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Proposed Subdivision 0 Innes Road, Ottawa Transportation Impact Assessment

**Proposed Subdivision
0 Innes Road
Transportation Impact Assessment**

Prepared By:

NOVATECH
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October 2019

Novatech File: 118224
Ref: R-2018-155

October 9, 2019

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: 0 Innes Road
Transportation Impact Assessment
Novatech File No. 118224

We are pleased to submit the following Transportation Impact Assessment in support of a Draft Plan of Subdivision for the lands located at 0 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 Jennifer Luong, or the undersigned.

Yours truly,

NOVATECH



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



TIA Plan Reports

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

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

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

CERTIFICATION

1. I have reviewed and have a sound understanding of the objectives, needs and requirements of the City of Ottawa's Official Plan, Transportation Master Plan and the Transportation Impact Assessment (2017) Guidelines;
2. I have a sound knowledge of industry standard practice with respect to the preparation of transportation impact assessment reports, including multi modal level of service review;
3. I have substantial experience (more than 5 years) in undertaking and delivering transportation impact studies (analysis, reporting and geometric design) with strong background knowledge in transportation planning, engineering or traffic operations; and
4. I am either a licensed¹ or registered² professional in good standing, whose field of expertise [check 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 9th day of October, 2019.
(City)

Name: Jennifer Luong, P.Eng.
(Please Print)

Professional Title: Senior Project Manager, Transportation/Traffic



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

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EXECUTIVE SUMMARY

This Transportation Impact Assessment (TIA) has been prepared in support of a Draft Plan of Subdivision for the lands located at 0 Innes Road.

The subject site is severed from the two commercial parcels adjacent to Innes Road and immediately to the east and west. The subject site is planned to contain approximately 289 lower-density residential units and 168 medium-density residential units. The lower-density portion of the subject site is located toward the south, while the medium-density portion of the subject site is located toward the north, adjacent to the commercial parcels.

The proposed subdivision is designated as General Urban Area on Schedule B of the City of Ottawa's Official Plan. The East Urban Community (EUC) Mixed Use Centre (MUC) Community Design Plan (CDP) applies to the southerly portion of the site. The subject site is located at the western edge of the EUC. The proposed residential uses conform to the zoning proposed in the EUC CDP.

The proposed development includes a total of approximately 457 dwellings. The lower-density portion of the subject site includes 289 dwellings, consisting of 180 single-detached and 109 townhouse units. The medium-density portion of the subject site includes stacked townhouses, consisting of 168 dwellings. Connections are proposed to future subdivisions east and west of the site, as well as Innes Road/473m East of Pagé Road (the former Builders' Warehouse access). The future subdivisions to the east and west will also both connect to Innes Road.

The study area for this report will include Innes Road, Pagé Road, and Viseneau Drive. The study area includes the signalized intersections at Innes Road/Pagé Road, Innes Road/473m East of Pagé Road, Innes Road/Viseneau Drive, and Innes Road/Caivan Access.

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. Phase 1 assumes 50% occupancy of the lower-density portion by 2021, and 100% occupancy of both the lower-density and medium-density portions by the year 2023. Therefore, this TIA will perform analysis for the weekday AM and PM peak periods in the Phase 1 development year 2021, buildout year 2023, and the horizon year 2028.

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

Forecasting

- In the Phase 1 year 2021, the proposed subdivision is projected to generate approximately 117 person trips during the AM peak hour and 154 person trips during the PM peak hour, which includes approximately 70 vehicle trips during the AM peak hour and 92 vehicle trips during the PM peak hour.
- In the full buildout year 2023, the proposed subdivision is projected to generate approximately 334 person trips during the AM peak hour and 428 person trips during the PM peak hour, which includes approximately 200 vehicle trips during the AM peak hour and 256 vehicle trips during the PM peak hour.

Development Design

- A ROW width of 24m and road width of 9.5m is proposed for Street No. 1, as it is anticipated to function as a collector roadway and accommodate transit in the future. A 9.5m roadway allows for one travel lane in each direction, and a parking lane on one side of the roadway. A 1.8m-wide sidewalk with a minimum boulevard width of 2.0m is proposed on one side of Street No.1, and a 3.0m-wide multi-use pathway with a minimum boulevard width of 1.75m is proposed on the other side.
- A ROW width of 18m and road width of 8.5m is proposed for Street No. 2 through Street No. 9, which are all anticipated to function as local roadways. A ROW width of 16.5m and road width of 8.5m is proposed for Street No. 7. A 1.8m sidewalk is proposed on the south side of Street No. 7. Asphalt pathways are proposed between Street No. 5 and Street No. 6, and between Street No. 4 and the Caivan subdivision to the west.
- The proposed subdivision will access the Caivan subdivision to the west and the Richcraft subdivision to the east via Street No. 1 and Street No. 7. The Richcraft subdivision will also be accessed via Street No. 5.

Complete Streets

- The proposed cross-section of Street No. 1 meets the segment MMLOS targets for a collector roadway in the General Urban Area.
- Innes Road does not meet the target segment PLOS C or BLOS B, but meets the target segment TLOS D, TkLOS D, and Auto LOS D.
- The implementation of 2.0m sidewalks with boulevard widths of greater than 2.0m on Innes Road would still not meet the target PLOS C, per Exhibit 4 of the MMLOS Guidelines. Allowing on-street parking and lowering the operating speed would be required to achieve the target PLOS, however these measures are considered inappropriate for this roadway.
- The target BLOS B cannot be achieved on Innes Road without a physically separated bikeway. OTM Book 18 describes the desirable facility of Innes Road to be a separated facility given the vehicular volumes and speed of the roadway, or suggests an alternate road for cyclists be considered. As the 2013 Ottawa Cycling Plan does not identify any cycling infrastructure projects on Innes Road, a separated facility is identified for the City's consideration. It should be noted that Street No. 1 will provide a more comfortable east-west route for cyclists as the EUC develops.

Transportation Demand Management

- The following TDM measures will be implemented at the sales centre, as the proposed subdivision is built:
 - Display local area maps with walking/cycling routes and key destinations;
 - Display relevant transit schedules and route maps;
 - Provide multimodal travel option information packages to new residents.

Transit

- In the Phase 1 year 2021, the proposed subdivision is projected to generate approximately 24 transit trips during the AM peak hour and 31 transit trips during the PM peak hour. In the

full buildout year 2023, the proposed subdivision is projected to generate approximately 67 transit trips during the AM peak hour and 86 transit trips during the PM peak hour.

- All transit trips generated by the proposed subdivision are anticipated to board and exit at stops #1219 and #8129, or new stops within the East Urban Community. It is understood that OC Transpo will provide transit service within this area as the subdivision and neighbouring subdivisions develop.

Intersection MMLOS

- Based on the results of the intersection MMLOS analysis of Innes Road/Pagé Road, Innes Road/473m East of Pagé Road, and Innes Road/Viseneau Drive:
 - No study intersections meet the target PLOS;
 - No study intersections meet the target BLOS;
 - Innes Road/Pagé Road and Innes Road/473m East of Pagé Road meet the target TLOS, while Innes Road/Viseneau Drive does not;
 - No study intersections meet the target TkLOS;
 - All study intersections meet the target Auto LOS.
- The PLOS of all study area intersections cannot achieve the target PLOS C without significantly reducing the number of lanes crossed or restricting turning movements. The east and west approaches of Innes Road/Pagé Road meet the City's vehicle/pedestrian conflict threshold for zebra-striped crosswalks, which could be considered to improve the level of comfort for pedestrians. No other modifications are recommended.
- The east and west approaches of Innes Road/Pagé Road, Innes Road/473m East of Pagé Road, and Innes Road/Viseneau Drive do not achieve the target BLOS B based on left turn characteristics. To achieve the target BLOS, two-stage left-turn bike boxes can be implemented for eastbound and westbound cyclists. Therefore, bike boxes on the north and south approaches are recommended for the City's consideration subject to funding. It is also recommended that the bike boxes not be implemented in a 'piecemeal' manner at select intersections, but rather holistically along the Innes Road corridor where applicable.
- The south approach of Innes Road/Viseneau Drive does not achieve the target BLOS B based on right turn characteristics. At the south approach, the target can be achieved by implementing a pocket bike lane between the through and right turn lanes, however this approach is a private approach to a commercial property.
- The east and west approaches of Innes Road/Pagé Road, and the north approach of Innes Road/Viseneau Drive do not achieve the target TLOS D. The 2013 TMP identifies transit signal priority and queue jump lanes at select intersections on Innes Road between Blair Station and Millennium Station. These measures would reduce delays for transit on Innes Road. As Viseneau Drive does not have a transit priority designation, no recommendations have been made for the north approach.
- The east and west approaches of Innes Road/Pagé Road and the east approach of Innes Road/Viseneau Drive do not achieve the target TkLOS D. As Pagé Road and Viseneau Drive are primarily residential streets, and the volume of heavy vehicles turning onto these streets is anticipated to be low, no modifications to the curb radii are recommended.

- The east approach of Innes Road/473m East of Pagé Road 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 or deliveries. Therefore, no modifications are recommended.

Intersection Capacity Analysis

- Due to the high eastbound volumes on Innes Road during the PM peak hour, vehicles performing a westbound left turn at Pagé Road and 473m East of Pagé Road are not anticipated to have sufficient gaps in traffic to complete their turn. No capacity for permissive left turns is anticipated at these intersections, and therefore a protected left turn phase is justified. The vehicular level of service for the eastbound through movements on Innes Road at Pagé Road and 473m East of Pagé Road are anticipated to worsen due to the implementation of a protected plus permitted left turn phase at these intersections.
- Warrants for a westbound left turn lane and eastbound right turn lane at Innes Road/Caivan Access are met starting in 2021. Warrants for signalization of the Innes Road/Caivan Access intersection are met starting in 2023. As a collector-arterial intersection, it is understood that this improvement is eligible for funding under the Development Charges (DC) By-Law.
- Starting in the 2023 total traffic conditions, the eastbound through movement at Innes Road/Pagé Road downgrades to an Auto LOS E. Optimization of the signal timings can mitigate the failing conditions, improving the v/c ratio of this movement from 0.94 to 0.89. By the 2028 total traffic conditions, optimization of the network and a reduction of 40 eastbound through vehicles is required to meet the target Auto LOS D. Transit priority measures on Innes Road as described in the City's RTTP Affordable Network are anticipated to improve transit service on Innes Road, and may improve the transit modal share. The Blackburn Hamlet Bypass and Brian Coburn Boulevard extensions will provide alternate parallel routes for eastbound/westbound traffic, and may provide some relief to the current traffic volumes on Innes Road.
- Starting in the 2028 total traffic conditions, the eastbound through movement at Innes Road/Caivan Access downgrades to an Auto LOS E. Optimization of the signal timings can mitigate the failing conditions, improving the v/c ratio of this movement from 0.92 to 0.86.
- Based on the foregoing, the proposed subdivision is recommended from a transportation perspective.

1.0 INTRODUCTION

This Transportation Impact Assessment (TIA) has been prepared in support of a Draft Plan of Subdivision for the lands located at 0 Innes Road.

The subject site is severed from the two commercial parcels adjacent to Innes Road and immediately to the east and west. The subject site is planned to contain approximately 289 lower-density residential units and 168 medium-density residential units. The lower-density portion of the subject site is located toward the south, while the medium-density portion of the subject site is located toward the north, adjacent to the commercial parcels.

The subject site is surrounded by the following:

- Residential and commercial uses, and Innes Road to the north;
- Commercial uses and future residential uses to the east;
- Future residential uses and Brian Coburn Boulevard to the south;
- Residential and commercial uses, and future residential uses to the west.

A view of the subject site is provided in **Figure 1**.

2.0 PROPOSED DEVELOPMENT

The proposed subdivision is designated as General Urban Area on Schedule B of the City of Ottawa's Official Plan. The East Urban Community (EUC) Mixed Use Centre (MUC) Community Design Plan (CDP) applies to the southerly portion of the site. The subject site is located at the western edge of the EUC. The proposed residential uses conform to the zoning proposed in the EUC CDP. A copy of the demonstration plan included in the EUC CDP is shown in **Figure 2**.

The proposed development includes a total of approximately 457 dwellings. The lower-density portion of the subject site includes 289 dwellings, consisting of 180 single-detached and 109 townhouse units. The medium-density portion of the subject site includes stacked townhouses, consisting of 168 dwellings. Connections to this subdivision are proposed to future subdivisions east and west of the site, as well as Innes Road/473m East of Pagé Road (the former Builders' Warehouse access). The future subdivisions to the east and west will also both connect to Innes Road.

A copy of the conceptual draft plan is included in **Appendix A**.

3.0 SCREENING

3.1 Screening Form

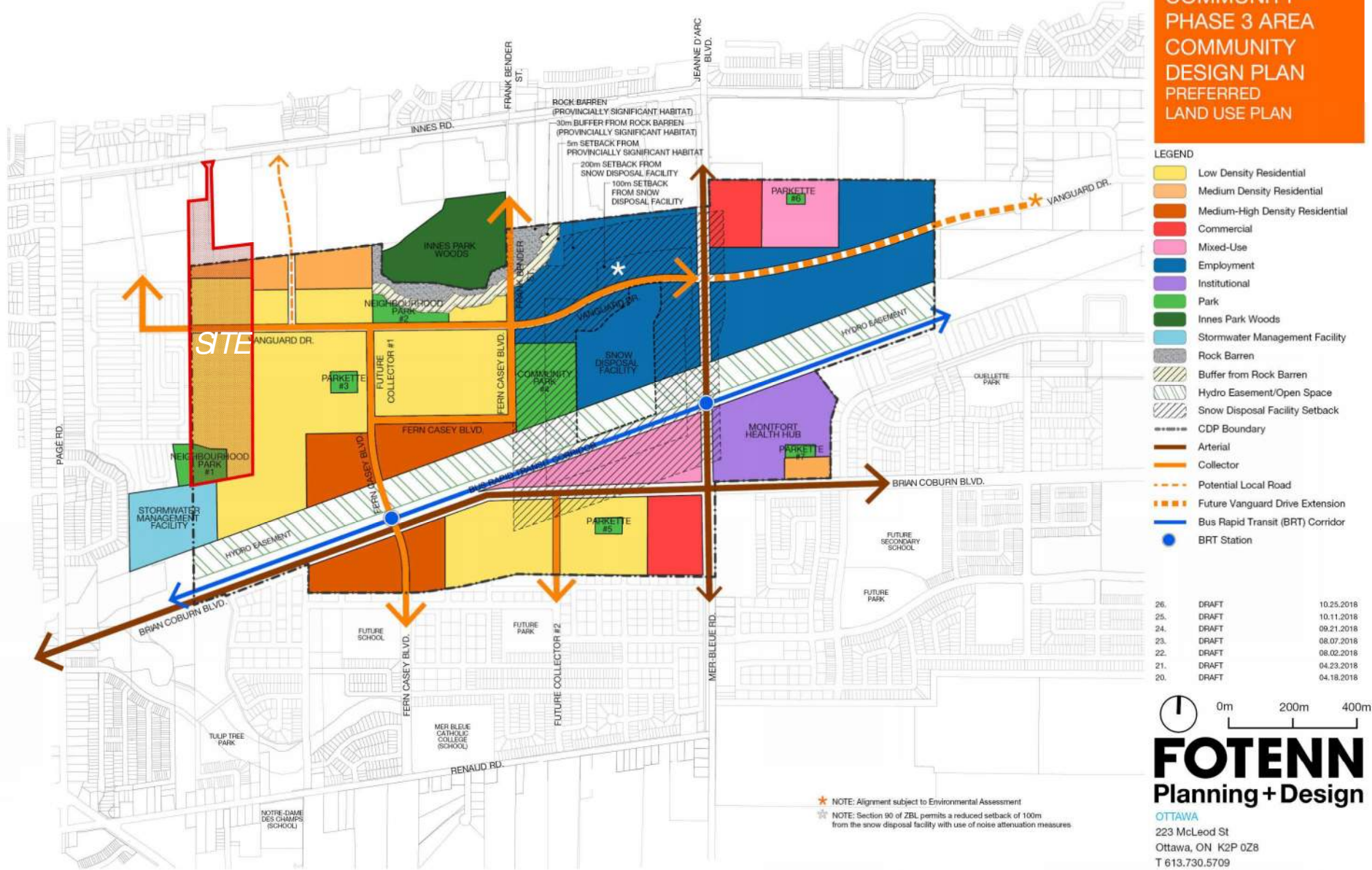
The City's 2017 TIA Guidelines identify three triggers for completing a TIA report, including trip generation, location, and safety. The criteria for each trigger are outlined in the City's TIA Screening Form. The trigger results are as follows:

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

Figure 1: View of the Subject Site



Figure 2: EUC Demonstration Plan



- Location Triggers – The development does not include new access to a Transit Priority Corridor, Spine Cycling Route, or Design Priority Area; further assessment is not required based on this trigger.
- Safety Triggers – There is a documented history of traffic operations and safety concerns on Innes Road. For this reason, further assessment is required based on this trigger.

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

4.0 SCOPING

4.1 Existing Conditions

4.1.1 Roadways

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

Innes Road is an urban arterial roadway that generally runs on an east-west alignment between St. Laurent Boulevard and Cox Country 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. East of Cox Country Road, Innes Road continues as a rural arterial roadway until Dunning Road. Within the study area, Innes Road has a five-lane urban cross-section with a centre two-way left turn lane (TWLTL), bike lanes, sidewalks on both sides of the roadway, and 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. It appears that the required road widening was taken across the frontage of the subject site when the original parcel was severed into three parcels.

Pagé Road is a local roadway north of Innes Road, and runs on a north-south alignment between Innes Road and Meadowglen Drive. South of Innes Road, Pagé Road is a collector roadway which runs on a north-south alignment between Innes Road and Renaud Road. Within the study area, Pagé Road has a two-lane undivided urban cross-section with sidewalks on both sides of the roadway, and a posted speed limit of 40 km/h. Pagé Road 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.

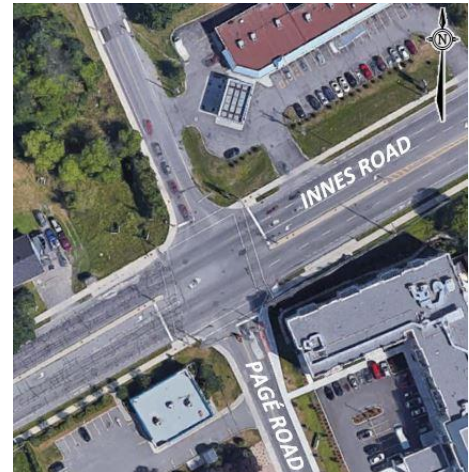
Viseneau Drive is a collector roadway that runs on a north-south alignment between Innes Road and Bromont Way, then an east-west alignment between Bromont Way and Boyer Road. Within the study area, Viseneau Drive has a two-lane undivided urban cross-section, sidewalks on the west side of the roadway, and a posted speed limit of 40 km/h. Viseneau Drive is not classified as a truck route. Intersection narrowings and flat-top speed humps with a suggested speed limit of 30 km/h have been

implemented on Viseneau Drive. Street parking is permitted only on the east side of the roadway, and is restricted on both sides of the roadway within 30m of Innes Road/Viseneau Drive.

4.1.2 Intersections

Innes Road/Pagé Road

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



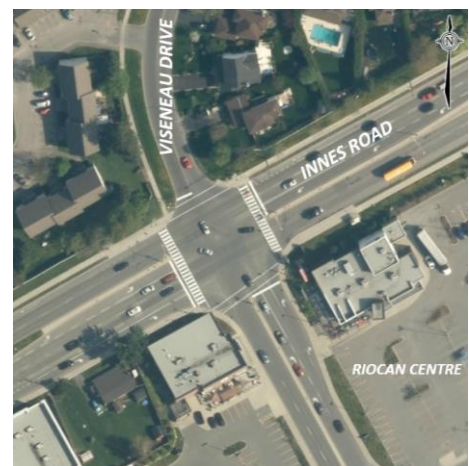
Innes Road/473m East of Pagé Road

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



Innes Road/Viseneau Drive

- Signalized four-legged intersection
- North Approach: one shared left turn/through/right turn lane
- South Approach: one left turn lane, one through lane, and one right turn lane
- East Approach: one left turn lane, one through lane, and one shared through/right turn lane
- West Approach: one left turn lane, two through lanes, and one right turn lane
- Bike lanes on east and west approaches



Innes Road/Caivan Subdivision Access

- Unsignalized three-legged intersection
- South Approach: one shared left turn/right turn lane
- East Approach: one two-way left turn lane, two through lanes
- West Approach: one two-way left turn lane, one through lane, and one shared/right turn lane
- Bike lanes on east and west approaches
- Caivan Access also referred to as 'de Lamarche Avenue'



4.1.3 Driveways

In accordance with the City's 2017 TIA Guidelines, a review of driveways on the boundary streets within 200m of the existing access on Innes Road (former Builders' Warehouse access) is provided as follows:

Innes Road, North Side:

- 15 driveways to properties located at 3519, 3523, 3533, 3543, 3555, 3565, 3581, 3591, 3605, 3615, and 3681 Innes Road

Innes Road, South Side:

- 9 driveways to properties located at 3490, 3534, 3544, 3554, 3564, 3592, 3676, and 3682 Innes Road

The proposed subdivision will also connect to the planned subdivisions to the east (referred to as the 'Richcraft Subdivision') and west (referred to as the 'Caivan Subdivision') of the subject site. Based on the planned layouts of these subdivisions, the proposed subdivision will be within 200m of residential driveways on the south side of the proposed Street No. 1 west of the subject site, the north side of the proposed Street No. 7 west of the subject site, and both sides of Street No. 7 east of the subject site.

4.1.4 Pedestrian and Cycling Facilities

Concrete sidewalks are provided on both sides of Innes Road, Pagé Road south of Innes Road, and on the west side of Viseneau Drive.

In the City of Ottawa's primary cycling network, Innes Road is classified as a Crosstown Bikeway, Pagé Road is classified as a Spine Route, and Boyer Road is designated as a Local Route. A future pathway connection between Innes Road and Brian Coburn Boulevard is identified through the lands to the east. Bike lanes are provided on Innes Road. A multi-use pathway is provided on the south side of Brian Coburn Boulevard, south of the study area.

4.1.5 Area Traffic Management

An Area Traffic Management (ATM) Study within the study area was completed by the City in 2016. The Viseneau Drive and Barrington Street ATM Study was conducted in response to area residents' concerns with aggressive driver behaviours and speeding, and studied Viseneau Drive between

Boyer Road and Innes Road, and Barrington Street between Viseneau Drive and Beauséjour Drive. As recommended by the study, one intersection narrowing and five flat-top speed humps have been implemented on Viseneau Drive, as well as four flat-top speed humps on Barrington Street.

4.1.6 Transit

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

Innes Road/Pagé Road

- Stop #1194 – for routes 94, 612, and 648 (located at the northwest corner)
- Stop #7735 – for routes 94, 612, and 648 (located at the southeast corner)

Innes Road/Boyer Road Pathway

- Stop #1219 – for routes 94, 612, and 648 (located at the northwest corner)
- Stop #8129 – for routes 94, 612, and 648 (located at the southwest corner)

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

The medium-density portion (approximately 40% of the units proposed) is within a 400m walking distance of the Innes Road/Boyer Road Pathway stops. The EUC CDP identifies that the Caivan Subdivision access and the proposed Street No. 1 are planned to provide transit service. It is anticipated that transit service will begin within the Caivan Subdivision first, and move east along the proposed Street No. 1 as neighbouring subdivisions develop.

OC Transpo Route 94 travels between Riverview Station and Millennium Station. During the weekday peak periods, the route operates every 10 minutes from Millennium Station to Tunney's Pasture Station between 5:00am and 9:00am, and every 10 minutes from Riverview Station or Tunney's Pasture Station to Millennium Station between 2:00pm and 6:00pm. During the weekday off-peak times, the route operates every 15 minutes from Riverview Station or Tunney's Pasture Station to Millennium Station between 9:00am and 12:00am. On weekends, the route operates every 15 minutes from 9:30am to 5:30pm, with service from Millennium Station alternating between Riverview Station and Tunney's Pasture Station. The route additionally operates from 5:30am to 9:00am and 5:30pm to 1:30am on weekends.

The 600-series of OC Transpo Routes provide service to schools throughout the City of Ottawa. The following routes provide service to stops within the study area.

OC Transpo Route 612 travels between Renaud/Saddleridge and Gisèle Lalonde Secondary School or Béatrice Desloges Catholic Secondary School. Based on the schedule, this route arrives at Gisèle Lalonde Secondary School at 8:52am and 8:55am, and departs at 3:38pm. The route arrives at Béatrice Desloges Secondary School at 7:43am and departs at 2:30pm on school days.

OC Transpo Route 648 travels between Forestvalley/Ad. 1402 or Youville/St. Joseph and Louis Riel Secondary School. Based on the schedule, this route arrives at Louis Riel Secondary School at 8:25am and departs at 3:02pm on school days.

OC Transpo maps for the routes outlined above and a copy of the December 2018 OC Transpo System Map are included in **Appendix C**.

Figure 3: OC Transpo Bus Stop Locations



4.1.7 Existing Traffic Volumes

Weekday traffic counts were used to determine the existing pedestrian, cyclist, and vehicular traffic volumes at the study area intersections.

The traffic counts were completed on the dates listed below by the following sources:

- Innes Road/Pagé Road May 22, 2019 (Parsons)
- Innes Road/473m East of Pagé Road May 22, 2019 (Parsons)
- Innes Road/Viseneau Drive January 25, 2017 (City of Ottawa)

The average annual daily traffic (AADT) of Innes Road is approximately 27,000 vpd. Traffic count data is included in **Appendix D**. Traffic volumes within the study area are shown in **Figure 4**.

4.1.8 Collision Records

Historical collision data from the last five years was obtained from the City’s Public Works and Service Department at/between the study area intersections. Copies of the collision summary reports are included in **Appendix E**.

The collision data has been evaluated to determine if there are any identifiable collision patterns. The number of collisions at each intersection from January 1, 2013 to December 31, 2017 is summarized in **Table 1**.

Figure 4: Existing Network Traffic Volumes

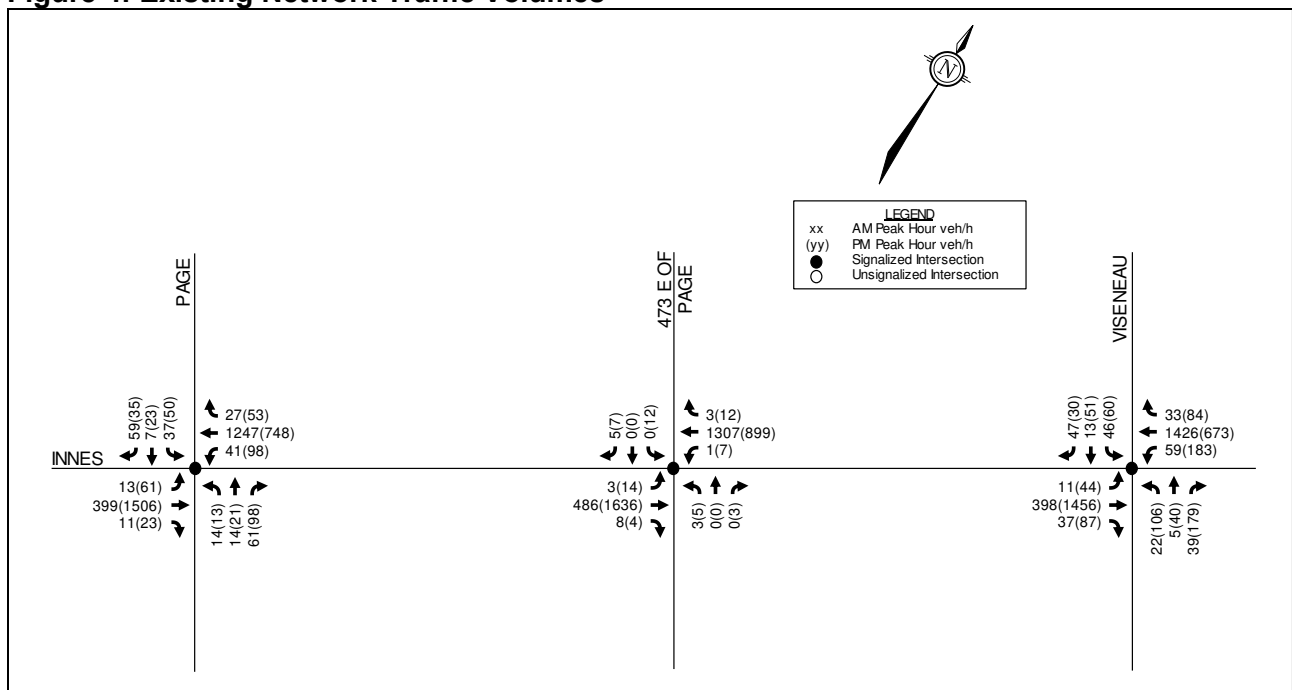


Table 1: Reported Collisions

Location	# of Reported Collisions
Innes Road/Pagé Road	29
Innes Road/473m East of Pagé Road	5
Innes Road/Viseneau Drive	39
Innes Road between Pagé Road and 473m East of Pagé Road	16
Innes Road between 473m East of Pagé Road and Viseneau Drive	7

Innes Road/Pagé Road

A total of 29 collisions were reported at this intersection over the last five years, of which there were 14 rear-end impacts, six turning movement impacts, two sideswipe impacts, four angle impacts, and three single-vehicle/other impacts. Eight of the collisions caused injuries, but none caused fatalities. Eleven of the 29 collisions occurred in poor driving conditions.

Of the 14 rear-end impacts, one occurred at the northbound approach (one right turn incident), five occurred at the eastbound approach (five through vehicle incidents), and eight occurred at the westbound approach (one left turn incident and seven through vehicle incidents). The roads are generally flat and have clear sight lines at this intersection. Seven of the 14 collisions occurred in poor driving conditions.

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

All three single-vehicle impacts involved a northbound left turning vehicle. Two of the three impacts involved pedestrians and the third involved a cyclist. Each incident resulted in non-fatal injuries.

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 were four rear-end impacts and one angle impact. Two of the collisions caused injuries, but none caused fatalities. Three of the five collisions occurred in poor driving conditions.

Innes Road/Viseneau Drive

A total of 39 collisions were reported at this intersection over the last five years, of which there were 17 rear-end impacts, 12 turning movement impacts, one sideswipe impact, six angle impacts, and three single-vehicle/other impacts. Ten of the collisions caused injuries, but none caused fatalities. Fifteen of the 39 collisions occurred in poor driving conditions.

Of the 17 rear-end impacts, one occurred at the northbound approach (one through vehicle incident), 12 occurred at the eastbound approach (ten through vehicle incidents and two right turn incidents), and four occurred at the westbound approach (one left turn incident and three through vehicle incidents). The roads are generally flat and have clear sight lines at this intersection. Five of the 17 collisions occurred in poor driving conditions.

Of the 12 turning movement impacts, two involved left turns at the southbound approach, one involved a left turn at the eastbound approach, eight involved left turns at the westbound approach, and one involved a right turn at the westbound approach. The traffic volumes opposing westbound left turning volumes is very high, which may result in drivers selecting insufficient gaps to complete their turn. The westbound left turn has protected plus permitted phasing, but a fully protected left turn phase would reduce this type of collision. Six of the 12 collisions occurred in poor driving conditions.

Of the six angle impacts, one involved a northbound vehicle and an eastbound vehicle, one involved a northbound vehicle and a westbound vehicle, and four involved a southbound vehicle and a westbound vehicle. Three of the six collisions occurred in poor driving conditions.

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

A total of 16 collisions were reported at this road segment over the last five years, of which there were seven rear-end impacts, one turning movement impact, four sideswipe impacts, and four angle

impacts. Five of the collisions caused injuries, but none caused fatalities. Three of the 16 collisions occurred in poor driving conditions. Of the seven rear-end impacts, four involved eastbound vehicles and three involved westbound vehicles. One of the seven collisions occurred in poor driving conditions.

Trim Road between 473m East of Pagé Road and Viseneau Drive

A total of seven collisions were reported at this road segment over the last five years, of which there were three rear-end impacts, two sideswipe impacts, and two angle impacts. Two of the collisions caused injuries, but none caused fatalities. One of the seven collisions occurred in poor driving conditions.

4.2 Planned Conditions

The City of Ottawa's 2013 Transportation Master Plan (TMP) does not identify any upcoming roadway projects within the study area in its Affordable Road Network.

The Blackburn Hamlet Bypass Extension is identified as a Phase 2 project (2020-2025) under the Affordable Road Network, and includes a new four-lane road between Innes Road and Navan Road. The Brian Coburn Boulevard Extension is identified under the 2031 Network Concept, and includes a new two-lane roadway (ultimately four-lane) between Trim Road and Frank Kenny Road.

The Blackburn Hamlet Bypass and Brian Coburn Boulevard extensions will provide a major parallel arterial route south of Innes Road, and may provide some relief to the eastbound/westbound through traffic volumes on Innes Road.

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 RTTP 2031 Network Concept includes the Cumberland Transitway, which will run between Blair Road and Frank Kenny Road. A corridor for the proposed transitway has been reserved by the City of Ottawa, immediately north of Brian Coburn Boulevard.

Local transit routes are identified within the East Urban Community CDP, which will connect the community to the existing routes on Innes Road and the proposed BRT stations along the future Cumberland Transitway. The proposed Street No. 1 is part of the CDP local transit route system.

The 2013 Ottawa Cycling Plan identifies a Phase 3 (2026-2031) project north of the study area, the Orléans East-West Neighbourhood Bikeway project. Shared use lanes will run north of the study area on Viseneau Drive and Meadowglen Drive. A major pathway link between Innes Road and Brian Coburn Boulevard is identified on the property immediately east of the subject site.

Within the study area, multiple developments are anticipated or are in the approval process. These include a six-storey mixed-use building at 3443 Innes Road, an automatic car wash facility at 3598 Innes Road, the Caivan Subdivision at 3490 Innes Road, and a high-rise mixed-use development at 3490 Innes Road. Further discussion of these developments are included in Section 5.2.2.

The December 2016 TIS prepared by Parsons in support of the Caivan Subdivision recommended signalization of the Innes Road/Caivan Access intersection, as well as a 35m westbound left turn lane and a 50m eastbound right turn lane. It is understood that the intersection will become signalized and auxiliary lanes will be implemented as their respective warrants are met.

4.3 Study Area and Time Periods

The study area for this report will include Innes Road, Pagé Road, and Viseneau Drive. The study area includes the signalized intersections at Innes Road/Pagé Road, Innes Road/473m East of Pagé Road, Innes Road/Viseneau Drive, and Innes Road/Caivan Access.

The signalized intersection at Innes Road/Orléans Boulevard has been omitted from further analysis, as it is located right at the 1km radius threshold. Further, the subject site is anticipated to generate less than 5% of the volume at Innes Road/Orléans Boulevard as identified in the EUC Master Transportation Study (MTS).

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. Phase 1 assumes 50% occupancy of the lower-density portion by 2021, and 100% occupancy of both the lower-density and medium-density portions by the year 2023. Therefore, this TIA will perform analysis for the weekday AM and PM peak periods in the Phase 1 development year 2021, buildout year 2023, and the horizon year 2028.

4.4 Exemptions Review

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

Table 2: TIA Exemptions

Module	Element	Exemption Criteria	Exemption Status
Design Review Component			
4.1 Development Design	4.1.2 Circulation and Access	<ul style="list-style-type: none"> Only required for site plans 	Exempt
	4.1.3 New Street Networks	<ul style="list-style-type: none"> Only required for plans of subdivision 	Not Exempt
4.2 Parking	4.2.1 Parking Supply	<ul style="list-style-type: none"> Only required for site plans 	Exempt
	4.2.2 Spillover Parking	<ul style="list-style-type: none"> Only required for site plans where parking supply is 15% below unconstrained demand 	Exempt

Module	Element	Exemption Criteria	Exemption 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	<i>4.6.1</i> 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 	Exempt
4.8 Network Concept	<i>All elements</i>	<ul style="list-style-type: none"> Only required when development generates more than 200 person-trips during the peak hour in excess of the equivalent volume permitted by the established zoning 	Exempt

The Neighbourhood Traffic Management module will not be reviewed, as the additional traffic generated by the proposed development is not anticipated to change the function of any local or collector roadways. The Network Concept module will not be reviewed, as screenline analysis of the area was completed as part of the EUC MTS. The analysis identified 'sufficient residual capacity' was available to accommodate the EUC development, of which the subject site is a part.

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

- Module 4.1: Development Design
- Module 4.3: Boundary Streets
- Module 4.4: Access Design
- Module 4.5: Transportation Demand Management
- Module 4.7: Transit
- Module 4.9: Intersection Design

5.0 FORECASTING

5.1 Development-Generated Travel Demand

5.1.1 Trip Generation

The proposed subdivision will include 180 single-detached dwellings and 109 townhomes in the lower-density portion, and 168 stacked townhome dwellings in the medium-density portion. It is assumed that half of the lower-density dwellings will be occupied in the 2021 Phase 1 year, and all lower-density and medium-density dwellings will be occupied in the 2023 buildout year.

Trips generated by the proposed land uses have been estimated using the relevant recommended rates outlined in the *TRANS Trip Generation Manual*. The vehicle trip generation rates, taken from Table 6.3 of the TRANS report, correspond to either Single-Detached Dwellings or Townhouses, all in the Suburban Area (outside the greenbelt). The directional split between inbound and outbound trips are based on the blended splits presented in Table 3.17 of the report. Estimates of the trips generated by the proposed subdivision are summarized in **Table 3**.

Table 3: Proposed Residential Vehicle Trip Generation

Land Use	TRANS Rate	Units	AM Peak (VPH)			PM Peak (VPH)		
			IN	OUT	TOT	IN	OUT	TOT
Lower-Density Portion (50% occupancy in 2021, 100% occupancy in 2023)								
Single-Detached Dwelling	AM: 0.70 PM: 0.90	180 units	37	89	126	100	62	162
Townhouse Dwelling	AM: 0.54 PM: 0.71	109 units	22	37	59	41	36	77
Sub-Total			59	126	185	141	100	241
Medium-Density Portion (0% occupancy in 2021, 100% occupancy in 2023)								
Townhouse Dwelling	AM: 0.54 PM: 0.71	168 units	34	57	91	63	56	119
Sub-Total			34	57	91	63	56	119
Total			93	183	276	204	156	360

It is recognized that use of the *TRANS Trip Generation Manual* is preferred by the City of Ottawa to estimate the trip generation of residential developments. However, the trip generation rates outlined in the *ITE Trip Generation Manual, 10th Edition* for the Single Family Detached Housing and Multifamily Housing (Low-Rise) land uses have been included, as ITE rates have been used in the Master Transportation Study to estimate trip generation of the entire EUC.

The number of person trips generated by the proposed subdivision as estimated by the TRANS rates are based on the modal shares presented in Table 3.13 of the TRANS report, while the number of person trips estimated by the ITE rates are based on the 1.28 ITE Trip to Person Trip Factor, consistent with the 2017 TIA Guidelines. The projected number of person trips generated by the proposed subdivision as estimated by both the TRANS and ITE rates are included in **Table 4**.

Table 4: Proposed Residential Person Trip Generation

Land Use	TRANS Auto Share	AM Peak (PPH)			PM Peak (PPH)			
		IN	OUT	TOT	IN	OUT	TOT	
Lower-Density Portion (50% occupancy in 2021, 100% occupancy in 2023)								
Single-Detached Dwelling	AM: 55% PM: 64%	66	163	229	157	96	253	
Townhouse Dwelling	AM: 55% PM: 61%	40	67	107	67	59	126	
Medium-Density Portion (0% occupancy in 2021, 100% occupancy in 2023)								
Townhouse Dwelling	AM: 55% PM: 61%	58	107	165	103	92	195	
TRANS-Estimated Total		164	337	501	327	247	574	
Land Use	ITE Code	Units	AM Peak (PPH)			PM Peak (PPH)		
			IN	OUT	TOT	IN	OUT	TOT
Lower-Density Portion (50% occupancy in 2021, 100% occupancy in 2023)								
Single-Family Detached Housing	210	180 units	42	124	166	142	83	225
Multifamily Housing (Low-Rise)	220	109 units	16	52	68	52	31	83
Medium-Density Portion (0% occupancy in 2021, 100% occupancy in 2023)								
Multifamily Housing (Low-Rise)	220	168 units	23	77	100	76	44	120
ITE-Estimated Total			81	253	334	270	158	428
Difference			83	84	167	57	89	146

Based on the foregoing table, the trip generation rates outlined in the TRANS report overestimate the number of person trips compared to the ITE rates, by approximately 50% and 35% in the AM and PM peak hours, respectively. Further, it is our understanding that the City’s Long-Range Strategic Planning group use TRANS rates for vehicle trip projections only, and have not used or tested TRANS data to project person trips in this way. To maintain consistency with the EUC MTS, the ITE rates has been carried forward for the remainder of the TIA report. At full buildout, the proposed subdivision is projected to generate 334 person trips during the AM peak hour and 428 person trips during the PM peak hour.

The modal shares for the proposed subdivision are anticipated to be consistent with the modal shares outlined in the 2011 TRANS O-D Survey Report, specific to the Orléans region. The modal share values applied to the proposed dwellings are based on the typical commuter pattern, represented by all observed trips from/within Orléans in the AM peak hour, and all observed trips to/within Orléans in the PM peak hour. These shares are also consistent with those assumed in the EUC MTS.

A full breakdown of the projected person trips generated by modal share is shown in **Table 5**.

Table 5: Person Trips by Modal Share

Travel Mode	Modal Share	AM Peak			PM Peak		
		IN	OUT	TOT	IN	OUT	TOT
Lower-Density Portion (50% occupancy in 2021, 100% occupancy in 2023)							
<i>Person Trips</i>		58	176	234	194	114	308
Auto Driver	60%	34	106	140	116	68	184
Auto Passenger	15%	9	27	36	29	17	46
Transit	20%	12	35	47	39	23	62
Non-Auto	5%	3	8	11	10	6	16
Medium-Density Portion (0% occupancy in 2021, 100% occupancy in 2023)							
<i>Person Trips</i>		23	77	100	76	44	120
Auto Driver	60%	14	46	60	46	26	72
Auto Passenger	15%	3	12	15	11	7	18
Transit	20%	5	15	20	15	9	24
Non-Auto	5%	1	4	5	4	2	6
Auto Driver (Total)		48	152	200	162	94	256
Auto Passenger (Total)		12	39	51	40	24	64
Transit (Total)		17	50	67	54	32	86
Non-Auto (Total)		4	12	16	14	8	22

From the previous table, the proposed lower-density residential units are projected to generate 70 vehicle trips during the AM peak hour and 92 vehicle trips during the PM peak hour by the Phase 1 year 2021. The proposed subdivision is projected to generate 200 vehicle trips during the AM peak hour and 256 vehicle trips during the PM peak hour by the buildout year 2023 and horizon year 2028.

5.1.2 Trip Distribution

The distribution of traffic generated by the proposed subdivision to the road network is assumed to follow the existing commuter traffic patterns during the AM and PM peak hours. The trip distribution is as follows:

- 25% to/from the east;
- 75% to/from the west.

This distribution is generally consistent with the trip distribution assumptions outlined in the EUC MTS, which considered a larger study area. Any trips destined to/from the north and south of the surrounding area are anticipated to enter/exit Innes Road at intersections outside of the study area, such as Orléans Boulevard, Frank Bender Street, or Jeanne D'Arc Boulevard.

5.1.3 Trip Assignment

It is anticipated that a connection to the Caivan Subdivision Access will be in place by the Phase 1 year 2021, and a connection to the intersection of Innes Road/473m East of Pagé Road will be in place by 2023. Therefore, trips generated by the proposed subdivision in 2021 have all been assigned to the Caivan Access, while trips generated in 2023 and 2028 have been assigned to both connections.

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

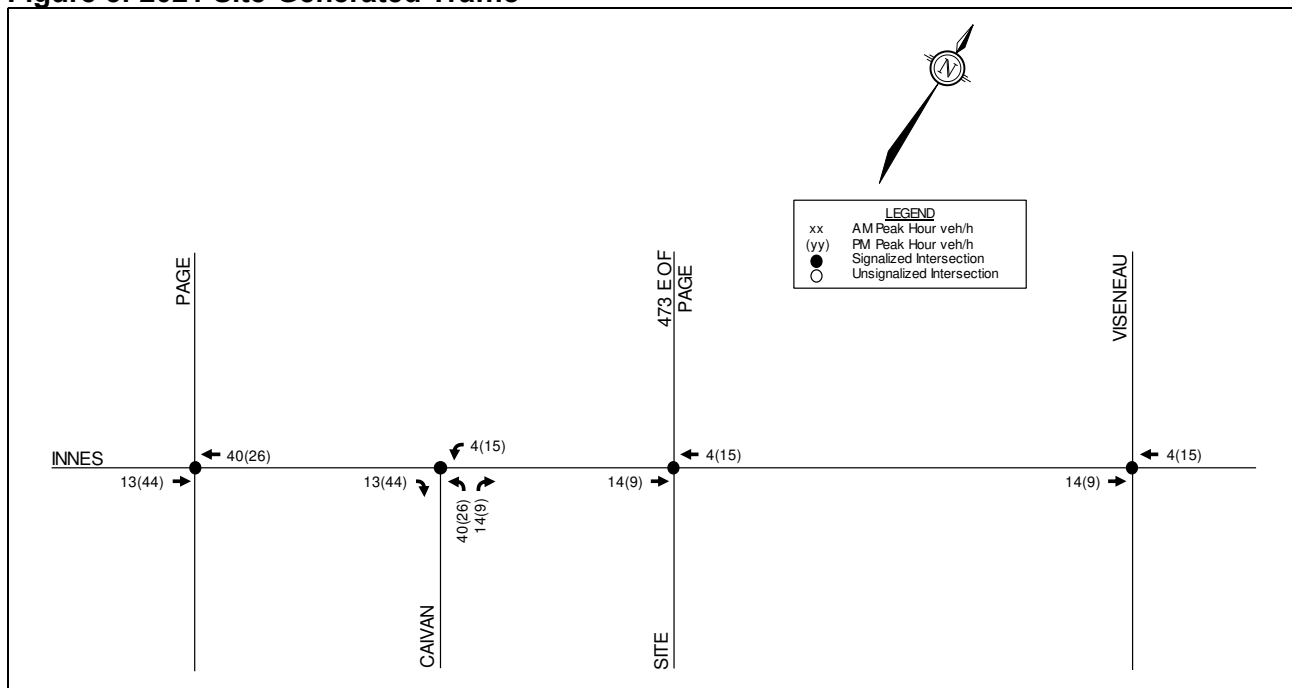
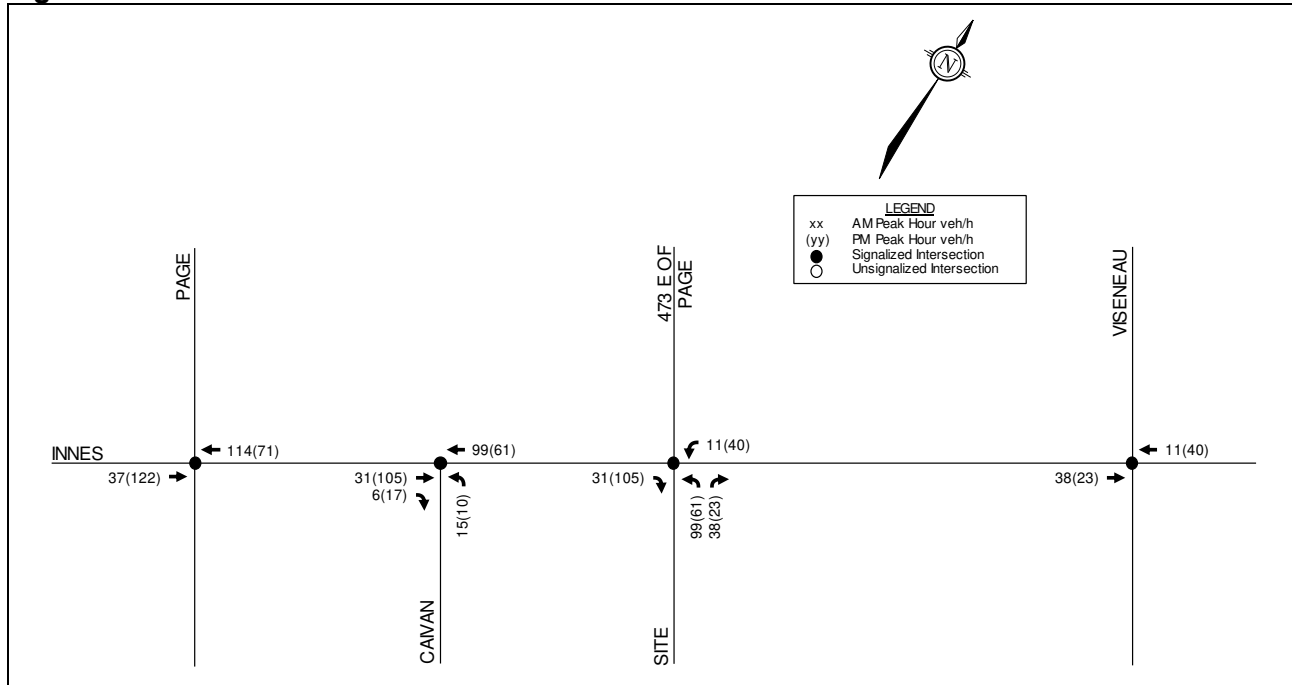


Figure 6: 2023/2028 Site-Generated Traffic



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**.

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.

3598 Innes Road (MacEwen Car Wash)

A TIA was prepared by Tranplan Associates in September 2018 (Zoning Application D02-02-18-0083), in support of an automatic car wash facility at the southwest corner of Innes Road/473m East of Pagé Road (shown in **Figure 1** as the western 'lands owned by others'). The proposed car wash is approximately 4,524 ft² and is anticipated to open in 2019. Therefore, trips generated by this development have been added to the background traffic in 2021, 2023, and 2028.

3490 Innes Road (Caivan 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 the Caivan Subdivision directly west of the subject site (Draft Plan Application D07-16-16-0022). The development consists of 534 residential units. For the purposes of this TIA, 50% of the trips will be added to the 2021 background traffic, while all trips have been added to the 2023 and 2028 background traffic. The proposed access south of the site to Nature Trail Crescent has since been removed, and therefore, any trips assigned to that access have been reassigned to the Innes Road access.

3490 Innes Road (Lepine Mixed-Use High-Rise Development)

A TIA was prepared by Parsons in June 2019, in support of a mixed-use high-rise development, including one 16-storey building, two 12-storey buildings, and five 9-storey buildings (Zoning Application D02-02-19-0060). Phase 1 is assumed to be built out by 2022, and includes 436 dwellings and approximately 28,000 ft² of retail. Full buildout is assumed by 2031, and includes an additional 884 dwellings. For the purposes of this TIA, trips generated by Phase 1 have been added to the 2023 and 2028 background traffic. It should be noted that in the Parsons TIA, traffic generated by the EUC (including the subject site of this TIA) was not considered for the buildout year of the Lepine development.

Trips generated by the previous developments have been assigned based on the trip distributions described in their respective studies, unless otherwise noted.

Richcraft Subdivision

The EUC MTS identifies that Richcraft owns the largest portion of lands included in the CDP. The study also anticipates that none of Richcraft's lands, including those immediately east of the subject site, will be developed by 2031. Therefore, no trips generated by the future subdivision have been accounted for within any time period of this TIA.

The figures listed below present the following conditions:

- Trips generated by other area developments in 2021: **Figure 7**;
- Trips generated by other area developments in 2023/2028: **Figure 8**;
- Background traffic volumes in 2021: **Figure 9**;
- Background traffic volumes in 2023: **Figure 10**;
- Background traffic volumes in 2028: **Figure 11**;
- Total traffic volumes in 2021: **Figure 12**;
- Total traffic volumes in 2023: **Figure 13**;
- Total traffic volumes in 2028: **Figure 14**.

