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39 Years

Proposed Residential Development

98 and 100 Bearbrook Road, Ottawa

Transportation Impact Assessment

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Proposed Residential Development
98 and 100 Bearbrook Road

Transportation Impact Assessment

Prepared By:

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

April 2022

Novatech File: 121276
Ref: R-2021-137

NOVATECH
Engineers, Planners & Landscape Architects

April 7, 2022

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

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

Dear Mr. Giampa:

Reference: **98 and 100 Bearbrook Road**
Transportation Impact Assessment
Novatech File No. 121276

We are pleased to submit the following Transportation Impact Assessment, in support of a Site Plan Control application at 98 and 100 Bearbrook Road, for your review and signoff. The structure and format of this report is in accordance with the City of Ottawa Transportation Impact Assessment Guidelines (June 2017).

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

Yours truly,

NOVATECH

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

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

TIA Plan Reports

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

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

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

CERTIFICATION

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

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

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Télécopieur: 613-560-6006

Dated at ____Ottawa____ this __7th__ day of _____April_____, 2022.
(City)

Name: _____Brad Byvelds, P.Eng._____
(Please Print)

Professional Title: _____Project Coordinator, Transportation/Traffic_____

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

Office Contact Information (Please Print)	
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EXECUTIVE SUMMARY

This Transportation Impact Assessment (TIA) has been prepared for the property located at 98 and 100 Bearbrook Road, in support of a Site Plan Control application. The subject site is approximately 0.40 hectares in size and is currently occupied by two single-detached houses, each accessed by their own driveway.

The subject site is surrounded by the following:

- Residential uses, followed by Centrepark Drive to the north,
- Commercial uses, followed by Innes Road to the south,
- Two schools, a retirement residence, parkland, and recreational uses to the east, and
- A school and residential uses, followed by Southpark Drive to the west.

The proposed development consists of a single nine-storey mid-rise residential building with 159 apartment dwellings and nine townhouse dwellings. A total of 25 surface parking spaces and 184 underground parking spaces will be provided. Access to the proposed development will be provided via a single driveway at the northern limit of the subject site. The development will be constructed in a single phase, with a buildout year of 2023.

The subject site is designated as 'General Urban Area' on Schedule B of the City of Ottawa's Official Plan. The implemented zoning for the property is 'Arterial Mainstreet' (AM11), and the site is not located within any Community Design Plan or Secondary Plan areas.

The study area for this report includes the boundary roadway Bearbrook Road, as well as the following intersections:

- Innes Road/Southpark Drive;
- Innes Road/Bearbrook Road/Glen Park Drive East;
- Innes Road/Orient Park Drive;
- Bearbrook Road/43m South of Centrepark Drive South.

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

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

Forecasting

- The proposed development is estimated to generate 74 person trips (including 39 vehicle trips) during the AM peak hour, and 74 person trips (including 40 vehicle trips) during the PM peak hour.

Development Design

- Pedestrian walkways will provide a connection between the sidewalk on the west side of Bearbrook Road and the entrances to the townhouse units, as well as the main entrance to the lobby for the apartment units. A pedestrian walkway will also connect to a secondary access to the lobby for the apartment units at the back of the building. The proposed access is located where the existing sidewalk is transitioning from a boulevard to a curbside sidewalk. It is proposed that the existing sidewalk be extended across the access, before transitioning curbside south of the proposed access.

- Bicycle parking will be provided in designated areas adjacent to the rear entrance and within the underground parking garage.

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

- Pick-ups and drop-offs can occur curbside on the west side Bearbrook Road. Garbage collection will be facilitated in a refuse area at the northwest corner of the subject site. The fire route for the proposed development is located along Bearbrook Road.

Parking

- Based on the previous table, the proposed number of bicycle parking spaces meet the minimum requirements outlined in the City's ZBL, and the proposed number of vehicle parking spaces meet approximately 89% of the minimum requirements.

- Section 111(12) of the ZBL identifies that, where the number of bicycle parking spaces required for a single residential building exceeds 50 spaces, a minimum of 25% of the required total must be located within a building or structure, a secure area, or bicycle lockers. This requirement is met.

Boundary Streets

- Bearbrook Road does not meet the target pedestrian level of service (PLOS) A or target bicycle level of service (BLOS) B. Bearbrook Road achieves a transit level of service (TLOS) D and a truck level of service (TkLOS) C.

- The best possible PLOS B is achieved on the west side of the roadway, and a PLOS C is achieved on the east side of the roadway. The sidewalk on the east side of Bearbrook Road is approximately 1.5m in width, with a boulevard width greater than 2.0m. Per Exhibit 4 of the *MMLOS Guidelines*, a PLOS B can be achieved by widening the existing sidewalk to a width of 2.0m. This is identified for the City's consideration.

- Based on Exhibit 11 of the *MMLOS Guidelines*, the target BLOS B can be achieved by implementing an exclusive bike lane with a minimum width of 1.5m. This is identified for the City's consideration.

Access Design

- The design of the proposed access to Bearbrook Road meets most of the relevant provisions of the City's *Private Approach By-Law* (PABL) and *Zoning By-Law* (ZBL), and the Transportation Association of Canada (TAC)'s *Geometric Design Guide for Canadian Roads*. Due to the 0.5m proximity to the property line, the proposed access does not meet Section 25(p) of the PABL, and it is requested that this requirement be waived.

- It is anticipated that the proposed access will operate at an Auto LOS A during both peak hours in future conditions, and southbound queueing at Innes Road/Bearbrook Road/Glen Park Drive East is not anticipated to extend past the proposed access.

Transportation Demand Management

- A review of the City's *TDM Measures Checklist* has been conducted by the proponent, who has committed to providing the following TDM measures:
    - Display local area maps with walking/cycling access routes and key destinations at major entrances;
    - Display relevant transit schedules and route maps at entrances;
    - Unbundle parking cost from monthly rent.

- In addition, the proposed development will include one on-site carshare parking space.

Neighbourhood Traffic Management

- Traffic calming measures on Bearbrook Road have been recently implemented, and include the following:
    - A reduction in the speed limit of Bearbrook Road from 50 km/h to 40 km/h;
    - SCHOOL pavement markings on either side of Good Shepherd School;
    - Painted edge lines on Bearbrook Road, narrowing the travel lanes to 3.5m in width;
    - Flex posts along Bearbrook Road between Innes Road and Northpark Drive North;
    - Speed boards in both directions on Bearbrook Road between Innes Road and Northpark Drive North.

- No other neighbourhood traffic management measures are recommended as part of the proposed development.

Transit

- The proposed development is projected to generate 20 transit trips (6 inbound trips and 14 outbound trips) during the AM peak hour and 19 transit trips (11 inbound trips and 8 outbound trips) during the PM peak hour. No capacity issues are anticipated for OC Transpo Routes 25 and 28, based on the above transit trip estimates.

Intersection MMLOS

- The intersection of the intersection MMLOS analysis can be summarized as follows:
    - No study area intersections meet the target PLOS;
    - No study area intersections meet the target BLOS;
    - The study area intersections achieve a TLOS D or better;
    - No study area intersections meet the target TkLOS.

- All approaches at Innes Road/Southpark Drive, Innes Road/Bearbrook Road/Glen Park Drive East, and Innes Road/Orient Park Drive do not meet the target PLOS. There is limited opportunity in improving the PLOS at each approach without reducing the number of travel lanes or restricting turning movements. All approaches at Innes Road/Bearbrook Road/Glen Park Drive East and the east approach at Innes Road/Orient Park Drive meet the City's vehicle/pedestrian conflict threshold for zebra-striped crosswalks.

- Based on delay score, Bearbrook Road/43m South of Centrepark Drive achieves a PLOS C. Based on the current maximum cycle length, the target PLOS A could be met by providing an additional 16 seconds of walk time for pedestrians (i.e. reducing the minimum north-south green time from 30 seconds to 14 seconds). Synchro analysis identifies that this could be accommodated from an operations perspective.

- The north and west approaches at Innes Road/Southpark Drive and all approaches at Innes Road/Bearbrook Road/Glen Park Drive East and Innes Road/Orient Park Drive do not meet the target BLOS A, based on left turn characteristics. The target BLOS can only be achieved by implementing left-turn bike facilities. Synchro analysis with right turns on red (RTOR) restrictions identifies that these measures could be accommodated from an operations perspective.

Existing Intersection Operations

- All study area intersections operate at an Auto LOS C or better during the peak hours.

- During the AM peak hour, the maximum (95th-percentile) queue lengths of the westbound through/right turn movements at Innes Road/Southpark Drive and Innes Road/Bearbrook Road/Glen Park Drive East extend close to upstream intersections.

- During the PM peak hour, the maximum queue length of the southbound left turn at Innes Road/Bearbrook Road/Glen Park Drive East marginally exceeds the approximately 40m of storage length provided.

Background Intersection Operations

- In the 2023 and 2028 background conditions, all study area intersections are projected to continue operating at an Auto LOS C or better during the peak hours.

Total Intersection Operations

- The addition of site-generated traffic is anticipated to have marginal effect on the operations of the study area intersections.

1.0 SCREENING

1.1 Introduction

This Transportation Impact Assessment (TIA) has been prepared for the property located at 98 and 100 Bearbrook Road, in support of a Site Plan Control application. The subject site is approximately 0.40 hectares in size and is currently occupied by two single-detached houses, each accessed by their own driveway.

The subject site is surrounded by the following:

- Residential uses, followed by Centrepark Drive to the north,
- Commercial uses, followed by Innes Road to the south,
- Two schools, a retirement residence, parkland, and recreational uses to the east, and
- A school and residential uses, followed by Southpark Drive to the west.

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

1.2 Proposed Development

The proposed development consists of a single nine-storey mid-rise residential building with 159 apartment dwellings and nine townhouse dwellings. A total of 25 surface parking spaces and 184 underground parking spaces will be provided. Access to the proposed development will be provided via a single driveway at the northern limit of the subject site. The development will be constructed in a single phase, with a buildout year of 2023.

The subject site is designated as 'General Urban Area' on Schedule B of the City of Ottawa's Official Plan. The implemented zoning for the property is 'Arterial Mainstreet' (AM11), and the site is not located within any Community Design Plan or Secondary Plan areas.

A copy of the preliminary site plan is included in **Appendix A**. A site context plan, which includes the site plan and shows all details of the roadway network immediately surrounding the site, is included in **Figure 2**.

1.3 Screening Form

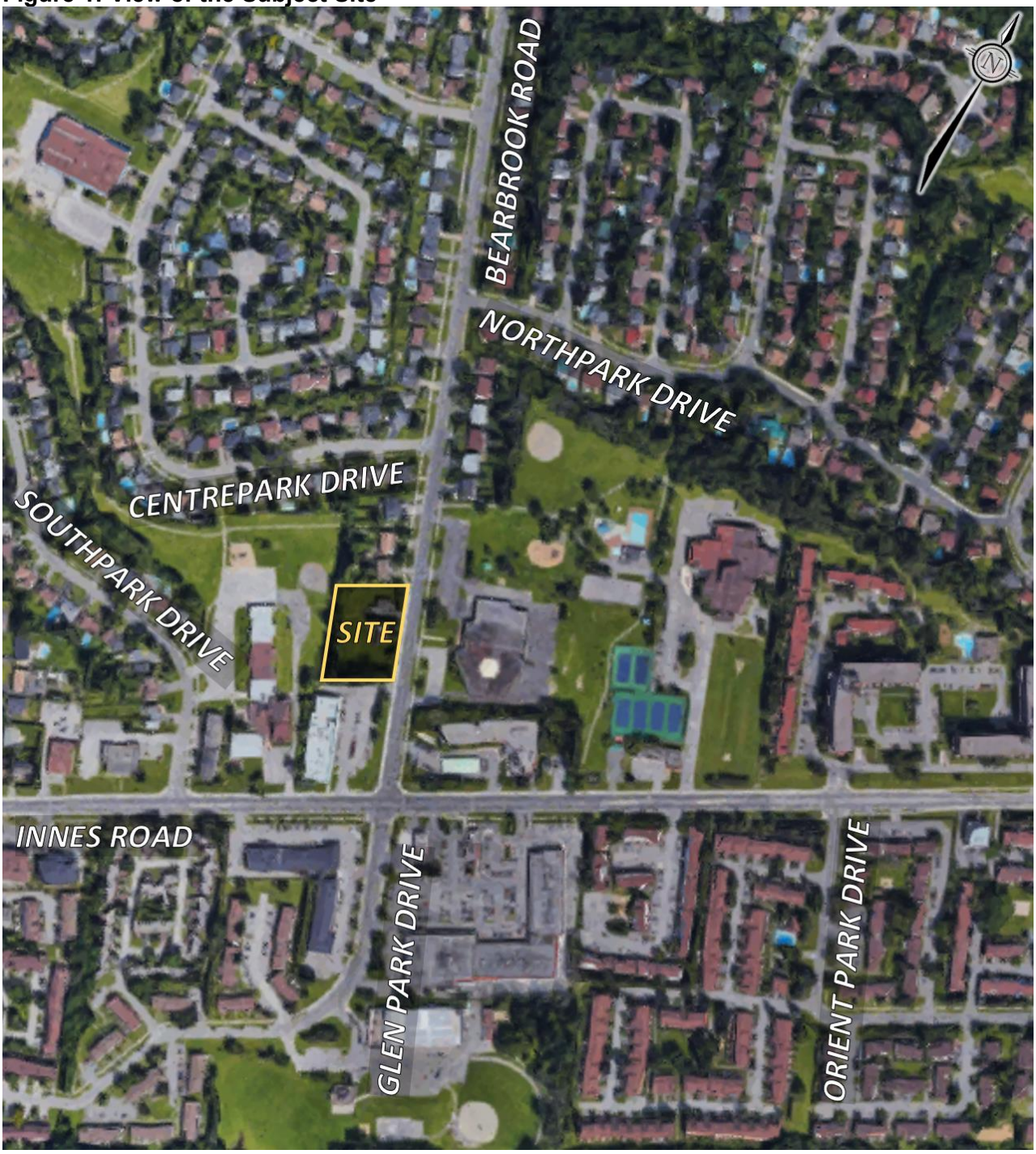
The City's *2017 TIA Guidelines* identify three triggers for completing a TIA report, including trip generation, location, and safety. The criteria for each trigger are outlined in the City's TIA Screening Form, which is included in **Appendix B**. The trigger results are as follows:

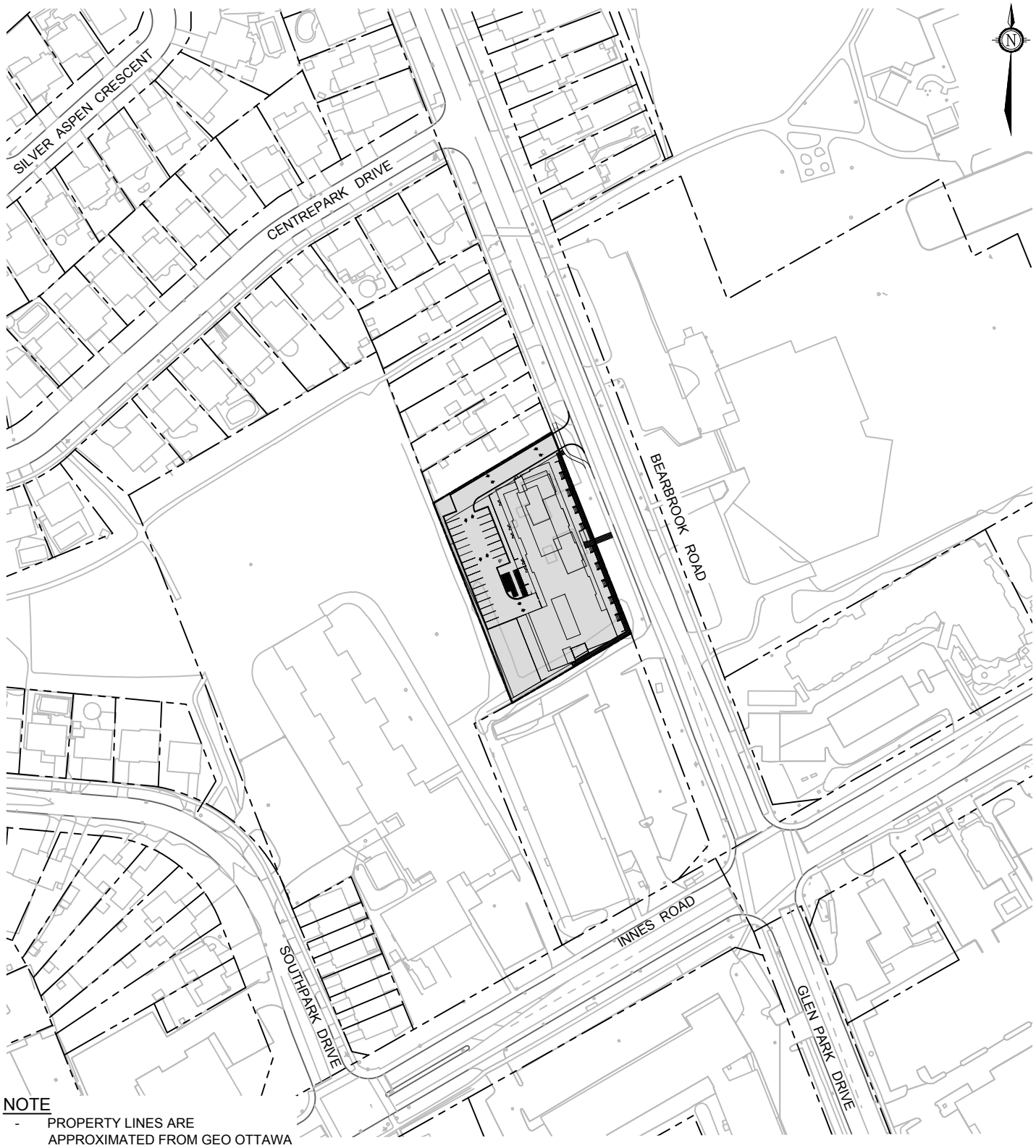
- Trip Generation Trigger – The development is anticipated to generate over 60 peak hour person trips; further assessment is **required** based on this trigger.

- Location Triggers – The development does not propose a new connection to a designated Rapid Transit or Transit Priority (RTTP) corridor or a Spine Cycling Route, and is not located within a Design Priority Area or Transit-Oriented Development Zone; further assessment is **not required** based on this trigger.

- Safety Triggers – The proposed access to Bearbrook Road will be within 150m of an existing traffic signal; further assessment is **required** based on this trigger.

Figure 1: View of the Subject Site





NOTE
- PROPERTY LINES ARE APPROXIMATED FROM GEO OTTAWA

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98, 100 BEARBROOK ROAD

CONTEXT PLAN

SCALE 1 : 2000 (0, 20, 40, 60, 80)

DATE APR 2022 | JOB 121276 | FIGURE FIGURE 2

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2.0 SCOPING

2.1 Existing Conditions

2.1.1 Roadways

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

Innes Road is a major collector roadway that generally runs on an east-west alignment between two intersections with the Blackburn Hamlet Bypass, an arterial bypass roadway. To the west and east of these intersections, the arterial bypass continues in both directions as Innes Road. Within the study area, Innes Road has a two-lane undivided urban cross-section, concrete sidewalks on both sides of the roadway, and a posted speed limit of 50 km/h. Innes Road is classified as a truck route, allowing restricted loads. On-street parking is not permitted.

Bearbrook Road is a major collector roadway that generally runs on a north-south alignment between Innes Road and St. Joseph Boulevard. South of Innes Road, the roadway continues as Glen Park Drive. North of St. Joseph Boulevard, the roadway continues as the federally-owned Sir George-Étienne Cartier Parkway. Within the study area, Bearbrook Road has a two-lane undivided urban cross-section, concrete sidewalks on both sides of the roadway, and a posted speed limit of 40 km/h. Bearbrook Road is not classified as a truck route within the study area. On-street parking is generally permitted. The right-of-way (ROW) of Bearbrook Road is approximately 26m along the frontage of the subject site. Annex 1 of the City's Official Plan does not identify any ROW protection for Bearbrook Road, and therefore no widening is required.

Southpark Drive is a local roadway that runs on a curvilinear alignment between Innes Road and Tauvette Street. Within the study area, Southpark Drive has a two-lane undivided urban cross-section, a concrete sidewalk on the east side of the roadway, and a posted speed limit of 40 km/h. Southpark Drive is not classified as a truck route. On-street parking is permitted only on the east side of the roadway.

Glen Park Drive is a local roadway that runs on a curvilinear alignment, forming a crescent that intersects Innes Road in two locations, approximately 750m apart. North of the western intersection with Innes Road, the roadway continues as Tauvette Street. North of the eastern intersection with Innes Road, the roadway continues as Bearbrook Road. Within the study area, Glen Park Drive has a two-lane undivided urban cross-section, concrete sidewalks on both sides of the roadway between Innes Road and Lois Kemp (Blackburn) Arena, and on the inside of the roadway for the entire length of Glen Park Drive, and a posted speed limit of 40 km/h. Glen Park Drive is not classified as a truck route. On-street parking is not permitted on Glen Park Drive within the study area.

Orient Park Drive is a local roadway that runs on a curvilinear alignment between Innes Road and Cléroux Crescent. Within the study area, Orient Park Drive has a two-lane undivided urban cross-section, a concrete sidewalk on the inside of the roadway, and a posted speed limit of 40 km/h. Orient Park Drive is not classified as a truck route. On-street parking is not permitted on Orient Park Drive within the study area.

Centrepark Drive is a local roadway that runs on a curvilinear alignment, forming a crescent that intersects Bearbrook Road in two locations, approximately 270m apart. Within the study area, Centrepark Drive has a two-lane undivided urban cross-section, a concrete sidewalk on the outside of the roadway, and a posted speed limit of 40 km/h. Centrepark Drive is not classified as a truck route. On-street parking is permitted only on the outer side of the roadway.

The roadway of the greater area surrounding the subject site is illustrated in **Figure 3**.

Figure 3: Roadway Network

2.1.2 Intersections

Innes Road/Southpark Drive

- Signalized three-legged intersection
- North Approach (Southpark Drive):
  one left turn lane and one right turn lane
- East Approach (Innes Road):
  one shared through/right turn lane
- West Approach (Innes Road):
  one left turn lane and one through lane
- Standard crosswalks on all approaches
- Curbside bike lanes on east and west approaches

Innes Road/Bearbrook Road/Glen Park Drive East

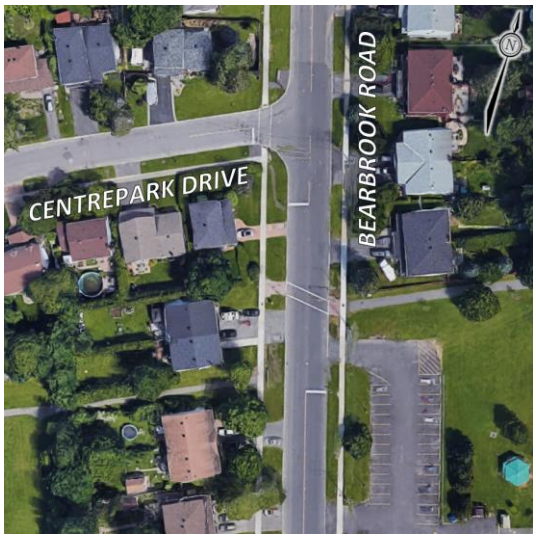
- Signalized four-legged intersection
- North Approach (Bearbrook Road):
  one left turn lane and one shared through/right turn lane
- South Approach (Glen Park Drive):
  one left turn lane and one shared through/right turn lane
- East/West Approaches (Innes Road):
  one left turn lane and one shared through/right turn lane
- Standard crosswalks on all approaches
- Curbside bike lanes on east and west approaches

Innes Road/Orient Park Drive

- Signalized four-legged intersection
- North Approach (Access to 2727 Innes Road):
  one shared left turn/through/right turn lane
- South Approach (Orient Park Drive):
  one shared left turn/through/right turn lane
- East/West Approaches (Innes Road):
  one left turn lane and one shared through/right turn lane
- Standard crosswalks on all approaches
- Curbside bike lanes on east and west approaches

Bearbrook Road/43m South of Centrepark Drive South

- Signalized pedestrian crossing
- North/South Approaches (Bearbrook Road): one through lane
- Standard crosswalk provided at crossing
- An unsignalized access to Good Shepherd School (101 Bearbrook Road) is located between the northbound stop bar and the crosswalk



2.1.3 Driveways

In accordance with the *2017 TIA Guidelines*, a review of driveways along the boundary road Bearbrook Road within 200m of the proposed access are provided as follows:

Bearbrook Road, West Side:

- One driveway to commercial uses at 110 Bearbrook Road
- Eight driveways to residences at 72, 74, 76, 78, 82, 84-86, 88-90, and 92-94 Bearbrook Road

Bearbrook Road, East Side:

- One driveway to a retirement residence at 2645 Innes Road
- Four driveways to Good Shepherd School at 101 Bearbrook Road
- Six driveways to residences at 77, 79-81, 83-85, 87-89, 91-93, and 95-97 Bearbrook Road

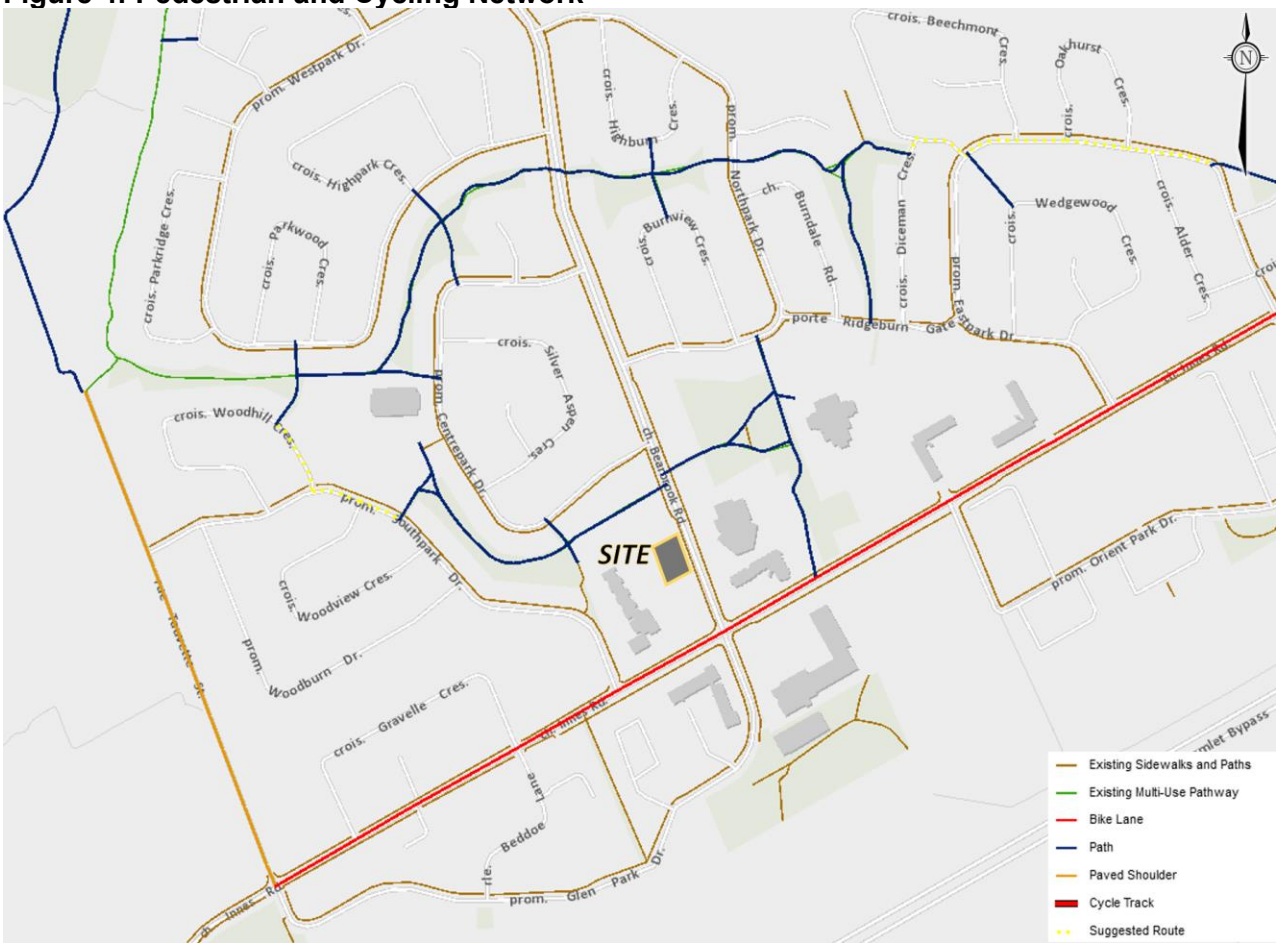
2.1.4 Pedestrian and Cycling Facilities

Concrete sidewalks are provided on both sides of Innes Road, Bearbrook Road, and Glen Park Drive (between Innes Road and Blackburn Arena), and on one side of Southpark Drive, Orient Park Drive, and Centrepark Drive. Asphalt pathways are provided in the parks throughout the Blackburn Hamlet community surrounding the site. Pedestrian crossings are provided on Bearbrook Road between Innes Road and Centrepark Drive South, and on Innes Road between Bearbrook Road and Orient Park Drive.

