.9			21.7	
Confl. Peds. (#/hr)	7		22	22		7	15		18	18		15
Confl. Bikes (#/hr)			4			3						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	3%	1%	1%	5%	2%	1%	2%	1%	1%	2%	1%
Adj. Flow (vph)	585	1458	160	59	564	115	65	227	85	167	243	205
Shared Lane Traffic (%)												
Lane Group Flow (vph)	585	1458	160	59	564	115	65	227	85	167	243	205
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA
Median Width(m)		9.0			7.4			6.0			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	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	18.6	93.0	18.6	18.6	93.0	18.6	18.6	93.0	18.6	18.6	93.0	18.6
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	18.6	5.5	18.6	18.6	5.5	18.6	18.6	5.5	18.6	18.6	5.5	18.6
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	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		87.5			87.5			87.5			87.5	
Detector 2 Size(m)		5.5			5.5			5.5			5.5	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases			2			6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	8	4	4	4

1: Orleans & Innes
PM Peak Hour

3437-3443 Innes Road
2023 Background Traffic

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.6	26.2	26.2	11.2	26.2	26.2	11.7	32.7	32.7	32.7	32.7	32.7
Total Split (s)	31.0	49.0	49.0	16.0	34.0	34.0	12.0	45.0	45.0	33.0	33.0	33.0
Total Split (%)	28.2%	44.5%	44.5%	14.5%	30.9%	30.9%	10.9%	40.9%	40.9%	30.0%	30.0%	30.0%
Maximum Green (s)	24.4	42.8	42.8	9.8	27.8	27.8	5.3	38.3	38.3	26.3	26.3	26.3
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.9	2.5	2.5	2.5	2.5	2.5	3.4	3.4	3.4	3.4	3.4	3.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.2	6.2	6.2	6.2	6.2	6.7	6.7	6.7	6.7	6.7	6.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		13.0	13.0		13.0	13.0		19.0	19.0	19.0	19.0	19.0
Pedestrian Calls (#/hr)		22	22		7	7		18	18	15	15	15
Act Effct Green (s)	23.0	52.4	52.4	8.4	35.1	35.1	32.5	32.5	32.5	22.9	22.9	22.9
Actuated g/C Ratio	0.21	0.48	0.48	0.08	0.32	0.32	0.30	0.30	0.30	0.21	0.21	0.21
v/c Ratio	0.85	0.91	0.21	0.45	0.54	0.18	0.23	0.23	0.16	0.75	0.34	0.42
Control Delay	54.8	40.3	3.9	55.2	44.8	9.0	27.2	28.3	0.6	60.4	37.7	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.8	40.3	3.9	55.2	44.8	9.0	27.2	28.3	0.6	60.4	37.7	6.2
LOS	D	D	A	E	D	A	C	C	A	E	D	A
Approach Delay		41.5			40.0			21.9			33.3	
Approach LOS		D			D			C			C	
Queue Length 50th (m)	56.8	~172.4	0.0	9.7	43.2	0.4	8.7	16.3	0.0	29.8	20.7	0.0
Queue Length 95th (m)	#75.5	#213.1	10.9	24.9	78.6	18.7	17.6	24.7	0.0	#52.2	31.1	13.0
Internal Link Dist (m)		240.5			467.4			363.7			277.9	
Turn Bay Length (m)	140.0		80.0	105.0		60.0	50.0		50.0	55.0		60.0
Base Capacity (vph)	729	1598	779	152	1049	627	286	1180	618	258	810	526
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.80	0.91	0.21	0.39	0.54	0.18	0.23	0.19	0.14	0.65	0.30	0.39

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 38.1

Intersection LOS: D

Intersection Capacity Utilization 92.3%

ICU Level of Service F

Analysis Period (min) 15

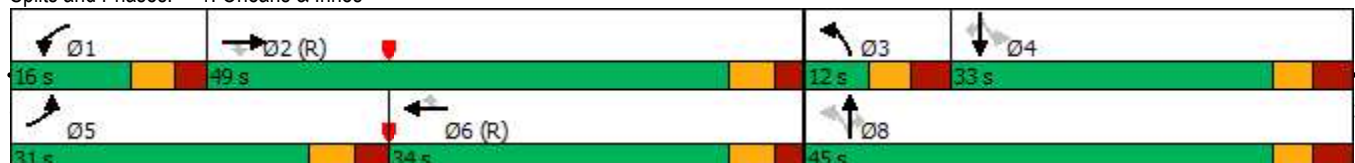
~ Volume exceeds capacity, queue is theoretically infinite.



















Queue shown is maximum after two cycles.













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

Queue shown is maximum after two cycles.

Splits and Phases: 1: Orleans & Innes



												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	1458	30	93	632	64	23	6	77	53	17	34
Future Volume (vph)	61	1458	30	93	632	64	23	6	77	53	17	34
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	100.0		0.0	100.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	35.0			0.0			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	1.00			0.98			0.99	
Frt		0.997			0.986			0.902			0.956	
Flt Protected	0.950			0.950				0.989			0.975	
Satd. Flow (prot)	1695	3375	0	1695	3245	0	0	1541	0	0	1579	0
Flt Permitted	0.377			0.134				0.915			0.789	
Satd. Flow (perm)	669	3375	0	239	3245	0	0	1425	0	0	1270	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			17			40			22	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		491.4			238.6			212.5			273.4	
Travel Time (s)		29.5			14.3			19.1			24.6	
Confl. Peds. (#/hr)	9		5	5		9	5		13	13		5
Confl. Bikes (#/hr)			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 (%)	2%	2%	6%	2%	5%	2%	5%	1%	3%	6%	1%	11%
Adj. Flow (vph)	61	1458	30	93	632	64	23	6	77	53	17	34
Shared Lane Traffic (%)												
Lane Group Flow (vph)	61	1488	0	93	696	0	0	106	0	0	104	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	L NA	Left	R NA	L NA	Left	R NA
Median Width(m)		5.0			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		10.0			10.0			5.0			5.0	
Two way Left Turn Lane					Yes							
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	18.6	93.0		18.6	93.0		18.6	93.0		18.6	93.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	18.6	5.5		18.6	5.5		18.6	5.5		18.6	5.5	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		87.5			87.5			87.5			87.5	
Detector 2 Size(m)		5.5			5.5			5.5			5.5	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	39.2	39.2		39.2	39.2		37.8	37.8		37.8	37.8	
Total Split (s)	72.0	72.0		72.0	72.0		38.0	38.0		38.0	38.0	
Total Split (%)	65.5%	65.5%		65.5%	65.5%		34.5%	34.5%		34.5%	34.5%	
Maximum Green (s)	65.8	65.8		65.8	65.8		31.2	31.2		31.2	31.2	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.5	2.5		2.5	2.5		3.8	3.8		3.8	3.8	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	6.2	6.2		6.2	6.2			6.8			6.8	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	15.0	15.0		15.0	15.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	18.0	18.0		18.0	18.0		24.0	24.0		24.0	24.0	
Pedestrian Calls (#/hr)	5	5		9	9		13	13		5	5	
Act Effct Green (s)	78.1	78.1		78.1	78.1			18.9			18.9	
Actuated g/C Ratio	0.71	0.71		0.71	0.71			0.17			0.17	
v/c Ratio	0.13	0.62		0.55	0.30			0.38			0.44	
Control Delay	2.6	4.2		33.8	10.5			26.7			35.0	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	2.6	4.2		33.8	10.5			26.7			35.0	
LOS	A	A		C	B			C			D	
Approach Delay		4.2			13.3			26.7			35.0	
Approach LOS		A			B			C			D	
Queue Length 50th (m)	1.1	16.6		5.6	16.5			12.3			15.6	
Queue Length 95th (m)	m1.8	m21.5		#37.1	70.8			22.7			25.8	
Internal Link Dist (m)		467.4			214.6			188.5			249.4	
Turn Bay Length (m)	100.0			100.0								
Base Capacity (vph)	475	2397		169	2309			432			375	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.13	0.62		0.55	0.30			0.25			0.28	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 2 (2%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.62

Intersection Signal Delay: 9.2

Intersection LOS: A

Intersection Capacity Utilization 82.9%

ICU Level of Service E

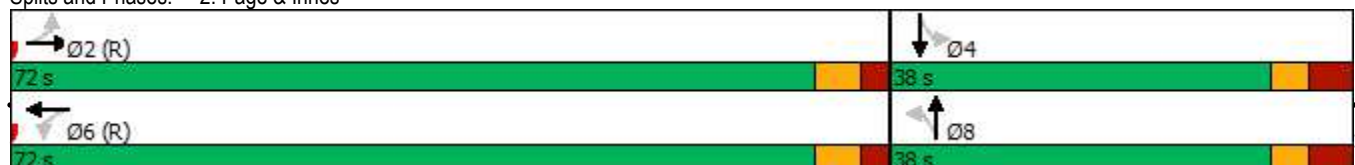
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.







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




















Splits and Phases: 2: Page & Innes















3: Lamarche & Innes
PM Peak Hour

3437-3443 Innes Road
2023 Background Traffic

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↓	↑↑	↓	
Traffic Volume (vph)	1439	105	60	833	86	48
Future Volume (vph)	1439	105	60	833	86	48
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0	35.0		0.0	0.0
Storage Lanes		0	1		1	0
Taper Length (m)			20.0		20.0	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Ped Bike Factor						
Frt	0.990				0.952	
Flt Protected			0.950		0.969	
Satd. Flow (prot)	3324	0	1679	3357	1630	0
Flt Permitted			0.950		0.969	
Satd. Flow (perm)	3324	0	1679	3357	1630	0
Link Speed (k/h)	60			60	50	
Link Distance (m)	238.6			236.8	281.6	
Travel Time (s)	14.3			14.2	20.3	
Confl. Peds. (#/hr)		6	6			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1439	105	60	833	86	48
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1544	0	60	833	134	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	9.0			9.0	9.0	
Two way Left Turn Lane	Yes			Yes		
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization 67.2%	ICU Level of Service C					
Analysis Period (min) 15						

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	1612	26	27	823	8	27	0	33	4	0	10
Future Volume (vph)	8	1612	26	27	823	8	27	0	33	4	0	10
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	30.0		0.0	40.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (m)	20.0			30.0			20.0			20.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00						1.00			0.99	
Frt		0.998			0.999				0.850		0.904	
Flt Protected	0.950			0.950				0.950			0.986	
Satd. Flow (prot)	1712	3383	0	1712	3323	0	0	1712	1381	0	1588	0
Flt Permitted	0.333			0.123				0.748			0.919	
Satd. Flow (perm)	600	3383	0	222	3323	0	0	1343	1381	0	1480	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			2				33		31	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		236.8			292.8			151.9			62.6	
Travel Time (s)		14.2			17.6			13.7			5.6	
Confl. Peds. (#/hr)			2	2			3					3
Confl. Bikes (#/hr)			1									
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	2%	1%	1%	4%	1%	1%	1%	12%	1%	1%	1%
Adj. Flow (vph)	8	1612	26	27	823	8	27	0	33	4	0	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	8	1638	0	27	831	0	0	27	33	0	14	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	L NA	Left	R NA	L NA	Left	R NA
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		9.0			9.0			9.0			9.0	
Two way Left Turn Lane		Yes										
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	18.6	93.0		18.6	93.0		18.6	93.0	18.6	18.6	93.0	
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)	18.6	5.5		18.6	5.5		18.6	5.5	18.6	18.6	5.5	
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)		87.5			87.5			87.5			87.5	
Detector 2 Size(m)		5.5			5.5			5.5			5.5	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		
Detector Phase	2	2		6	6		8	8	8	4	4	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	32.1	32.1		35.1	35.1		32.3	32.3	32.3	32.3	32.3	
Total Split (s)	77.0	77.0		77.0	77.0		33.0	33.0	33.0	33.0	33.0	
Total Split (%)	70.0%	70.0%		70.0%	70.0%		30.0%	30.0%	30.0%	30.0%	30.0%	
Maximum Green (s)	70.9	70.9		70.9	70.9		26.7	26.7	26.7	26.7	26.7	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	2.4	2.4		2.4	2.4		3.0	3.0	3.0	3.0	3.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Lost Time (s)	6.1	6.1		6.1	6.1			6.3	6.3		6.3	
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	C-Max	C-Max		C-Max	C-Max		None	None	None	None	None	
Walk Time (s)	12.0	12.0		12.0	12.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	14.0	14.0		14.0	14.0		19.0	19.0	19.0	19.0	19.0	
Pedestrian Calls (#/hr)	2	2		1	1		1	1	1	3	3	
Act Effct Green (s)	88.9	88.9		88.9	88.9			13.2	13.2		13.2	
Actuated g/C Ratio	0.81	0.81		0.81	0.81			0.12	0.12		0.12	
v/c Ratio	0.02	0.60		0.15	0.31			0.17	0.17		0.07	
Control Delay	1.9	3.0		7.5	4.6			43.1	14.4		4.6	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay	1.9	3.0		7.5	4.6			43.1	14.4		4.6	
LOS	A	A		A	A			D	B		A	
Approach Delay		3.0			4.7			27.3			4.6	
Approach LOS		A			A			C			A	
Queue Length 50th (m)	0.1	24.7		1.0	18.5			5.0	0.0		0.0	
Queue Length 95th (m)	m0.3	38.8		6.2	46.8			10.9	7.1		2.0	
Internal Link Dist (m)		212.8			268.8			127.9			38.6	
Turn Bay Length (m)	30.0			40.0								
Base Capacity (vph)	484	2734		179	2685			325	360		382	
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	0.02	0.60		0.15	0.31			0.08	0.09		0.04	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 36 (33%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.60

Intersection Signal Delay: 4.1

Intersection LOS: A

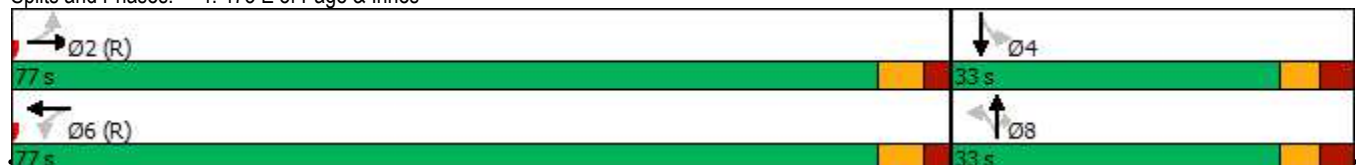
Intersection Capacity Utilization 81.4%

ICU Level of Service D

Analysis Period (min) 15

























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

Splits and Phases: 4: 473 E of Page & Innes















1: Orleans & Innes
PM Peak Hour

3437-3443 Innes Road
2023 Background Traffic (demand rationalization)

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	585	1438	160	59	564	115	65	227	85	167	243	205
Future Volume (vph)	585	1438	160	59	564	115	65	227	85	167	243	205
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	140.0		80.0	105.0		60.0	50.0		50.0	55.0		60.0
Storage Lanes	2		1	1		1	1		1	1		1
Taper Length (m)	40.0			40.0			10.0			20.0		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	0.99		0.95	1.00		0.97	0.99		0.97	0.98		0.97
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3288	3357	1532	1712	3293	1517	1712	3390	1532	1712	3390	1532
Flt Permitted	0.950			0.950			0.465			0.610		
Satd. Flow (perm)	3260	3357	1456	1703	3293	1477	828	3390	1479	1081	3390	1485
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			165			230			159			225
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		264.5			491.4			387.7			301.9	
Travel Time (s)		15.9			29.5			27.9			21.7	
Confl. Peds. (#/hr)	7		22	22		7	15		18	18		15
Confl. Bikes (#/hr)			4			3						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	3%	1%	1%	5%	2%	1%	2%	1%	1%	2%	1%
Adj. Flow (vph)	585	1438	160	59	564	115	65	227	85	167	243	205
Shared Lane Traffic (%)												
Lane Group Flow (vph)	585	1438	160	59	564	115	65	227	85	167	243	205
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA
Median Width(m)		9.0			7.4			6.0			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	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	18.6	93.0	18.6	18.6	93.0	18.6	18.6	93.0	18.6	18.6	93.0	18.6
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	18.6	5.5	18.6	18.6	5.5	18.6	18.6	5.5	18.6	18.6	5.5	18.6
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	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		87.5			87.5			87.5			87.5	
Detector 2 Size(m)		5.5			5.5			5.5			5.5	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases			2			6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	8	4	4	4

1: Orleans & Innes
PM Peak Hour

3437-3443 Innes Road
2023 Background Traffic (demand rationalization)

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.6	26.2	26.2	11.2	26.2	26.2	11.7	32.7	32.7	32.7	32.7	32.7
Total Split (s)	31.0	49.0	49.0	16.0	34.0	34.0	12.0	45.0	45.0	33.0	33.0	33.0
Total Split (%)	28.2%	44.5%	44.5%	14.5%	30.9%	30.9%	10.9%	40.9%	40.9%	30.0%	30.0%	30.0%
Maximum Green (s)	24.4	42.8	42.8	9.8	27.8	27.8	5.3	38.3	38.3	26.3	26.3	26.3
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.9	2.5	2.5	2.5	2.5	2.5	3.4	3.4	3.4	3.4	3.4	3.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.2	6.2	6.2	6.2	6.2	6.7	6.7	6.7	6.7	6.7	6.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		13.0	13.0		13.0	13.0		19.0	19.0	19.0	19.0	19.0
Pedestrian Calls (#/hr)		22	22		7	7		18	18	15	15	15
Act Efect Green (s)	23.0	52.4	52.4	8.4	35.1	35.1	32.5	32.5	32.5	22.9	22.9	22.9
Actuated g/C Ratio	0.21	0.48	0.48	0.08	0.32	0.32	0.30	0.30	0.30	0.21	0.21	0.21
v/c Ratio	0.85	0.90	0.21	0.45	0.54	0.18	0.23	0.23	0.16	0.75	0.34	0.42
Control Delay	54.8	39.1	3.9	55.2	44.8	9.0	27.2	28.3	0.6	60.4	37.7	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.8	39.1	3.9	55.2	44.8	9.0	27.2	28.3	0.6	60.4	37.7	6.2
LOS	D	D	A	E	D	A	C	C	A	E	D	A
Approach Delay		40.7			40.0			21.9			33.3	
Approach LOS		D			D			C			C	
Queue Length 50th (m)	56.8	~168.0	0.0	9.7	43.2	0.4	8.7	16.3	0.0	29.8	20.7	0.0
Queue Length 95th (m)	#75.5	#209.0	10.9	24.9	78.6	18.7	17.6	24.7	0.0	#52.2	31.1	13.0
Internal Link Dist (m)		240.5			467.4			363.7			277.9	
Turn Bay Length (m)	140.0		80.0	105.0		60.0	50.0		50.0	55.0		60.0
Base Capacity (vph)	729	1598	779	152	1049	627	286	1180	618	258	810	526
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.80	0.90	0.21	0.39	0.54	0.18	0.23	0.19	0.14	0.65	0.30	0.39

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 37.6

Intersection LOS: D

Intersection Capacity Utilization 91.7%

ICU Level of Service F

Analysis Period (min) 15

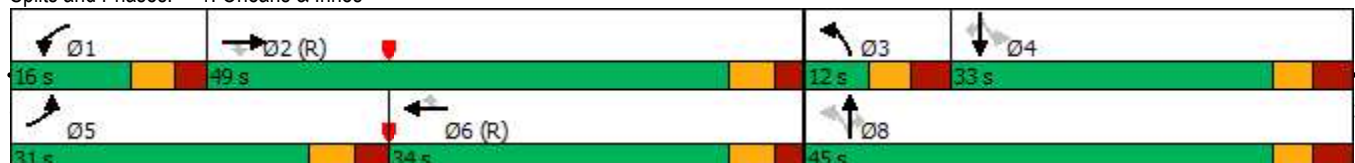
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

























Queue shown is maximum after two cycles.