Figure 7: 2021 Other Area Developments

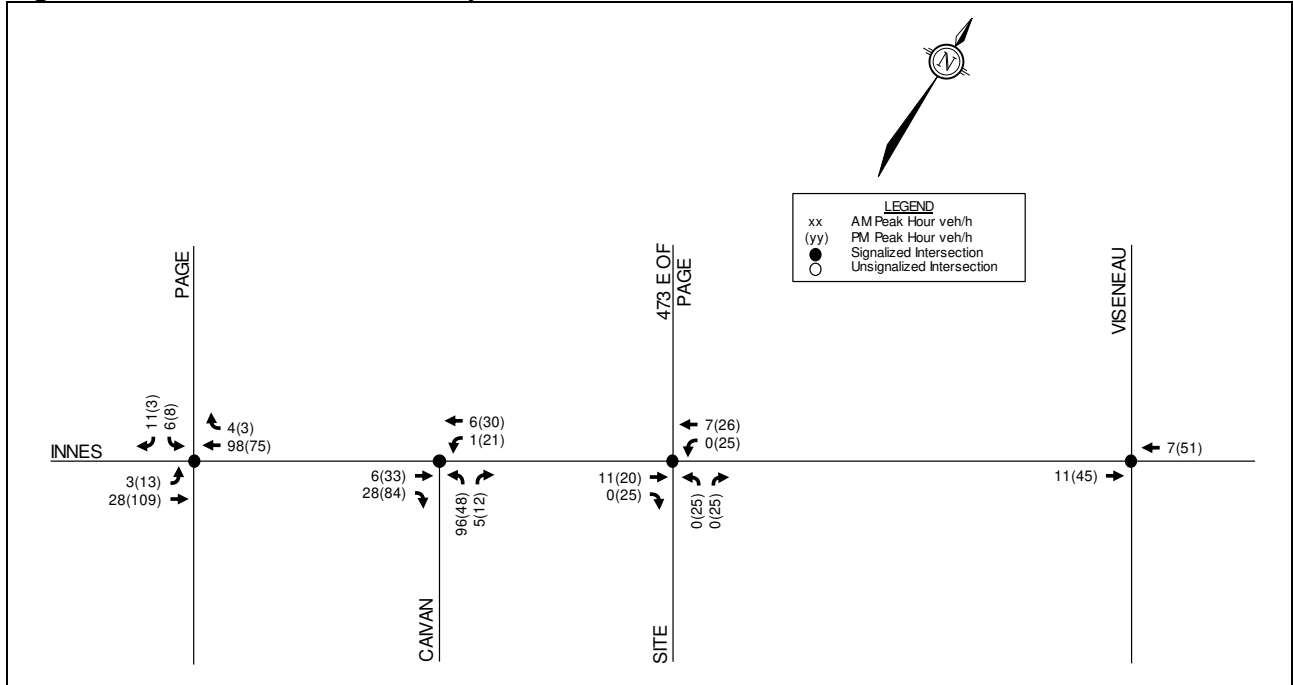


Figure 8: 2023/2028 Other Area Developments

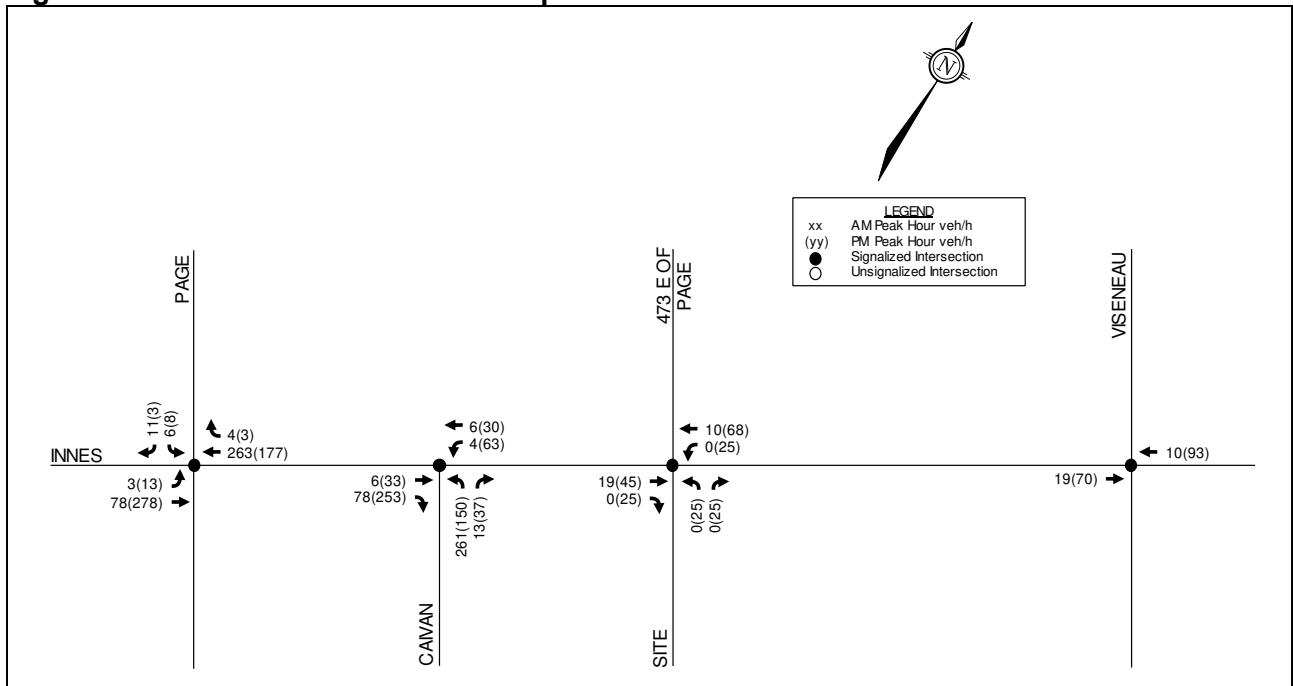


Figure 9: 2021 Background Traffic

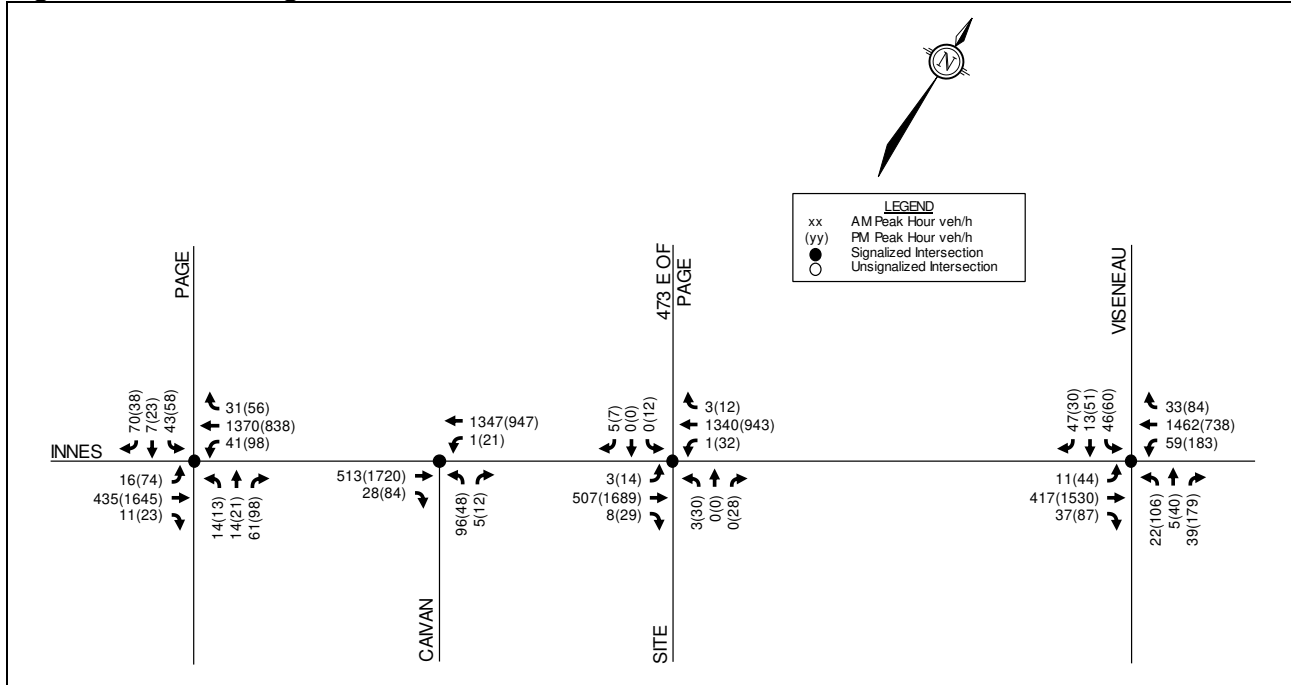


Figure 10: 2023 Background Traffic

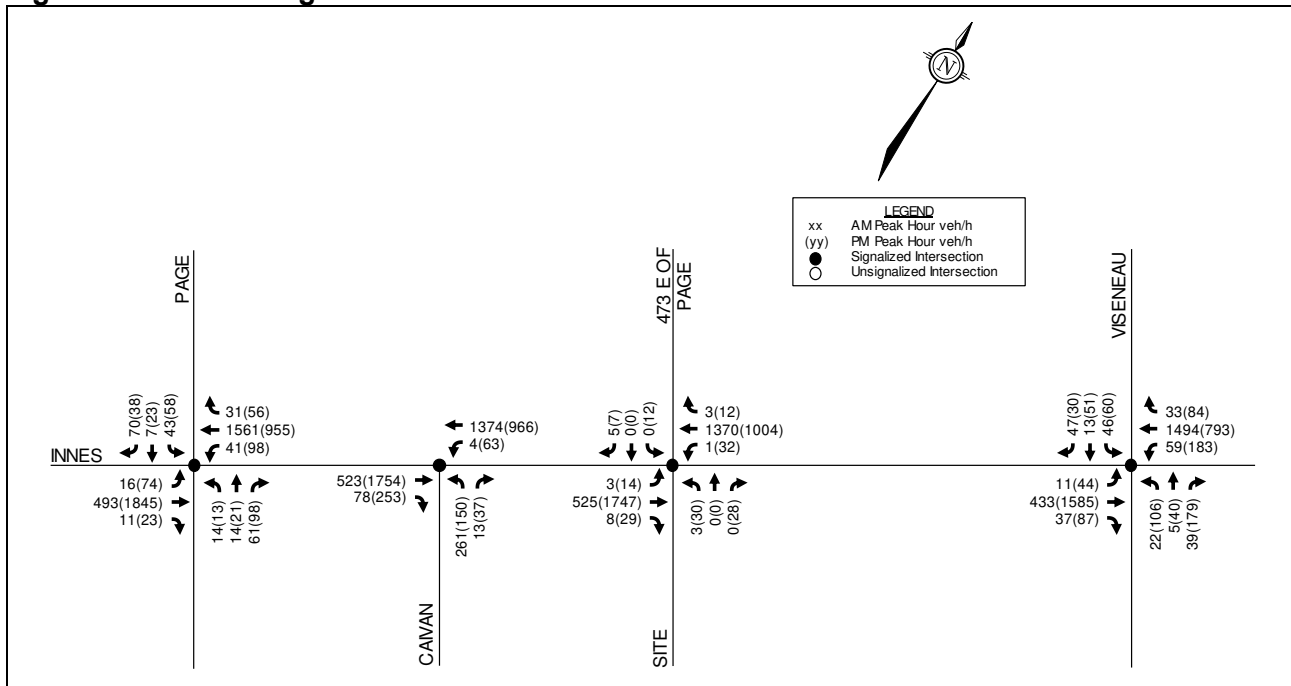


Figure 11: 2028 Background Traffic

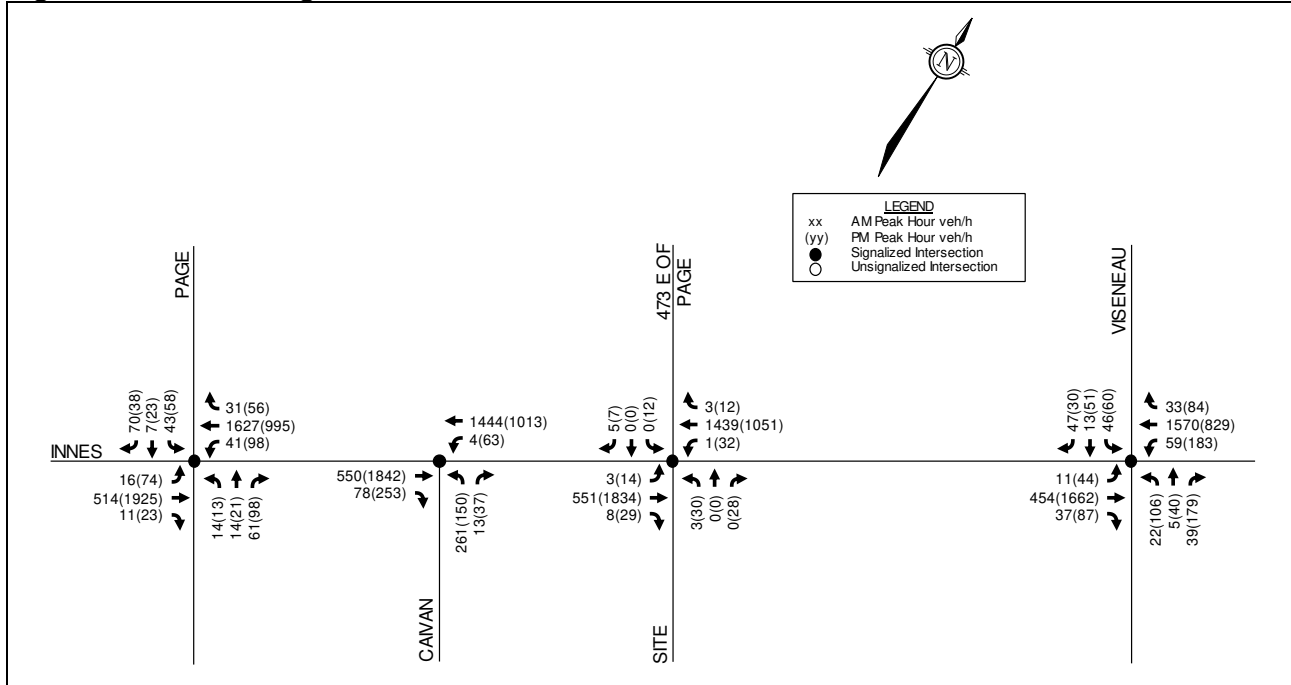


Figure 12: 2021 Total Traffic

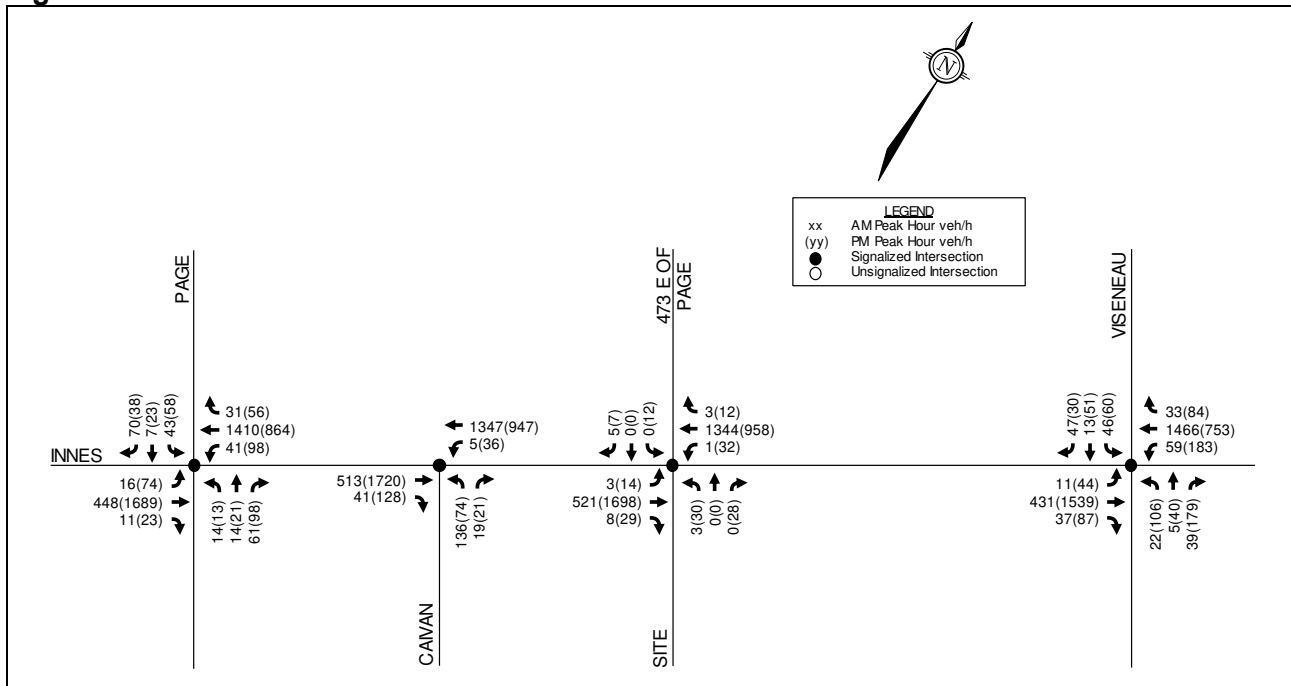


Figure 13: 2023 Total Traffic

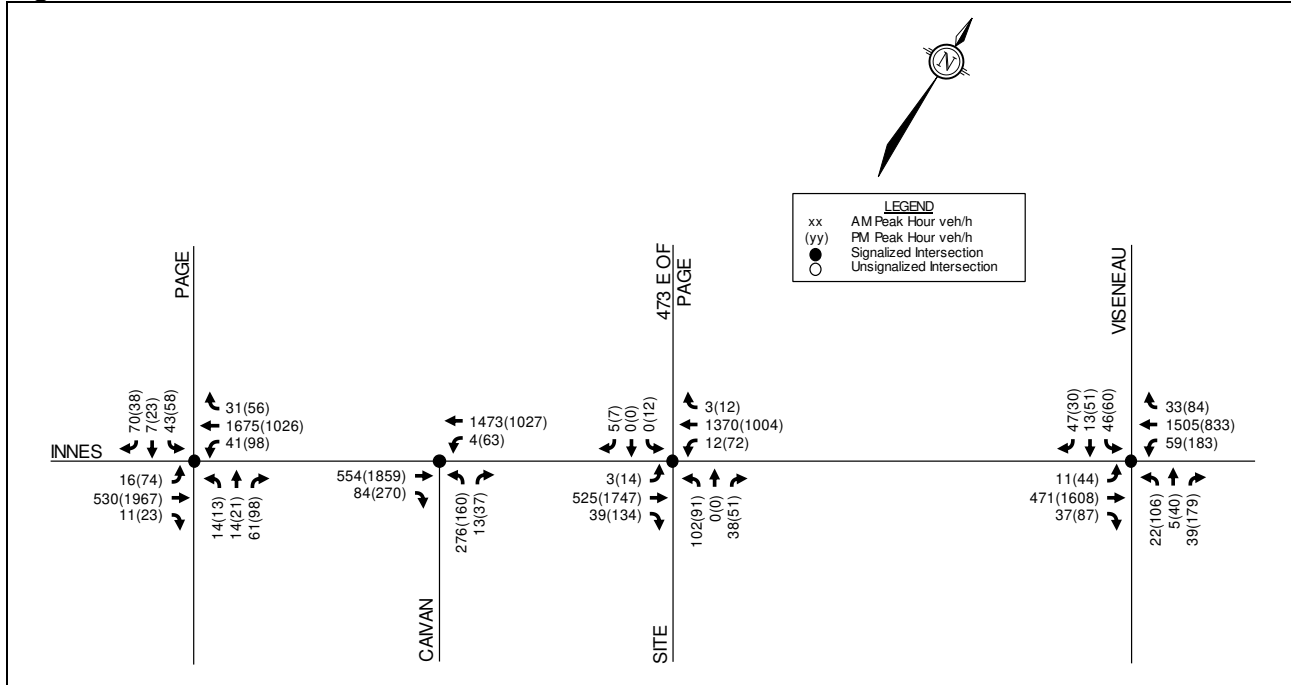
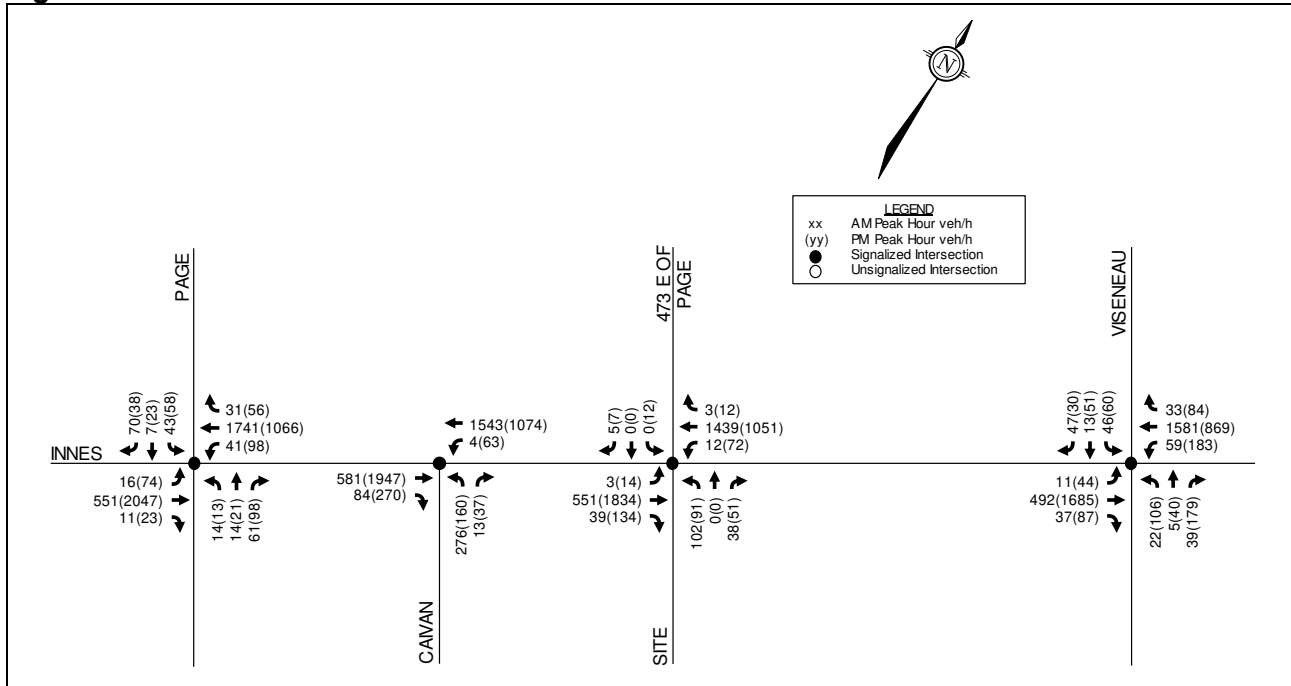


Figure 14: 2028 Total Traffic



6.0 ANALYSIS

6.1 Development and Access Design

This section provides a review of the development design in terms of the road network, roadway cross-sections, and pedestrian crossing locations. A review of the City's Transportation Demand Management (TDM) – Supportive Development Design and Infrastructure Checklist is exempt from Draft Plan of Subdivision applications.

6.1.1 Road Network

A review of the new road network with respect to the initiatives identified in the City's Building Better and Smarter Suburbs (BBSS) report was completed. The proposed road network is consistent with the following BBSS initiatives:

- Design the street network as an integral part and extension of the municipal grid, taking into consideration its future adjustments and evolution;
- Design the street network based on a modified or offset grid to maximize choices of travel routes and opportunities for utility connections;
- Ensure that a range of appropriately sized roadways complements the character and functional needs of each community area;
- Avoid reverse frontage lots (rear yards abutting public streets) within a community.

The Transportation Association of Canada (TAC) *Geometric Design Guide for Canadian Roads* stipulates that the minimum desired distance between two T-intersections is 40m along a local roadway. Additionally, the minimum desired distance between a four-way intersection and any adjacent intersection is 60m along collector and local roadways. Measured centre-to-centre, the proposed intersections on-site are considered to be appropriately spaced from each other and adjacent intersections.

6.1.2 Roadway Cross-Sections

A ROW width of 24m and road width of 9.5m is proposed for Street No. 1, as it is anticipated to function as a collector roadway and accommodate transit in the future. A road width of 9.5m allows for one travel lane in each direction, and a parking lane on one side of the roadway.

ROW widths of 18m and road widths of 8.5m are proposed for Street No. 2 through Street No. 9 excluding Street No. 7, which are all anticipated to function as local roadways. Street No. 7 has a proposed ROW width of 16.5m, with a road width of 8.5m. A road width of 8.5m allows for one travel lane in each direction, and a parking lane on one side of the roadway. This road width is sufficient given the context of the proposed development, a low-speed residential neighbourhood with limited opportunity for cut-through traffic. A collector cross-section will not be provided for Street No. 9, as it is not defined in the EUC MTS.

Asphalt pathways are proposed in two locations: a connection between the south side of Street No. 5 and the north side of Street No. 6, and a connection between the west side of Street No. 4 and the Caivan subdivision immediately west of the proposed development.

Based on the conceptual collector roadway cross-sections outlined in the EUC CDP, a 1.8m-wide sidewalk with a minimum boulevard width of 2.0m is proposed on one side of Street No. 1, and a 3.0m-wide multi-use pathway with a minimum boulevard width of 1.75m is proposed on the other side of Street No. 1. A 1.8m-wide sidewalk is also proposed on the south side of Street No. 7.

The proposed subdivision will access the Caivan subdivision to the west and the Richcraft subdivision to the east via Street No. 1 and Street No. 7. The Richcraft subdivision will also be accessed via Street No. 5.

6.2 Complete Streets Review

The *Multi-Modal Level of Service* (MMLOS) guidelines produced by IBI Group in October 2015 were used in the EUC MTS, to evaluate the levels of service for the future collector roadways of the community. For this subject site, the only collector contained within the proposed subdivision is Street No. 1. Schedule B of the City of Ottawa’s Official Plan identifies the subject site as being within the General Urban Area land use designation. Targets for Street No. 1 have been taken from Exhibit 22 of the MMLOS Guidelines, and can be described as follows:

- Pedestrian Level of Service (PLOS) – Target PLOS C;
- Bicycle Level of Service (BLOS) – Target BLOS C;
- Transit Level of Service (TLOS) – No target.

Despite having no target, the TLOS of Street No. 1 was evaluated, as it is anticipated that transit service will be provided on this roadway. Levels of service for trucks (TkLOS) and vehicles (Auto LOS) were not evaluated.

The results of the segment MMLOS analysis is outlined in **Table 6**.

Table 6: Segment MMLOS Summary – Street No. 1

Roadway	PLOS ⁽¹⁾		BLOS ⁽²⁾		TLOS ⁽³⁾		TkLOS		Auto LOS	
	Actual	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target
Street No. 1	C	C	A	C	D	N/A	Not evaluated			

1. Assumed 1.8m sidewalk, boulevard of 0.5m to 2.0m, on-street parking, AADT greater than 3,000 vpd, operating speed of 50 km/h.

2. Assumed a physically separated multi-use pathway.

3. Assumed a mixed traffic transit facility and limited driveway and parking friction.

From the previous table, all MMLOS targets for the proposed collector Street No. 1 are met.

A boundary street review of Innes Road has also been conducted. Innes Road is designated as an Arterial Main Street within the study area, and is a designated Crosstown Bikeway, Transit Priority Corridor with Isolated Measures, and Truck Route. The typical lane capacity on Innes Road is based on the City’s guidelines for the TRANS Long-Range Transportation Model. The lane capacity is assumed to be 1,000 vehicles per hour per lane (vphpl), consistent with arterial roadways that have frequent signals and a median.

Targets for Innes Road have been taken from Exhibit 22 of the MMLOS Guidelines, and can be described as follows:

- Pedestrian Level of Service (PLOS) – Target PLOS C;
- Bicycle Level of Service (BLOS) – Target BLOS B;
- Transit Level of Service (TLOS) – Target TLOS D;
- Truck Level of Service (TkLOS) – Target TkLOS D;
- Vehicular Level of Service (Auto LOS) – Target Auto LOS D.

It should also be noted that, per the *Addendum to the MMLOS Guidelines*, the operating speed of Innes Road is assumed to be 10 km/h greater than the posted speed limit (i.e. Innes Road has an operating speed of 70 km/h). Results of the segment MMLOS analysis of Innes Road are shown in **Table 7**.

Table 7: Segment MMLOS Summary – Innes Road

Roadway	PLOS ⁽¹⁾		BLOS ⁽²⁾		TLOS ⁽³⁾		TkLOS ⁽⁴⁾		Auto LOS ⁽⁵⁾	
	Actual	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target
Innes Road	E	C	E	B	D	D	A	D	D	D

1. 1.8m sidewalk, boulevard of 0.5m to 2.0m, no on-street parking, AADT greater than 3,000 vpd, operating speed of 70 km/h.
2. Bike lane not adjacent to parking lane, 2 travel lanes without median, 1.8m lane width, operating speed of 70 km/h, rare lane blockage.
3. Mixed traffic transit facility and limited driveway and parking friction.
4. Curb lane width of 3.5m, more than two travel lanes.
5. Measured at intersection of Innes Road/473m East of Pagé Road, assumed directional capacity of 2,000 vph. Eastbound volumes during the PM peak hour represent the worst-case.

From the previous table, the PLOS and BLOS targets for Innes Road are not met, while the TLOS, TkLOS, and Auto LOS targets are met.

Even if a sidewalk of 2.0m and a boulevard width of greater than 2.0m were implemented on Innes Road, the target PLOS C would not be achieved based on Exhibit 4 of the MMLOS Guidelines. More invasive measures such as allowing on-street parking and lowering the operating speed would be required to achieve the target PLOS, however these measures are considered inappropriate for this roadway. Therefore, no recommendations are identified.

The target BLOS B cannot be achieved on Innes Road without a physically separated bikeway, such as cycle tracks or a multi-use pathway, which would improve the roadway to a BLOS A. OTM Book 18 describes the desirable cycling facility for a roadway, given the roadway’s average annual daily traffic (AADT) and operating speed. For roadways with an AADT of greater than 15,000 vehicles per day and an operating speed of 70 km/h, OTM Book 18 states that ‘a separated facility or an alternate road’ should be considered. As the 2013 Ottawa Cycling Plan does not identify any cycling infrastructure projects on Innes Road, a separated facility is identified for the City’s consideration. Alternatively, given that the future Street No. 1 will include a multi-use pathway, it should be noted that Street No. 1 will provide a more comfortable east-west route for cyclists as the EUC develops.

6.3 Transportation Demand Management

A review of the TDM Measures Checklist was conducted, and can be found in **Appendix G**.

The following measures will be implemented as the proposed subdivision is built:

- Display local area maps with walking/cycling routes and key destinations (at sales centre);
- Display relevant transit schedules and route maps (at sales centre);
- Provide multimodal travel option information packages to new residents (at sales centre).

6.4 Transit

Based on the trip generation presented in Section 5.1.1, Phase 1 of the proposed subdivision is projected to generate 24 transit trips in the AM peak hour and 31 transit trips in the PM peak hour. At full buildout, the proposed subdivision is projected to generate 67 transit trips in the AM peak hour and 86 transit trips in the PM peak hour.

All transit trips generated by the proposed subdivision are anticipated to board and alight at stops #1219 and #8129, or new stops within the East Urban Community. It is understood that OC Transpo will provide transit service within this area as this subdivision and neighbouring subdivisions develop.

6.5 Intersection Design

6.5.1 Intersection MMLOS Analysis

This section provides a review of the study area intersections using complete streets principles. The MMLOS guidelines produced by IBI Group in October 2015 were used to evaluate the multi-modal levels of service for each signalized intersection within the study area. The MMLOS targets associated with the Arterial Main Street designation have been used to evaluate all study intersections, based on existing conditions. The full intersection MMLOS analysis is included in **Appendix H**. A summary of the results is shown in **Table 8**.

Table 8: Intersection MMLOS Summary

Intersection	PLOS		BLOS		TLOS		TkLOS		Auto LOS	
	Actual	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target
Innes Road/ Pagé Road	F	C	F	B	C	D	E	D	D	D
Innes Road/ 473m East of Pagé Road	F	C	F	B	B	D	F	D	B	D
Innes Road/ Viseneau Drive	F	C	F	B	F	D	E	D	D	D

Based on the results of the intersection MMLOS analysis:

- No study intersections meet the target PLOS;
- No study intersections meet the target BLOS;
- Innes Road/Pagé Road and Innes Road/473m East of Pagé Road meet the target TLOS, while Innes Road/Viseneau Drive does not;
- No study intersections meet the target TkLOS;
- All intersections meet the target Auto LOS.

The following sections outline a further discussion for each intersection.

6.5.1.1 Innes Road/Pagé Road

Innes Road/Pagé Road does not meet the target PLOS C, BLOS B, or TkLOS D.

Innes Road/Pagé Road cannot achieve the target PLOS at any approach without significantly reducing the number of lanes and restricting turning movements. The east and west 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), which could be considered to improve the level of comfort for pedestrians. No other modifications are recommended.

The east and west approaches of Innes Road/Pagé Road do not achieve the target BLOS, based on left turn characteristics. To achieve the target BLOS B, two-stage left-turn bike boxes can be implemented for eastbound and westbound cyclists. As shown in **Appendix H**, the vehicular level of service is marginally affected if bike boxes are implemented. Bike boxes on the north and south approaches are recommended for the City's consideration subject to funding. As shown in Sections 6.5.1.2 and 6.5.1.3, bike boxes are recommended for cyclists on Innes Road at all three signalized intersections in the study area. It is therefore recommended that if bike boxes are to be implemented, that they are not implemented in a 'piecemeal' manner at select intersections, but rather holistically along the Innes Road corridor where applicable.

The east and west approaches of Innes Road/Pagé Road do not achieve the target TkLOS. 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.

6.5.1.2 Innes Road/473m East of Pagé Road

Innes Road/473m East of Pagé Road does not meet the target PLOS C, BLOS B, or TkLOS D.

Innes Road/473m East of Pagé Road cannot achieve the target PLOS at any approach without significantly reducing the number of lanes and restricting turning movements. Therefore, no modifications are recommended.

The east and west approaches of Innes Road/473m East of Pagé Road do not achieve the target BLOS, based on left turn characteristics. To achieve the target BLOS B, two-stage left-turn bike boxes can be implemented for eastbound and westbound cyclists. As shown in **Appendix H**, the vehicular level of service is marginally affected if bike boxes are implemented. Bike boxes on the north and south approaches are recommended for the City's consideration subject to funding.

The east approach of Innes Road/473m East of Pagé Road does not achieve the target TkLOS. 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 or deliveries. Therefore, no modifications are recommended.

6.5.1.3 Innes Road/Viseneau Drive

Innes Road/Viseneau Drive does not meet the target PLOS C, BLOS B, TLOS D, or TkLOS D.

Innes Road/Viseneau Drive cannot achieve the target PLOS at any approach without significantly reducing the number of lanes and restricting turning movements. Therefore, no modifications are recommended.

The south approach of Innes Road/Viseneau Drive does not achieve the target BLOS based on right turn characteristics, and the east and west approaches do not achieve the target BLOS based on left turn characteristics. For the south approach, which is a private access to a commercial property, the target BLOS B can be achieved by implementing a pocket bike lane between the through and

right turn lanes. For the east and west approaches, the target BLOS B can be achieved by implementing two-stage left-turn bike boxes. As shown in **Appendix H**, the vehicular level of service is marginally affected if bike boxes are implemented. Bike boxes on the north and south approaches are recommended for the City's consideration subject to funding.

The north approach of Innes Road/Viseneau Drive does not achieve the target TLOS. As Viseneau Drive does not have a transit priority designation, no modifications are recommended for the north approach.

The east approach of Innes Road/Viseneau Drive does not achieve the target TkLOS. Given that Viseneau Drive is a residential street, and the volume of heavy vehicles turning onto Viseneau Drive is anticipated to be low, no modifications to the curb radii are recommended.

6.5.2 2021 Background Intersection Operations

Intersection capacity analysis has been completed for the 2021 background traffic conditions. The intersection parameters used in the analysis are consistent with the 2017 TIA Guidelines (Saturation Flow Rate: 1800 vphpl, Peak Hour Factor: 1.0).

The December 2016 TIS prepared by Parsons in support of the Caivan Subdivision recommended signalization of the Innes Road/Caivan Access intersection, as well as a 35m westbound left turn lane and a 50m eastbound right turn lane. It is understood that the intersection will become signalized and auxiliary lanes will be implemented as their respective warrants are met.

In 2021 background conditions, the warrant for a westbound left turn lane at Innes Road/Caivan Access is met. The left turn warrant graph associated with a four-lane undivided highway is included in **Appendix I**. The warrant for an eastbound right turn lane, which corresponds to a right turning volume of 60 or more vehicles in a peak hour, is also met in 2021 background conditions. Based on the traffic signal justification presented in OTM Book 12, signalization of Innes Road/Caivan Access is warranted starting in the 2023 background conditions. Therefore, analysis of this intersection includes auxiliary westbound left turn and eastbound right turn lanes starting in 2021, and includes signalization starting in 2023. Results of the traffic signal justification using projected volumes are included in **Appendix I**.

The results of the Synchro analysis for the AM and PM peak hours are summarized in **Table 9**. The eastbound through and westbound left turn movements are listed with their associated 50th- and 95th-percentile queue lengths in **Table 10**. Signal timing plans are included in **Appendix J**. Detailed reports are included in **Appendix K**.

Table 9: 2021 Background – Intersection Operations

Intersection	AM Peak			PM Peak		
	Max v/c or Delay	LOS	Mvmt	Max v/c or Delay	LOS	Mvmt
Innes Road/ Pagé Road	0.55	A	SBL/T/R	0.68	B	WBL
Innes Road/ 473m East of Pagé Road	0.43	A	WBT	0.64	B	EBT
Innes Road/ Viseneau Drive	0.59	A	WBT	0.76	C	EBT
Innes Road/ Caivan Access ⁽¹⁾	15 sec	B	NBL/R	33 sec	D	NBL/R

1. Unsignalized intersection

Table 10: 2021 Background – Queues

Intersection	Mvmt	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/ Pagé Road	EBT	0.18	A	9	26	0.66	B	67	148
	WBL	0.06	A	1	2	0.68	B	7	#44
Innes Road/473m East of Pagé Road	EBT	0.16	A	0	23	0.64	B	96	119
	WBL	0.00	A	0	m1	0.21	A	1	8
Innes Road/ Viseneau Drive	EBT	0.19	A	14	28	0.76	C	135	203
	WBL	0.09	A	3	9	0.67	B	17	44

m: volume for the 95th percentile queue is metered by an upstream signal

#: volume for the 95th percentile cycle exceeds capacity

Based on the previous tables, marginal changes to the v/c ratios, queue lengths, and delays are anticipated as a result of background growth within the study area. The level of service for certain critical movements appear to improve compared to existing conditions, due to differences in the peak hour factor parameter (PHF of 0.9 in existing conditions versus 1.0 in future conditions, per the 2017 TIA Guidelines).

Due to the high opposing traffic volumes on Innes Road during the PM peak hour, vehicles performing a westbound left turn at Pagé Road and 473m East of Pagé Road are not anticipated to have sufficient gaps in traffic to complete their turn. Using the analytical method described in the left-turn phase justification section of OTM Book 12, no capacity for permissive left turns is anticipated at these intersections, and therefore a protected left turn phase is justified in the PM peak hour.

Providing protected plus permitted phasing is recommended for westbound left turns on Innes Road at Pagé Road and 473m East of Pagé Road. Changes in the level of service and queue lengths for the eastbound through and westbound left turn movements on Innes Road are shown in **Table 11**. Analysis of these intersections is included in **Appendix K**.

Table 11: 2021 Background Traffic – Westbound Left Turn Phasing

Intersection	Phasing	Mvmt	PM Peak			
			v/c	LOS	50 th % Queue (m)	95 th % Queue (m)
Innes Road/ Pagé Road	Protected + Permitted	EBT	0.79	C	112	#210
		WBL	0.51	A	6	#31
Innes Road/ 473m East of Pagé Road	Protected + Permitted	EBT	0.69	B	7	#219
		WBL	0.16	A	1	5

#: volume for the 95th percentile cycle exceeds capacity

Based on the results shown in the previous table, providing a protected plus permitted westbound left turn phase at all intersections has been assumed for the remainder of the analysis.

During the PM peak hour, providing a protected plus permitted westbound left turn phase at Innes Road/Pagé Road and Innes Road/473m East of Pagé Road is projected to result in the westbound left turn movements operating at an Auto LOS A. The v/c ratios for the eastbound through movements at both intersections are projected to worsen due to the protected plus permitted phasing, and noticeable increases in the 95th-percentile queue lengths are anticipated. Synchro identifies that the 95th-percentile eastbound queue length on Innes Road at 473m East of Pagé Road is approximately 225m, which approaches the upstream Caivan Access.

6.5.3 2021 Total Intersection Operations

Intersection capacity analysis has been completed for the 2021 total traffic conditions. The intersection parameters used in the analysis are consistent with the 2017 TIA Guidelines (Saturation Flow Rate: 1800 vphpl, Peak Hour Factor: 1.0).

The results of the Synchro analysis for the AM and PM peak hours are summarized in **Table 12**. The eastbound through and westbound left turn movements are listed with their associated 50th- and 95th-percentile queue lengths in **Table 13**. Signal timing plans are included in **Appendix J**. As stated previously, protected plus permitted phasing for westbound left turns at Innes Road/Pagé Road and Innes Road/473m East of Pagé Road have been assumed. Detailed reports are included in **Appendix K**.

Table 12: 2021 Total – Intersection Operations

Intersection	AM Peak			PM Peak		
	Max v/c or Delay	LOS	Mvmt	Max v/c or Delay	LOS	Mvmt
Innes Road/ Pagé Road	0.56	A	WBT	0.81	D	EBT
Innes Road/ 473m East of Pagé Road	0.43	A	WBT	0.70	B	EBT
Innes Road/ Viseneau Drive	0.59	A	WBT	0.78	C	EBT
Innes Road/ Caivan Access	17 sec	C	NBL/R	30 sec	D	NBL/R

1. Unsignalized intersection

Table 13: 2021 Total – Queues

Intersection	Mvmt	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/ Pagé Road	EBT	0.19	A	10	26	0.81	D	118	#219
	WBL	0.06	A	2	2	0.54	A	7	#29
Innes Road/473m East of Pagé Road	EBT	0.17	A	0	23	0.69	B	7	#221
	WBL	0.00	A	0	m1	0.16	A	1	5
Innes Road/ Viseneau Drive	EBT	0.20	A	15	28	0.76	C	136	#206
	WBL	0.09	A	2	9	0.67	B	17	44

m: volume for the 95th percentile queue is metered by an upstream signal

#: volume for the 95th percentile cycle exceeds capacity

Based on the previous tables, marginal changes to the v/c ratios, queue lengths, and delays are anticipated as a result of site-generated traffic within the study area.

6.5.4 2023 Background Intersection Operations

Intersection capacity analysis has been completed for the 2023 background traffic conditions. The intersection parameters used in the analysis are consistent with the 2017 TIA Guidelines (Saturation Flow Rate: 1800 vphpl, Peak Hour Factor: 1.0).

The results of the Synchro analysis for the AM and PM peak hours are summarized in **Table 14**. The eastbound through and westbound left turn movements at all intersections and the northbound left turn movement at the Caivan access are listed with their associated 50th- and 95th-percentile queue lengths in **Table 15**. Detailed reports are included in **Appendix K**.

Based on the traffic signal justification using projected volumes presented in OTM Book 12, signalization of the Innes Road/Caivan Access is warranted starting in the 2023 background conditions. No capacity for permissive westbound left turns is anticipated at Innes Road/Caivan Access, and therefore a protected plus permitted phase for westbound left turns has been applied consistent to the assumed westbound left turn phases at Innes Road/Pagé Road and Innes Road/473m East of Pagé Road, as described in Section 6.5.2. As a collector-arterial intersection, it is understood that this improvement is eligible for funding under the Development Charges (DC) By-Law.

Table 14: 2023 Background – Intersection Operations

Intersection	AM Peak			PM Peak		
	Max v/c	LOS	Mvmt	Max v/c	LOS	Mvmt
Innes Road/ Pagé Road	0.62	B	WBT	0.88	D	EBT
Innes Road/ 473m East of Pagé Road	0.44	A	WBT	0.71	C	EBT
Innes Road/ Viseneau Drive	0.59	A	WBT	0.79	C	EBT
Innes Road/ Caivan Access	0.84	D	NBL/R	0.82	D	EBT

Table 15: 2023 Background – Queues

Intersection	Mvmt	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/ Pagé Road	EBT	0.21	A	12	29	0.88	D	142	#254
	WBL	0.07	A	1	m3	0.56	A	7	#32
Innes Road/473m East of Pagé Road	EBT	0.17	A	0	13	0.71	C	3	#234
	WBL	0.00	A	0	m1	0.17	A	1	5
Innes Road/ Viseneau Drive	EBT	0.20	A	15	19	0.79	C	144	#231
	WBL	0.10	A	3	10	0.70	B	20	#47
Innes Road/ Caivan Access	EBT	0.23	A	17	23	0.82	D	11	#216
	WBL	0.01	A	0	m1	0.39	A	3	19
	NBL/R	0.84	D	56	#85	0.69	B	33	50

m: volume for the 95th percentile queue is metered by an upstream signal

#: volume for the 95th percentile cycle exceeds capacity

Based on the previous tables, increases to the v/c ratios, queue lengths, and delays are anticipated as a result of background growth within the study area.

6.5.5 2023 Total Intersection Operations

Intersection capacity analysis has been completed for the 2023 total traffic conditions. The intersection parameters used in the analysis are consistent with the 2017 TIA Guidelines (Saturation Flow Rate: 1800 vphpl, Peak Hour Factor: 1.0).

The results of the Synchro analysis for the AM and PM peak hours are summarized in **Table 16**. The eastbound through and westbound left turn movements at all intersections and the northbound left turn movement at the Caivan access are listed with their associated 50th- and 95th-percentile queue lengths in **Table 17**. Detailed reports are included in **Appendix K**.

Table 16: 2023 Total – Intersection Operations

Intersection	AM Peak			PM Peak		
	Max v/c	LOS	Mvmt	Max v/c	LOS	Mvmt
Innes Road/ Pagé Road	0.67	B	WBT	0.94	E	EBT
Innes Road/ 473m East of Pagé Road	0.58	A	NBT	0.81	D	EBT
Innes Road/ Viseneau Drive	0.60	A	WBT	0.80	C	EBT
Innes Road/ Caivan Access	0.86	D	NBL/R	0.88	D	EBT

Table 17: 2023 Total – Queues

Intersection	Mvmt	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/ Pagé Road	EBT	0.22	A	13	31	0.94	E	164	#281
	WBL	0.07	A	1	m3	0.56	A	7	#32
Innes Road/473m East of Pagé Road	EBT	0.22	A	11	14	0.81	D	3	#258
	WBL	0.02	A	1	m2	0.45	A	3	16
Innes Road/ Viseneau Drive	EBT	0.21	A	6	22	0.80	C	148	#236
	WBL	0.10	A	3	10	0.71	C	21	#51
Innes Road/ Caivan Access	EBT	0.25	A	19	24	0.88	D	16	m#227
	WBL	0.01	A	0	m1	0.40	A	3	18
	NBL/R	0.86	D	59	#95	0.71	C	36	53

m: volume for the 95th percentile queue is metered by an upstream signal

#: volume for the 95th percentile cycle exceeds capacity

Based on the previous tables, marginal changes to the v/c ratios, queue lengths, and delays are anticipated as a result of site-generated traffic within the study area.

Synchro identifies that optimization of the PM peak hour signal timings can mitigate the failing eastbound through movement at Innes Road/Pagé Road, improving the v/c ratio from 0.94 to 0.89. Optimization involved increasing the cycle length at Innes Road/Pagé Road, Innes Road/473m East of Pagé Road, and Innes Road/Caivan Access from 110 seconds to 130 seconds. At least 19 of the additional 20 seconds of green time were given to the eastbound and westbound through phase. Minor timing adjustments were made at Innes Road/Viseneau Drive, as the cycle length at this intersection is currently 130 seconds. Detailed reports of the optimized network are included in **Appendix K**.

6.5.6 2028 Background Intersection Operations

Intersection capacity analysis has been completed for the 2028 background traffic conditions. The intersection parameters used in the analysis are consistent with the 2017 TIA Guidelines (Saturation Flow Rate: 1800 vphpl, Peak Hour Factor: 1.0).

The results of the Synchro analysis for the AM and PM peak hours are summarized in **Table 18**. The eastbound through and westbound left turn movements at all intersections and the northbound left turn movement at the Caivan access are listed with their associated 50th- and 95th-percentile queue lengths in **Table 19**. Detailed reports are included in **Appendix K**.

Table 18: 2028 Background – Intersection Operations

Intersection	AM Peak			PM Peak		
	Max v/c	LOS	Mvmt	Max v/c	LOS	Mvmt
Innes Road/ Pagé Road	0.65	B	WBT	0.92	E	EBT
Innes Road/ 473m East of Pagé Road	0.46	A	WBT	0.75	C	EBT
Innes Road/ Viseneau Drive	0.63	B	WBT	0.83	D	EBT
Innes Road/ Caivan Access	0.84	D	NBL/R	0.86	D	EBT

Table 19: 2028 Background – Queues

Intersection	Mvmt	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/ Pagé Road	EBT	0.22	A	13	30	0.92	E	157	#272
	WBL	0.07	A	1	m3	0.56	A	7	#32
Innes Road/473m East of Pagé Road	EBT	0.18	A	0	14	0.75	C	3	#254
	WBL	0.00	A	0	m1	0.19	A	1	5
Innes Road/ Viseneau Drive	EBT	0.21	A	15	19	0.83	D	158	#250
	WBL	0.09	A	2	9	0.74	C	24	#55
Innes Road/ Caivan Access	EBT	0.24	A	18	24	0.86	D	11	m#231
	WBL	0.01	A	1	m1	0.40	A	3	20
	NBL/R	0.84	D	56	#85	0.69	B	33	50

m: volume for the 95th percentile queue is metered by an upstream signal

#: volume for the 95th percentile cycle exceeds capacity

Based on the previous tables, increases to the v/c ratios, queue lengths, and delays are anticipated as a result of background growth within the study area.

Synchro identifies that optimization of the PM peak hour signal timings can mitigate the failing eastbound through movement at Innes Road/Pagé Road, improving the v/c ratio from 0.92 to 0.87. Optimization involved the same increases to the cycle length as described in the previous section. Detailed reports of the optimized network are included in **Appendix K**.

6.5.7 2028 Total Intersection Operations

Intersection capacity analysis has been completed for the 2028 total traffic conditions. The intersection parameters used in the analysis are consistent with the 2017 TIA Guidelines (Saturation Flow Rate: 1800 vphpl, Peak Hour Factor: 1.0).

The results of the Synchro analysis for the AM and PM peak hours are summarized in **Table 20**. The eastbound through and westbound left turn movements at all intersections and the northbound left turn movement at the Caivan access are listed with their associated 50th- and 95th-percentile queue lengths in **Table 21**. Detailed reports are included in **Appendix K**.

Table 20: 2028 Total – Intersection Operations

Intersection	AM Peak			PM Peak		
	Max v/c	LOS	Mvmt	Max v/c	LOS	Mvmt
Innes Road/ Pagé Road	0.70	B	WBT	0.98	E	EBT
Innes Road/ 473m East of Pagé Road	0.58	A	NBL	0.84	D	EBT
Innes Road/ Viseneau Drive	0.64	B	WBT	0.84	D	EBT
Innes Road/ Caivan Access	0.86	D	NBL/R	0.92	E	EBT

Table 21: 2028 Total – Queues

Intersection	Mvmt	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/ Pagé Road	EBT	0.23	A	14	33	0.98	E	181	#298
	WBL	0.07	A	1	m2	0.56	A	7	#32
Innes Road/473m East of Pagé Road	EBT	0.23	A	12	14	0.84	D	3	#278
	WBL	0.02	A	1	m2	0.46	A	3	16
Innes Road/ Viseneau Drive	EBT	0.22	A	6	23	0.84	D	162	#256
	WBL	0.09	A	2	9	0.75	C	25	#57
Innes Road/ Caivan Access	EBT	0.26	A	20	25	0.92	E	21	#231
	WBL	0.01	A	1	m1	0.40	A	3	18
	NBL/R	0.86	D	59	#95	0.71	C	36	53

m: volume for the 95th percentile queue is metered by an upstream signal

#: volume for the 95th percentile cycle exceeds capacity

Based on the previous tables, marginal changes to the v/c ratios, queue lengths, and delays are anticipated as a result of site-generated traffic within the study area.

Synchro identifies that optimization of the signal timings can mitigate the failing eastbound through movement at Innes Road/Caivan Access, improving the v/c ratio from 0.92 to 0.86. Optimization somewhat mitigates the eastbound through movement at Innes Road/Pagé Road, improving the v/c ratio from 0.98 to 0.92. A reduction of approximately 40 eastbound through vehicles (a 2% reduction) is required to meet the target Auto LOS D. In the City’s RTTP Affordable Network, transit signal priority and queue jump lanes will be implemented on Innes Road at select intersections between Blair Station and Millennium Station. These measures are anticipated to improve transit service on Innes Road, and may improve the transit modal share. The Blackburn Hamlet Bypass and Brian Coburn Boulevard extensions will provide alternate parallel routes for eastbound/westbound traffic, and may provide some relief to the current traffic volumes on Innes Road.

7.0 CONCLUSIONS AND RECOMMENDATIONS

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

Forecasting

- In the Phase 1 year 2021, the proposed subdivision is projected to generate approximately 117 person trips during the AM peak hour and 154 person trips during the PM peak hour, which includes approximately 70 vehicle trips during the AM peak hour and 92 vehicle trips during the PM peak hour.
- In the full buildout year 2023, the proposed subdivision is projected to generate approximately 334 person trips during the AM peak hour and 428 person trips during the PM peak hour, which includes approximately 200 vehicle trips during the AM peak hour and 256 vehicle trips during the PM peak hour.

Development Design

- A ROW width of 24m and road width of 9.5m is proposed for Street No. 1, as it is anticipated to function as a collector roadway and accommodate transit in the future. A 9.5m roadway allows for one travel lane in each direction, and a parking lane on one side of the roadway. A 1.8m-wide sidewalk with a minimum boulevard width of 2.0m is proposed on one side of Street No.1, and a 3.0m-wide multi-use pathway with a minimum boulevard width of 1.75m is proposed on the other side.
- A ROW width of 18m and road width of 8.5m is proposed for Street No. 2 through Street No. 9, which are all anticipated to function as local roadways. A ROW width of 16.5m and road width of 8.5m is proposed for Street No. 7. A 1.8m sidewalk is proposed on the south side of Street No. 7. Asphalt pathways are proposed between Street No. 5 and Street No. 6, and between Street No. 4 and the Caivan subdivision to the west.
- The proposed subdivision will access the Caivan subdivision to the west and the Richcraft subdivision to the east via Street No. 1 and Street No. 7. The Richcraft subdivision will also be accessed via Street No. 5.

Complete Streets

- The proposed cross-section of Street No. 1 meets the segment MMLOS targets for a collector roadway in the General Urban Area.
- Innes Road does not meet the target segment PLOS C or BLOS B, but meets the target segment TLOS D, TkLOS D, and Auto LOS D.
- The implementation of 2.0m sidewalks with boulevard widths of greater than 2.0m on Innes Road would still not meet the target PLOS C, per Exhibit 4 of the MMLOS Guidelines. Allowing on-street parking and lowering the operating speed would be required to achieve the target PLOS, however these measures are considered inappropriate for this roadway.
- The target BLOS B cannot be achieved on Innes Road without a physically separated bikeway. OTM Book 18 describes the desirable facility of Innes Road to be a separated facility given the vehicular volumes and speed of the roadway, or suggests an alternate road for cyclists be considered. As the 2013 Ottawa Cycling Plan does not identify any cycling infrastructure projects on Innes Road, a separated facility is identified for the City's consideration. It should be noted that Street No. 1 will provide a more comfortable east-west route for cyclists as the EUC develops.

Transportation Demand Management

- The following TDM measures will be implemented at the sales centre, as the proposed subdivision is built:
 - Display local area maps with walking/cycling routes and key destinations;
 - Display relevant transit schedules and route maps;
 - Provide multimodal travel option information packages to new residents.

Transit

- In the Phase 1 year 2021, the proposed subdivision is projected to generate approximately 24 transit trips during the AM peak hour and 31 transit trips during the PM peak hour. In the full buildout year 2023, the proposed subdivision is projected to generate approximately 67 transit trips during the AM peak hour and 86 transit trips during the PM peak hour.
- All transit trips generated by the proposed subdivision are anticipated to board and exit at stops #1219 and #8129, or new stops within the East Urban Community. It is understood that OC Transpo will provide transit service within this area as the subdivision and neighbouring subdivisions develop.

Intersection MMLOS

- Based on the results of the intersection MMLOS analysis of Innes Road/Pagé Road, Innes Road/473m East of Pagé Road, and Innes Road/Viseneau Drive:
 - No study intersections meet the target PLOS;
 - No study intersections meet the target BLOS;
 - Innes Road/Pagé Road and Innes Road/473m East of Pagé Road meet the target TLOS, while Innes Road/Viseneau Drive does not;
 - No study intersections meet the target TkLOS;
 - All study intersections meet the target Auto LOS.
- The PLOS of all study area intersections cannot achieve the target PLOS C without significantly reducing the number of lanes crossed or restricting turning movements. The east and west approaches of Innes Road/Pagé Road meet the City's vehicle/pedestrian conflict threshold for zebra-striped crosswalks, which could be considered to improve the level of comfort for pedestrians. No other modifications are recommended.
- The east and west approaches of Innes Road/Pagé Road, Innes Road/473m East of Pagé Road, and Innes Road/Viseneau Drive do not achieve the target BLOS B based on left turn characteristics. To achieve the target BLOS, two-stage left-turn bike boxes can be implemented for eastbound and westbound cyclists. Therefore, bike boxes on the north and south approaches are recommended for the City's consideration subject to funding. It is also recommended that the bike boxes not be implemented in a 'piecemeal' manner at select intersections, but rather holistically along the Innes Road corridor where applicable.
- The south approach of Innes Road/Viseneau Drive does not achieve the target BLOS B based on right turn characteristics. At the south approach, the target can be achieved by implementing a pocket bike lane between the through and right turn lanes, however this approach is a private approach to a commercial property.
- The east and west approaches of Innes Road/Pagé Road, and the north approach of Innes Road/Viseneau Drive do not achieve the target TLOS D. The 2013 TMP identifies transit

signal priority and queue jump lanes at select intersections on Innes Road between Blair Station and Millennium Station. These measures would reduce delays for transit on Innes Road. As Viseneau Drive does not have a transit priority designation, no recommendations have been made for the north approach.

- The east and west approaches of Innes Road/Pagé Road and the east approach of Innes Road/Viseneau Drive do not achieve the target TkLOS D. As Pagé Road and Viseneau Drive are primarily residential streets, and the volume of heavy vehicles turning onto these streets is anticipated to be low, no modifications to the curb radii are recommended.
- The east approach of Innes Road/473m East of Pagé Road 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 or deliveries. Therefore, no modifications are recommended.

Intersection Capacity Analysis

- Due to the high eastbound volumes on Innes Road during the PM peak hour, vehicles performing a westbound left turn at Pagé Road and 473m East of Pagé Road are not anticipated to have sufficient gaps in traffic to complete their turn. No capacity for permissive left turns is anticipated at these intersections, and therefore a protected left turn phase is justified. The vehicular level of service for the eastbound through movements on Innes Road at Pagé Road and 473m East of Pagé Road are anticipated to worsen due to the implementation of a protected plus permitted left turn phase at these intersections.
- Warrants for a westbound left turn lane and eastbound right turn lane at Innes Road/Caivan Access are met starting in 2021. Warrants for signalization of the Innes Road/Caivan Access intersection are met starting in 2023. As a collector-arterial intersection, it is understood that this improvement is eligible for funding under the Development Charges (DC) By-Law.
- Starting in the 2023 total traffic conditions, the eastbound through movement at Innes Road/Pagé Road downgrades to an Auto LOS E. Optimization of the signal timings can mitigate the failing conditions, improving the v/c ratio of this movement from 0.94 to 0.89. By the 2028 total traffic conditions, optimization of the network and a reduction of 40 eastbound through vehicles is required to meet the target Auto LOS D. Transit priority measures on Innes Road as described in the City's RTTP Affordable Network are anticipated to improve transit service on Innes Road, and may improve the transit modal share. The Blackburn Hamlet Bypass and Brian Coburn Boulevard extensions will provide alternate parallel routes for eastbound/westbound traffic, and may provide some relief to the current traffic volumes on Innes Road.
- Starting in the 2028 total traffic conditions, the eastbound through movement at Innes Road/Caivan Access downgrades to an Auto LOS E. Optimization of the signal timings can mitigate the failing conditions, improving the v/c ratio of this movement from 0.92 to 0.86.
- Based on the foregoing, the proposed subdivision is recommended from a transportation perspective.

NOVATECH

Prepared by:



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

Reviewed by:



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

APPENDIX A

Conceptual Draft Plan

APPENDIX B

TIA Screening Form

City of Ottawa 2017 TIA Guidelines Screening Form

1. Description of Proposed Development

Municipal Address	0 Innes Road
Description of Location	The approximately 15.5-hectare site is located south of the former Builders' Warehouse site
Land Use Classification	Residential
Development Size (units)	457 dwellings
Development Size (m ²)	-
Number of Accesses and Locations	<ul style="list-style-type: none"> • Proposed access on new collector and local roadways in the neighbouring subdivisions to the east and west • Proposed connection to former Builders' Warehouse access
Phase of Development	2
Buildout Year	Phase 1: 2021, Full Buildout: 2023

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

2. Trip Generation Trigger

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

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

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

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

3. Location Triggers

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

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

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

4. Safety Triggers

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

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

5. Summary

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

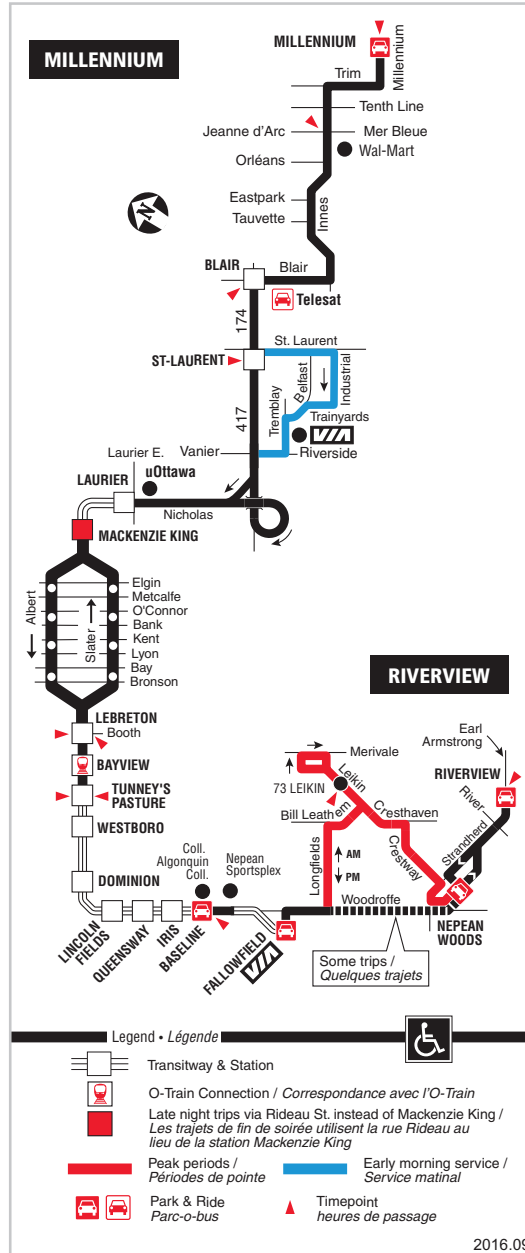
If none of the triggers are satisfied, the TIA Study is complete. If one or more of the triggers is satisfied, the TIA Study must continue into the next stage (Screening and Scoping).