In the City of Ottawa's primary cycling network, Innes Road is identified as a Crosstown Bikeway and Spine Route, and Bearbrook Road is identified as a Local Route. Southpark Drive, Glen Park Drive, Orient Park Drive, and Centrepark Drive have no cycling route designation. Curbside bike lanes are provided on Innes Road.

The pedestrian and cycling network of the greater area surrounding the subject site is illustrated in **Figure 4**.

Figure 4: Pedestrian and Cycling Network



2.1.5 Transit

OC Transpo bus stops in proximity of the subject site are summarized as follows:

<u>Innes/Bearbrook</u>

- Stop #8928 – for routes 25, 28, and 622
  (located on the north side of Innes Road, approximately 55m west of Bearbrook Road)
- Stop #2612 – for routes 25, 28, 622, 641, and 648
  (located on the north side of Innes Road, approximately 140m east of Bearbrook Road)

<u>Innes/Glen Park</u>

- Stop #2611 – for routes 25, 28, 622, 641, and 648
  (located on the south side of Innes Road, approximately 55m east of Glen Park Drive)

<u>Northpark/Bearbrook</u>

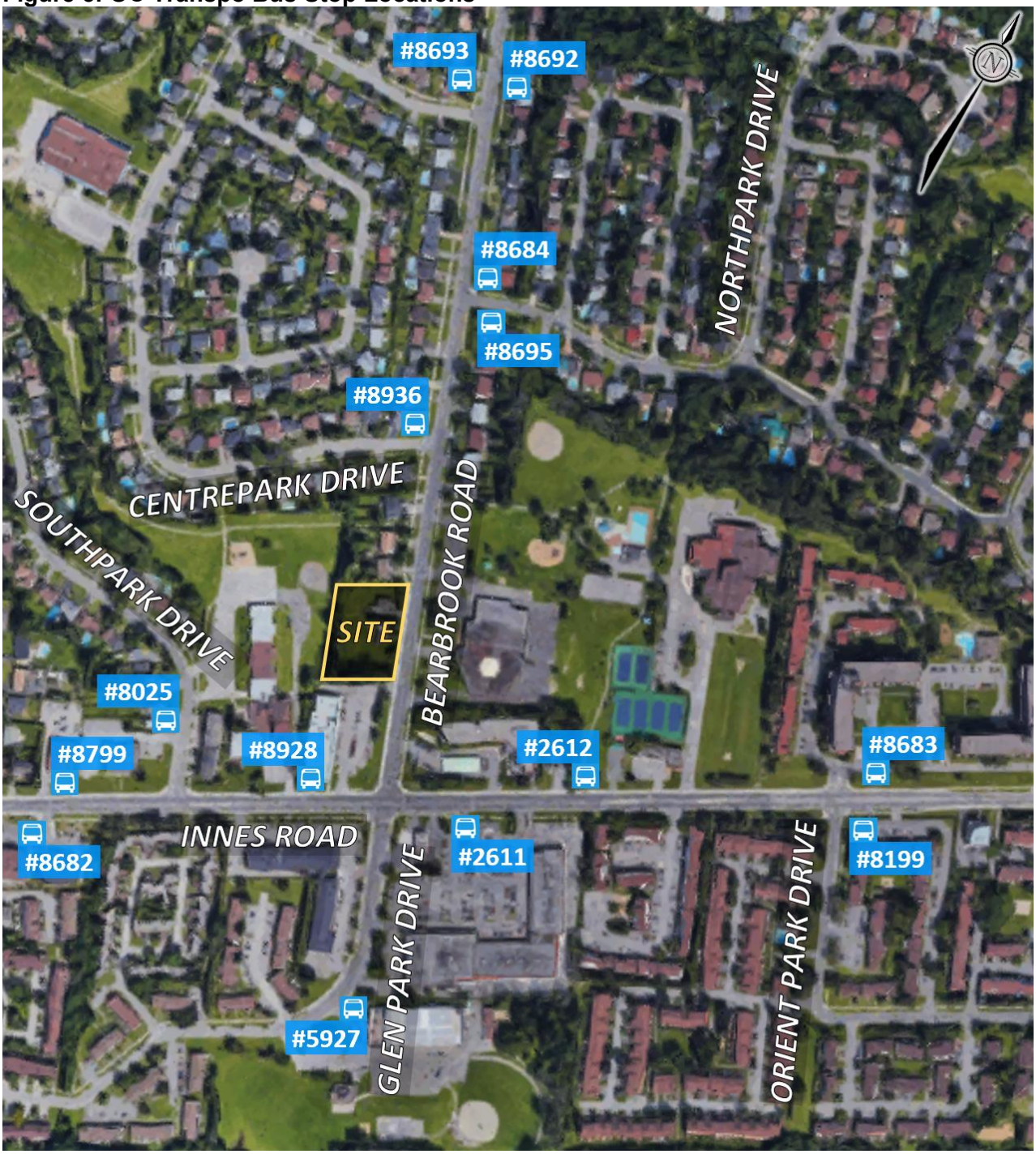
- Stop #8684 – for route 28
  (located at the northeast corner of Bearbrook Road/Northpark Drive South)
- Stop #8695 – for route 28
  (located at the southeast corner of Bearbrook Road/Northpark Drive South)

Bearbrook/Centrepark (South)

- Stop #8936 – for routes 28, 641, and 648
  (located at the northwest corner of Bearbrook Road/Centrepark Drive South)

Locations of bus stops in proximity of the site are shown in **Figure 5**.

Figure 5: OC Transpo Bus Stop Locations



OC Transpo Route 25 (Millennium–La Cité/Blair) is a frequent route, travelling between Millennium Station and La Cité College, or the Canada Aviation and Space Museum. The route operates within the study area every seven to 30 minutes from 4:30am to 1:30am. Route 25 operates seven days a week.

OC Transpo Route 28 (Blackburn Hamlet–Blair) is a local route, generally travelling between Blair LRT Station and Tauvette/Innes or Blackburn Arena. The route operates within the study area every 30 minutes from 6:30am to 7:00pm. Route 28 operates seven days a week.

OC Transpo Route 622 (Special–Renaud) is a school route, travelling between Renaud/ Saddleridge and Colonel By Secondary School. The route operates on school days within the study area at 8:15am and 8:40am (destined to the school), and 3:19pm and 3:49pm (arriving from the school).

OC Transpo Routes 641 (Louis Riel–Orléans) is a school route, travelling between Renaud/ Compass and Louis Riel High School. The route operates on school days within the study area at 8:22am (destined to the school), and 3:12pm (arriving from the school).

OC Transpo Route 648 (Louis Riel–Orléans) is a school route, travelling between Forestvalley/Ad. 1402 or Youville/St. Joseph and Louis Riel High School. The route operates on school days within the study area at 8:20am (destined to the school), and 3:10pm (arriving from the school).

Detailed route information and an excerpt from the OC Transpo System Map are included in **Appendix C**.

2.1.6 Area Traffic Management

There are no Area Traffic Management (ATM) studies within the study area that have been completed or are currently in progress. Signage on Bearbrook Road indicates that the neighbourhood to the north of the subject site is traffic calmed. Street-level photography from June 2021 indicate that flex posts, speed boards, SCHOOL pavement markings, and painted edge lines (narrowing travel lanes to 3.5 in width) have been implemented on Bearbrook Road. SCHOOL pavement markings and flex posts are also provided along Innes Road west of Southpark Drive and west of Orient Park Drive.

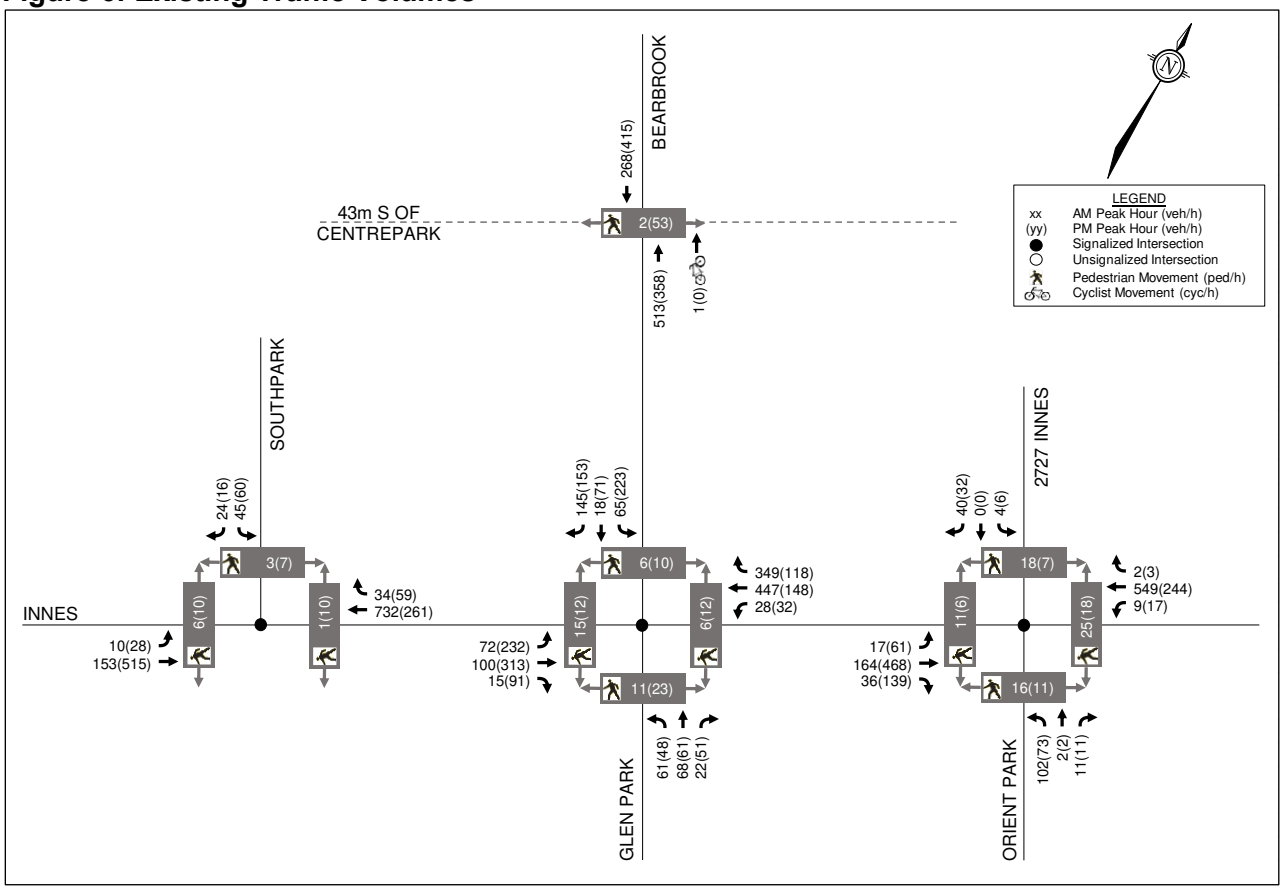
2.1.7 Existing Traffic Volumes

Weekday traffic counts completed by the City of Ottawa were used to determine the existing pedestrian, cyclist, and vehicular traffic volumes at the study area intersections. All traffic count data is included in **Appendix D**, and traffic volumes within the study area are shown in **Figure 6**. The counts were completed on the dates listed below:

- Innes Road/Southpark Drive — November 28, 2018
- Innes Road/Bearbrook Road/Glen Park Drive East — December 5, 2018
- Innes Road/Orient Park Drive — December 19, 2018
- Bearbrook Road/43m South of Centrepark Drive South — November 28, 2018

Based on the count data for Innes Road/Bearbrook Road/Glen Park Drive East, the average annual daily traffic (AADT) of Bearbrook Road at Innes Road is approximately 9,420 vehicles per day.

Figure 6: Existing Traffic Volumes



2.1.8 Collision Records

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

The collision data has been evaluated to determine if there are any identifiable collision patterns, which are defined in the *2017 TIA Guidelines* as 'more than six collisions in five years' for any one movement. The number of collisions at each intersection from January 1, 2015 to December 31, 2019 is summarized in **Table 1**.

Table 1: Reported Collisions

Intersection/ Street Segment	Impact Type					Total
	Angle	Rear End	Sideswipe	Turning Mvmt	SMV[(1)]/ Other	
Innes Road/ Southpark Drive	1	-	-	2	2	**5**
Innes Road/ Bearbrook Road/Glen Park Drive East	4	6	2	1	1	**14**
Innes Road/ Orient Park Drive	2	3	-	3	2	**10**
Bearbrook Road/ 43m South of Centrepark Drive South	-	1	-	-	-	**1**

Intersection/ Street Segment	Impact Type					Total
	Angle	Rear End	Sideswipe	Turning Mvmt	SMV[1]/ Other	
Innes Road btwn Southpark Drive and Bearbrook Road	-	-	-	-	1	**1**
Innes Road btwn Bearbrook Road and Orient Park Drive	7	3	-	2	-	**12**
Bearbrook Road btwn Innes Road and Centrepark Drive South	-	-	-	-	-	**0**

1. SMV = Single Motor Vehicle

Innes Road/Southpark Drive
A total of five collisions were reported at this intersection over the last five years, of which there was one angle impact, two turning movement impacts, and two single vehicle/other impacts. Three of the five collisions resulted in injuries, but none caused fatalities. Three collisions also occurred in poor driving conditions. One collision involved a pedestrian and one involved a cyclist.

Innes Road/Bearbrook Road/Glen Park Drive East
A total of 14 collisions were reported at this intersection over the last five years, of which there were four angle impacts, six rear-end impacts, two sideswipe impacts, one turning movement impact, and one single vehicle/other impact. Two of the 14 collisions resulted in injuries, but none caused fatalities. Four collisions occurred in poor driving conditions. None of the collisions involved pedestrians or cyclists.

Of the six rear-end impacts, three occurred at the southbound approach and three occurred at the westbound approach. None of the collisions occurred in poor driving conditions.

Innes Road/Orient Park Drive
A total of 10 collisions were reported at this intersection over the last five years, of which there were two angle impacts, three rear-end impacts, three turning movement impacts, and two single vehicle/ other impacts. One of the 10 collisions resulted in injuries, but none caused fatalities. Four collisions occurred in poor driving conditions. One of the single vehicle collisions involved two pedestrians. No collisions involved cyclists.

Bearbrook Road/43m South of Centrepark Drive South
One collision was reported at this intersection over the last five years, which was a rear-end impact between two southbound vehicles. This collision did not result in injuries, and occurred in poor driving conditions.

Innes Road between Southpark Drive and Bearbrook Road/Glen Park Drive East
One collision was reported along this segment over the last five years, which was a single vehicle impact. This collision did not result in injuries, and did not occur in poor driving conditions.

Innes Road between Bearbrook Road/Glen Park Drive East and Orient Park Drive
A total of 12 collisions were reported along this segment over the last five years, of which there seven angle impacts, three rear-end impacts, and two turning movement impacts. Three of the 12 collisions resulted in injuries, but none caused fatalities. Three collisions also occurred in poor driving conditions. One of the turning movement impacts involved a cyclist. No collisions involved pedestrians.

Of the seven angle impacts, four involved northbound left turning vehicles from driveways onto Innes Road, two involved northbound right turning vehicles from driveways onto Innes Road, and one involved an eastbound vehicle making an improper right turn onto a driveway from Innes Road. Three of these seven impacts occurred in poor driving conditions.

2.2 Planned Conditions

2.2.1 Planned Transportation Projects

Within the study area, the 2013 Ottawa Cycling Plan and 2013 Ottawa Pedestrian Plan do not identify any cyclist or pedestrian infrastructure projects within the study area.

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

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

2.2.2 Other Area Developments

In proximity of the proposed development, there are two other residential developments that are in the approval process, and are summarized as follows:

A 3.5-storey residential building containing 33 dwellings is proposed at 2487 Innes Road. A TIA Screening Form was completed in June 2020, and concluded that a TIA was not required.

Two three-storey residential buildings containing a total of 80 dwellings are proposed at 2380 and 2396 Cléroux Crescent. A TIA Screening Form was completed in June 2021, and concluded that a TIA was not required.

2.3 Study Area and Time Periods

The study area for this report includes the boundary roadway Bearbrook Road, as well as the following intersections:

- Innes Road/Southpark Drive;
- Innes Road/Bearbrook Road/Glen Park Drive East;
- Innes Road/Orient Park Drive;
- Bearbrook Road/43m South of Centrepark Drive South.

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

2.4 Exemptions Review

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

Table 2: TIA Exemptions

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

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

Design Review Component
- Module 4.1: Development Design
- Module 4.2: Parking
- Module 4.3: Boundary Streets
- Module 4.4: Access Design

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

3.0 FORECASTING

3.1 Development-Generated Travel Demand

3.1.1 Trip Generation

The proposed development will include 159 apartment dwellings and nine townhouse dwellings, for a total of 168 residential dwellings. The *TRANS Trip Generation Manual Summary Report*, prepared in October 2020 by WSP, includes data to estimate the trip generations and mode shares for residential uses, divided into single-family detached housing, low-rise multifamily housing (defined as one or two storeys), and high-rise multifamily housing (defined as three or more storeys). The trip generation estimates below assume that all dwellings will correspond to the High-Rise Multifamily Housing land use, as the proposed townhouses are located on the first floor of the proposed building. Relevant excerpts of the *TRANS Trip Generation Manual* are included in **Appendix F**.

The *TRANS Trip Generation Manual* identifies the subject site as being located within the Orléans district, which has the following observed mode shares during the peak hours:

- Auto Driver: 54% AM, 60% PM
- Auto Passenger: 7% AM, 13% PM
- Transit: 29% AM, 21% PM
- Cyclist: 0% AM, 0% PM
- Pedestrian: 10% AM, 6% PM

For the proposed development, one set of mode shares have been assumed for both peak hours, based on the foregoing mode shares (i.e. 55% auto driver, 10% auto passenger, 25% transit, 10% pedestrian).

The process of converting the trip generation estimates from peak period to peak hour is shown in the following tables, and follows the process outlined in the *TRANS Trip Generation Manual*. While it is acknowledged that the subject site is currently occupied by two detached houses, it has been assumed that these houses do not generate any peak hour trips. This simplifying assumption also allows for a more conservative analysis.

The estimated number of person trips generated by the proposed development for the AM and PM peak periods are shown in **Table 3**. A breakdown of these trips by modal share is shown in **Table 4**.

Table 4 of the *TRANS Trip Generation Manual* includes adjustment factors to convert the estimated number of trips generated for each mode from peak period to peak hour. A breakdown of the peak hour trips by mode is shown in **Table 5**.

Table 3: Proposed Residential – Peak Period Trip Generation

Land Use	TRANS Rate	Units	AM Peak Period (ppp[1])			PM Peak Period (ppp)		
			IN	OUT	TOT	IN	OUT	TOT
High-Rise Multifamily Housing	AM: 0.80 PM: 0.90	168 units	44	99	*143*	93	68	*161*

1. ppp: Person Trips per Peak Period

Table 4: Proposed Residential – Peak Period Trips by Mode Share

Travel Mode	Mode Share	AM Peak Period			PM Peak Period		
		IN	OUT	TOT	IN	OUT	TOT
Peak Period Person Trips		**44**	**99**	***143***	**93**	**68**	***161***
Auto Driver	55%	25	54	*79*	52	37	*89*
Auto Passenger	10%	4	10	*14*	9	7	*16*
Transit	25%	11	25	*36*	23	17	*40*
Cyclist	0%	-	-	*0*	-	-	*0*
Pedestrian	10%	4	10	*14*	9	7	*16*

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

Travel Mode	Adj. Factor		AM Peak Hour			PM Peak Hour		
	AM	PM	IN	OUT	TOT	IN	OUT	TOT
Auto Driver	0.48	0.44	12	27	*39*	23	17	*40*
Auto Passenger	0.48	0.44	2	5	*7*	4	3	*7*
Transit	0.55	0.47	6	14	*20*	11	8	*19*
Cyclist	0.58	0.48	-	-	*0*	-	-	*0*
Pedestrian	0.58	0.52	3	5	*8*	5	3	*8*
Peak Hour Person Trips			**23**	**51**	***74***	**43**	**31**	***74***

From the previous table, the proposed development is estimated to generate 74 person trips (including 39 vehicle trips) during the AM peak hour, and 74 person trips (including 40 vehicle trips) during the PM peak hour.

3.1.2 Trip Distribution and Assignment

The assumed distribution of site-generated trips has derived from existing commuter traffic patterns within the study area (i.e. outbound traffic in the morning and inbound traffic in the afternoon) and logical trip routing. This distribution can be summarized as follows:

- 30% to/from the north via Bearbrook Road;
- 5% to/from the south via Glen Park Drive;
- 15% to/from the east via Innes Road;
- 50% to/from the west via Innes Road.

All trips are assigned to the singular proposed access to Bearbrook Road.

3.2 Background Traffic

A review of snapshots of the City's *Strategic Long-Range Model* and *Intersection Traffic Growth Rates (2000-2016)* has been conducted. Both resources are included in **Appendix G**. Comparing snapshots of the 2011 and 2031 AM peak hour traffic volumes, the *Strategic Long-Range Model* generally indicates growth of 0% to 4% on Innes Road, and -1% to 0% on Bearbrook Road. The *Intersection Traffic Growth Rates* figures, which determine growth rates based on total vehicular volumes entering the intersection, identify the following growth rates.

Innes Road/Southpark Drive

- AM Peak Hour: positive growth between +0.2% and +2.0% per annum;
- PM Peak Hour: negative growth between –0.2% and –2.0% per annum.

Innes Road/Bearbrook Road/Glen Park Drive East

- AM Peak Hour: positive growth between +2.0% and +4.0% per annum;
- PM Peak Hour: positive growth between +0.2% and +2.0% per annum.

Innes Road/Orient Park Drive

- AM Peak Hour: positive growth between +2.0% and +4.0% per annum;
- PM Peak Hour: positive growth between +0.2% and +2.0% per annum.

Based on the above, annual background growth rates of 2% have been assumed for through volumes on Innes Road. No background growth has been assumed on Bearbrook Road, Southpark Drive, Glen Park Drive, or Orient Park Drive.