Splits and Phases: 1: Orleans & Innes















1: Orleans & Innes
AM Peak Hour

3437-3443 Innes Road
2028 Background Traffic

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	128	467	24	25	1495	158	215	275	47	72	106	487
Future Volume (vph)	128	467	24	25	1495	158	215	275	47	72	106	487
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	140.0		80.0	105.0		60.0	50.0		50.0	55.0		60.0
Storage Lanes	2		1	1		1	1		1	1		1
Taper Length (m)	40.0			40.0			10.0			20.0		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	1.00		0.96	0.99		0.97	0.99		0.94	0.97		0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	2995	3144	1473	1572	3357	1502	1712	3357	1502	1679	3357	1532
Flt Permitted	0.950			0.950			0.546			0.583		
Satd. Flow (perm)	2988	3144	1416	1549	3357	1462	977	3357	1413	996	3357	1500
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			143			143			82			153
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		264.5			491.4			387.7			301.9	
Travel Time (s)		15.9			29.5			27.9			21.7	
Confl. Peds. (#/hr)	6		14	14		6	6		32	32		6
Confl. Bikes (#/hr)						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
Heavy Vehicles (%)	12%	10%	5%	10%	3%	3%	1%	3%	3%	3%	3%	1%
Adj. Flow (vph)	128	467	24	25	1495	158	215	275	47	72	106	487
Shared Lane Traffic (%)												
Lane Group Flow (vph)	128	467	24	25	1495	158	215	275	47	72	106	487
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA
Median Width(m)		9.0			7.4			6.0			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	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	18.6	93.0	18.6	18.6	93.0	18.6	18.6	93.0	18.6	18.6	93.0	18.6
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	18.6	5.5	18.6	18.6	5.5	18.6	18.6	5.5	18.6	18.6	5.5	18.6
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	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		87.5			87.5			87.5			87.5	
Detector 2 Size(m)		5.5			5.5			5.5			5.5	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases			2			6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	8	4	4	4

1: Orleans & Innes
AM Peak Hour

3437-3443 Innes Road
2028 Background Traffic

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.6	26.2	26.2	11.2	26.2	26.2	11.7	32.7	32.7	32.7	32.7	32.7
Total Split (s)	13.0	65.0	65.0	13.0	65.0	65.0	19.0	52.0	52.0	33.0	33.0	33.0
Total Split (%)	10.0%	50.0%	50.0%	10.0%	50.0%	50.0%	14.6%	40.0%	40.0%	25.4%	25.4%	25.4%
Maximum Green (s)	6.4	58.8	58.8	6.8	58.8	58.8	12.3	45.3	45.3	26.3	26.3	26.3
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.9	2.5	2.5	2.5	2.5	2.5	3.4	3.4	3.4	3.4	3.4	3.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.2	6.2	6.2	6.2	6.2	6.7	6.7	6.7	6.7	6.7	6.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		13.0	13.0		13.0	13.0		19.0	19.0	19.0	19.0	19.0
Pedestrian Calls (#/hr)		14	14		6	6		32	32	6	6	6
Act Effct Green (s)	6.4	64.0	64.0	6.4	58.8	58.8	45.3	45.3	45.3	26.4	26.4	26.4
Actuated g/C Ratio	0.05	0.49	0.49	0.05	0.45	0.45	0.35	0.35	0.35	0.20	0.20	0.20
v/c Ratio	0.87	0.30	0.03	0.32	0.98	0.21	0.53	0.24	0.09	0.36	0.16	1.14
Control Delay	107.2	21.3	0.1	70.7	55.1	5.0	37.1	30.7	1.6	50.5	43.4	120.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	107.2	21.3	0.1	70.7	55.1	5.0	37.1	30.7	1.6	50.5	43.4	120.5
LOS	F	C	A	E	E	A	D	C	A	D	D	F
Approach Delay		38.3			50.6			30.8			100.6	
Approach LOS		D			D			C			F	
Queue Length 50th (m)	15.7	36.6	0.0	5.8	179.8	1.9	37.6	24.1	0.0	14.7	10.9	~104.1
Queue Length 95th (m)	#32.6	48.3	0.0	14.5	#229.0	13.2	57.5	34.2	2.0	28.7	18.5	#165.3
Internal Link Dist (m)		240.5			467.4			363.7			277.9	
Turn Bay Length (m)	140.0		80.0	105.0		60.0	50.0		50.0	55.0		60.0
Base Capacity (vph)	147	1548	769	82	1518	739	409	1169	545	202	683	426
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.87	0.30	0.03	0.30	0.98	0.21	0.53	0.24	0.09	0.36	0.16	1.14

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 99 (76%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 125

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.14

Intersection Signal Delay: 54.9

Intersection LOS: D

Intersection Capacity Utilization 105.0%

ICU Level of Service G

Analysis Period (min) 15

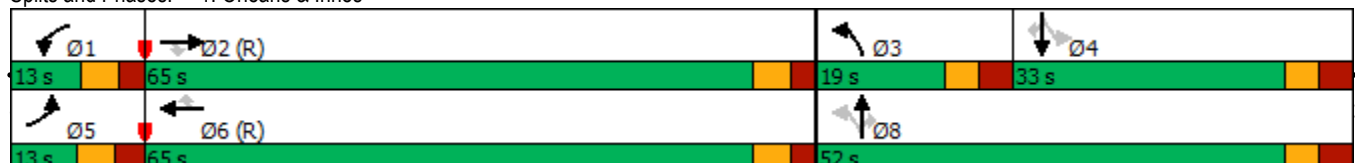
~ Volume exceeds capacity, queue is theoretically infinite.



















Queue shown is maximum after two cycles.













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

Queue shown is maximum after two cycles.

Splits and Phases: 1: Orleans & Innes



												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	522	21	37	1495	19	14	12	38	33	9	42
Future Volume (vph)	11	522	21	37	1495	19	14	12	38	33	9	42
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	100.0		0.0	100.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	35.0			0.0			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		0.99	1.00			0.99			0.99	
Frt		0.994			0.998			0.920			0.932	
Flt Protected	0.950			0.950				0.989			0.981	
Satd. Flow (prot)	1586	3126	0	1503	3349	0	0	1568	0	0	1596	0
Flt Permitted	0.139			0.449				0.918			0.864	
Satd. Flow (perm)	232	3126	0	706	3349	0	0	1452	0	0	1405	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			2			38			41	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		491.4			238.6			212.5			273.4	
Travel Time (s)		29.5			14.3			19.1			24.6	
Confl. Peds. (#/hr)	4		7	7		4	11					11
Confl. Bikes (#/hr)			1						1			1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	9%	10%	5%	15%	3%	5%	1%	15%	3%	1%	10%	3%
Adj. Flow (vph)	11	522	21	37	1495	19	14	12	38	33	9	42
Shared Lane Traffic (%)												
Lane Group Flow (vph)	11	543	0	37	1514	0	0	64	0	0	84	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	L NA	Left	R NA	L NA	Left	R NA
Median Width(m)		5.0			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		10.0			10.0			5.0			5.0	
Two way Left Turn Lane					Yes							
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	18.6	93.0		18.6	93.0		18.6	93.0		18.6	93.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	18.6	5.5		18.6	5.5		18.6	5.5		18.6	5.5	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		87.5			87.5			87.5			87.5	
Detector 2 Size(m)		5.5			5.5			5.5			5.5	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	39.2	39.2		39.2	39.2		37.8	37.8		37.8	37.8	
Total Split (s)	82.0	82.0		82.0	82.0		38.0	38.0		38.0	38.0	
Total Split (%)	68.3%	68.3%		68.3%	68.3%		31.7%	31.7%		31.7%	31.7%	
Maximum Green (s)	75.8	75.8		75.8	75.8		31.2	31.2		31.2	31.2	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.5	2.5		2.5	2.5		3.8	3.8		3.8	3.8	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	6.2	6.2		6.2	6.2			6.8			6.8	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	15.0	15.0		15.0	15.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	18.0	18.0		18.0	18.0		24.0	24.0		24.0	24.0	
Pedestrian Calls (#/hr)	7	7		4	4		1	1		11	11	
Act Effct Green (s)	93.2	93.2		93.2	93.2			18.4			18.4	
Actuated g/C Ratio	0.78	0.78		0.78	0.78			0.15			0.15	
v/c Ratio	0.06	0.22		0.07	0.58			0.25			0.34	
Control Delay	8.6	6.1		2.2	4.0			21.2			25.8	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	8.6	6.1		2.2	4.0			21.2			25.8	
LOS	A	A		A	A			C			C	
Approach Delay		6.1			4.0			21.2			25.8	
Approach LOS		A			A			C			C	
Queue Length 50th (m)	0.4	11.3		0.4	12.7			5.4			9.0	
Queue Length 95th (m)	3.3	33.3		m1.4	19.6			14.4			19.2	
Internal Link Dist (m)		467.4			214.6			188.5			249.4	
Turn Bay Length (m)	100.0			100.0								
Base Capacity (vph)	180	2429		548	2601			405			395	
Starvation Cap Reductn	0	0		0	9			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.06	0.22		0.07	0.58			0.16			0.21	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 26 (22%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.58

Intersection Signal Delay: 5.8

Intersection LOS: A

Intersection Capacity Utilization 69.6%

ICU Level of Service C

Analysis Period (min) 15







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

Splits and Phases: 2: Page & Innes



3: Lamarche & Innes
AM Peak Hour

3437-3443 Innes Road
2028 Background Traffic

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	
Traffic Volume (vph)	566	90	132	1390	150	135
Future Volume (vph)	566	90	132	1390	150	135
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		50.0	35.0		0.0	0.0
Storage Lanes		1	1		1	0
Taper Length (m)			20.0		20.0	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Ped Bike Factor		0.95	0.99			
Frt		0.850			0.936	
Flt Protected			0.950		0.974	
Satd. Flow (prot)	3357	1502	1679	3357	1611	0
Flt Permitted			0.433		0.974	
Satd. Flow (perm)	3357	1433	757	3357	1611	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		90			38	
Link Speed (k/h)	60			60	50	
Link Distance (m)	238.6			236.8	306.6	
Travel Time (s)	14.3			14.2	22.1	
Confl. Peds. (#/hr)		11	11			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	566	90	132	1390	150	135
Shared Lane Traffic (%)						
Lane Group Flow (vph)	566	90	132	1390	285	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	9.0			9.0	9.0	
Two way Left Turn Lane	Yes			Yes		
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2	1	1	2	1	
Detector Template	Thru	Right	Left	Thru	Left	
Leading Detector (m)	93.0	18.6	18.6	93.0	18.6	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	5.5	18.6	18.6	5.5	18.6	
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)	87.5			87.5		
Detector 2 Size(m)	5.5			5.5		
Detector 2 Type	CI+Ex			CI+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Perm	NA	Prot	
Protected Phases	2			6	8	
Permitted Phases		2	6			
Detector Phase	2	2	6	6	8	
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Minimum Split (s)	31.2	31.2	31.2	31.2	37.8	
Total Split (s)	78.0	78.0	78.0	78.0	42.0	
Total Split (%)	65.0%	65.0%	65.0%	65.0%	35.0%	
Maximum Green (s)	71.8	71.8	71.8	71.8	35.2	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.0	
All-Red Time (s)	2.5	2.5	2.5	2.5	3.8	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.2	6.2	6.2	6.2	6.8	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	18.0	18.0	18.0	18.0	24.0	
Pedestrian Calls (#/hr)	10	10	10	10	10	
Act Effct Green (s)	82.9	82.9	82.9	82.9	24.1	
Actuated g/C Ratio	0.69	0.69	0.69	0.69	0.20	
v/c Ratio	0.24	0.09	0.25	0.60	0.81	
Control Delay	6.8	1.3	5.0	7.5	56.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	6.8	1.3	5.0	7.5	56.1	
LOS	A	A	A	A	E	
Approach Delay	6.1			7.2	56.1	
Approach LOS	A			A	E	
Queue Length 50th (m)	19.0	0.0	3.7	85.6	51.9	
Queue Length 95th (m)	26.2	2.5	5.9	39.4	73.5	
Internal Link Dist (m)	214.6			212.8	282.6	
Turn Bay Length (m)		50.0	35.0			
Base Capacity (vph)	2318	1017	522	2318	499	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.24	0.09	0.25	0.60	0.57	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 16 (13%), Referenced to phase 2:EBT and 6:WBTL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 12.6

Intersection LOS: B




















Intersection Capacity Utilization 68.9%













ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 3: Lamarche & Innes



												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	547	38	12	1475	4	99	0	39	1	0	3
Future Volume (vph)	6	547	38	12	1475	4	99	0	39	1	0	3
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	30.0		0.0	40.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (m)	20.0			30.0			20.0			20.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00				1.00			1.00	0.99		0.99	
Frt		0.990							0.850		0.899	
Flt Protected	0.950			0.950				0.950			0.988	
Satd. Flow (prot)	1712	3112	0	1712	3357	0	0	1712	1532	0	1583	0
Flt Permitted	0.148			0.431				0.755			0.942	
Satd. Flow (perm)	266	3112	0	777	3357	0	0	1357	1511	0	1509	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13							39		28	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		236.8			292.8			151.9			62.6	
Travel Time (s)		14.2			17.6			13.7			5.6	
Confl. Peds. (#/hr)	7					7	2		1	1		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%	10%	10%	1%	3%	1%	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	6	547	38	12	1475	4	99	0	39	1	0	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	6	585	0	12	1479	0	0	99	39	0	4	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	L NA	Left	R NA	L NA	Left	R NA
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		9.0			9.0			9.0			9.0	
Two way Left Turn Lane		Yes										
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2	1	1		2
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	18.6	93.0		18.6	93.0		18.6	93.0	18.6	18.6	93.0	
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)	18.6	5.5		18.6	5.5		18.6	5.5	18.6	18.6	5.5	
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)		87.5			87.5			87.5			87.5	
Detector 2 Size(m)		5.5			5.5			5.5			5.5	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		
Detector Phase	2	2		6	6		8	8	8	4	4	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	32.1	32.1		35.1	35.1		32.3	32.3	32.3	32.3	32.3	
Total Split (s)	87.0	87.0		87.0	87.0		33.0	33.0	33.0	33.0	33.0	
Total Split (%)	72.5%	72.5%		72.5%	72.5%		27.5%	27.5%	27.5%	27.5%	27.5%	
Maximum Green (s)	80.9	80.9		80.9	80.9		26.7	26.7	26.7	26.7	26.7	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	2.4	2.4		2.4	2.4		3.0	3.0	3.0	3.0	3.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Lost Time (s)	6.1	6.1		6.1	6.1			6.3	6.3		6.3	
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	C-Max	C-Max		C-Max	C-Max		None	None	None	None	None	
Walk Time (s)	12.0	12.0		12.0	12.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	14.0	14.0		14.0	14.0		19.0	19.0	19.0	19.0	19.0	
Pedestrian Calls (#/hr)	1	1		7	7		1	1	1	2	2	
Act Effct Green (s)	92.0	92.0		92.0	92.0			15.6	15.6		15.6	
Actuated g/C Ratio	0.77	0.77		0.77	0.77			0.13	0.13		0.13	
v/c Ratio	0.03	0.25		0.02	0.58			0.56	0.17		0.02	
Control Delay	3.8	3.2		4.9	7.7			59.7	14.0		0.2	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay	3.8	3.2		4.9	7.7			59.7	14.0		0.2	
LOS	A	A		A	A			E	B		A	
Approach Delay		3.2			7.7			46.8			0.3	
Approach LOS		A			A			D			A	
Queue Length 50th (m)	0.2	9.7		0.5	55.4			20.8	0.0		0.0	
Queue Length 95th (m)	m0.9	17.6		2.6	106.8			33.3	8.3		0.0	
Internal Link Dist (m)		212.8			268.8			127.9			38.6	
Turn Bay Length (m)	30.0			40.0								
Base Capacity (vph)	203	2387		595	2572			301	366		357	
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	0.03	0.25		0.02	0.58			0.33	0.11		0.01	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.58

Intersection Signal Delay: 8.9

Intersection LOS: A

Intersection Capacity Utilization 66.3%

ICU Level of Service C

Analysis Period (min) 15

























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

Splits and Phases: 4: 473 E of Page & Innes















1: Orleans & Innes
AM Peak Hour

3437-3443 Innes Road
2028 Background Traffic (demand rationalization)