APPENDIX C

OC Transpo Route Maps

94 MILLENNIUM RIVERVIEW

7 days a week / 7 jours par semaine
All day service
Service toute la journée



Information / Renseignement.....**613-741-4390**

Customer Relations
Service à la clientèle**613-842-3600**

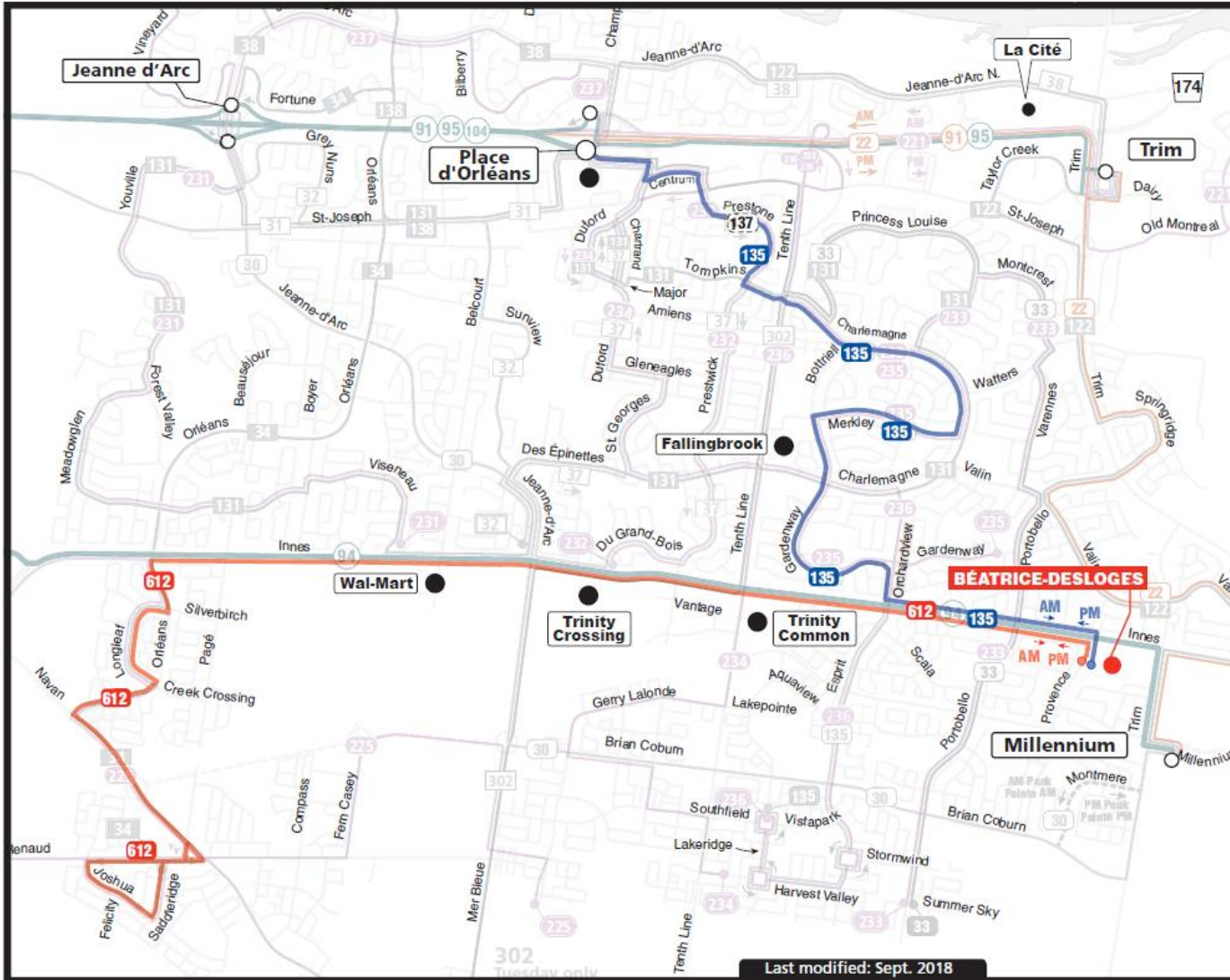
Lost and Found / Objets perdus**613-563-4011**

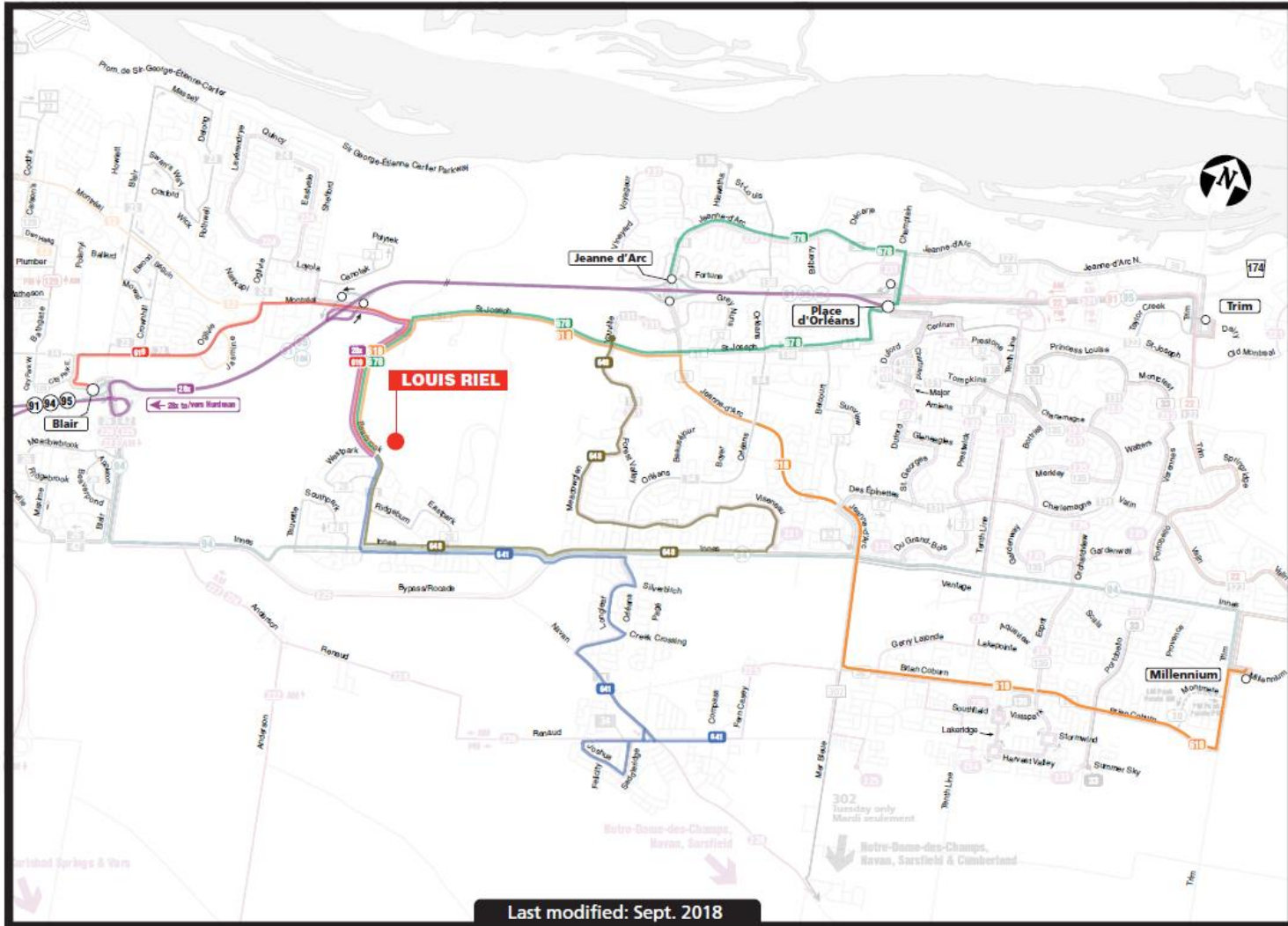
Schedule / Horaire.....**613-560-1000**

Text / Texto**560560**

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

Effective / En vigueur Sept. 4 sept. 2016





Last modified: Sept. 2018



APPENDIX D

Traffic Count Data



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

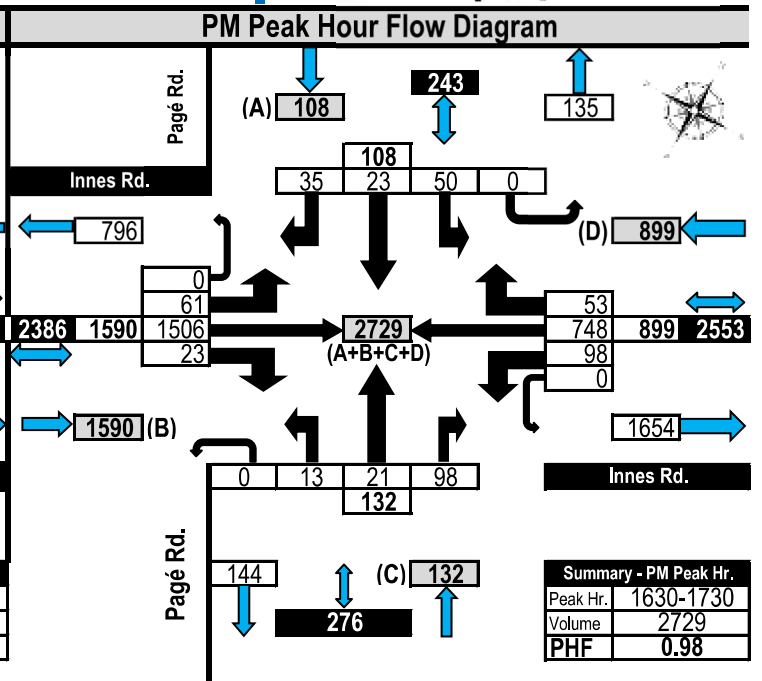
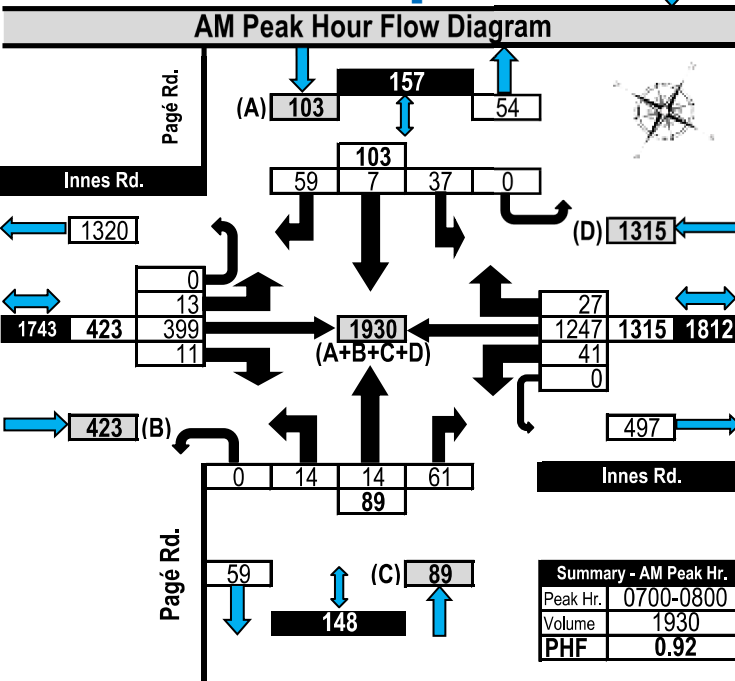
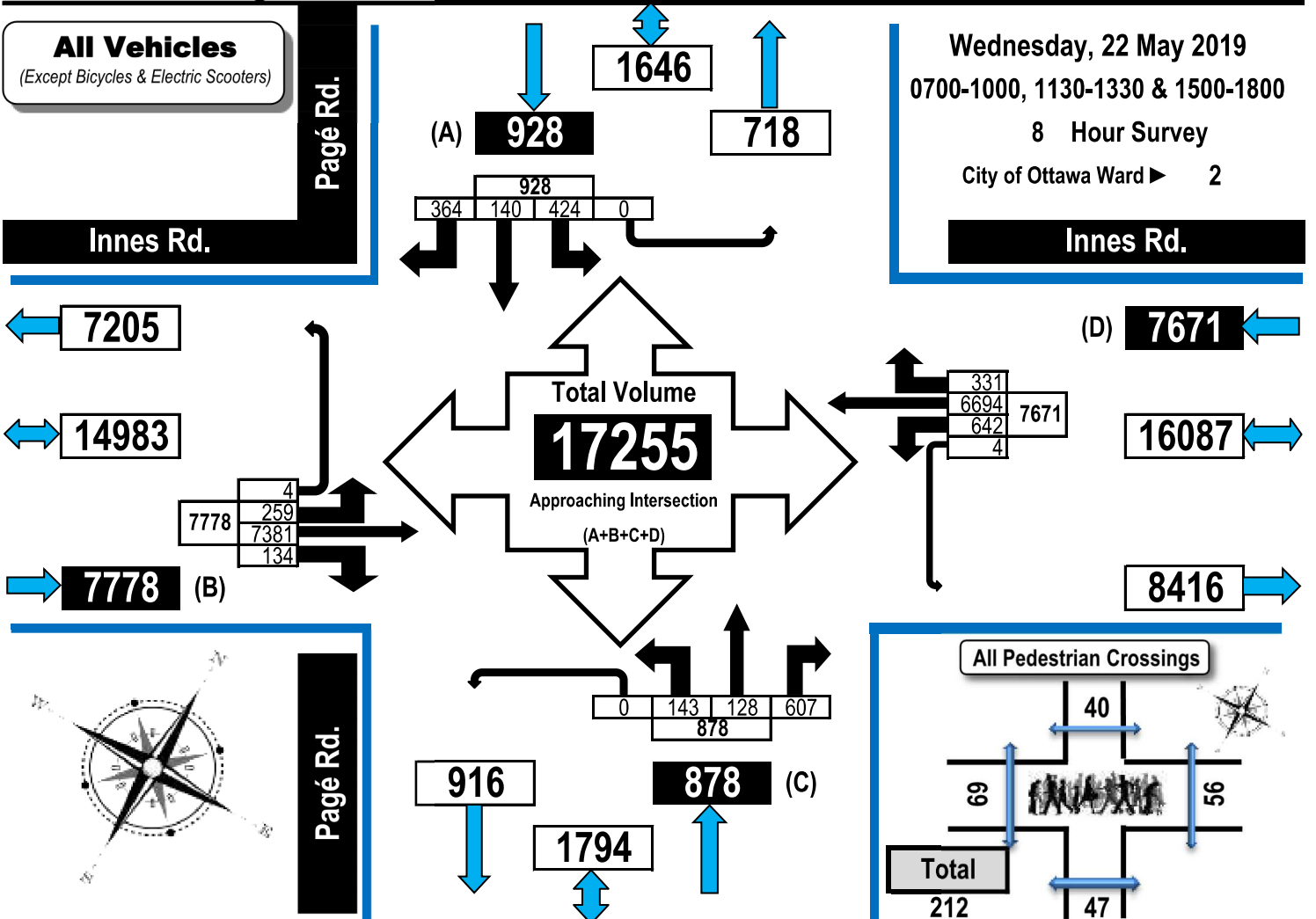
Automobiles, Taxis, Light Trucks, Vans, SUV's, Motorcycles, Heavy Trucks, Buses, and School Buses

Innes Road & Pagé Road

Orléans, ON

All Vehicles
(Except Bicycles & Electric Scooters)

Wednesday, 22 May 2019
0700-1000, 1130-1330 & 1500-1800
8 Hour Survey
City of Ottawa Ward 2



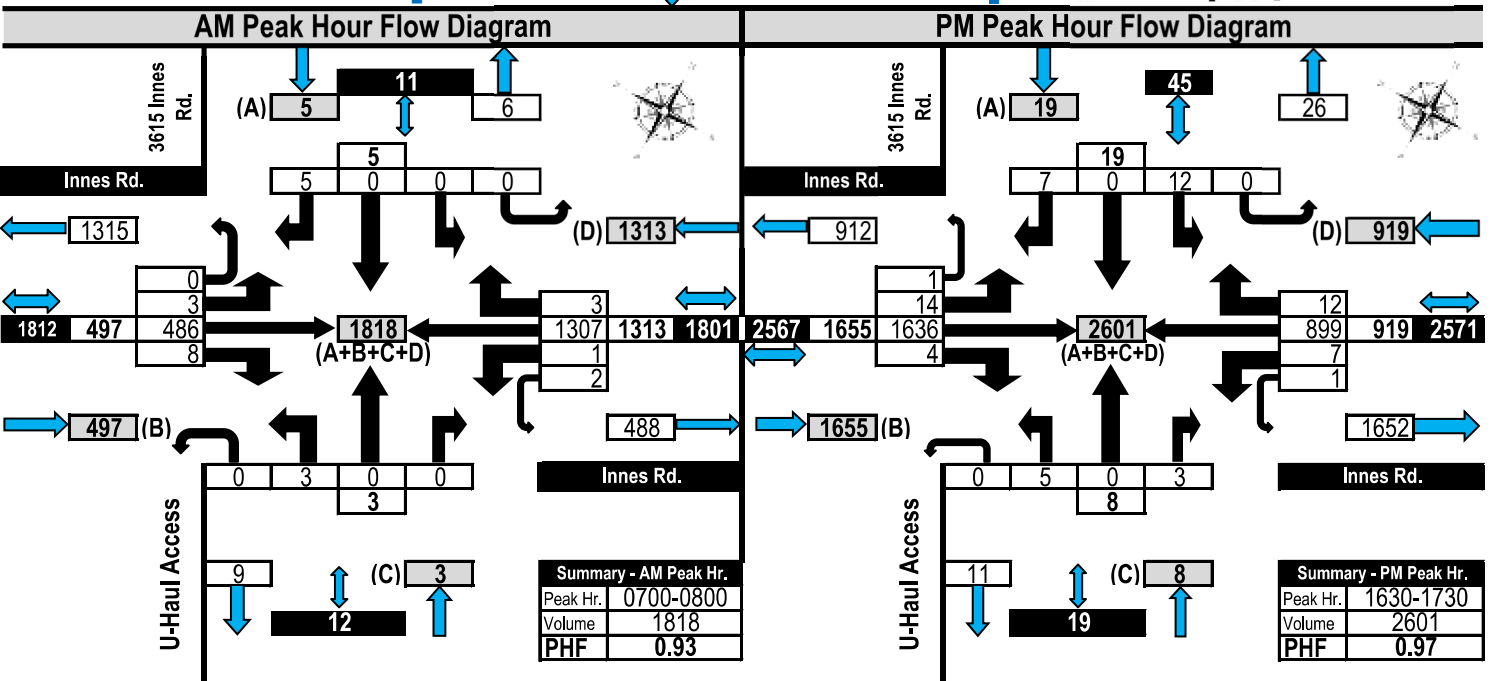
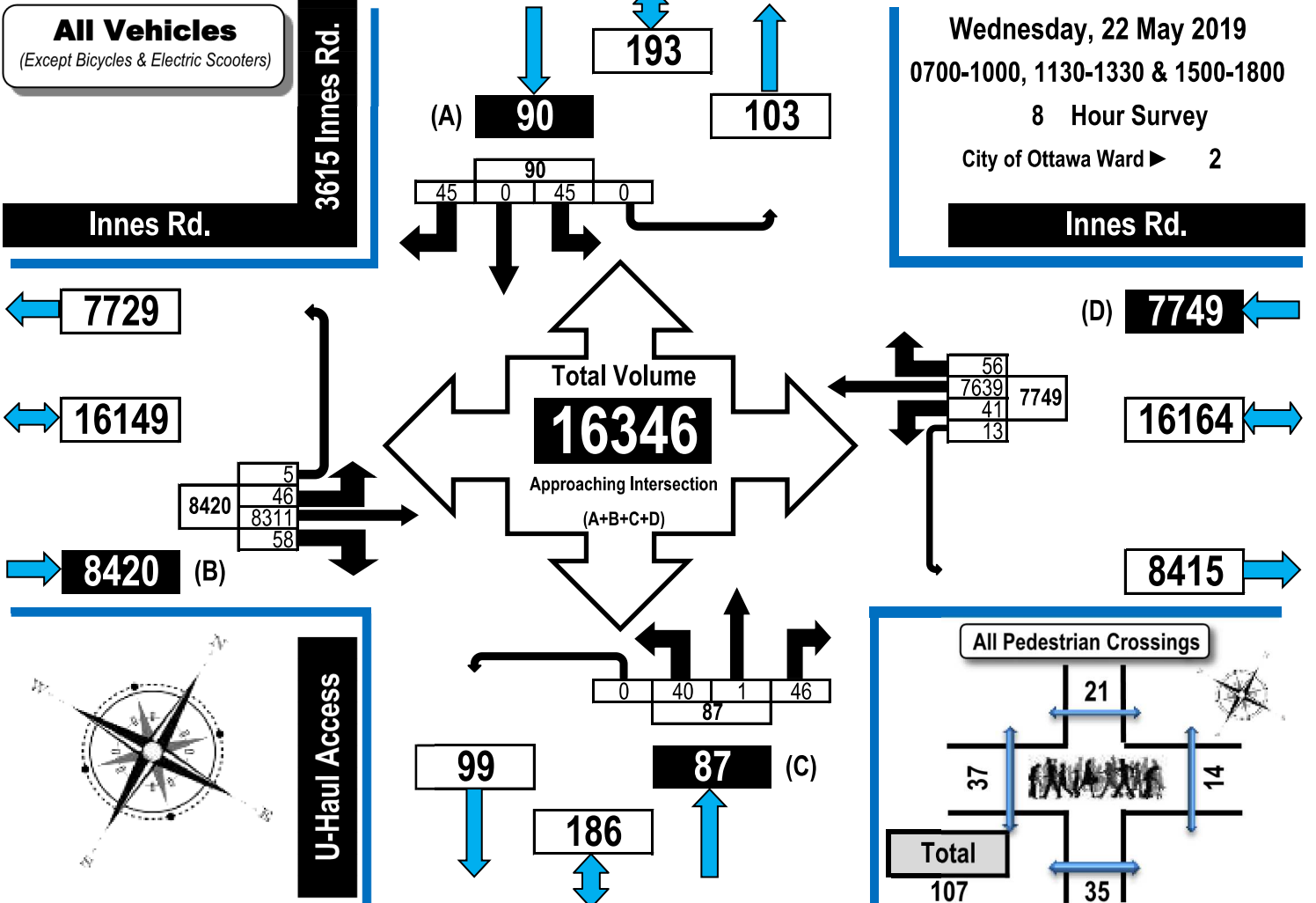


Turning Movement Count Summary, AM and PM Peak Hour Flow Diagrams

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

Innes Road & U-Haul Access (3636 Innes Road)

Orléans, ON



Turning Movement Count - Peak Hour Diagram

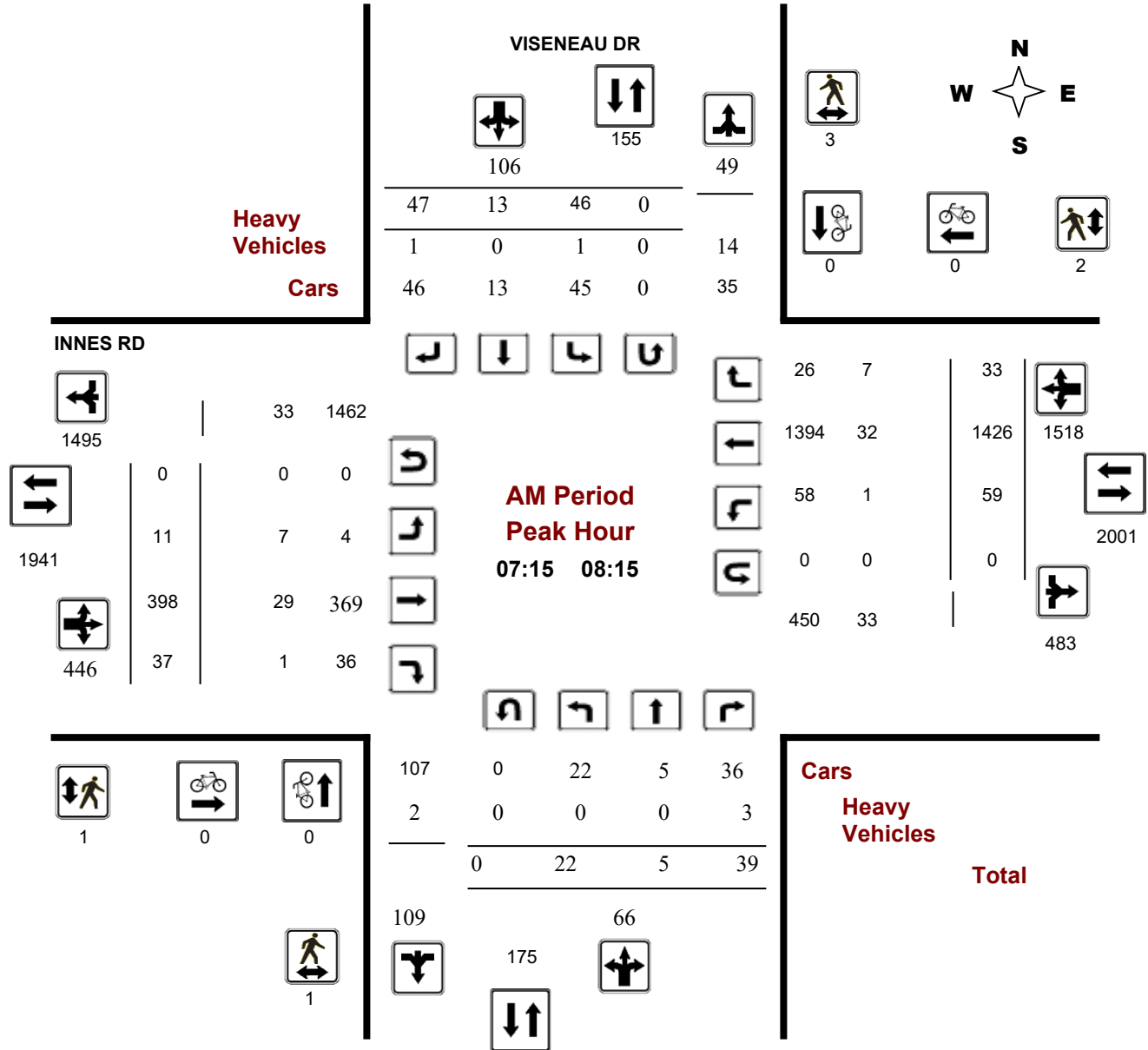
INNES RD @ VISENEAU DR

Survey Date: Wednesday, January 25, 2017

Start Time: 07:00

WO No: 36661

Device: Miovision



Comments

Turning Movement Count - Peak Hour Diagram

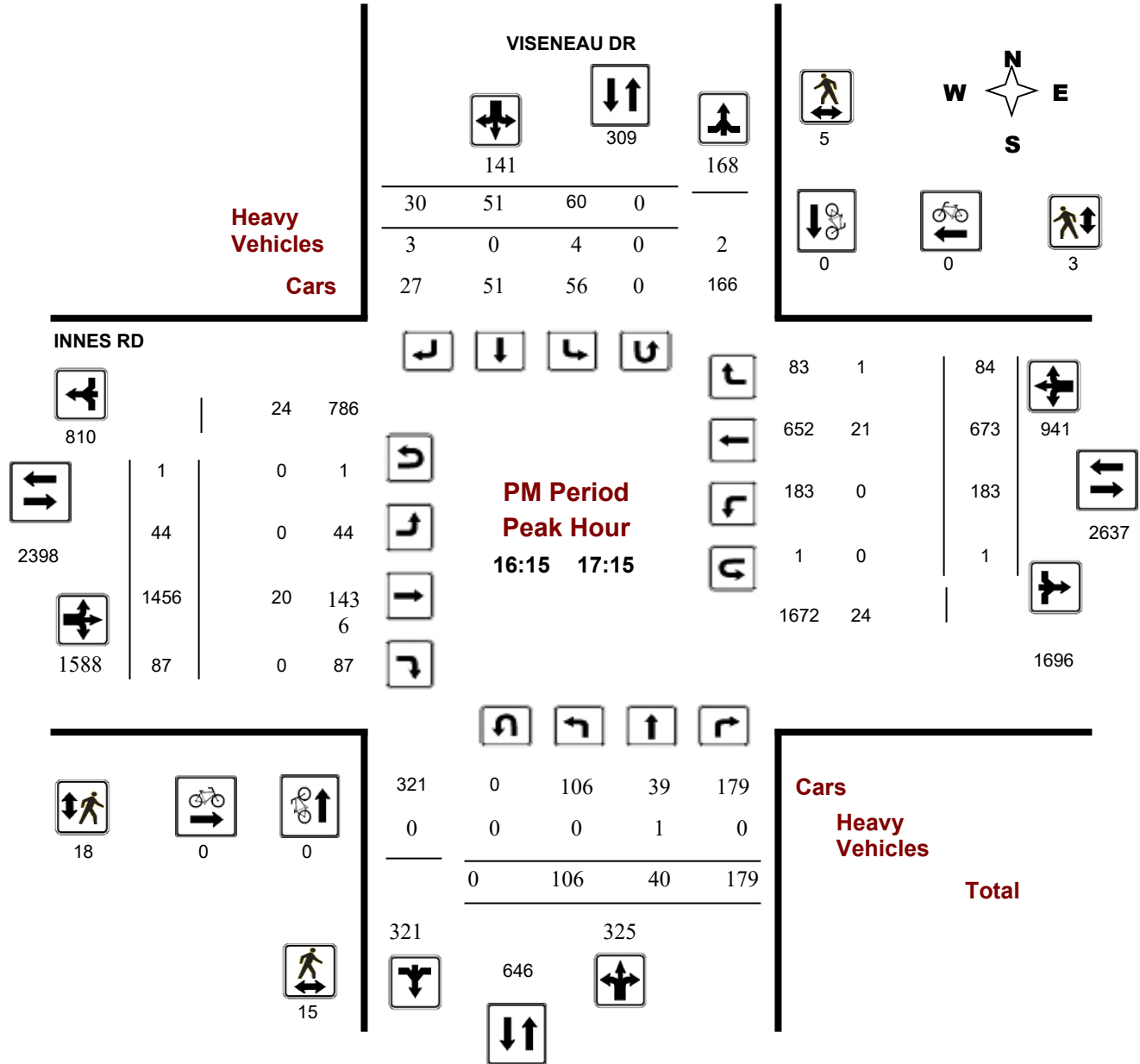
INNES RD @ VISENEAU DR

Survey Date: Wednesday, January 25, 2017

Start Time: 07:00

WO No: 36661

Device: Miovision



Turning Movement Count - Full Study Summary Report

INNES RD @ VISENEAU DR

Survey Date: Wednesday, January 25, 201

Total Observed U-Turns

Northbound: 0 Southbound: 0
Eastbound: 12 Westbound: 4

AADT Factor

1.00

Full Study

Period	VISENEAU DR								INNES RD								STR TOT	Grand Total	
	Northbound				Southbound				Eastbound				Westbound						
	LT	ST	RT	NB TOT	LT	ST	RT	SB TOT	LT	ST	RT	EB TOT	LT	ST	RT	WB TOT			
07:00 08:00	34	6	37	77	47	12	44	103	180	14	363	29	406	35	1461	32	1528	1934	2114
08:00 09:00	40	12	31	83	48	24	42	114	197	7	427	64	498	141	1100	34	1275	1773	1970
09:00 10:00	74	7	64	145	40	35	25	100	245	14	518	48	580	124	662	35	821	1401	1646
11:30 12:30	126	30	157	313	44	27	15	86	399	13	734	74	821	147	653	52	852	1673	2072
12:30 13:30	119	45	148	312	52	31	24	107	419	21	585	71	677	143	666	54	863	1540	1959
15:00 16:00	108	28	162	298	51	34	22	107	405	44	1217	78	1339	149	742	87	978	2317	2722
16:00 17:00	110	46	172	328	69	56	27	152	480	43	1430	84	1557	177	640	94	911	2468	2948
17:00 18:00	113	32	160	305	62	45	31	138	443	41	1318	74	1433	232	655	72	959	2392	2835
Sub Total	724	206	931	1861	413	264	230	907	2768	197	6592	522	7311	1148	6579	460	8187	15498	18266
U Turns				0				0	0				12				4	16	16
Total	724	206	931	1861	413	264	230	907	2768	197	6592	522	7323	1148	6579	460	8191	15514	18282
EQ 12Hr	1006	286	1294	2587	574	367	320	1261	3848	274	9163	726	10179	1596	9145	639	11385	21564	25412
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.													1.39						
AVG 12Hr	1006	286	1294	2587	574	367	320	1261	3848	274	9163	726	10179	1596	9145	639	11385	21564	25412
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.													1.00						
AVG 24Hr	1318	375	1695	3389	752	481	419	1652	5041	359	12003	951	13334	2090	11980	838	14915	28249	33290
Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor.													1.31						

Comments:

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

APPENDIX E

Collision Records



City Operations - Transportation Services

Collision Details Report - Public Version

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

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
2013-Feb-27, Wed,15:15	Snow	Angle	P.D. only	Loose snow	West	Going ahead	Automobile, station wagon	Other motor vehicle	
					South	Turning right	Automobile, station wagon	Other motor vehicle	
2013-Mar-19, Tue,20:08	Snow	Rear end	Non-fatal injury	Ice	West	Slowing or stopping	Automobile, station wagon	Skidding/sliding	
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2015-Jan-21, Wed,08:18	Rain	Rear end	P.D. only	Wet	West	Slowing or stopping	Pick-up truck	Other motor vehicle	
					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	
					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	
					East	Slowing or stopping	Pick-up truck	Other motor vehicle	

Location: INNES RD @ PAGE RD

Traffic Control: Traffic signal

Total Collisions: 29

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2013-Jun-19, Wed,19:49	Clear	SMV other	Non-fatal injury	Dry	North	Turning left	Automobile, station wagon	Pedestrian	1
2013-Oct-17, Thu,16:35	Clear	Angle	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	
					North	Going ahead	Pick-up truck	Other motor vehicle	
2013-Nov-10, Sun,18:37	Rain	Turning movement	P.D. only	Wet	South	Turning right	Automobile, station wagon	Other motor vehicle	
					South	Turning right	Automobile, station wagon	Other motor vehicle	
2014-May-03, Sat,15:48	Clear	Turning movement	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle	
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2014-Aug-19, Tue,11:06	Clear	Angle	P.D. only	Dry	West	Going ahead	Pick-up truck	Other motor vehicle	
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2014-Oct-20, Mon,20:40	Rain	Turning movement	P.D. only	Wet	East	Going ahead	Automobile, station wagon	Other motor vehicle	
					West	Turning left	Pick-up truck	Other motor vehicle	
2014-Nov-18, Tue,16:45	Clear	Rear end	P.D. only	Ice	East	Going ahead	Automobile, station wagon	Other motor vehicle	
					East	Stopped	Pick-up truck	Other motor vehicle	

2014-Nov-18, Tue,17:39	Clear	Rear end	P.D. only	Ice	North	Turning right	Automobile, station wagon	Other motor vehicle
					North	Turning right	Automobile, station wagon	Other motor vehicle

2014-Dec-07, Sun,11:15	Clear	Rear end	P.D. only	Dry	East	Going ahead	Pick-up truck	Other motor vehicle
					East	Stopped	Automobile, station wagon	Other motor vehicle

2014-Dec-10, Wed,20:15	Snow	Rear end	P.D. only	Loose snow	West	Turning left	Passenger van	Other motor vehicle
					West	Turning left	Pick-up truck	Other motor vehicle

2015-Jan-14, Wed,08:40	Clear	Rear end	P.D. only	Ice	West	Slowing or stopping	Pick-up truck	Other motor vehicle
					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
					West	Stopped	Pick-up truck	Other motor vehicle

2015-Jul-14, Tue,18:58	Clear	Rear end	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle
					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
					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	
					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	
					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	
					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	
					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	
					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	
					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	

					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
					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
					West	Stopped	Automobile, station wagon	Other motor vehicle
2017-Jun-01, Thu,12:22	Clear	Turning movement	Non-fatal injury	Dry	North	Turning left	Automobile, station wagon	Cyclist
					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
					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
					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
					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
					South	Going ahead	Truck - dump	Other motor vehicle

Location: INNES RD @ VISENEAU DR

Traffic Control: Traffic signal

Total Collisions: 39

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2013-Feb-13, Wed,20:30	Clear	Turning movement	P.D. only	Wet	South	Turning left	Pick-up truck	Other motor vehicle	
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2013-Mar-30, Sat,11:25	Clear	Rear end	P.D. only	Dry	East	Turning right	Automobile, station wagon	Other motor vehicle	
					East	Turning right	Passenger van	Other motor vehicle	
					East	Turning right	Automobile, station wagon	Other motor vehicle	
2013-Apr-04, Thu,08:41	Clear	Angle	P.D. only	Dry	South	Turning right	Pick-up truck	Other motor vehicle	
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2013-Apr-26, Fri,21:02	Clear	Turning movement	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	
					West	Turning left	Automobile, station wagon	Other motor vehicle	
2013-May-23, Thu,15:16	Rain	Angle	Non-fatal injury	Wet	West	Going ahead	Pick-up truck	Other motor vehicle	
					North	Going ahead	Automobile, station wagon	Other motor vehicle	

					South	Turning left	Municipal transit bus	Other motor vehicle
2013-Jun-03, Mon,13:26	Clear	Rear end	P.D. only	Dry	East	Going ahead	Pick-up truck	Other motor vehicle
					East	Stopped	Pick-up truck	Other motor vehicle
2013-Jul-09, Tue,20:00	Clear	Rear end	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle
					East	Stopped	Pick-up truck	Other motor vehicle
2013-Aug-11, Sun,23:30	Clear	SMV other	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Debris on road
2013-Oct-04, Fri,19:54	Clear	Turning movement	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Pick-up truck	Other motor vehicle
					South	Stopped	Automobile, station wagon	Other motor vehicle
2013-Nov-11, Mon,16:00	Rain	Turning movement	P.D. only	Wet	West	Turning left	Pick-up truck	Other motor vehicle
					East	Going ahead	Automobile, station wagon	Other motor vehicle
2013-Dec-09, Mon,10:46	Snow	Rear end	P.D. only	Loose snow	East	Going ahead	Pick-up truck	Other motor vehicle
					East	Stopped	Pick-up truck	Other motor vehicle
2014-Mar-28, Fri,20:40	Rain	Rear end	P.D. only	Wet	East	Slowing or stopping	Automobile, station wagon	Skidding/sliding

					East	Slowing or stopping	Pick-up truck	Other motor vehicle
2014-May-14, Wed,16:00	Clear	Turning movement	Non-fatal injury	Dry	South	Turning left	Bicycle	Other motor vehicle
					South	Turning right	Pick-up truck	Cyclist
2014-Jun-18, Wed,06:44	Clear	Angle	Non-fatal injury	Wet	West	Going ahead	Automobile, station wagon	Other motor vehicle
					South	Going ahead	Automobile, station wagon	Other motor vehicle
2014-Aug-11, Mon,20:25	Clear	Angle	Non-fatal injury	Dry	South	Going ahead	Bicycle	Other motor vehicle
					West	Going ahead	Motorcycle	Cyclist
2014-Oct-05, Sun,13:55	Clear	Rear end	Non-fatal injury	Dry	East	Going ahead	Pick-up truck	Other motor vehicle
					East	Stopped	Automobile, station wagon	Other motor vehicle
					East	Stopped	Automobile, station wagon	Other motor vehicle
					East	Stopped	Pick-up truck	Other motor vehicle
2014-Nov-24, Mon,07:00	Rain	Turning movement	P.D. only	Wet	North	Turning right	Unknown	Other motor vehicle
					South	Turning left	Automobile, station wagon	Other motor vehicle
2014-Dec-14, Sun,12:32	Clear	Rear end	P.D. only	Wet	East	Going ahead	Pick-up truck	Other motor vehicle
					East	Stopped	Passenger van	Other motor vehicle

					East	Stopped	Automobile, station wagon	Other motor vehicle
2015-Jan-02, Fri,18:19	Clear	Rear end	P.D. only	Dry	West	Turning left	Unknown	Other motor vehicle
					West	Turning left	Automobile, station wagon	Other motor vehicle
2015-Jan-16, Fri,20:09	Clear	Turning movement	P.D. only	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle
					East	Going ahead	Pick-up truck	Other motor vehicle
2015-Jan-30, Fri,19:35	Clear	Rear end	P.D. only	Wet	South	Going ahead	Passenger van	Other motor vehicle
					South	Stopped	Pick-up truck	Other motor vehicle
2015-Apr-30, Thu,14:06	Clear	Turning movement	Non-fatal injury	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle
					East	Going ahead	Pick-up truck	Other motor vehicle
2015-Jun-10, Wed,08:20	Clear	Rear end	Non-fatal injury	Dry	West	Slowing or stopping	Pick-up truck	Other motor vehicle
					West	Slowing or stopping	Automobile, station wagon	Other motor vehicle
					West	Stopped	Automobile, station wagon	Other motor vehicle
2015-Oct-08, Thu,15:32	Clear	Turning movement	P.D. only	Dry	West	Turning left	Pick-up truck	Other motor vehicle
					East	Going ahead	Automobile, station wagon	Other motor vehicle

2016-Feb-05, Fri,18:00	Clear	Other	P.D. only	Dry	Unknown	Unknown	Unknown	Other motor vehicle
					West	Slowing or stopping	Pick-up truck	Other motor vehicle
2016-Feb-27, Sat,12:30	Clear	Rear end	Non-fatal injury	Dry	East	Turning right	Automobile, station wagon	Other motor vehicle
					East	Turning right	Automobile, station wagon	Other motor vehicle
2016-Apr-04, Mon,13:34	Clear	Rear end	P.D. only	Dry	East	Going ahead	Pick-up truck	Other motor vehicle
					East	Stopped	Automobile, station wagon	Other motor vehicle
2016-Apr-06, Wed,20:10	Snow	Angle	P.D. only	Loose snow	West	Turning right	Automobile, station wagon	Other motor vehicle
					South	Stopped	Automobile, station wagon	Other motor vehicle
2016-Apr-30, Sat,11:41	Clear	Rear end	P.D. only	Dry	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle
					East	Stopped	Automobile, station wagon	Other motor vehicle
2016-Jun-21, Tue,15:20	Clear	Rear end	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle
					East	Stopped	Pick-up truck	Other motor vehicle
2016-Aug-24, Wed,18:35	Clear	Rear end	P.D. only	Dry	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle
					West	Stopped	Passenger van	Other motor vehicle

2016-Nov-01, Tue,11:00	Clear	Angle	P.D. only	Dry	North	Turning right	Passenger van	Other motor vehicle
					East	Going ahead	Pick-up truck	Other motor vehicle

2016-Nov-26, Sat,11:30	Clear	Rear end	Non-fatal injury	Dry	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle
					East	Stopped	Automobile, station wagon	Other motor vehicle

2016-Dec-23, Fri,11:55	Clear	Rear end	P.D. only	Wet	West	Going ahead	Automobile, station wagon	Other motor vehicle
					West	Stopped	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle

2016-Dec-29, Thu,18:05	Snow	Turning movement	P.D. only	Packed snow	South	Turning right	Municipal transit bus	Other motor vehicle
					South	Stopped	Automobile, station wagon	Other motor vehicle

2017-Jan-04, Wed,18:00	Snow	Turning movement	P.D. only	Slush	West	Turning left	Automobile, station wagon	Other motor vehicle
					East	Going ahead	Automobile, station wagon	Other motor vehicle

2017-Jan-10, Tue,21:06	Freezing Rain	Turning movement	P.D. only	Loose snow	West	Turning right	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle
					South	Stopped	Automobile, station wagon	Other motor vehicle

2017-Mar-20, Mon,10:17	Clear	Turning movement	P.D. only	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle
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					East	Going ahead	Automobile, station wagon	Other motor vehicle
2017-Nov-05, Sun,16:39	Rain	Turning movement	P.D. only	Wet	West	Turning left	Automobile, station wagon	Other motor vehicle
					East	Going ahead	Automobile, station wagon	Other motor vehicle

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

Traffic Control: No control

Total Collisions: 2

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2013-May-01, Wed,07:35	Clear	Sideswipe	P.D. only	Dry	West	Changing lanes	Automobile, station wagon	Other motor vehicle	
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2016-May-02, Mon,13:53	Clear	Angle	P.D. only	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle	
					East	Going ahead	Automobile, station wagon	Other motor vehicle	

Location: INNES RD btwn GREENVALE LANE & VISENEAU DR

Traffic Control: No control

Total Collisions: 5

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2013-Jun-03, Mon,16:27	Clear	Rear end	Non-fatal injury	Dry	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
					East	Stopped	Pick-up truck	Other motor vehicle	
2014-Jul-29, Tue,15:33	Clear	Rear end	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	
					East	Stopped	Pick-up truck	Other motor vehicle	

2015-Dec-21, Mon,11:07	Freezing Rain	Sideswipe	P.D. only	Ice	West	Changing lanes	Pick-up truck	Skidding/sliding
					West	Going ahead	Pick-up truck	Other motor vehicle
2016-Jun-18, Sat,14:50	Clear	Angle	P.D. only	Dry	North	Turning right	Automobile, station wagon	Other motor vehicle
					East	Changing lanes	Passenger van	Other motor vehicle
2016-Aug-26, Fri,17:09	Clear	Rear end	Non-fatal injury	Dry	East	Going ahead	Passenger van	Other motor vehicle
					East	Stopped	Automobile, station wagon	Other motor vehicle
					East	Stopped	Automobile, station wagon	Other motor vehicle

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

Traffic Control: No control

Total Collisions: 16

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2013-Jan-25, Fri,07:05	Clear	Rear end	Non-fatal injury	Dry	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
					West	Stopped	Automobile, station wagon	Other motor vehicle	
					West	Stopped	Municipal transit bus	Other motor vehicle	
					West	Slowing or stopping	Pick-up truck	Other motor vehicle	
					West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
2013-May-17, Fri,18:45	Clear	Sideswipe	P.D. only	Dry	West	Changing lanes	Automobile, station wagon	Other motor vehicle	
					West	Going ahead	Municipal transit bus	Other motor vehicle	

2013-Dec-21, Sat,13:11	Clear	Angle	P.D. only	Wet	South	Turning right	Automobile, station wagon	Other motor vehicle
					West	Stopped	Pick-up truck	Other motor vehicle
					West	Stopped	Pick-up truck	Other motor vehicle

2013-Sep-29, Sun,18:00	Clear	Turning movement	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle
					West	Turning right	Automobile, station wagon	Other motor vehicle

2014-Mar-06, Thu,07:58	Clear	Angle	Non-fatal injury	Dry	South	Turning left	Automobile, station wagon	Other motor vehicle
					West	Going ahead	Automobile, station wagon	Other motor vehicle

2014-Nov-20, Thu,16:56	Clear	Rear end	P.D. only	Dry	East	Slowing or stopping	Passenger van	Other motor vehicle
					East	Stopped	Passenger van	Other motor vehicle

2015-Jan-14, Wed,09:38	Clear	Rear end	P.D. only	Dry	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle
					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
					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
					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
					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
					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
					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
					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
					West	Stopped	Automobile, station wagon	Other motor vehicle
2017-Jun-01, Thu,01:16	Clear	Sideswipe	P.D. only	Dry	East	Unknown	Unknown	Other motor vehicle
					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
					East	Stopped	Police vehicle	Other motor vehicle

APPENDIX F

Other Area Developments

Other Area Developments

3443 Innes Road

1.0 INTRODUCTION

The Transportation Impact Assessment (TIA) report has been prepared in support of Zoning By-Law Amendment and Site Plan Control applications for 3443 Innes Road.

The subject site has an area of 0.33 hectares and is currently occupied by a residential dwelling. The site is bound by Innes Road to the south, Pagé Road to the east, existing residential to the north and west. An aerial photo of the subject site is provided in Figure 1.

Figure 1: Aerial Photo of Subject Site



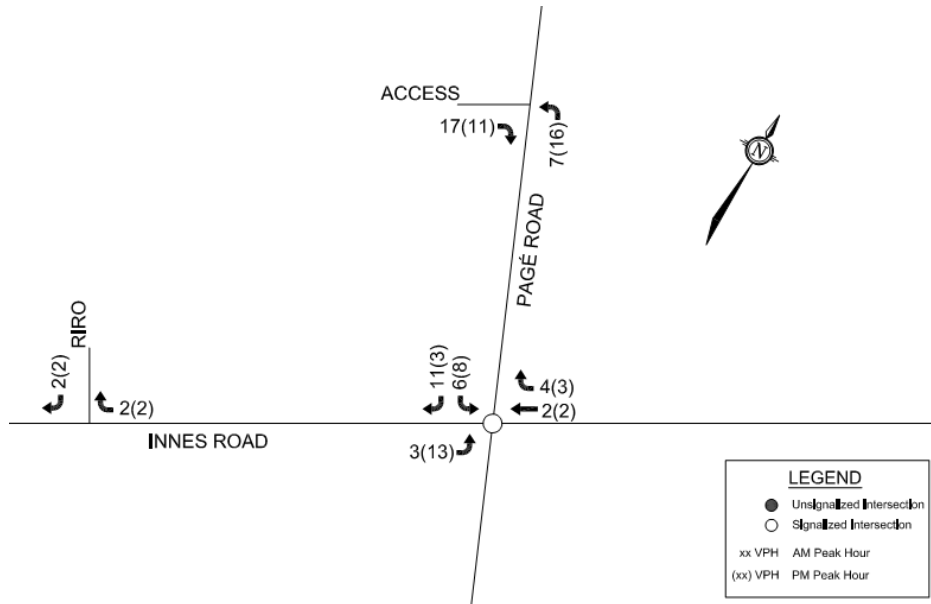
2.0 PROPOSED DEVELOPMENT

This proposed six-storey mixed use development includes:

- Six ground floor commercial units with a total combined area of 499 m²
- Thirty-five residential units located above the commercial units
- Seventy-one parking spaces
- Total building square footage: 2,944 m² (31,689 sq. ft.)

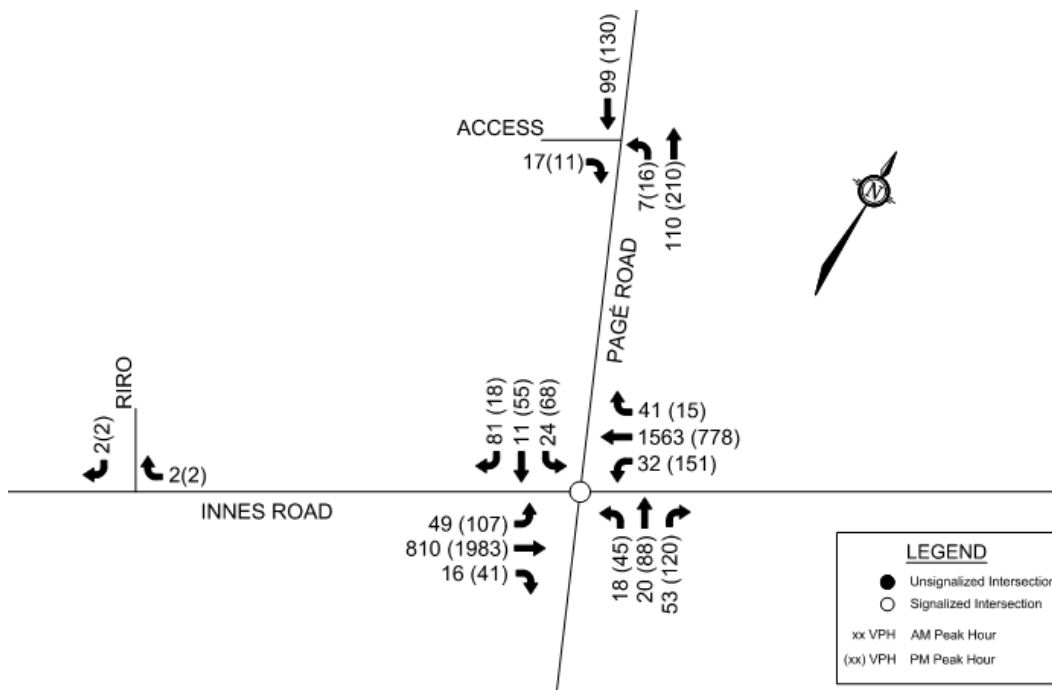
The subject site has two proposed accesses including one full movement access to Pagé Road and a right-in, right-out (RIRO) driveway to Innes Road.

Figure 4: Site Generated Traffic Volumes



Total traffic volumes have been calculated by adding the site traffic to existing traffic as shown in **Figure 5** for the weekday a.m. and p.m. peak hours.

Figure 5: Total Traffic Volumes



Other Area Developments

MacEwen Car Wash

Exhibit 2.1: Existing Traffic Control and Lane Configurations

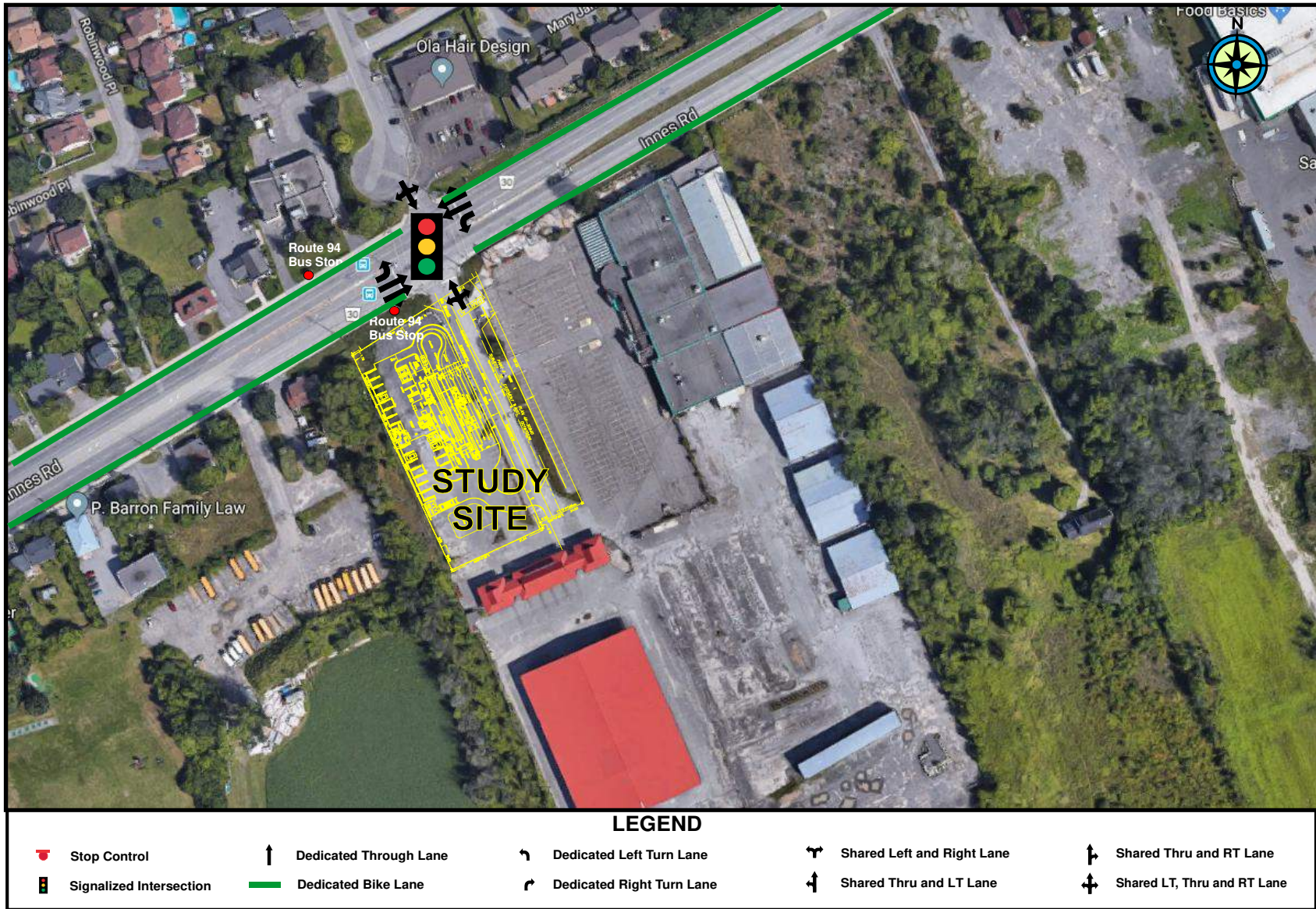
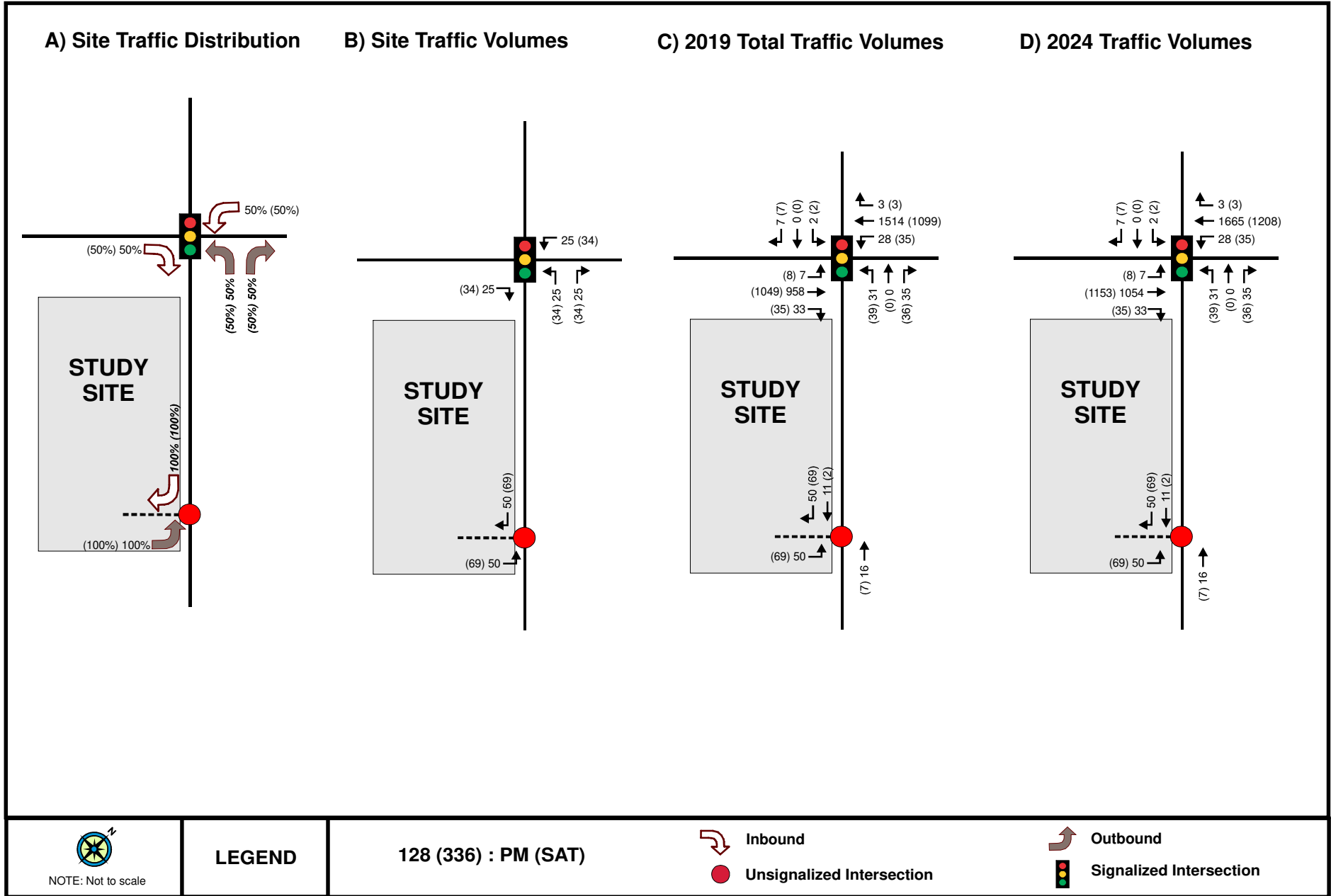


Exhibit 3.1: Site and Total Traffic Volumes



Other Area Developments

Caivan Subdivision

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

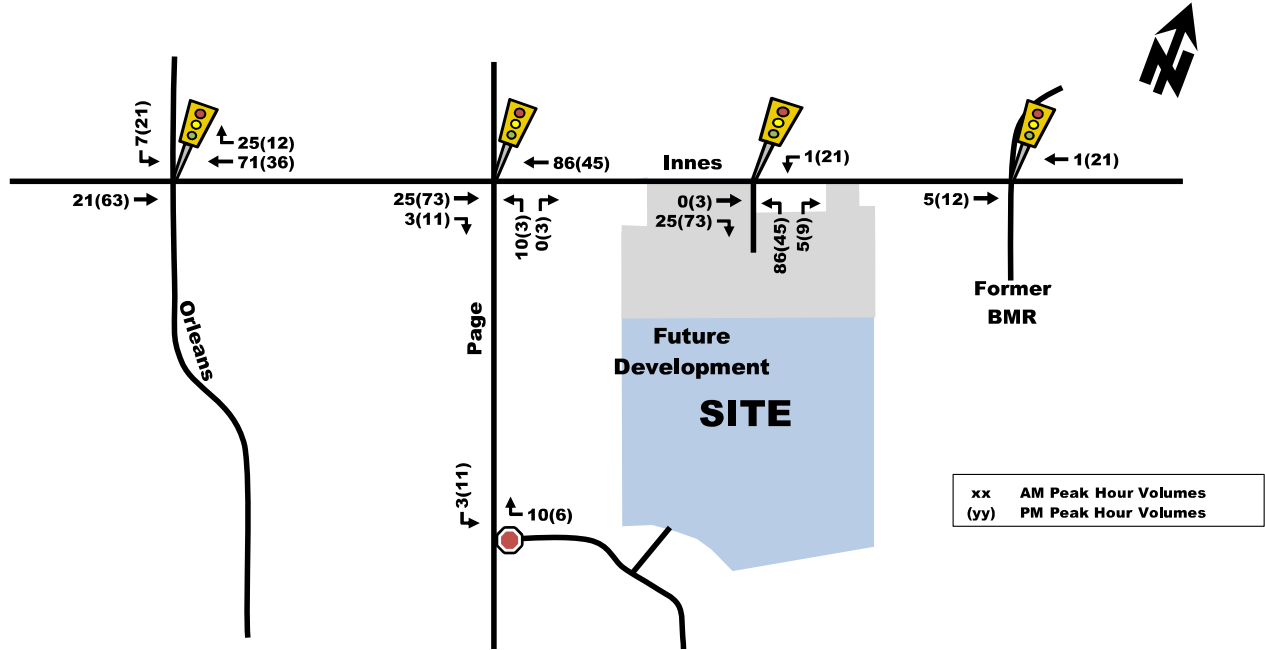
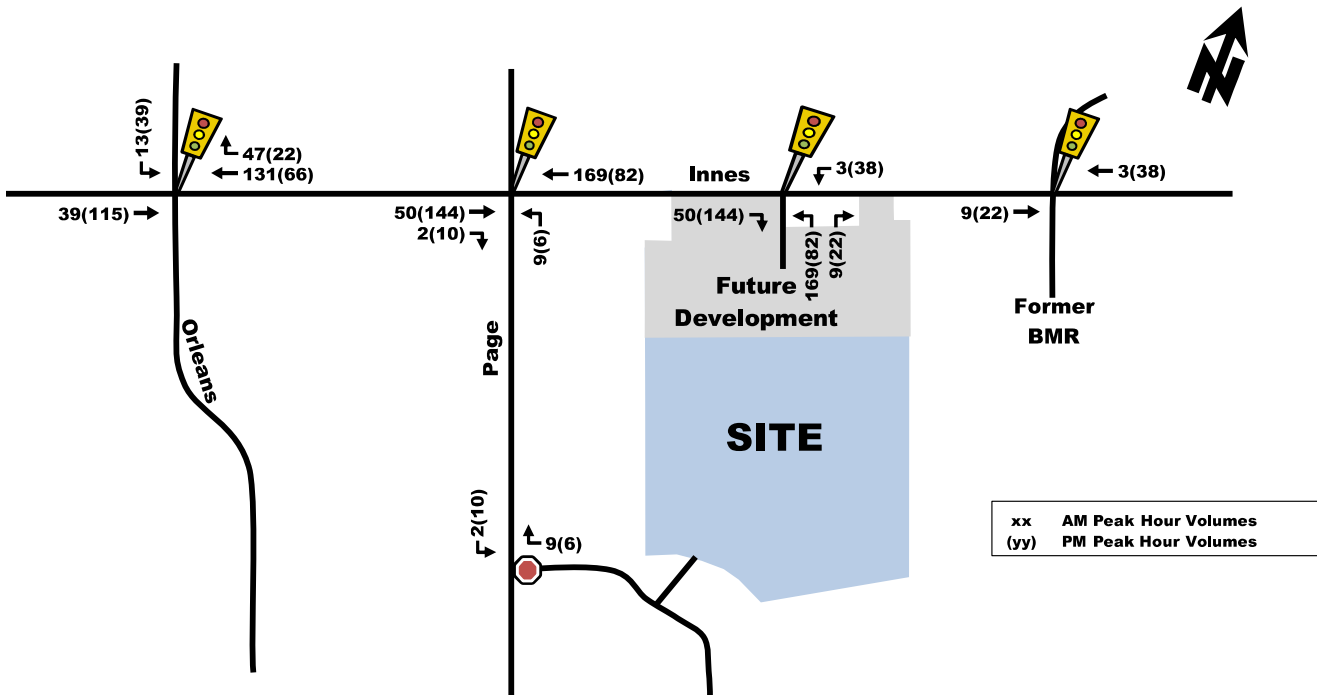


Figure 7: Phases 1 and 2 'New' Site-Generated Traffic Volumes



Other Area Developments

Lepine High-Rise Development

TIA Strategy Report

Parsons has been retained by Lépine Corp. to prepare a TIA in support of a Zoning By-Law Amendment application for a residential development located at 3490 Innes Road. The following report represents Step 4 – Strategy, of the TIA process. City comments from the previous submission have been provided in Appendix A

1. SCREENING FORM

The screening form confirmed the need for a TIA based on the Trip Generation, Location and Safety triggers, given that the proposed development consists of eight buildings with a total of 1,320 apartment units, located in a Design Priority Area (DPA) and proposed new access to Lamarche Avenue which is in close proximity to a proposed/planned signalized intersection. The screening form has been provided in Appendix B.