3.3 Future Traffic Conditions

The figures below present the following future traffic conditions:

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

Figure 7: Proposed Site-Generated Traffic Volumes

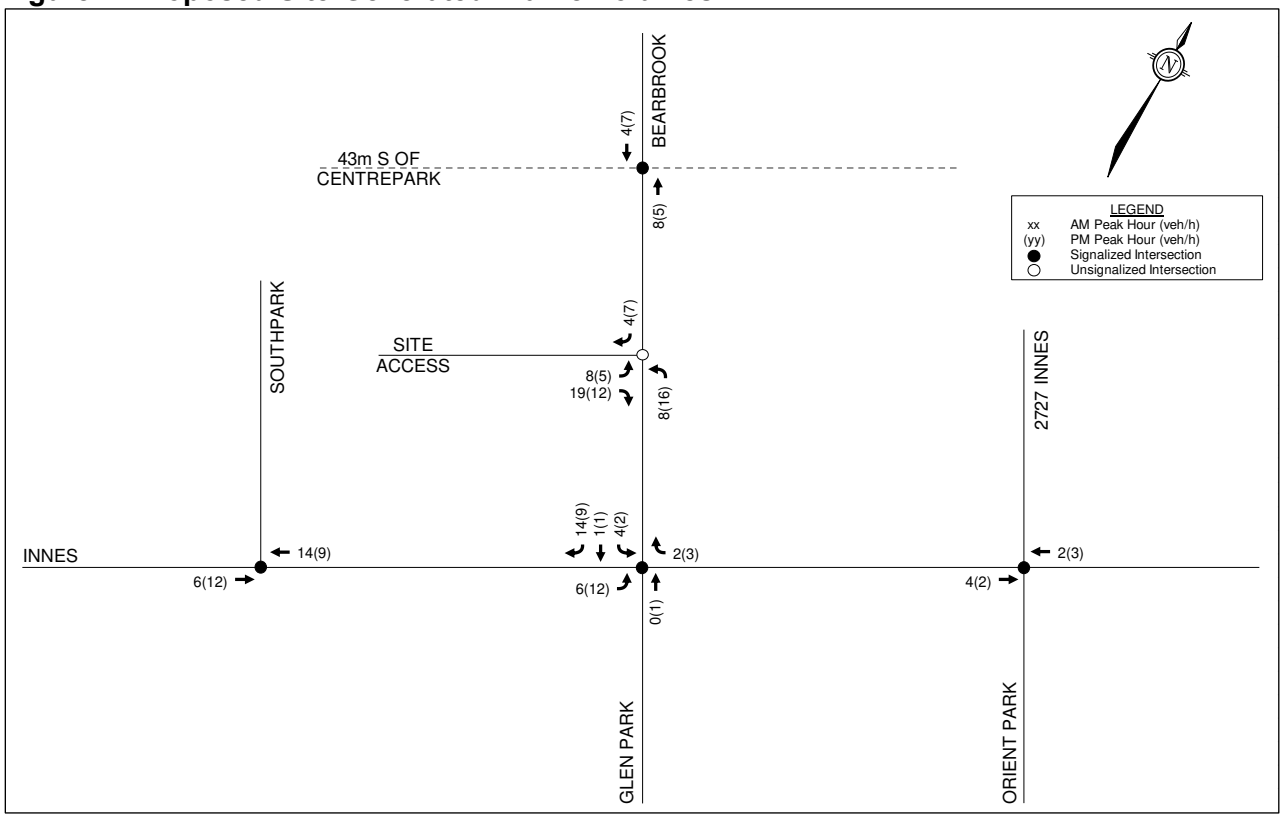


Figure 8: 2023 Background Traffic Volumes

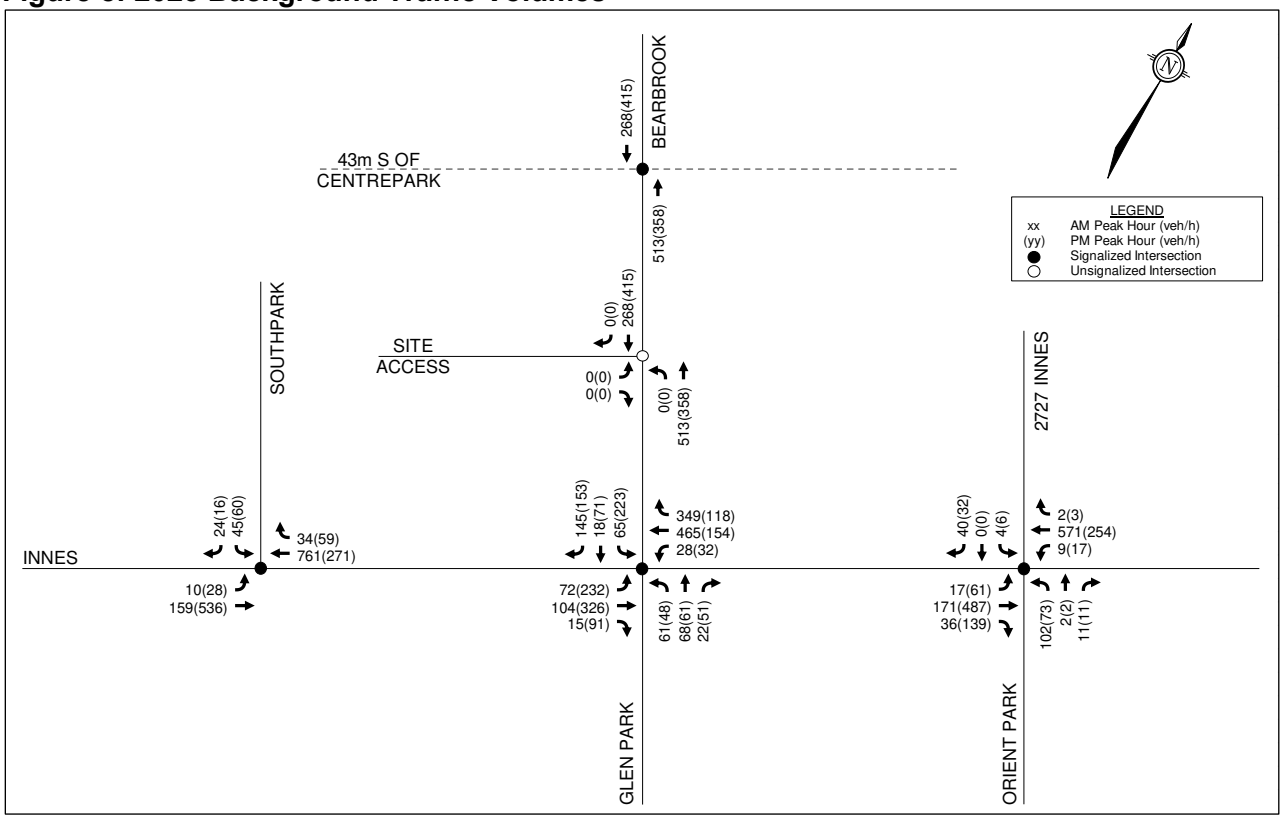


Figure 9: 2028 Background Traffic Volumes

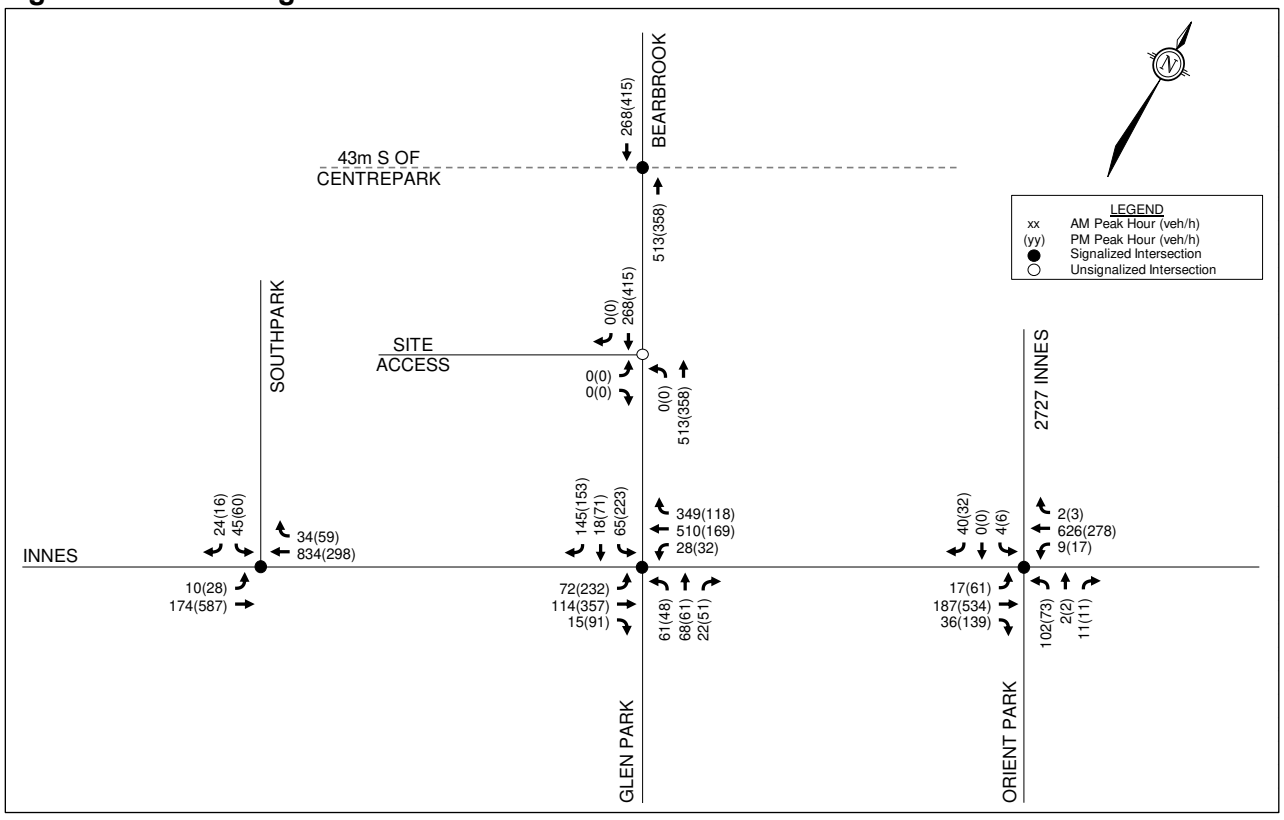


Figure 10: 2023 Total Traffic Volumes

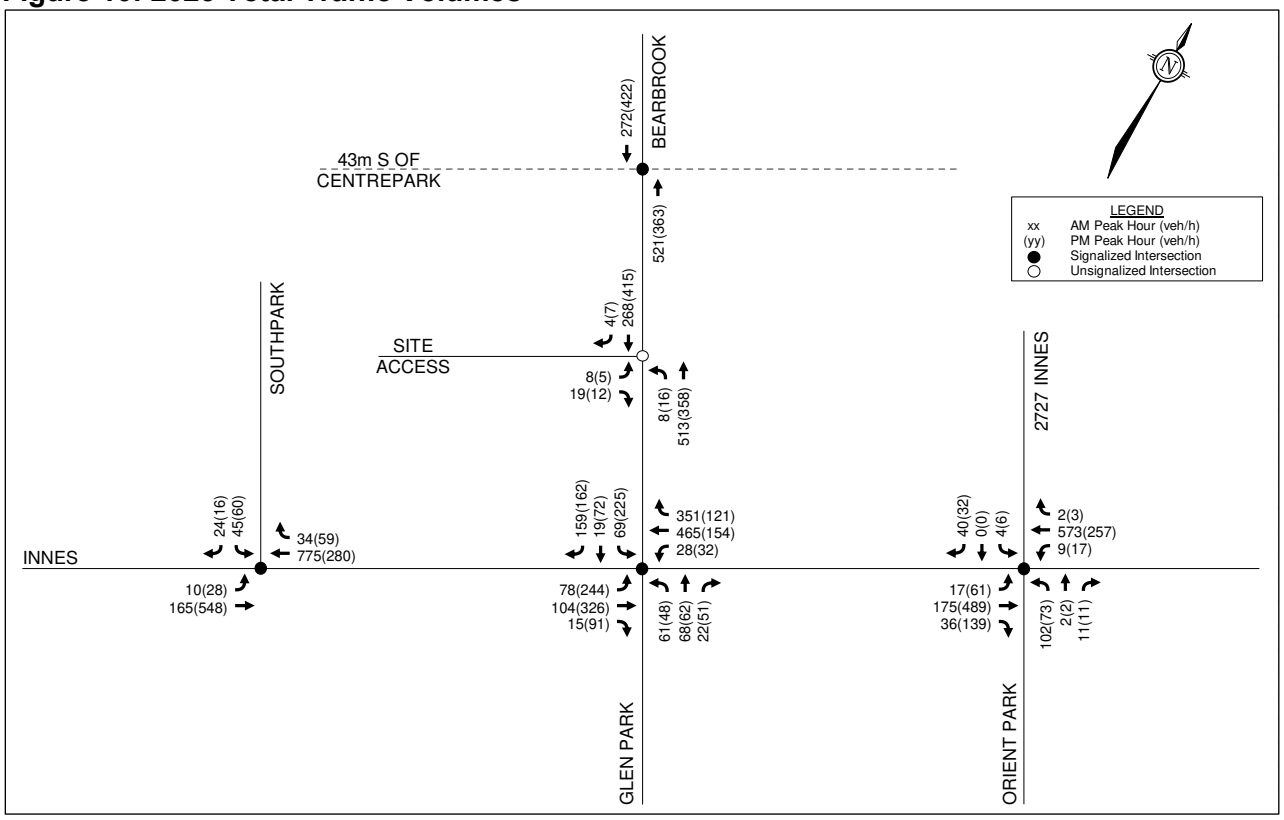
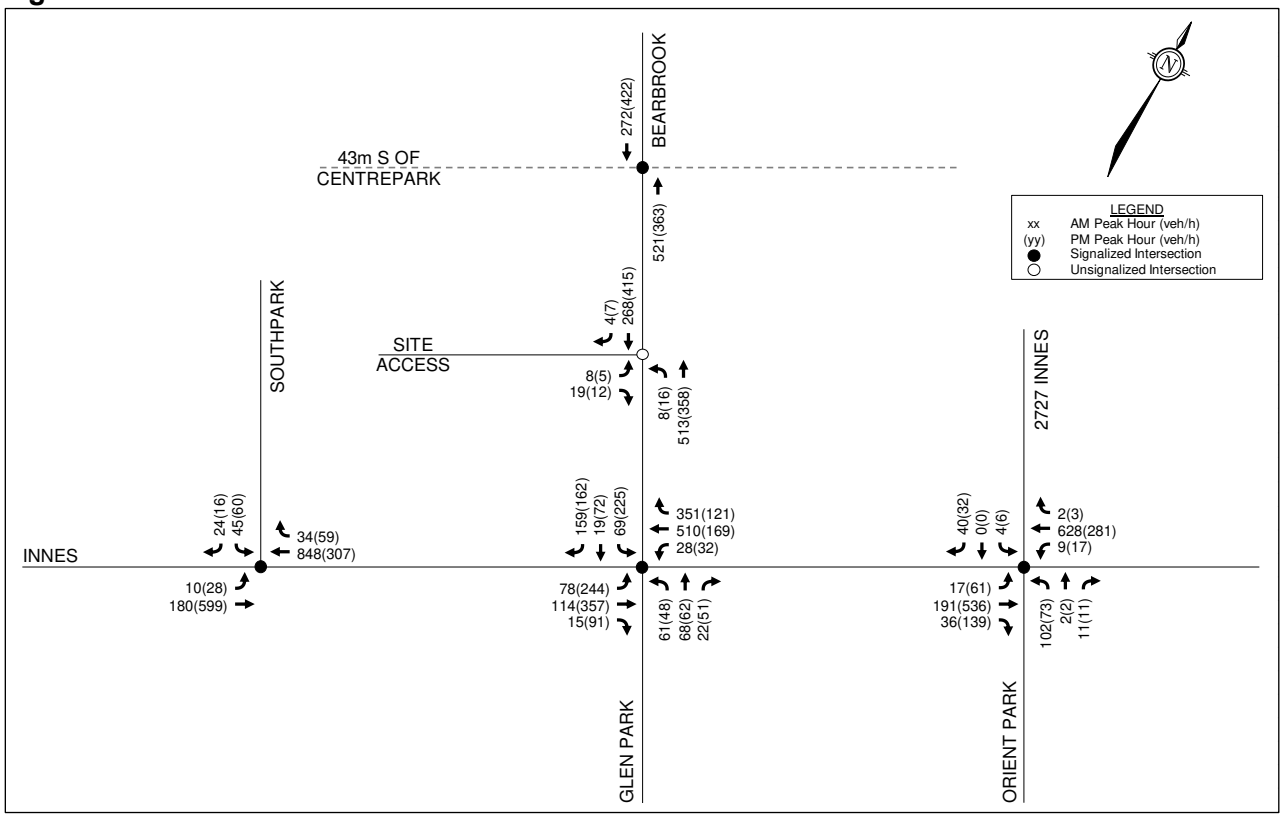


Figure 11: 2028 Total Traffic Volumes



3.4 Demand Rationalization

A review of the existing and background intersection operations has been conducted to determine if and when traffic volumes exceed capacity within the study area. The intersection parameters used in the analysis are consistent with the *2017 TIA Guidelines* (Saturated Flow Rate: 1,800 vphpl, Peak Hour Factor: 0.9 in existing conditions and 1.0 in future conditions).

All study area intersections are located within 300m of a school. Per Exhibit 22 of the *Multi-Modal Level of Service (MMLOS) Guidelines*, the target vehicular level of service (Auto LOS) at all study area intersections is therefore an Auto LOS E, which equates to a vehicle-to-capacity (v/c) ratio of 1.00 at signalized intersections. Signal timing plans were obtained from the City, and are included in **Appendix H**.

3.4.1 Existing Intersection Operations

Intersection capacity analysis has been conducted for the existing traffic conditions. The results of the analysis are summarized in **Table 6** for the weekday AM and PM peak hours. Detailed reports are included in **Appendix I**.

Table 6: Existing Traffic Operations

Intersection	AM Peak			PM Peak		
	Max v/c	LOS	Mvmt	Max v/c	LOS	Mvmt
Innes Road/ Southpark Drive	0.59	A	WBT/R	0.40	A	EBT
Innes Road/ Bearbrook Road/Glen Park Drive East	0.78	C	WBT/R	0.75	C	SBL
Innes Road/ Orient Park Drive	0.56	A	NBL/T/R	0.53	A	EBT/R
Bearbrook Road/ 43m South of Centrepark Drive	0.33	A	NBT	0.29	A	SBT

From the previous table, all study area intersections operate at an Auto LOS C or better during the peak hours.

During the AM peak hour, the maximum (95th-percentile) queue lengths of the westbound through/ right turn movements at Innes Road/Southpark Drive and Innes Road/Bearbrook Road/Glen Park Drive East extend close to upstream intersections.

During the PM peak hour, the maximum queue length of the southbound left turn at Innes Road/ Bearbrook Road/Glen Park Drive East marginally exceeds the approximately 40m of storage length provided.

3.4.2 2023 Background Intersection Operations

Intersection capacity analysis has been conducted for the 2023 background traffic conditions. The results of the analysis are summarized in **Table 7** for the weekday AM and PM peak hours. Detailed reports are included in **Appendix J**.

Table 7: 2023 Background Traffic Operations

Intersection	AM Peak			PM Peak		
	Max v/c	LOS	Mvmt	Max v/c	LOS	Mvmt
Innes Road/ Southpark Drive	0.55	A	WBT/R	0.37	A	EBT
Innes Road/ Bearbrook Road/Glen Park Drive East	0.72	C	WBT/R	0.71	C	SBL
Innes Road/ Orient Park Drive	0.52	A	NBL/T/R	0.50	A	EBT/R
Bearbrook Road/ 43m South of Centrepark Drive	0.30	A	NBT	0.26	A	SBT

From the previous table, all study area intersections are projected to operate at an Auto LOS C or better during the peak hours. Despite the addition of background traffic growth, critical movements throughout the study area appear to improve when compared to existing conditions, due to differences in the Peak Hour Factor parameter (i.e. 0.9 in existing conditions versus 1.0 in future conditions).

During the AM peak hour, the maximum queue lengths of the westbound through/right turn movements at Innes Road/Southpark Drive and Innes Road/Bearbrook Road/Glen Park Drive East extend close to upstream intersections.

During the PM peak hour, the maximum queue length of the southbound left turn at Innes Road/ Bearbrook Road/Glen Park Drive East marginally exceeds the approximately 40m of storage length provided.

3.4.3 2028 Background Intersection Operations

Intersection capacity analysis has been conducted for the 2028 background traffic conditions. The results of the analysis are summarized in **Table 8** for the weekday AM and PM peak hours. Detailed reports are included in **Appendix J**.

Table 8: 2028 Background Traffic Operations

Intersection	AM Peak			PM Peak		
	Max v/c	LOS	Mvmt	Max v/c	LOS	Mvmt
Innes Road/ Southpark Drive	0.60	A	WBT/R	0.41	A	EBT
Innes Road/ Bearbrook Road/Glen Park Drive East	0.76	C	WBT/R	0.71	C	SBL
Innes Road/ Orient Park Drive	0.51	A	WBT/R	0.53	A	EBT/R
Bearbrook Road/ 43m South of Centrepark Drive	0.30	A	NBT	0.26	A	SBT

From the previous table, all study area intersections are projected to operate at an Auto LOS C or better during the peak hours.

During the AM peak hour, the maximum queue lengths of the westbound through/right turn movements at Innes Road/Southpark Drive and Innes Road/Bearbrook Road/Glen Park Drive East extend close to upstream intersections.

During the PM peak hour, the maximum queue length of the southbound left turn at Innes Road/ Bearbrook Road/Glen Park Drive East marginally exceeds the approximately 40m of storage length provided.

4.0 ANALYSIS

4.1 Development Design

4.1.1 Design for Sustainable Modes

Pedestrian walkways will provide a connection between the sidewalk on the west side of Bearbrook Road and the entrances to the townhouse units, as well as the main entrance to the lobby for the apartment units. A pedestrian walkway will also connect to a secondary access to the lobby for the apartment units at the back of the building. The proposed access is located where the existing sidewalk is transitioning from a boulevard to a curbside sidewalk. It is proposed that the existing sidewalk be extended across the access, before transitioning curbside south of the proposed access.

Bicycle parking will be provided in designated areas adjacent to the rear entrance and within the underground parking garage. The number of bicycle parking spaces, as well as the minimum bicycle parking requirements per the City's *Zoning By-Law* (ZBL), are reviewed further in Section 4.2.

OC Transpo's service design guideline for peak period service is to provide service within a five-minute (400m) walk of home, work, or school for 95% of urban residents. Measuring from the main entrance, the proposed development is within 400m walking distance of bus stops #2611, #2612, #5927, #8025, #8684, #8695, #8928, and #8936. These stops are serviced by OC routes 25, 28, 622, 641, and 648.

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

- Locate building close to the street, and do not locate parking areas between the street and building entrances;
- Locate building entrances in order to minimize walking distances to sidewalks and transit stops/stations;
- Locate building doors and windows to ensure visibility of pedestrians from the building, for their security and comfort;
- Provide safe, direct, and attractive walking routes from building entrances to nearby transit stops.

4.1.2 Circulation and Access

Pick-ups and drop-offs can occur curbside on the west side Bearbrook Road. Garbage collection will be facilitated in a refuse area at the northwest corner of the subject site. The fire route for the proposed development is located along Bearbrook Road.

4.2 Parking

The subject site is located within Area C on Schedules 1 and 1A of the City's ZBL. Minimum vehicle and bicycle parking rates for the proposed development are identified in Sections 101, 102, and 111 of the ZBL, and are summarized in **Table 9**.

Table 9: Required and Proposed Parking

Land Use	Rate	Units	Required	Provided
Minimum Vehicle Parking				
Dwelling, Townhouse	1.0 spaces per dwelling unit (resident), plus 0.2 spaces per dwelling unit (visitor)	9 units	11	209
Dwelling, Mid-Rise	1.2 spaces per dwelling unit (resident), plus 0.2 spaces per dwelling unit (visitor)	159 units	223	
		Total	**234**	**209**
Minimum Bicycle Parking				
Dwelling, Apartment	0.5 spaces per dwelling unit	168 units	84	85

Based on the previous table, the proposed number of bicycle parking spaces meet the minimum requirements outlined in the City's ZBL. The proposed number of vehicle parking spaces is 27 spaces short of the requirement, and a variance will be required. As the proposed parking supply is greater than 85% of the requirement, a parking study is not required.

Section 111(12) of the ZBL identifies that, where the number of bicycle parking spaces required for a single residential building exceeds 50 spaces, a minimum of 25% of the required total must be located within a building or structure, a secure area, or bicycle lockers. This requirement is met, as approximately 50% of the proposed bicycle parking spaces will be provided on the first level of the underground parking garage.

4.3 Boundary Streets

This section provides a review of the boundary street Bearbrook Road, using complete streets principles. The *MMLOS Guidelines* produced by IBI Group in October 2015, were used to evaluate the levels of service for each alternative mode of transportation on Bearbrook Road. Based on Exhibit 22 of the *MMLOS Guidelines*, Bearbrook Road has been evaluated against the targets for any roadways 'Within 300m of a School.'

The detailed MMLOS review of Bearbrook Road is included in **Appendix L**. A summary of the results are provided in **Table 10**.

Table 10: Segment MMLOS Summary

Boundary Street	PLOS		BLOS		TLOS		TkLOS	
	Actual	Target	Actual	Target	Actual	Target	Actual	Target
Bearbrook Road	**C**	A	**C**	B	D	-	C	-

From the previous table, Bearbrook Road does not meet the target pedestrian level of service (PLOS) A or target bicycle level of service (BLOS) B. Bearbrook Road achieves a transit level of service (TLOS) D and a truck level of service (TkLOS) C.

Based on Exhibit 4 of the *MMLOS Guidelines*, the target PLOS A cannot be achieved, given the AADT and operating speed of Bearbrook Road. The best possible PLOS B is achieved on the west side of the roadway, and a PLOS C is achieved on the east side of the roadway. The sidewalk on the east side of Bearbrook Road is approximately 1.5m in width, with a boulevard width greater than 2.0m. Per Exhibit 4 of the *MMLOS Guidelines*, a PLOS B can be achieved by widening the existing sidewalk to a width of 2.0m. This is identified for the City's consideration.

Based on Exhibit 11 of the *MMLOS Guidelines*, the target BLOS B can be achieved by implementing an exclusive bike lane with a minimum width of 1.5m. This is identified for the City's consideration.

4.4 Access Design

The design of the proposed access to Bearbrook Road has been evaluated using the relevant provisions of the City's *Private Approach By-Law* (PABL) and *Zoning By-Law* (ZBL), and the Transportation Association of Canada (TAC)'s *Geometric Design Guide for Canadian Roads*.

Section 25(a) of the PABL identifies a maximum number of private approaches that can be provided, based on the amount of frontage to a roadway. For sites with 46m to 150m of frontage, a maximum of two two-way private approaches are permitted to that frontage. Since one access to Bearbrook Road is proposed, this requirement is met.

Section 25(c) of the PABL identifies a maximum width requirement of 9.0m for any two-way private approach, as measured at the street line. The proposed Bearbrook Road access measures approximately 6.0m in width at the street line. Therefore, this requirement is met. Section 107(1)(a) and 107(1)(aa) of the ZBL identify that any driveway providing access to a parking lot or garage must have a minimum width of 6.0m and a maximum width of 6.7m, for double traffic lanes leading to 20 or more parking spaces. The proposed access also meets both of these provisions.

Section 25(m)(ii) of the PABL identifies that, for a property that abuts or is within 46m of an arterial roadway, there is a minimum distance requirement between a private approach and the nearest intersecting street line, based on the land use and the number of parking spaces provided. For apartment buildings with 200 to 299 parking spaces, a minimum distance of 45m is required. TAC's *Geometric Design Guide* identifies a minimum corner clearance requirement of 55m for accesses to major collector roadways, measuring between the private approach and the nearest intersecting street line. Measuring along the street line of Bearbrook Road, the nearest edge of the proposed access is approximately 160m north of the nearest edge of Innes Road and approximately 68m south of the crosswalk at Bearbrook Road/43m South of Centrepark Drive South. Therefore, these requirements are met.

Section 25(p) of the PABL identifies a minimum separation requirement of 3m between a private approach and the nearest property line, as measured at the street line. The northern edge of the proposed access is approximately 0.5m from the northerly property line, and therefore this requirement is not met. This section of the PABL also states that the 3m minimum can be reduced to as little as 0.3m, provided the proposed private approach is located a safe distance from accesses to adjacent properties, has adequate sight lines, and does not create a traffic hazard. As the proposed access meets these criteria, it is requested that the requirement of Section 25(p) be waived.