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	128	467	24	25	1415	158	215	275	47	72	106	357
Future Volume (vph)	128	467	24	25	1415	158	215	275	47	72	106	357
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	140.0		80.0	105.0		60.0	50.0		50.0	55.0		60.0
Storage Lanes	2		1	1		1	1		1	1		1
Taper Length (m)	40.0			40.0			10.0			20.0		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	1.00		0.96	0.99		0.97	0.99		0.94	0.97		0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	2995	3144	1473	1572	3357	1502	1712	3357	1502	1679	3357	1532
Flt Permitted	0.950			0.950			0.533			0.583		
Satd. Flow (perm)	2988	3144	1416	1549	3357	1462	954	3357	1413	996	3357	1500
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			143			143			82			154
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		264.5			491.4			387.7			301.9	
Travel Time (s)		15.9			29.5			27.9			21.7	
Confl. Peds. (#/hr)	6		14	14		6	6		32	32		6
Confl. Bikes (#/hr)						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
Heavy Vehicles (%)	12%	10%	5%	10%	3%	3%	1%	3%	3%	3%	3%	1%
Adj. Flow (vph)	128	467	24	25	1415	158	215	275	47	72	106	357
Shared Lane Traffic (%)												
Lane Group Flow (vph)	128	467	24	25	1415	158	215	275	47	72	106	357
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA
Median Width(m)		9.0			7.4			6.0			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	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	18.6	93.0	18.6	18.6	93.0	18.6	18.6	93.0	18.6	18.6	93.0	18.6
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	18.6	5.5	18.6	18.6	5.5	18.6	18.6	5.5	18.6	18.6	5.5	18.6
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	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		87.5			87.5			87.5			87.5	
Detector 2 Size(m)		5.5			5.5			5.5			5.5	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases			2			6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	8	4	4	4

1: Orleans & Innes
AM Peak Hour

3437-3443 Innes Road
2028 Background Traffic (demand rationalization)

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.6	26.2	26.2	11.2	26.2	26.2	11.7	32.7	32.7	32.7	32.7	32.7
Total Split (s)	13.0	65.0	65.0	13.0	65.0	65.0	19.0	52.0	52.0	33.0	33.0	33.0
Total Split (%)	10.0%	50.0%	50.0%	10.0%	50.0%	50.0%	14.6%	40.0%	40.0%	25.4%	25.4%	25.4%
Maximum Green (s)	6.4	58.8	58.8	6.8	58.8	58.8	12.3	45.3	45.3	26.3	26.3	26.3
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.9	2.5	2.5	2.5	2.5	2.5	3.4	3.4	3.4	3.4	3.4	3.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.2	6.2	6.2	6.2	6.2	6.7	6.7	6.7	6.7	6.7	6.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		13.0	13.0		13.0	13.0		19.0	19.0	19.0	19.0	19.0
Pedestrian Calls (#/hr)		14	14		6	6		32	32	6	6	6
Act Effct Green (s)	7.4	66.8	66.8	6.4	60.6	60.6	42.5	42.5	42.5	23.5	23.5	23.5
Actuated g/C Ratio	0.06	0.51	0.51	0.05	0.47	0.47	0.33	0.33	0.33	0.18	0.18	0.18
v/c Ratio	0.75	0.29	0.03	0.32	0.90	0.21	0.56	0.25	0.09	0.40	0.17	0.90
Control Delay	87.0	20.3	0.1	70.7	41.9	4.9	39.4	32.1	1.7	52.9	44.6	54.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	87.0	20.3	0.1	70.7	41.9	4.9	39.4	32.1	1.7	52.9	44.6	54.9
LOS	F	C	A	E	D	A	D	C	A	D	D	D
Approach Delay		33.3			38.7			32.4			52.6	
Approach LOS		C			D			C			D	
Queue Length 50th (m)	15.7	36.6	0.0	5.8	163.2	1.9	37.6	24.1	0.0	14.7	10.9	48.3
Queue Length 95th (m)	#32.6	48.3	0.0	14.5	#208.4	13.2	57.5	34.2	2.0	28.7	18.5	#94.7
Internal Link Dist (m)		240.5			467.4			363.7			277.9	
Turn Bay Length (m)	140.0		80.0	105.0		60.0	50.0		50.0	55.0		60.0
Base Capacity (vph)	170	1615	796	82	1565	757	383	1169	545	201	679	426
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.75	0.29	0.03	0.30	0.90	0.21	0.56	0.24	0.09	0.36	0.16	0.84

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 99 (76%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 38.9

Intersection LOS: D

Intersection Capacity Utilization 94.2%

ICU Level of Service F

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 1: Orleans & Innes



























0.0000, No reason

Dynamic Report













1: Orleans & Innes
PM Peak Hour

3437-3443 Innes Road
2028 Background Traffic

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	614	1748	167	61	768	121	68	239	89	175	255	215
Future Volume (vph)	614	1748	167	61	768	121	68	239	89	175	255	215
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	140.0		80.0	105.0		60.0	50.0		50.0	55.0		60.0
Storage Lanes	2		1	1		1	1		1	1		1
Taper Length (m)	40.0			40.0			10.0			20.0		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	0.99		0.95	1.00		0.97	0.99		0.97	0.98		0.97
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3288	3357	1532	1712	3293	1517	1712	3390	1532	1712	3390	1532
Flt Permitted	0.950			0.950			0.456			0.603		
Satd. Flow (perm)	3267	3357	1456	1706	3293	1477	812	3390	1479	1069	3390	1485
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			165			230			159			225
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		264.5			491.4			387.7			301.9	
Travel Time (s)		15.9			29.5			27.9			21.7	
Confl. Peds. (#/hr)	7		22	22		7	15		18	18		15
Confl. Bikes (#/hr)			4			3						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	3%	1%	1%	5%	2%	1%	2%	1%	1%	2%	1%
Adj. Flow (vph)	614	1748	167	61	768	121	68	239	89	175	255	215
Shared Lane Traffic (%)												
Lane Group Flow (vph)	614	1748	167	61	768	121	68	239	89	175	255	215
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA
Median Width(m)		9.0			7.4			6.0			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	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	18.6	93.0	18.6	18.6	93.0	18.6	18.6	93.0	18.6	18.6	93.0	18.6
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	18.6	5.5	18.6	18.6	5.5	18.6	18.6	5.5	18.6	18.6	5.5	18.6
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	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		87.5			87.5			87.5			87.5	
Detector 2 Size(m)		5.5			5.5			5.5			5.5	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases			2			6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	8	4	4	4

1: Orleans & Innes
PM Peak Hour

3437-3443 Innes Road
2028 Background Traffic

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.6	26.2	26.2	11.2	26.2	26.2	11.7	32.7	32.7	32.7	32.7	32.7
Total Split (s)	31.0	49.0	49.0	16.0	34.0	34.0	12.0	45.0	45.0	33.0	33.0	33.0
Total Split (%)	28.2%	44.5%	44.5%	14.5%	30.9%	30.9%	10.9%	40.9%	40.9%	30.0%	30.0%	30.0%
Maximum Green (s)	24.4	42.8	42.8	9.8	27.8	27.8	5.3	38.3	38.3	26.3	26.3	26.3
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.9	2.5	2.5	2.5	2.5	2.5	3.4	3.4	3.4	3.4	3.4	3.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.2	6.2	6.2	6.2	6.2	6.7	6.7	6.7	6.7	6.7	6.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		13.0	13.0		13.0	13.0		19.0	19.0	19.0	19.0	19.0
Pedestrian Calls (#/hr)		22	22		7	7		18	18	15	15	15
Act Efect Green (s)	23.4	51.9	51.9	8.5	34.2	34.2	32.9	32.9	32.9	23.3	23.3	23.3
Actuated g/C Ratio	0.21	0.47	0.47	0.08	0.31	0.31	0.30	0.30	0.30	0.21	0.21	0.21
v/c Ratio	0.88	1.10	0.22	0.47	0.75	0.20	0.24	0.24	0.16	0.77	0.36	0.44
Control Delay	56.8	88.0	4.3	51.4	51.1	8.0	27.4	28.2	0.6	63.2	37.6	7.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.8	88.0	4.3	51.4	51.1	8.0	27.4	28.2	0.6	63.2	37.6	7.0
LOS	E	F	A	D	D	A	C	C	A	E	D	A
Approach Delay		74.9			45.7			21.9			34.3	
Approach LOS		E			D			C			C	
Queue Length 50th (m)	60.2	~236.0	0.3	10.4	79.3	1.0	9.1	17.3	0.0	31.6	21.9	0.0
Queue Length 95th (m)	#84.4	#276.5	12.1	25.6	#114.6	16.0	18.1	25.8	0.1	#58.2	32.5	15.0
Internal Link Dist (m)		240.5			467.4			363.7			277.9	
Turn Bay Length (m)	140.0		80.0	105.0		60.0	50.0		50.0	55.0		60.0
Base Capacity (vph)	729	1583	774	152	1023	617	286	1180	618	255	810	526
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.84	1.10	0.22	0.40	0.75	0.20	0.24	0.20	0.14	0.69	0.31	0.41

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 125

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.10

Intersection Signal Delay: 58.3

Intersection LOS: E

Intersection Capacity Utilization 101.3%

ICU Level of Service G

Analysis Period (min) 15

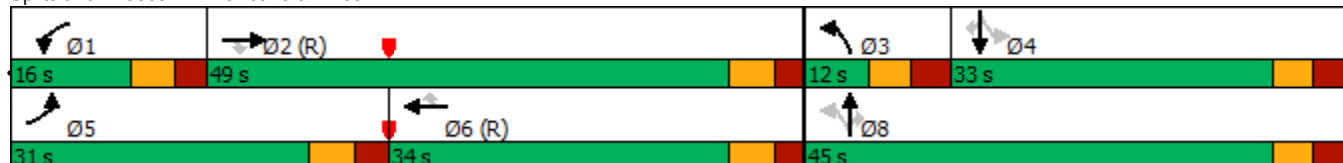
~ Volume exceeds capacity, queue is theoretically infinite.



















Queue shown is maximum after two cycles.













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

Queue shown is maximum after two cycles.

Splits and Phases: 1: Orleans & Innes



												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	1748	30	93	839	64	23	6	77	53	17	34
Future Volume (vph)	61	1748	30	93	839	64	23	6	77	53	17	34
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	100.0		0.0	100.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	35.0			0.0			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00			1.00			0.98			0.99	
Frt		0.997			0.989			0.902			0.956	
Flt Protected	0.950			0.950				0.989			0.975	
Satd. Flow (prot)	1695	3376	0	1695	3256	0	0	1541	0	0	1579	0
Flt Permitted	0.294			0.083				0.915			0.789	
Satd. Flow (perm)	523	3376	0	148	3256	0	0	1425	0	0	1270	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			13			20			22	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		491.4			238.6			212.5			273.4	
Travel Time (s)		29.5			14.3			19.1			24.6	
Confl. Peds. (#/hr)	9		5	5		9	5		13	13		5
Confl. Bikes (#/hr)			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 (%)	2%	2%	6%	2%	5%	2%	5%	1%	3%	6%	1%	11%
Adj. Flow (vph)	61	1748	30	93	839	64	23	6	77	53	17	34
Shared Lane Traffic (%)												
Lane Group Flow (vph)	61	1778	0	93	903	0	0	106	0	0	104	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	L NA	Left	R NA	L NA	Left	R NA
Median Width(m)		5.0			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		10.0			10.0			5.0			5.0	
Two way Left Turn Lane					Yes							
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	18.6	93.0		18.6	93.0		18.6	93.0		18.6	93.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	18.6	5.5		18.6	5.5		18.6	5.5		18.6	5.5	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		87.5			87.5			87.5			87.5	
Detector 2 Size(m)		5.5			5.5			5.5			5.5	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	39.2	39.2		39.2	39.2		37.8	37.8		37.8	37.8	
Total Split (s)	72.0	72.0		72.0	72.0		38.0	38.0		38.0	38.0	
Total Split (%)	65.5%	65.5%		65.5%	65.5%		34.5%	34.5%		34.5%	34.5%	
Maximum Green (s)	65.8	65.8		65.8	65.8		31.2	31.2		31.2	31.2	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.5	2.5		2.5	2.5		3.8	3.8		3.8	3.8	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	6.2	6.2		6.2	6.2			6.8			6.8	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	15.0	15.0		15.0	15.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	18.0	18.0		18.0	18.0		24.0	24.0		24.0	24.0	
Pedestrian Calls (#/hr)	5	5		9	9		13	13		5	5	
Act Effct Green (s)	78.1	78.1		78.1	78.1			18.9			18.9	
Actuated g/C Ratio	0.71	0.71		0.71	0.71			0.17			0.17	
v/c Ratio	0.16	0.74		0.89	0.39			0.41			0.44	
Control Delay	2.1	7.7		83.1	8.0			34.5			35.0	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	2.1	7.7		83.1	8.0			34.5			35.0	
LOS	A	A		F	A			C			D	
Approach Delay		7.6			15.0			34.5			35.0	
Approach LOS		A			B			C			D	
Queue Length 50th (m)	0.9	28.3		5.2	17.5			16.3			15.6	
Queue Length 95th (m)	m1.4	m19.3		m#48.2	63.5			26.3			25.8	
Internal Link Dist (m)		467.4			214.6			188.5			249.4	
Turn Bay Length (m)	100.0			100.0								
Base Capacity (vph)	371	2398		105	2315			418			375	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.16	0.74		0.89	0.39			0.25			0.28	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 2 (2%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 140

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 11.9

Intersection LOS: B

Intersection Capacity Utilization 91.4%

ICU Level of Service F

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.







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

Splits and Phases: 2: Page & Innes



3: Lamarche & Innes
PM Peak Hour

3437-3443 Innes Road
2028 Background Traffic

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	
Traffic Volume (vph)	1634	200	135	946	190	117
Future Volume (vph)	1634	200	135	946	190	117
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		50.0	35.0		0.0	0.0
Storage Lanes		1	1		1	0
Taper Length (m)			20.0		20.0	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Ped Bike Factor		0.97				
Frt		0.850			0.949	
Flt Protected			0.950		0.970	
Satd. Flow (prot)	3357	1502	1679	3357	1627	0
Flt Permitted			0.062		0.970	
Satd. Flow (perm)	3357	1452	110	3357	1627	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		121			28	
Link Speed (k/h)	60			60	50	
Link Distance (m)	238.6			236.8	281.6	
Travel Time (s)	14.3			14.2	20.3	
Confl. Peds. (#/hr)		6	6			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1634	200	135	946	190	117
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1634	200	135	946	307	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	9.0			9.0	9.0	
Two way Left Turn Lane	Yes			Yes		
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2	1	1	2	1	
Detector Template	Thru	Right	Left	Thru	Left	
Leading Detector (m)	93.0	18.6	18.6	93.0	18.6	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	5.5	18.6	18.6	5.5	18.6	
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)	87.5			87.5		
Detector 2 Size(m)	5.5			5.5		
Detector 2 Type	CI+Ex			CI+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	pm+pt	NA	Prot	
Protected Phases	2		1	6	8	
Permitted Phases		2	6			
Detector Phase	2	2	1	6	8	
Switch Phase						
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Minimum Split (s)	31.2	31.2	11.2	31.2	37.3	
Total Split (s)	60.0	60.0	12.0	72.0	38.0	
Total Split (%)	54.5%	54.5%	10.9%	65.5%	34.5%	
Maximum Green (s)	53.8	53.8	5.8	65.8	31.7	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.3	
All-Red Time (s)	2.5	2.5	2.5	2.5	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.2	6.2	6.2	6.2	6.3	
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max	None	C-Max	None	
Walk Time (s)	7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	18.0	18.0		18.0	24.0	
Pedestrian Calls (#/hr)	10	10		10	10	
Act Effct Green (s)	58.1	58.1	73.3	73.3	24.2	
Actuated g/C Ratio	0.53	0.53	0.67	0.67	0.22	
v/c Ratio	0.92	0.24	0.67	0.42	0.81	
Control Delay	19.0	1.3	45.4	8.4	53.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	19.0	1.3	45.4	8.4	53.1	
LOS	B	A	D	A	D	
Approach Delay	17.0			13.1	53.1	
Approach LOS	B			B	D	
Queue Length 50th (m)	31.5	0.0	15.6	36.0	52.8	
Queue Length 95th (m)	#212.1	m3.7	#48.6	47.1	75.1	
Internal Link Dist (m)	214.6			212.8	257.6	
Turn Bay Length (m)		50.0	35.0			
Base Capacity (vph)	1772	823	202	2238	488	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.92	0.24	0.67	0.42	0.63	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 27 (25%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 19.1

Intersection LOS: B

Intersection Capacity Utilization 89.8%

ICU Level of Service E

Analysis Period (min) 15




















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













Queue shown is maximum after two cycles.