2. SCOPING REPORT

2.1. EXISTING AND PLANNED CONDITIONS

2.1.1. PROPOSED DEVELOPMENT

It is our understanding that Lépine is proposing a residential development with supportive ground floor commercial space located at 3490 Innes Road, as shown in **Figure 1**. The site is bound by Innes Road to the north, existing developments to the east and west and low-density residential subdivision to the south. It is zoned as DR – Development Reserve Zone and is currently occupied by an insurance company, food truck, mini-put facility and driving range.

Figure 1: Local Context



- 5% to/from the east.
- 20% to/from the east.

3.1.3. TRIP ASSIGNMENT

Based on this assumed distribution, site-generated traffic at interim phase (2022) was assigned to the adjacent network, as shown in **Figure 9**. Site-generated traffic at ultimate buildout (2031) was assigned to the planned adjacent network as shown in **Figure 10**.

Figure 9: Phase 1 Site-Generated Traffic (Buildings D and E, 2022)

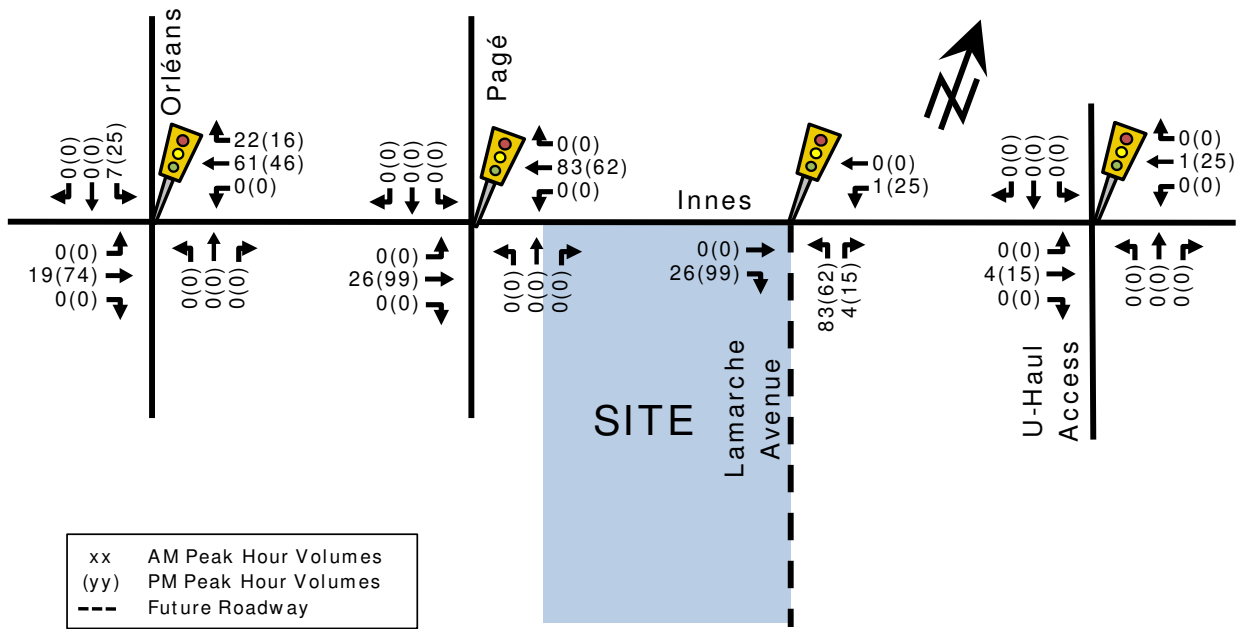
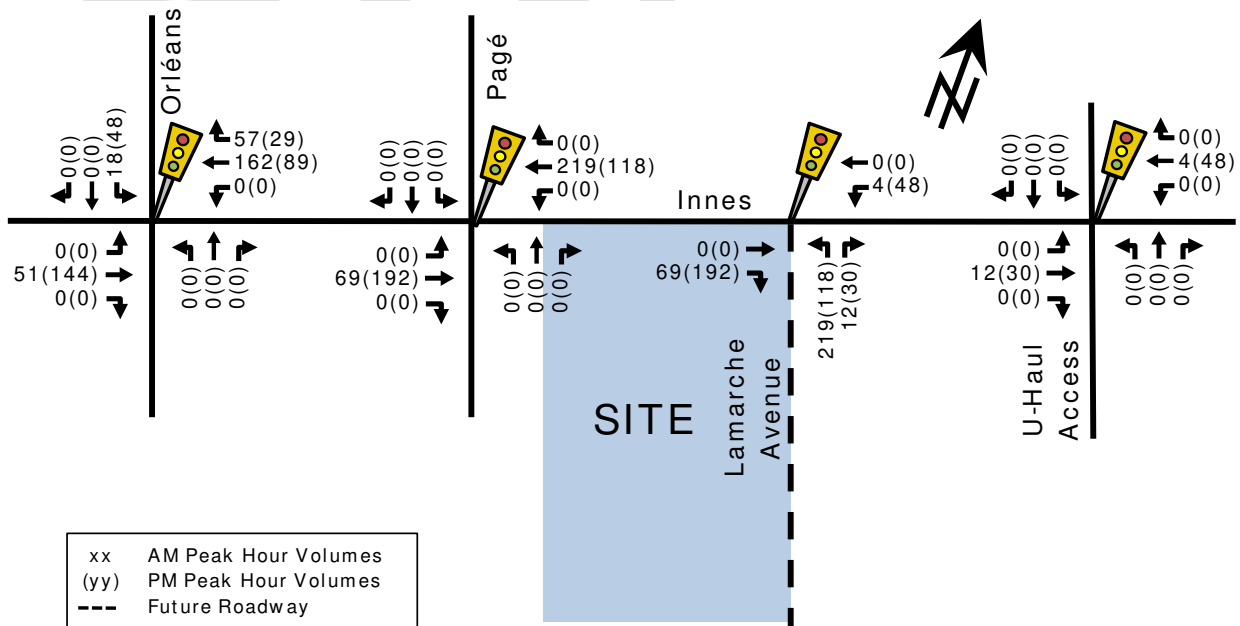


Figure 10: Ultimate Site-Generated Traffic 2031 (All Buildings)



APPENDIX G

Transportation Demand Management

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

Legend	
BASIC	The measure is generally feasible and effective, and in most cases would benefit the development and its users
BETTER	The measure could maximize support for users of sustainable modes, and optimize development performance
★	The measure is one of the most dependably effective tools to encourage the use of sustainable modes

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

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

TDM measures: <i>Residential developments</i>		Check if proposed & add descriptions
6. TDM MARKETING & COMMUNICATIONS		
6.1 Multimodal travel information		
BASIC ★	6.1.1 Provide a multimodal travel option information package to new residents	<input checked="" type="checkbox"/> - at sales centre
6.2 Personalized trip planning		
BETTER ★	6.2.1 Offer personalized trip planning to new residents	<input type="checkbox"/>

APPENDIX H

Intersection MMLOS Analysis

Intersection MMLOS Analysis

Exhibit 5 of the Addendum to the MMLOS guidelines has been used to evaluate the existing PLOS at all signalized intersections within the study area. Exhibit 22 of the MMLOS guidelines suggests a target PLOS C for Arterial Main Streets (Innes Road) and all roadways within the General Urban Area (Pagé Road, Boyer Road, Viseneau Drive). 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 all signalized intersections within the study area. Exhibit 22 of the MMLOS guidelines suggests a target BLOS B for Crosstown Bikeways on Arterial Main Streets (Innes Road) and Local Routes in the General Urban Area (Boyer Road), a target BLOS C for Spine Routes in the General Urban Area (Pagé Road), and a target BLOS D for all roadways in the General Urban Area with no cycling designation (Viseneau Drive). 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 relevant intersections within the study area. Exhibit 22 of the MMLOS guidelines suggests a target TLOS D for Transit Priority Corridors with Isolated Measures on Arterial Main Streets (Innes Road). No other study area roadways are designated as transit priority; however, Viseneau Drive has still been evaluated as transit service is provided on that 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 relevant intersections within the study area. Exhibit 22 of the MMLOS guidelines suggests a target TkLOS D for Truck Routes on Arterial Main Streets (Innes Road). While Viseneau Drive is not designated as a truck route, transit services are provided, and buses are required to turn from Viseneau Drive onto Innes Road. Therefore, the north approach of Innes Road/Viseneau Drive has also been evaluated for TkLOS. No other study area roadways are designated as truck routes, and have not been evaluated for TkLOS. The results of the intersection TkLOS analysis are summarized in **Table 6**.

Exhibit 22 of the MMLOS guidelines suggests a target Auto LOS D for Arterial Main Streets (Innes Road) and all roadways in the General Urban Area (Pagé Road, commercial accesses at 473m East of Pagé Road, Viseneau Drive). Detailed Synchro reports are included in **Appendix K**. Analysis has been conducted based on existing conditions, as well as with bike boxes implemented for eastbound and westbound left turning cyclists on Innes Road. To account for bike boxes, right turns on red have been restricted where right turn lanes are not provided on the minor street (both approaches of Pagé Road and the north approach of Viseneau Drive).

The results of the intersection existing conditions Auto LOS analysis are summarized in **Table 7**. Approaches where queueing issues have been identified are listed with the associated 50th- and 95th-percentile queue lengths, and presented in **Table 8**. Auto LOS analysis with right turns on red restricted to accommodate bike boxes are presented in **Table 9**.

A summary of the existing signalized intersection MMLOS analysis is provided in **Table 10**.

Table 1: PLOS Intersection Analysis – Innes Road/Pagé Road

CRITERIA	North Approach		South Approach		East Approach		West Approach	
PETSI SCORE								
<i>CROSSING DISTANCE CONDITIONS</i>								
Median > 2.4m in Width	No	55	No	55	No	23	No	39
Lanes Crossed (3.5m Lane Width)	6		6		8		7	
<i>SIGNAL PHASING AND TIMING</i>								
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
<i>CORNER RADIUS</i>								
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
<i>CROSSING TREATMENT</i>								
Treatment	Standard	-7	Standard	-7	Standard	-7	Standard	-7
	PETSI SCORE	20		20		-12		4
	LOS	F		F		F		F
DELAY SCORE								
Cycle Length		110		110		120		120
Pedestrian Walk Time		50.8		50.8		7.2		7.2
	DELAY SCORE	15.9		15.9		53.0		53.0
	LOS	B		B		E		E
OVERALL		F			F			F

Table 2: PLOS Intersection Analysis – Innes Road/473m East of Pagé Road

CRITERIA	North Approach		South Approach		East Approach		West Approach	
PETSI SCORE								
<i>CROSSING DISTANCE CONDITIONS</i>								
Median > 2.4m in Width	No	88	No	55	No	39	No	39
Lanes Crossed (3.5m Lane Width)	4		6		7		7	
<i>SIGNAL PHASING AND TIMING</i>								
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
<i>CORNER RADIUS</i>								
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
<i>CROSSING TREATMENT</i>								
Treatment	Standard	-7	Standard	-7	Standard	-7	Standard	-7
	PETSI SCORE	54		20		4		4
	LOS	D		F		F		F
DELAY SCORE								
Cycle Length		110		110		120		120
Pedestrian Walk Time		56.9		56.9		7.7		7.7
	DELAY SCORE	12.8		12.8		52.5		52.5
	LOS	B		B		E		E
OVERALL		D			F			F

Table 3: PLOS Intersection Analysis – Innes Road/Viseneau Drive

CRITERIA	North Approach		South Approach		East Approach		West Approach	
PETSI SCORE								
<i>CROSSING DISTANCE CONDITIONS</i>								
Median > 2.4m in Width	No	72	No	39	No	23	No	23
Lanes Crossed (3.5m Lane Width)	5		7		8		8	
<i>SIGNAL PHASING AND TIMING</i>								
Left Turn Conflict	Permissive	-8	Perm + Prot	-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
<i>CORNER RADIUS</i>								
Parallel Radius	> 10m to 15m	-6	> 15m to 25m	-8	> 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
<i>CROSSING TREATMENT</i>								
Treatment	Standard	-7	Standard	-7	Zebra Stripe	-4	Zebra Stripe	-4
	PETSI SCORE	37		2		-9		-9
	LOS	E		F		F		F
DELAY SCORE								
Cycle Length		120		130		130		130
Pedestrian Walk Time		57.7		45.7		9.3		9.3
	DELAY SCORE	16.2		27.3		56.0		56.0
	LOS	B		C		E		E
	OVERALL	E		F		F		F

Table 4: BLOS Intersection Analysis

Approach	Bikeway Facility Type	Criteria	Travel Lanes and/or Speed	BLOS
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 (bike lane remains on the right)	A
		Left Turn Accommodation	2 lanes crossed, ≥ 50 km/h	F
West Approach	Curbside Bike Lane	Right Turn Lane Characteristics	Shared through/right turn lane (bike lane remains on the right)	A
		Left Turn Accommodation	2 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, ≤ 50 km/h	B
East Approach	Curbside Bike Lane	Right Turn Lane Characteristics	Shared through/right turn lane (bike lane remains on the right)	A
		Left Turn Accommodation	2 lanes crossed, ≥ 50 km/h	F
West Approach	Curbside Bike Lane	Right Turn Lane Characteristics	Shared through/right turn lane (bike lane remains on the right)	A
		Left Turn Accommodation	2 lanes crossed, ≥ 50 km/h	F
Innes Road/Viseneau Drive				
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	Right turn lane < 50 m, turning speed ≤ 25 km/h	D
		Left Turn Accommodation	1 lane crossed, ≤ 40 km/h	B
East Approach	Curbside Bike Lane	Right Turn Lane Characteristics	Shared through/right turn lane (bike lane remains on the right)	A
		Left Turn Accommodation	2 lanes crossed, ≥ 50 km/h	F
West Approach	Pocket Bike Lane	Right Turn Lane Characteristics	Right turn lane > 50 m, turning speed ≤ 25 km/h	D
		Left Turn Accommodation	2 lanes crossed, ≥ 50 km/h	F

Table 5: TLOS Intersection Analysis

Approach	Delay ⁽¹⁾		TLOS
	AM Peak	PM Peak	
Innes Road/Pagé Road			
East Approach	5 sec	15 sec	C
West Approach	5 sec	10 sec	B
Innes Road/473m East of Pagé Road			
East Approach	5 sec	5 sec	B
West Approach	5 sec	5 sec	B
Innes Road/Viseneau Drive			
North Approach	45 sec	60 sec	F
East Approach	10 sec	15 sec	C
West Approach	5 sec	30 sec	D

1. Delay based on outputs from Synchro analysis

Table 6: TkLOS Intersection Analysis

Approach	Effective Corner Radius	Number of Receiving Lanes on Departure from Intersection	TkLOS
Innes Road/Pagé Road			
East Approach	10 to 15m	1	E
West Approach	10 to 15m	1	E
Innes Road/473m East of Pagé Road			
East Approach	< 10m	1	F
West Approach	10 to 15m	1	E
Innes Road/Viseneau Drive			
North Approach	10 to 15m	2	B
East Approach	10 to 15m	1	E
West Approach	> 15m	2	A

Table 7: Auto LOS Intersection Analysis – Existing

Intersection	AM Peak			PM Peak		
	Max v/c	LOS	Mvmt	Max v/c	LOS	Mvmt
Innes Road/ Pagé Road	0.55	A	SBL/T/R	0.81	D	WBL
Innes Road/ 473m East of Pagé Road	0.46	A	WBT	0.64	B	EBT
Innes Road/ Viseneau Drive	0.64	B	WBT	0.84	D	EBT

Table 8: Existing Queues

Intersection	Mvmt	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/ Pagé Road	EBT	0.55	A	10	26	0.68	B	73	154
	WBL	0.07	A	2	2	0.81	D	15	#43
Innes Road/473m East of Pagé Road	EBT	0.18	A	0	24	0.64	B	109	193
	WBL	0.00	A	0	m1	0.05	A	0	3
Innes Road/ Viseneau Drive	EBT	0.20	A	16	28	0.84	D	167	#239
	WBL	0.10	A	3	10	0.78	C	30	#72

m: volume for the 95th percentile queue is metered by an upstream signal

#: volume for the 95th percentile cycle exceeds capacity

~: approach is above capacity

Table 9: Auto LOS Intersection Analysis – EB/WB Bike Boxes Implemented

Intersection	Mvmt [Scenario]	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/ Pagé Road	NBL/T/R [Existing]	0.43 [A]	7	19	0.59 [A]	23	35
	NBL/T/R [Bike Box]	0.50 [A]	21	32	0.61 [B]	28	40
	SBL/T/R [Existing]	0.55 [A]	13	26	0.63 [B]	19	32
	SBL/T/R [Bike Box]	0.60 [A]	24	37	0.64 [B]	23	36
Innes Road/ 473m East of Pagé Road	SBL/T/R [Existing]	0.03 [A]	0	0	0.11 [A]	0	4
	SBL/T/R [Bike Box]	0.04 [A]	1	4	0.13 [A]	4	9
Innes Road/ Viseneau Drive	SBL/T/R [Existing]	0.55 [A]	18	30	0.65 [B]	33	49
	SBL/T/R [Bike Box]	0.58 [A]	25	37	0.67 [B]	35	51

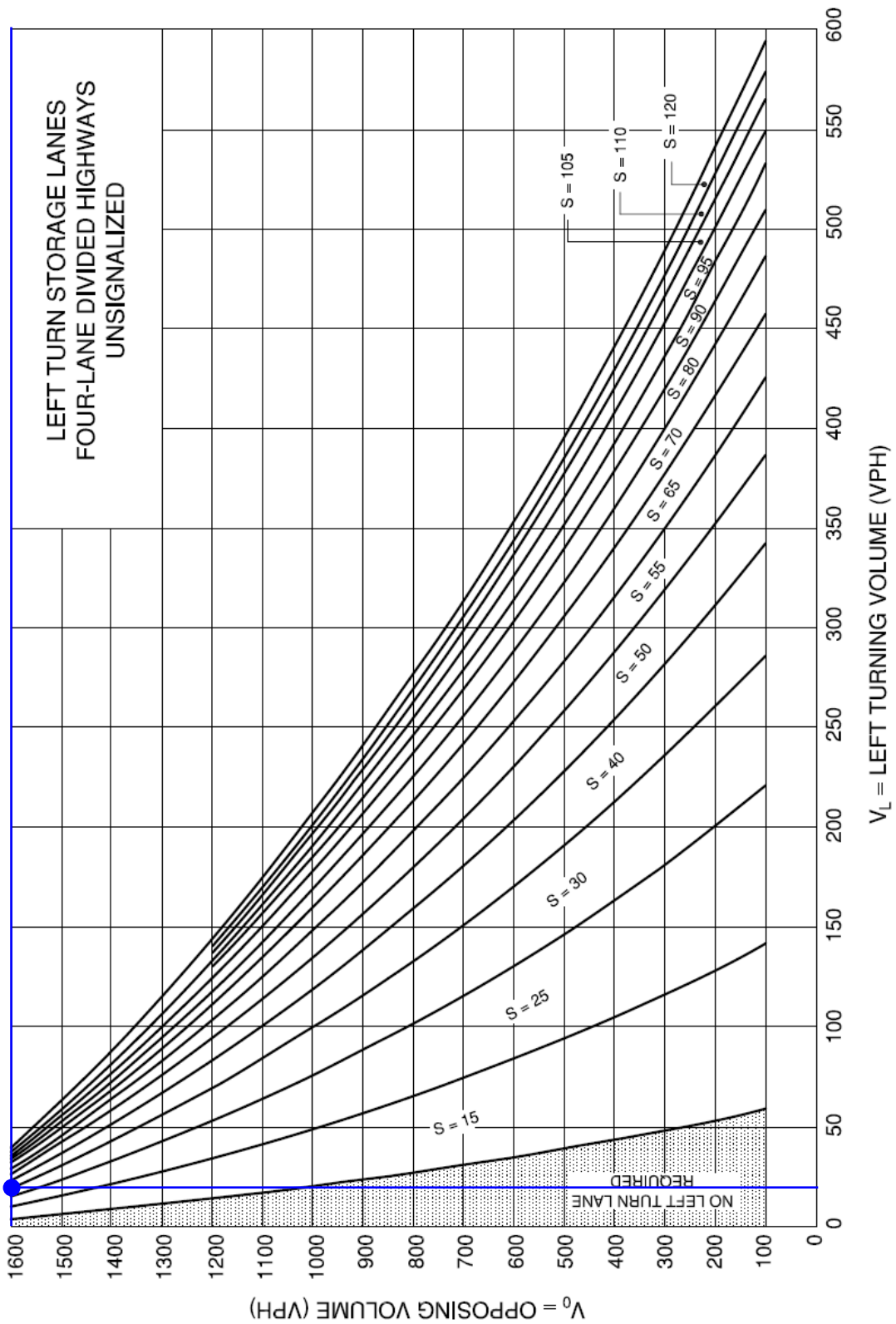
Table 10: Signalized Intersection MMLOS Summary

Intersection	Innes Road/Pagé Road				Innes Road/473m East of Pagé Road				Innes Road/Viseneau Drive				
	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	NORTH	SOUTH	EAST	WEST	
Pedestrian	Island Refuge	No	No	No	No	No	No	No	No	No	No	No	
	Lanes	6	6	8	7	4	6	7	7	5	7	8	
	Conflicting Left Turns	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive	Perm + Prot	Permissive	
	Conflicting Right Turns	Permissive/Yield	Permissive/Yield	Permissive/Yield	Permissive/Yield	Permissive/Yield	Permissive/Yield	Permissive/Yield	Permissive/Yield	Permissive/Yield	Permissive/Yield	Permissive/Yield	
	Right Turn on Red	RTOR Allowed	RTOR Allowed	RTOR Allowed	RTOR Allowed	RTOR Allowed	RTOR Allowed	RTOR Allowed	RTOR Allowed	RTOR Allowed	RTOR Allowed	RTOR Allowed	
	Pedestrian Leading Interval	No	No	No	No	No	No	No	No	No	No	No	
	Parallel Radius	10m to 15m	10m to 15m	10m to 15m	10m to 15m	5m to 10m	10m to 15m	10m to 15m	10m to 15m	10m to 15m	15m to 25m	10m to 15m	
	Parallel Channel	No Channel	No Channel	No Channel	No Channel	No Channel	No Channel	No Channel	No Channel	No Channel	No Channel	No Channel	
	Perpendicular Radius	-	-	-	-	-	-	-	-	-	-	-	
	Perpendicular Channel	-	-	-	-	-	-	-	-	-	-	-	
	Crosswalk Type	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Zebra Stripe	
	PETSI Score	20	20	-12	4	54	20	4	4	37	2	-9	
	Delay Score	15.9	15.9	53.0	53.0	12.8	12.8	52.5	52.5	16.2	27.3	56.0	
	Level of Service	F	F	F	F	D	F	F	F	E	F	F	
Target	F				F				F				
	C				C				C				
Cyclist	Type of Bikeway	Mixed Traffic	Mixed Traffic	Curbside Lane	Curbside Lane	Mixed Traffic	Mixed Traffic	Curbside Lane	Curbside Lane	Mixed Traffic	Mixed Traffic	Curbside Lane	
	Turning Speed	Slow	Slow	Slow	Slow	Slow	Slow	Slow	Slow	Slow	Slow	Slow	
	Right Turn Storage	-	-	-	-	-	-	-	-	-	≤ 50m	> 50m	
	Dual Right Turn Lanes	No	No	No	No	No	No	No	No	No	No	No	
	Shared Through-Right Lane	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	
	Bike Box	No	No	No	No	No	No	No	No	No	No	No	
	Lanes Crossed (Left Turns)	0	0	2	2	0	0	2	2	0	1	2	
	Dual Left Turn Lanes	No	No	No	No	No	No	No	No	No	No	No	
	Approach Speed	50 km/h	50 km/h	70 km/h	70 km/h	40 km/h	40 km/h	70 km/h	70 km/h	50 km/h	40 km/h	70 km/h	
	Level of Service	B	B	F	F	B	B	F	F	B	D	F	
Target	F				F				F				
	B				B				B				
Transit	Average Signal Delay	-	-	15 sec	10 sec	-	-	5 sec	5 sec	60 sec	-	15 sec	
	Level of Service	-	-	C	B	-	-	B	B	F	-	C	
	Target	C				B				F			
Truck	Turning Radius	-	-	10m to 15m	10m to 15m	-	-	< 10m	10m to 15m	10m to 15m	-	10m to 15m	
	Receiving Lanes	-	-	1	1	-	-	1	1	2	-	1	
	Level of Service	-	-	E	E	-	-	F	E	B	-	E	
	Target	E				F				E			
Auto	Level of Service	D				B				D			
	Target	D				D				D			

APPENDIX I

Traffic Signal and Auxiliary Lane Warrants

Exhibit 9A-31



TRAFFIC SIGNAL JUSTIFICATION USING PROJECTED VOLUMES

LOCATION: Innes Road at Caivan Access

YEAR: 2021 Background

JUSTIFICATION	DESCRIPTION	MINIMUM REQUIREMENT		COMPLIANCE		
		FREE FLOW	RESTRICTED FLOW	SECTIONAL		ENTIRE % ⁽²⁾
		OPERATING SPEED ≥ 70KM/H	OPERATING SPEED < 70 KM/H	NUMERICAL	PERCENT	
1. MINIMUM VEHICULAR WARRANT	A. Vehicle volume, all approaches (average hour)	480 600 (2 or more lane approach)	720 900 (2 or more lane approach)	1,206	134%	16%
	B. Vehicle volume along minor street (average hour)	120 180 (tee intersection)	170 255 (tee intersection)	40	16%	
2. DELAY TO CROSS TRAFFIC	A. Vehicle volume along major street (average hour)	480 600 (2 or more lane approach)	720 900 (2 or more lane approach)	1,165	129%	48%
	B ⁽¹⁾ . Combined vehicle and pedestrian volume <u>crossing</u> the major street (average hour)	50	75	36	48%	

NOTES

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

**TRAFFIC SIGNAL JUSTIFICATION
USING PROJECTED VOLUMES**

LOCATION: Innes Road at Caivan Access

YEAR: 2021 Total

JUSTIFICATION	DESCRIPTION	MINIMUM REQUIREMENT		COMPLIANCE		
		FREE FLOW	RESTRICTED FLOW	SECTIONAL		ENTIRE % ⁽²⁾
		OPERATING SPEED ≥ 70KM/H	OPERATING SPEED < 70 KM/H	NUMERICAL	PERCENT	
1. MINIMUM VEHICULAR WARRANT	A. Vehicle volume, all approaches (average hour)	480 600 (2 or more lane approach)	720 900 (2 or more lane approach)	1,247	139%	25%
	B. Vehicle volume along minor street (average hour)	120 180 (tee intersection)	170 255 (tee intersection)	63	25%	
2. DELAY TO CROSS TRAFFIC	A. Vehicle volume along major street (average hour)	480 600 (2 or more lane approach)	720 900 (2 or more lane approach)	1,184	132%	71%
	B ⁽¹⁾ . Combined vehicle and pedestrian volume <u>crossing</u> the major street (average hour)	50	75	53	71%	

NOTES

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

TRAFFIC SIGNAL JUSTIFICATION USING PROJECTED VOLUMES

LOCATION: Innes Road at Caivan Access

YEAR: 2023 Background

JUSTIFICATION	DESCRIPTION	MINIMUM REQUIREMENT		COMPLIANCE		
		FREE FLOW	RESTRICTED FLOW	SECTIONAL		ENTIRE % ⁽²⁾
		OPERATING SPEED ≥ 70KM/H	OPERATING SPEED < 70 KM/H	NUMERICAL	PERCENT	
1. MINIMUM VEHICULAR WARRANT	A. Vehicle volume, all approaches (average hour)	480 600 (2 or more lane approach)	720 900 (2 or more lane approach)	1,369	152%	16%
	B. Vehicle volume along minor street (average hour)	120 180 (tee intersection)	170 255 (tee intersection)	115	45%	
2. DELAY TO CROSS TRAFFIC	A. Vehicle volume along major street (average hour)	480 600 (2 or more lane approach)	720 900 (2 or more lane approach)	1,254	139%	137%
	B ⁽¹⁾ . Combined vehicle and pedestrian volume <u>crossing</u> the major street (average hour)	50	75	103	137%	

NOTES

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

APPENDIX J

Signal Timing Plans

Traffic Signal Timing

City of Ottawa, Transportation Services Department

Traffic Signal Operations Unit

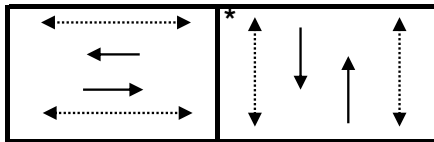
Intersection:	Main: Innes	Side: Pagé
Controller:	MS-3200	TSD: 6676
Author:	Spencer Willows	Date: 07-Mar-2018

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	75	90	120			
Offset	26	43	2	X	43	26			
EB Thru	74	54	74	39	54	84	15	17	3.7 + 2.5
WB Thru	74	54	74	39	54	84	15	17	3.7 + 2.5
NB Thru	36	36	36	36	36	36	7	22	3.0 + 3.8
SB Thru	36	36	36	36	36	36	7	22	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	20:00	2	19:00	2
15:00	3	22:00	4	22:00	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 \$56.50 (\$50 + HST)

Traffic Signal Timing

City of Ottawa, Transportation Services Department

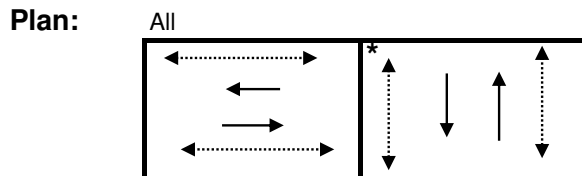
Traffic Signal Operations Unit

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		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	20:00	2	19:00	2
15:00	3	22:00	4	22:00	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 \$56.50 (\$50 + HST)

Traffic Signal Timing

City of Ottawa, Transportation Services Department

Traffic Signal Operations Unit

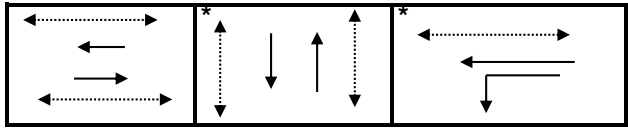
Intersection:	Main: Innes	Side: Viseneau
Controller:	MS-3200A	
Author:	Jon Pach	TSD: 6601
		Date: 05-Dec-2018

Existing Timing Plans†

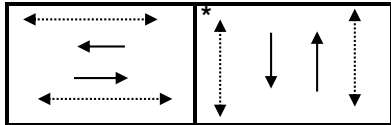
	Plan						Ped Minimum Time		
	AM Peak 1	Off Peak 2	PM Peak 3	Night 4	Weekend 5	AM Rush 11	Walk	DW	A+R
Cycle	110	110	130	70	130	120			
Offset	45	64	105	X	52	40			
EB Thru	61	56	71	33	68	71	7	19	3.7 + 2.6
WB Thru	73	71	91	33	88	83	7	19	3.7 + 2.6
NB Thru	37	39	39	37	42	37	7	23	3.3 + 3.4
SB Thru	37	39	39	37	42	37	7	23	3.3 + 3.4
WB Left	12	15	20	-	20	12	-	-	3.7 + 2.6

Phasing Sequence‡

Plan: 1,2,3,5,11



Plan: 4



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	20:00	2	19:00	2
15:00	3	22:00	4	22:00	4
18:30	2				
22:00	4				

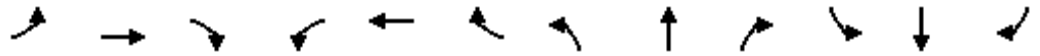
Notes

- †: 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

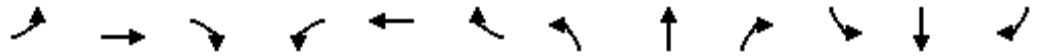
Cost is \$56.50 (\$50 + HST)

APPENDIX K

Synchro Analysis



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	399	11	41	1247	27	14	14	61	37	7	59
Future Volume (vph)	13	399	11	41	1247	27	14	14	61	37	7	59
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			0.99			0.99	
Frt		0.996			0.997			0.908			0.923	
Flt Protected	0.950			0.950				0.992			0.982	
Satd. Flow (prot)	1601	3178	0	1679	3346	0	0	1511	0	0	1615	0
Flt Permitted	0.161			0.490				0.926			0.822	
Satd. Flow (perm)	271	3178	0	865	3346	0	0	1409	0	0	1352	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			4			68			53	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		341.1			475.4			212.5			273.4	
Travel Time (s)		20.5			28.5			19.1			24.6	
Confl. Peds. (#/hr)	1		1	1		1	6		1	1		6
Confl. Bikes (#/hr)			3						2			
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 (%)	8%	8%	20%	3%	3%	3%	20%	5%	5%	1%	1%	1%
Adj. Flow (vph)	14	443	12	46	1386	30	16	16	68	41	8	66
Shared Lane Traffic (%)												
Lane Group Flow (vph)	14	455	0	46	1416	0	0	100	0	0	115	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		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	

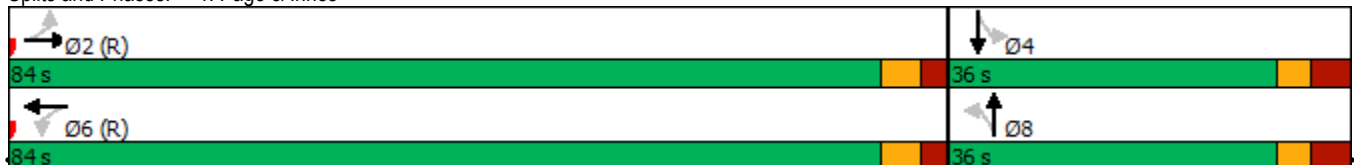


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	38.2	38.2		38.2	38.2		35.8	35.8		35.8	35.8	
Total Split (s)	84.0	84.0		84.0	84.0		36.0	36.0		36.0	36.0	
Total Split (%)	70.0%	70.0%		70.0%	70.0%		30.0%	30.0%		30.0%	30.0%	
Maximum Green (s)	77.8	77.8		77.8	77.8		29.2	29.2		29.2	29.2	
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)	17.0	17.0		17.0	17.0		22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)	1	1		1	1		6	6		1	1	
Act Effct Green (s)	92.3	92.3		92.3	92.3			14.7			14.7	
Actuated g/C Ratio	0.77	0.77		0.77	0.77			0.12			0.12	
v/c Ratio	0.07	0.19		0.07	0.55			0.43			0.55	
Control Delay	6.3	4.6		2.7	4.4			23.0			35.5	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	6.3	4.6		2.7	4.4			23.0			35.5	
LOS	A	A		A	A			C			D	
Approach Delay		4.7			4.3			23.0			35.5	
Approach LOS		A			A			C			D	
Queue Length 50th (m)	0.5	9.5		1.6	41.8			6.6			13.0	
Queue Length 95th (m)	3.6	26.0		m1.8	15.3			18.5			25.9	
Internal Link Dist (m)		317.1			451.4			188.5			249.4	
Turn Bay Length (m)	100.0			100.0								
Base Capacity (vph)	208	2446		665	2575			394			369	
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	0.07	0.19		0.07	0.55			0.25			0.31	

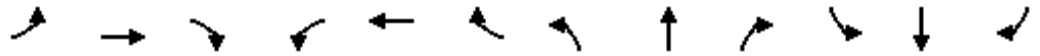
Intersection Summary

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: 7.0 Intersection LOS: A
 Intersection Capacity Utilization 63.1% ICU Level of Service B
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Page & Innes



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	486	8	1	1307	3	3	0	0	0	0	5
Future Volume (vph)	3	486	8	1	1307	3	3	0	0	0	0	5
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							
Fr t		0.998									0.865	
Flt Protected	0.950			0.950				0.950				
Satd. Flow (prot)	1679	3351	0	1679	3357	0	0	1679	1767	0	1528	0
Flt Permitted	0.166			0.447				0.754				
Satd. Flow (perm)	293	3351	0	790	3357	0	0	1332	1767	0	1528	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3										61
Link Speed (k/h)		60			60			40				40
Link Distance (m)		475.4			585.5			151.9				62.6
Travel Time (s)		28.5			35.1			13.7				5.6
Confl. Peds. (#/hr)									3	3		
Confl. Bikes (#/hr)						14						
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
Adj. Flow (vph)	3	540	9	1	1452	3	3	0	0	0	0	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	549	0	1	1455	0	0	3	0	0	6	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0				0.0
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		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			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
Switch Phase												

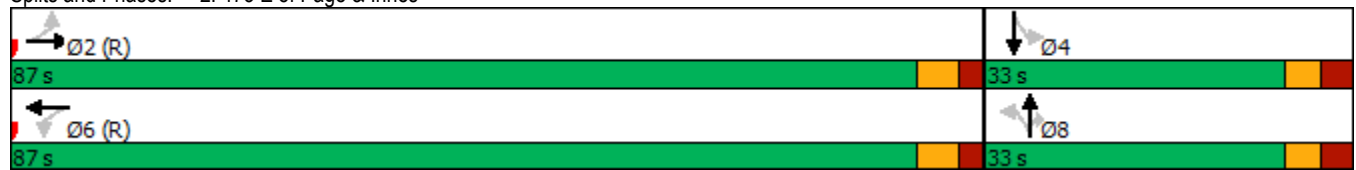


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	32.1	32.1		35.1	35.1		32.3	32.3	32.3	32.3	32.3	
Total Split (s)	87.0	87.0		87.0	87.0		33.0	33.0	33.0	33.0	33.0	
Total Split (%)	72.5%	72.5%		72.5%	72.5%		27.5%	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)	3	3		3	3		3	3	3	3	3	
Act Effct Green (s)	107.8	107.8		107.8	107.8			13.2				13.2
Actuated g/C Ratio	0.90	0.90		0.90	0.90			0.11				0.11
v/c Ratio	0.01	0.18		0.00	0.48			0.02				0.03
Control Delay	4.3	2.3		8.0	7.0			43.3				0.2
Queue Delay	0.0	0.0		0.0	0.0			0.0				0.0
Total Delay	4.3	2.3		8.0	7.0			43.3				0.2
LOS	A	A		A	A			D				A
Approach Delay		2.4			7.0			43.3				0.2
Approach LOS		A			A			D				A
Queue Length 50th (m)	0.0	0.0		0.0	0.0			0.6				0.0
Queue Length 95th (m)	m0.9	24.1		m0.1	146.2			3.0				0.0
Internal Link Dist (m)		451.4			561.5			127.9				38.6
Turn Bay Length (m)	30.0			40.0								
Base Capacity (vph)	263	3012		710	3017			296				387
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	0.01	0.18		0.00	0.48			0.01				0.02

Intersection Summary

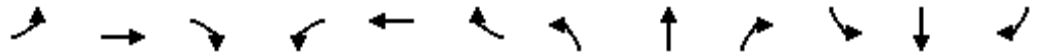
Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 75
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.48
 Intersection Signal Delay: 5.8
 Intersection Capacity Utilization 58.2%
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: 473 E of Page & Innes



3: Viseneau & Innes
AM Peak Hour

0 Innes Road
2019 Existing Traffic



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	398	37	59	1426	33	22	5	39	46	13	47
Future Volume (vph)	11	398	37	59	1426	33	22	5	39	46	13	47
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	45.0		55.0	55.0		0.0	0.0		20.0	0.0		0.0
Storage Lanes	1		1	1		0	1		1	0		0
Taper Length (m)	35.0			45.0			2.5			2.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.99	1.00	1.00		1.00		0.99		0.99	
Frt			0.850		0.997				0.850		0.940	
Flt Protected	0.950			0.950			0.950				0.979	
Satd. Flow (prot)	1153	3232	1502	1695	3336	0	1712	1802	1432	0	1634	0
Flt Permitted	0.138			0.460			0.639				0.857	
Satd. Flow (perm)	167	3232	1482	820	3336	0	1150	1802	1412	0	1429	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			91		4				87			32
Link Speed (k/h)		60			60			40				40
Link Distance (m)		585.5			366.7			114.9				398.5
Travel Time (s)		35.1			22.0			10.3				35.9
Confl. Peds. (#/hr)	3		1	1		3	1		2	2		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 (%)	50%	7%	3%	2%	3%	15%	1%	1%	8%	2%	1%	2%
Adj. Flow (vph)	12	442	41	66	1584	37	24	6	43	51	14	52
Shared Lane Traffic (%)												
Lane Group Flow (vph)	12	442	41	66	1621	0	24	6	43	0	117	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		5.0			5.0			3.7				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												
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	2	1	1		2
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	18.6	93.0	18.6	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		0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 1 Size(m)	18.6	5.5	18.6	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		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 2 Position(m)		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	pm+pt	NA		Perm	NA	Perm	Perm		NA
Protected Phases		2		1	6			8				4
Permitted Phases	2		2	6			8		8	4		
Detector Phase	2	2	2	1	6		8	8	8	4		4
Switch Phase												

3: Viseneau & Innes
AM Peak Hour

0 Innes Road
2019 Existing Traffic



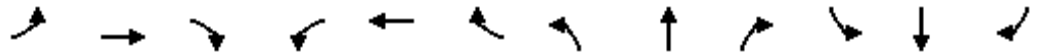
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	32.3	32.3	32.3	11.3	32.3		36.7	36.7	36.7	36.7	36.7	
Total Split (s)	71.0	71.0	71.0	12.0	83.0		37.0	37.0	37.0	37.0	37.0	
Total Split (%)	59.2%	59.2%	59.2%	10.0%	69.2%		30.8%	30.8%	30.8%	30.8%	30.8%	
Maximum Green (s)	64.7	64.7	64.7	5.7	76.7		30.3	30.3	30.3	30.3	30.3	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7		3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	2.6	2.6	2.6	2.6	2.6		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	
Total Lost Time (s)	6.3	6.3	6.3	6.3	6.3		6.7	6.7	6.7	6.7	6.7	
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?	Yes	Yes	Yes	Yes								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	None	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)	19.0	19.0	19.0		19.0		23.0	23.0	23.0	23.0	23.0	
Pedestrian Calls (#/hr)	3	3	3		1		1	1	1	2	2	
Act Effct Green (s)	81.3	81.3	81.3	91.4	91.4		15.6	15.6	15.6		15.6	
Actuated g/C Ratio	0.68	0.68	0.68	0.76	0.76		0.13	0.13	0.13		0.13	
v/c Ratio	0.11	0.20	0.04	0.10	0.64		0.16	0.03	0.17		0.55	
Control Delay	8.5	5.8	0.6	5.3	9.3		45.0	40.0	1.7		43.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay	8.5	5.8	0.6	5.3	9.3		45.0	40.0	1.7		43.3	
LOS	A	A	A	A	A		D	D	A		D	
Approach Delay		5.4			9.2			19.1			43.3	
Approach LOS		A			A			B			D	
Queue Length 50th (m)	0.8	15.5	0.0	2.6	63.2		4.8	1.2	0.0		17.9	
Queue Length 95th (m)	3.1	27.8	0.0	9.7	145.4		10.5	4.1	0.8		30.0	
Internal Link Dist (m)		561.5			342.7			90.9			374.5	
Turn Bay Length (m)	45.0		55.0	55.0					20.0			
Base Capacity (vph)	113	2189	1033	670	2543		290	455	421		384	
Starvation Cap Reductn	0	0	0	0	0		0	0	0		0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0		0	
Storage Cap Reductn	0	0	0	0	0		0	0	0		0	
Reduced v/c Ratio	0.11	0.20	0.04	0.10	0.64		0.08	0.01	0.10		0.30	

Intersection Summary

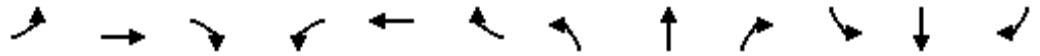
Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 40 (33%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 85
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.64
 Intersection Signal Delay: 10.4
 Intersection Capacity Utilization 76.1%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service D

Splits and Phases: 3: Viseneau & Innes





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	1506	23	98	748	53	13	21	98	50	23	35
Future Volume (vph)	61	1506	23	98	748	53	13	21	98	50	23	35
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		0.998			0.990			0.899				0.956
Flt Protected	0.950			0.950				0.995				0.977
Satd. Flow (prot)	1712	3414	0	1712	3353	0	0	1581	0	0	1676	0
Flt Permitted	0.304			0.102				0.965			0.689	
Satd. Flow (perm)	547	3414	0	184	3353	0	0	1533	0	0	1179	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			12			27			21	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		341.1			475.4			212.5			273.4	
Travel Time (s)		20.5			28.5			19.1			24.6	
Confl. Peds. (#/hr)	3		4	4		3	1		7	7		1
Confl. Bikes (#/hr)			18						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 (%)	1%	1%	3%	1%	2%	1%	2%	1%	1%	1%	1%	1%
Adj. Flow (vph)	68	1673	26	109	831	59	14	23	109	56	26	39
Shared Lane Traffic (%)												
Lane Group Flow (vph)	68	1699	0	109	890	0	0	146	0	0	121	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		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)	38.2	38.2		38.2	38.2		35.8	35.8		35.8	35.8	
Total Split (s)	74.0	74.0		74.0	74.0		36.0	36.0		36.0	36.0	
Total Split (%)	67.3%	67.3%		67.3%	67.3%		32.7%	32.7%		32.7%	32.7%	
Maximum Green (s)	67.8	67.8		67.8	67.8		29.2	29.2		29.2	29.2	
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)	17.0	17.0		17.0	17.0		22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)	1	1		1	1		6	6		1	1	
Act Effct Green (s)	80.8	80.8		80.8	80.8			16.2			16.2	
Actuated g/C Ratio	0.73	0.73		0.73	0.73			0.15			0.15	
v/c Ratio	0.17	0.68		0.81	0.36			0.59			0.63	
Control Delay	7.3	10.8		65.7	10.3			43.7			49.5	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	7.3	10.8		65.7	10.3			43.7			49.5	
LOS	A	B		E	B			D			D	
Approach Delay		10.6			16.3			43.7			49.5	
Approach LOS		B			B			D			D	
Queue Length 50th (m)	3.2	72.6		14.7	25.6			22.7			19.2	
Queue Length 95th (m)	12.1	153.5		#43.2	99.6			35.3			31.8	
Internal Link Dist (m)		317.1			451.4			188.5			249.4	
Turn Bay Length (m)	100.0			100.0								
Base Capacity (vph)	401	2508		135	2465			426			328	
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	0.68		0.81	0.36			0.34			0.37	

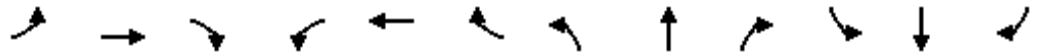
Intersection Summary

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: 130
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.81
 Intersection Signal Delay: 15.7 Intersection LOS: B
 Intersection Capacity Utilization 82.6% 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: Page & Innes



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	1636	4	7	899	12	5	0	3	12	0	7
Future Volume (vph)	14	1636	4	7	899	12	5	0	3	12	0	7
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			0.98	0.99		0.99	
Fr					0.998				0.850		0.949	
Flt Protected	0.950			0.950				0.950			0.970	
Satd. Flow (prot)	1679	3357	0	1679	3350	0	0	1679	1502	0	1609	0
Flt Permitted	0.274			0.099				0.744			0.808	
Satd. Flow (perm)	484	3357	0	175	3350	0	0	1294	1482	0	1339	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)		475.4			585.5			151.9				62.6
Travel Time (s)		28.5			35.1			13.7				5.6
Confl. Peds. (#/hr)							13		1	1		13
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
Adj. Flow (vph)	16	1818	4	8	999	13	6	0	3	13	0	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	16	1822	0	8	1012	0	0	6	3	0	21	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0				0.0
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		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
Switch Phase												

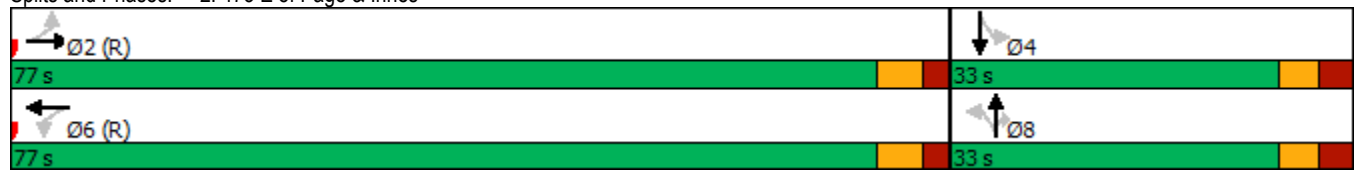


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	32.1	32.1		32.1	32.1		32.3	32.3	32.3	32.3	32.3	
Total Split (s)	77.0	77.0		77.0	77.0		33.0	33.0	33.0	33.0	33.0	
Total Split (%)	70.0%	70.0%		70.0%	70.0%		30.0%	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)	3	3		3	3		3	3	3	3	3	
Act Effct Green (s)	93.4	93.4		93.4	93.4			13.2	13.2		13.2	
Actuated g/C Ratio	0.85	0.85		0.85	0.85			0.12	0.12		0.12	
v/c Ratio	0.04	0.64		0.05	0.36			0.04	0.01		0.11	
Control Delay	1.9	5.4		6.1	4.4			39.0	0.0		9.4	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay	1.9	5.4		6.1	4.4			39.0	0.0		9.4	
LOS	A	A		A	A			D	A		A	
Approach Delay		5.4			4.4			26.0			9.4	
Approach LOS		A			A			C			A	
Queue Length 50th (m)	0.2	108.6		0.3	24.2			1.1	0.0		0.0	
Queue Length 95th (m)	m0.4	192.5		2.5	60.3			4.0	0.0		4.2	
Internal Link Dist (m)		451.4			561.5			127.9			38.6	
Turn Bay Length (m)	30.0			40.0								
Base Capacity (vph)	411	2849		148	2843			314	383		348	
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	0.04	0.64		0.05	0.36			0.02	0.01		0.06	

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: 0.64
 Intersection Signal Delay: 5.1
 Intersection LOS: A
 Intersection Capacity Utilization 85.2%
 ICU Level of Service E
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: 473 E of Page & Innes



3: Viseneau & Innes
PM Peak Hour

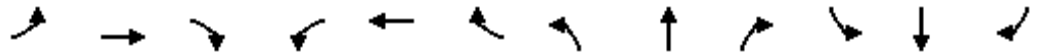
0 Innes Road
2019 Existing Traffic



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	1456	87	183	673	84	106	40	179	60	51	30
Future Volume (vph)	44	1456	87	183	673	84	106	40	179	60	51	30
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	45.0		55.0	55.0		0.0	0.0		20.0	0.0		0.0
Storage Lanes	1		1	1		0	1		1	0		0
Taper Length (m)	35.0			45.0			2.5			2.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.97		1.00		0.98		0.98		0.99	
Frt			0.850		0.983				0.850		0.972	
Flt Protected	0.950			0.950			0.950				0.979	
Satd. Flow (prot)	1712	3390	1532	1712	3264	0	1712	1767	1532	0	1637	0
Flt Permitted	0.336			0.057			0.584				0.841	
Satd. Flow (perm)	603	3390	1480	103	3264	0	1035	1767	1507	0	1404	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			84		21				199		10	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		585.5			366.7			114.9			398.5	
Travel Time (s)		35.1			22.0			10.3			35.9	
Confl. Peds. (#/hr)	5		15	15		5	18		3	3		18
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%	2%	1%	3%	1%	6%	1%	10%
Adj. Flow (vph)	49	1618	97	203	748	93	118	44	199	67	57	33
Shared Lane Traffic (%)												
Lane Group Flow (vph)	49	1618	97	203	841	0	118	44	199	0	157	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		5.0			5.0			3.7			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												
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	2	1	1		2
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	18.6	93.0	18.6	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		0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 1 Size(m)	18.6	5.5	18.6	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		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 2 Position(m)		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	pm+pt	NA		Perm	NA	Perm	Perm		NA
Protected Phases		2		1	6			8				4
Permitted Phases	2		2	6			8		8	4		
Detector Phase	2	2	2	1	6		8	8	8	4		4
Switch Phase												

3: Viseneau & Innes
PM Peak Hour

0 Innes Road
2019 Existing Traffic

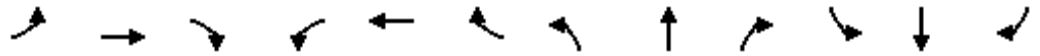


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	32.3	32.3	32.3	11.3	32.3		36.7	36.7	36.7	36.7	36.7	
Total Split (s)	71.0	71.0	71.0	20.0	91.0		39.0	39.0	39.0	39.0	39.0	
Total Split (%)	54.6%	54.6%	54.6%	15.4%	70.0%		30.0%	30.0%	30.0%	30.0%	30.0%	
Maximum Green (s)	64.7	64.7	64.7	13.7	84.7		32.3	32.3	32.3	32.3	32.3	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7		3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	2.6	2.6	2.6	2.6	2.6		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	
Total Lost Time (s)	6.3	6.3	6.3	6.3	6.3		6.7	6.7	6.7	6.7	6.7	
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?	Yes	Yes	Yes	Yes								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	None	C-Max		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)	19.0	19.0	19.0		19.0		23.0	23.0	23.0	23.0	23.0	
Pedestrian Calls (#/hr)	3	3	3		1		1	1	1	2	2	
Act Effct Green (s)	73.9	73.9	73.9	95.2	95.2		21.8	21.8	21.8		21.8	
Actuated g/C Ratio	0.57	0.57	0.57	0.73	0.73		0.17	0.17	0.17		0.17	
v/c Ratio	0.14	0.84	0.11	0.78	0.35		0.68	0.15	0.48		0.65	
Control Delay	17.8	30.1	4.8	50.6	7.4		68.7	43.6	9.3		58.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay	17.8	30.1	4.8	50.6	7.4		68.7	43.6	9.3		58.0	
LOS	B	C	A	D	A		E	D	A		E	
Approach Delay		28.4			15.8			32.9			58.0	
Approach LOS		C			B			C			E	
Queue Length 50th (m)	5.5	167.3	1.3	30.0	32.5		26.5	9.0	0.0		32.8	
Queue Length 95th (m)	13.7	#238.7	9.7	#71.8	55.2		41.8	17.1	17.1		49.1	
Internal Link Dist (m)		561.5			342.7			90.9			374.5	
Turn Bay Length (m)	45.0		55.0	55.0					20.0			
Base Capacity (vph)	343	1928	877	269	2396		257	439	523		356	
Starvation Cap Reductn	0	0	0	0	0		0	0	0		0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0		0	
Storage Cap Reductn	0	0	0	0	0		0	0	0		0	
Reduced v/c Ratio	0.14	0.84	0.11	0.75	0.35		0.46	0.10	0.38		0.44	

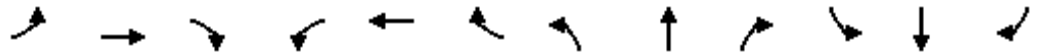
Intersection Summary
 Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 105 (81%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 115
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.84
 Intersection Signal Delay: 26.3
 Intersection LOS: C
 Intersection Capacity Utilization 89.0%
 ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 3: Viseneau & Innes





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	399	11	41	1247	27	14	14	61	37	7	59
Future Volume (vph)	13	399	11	41	1247	27	14	14	61	37	7	59
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			0.99			0.99	
Frt		0.996			0.997			0.908			0.923	
Flt Protected	0.950			0.950				0.992			0.982	
Satd. Flow (prot)	1601	3178	0	1679	3346	0	0	1511	0	0	1615	0
Flt Permitted	0.158			0.490				0.940			0.830	
Satd. Flow (perm)	266	3178	0	865	3346	0	0	1430	0	0	1365	0
Right Turn on Red			Yes			Yes			No			No
Satd. Flow (RTOR)		5			4							
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		341.1			475.4			212.5			273.4	
Travel Time (s)		20.5			28.5			19.1			24.6	
Confl. Peds. (#/hr)	1		1	1		1	6		1	1		6
Confl. Bikes (#/hr)			3						2			
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 (%)	8%	8%	20%	3%	3%	3%	20%	5%	5%	1%	1%	1%
Adj. Flow (vph)	14	443	12	46	1386	30	16	16	68	41	8	66
Shared Lane Traffic (%)												
Lane Group Flow (vph)	14	455	0	46	1416	0	0	100	0	0	115	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		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)	38.2	38.2		38.2	38.2		35.8	35.8		35.8	35.8	
Total Split (s)	84.0	84.0		84.0	84.0		36.0	36.0		36.0	36.0	
Total Split (%)	70.0%	70.0%		70.0%	70.0%		30.0%	30.0%		30.0%	30.0%	
Maximum Green (s)	77.8	77.8		77.8	77.8		29.2	29.2		29.2	29.2	
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)	17.0	17.0		17.0	17.0		22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)	1	1		1	1		6	6		1	1	
Act Effct Green (s)	90.1	90.1		90.1	90.1			16.9			16.9	
Actuated g/C Ratio	0.75	0.75		0.75	0.75			0.14			0.14	
v/c Ratio	0.07	0.19		0.07	0.56			0.50			0.60	
Control Delay	6.9	5.2		3.2	5.5			54.4			60.0	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	6.9	5.2		3.2	5.5			54.4			60.0	
LOS	A	A		A	A			D			E	
Approach Delay		5.3			5.4			54.4			60.0	
Approach LOS		A			A			D			E	
Queue Length 50th (m)	0.6	11.8		2.0	51.1			20.7			24.2	
Queue Length 95th (m)	3.6	26.0		m1.8	15.3			32.1			36.7	
Internal Link Dist (m)		317.1			451.4			188.5			249.4	
Turn Bay Length (m)	100.0			100.0								
Base Capacity (vph)	199	2388		649	2514			347			332	
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	0.07	0.19		0.07	0.56			0.29			0.35	