Section 25(u) of the PABL identifies that any private approach serving a parking area with more than 50 parking spaces shall not have a grade exceeding 2% for the first 9m inside the property line. Measuring from the property line, the proposed access have a maximum grade of 1.9% within the first 9m, and therefore this requirement is met.

TAC's *Geometric Design Guide* identifies minimum clear throat length requirements for accesses, based on land use, development size, and class of roadway. Bearbrook Road has been considered an arterial roadway for the purposes of this requirement, as the *Geometric Design Guide* only identifies lesser requirements for collector roadways and greater requirements for arterial roadways. For apartment developments with 100 to 200 dwellings accessing arterial roadways, a minimum clear throat length of 25m is required. Measuring from the property line, the proposed access provides approximately 36m of clear throat, and therefore this requirement is met.

It is anticipated that the proposed access will operate at an Auto LOS A during both peak hours in future conditions, and southbound queueing at Innes Road/Bearbrook Road/Glen Park Drive East is not anticipated to extend past the proposed access. Detailed Synchro analysis of total traffic conditions is included in Sections 4.8.2 and 4.8.3.

4.5 Transportation Demand Management

4.5.1 Context for TDM

Broken down by dwelling type, the proposed development will include the following:

- 7 studio apartment dwellings;
- 112 one-bedroom apartment dwellings;
- 39 two-bedroom apartment dwellings;
- 10 three-bedroom/four-bedroom townhouse dwellings.

4.5.2 Need and Opportunity

The subject site is designated as 'General Urban Area' on Schedule B of the City's Official Plan, and zoned as 'Arterial Mainstreet' (AM11). As discussed in Section 3.1.1, the mode shares for the proposed development are generally consistent with the observed residential mode shares of the Orléans district, as outlined in the *TRANS Trip Generation Manual* (i.e. 55% auto driver, 10% auto passenger, 25% transit, 10% pedestrian).

Based on the trip generation estimates included in **Table 5**, the number of vehicle trips generated by the proposed development will increase by approximately seven to eight vehicles during the peak hours, if the driver share target is exceeded by 10% (i.e. 65% rather than the target of 55%). Compared to the current volumes within the study area, this increase is marginal. Since the proposed development will be located within proximity of commercial areas, schools, parks, and a recreation centre, it is anticipated that the proposed development will achieve the mode shares discussed above.

4.5.3 TDM Program

A review of the City's *TDM Measures Checklist* has been conducted by the proponent. A copy of the completed residential checklist is included in **Appendix K**. The proponent has committed to providing the following TDM measures:

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

In addition, the proposed development will include one carshare parking space on-site.

4.6 Neighbourhood Traffic Management

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

- 120 vehicles during the peak hour, or 1,000 vehicles per day for local roadways;
- 300 vph during the peak hour, or 2,500 vehicles per day for collector roadways;
- 600 vph during the peak hour, or 5,000 vehicles per day for major collector roadways.

The proposed development will rely on Bearbrook Road (a major collector roadway) for direct access. As shown in Section 2.1.7 and **Figure 6**, the peak hour and daily NTM thresholds for Bearbrook Road are exceeded by the existing volumes. It should be noted that traffic calming measures on Bearbrook Road have been recently implemented, and include the following:

- A reduction in the speed limit of Bearbrook Road from 50 km/h to 40 km/h;
- SCHOOL pavement markings on either side of Good Shepherd School;
- Painted edge lines on Bearbrook Road, narrowing the travel lanes to 3.5m in width;
- Flex posts along Bearbrook Road between Innes Road and Northpark Drive North;
- Speed boards in both directions on Bearbrook Road between Innes Road and Northpark Drive North.

No other neighbourhood traffic management measures are recommended as part of the proposed development.

4.7 Transit

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

- 20 transit trips (6 inbound trips and 14 outbound trips) during the AM peak hour;
- 19 transit trips (11 inbound trips and 8 outbound trips) during the PM peak hour.

All site-generated transit trips are anticipated to board and alight buses at the stops listed in Section 2.1.6, which includes stops on Innes Road and Bearbrook Road. No capacity issues are anticipated for OC Transpo Routes 25 and 28, based on the above transit trip estimates.

4.8 Intersection Design

4.8.1 Intersection MMLOS Review

This section provides a review of the study area intersections using complete streets principles. The signalized intersections along Innes Road have been evaluated for PLOS, BLOS, TLOS, TkLOS, and Auto LOS, while Bearbrook Road/43m South of Centrepark Drive South has been evaluated for PLOS and TLOS only. All study area intersections have been evaluated against the targets for intersections 'within 300m of a school.' The full intersection MMLOS analysis are included in **Appendix L**. A summary of the results is shown in **Table 11**.

Table 11: Intersection MMLOS Summary

Intersection	PLOS		BLOS		TLOS		TkLOS	
	Actual	Target	Actual	Target	Actual	Target	Actual	Target
Innes Road/ Southpark Drive	**E**	A	**E**	A	D	-	**E**	D
Innes Road/ Bearbrook Road/Glen Park Drive South	**F**	A	**E**	A	D	-	**E**	D
Innes Road/ Orient Park Drive	**E**	A	**E**	A	B	-	**F**	D
Bearbrook Road/ 43m South of Centrepark Drive South	**C**	A	-		B	-	-	

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

- No study area intersections meet the target PLOS;
- No study area intersections meet the target BLOS;
- The study area intersections achieve a TLOS D or better, but no targets are identified;
- No study area intersections meet the target TkLOS.

Innes Road/Southpark Drive
The intersection does not meet the target PLOS A, BLOS A, or TkLOS D.

All approaches have an undivided cross-section equivalent to four or five lanes crossed (assuming a lane width equals 3.5m, per the *MMLOS Guidelines*). There is limited opportunity in improving the PLOS at each approach without reducing the number of travel lanes or restricting turning movements. No 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). Improving the delay score for pedestrians to achieve the target PLOS A cannot be done without incurring major delays for vehicles.

The north and west approaches do not meet the target BLOS A, based on left turn characteristics. Per Exhibit 12 of the *MMLOS Guidelines*, the target BLOS can only be achieved by implementing left-turn bike facilities. This would include a bike box for cyclists arriving at the north approach, and a jug handle, crossride, and bicycle traffic signal for cyclists arriving at the west approach. Implementation of a bike box for the north approach would also require restricting southbound right turns on red (RTOR). Synchro analysis of existing volumes has been conducted with RTOR restrictions and a 10-second cyclist-exclusive phase, and identifies that these measures could be accommodated from an operations perspective. Detailed Synchro results are included in **Appendix H**.

Innes Road/Bearbrook Road/Glen Park Drive East
The intersection does not meet the target PLOS A, BLOS A, or TkLOS D.

All approaches have an undivided cross-section equivalent to five or six lanes crossed. There is limited opportunity in improving the PLOS at each approach without reducing the number of travel lanes or restricting turning movements. All approaches meet the City's vehicle/pedestrian conflict threshold for zebra-striped crosswalks, and would improve the level of comfort for pedestrians. Improving the delay score for pedestrians to achieve the target PLOS A cannot be done without incurring major delays for vehicles.

All approaches do not meet the target BLOS A, based on left turn characteristics. Per Exhibit 12 of the *MMLOS Guidelines*, the target BLOS can only be achieved by implementing two-stage left-turn bike boxes and restricting RTOR for all approaches. Synchro analysis of existing volumes has been conducted with RTOR restrictions, and identifies that this could be accommodated from an operations perspective. Detailed Synchro results are included in **Appendix H**.

Innes Road/Orient Park Drive
The intersection does not meet the target PLOS A, BLOS A, or TkLOS D.

All approaches have an undivided cross-section equivalent to four or five lanes crossed. There is limited opportunity in improving the PLOS at each approach without reducing the number of travel lanes or restricting turning movements. The east approach meets the City's vehicle/pedestrian conflict threshold for zebra-striped crosswalks, and would improve the level of comfort for pedestrians. Improving the delay score for pedestrians to achieve the target PLOS A cannot be done without incurring major delays for vehicles.

All approaches do not meet the target BLOS A, based on left turn characteristics. Per Exhibit 12 of the *MMLOS Guidelines*, the target BLOS can only be achieved by implementing two-stage left-turn bike boxes and restricting RTOR for all approaches. Synchro analysis of existing volumes has been conducted with RTOR restrictions, and identifies that this could be accommodated from an operations perspective. Detailed Synchro results are included in **Appendix H**.

Bearbrook Road/43m South of Centrepark Drive South
The intersection does not meet the target PLOS A.

Based on the Pedestrian Exposure to Traffic at Signalized Intersections (PETSI) score, this signal meets the target PLOS A. Based on delay score, the signal achieves a PLOS C. Based on the current maximum cycle length, the target PLOS A could be met by providing an additional 16 seconds of walk time for pedestrians (i.e. reducing the minimum north-south green time from 30 seconds to 14 seconds). Synchro analysis of existing volumes has been conducted with this change in timing, and identifies that this could be accommodated from an operations perspective. Detailed Synchro results are included in **Appendix H**.

4.8.2 2023 Total Intersection Operations

Intersection capacity analysis has been conducted for the 2023 total traffic conditions. The results of the analysis are summarized in **Table 12** for the weekday AM and PM peak hours. Detailed Synchro reports are included in **Appendix M**.

Table 12: 2023 Total Traffic Operations

Intersection	AM Peak			PM Peak		
	Max v/c or Delay	LOS	Mvmt	Max v/c or Delay	LOS	Mvmt
Innes Road/ Southpark Drive	0.56	A	WBT/R	0.38	A	EBT
Innes Road/ Bearbrook Road/Glen Park Drive East	0.72	C	WBT/R	0.72	C	SBL
Innes Road/ Orient Park Drive	0.52	A	NBL/T/R	0.50	A	EBT/R
Bearbrook Road/ 43m South of Centrepark Drive	0.31	A	NBT	0.27	A	SBT
Bearbrook Road/ Site Access(1)	12 sec	B	EBL/R	12 sec	B	EBL/R

1. Unsignalized intersection

Compared to the 2023 background conditions, the addition of site-generated traffic is anticipated to have marginal effect on the operations of the study area intersections.

4.8.3 2028 Total Intersection Operations

Intersection capacity analysis has been conducted for the 2028 total traffic conditions. The results of the analysis are summarized in **Table 13** for the weekday AM and PM peak hours. Detailed Synchro reports are included in **Appendix M**.

Table 13: 2028 Total Traffic Operations

Intersection	AM Peak			PM Peak		
	Max v/c or Delay	LOS	Mvmt	Max v/c or Delay	LOS	Mvmt
Innes Road/ Southpark Drive	0.61	B	WBT/R	0.42	A	EBT
Innes Road/ Bearbrook Road/Glen Park Drive East	0.76	C	WBT/R	0.72	C	SBL
Innes Road/ Orient Park Drive	0.52	A	NBL/T/R	0.53	A	EBT/R
Bearbrook Road/ 43m South of Centrepark Drive	0.31	A	NBT	0.27	A	SBT
Bearbrook Road/ Site Access(1)	12 sec	B	EBL/R	12 sec	B	EBL/R

1. Unsignalized intersection

Compared to the 2028 background conditions, the addition of site-generated traffic is anticipated to have marginal effect on the operations of the study area intersections.

5.0 CONCLUSIONS AND RECOMMENDATIONS

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

Forecasting

- The proposed development is estimated to generate 74 person trips (including 39 vehicle trips) during the AM peak hour, and 74 person trips (including 40 vehicle trips) during the PM peak hour.

Development Design

- Pedestrian walkways will provide a connection between the sidewalk on the west side of Bearbrook Road and the entrances to the townhouse units, as well as the main entrance to the lobby for the apartment units. A pedestrian walkway will also connect to a secondary access to the lobby for the apartment units at the back of the building. The proposed access is located where the existing sidewalk is transitioning from a boulevard to a curbside sidewalk. It is proposed that the existing sidewalk be extended across the access, before transitioning curbside south of the proposed access.

- Bicycle parking will be provided in designated areas adjacent to the rear entrance and within the underground parking garage.

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

- Pick-ups and drop-offs can occur curbside on the west side Bearbrook Road. Garbage collection will be facilitated in a refuse area at the northwest corner of the subject site. The fire route for the proposed development is located along Bearbrook Road.

Parking

- Based on the previous table, the proposed number of bicycle parking spaces meet the minimum requirements outlined in the City's ZBL, and the proposed number of vehicle parking spaces meet approximately 89% of the minimum requirements.

- Section 111(12) of the ZBL identifies that, where the number of bicycle parking spaces required for a single residential building exceeds 50 spaces, a minimum of 25% of the required total must be located within a building or structure, a secure area, or bicycle lockers. This requirement is met.

Boundary Streets

- Bearbrook Road does not meet the target pedestrian level of service (PLOS) A or target bicycle level of service (BLOS) B. Bearbrook Road achieves a transit level of service (TLOS) D and a truck level of service (TkLOS) C.

- The best possible PLOS B is achieved on the west side of the roadway, and a PLOS C is achieved on the east side of the roadway. The sidewalk on the east side of Bearbrook Road is approximately 1.5m in width, with a boulevard width greater than 2.0m. Per Exhibit 4 of the *MMLOS Guidelines*, a PLOS B can be achieved by widening the existing sidewalk to a width of 2.0m. This is identified for the City's consideration.

- Based on Exhibit 11 of the *MMLOS Guidelines*, the target BLOS B can be achieved by implementing an exclusive bike lane with a minimum width of 1.5m. This is identified for the City's consideration.

Access Design

- The design of the proposed access to Bearbrook Road meets most of the relevant provisions of the City's *Private Approach By-Law* (PABL) and *Zoning By-Law* (ZBL), and the Transportation Association of Canada (TAC)'s *Geometric Design Guide for Canadian Roads*. Due to the 0.5m proximity to the property line, the proposed access does not meet Section 25(p) of the PABL, and it is requested that this requirement be waived.

- It is anticipated that the proposed access will operate at an Auto LOS A during both peak hours in future conditions, and southbound queueing at Innes Road/Bearbrook Road/Glen Park Drive East is not anticipated to extend past the proposed access.

Transportation Demand Management

- A review of the City's *TDM Measures Checklist* has been conducted by the proponent, who has committed to providing the following TDM measures:
    - Display local area maps with walking/cycling access routes and key destinations at major entrances;
    - Display relevant transit schedules and route maps at entrances;
    - Unbundle parking cost from monthly rent.

- In addition, the proposed development will include one on-site carshare parking space.

Neighbourhood Traffic Management

- Traffic calming measures on Bearbrook Road have been recently implemented, and include the following:
    - A reduction in the speed limit of Bearbrook Road from 50 km/h to 40 km/h;
    - SCHOOL pavement markings on either side of Good Shepherd School;
    - Painted edge lines on Bearbrook Road, narrowing the travel lanes to 3.5m in width;
    - Flex posts along Bearbrook Road between Innes Road and Northpark Drive North;
    - Speed boards in both directions on Bearbrook Road between Innes Road and Northpark Drive North.

- No other neighbourhood traffic management measures are recommended as part of the proposed development.

Transit

- The proposed development is projected to generate 20 transit trips (6 inbound trips and 14 outbound trips) during the AM peak hour and 19 transit trips (11 inbound trips and 8 outbound trips) during the PM peak hour. No capacity issues are anticipated for OC Transpo Routes 25 and 28, based on the above transit trip estimates.

Intersection MMLOS

- The intersection of the intersection MMLOS analysis can be summarized as follows:
    - No study area intersections meet the target PLOS;
    - No study area intersections meet the target BLOS;
    - The study area intersections achieve a TLOS D or better;
    - No study area intersections meet the target TkLOS.

- All approaches at Innes Road/Southpark Drive, Innes Road/Bearbrook Road/Glen Park Drive East, and Innes Road/Orient Park Drive do not meet the target PLOS. There is limited opportunity in improving the PLOS at each approach without reducing the number of travel lanes or restricting turning movements. All approaches at Innes Road/Bearbrook Road/Glen Park Drive East and the east approach at Innes Road/Orient Park Drive meet the City's vehicle/pedestrian conflict threshold for zebra-striped crosswalks.

- Based on delay score, Bearbrook Road/43m South of Centrepark Drive achieves a PLOS C. Based on the current maximum cycle length, the target PLOS A could be met by providing an additional 16 seconds of walk time for pedestrians (i.e. reducing the minimum north-south green time from 30 seconds to 14 seconds). Synchro analysis identifies that this could be accommodated from an operations perspective.

- The north and west approaches at Innes Road/Southpark Drive and all approaches at Innes Road/Bearbrook Road/Glen Park Drive East and Innes Road/Orient Park Drive do not meet the target BLOS A, based on left turn characteristics. The target BLOS can only be achieved by implementing left-turn bike facilities. Synchro analysis with right turns on red (RTOR) restrictions identifies that these measures could be accommodated from an operations perspective.

Existing Intersection Operations

- All study area intersections operate at an Auto LOS C or better during the peak hours.

- During the AM peak hour, the maximum (95th-percentile) queue lengths of the westbound through/right turn movements at Innes Road/Southpark Drive and Innes Road/Bearbrook Road/Glen Park Drive East extend close to upstream intersections.

- During the PM peak hour, the maximum queue length of the southbound left turn at Innes Road/Bearbrook Road/Glen Park Drive East marginally exceeds the approximately 40m of storage length provided.

Background Intersection Operations

- In the 2023 and 2028 background conditions, all study area intersections are projected to continue operating at an Auto LOS C or better during the peak hours.

Total Intersection Operations

- The addition of site-generated traffic is anticipated to have marginal effect on the operations of the study area intersections.

NOVATECH

Prepared by:

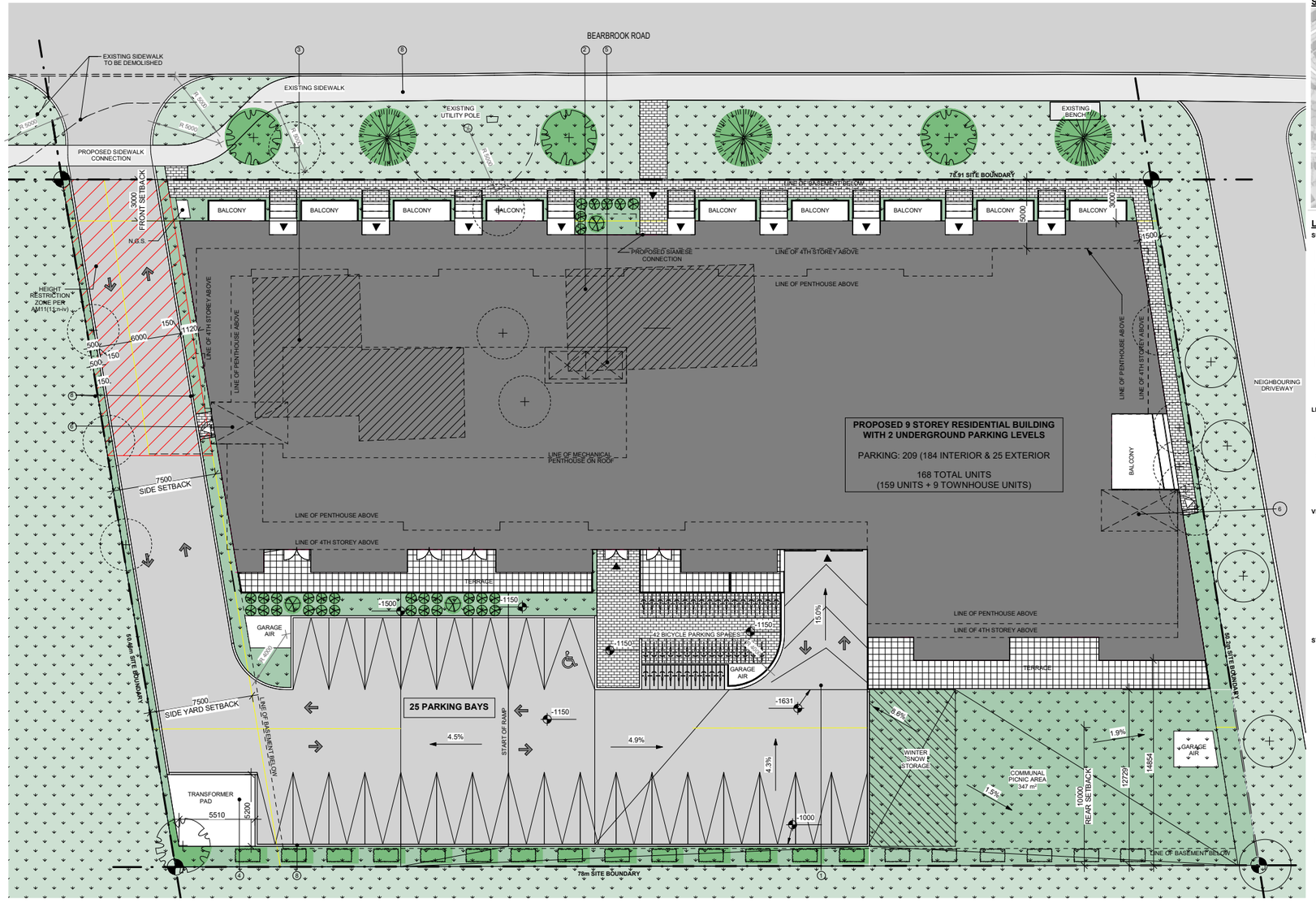
Joshua Audia, B.Sc.
E.I.T. | Transportation/Traffic

Reviewed by:

Brad Byvelds, P.Eng.
Project Manager | Transportation/Traffic

APPENDIX A

Preliminary Site Plan



1 SITE PLAN
A003 1 : 150

UNIT COUNT	TOWNHOUSE	STUDIO	1 BEDROOM	1 BED + DEN	2 BEDROOM	3 BEDROOM	TOTAL
GROUND FLOOR	9		3	4	2		18
2ND FLOOR	(9)	1	4	5	2		12
3RD FLOOR		1	5	11	4		21
4TH FLOOR		1	5	11	4		21
5TH FLOOR		1	5	11	4		21
6TH FLOOR		1	5	11	4		21
7TH FLOOR		1	5	11	4		21
8TH FLOOR		1	5	11	4		21
9TH FLOOR					11	1	12
TOTAL	9	7	37	75	39	1	168

SITE CONTEXT

LEGEND

SURFACES

- GRASS
- POURED CONCRETE
- CONCRETE PAVERS
- POURED CONCRETE
- ASPHALT PAVING
- PROPOSED NEW BUILDING
- EXISTING BUILDING TO DEMOLISH

LINES

- PROPERTY LINE
- SETBACK LINE
- EXISTING FENCE
- NEW FENCE
- OHW—OHW— OVERHEAD WIRES

VEGETATION

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

SYMBOLS

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

PARKING

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

GENERAL NOTES

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

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

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

NOTE-D :
- REFER TO LANDSCAPE PLAN FOR ALL EXTERIOR LANDSCAPING.

NOTE-E :
- DO NOT SCALE DRAWINGS.

NOTE-F :
- ALL CONTRACTORS MUST COMPLY WITH ALL APPLICABLE CODES AND REGULATIONS.

SURVEY INFO

TOPOGRAPHIC SURVEY OF :
Stantec Geomatics Ltd.