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

Splits and Phases: 3: Lamarche & Innes



												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	1780	131	67	950	8	88	0	56	4	0	10
Future Volume (vph)	8	1780	131	67	950	8	88	0	56	4	0	10
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	30.0		0.0	40.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (m)	20.0			30.0			20.0			20.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00						1.00			0.99	
Frt		0.990			0.999				0.850		0.904	
Flt Protected	0.950			0.950				0.950			0.986	
Satd. Flow (prot)	1712	3353	0	1712	3322	0	0	1712	1381	0	1588	0
Flt Permitted	0.286			0.079				0.748			0.911	
Satd. Flow (perm)	515	3353	0	142	3322	0	0	1343	1381	0	1467	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14			1				31		31	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		236.8			292.8			151.9			62.6	
Travel Time (s)		14.2			17.6			13.7			5.6	
Confl. Peds. (#/hr)			2	2			3					3
Confl. Bikes (#/hr)			1									
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	2%	1%	1%	4%	1%	1%	1%	12%	1%	1%	1%
Adj. Flow (vph)	8	1780	131	67	950	8	88	0	56	4	0	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	8	1911	0	67	958	0	0	88	56	0	14	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	L NA	Left	R NA	L NA	Left	R NA
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		9.0			9.0			9.0			9.0	
Two way Left Turn Lane		Yes										
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	18.6	93.0		18.6	93.0		18.6	93.0	18.6	18.6	93.0	
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)	18.6	5.5		18.6	5.5		18.6	5.5	18.6	18.6	5.5	
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)		87.5			87.5			87.5			87.5	
Detector 2 Size(m)		5.5			5.5			5.5			5.5	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		
Detector Phase	2	2		6	6		8	8	8	4	4	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	32.1	32.1		35.1	35.1		32.3	32.3	32.3	32.3	32.3	
Total Split (s)	77.0	77.0		77.0	77.0		33.0	33.0	33.0	33.0	33.0	
Total Split (%)	70.0%	70.0%		70.0%	70.0%		30.0%	30.0%	30.0%	30.0%	30.0%	
Maximum Green (s)	70.9	70.9		70.9	70.9		26.7	26.7	26.7	26.7	26.7	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	2.4	2.4		2.4	2.4		3.0	3.0	3.0	3.0	3.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Lost Time (s)	6.1	6.1		6.1	6.1			6.3	6.3		6.3	
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	C-Max	C-Max		C-Max	C-Max		None	None	None	None	None	
Walk Time (s)	12.0	12.0		12.0	12.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	14.0	14.0		14.0	14.0		19.0	19.0	19.0	19.0	19.0	
Pedestrian Calls (#/hr)	2	2		1	1		1	1	1	3	3	
Act Effct Green (s)	87.4	87.4		87.4	87.4			14.7	14.7		14.7	
Actuated g/C Ratio	0.79	0.79		0.79	0.79			0.13	0.13		0.13	
v/c Ratio	0.02	0.72		0.60	0.36			0.49	0.27		0.06	
Control Delay	1.6	4.5		36.9	5.4			51.9	24.4		4.4	
Queue Delay	0.0	0.4		0.0	0.0			0.0	0.0		0.0	
Total Delay	1.6	4.9		36.9	5.4			51.9	24.4		4.4	
LOS	A	A		D	A			D	C		A	
Approach Delay		4.9			7.4			41.2			4.4	
Approach LOS		A			A			D			A	
Queue Length 50th (m)	0.1	12.1		4.7	26.0			16.8	4.5		0.0	
Queue Length 95th (m)	m0.2	m25.1		#34.6	56.3			27.2	13.2		2.0	
Internal Link Dist (m)		212.8			268.8			127.9			38.6	
Turn Bay Length (m)	30.0			40.0								
Base Capacity (vph)	409	2666		112	2639			325	358		379	
Starvation Cap Reductn	0	268		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	0.02	0.80		0.60	0.36			0.27	0.16		0.04	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 36 (33%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.72

Intersection Signal Delay: 7.4

Intersection LOS: A

Intersection Capacity Utilization 89.9%

ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

























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

Splits and Phases: 4: 473 E of Page & Innes















1: Orleans & Innes
PM Peak Hour

3437-3443 Innes Road
2028 Background Traffic (demand rationalization)

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	614	1428	167	61	768	121	68	239	89	175	255	215
Future Volume (vph)	614	1428	167	61	768	121	68	239	89	175	255	215
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	140.0		80.0	105.0		60.0	50.0		50.0	55.0		60.0
Storage Lanes	2		1	1		1	1		1	1		1
Taper Length (m)	40.0			40.0			10.0			20.0		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	0.99		0.95	1.00		0.97	0.99		0.97	0.98		0.97
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3288	3357	1532	1712	3293	1517	1712	3390	1532	1712	3390	1532
Flt Permitted	0.950			0.950			0.456			0.603		
Satd. Flow (perm)	3267	3357	1456	1703	3293	1477	812	3390	1479	1069	3390	1485
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			165			230			159			225
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		264.5			491.4			387.7			301.9	
Travel Time (s)		15.9			29.5			27.9			21.7	
Confl. Peds. (#/hr)	7		22	22		7	15		18	18		15
Confl. Bikes (#/hr)			4			3						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	3%	1%	1%	5%	2%	1%	2%	1%	1%	2%	1%
Adj. Flow (vph)	614	1428	167	61	768	121	68	239	89	175	255	215
Shared Lane Traffic (%)												
Lane Group Flow (vph)	614	1428	167	61	768	121	68	239	89	175	255	215
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA
Median Width(m)		9.0			7.4			6.0			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	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	18.6	93.0	18.6	18.6	93.0	18.6	18.6	93.0	18.6	18.6	93.0	18.6
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	18.6	5.5	18.6	18.6	5.5	18.6	18.6	5.5	18.6	18.6	5.5	18.6
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	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		87.5			87.5			87.5			87.5	
Detector 2 Size(m)		5.5			5.5			5.5			5.5	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases			2			6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	8	4	4	4

1: Orleans & Innes
PM Peak Hour

3437-3443 Innes Road
2028 Background Traffic (demand rationalization)

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.6	26.2	26.2	11.2	26.2	26.2	11.7	32.7	32.7	32.7	32.7	32.7
Total Split (s)	31.0	49.0	49.0	16.0	34.0	34.0	12.0	45.0	45.0	33.0	33.0	33.0
Total Split (%)	28.2%	44.5%	44.5%	14.5%	30.9%	30.9%	10.9%	40.9%	40.9%	30.0%	30.0%	30.0%
Maximum Green (s)	24.4	42.8	42.8	9.8	27.8	27.8	5.3	38.3	38.3	26.3	26.3	26.3
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.9	2.5	2.5	2.5	2.5	2.5	3.4	3.4	3.4	3.4	3.4	3.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.2	6.2	6.2	6.2	6.2	6.7	6.7	6.7	6.7	6.7	6.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		13.0	13.0		13.0	13.0		19.0	19.0	19.0	19.0	19.0
Pedestrian Calls (#/hr)		22	22		7	7		18	18	15	15	15
Act Efect Green (s)	23.4	51.9	51.9	8.5	34.2	34.2	32.9	32.9	32.9	23.3	23.3	23.3
Actuated g/C Ratio	0.21	0.47	0.47	0.08	0.31	0.31	0.30	0.30	0.30	0.21	0.21	0.21
v/c Ratio	0.88	0.90	0.22	0.47	0.75	0.20	0.24	0.24	0.16	0.77	0.36	0.44
Control Delay	56.8	39.5	4.3	51.4	51.1	8.0	27.4	28.2	0.6	63.2	37.6	7.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.8	39.5	4.3	51.4	51.1	8.0	27.4	28.2	0.6	63.2	37.6	7.0
LOS	E	D	A	D	D	A	C	C	A	E	D	A
Approach Delay		41.7			45.7			21.9			34.3	
Approach LOS		D			D			C			C	
Queue Length 50th (m)	60.2	~166.5	0.3	10.4	79.3	1.0	9.1	17.3	0.0	31.6	21.9	0.0
Queue Length 95th (m)	#84.4	#206.8	12.1	25.6	#114.6	16.0	18.1	25.8	0.1	#58.2	32.5	15.0
Internal Link Dist (m)		240.5			467.4			363.7			277.9	
Turn Bay Length (m)	140.0		80.0	105.0		60.0	50.0		50.0	55.0		60.0
Base Capacity (vph)	729	1583	774	152	1023	617	286	1180	618	255	810	526
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.84	0.90	0.22	0.40	0.75	0.20	0.24	0.20	0.14	0.69	0.31	0.41

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 39.6

Intersection LOS: D

Intersection Capacity Utilization 91.9%

ICU Level of Service F

Analysis Period (min) 15

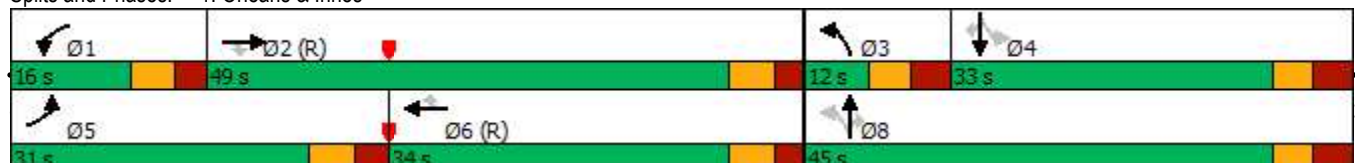
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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







Queue shown is maximum after two cycles.

Splits and Phases: 1: Orleans & Innes



3: Lamarche & Innes
PM Peak Hour

3437-3443 Innes Road
2028 Background Traffic (demand rationalization)

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	
Traffic Volume (vph)	1594	200	135	946	190	117
Future Volume (vph)	1594	200	135	946	190	117
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		50.0	35.0		0.0	0.0
Storage Lanes		1	1		1	0
Taper Length (m)			20.0		20.0	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Ped Bike Factor		0.97				
Frt		0.850			0.949	
Flt Protected			0.950		0.970	
Satd. Flow (prot)	3357	1502	1679	3357	1627	0
Flt Permitted			0.062		0.970	
Satd. Flow (perm)	3357	1452	110	3357	1627	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		124			28	
Link Speed (k/h)	60			60	50	
Link Distance (m)	238.6			236.8	281.6	
Travel Time (s)	14.3			14.2	20.3	
Confl. Peds. (#/hr)		6	6			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1594	200	135	946	190	117
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1594	200	135	946	307	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	9.0			9.0	9.0	
Two way Left Turn Lane	Yes			Yes		
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2	1	1	2	1	
Detector Template	Thru	Right	Left	Thru	Left	
Leading Detector (m)	93.0	18.6	18.6	93.0	18.6	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	5.5	18.6	18.6	5.5	18.6	
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)	87.5			87.5		
Detector 2 Size(m)	5.5			5.5		
Detector 2 Type	CI+Ex			CI+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	pm+pt	NA	Prot	
Protected Phases	2		1	6	8	
Permitted Phases		2	6			
Detector Phase	2	2	1	6	8	
Switch Phase						
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	

3: Lamarche & Innes
PM Peak Hour

3437-3443 Innes Road
2028 Background Traffic (demand rationalization)

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Minimum Split (s)	31.2	31.2	11.2	31.2	37.3	
Total Split (s)	60.0	60.0	12.0	72.0	38.0	
Total Split (%)	54.5%	54.5%	10.9%	65.5%	34.5%	
Maximum Green (s)	53.8	53.8	5.8	65.8	31.7	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.3	
All-Red Time (s)	2.5	2.5	2.5	2.5	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.2	6.2	6.2	6.2	6.3	
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max	None	C-Max	None	
Walk Time (s)	7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	18.0	18.0		18.0	24.0	
Pedestrian Calls (#/hr)	10	10		10	10	
Act Effct Green (s)	58.1	58.1	73.3	73.3	24.2	
Actuated g/C Ratio	0.53	0.53	0.67	0.67	0.22	
v/c Ratio	0.90	0.24	0.67	0.42	0.81	
Control Delay	17.8	1.5	45.4	8.4	53.1	
Queue Delay	1.2	0.0	0.0	0.0	0.0	
Total Delay	19.0	1.5	45.4	8.4	53.1	
LOS	B	A	D	A	D	
Approach Delay	17.1			13.1	53.1	
Approach LOS	B			B	D	
Queue Length 50th (m)	81.4	0.9	15.6	36.0	52.8	
Queue Length 95th (m)	#203.3	m3.6	#48.6	47.1	75.1	
Internal Link Dist (m)	214.6			212.8	257.6	
Turn Bay Length (m)		50.0	35.0			
Base Capacity (vph)	1772	825	202	2238	488	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	59	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.93	0.24	0.67	0.42	0.63	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 27 (25%), Referenced to phase 2:EBT and 6:WBTL, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 19.2

Intersection LOS: B

Intersection Capacity Utilization 88.7%

ICU Level of Service E

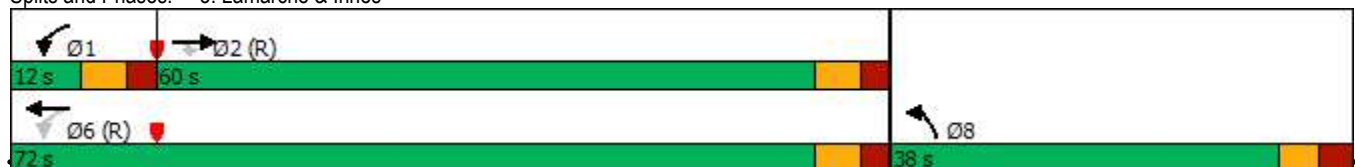
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 3: Lamarche & Innes



APPENDIX M

MMLOS Analysis

Intersection MMLOS Analysis

The following is a review of the MMLOS of the signalized intersections within the study area, using complete streets principles. All of these intersections have been evaluated based on existing conditions. Innes Road/Orléans Boulevard has been evaluated using the targets for the General Urban Area, and Innes Road/Pagé Road and Innes Road/473m East of Pagé Road have been evaluated using the targets for Arterial Mainstreets.

Exhibit 5 of the *Addendum to the MMLOS Guidelines* has been used to evaluate the existing PLOS at the intersections listed above. Exhibit 22 of the *MMLOS Guidelines* suggest a target PLOS C for Arterial Mainstreets (Innes Road east of Pagé Road) or all roadways within the General Urban Area (Innes Road west of Pagé Road, Orléans Boulevard, Pagé Road, Boyer Road). The results of the intersection PLOS analysis are summarized in **Table 1** through **Table 3**.

Exhibit 12 of the *MMLOS Guidelines* has been used to evaluate the existing BLOS at the intersections listed above. Exhibit 22 of the *MMLOS Guidelines* suggest a target BLOS B for Crosstown Bikeways on Arterial Mainstreets or in the General Urban Area (Innes Road), a target BLOS B for Local Routes in the General Urban Area (Orléans Boulevard, Boyer Road), and a target BLOS C for Spine Routes in the General Urban Area (Pagé Road). The results of the intersection BLOS analysis are summarized in **Table 4**.

Exhibit 16 of the *MMLOS Guidelines* has been used to evaluate the existing TLOS at the intersections listed above. Exhibit 22 of the *MMLOS Guidelines* suggest a target TLOS D for Transit Priority Corridors with Isolated Measures (Innes Road). Orléans Boulevard has also been evaluated for TLOS, as transit service is provided on this roadway. The results of the intersection TLOS analysis are summarized in **Table 5**.

Exhibit 21 of the *MMLOS Guidelines* has been used to evaluate the existing TkLOS at the intersections listed above. Exhibit 22 of the *MMLOS Guidelines* suggest a target TkLOS D for arterial roadways with a truck route designation (Innes Road, Orléans Boulevard north of Innes Road), and a target TkLOS E for arterial roadways without a truck route designation (Orléans Boulevard south of Innes Road). The results of the intersection TkLOS analysis are summarized in **Table 6**.

Table 1: PLOS Intersection Analysis – Innes Road/Orléans Boulevard

CRITERIA	North Approach		South Approach		East Approach		West Approach	
PETSİ SCORE								
CROSSING DISTANCE CONDITIONS								
Median > 2.4m in Width	No	-10	No	-10	No	-10	No	-10
Lanes Crossed (3.5m Lane Width)	10 +		10 +		10 +		10 +	
SIGNAL PHASING AND TIMING								
Left Turn Conflict	Protected	0	Protected	0	Permissive	-8	Perm + Prot	-8
Right Turn Conflict	Permissive or Yield	-5	Permissive or Yield	-5	Permissive or Yield	-5	Permissive or Yield	-5
Right Turn on Red	N/A	0	N/A	0	N/A	0	N/A	0
Leading Pedestrian Interval	No	-2	No	-2	No	-2	No	-2
CORNER RADIUS								
Parallel Radius	> 15m to 25m	-8	> 15m to 25m	-8	> 15m to 25m	-8	> 15m to 25m	-8
Parallel Right Turn Channel	Conventional without Receiving	0	Conventional without Receiving	0	Conventional without Receiving	0	Conventional without Receiving	0
Perpendicular Radius	> 15m to 25m	-8	> 15m to 25m	-8	> 15m to 25m	-8	> 15m to 25m	-8
Perpendicular Right Turn Channel	Conventional without Receiving	0	Conventional without Receiving	0	Conventional without Receiving	0	Conventional without Receiving	0
CROSSING TREATMENT								
Treatment	Standard	-7	Standard	-7	Zebra Stripe	-4	Zebra Stripe	-4
PETSİ SCORE		-40			-40			-45
LOS		F			F			F
DELAY SCORE								
Cycle Length		130		130		130		130
Pedestrian Walk Time		45.8		45.8		26.3		7.3
DELAY SCORE		27.3			27.3			57.9
LOS		C			C			E
OVERALL		F			F			F

Table 2: PLOS Intersection Analysis – Innes Road/Pagé Road

CRITERIA	North Approach		South Approach		East Approach		West Approach	
PETSİ SCORE								
CROSSING DISTANCE CONDITIONS								
Median > 2.4m in Width	No	55	No	55	No	23	No	39
Lanes Crossed (3.5m Lane Width)	6		6		8		7	
SIGNAL PHASING AND TIMING								
Left Turn Conflict	Permissive	-8	Permissive	-8	Permissive	-8	Permissive	-8
Right Turn Conflict	Permissive or Yield	-5	Permissive or Yield	-5	Permissive or Yield	-5	Permissive or Yield	-5
Right Turn on Red	RTOR Allowed	-3	RTOR Allowed	-3	RTOR Allowed	-3	RTOR Allowed	-3
Leading Pedestrian Interval	No	-2	No	-2	No	-2	No	-2
CORNER RADIUS								
Parallel Radius	> 10m to 15m	-6	> 10m to 15m	-6	> 10m to 15m	-6	> 10m to 15m	-6
Parallel Right Turn Channel	No Right Turn Channel	-4	No Right Turn Channel	-4	No Right Turn Channel	-4	No Right Turn Channel	-4
Perpendicular Radius	N/A	0	N/A	0	N/A	0	N/A	0
Perpendicular Right Turn Channel	N/A	0	N/A	0	N/A	0	N/A	0
CROSSING TREATMENT								
Treatment	Standard	-7	Standard	-7	Standard	-7	Standard	-7
PETSİ SCORE		20	PETSİ SCORE		20	PETSİ SCORE		4
LOS		F	LOS		F	LOS		F
DELAY SCORE								
Cycle Length	110	110		120		120		
Pedestrian Walk Time	47.8	47.8		7.2		7.2		
DELAY SCORE		17.6	17.6		53.0		53.0	
LOS		B	B		E		E	
OVERALL		F	F		F		F	