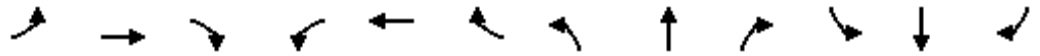
Intersection Summary

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: 0.60
 Intersection Signal Delay: 10.6 Intersection LOS: B
 Intersection Capacity Utilization 63.1% ICU Level of Service B
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Page & Innes



												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	486	8	1	1307	3	3	0	0	0	0	5
Future Volume (vph)	3	486	8	1	1307	3	3	0	0	0	0	5
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							
Frt		0.998										0.865
Flt Protected	0.950			0.950				0.950				
Satd. Flow (prot)	1679	3351	0	1679	3357	0	0	1679	1767	0	1528	0
Flt Permitted	0.166			0.447				0.754				
Satd. Flow (perm)	293	3351	0	790	3357	0	0	1332	1767	0	1528	0
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)		3										
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		475.4			585.5			151.9			62.6	
Travel Time (s)		28.5			35.1			13.7			5.6	
Confl. Peds. (#/hr)									3	3		
Confl. Bikes (#/hr)						14						
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
Adj. Flow (vph)	3	540	9	1	1452	3	3	0	0	0	0	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	549	0	1	1455	0	0	3	0	0	6	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		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			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
Switch Phase												



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
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		32.1	32.1		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)	3	3		3	3		3	3	3	3	3	
Act Effct Green (s)	107.8	107.8		107.8	107.8			13.2				13.2
Actuated g/C Ratio	0.90	0.90		0.90	0.90			0.11				0.11
v/c Ratio	0.01	0.18		0.00	0.48			0.02				0.04
Control Delay	3.7	2.1		8.0	7.1			43.3				43.8
Queue Delay	0.0	0.0		0.0	0.0			0.0				0.0
Total Delay	3.7	2.1		8.0	7.1			43.3				43.8
LOS	A	A		A	A			D				D
Approach Delay		2.1			7.1			43.3				43.8
Approach LOS		A			A			D				D
Queue Length 50th (m)	0.0	0.0		0.0	0.0			0.6				1.2
Queue Length 95th (m)	m0.8	21.7		m0.1	145.5			3.0				4.3
Internal Link Dist (m)		451.4			561.5			127.9				38.6
Turn Bay Length (m)	30.0			40.0								
Base Capacity (vph)	263	3012		710	3017			296				339
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	0.01	0.18		0.00	0.48			0.01				0.02

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: 0.48
 Intersection Signal Delay: 5.9
 Intersection Capacity Utilization 58.2%
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: 473 E of Page & Innes



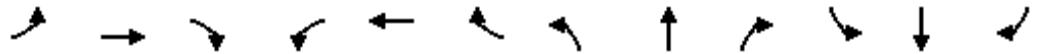
3: Viseneau & Innes
AM Peak Hour

0 Innes Road
2019 Existing Traffic (Bike Boxes)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	398	37	59	1426	33	22	5	39	46	13	47
Future Volume (vph)	11	398	37	59	1426	33	22	5	39	46	13	47
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	45.0		55.0	55.0		0.0	0.0		20.0	0.0		0.0
Storage Lanes	1		1	1		0	1		1	0		0
Taper Length (m)	35.0			45.0			2.5			2.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.99	1.00	1.00		1.00		0.99		0.99	
Frt			0.850		0.997				0.850		0.940	
Flt Protected	0.950			0.950			0.950				0.979	
Satd. Flow (prot)	1153	3232	1502	1695	3336	0	1712	1802	1432	0	1634	0
Flt Permitted	0.135			0.459			0.646				0.857	
Satd. Flow (perm)	164	3232	1482	818	3336	0	1163	1802	1412	0	1429	0
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)			91		4				87			
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		585.5			366.7			114.9			398.5	
Travel Time (s)		35.1			22.0			10.3			35.9	
Confl. Peds. (#/hr)	3		1	1		3	1		2	2		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 (%)	50%	7%	3%	2%	3%	15%	1%	1%	8%	2%	1%	2%
Adj. Flow (vph)	12	442	41	66	1584	37	24	6	43	51	14	52
Shared Lane Traffic (%)												
Lane Group Flow (vph)	12	442	41	66	1621	0	24	6	43	0	117	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		5.0			5.0			3.7			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												
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	2	1	1		2
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	18.6	93.0	18.6	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	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	18.6	5.5	18.6	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	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		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	pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2		2	6			8		8	4		
Detector Phase	2	2	2	1	6		8	8	8	4	4	
Switch Phase												

3: Viseneau & Innes
AM Peak Hour

0 Innes Road
2019 Existing Traffic (Bike Boxes)



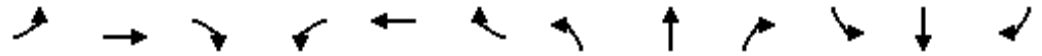
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	32.3	32.3	32.3	11.3	32.3		36.7	36.7	36.7	36.7	36.7	
Total Split (s)	71.0	71.0	71.0	12.0	83.0		37.0	37.0	37.0	37.0	37.0	
Total Split (%)	59.2%	59.2%	59.2%	10.0%	69.2%		30.8%	30.8%	30.8%	30.8%	30.8%	
Maximum Green (s)	64.7	64.7	64.7	5.7	76.7		30.3	30.3	30.3	30.3	30.3	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7		3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	2.6	2.6	2.6	2.6	2.6		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	
Total Lost Time (s)	6.3	6.3	6.3	6.3	6.3		6.7	6.7	6.7	6.7	6.7	
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?	Yes	Yes	Yes	Yes								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	None	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)	19.0	19.0	19.0		19.0		23.0	23.0	23.0	23.0	23.0	
Pedestrian Calls (#/hr)	3	3	3		1		1	1	1	2	2	
Act Effct Green (s)	79.8	79.8	79.8	90.0	90.0		17.0	17.0	17.0		17.0	
Actuated g/C Ratio	0.66	0.66	0.66	0.75	0.75		0.14	0.14	0.14		0.14	
v/c Ratio	0.11	0.21	0.04	0.10	0.65		0.15	0.02	0.16		0.58	
Control Delay	8.2	5.5	0.6	5.6	10.0		43.3	39.0	1.5		57.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay	8.2	5.5	0.6	5.6	10.0		43.3	39.0	1.5		57.9	
LOS	A	A	A	A	B		D	D	A		E	
Approach Delay		5.2			9.9			18.3			57.9	
Approach LOS		A			A			B			E	
Queue Length 50th (m)	0.7	14.3	0.0	3.0	70.9		4.7	1.2	0.0		24.5	
Queue Length 95th (m)	3.0	24.3	0.0	9.7	145.4		10.5	4.1	0.8		36.5	
Internal Link Dist (m)		561.5			342.7			90.9			374.5	
Turn Bay Length (m)	45.0		55.0	55.0					20.0			
Base Capacity (vph)	109	2148	1015	659	2502		293	455	421		360	
Starvation Cap Reductn	0	0	0	0	0		0	0	0		0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0		0	
Storage Cap Reductn	0	0	0	0	0		0	0	0		0	
Reduced v/c Ratio	0.11	0.21	0.04	0.10	0.65		0.08	0.01	0.10		0.33	

Intersection Summary

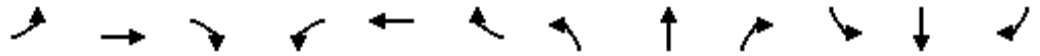
Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 40 (33%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 85
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.65
 Intersection Signal Delay: 11.5
 Intersection Capacity Utilization 76.1%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service D

Splits and Phases: 3: Viseneau & Innes





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	1506	23	98	748	53	13	21	98	50	23	35
Future Volume (vph)	61	1506	23	98	748	53	13	21	98	50	23	35
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		0.998			0.990			0.899				0.956
Flt Protected	0.950			0.950				0.995				0.977
Satd. Flow (prot)	1712	3414	0	1712	3353	0	0	1581	0	0	1676	0
Flt Permitted	0.302			0.099				0.964			0.701	
Satd. Flow (perm)	543	3414	0	178	3353	0	0	1531	0	0	1199	0
Right Turn on Red			Yes			Yes			No			No
Satd. Flow (RTOR)		3			12							
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		341.1			475.4			212.5			273.4	
Travel Time (s)		20.5			28.5			19.1			24.6	
Confl. Peds. (#/hr)	3		4	4		3	1		7	7		1
Confl. Bikes (#/hr)			18						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 (%)	1%	1%	3%	1%	2%	1%	2%	1%	1%	1%	1%	1%
Adj. Flow (vph)	68	1673	26	109	831	59	14	23	109	56	26	39
Shared Lane Traffic (%)												
Lane Group Flow (vph)	68	1699	0	109	890	0	0	146	0	0	121	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		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)	38.2	38.2		38.2	38.2		35.8	35.8		35.8	35.8	
Total Split (s)	74.0	74.0		74.0	74.0		36.0	36.0		36.0	36.0	
Total Split (%)	67.3%	67.3%		67.3%	67.3%		32.7%	32.7%		32.7%	32.7%	
Maximum Green (s)	67.8	67.8		67.8	67.8		29.2	29.2		29.2	29.2	
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)	17.0	17.0		17.0	17.0		22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)	1	1		1	1		6	6		1	1	
Act Effct Green (s)	79.7	79.7		79.7	79.7			17.3			17.3	
Actuated g/C Ratio	0.72	0.72		0.72	0.72			0.16			0.16	
v/c Ratio	0.17	0.69		0.84	0.37			0.61			0.64	
Control Delay	7.7	11.4		74.1	10.6			52.7			57.7	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	7.7	11.4		74.1	10.6			52.7			57.7	
LOS	A	B		E	B			D			E	
Approach Delay		11.3			17.6			52.7			57.7	
Approach LOS		B			B			D			E	
Queue Length 50th (m)	3.5	78.9		15.8	27.8			27.7			23.1	
Queue Length 95th (m)	12.1	153.5		#44.2	99.6			40.3			35.7	
Internal Link Dist (m)		317.1			451.4			188.5			249.4	
Turn Bay Length (m)	100.0			100.0								
Base Capacity (vph)	393	2475		129	2434			406			318	
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	0.69		0.84	0.37			0.36			0.38	

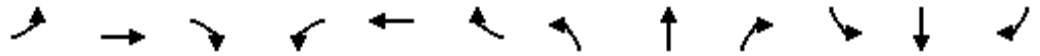
Intersection Summary

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: 130
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.84
 Intersection Signal Delay: 17.2 Intersection LOS: B
 Intersection Capacity Utilization 82.6% 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: Page & Innes



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	1636	4	7	899	12	5	0	3	12	0	7
Future Volume (vph)	14	1636	4	7	899	12	5	0	3	12	0	7
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			0.98	0.99		0.99	
Fr					0.998				0.850		0.949	
Flt Protected	0.950			0.950				0.950			0.970	
Satd. Flow (prot)	1679	3357	0	1679	3350	0	0	1679	1502	0	1609	0
Flt Permitted	0.274			0.099				0.744			0.808	
Satd. Flow (perm)	484	3357	0	175	3350	0	0	1294	1482	0	1339	0
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)					2				31			
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		475.4			585.5			151.9			62.6	
Travel Time (s)		28.5			35.1			13.7			5.6	
Confl. Peds. (#/hr)							13		1	1		13
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
Adj. Flow (vph)	16	1818	4	8	999	13	6	0	3	13	0	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	16	1822	0	8	1012	0	0	6	3	0	21	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		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
Switch Phase												

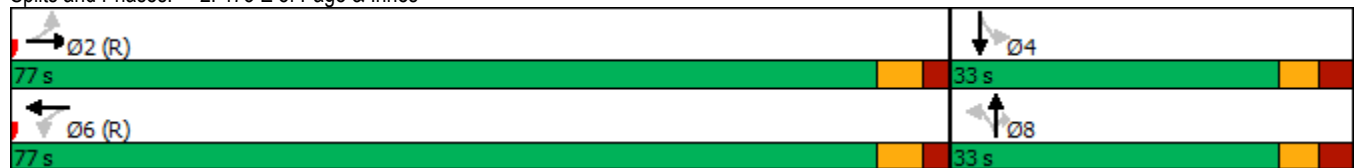


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	32.1	32.1		32.1	32.1		32.3	32.3	32.3	32.3	32.3	
Total Split (s)	77.0	77.0		77.0	77.0		33.0	33.0	33.0	33.0	33.0	
Total Split (%)	70.0%	70.0%		70.0%	70.0%		30.0%	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)	3	3		3	3		3	3	3	3	3	
Act Effct Green (s)	93.4	93.4		93.4	93.4			13.2	13.2		13.2	
Actuated g/C Ratio	0.85	0.85		0.85	0.85			0.12	0.12		0.12	
v/c Ratio	0.04	0.64		0.05	0.36			0.04	0.01		0.13	
Control Delay	2.1	5.3		6.1	4.4			39.0	0.0		42.0	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay	2.1	5.3		6.1	4.4			39.0	0.0		42.0	
LOS	A	A		A	A			D	A		D	
Approach Delay		5.3			4.4			26.0			42.0	
Approach LOS		A			A			C			D	
Queue Length 50th (m)	0.2	112.1		0.3	24.2			1.1	0.0		3.9	
Queue Length 95th (m)	m0.4	199.6		2.5	60.3			4.0	0.0		9.2	
Internal Link Dist (m)		451.4			561.5			127.9			38.6	
Turn Bay Length (m)	30.0			40.0								
Base Capacity (vph)	411	2849		148	2843			314	383		325	
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	0.04	0.64		0.05	0.36			0.02	0.01		0.06	

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: 0.64
 Intersection Signal Delay: 5.3
 Intersection LOS: A
 Intersection Capacity Utilization 85.2%
 ICU Level of Service E
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: 473 E of Page & Innes



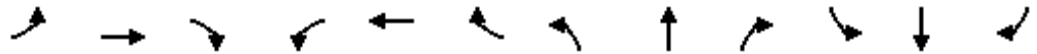
3: Viseneau & Innes
PM Peak Hour

0 Innes Road
2019 Existing Traffic (Bike Boxes)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	1456	87	183	673	84	106	40	179	60	51	30
Future Volume (vph)	44	1456	87	183	673	84	106	40	179	60	51	30
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	45.0		55.0	55.0		0.0	0.0		20.0	0.0		0.0
Storage Lanes	1		1	1		0	1		1	0		0
Taper Length (m)	35.0			45.0			2.5			2.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.97		1.00		0.98		0.98		0.99	
Frt			0.850		0.983				0.850		0.972	
Flt Protected	0.950			0.950			0.950				0.979	
Satd. Flow (prot)	1712	3390	1532	1712	3264	0	1712	1767	1532	0	1637	0
Flt Permitted	0.336			0.057			0.584				0.841	
Satd. Flow (perm)	603	3390	1480	103	3264	0	1035	1767	1507	0	1404	0
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)			84		21				199			
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		585.5			366.7			114.9			398.5	
Travel Time (s)		35.1			22.0			10.3			35.9	
Confl. Peds. (#/hr)	5		15	15		5	18		3	3		18
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%	2%	1%	3%	1%	6%	1%	10%
Adj. Flow (vph)	49	1618	97	203	748	93	118	44	199	67	57	33
Shared Lane Traffic (%)												
Lane Group Flow (vph)	49	1618	97	203	841	0	118	44	199	0	157	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		5.0			5.0			3.7			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												
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	2	1	1		2
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	18.6	93.0	18.6	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	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	18.6	5.5	18.6	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	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		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	pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2		2	6			8		8	4		
Detector Phase	2	2	2	1	6		8	8	8	4	4	
Switch Phase												

3: Viseneau & Innes
PM Peak Hour

0 Innes Road
2019 Existing Traffic (Bike Boxes)

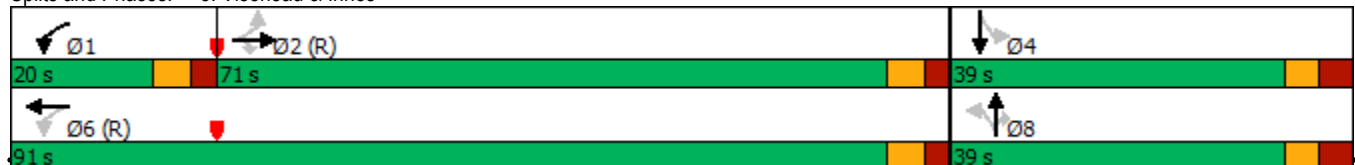


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	32.3	32.3	32.3	11.3	32.3		36.7	36.7	36.7	36.7	36.7	
Total Split (s)	71.0	71.0	71.0	20.0	91.0		39.0	39.0	39.0	39.0	39.0	
Total Split (%)	54.6%	54.6%	54.6%	15.4%	70.0%		30.0%	30.0%	30.0%	30.0%	30.0%	
Maximum Green (s)	64.7	64.7	64.7	13.7	84.7		32.3	32.3	32.3	32.3	32.3	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7		3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	2.6	2.6	2.6	2.6	2.6		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	
Total Lost Time (s)	6.3	6.3	6.3	6.3	6.3		6.7	6.7	6.7	6.7	6.7	
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?	Yes	Yes	Yes	Yes								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	None	C-Max		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)	19.0	19.0	19.0		19.0		23.0	23.0	23.0	23.0	23.0	
Pedestrian Calls (#/hr)	3	3	3		1		1	1	1	2	2	
Act Effct Green (s)	73.8	73.8	73.8	95.1	95.1		21.9	21.9	21.9		21.9	
Actuated g/C Ratio	0.57	0.57	0.57	0.73	0.73		0.17	0.17	0.17		0.17	
v/c Ratio	0.14	0.84	0.11	0.78	0.35		0.68	0.15	0.47		0.67	
Control Delay	17.8	30.3	4.8	50.7	7.4		68.1	43.5	9.2		62.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay	17.8	30.3	4.8	50.7	7.4		68.1	43.5	9.2		62.8	
LOS	B	C	A	D	A		E	D	A		E	
Approach Delay		28.5			15.8			32.7			62.8	
Approach LOS		C			B			C			E	
Queue Length 50th (m)	5.5	167.3	1.3	30.0	32.5		26.5	9.0	0.0		35.1	
Queue Length 95th (m)	13.7	#238.7	9.7	#71.8	55.2		41.8	17.1	17.1		51.4	
Internal Link Dist (m)		561.5			342.7			90.9			374.5	
Turn Bay Length (m)	45.0		55.0	55.0					20.0			
Base Capacity (vph)	342	1923	875	269	2392		257	439	523		348	
Starvation Cap Reductn	0	0	0	0	0		0	0	0		0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0		0	
Storage Cap Reductn	0	0	0	0	0		0	0	0		0	
Reduced v/c Ratio	0.14	0.84	0.11	0.75	0.35		0.46	0.10	0.38		0.45	

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 105 (81%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 115
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.84
 Intersection Signal Delay: 26.6
 Intersection LOS: C
 Intersection Capacity Utilization 89.0%
 ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 3: Viseneau & Innes





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	435	11	41	1370	31	14	14	61	43	7	70
Future Volume (vph)	16	435	11	41	1370	31	14	14	61	43	7	70
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			0.99			0.99	
Frt		0.996			0.997			0.907			0.921	
Flt Protected	0.950			0.950				0.992			0.982	
Satd. Flow (prot)	1601	3178	0	1679	3346	0	0	1510	0	0	1611	0
Flt Permitted	0.165			0.494				0.928			0.848	
Satd. Flow (perm)	278	3178	0	872	3346	0	0	1411	0	0	1391	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			4			61			56	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		341.1			238.6			212.5			273.4	
Travel Time (s)		20.5			14.3			19.1			24.6	
Confl. Peds. (#/hr)	1		1	1		1	6		1	1		6
Confl. Bikes (#/hr)			3						2			
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 (%)	8%	8%	20%	3%	3%	3%	20%	5%	5%	1%	1%	1%
Adj. Flow (vph)	16	435	11	41	1370	31	14	14	61	43	7	70
Shared Lane Traffic (%)												
Lane Group Flow (vph)	16	446	0	41	1401	0	0	89	0	0	120	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		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)	38.2	38.2		38.2	38.2		35.8	35.8		35.8	35.8	
Total Split (s)	84.0	84.0		84.0	84.0		36.0	36.0		36.0	36.0	
Total Split (%)	70.0%	70.0%		70.0%	70.0%		30.0%	30.0%		30.0%	30.0%	
Maximum Green (s)	77.8	77.8		77.8	77.8		29.2	29.2		29.2	29.2	
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)	17.0	17.0		17.0	17.0		22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)	1	1		1	1		6	6		1	1	
Act Effct Green (s)	92.3	92.3		92.3	92.3			14.7			14.7	
Actuated g/C Ratio	0.77	0.77		0.77	0.77			0.12			0.12	
v/c Ratio	0.08	0.18		0.06	0.54			0.39			0.55	
Control Delay	6.4	4.6		3.3	5.4			22.2			34.9	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	6.4	4.6		3.3	5.4			22.2			34.9	
LOS	A	A		A	A			C			C	
Approach Delay		4.7			5.4			22.2			34.9	
Approach LOS		A			A			C			C	
Queue Length 50th (m)	0.6	9.4		1.5	41.7			5.7			13.4	
Queue Length 95th (m)	4.0	25.5		2.1	19.7			17.1			26.4	
Internal Link Dist (m)		317.1			214.6			188.5			249.4	
Turn Bay Length (m)	100.0			100.0								
Base Capacity (vph)	213	2444		670	2573			389			380	
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	0.08	0.18		0.06	0.54			0.23			0.32	

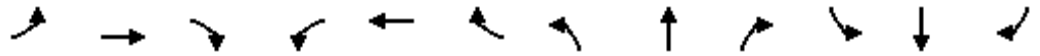
Intersection Summary

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:	7.6
Intersection LOS:	A
Intersection Capacity Utilization:	68.1%
ICU Level of Service:	C
Analysis Period (min):	15

Splits and Phases: 1: Page & Innes



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	507	8	1	1340	3	3	0	0	0	0	5
Future Volume (vph)	3	507	8	1	1340	3	3	0	0	0	0	5
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							
Frt		0.998									0.865	
Flt Protected	0.950			0.950				0.950				
Satd. Flow (prot)	1679	3351	0	1679	3357	0	0	1679	1767	0	1528	0
Flt Permitted	0.193			0.462				0.769				
Satd. Flow (perm)	341	3351	0	816	3357	0	0	1359	1767	0	1528	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3										77
Link Speed (k/h)		60			60			40				40
Link Distance (m)		236.8			585.5			151.9				62.6
Travel Time (s)		14.2			35.1			13.7				5.6
Confl. Peds. (#/hr)									3	3		
Confl. Bikes (#/hr)						14						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	3	507	8	1	1340	3	3	0	0	0	0	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	515	0	1	1343	0	0	3	0	0	5	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0				0.0
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		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			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
Switch Phase												

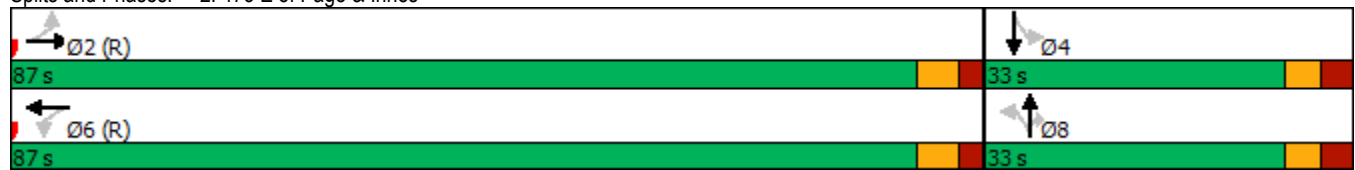


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	32.1	32.1		32.1	32.1		32.3	32.3	32.3	32.3	32.3	
Total Split (s)	87.0	87.0		87.0	87.0		33.0	33.0	33.0	33.0	33.0	
Total Split (%)	72.5%	72.5%		72.5%	72.5%		27.5%	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)	3	3		3	3		3	3	3	3	3	
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	0.01	0.16		0.00	0.43			0.02			0.02	
Control Delay	3.7	1.8		8.0	5.8			43.3			0.2	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	3.7	1.8		8.0	5.8			43.3			0.2	
LOS	A	A		A	A			D			A	
Approach Delay		1.8			5.8			43.3			0.2	
Approach LOS		A			A			D			A	
Queue Length 50th (m)	0.0	0.0		0.0	0.0			0.6			0.0	
Queue Length 95th (m)	m0.9	22.6		m0.2	130.8			2.9			0.0	
Internal Link Dist (m)		212.8			561.5			127.9			38.6	
Turn Bay Length (m)	30.0			40.0								
Base Capacity (vph)	319	3137		764	3142			302			399	
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	0.01	0.16		0.00	0.43			0.01			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: 0.43
 Intersection Signal Delay: 4.8
 Intersection Capacity Utilization 59.1%
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: 473 E of Page & Innes



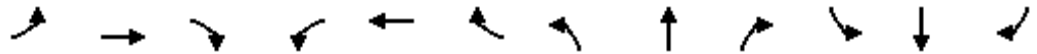
3: Viseneau & Innes
AM Peak Hour

0 Innes Road
2021 Background Traffic

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	417	37	59	1462	33	22	5	39	46	13	47
Future Volume (vph)	11	417	37	59	1462	33	22	5	39	46	13	47
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	45.0		55.0	55.0		0.0	0.0		20.0	0.0		0.0
Storage Lanes	1		1	1		0	1		1	0		0
Taper Length (m)	35.0			45.0			2.5			2.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.99	1.00	1.00		1.00		0.99		0.99	
Frt			0.850		0.997				0.850		0.940	
Flt Protected	0.950			0.950			0.950				0.979	
Satd. Flow (prot)	1153	3232	1502	1695	3337	0	1712	1802	1432	0	1634	0
Flt Permitted	0.165			0.471			0.662				0.858	
Satd. Flow (perm)	200	3232	1482	840	3337	0	1192	1802	1412	0	1431	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			91		4				87			32
Link Speed (k/h)		60			60			40				40
Link Distance (m)		585.5			366.7			114.9				398.5
Travel Time (s)		35.1			22.0			10.3				35.9
Confl. Peds. (#/hr)	3		1	1		3	1		2	2		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 (%)	50%	7%	3%	2%	3%	15%	1%	1%	8%	2%	1%	2%
Adj. Flow (vph)	11	417	37	59	1462	33	22	5	39	46	13	47
Shared Lane Traffic (%)												
Lane Group Flow (vph)	11	417	37	59	1495	0	22	5	39	0	106	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		5.0			5.0			3.7				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												
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	2	1	1		2
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left		Thru
Leading Detector (m)	18.6	93.0	18.6	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		0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 1 Size(m)	18.6	5.5	18.6	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		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 2 Position(m)		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	pm+pt	NA		Perm	NA	Perm	Perm		NA
Protected Phases		2		1	6			8				4
Permitted Phases	2		2	6			8		8	4		
Detector Phase	2	2	2	1	6		8	8	8	4		4
Switch Phase												

3: Viseneau & Innes
AM Peak Hour

0 Innes Road
2021 Background Traffic



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	32.3	32.3	32.3	11.3	32.3		36.7	36.7	36.7	36.7	36.7	
Total Split (s)	71.0	71.0	71.0	12.0	83.0		37.0	37.0	37.0	37.0	37.0	
Total Split (%)	59.2%	59.2%	59.2%	10.0%	69.2%		30.8%	30.8%	30.8%	30.8%	30.8%	
Maximum Green (s)	64.7	64.7	64.7	5.7	76.7		30.3	30.3	30.3	30.3	30.3	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7		3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	2.6	2.6	2.6	2.6	2.6		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	
Total Lost Time (s)	6.3	6.3	6.3	6.3	6.3		6.7	6.7	6.7	6.7	6.7	
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?	Yes	Yes	Yes	Yes								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	None	C-Max		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)	19.0	19.0	19.0		19.0		23.0	23.0	23.0	23.0	23.0	
Pedestrian Calls (#/hr)	3	3	3		1		1	1	1	2	2	
Act Effct Green (s)	81.8	81.8	81.8	91.9	91.9		15.1	15.1	15.1		15.1	
Actuated g/C Ratio	0.68	0.68	0.68	0.77	0.77		0.13	0.13	0.13		0.13	
v/c Ratio	0.08	0.19	0.04	0.09	0.59		0.15	0.02	0.15		0.51	
Control Delay	7.9	6.1	0.3	5.1	8.3		44.9	40.2	1.3		40.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay	7.9	6.1	0.3	5.1	8.3		44.9	40.2	1.3		40.7	
LOS	A	A	A	A	A		D	D	A		D	
Approach Delay		5.7			8.2			18.8			40.7	
Approach LOS		A			A			B			D	
Queue Length 50th (m)	0.6	14.0	0.0	2.2	51.3		4.5	1.0	0.0		15.5	
Queue Length 95th (m)	3.7	28.0	0.0	8.9	124.6		10.0	3.8	0.0		27.0	
Internal Link Dist (m)		561.5			342.7			90.9			374.5	
Turn Bay Length (m)	45.0		55.0	55.0					20.0			
Base Capacity (vph)	136	2203	1039	686	2555		300	455	421		385	
Starvation Cap Reductn	0	0	0	0	0		0	0	0		0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0		0	
Storage Cap Reductn	0	0	0	0	0		0	0	0		0	
Reduced v/c Ratio	0.08	0.19	0.04	0.09	0.59		0.07	0.01	0.09		0.28	

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 40 (33%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 85
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.59
 Intersection Signal Delay: 9.5
 Intersection Capacity Utilization 76.1%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service D

Splits and Phases: 3: Viseneau & Innes

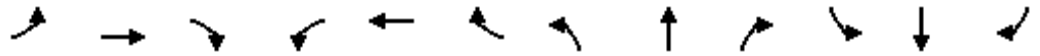




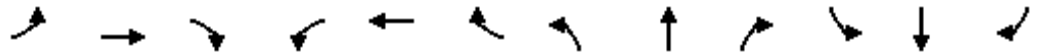
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	
Traffic Volume (vph)	513	28	1	1347	96	5
Future Volume (vph)	513	28	1	1347	96	5
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		50.0	35.0		0.0	85.0
Storage Lanes		1	1		1	0
Taper Length (m)			20.0		20.0	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Ped Bike Factor						
Frt		0.850			0.993	
Flt Protected			0.950		0.955	
Satd. Flow (prot)	3202	1502	1679	3357	1676	0
Flt Permitted			0.950		0.955	
Satd. Flow (perm)	3202	1502	1679	3357	1676	0
Link Speed (k/h)	60			60	60	
Link Distance (m)	238.6			236.8	212.4	
Travel Time (s)	14.3			14.2	12.7	
Confl. Peds. (#/hr)		3	3			3
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	8%	3%	3%	3%	3%	3%
Adj. Flow (vph)	513	28	1	1347	96	5
Shared Lane Traffic (%)						
Lane Group Flow (vph)	513	28	1	1347	101	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	5.0	
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	52.6%
ICU Level of Service	A
Analysis Period (min)	15



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	74	1645	23	98	838	56	13	21	98	58	23	38
Future Volume (vph)	74	1645	23	98	838	56	13	21	98	58	23	38
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		0.998			0.991			0.900				0.957
Flt Protected	0.950			0.950				0.995				0.976
Satd. Flow (prot)	1712	3414	0	1712	3356	0	0	1582	0	0	1676	0
Flt Permitted	0.303			0.108				0.964			0.713	
Satd. Flow (perm)	545	3414	0	195	3356	0	0	1533	0	0	1221	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			12			29			21	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		341.1			238.6			212.5			273.4	
Travel Time (s)		20.5			14.3			19.1			24.6	
Confl. Peds. (#/hr)	3		4	4		3	1		7	7		1
Confl. Bikes (#/hr)			18						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 (%)	1%	1%	3%	1%	2%	1%	2%	1%	1%	1%	1%	1%
Adj. Flow (vph)	74	1645	23	98	838	56	13	21	98	58	23	38
Shared Lane Traffic (%)												
Lane Group Flow (vph)	74	1668	0	98	894	0	0	132	0	0	119	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		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	

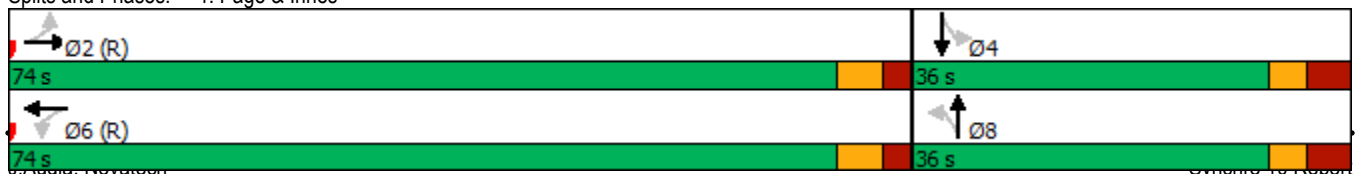


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	38.2	38.2		38.2	38.2		35.8	35.8		35.8	35.8	
Total Split (s)	74.0	74.0		74.0	74.0		36.0	36.0		36.0	36.0	
Total Split (%)	67.3%	67.3%		67.3%	67.3%		32.7%	32.7%		32.7%	32.7%	
Maximum Green (s)	67.8	67.8		67.8	67.8		29.2	29.2		29.2	29.2	
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)	17.0	17.0		17.0	17.0		22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)	1	1		1	1		6	6		1	1	
Act Effct Green (s)	81.3	81.3		81.3	81.3			15.7			15.7	
Actuated g/C Ratio	0.74	0.74		0.74	0.74			0.14			0.14	
v/c Ratio	0.18	0.66		0.68	0.36			0.54			0.62	
Control Delay	7.4	10.3		45.6	9.5			40.6			48.7	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	7.4	10.3		45.6	9.5			40.6			48.7	
LOS	A	B		D	A			D			D	
Approach Delay		10.2			13.1			40.6			48.7	
Approach LOS		B			B			D			D	
Queue Length 50th (m)	3.4	67.3		7.3	23.8			19.5			18.9	
Queue Length 95th (m)	13.2	148.2		#44.2	93.0			31.4			30.9	
Internal Link Dist (m)		317.1			214.6			188.5			249.4	
Turn Bay Length (m)	100.0			100.0								
Base Capacity (vph)	402	2522		144	2482			428			339	
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	0.18	0.66		0.68	0.36			0.31			0.35	

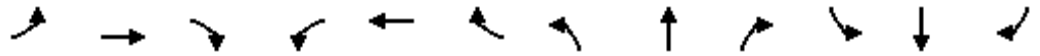
Intersection Summary

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: 0.68
 Intersection Signal Delay: 14.0
 Intersection LOS: B
 Intersection Capacity Utilization 87.3%
 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: Page & Innes



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	1689	29	32	943	12	30	0	28	12	0	7
Future Volume (vph)	14	1689	29	32	943	12	30	0	28	12	0	7
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			0.98	0.99		0.99	
Frt		0.997			0.998				0.850		0.950	
Flt Protected	0.950			0.950				0.950			0.969	
Satd. Flow (prot)	1679	3347	0	1679	3350	0	0	1679	1502	0	1610	0
Flt Permitted	0.289			0.110				0.745			0.805	
Satd. Flow (perm)	511	3347	0	194	3350	0	0	1295	1482	0	1336	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			2				31		31	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		236.8			585.5			151.9			62.6	
Travel Time (s)		14.2			35.1			13.7			5.6	
Confl. Peds. (#/hr)							13		1	1		13
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
Adj. Flow (vph)	14	1689	29	32	943	12	30	0	28	12	0	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	14	1718	0	32	955	0	0	30	28	0	19	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		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
Switch Phase												

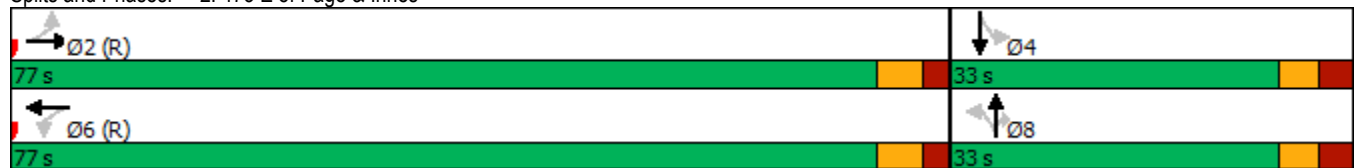


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	32.1	32.1		32.1	32.1		32.3	32.3	32.3	32.3	32.3	
Total Split (s)	77.0	77.0		77.0	77.0		33.0	33.0	33.0	33.0	33.0	
Total Split (%)	70.0%	70.0%		70.0%	70.0%		30.0%	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)	3	3		3	3		3	3	3	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	0.03	0.64		0.21	0.35			0.19	0.14		0.10	
Control Delay	1.9	5.8		9.2	4.8			43.9	13.2		7.5	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay	1.9	5.8		9.2	4.8			43.9	13.2		7.5	
LOS	A	A		A	A			D	B		A	
Approach Delay		5.8			5.0			29.1			7.5	
Approach LOS		A			A			C			A	
Queue Length 50th (m)	0.2	95.5		1.2	22.3			5.6	0.0		0.0	
Queue Length 95th (m)	m0.3	119.4		8.1	55.7			11.9	6.1		3.6	
Internal Link Dist (m)		212.8			561.5			127.9			38.6	
Turn Bay Length (m)	30.0			40.0								
Base Capacity (vph)	412	2705		156	2707			314	383		347	
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	0.64		0.21	0.35			0.10	0.07		0.05	

Intersection Summary

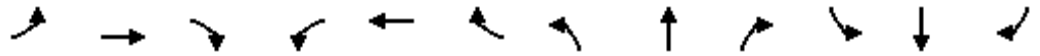
Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 36 (33%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.64
 Intersection Signal Delay: 6.0
 Intersection LOS: A
 Intersection Capacity Utilization 87.6%
 ICU Level of Service E
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: 473 E of Page & Innes



3: Viseneau & Innes
PM Peak Hour

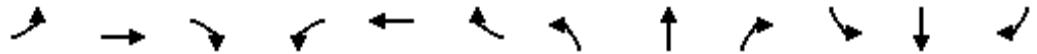
0 Innes Road
2021 Background Traffic



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	1530	87	183	738	84	106	40	179	60	51	30
Future Volume (vph)	44	1530	87	183	738	84	106	40	179	60	51	30
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	45.0		55.0	55.0		0.0	0.0		20.0	0.0		0.0
Storage Lanes	1		1	1		0	1		1	0		0
Taper Length (m)	35.0			45.0			2.5			2.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.97		1.00		0.98		0.98		0.99	
Frt			0.850		0.985				0.850		0.971	
Flt Protected	0.950			0.950			0.950				0.979	
Satd. Flow (prot)	1712	3390	1532	1712	3271	0	1712	1767	1532	0	1635	0
Flt Permitted	0.342			0.082			0.597				0.844	
Satd. Flow (perm)	614	3390	1480	148	3271	0	1057	1767	1507	0	1407	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			84		19				179		10	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		585.5			366.7			114.9			398.5	
Travel Time (s)		35.1			22.0			10.3			35.9	
Confl. Peds. (#/hr)	5		15	15		5	18		3	3		18
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%	2%	1%	3%	1%	6%	1%	10%
Adj. Flow (vph)	44	1530	87	183	738	84	106	40	179	60	51	30
Shared Lane Traffic (%)												
Lane Group Flow (vph)	44	1530	87	183	822	0	106	40	179	0	141	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		5.0			5.0			3.7			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												
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	2	1	1		2
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	18.6	93.0	18.6	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	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	18.6	5.5	18.6	18.6	5.5		18.6	5.5	18.6	18.6	5.5	
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		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		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		87.5			87.5			87.5			87.5	
Detector 2 Size(m)		5.5			5.5			5.5			5.5	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2		2	6			8		8	4		
Detector Phase	2	2	2	1	6		8	8	8	4	4	
Switch Phase												

3: Viseneau & Innes
PM Peak Hour

0 Innes Road
2021 Background Traffic



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	32.3	32.3	32.3	11.3	32.3		36.7	36.7	36.7	36.7	36.7	
Total Split (s)	71.0	71.0	71.0	20.0	91.0		39.0	39.0	39.0	39.0	39.0	
Total Split (%)	54.6%	54.6%	54.6%	15.4%	70.0%		30.0%	30.0%	30.0%	30.0%	30.0%	
Maximum Green (s)	64.7	64.7	64.7	13.7	84.7		32.3	32.3	32.3	32.3	32.3	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7		3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	2.6	2.6	2.6	2.6	2.6		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	
Total Lost Time (s)	6.3	6.3	6.3	6.3	6.3		6.7	6.7	6.7	6.7	6.7	
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?	Yes	Yes	Yes	Yes								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	None	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)	19.0	19.0	19.0		19.0		23.0	23.0	23.0	23.0	23.0	
Pedestrian Calls (#/hr)	3	3	3		1		1	1	1	2	2	
Act Effct Green (s)	77.2	77.2	77.2	97.1	97.1		19.9	19.9	19.9		19.9	
Actuated g/C Ratio	0.59	0.59	0.59	0.75	0.75		0.15	0.15	0.15		0.15	
v/c Ratio	0.12	0.76	0.10	0.67	0.34		0.65	0.15	0.47		0.63	
Control Delay	16.3	24.8	3.9	30.6	6.6		68.9	45.1	10.0		58.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay	16.3	24.8	3.9	30.6	6.6		68.9	45.1	10.0		58.8	
LOS	B	C	A	C	A		E	D	A		E	
Approach Delay		23.5			11.0			33.5			58.8	
Approach LOS		C			B			C			E	
Queue Length 50th (m)	4.4	135.0	0.3	16.8	28.6		24.0	8.3	0.0		29.5	
Queue Length 95th (m)	12.3	202.8	8.1	43.7	51.8		38.2	16.4	16.7		44.9	
Internal Link Dist (m)		561.5			342.7			90.9			374.5	
Turn Bay Length (m)	45.0		55.0	55.0					20.0			
Base Capacity (vph)	364	2014	913	291	2447		262	439	508		357	
Starvation Cap Reductn	0	0	0	0	0		0	0	0		0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0		0	
Storage Cap Reductn	0	0	0	0	0		0	0	0		0	
Reduced v/c Ratio	0.12	0.76	0.10	0.63	0.34		0.40	0.09	0.35		0.39	

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 105 (81%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 105
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.76
 Intersection Signal Delay: 22.1
 Intersection Capacity Utilization 91.1%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service F

Splits and Phases: 3: Viseneau & Innes





Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	
Traffic Volume (vph)	1720	84	21	947	48	12
Future Volume (vph)	1720	84	21	947	48	12
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		50.0	35.0		0.0	85.0
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						
Frt		0.850			0.973	
Flt Protected			0.950		0.962	
Satd. Flow (prot)	3357	1502	1679	3357	1654	0
Flt Permitted			0.950		0.962	
Satd. Flow (perm)	3357	1502	1679	3357	1654	0
Link Speed (k/h)	60			60	60	
Link Distance (m)	238.6			236.8	212.4	
Travel Time (s)	14.3			14.2	12.7	
Confl. Peds. (#/hr)		3	3			3
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1720	84	21	947	48	12
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1720	84	21	947	60	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	5.0	
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	

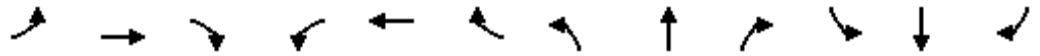
Intersection Summary

Area Type: Other

Control Type: Unsignalized

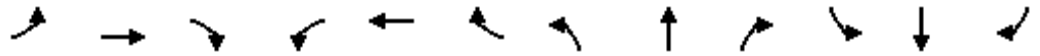
Intersection Capacity Utilization 61.4% ICU Level of Service B

Analysis Period (min) 15



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	74	1645	23	98	838	56	13	21	98	58	23	38
Future Volume (vph)	74	1645	23	98	838	56	13	21	98	58	23	38
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		0.998			0.991			0.900				0.957
Flt Protected	0.950			0.950				0.995				0.976
Satd. Flow (prot)	1712	3414	0	1712	3356	0	0	1582	0	0	1676	0
Flt Permitted	0.318			0.068				0.964			0.713	
Satd. Flow (perm)	572	3414	0	123	3356	0	0	1533	0	0	1221	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			12			98			21	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		341.1			238.6			212.5			273.4	
Travel Time (s)		20.5			14.3			19.1			24.6	
Confl. Peds. (#/hr)	3		4	4		3	1		7	7		1
Confl. Bikes (#/hr)			18						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 (%)	1%	1%	3%	1%	2%	1%	2%	1%	1%	1%	1%	1%
Adj. Flow (vph)	74	1645	23	98	838	56	13	21	98	58	23	38
Shared Lane Traffic (%)												
Lane Group Flow (vph)	74	1668	0	98	894	0	0	132	0	0	119	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		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		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		1	6		8	8		4	4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	1689	29	32	943	12	30	0	28	12	0	7
Future Volume (vph)	14	1689	29	32	943	12	30	0	28	12	0	7
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			0.98	0.99		0.99	
Frt		0.997			0.998				0.850		0.950	
Flt Protected	0.950			0.950				0.950			0.969	
Satd. Flow (prot)	1679	3347	0	1679	3350	0	0	1679	1502	0	1610	0
Flt Permitted	0.300			0.083				0.745			0.805	
Satd. Flow (perm)	530	3347	0	147	3350	0	0	1295	1482	0	1336	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			2				90		90	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		236.8			585.5			151.9			62.6	
Travel Time (s)		14.2			35.1			13.7			5.6	
Confl. Peds. (#/hr)							13		1	1		13
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
Adj. Flow (vph)	14	1689	29	32	943	12	30	0	28	12	0	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	14	1718	0	32	955	0	0	30	28	0	19	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		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		pm+pt	NA		Perm	NA	Perm	Perm		NA
Protected Phases		2		1	6			8				4
Permitted Phases	2			6			8		8	4		
Detector Phase	2	2		1	6		8	8	8	4		4
Switch Phase												



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	10.0	10.0		5.0	10.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	32.1	32.1		11.0	32.1		32.3	32.3	32.3	32.3	32.3	
Total Split (s)	66.0	66.0		11.0	77.0		33.0	33.0	33.0	33.0	33.0	
Total Split (%)	60.0%	60.0%		10.0%	70.0%		30.0%	30.0%	30.0%	30.0%	30.0%	
Maximum Green (s)	59.9	59.9		5.0	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		2.3	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		6.0	6.1			6.3	6.3		6.3	
Lead/Lag	Lag	Lag		Lead								
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		None	C-Max		None	None	None	None	None	
Walk Time (s)	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		19.0	19.0	19.0	19.0	19.0	
Pedestrian Calls (#/hr)	3	3			3		3	3	3	3	3	
Act Effct Green (s)	81.7	81.7		87.8	88.9			13.2	13.2		13.2	
Actuated g/C Ratio	0.74	0.74		0.80	0.81			0.12	0.12		0.12	
v/c Ratio	0.04	0.69		0.16	0.35			0.19	0.11		0.08	
Control Delay	2.0	6.1		6.1	4.8			43.9	0.9		0.6	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay	2.0	6.1		6.1	4.8			43.9	0.9		0.6	
LOS	A	A		A	A			D	A		A	
Approach Delay		6.1			4.9			23.1			0.6	
Approach LOS		A			A			C			A	
Queue Length 50th (m)	0.1	6.9		1.0	22.3			5.6	0.0		0.0	
Queue Length 95th (m)	m0.2	#219.0		5.1	55.7			11.9	0.0		0.0	
Internal Link Dist (m)		212.8			561.5			127.9			38.6	
Turn Bay Length (m)	30.0			40.0								
Base Capacity (vph)	393	2487		197	2707			314	427		392	
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	0.04	0.69		0.16	0.35			0.10	0.07		0.05	

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: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.69
 Intersection Signal Delay: 6.0
 Intersection LOS: A
 Intersection Capacity Utilization 87.6%
 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: 473 E of Page & Innes



3: Viseneau & Innes
PM Peak Hour

0 Innes Road
2021 Background Traffic (Protected + Permitted Phasing)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	1530	87	183	738	84	106	40	179	60	51	30
Future Volume (vph)	44	1530	87	183	738	84	106	40	179	60	51	30
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	45.0		55.0	55.0		0.0	0.0		20.0	0.0		0.0
Storage Lanes	1		1	1		0	1		1	0		0
Taper Length (m)	35.0			45.0			2.5			2.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.97		1.00		0.98		0.98		0.99	
Frt			0.850		0.985				0.850		0.971	
Flt Protected	0.950			0.950			0.950				0.979	
Satd. Flow (prot)	1712	3390	1532	1712	3271	0	1712	1767	1532	0	1635	0
Flt Permitted	0.342			0.082			0.597				0.844	
Satd. Flow (perm)	614	3390	1480	148	3271	0	1057	1767	1507	0	1407	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			84		19				179		10	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		585.5			366.7			114.9			398.5	
Travel Time (s)		35.1			22.0			10.3			35.9	
Confl. Peds. (#/hr)	5		15	15		5	18		3	3		18
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%	2%	1%	3%	1%	6%	1%	10%
Adj. Flow (vph)	44	1530	87	183	738	84	106	40	179	60	51	30
Shared Lane Traffic (%)												
Lane Group Flow (vph)	44	1530	87	183	822	0	106	40	179	0	141	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		5.0			5.0			3.7			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												
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	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	18.6	93.0	18.6	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	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	18.6	5.5	18.6	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	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		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	pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2		2	6			8		8	4		
Detector Phase	2	2	2	1	6		8	8	8	4	4	
Switch Phase												

3: Viseneau & Innes
PM Peak Hour

0 Innes Road
2021 Background Traffic (Protected + Permitted Phasing)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	32.3	32.3	32.3	11.3	32.3		36.7	36.7	36.7	36.7	36.7	
Total Split (s)	71.0	71.0	71.0	20.0	91.0		39.0	39.0	39.0	39.0	39.0	
Total Split (%)	54.6%	54.6%	54.6%	15.4%	70.0%		30.0%	30.0%	30.0%	30.0%	30.0%	
Maximum Green (s)	64.7	64.7	64.7	13.7	84.7		32.3	32.3	32.3	32.3	32.3	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7		3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	2.6	2.6	2.6	2.6	2.6		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	
Total Lost Time (s)	6.3	6.3	6.3	6.3	6.3		6.7	6.7	6.7	6.7	6.7	
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?	Yes	Yes	Yes	Yes								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	None	C-Max		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)	19.0	19.0	19.0		19.0		23.0	23.0	23.0	23.0	23.0	
Pedestrian Calls (#/hr)	3	3	3		1		1	1	1	2	2	
Act Effct Green (s)	77.2	77.2	77.2	97.1	97.1		19.9	19.9	19.9		19.9	
Actuated g/C Ratio	0.59	0.59	0.59	0.75	0.75		0.15	0.15	0.15		0.15	
v/c Ratio	0.12	0.76	0.10	0.67	0.34		0.65	0.15	0.47		0.63	
Control Delay	16.3	24.8	3.9	30.6	6.6		68.9	45.1	10.0		58.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay	16.3	24.8	3.9	30.6	6.6		68.9	45.1	10.0		58.8	
LOS	B	C	A	C	A		E	D	A		E	
Approach Delay		23.5			11.0			33.5			58.8	
Approach LOS		C			B			C			E	
Queue Length 50th (m)	4.4	135.0	0.3	16.8	28.6		24.0	8.3	0.0		29.5	
Queue Length 95th (m)	12.3	202.8	8.1	43.7	51.8		38.2	16.4	16.7		44.9	
Internal Link Dist (m)		561.5			342.7			90.9			374.5	
Turn Bay Length (m)	45.0		55.0	55.0					20.0			
Base Capacity (vph)	364	2014	913	291	2447		262	439	508		357	
Starvation Cap Reductn	0	0	0	0	0		0	0	0		0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0		0	
Storage Cap Reductn	0	0	0	0	0		0	0	0		0	
Reduced v/c Ratio	0.12	0.76	0.10	0.63	0.34		0.40	0.09	0.35		0.39	

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 105 (81%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 105
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.76
 Intersection Signal Delay: 22.1
 Intersection Capacity Utilization 91.1%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service F

Splits and Phases: 3: Viseneau & Innes



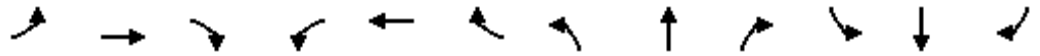
4: Caivan & Innes
PM Peak Hour

0 Innes Road
2021 Background Traffic (Protected + Permitted Phasing)

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑↘	↙↑	↑↑	↖↗	
Traffic Volume (vph)	1720	84	21	947	48	12
Future Volume (vph)	1720	84	21	947	48	12
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		50.0	35.0		0.0	85.0
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						
Frt		0.850			0.973	
Flt Protected			0.950		0.962	
Satd. Flow (prot)	3357	1502	1679	3357	1654	0
Flt Permitted			0.950		0.962	
Satd. Flow (perm)	3357	1502	1679	3357	1654	0
Link Speed (k/h)	60			60	60	
Link Distance (m)	238.6			236.8	212.4	
Travel Time (s)	14.3			14.2	12.7	
Confl. Peds. (#/hr)		3	3			3
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1720	84	21	947	48	12
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1720	84	21	947	60	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	5.0	
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	61.4%
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)	16	448	11	41	1410	31	14	14	61	43	7	70
Future Volume (vph)	16	448	11	41	1410	31	14	14	61	43	7	70
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			0.99			0.99	
Frt		0.996			0.997			0.907			0.921	
Flt Protected	0.950			0.950				0.992			0.982	
Satd. Flow (prot)	1601	3179	0	1679	3346	0	0	1510	0	0	1611	0
Flt Permitted	0.156			0.488				0.928			0.848	
Satd. Flow (perm)	263	3179	0	861	3346	0	0	1411	0	0	1391	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			4			61			56	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		341.1			238.6			212.5			273.4	
Travel Time (s)		20.5			14.3			19.1			24.6	
Confl. Peds. (#/hr)	1		1	1		1	6		1	1		6
Confl. Bikes (#/hr)			3						2			
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 (%)	8%	8%	20%	3%	3%	3%	20%	5%	5%	1%	1%	1%
Adj. Flow (vph)	16	448	11	41	1410	31	14	14	61	43	7	70
Shared Lane Traffic (%)												
Lane Group Flow (vph)	16	459	0	41	1441	0	0	89	0	0	120	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		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	

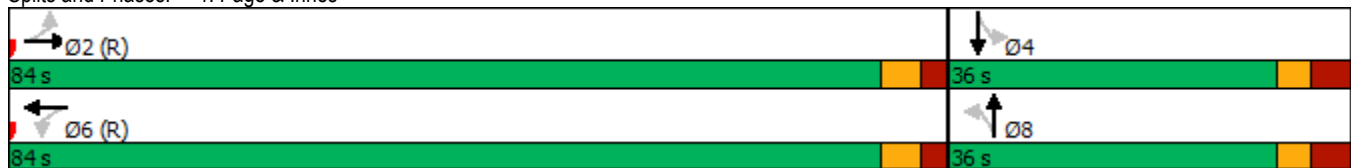


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	38.2	38.2		38.2	38.2		35.8	35.8		35.8	35.8	
Total Split (s)	84.0	84.0		84.0	84.0		36.0	36.0		36.0	36.0	
Total Split (%)	70.0%	70.0%		70.0%	70.0%		30.0%	30.0%		30.0%	30.0%	
Maximum Green (s)	77.8	77.8		77.8	77.8		29.2	29.2		29.2	29.2	
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)	17.0	17.0		17.0	17.0		22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)	1	1		1	1		6	6		1	1	
Act Effct Green (s)	92.3	92.3		92.3	92.3			14.7			14.7	
Actuated g/C Ratio	0.77	0.77		0.77	0.77			0.12			0.12	
v/c Ratio	0.08	0.19		0.06	0.56			0.39			0.55	
Control Delay	6.6	4.7		3.3	5.7			22.2			34.9	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	6.6	4.7		3.3	5.7			22.2			34.9	
LOS	A	A		A	A			C			C	
Approach Delay		4.7			5.7			22.2			34.9	
Approach LOS		A			A			C			C	
Queue Length 50th (m)	0.6	9.7		1.5	44.1			5.7			13.4	
Queue Length 95th (m)	4.0	26.3		2.2	21.6			17.1			26.4	
Internal Link Dist (m)		317.1			214.6			188.5			249.4	
Turn Bay Length (m)	100.0			100.0								
Base Capacity (vph)	202	2445		661	2573			389			380	
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	0.08	0.19		0.06	0.56			0.23			0.32	

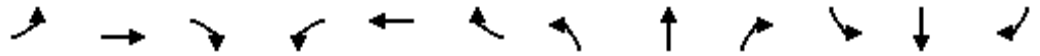
Intersection Summary

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:	0.56
Intersection Signal Delay:	7.8
Intersection LOS:	A
Intersection Capacity Utilization:	69.3%
ICU Level of Service:	C
Analysis Period (min):	15

Splits and Phases: 1: Page & Innes



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	521	8	1	1344	3	3	0	0	0	0	5
Future Volume (vph)	3	521	8	1	1344	3	3	0	0	0	0	5
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							
Fr		0.998										0.865
Flt Protected	0.950			0.950				0.950				
Satd. Flow (prot)	1679	3351	0	1679	3357	0	0	1679	1767	0	1528	0
Flt Permitted	0.192			0.456				0.769				
Satd. Flow (perm)	339	3351	0	806	3357	0	0	1359	1767	0	1528	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3										77
Link Speed (k/h)		60			60			40				40
Link Distance (m)		236.8			585.5			151.9				62.6
Travel Time (s)		14.2			35.1			13.7				5.6
Confl. Peds. (#/hr)									3	3		
Confl. Bikes (#/hr)						14						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	3	521	8	1	1344	3	3	0	0	0	0	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	529	0	1	1347	0	0	3	0	0	5	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0				0.0
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		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			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
Switch Phase												

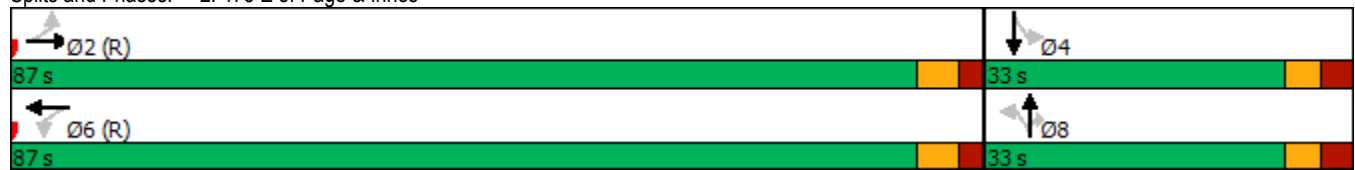


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	32.1	32.1		32.1	32.1		32.3	32.3	32.3	32.3	32.3	
Total Split (s)	87.0	87.0		87.0	87.0		33.0	33.0	33.0	33.0	33.0	
Total Split (%)	72.5%	72.5%		72.5%	72.5%		27.5%	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)	3	3		3	3		3	3	3	3	3	
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	0.01	0.17		0.00	0.43			0.02			0.02	
Control Delay	4.0	1.8		8.0	5.8			43.3			0.2	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	4.0	1.8		8.0	5.8			43.3			0.2	
LOS	A	A		A	A			D			A	
Approach Delay		1.9			5.8			43.3			0.2	
Approach LOS		A			A			D			A	
Queue Length 50th (m)	0.0	0.0		0.0	0.0			0.6			0.0	
Queue Length 95th (m)	m0.9	23.4		m0.2	131.4			2.9			0.0	
Internal Link Dist (m)		212.8			561.5			127.9			38.6	
Turn Bay Length (m)	30.0			40.0								
Base Capacity (vph)	317	3137		754	3142			302			399	
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	0.01	0.17		0.00	0.43			0.01			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: 0.43
 Intersection Signal Delay: 4.8
 Intersection Capacity Utilization 59.3%
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: 473 E of Page & Innes