N

PROJECT INFORMATION

SITE SUMMARY

ADDRESS	98-100 BEARBROOK RD. GLOUCESTER, OTTAWA
CURRENT ZONING	AM11
SITE AREA	3553.55 m²
PROPOSED USE	RESIDENTIAL
BUILDING AREA	1812.30 m²

ZONING SUMMARY

	REQUIRED	PROPOSED
LOT AREA	3553.55 m²	3553.55 m²
LOT WIDTH	0.00 m	78.91 m
MIN. LOT WIDTH	0.00 m	0.00 m
MAX. BUILDING HEIGHT	30.00 m	29.00 m
MAX. PARAPET HEIGHT (Above max. building)	0.00 m	0.00 m
SET BACKS :		
- FRONT YARD	3.00 m(min.) 5.00 m(max.)	3.00 m
- CORNER SIDE YARD	0.00 m(min.) 0.00 m(max.)	0.00 m
- INTERIOR SIDE YARD Abutting Residential Zone	7.50 m(min.)	7.50 m
- INTERIOR SIDE YARD All other case	0.00 m	1500
- REAR YARD	10.00 m(min.) 0.00 m(max.)	12.73 m
MIN LANDSCAPED AREA	0.00 m²	813.90 m²

VEHICULAR PARKING

		REQUIRED	PROPOSED
TOWNHOUSE:	*1 / UNIT*	*9*	*9*
MID-RISE:	*1.2 / UNIT*	*191*	*168*
VISITORS:	*0.2 / UNIT*	*32*	*32*
Resident Parking Requirement Attainment: 90.1%			
BICYCLE:	*0.5 / UNIT*	*80*	*84*

AMENITY AREA

	REQUIRED	PROPOSED
PRIVATE	477.0 m²	1527.5 m²
COMMUNAL	477.0 m²	577.4 m²

(CALC: 6 m² / UNIT - MIN 50% MUST BE COMMUNAL)

SUMMARY OF PROPOSED:

9 x 3 / 4 Bedrm Townhouse: Each ±80 m² over 2 floors

159 APARTMENTS: Studio x 7;
1 Bed x 37;
1 Bed + Den x 75;
2 Bed x 39;
3 Bed x 1;

PARKING BAYS: 25 Exterior + 184 Interior = 209 Total
PARKING GARAGE: 3305.77m² x 2= 6611.54 m²
TOTAL BUILDING AREA: 14674.0 m² (excl. garage)
PROPOSED COVERAGE: 51.00 % (1812.3 m²)

KEYNOTE DESCRIPTIONS

1. GARAGE ENTRANCE
2. 100 BEARBROOK TO BE DEMOLISHED
3. 98 BEARBROOK TO BE DEMOLISHED
4. TRANSFORMER PAD
5. ELEVATOR SHAFT
6. STAIRCASE SHAFT
7. TOWNHOUSE ENTRANCE
8. CONCRETE CURB

PROPOSED SITE PLAN
SCALE: 1:200

98-100 BEARBROOK

Landric HOMES

5 APRIL 2022

ROSSMANN ARCHITECTURE

APPENDIX B

TIA Screening Form

City of Ottawa 2017 TIA Guidelines Screening Form

1. Description of Proposed Development

Municipal Address	**98 & 100 Bearbrook Road**
Description of Location	**0.40 ha in area; located on the west side of Bearbrook Road, approximately 90m north of Innes Road**
Land Use Classification	**Townhomes and Mid-Rise Apartments**
Development Size (units)	**7 townhomes and 161 mid-rise dwellings**
Development Size (m^2)	**14,840 m^2 above ground; 9,560 m^2 below ground**
Number of Accesses and Locations	**One proposed access to Bearbrook Road**
Phase of Development	**1**
Buildout Year	**2023**

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

2. Trip Generation Trigger

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

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

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

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

3. Location Triggers

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

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

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

4. Safety Triggers

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

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

5. Summary

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

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

APPENDIX C

OC Transpo Route Maps

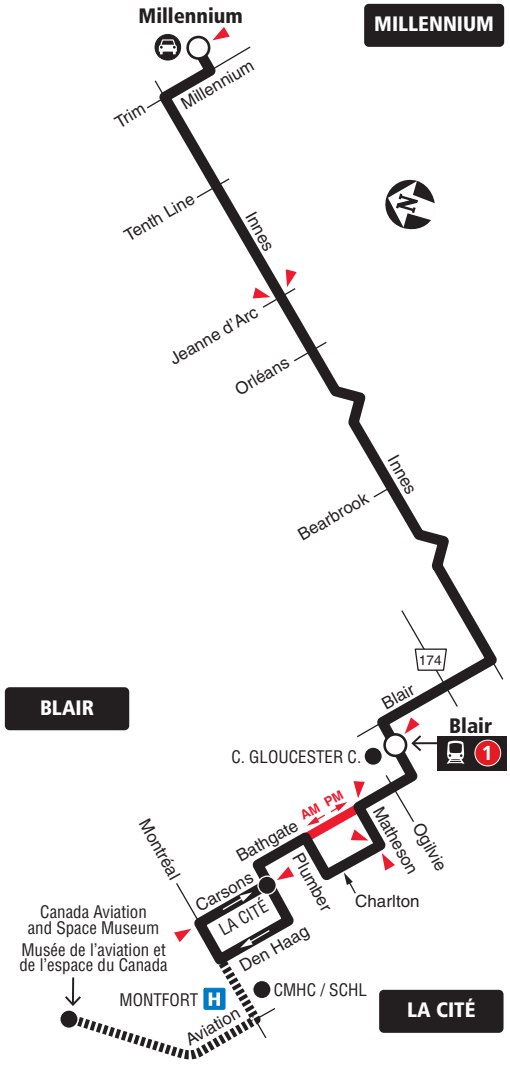
25

MILLENNIUM
LA CITÉ
BLAIR

Fréquent

7 days a week / 7 jours par semaine

All day service
Service toute la journée



Station
Selected time periods
Périodes de temps sélectionnées
Park & Ride / Parc-o-bus
Timepoint / Heures de passage

2020.07

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

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

Effective August 8, 2020
En vigueur 8 août 2020

OC Transpo
INFO 613-741-4390
octranspo.com

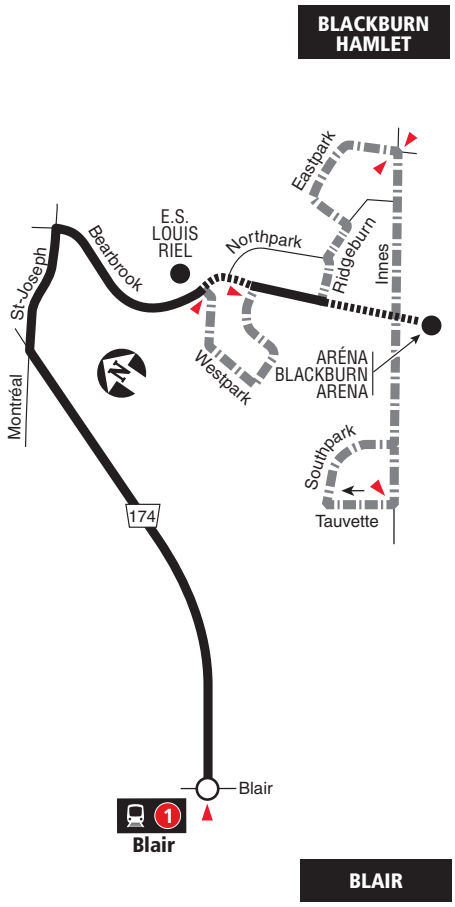
28

BLACKBURN HAMLET

BLAIR

Local

7 days a week / 7 jours par semaine
No Sunday evening service
Aucun service le dimanche en soirée



○	Station
▬ ▬ ▬	No Saturday, Sunday or weekday evening service Pas de service le samedi, le dimanche et les soirs durant la semaine
▬▬▬▬	Saturday, Sunday and weekday evening only Samedi, dimanche et les soirs durant la semaine seulement
▲	Timepoint / Heures de passage

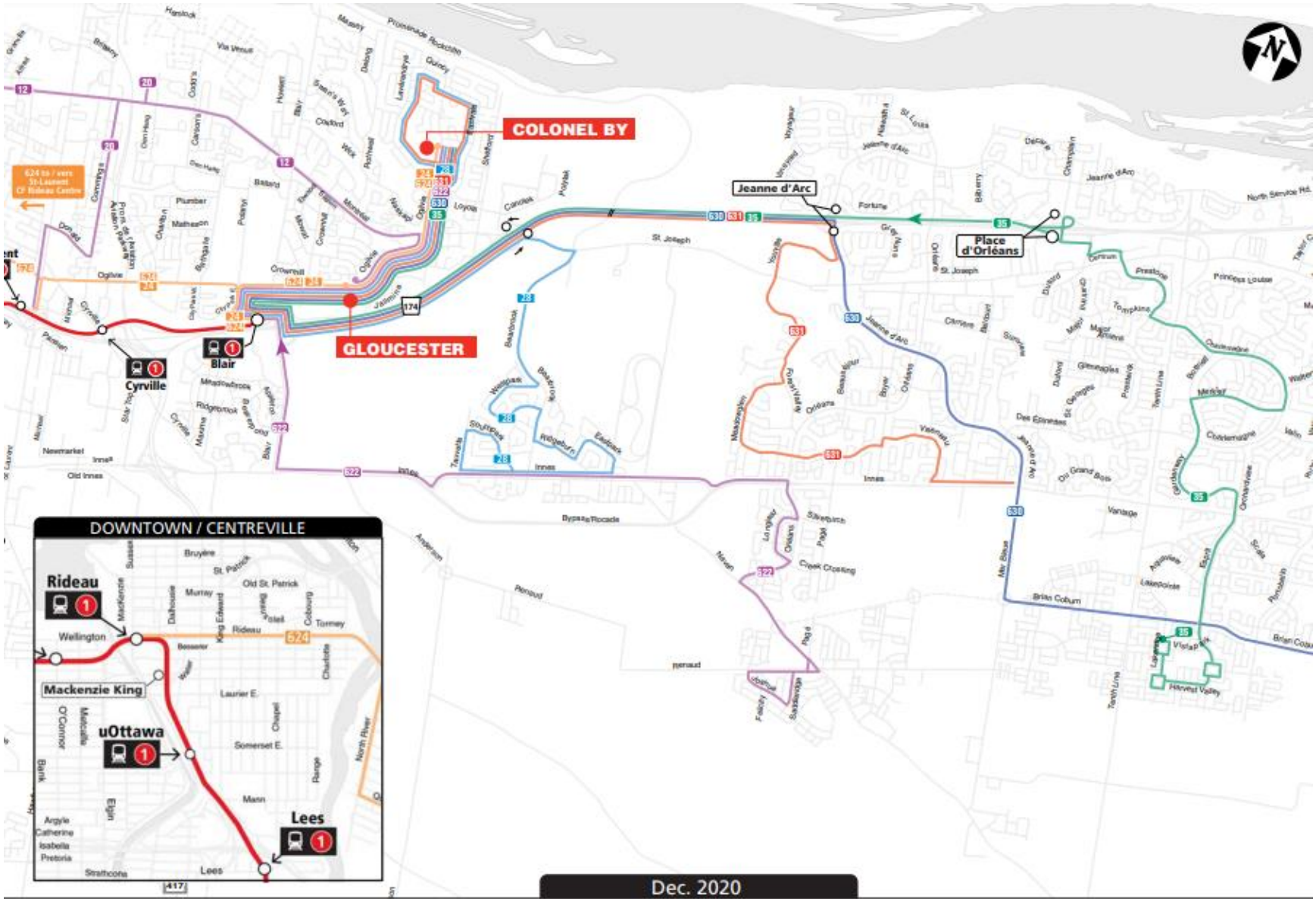
2019.06

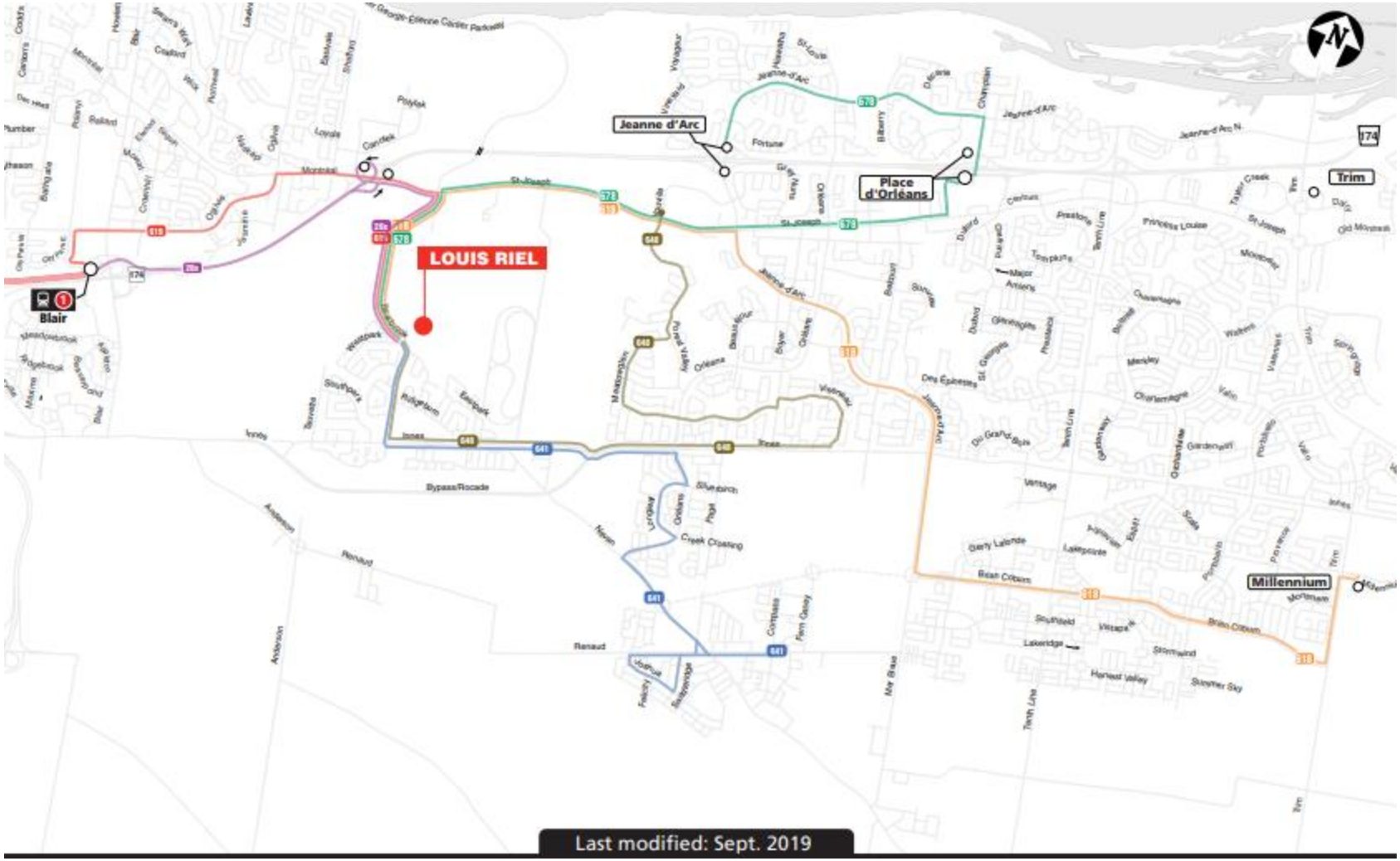
Schedule / Horaire.....613-560-1000
Text / Texto 560560
plus your four digit bus stop number / *plus* votre numéro d'arrêt à quatre chiffres

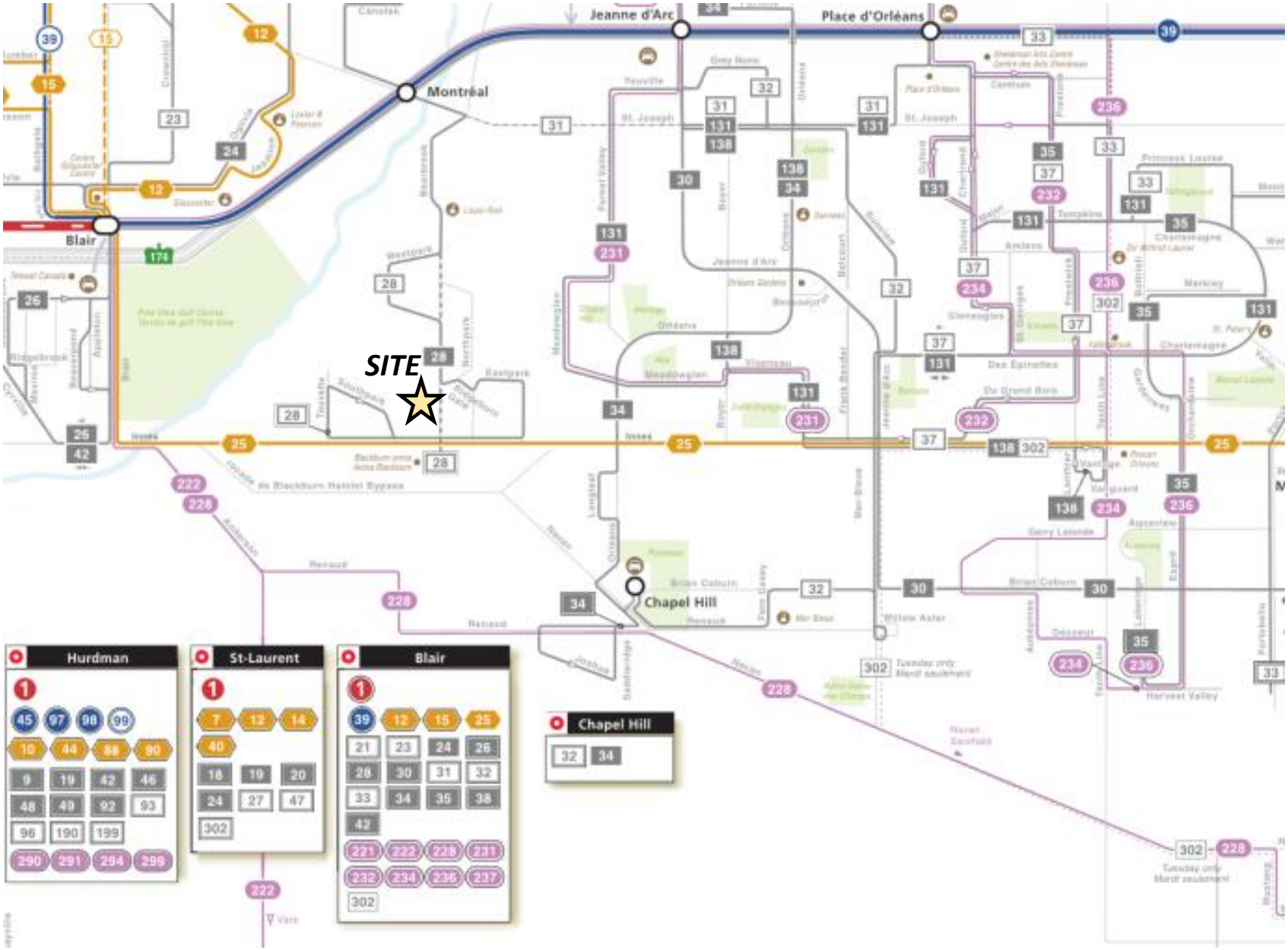
Customer Service
Service à la clientèle **613-741-4390**
Lost and Found / Objets perdus..... **613-563-4011**
Security / Sécurité..... **613-741-2478**

Effective June 25, 2017
En vigueur 25 juin 2017

OC Transpo
INFO 613-741-4390
octranspo.com


COLONEL BY
GLOUCESTER
Jeanne d'Arc
Place d'Orléans
Blair
Cyrville
DOWNTOWN / CENTREVILLE
Rideau
Wellington
Mackenzie King
uOttawa
Lees
Dec. 2020


LOUIS RIEL
Jeanne d'Arc
Place d'Orléans
Blair
Trim
Millennium
Last modified: Sept. 2019


SITE
Jeanne d'Arc
Place d'Orléans
Montréal
Blair
Chapel Hill
Hurdman
St-Laurent
Blair
Chapel Hill

APPENDIX D

Traffic Count Data

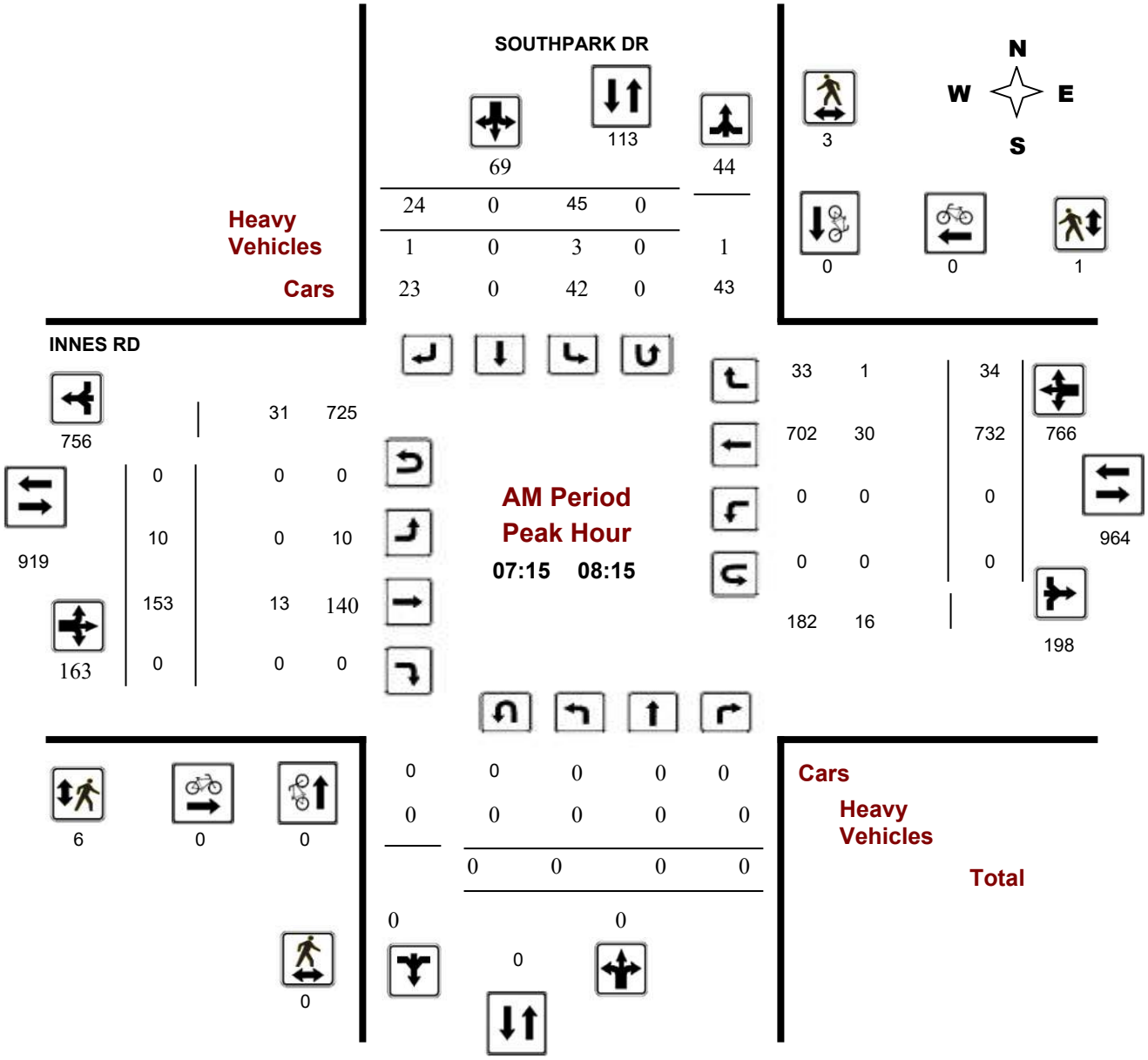
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

INNES RD @ SOUTHPARK DR

Survey Date: Wednesday, November 28, 2018 **WO No:** 38163

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



Comments

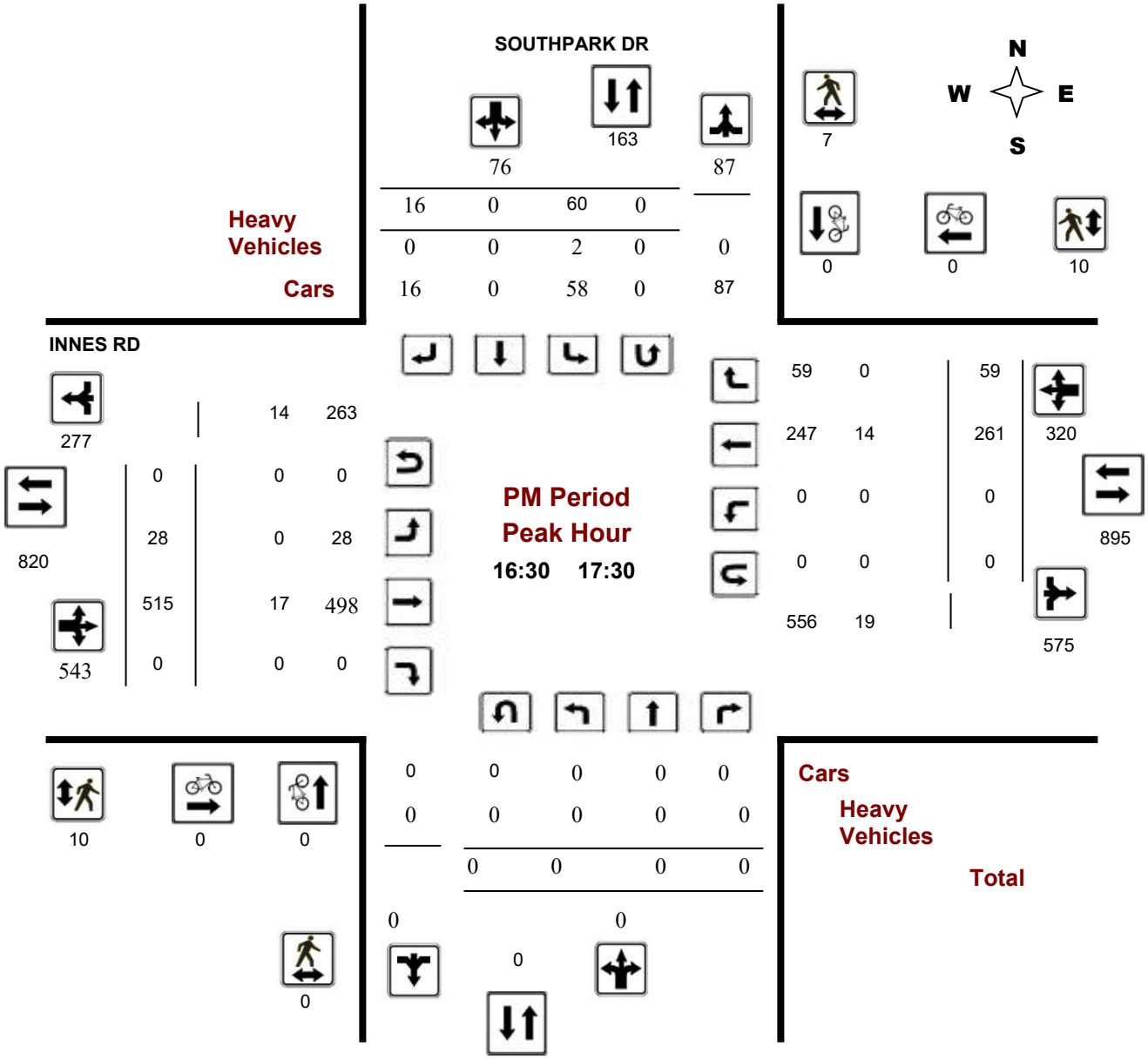
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

INNES RD @ SOUTHPARK DR

Survey Date: Wednesday, November 28, 2018 **WO No:** 38163

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



Comments

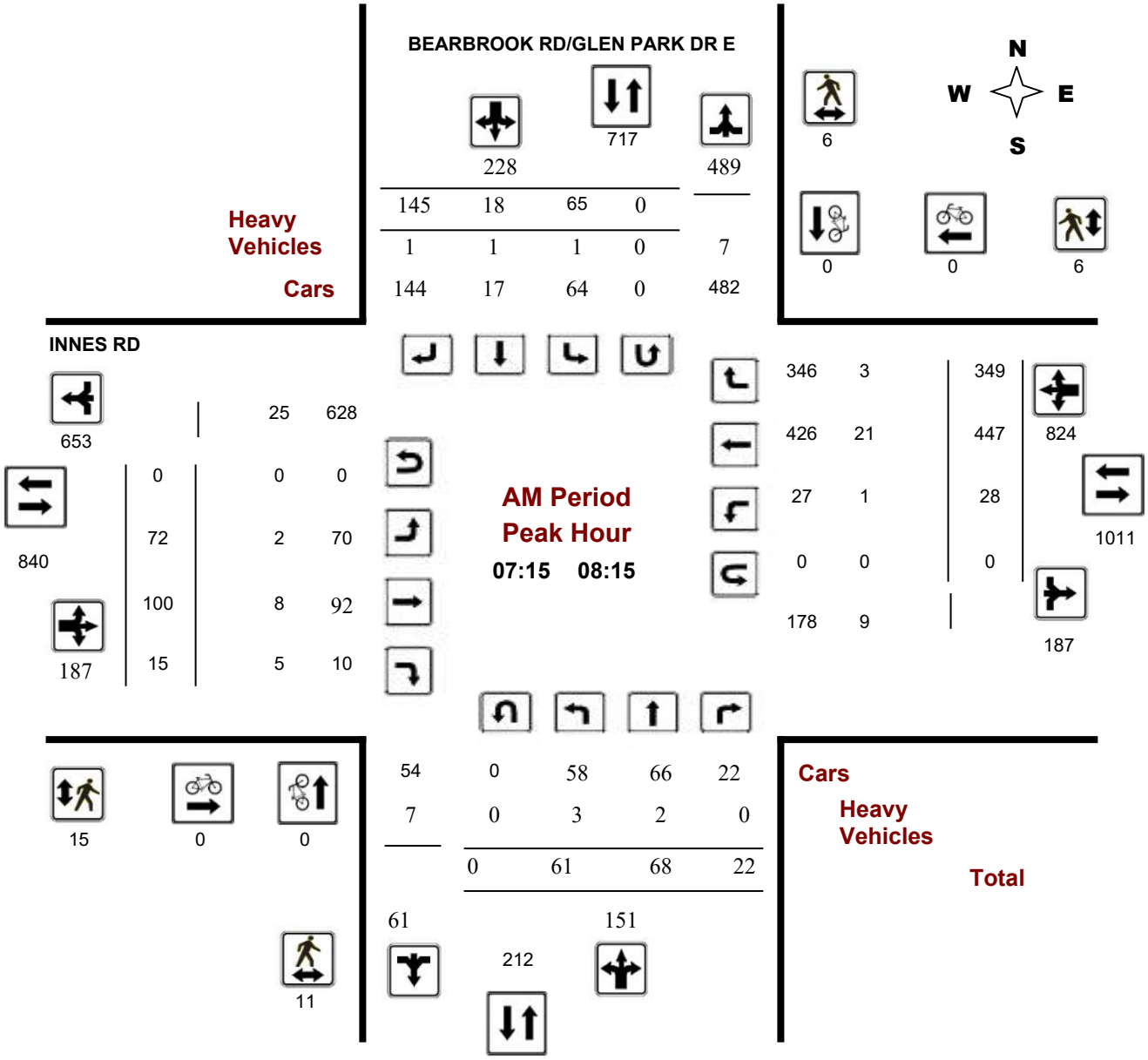
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