Table 3: PLOS Intersection Analysis – Innes Road/473m East of Pagé Road

CRITERIA	North Approach		South Approach		East Approach		West Approach	
PETSİ SCORE								
CROSSING DISTANCE CONDITIONS								
Median > 2.4m in Width	No	88	No	55	No	39	No	39
Lanes Crossed (3.5m Lane Width)	4		6		7		7	
SIGNAL PHASING AND TIMING								
Left Turn Conflict	Permissive	-8	Permissive	-8	Permissive	-8	Permissive	-8
Right Turn Conflict	Permissive or Yield	-5	Permissive or Yield	-5	Permissive or Yield	-5	Permissive or Yield	-5
Right Turn on Red	RTOR Allowed	-3	RTOR Allowed	-3	RTOR Allowed	-3	RTOR Allowed	-3
Leading Pedestrian Interval	No	-2	No	-2	No	-2	No	-2
CORNER RADIUS								
Parallel Radius	> 5m to 10m	-5	> 10m to 15m	-6	> 10m to 15m	-6	> 10m to 15m	-6
Parallel Right Turn Channel	No Right Turn Channel	-4	No Right Turn Channel	-4	No Right Turn Channel	-4	No Right Turn Channel	-4
Perpendicular Radius	N/A	0	N/A	0	N/A	0	N/A	0
Perpendicular Right Turn Channel	N/A	0	N/A	0	N/A	0	N/A	0
CROSSING TREATMENT								
Treatment	Standard	-7	Standard	-7	Standard	-7	Standard	-7
PETSİ SCORE		54	PETSİ SCORE		20	PETSİ SCORE		4
LOS		D	LOS		F	LOS		F
DELAY SCORE								
Cycle Length	110	56.9	110	56.9	120	7.7	120	7.7
Pedestrian Walk Time	56.9		56.9		7.7		7.7	
DELAY SCORE		12.8	DELAY SCORE		52.5	DELAY SCORE		52.5
LOS		B	LOS		E	LOS		E
OVERALL		D	OVERALL		F	OVERALL		F

Table 4: BLOS Intersection Analysis

Approach	Facility Type	Criteria	Travel Lanes and/or Speed	BLOS
Innes Road/Orléans Boulevard				
North Approach	Mixed Traffic	Right Turn Lane Characteristics	Right turn lane > 50m	F
		Left Turn Accommodation	Two lanes crossed, ≥ 50 km/h	F
South Approach	Mixed Traffic	Right Turn Lane Characteristics	Right turn lane > 50m	F
		Left Turn Accommodation	Two lanes crossed, ≥ 50 km/h	F
East Approach	Pocket Bike Lane	Right Turn Lane Characteristics	Right turn lane > 50m, turning speed ≤ 30 km/h	D
		Left Turn Accommodation	Two lanes crossed, ≥ 50 km/h	F
West Approach	Mixed Traffic	Right Turn Lane Characteristics	Right turn lane > 50m	F
		Left Turn Accommodation	Dual left turn lanes	F
Innes Road/Pagé Road				
North Approach	Mixed Traffic	Right Turn Lane Characteristics	Shared through/right turn lane	A
		Left Turn Accommodation	No lanes crossed, ≤ 50 km/h	B
South Approach	Mixed Traffic	Right Turn Lane Characteristics	Shared through/right turn lane	A
		Left Turn Accommodation	No lanes crossed, ≤ 50 km/h	B
East Approach	Curbside Bike Lane	Right Turn Lane Characteristics	Shared through/right turn lane	A
		Left Turn Accommodation	Two lanes crossed, ≥ 50 km/h	F
West Approach	Curbside Bike Lane	Right Turn Lane Characteristics	Shared through/right turn lane	A
		Left Turn Accommodation	Two lanes crossed, ≥ 50 km/h	F
Innes Road/473m East of Pagé Road				
North Approach	Mixed Traffic	Right Turn Lane Characteristics	Shared through/right turn lane	A
		Left Turn Accommodation	No lanes crossed, ≤ 50 km/h	B
South Approach	Mixed Traffic	Right Turn Lane Characteristics	Shared through/right turn lane	A
		Left Turn Accommodation	No lanes crossed, ≥ 60 km/h	D
East Approach	Curbside Bike Lane	Right Turn Lane Characteristics	Shared through/right turn lane	A
		Left Turn Accommodation	Two lanes crossed, ≥ 50 km/h	F
West Approach	Curbside Bike Lane	Right Turn Lane Characteristics	Shared through/right turn lane	A
		Left Turn Accommodation	Two lanes crossed, ≥ 50 km/h	F

Table 5: TLOS Intersection Analysis

Approach	Delay ⁽¹⁾		TLOS
	AM Peak	PM Peak	
Innes Road/Orléans Boulevard			
North Approach	114 sec	35 sec	F
South Approach	31 sec	22 sec	E
East Approach	37 sec	42 sec	F
West Approach	43 sec	53 sec	F
Innes Road/Pagé Road			
East Approach	7 sec	17 sec	C
West Approach	6 sec	5 sec	B
Innes Road/473m East of Pagé Road			
East Approach	6 sec	4 sec	B
West Approach	2 sec	2 sec	B

1. Delay based on outputs from Synchro analysis of existing conditions

Table 6: TkLOS Intersection Analysis

























Approach	Effective Corner Radius	Number of Receiving Lanes Departing Intersection	TkLOS
Innes Road/Orléans Boulevard			
North Approach	> 15m	3	A
South Approach	> 15m	2	A
East Approach	> 15m	2	A
West Approach	> 15m	2	A
Innes Road/Pagé Road			
East Approach	10m to 15m	1	E
West Approach	10m to 15m	1	E
Innes Road/473m East of Pagé Road			
East Approach	< 10m	1	F
West Approach	> 15m	1	C

APPENDIX N

Total Synchro Analysis













1: Orleans & Innes
AM Peak Hour

3437-3443 Innes Road
2023 Total Traffic

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	122	372	23	26	1263	154	205	262	45	71	101	464
Future Volume (vph)	122	372	23	26	1263	154	205	262	45	71	101	464
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	140.0		80.0	105.0		60.0	50.0		50.0	55.0		60.0
Storage Lanes	2		1	1		1	1		1	1		1
Taper Length (m)	40.0			40.0			10.0			20.0		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	1.00		0.96	0.98		0.97	0.99		0.94	0.97		0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	2995	3144	1473	1572	3357	1502	1712	3357	1502	1679	3357	1532
Flt Permitted	0.950			0.950			0.549			0.590		
Satd. Flow (perm)	2985	3144	1416	1546	3357	1462	983	3357	1413	1008	3357	1500
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			143			143			82			165
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		264.5			392.4			387.7			301.9	
Travel Time (s)		15.9			23.5			27.9			21.7	
Confl. Peds. (#/hr)	6		14	14		6	6		32	32		6
Confl. Bikes (#/hr)						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
Heavy Vehicles (%)	12%	10%	5%	10%	3%	3%	1%	3%	3%	3%	3%	1%
Adj. Flow (vph)	122	372	23	26	1263	154	205	262	45	71	101	464
Shared Lane Traffic (%)												
Lane Group Flow (vph)	122	372	23	26	1263	154	205	262	45	71	101	464
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA
Median Width(m)		9.0			7.4			6.0			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	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	18.6	93.0	18.6	18.6	93.0	18.6	18.6	93.0	18.6	18.6	93.0	18.6
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	18.6	5.5	18.6	18.6	5.5	18.6	18.6	5.5	18.6	18.6	5.5	18.6
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	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		87.5			87.5			87.5			87.5	
Detector 2 Size(m)		5.5			5.5			5.5			5.5	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases			2			6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	8	4	4	4

1: Orleans & Innes
AM Peak Hour

3437-3443 Innes Road
2023 Total Traffic

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.6	26.2	26.2	11.2	26.2	26.2	11.7	32.7	32.7	32.7	32.7	32.7
Total Split (s)	13.0	65.0	65.0	13.0	65.0	65.0	19.0	52.0	52.0	33.0	33.0	33.0
Total Split (%)	10.0%	50.0%	50.0%	10.0%	50.0%	50.0%	14.6%	40.0%	40.0%	25.4%	25.4%	25.4%
Maximum Green (s)	6.4	58.8	58.8	6.8	58.8	58.8	12.3	45.3	45.3	26.3	26.3	26.3
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.9	2.5	2.5	2.5	2.5	2.5	3.4	3.4	3.4	3.4	3.4	3.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.2	6.2	6.2	6.2	6.2	6.7	6.7	6.7	6.7	6.7	6.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		13.0	13.0		13.0	13.0		19.0	19.0	19.0	19.0	19.0
Pedestrian Calls (#/hr)		14	14		6	6		32	32	6	6	6
Act Effct Green (s)	6.4	64.0	64.0	6.5	58.8	58.8	45.3	45.3	45.3	26.5	26.5	26.5
Actuated g/C Ratio	0.05	0.49	0.49	0.05	0.45	0.45	0.35	0.35	0.35	0.20	0.20	0.20
v/c Ratio	0.83	0.24	0.03	0.33	0.83	0.21	0.50	0.22	0.08	0.35	0.15	1.06
Control Delay	100.6	20.5	0.1	71.2	37.2	4.7	36.4	30.6	1.3	50.1	43.3	92.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	100.6	20.5	0.1	71.2	37.2	4.7	36.4	30.6	1.3	50.1	43.3	92.1
LOS	F	C	A	E	D	A	D	C	A	D	D	F
Approach Delay		38.5			34.4			30.3			79.7	
Approach LOS		D			C			C			E	
Queue Length 50th (m)	15.0	28.1	0.0	6.0	135.1	1.4	35.7	22.8	0.0	14.5	10.4	~87.8
Queue Length 95th (m)	#30.8	38.2	0.0	15.0	163.1	12.5	54.8	32.6	1.7	28.4	17.7	#148.0
Internal Link Dist (m)		240.5			368.4			363.7			277.9	
Turn Bay Length (m)	140.0		80.0	105.0		60.0	50.0		50.0	55.0		60.0
Base Capacity (vph)	147	1548	769	82	1518	739	411	1169	545	205	685	437
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.24	0.03	0.32	0.83	0.21	0.50	0.22	0.08	0.35	0.15	1.06

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 99 (76%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 95

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.06

Intersection Signal Delay: 43.7

Intersection LOS: D

Intersection Capacity Utilization 96.1%

ICU Level of Service F

Analysis Period (min) 15

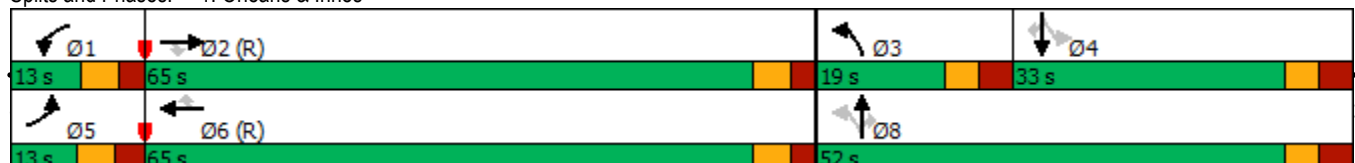
~ Volume exceeds capacity, queue is theoretically infinite.



















Queue shown is maximum after two cycles.













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

Queue shown is maximum after two cycles.

Splits and Phases: 1: Orleans & Innes



												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	421	21	37	1255	20	14	12	38	34	9	43
Future Volume (vph)	12	421	21	37	1255	20	14	12	38	34	9	43
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		0.0	100.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	35.0			0.0			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		0.99	1.00			0.99			0.99	
Frt		0.993			0.998			0.920			0.932	
Flt Protected	0.950			0.950				0.989			0.981	
Satd. Flow (prot)	1586	3123	0	1503	3348	0	0	1568	0	0	1596	0
Flt Permitted	0.187			0.496				0.922			0.851	
Satd. Flow (perm)	312	3123	0	780	3348	0	0	1458	0	0	1384	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8			3			38			41	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		99.1			238.6			212.5			113.3	
Travel Time (s)		5.9			14.3			19.1			10.2	
Confl. Peds. (#/hr)	4		7	7		4	11					11
Confl. Bikes (#/hr)			1						1			1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	9%	10%	5%	15%	3%	5%	1%	15%	3%	1%	10%	3%
Adj. Flow (vph)	12	421	21	37	1255	20	14	12	38	34	9	43
Shared Lane Traffic (%)												
Lane Group Flow (vph)	12	442	0	37	1275	0	0	64	0	0	86	0
Enter Blocked Intersection	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	L NA	Left	R NA	L NA	Left	R NA
Median Width(m)		5.0			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		10.0			10.0			5.0			5.0	
Two way Left Turn Lane					Yes							
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	18.6	93.0		18.6	93.0		18.6	93.0		18.6	93.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	18.6	5.5		18.6	5.5		18.6	5.5		18.6	5.5	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		87.5			87.5			87.5			87.5	
Detector 2 Size(m)		5.5			5.5			5.5			5.5	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	39.2	39.2		39.2	39.2		37.8	37.8		37.8	37.8	
Total Split (s)	82.0	82.0		82.0	82.0		38.0	38.0		38.0	38.0	
Total Split (%)	68.3%	68.3%		68.3%	68.3%		31.7%	31.7%		31.7%	31.7%	
Maximum Green (s)	75.8	75.8		75.8	75.8		31.2	31.2		31.2	31.2	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.5	2.5		2.5	2.5		3.8	3.8		3.8	3.8	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	6.2	6.2		6.2	6.2			6.8			6.8	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	15.0	15.0		15.0	15.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	18.0	18.0		18.0	18.0		24.0	24.0		24.0	24.0	
Pedestrian Calls (#/hr)	7	7		4	4		1	1		11	11	
Act Effct Green (s)	88.6	88.6		88.6	88.6			18.4			18.4	
Actuated g/C Ratio	0.74	0.74		0.74	0.74			0.15			0.15	
v/c Ratio	0.05	0.19		0.06	0.52			0.25			0.35	
Control Delay	8.1	6.2		4.6	6.5			21.2			26.5	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	8.1	6.2		4.6	6.5			21.2			26.5	
LOS	A	A		A	A			C			C	
Approach Delay		6.2			6.5			21.2			26.5	
Approach LOS		A			A			C			C	
Queue Length 50th (m)	0.4	8.7		1.3	35.8			5.4			9.4	
Queue Length 95th (m)	3.3	26.5		1.6	14.9			14.4			19.8	
Internal Link Dist (m)		75.1			214.6			188.5			89.3	
Turn Bay Length (m)				100.0								
Base Capacity (vph)	230	2307		576	2472			407			390	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.05	0.19		0.06	0.52			0.16			0.22	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 26 (22%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.52

Intersection Signal Delay: 7.8

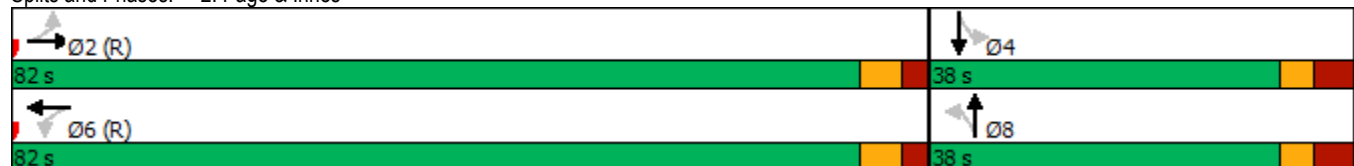
Intersection LOS: A







Intersection Capacity Utilization 62.8%




















ICU Level of Service B













Analysis Period (min) 15

Splits and Phases: 2: Page & Innes



						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↓	↑↑	↓	
Traffic Volume (vph)	510	41	48	1216	85	59
Future Volume (vph)	510	41	48	1216	85	59
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0	35.0		0.0	0.0
Storage Lanes		0	1		1	0
Taper Length (m)			20.0		20.0	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Ped Bike Factor						
Frt	0.989				0.945	
Flt Protected			0.950		0.971	
Satd. Flow (prot)	3320	0	1679	3357	1621	0
Flt Permitted			0.950		0.971	
Satd. Flow (perm)	3320	0	1679	3357	1621	0
Link Speed (k/h)	60			60	50	
Link Distance (m)	238.6			236.8	306.6	
Travel Time (s)	14.3			14.2	22.1	
Confl. Peds. (#/hr)		11	11			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	510	41	48	1216	85	59
Shared Lane Traffic (%)						
Lane Group Flow (vph)	551	0	48	1216	144	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	9.0			9.0	9.0	
Two way Left Turn Lane	Yes			Yes		
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization 50.9%	ICU Level of Service A					
Analysis Period (min) 15						

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	449	7	1	1312	4	0	0	1	1	0	3
Future Volume (vph)	6	449	7	1	1312	4	0	0	1	1	0	3
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	30.0		0.0	40.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (m)	20.0			30.0			20.0			20.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00				1.00				0.99		0.99	
Frt		0.998							0.850		0.899	
Flt Protected	0.950			0.950							0.988	
Satd. Flow (prot)	1712	3137	0	1712	3357	0	0	1802	1532	0	1583	0
Flt Permitted	0.199			0.489							0.914	
Satd. Flow (perm)	358	3137	0	881	3357	0	0	1802	1511	0	1464	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			1				463		28	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		236.8			292.8			151.9			62.6	
Travel Time (s)		14.2			17.6			13.7			5.6	
Confl. Peds. (#/hr)	7					7	2		1	1		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%	10%	10%	1%	3%	1%	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	6	449	7	1	1312	4	0	0	1	1	0	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	6	456	0	1	1316	0	0	0	1	0	4	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	L NA	Left	R NA	L NA	Left	R NA
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		9.0			9.0			9.0			9.0	
Two way Left Turn Lane		Yes										
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2	1	1		2
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	18.6	93.0		18.6	93.0		18.6	93.0	18.6	18.6	93.0	
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)	18.6	5.5		18.6	5.5		18.6	5.5	18.6	18.6	5.5	
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)		87.5			87.5			87.5			87.5	
Detector 2 Size(m)		5.5			5.5			5.5			5.5	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA				Perm	Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		
Detector Phase	2	2		6	6		8	8	8	4	4	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	32.1	32.1		35.1	35.1		32.3	32.3	32.3	32.3	32.3	
Total Split (s)	87.0	87.0		87.0	87.0		33.0	33.0	33.0	33.0	33.0	
Total Split (%)	72.5%	72.5%		72.5%	72.5%		27.5%	27.5%	27.5%	27.5%	27.5%	
Maximum Green (s)	80.9	80.9		80.9	80.9		26.7	26.7	26.7	26.7	26.7	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	2.4	2.4		2.4	2.4		3.0	3.0	3.0	3.0	3.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Lost Time (s)	6.1	6.1		6.1	6.1			6.3	6.3		6.3	
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	C-Max	C-Max		C-Max	C-Max		None	None	None	None	None	
Walk Time (s)	12.0	12.0		12.0	12.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	14.0	14.0		14.0	14.0		19.0	19.0	19.0	19.0	19.0	
Pedestrian Calls (#/hr)	1	1		7	7		1	1	1	2	2	
Act Effct Green (s)	112.3	112.3		112.3	112.3				13.2		13.2	
Actuated g/C Ratio	0.94	0.94		0.94	0.94				0.11		0.11	
v/c Ratio	0.02	0.16		0.00	0.42				0.00		0.02	
Control Delay	3.5	1.9		4.0	3.2				0.0		0.2	
Queue Delay	0.0	0.0		0.0	0.0				0.0		0.0	
Total Delay	3.5	1.9		4.0	3.2				0.0		0.2	
LOS	A	A		A	A				A		A	
Approach Delay		1.9			3.2						0.3	
Approach LOS		A			A						A	
Queue Length 50th (m)	0.0	0.0		0.0	0.0				0.0		0.0	
Queue Length 95th (m)	1.5	21.2		0.6	87.6				0.0		0.0	
Internal Link Dist (m)		212.8			268.8			127.9			38.6	
Turn Bay Length (m)	30.0			40.0								
Base Capacity (vph)	335	2936		825	3142				696		347	
Starvation Cap Reductn	0	0		0	0				0		0	
Spillback Cap Reductn	0	0		0	0				0		0	
Storage Cap Reductn	0	0		0	0				0		0	
Reduced v/c Ratio	0.02	0.16		0.00	0.42				0.00		0.01	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.42