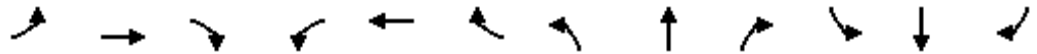
3: Viseneau & Innes
AM Peak Hour

0 Innes Road
2021 Total Traffic

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	431	37	59	1466	33	22	5	39	46	13	47
Future Volume (vph)	11	431	37	59	1466	33	22	5	39	46	13	47
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	45.0		55.0	55.0		0.0	0.0		20.0	0.0		0.0
Storage Lanes	1		1	1		0	1		1	0		0
Taper Length (m)	35.0			45.0			2.5			2.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.99	1.00	1.00		1.00		0.99		0.99	
Frt			0.850		0.997				0.850		0.940	
Flt Protected	0.950			0.950			0.950				0.979	
Satd. Flow (prot)	1153	3232	1502	1695	3337	0	1712	1802	1432	0	1634	0
Flt Permitted	0.164			0.465			0.662				0.858	
Satd. Flow (perm)	199	3232	1482	829	3337	0	1192	1802	1412	0	1431	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			91		4				87		32	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		585.5			366.7			114.9			398.5	
Travel Time (s)		35.1			22.0			10.3			35.9	
Confl. Peds. (#/hr)	3		1	1		3	1		2	2		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 (%)	50%	7%	3%	2%	3%	15%	1%	1%	8%	2%	1%	2%
Adj. Flow (vph)	11	431	37	59	1466	33	22	5	39	46	13	47
Shared Lane Traffic (%)												
Lane Group Flow (vph)	11	431	37	59	1499	0	22	5	39	0	106	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		5.0			5.0			3.7			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												
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	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	18.6	93.0	18.6	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	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	18.6	5.5	18.6	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	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		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	pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2		2	6			8		8	4		
Detector Phase	2	2	2	1	6		8	8	8	4	4	
Switch Phase												

3: Viseneau & Innes
AM Peak Hour

0 Innes Road
2021 Total Traffic



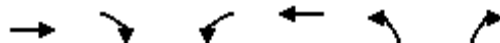
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	32.3	32.3	32.3	11.3	32.3		36.7	36.7	36.7	36.7	36.7	
Total Split (s)	71.0	71.0	71.0	12.0	83.0		37.0	37.0	37.0	37.0	37.0	
Total Split (%)	59.2%	59.2%	59.2%	10.0%	69.2%		30.8%	30.8%	30.8%	30.8%	30.8%	
Maximum Green (s)	64.7	64.7	64.7	5.7	76.7		30.3	30.3	30.3	30.3	30.3	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7		3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	2.6	2.6	2.6	2.6	2.6		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	
Total Lost Time (s)	6.3	6.3	6.3	6.3	6.3		6.7	6.7	6.7	6.7	6.7	
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?	Yes	Yes	Yes	Yes								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	None	C-Max		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)	19.0	19.0	19.0		19.0		23.0	23.0	23.0	23.0	23.0	
Pedestrian Calls (#/hr)	3	3	3		1		1	1	1	2	2	
Act Effct Green (s)	81.8	81.8	81.8	91.9	91.9		15.1	15.1	15.1		15.1	
Actuated g/C Ratio	0.68	0.68	0.68	0.77	0.77		0.13	0.13	0.13		0.13	
v/c Ratio	0.08	0.20	0.04	0.09	0.59		0.15	0.02	0.15		0.51	
Control Delay	7.8	6.1	0.3	5.1	8.3		44.9	40.2	1.3		40.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay	7.8	6.1	0.3	5.1	8.3		44.9	40.2	1.3		40.7	
LOS	A	A	A	A	A		D	D	A		D	
Approach Delay		5.7			8.2			18.8			40.7	
Approach LOS		A			A			B			D	
Queue Length 50th (m)	0.6	14.5	0.0	2.2	51.6		4.5	1.0	0.0		15.5	
Queue Length 95th (m)	3.7	28.2	0.0	8.9	125.3		10.0	3.8	0.0		27.0	
Internal Link Dist (m)		561.5			342.7			90.9			374.5	
Turn Bay Length (m)	45.0		55.0	55.0					20.0			
Base Capacity (vph)	135	2203	1039	679	2555		300	455	421		385	
Starvation Cap Reductn	0	0	0	0	0		0	0	0		0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0		0	
Storage Cap Reductn	0	0	0	0	0		0	0	0		0	
Reduced v/c Ratio	0.08	0.20	0.04	0.09	0.59		0.07	0.01	0.09		0.28	

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 40 (33%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 85
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.59
 Intersection Signal Delay: 9.5
 Intersection Capacity Utilization 76.1%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service D

Splits and Phases: 3: Viseneau & Innes

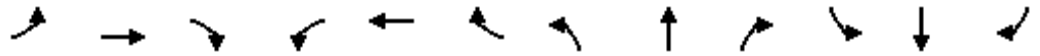




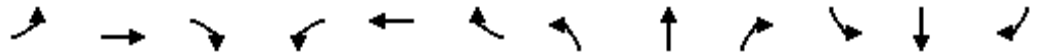
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	
Traffic Volume (vph)	513	41	5	1347	136	19
Future Volume (vph)	513	41	5	1347	136	19
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		50.0	35.0		0.0	85.0
Storage Lanes		1	1		1	0
Taper Length (m)			20.0		20.0	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Ped Bike Factor						
Frt		0.850			0.983	
Flt Protected			0.950		0.958	
Satd. Flow (prot)	3202	1502	1679	3357	1664	0
Flt Permitted			0.950		0.958	
Satd. Flow (perm)	3202	1502	1679	3357	1664	0
Link Speed (k/h)	60			60	60	
Link Distance (m)	238.6			236.8	212.4	
Travel Time (s)	14.3			14.2	12.7	
Confl. Peds. (#/hr)		3	3			3
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	8%	3%	3%	3%	3%	3%
Adj. Flow (vph)	513	41	5	1347	136	19
Shared Lane Traffic (%)						
Lane Group Flow (vph)	513	41	5	1347	155	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	5.0	
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)	74	1689	23	98	864	56	13	21	98	58	23	38
Future Volume (vph)	74	1689	23	98	864	56	13	21	98	58	23	38
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		0.998			0.991			0.900				0.957
Flt Protected	0.950			0.950				0.995				0.976
Satd. Flow (prot)	1712	3414	0	1712	3357	0	0	1582	0	0	1676	0
Flt Permitted	0.310			0.061				0.964			0.713	
Satd. Flow (perm)	558	3414	0	110	3357	0	0	1533	0	0	1221	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			11			98			21	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		341.1			238.6			212.5			273.4	
Travel Time (s)		20.5			14.3			19.1			24.6	
Confl. Peds. (#/hr)	3		4	4		3	1		7	7		1
Confl. Bikes (#/hr)			18						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 (%)	1%	1%	3%	1%	2%	1%	2%	1%	1%	1%	1%	1%
Adj. Flow (vph)	74	1689	23	98	864	56	13	21	98	58	23	38
Shared Lane Traffic (%)												
Lane Group Flow (vph)	74	1712	0	98	920	0	0	132	0	0	119	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		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		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		1	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		5.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	38.2	38.2		11.0	38.2		35.8	35.8		35.8	35.8	
Total Split (s)	63.0	63.0		11.0	74.0		36.0	36.0		36.0	36.0	
Total Split (%)	57.3%	57.3%		10.0%	67.3%		32.7%	32.7%		32.7%	32.7%	
Maximum Green (s)	56.8	56.8		5.0	67.8		29.2	29.2		29.2	29.2	
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		2.3	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		6.0	6.2			6.8			6.8	
Lead/Lag	Lag	Lag		Lead								
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		None	C-Max		None	None		None	None	
Walk Time (s)	15.0	15.0			15.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	17.0	17.0			17.0		22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)	1	1			1		6	6		1	1	
Act Effct Green (s)	68.2	68.2		81.5	81.3			15.7			15.7	
Actuated g/C Ratio	0.62	0.62		0.74	0.74			0.14			0.14	
v/c Ratio	0.21	0.81		0.54	0.37			0.44			0.62	
Control Delay	13.3	21.3		29.3	9.6			17.0			48.7	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	13.3	21.3		29.3	9.6			17.0			48.7	
LOS	B	C		C	A			B			D	
Approach Delay		21.0			11.5			17.0			48.7	
Approach LOS		C			B			B			D	
Queue Length 50th (m)	5.6	118.2		6.6	24.8			6.2			18.9	
Queue Length 95th (m)	17.2	#219.4		#28.6	95.7			18.7			30.9	
Internal Link Dist (m)		317.1			214.6			188.5			249.4	
Turn Bay Length (m)	100.0			100.0								
Base Capacity (vph)	346	2118		183	2482			478			339	
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	0.21	0.81		0.54	0.37			0.28			0.35	

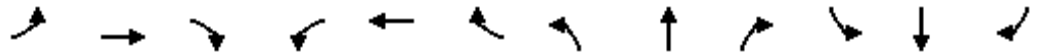
Intersection Summary

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: 105
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.81
 Intersection Signal Delay: 18.7 Intersection LOS: B
 Intersection Capacity Utilization 85.8% 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.

Splits and Phases: 1: Page & Innes



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	1698	29	32	958	12	30	0	28	12	0	7
Future Volume (vph)	14	1698	29	32	958	12	30	0	28	12	0	7
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			0.98	0.99		0.99	
Frt		0.997			0.998				0.850		0.950	
Flt Protected	0.950			0.950				0.950			0.969	
Satd. Flow (prot)	1679	3347	0	1679	3350	0	0	1679	1502	0	1610	0
Flt Permitted	0.295			0.082				0.745			0.805	
Satd. Flow (perm)	521	3347	0	145	3350	0	0	1295	1482	0	1336	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			2				90			90
Link Speed (k/h)		60			60			40				40
Link Distance (m)		236.8			585.5			151.9				62.6
Travel Time (s)		14.2			35.1			13.7				5.6
Confl. Peds. (#/hr)							13		1	1		13
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
Adj. Flow (vph)	14	1698	29	32	958	12	30	0	28	12	0	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	14	1727	0	32	970	0	0	30	28	0	19	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0				0.0
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		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		pm+pt	NA		Perm	NA	Perm	Perm		NA
Protected Phases		2		1	6			8				4
Permitted Phases	2			6			8		8	4		
Detector Phase	2	2		1	6		8	8	8	4		4
Switch Phase												



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	10.0	10.0		5.0	10.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	32.1	32.1		11.0	32.1		32.3	32.3	32.3	32.3	32.3	
Total Split (s)	66.0	66.0		11.0	77.0		33.0	33.0	33.0	33.0	33.0	
Total Split (%)	60.0%	60.0%		10.0%	70.0%		30.0%	30.0%	30.0%	30.0%	30.0%	
Maximum Green (s)	59.9	59.9		5.0	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		2.3	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		6.0	6.1			6.3	6.3		6.3	
Lead/Lag	Lag	Lag		Lead								
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		None	C-Max		None	None	None	None	None	
Walk Time (s)	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		19.0	19.0	19.0	19.0	19.0	
Pedestrian Calls (#/hr)	3	3			3		3	3	3	3	3	
Act Effct Green (s)	81.7	81.7		87.8	88.9			13.2	13.2		13.2	
Actuated g/C Ratio	0.74	0.74		0.80	0.81			0.12	0.12		0.12	
v/c Ratio	0.04	0.69		0.16	0.36			0.19	0.11		0.08	
Control Delay	2.1	6.0		6.1	4.9			43.9	0.9		0.6	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay	2.1	6.0		6.1	4.9			43.9	0.9		0.6	
LOS	A	A		A	A			D	A		A	
Approach Delay		6.0			4.9			23.1			0.6	
Approach LOS		A			A			C			A	
Queue Length 50th (m)	0.1	7.1		1.0	22.9			5.6	0.0		0.0	
Queue Length 95th (m)	m0.2	#221.2		5.1	57.0			11.9	0.0		0.0	
Internal Link Dist (m)		212.8			561.5			127.9			38.6	
Turn Bay Length (m)	30.0			40.0								
Base Capacity (vph)	387	2487		196	2707			314	427		392	
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	0.04	0.69		0.16	0.36			0.10	0.07		0.05	

Intersection Summary

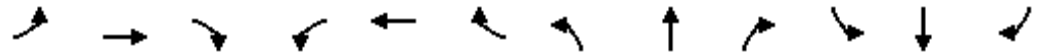
Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 36 (33%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.69
 Intersection Signal Delay: 5.9
 Intersection LOS: A
 Intersection Capacity Utilization 87.9%
 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: 473 E of Page & Innes



3: Viseneau & Innes
PM Peak Hour

0 Innes Road
2021 Total Traffic



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	1539	87	183	753	84	106	40	179	60	51	30
Future Volume (vph)	44	1539	87	183	753	84	106	40	179	60	51	30
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	45.0		55.0	55.0		0.0	0.0		20.0	0.0		0.0
Storage Lanes	1		1	1		0	1		1	0		0
Taper Length (m)	35.0			45.0			2.5			2.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.97		1.00		0.98		0.98		0.99	
Frt			0.850		0.985				0.850		0.971	
Flt Protected	0.950			0.950			0.950				0.979	
Satd. Flow (prot)	1712	3390	1532	1712	3271	0	1712	1767	1532	0	1635	0
Flt Permitted	0.337			0.081			0.597				0.844	
Satd. Flow (perm)	605	3390	1480	146	3271	0	1057	1767	1507	0	1407	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			84		19				179		10	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		585.5			366.7			114.9			398.5	
Travel Time (s)		35.1			22.0			10.3			35.9	
Confl. Peds. (#/hr)	5		15	15		5	18		3	3		18
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%	2%	1%	3%	1%	6%	1%	10%
Adj. Flow (vph)	44	1539	87	183	753	84	106	40	179	60	51	30
Shared Lane Traffic (%)												
Lane Group Flow (vph)	44	1539	87	183	837	0	106	40	179	0	141	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		5.0			5.0			3.7			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												
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	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	18.6	93.0	18.6	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	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	18.6	5.5	18.6	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	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		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	pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2		2	6			8		8	4		
Detector Phase	2	2	2	1	6		8	8	8	4	4	
Switch Phase												

3: Viseneau & Innes
PM Peak Hour

0 Innes Road
2021 Total Traffic



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	32.3	32.3	32.3	11.3	32.3		36.7	36.7	36.7	36.7	36.7	
Total Split (s)	71.0	71.0	71.0	20.0	91.0		39.0	39.0	39.0	39.0	39.0	
Total Split (%)	54.6%	54.6%	54.6%	15.4%	70.0%		30.0%	30.0%	30.0%	30.0%	30.0%	
Maximum Green (s)	64.7	64.7	64.7	13.7	84.7		32.3	32.3	32.3	32.3	32.3	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7		3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	2.6	2.6	2.6	2.6	2.6		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	
Total Lost Time (s)	6.3	6.3	6.3	6.3	6.3		6.7	6.7	6.7	6.7	6.7	
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?	Yes	Yes	Yes	Yes								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	None	C-Max		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)	19.0	19.0	19.0		19.0		23.0	23.0	23.0	23.0	23.0	
Pedestrian Calls (#/hr)	3	3	3		1		1	1	1	2	2	
Act Effct Green (s)	77.2	77.2	77.2	97.1	97.1		19.9	19.9	19.9		19.9	
Actuated g/C Ratio	0.59	0.59	0.59	0.75	0.75		0.15	0.15	0.15		0.15	
v/c Ratio	0.12	0.76	0.10	0.67	0.34		0.65	0.15	0.47		0.63	
Control Delay	16.3	25.0	3.9	31.2	6.7		68.9	45.1	10.0		58.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay	16.3	25.0	3.9	31.2	6.7		68.9	45.1	10.0		58.8	
LOS	B	C	A	C	A		E	D	A		E	
Approach Delay		23.7			11.1			33.5			58.8	
Approach LOS		C			B			C			E	
Queue Length 50th (m)	4.4	136.4	0.3	17.1	29.4		24.0	8.3	0.0		29.5	
Queue Length 95th (m)	12.3	#205.7	8.1	44.0	53.1		38.2	16.4	16.7		44.9	
Internal Link Dist (m)		561.5			342.7			90.9			374.5	
Turn Bay Length (m)	45.0		55.0	55.0					20.0			
Base Capacity (vph)	359	2014	913	290	2447		262	439	508		357	
Starvation Cap Reductn	0	0	0	0	0		0	0	0		0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0		0	
Storage Cap Reductn	0	0	0	0	0		0	0	0		0	
Reduced v/c Ratio	0.12	0.76	0.10	0.63	0.34		0.40	0.09	0.35		0.39	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 105 (81%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.76

Intersection Signal Delay: 22.2

Intersection LOS: C

Intersection Capacity Utilization 91.4%

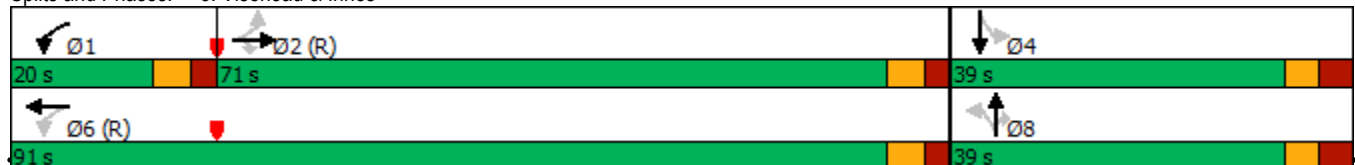
ICU Level of Service F

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 3: Viseneau & Innes



4: Caivan & Innes
PM Peak Hour

0 Innes Road
2021 Total Traffic



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑↑	
Traffic Volume (vph)	1720	128	36	947	74	21
Future Volume (vph)	1720	128	36	947	74	21
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		50.0	35.0		0.0	85.0
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						
Frt		0.850			0.970	
Flt Protected			0.950		0.963	
Satd. Flow (prot)	3357	1502	1679	3357	1651	0
Flt Permitted			0.950		0.963	
Satd. Flow (perm)	3357	1502	1679	3357	1651	0
Link Speed (k/h)	60			60	60	
Link Distance (m)	238.6			236.8	212.4	
Travel Time (s)	14.3			14.2	12.7	
Confl. Peds. (#/hr)		3	3			3
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1720	128	36	947	74	21
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1720	128	36	947	95	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	5.0	
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 63.3% 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)	16	493	11	41	1561	31	14	14	61	43	7	70
Future Volume (vph)	16	493	11	41	1561	31	14	14	61	43	7	70
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			0.99			0.99	
Frt		0.997			0.997			0.907			0.921	
Flt Protected	0.950			0.950				0.992			0.982	
Satd. Flow (prot)	1601	3183	0	1679	3346	0	0	1510	0	0	1611	0
Flt Permitted	0.126			0.467				0.933			0.849	
Satd. Flow (perm)	212	3183	0	824	3346	0	0	1418	0	0	1393	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			3			61			43	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		341.1			238.6			212.5			273.4	
Travel Time (s)		20.5			14.3			19.1			24.6	
Confl. Peds. (#/hr)	1		1	1		1	6		1	1		6
Confl. Bikes (#/hr)			3						2			
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 (%)	8%	8%	20%	3%	3%	3%	20%	5%	5%	1%	1%	1%
Adj. Flow (vph)	16	493	11	41	1561	31	14	14	61	43	7	70
Shared Lane Traffic (%)												
Lane Group Flow (vph)	16	504	0	41	1592	0	0	89	0	0	120	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		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	

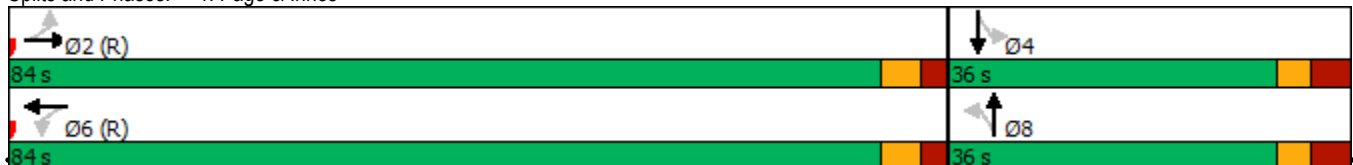


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	38.2	38.2		38.2	38.2		35.8	35.8		35.8	35.8	
Total Split (s)	84.0	84.0		84.0	84.0		36.0	36.0		36.0	36.0	
Total Split (%)	70.0%	70.0%		70.0%	70.0%		30.0%	30.0%		30.0%	30.0%	
Maximum Green (s)	77.8	77.8		77.8	77.8		29.2	29.2		29.2	29.2	
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)	17.0	17.0		17.0	17.0		22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)	1	1		1	1		6	6		1	1	
Act Effct Green (s)	91.8	91.8		91.8	91.8			15.2			15.2	
Actuated g/C Ratio	0.76	0.76		0.76	0.76			0.13			0.13	
v/c Ratio	0.10	0.21		0.07	0.62			0.38			0.56	
Control Delay	7.4	4.9		3.0	5.9			21.7			39.9	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	7.4	4.9		3.0	5.9			21.7			39.9	
LOS	A	A		A	A			C			D	
Approach Delay		5.0			5.8			21.7			39.9	
Approach LOS		A			A			C			D	
Queue Length 50th (m)	0.6	11.5		1.1	31.7			5.7			16.2	
Queue Length 95th (m)	4.2	29.0		m2.8	37.9			17.1			29.1	
Internal Link Dist (m)		317.1			214.6			188.5			249.4	
Turn Bay Length (m)	100.0			100.0								
Base Capacity (vph)	162	2436		630	2560			391			371	
Starvation Cap Reductn	0	0		0	16			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.10	0.21		0.07	0.63			0.23			0.32	

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: 0.62
 Intersection Signal Delay: 8.0 Intersection LOS: A
 Intersection Capacity Utilization 73.7% ICU Level of Service D
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Page & Innes



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	525	8	1	1370	3	3	0	0	0	0	5
Future Volume (vph)	3	525	8	1	1370	3	3	0	0	0	0	5
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							
Frt		0.998										0.865
Flt Protected	0.950			0.950				0.950				
Satd. Flow (prot)	1679	3351	0	1679	3357	0	0	1679	1767	0	1528	0
Flt Permitted	0.186			0.454				0.769				
Satd. Flow (perm)	329	3351	0	802	3357	0	0	1359	1767	0	1528	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3										73
Link Speed (k/h)		60			60			40				40
Link Distance (m)		236.8			585.5			151.9				62.6
Travel Time (s)		14.2			35.1			13.7				5.6
Confl. Peds. (#/hr)									3	3		
Confl. Bikes (#/hr)						14						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	3	525	8	1	1370	3	3	0	0	0	0	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	533	0	1	1373	0	0	3	0	0	5	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0				0.0
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		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			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
Switch Phase												

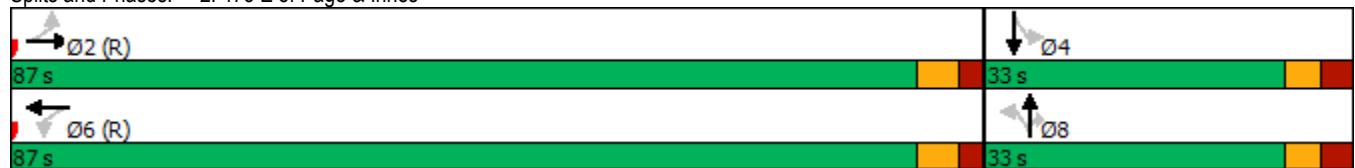


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	32.1	32.1		32.1	32.1		32.3	32.3	32.3	32.3	32.3	
Total Split (s)	87.0	87.0		87.0	87.0		33.0	33.0	33.0	33.0	33.0	
Total Split (%)	72.5%	72.5%		72.5%	72.5%		27.5%	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)	3	3		3	3		3	3	3	3	3	
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	0.01	0.17		0.00	0.44			0.02				0.02
Control Delay	2.7	1.4		8.0	5.9			43.3				0.2
Queue Delay	0.0	0.0		0.0	0.0			0.0				0.0
Total Delay	2.7	1.4		8.0	5.9			43.3				0.2
LOS	A	A		A	A			D				A
Approach Delay		1.4			5.9			43.3				0.2
Approach LOS		A			A			D				A
Queue Length 50th (m)	0.0	0.0		0.0	0.0			0.6				0.0
Queue Length 95th (m)	m0.5	12.8		m0.3	135.7			2.9				0.0
Internal Link Dist (m)		212.8			561.5			127.9				38.6
Turn Bay Length (m)	30.0			40.0								
Base Capacity (vph)	308	3137		751	3142			302				396
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	0.01	0.17		0.00	0.44			0.01				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: 0.44
 Intersection Signal Delay: 4.7
 Intersection Capacity Utilization 60.0%
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: 473 E of Page & Innes



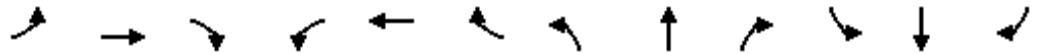
3: Viseneau & Innes
AM Peak Hour

0 Innes Road
2023 Background Traffic

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	442	37	66	1515	33	22	5	39	46	13	47
Future Volume (vph)	11	442	37	66	1515	33	22	5	39	46	13	47
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	45.0		55.0	55.0		0.0	0.0		20.0	0.0		0.0
Storage Lanes	1		1	1		0	1		1	0		0
Taper Length (m)	35.0			45.0			2.5			2.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.99	1.00	1.00		1.00		0.99		0.99	
Frt			0.850		0.997				0.850		0.940	
Flt Protected	0.950			0.950			0.950				0.979	
Satd. Flow (prot)	1153	3232	1502	1695	3337	0	1712	1802	1432	0	1634	0
Flt Permitted	0.154			0.460			0.662				0.858	
Satd. Flow (perm)	187	3232	1482	820	3337	0	1192	1802	1412	0	1431	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			91		4				87			32
Link Speed (k/h)		60			60			40				40
Link Distance (m)		585.5			366.7			114.9				398.5
Travel Time (s)		35.1			22.0			10.3				35.9
Confl. Peds. (#/hr)	3		1	1		3	1		2	2		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 (%)	50%	7%	3%	2%	3%	15%	1%	1%	8%	2%	1%	2%
Adj. Flow (vph)	11	442	37	66	1515	33	22	5	39	46	13	47
Shared Lane Traffic (%)												
Lane Group Flow (vph)	11	442	37	66	1548	0	22	5	39	0	106	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		5.0			5.0			3.7				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												
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	2	1	1		2
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left		Thru
Leading Detector (m)	18.6	93.0	18.6	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		0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 1 Size(m)	18.6	5.5	18.6	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		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 2 Position(m)		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	pm+pt	NA		Perm	NA	Perm	Perm		NA
Protected Phases		2		1	6			8				4
Permitted Phases	2		2	6			8		8	4		
Detector Phase	2	2	2	1	6		8	8	8	4		4
Switch Phase												

3: Viseneau & Innes
AM Peak Hour

0 Innes Road
2023 Background Traffic



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	32.3	32.3	32.3	11.3	32.3		36.7	36.7	36.7	36.7	36.7	
Total Split (s)	71.0	71.0	71.0	12.0	83.0		37.0	37.0	37.0	37.0	37.0	
Total Split (%)	59.2%	59.2%	59.2%	10.0%	69.2%		30.8%	30.8%	30.8%	30.8%	30.8%	
Maximum Green (s)	64.7	64.7	64.7	5.7	76.7		30.3	30.3	30.3	30.3	30.3	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7		3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	2.6	2.6	2.6	2.6	2.6		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	
Total Lost Time (s)	6.3	6.3	6.3	6.3	6.3		6.7	6.7	6.7	6.7	6.7	
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?	Yes	Yes	Yes	Yes								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	None	C-Max		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)	19.0	19.0	19.0		19.0		23.0	23.0	23.0	23.0	23.0	
Pedestrian Calls (#/hr)	3	3	3		1		1	1	1	2	2	
Act Effct Green (s)	81.7	81.7	81.7	91.9	91.9		15.1	15.1	15.1		15.1	
Actuated g/C Ratio	0.68	0.68	0.68	0.77	0.77		0.13	0.13	0.13		0.13	
v/c Ratio	0.09	0.20	0.04	0.10	0.61		0.15	0.02	0.15		0.51	
Control Delay	7.3	5.6	0.3	5.1	8.6		44.9	40.2	1.3		40.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay	7.3	5.6	0.3	5.1	8.6		44.9	40.2	1.3		40.7	
LOS	A	A	A	A	A		D	D	A		D	
Approach Delay		5.2			8.5			18.8			40.7	
Approach LOS		A			A			B			D	
Queue Length 50th (m)	0.7	14.5	0.0	2.5	54.7		4.5	1.0	0.0		15.5	
Queue Length 95th (m)	2.3	18.6	0.0	9.7	132.8		10.0	3.8	0.0		27.0	
Internal Link Dist (m)		561.5			342.7			90.9			374.5	
Turn Bay Length (m)	45.0		55.0	55.0					20.0			
Base Capacity (vph)	127	2201	1038	672	2555		300	455	421		385	
Starvation Cap Reductn	0	0	0	0	0		0	0	0		0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0		0	
Storage Cap Reductn	0	0	0	0	0		0	0	0		0	
Reduced v/c Ratio	0.09	0.20	0.04	0.10	0.61		0.07	0.01	0.09		0.28	

Intersection Summary

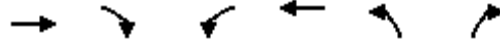
Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 40 (33%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 85
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.61
 Intersection Signal Delay: 9.6
 Intersection Capacity Utilization 82.3%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service E

Splits and Phases: 3: Viseneau & Innes

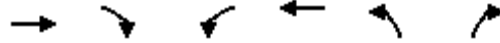


4: Caivan & Innes
AM Peak Hour

0 Innes Road
2023 Background Traffic



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	
Traffic Volume (vph)	523	78	4	1374	261	13
Future Volume (vph)	523	78	4	1374	261	13
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		50.0	35.0		0.0	85.0
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	1.00		1.00	
Frt		0.850			0.994	
Flt Protected			0.950		0.955	
Satd. Flow (prot)	3202	1502	1679	3357	1676	0
Flt Permitted			0.456		0.955	
Satd. Flow (perm)	3202	1462	803	3357	1676	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		78			2	
Link Speed (k/h)	60			60	60	
Link Distance (m)	238.6			236.8	212.4	
Travel Time (s)	14.3			14.2	12.7	
Confl. Peds. (#/hr)		3	3			3
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	8%	3%	3%	3%	3%	3%
Adj. Flow (vph)	523	78	4	1374	261	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	523	78	4	1374	274	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	5.0	
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						



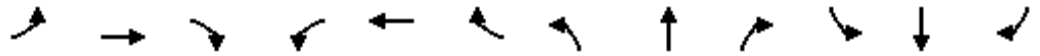
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	32.1	32.1	32.1	32.1	32.3	
Total Split (s)	87.0	87.0	87.0	87.0	33.0	
Total Split (%)	72.5%	72.5%	72.5%	72.5%	27.5%	
Maximum Green (s)	80.9	80.9	80.9	80.9	26.7	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.3	
All-Red Time (s)	2.4	2.4	2.4	2.4	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.1	6.1	6.1	6.1	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)	12.0	12.0	12.0	12.0	7.0	
Flash Dont Walk (s)	14.0	14.0	14.0	14.0	19.0	
Pedestrian Calls (#/hr)	3	3	3	3	3	
Act Effct Green (s)	84.3	84.3	84.3	84.3	23.3	
Actuated g/C Ratio	0.70	0.70	0.70	0.70	0.19	
v/c Ratio	0.23	0.07	0.01	0.58	0.84	
Control Delay	6.0	1.0	4.0	7.9	68.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	6.0	1.0	4.0	7.9	68.1	
LOS	A	A	A	A	E	
Approach Delay	5.4			7.9	68.1	
Approach LOS	A			A	E	
Queue Length 50th (m)	17.3	0.0	0.2	70.1	56.4	
Queue Length 95th (m)	23.0	2.0	m0.1	11.8	#85.3	
Internal Link Dist (m)	214.6			212.8	188.4	
Turn Bay Length (m)		50.0	35.0			
Base Capacity (vph)	2249	1050	564	2358	374	
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	0.23	0.07	0.01	0.58	0.73	

Intersection Summary

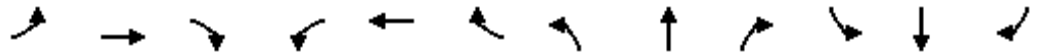
Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 10 (8%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.84
 Intersection Signal Delay: 14.5
 Intersection Capacity Utilization 67.1%
 Analysis Period (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: Caivan & Innes





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	74	1845	23	98	955	56	13	21	98	58	23	38
Future Volume (vph)	74	1845	23	98	955	56	13	21	98	58	23	38
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		0.998			0.992			0.900				0.957
Flt Protected	0.950			0.950				0.995				0.976
Satd. Flow (prot)	1712	3414	0	1712	3360	0	0	1582	0	0	1676	0
Flt Permitted	0.283			0.054				0.964			0.713	
Satd. Flow (perm)	509	3414	0	97	3360	0	0	1533	0	0	1221	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			10			95			21	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		341.1			238.6			212.5			273.4	
Travel Time (s)		20.5			14.3			19.1			24.6	
Confl. Peds. (#/hr)	3		4	4		3	1		7	7		1
Confl. Bikes (#/hr)			18						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 (%)	1%	1%	3%	1%	2%	1%	2%	1%	1%	1%	1%	1%
Adj. Flow (vph)	74	1845	23	98	955	56	13	21	98	58	23	38
Shared Lane Traffic (%)												
Lane Group Flow (vph)	74	1868	0	98	1011	0	0	132	0	0	119	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		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		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		1	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		5.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	38.2	38.2		11.0	38.2		35.8	35.8		35.8	35.8	
Total Split (s)	63.0	63.0		11.0	74.0		36.0	36.0		36.0	36.0	
Total Split (%)	57.3%	57.3%		10.0%	67.3%		32.7%	32.7%		32.7%	32.7%	
Maximum Green (s)	56.8	56.8		5.0	67.8		29.2	29.2		29.2	29.2	
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		2.3	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		6.0	6.2			6.8			6.8	
Lead/Lag	Lag	Lag		Lead								
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		None	C-Max		None	None		None	None	
Walk Time (s)	15.0	15.0			15.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	17.0	17.0			17.0		22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)	1	1			1		6	6		1	1	
Act Effct Green (s)	68.2	68.2		81.5	81.3			15.7			15.7	
Actuated g/C Ratio	0.62	0.62		0.74	0.74			0.14			0.14	
v/c Ratio	0.23	0.88		0.56	0.41			0.44			0.62	
Control Delay	13.9	25.2		34.1	7.7			17.8			48.7	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	13.9	25.2		34.1	7.7			17.8			48.7	
LOS	B	C		C	A			B			D	
Approach Delay		24.8			10.0			17.8			48.7	
Approach LOS		C			B			B			D	
Queue Length 50th (m)	5.7	142.4		6.6	23.5			6.7			18.9	
Queue Length 95th (m)	17.7	#254.1		#31.5	63.2			19.2			30.9	
Internal Link Dist (m)		317.1			214.6			188.5			249.4	
Turn Bay Length (m)	100.0			100.0								
Base Capacity (vph)	315	2118		174	2484			476			339	
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	0.23	0.88		0.56	0.41			0.28			0.35	

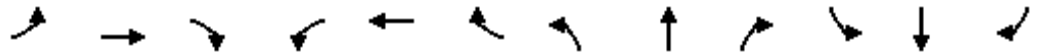
Intersection Summary

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: 115
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.88
 Intersection Signal Delay: 20.4
 Intersection LOS: C
 Intersection Capacity Utilization 90.3%
 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: Page & Innes



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	1747	29	32	1004	12	30	0	28	12	0	7
Future Volume (vph)	14	1747	29	32	1004	12	30	0	28	12	0	7
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			0.98	0.99		0.99	
Frt		0.998			0.998				0.850		0.950	
Flt Protected	0.950			0.950				0.950			0.969	
Satd. Flow (prot)	1679	3351	0	1679	3350	0	0	1679	1502	0	1610	0
Flt Permitted	0.282			0.075				0.745			0.805	
Satd. Flow (perm)	498	3351	0	133	3350	0	0	1295	1482	0	1336	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			2				90			90
Link Speed (k/h)		60			60			40				40
Link Distance (m)		236.8			585.5			151.9				62.6
Travel Time (s)		14.2			35.1			13.7				5.6
Confl. Peds. (#/hr)							13		1	1		13
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
Adj. Flow (vph)	14	1747	29	32	1004	12	30	0	28	12	0	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	14	1776	0	32	1016	0	0	30	28	0	19	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0				0.0
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		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		pm+pt	NA		Perm	NA	Perm	Perm		NA
Protected Phases		2		1	6			8				4
Permitted Phases	2			6			8		8	4		
Detector Phase	2	2		1	6		8	8	8	4		4
Switch Phase												



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	10.0	10.0		5.0	10.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	32.1	32.1		11.0	32.1		32.3	32.3	32.3	32.3	32.3	
Total Split (s)	66.0	66.0		11.0	77.0		33.0	33.0	33.0	33.0	33.0	
Total Split (%)	60.0%	60.0%		10.0%	70.0%		30.0%	30.0%	30.0%	30.0%	30.0%	
Maximum Green (s)	59.9	59.9		5.0	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		2.3	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		6.0	6.1			6.3	6.3		6.3	
Lead/Lag	Lag	Lag		Lead								
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		None	C-Max		None	None	None	None	None	
Walk Time (s)	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		19.0	19.0	19.0	19.0	19.0	
Pedestrian Calls (#/hr)	3	3			3		3	3	3	3	3	
Act Effct Green (s)	81.7	81.7		87.8	88.9			13.2	13.2		13.2	
Actuated g/C Ratio	0.74	0.74		0.80	0.81			0.12	0.12		0.12	
v/c Ratio	0.04	0.71		0.17	0.38			0.19	0.11		0.08	
Control Delay	1.1	5.3		6.3	5.0			43.9	0.9		0.6	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay	1.1	5.3		6.3	5.0			43.9	0.9		0.6	
LOS	A	A		A	A			D	A		A	
Approach Delay		5.2			5.0			23.1			0.6	
Approach LOS		A			A			C			A	
Queue Length 50th (m)	0.1	3.0		1.0	24.4			5.6	0.0		0.0	
Queue Length 95th (m)	m0.2	#234.4		5.1	60.6			11.9	0.0		0.0	
Internal Link Dist (m)		212.8			561.5			127.9			38.6	
Turn Bay Length (m)	30.0			40.0								
Base Capacity (vph)	370	2490		187	2707			314	427		392	
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	0.04	0.71		0.17	0.38			0.10	0.07		0.05	

Intersection Summary

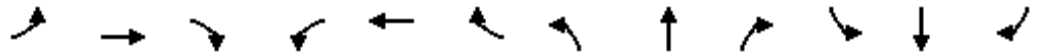
Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 36 (33%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.71
 Intersection Signal Delay: 5.5
 Intersection LOS: A
 Intersection Capacity Utilization 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.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: 473 E of Page & Innes



3: Viseneau & Innes
PM Peak Hour

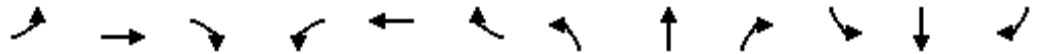
0 Innes Road
2023 Background Traffic



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	1585	87	183	793	84	106	40	179	60	51	30
Future Volume (vph)	44	1585	87	183	793	84	106	40	179	60	51	30
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	45.0		55.0	55.0		0.0	0.0		20.0	0.0		0.0
Storage Lanes	1		1	1		0	1		1	0		0
Taper Length (m)	35.0			45.0			2.5			2.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.97		1.00		0.98		0.98		0.99	
Frt			0.850		0.986				0.850		0.971	
Flt Protected	0.950			0.950			0.950				0.979	
Satd. Flow (prot)	1712	3390	1532	1712	3274	0	1712	1767	1532	0	1635	0
Flt Permitted	0.324			0.072			0.597				0.844	
Satd. Flow (perm)	582	3390	1480	130	3274	0	1057	1767	1507	0	1407	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			84		18				179		10	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		585.5			366.7			114.9			398.5	
Travel Time (s)		35.1			22.0			10.3			35.9	
Confl. Peds. (#/hr)	5		15	15		5	18		3	3		18
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%	2%	1%	3%	1%	6%	1%	10%
Adj. Flow (vph)	44	1585	87	183	793	84	106	40	179	60	51	30
Shared Lane Traffic (%)												
Lane Group Flow (vph)	44	1585	87	183	877	0	106	40	179	0	141	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		5.0			5.0			3.7			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												
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	2	1	1		2
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	18.6	93.0	18.6	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		0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 1 Size(m)	18.6	5.5	18.6	18.6	5.5		18.6	5.5	18.6	18.6		5.5
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		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		0.0	0.0	0.0	0.0		0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 2 Position(m)		87.5			87.5			87.5				87.5
Detector 2 Size(m)		5.5			5.5			5.5				5.5
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex				CI+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
Turn Type	Perm	NA	Perm	pm+pt	NA		Perm	NA	Perm	Perm		NA
Protected Phases		2		1	6			8				4
Permitted Phases	2		2	6			8		8	4		
Detector Phase	2	2	2	1	6		8	8	8	4		4
Switch Phase												

3: Viseneau & Innes
PM Peak Hour

0 Innes Road
2023 Background Traffic



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	32.3	32.3	32.3	11.3	32.3		36.7	36.7	36.7	36.7	36.7	
Total Split (s)	71.0	71.0	71.0	20.0	91.0		39.0	39.0	39.0	39.0	39.0	
Total Split (%)	54.6%	54.6%	54.6%	15.4%	70.0%		30.0%	30.0%	30.0%	30.0%	30.0%	
Maximum Green (s)	64.7	64.7	64.7	13.7	84.7		32.3	32.3	32.3	32.3	32.3	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7		3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	2.6	2.6	2.6	2.6	2.6		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	
Total Lost Time (s)	6.3	6.3	6.3	6.3	6.3		6.7	6.7	6.7	6.7	6.7	
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?	Yes	Yes	Yes	Yes								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	None	C-Max		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)	19.0	19.0	19.0		19.0		23.0	23.0	23.0	23.0	23.0	
Pedestrian Calls (#/hr)	3	3	3		1		1	1	1	2	2	
Act Effct Green (s)	77.2	77.2	77.2	97.1	97.1		19.9	19.9	19.9		19.9	
Actuated g/C Ratio	0.59	0.59	0.59	0.75	0.75		0.15	0.15	0.15		0.15	
v/c Ratio	0.13	0.79	0.10	0.70	0.36		0.65	0.15	0.47		0.63	
Control Delay	16.5	25.9	3.9	36.6	6.8		68.9	45.1	10.0		58.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay	16.5	25.9	3.9	36.6	6.8		68.9	45.1	10.0		58.8	
LOS	B	C	A	D	A		E	D	A		E	
Approach Delay		24.5			12.0			33.5			58.8	
Approach LOS		C			B			C			E	
Queue Length 50th (m)	4.4	144.1	0.3	20.0	31.3		24.0	8.3	0.0		29.5	
Queue Length 95th (m)	12.5	#230.5	8.1	#47.1	56.4		38.2	16.4	16.7		44.9	
Internal Link Dist (m)		561.5			342.7			90.9			374.5	
Turn Bay Length (m)	45.0		55.0	55.0					20.0			
Base Capacity (vph)	345	2014	913	279	2449		262	439	508		357	
Starvation Cap Reductn	0	0	0	0	0		0	0	0		0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0		0	
Storage Cap Reductn	0	0	0	0	0		0	0	0		0	
Reduced v/c Ratio	0.13	0.79	0.10	0.66	0.36		0.40	0.09	0.35		0.39	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 105 (81%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 22.8

Intersection LOS: C

Intersection Capacity Utilization 92.7%

ICU Level of Service F

Analysis Period (min) 15

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

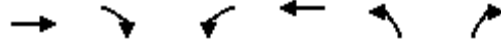
Queue shown is maximum after two cycles.

Splits and Phases: 3: Viseneau & Innes



4: Caivan & Innes
PM Peak Hour

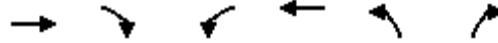
0 Innes Road
2023 Background Traffic



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗	↖	↑↑	↘	
Traffic Volume (vph)	1754	253	63	966	150	37
Future Volume (vph)	1754	253	63	966	150	37
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		50.0	35.0		0.0	85.0
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			1.00	
Fr _t		0.850			0.973	
Fl _t Protected			0.950		0.961	
Satd. Flow (prot)	3357	1502	1679	3357	1647	0
Fl _t Permitted			0.057		0.961	
Satd. Flow (perm)	3357	1463	101	3357	1647	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		160			11	
Link Speed (k/h)	60			60	60	
Link Distance (m)	238.6			236.8	212.4	
Travel Time (s)	14.3			14.2	12.7	
Confl. Peds. (#/hr)		3	3			3
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1754	253	63	966	150	37
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1754	253	63	966	187	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	5.0	
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	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	

4: Caivan & Innes
PM Peak Hour

0 Innes Road
2023 Background Traffic





















Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Minimum Split (s)	32.1	32.1	11.0	32.1	32.3	
Total Split (s)	66.0	66.0	11.0	77.0	33.0	
Total Split (%)	60.0%	60.0%	10.0%	70.0%	30.0%	
Maximum Green (s)	59.9	59.9	5.0	70.9	26.7	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.3	
All-Red Time (s)	2.4	2.4	2.3	2.4	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.1	6.1	6.0	6.1	6.3	
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
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)	12.0	12.0		12.0	7.0	
Flash Dont Walk (s)	14.0	14.0		14.0	19.0	
Pedestrian Calls (#/hr)	3	3		3	3	
Act Effct Green (s)	70.1	70.1	80.2	80.1	17.5	
Actuated g/C Ratio	0.64	0.64	0.73	0.73	0.16	
v/c Ratio	0.82	0.26	0.39	0.40	0.69	
Control Delay	6.4	0.4	24.7	6.3	53.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	6.4	0.4	24.7	6.3	53.3	
LOS	A	A	C	A	D	
Approach Delay	5.6			7.4	53.3	
Approach LOS	A			A	D	
Queue Length 50th (m)	10.8	0.0	2.9	31.4	33.4	
Queue Length 95th (m)	#215.6	m0.1	19.2	43.0	49.9	
Internal Link Dist (m)	214.6			212.8	188.4	
Turn Bay Length (m)		50.0	35.0			
Base Capacity (vph)	2140	990	162	2443	408	
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	0.82	0.26	0.39	0.40	0.46	

Intersection Summary

Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 13 (12%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.82
 Intersection Signal Delay: 9.0 Intersection LOS: A
 Intersection Capacity Utilization 77.8% 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: 4: Caivan & Innes



												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	530	11	41	1675	31	14	14	61	43	7	70
Future Volume (vph)	16	530	11	41	1675	31	14	14	61	43	7	70
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			0.99			0.99	
Frt		0.997			0.997			0.907			0.921	
Flt Protected	0.950			0.950				0.992			0.982	
Satd. Flow (prot)	1601	3184	0	1679	3346	0	0	1510	0	0	1611	0
Flt Permitted	0.106			0.450				0.935			0.849	
Satd. Flow (perm)	179	3184	0	794	3346	0	0	1422	0	0	1393	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			3			61			33	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		341.1			238.6			212.5			273.4	
Travel Time (s)		20.5			14.3			19.1			24.6	
Confl. Peds. (#/hr)	1		1	1		1	6		1	1		6
Confl. Bikes (#/hr)			3						2			
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 (%)	8%	8%	20%	3%	3%	3%	20%	5%	5%	1%	1%	1%
Adj. Flow (vph)	16	530	11	41	1675	31	14	14	61	43	7	70
Shared Lane Traffic (%)												
Lane Group Flow (vph)	16	541	0	41	1706	0	0	89	0	0	120	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		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	

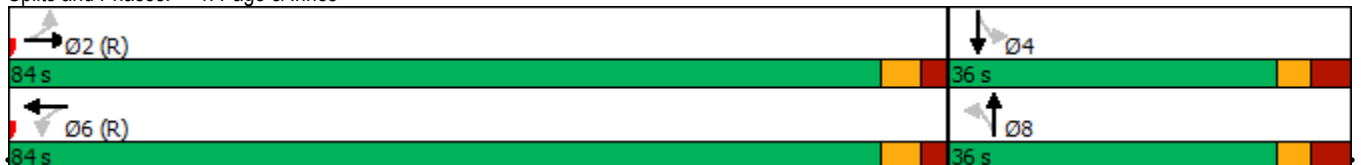


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	38.2	38.2		38.2	38.2		35.8	35.8		35.8	35.8	
Total Split (s)	84.0	84.0		84.0	84.0		36.0	36.0		36.0	36.0	
Total Split (%)	70.0%	70.0%		70.0%	70.0%		30.0%	30.0%		30.0%	30.0%	
Maximum Green (s)	77.8	77.8		77.8	77.8		29.2	29.2		29.2	29.2	
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)	17.0	17.0		17.0	17.0		22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)	1	1		1	1		6	6		1	1	
Act Effct Green (s)	91.5	91.5		91.5	91.5			15.5			15.5	
Actuated g/C Ratio	0.76	0.76		0.76	0.76			0.13			0.13	
v/c Ratio	0.12	0.22		0.07	0.67			0.38			0.57	
Control Delay	8.2	5.1		2.9	6.1			21.4			44.7	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	8.2	5.1		2.9	6.1			21.4			44.7	
LOS	A	A		A	A			C			D	
Approach Delay		5.2			6.1			21.4			44.7	
Approach LOS		A			A			C			D	
Queue Length 50th (m)	0.7	13.2		1.1	33.6			5.6			18.3	
Queue Length 95th (m)	4.5	31.4		m2.6	39.7			17.1			31.1	
Internal Link Dist (m)		317.1			214.6			188.5			249.4	
Turn Bay Length (m)	100.0			100.0								
Base Capacity (vph)	136	2427		605	2550			392			363	
Starvation Cap Reductn	0	0		0	16			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.12	0.22		0.07	0.67			0.23			0.33	

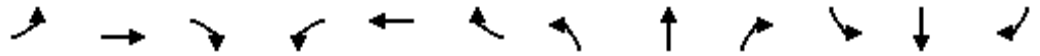
Intersection Summary

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:	90
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.67
Intersection Signal Delay:	8.2
Intersection LOS:	A
Intersection Capacity Utilization:	77.0%
ICU Level of Service:	D
Analysis Period (min):	15
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 1: Page & Innes



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	525	39	12	1370	3	102	0	38	0	0	5
Future Volume (vph)	3	525	39	12	1370	3	102	0	38	0	0	5
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				0.98			
Frt		0.990							0.850		0.865	
Flt Protected	0.950			0.950				0.950				
Satd. Flow (prot)	1679	3324	0	1679	3357	0	0	1679	1502	0	1528	0
Flt Permitted	0.169			0.440				0.754				
Satd. Flow (perm)	299	3324	0	777	3357	0	0	1332	1478	0	1528	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14							38			73
Link Speed (k/h)		60			60			40				40
Link Distance (m)		236.8			585.5			151.9				62.6
Travel Time (s)		14.2			35.1			13.7				5.6
Confl. Peds. (#/hr)									3	3		
Confl. Bikes (#/hr)						14						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	3	525	39	12	1370	3	102	0	38	0	0	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	564	0	12	1373	0	0	102	38	0	5	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0				0.0
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		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			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
Switch Phase												



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
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		32.1	32.1		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)	3	3		3	3		3	3	3	3	3	
Act Effct Green (s)	91.7	91.7		91.7	91.7			15.9	15.9		15.9	
Actuated g/C Ratio	0.76	0.76		0.76	0.76			0.13	0.13		0.13	
v/c Ratio	0.01	0.22		0.02	0.54			0.58	0.17		0.02	
Control Delay	4.0	3.6		7.8	9.7			60.6	14.1		0.2	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay	4.0	3.6		7.8	9.7			60.6	14.1		0.2	
LOS	A	A		A	A			E	B		A	
Approach Delay		3.6			9.7			48.0			0.2	
Approach LOS		A			A			D			A	
Queue Length 50th (m)	0.1	10.8		0.5	47.1			21.4	0.0		0.0	
Queue Length 95th (m)	m0.5	13.5		m2.4	135.5			34.3	8.3		0.0	
Internal Link Dist (m)		212.8			561.5			127.9			38.6	
Turn Bay Length (m)	30.0			40.0								
Base Capacity (vph)	228	2543		593	2565			296	358		396	
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	0.01	0.22		0.02	0.54			0.34	0.11		0.01	

Intersection Summary

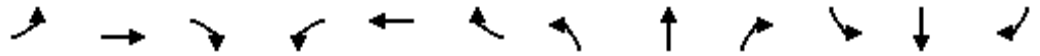
Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.58
 Intersection Signal Delay: 10.6
 Intersection Capacity Utilization 63.9%
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: 473 E of Page & Innes



3: Viseneau & Innes
AM Peak Hour

0 Innes Road
2023 Total Traffic



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	471	37	59	1505	33	22	5	39	46	13	47
Future Volume (vph)	11	471	37	59	1505	33	22	5	39	46	13	47
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	45.0		55.0	55.0		0.0	0.0		20.0	0.0		0.0
Storage Lanes	1		1	1		0	1		1	0		0
Taper Length (m)	35.0			45.0			2.5			2.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.99	1.00	1.00		1.00		0.99		0.99	
Frt			0.850		0.997				0.850		0.940	
Flt Protected	0.950			0.950			0.950				0.979	
Satd. Flow (prot)	1153	3232	1502	1695	3337	0	1712	1802	1432	0	1634	0
Flt Permitted	0.156			0.447			0.662				0.858	
Satd. Flow (perm)	189	3232	1482	797	3337	0	1192	1802	1412	0	1431	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			91		4				87			32
Link Speed (k/h)		60			60			40				40
Link Distance (m)		585.5			366.7			114.9				398.5
Travel Time (s)		35.1			22.0			10.3				35.9
Confl. Peds. (#/hr)	3		1	1		3	1		2	2		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 (%)	50%	7%	3%	2%	3%	15%	1%	1%	8%	2%	1%	2%
Adj. Flow (vph)	11	471	37	59	1505	33	22	5	39	46	13	47
Shared Lane Traffic (%)												
Lane Group Flow (vph)	11	471	37	59	1538	0	22	5	39	0	106	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		5.0			5.0			3.7				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												
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	2	1	1		2
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	18.6	93.0	18.6	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		0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 1 Size(m)	18.6	5.5	18.6	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		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 2 Position(m)		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	pm+pt	NA		Perm	NA	Perm	Perm		NA
Protected Phases		2		1	6			8				4
Permitted Phases	2		2	6			8		8	4		
Detector Phase	2	2	2	1	6		8	8	8	4		4
Switch Phase												

3: Viseneau & Innes
AM Peak Hour

0 Innes Road
2023 Total Traffic



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	32.3	32.3	32.3	11.3	32.3		36.7	36.7	36.7	36.7	36.7	
Total Split (s)	71.0	71.0	71.0	12.0	83.0		37.0	37.0	37.0	37.0	37.0	
Total Split (%)	59.2%	59.2%	59.2%	10.0%	69.2%		30.8%	30.8%	30.8%	30.8%	30.8%	
Maximum Green (s)	64.7	64.7	64.7	5.7	76.7		30.3	30.3	30.3	30.3	30.3	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7		3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	2.6	2.6	2.6	2.6	2.6		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	
Total Lost Time (s)	6.3	6.3	6.3	6.3	6.3		6.7	6.7	6.7	6.7	6.7	
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?	Yes	Yes	Yes	Yes								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	None	C-Max		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)	19.0	19.0	19.0		19.0		23.0	23.0	23.0	23.0	23.0	
Pedestrian Calls (#/hr)	3	3	3		1		1	1	1	2	2	
Act Effct Green (s)	81.8	81.8	81.8	91.9	91.9		15.1	15.1	15.1		15.1	
Actuated g/C Ratio	0.68	0.68	0.68	0.77	0.77		0.13	0.13	0.13		0.13	
v/c Ratio	0.09	0.21	0.04	0.09	0.60		0.15	0.02	0.15		0.51	
Control Delay	6.7	4.4	0.2	5.2	8.5		44.9	40.2	1.3		40.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay	6.7	4.4	0.2	5.2	8.5		44.9	40.2	1.3		40.7	
LOS	A	A	A	A	A		D	D	A		D	
Approach Delay		4.2			8.4			18.8				40.7
Approach LOS		A			A			B				D
Queue Length 50th (m)	0.3	5.9	0.0	2.2	54.2		4.5	1.0	0.0		15.5	
Queue Length 95th (m)	2.6	22.2	0.1	8.9	131.2		10.0	3.8	0.0		27.0	
Internal Link Dist (m)		561.5			342.7			90.9				374.5
Turn Bay Length (m)	45.0		55.0	55.0					20.0			
Base Capacity (vph)	128	2203	1039	656	2555		300	455	421			385
Starvation Cap Reductn	0	0	0	0	0		0	0	0			0
Spillback Cap Reductn	0	0	0	0	0		0	0	0			0
Storage Cap Reductn	0	0	0	0	0		0	0	0			0
Reduced v/c Ratio	0.09	0.21	0.04	0.09	0.60		0.07	0.01	0.09			0.28

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 40 (33%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 85
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.60
 Intersection Signal Delay: 9.2
 Intersection Capacity Utilization 76.1%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service D

Splits and Phases: 3: Viseneau & Innes

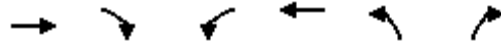


4: Caivan & Innes
AM Peak Hour

0 Innes Road
2023 Total Traffic



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	
Traffic Volume (vph)	554	84	4	1473	276	13
Future Volume (vph)	554	84	4	1473	276	13
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		50.0	35.0		0.0	85.0
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	1.00		1.00	
Frt		0.850			0.994	
Flt Protected			0.950		0.954	
Satd. Flow (prot)	3202	1502	1679	3357	1674	0
Flt Permitted			0.440		0.954	
Satd. Flow (perm)	3202	1462	775	3357	1674	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		84			2	
Link Speed (k/h)	60			60	60	
Link Distance (m)	238.6			236.8	212.4	
Travel Time (s)	14.3			14.2	12.7	
Confl. Peds. (#/hr)		3	3			3
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	8%	3%	3%	3%	3%	3%
Adj. Flow (vph)	554	84	4	1473	276	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	554	84	4	1473	289	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	5.0	
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						



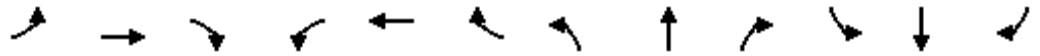
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	32.1	32.1	32.1	32.1	32.3	
Total Split (s)	87.0	87.0	87.0	87.0	33.0	
Total Split (%)	72.5%	72.5%	72.5%	72.5%	27.5%	
Maximum Green (s)	80.9	80.9	80.9	80.9	26.7	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.3	
All-Red Time (s)	2.4	2.4	2.4	2.4	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.1	6.1	6.1	6.1	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)	12.0	12.0	12.0	12.0	7.0	
Flash Dont Walk (s)	14.0	14.0	14.0	14.0	19.0	
Pedestrian Calls (#/hr)	3	3	3	3	3	
Act Effct Green (s)	83.5	83.5	83.5	83.5	24.1	
Actuated g/C Ratio	0.70	0.70	0.70	0.70	0.20	
v/c Ratio	0.25	0.08	0.01	0.63	0.86	
Control Delay	6.2	1.0	3.5	8.2	69.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	6.2	1.0	3.5	8.2	69.4	
LOS	A	A	A	A	E	
Approach Delay	5.5			8.2	69.4	
Approach LOS	A			A	E	
Queue Length 50th (m)	18.8	0.0	0.1	93.6	59.2	
Queue Length 95th (m)	23.8	2.1	m0.2	25.7	#95.0	
Internal Link Dist (m)	214.6			212.8	188.4	
Turn Bay Length (m)		50.0	35.0			
Base Capacity (vph)	2229	1043	539	2337	374	
Starvation Cap Reductn	0	0	0	2	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.25	0.08	0.01	0.63	0.77	