INNES RD @ BEARBROOK RD/GLEN PARK DR E

Survey Date: Wednesday, December 05, 2018 **WO No:** 38184

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



Comments

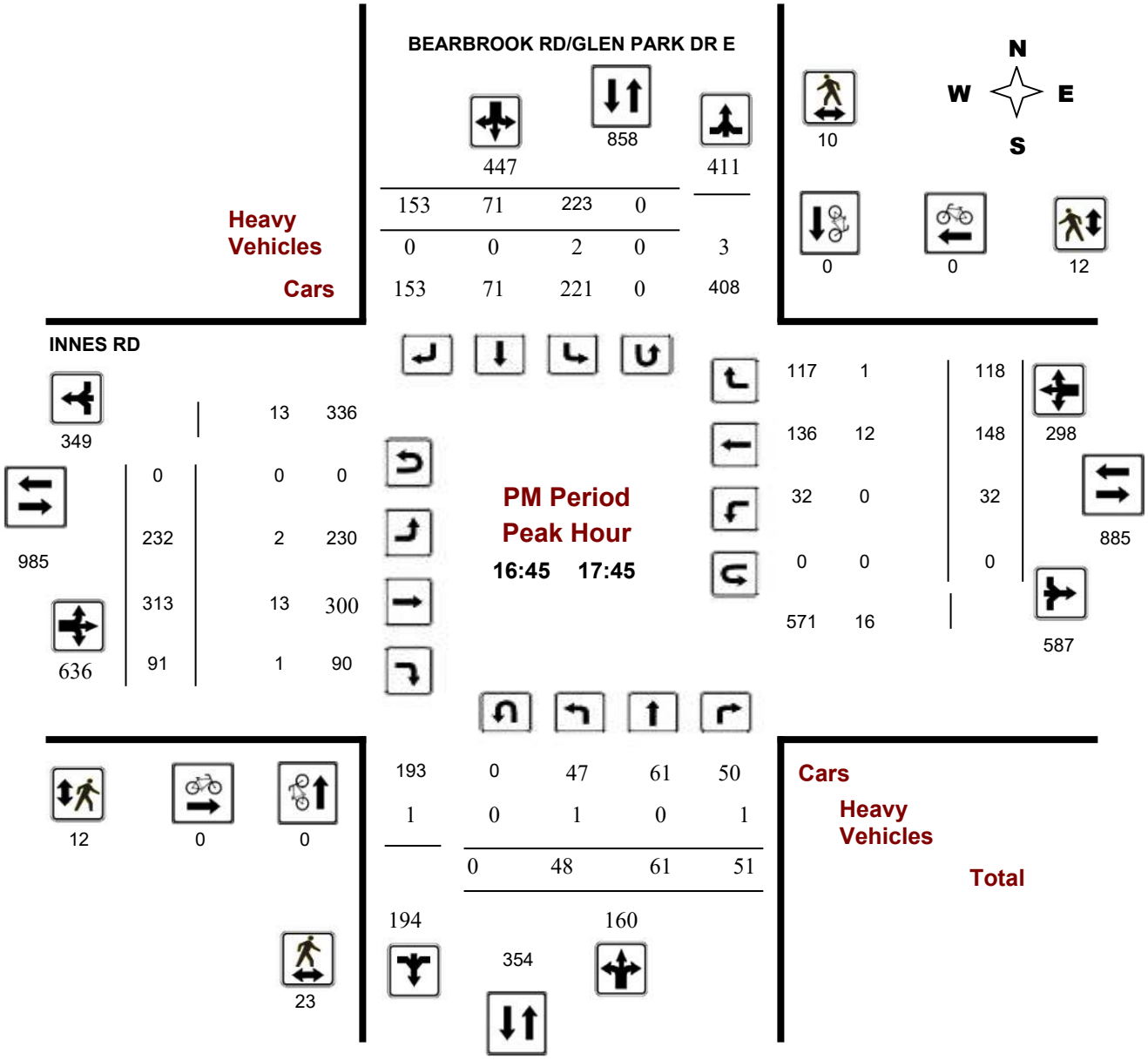
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

INNES RD @ BEARBROOK RD/GLEN PARK DR E

Survey Date: Wednesday, December 05, 2018 **WO No:** 38184

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



Comments

Transportation Services - Traffic Services

Turning Movement Count - Study Results

INNES RD @ BEARBROOK RD/GLEN PARK DR E

Survey Date: Wednesday, December 05, 2018 **WO No:** 38184

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

Full Study Summary (8 HR Standard)

Survey Date: Wednesday, December 05, 2018

Total Observed U-Turns

Northbound: 0 Southbound: 0

Eastbound: 0 Westbound: 1

AADT Factor

1.00

	BEARBROOK RD/GLEN PARK DR E									INNES RD									
	Northbound				Southbound					Eastbound				Westbound					
Period	LT	ST	RT	**NB TOT**	LT	ST	RT	**SB TOT**	**STR TOT**	LT	ST	RT	**EB TOT**	LT	ST	RT	**WB TOT**	**STR TOT**	**Grand Total**
07:00 08:00	52	53	24	**129**	61	16	137	**214**	**343**	73	87	16	**176**	27	454	327	**808**	**984**	**1327**
08:00 09:00	40	44	19	**103**	115	25	144	**284**	**387**	100	121	22	**243**	24	316	303	**643**	**886**	**1273**
09:00 10:00	44	35	23	**102**	129	65	121	**315**	**417**	88	97	27	**212**	22	194	129	**345**	**557**	**974**
11:30 12:30	40	45	32	**117**	102	46	69	**217**	**334**	73	125	35	**233**	25	155	95	**275**	**508**	**842**
12:30 13:30	48	41	36	**125**	83	42	77	**202**	**327**	61	144	47	**252**	17	144	72	**233**	**485**	**812**
15:00 16:00	46	76	50	**172**	207	80	128	**415**	**587**	143	206	69	**418**	26	171	114	**311**	**729**	**1316**
16:00 17:00	54	66	49	**169**	228	84	149	**461**	**630**	179	282	85	**546**	29	162	96	**287**	**833**	**1463**
17:00 18:00	42	67	47	**156**	225	67	135	**427**	**583**	223	322	99	**644**	28	147	133	**308**	**952**	**1535**
Sub Total	366	427	280	**1073**	1150	425	960	**2535**	**3608**	940	1384	400	**2724**	198	1743	1269	**3210**	**5934**	**9542**
U Turns	0			**0**	0			**0**	**0**	**0**			**0**	1			**1**	**1**	**1**
Total	366	427	280	**1073**	1150	425	960	**2535**	**3608**	940	1384	400	**2724**	199	1743	1269	**3211**	**5935**	**9543**
EQ 12Hr	509	594	389	**1492**	1598	591	1334	**3523**	**5015**	1307	1924	556	**3787**	277	2423	1764	**4464**	**8251**	**13266**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.														**1.39**					
AVG 12Hr	509	594	389	**1492**	1598	591	1334	**3523**	**5015**	1307	1924	556	**3787**	277	2423	1764	**4464**	**8251**	**13266**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.														**1.00**					
AVG 24Hr	667	778	510	**1955**	2093	774	1748	**4615**	**6570**	1712	2520	728	**4960**	363	3174	2311	**5848**	**10808**	**17378**
Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor.														**1.31**					

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

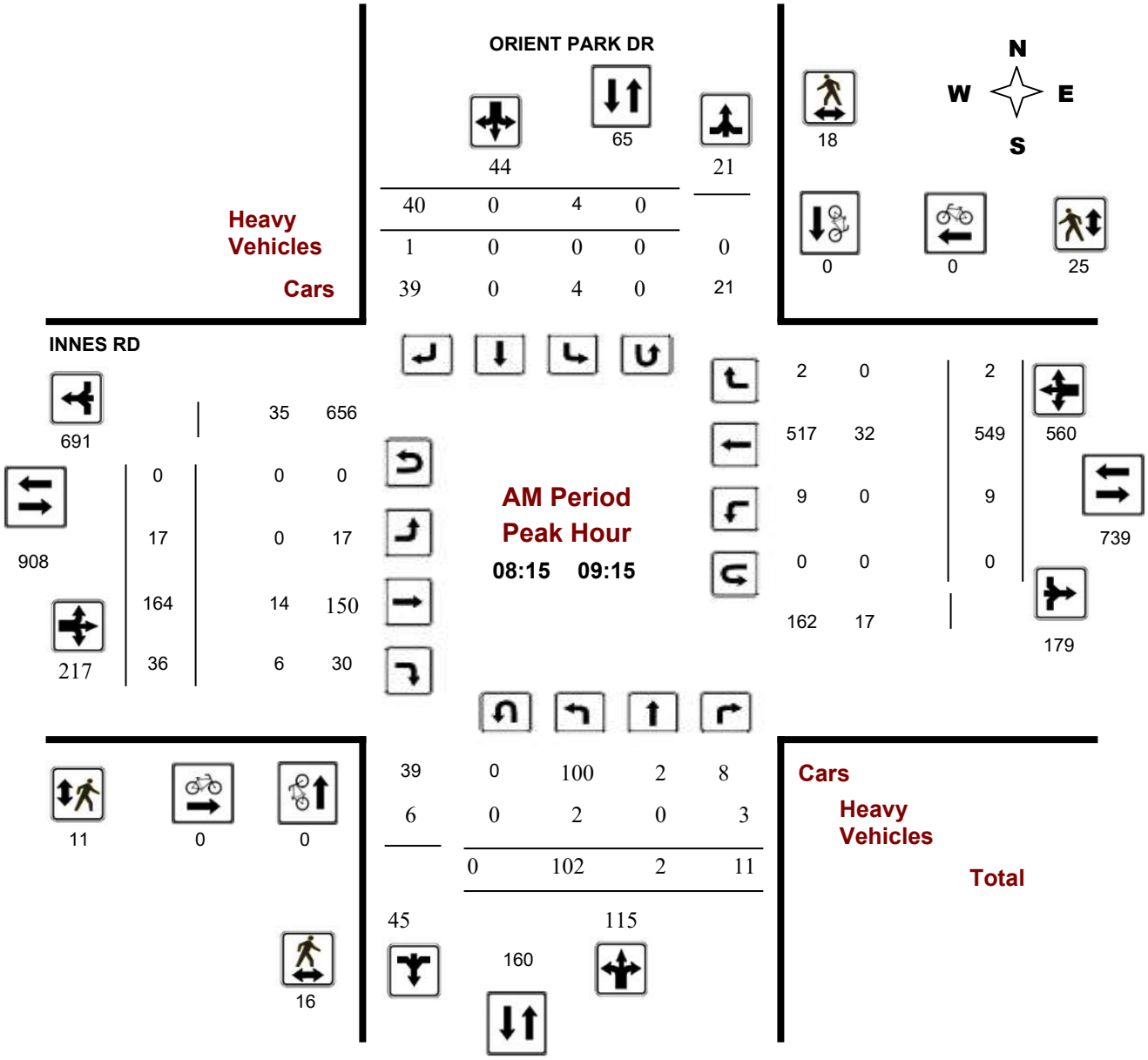
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

INNES RD @ ORIENT PARK DR

Survey Date: Wednesday, December 19, 2018 **WO No:** 38210

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



Comments

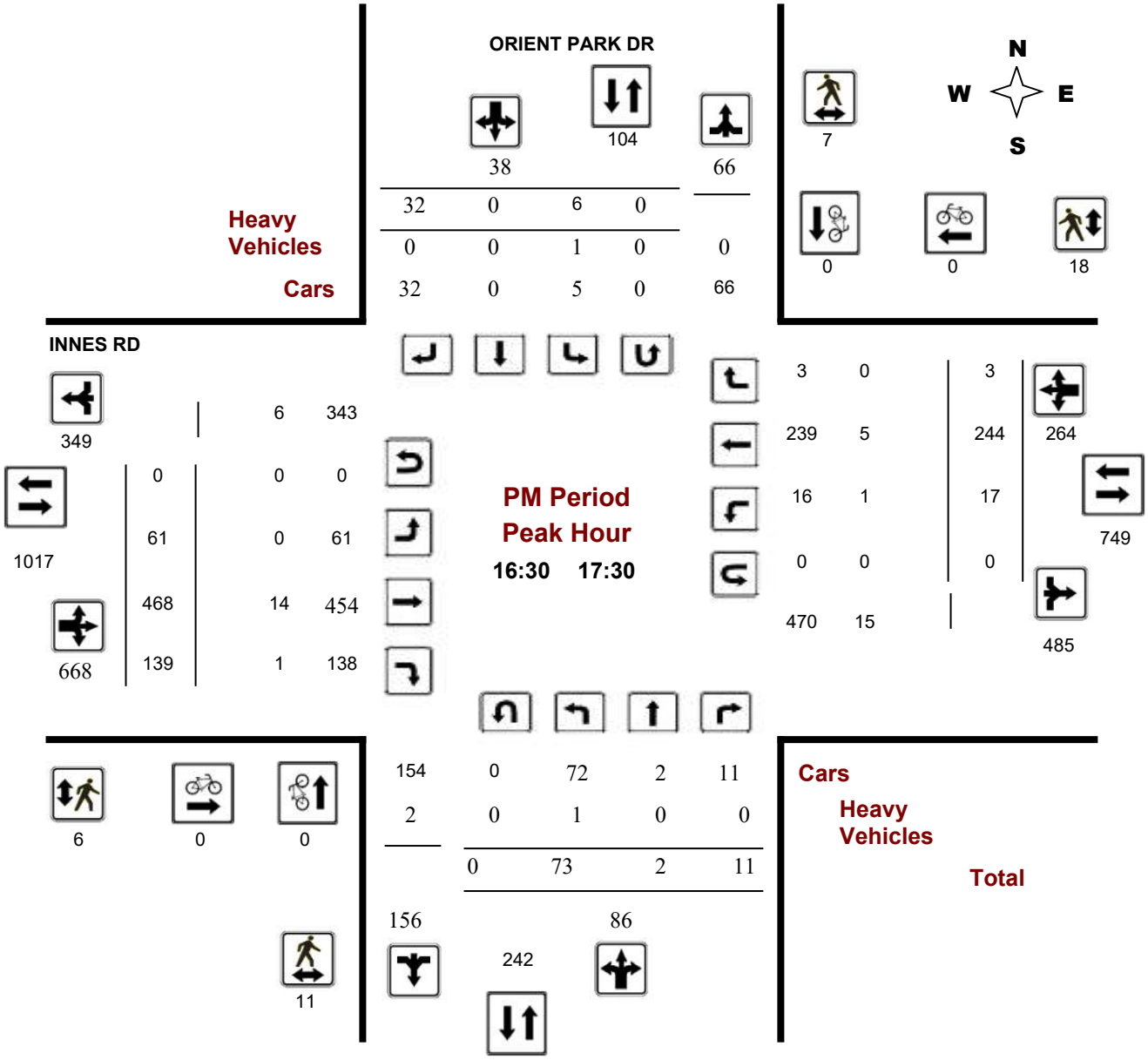
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

INNES RD @ ORIENT PARK DR

Survey Date: Wednesday, December 19, 2018 **WO No:** 38210

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



Comments

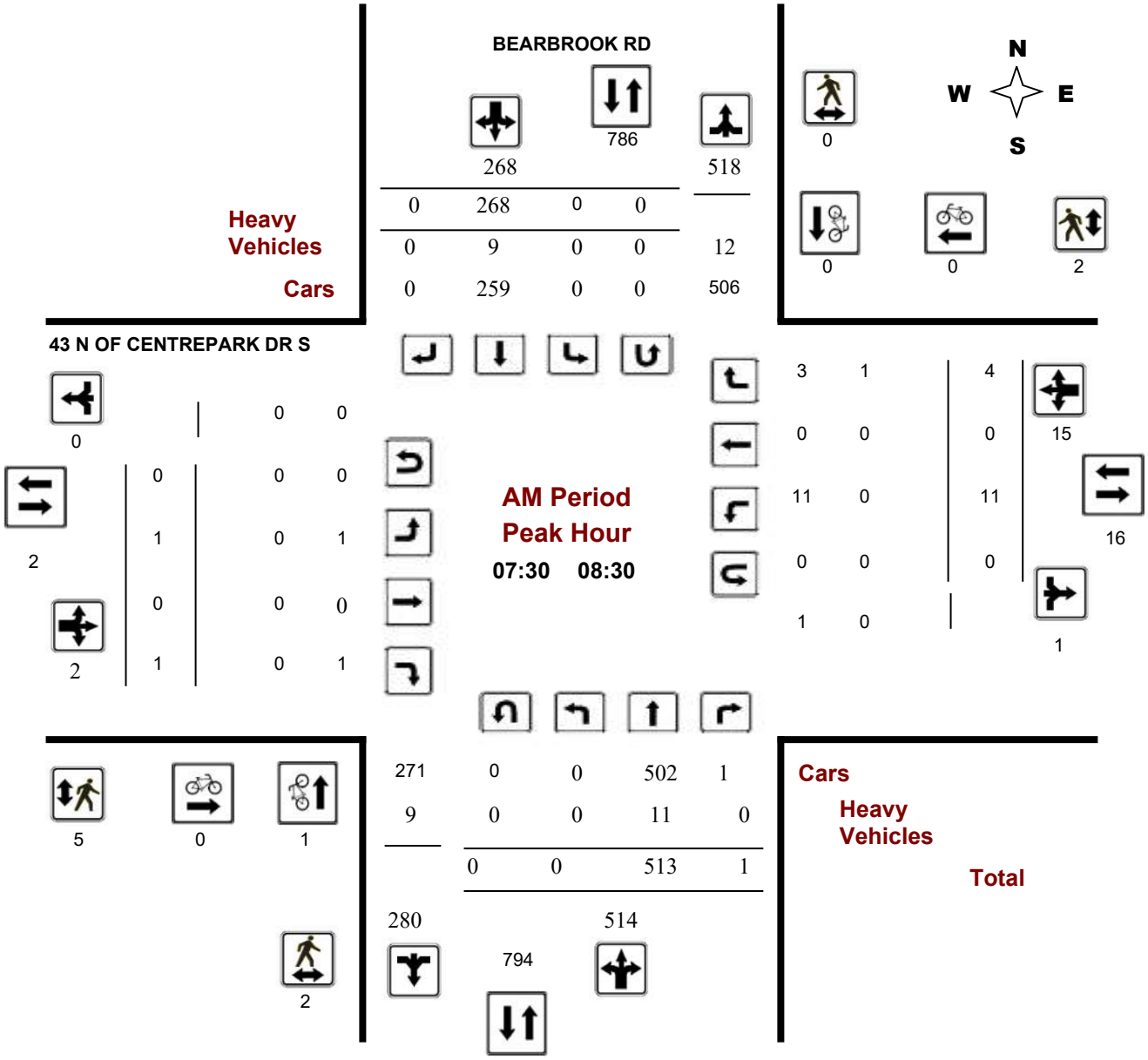
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

BEARBROOK RD @ 43 OF CENTREPARK DR S

Survey Date: Wednesday, November 28, 2018 **WO No:** 38165

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



Comments

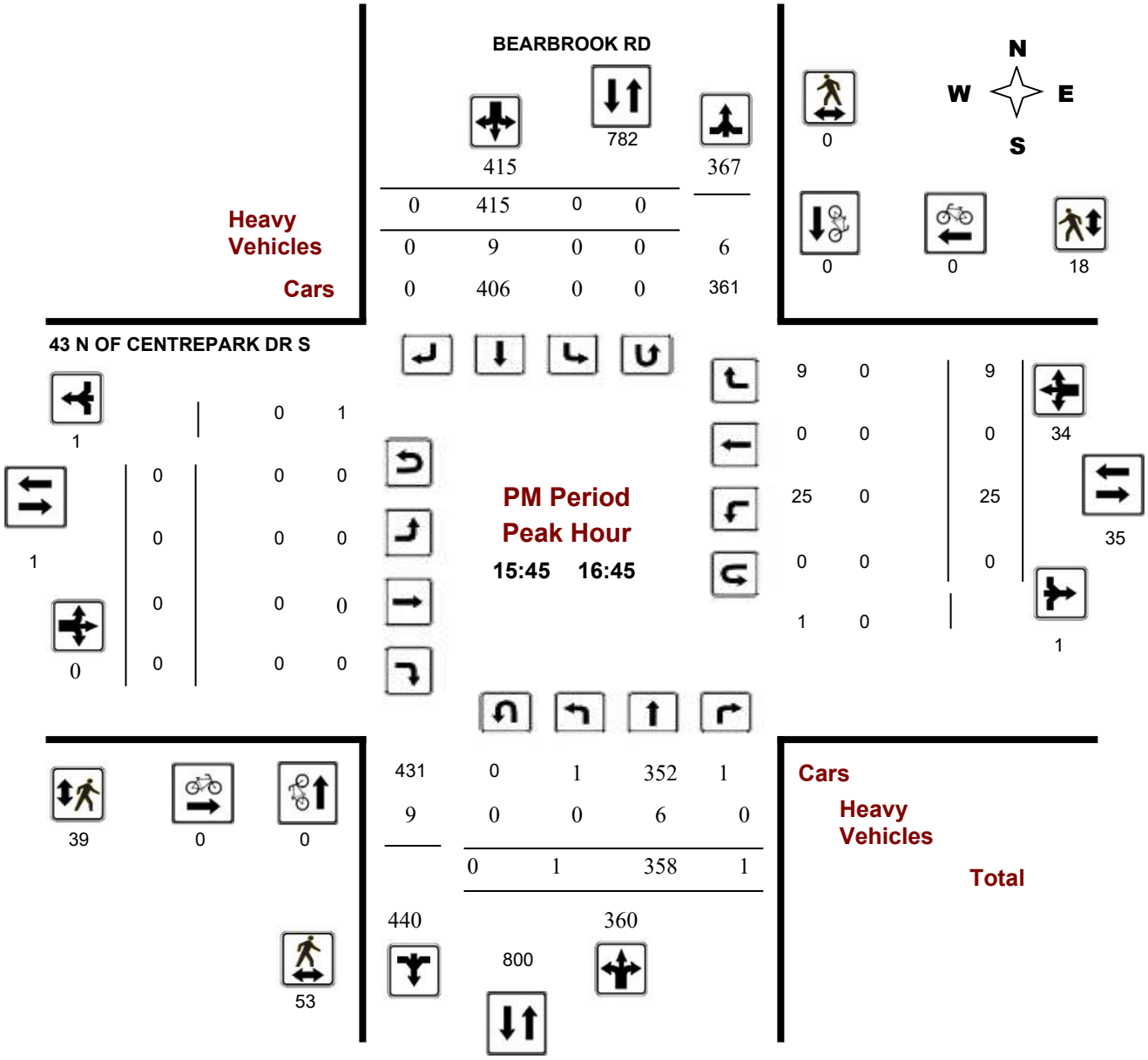
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

BEARBROOK RD @ 43 OF CENTREPARK DR S

Survey Date: Wednesday, November 28, 2018 **WO No:** 38165

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



Comments

APPENDIX E

Collision Records

Transportation Services - Traffic Services

Collision Details Report - Public Version

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

Location: BEARBROOK RD @ 43 OF CENTREPARK DR S

Traffic Control: Traffic signal **Total Collisions:** 1

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2018-Dec-19, Wed,16:50	Clear	Rear end	P.D. only	Wet	South	Going ahead	Automobile, station wagon	Other motor vehicle	0
					South	Stopped	Automobile, station wagon	Other motor vehicle	

Location: BEARBROOK RD @ CENTREPARK DR S

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

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2019-Dec-21, Sat,14:30	Clear	Angle	Non-fatal injury	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	

Location: BEARBROOK RD btwn 60 S OF WESTPARK DR S & CENTREPARK DR

Traffic Control: No control **Total Collisions:** 1

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2015-May-10, Sun,13:29	Clear	SMV unattended vehicle	P.D. only	Dry	North	Going ahead	Pick-up truck	Unattended vehicle	0

Location: INNES RD @ BEARBROOK RD/GLEN PARK DR E

Traffic Control: Traffic signal **Total Collisions:** 14

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2015-Feb-09, Mon,15:22	Clear	Sideswipe	P.D. only	Slush	East	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Municipal transit bus	Other motor vehicle	
2015-May-26, Tue,08:47	Clear	Rear end	P.D. only	Dry	South	Turning left	Automobile, station wagon	Other motor vehicle	0
					South	Turning left	Pick-up truck	Other motor vehicle	
					South	Turning left	Automobile, station wagon	Other motor vehicle	
2015-Oct-12, Mon,11:43	Clear	Sideswipe	P.D. only	Dry	West	Going ahead	Pick-up truck	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	