Intersection Signal Delay: 2.8

Intersection LOS: A

Intersection Capacity Utilization 57.9%

ICU Level of Service B










Analysis Period (min) 15










Splits and Phases: 4: 473 E of Page & Innes



5: Innes & Site Access
AM Peak Hour

























3437-3443 Innes Road
2023 Total Traffic

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	10	450	1310	3	4	16
Future Volume (vph)	10	450	1310	3	4	16
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	10.0			0.0	0.0	0.0
Storage Lanes	1			0	1	0
Taper Length (m)	20.0				20.0	
Lane Util. Factor	0.91	0.91	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt					0.892	
Flt Protected		0.999			0.990	
Satd. Flow (prot)	0	4819	3357	0	1560	0
Flt Permitted		0.999			0.990	
Satd. Flow (perm)	0	4819	3357	0	1560	0
Link Speed (k/h)		60	60		60	
Link Distance (m)		392.4	99.1		75.1	
Travel Time (s)		23.5	5.9		4.5	
Confl. Peds. (#/hr)	10			10		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	10	450	1310	3	4	16
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	460	1313	0	20	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		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		9.0	9.0		9.0	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	48.3%			ICU Level of Service A		
Analysis Period (min)	15					

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	1	2	2	42	84	1
Future Volume (vph)	1	2	2	42	84	1
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	0.910				0.998	
Flt Protected	0.984			0.998		
Satd. Flow (prot)	1582	0	0	1763	1763	0
Flt Permitted	0.984			0.998		
Satd. Flow (perm)	1582	0	0	1763	1763	0
Link Speed (k/h)	60			60	40	
Link Distance (m)	75.6			113.3	160.2	
Travel Time (s)	4.5			6.8	14.4	
Confl. Peds. (#/hr)			10			10
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1	2	2	42	84	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	3	0	0	44	85	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	9.0			9.0	9.0	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization 17.2%	ICU Level of Service A					
Analysis Period (min) 15						













1: Orleans & Innes
PM Peak Hour

3437-3443 Innes Road
2023 Total Traffic

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	585	1472	160	62	576	120	65	227	88	172	243	205
Future Volume (vph)	585	1472	160	62	576	120	65	227	88	172	243	205
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	140.0		80.0	105.0		60.0	50.0		50.0	55.0		60.0
Storage Lanes	2		1	1		1	1		1	1		1
Taper Length (m)	40.0			40.0			10.0			20.0		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	0.99		0.95	1.00		0.97	0.99		0.97	0.98		0.97
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3288	3357	1532	1712	3293	1517	1712	3390	1532	1712	3390	1532
Flt Permitted	0.950			0.950			0.466			0.610		
Satd. Flow (perm)	3260	3357	1456	1704	3293	1477	830	3390	1479	1081	3390	1485
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			165			230			159			225
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		264.5			392.4			387.7			301.9	
Travel Time (s)		15.9			23.5			27.9			21.7	
Confl. Peds. (#/hr)	7		22	22		7	15		18	18		15
Confl. Bikes (#/hr)			4			3						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	3%	1%	1%	5%	2%	1%	2%	1%	1%	2%	1%
Adj. Flow (vph)	585	1472	160	62	576	120	65	227	88	172	243	205
Shared Lane Traffic (%)												
Lane Group Flow (vph)	585	1472	160	62	576	120	65	227	88	172	243	205
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA
Median Width(m)		9.0			7.4			6.0			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	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	18.6	93.0	18.6	18.6	93.0	18.6	18.6	93.0	18.6	18.6	93.0	18.6
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	18.6	5.5	18.6	18.6	5.5	18.6	18.6	5.5	18.6	18.6	5.5	18.6
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	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		87.5			87.5			87.5			87.5	
Detector 2 Size(m)		5.5			5.5			5.5			5.5	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases			2			6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	8	4	4	4

1: Orleans & Innes
PM Peak Hour

3437-3443 Innes Road
2023 Total Traffic

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.6	26.2	26.2	11.2	26.2	26.2	11.7	32.7	32.7	32.7	32.7	32.7
Total Split (s)	31.0	49.0	49.0	16.0	34.0	34.0	12.0	45.0	45.0	33.0	33.0	33.0
Total Split (%)	28.2%	44.5%	44.5%	14.5%	30.9%	30.9%	10.9%	40.9%	40.9%	30.0%	30.0%	30.0%
Maximum Green (s)	24.4	42.8	42.8	9.8	27.8	27.8	5.3	38.3	38.3	26.3	26.3	26.3
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.9	2.5	2.5	2.5	2.5	2.5	3.4	3.4	3.4	3.4	3.4	3.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.2	6.2	6.2	6.2	6.2	6.7	6.7	6.7	6.7	6.7	6.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		13.0	13.0		13.0	13.0		19.0	19.0	19.0	19.0	19.0
Pedestrian Calls (#/hr)		22	22		7	7		18	18	15	15	15
Act Efft Green (s)	23.0	52.1	52.1	8.5	34.8	34.8	32.7	32.7	32.7	23.1	23.1	23.1
Actuated g/C Ratio	0.21	0.47	0.47	0.08	0.32	0.32	0.30	0.30	0.30	0.21	0.21	0.21
v/c Ratio	0.85	0.93	0.21	0.47	0.55	0.19	0.22	0.23	0.16	0.76	0.34	0.42
Control Delay	54.8	42.0	3.9	55.5	44.8	9.1	27.1	28.1	0.6	61.5	37.5	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.8	42.0	3.9	55.5	44.8	9.1	27.1	28.1	0.6	61.5	37.5	6.2
LOS	D	D	A	E	D	A	C	C	A	E	D	A
Approach Delay		42.6			40.0			21.6			33.8	
Approach LOS		D			D			C			C	
Queue Length 50th (m)	56.8	~176.1	0.0	10.1	44.3	0.5	8.7	16.3	0.0	30.9	20.7	0.0
Queue Length 95th (m)	#75.5	#216.4	10.9	26.0	80.3	19.3	17.6	24.7	0.0	#56.4	31.1	13.0
Internal Link Dist (m)		240.5			368.4			363.7			277.9	
Turn Bay Length (m)	140.0		80.0	105.0		60.0	50.0		50.0	55.0		60.0
Base Capacity (vph)	729	1589	776	152	1042	624	289	1180	618	258	810	526
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.80	0.93	0.21	0.41	0.55	0.19	0.22	0.19	0.14	0.67	0.30	0.39

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 38.7

Intersection LOS: D

Intersection Capacity Utilization 93.0%

ICU Level of Service F

Analysis Period (min) 15

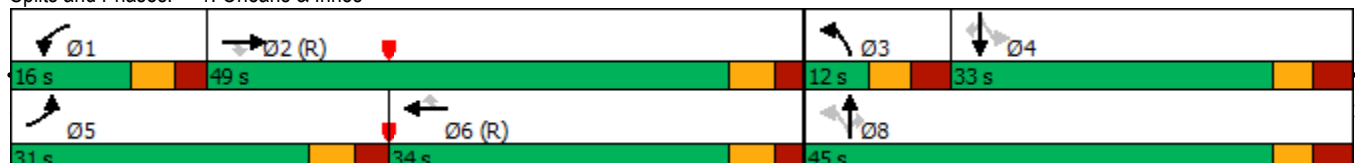
~ Volume exceeds capacity, queue is theoretically infinite.



















Queue shown is maximum after two cycles.













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

Queue shown is maximum after two cycles.

Splits and Phases: 1: Orleans & Innes



												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	1465	30	93	639	64	23	7	77	54	18	36
Future Volume (vph)	63	1465	30	93	639	64	23	7	77	54	18	36
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		0.0	100.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	35.0			0.0			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	1.00		1.00	1.00			0.98			0.99	
Frt		0.997			0.986			0.903			0.955	
Flt Protected	0.950			0.950				0.989			0.976	
Satd. Flow (prot)	1695	3375	0	1695	3245	0	0	1544	0	0	1579	0
Flt Permitted	0.374			0.133				0.918			0.790	
Satd. Flow (perm)	664	3375	0	237	3245	0	0	1431	0	0	1270	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			17			39			23	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		99.1			238.6			212.5			113.3	
Travel Time (s)		5.9			14.3			19.1			10.2	
Confl. Peds. (#/hr)	9		5	5		9	5		13	13		5
Confl. Bikes (#/hr)			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 (%)	2%	2%	6%	2%	5%	2%	5%	1%	3%	6%	1%	11%
Adj. Flow (vph)	63	1465	30	93	639	64	23	7	77	54	18	36
Shared Lane Traffic (%)												
Lane Group Flow (vph)	63	1495	0	93	703	0	0	107	0	0	108	0
Enter Blocked Intersection	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	L NA	Left	R NA	L NA	Left	R NA
Median Width(m)		5.0			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		10.0			10.0			5.0			5.0	
Two way Left Turn Lane					Yes							
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	18.6	93.0		18.6	93.0		18.6	93.0		18.6	93.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	18.6	5.5		18.6	5.5		18.6	5.5		18.6	5.5	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		87.5			87.5			87.5			87.5	
Detector 2 Size(m)		5.5			5.5			5.5			5.5	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	39.2	39.2		39.2	39.2		37.8	37.8		37.8	37.8	
Total Split (s)	72.0	72.0		72.0	72.0		38.0	38.0		38.0	38.0	
Total Split (%)	65.5%	65.5%		65.5%	65.5%		34.5%	34.5%		34.5%	34.5%	
Maximum Green (s)	65.8	65.8		65.8	65.8		31.2	31.2		31.2	31.2	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.5	2.5		2.5	2.5		3.8	3.8		3.8	3.8	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	6.2	6.2		6.2	6.2			6.8			6.8	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	15.0	15.0		15.0	15.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	18.0	18.0		18.0	18.0		24.0	24.0		24.0	24.0	
Pedestrian Calls (#/hr)	5	5		9	9		13	13		5	5	
Act Effct Green (s)	78.1	78.1		78.1	78.1			18.9			18.9	
Actuated g/C Ratio	0.71	0.71		0.71	0.71			0.17			0.17	
v/c Ratio	0.13	0.62		0.55	0.30			0.38			0.46	
Control Delay	2.7	4.3		34.3	10.6			27.1			35.4	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	2.7	4.3		34.3	10.6			27.1			35.4	
LOS	A	A		C	B			C			D	
Approach Delay		4.2			13.4			27.1			35.4	
Approach LOS		A			B			C			D	
Queue Length 50th (m)	1.1	17.3		5.7	17.0			12.7			16.2	
Queue Length 95th (m)	m1.9	m22.0		#37.5	71.8			23.1			26.6	
Internal Link Dist (m)		75.1			214.6			188.5			89.3	
Turn Bay Length (m)				100.0								
Base Capacity (vph)	471	2395		168	2307			433			376	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.13	0.62		0.55	0.30			0.25			0.29	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 2 (2%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.62

Intersection Signal Delay: 9.3

Intersection LOS: A

Intersection Capacity Utilization 83.3%

ICU Level of Service E

Analysis Period (min) 15







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




















Queue shown is maximum after two cycles.













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

Splits and Phases: 2: Page & Innes



						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↓	↑↑	↓	
Traffic Volume (vph)	1446	105	60	840	86	48
Future Volume (vph)	1446	105	60	840	86	48
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0	35.0		0.0	0.0
Storage Lanes		0	1		1	0
Taper Length (m)			20.0		20.0	
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00
Ped Bike Factor						
Frt	0.990				0.952	
Flt Protected			0.950		0.969	
Satd. Flow (prot)	3324	0	1679	3357	1630	0
Flt Permitted			0.950		0.969	
Satd. Flow (perm)	3324	0	1679	3357	1630	0
Link Speed (k/h)	60			60	50	
Link Distance (m)	238.6			236.8	281.6	
Travel Time (s)	14.3			14.2	20.3	
Confl. Peds. (#/hr)		6	6			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1446	105	60	840	86	48
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1551	0	60	840	134	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	9.0			9.0	9.0	
Two way Left Turn Lane	Yes			Yes		
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization 67.4%	ICU Level of Service C					
Analysis Period (min) 15						

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	1619	26	27	830	8	27	0	33	4	0	10
Future Volume (vph)	8	1619	26	27	830	8	27	0	33	4	0	10
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	30.0		0.0	40.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (m)	20.0			30.0			20.0			20.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00						1.00			0.99	
Frt		0.998			0.999				0.850		0.904	
Flt Protected	0.950			0.950				0.950			0.986	
Satd. Flow (prot)	1712	3383	0	1712	3323	0	0	1712	1381	0	1588	0
Flt Permitted	0.330			0.122				0.748			0.919	
Satd. Flow (perm)	595	3383	0	220	3323	0	0	1343	1381	0	1480	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			2				33		31	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		236.8			292.8			151.9			62.6	
Travel Time (s)		14.2			17.6			13.7			5.6	
Confl. Peds. (#/hr)			2	2			3					3
Confl. Bikes (#/hr)			1									
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	2%	1%	1%	4%	1%	1%	1%	12%	1%	1%	1%
Adj. Flow (vph)	8	1619	26	27	830	8	27	0	33	4	0	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	8	1645	0	27	838	0	0	27	33	0	14	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	L NA	Left	R NA	L NA	Left	R NA
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		9.0			9.0			9.0			9.0	
Two way Left Turn Lane		Yes										
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	18.6	93.0		18.6	93.0		18.6	93.0	18.6	18.6	93.0	
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)	18.6	5.5		18.6	5.5		18.6	5.5	18.6	18.6	5.5	
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)		87.5			87.5			87.5			87.5	
Detector 2 Size(m)		5.5			5.5			5.5			5.5	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		
Detector Phase	2	2		6	6		8	8	8	4	4	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	32.1	32.1		35.1	35.1		32.3	32.3	32.3	32.3	32.3	
Total Split (s)	77.0	77.0		77.0	77.0		33.0	33.0	33.0	33.0	33.0	
Total Split (%)	70.0%	70.0%		70.0%	70.0%		30.0%	30.0%	30.0%	30.0%	30.0%	
Maximum Green (s)	70.9	70.9		70.9	70.9		26.7	26.7	26.7	26.7	26.7	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	2.4	2.4		2.4	2.4		3.0	3.0	3.0	3.0	3.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Lost Time (s)	6.1	6.1		6.1	6.1			6.3	6.3		6.3	
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	C-Max	C-Max		C-Max	C-Max		None	None	None	None	None	
Walk Time (s)	12.0	12.0		12.0	12.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	14.0	14.0		14.0	14.0		19.0	19.0	19.0	19.0	19.0	
Pedestrian Calls (#/hr)	2	2		1	1		1	1	1	3	3	
Act Effct Green (s)	88.9	88.9		88.9	88.9			13.2	13.2		13.2	
Actuated g/C Ratio	0.81	0.81		0.81	0.81			0.12	0.12		0.12	
v/c Ratio	0.02	0.60		0.15	0.31			0.17	0.17		0.07	
Control Delay	1.9	3.1		7.5	4.6			43.1	14.4		4.6	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay	1.9	3.1		7.5	4.6			43.1	14.4		4.6	
LOS	A	A		A	A			D	B		A	
Approach Delay		3.1			4.7			27.3			4.6	
Approach LOS		A			A			C			A	
Queue Length 50th (m)	0.1	25.6		1.0	18.7			5.0	0.0		0.0	
Queue Length 95th (m)	m0.3	39.5		6.2	47.3			10.9	7.1		2.0	
Internal Link Dist (m)		212.8			268.8			127.9			38.6	
Turn Bay Length (m)	30.0			40.0								
Base Capacity (vph)	480	2734		178	2685			325	360		382	
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	0.02	0.60		0.15	0.31			0.08	0.09		0.04	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 36 (33%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.60

Intersection Signal Delay: 4.2

Intersection LOS: A

Intersection Capacity Utilization 81.6%

ICU Level of Service D

Analysis Period (min) 15










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










Splits and Phases: 4: 473 E of Page & Innes



5: Innes & Site Access
PM Peak Hour

























3437-3443 Innes Road
2023 Total Traffic

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	20	1552	692	7	7	18
Future Volume (vph)	20	1552	692	7	7	18
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	10.0			0.0	0.0	0.0
Storage Lanes	1			0	1	0
Taper Length (m)	20.0				20.0	
Lane Util. Factor	0.91	0.91	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt			0.998		0.903	
Flt Protected		0.999			0.986	
Satd. Flow (prot)	0	4819	3351	0	1573	0
Flt Permitted		0.999			0.986	
Satd. Flow (perm)	0	4819	3351	0	1573	0
Link Speed (k/h)		60	60		60	
Link Distance (m)		392.4	99.1		67.6	
Travel Time (s)		23.5	5.9		4.1	
Confl. Peds. (#/hr)	10			10		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	20	1552	692	7	7	18
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1572	699	0	25	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		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		9.0	9.0		9.0	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization 56.4%	ICU Level of Service B					
Analysis Period (min) 15						