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 10 (8%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
 Natural Cycle: 75
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.86
 Intersection Signal Delay: 14.8
 Intersection Capacity Utilization 70.7%
 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: Caivan & Innes





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	74	1967	23	98	1026	56	13	21	98	58	23	38
Future Volume (vph)	74	1967	23	98	1026	56	13	21	98	58	23	38
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		0.998			0.992			0.900				0.957
Flt Protected	0.950			0.950				0.995				0.976
Satd. Flow (prot)	1712	3415	0	1712	3360	0	0	1582	0	0	1676	0
Flt Permitted	0.264			0.054				0.964			0.713	
Satd. Flow (perm)	475	3415	0	97	3360	0	0	1533	0	0	1221	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			9			93			21	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		341.1			238.6			212.5			273.4	
Travel Time (s)		20.5			14.3			19.1			24.6	
Confl. Peds. (#/hr)	3		4	4		3	1		7	7		1
Confl. Bikes (#/hr)			18						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 (%)	1%	1%	3%	1%	2%	1%	2%	1%	1%	1%	1%	1%
Adj. Flow (vph)	74	1967	23	98	1026	56	13	21	98	58	23	38
Shared Lane Traffic (%)												
Lane Group Flow (vph)	74	1990	0	98	1082	0	0	132	0	0	119	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		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		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		1	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		5.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	38.2	38.2		11.0	38.2		35.8	35.8		35.8	35.8	
Total Split (s)	63.0	63.0		11.0	74.0		36.0	36.0		36.0	36.0	
Total Split (%)	57.3%	57.3%		10.0%	67.3%		32.7%	32.7%		32.7%	32.7%	
Maximum Green (s)	56.8	56.8		5.0	67.8		29.2	29.2		29.2	29.2	
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		2.3	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		6.0	6.2			6.8			6.8	
Lead/Lag	Lag	Lag		Lead								
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		None	C-Max		None	None		None	None	
Walk Time (s)	15.0	15.0			15.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	17.0	17.0			17.0		22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)	1	1			1		6	6		1	1	
Act Effct Green (s)	68.2	68.2		81.5	81.3			15.7			15.7	
Actuated g/C Ratio	0.62	0.62		0.74	0.74			0.14			0.14	
v/c Ratio	0.25	0.94		0.56	0.44			0.44			0.62	
Control Delay	14.5	30.5		33.9	7.4			18.4			48.7	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	14.5	30.5		33.9	7.4			18.4			48.7	
LOS	B	C		C	A			B			D	
Approach Delay		29.9			9.6			18.4			48.7	
Approach LOS		C			A			B			D	
Queue Length 50th (m)	5.7	164.3		6.7	23.8			7.1			18.9	
Queue Length 95th (m)	18.2	#280.8		#31.7	63.5			19.6			30.9	
Internal Link Dist (m)		317.1			214.6			188.5			249.4	
Turn Bay Length (m)	100.0			100.0								
Base Capacity (vph)	294	2119		174	2484			475			339	
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	0.25	0.94		0.56	0.44			0.28			0.35	

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: 125
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.94
 Intersection Signal Delay: 23.2 Intersection LOS: C
 Intersection Capacity Utilization 93.9% ICU Level of Service F
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Page & Innes



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	1747	134	72	1004	12	91	0	51	12	0	7
Future Volume (vph)	14	1747	134	72	1004	12	91	0	51	12	0	7
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			0.98	0.99		0.99	
Frt		0.989			0.998				0.850		0.950	
Flt Protected	0.950			0.950				0.950			0.969	
Satd. Flow (prot)	1679	3320	0	1679	3350	0	0	1679	1502	0	1610	0
Flt Permitted	0.282			0.052				0.745			0.791	
Satd. Flow (perm)	498	3320	0	92	3350	0	0	1295	1482	0	1313	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11			2				90		90	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		236.8			585.5			151.9			62.6	
Travel Time (s)		14.2			35.1			13.7			5.6	
Confl. Peds. (#/hr)							13		1	1		13
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
Adj. Flow (vph)	14	1747	134	72	1004	12	91	0	51	12	0	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	14	1881	0	72	1016	0	0	91	51	0	19	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		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		pm+pt	NA		Perm	NA	Perm	Perm		NA
Protected Phases		2		1	6			8				4
Permitted Phases	2			6			8		8	4		
Detector Phase	2	2		1	6		8	8	8	4		4
Switch Phase												



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	10.0	10.0		5.0	10.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	32.1	32.1		11.0	32.1		32.3	32.3	32.3	32.3	32.3	
Total Split (s)	66.0	66.0		11.0	77.0		33.0	33.0	33.0	33.0	33.0	
Total Split (%)	60.0%	60.0%		10.0%	70.0%		30.0%	30.0%	30.0%	30.0%	30.0%	
Maximum Green (s)	59.9	59.9		5.0	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		2.3	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		6.0	6.1			6.3	6.3		6.3	
Lead/Lag	Lag	Lag		Lead								
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		None	C-Max		None	None	None	None	None	
Walk Time (s)	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		19.0	19.0	19.0	19.0	19.0	
Pedestrian Calls (#/hr)	3	3			3		3	3	3	3	3	
Act Effct Green (s)	77.1	77.1		85.9	87.0			15.0	15.0		15.0	
Actuated g/C Ratio	0.70	0.70		0.78	0.79			0.14	0.14		0.14	
v/c Ratio	0.04	0.81		0.45	0.38			0.51	0.18		0.07	
Control Delay	1.1	8.9		19.3	5.6			52.8	3.1		0.6	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay	1.1	8.9		19.3	5.6			52.8	3.1		0.6	
LOS	A	A		B	A			D	A		A	
Approach Delay		8.8			6.5			35.0			0.6	
Approach LOS		A			A			C			A	
Queue Length 50th (m)	0.0	2.7		2.9	29.0			17.3	0.0		0.0	
Queue Length 95th (m)	m0.3	#258.4		15.7	60.6			28.3	2.5		0.0	
Internal Link Dist (m)		212.8			561.5			127.9			38.6	
Turn Bay Length (m)	30.0			40.0								
Base Capacity (vph)	349	2330		161	2651			314	427		386	
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	0.04	0.81		0.45	0.38			0.29	0.12		0.05	

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: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.81
 Intersection Signal Delay: 9.2
 Intersection Capacity Utilization 92.9%
 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: 473 E of Page & Innes



3: Viseneau & Innes
PM Peak Hour

0 Innes Road
2023 Total Traffic



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	1608	87	183	833	84	106	40	179	60	51	30
Future Volume (vph)	44	1608	87	183	833	84	106	40	179	60	51	30
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	45.0		55.0	55.0		0.0	0.0		20.0	0.0		0.0
Storage Lanes	1		1	1		0	1		1	0		0
Taper Length (m)	35.0			45.0			2.5			2.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.97		1.00		0.98		0.98		0.99	
Frt			0.850		0.986				0.850		0.971	
Flt Protected	0.950			0.950			0.950				0.979	
Satd. Flow (prot)	1712	3390	1532	1712	3275	0	1712	1767	1532	0	1635	0
Flt Permitted	0.311			0.068			0.597				0.844	
Satd. Flow (perm)	558	3390	1480	123	3275	0	1057	1767	1507	0	1407	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			84		17				179			10
Link Speed (k/h)		60			60			40				40
Link Distance (m)		585.5			366.7			114.9				398.5
Travel Time (s)		35.1			22.0			10.3				35.9
Confl. Peds. (#/hr)	5		15	15		5	18		3	3		18
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%	2%	1%	3%	1%	6%	1%	10%
Adj. Flow (vph)	44	1608	87	183	833	84	106	40	179	60	51	30
Shared Lane Traffic (%)												
Lane Group Flow (vph)	44	1608	87	183	917	0	106	40	179	0	141	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		5.0			5.0			3.7				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												
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	2	1	1		2
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	18.6	93.0	18.6	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		0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 1 Size(m)	18.6	5.5	18.6	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		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 2 Position(m)		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	pm+pt	NA		Perm	NA	Perm	Perm		NA
Protected Phases		2		1	6			8				4
Permitted Phases	2		2	6			8		8	4		
Detector Phase	2	2	2	1	6		8	8	8	4		4
Switch Phase												

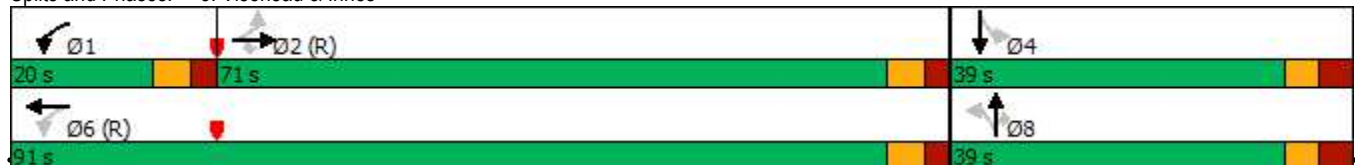


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	32.3	32.3	32.3	11.3	32.3		36.7	36.7	36.7	36.7	36.7	
Total Split (s)	71.0	71.0	71.0	20.0	91.0		39.0	39.0	39.0	39.0	39.0	
Total Split (%)	54.6%	54.6%	54.6%	15.4%	70.0%		30.0%	30.0%	30.0%	30.0%	30.0%	
Maximum Green (s)	64.7	64.7	64.7	13.7	84.7		32.3	32.3	32.3	32.3	32.3	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7		3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	2.6	2.6	2.6	2.6	2.6		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	
Total Lost Time (s)	6.3	6.3	6.3	6.3	6.3		6.7	6.7	6.7	6.7	6.7	
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?	Yes	Yes	Yes	Yes								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	None	C-Max		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)	19.0	19.0	19.0		19.0		23.0	23.0	23.0	23.0	23.0	
Pedestrian Calls (#/hr)	3	3	3		1		1	1	1	2	2	
Act Effct Green (s)	77.2	77.2	77.2	97.1	97.1		19.9	19.9	19.9		19.9	
Actuated g/C Ratio	0.59	0.59	0.59	0.75	0.75		0.15	0.15	0.15		0.15	
v/c Ratio	0.13	0.80	0.10	0.71	0.37		0.65	0.15	0.47		0.63	
Control Delay	16.6	26.4	3.9	39.2	7.0		68.9	45.1	10.0		58.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay	16.6	26.4	3.9	39.2	7.0		68.9	45.1	10.0		58.8	
LOS	B	C	A	D	A		E	D	A		E	
Approach Delay		25.0			12.3			33.5			58.8	
Approach LOS		C			B			C			E	
Queue Length 50th (m)	4.4	148.0	0.3	21.3	33.3		24.0	8.3	0.0		29.5	
Queue Length 95th (m)	12.5	#236.4	8.1	#50.5	60.0		38.2	16.4	16.7		44.9	
Internal Link Dist (m)		561.5			342.7			90.9			374.5	
Turn Bay Length (m)	45.0		55.0	55.0					20.0			
Base Capacity (vph)	331	2014	913	275	2450		262	439	508		357	
Starvation Cap Reductn	0	0	0	0	0		0	0	0		0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0		0	
Storage Cap Reductn	0	0	0	0	0		0	0	0		0	
Reduced v/c Ratio	0.13	0.80	0.10	0.67	0.37		0.40	0.09	0.35		0.39	

Intersection Summary

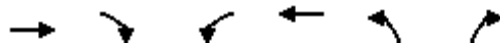
Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 105 (81%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 105
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.80
 Intersection Signal Delay: 23.1
 Intersection Capacity Utilization 93.4%
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 3: Viseneau & Innes

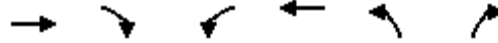


4: Caivan & Innes
PM Peak Hour

0 Innes Road
2023 Total Traffic



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗	↖	↑↑	↘	
Traffic Volume (vph)	1859	270	63	1027	160	37
Future Volume (vph)	1859	270	63	1027	160	37
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		50.0	35.0		0.0	85.0
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			1.00	
Fr _t		0.850			0.975	
Fl _t Protected			0.950		0.961	
Satd. Flow (prot)	3357	1502	1679	3357	1651	0
Fl _t Permitted			0.054		0.961	
Satd. Flow (perm)	3357	1463	95	3357	1651	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		162			10	
Link Speed (k/h)	60			60	60	
Link Distance (m)	238.6			236.8	212.4	
Travel Time (s)	14.3			14.2	12.7	
Confl. Peds. (#/hr)		3	3			3
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1859	270	63	1027	160	37
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1859	270	63	1027	197	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	5.0	
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	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)	32.1	32.1	11.0	32.1	32.3	
Total Split (s)	66.0	66.0	11.0	77.0	33.0	
Total Split (%)	60.0%	60.0%	10.0%	70.0%	30.0%	
Maximum Green (s)	59.9	59.9	5.0	70.9	26.7	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.3	
All-Red Time (s)	2.4	2.4	2.3	2.4	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.1	6.1	6.0	6.1	6.3	
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
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)	12.0	12.0		12.0	7.0	
Flash Dont Walk (s)	14.0	14.0		14.0	19.0	
Pedestrian Calls (#/hr)	3	3		3	3	
Act Effct Green (s)	69.6	69.6	79.6	79.5	18.1	
Actuated g/C Ratio	0.63	0.63	0.72	0.72	0.16	
v/c Ratio	0.88	0.27	0.40	0.42	0.71	
Control Delay	8.1	0.3	25.1	6.2	54.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	8.1	0.3	25.1	6.2	54.3	
LOS	A	A	C	A	D	
Approach Delay	7.1			7.3	54.3	
Approach LOS	A			A	D	
Queue Length 50th (m)	16.4	0.0	2.8	32.5	35.5	
Queue Length 95th (m)	m#226.6	m0.1	17.9	43.3	52.7	
Internal Link Dist (m)	214.6			212.8	188.4	
Turn Bay Length (m)		50.0	35.0			
Base Capacity (vph)	2124	985	158	2427	408	
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	0.88	0.27	0.40	0.42	0.48	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 13 (12%), Referenced to phase 2:EBT and 6:WBTL, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 9.9

Intersection LOS: A

Intersection Capacity Utilization 78.3%

ICU Level of Service D

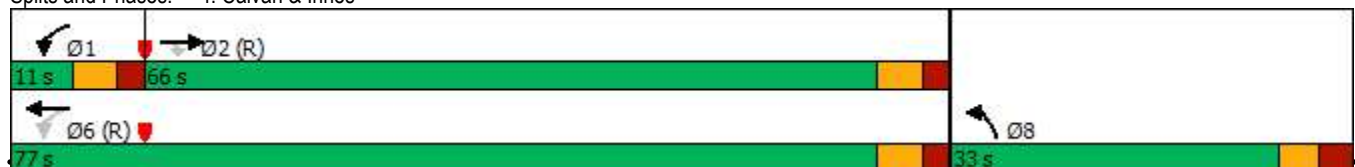
Analysis Period (min) 15

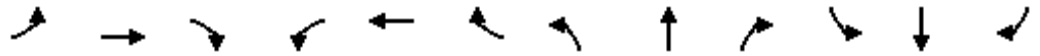
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

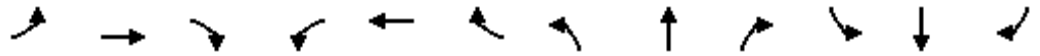
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Caivan & Innes





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	74	1967	23	98	1026	56	13	21	98	58	23	38
Future Volume (vph)	74	1967	23	98	1026	56	13	21	98	58	23	38
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		0.998			0.992			0.900				0.957
Flt Protected	0.950			0.950				0.995				0.976
Satd. Flow (prot)	1712	3415	0	1712	3360	0	0	1580	0	0	1676	0
Flt Permitted	0.264			0.044				0.962			0.657	
Satd. Flow (perm)	475	3415	0	79	3360	0	0	1527	0	0	1124	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			9			77				17
Link Speed (k/h)		60			60			40				40
Link Distance (m)		341.1			238.6			212.5				273.4
Travel Time (s)		20.5			14.3			19.1				24.6
Confl. Peds. (#/hr)	3		4	4		3	1		7	7		1
Confl. Bikes (#/hr)			18						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 (%)	1%	1%	3%	1%	2%	1%	2%	1%	1%	1%	1%	1%
Adj. Flow (vph)	74	1967	23	98	1026	56	13	21	98	58	23	38
Shared Lane Traffic (%)												
Lane Group Flow (vph)	74	1990	0	98	1082	0	0	132	0	0	119	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		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		pm+pt	NA		Perm	NA		Perm		NA
Protected Phases		2		1	6			8				4
Permitted Phases	2			6			8			4		
Detector Phase	2	2		1	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		5.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	38.2	38.2		11.0	38.2		35.8	35.8		35.8	35.8	
Total Split (s)	83.0	83.0		11.0	94.0		36.0	36.0		36.0	36.0	
Total Split (%)	63.8%	63.8%		8.5%	72.3%		27.7%	27.7%		27.7%	27.7%	
Maximum Green (s)	76.8	76.8		5.0	87.8		29.2	29.2		29.2	29.2	
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		2.3	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		6.0	6.2			6.8			6.8	
Lead/Lag	Lag	Lag		Lead								
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		None	C-Max		None	None		None	None	
Walk Time (s)	15.0	15.0			15.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	17.0	17.0			17.0		22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)	1	1			1		6	6		1	1	
Act Effct Green (s)	85.6	85.6		100.0	99.8			17.2			17.2	
Actuated g/C Ratio	0.66	0.66		0.77	0.77			0.13			0.13	
v/c Ratio	0.24	0.89		0.60	0.42			0.49			0.73	
Control Delay	13.1	25.5		48.3	3.8			27.9			69.5	
Queue Delay	0.0	0.2		0.0	0.0			0.0			0.0	
Total Delay	13.1	25.7		48.3	3.8			27.9			69.5	
LOS	B	C		D	A			C			E	
Approach Delay		25.2			7.5			27.9			69.5	
Approach LOS		C			A			C			E	
Queue Length 50th (m)	6.5	186.9		10.7	17.1			12.0			23.8	
Queue Length 95th (m)	17.0	#291.6		#40.3	28.5			27.0			38.8	
Internal Link Dist (m)		317.1			214.6			188.5			249.4	
Turn Bay Length (m)	100.0			100.0								
Base Capacity (vph)	312	2248		163	2581			402			265	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	26		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.24	0.90		0.60	0.42			0.33			0.45	

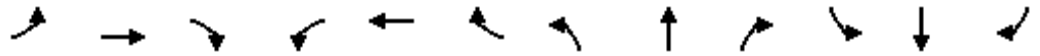
Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 119 (92%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 125
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.89
 Intersection Signal Delay: 20.8 Intersection LOS: C
 Intersection Capacity Utilization 93.9% ICU Level of Service F
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Page & Innes



												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	1747	134	72	1004	12	91	0	51	12	0	7
Future Volume (vph)	14	1747	134	72	1004	12	91	0	51	12	0	7
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			0.98	0.99		0.99	
Frt		0.989			0.998				0.850		0.950	
Flt Protected	0.950			0.950				0.950			0.969	
Satd. Flow (prot)	1679	3320	0	1679	3350	0	0	1679	1502	0	1608	0
Flt Permitted	0.282			0.058				0.745			0.805	
Satd. Flow (perm)	498	3320	0	102	3350	0	0	1291	1482	0	1335	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11			2				76		76	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		236.8			585.5			151.9			62.6	
Travel Time (s)		14.2			35.1			13.7			5.6	
Confl. Peds. (#/hr)							13		1	1		13
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
Adj. Flow (vph)	14	1747	134	72	1004	12	91	0	51	12	0	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	14	1881	0	72	1016	0	0	91	51	0	19	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		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		pm+pt	NA		Perm	NA	Perm	Perm		NA
Protected Phases		2		1	6			8				4
Permitted Phases	2			6			8		8	4		
Detector Phase	2	2		1	6		8	8	8	4		4
Switch Phase												

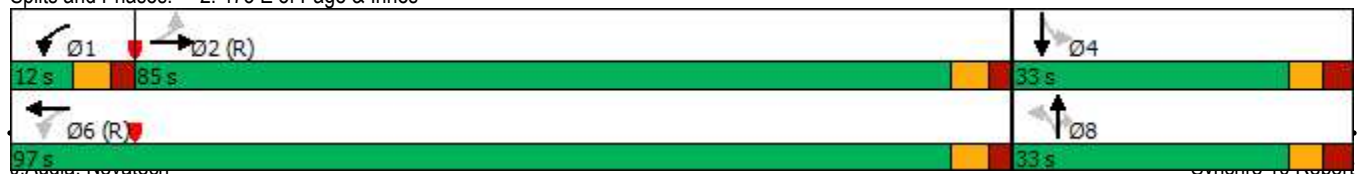


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	10.0	10.0		5.0	10.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	32.1	32.1		11.0	32.1		32.3	32.3	32.3	32.3	32.3	
Total Split (s)	85.0	85.0		12.0	97.0		33.0	33.0	33.0	33.0	33.0	
Total Split (%)	65.4%	65.4%		9.2%	74.6%		25.4%	25.4%	25.4%	25.4%	25.4%	
Maximum Green (s)	78.9	78.9		6.0	90.9		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		2.3	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		6.0	6.1			6.3	6.3		6.3	
Lead/Lag	Lag	Lag		Lead								
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		None	C-Max		None	None	None	None	None	
Walk Time (s)	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		19.0	19.0	19.0	19.0	19.0	
Pedestrian Calls (#/hr)	3	3			3		3	3	3	3	3	
Act Effct Green (s)	91.4	91.4		101.8	101.7			15.9	15.9		15.9	
Actuated g/C Ratio	0.70	0.70		0.78	0.78			0.12	0.12		0.12	
v/c Ratio	0.04	0.81		0.45	0.39			0.58	0.21		0.08	
Control Delay	1.2	3.8		20.0	5.4			67.0	5.7		0.7	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay	1.2	3.8		20.0	5.4			67.0	5.7		0.7	
LOS	A	A		B	A			E	A		A	
Approach Delay		3.8			6.3			45.0			0.7	
Approach LOS		A			A			D			A	
Queue Length 50th (m)	0.1	6.4		3.7	26.0			20.9	0.0		0.0	
Queue Length 95th (m)	m0.1	#10.1		17.1	61.8			34.1	5.0		0.0	
Internal Link Dist (m)		212.8			561.5			127.9			38.6	
Turn Bay Length (m)	30.0			40.0								
Base Capacity (vph)	350	2336		161	2621			265	364		334	
Starvation Cap Reductn	0	1		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	0.04	0.81		0.45	0.39			0.34	0.14		0.06	

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 14 (11%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.81
 Intersection Signal Delay: 6.5
 Intersection Capacity Utilization 92.9%
 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: 473 E of Page & Innes



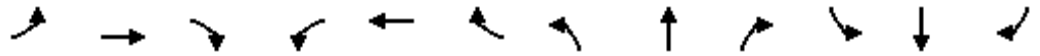
3: Viseneau & Innes
PM Peak Hour

0 Innes Road
2023 Total Traffic (Optimized Timings)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	1608	87	183	833	84	106	40	179	60	51	30
Future Volume (vph)	44	1608	87	183	833	84	106	40	179	60	51	30
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	45.0		55.0	55.0		0.0	0.0		20.0	0.0		0.0
Storage Lanes	1		1	1		0	1		1	0		0
Taper Length (m)	35.0			45.0			2.5			2.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.97		1.00		0.98		0.98		0.99	
Frt			0.850		0.986				0.850		0.971	
Flt Protected	0.950			0.950			0.950				0.979	
Satd. Flow (prot)	1712	3390	1532	1712	3275	0	1712	1767	1532	0	1635	0
Flt Permitted	0.311			0.068			0.596				0.844	
Satd. Flow (perm)	558	3390	1480	123	3275	0	1055	1767	1507	0	1407	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			84		18				179		10	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		585.5			366.7			114.9			398.5	
Travel Time (s)		35.1			22.0			10.3			35.9	
Confl. Peds. (#/hr)	5		15	15		5	18		3	3		18
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%	2%	1%	3%	1%	6%	1%	10%
Adj. Flow (vph)	44	1608	87	183	833	84	106	40	179	60	51	30
Shared Lane Traffic (%)												
Lane Group Flow (vph)	44	1608	87	183	917	0	106	40	179	0	141	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		5.0			5.0			3.7			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												
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	2	1	1		2
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	18.6	93.0	18.6	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		0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 1 Size(m)	18.6	5.5	18.6	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		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 2 Position(m)		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	pm+pt	NA		Perm	NA	Perm	Perm		NA
Protected Phases		2		1	6			8				4
Permitted Phases	2		2	6			8		8	4		
Detector Phase	2	2	2	1	6		8	8	8	4		4
Switch Phase												

3: Viseneau & Innes
PM Peak Hour

0 Innes Road
2023 Total Traffic (Optimized Timings)

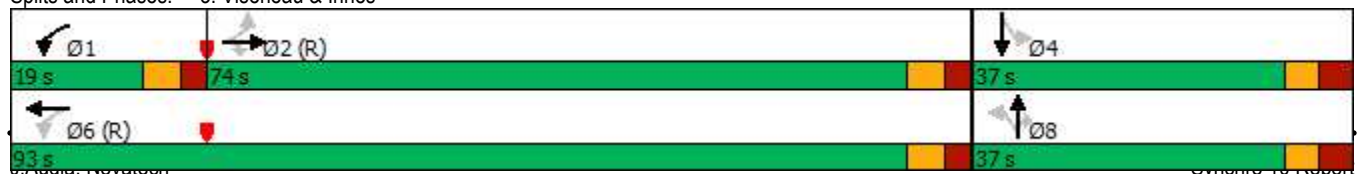


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	32.3	32.3	32.3	11.3	32.3		36.7	36.7	36.7	36.7	36.7	
Total Split (s)	74.0	74.0	74.0	19.0	93.0		37.0	37.0	37.0	37.0	37.0	
Total Split (%)	56.9%	56.9%	56.9%	14.6%	71.5%		28.5%	28.5%	28.5%	28.5%	28.5%	
Maximum Green (s)	67.7	67.7	67.7	12.7	86.7		30.3	30.3	30.3	30.3	30.3	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7		3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	2.6	2.6	2.6	2.6	2.6		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	
Total Lost Time (s)	6.3	6.3	6.3	6.3	6.3		6.7	6.7	6.7	6.7	6.7	
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	None	C-Max		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)	19.0	19.0	19.0		19.0		23.0	23.0	23.0	23.0	23.0	
Pedestrian Calls (#/hr)	3	3	3		1		1	1	1	2	2	
Act Effct Green (s)	77.3	77.3	77.3	97.2	97.2		19.8	19.8	19.8		19.8	
Actuated g/C Ratio	0.59	0.59	0.59	0.75	0.75		0.15	0.15	0.15		0.15	
v/c Ratio	0.13	0.80	0.10	0.71	0.37		0.66	0.15	0.47		0.63	
Control Delay	2.3	7.8	0.5	39.1	6.9		69.5	45.4	10.1		59.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay	2.3	7.8	0.5	39.1	6.9		69.5	45.4	10.1		59.1	
LOS	A	A	A	D	A		E	D	B		E	
Approach Delay		7.3			12.3			33.8			59.1	
Approach LOS		A			B			C			E	
Queue Length 50th (m)	0.7	72.7	0.2	21.2	33.5		24.0	8.3	0.0		29.5	
Queue Length 95th (m)	m1.4	124.5	m0.9	#56.8	58.7		38.5	16.5	16.8		45.2	
Internal Link Dist (m)		561.5			342.7			90.9			374.5	
Turn Bay Length (m)	45.0		55.0	55.0					20.0			
Base Capacity (vph)	331	2015	914	267	2452		245	411	488		335	
Starvation Cap Reductn	0	0	0	0	0		0	0	0		0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0		0	
Storage Cap Reductn	0	0	0	0	0		0	0	0		0	
Reduced v/c Ratio	0.13	0.80	0.10	0.69	0.37		0.43	0.10	0.37		0.42	

Intersection Summary

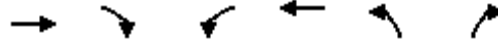
Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 60 (46%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 105
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.80
 Intersection Signal Delay: 13.8
 Intersection LOS: B
 Intersection Capacity Utilization 93.4%
 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: 3: Viseneau & Innes



4: Caivan & Innes
PM Peak Hour

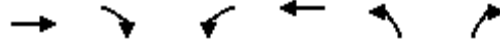
0 Innes Road
2023 Total Traffic (Optimized Timings)



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗	↖	↑↑	↘	
Traffic Volume (vph)	1859	270	63	1027	160	37
Future Volume (vph)	1859	270	63	1027	160	37
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		50.0	35.0		0.0	85.0
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			1.00	
Fr		0.850			0.975	
Flt Protected			0.950		0.961	
Satd. Flow (prot)	3357	1502	1679	3357	1651	0
Flt Permitted			0.053		0.961	
Satd. Flow (perm)	3357	1461	94	3357	1651	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		162			8	
Link Speed (k/h)	60			60	60	
Link Distance (m)	238.6			236.8	212.4	
Travel Time (s)	14.3			14.2	12.7	
Confl. Peds. (#/hr)		3	3			3
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1859	270	63	1027	160	37
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1859	270	63	1027	197	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	5.0	
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	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	

4: Caivan & Innes
PM Peak Hour

0 Innes Road
2023 Total Traffic (Optimized Timings)

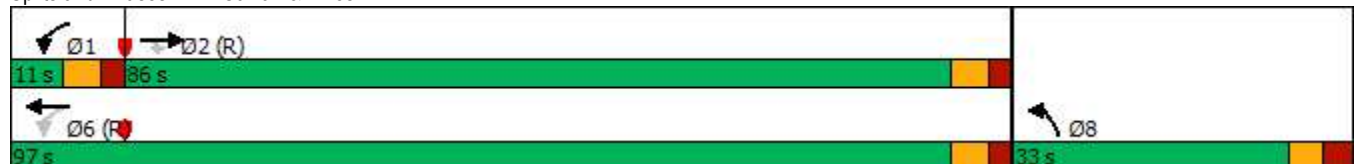


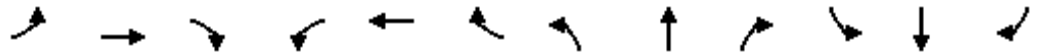
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Minimum Split (s)	32.1	32.1	11.0	32.1	32.3	
Total Split (s)	86.0	86.0	11.0	97.0	33.0	
Total Split (%)	66.2%	66.2%	8.5%	74.6%	25.4%	
Maximum Green (s)	79.9	79.9	5.0	90.9	26.7	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.3	
All-Red Time (s)	2.4	2.4	2.3	2.4	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.1	6.1	6.0	6.1	6.3	
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
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)	12.0	12.0		12.0	7.0	
Flash Dont Walk (s)	14.0	14.0		14.0	19.0	
Pedestrian Calls (#/hr)	3	3		3	3	
Act Effct Green (s)	87.7	87.7	97.7	97.6	20.0	
Actuated g/C Ratio	0.67	0.67	0.75	0.75	0.15	
v/c Ratio	0.82	0.26	0.43	0.41	0.76	
Control Delay	5.2	0.3	26.6	8.7	68.1	
Queue Delay	0.2	0.0	0.0	0.0	0.0	
Total Delay	5.4	0.3	26.6	8.7	68.1	
LOS	A	A	C	A	E	
Approach Delay	4.7			9.7	68.1	
Approach LOS	A			A	E	
Queue Length 50th (m)	13.7	0.0	5.3	56.2	43.2	
Queue Length 95th (m)	17.3	m0.1	16.6	57.6	63.8	
Internal Link Dist (m)	214.6			212.8	188.4	
Turn Bay Length (m)		50.0	35.0			
Base Capacity (vph)	2265	1038	146	2520	345	
Starvation Cap Reductn	50	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.84	0.26	0.43	0.41	0.57	

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.82
 Intersection Signal Delay: 10.0
 Intersection Capacity Utilization 78.3%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service D
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Caivan & Innes





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	514	11	41	1627	31	14	14	61	43	7	70
Future Volume (vph)	16	514	11	41	1627	31	14	14	61	43	7	70
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			0.99			0.99	
Frt		0.997			0.997			0.907			0.921	
Flt Protected	0.950			0.950				0.992			0.982	
Satd. Flow (prot)	1601	3183	0	1679	3346	0	0	1510	0	0	1611	0
Flt Permitted	0.115			0.457				0.934			0.849	
Satd. Flow (perm)	194	3183	0	807	3346	0	0	1420	0	0	1393	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			3			61			37	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		341.1			238.6			212.5			273.4	
Travel Time (s)		20.5			14.3			19.1			24.6	
Confl. Peds. (#/hr)	1		1	1		1	6		1	1		6
Confl. Bikes (#/hr)			3						2			
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 (%)	8%	8%	20%	3%	3%	3%	20%	5%	5%	1%	1%	1%
Adj. Flow (vph)	16	514	11	41	1627	31	14	14	61	43	7	70
Shared Lane Traffic (%)												
Lane Group Flow (vph)	16	525	0	41	1658	0	0	89	0	0	120	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		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	

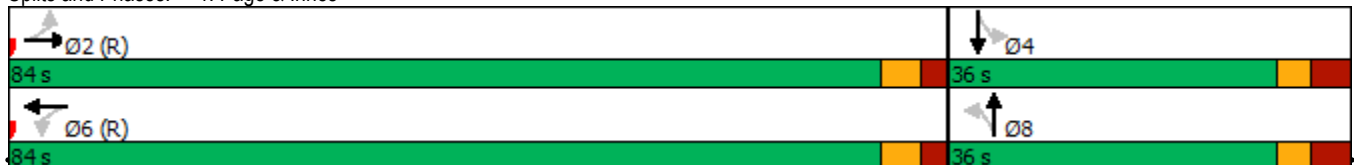


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	38.2	38.2		38.2	38.2		35.8	35.8		35.8	35.8	
Total Split (s)	84.0	84.0		84.0	84.0		36.0	36.0		36.0	36.0	
Total Split (%)	70.0%	70.0%		70.0%	70.0%		30.0%	30.0%		30.0%	30.0%	
Maximum Green (s)	77.8	77.8		77.8	77.8		29.2	29.2		29.2	29.2	
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)	17.0	17.0		17.0	17.0		22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)	1	1		1	1		6	6		1	1	
Act Effct Green (s)	91.6	91.6		91.6	91.6			15.4			15.4	
Actuated g/C Ratio	0.76	0.76		0.76	0.76			0.13			0.13	
v/c Ratio	0.11	0.22		0.07	0.65			0.38			0.57	
Control Delay	7.8	5.0		2.9	5.9			21.5			42.8	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	7.8	5.0		2.9	5.9			21.5			42.8	
LOS	A	A		A	A			C			D	
Approach Delay		5.1			5.9			21.5			42.8	
Approach LOS		A			A			C			D	
Queue Length 50th (m)	0.7	12.5		1.1	32.0			5.6			17.4	
Queue Length 95th (m)	4.4	30.3		m2.6	37.8			17.1			30.3	
Internal Link Dist (m)		317.1			214.6			188.5			249.4	
Turn Bay Length (m)	100.0			100.0								
Base Capacity (vph)	148	2431		616	2555			391			366	
Starvation Cap Reductn	0	0		0	17			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.11	0.22		0.07	0.65			0.23			0.33	

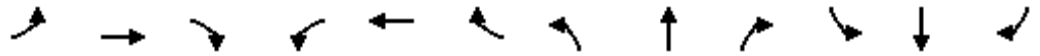
Intersection Summary

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: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.65
 Intersection Signal Delay: 8.1
 Intersection LOS: A
 Intersection Capacity Utilization 75.6%
 ICU Level of Service D
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Page & Innes



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	551	8	1	1439	3	3	0	0	0	0	5
Future Volume (vph)	3	551	8	1	1439	3	3	0	0	0	0	5
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							
Fr t		0.998									0.865	
Flt Protected	0.950			0.950				0.950				
Satd. Flow (prot)	1679	3351	0	1679	3357	0	0	1679	1767	0	1528	0
Flt Permitted	0.172			0.442				0.769				
Satd. Flow (perm)	304	3351	0	781	3357	0	0	1359	1767	0	1528	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3										63
Link Speed (k/h)		60			60			40				40
Link Distance (m)		236.8			585.5			151.9				62.6
Travel Time (s)		14.2			35.1			13.7				5.6
Confl. Peds. (#/hr)									3	3		
Confl. Bikes (#/hr)						14						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	3	551	8	1	1439	3	3	0	0	0	0	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	559	0	1	1442	0	0	3	0	0	5	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0				0.0
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		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			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
Switch Phase												

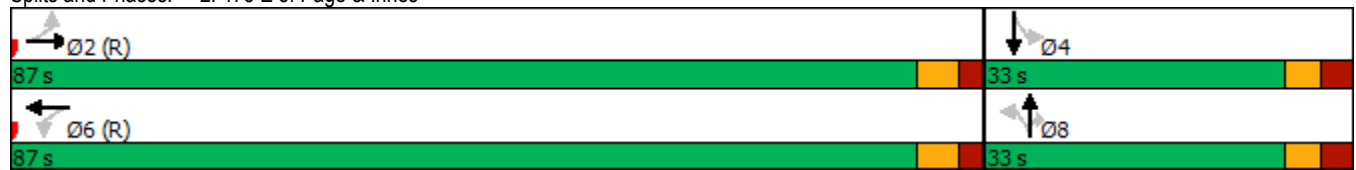


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	32.1	32.1		32.1	32.1		32.3	32.3	32.3	32.3	32.3	
Total Split (s)	87.0	87.0		87.0	87.0		33.0	33.0	33.0	33.0	33.0	
Total Split (%)	72.5%	72.5%		72.5%	72.5%		27.5%	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)	3	3		3	3		3	3	3	3	3	
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	0.01	0.18		0.00	0.46			0.02				0.02
Control Delay	3.0	1.4		7.0	6.1			43.3				0.2
Queue Delay	0.0	0.0		0.0	0.0			0.0				0.0
Total Delay	3.0	1.4		7.0	6.1			43.3				0.2
LOS	A	A		A	A			D				A
Approach Delay		1.4			6.1			43.3				0.2
Approach LOS		A			A			D				A
Queue Length 50th (m)	0.0	0.0		0.0	0.0			0.6				0.0
Queue Length 95th (m)	m0.5	13.5		m0.2	144.6			2.9				0.0
Internal Link Dist (m)		212.8			561.5			127.9				38.6
Turn Bay Length (m)	30.0			40.0								
Base Capacity (vph)	284	3137		731	3142			302				388
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	0.01	0.18		0.00	0.46			0.01				0.01

Intersection Summary

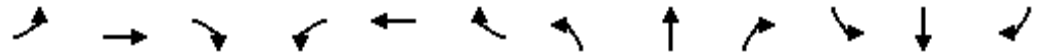
Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 75
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.46
 Intersection Signal Delay: 4.9
 Intersection Capacity Utilization 62.0%
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: 473 E of Page & Innes



3: Viseneau & Innes
AM Peak Hour

0 Innes Road
2028 Background Traffic



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	454	37	59	1570	33	22	5	39	46	13	47
Future Volume (vph)	11	454	37	59	1570	33	22	5	39	46	13	47
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	45.0		55.0	55.0		0.0	0.0		20.0	0.0		0.0
Storage Lanes	1		1	1		0	1		1	0		0
Taper Length (m)	35.0			45.0			2.5			2.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.99	1.00	1.00		1.00		0.99		0.99	
Frt			0.850		0.997				0.850		0.940	
Flt Protected	0.950			0.950			0.950				0.979	
Satd. Flow (prot)	1153	3232	1502	1695	3337	0	1712	1802	1432	0	1634	0
Flt Permitted	0.142			0.455			0.662				0.858	
Satd. Flow (perm)	172	3232	1482	811	3337	0	1192	1802	1412	0	1431	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			91		3				87			32
Link Speed (k/h)		60			60			40				40
Link Distance (m)		585.5			366.7			114.9				398.5
Travel Time (s)		35.1			22.0			10.3				35.9
Confl. Peds. (#/hr)	3		1	1		3	1		2	2		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 (%)	50%	7%	3%	2%	3%	15%	1%	1%	8%	2%	1%	2%
Adj. Flow (vph)	11	454	37	59	1570	33	22	5	39	46	13	47
Shared Lane Traffic (%)												
Lane Group Flow (vph)	11	454	37	59	1603	0	22	5	39	0	106	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		5.0			5.0			3.7				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												
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	2	1	1		2
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left		Thru
Leading Detector (m)	18.6	93.0	18.6	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		0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 1 Size(m)	18.6	5.5	18.6	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		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 2 Position(m)		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	pm+pt	NA		Perm	NA	Perm	Perm		NA
Protected Phases		2		1	6			8				4
Permitted Phases	2		2	6			8		8	4		
Detector Phase	2	2	2	1	6		8	8	8	4		4
Switch Phase												

3: Viseneau & Innes
AM Peak Hour

0 Innes Road
2028 Background Traffic



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	32.3	32.3	32.3	11.3	32.3		36.7	36.7	36.7	36.7	36.7	
Total Split (s)	71.0	71.0	71.0	12.0	83.0		37.0	37.0	37.0	37.0	37.0	
Total Split (%)	59.2%	59.2%	59.2%	10.0%	69.2%		30.8%	30.8%	30.8%	30.8%	30.8%	
Maximum Green (s)	64.7	64.7	64.7	5.7	76.7		30.3	30.3	30.3	30.3	30.3	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7		3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	2.6	2.6	2.6	2.6	2.6		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	
Total Lost Time (s)	6.3	6.3	6.3	6.3	6.3		6.7	6.7	6.7	6.7	6.7	
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?	Yes	Yes	Yes	Yes								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	None	C-Max		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)	19.0	19.0	19.0		19.0		23.0	23.0	23.0	23.0	23.0	
Pedestrian Calls (#/hr)	3	3	3		1		1	1	1	2	2	
Act Effct Green (s)	81.8	81.8	81.8	91.9	91.9		15.1	15.1	15.1		15.1	
Actuated g/C Ratio	0.68	0.68	0.68	0.77	0.77		0.13	0.13	0.13		0.13	
v/c Ratio	0.09	0.21	0.04	0.09	0.63		0.15	0.02	0.15		0.51	
Control Delay	7.6	5.6	0.3	5.1	9.0		44.9	40.2	1.3		40.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay	7.6	5.6	0.3	5.1	9.0		44.9	40.2	1.3		40.7	
LOS	A	A	A	A	A		D	D	A		D	
Approach Delay		5.2			8.8			18.8			40.7	
Approach LOS		A			A			B			D	
Queue Length 50th (m)	0.7	14.8	0.0	2.2	58.7		4.5	1.0	0.0		15.5	
Queue Length 95th (m)	2.3	18.9	0.0	8.9	142.3		10.0	3.8	0.0		27.0	
Internal Link Dist (m)		561.5			342.7			90.9			374.5	
Turn Bay Length (m)	45.0		55.0	55.0					20.0			
Base Capacity (vph)	117	2203	1039	666	2555		300	455	421		385	
Starvation Cap Reductn	0	0	0	0	0		0	0	0		0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0		0	
Storage Cap Reductn	0	0	0	0	0		0	0	0		0	
Reduced v/c Ratio	0.09	0.21	0.04	0.09	0.63		0.07	0.01	0.09		0.28	

Intersection Summary

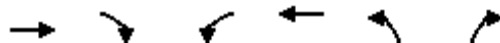
Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 40 (33%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 85
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.63
 Intersection Signal Delay: 9.8
 Intersection Capacity Utilization 76.1%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service D

Splits and Phases: 3: Viseneau & Innes

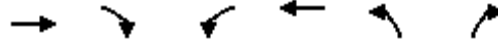


4: Caivan & Innes
AM Peak Hour

0 Innes Road
2028 Background Traffic



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	
Traffic Volume (vph)	550	78	4	1444	261	13
Future Volume (vph)	550	78	4	1444	261	13
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		50.0	35.0		0.0	85.0
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	1.00		1.00	
Fr _t		0.850			0.994	
Fl _t Protected			0.950		0.955	
Satd. Flow (prot)	3202	1502	1679	3357	1676	0
Fl _t Permitted			0.442		0.955	
Satd. Flow (perm)	3202	1462	779	3357	1676	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		78			2	
Link Speed (k/h)	60			60	60	
Link Distance (m)	238.6			236.8	212.4	
Travel Time (s)	14.3			14.2	12.7	
Confl. Peds. (#/hr)		3	3			3
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	8%	3%	3%	3%	3%	3%
Adj. Flow (vph)	550	78	4	1444	261	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	550	78	4	1444	274	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	5.0	
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						



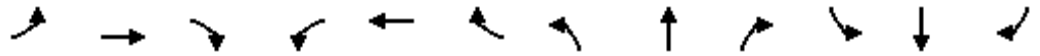
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	32.1	32.1	32.1	32.1	32.3	
Total Split (s)	87.0	87.0	87.0	87.0	33.0	
Total Split (%)	72.5%	72.5%	72.5%	72.5%	27.5%	
Maximum Green (s)	80.9	80.9	80.9	80.9	26.7	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.3	
All-Red Time (s)	2.4	2.4	2.4	2.4	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.1	6.1	6.1	6.1	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)	12.0	12.0	12.0	12.0	7.0	
Flash Dont Walk (s)	14.0	14.0	14.0	14.0	19.0	
Pedestrian Calls (#/hr)	3	3	3	3	3	
Act Effct Green (s)	84.3	84.3	84.3	84.3	23.3	
Actuated g/C Ratio	0.70	0.70	0.70	0.70	0.19	
v/c Ratio	0.24	0.07	0.01	0.61	0.84	
Control Delay	6.1	1.0	4.0	8.2	68.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	6.1	1.0	4.0	8.2	68.1	
LOS	A	A	A	A	E	
Approach Delay	5.4			8.2	68.1	
Approach LOS	A			A	E	
Queue Length 50th (m)	18.1	0.0	0.2	76.4	56.4	
Queue Length 95th (m)	24.0	2.0	m0.1	12.0	#85.3	
Internal Link Dist (m)	214.6			212.8	188.4	
Turn Bay Length (m)		50.0	35.0			
Base Capacity (vph)	2249	1050	547	2358	374	
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	0.07	0.01	0.61	0.73	

Intersection Summary

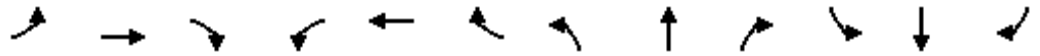
Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 10 (8%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
 Natural Cycle: 75
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.84
 Intersection Signal Delay: 14.5
 Intersection Capacity Utilization 69.1%
 Analysis Period (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: Caivan & Innes





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	74	1925	23	98	995	56	13	21	98	58	23	38
Future Volume (vph)	74	1925	23	98	995	56	13	21	98	58	23	38
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		0.998			0.992			0.900				0.957
Flt Protected	0.950			0.950				0.995				0.976
Satd. Flow (prot)	1712	3415	0	1712	3360	0	0	1582	0	0	1676	0
Flt Permitted	0.272			0.054				0.964			0.713	
Satd. Flow (perm)	490	3415	0	97	3360	0	0	1533	0	0	1221	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			10			94			21	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		341.1			238.6			212.5			273.4	
Travel Time (s)		20.5			14.3			19.1			24.6	
Confl. Peds. (#/hr)	3		4	4		3	1		7	7		1
Confl. Bikes (#/hr)			18						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 (%)	1%	1%	3%	1%	2%	1%	2%	1%	1%	1%	1%	1%
Adj. Flow (vph)	74	1925	23	98	995	56	13	21	98	58	23	38
Shared Lane Traffic (%)												
Lane Group Flow (vph)	74	1948	0	98	1051	0	0	132	0	0	119	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		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		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		1	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		5.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	38.2	38.2		11.0	38.2		35.8	35.8		35.8	35.8	
Total Split (s)	63.0	63.0		11.0	74.0		36.0	36.0		36.0	36.0	
Total Split (%)	57.3%	57.3%		10.0%	67.3%		32.7%	32.7%		32.7%	32.7%	
Maximum Green (s)	56.8	56.8		5.0	67.8		29.2	29.2		29.2	29.2	
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		2.3	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		6.0	6.2			6.8			6.8	
Lead/Lag	Lag	Lag		Lead								
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		None	C-Max		None	None		None	None	
Walk Time (s)	15.0	15.0			15.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	17.0	17.0			17.0		22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)	1	1			1		6	6		1	1	
Act Effct Green (s)	68.2	68.2		81.5	81.3			15.7			15.7	
Actuated g/C Ratio	0.62	0.62		0.74	0.74			0.14			0.14	
v/c Ratio	0.24	0.92		0.56	0.42			0.44			0.62	
Control Delay	14.2	28.3		34.0	7.9			18.1			48.7	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	14.2	28.3		34.0	7.9			18.1			48.7	
LOS	B	C		C	A			B			D	
Approach Delay		27.7			10.1			18.1			48.7	
Approach LOS		C			B			B			D	
Queue Length 50th (m)	5.7	156.5		6.7	25.0			6.9			18.9	
Queue Length 95th (m)	18.0	#271.5		#31.6	67.2			19.4			30.9	
Internal Link Dist (m)		317.1			214.6			188.5			249.4	
Turn Bay Length (m)	100.0			100.0								
Base Capacity (vph)	304	2119		174	2484			475			339	
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	0.24	0.92		0.56	0.42			0.28			0.35	

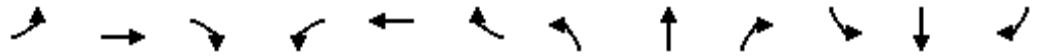
Intersection Summary

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: 125
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.92
 Intersection Signal Delay: 22.2 Intersection LOS: C
 Intersection Capacity Utilization 92.7% 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: Page & Innes



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	1834	29	32	1051	12	30	0	28	12	0	7
Future Volume (vph)	14	1834	29	32	1051	12	30	0	28	12	0	7
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			0.98	0.99		0.99	
Frt		0.998			0.998				0.850		0.950	
Flt Protected	0.950			0.950				0.950			0.969	
Satd. Flow (prot)	1679	3351	0	1679	3350	0	0	1679	1502	0	1610	0
Flt Permitted	0.269			0.063				0.745			0.805	
Satd. Flow (perm)	475	3351	0	111	3350	0	0	1295	1482	0	1336	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			2				90			90
Link Speed (k/h)		60			60			40				40
Link Distance (m)		236.8			585.5			151.9				62.6
Travel Time (s)		14.2			35.1			13.7				5.6
Confl. Peds. (#/hr)							13		1	1		13
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
Adj. Flow (vph)	14	1834	29	32	1051	12	30	0	28	12	0	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	14	1863	0	32	1063	0	0	30	28	0	19	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0				0.0
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		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		pm+pt	NA		Perm	NA	Perm	Perm		NA
Protected Phases		2		1	6			8				4
Permitted Phases	2			6			8		8	4		
Detector Phase	2	2		1	6		8	8	8	4		4
Switch Phase												

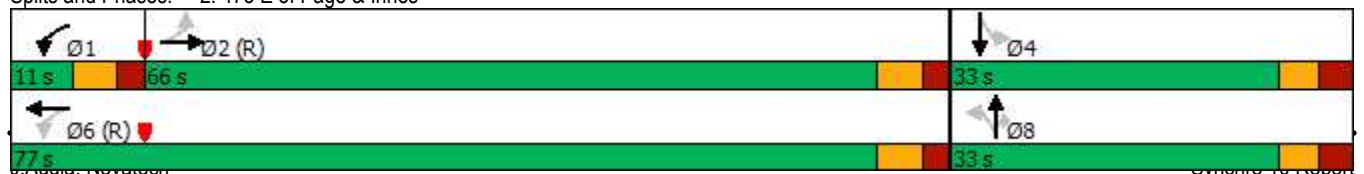


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	10.0	10.0		5.0	10.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	32.1	32.1		11.0	32.1		32.3	32.3	32.3	32.3	32.3	
Total Split (s)	66.0	66.0		11.0	77.0		33.0	33.0	33.0	33.0	33.0	
Total Split (%)	60.0%	60.0%		10.0%	70.0%		30.0%	30.0%	30.0%	30.0%	30.0%	
Maximum Green (s)	59.9	59.9		5.0	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		2.3	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		6.0	6.1			6.3	6.3		6.3	
Lead/Lag	Lag	Lag		Lead								
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		None	C-Max		None	None	None	None	None	
Walk Time (s)	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		19.0	19.0	19.0	19.0	19.0	
Pedestrian Calls (#/hr)	3	3			3		3	3	3	3	3	
Act Effct Green (s)	81.7	81.7		87.8	88.9			13.2	13.2		13.2	
Actuated g/C Ratio	0.74	0.74		0.80	0.81			0.12	0.12		0.12	
v/c Ratio	0.04	0.75		0.19	0.39			0.19	0.11		0.08	
Control Delay	1.1	5.8		6.8	5.1			43.9	0.9		0.6	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay	1.1	5.8		6.8	5.1			43.9	0.9		0.6	
LOS	A	A		A	A			D	A		A	
Approach Delay		5.7			5.2			23.1			0.6	
Approach LOS		A			A			C			A	
Queue Length 50th (m)	0.1	3.0		1.0	26.1			5.6	0.0		0.0	
Queue Length 95th (m)	m0.2	#253.5		5.1	64.5			11.9	0.0		0.0	
Internal Link Dist (m)		212.8			561.5			127.9			38.6	
Turn Bay Length (m)	30.0			40.0								
Base Capacity (vph)	353	2490		170	2707			314	427		392	
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	0.04	0.75		0.19	0.39			0.10	0.07		0.05	

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: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.75
 Intersection Signal Delay: 5.8
 Intersection LOS: A
 Intersection Capacity Utilization 91.9%
 ICU Level of Service F
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: 473 E of Page & Innes



3: Viseneau & Innes
PM Peak Hour

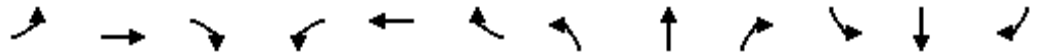
0 Innes Road
2028 Background Traffic



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	1662	87	183	829	84	106	40	179	60	51	30
Future Volume (vph)	44	1662	87	183	829	84	106	40	179	60	51	30
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	45.0		55.0	55.0		0.0	0.0		20.0	0.0		0.0
Storage Lanes	1		1	1		0	1		1	0		0
Taper Length (m)	35.0			45.0			2.5			2.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.97		1.00		0.98		0.98		0.99	
Frt			0.850		0.986				0.850		0.971	
Flt Protected	0.950			0.950			0.950				0.979	
Satd. Flow (prot)	1712	3390	1532	1712	3275	0	1712	1767	1532	0	1635	0
Flt Permitted	0.312			0.059			0.597				0.844	
Satd. Flow (perm)	560	3390	1480	106	3275	0	1057	1767	1507	0	1407	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			84		17				179			10
Link Speed (k/h)		60			60			40				40
Link Distance (m)		585.5			366.7			114.9				398.5
Travel Time (s)		35.1			22.0			10.3				35.9
Confl. Peds. (#/hr)	5		15	15		5	18		3	3		18
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%	2%	1%	3%	1%	6%	1%	10%
Adj. Flow (vph)	44	1662	87	183	829	84	106	40	179	60	51	30
Shared Lane Traffic (%)												
Lane Group Flow (vph)	44	1662	87	183	913	0	106	40	179	0	141	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		5.0			5.0			3.7				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												
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	2	1	1		2
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	18.6	93.0	18.6	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		0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 1 Size(m)	18.6	5.5	18.6	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		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 2 Position(m)		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	pm+pt	NA		Perm	NA	Perm	Perm		NA
Protected Phases		2		1	6			8				4
Permitted Phases	2		2	6			8		8	4		
Detector Phase	2	2	2	1	6		8	8	8	4		4
Switch Phase												

3: Viseneau & Innes
PM Peak Hour

0 Innes Road
2028 Background Traffic



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	32.3	32.3	32.3	11.3	32.3		36.7	36.7	36.7	36.7	36.7	
Total Split (s)	71.0	71.0	71.0	20.0	91.0		39.0	39.0	39.0	39.0	39.0	
Total Split (%)	54.6%	54.6%	54.6%	15.4%	70.0%		30.0%	30.0%	30.0%	30.0%	30.0%	
Maximum Green (s)	64.7	64.7	64.7	13.7	84.7		32.3	32.3	32.3	32.3	32.3	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7		3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	2.6	2.6	2.6	2.6	2.6		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	
Total Lost Time (s)	6.3	6.3	6.3	6.3	6.3		6.7	6.7	6.7	6.7	6.7	
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?	Yes	Yes	Yes	Yes								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	None	C-Max		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)	19.0	19.0	19.0		19.0		23.0	23.0	23.0	23.0	23.0	
Pedestrian Calls (#/hr)	3	3	3		1		1	1	1	2	2	
Act Effct Green (s)	77.2	77.2	77.2	97.1	97.1		19.9	19.9	19.9		19.9	
Actuated g/C Ratio	0.59	0.59	0.59	0.75	0.75		0.15	0.15	0.15		0.15	
v/c Ratio	0.13	0.83	0.10	0.74	0.37		0.65	0.15	0.47		0.63	
Control Delay	16.6	27.6	3.9	45.8	7.0		68.9	45.1	10.0		58.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay	16.6	27.6	3.9	45.8	7.0		68.9	45.1	10.0		58.8	
LOS	B	C	A	D	A		E	D	A		E	
Approach Delay		26.2			13.5			33.5			58.8	
Approach LOS		C			B			C			E	
Queue Length 50th (m)	4.4	157.9	0.3	24.4	33.2		24.0	8.3	0.0		29.5	
Queue Length 95th (m)	12.5	#250.3	8.1	#55.2	59.7		38.2	16.4	16.7		44.9	
Internal Link Dist (m)		561.5			342.7			90.9			374.5	
Turn Bay Length (m)	45.0		55.0	55.0					20.0			
Base Capacity (vph)	332	2014	913	264	2450		262	439	508		357	
Starvation Cap Reductn	0	0	0	0	0		0	0	0		0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0		0	
Storage Cap Reductn	0	0	0	0	0		0	0	0		0	
Reduced v/c Ratio	0.13	0.83	0.10	0.69	0.37		0.40	0.09	0.35		0.39	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 105 (81%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 115

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 24.1

Intersection LOS: C

Intersection Capacity Utilization 95.0%

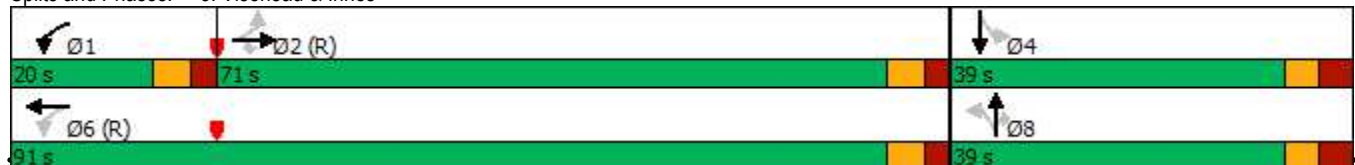
ICU Level of Service F

Analysis Period (min) 15

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

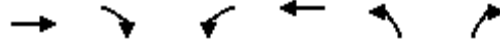
Queue shown is maximum after two cycles.