Transportation Services - Traffic Services

Collision Details Report - Public Version

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

Location: INNES RD @ BEARBROOK RD/GLEN PARK DR E

Traffic Control: Traffic signal **Total Collisions:** 14

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2016-Feb-01, Mon,15:38	Clear	Rear end	P.D. only	Dry	South	Going ahead	Delivery van	Other motor vehicle	0
					South	Stopped	Pick-up truck	Other motor vehicle	
2016-Aug-26, Fri,18:58	Clear	Angle	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2017-Mar-24, Fri,10:15	Snow	Angle	P.D. only	Packed snow	South	Turning right	Delivery van	Other motor vehicle	0
					West	Slowing or stopping	Pick-up truck	Other motor vehicle	
2017-Apr-03, Mon,15:48	Clear	Rear end	P.D. only	Dry	West	Slowing or stopping	Passenger van	Other motor vehicle	0
					West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
2017-Apr-20, Thu,17:08	Clear	Rear end	Non-fatal injury	Dry	South	Going ahead	Pick-up truck	Other motor vehicle	0
					South	Stopped	Pick-up truck	Other motor vehicle	
2017-May-10, Wed,15:34	Clear	Rear end	P.D. only	Dry	West	Going ahead	Municipal transit bus	Other motor vehicle	0
					West	Turning right	Automobile, station wagon	Other motor vehicle	
2018-Jan-03, Wed,17:33	Snow	Turning movement	P.D. only	Loose snow	West	Turning left	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Pick-up truck	Other motor vehicle	
2018-Jul-18, Wed,18:07	Clear	Angle	P.D. only	Dry	West	Turning right	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Jan-24, Thu,15:45	Clear	Rear end	P.D. only	Slush	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2019-May-12, Sun,00:20	Clear	Angle	Non-fatal injury	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Passenger van	Other motor vehicle	
2019-Sep-23, Mon,21:00	Clear	SMV other	P.D. only	Dry	East	Slowing or stopping	Motorcycle	Skidding/sliding	0

Transportation Services - Traffic Services

Collision Details Report - Public Version

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

Location: INNES RD @ ORIENT PARK DR

Traffic Control: Traffic signal **Total Collisions:** 10

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2015-Mar-06, Fri,16:10	Clear	Turning movement	P.D. only	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2015-Jul-21, Tue,16:49	Clear	Other	P.D. only	Dry	South	Reversing	Truck - open	Other motor vehicle	0
					North	Stopped	Pick-up truck	Other motor vehicle	
2015-Oct-04, Sun,17:46	Clear	Rear end	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Turning left	Pick-up truck	Other motor vehicle	
2016-Sep-08, Thu,08:45	Clear	Rear end	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Slowing or stopping	Pick-up truck	Other motor vehicle	
2018-Apr-09, Mon,00:25	Clear	Angle	P.D. only	Dry	North	Turning right	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-May-09, Wed,07:26	Clear	Angle	P.D. only	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-May-09, Wed,22:27	Clear	Turning movement	P.D. only	Dry	West	Turning left	Unknown	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Apr-04, Thu,20:41	Clear	Turning movement	P.D. only	Wet	East	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Jun-03, Mon,09:50	Rain	Rear end	P.D. only	Wet	East	Going ahead	Passenger van	Other motor vehicle	0
					East	Stopped	Pick-up truck	Other motor vehicle	
2019-Oct-18, Fri,13:53	Clear	SMV other	Non-fatal injury	Dry	South	Turning right	Automobile, station wagon	Pedestrian	2

Location: INNES RD @ SOUTHPARK DR

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

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped

Transportation Services - Traffic Services

Collision Details Report - Public Version

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

Location: INNES RD @ SOUTHPARK DR

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

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2015-Nov-23, Mon,18:54	Clear	Turning movement	P.D. only	Dry	West	Making "U" turn	Pick-up truck	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2016-Oct-06, Thu,09:17	Clear	Turning movement	Non-fatal injury	Dry	North	Going ahead	Bicycle	Other motor vehicle	0
					South	Turning left	Automobile, station wagon	Cyclist	
2018-Jan-27, Sat,17:42	Clear	SMV other	P.D. only	Dry	East	Going ahead	Passenger van	Pole (utility, power)	0
2018-Nov-09, Fri,17:52	Snow	SMV other	Non-fatal injury	Loose snow	South	Turning left	Automobile, station wagon	Pedestrian	1
2019-Dec-02, Mon,09:03	Clear	Angle	Non-fatal injury	Dry	West	Going ahead	Pick-up truck	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	

Location: INNES RD btwn 173 W OF ORIENT PARK DR & ORIENT PARK DR

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

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2015-Jun-16, Tue,16:26	Clear	Rear end	P.D. only	Dry	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2016-Feb-14, Sun,11:04	Clear	Angle	Non-fatal injury	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2017-May-16, Tue,09:14	Clear	Rear end	Non-fatal injury	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle	0
					East	Turning left	Pick-up truck	Other motor vehicle	
2017-Dec-31, Sun,07:45	Snow	Angle	P.D. only	Loose snow	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	

Location: INNES RD btwn BEARBROOK RD & 173 W OF ORIENT PARK DR

Traffic Control: No control **Total Collisions:** 8

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped

Transportation Services - Traffic Services

Collision Details Report - Public Version

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

Location: INNES RD btwn BEARBROOK RD & 173 W OF ORIENT PARK DR

Traffic Control: No control **Total Collisions:** 8

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2015-May-24, Sun,01:13	Clear	Angle	P.D. only	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2015-Nov-14, Sat,11:31	Clear	Angle	P.D. only	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2016-Jan-20, Wed,18:01	Clear	Angle	P.D. only	Dry	North	Turning right	Pick-up truck	Other motor vehicle	0
					East	Going ahead	Pick-up truck	Other motor vehicle	
2018-Apr-03, Tue,08:35	Clear	Angle	P.D. only	Dry	North	Turning right	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Jun-19, Tue,16:44	Clear	Turning movement	Non-fatal injury	Dry	East	Turning right	Automobile, station wagon	Cyclist	0
					East	Going ahead	Bicycle	Other motor vehicle	
2019-Oct-02, Wed,13:00	Clear	Rear end	P.D. only	Dry	East	Going ahead	Passenger van	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2019-Oct-19, Sat,17:36	Clear	Angle	P.D. only	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Nov-04, Mon,06:52	Clear	Turning movement	P.D. only	Dry	West	Turning left	Pick-up truck	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	

Location: INNES RD btwn SOUTHPARK DR & BEARBROOK RD

Traffic Control: No control **Total Collisions:** 1

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2016-Feb-06, Sat,14:30	Clear	SMV other	P.D. only	Dry	North	Turning left	Automobile, station wagon	Pole (sign, parking meter)	0

APPENDIX F

Relevant Excerpts of *TRANS Trip Generation Manual* (WSP, 2020)

3.2 Recommended Residential Trip Generation Rates

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

Table 3: Recommended Residential Person-trip Rates

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

3.3 Adjustment Factors – Peak Period to Peak Hour

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

Table 4: Adjustment Factors for Residential Trip Generation Rates

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

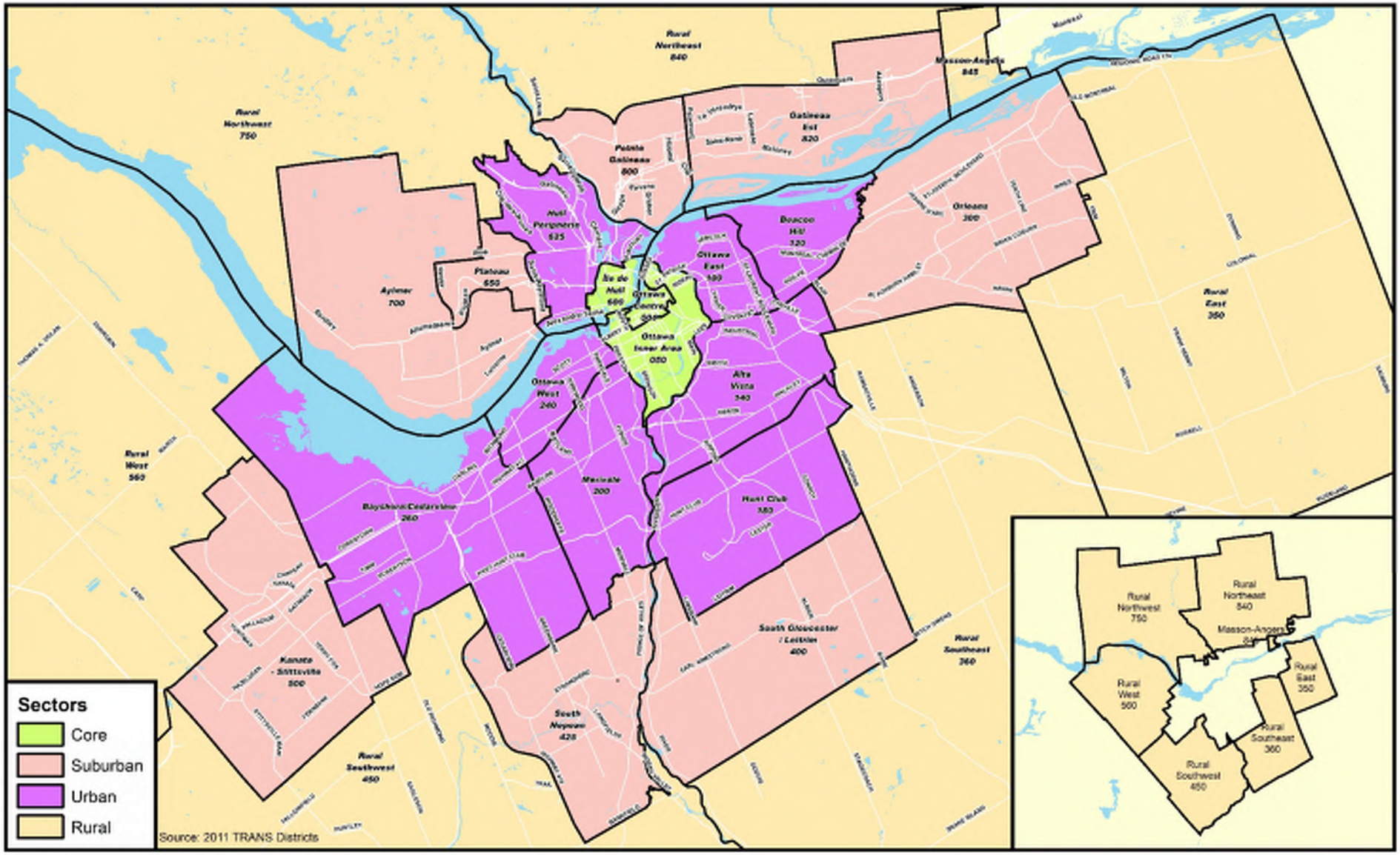


Figure 1: National Capital Region by Sector

Table 7: Residential Mode Share for Low-Rise Multifamily Housing

District	Period	Mode				
		Auto Driver	Auto Pass.	Transit	Cycling	Walking
Ottawa Centre	AM	27%	9%	25%	9%	30%
	PM	31%	10%	20%	9%	30%
Ottawa Inner Area	AM	27%	8%	26%	9%	30%
	PM	31%	9%	20%	9%	31%
Île de Hull	AM	27%	9%	25%	9%	30%
	PM	34%	22%	16%	5%	22%
Ottawa East	AM	36%	11%	38%	7%	8%
	PM	39%	16%	29%	5%	11%
Beacon Hill	AM	45%	9%	35%	1%	10%
	PM	48%	16%	24%	1%	11%
Alta Vista	AM	38%	15%	35%	1%	10%
	PM	38%	19%	31%	2%	10%
Hunt Club	AM	44%	11%	38%	1%	6%
	PM	47%	15%	29%	1%	8%
Merivale	AM	44%	11%	32%	6%	7%
	PM	44%	12%	29%	4%	11%
Ottawa West	AM	36%	12%	24%	10%	19%
	PM	35%	12%	16%	10%	27%
Bayshore/Cedarview	AM	43%	11%	31%	1%	13%
	PM	44%	14%	25%	1%	15%
Hull Périphérie	AM	46%	22%	22%	4%	6%
	PM	46%	17%	22%	3%	11%
Orleans	AM	47%	15%	29%	1%	9%
	PM	51%	19%	24%	1%	6%
South Gloucester / Leitrim	AM	59%	20%	16%	1%	4%
	PM	62%	18%	17%	1%	3%
South Nepean	AM	49%	13%	26%	2%	9%
	PM	49%	13%	24%	2%	12%
Kanata - Stittsville	AM	52%	14%	22%	0%	11%
	PM	58%	17%	17%	0%	8%
Plateau	AM	44%	18%	28%	4%	6%
	PM	47%	17%	26%	2%	8%
Aylmer	AM	52%	18%	23%	0%	7%
	PM	52%	16%	20%	1%	12%
Pointe Gatineau	AM	46%	17%	23%	0%	14%
	PM	52%	16%	19%	1%	12%
Gatineau Est	AM	54%	17%	20%	1%	8%
	PM	56%	21%	16%	0%	7%
Masson-Angers	AM	60%	15%	21%	4%	1%
	PM	63%	15%	17%	3%	1%
Other Rural Districts	AM	66%	13%	21%	1%	0%
	PM	62%	19%	16%	3%	0%

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

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

5 RESIDENTIAL DIRECTIONAL SPLITS

After calculating the total person trips generated by the development and applying the appropriate modal shares, directional factors can be applied to estimate the number of inbound and outbound trips by vehicle. The vehicle trip directional splits were developed for both the AM and PM peak periods[2]. The vehicle trip directional splits, as shown in **Table 9**, have been developed for the NCR based on a review of the local trip generator surveys as well as the latest published data in the ITE *Trip Generation Manual* (10th Edition).

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

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

6 NON-RESIDENTIAL MODE SHARE

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

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

APPENDIX G

Strategic Long-Range Model and Intersection Growth Rate Figures

TRANS Regional Model

Version 2.15 - Assigned Oct, 2021

AM Peak Hour Total Traffic Volume

Innes/Bearbrook Area

2011 Model - Basecase

N/A

User Initials: TIMW
Plot Prepared: Oct, 2021
EMME Scenario: 21713

Legend

AM Peak Hour Total Traffic Volume

1000 2000 3000 4000 5000

N

Distance (m)

200 400 600 800

TRANS Regional Model

Version 2.15 - Assigned Oct, 2021

AM Peak Hour Total Traffic Volume

Inne/Bearbrook Area

2031 Model - Basecase

N/A

User Initials: TIMW
Plot Prepared: Oct, 2021
EMME Scenario: 23711

Legend

AM Peak Hour Total Traffic Volume

1000 2000 3000 4000 5000

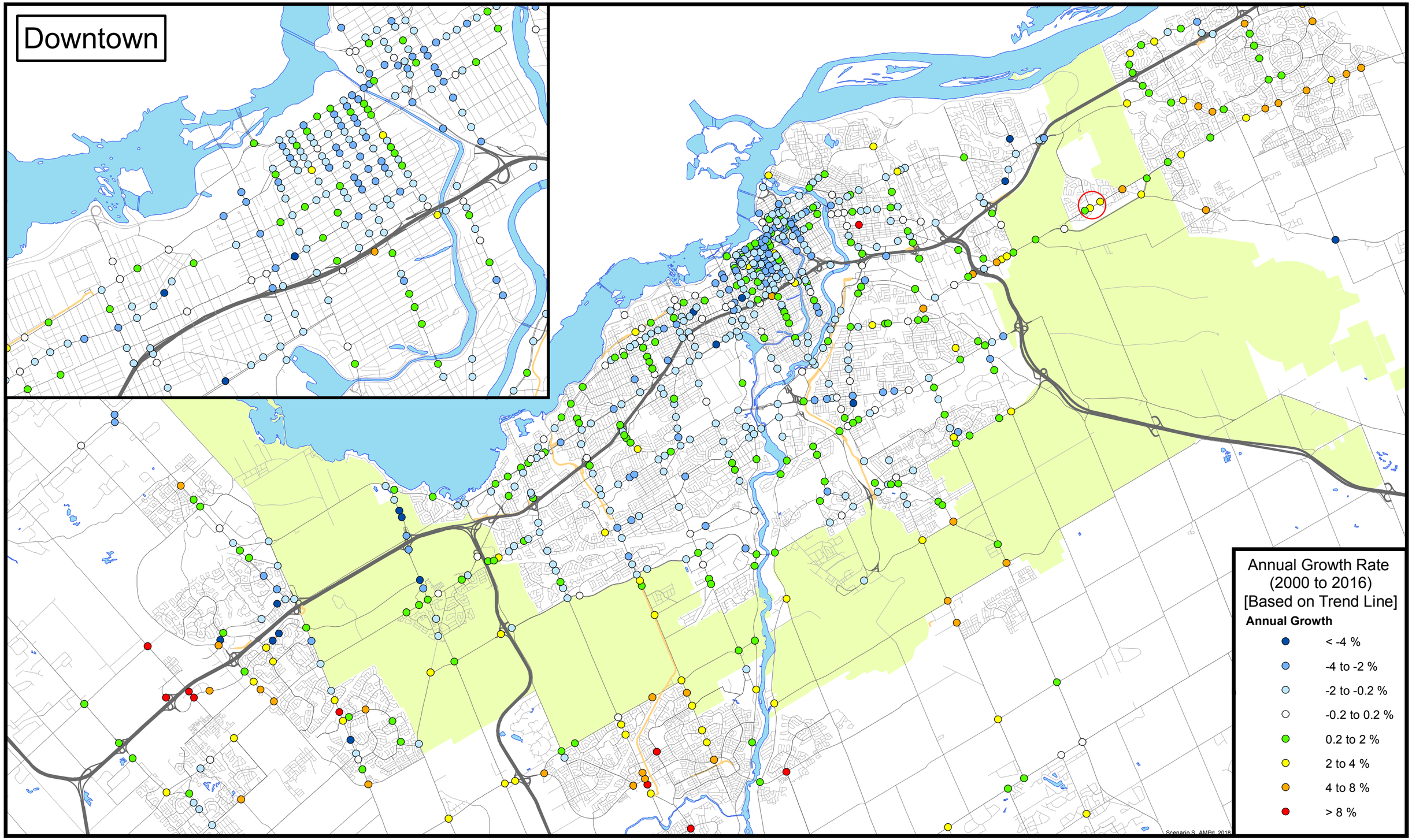
N

Distance (m)

200 400 600 800

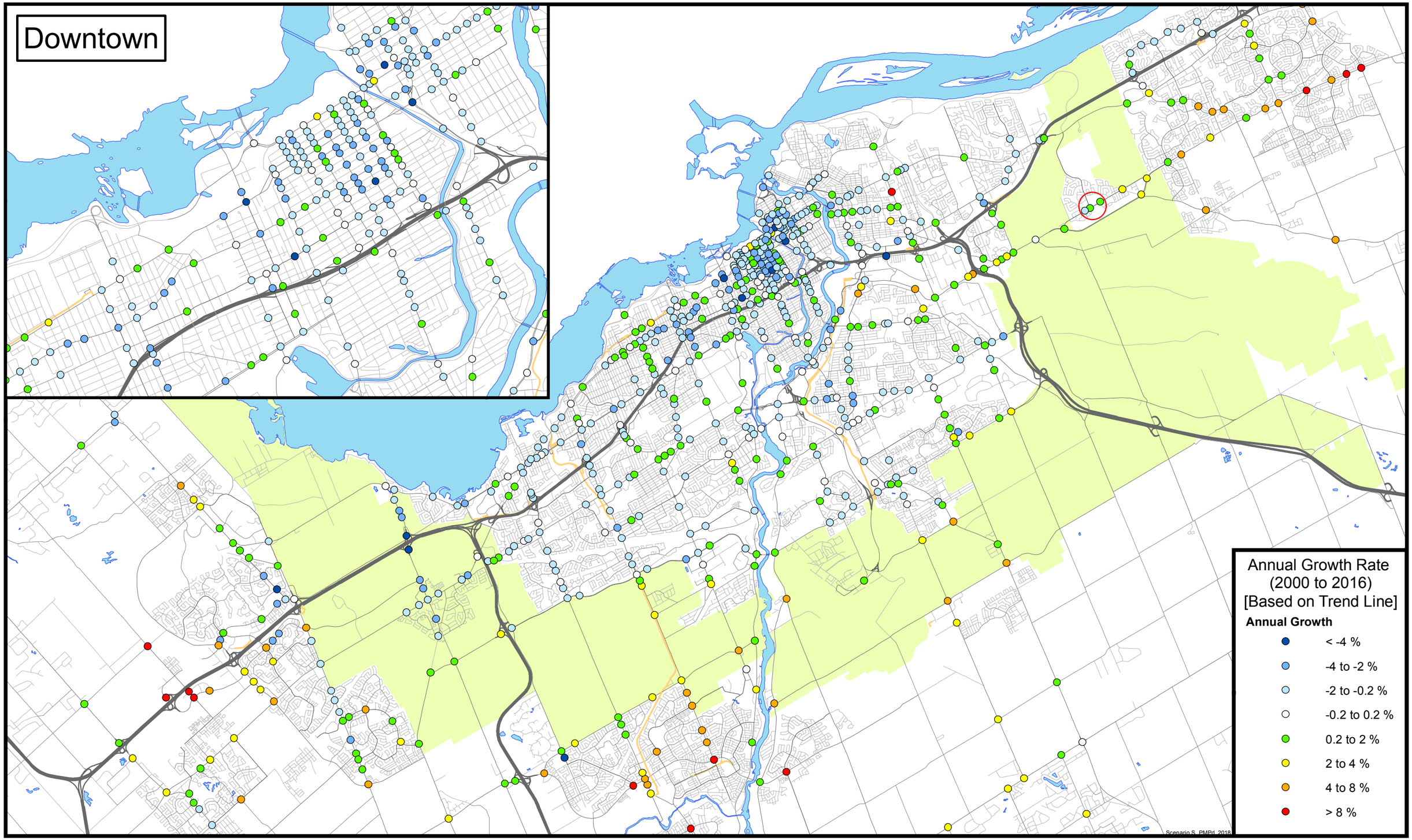
INTERSECTION TRAFFIC GROWTH RATE, AM PEAK PERIOD

Total Vehicular Volume Entering the Intersection, 2000 to 2016



INTERSECTION TRAFFIC GROWTH RATE, PM PEAK PERIOD

Total Vehicular Volume Entering the Intersection, 2000 to 2016



APPENDIX H

Signal Timing Plans

Traffic Signal Timing

City of Ottawa, Public Works & Environmental Services Department

Traffic Signal Operations Unit

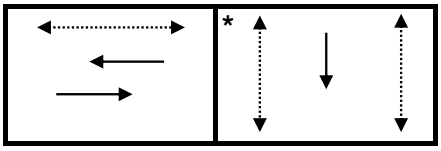
Intersection:	***Main:*** Innes	***Side:***	Southpark
Controller:	**MS 3200**	**TSD:**	**5952**
Author:	Matthew Anderson	**Date:**	27-Oct-2021

Existing Timing Plans†

	Plan				**Ped Minimum Time**		
	AM Peak 1	**Off Peak** 2	**PM Peak** 3	**Night** 4	***Walk***	***DW***	***A+R***
Cycle	75	70	70	70			
Offset	44	X	3	X			
EB Thru	50	45	45	45	-	-	3.3+2.4
WB Thru	50	45	45	45	25	13	3.3+2.4
SB Thru	25	25	25	25	7	12	3.0+2.8

Phasing Sequence‡

Plan: All



Schedule

Weekday

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

Saturday

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

Sunday

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

Notes

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

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

Asterisk (*) Indicates actuated phase

(fp): Fully Protected Left Turn

◄·····► Pedestrian signal

Cost is $59.96 ($53.06 + HST)

Traffic Signal Timing

City of Ottawa, Public Works & Environmental Services Department

Traffic Signal Operations Unit

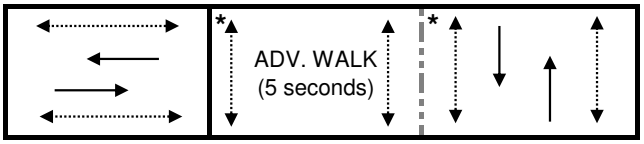
Intersection:	***Main:*** Innes	***Side:***	Bearbrook / Glen Park
Controller:	**MS 3200**	**TSD:**	**5327**
Author:	Matthew Anderson	**Date:**	27-Oct-2021

Existing Timing Plans†

	Plan				**Ped Minimum Time**		
	AM Peak 1	**Off Peak** 2	**PM Peak** 3	**Night** 4	***Walk***	***DW***	***A+R***
Cycle	75	70	70	70			
Offset	33	X	18	X			
EB Thru	41	36	36	36	7	15	3.3+2.4
WB Thru	41	36	36	36	7	15	3.3+2.4
NB Thru	34	34	34	34	10	17	3.0+3.2
SB Thru	34	34	34	34	10	17	3.0+3.2

Phasing Sequence‡

Plan: All



Schedule

Weekday

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

Saturday

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

Sunday

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

Notes

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

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

Asterisk (*) Indicates actuated phase

(fp): Fully Protected Left Turn

◄·····► Pedestrian signal

Cost is $59.96 ($53.06 + HST)

Traffic Signal Timing

City of Ottawa, Public Works & Environmental Services Department

Traffic Signal Operations Unit

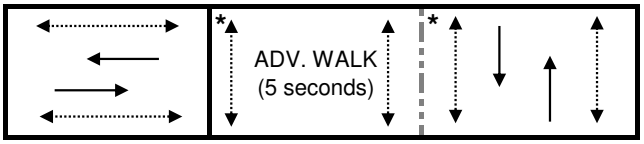
Intersection:	***Main:*** Innes	***Side:***	Orient Park
Controller:	**MS 3200**	**TSD:**	**5595**
Author:	Matthew Anderson	**Date:**	27-Oct-2021

Existing Timing Plans†

	Plan				**Ped Minimum Time**		
	AM Peak 1	**Off Peak** 2	**PM Peak** 3	**Night** 4	***Walk***	***DW***	***A+R***
Cycle	75	70	70	70			
Offset	13	X	31	X			
EB Thru	47	42	42	42	7	15	3.3+2.5
WB Thru	47	42	42	42	7	15	3.3+2.5
NB Thru	28	28	28	28	7	15	3.0+2.9
SB Thru	28	28	28	28	7	15	3.0+2.9

Phasing Sequence‡

Plan: All



Schedule

Weekday

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

Saturday

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

Sunday

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

Notes

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

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

Asterisk (*) Indicates actuated phase

(fp): Fully Protected Left Turn

◄·····► Pedestrian signal

Cost is $59.96 ($53.06 + HST)

Traffic Signal Timing

City of Ottawa, Public Works & Environmental Services Department

Traffic Signal Operations Unit

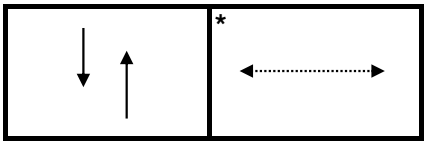
Intersection:	***Main:*** Bearbrook	***Side:***	43m S of Centrepark
Controller:	**MS 3200**	**TSD:**	**6110**
Author:	Matthew Anderson	**Date:**	27-Oct-2021

Existing Timing Plans†

	Plan				**Ped Minimum Time**		
	AM Peak 1	**Off Peak** 2	**PM Peak** 3	**Night** 4	***Walk***	***DW***	***A+R***
Cycle	Free	Free	Free	Free			
Offset	-	-	-	-			
NB Thru	max=35,9	max=35,9	max=35,9	max=35,9	-	-	3.0+2.9
SB Thru	max=35,9	max=35,9	max=35,9	max=35,9	-	-	3.0+2.9
EW Ped	20	20	20	20	7	9	3.0+1.0