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	1	4	3	131	104	2
Future Volume (vph)	1	4	3	131	104	2
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.892				0.997	
Flt Protected	0.990			0.999		
Satd. Flow (prot)	1560	0	0	1765	1762	0
Flt Permitted	0.990			0.999		
Satd. Flow (perm)	1560	0	0	1765	1762	0
Link Speed (k/h)	60			60	40	
Link Distance (m)	82.5			113.3	151.9	
Travel Time (s)	5.0			6.8	13.7	
Confl. Peds. (#/hr)			10			10
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1	4	3	131	104	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	5	0	0	134	106	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	9.0			9.0	9.0	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization 19.8%	ICU Level of Service A					
Analysis Period (min) 15						













1: Orleans & Innes
AM Peak Hour

3437-3443 Innes Road
2028 Total Traffic

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	128	475	24	27	1506	162	215	275	48	74	106	487
Future Volume (vph)	128	475	24	27	1506	162	215	275	48	74	106	487
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	140.0		80.0	105.0		60.0	50.0		50.0	55.0		60.0
Storage Lanes	2		1	1		1	1		1	1		1
Taper Length (m)	40.0			40.0			10.0			20.0		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	1.00		0.96	0.99		0.97	0.99		0.94	0.97		0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	2995	3144	1473	1572	3357	1502	1712	3357	1502	1679	3357	1532
Flt Permitted	0.950			0.950			0.546			0.583		
Satd. Flow (perm)	2988	3144	1416	1550	3357	1462	977	3357	1413	996	3357	1500
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			143			143			82			152
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		264.5			392.4			387.7			301.9	
Travel Time (s)		15.9			23.5			27.9			21.7	
Confl. Peds. (#/hr)	6		14	14		6	6		32	32		6
Confl. Bikes (#/hr)						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
Heavy Vehicles (%)	12%	10%	5%	10%	3%	3%	1%	3%	3%	3%	3%	1%
Adj. Flow (vph)	128	475	24	27	1506	162	215	275	48	74	106	487
Shared Lane Traffic (%)												
Lane Group Flow (vph)	128	475	24	27	1506	162	215	275	48	74	106	487
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA
Median Width(m)		9.0			7.4			6.0			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	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	18.6	93.0	18.6	18.6	93.0	18.6	18.6	93.0	18.6	18.6	93.0	18.6
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	18.6	5.5	18.6	18.6	5.5	18.6	18.6	5.5	18.6	18.6	5.5	18.6
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	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		87.5			87.5			87.5			87.5	
Detector 2 Size(m)		5.5			5.5			5.5			5.5	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases			2			6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	8	4	4	4

1: Orleans & Innes
AM Peak Hour

3437-3443 Innes Road
2028 Total Traffic

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.6	26.2	26.2	11.2	26.2	26.2	11.7	32.7	32.7	32.7	32.7	32.7
Total Split (s)	13.0	65.0	65.0	13.0	65.0	65.0	19.0	52.0	52.0	33.0	33.0	33.0
Total Split (%)	10.0%	50.0%	50.0%	10.0%	50.0%	50.0%	14.6%	40.0%	40.0%	25.4%	25.4%	25.4%
Maximum Green (s)	6.4	58.8	58.8	6.8	58.8	58.8	12.3	45.3	45.3	26.3	26.3	26.3
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.9	2.5	2.5	2.5	2.5	2.5	3.4	3.4	3.4	3.4	3.4	3.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.2	6.2	6.2	6.2	6.2	6.7	6.7	6.7	6.7	6.7	6.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		13.0	13.0		13.0	13.0		19.0	19.0	19.0	19.0	19.0
Pedestrian Calls (#/hr)		14	14		6	6		32	32	6	6	6
Act Effct Green (s)	6.4	64.0	64.0	6.5	58.8	58.8	45.3	45.3	45.3	26.4	26.4	26.4
Actuated g/C Ratio	0.05	0.49	0.49	0.05	0.45	0.45	0.35	0.35	0.35	0.20	0.20	0.20
v/c Ratio	0.87	0.31	0.03	0.35	0.99	0.22	0.53	0.24	0.09	0.37	0.16	1.15
Control Delay	107.2	21.4	0.1	71.9	56.8	5.2	37.1	30.7	1.8	50.8	43.4	121.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	107.2	21.4	0.1	71.9	56.8	5.2	37.1	30.7	1.8	50.8	43.4	121.5
LOS	F	C	A	E	E	A	D	C	A	D	D	F
Approach Delay		38.1			52.1			30.7			101.3	
Approach LOS		D			D			C			F	
Queue Length 50th (m)	15.7	37.3	0.0	6.3	182.4	2.5	37.6	24.1	0.0	15.2	10.9	~104.5
Queue Length 95th (m)	#32.6	49.3	0.0	15.5	#231.8	13.9	57.5	34.2	2.3	29.2	18.5	#165.7
Internal Link Dist (m)		240.5			368.4			363.7			277.9	
Turn Bay Length (m)	140.0		80.0	105.0		60.0	50.0		50.0	55.0		60.0
Base Capacity (vph)	147	1548	769	82	1518	739	409	1169	545	202	683	425
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.87	0.31	0.03	0.33	0.99	0.22	0.53	0.24	0.09	0.37	0.16	1.15

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 99 (76%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 125

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.15

Intersection Signal Delay: 55.6

Intersection LOS: E

Intersection Capacity Utilization 105.3%

ICU Level of Service G

Analysis Period (min) 15

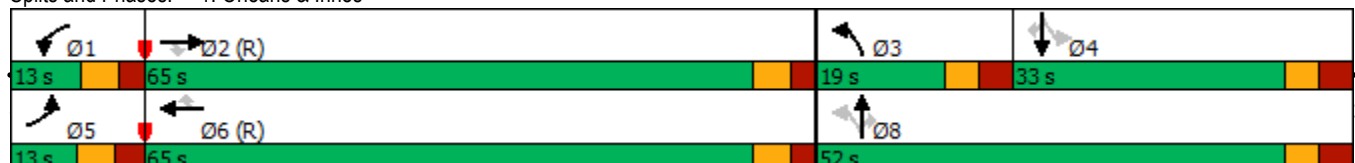
~ Volume exceeds capacity, queue is theoretically infinite.



















Queue shown is maximum after two cycles.













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

Queue shown is maximum after two cycles.

Splits and Phases: 1: Orleans & Innes



												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	526	21	37	1498	20	14	12	38	34	9	43
Future Volume (vph)	12	526	21	37	1498	20	14	12	38	34	9	43
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		0.0	100.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	35.0			0.0			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		0.99	1.00			0.99			0.99	
Frt		0.994			0.998			0.920			0.932	
Flt Protected	0.950			0.950				0.989			0.981	
Satd. Flow (prot)	1586	3126	0	1503	3349	0	0	1568	0	0	1596	0
Flt Permitted	0.134			0.448				0.922			0.851	
Satd. Flow (perm)	224	3126	0	705	3349	0	0	1458	0	0	1384	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			2			38			41	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		99.1			238.6			212.5			113.3	
Travel Time (s)		5.9			14.3			19.1			10.2	
Confl. Peds. (#/hr)	4		7	7		4	11					11
Confl. Bikes (#/hr)			1						1			1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	9%	10%	5%	15%	3%	5%	1%	15%	3%	1%	10%	3%
Adj. Flow (vph)	12	526	21	37	1498	20	14	12	38	34	9	43
Shared Lane Traffic (%)												
Lane Group Flow (vph)	12	547	0	37	1518	0	0	64	0	0	86	0
Enter Blocked Intersection	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	L NA	Left	R NA	L NA	Left	R NA
Median Width(m)		5.0			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		10.0			10.0			5.0			5.0	
Two way Left Turn Lane					Yes							
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	18.6	93.0		18.6	93.0		18.6	93.0		18.6	93.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	18.6	5.5		18.6	5.5		18.6	5.5		18.6	5.5	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		87.5			87.5			87.5			87.5	
Detector 2 Size(m)		5.5			5.5			5.5			5.5	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	39.2	39.2		39.2	39.2		37.8	37.8		37.8	37.8	
Total Split (s)	82.0	82.0		82.0	82.0		38.0	38.0		38.0	38.0	
Total Split (%)	68.3%	68.3%		68.3%	68.3%		31.7%	31.7%		31.7%	31.7%	
Maximum Green (s)	75.8	75.8		75.8	75.8		31.2	31.2		31.2	31.2	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.5	2.5		2.5	2.5		3.8	3.8		3.8	3.8	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	6.2	6.2		6.2	6.2			6.8			6.8	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	15.0	15.0		15.0	15.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	18.0	18.0		18.0	18.0		24.0	24.0		24.0	24.0	
Pedestrian Calls (#/hr)	7	7		4	4		1	1		11	11	
Act Effct Green (s)	88.6	88.6		88.6	88.6			18.4			18.4	
Actuated g/C Ratio	0.74	0.74		0.74	0.74			0.15			0.15	
v/c Ratio	0.07	0.24		0.07	0.61			0.25			0.35	
Control Delay	8.8	6.5		2.2	4.5			21.2			26.5	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	8.8	6.5		2.2	4.5			21.2			26.5	
LOS	A	A		A	A			C			C	
Approach Delay		6.5			4.4			21.2			26.5	
Approach LOS		A			A			C			C	
Queue Length 50th (m)	0.4	11.4		0.4	12.9			5.4			9.4	
Queue Length 95th (m)	3.5	33.5		m1.4	19.6			14.4			19.8	
Internal Link Dist (m)		75.1			214.6			188.5			89.3	
Turn Bay Length (m)				100.0								
Base Capacity (vph)	165	2310		520	2473			407			390	
Starvation Cap Reductn	0	0		0	9			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.07	0.24		0.07	0.62			0.16			0.22	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 26 (22%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.61

Intersection Signal Delay: 6.3

Intersection LOS: A

Intersection Capacity Utilization 69.9%

ICU Level of Service C

Analysis Period (min) 15







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

Splits and Phases: 2: Page & Innes



3: Lamarche & Innes
AM Peak Hour

3437-3443 Innes Road
2028 Total Traffic

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	
Traffic Volume (vph)	571	90	132	1394	150	135
Future Volume (vph)	571	90	132	1394	150	135
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		50.0	35.0		0.0	0.0
Storage Lanes		1	1		1	0
Taper Length (m)			20.0		20.0	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Ped Bike Factor		0.95	0.99			
Frt		0.850			0.936	
Flt Protected			0.950		0.974	
Satd. Flow (prot)	3357	1502	1679	3357	1611	0
Flt Permitted			0.431		0.974	
Satd. Flow (perm)	3357	1433	753	3357	1611	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		90			38	
Link Speed (k/h)	60			60	50	
Link Distance (m)	238.6			236.8	306.6	
Travel Time (s)	14.3			14.2	22.1	
Confl. Peds. (#/hr)		11	11			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	571	90	132	1394	150	135
Shared Lane Traffic (%)						
Lane Group Flow (vph)	571	90	132	1394	285	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	9.0			9.0	9.0	
Two way Left Turn Lane	Yes			Yes		
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2	1	1	2	1	
Detector Template	Thru	Right	Left	Thru	Left	
Leading Detector (m)	93.0	18.6	18.6	93.0	18.6	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	5.5	18.6	18.6	5.5	18.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)	87.5			87.5		
Detector 2 Size(m)	5.5			5.5		
Detector 2 Type	Cl+Ex			Cl+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	Perm	NA	Prot	
Protected Phases	2			6	8	
Permitted Phases		2	6			
Detector Phase	2	2	6	6	8	
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Minimum Split (s)	31.2	31.2	31.2	31.2	37.3	
Total Split (s)	78.0	78.0	78.0	78.0	42.0	
Total Split (%)	65.0%	65.0%	65.0%	65.0%	35.0%	
Maximum Green (s)	71.8	71.8	71.8	71.8	35.7	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.3	
All-Red Time (s)	2.5	2.5	2.5	2.5	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.2	6.2	6.2	6.2	6.3	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	18.0	18.0	18.0	18.0	24.0	
Pedestrian Calls (#/hr)	10	10	10	10	10	
Act Effct Green (s)	83.4	83.4	83.4	83.4	24.1	
Actuated g/C Ratio	0.70	0.70	0.70	0.70	0.20	
v/c Ratio	0.24	0.09	0.25	0.60	0.81	
Control Delay	6.7	1.3	4.8	7.2	56.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	6.7	1.3	4.8	7.2	56.0	
LOS	A	A	A	A	E	
Approach Delay	5.9			7.0	56.0	
Approach LOS	A			A	E	
Queue Length 50th (m)	18.3	0.0	3.7	84.9	51.9	
Queue Length 95th (m)	26.4	2.5	5.9	32.5	73.4	
Internal Link Dist (m)	214.6			212.8	282.6	
Turn Bay Length (m)		50.0	35.0			
Base Capacity (vph)	2331	1022	522	2331	505	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.24	0.09	0.25	0.60	0.56	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 16 (13%), Referenced to phase 2:EBT and 6:WBTL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 12.3

Intersection LOS: B




















Intersection Capacity Utilization 68.6%













ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 3: Lamarche & Innes



												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	552	38	12	1479	4	99	0	39	1	0	3
Future Volume (vph)	6	552	38	12	1479	4	99	0	39	1	0	3
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	30.0		0.0	40.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (m)	20.0			30.0			20.0			20.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00				1.00			1.00	0.99		0.99	
Frt		0.990							0.850		0.899	
Flt Protected	0.950			0.950				0.950			0.988	
Satd. Flow (prot)	1712	3112	0	1712	3357	0	0	1712	1532	0	1583	0
Flt Permitted	0.147			0.429				0.755			0.942	
Satd. Flow (perm)	265	3112	0	773	3357	0	0	1357	1511	0	1509	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13							39		28	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		236.8			292.8			151.9			62.6	
Travel Time (s)		14.2			17.6			13.7			5.6	
Confl. Peds. (#/hr)	7					7	2		1	1		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%	10%	10%	1%	3%	1%	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	6	552	38	12	1479	4	99	0	39	1	0	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	6	590	0	12	1483	0	0	99	39	0	4	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	L NA	Left	R NA	L NA	Left	R NA
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		9.0			9.0			9.0			9.0	
Two way Left Turn Lane		Yes										
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2	1	1		2
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	18.6	93.0		18.6	93.0		18.6	93.0	18.6	18.6	93.0	
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)	18.6	5.5		18.6	5.5		18.6	5.5	18.6	18.6	5.5	
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)		87.5			87.5			87.5			87.5	
Detector 2 Size(m)		5.5			5.5			5.5			5.5	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		
Detector Phase	2	2		6	6		8	8	8	4	4	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	32.1	32.1		35.1	35.1		32.3	32.3	32.3	32.3	32.3	
Total Split (s)	87.0	87.0		87.0	87.0		33.0	33.0	33.0	33.0	33.0	
Total Split (%)	72.5%	72.5%		72.5%	72.5%		27.5%	27.5%	27.5%	27.5%	27.5%	
Maximum Green (s)	80.9	80.9		80.9	80.9		26.7	26.7	26.7	26.7	26.7	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	2.4	2.4		2.4	2.4		3.0	3.0	3.0	3.0	3.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Lost Time (s)	6.1	6.1		6.1	6.1			6.3	6.3		6.3	
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	C-Max	C-Max		C-Max	C-Max		None	None	None	None	None	
Walk Time (s)	12.0	12.0		12.0	12.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	14.0	14.0		14.0	14.0		19.0	19.0	19.0	19.0	19.0	
Pedestrian Calls (#/hr)	1	1		7	7		1	1	1	2	2	
Act Effct Green (s)	92.0	92.0		92.0	92.0			15.6	15.6		15.6	
Actuated g/C Ratio	0.77	0.77		0.77	0.77			0.13	0.13		0.13	
v/c Ratio	0.03	0.25		0.02	0.58			0.56	0.17		0.02	
Control Delay	3.8	3.2		4.9	7.7			59.7	14.0		0.2	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay	3.8	3.2		4.9	7.7			59.7	14.0		0.2	
LOS	A	A		A	A			E	B		A	
Approach Delay		3.2			7.7			46.8			0.3	
Approach LOS		A			A			D			A	
Queue Length 50th (m)	0.2	9.8		0.5	55.7			20.8	0.0		0.0	
Queue Length 95th (m)	m0.9	17.7		2.6	107.3			33.3	8.3		0.0	
Internal Link Dist (m)		212.8			268.8			127.9			38.6	
Turn Bay Length (m)	30.0			40.0								
Base Capacity (vph)	203	2387		592	2572			301	366		357	
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	0.03	0.25		0.02	0.58			0.33	0.11		0.01	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.58

Intersection Signal Delay: 8.9

Intersection LOS: A

Intersection Capacity Utilization 66.4%










ICU Level of Service C










Analysis Period (min) 15

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

Splits and Phases: 4: 473 E of Page & Innes



























						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	10	557	1555	3	4	16
Future Volume (vph)	10	557	1555	3	4	16
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	10.0			0.0	0.0	0.0
Storage Lanes	1			0	1	0
Taper Length (m)	20.0				20.0	
Lane Util. Factor	0.91	0.91	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt					0.892	
Flt Protected		0.999			0.990	
Satd. Flow (prot)	0	4819	3357	0	1560	0
Flt Permitted		0.999			0.990	
Satd. Flow (perm)	0	4819	3357	0	1560	0
Link Speed (k/h)		60	60		60	
Link Distance (m)		392.4	99.1		75.1	
Travel Time (s)		23.5	5.9		4.5	
Confl. Peds. (#/hr)	10			10		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	10	557	1555	3	4	16
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	567	1558	0	20	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		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		9.0	9.0		9.0	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	55.5%			ICU Level of Service B		
Analysis Period (min)	15					

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	1	2	2	42	84	1
Future Volume (vph)	1	2	2	42	84	1
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	0.910				0.998	
Flt Protected	0.984			0.998		
Satd. Flow (prot)	1582	0	0	1763	1763	0
Flt Permitted	0.984			0.998		
Satd. Flow (perm)	1582	0	0	1763	1763	0
Link Speed (k/h)	60			60	40	
Link Distance (m)	75.6			113.3	160.2	
Travel Time (s)	4.5			6.8	14.4	
Confl. Peds. (#/hr)			10			10
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1	2	2	42	84	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	3	0	0	44	85	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	9.0			9.0	9.0	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization 17.2%	ICU Level of Service A					
Analysis Period (min) 15						