Splits and Phases: 3: Viseneau & Innes

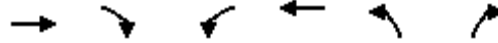


4: Caivan & Innes
PM Peak Hour

0 Innes Road
2028 Background Traffic



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗	↖	↑↑	↘	
Traffic Volume (vph)	1842	253	63	1013	150	37
Future Volume (vph)	1842	253	63	1013	150	37
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		50.0	35.0		0.0	85.0
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			1.00	
Frt		0.850			0.973	
Flt Protected			0.950		0.961	
Satd. Flow (prot)	3357	1502	1679	3357	1647	0
Flt Permitted			0.053		0.961	
Satd. Flow (perm)	3357	1463	94	3357	1647	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		153			11	
Link Speed (k/h)	60			60	60	
Link Distance (m)	238.6			236.8	212.4	
Travel Time (s)	14.3			14.2	12.7	
Confl. Peds. (#/hr)		3	3			3
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1842	253	63	1013	150	37
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1842	253	63	1013	187	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	5.0	
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	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)	32.1	32.1	11.0	32.1	32.3	
Total Split (s)	66.0	66.0	11.0	77.0	33.0	
Total Split (%)	60.0%	60.0%	10.0%	70.0%	30.0%	
Maximum Green (s)	59.9	59.9	5.0	70.9	26.7	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.3	
All-Red Time (s)	2.4	2.4	2.3	2.4	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.1	6.1	6.0	6.1	6.3	
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
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)	12.0	12.0		12.0	7.0	
Flash Dont Walk (s)	14.0	14.0		14.0	19.0	
Pedestrian Calls (#/hr)	3	3		3	3	
Act Effct Green (s)	70.1	70.1	80.2	80.1	17.5	
Actuated g/C Ratio	0.64	0.64	0.73	0.73	0.16	
v/c Ratio	0.86	0.26	0.40	0.41	0.69	
Control Delay	7.5	0.3	26.2	6.4	53.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	7.5	0.3	26.2	6.4	53.3	
LOS	A	A	C	A	D	
Approach Delay	6.6			7.6	53.3	
Approach LOS	A			A	D	
Queue Length 50th (m)	11.3	0.0	2.9	33.6	33.4	
Queue Length 95th (m)	m#231.4	m0.1	19.5	45.4	49.9	
Internal Link Dist (m)	214.6			212.8	188.4	
Turn Bay Length (m)		50.0	35.0			
Base Capacity (vph)	2140	988	158	2443	408	
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	0.86	0.26	0.40	0.41	0.46	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 13 (12%), Referenced to phase 2:EBT and 6:WBTL, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 9.5

Intersection LOS: A

Intersection Capacity Utilization 77.8%

ICU Level of Service D

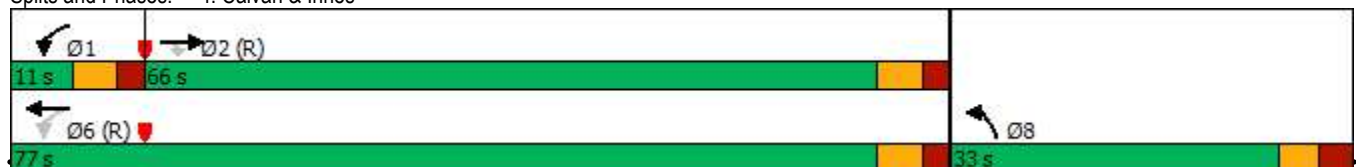
Analysis Period (min) 15

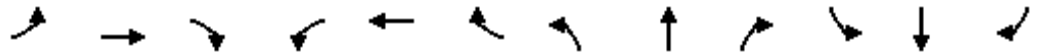
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

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

Splits and Phases: 4: Caivan & Innes





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	74	1925	23	98	995	56	13	21	98	58	23	38
Future Volume (vph)	74	1925	23	98	995	56	13	21	98	58	23	38
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		0.998			0.992			0.900				0.957
Flt Protected	0.950			0.950				0.995				0.976
Satd. Flow (prot)	1712	3415	0	1712	3360	0	0	1580	0	0	1676	0
Flt Permitted	0.272			0.044				0.962				0.657
Satd. Flow (perm)	489	3415	0	79	3360	0	0	1527	0	0	1124	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			10			78				17
Link Speed (k/h)		60			60			40				40
Link Distance (m)		341.1			238.6			212.5				273.4
Travel Time (s)		20.5			14.3			19.1				24.6
Confl. Peds. (#/hr)	3		4	4		3	1		7	7		1
Confl. Bikes (#/hr)			18						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 (%)	1%	1%	3%	1%	2%	1%	2%	1%	1%	1%	1%	1%
Adj. Flow (vph)	74	1925	23	98	995	56	13	21	98	58	23	38
Shared Lane Traffic (%)												
Lane Group Flow (vph)	74	1948	0	98	1051	0	0	132	0	0	119	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		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		pm+pt	NA		Perm	NA		Perm		NA
Protected Phases		2		1	6			8				4
Permitted Phases	2			6			8			4		
Detector Phase	2	2		1	6		8	8		4		4

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	1834	29	32	1051	12	30	0	28	12	0	7
Future Volume (vph)	14	1834	29	32	1051	12	30	0	28	12	0	7
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			0.98	0.99			0.99
Frt		0.998			0.998				0.850			0.950
Flt Protected	0.950			0.950				0.950				0.969
Satd. Flow (prot)	1679	3351	0	1679	3350	0	0	1679	1502	0	1608	0
Flt Permitted	0.269			0.073				0.745				0.799
Satd. Flow (perm)	475	3351	0	129	3350	0	0	1291	1482	0	1325	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			2				76			76
Link Speed (k/h)		60			60				40			40
Link Distance (m)		236.8			585.5				151.9			62.6
Travel Time (s)		14.2			35.1				13.7			5.6
Confl. Peds. (#/hr)							13		1	1		13
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
Adj. Flow (vph)	14	1834	29	32	1051	12	30	0	28	12	0	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	14	1863	0	32	1063	0	0	30	28	0	19	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0				0.0
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		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		pm+pt	NA		Perm	NA	Perm	Perm		NA
Protected Phases		2		1	6			8				4
Permitted Phases	2			6			8		8	4		
Detector Phase	2	2		1	6		8	8	8	4		4
Switch Phase												

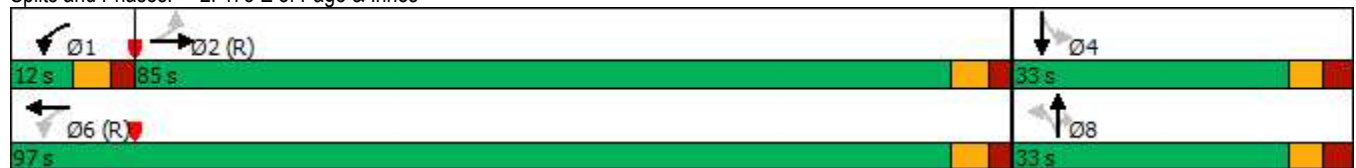


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	10.0	10.0		5.0	10.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	32.1	32.1		11.0	32.1		32.3	32.3	32.3	32.3	32.3	
Total Split (s)	85.0	85.0		12.0	97.0		33.0	33.0	33.0	33.0	33.0	
Total Split (%)	65.4%	65.4%		9.2%	74.6%		25.4%	25.4%	25.4%	25.4%	25.4%	
Maximum Green (s)	78.9	78.9		6.0	90.9		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		2.3	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		6.0	6.1			6.3	6.3		6.3	
Lead/Lag	Lag	Lag		Lead								
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		None	C-Max		None	None	None	None	None	
Walk Time (s)	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		19.0	19.0	19.0	19.0	19.0	
Pedestrian Calls (#/hr)	3	3			3		3	3	3	3	3	
Act Effct Green (s)	101.5	101.5		107.8	108.9			13.2	13.2		13.2	
Actuated g/C Ratio	0.78	0.78		0.83	0.84			0.10	0.10		0.10	
v/c Ratio	0.04	0.71		0.18	0.38			0.23	0.13		0.09	
Control Delay	1.1	2.7		7.6	4.4			55.4	1.2		0.9	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay	1.1	2.7		7.6	4.4			55.4	1.2		0.9	
LOS	A	A		A	A			E	A		A	
Approach Delay		2.6			4.5			29.2			0.9	
Approach LOS		A			A			C			A	
Queue Length 50th (m)	0.1	6.7		0.9	21.6			6.8	0.0		0.0	
Queue Length 95th (m)	m0.1	8.8		6.7	65.3			13.9	0.0		0.0	
Internal Link Dist (m)		212.8			561.5			127.9			38.6	
Turn Bay Length (m)	30.0			40.0								
Base Capacity (vph)	371	2617		180	2806			265	364		332	
Starvation Cap Reductn	0	4		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	0.04	0.71		0.18	0.38			0.11	0.08		0.06	

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 14 (11%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.71
 Intersection Signal Delay: 3.8
 Intersection Capacity Utilization 91.9%
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: 473 E of Page & Innes



3: Viseneau & Innes
PM Peak Hour

0 Innes Road
2028 Background Traffic (Optimized Timings)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	1662	87	183	829	84	106	40	179	60	51	30
Future Volume (vph)	44	1662	87	183	829	84	106	40	179	60	51	30
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	45.0		55.0	55.0		0.0	0.0		20.0	0.0		0.0
Storage Lanes	1		1	1		0	1		1	0		0
Taper Length (m)	35.0			45.0			2.5			2.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.97		1.00		0.98		0.98		0.99	
Frt			0.850		0.986				0.850		0.971	
Flt Protected	0.950			0.950			0.950				0.979	
Satd. Flow (prot)	1712	3390	1532	1712	3275	0	1712	1767	1532	0	1635	0
Flt Permitted	0.312			0.059			0.596				0.844	
Satd. Flow (perm)	560	3390	1480	106	3275	0	1055	1767	1507	0	1407	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			84		18				179			10
Link Speed (k/h)		60			60			40				40
Link Distance (m)		585.5			366.7			114.9				398.5
Travel Time (s)		35.1			22.0			10.3				35.9
Confl. Peds. (#/hr)	5		15	15		5	18		3	3		18
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%	2%	1%	3%	1%	6%	1%	10%
Adj. Flow (vph)	44	1662	87	183	829	84	106	40	179	60	51	30
Shared Lane Traffic (%)												
Lane Group Flow (vph)	44	1662	87	183	913	0	106	40	179	0	141	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		5.0			5.0			3.7				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												
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	2	1	1		2
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	18.6	93.0	18.6	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		0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 1 Size(m)	18.6	5.5	18.6	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		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 2 Position(m)		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	pm+pt	NA		Perm	NA	Perm	Perm		NA
Protected Phases		2		1	6			8				4
Permitted Phases	2		2	6			8		8	4		
Detector Phase	2	2	2	1	6		8	8	8	4		4
Switch Phase												

3: Viseneau & Innes
PM Peak Hour

0 Innes Road
2028 Background Traffic (Optimized Timings)

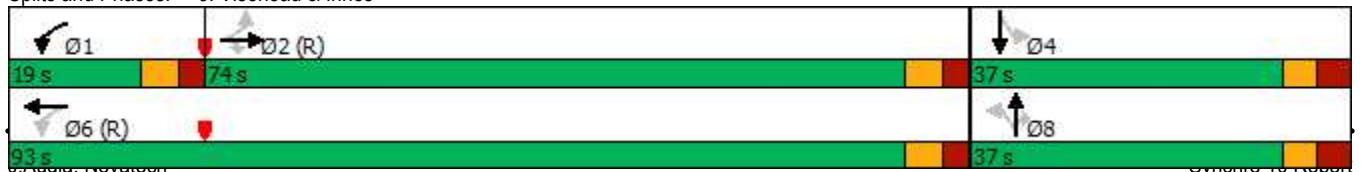


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	32.3	32.3	32.3	11.3	32.3		36.7	36.7	36.7	36.7	36.7	
Total Split (s)	74.0	74.0	74.0	19.0	93.0		37.0	37.0	37.0	37.0	37.0	
Total Split (%)	56.9%	56.9%	56.9%	14.6%	71.5%		28.5%	28.5%	28.5%	28.5%	28.5%	
Maximum Green (s)	67.7	67.7	67.7	12.7	86.7		30.3	30.3	30.3	30.3	30.3	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7		3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	2.6	2.6	2.6	2.6	2.6		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	
Total Lost Time (s)	6.3	6.3	6.3	6.3	6.3		6.7	6.7	6.7	6.7	6.7	
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?	Yes	Yes	Yes	Yes								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	None	C-Max		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)	19.0	19.0	19.0		19.0		23.0	23.0	23.0	23.0	23.0	
Pedestrian Calls (#/hr)	3	3	3		1		1	1	1	2	2	
Act Effct Green (s)	77.3	77.3	77.3	97.2	97.2		19.8	19.8	19.8		19.8	
Actuated g/C Ratio	0.59	0.59	0.59	0.75	0.75		0.15	0.15	0.15		0.15	
v/c Ratio	0.13	0.82	0.10	0.74	0.37		0.66	0.15	0.47		0.63	
Control Delay	2.3	9.7	0.6	45.7	6.9		69.5	45.4	10.1		59.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay	2.3	9.7	0.6	45.7	6.9		69.5	45.4	10.1		59.1	
LOS	A	A	A	D	A		E	D	B		E	
Approach Delay		9.1			13.4			33.8			59.1	
Approach LOS		A			B			C			E	
Queue Length 50th (m)	0.8	110.9	0.3	24.3	33.2		24.0	8.3	0.0		29.5	
Queue Length 95th (m)	m1.4	#236.0	m1.2	#61.7	58.5		38.5	16.5	16.8		45.2	
Internal Link Dist (m)		561.5			342.7			90.9			374.5	
Turn Bay Length (m)	45.0		55.0	55.0					20.0			
Base Capacity (vph)	332	2015	914	257	2452		245	411	488		335	
Starvation Cap Reductn	0	0	0	0	0		0	0	0		0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0		0	
Storage Cap Reductn	0	0	0	0	0		0	0	0		0	
Reduced v/c Ratio	0.13	0.82	0.10	0.71	0.37		0.43	0.10	0.37		0.42	

Intersection Summary







Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 60 (46%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 115
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.82
 Intersection Signal Delay: 15.0
 Intersection LOS: B
 Intersection Capacity Utilization 95.0%
 ICU Level of Service F
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
 m Volume for 95th percentile queue is metered by upstream signal.

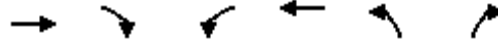
Splits and Phases: 3: Viseneau & Innes



4: Caivan & Innes
PM Peak Hour

0 Innes Road
2028 Background Traffic (Optimized Timings)

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	
Traffic Volume (vph)	1842	253	63	1013	150	37
Future Volume (vph)	1842	253	63	1013	150	37
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		50.0	35.0		0.0	85.0
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			1.00	
Frt		0.850			0.973	
Flt Protected			0.950		0.961	
Satd. Flow (prot)	3357	1502	1679	3357	1647	0
Flt Permitted			0.057		0.961	
Satd. Flow (perm)	3357	1461	101	3357	1647	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		153			9	
Link Speed (k/h)	60			60	60	
Link Distance (m)	238.6			236.8	212.4	
Travel Time (s)	14.3			14.2	12.7	
Confl. Peds. (#/hr)		3	3			3
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1842	253	63	1013	150	37
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1842	253	63	1013	187	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	5.0	
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	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)	32.1	32.1	11.0	32.1	32.3	
Total Split (s)	86.0	86.0	11.0	97.0	33.0	
Total Split (%)	66.2%	66.2%	8.5%	74.6%	25.4%	
Maximum Green (s)	79.9	79.9	5.0	90.9	26.7	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.3	
All-Red Time (s)	2.4	2.4	2.3	2.4	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.1	6.1	6.0	6.1	6.3	
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
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)	12.0	12.0		12.0	7.0	
Flash Dont Walk (s)	14.0	14.0		14.0	19.0	
Pedestrian Calls (#/hr)	3	3		3	3	
Act Effct Green (s)	88.3	88.3	98.4	98.3	19.3	
Actuated g/C Ratio	0.68	0.68	0.76	0.76	0.15	
v/c Ratio	0.81	0.24	0.42	0.40	0.74	
Control Delay	4.9	0.3	25.6	8.6	67.3	
Queue Delay	0.1	0.0	0.0	0.0	0.0	
Total Delay	5.1	0.3	25.6	8.6	67.3	
LOS	A	A	C	A	E	
Approach Delay	4.5			9.6	67.3	
Approach LOS	A			A	E	
Queue Length 50th (m)	14.0	0.0	5.6	50.6	40.7	
Queue Length 95th (m)	17.7	m0.1	17.2	51.5	60.5	
Internal Link Dist (m)	214.6			212.8	188.4	
Turn Bay Length (m)		50.0	35.0			
Base Capacity (vph)	2281	1041	151	2537	345	
Starvation Cap Reductn	48	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.82	0.24	0.42	0.40	0.54	

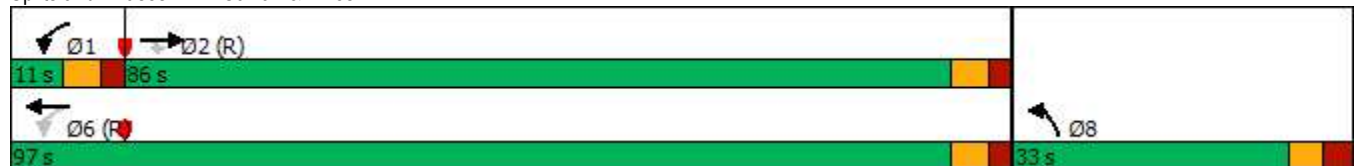
Intersection Summary

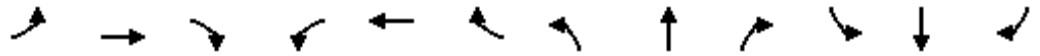
Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
 Natural Cycle: 110
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.81
 Intersection Signal Delay: 9.6
 Intersection Capacity Utilization 77.8%
 Analysis Period (min) 15

Intersection LOS: A
 ICU Level of Service D

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

Splits and Phases: 4: Caivan & Innes





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	551	11	41	1741	31	14	14	61	43	7	70
Future Volume (vph)	16	551	11	41	1741	31	14	14	61	43	7	70
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			0.99			0.99	
Frt		0.997			0.997			0.907			0.921	
Flt Protected	0.950			0.950				0.992			0.982	
Satd. Flow (prot)	1601	3184	0	1679	3346	0	0	1510	0	0	1611	0
Flt Permitted	0.096			0.441				0.936			0.849	
Satd. Flow (perm)	162	3184	0	779	3346	0	0	1423	0	0	1393	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			3			61			29	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		341.1			238.6			212.5			273.4	
Travel Time (s)		20.5			14.3			19.1			24.6	
Confl. Peds. (#/hr)	1		1	1		1	6		1	1		6
Confl. Bikes (#/hr)			3						2			
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 (%)	8%	8%	20%	3%	3%	3%	20%	5%	5%	1%	1%	1%
Adj. Flow (vph)	16	551	11	41	1741	31	14	14	61	43	7	70
Shared Lane Traffic (%)												
Lane Group Flow (vph)	16	562	0	41	1772	0	0	89	0	0	120	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		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	

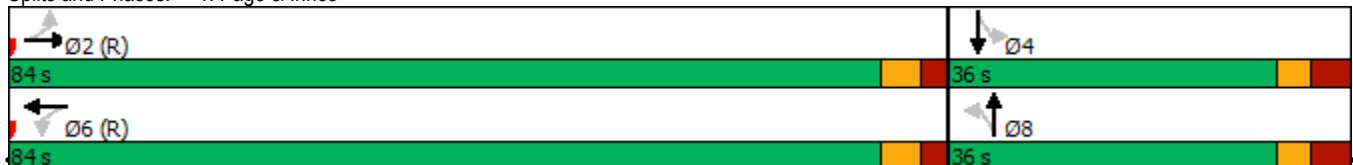


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	38.2	38.2		38.2	38.2		35.8	35.8		35.8	35.8	
Total Split (s)	84.0	84.0		84.0	84.0		36.0	36.0		36.0	36.0	
Total Split (%)	70.0%	70.0%		70.0%	70.0%		30.0%	30.0%		30.0%	30.0%	
Maximum Green (s)	77.8	77.8		77.8	77.8		29.2	29.2		29.2	29.2	
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)	17.0	17.0		17.0	17.0		22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)	1	1		1	1		6	6		1	1	
Act Effct Green (s)	91.3	91.3		91.3	91.3			15.7			15.7	
Actuated g/C Ratio	0.76	0.76		0.76	0.76			0.13			0.13	
v/c Ratio	0.13	0.23		0.07	0.70			0.37			0.58	
Control Delay	8.9	5.2		2.9	6.2			21.2			46.5	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	8.9	5.2		2.9	6.2			21.2			46.5	
LOS	A	A		A	A			C			D	
Approach Delay		5.3			6.1			21.2			46.5	
Approach LOS		A			A			C			D	
Queue Length 50th (m)	0.7	14.0		1.0	33.7			5.6			19.2	
Queue Length 95th (m)	4.6	32.7		m2.4	39.6			17.1			31.9	
Internal Link Dist (m)		317.1			214.6			188.5			249.4	
Turn Bay Length (m)	100.0			100.0								
Base Capacity (vph)	123	2422		592	2545			392			360	
Starvation Cap Reductn	0	0		0	16			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	0.23		0.07	0.70			0.23			0.33	

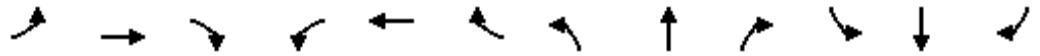
Intersection Summary

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: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.70
 Intersection Signal Delay: 8.3
 Intersection LOS: A
 Intersection Capacity Utilization 78.9%
 ICU Level of Service D
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Page & Innes



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	551	39	12	1439	3	102	0	38	0	0	5
Future Volume (vph)	3	551	39	12	1439	3	102	0	38	0	0	5
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				0.98			
Fr't		0.990							0.850		0.865	
Flt Protected	0.950			0.950				0.950				
Satd. Flow (prot)	1679	3324	0	1679	3357	0	0	1679	1502	0	1528	0
Flt Permitted	0.155			0.429				0.754				
Satd. Flow (perm)	274	3324	0	758	3357	0	0	1332	1478	0	1528	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13							38			63
Link Speed (k/h)		60			60			40				40
Link Distance (m)		236.8			585.5			151.9				62.6
Travel Time (s)		14.2			35.1			13.7				5.6
Confl. Peds. (#/hr)									3	3		
Confl. Bikes (#/hr)						14						
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	3	551	39	12	1439	3	102	0	38	0	0	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	3	590	0	12	1442	0	0	102	38	0	5	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0				0.0
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		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			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
Switch Phase												



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
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		32.1	32.1		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)	3	3		3	3		3	3	3	3	3	
Act Effct Green (s)	91.7	91.7		91.7	91.7			15.9	15.9		15.9	
Actuated g/C Ratio	0.76	0.76		0.76	0.76			0.13	0.13		0.13	
v/c Ratio	0.01	0.23		0.02	0.56			0.58	0.17		0.02	
Control Delay	4.3	3.6		7.7	10.1			60.6	14.1		0.2	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay	4.3	3.6		7.7	10.1			60.6	14.1		0.2	
LOS	A	A		A	B			E	B		A	
Approach Delay		3.6			10.1			48.0			0.2	
Approach LOS		A			B			D			A	
Queue Length 50th (m)	0.1	11.5		0.5	51.2			21.4	0.0		0.0	
Queue Length 95th (m)	m0.5	14.3		m2.2	145.0			34.3	8.3		0.0	
Internal Link Dist (m)		212.8			561.5			127.9			38.6	
Turn Bay Length (m)	30.0			40.0								
Base Capacity (vph)	209	2543		579	2565			296	358		388	
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	0.01	0.23		0.02	0.56			0.34	0.11		0.01	

Intersection Summary

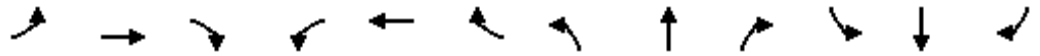
Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 75
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.58
 Intersection Signal Delay: 10.7
 Intersection Capacity Utilization 65.9%
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: 473 E of Page & Innes



3: Viseneau & Innes
AM Peak Hour

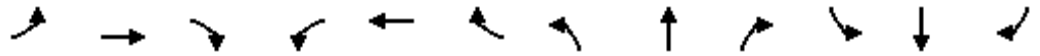
0 Innes Road
2028 Total Traffic



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	492	37	59	1581	33	22	5	39	46	13	47
Future Volume (vph)	11	492	37	59	1581	33	22	5	39	46	13	47
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	45.0		55.0	55.0		0.0	0.0		20.0	0.0		0.0
Storage Lanes	1		1	1		0	1		1	0		0
Taper Length (m)	35.0			45.0			2.5			2.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.99	1.00	1.00		1.00		0.99		0.99	
Frt			0.850		0.997				0.850		0.940	
Flt Protected	0.950			0.950			0.950				0.979	
Satd. Flow (prot)	1153	3232	1502	1695	3337	0	1712	1802	1432	0	1634	0
Flt Permitted	0.140			0.436			0.662				0.858	
Satd. Flow (perm)	170	3232	1482	778	3337	0	1192	1802	1412	0	1431	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			91		3				87			32
Link Speed (k/h)		60			60			40				40
Link Distance (m)		585.5			366.7			114.9				398.5
Travel Time (s)		35.1			22.0			10.3				35.9
Confl. Peds. (#/hr)	3		1	1		3	1		2	2		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 (%)	50%	7%	3%	2%	3%	15%	1%	1%	8%	2%	1%	2%
Adj. Flow (vph)	11	492	37	59	1581	33	22	5	39	46	13	47
Shared Lane Traffic (%)												
Lane Group Flow (vph)	11	492	37	59	1614	0	22	5	39	0	106	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		5.0			5.0			3.7				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												
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	2	1	1		2
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left		Thru
Leading Detector (m)	18.6	93.0	18.6	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		0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 1 Size(m)	18.6	5.5	18.6	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		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 2 Position(m)		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	pm+pt	NA		Perm	NA	Perm	Perm		NA
Protected Phases		2		1	6			8				4
Permitted Phases	2		2	6			8		8	4		
Detector Phase	2	2	2	1	6		8	8	8	4		4
Switch Phase												

3: Viseneau & Innes
AM Peak Hour

0 Innes Road
2028 Total Traffic



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	32.3	32.3	32.3	11.3	32.3		36.7	36.7	36.7	36.7	36.7	
Total Split (s)	71.0	71.0	71.0	12.0	83.0		37.0	37.0	37.0	37.0	37.0	
Total Split (%)	59.2%	59.2%	59.2%	10.0%	69.2%		30.8%	30.8%	30.8%	30.8%	30.8%	
Maximum Green (s)	64.7	64.7	64.7	5.7	76.7		30.3	30.3	30.3	30.3	30.3	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7		3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	2.6	2.6	2.6	2.6	2.6		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	
Total Lost Time (s)	6.3	6.3	6.3	6.3	6.3		6.7	6.7	6.7	6.7	6.7	
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?	Yes	Yes	Yes	Yes								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	None	C-Max		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)	19.0	19.0	19.0		19.0		23.0	23.0	23.0	23.0	23.0	
Pedestrian Calls (#/hr)	3	3	3		1		1	1	1	2	2	
Act Effct Green (s)	81.8	81.8	81.8	91.9	91.9		15.1	15.1	15.1		15.1	
Actuated g/C Ratio	0.68	0.68	0.68	0.77	0.77		0.13	0.13	0.13		0.13	
v/c Ratio	0.10	0.22	0.04	0.09	0.63		0.15	0.02	0.15		0.51	
Control Delay	7.1	4.4	0.2	5.2	9.1		44.9	40.2	1.3		40.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay	7.1	4.4	0.2	5.2	9.1		44.9	40.2	1.3		40.7	
LOS	A	A	A	A	A		D	D	A		D	
Approach Delay		4.2			8.9			18.8			40.7	
Approach LOS		A			A			B			D	
Queue Length 50th (m)	0.3	6.1	0.0	2.2	59.4		4.5	1.0	0.0		15.5	
Queue Length 95th (m)	2.6	22.8	0.1	8.9	143.8		10.0	3.8	0.0		27.0	
Internal Link Dist (m)		561.5			342.7			90.9			374.5	
Turn Bay Length (m)	45.0		55.0	55.0					20.0			
Base Capacity (vph)	115	2203	1039	642	2555		300	455	421		385	
Starvation Cap Reductn	0	0	0	0	0		0	0	0		0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0		0	
Storage Cap Reductn	0	0	0	0	0		0	0	0		0	
Reduced v/c Ratio	0.10	0.22	0.04	0.09	0.63		0.07	0.01	0.09		0.28	

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 40 (33%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 85
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.63
 Intersection Signal Delay: 9.5
 Intersection Capacity Utilization 76.1%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service D

Splits and Phases: 3: Viseneau & Innes





Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	
Traffic Volume (vph)	581	84	4	1543	276	13
Future Volume (vph)	581	84	4	1543	276	13
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		50.0	35.0		0.0	85.0
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	1.00		1.00	
Frt		0.850			0.994	
Flt Protected			0.950		0.954	
Satd. Flow (prot)	3202	1502	1679	3357	1674	0
Flt Permitted			0.426		0.954	
Satd. Flow (perm)	3202	1462	750	3357	1674	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		84			2	
Link Speed (k/h)	60			60	60	
Link Distance (m)	238.6			236.8	212.4	
Travel Time (s)	14.3			14.2	12.7	
Confl. Peds. (#/hr)		3	3			3
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	8%	3%	3%	3%	3%	3%
Adj. Flow (vph)	581	84	4	1543	276	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	581	84	4	1543	289	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	5.0	
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						



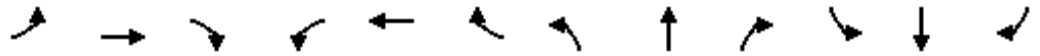
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	32.1	32.1	32.1	32.1	32.3	
Total Split (s)	87.0	87.0	87.0	87.0	33.0	
Total Split (%)	72.5%	72.5%	72.5%	72.5%	27.5%	
Maximum Green (s)	80.9	80.9	80.9	80.9	26.7	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.3	
All-Red Time (s)	2.4	2.4	2.4	2.4	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.1	6.1	6.1	6.1	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)	12.0	12.0	12.0	12.0	7.0	
Flash Dont Walk (s)	14.0	14.0	14.0	14.0	19.0	
Pedestrian Calls (#/hr)	3	3	3	3	3	
Act Effct Green (s)	83.5	83.5	83.5	83.5	24.1	
Actuated g/C Ratio	0.70	0.70	0.70	0.70	0.20	
v/c Ratio	0.26	0.08	0.01	0.66	0.86	
Control Delay	6.3	1.0	3.5	8.4	69.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	6.3	1.0	3.5	8.4	69.4	
LOS	A	A	A	A	E	
Approach Delay	5.6			8.4	69.4	
Approach LOS	A			A	E	
Queue Length 50th (m)	19.8	0.0	0.1	100.8	59.2	
Queue Length 95th (m)	24.9	2.1	m0.2	25.6	#95.0	
Internal Link Dist (m)	214.6			212.8	188.4	
Turn Bay Length (m)		50.0	35.0			
Base Capacity (vph)	2229	1043	522	2337	374	
Starvation Cap Reductn	0	0	0	2	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.26	0.08	0.01	0.66	0.77	

Intersection Summary

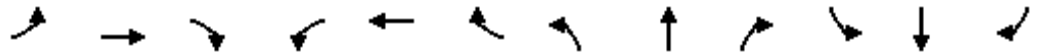
Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 10 (8%), Referenced to phase 2:EBT and 6:WBTL, Start of Green
 Natural Cycle: 75
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.86
 Intersection Signal Delay: 14.7
 Intersection Capacity Utilization 72.8%
 Analysis Period (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: Caivan & Innes





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	74	2047	23	98	1066	56	13	21	98	58	23	38
Future Volume (vph)	74	2047	23	98	1066	56	13	21	98	58	23	38
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		0.998			0.993			0.900			0.957	
Flt Protected	0.950			0.950				0.995			0.976	
Satd. Flow (prot)	1712	3415	0	1712	3364	0	0	1582	0	0	1676	0
Flt Permitted	0.254			0.054				0.964			0.713	
Satd. Flow (perm)	457	3415	0	97	3364	0	0	1533	0	0	1221	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			9			92			21	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		341.1			238.6			212.5			273.4	
Travel Time (s)		20.5			14.3			19.1			24.6	
Confl. Peds. (#/hr)	3		4	4		3	1		7	7		1
Confl. Bikes (#/hr)			18						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 (%)	1%	1%	3%	1%	2%	1%	2%	1%	1%	1%	1%	1%
Adj. Flow (vph)	74	2047	23	98	1066	56	13	21	98	58	23	38
Shared Lane Traffic (%)												
Lane Group Flow (vph)	74	2070	0	98	1122	0	0	132	0	0	119	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		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		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		1	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		5.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	38.2	38.2		11.0	38.2		35.8	35.8		35.8	35.8	
Total Split (s)	63.0	63.0		11.0	74.0		36.0	36.0		36.0	36.0	
Total Split (%)	57.3%	57.3%		10.0%	67.3%		32.7%	32.7%		32.7%	32.7%	
Maximum Green (s)	56.8	56.8		5.0	67.8		29.2	29.2		29.2	29.2	
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		2.3	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		6.0	6.2			6.8			6.8	
Lead/Lag	Lag	Lag		Lead								
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		None	C-Max		None	None		None	None	
Walk Time (s)	15.0	15.0			15.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	17.0	17.0			17.0		22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)	1	1			1		6	6		1	1	
Act Effct Green (s)	68.2	68.2		81.5	81.3			15.7			15.7	
Actuated g/C Ratio	0.62	0.62		0.74	0.74			0.14			0.14	
v/c Ratio	0.26	0.98		0.56	0.45			0.44			0.62	
Control Delay	14.9	36.6		33.8	7.5			18.7			48.7	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	14.9	36.6		33.8	7.5			18.7			48.7	
LOS	B	D		C	A			B			D	
Approach Delay		35.8			9.6			18.7			48.7	
Approach LOS		D			A			B			D	
Queue Length 50th (m)	5.8	181.4		6.8	25.4			7.3			18.9	
Queue Length 95th (m)	18.5	#298.4		#31.7	67.6			19.8			30.9	
Internal Link Dist (m)		317.1			214.6			188.5			249.4	
Turn Bay Length (m)	100.0			100.0								
Base Capacity (vph)	283	2118		174	2487			474			339	
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	0.26	0.98		0.56	0.45			0.28			0.35	

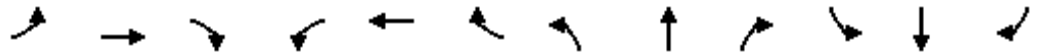
Intersection Summary

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: 135
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.98
 Intersection Signal Delay: 26.8
 Intersection LOS: C
 Intersection Capacity Utilization 96.2%
 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: Page & Innes



												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 						 	
Traffic Volume (vph)	14	1834	134	72	1051	12	91	0	51	12	0	7
Future Volume (vph)	14	1834	134	72	1051	12	91	0	51	12	0	7
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			0.98	0.99		0.99	
Frt		0.990			0.998				0.850		0.950	
Flt Protected	0.950			0.950				0.950			0.969	
Satd. Flow (prot)	1679	3324	0	1679	3350	0	0	1679	1502	0	1610	0
Flt Permitted	0.269			0.050				0.745			0.791	
Satd. Flow (perm)	475	3324	0	88	3350	0	0	1295	1482	0	1313	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11			2				90			90
Link Speed (k/h)		60			60			40				40
Link Distance (m)		236.8			585.5			151.9				62.6
Travel Time (s)		14.2			35.1			13.7				5.6
Confl. Peds. (#/hr)							13		1	1		13
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
Adj. Flow (vph)	14	1834	134	72	1051	12	91	0	51	12	0	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	14	1968	0	72	1063	0	0	91	51	0	19	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0				0.0
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		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		pm+pt	NA		Perm	NA	Perm	Perm		NA
Protected Phases		2		1	6			8				4
Permitted Phases	2			6			8		8	4		
Detector Phase	2	2		1	6		8	8	8	4		4
Switch Phase												



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	10.0	10.0		5.0	10.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	32.1	32.1		11.0	32.1		32.3	32.3	32.3	32.3	32.3	
Total Split (s)	66.0	66.0		11.0	77.0		33.0	33.0	33.0	33.0	33.0	
Total Split (%)	60.0%	60.0%		10.0%	70.0%		30.0%	30.0%	30.0%	30.0%	30.0%	
Maximum Green (s)	59.9	59.9		5.0	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		2.3	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		6.0	6.1			6.3	6.3		6.3	
Lead/Lag	Lag	Lag		Lead								
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		None	C-Max		None	None	None	None	None	
Walk Time (s)	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		19.0	19.0	19.0	19.0	19.0	
Pedestrian Calls (#/hr)	3	3			3		3	3	3	3	3	
Act Effct Green (s)	77.1	77.1		85.9	87.0			15.0	15.0		15.0	
Actuated g/C Ratio	0.70	0.70		0.78	0.79			0.14	0.14		0.14	
v/c Ratio	0.04	0.84		0.46	0.40			0.51	0.18		0.07	
Control Delay	1.1	9.8		20.8	5.8			52.8	3.1		0.6	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay	1.1	9.8		20.8	5.8			52.8	3.1		0.6	
LOS	A	A		C	A			D	A		A	
Approach Delay		9.7			6.7			35.0			0.6	
Approach LOS		A			A			C			A	
Queue Length 50th (m)	0.0	2.7		2.9	31.1			17.3	0.0		0.0	
Queue Length 95th (m)	m0.2	#278.1		16.2	64.5			28.3	2.5		0.0	
Internal Link Dist (m)		212.8			561.5			127.9			38.6	
Turn Bay Length (m)	30.0			40.0								
Base Capacity (vph)	333	2333		158	2651			314	427		386	
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	0.04	0.84		0.46	0.40			0.29	0.12		0.05	

Intersection Summary

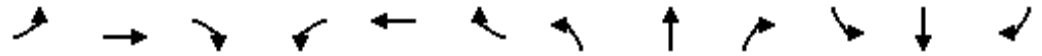
Area Type: Other
 Cycle Length: 110
 Actuated Cycle Length: 110
 Offset: 36 (33%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 120
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.84
 Intersection Signal Delay: 9.7
 Intersection LOS: A
 Intersection Capacity Utilization 95.4%
 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: 473 E of Page & Innes



3: Viseneau & Innes
PM Peak Hour

0 Innes Road
2028 Total Traffic



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	1685	87	183	869	84	106	40	179	60	51	30
Future Volume (vph)	44	1685	87	183	869	84	106	40	179	60	51	30
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	45.0		55.0	55.0		0.0	0.0		20.0	0.0		0.0
Storage Lanes	1		1	1		0	1		1	0		0
Taper Length (m)	35.0			45.0			2.5			2.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.97		1.00		0.98		0.98		0.99	
Frt			0.850		0.987				0.850		0.971	
Flt Protected	0.950			0.950			0.950				0.979	
Satd. Flow (prot)	1712	3390	1532	1712	3278	0	1712	1767	1532	0	1635	0
Flt Permitted	0.300			0.056			0.597				0.844	
Satd. Flow (perm)	539	3390	1480	101	3278	0	1057	1767	1507	0	1407	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			84		16				179			10
Link Speed (k/h)		60			60			40				40
Link Distance (m)		585.5			366.7			114.9				398.5
Travel Time (s)		35.1			22.0			10.3				35.9
Confl. Peds. (#/hr)	5		15	15		5	18		3	3		18
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%	2%	1%	3%	1%	6%	1%	10%
Adj. Flow (vph)	44	1685	87	183	869	84	106	40	179	60	51	30
Shared Lane Traffic (%)												
Lane Group Flow (vph)	44	1685	87	183	953	0	106	40	179	0	141	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		5.0			5.0			3.7				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												
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	2	1	1		2
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	18.6	93.0	18.6	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		0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 1 Size(m)	18.6	5.5	18.6	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		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 2 Position(m)		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	pm+pt	NA		Perm	NA	Perm	Perm		NA
Protected Phases		2		1	6			8				4
Permitted Phases	2		2	6			8		8	4		
Detector Phase	2	2	2	1	6		8	8	8	4		4
Switch Phase												

3: Viseneau & Innes
PM Peak Hour

0 Innes Road
2028 Total Traffic



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	32.3	32.3	32.3	11.3	32.3		36.7	36.7	36.7	36.7	36.7	
Total Split (s)	71.0	71.0	71.0	20.0	91.0		39.0	39.0	39.0	39.0	39.0	
Total Split (%)	54.6%	54.6%	54.6%	15.4%	70.0%		30.0%	30.0%	30.0%	30.0%	30.0%	
Maximum Green (s)	64.7	64.7	64.7	13.7	84.7		32.3	32.3	32.3	32.3	32.3	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7		3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	2.6	2.6	2.6	2.6	2.6		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	
Total Lost Time (s)	6.3	6.3	6.3	6.3	6.3		6.7	6.7	6.7	6.7	6.7	
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?	Yes	Yes	Yes	Yes								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	None	C-Max		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)	19.0	19.0	19.0		19.0		23.0	23.0	23.0	23.0	23.0	
Pedestrian Calls (#/hr)	3	3	3		1		1	1	1	2	2	
Act Effct Green (s)	77.2	77.2	77.2	97.1	97.1		19.9	19.9	19.9		19.9	
Actuated g/C Ratio	0.59	0.59	0.59	0.75	0.75		0.15	0.15	0.15		0.15	
v/c Ratio	0.14	0.84	0.10	0.75	0.39		0.65	0.15	0.47		0.63	
Control Delay	16.8	28.1	3.9	47.9	7.1		68.9	45.1	10.0		58.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay	16.8	28.1	3.9	47.9	7.1		68.9	45.1	10.0		58.8	
LOS	B	C	A	D	A		E	D	A		E	
Approach Delay		26.7			13.7			33.5			58.8	
Approach LOS		C			B			C			E	
Queue Length 50th (m)	4.4	162.3	0.3	25.3	35.3		24.0	8.3	0.0		29.5	
Queue Length 95th (m)	12.6	#256.0	8.1	#56.6	63.1		38.2	16.4	16.7		44.9	
Internal Link Dist (m)		561.5			342.7			90.9			374.5	
Turn Bay Length (m)	45.0		55.0	55.0					20.0			
Base Capacity (vph)	320	2014	913	261	2452		262	439	508		357	
Starvation Cap Reductn	0	0	0	0	0		0	0	0		0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0		0	
Storage Cap Reductn	0	0	0	0	0		0	0	0		0	
Reduced v/c Ratio	0.14	0.84	0.10	0.70	0.39		0.40	0.09	0.35		0.39	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 105 (81%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 115

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 24.4

Intersection LOS: C

Intersection Capacity Utilization 95.6%

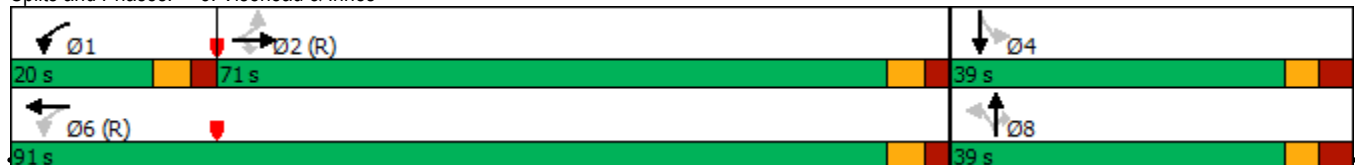
ICU Level of Service F

Analysis Period (min) 15

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

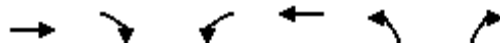
Queue shown is maximum after two cycles.

Splits and Phases: 3: Viseneau & Innes

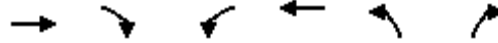


4: Caivan & Innes
PM Peak Hour

0 Innes Road
2028 Total Traffic



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗	↖	↑↑	↘	
Traffic Volume (vph)	1947	270	63	1074	160	37
Future Volume (vph)	1947	270	63	1074	160	37
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		50.0	35.0		0.0	85.0
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			1.00	
Frt		0.850			0.975	
Flt Protected			0.950		0.961	
Satd. Flow (prot)	3357	1502	1679	3357	1651	0
Flt Permitted			0.054		0.961	
Satd. Flow (perm)	3357	1463	95	3357	1651	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		154			10	
Link Speed (k/h)	60			60	60	
Link Distance (m)	238.6			236.8	212.4	
Travel Time (s)	14.3			14.2	12.7	
Confl. Peds. (#/hr)		3	3			3
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1947	270	63	1074	160	37
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1947	270	63	1074	197	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	5.0	
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	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)	32.1	32.1	11.0	32.1	32.3	
Total Split (s)	66.0	66.0	11.0	77.0	33.0	
Total Split (%)	60.0%	60.0%	10.0%	70.0%	30.0%	
Maximum Green (s)	59.9	59.9	5.0	70.9	26.7	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.3	
All-Red Time (s)	2.4	2.4	2.3	2.4	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.1	6.1	6.0	6.1	6.3	
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
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)	12.0	12.0		12.0	7.0	
Flash Dont Walk (s)	14.0	14.0		14.0	19.0	
Pedestrian Calls (#/hr)	3	3		3	3	
Act Effct Green (s)	69.6	69.6	79.6	79.5	18.1	
Actuated g/C Ratio	0.63	0.63	0.72	0.72	0.16	
v/c Ratio	0.92	0.27	0.40	0.44	0.71	
Control Delay	9.8	0.3	25.2	6.3	54.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	9.8	0.3	25.2	6.3	54.3	
LOS	A	A	C	A	D	
Approach Delay	8.7			7.4	54.3	
Approach LOS	A			A	D	
Queue Length 50th (m)	21.2	0.0	2.8	34.6	35.5	
Queue Length 95th (m)	m#230.9	m0.1	18.1	45.8	52.7	
Internal Link Dist (m)	214.6			212.8	188.4	
Turn Bay Length (m)		50.0	35.0			
Base Capacity (vph)	2124	982	158	2427	408	
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	0.27	0.40	0.44	0.48	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 13 (12%), 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: 10.8

Intersection LOS: B

Intersection Capacity Utilization 79.9%

ICU Level of Service D

Analysis Period (min) 15

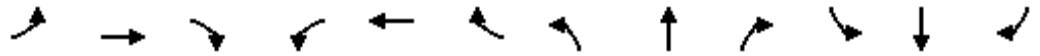
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

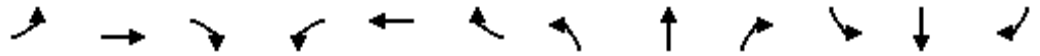
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Caivan & Innes





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	74	2047	23	98	1066	56	13	21	98	58	23	38
Future Volume (vph)	74	2047	23	98	1066	56	13	21	98	58	23	38
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		0.998			0.993			0.900				0.957
Flt Protected	0.950			0.950				0.995				0.976
Satd. Flow (prot)	1712	3415	0	1712	3364	0	0	1580	0	0	1676	0
Flt Permitted	0.254			0.044				0.962				0.657
Satd. Flow (perm)	457	3415	0	79	3364	0	0	1527	0	0	1124	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			9			75				17
Link Speed (k/h)		60			60			40				40
Link Distance (m)		341.1			238.6			212.5				273.4
Travel Time (s)		20.5			14.3			19.1				24.6
Confl. Peds. (#/hr)	3		4	4		3	1		7	7		1
Confl. Bikes (#/hr)			18						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 (%)	1%	1%	3%	1%	2%	1%	2%	1%	1%	1%	1%	1%
Adj. Flow (vph)	74	2047	23	98	1066	56	13	21	98	58	23	38
Shared Lane Traffic (%)												
Lane Group Flow (vph)	74	2070	0	98	1122	0	0	132	0	0	119	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		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		pm+pt	NA		Perm	NA		Perm		NA
Protected Phases		2		1	6			8				4
Permitted Phases	2			6			8			4		
Detector Phase	2	2		1	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		5.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	38.2	38.2		11.0	38.2		35.8	35.8		35.8	35.8	
Total Split (s)	83.0	83.0		11.0	94.0		36.0	36.0		36.0	36.0	
Total Split (%)	63.8%	63.8%		8.5%	72.3%		27.7%	27.7%		27.7%	27.7%	
Maximum Green (s)	76.8	76.8		5.0	87.8		29.2	29.2		29.2	29.2	
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		2.3	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		6.0	6.2			6.8			6.8	
Lead/Lag	Lag	Lag		Lead								
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		None	C-Max		None	None		None	None	
Walk Time (s)	15.0	15.0			15.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	17.0	17.0			17.0		22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)	1	1			1		6	6		1	1	
Act Effct Green (s)	85.6	85.6		100.0	99.8			17.2			17.2	
Actuated g/C Ratio	0.66	0.66		0.77	0.77			0.13			0.13	
v/c Ratio	0.25	0.92		0.60	0.43			0.49			0.73	
Control Delay	13.4	28.5		48.4	3.7			28.7			69.5	
Queue Delay	0.0	0.9		0.0	0.0			0.0			0.0	
Total Delay	13.4	29.4		48.4	3.7			28.7			69.5	
LOS	B	C		D	A			C			E	
Approach Delay		28.9			7.3			28.7			69.5	
Approach LOS		C			A			C			E	
Queue Length 50th (m)	6.6	206.2		10.9	17.4			12.5			23.8	
Queue Length 95th (m)	17.2	#312.6		#40.4	28.7			27.4			38.8	
Internal Link Dist (m)		317.1			214.6			188.5			249.4	
Turn Bay Length (m)	100.0			100.0								
Base Capacity (vph)	300	2248		163	2584			401			265	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	49		0	0			1			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.25	0.94		0.60	0.43			0.33			0.45	

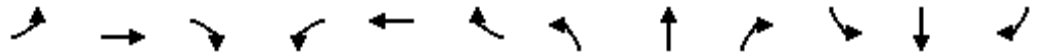
Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 119 (92%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 135
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.92
 Intersection Signal Delay: 22.9 Intersection LOS: C
 Intersection Capacity Utilization 96.2% 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: Page & Innes



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	1834	134	72	1051	12	91	0	51	12	0	7
Future Volume (vph)	14	1834	134	72	1051	12	91	0	51	12	0	7
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			0.98	0.99		0.99	
Frt		0.990			0.998				0.850		0.950	
Flt Protected	0.950			0.950				0.950			0.969	
Satd. Flow (prot)	1679	3324	0	1679	3350	0	0	1679	1502	0	1608	0
Flt Permitted	0.269			0.047				0.745			0.805	
Satd. Flow (perm)	475	3324	0	83	3350	0	0	1291	1482	0	1335	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			2				76		76	
Link Speed (k/h)		60			60			40			40	
Link Distance (m)		236.8			585.5			151.9			62.6	
Travel Time (s)		14.2			35.1			13.7			5.6	
Confl. Peds. (#/hr)							13		1	1		13
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
Adj. Flow (vph)	14	1834	134	72	1051	12	91	0	51	12	0	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	14	1968	0	72	1063	0	0	91	51	0	19	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.7			3.7			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		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		pm+pt	NA		Perm	NA	Perm	Perm		NA
Protected Phases		2		1	6			8				4
Permitted Phases	2			6			8		8	4		
Detector Phase	2	2		1	6		8	8	8	4		4
Switch Phase												



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	10.0	10.0		5.0	10.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	32.1	32.1		11.0	32.1		32.3	32.3	32.3	32.3	32.3	
Total Split (s)	85.0	85.0		12.0	97.0		33.0	33.0	33.0	33.0	33.0	
Total Split (%)	65.4%	65.4%		9.2%	74.6%		25.4%	25.4%	25.4%	25.4%	25.4%	
Maximum Green (s)	78.9	78.9		6.0	90.9		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		2.3	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		6.0	6.1			6.3	6.3		6.3	
Lead/Lag	Lag	Lag		Lead								
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		None	C-Max		None	None	None	None	None	
Walk Time (s)	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		19.0	19.0	19.0	19.0	19.0	
Pedestrian Calls (#/hr)	3	3			3		3	3	3	3	3	
Act Effct Green (s)	91.4	91.4		101.8	101.7			15.9	15.9		15.9	
Actuated g/C Ratio	0.70	0.70		0.78	0.78			0.12	0.12		0.12	
v/c Ratio	0.04	0.84		0.49	0.41			0.58	0.21		0.08	
Control Delay	1.3	4.6		24.3	5.7			67.0	5.7		0.7	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay	1.3	4.6		24.3	5.7			67.0	5.7		0.7	
LOS	A	A		C	A			E	A		A	
Approach Delay		4.5			6.9			45.0			0.7	
Approach LOS		A			A			D			A	
Queue Length 50th (m)	0.1	6.5		4.5	27.8			20.9	0.0		0.0	
Queue Length 95th (m)	m0.1	#24.2		17.7	68.4			34.1	5.0		0.0	
Internal Link Dist (m)		212.8			561.5			127.9			38.6	
Turn Bay Length (m)	30.0			40.0								
Base Capacity (vph)	333	2338		147	2621			265	364		334	
Starvation Cap Reductn	0	1		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	0.04	0.84		0.49	0.41			0.34	0.14		0.06	

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 14 (11%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 120
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.84
 Intersection Signal Delay: 7.1
 Intersection LOS: A
 Intersection Capacity Utilization 95.4%
 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: 473 E of Page & Innes



3: Viseneau & Innes
PM Peak Hour

0 Innes Road
2028 Total Traffic (Optimized Timings)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	1685	87	183	869	84	106	40	179	60	51	30
Future Volume (vph)	44	1685	87	183	869	84	106	40	179	60	51	30
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	45.0		55.0	55.0		0.0	0.0		20.0	0.0		0.0
Storage Lanes	1		1	1		0	1		1	0		0
Taper Length (m)	35.0			45.0			2.5			2.5		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.97		1.00		0.98		0.98		0.99	
Frt			0.850		0.987				0.850		0.971	
Flt Protected	0.950			0.950			0.950				0.979	
Satd. Flow (prot)	1712	3390	1532	1712	3278	0	1712	1767	1532	0	1635	0
Flt Permitted	0.300			0.056			0.596				0.844	
Satd. Flow (perm)	539	3390	1480	101	3278	0	1055	1767	1507	0	1407	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			84		17				179			10
Link Speed (k/h)		60			60			40				40
Link Distance (m)		585.5			366.7			114.9				398.5
Travel Time (s)		35.1			22.0			10.3				35.9
Confl. Peds. (#/hr)	5		15	15		5	18		3	3		18
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%	2%	1%	3%	1%	6%	1%	10%
Adj. Flow (vph)	44	1685	87	183	869	84	106	40	179	60	51	30
Shared Lane Traffic (%)												
Lane Group Flow (vph)	44	1685	87	183	953	0	106	40	179	0	141	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		5.0			5.0			3.7				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												
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	2	1	1		2
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	18.6	93.0	18.6	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		0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 1 Size(m)	18.6	5.5	18.6	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		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0
Detector 2 Position(m)		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	pm+pt	NA		Perm	NA	Perm	Perm		NA
Protected Phases		2		1	6			8				4
Permitted Phases	2		2	6			8		8	4		
Detector Phase	2	2	2	1	6		8	8	8	4		4
Switch Phase												

3: Viseneau & Innes
PM Peak Hour

0 Innes Road
2028 Total Traffic (Optimized Timings)



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	32.3	32.3	32.3	11.3	32.3		36.7	36.7	36.7	36.7	36.7	
Total Split (s)	74.0	74.0	74.0	19.0	93.0		37.0	37.0	37.0	37.0	37.0	
Total Split (%)	56.9%	56.9%	56.9%	14.6%	71.5%		28.5%	28.5%	28.5%	28.5%	28.5%	
Maximum Green (s)	67.7	67.7	67.7	12.7	86.7		30.3	30.3	30.3	30.3	30.3	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7		3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	2.6	2.6	2.6	2.6	2.6		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	
Total Lost Time (s)	6.3	6.3	6.3	6.3	6.3		6.7	6.7	6.7	6.7	6.7	
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?	Yes	Yes	Yes	Yes								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	None	C-Max		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)	19.0	19.0	19.0		19.0		23.0	23.0	23.0	23.0	23.0	
Pedestrian Calls (#/hr)	3	3	3		1		1	1	1	2	2	
Act Effct Green (s)	77.3	77.3	77.3	97.2	97.2		19.8	19.8	19.8		19.8	
Actuated g/C Ratio	0.59	0.59	0.59	0.75	0.75		0.15	0.15	0.15		0.15	
v/c Ratio	0.14	0.84	0.10	0.75	0.39		0.66	0.15	0.47		0.63	
Control Delay	2.3	8.8	0.5	47.8	7.0		69.5	45.4	10.1		59.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay	2.3	8.8	0.5	47.8	7.0		69.5	45.4	10.1		59.1	
LOS	A	A	A	D	A		E	D	B		E	
Approach Delay		8.2			13.6			33.8			59.1	
Approach LOS		A			B			C			E	
Queue Length 50th (m)	0.7	74.2	0.2	25.2	35.4		24.0	8.3	0.0		29.5	
Queue Length 95th (m)	m1.3	#241.8	m0.9	#63.1	61.8		38.5	16.5	16.8		45.2	
Internal Link Dist (m)		561.5			342.7			90.9			374.5	
Turn Bay Length (m)	45.0		55.0	55.0					20.0			
Base Capacity (vph)	320	2015	914	253	2454		245	411	488		335	
Starvation Cap Reductn	0	0	0	0	0		0	0	0		0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0		0	
Storage Cap Reductn	0	0	0	0	0		0	0	0		0	
Reduced v/c Ratio	0.14	0.84	0.10	0.72	0.39		0.43	0.10	0.37		0.42	

Intersection Summary

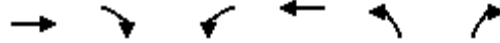
Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 60 (46%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 115
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.84
 Intersection Signal Delay: 14.5
 Intersection LOS: B
 Intersection Capacity Utilization 95.6%
 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: 3: Viseneau & Innes



4: Caivan & Innes
PM Peak Hour

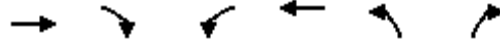
0 Innes Road
2028 Total Traffic (Optimized Timings)



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗	↖	↑↑	↘	
Traffic Volume (vph)	1947	270	63	1074	160	37
Future Volume (vph)	1947	270	63	1074	160	37
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		50.0	35.0		0.0	85.0
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			1.00	
Frt		0.850			0.975	
Flt Protected			0.950		0.961	
Satd. Flow (prot)	3357	1502	1679	3357	1651	0
Flt Permitted			0.043		0.961	
Satd. Flow (perm)	3357	1461	76	3357	1651	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		154			8	
Link Speed (k/h)	60			60	60	
Link Distance (m)	238.6			236.8	212.4	
Travel Time (s)	14.3			14.2	12.7	
Confl. Peds. (#/hr)		3	3			3
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	1947	270	63	1074	160	37
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1947	270	63	1074	197	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	5.0	
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	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	

4: Caivan & Innes
PM Peak Hour

0 Innes Road
2028 Total Traffic (Optimized Timings)



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Minimum Split (s)	32.1	32.1	11.0	32.1	32.3	
Total Split (s)	86.0	86.0	11.0	97.0	33.0	
Total Split (%)	66.2%	66.2%	8.5%	74.6%	25.4%	
Maximum Green (s)	79.9	79.9	5.0	90.9	26.7	
Yellow Time (s)	3.7	3.7	3.7	3.7	3.3	
All-Red Time (s)	2.4	2.4	2.3	2.4	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.1	6.1	6.0	6.1	6.3	
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
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)	12.0	12.0		12.0	7.0	
Flash Dont Walk (s)	14.0	14.0		14.0	19.0	
Pedestrian Calls (#/hr)	3	3		3	3	
Act Effct Green (s)	87.7	87.7	97.7	97.6	20.0	
Actuated g/C Ratio	0.67	0.67	0.75	0.75	0.15	
v/c Ratio	0.86	0.26	0.47	0.43	0.76	
Control Delay	6.2	0.3	34.1	8.8	68.1	
Queue Delay	0.3	0.0	0.0	0.0	0.0	
Total Delay	6.5	0.3	34.1	8.8	68.1	
LOS	A	A	C	A	E	
Approach Delay	5.8			10.2	68.1	
Approach LOS	A			B	E	
Queue Length 50th (m)	14.2	0.0	5.4	58.8	43.2	
Queue Length 95th (m)	#22.4	m0.1	#20.2	58.2	63.8	
Internal Link Dist (m)	214.6			212.8	188.4	
Turn Bay Length (m)		50.0	35.0			
Base Capacity (vph)	2265	1035	133	2520	345	
Starvation Cap Reductn	46	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.88	0.26	0.47	0.43	0.57	

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

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

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 10.6

Intersection LOS: B

Intersection Capacity Utilization 79.9%

ICU Level of Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 4: Caivan & Innes