1: Orleans & Innes
PM Peak Hour

3437-3443 Innes Road
2028 Total Traffic

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	614	1762	167	64	780	126	68	239	92	180	255	215
Future Volume (vph)	614	1762	167	64	780	126	68	239	92	180	255	215
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	140.0		80.0	105.0		60.0	50.0		50.0	55.0		60.0
Storage Lanes	2		1	1		1	1		1	1		1
Taper Length (m)	40.0			40.0			10.0			20.0		
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	0.99		0.95	1.00		0.97	0.99		0.97	0.98		0.97
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3288	3357	1532	1712	3293	1517	1712	3390	1532	1712	3390	1532
Flt Permitted	0.950			0.950			0.457			0.603		
Satd. Flow (perm)	3267	3357	1456	1707	3293	1477	814	3390	1479	1069	3390	1485
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			165			230			159			225
Link Speed (k/h)		60			60			50			50	
Link Distance (m)		264.5			392.4			387.7			301.9	
Travel Time (s)		15.9			23.5			27.9			21.7	
Confl. Peds. (#/hr)	7		22	22		7	15		18	18		15
Confl. Bikes (#/hr)			4			3						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	3%	1%	1%	5%	2%	1%	2%	1%	1%	2%	1%
Adj. Flow (vph)	614	1762	167	64	780	126	68	239	92	180	255	215
Shared Lane Traffic (%)												
Lane Group Flow (vph)	614	1762	167	64	780	126	68	239	92	180	255	215
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	L NA	Left	R NA	L NA	Left	R NA	L NA	Left	R NA
Median Width(m)		9.0			7.4			6.0			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	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (m)	18.6	93.0	18.6	18.6	93.0	18.6	18.6	93.0	18.6	18.6	93.0	18.6
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	18.6	5.5	18.6	18.6	5.5	18.6	18.6	5.5	18.6	18.6	5.5	18.6
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	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		87.5			87.5			87.5			87.5	
Detector 2 Size(m)		5.5			5.5			5.5			5.5	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases			2			6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	8	4	4	4

1: Orleans & Innes
PM Peak Hour

3437-3443 Innes Road
2028 Total Traffic

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	11.6	26.2	26.2	11.2	26.2	26.2	11.7	32.7	32.7	32.7	32.7	32.7
Total Split (s)	31.0	49.0	49.0	16.0	34.0	34.0	12.0	45.0	45.0	33.0	33.0	33.0
Total Split (%)	28.2%	44.5%	44.5%	14.5%	30.9%	30.9%	10.9%	40.9%	40.9%	30.0%	30.0%	30.0%
Maximum Green (s)	24.4	42.8	42.8	9.8	27.8	27.8	5.3	38.3	38.3	26.3	26.3	26.3
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	3.7	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	2.9	2.5	2.5	2.5	2.5	2.5	3.4	3.4	3.4	3.4	3.4	3.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.2	6.2	6.2	6.2	6.2	6.7	6.7	6.7	6.7	6.7	6.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		13.0	13.0		13.0	13.0		19.0	19.0	19.0	19.0	19.0
Pedestrian Calls (#/hr)		22	22		7	7		18	18	15	15	15
Act Efft Green (s)	23.4	51.6	51.6	8.6	34.0	34.0	33.1	33.1	33.1	23.5	23.5	23.5
Actuated g/C Ratio	0.21	0.47	0.47	0.08	0.31	0.31	0.30	0.30	0.30	0.21	0.21	0.21
v/c Ratio	0.88	1.12	0.22	0.48	0.77	0.20	0.24	0.23	0.17	0.79	0.35	0.44
Control Delay	56.8	93.9	4.3	52.0	51.6	8.3	27.3	28.1	0.8	64.5	37.4	7.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.8	93.9	4.3	52.0	51.6	8.3	27.3	28.1	0.8	64.5	37.4	7.0
LOS	E	F	A	D	D	A	C	C	A	E	D	A
Approach Delay		79.1			46.0			21.7			34.9	
Approach LOS		E			D			C			C	
Queue Length 50th (m)	60.2	~239.7	0.3	11.2	82.0	1.1	9.1	17.3	0.0	32.7	21.9	0.0
Queue Length 95th (m)	#84.4	#279.5	12.1	26.4	#117.5	17.1	18.1	25.8	0.6	#60.7	32.5	15.0
Internal Link Dist (m)		240.5			368.4			363.7			277.9	
Turn Bay Length (m)	140.0		80.0	105.0		60.0	50.0		50.0	55.0		60.0
Base Capacity (vph)	729	1574	770	152	1016	615	288	1180	618	255	810	526
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.84	1.12	0.22	0.42	0.77	0.20	0.24	0.20	0.15	0.71	0.31	0.41

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Natural Cycle: 125

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.12

Intersection Signal Delay: 60.7

Intersection LOS: E

Intersection Capacity Utilization 102.0%

ICU Level of Service G

Analysis Period (min) 15

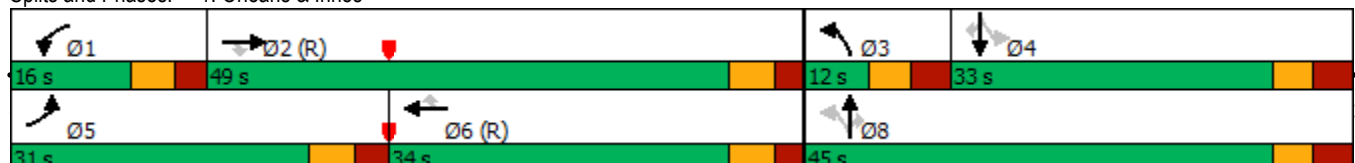
~ Volume exceeds capacity, queue is theoretically infinite.



















Queue shown is maximum after two cycles.













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

Queue shown is maximum after two cycles.

Splits and Phases: 1: Orleans & Innes



												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	1755	30	93	846	64	23	7	77	54	18	36
Future Volume (vph)	63	1755	30	93	846	64	23	7	77	54	18	36
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		0.0	100.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	35.0			0.0			2.5			2.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00			1.00			0.98			0.99	
Frt		0.997			0.989			0.903			0.955	
Flt Protected	0.950			0.950				0.989			0.976	
Satd. Flow (prot)	1695	3376	0	1695	3256	0	0	1544	0	0	1579	0
Flt Permitted	0.292			0.082				0.918			0.790	
Satd. Flow (perm)	519	3376	0	146	3256	0	0	1431	0	0	1270	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			13			20			23	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		99.1			238.6			212.5			113.3	
Travel Time (s)		5.9			14.3			19.1			10.2	
Confl. Peds. (#/hr)	9		5	5		9	5		13	13		5
Confl. Bikes (#/hr)			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 (%)	2%	2%	6%	2%	5%	2%	5%	1%	3%	6%	1%	11%
Adj. Flow (vph)	63	1755	30	93	846	64	23	7	77	54	18	36
Shared Lane Traffic (%)												
Lane Group Flow (vph)	63	1785	0	93	910	0	0	107	0	0	108	0
Enter Blocked Intersection	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	L NA	Left	R NA	L NA	Left	R NA
Median Width(m)		5.0			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		10.0			10.0			5.0			5.0	
Two way Left Turn Lane					Yes							
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	18.6	93.0		18.6	93.0		18.6	93.0		18.6	93.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	18.6	5.5		18.6	5.5		18.6	5.5		18.6	5.5	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		87.5			87.5			87.5			87.5	
Detector 2 Size(m)		5.5			5.5			5.5			5.5	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	39.2	39.2		39.2	39.2		37.8	37.8		37.8	37.8	
Total Split (s)	72.0	72.0		72.0	72.0		38.0	38.0		38.0	38.0	
Total Split (%)	65.5%	65.5%		65.5%	65.5%		34.5%	34.5%		34.5%	34.5%	
Maximum Green (s)	65.8	65.8		65.8	65.8		31.2	31.2		31.2	31.2	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.5	2.5		2.5	2.5		3.8	3.8		3.8	3.8	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	6.2	6.2		6.2	6.2			6.8			6.8	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	15.0	15.0		15.0	15.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	18.0	18.0		18.0	18.0		24.0	24.0		24.0	24.0	
Pedestrian Calls (#/hr)	5	5		9	9		13	13		5	5	
Act Effct Green (s)	78.1	78.1		78.1	78.1			18.9			18.9	
Actuated g/C Ratio	0.71	0.71		0.71	0.71			0.17			0.17	
v/c Ratio	0.17	0.74		0.90	0.39			0.41			0.46	
Control Delay	2.2	7.8		86.8	8.0			34.6			35.4	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	2.2	7.8		86.8	8.0			34.6			35.4	
LOS	A	A		F	A			C			D	
Approach Delay		7.6			15.3			34.6			35.4	
Approach LOS		A			B			C			D	
Queue Length 50th (m)	1.0	29.0		5.5	17.9			16.4			16.2	
Queue Length 95th (m)	m1.4	m19.8		m#48.5	64.2			26.4			26.6	
Internal Link Dist (m)		75.1			214.6			188.5			89.3	
Turn Bay Length (m)				100.0								
Base Capacity (vph)	368	2396		103	2314			420			376	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.17	0.74		0.90	0.39			0.25			0.29	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 2 (2%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 140

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 12.0

Intersection LOS: B

Intersection Capacity Utilization 91.8%

ICU Level of Service F

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.







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

Splits and Phases: 2: Page & Innes



3: Lamarche & Innes
PM Peak Hour

3437-3443 Innes Road
2028 Total Traffic

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	
Traffic Volume (vph)	1641	200	135	953	190	117
Future Volume (vph)	1641	200	135	953	190	117
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		50.0	35.0		0.0	0.0
Storage Lanes		1	1		1	0
Taper Length (m)			20.0		20.0	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Ped Bike Factor		0.97				
Frt		0.850			0.949	
Flt Protected			0.950		0.970	
Satd. Flow (prot)	3357	1502	1679	3357	1627	0
Flt Permitted			0.062		0.970	
Satd. Flow (perm)	3357	1452	110	3357	1627	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		121			28	
Link Speed (k/h)	60			60	50	
Link Distance (m)	238.6			236.8	281.6	
Travel Time (s)	14.3			14.2	20.3	
Confl. Peds. (#/hr)		6	6			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1641	200	135	953	190	117
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1641	200	135	953	307	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			3.7	3.7	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	9.0			9.0	9.0	
Two way Left Turn Lane	Yes			Yes		
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)		14	24		24	14
Number of Detectors	2	1	1	2	1	
Detector Template	Thru	Right	Left	Thru	Left	
Leading Detector (m)	93.0	18.6	18.6	93.0	18.6	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	5.5	18.6	18.6	5.5	18.6	
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)	87.5			87.5		
Detector 2 Size(m)	5.5			5.5		
Detector 2 Type	CI+Ex			CI+Ex		
Detector 2 Channel						
Detector 2 Extend (s)	0.0			0.0		
Turn Type	NA	Perm	pm+pt	NA	Prot	
Protected Phases	2		1	6	8	
Permitted Phases		2	6			
Detector Phase	2	2	1	6	8	
Switch Phase						
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Minimum Split (s)	31.2	31.2	11.2	31.2	37.0	
Total Split (s)	60.0	60.0	12.0	72.0	38.0	
Total Split (%)	54.5%	54.5%	10.9%	65.5%	34.5%	
Maximum Green (s)	53.8	53.8	5.8	65.8	32.0	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.0	
All-Red Time (s)	2.5	2.5	2.5	2.5	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.2	6.2	6.2	6.2	6.0	
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max	None	C-Max	None	
Walk Time (s)	7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	18.0	18.0		18.0	24.0	
Pedestrian Calls (#/hr)	10	10		10	10	
Act Effct Green (s)	58.3	58.3	73.6	73.6	24.2	
Actuated g/C Ratio	0.53	0.53	0.67	0.67	0.22	
v/c Ratio	0.92	0.24	0.67	0.42	0.81	
Control Delay	19.0	1.3	45.2	8.4	52.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	19.0	1.3	45.2	8.4	52.8	
LOS	B	A	D	A	D	
Approach Delay	17.1			12.9	52.8	
Approach LOS	B			B	D	
Queue Length 50th (m)	31.2	0.1	15.5	36.2	52.8	
Queue Length 95th (m)	#213.7	m3.7	#49.0	47.5	74.8	
Internal Link Dist (m)	214.6			212.8	257.6	
Turn Bay Length (m)		50.0	35.0			
Base Capacity (vph)	1778	825	203	2245	493	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.92	0.24	0.67	0.42	0.62	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 27 (25%), Referenced to phase 2:EBT and 6:WBTL, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 19.1

Intersection LOS: B

Intersection Capacity Utilization 89.8%

ICU Level of Service E

Analysis Period (min) 15




















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













Queue shown is maximum after two cycles.

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

Splits and Phases: 3: Lamarche & Innes



												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	1787	131	67	957	8	88	0	56	4	0	10
Future Volume (vph)	8	1787	131	67	957	8	88	0	56	4	0	10
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	30.0		0.0	40.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (m)	20.0			30.0			20.0			20.0		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00						1.00			0.99	
Frt		0.990			0.999				0.850		0.904	
Flt Protected	0.950			0.950				0.950			0.986	
Satd. Flow (prot)	1712	3353	0	1712	3322	0	0	1712	1381	0	1588	0
Flt Permitted	0.284			0.078				0.748			0.911	
Satd. Flow (perm)	512	3353	0	141	3322	0	0	1343	1381	0	1467	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14			1				31		31	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		236.8			292.8			151.9			62.6	
Travel Time (s)		14.2			17.6			13.7			5.6	
Confl. Peds. (#/hr)			2	2			3					3
Confl. Bikes (#/hr)			1									
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	2%	1%	1%	4%	1%	1%	1%	12%	1%	1%	1%
Adj. Flow (vph)	8	1787	131	67	957	8	88	0	56	4	0	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	8	1918	0	67	965	0	0	88	56	0	14	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	L NA	Left	R NA	L NA	Left	R NA
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		9.0			9.0			9.0			9.0	
Two way Left Turn Lane		Yes										
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	18.6	93.0		18.6	93.0		18.6	93.0	18.6	18.6	93.0	
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)	18.6	5.5		18.6	5.5		18.6	5.5	18.6	18.6	5.5	
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)		87.5			87.5			87.5			87.5	
Detector 2 Size(m)		5.5			5.5			5.5			5.5	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		
Detector Phase	2	2		6	6		8	8	8	4	4	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	32.1	32.1		35.1	35.1		32.3	32.3	32.3	32.3	32.3	
Total Split (s)	77.0	77.0		77.0	77.0		33.0	33.0	33.0	33.0	33.0	
Total Split (%)	70.0%	70.0%		70.0%	70.0%		30.0%	30.0%	30.0%	30.0%	30.0%	
Maximum Green (s)	70.9	70.9		70.9	70.9		26.7	26.7	26.7	26.7	26.7	
Yellow Time (s)	3.7	3.7		3.7	3.7		3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	2.4	2.4		2.4	2.4		3.0	3.0	3.0	3.0	3.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Lost Time (s)	6.1	6.1		6.1	6.1			6.3	6.3		6.3	
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	C-Max	C-Max		C-Max	C-Max		None	None	None	None	None	
Walk Time (s)	12.0	12.0		12.0	12.0		7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)	14.0	14.0		14.0	14.0		19.0	19.0	19.0	19.0	19.0	
Pedestrian Calls (#/hr)	2	2		1	1		1	1	1	3	3	
Act Effct Green (s)	87.4	87.4		87.4	87.4			14.7	14.7		14.7	
Actuated g/C Ratio	0.79	0.79		0.79	0.79			0.13	0.13		0.13	
v/c Ratio	0.02	0.72		0.60	0.37			0.49	0.27		0.06	
Control Delay	1.6	4.6		37.2	5.4			51.9	24.4		4.4	
Queue Delay	0.0	0.4		0.0	0.0			0.0	0.0		0.0	
Total Delay	1.6	5.0		37.2	5.4			51.9	24.4		4.4	
LOS	A	A		D	A			D	C		A	
Approach Delay		5.0			7.5			41.2			4.4	
Approach LOS		A			A			D			A	
Queue Length 50th (m)	0.1	12.1		4.7	26.3			16.8	4.5		0.0	
Queue Length 95th (m)	m0.2	m26.0		#34.7	56.8			27.2	13.2		2.0	
Internal Link Dist (m)		212.8			268.8			127.9			38.6	
Turn Bay Length (m)	30.0			40.0								
Base Capacity (vph)	406	2666		112	2639			325	358		379	
Starvation Cap Reductn	0	268		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	0.02	0.80		0.60	0.37			0.27	0.16		0.04	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 36 (33%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.72

Intersection Signal Delay: 7.5

Intersection LOS: A

Intersection Capacity Utilization 90.1%

ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.










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










Splits and Phases: 4: 473 E of Page & Innes



5: Innes & Site Access
PM Peak Hour

3437-3443 Innes Road
2028 Total Traffic

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	20	1846	901	7	7	18
Future Volume (vph)	20	1846	901	7	7	18
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	10.0			0.0	0.0	0.0
Storage Lanes	1			0	1	0
Taper Length (m)	20.0				20.0	
Lane Util. Factor	0.91	0.91	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt			0.999		0.903	
Flt Protected		0.999			0.986	
Satd. Flow (prot)	0	4819	3354	0	1573	0
Flt Permitted		0.999			0.986	
Satd. Flow (perm)	0	4819	3354	0	1573	0
Link Speed (k/h)		60	60		60	
Link Distance (m)		392.4	99.1		67.6	
Travel Time (s)		23.5	5.9		4.1	
Confl. Peds. (#/hr)	10			10		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	20	1846	901	7	7	18
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1866	908	0	25	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		3.7	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		9.0	9.0		9.0	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24			14	24	14
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilization 62.3%				ICU Level of Service B		
Analysis Period (min) 15						

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	1	4	3	131	104	2
Future Volume (vph)	1	4	3	131	104	2
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.892				0.997	
Flt Protected	0.990			0.999		
Satd. Flow (prot)	1560	0	0	1765	1762	0
Flt Permitted	0.990			0.999		
Satd. Flow (perm)	1560	0	0	1765	1762	0
Link Speed (k/h)	60			60	40	
Link Distance (m)	82.5			113.3	151.9	
Travel Time (s)	5.0			6.8	13.7	
Confl. Peds. (#/hr)			10			10
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1	4	3	131	104	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	5	0	0	134	106	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	3.7			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	9.0			9.0	9.0	
Two way Left Turn Lane						
Headway Factor	1.06	1.06	1.06	1.06	1.06	1.06
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization 19.8%	ICU Level of Service A					
Analysis Period (min) 15						