Phasing Sequence‡

Plan: All



Notes: 1) The NS phases will receive a minimum of 30s green

Schedule

Weekday

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

Weekend

Time	Plan
0:10	4
6:30	2
22:30	4

Notes

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

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

Asterisk (*) Indicates actuated phase

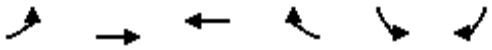
(fp): Fully Protected Left Turn

◄·····► Pedestrian signal

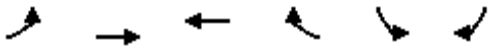
Cost is $59.96 ($53.06 + HST)

APPENDIX I

Existing Synchro Analysis



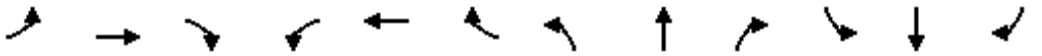
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	10	153	732	34	45	24
Future Volume (vph)	10	153	732	34	45	24
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	55.0			0.0	30.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	50.0				20.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		1.00		1.00	0.97
Frt			0.994			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1768	1741	1796	0	1685	1522
Flt Permitted	0.274				0.950	
Satd. Flow (perm)	510	1741	1796	0	1682	1474
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			5			27
Link Speed (k/h)		50	50		40	
Link Distance (m)		342.9	175.5		233.8	
Travel Time (s)		24.7	12.6		21.0	
Confl. Peds. (#/hr)	3			3	1	6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	1%	8%	4%	3%	6%	5%
Adj. Flow (vph)	11	170	813	38	50	27
Shared Lane Traffic (%)						
Lane Group Flow (vph)	11	170	851	0	50	27
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		4.0	4.0		4.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		5.0	5.0		5.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2		1	1
Detector Template	Left	Thru	Thru		Left	Right
Leading Detector (m)	6.1	30.5	30.5		6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8		6.1	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	6		4	
Permitted Phases	2					4
Detector Phase	2	2	6		4	4
Switch Phase						



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Minimum Initial (s)	10.0	10.0	10.0		10.0	10.0
Minimum Split (s)	15.7	15.7	43.7		24.8	24.8
Total Split (s)	50.0	50.0	50.0		25.0	25.0
Total Split (%)	66.7%	66.7%	66.7%		33.3%	33.3%
Maximum Green (s)	44.3	44.3	44.3		19.2	19.2
Yellow Time (s)	3.3	3.3	3.3		3.0	3.0
All-Red Time (s)	2.4	2.4	2.4		2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.7	5.7	5.7		5.8	5.8
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	C-Max	C-Max	C-Max		None	None
Walk Time (s)			25.0		7.0	7.0
Flash Dont Walk (s)			13.0		12.0	12.0
Pedestrian Calls (#/hr)			3		6	6
Act Effct Green (s)	60.3	60.3	60.3		11.8	11.8
Actuated g/C Ratio	0.80	0.80	0.80		0.16	0.16
v/c Ratio	0.03	0.12	0.59		0.19	0.11
Control Delay	5.2	4.2	8.0		27.8	10.8
Queue Delay	0.0	0.0	0.2		0.0	0.0
Total Delay	5.2	4.2	8.2		27.8	10.8
LOS	A	A	A		C	B
Approach Delay		4.3	8.2		21.9	
Approach LOS		A	A		C	
Queue Length 50th (m)	0.4	5.7	46.5		5.9	0.0
Queue Length 95th (m)	2.3	16.4	150.2		12.4	5.0
Internal Link Dist (m)		318.9	151.5		209.8	
Turn Bay Length (m)	55.0				30.0	
Base Capacity (vph)	410	1399	1445		431	397
Starvation Cap Reductn	0	0	112		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.03	0.12	0.64		0.12	0.07

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 75			
Offset: 44 (59%), Referenced to phase 2:EBTL and 6:WBT, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.59			
Intersection Signal Delay: 8.5		Intersection LOS: A	
Intersection Capacity Utilization 62.1%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 1: Innes & Southpark



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	72	100	15	28	447	349	61	68	22	65	18	145
Future Volume (vph)	72	100	15	28	447	349	61	68	22	65	18	145
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	70.0		0.0	60.0		0.0	45.0		0.0	40.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	30.0			25.0			35.0			35.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99		0.98	0.99		0.98	0.99		0.99	0.96	
Frt		0.980			0.934			0.964			0.867	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1734	1647	0	1734	1678	0	1701	1755	0	1751	1542	0
Flt Permitted	0.190			0.675			0.605			0.692		
Satd. Flow (perm)	347	1647	0	1213	1678	0	1062	1755	0	1264	1542	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14			71			22			161	
Link Speed (k/h)		50			50			40			40	
Link Distance (m)		175.5			379.2			280.2			246.5	
Travel Time (s)		12.6			27.3			25.2			22.2	
Confl. Peds. (#/hr)	6		11	11		6	15		6	6		15
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	8%	33%	3%	5%	1%	5%	3%	1%	2%	5%	1%
Adj. Flow (vph)	80	111	17	31	497	388	68	76	24	72	20	161
Shared Lane Traffic (%)												
Lane Group Flow (vph)	80	128	0	31	885	0	68	100	0	72	181	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		4.0			4.0			4.0			5.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		5.0			5.0			5.0			5.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												

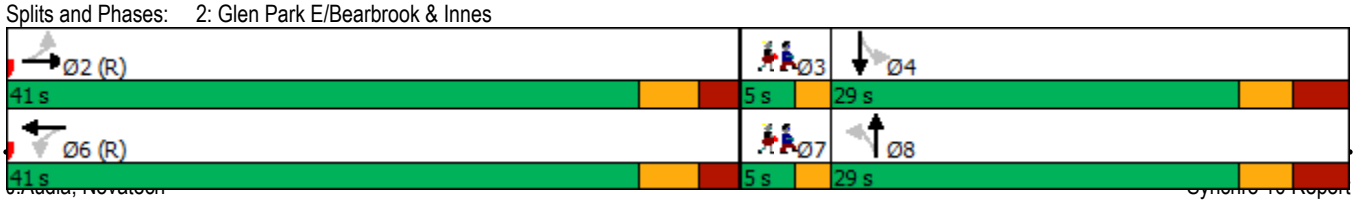
Lane Group	Ø3	Ø7
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (m)		
Storage Lanes		
Taper Length (m)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(m)		
Link Offset(m)		
Crosswalk Width(m)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (k/h)		
Number of Detectors		
Detector Template		
Leading Detector (m)		
Trailing Detector (m)		
Detector 1 Position(m)		
Detector 1 Size(m)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Detector 2 Position(m)		
Detector 2 Size(m)		
Detector 2 Type		
Detector 2 Channel		
Detector 2 Extend (s)		
Turn Type		
Protected Phases	3	7
Permitted Phases		
Detector Phase		
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	
Minimum Split (s)	27.7	27.7		27.7	27.7		28.2	28.2		28.2	28.2	
Total Split (s)	41.0	41.0		41.0	41.0		29.0	29.0		29.0	29.0	
Total Split (%)	54.7%	54.7%		54.7%	54.7%		38.7%	38.7%		38.7%	38.7%	
Maximum Green (s)	35.3	35.3		35.3	35.3		22.8	22.8		22.8	22.8	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.4	2.4		2.4	2.4		3.2	3.2		3.2	3.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.7	5.7		5.7	5.7		6.2	6.2		6.2	6.2	
Lead/Lag							Lag	Lag		Lag	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		17.0	17.0		17.0	17.0	
Pedestrian Calls (#/hr)	11	11		11	11		15	15		15	15	
Act Effct Green (s)	49.3	49.3		49.3	49.3		12.8	12.8		12.8	12.8	
Actuated g/C Ratio	0.66	0.66		0.66	0.66		0.17	0.17		0.17	0.17	
v/c Ratio	0.35	0.12		0.04	0.78		0.38	0.32		0.34	0.46	
Control Delay	14.2	4.6		5.3	14.6		32.2	23.0		30.2	9.7	
Queue Delay	0.0	0.0		0.0	0.2		0.0	0.0		0.0	0.0	
Total Delay	14.2	4.6		5.3	14.9		32.2	23.0		30.2	9.7	
LOS	B	A		A	B		C	C		C	A	
Approach Delay		8.3			14.5			26.8			15.6	
Approach LOS		A			B			C			B	
Queue Length 50th (m)	2.3	2.8		0.7	36.5		8.3	9.4		8.8	2.3	
Queue Length 95th (m)	13.6	9.5		m3.3	#179.5		15.5	17.3		15.8	14.1	
Internal Link Dist (m)		151.5			355.2			256.2			222.5	
Turn Bay Length (m)	70.0			60.0			45.0			40.0		
Base Capacity (vph)	228	1088		797	1128		322	548		384	580	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	26		0	0		0	5	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.35	0.12		0.04	0.80		0.21	0.18		0.19	0.31	

Intersection Summary

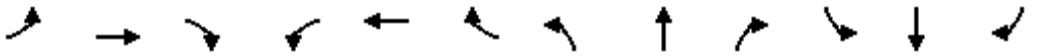
Area Type: Other
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 33 (44%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.78
Intersection Signal Delay: 15.2 Intersection LOS: B
Intersection Capacity Utilization 98.5% 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: Glen Park E/Bearbrook & Innes



Lane Group	Ø3	Ø7
Minimum Initial (s)	3.0	3.0
Minimum Split (s)	5.0	5.0
Total Split (s)	5.0	5.0
Total Split (%)	7%	7%
Maximum Green (s)	3.0	3.0
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	None	None
Walk Time (s)	0.0	0.0
Flash Dont Walk (s)	0.0	0.0
Pedestrian Calls (#/hr)	15	15
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary



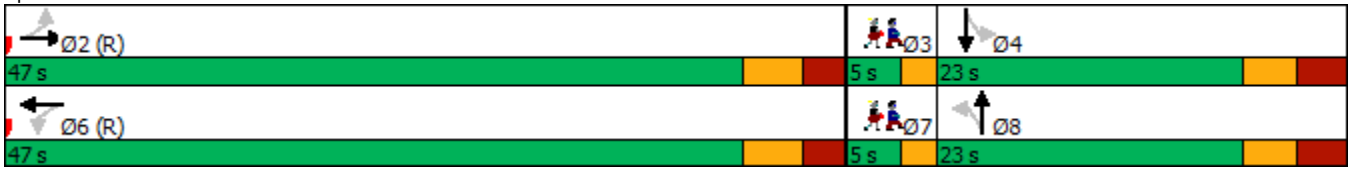
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	164	36	9	549	2	102	2	11	4	0	40
Future Volume (vph)	17	164	36	9	549	2	102	2	11	4	0	40
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	65.0		0.0	65.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	20.0			25.0			10.0			10.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.99		0.98	1.00			0.97			0.96	
Frt		0.973						0.987			0.876	
Flt Protected	0.950			0.950				0.957			0.996	
Satd. Flow (prot)	1768	1660	0	1768	1774	0	0	1685	0	0	1531	0
Flt Permitted	0.364			0.620				0.715			0.969	
Satd. Flow (perm)	671	1660	0	1131	1774	0	0	1234	0	0	1484	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		23						6			70	
Link Speed (k/h)		50			50			40			40	
Link Distance (m)		379.2			314.9			174.2			112.1	
Travel Time (s)		27.3			22.7			15.7			10.1	
Confl. Peds. (#/hr)	18		16	16		18	11		25	25		11
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%	8%	15%	1%	6%	1%	2%	1%	30%	1%	1%	3%
Adj. Flow (vph)	19	182	40	10	610	2	113	2	12	4	0	44
Shared Lane Traffic (%)												
Lane Group Flow (vph)	19	222	0	10	612	0	0	127	0	0	48	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		4.0			4.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		5.0			5.0			5.0			5.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												

Lane Group	Ø3	Ø7
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (m)		
Storage Lanes		
Taper Length (m)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(m)		
Link Offset(m)		
Crosswalk Width(m)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (k/h)		
Number of Detectors		
Detector Template		
Leading Detector (m)		
Trailing Detector (m)		
Detector 1 Position(m)		
Detector 1 Size(m)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Detector 2 Position(m)		
Detector 2 Size(m)		
Detector 2 Type		
Detector 2 Channel		
Detector 2 Extend (s)		
Turn Type		
Protected Phases	3	7
Permitted Phases		
Detector Phase		
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	
Minimum Split (s)	27.8	27.8		27.8	27.8		22.9	22.9		22.9	22.9	
Total Split (s)	47.0	47.0		47.0	47.0		23.0	23.0		23.0	23.0	
Total Split (%)	62.7%	62.7%		62.7%	62.7%		30.7%	30.7%		30.7%	30.7%	
Maximum Green (s)	41.2	41.2		41.2	41.2		17.1	17.1		17.1	17.1	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.9	2.9		2.9	2.9	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	5.8	5.8		5.8	5.8			5.9			5.9	
Lead/Lag							Lag	Lag		Lag	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		2.0	2.0		2.0	2.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	
Pedestrian Calls (#/hr)	16	16		16	16		25	25		25	25	
Act Effct Green (s)	52.3	52.3		52.3	52.3			13.4			13.4	
Actuated g/C Ratio	0.70	0.70		0.70	0.70			0.18			0.18	
v/c Ratio	0.04	0.19		0.01	0.50			0.56			0.15	
Control Delay	6.9	5.7		7.3	10.2			36.2			4.9	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	6.9	5.7		7.3	10.2			36.2			4.9	
LOS	A	A		A	B			D			A	
Approach Delay		5.8			10.1			36.2			4.9	
Approach LOS		A			B			D			A	
Queue Length 50th (m)	0.4	3.9		0.4	33.3			14.7			0.0	
Queue Length 95th (m)	3.1	23.1		2.3	79.6			27.7			4.6	
Internal Link Dist (m)		355.2			290.9			150.2			88.1	
Turn Bay Length (m)	65.0			65.0								
Base Capacity (vph)	467	1163		788	1236			285			392	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.04	0.19		0.01	0.50			0.45			0.12	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 75			
Offset: 13 (17%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.56			
Intersection Signal Delay: 12.1		Intersection LOS: B	
Intersection Capacity Utilization 54.3%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 3: Orient Park & Innes



Lane Group	Ø3	Ø7
Minimum Initial (s)	3.0	3.0
Minimum Split (s)	5.0	5.0
Total Split (s)	5.0	5.0
Total Split (%)	7%	7%
Maximum Green (s)	3.0	3.0
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	None	None
Walk Time (s)	0.0	0.0
Flash Dont Walk (s)	0.0	0.0
Pedestrian Calls (#/hr)	25	25
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

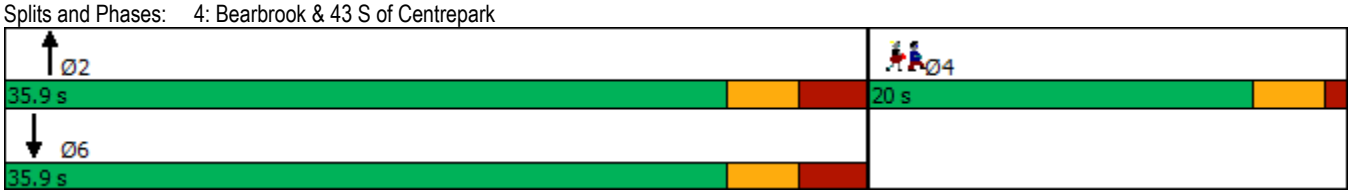
Intersection Summary

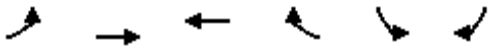
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø4
Lane Configurations							
Traffic Volume (vph)	0	0	513	0	0	268	
Future Volume (vph)	0	0	513	0	0	268	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor							
Frt							
Flt Protected							
Satd. Flow (prot)	0	0	1843	0	0	1825	
Flt Permitted							
Satd. Flow (perm)	0	0	1843	0	0	1825	
Right Turn on Red		Yes		Yes			
Satd. Flow (RTOR)							
Link Speed (k/h)	40		40			40	
Link Distance (m)	14.7		246.5			168.6	
Travel Time (s)	1.3		22.2			15.2	
Confl. Peds. (#/hr)		2		2	2		
Confl. Bikes (#/hr)				1			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	
Heavy Vehicles (%)	0%	0%	2%	0%	0%	3%	
Adj. Flow (vph)	0	0	570	0	0	298	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	0	570	0	0	298	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Right	Left	Left	
Median Width(m)	0.0		0.0			0.0	
Link Offset(m)	0.0		0.0			0.0	
Crosswalk Width(m)	5.0		23.0			23.0	
Two way Left Turn Lane							
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	
Turning Speed (k/h)	24	14		14	24		
Number of Detectors			2			2	
Detector Template			Thru			Thru	
Leading Detector (m)			30.5			30.5	
Trailing Detector (m)			0.0			0.0	
Detector 1 Position(m)			0.0			0.0	
Detector 1 Size(m)			1.8			1.8	
Detector 1 Type			Cl+Ex			Cl+Ex	
Detector 1 Channel							
Detector 1 Extend (s)			0.0			0.0	
Detector 1 Queue (s)			0.0			0.0	
Detector 1 Delay (s)			0.0			0.0	
Detector 2 Position(m)			28.7			28.7	
Detector 2 Size(m)			1.8			1.8	
Detector 2 Type			Cl+Ex			Cl+Ex	
Detector 2 Channel							
Detector 2 Extend (s)			0.0			0.0	
Turn Type			NA			NA	
Protected Phases			2			6	4
Permitted Phases							
Detector Phase			2			6	
Switch Phase							
Minimum Initial (s)			30.0			30.0	16.0
Minimum Split (s)			35.9			35.9	20.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø4
Total Split (s)			35.9			35.9	20.0
Total Split (%)			64.2%			64.2%	36%
Maximum Green (s)			30.0			30.0	16.0
Yellow Time (s)			3.0			3.0	3.0
All-Red Time (s)			2.9			2.9	1.0
Lost Time Adjust (s)			0.0			0.0	
Total Lost Time (s)			5.9			5.9	
Lead/Lag							
Lead-Lag Optimize?							
Vehicle Extension (s)			3.0			3.0	3.0
Recall Mode			Min			Min	None
Walk Time (s)							7.0
Flash Dont Walk (s)							9.0
Pedestrian Calls (#/hr)							5
Act Effct Green (s)			50.9			50.9	
Actuated g/C Ratio			0.93			0.93	
v/c Ratio			0.33			0.18	
Control Delay			2.8			2.2	
Queue Delay			0.0			0.0	
Total Delay			2.8			2.2	
LOS			A			A	
Approach Delay			2.8			2.2	
Approach LOS			A			A	
Queue Length 50th (m)			0.0			0.0	
Queue Length 95th (m)			50.7			23.1	
Internal Link Dist (m)	0.1		222.5			144.6	
Turn Bay Length (m)							
Base Capacity (vph)			1708			1692	
Starvation Cap Reductn			0			0	
Spillback Cap Reductn			0			0	
Storage Cap Reductn			0			0	
Reduced v/c Ratio			0.33			0.18	

Intersection Summary			
Area Type:	Other		
Cycle Length: 55.9			
Actuated Cycle Length: 54.9			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.33			
Intersection Signal Delay: 2.6		Intersection LOS: A	
Intersection Capacity Utilization 40.7%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 4: Bearbrook & 43 S of Centrepark



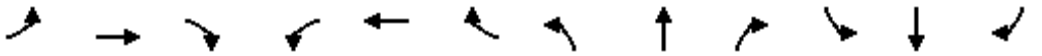


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	28	515	261	59	60	16
Future Volume (vph)	28	515	261	59	60	16
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	55.0			0.0	30.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	50.0				20.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		1.00		0.98	0.96
Frt			0.975			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1768	1825	1750	0	1734	1582
Flt Permitted	0.548				0.950	
Satd. Flow (perm)	1016	1825	1750	0	1702	1522
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			27			18
Link Speed (k/h)		50	50		40	
Link Distance (m)		342.9	175.5		233.8	
Travel Time (s)		24.7	12.6		21.0	
Confl. Peds. (#/hr)	7			7	10	10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	1%	3%	5%	1%	3%	1%
Adj. Flow (vph)	31	572	290	66	67	18
Shared Lane Traffic (%)						
Lane Group Flow (vph)	31	572	356	0	67	18
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		4.0	4.0		4.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		5.0	5.0		5.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2		1	1
Detector Template	Left	Thru	Thru		Left	Right
Leading Detector (m)	6.1	30.5	30.5		6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8		6.1	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	6		4	
Permitted Phases	2					4
Detector Phase	2	2	6		4	4
Switch Phase						

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Minimum Initial (s)	10.0	10.0	10.0		10.0	10.0
Minimum Split (s)	15.7	15.7	43.7		24.8	24.8
Total Split (s)	45.0	45.0	45.0		25.0	25.0
Total Split (%)	64.3%	64.3%	64.3%		35.7%	35.7%
Maximum Green (s)	39.3	39.3	39.3		19.2	19.2
Yellow Time (s)	3.3	3.3	3.3		3.0	3.0
All-Red Time (s)	2.4	2.4	2.4		2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.7	5.7	5.7		5.8	5.8
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	C-Max	C-Max	C-Max		None	None
Walk Time (s)			25.0		7.0	7.0
Flash Dont Walk (s)			13.0		12.0	12.0
Pedestrian Calls (#/hr)			7		10	10
Act Effct Green (s)	55.3	55.3	55.3		11.8	11.8
Actuated g/C Ratio	0.79	0.79	0.79		0.17	0.17
v/c Ratio	0.04	0.40	0.26		0.23	0.07
Control Delay	5.1	6.2	3.4		25.9	10.9
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	5.1	6.2	3.4		25.9	10.9
LOS	A	A	A		C	B
Approach Delay		6.2	3.4		22.8	
Approach LOS		A	A		C	
Queue Length 50th (m)	1.0	25.2	9.9		7.3	0.0
Queue Length 95th (m)	4.5	63.5	13.6		14.2	3.9
Internal Link Dist (m)		318.9	151.5		209.8	
Turn Bay Length (m)	55.0				30.0	
Base Capacity (vph)	802	1441	1388		475	430
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	0.04	0.40	0.26		0.14	0.04

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 3 (4%), Referenced to phase 2:EBTL and 6:WBT, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.40			
Intersection Signal Delay: 6.6		Intersection LOS: A	
Intersection Capacity Utilization 51.7%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 1: Innes & Southpark



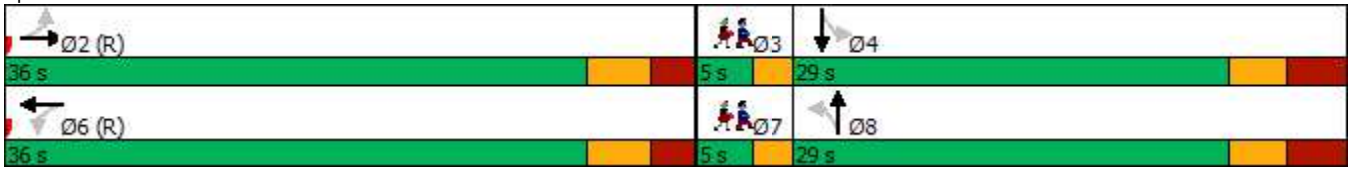
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	232	313	91	32	148	118	48	61	51	223	71	153
Future Volume (vph)	232	313	91	32	148	118	48	61	51	223	71	153
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	70.0		0.0	60.0		0.0	45.0		0.0	40.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	30.0			25.0			35.0			35.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.99		0.98	0.98		0.99	0.98		0.98	0.97	
Frt		0.966			0.933			0.932			0.898	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1768	1745	0	1768	1646	0	1751	1697	0	1768	1627	0
Flt Permitted	0.567			0.431			0.538			0.677		
Satd. Flow (perm)	1045	1745	0	789	1646	0	979	1697	0	1240	1627	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26			72			57			164	
Link Speed (k/h)		50			50			40			40	
Link Distance (m)		175.5			379.2			280.2			246.5	
Travel Time (s)		12.6			27.3			25.2			22.2	
Confl. Peds. (#/hr)	10		23	23		10	12		12	12		12
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	1%	3%	2%	1%	8%	1%	2%	1%	2%	1%	1%	1%
Adj. Flow (vph)	258	348	101	36	164	131	53	68	57	248	79	170
Shared Lane Traffic (%)												
Lane Group Flow (vph)	258	449	0	36	295	0	53	125	0	248	249	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		4.0			4.0			4.0			5.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		5.0			5.0			5.0			5.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												

Lane Group	Ø3	Ø7
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (m)		
Storage Lanes		
Taper Length (m)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(m)		
Link Offset(m)		
Crosswalk Width(m)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (k/h)		
Number of Detectors		
Detector Template		
Leading Detector (m)		
Trailing Detector (m)		
Detector 1 Position(m)		
Detector 1 Size(m)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Detector 2 Position(m)		
Detector 2 Size(m)		
Detector 2 Type		
Detector 2 Channel		
Detector 2 Extend (s)		
Turn Type		
Protected Phases	3	7
Permitted Phases		
Detector Phase		
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	
Minimum Split (s)	27.7	27.7		27.7	27.7		28.2	28.2		28.2	28.2	
Total Split (s)	36.0	36.0		36.0	36.0		29.0	29.0		29.0	29.0	
Total Split (%)	51.4%	51.4%		51.4%	51.4%		41.4%	41.4%		41.4%	41.4%	
Maximum Green (s)	30.3	30.3		30.3	30.3		22.8	22.8		22.8	22.8	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.4	2.4		2.4	2.4		3.2	3.2		3.2	3.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.7	5.7		5.7	5.7		6.2	6.2		6.2	6.2	
Lead/Lag							Lag	Lag		Lag	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		17.0	17.0		17.0	17.0	
Pedestrian Calls (#/hr)	23	23		23	23		12	12		12	12	
Act Effct Green (s)	38.5	38.5		38.5	38.5		18.6	18.6		18.6	18.6	
Actuated g/C Ratio	0.55	0.55		0.55	0.55		0.27	0.27		0.27	0.27	
v/c Ratio	0.45	0.46		0.08	0.32		0.20	0.25		0.75	0.45	
Control Delay	11.4	9.4		14.7	12.2		20.0	11.9		37.6	9.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	11.4	9.4		14.7	12.2		20.0	11.9		37.6	9.8	
LOS	B	A		B	B		B	B		D	A	
Approach Delay		10.1			12.5			14.3			23.7	
Approach LOS		B			B			B			C	
Queue Length 50th (m)	13.0	19.1		2.0	13.7		4.8	6.1		26.6	7.7	
Queue Length 95th (m)	29.1	31.5		9.0	41.1		11.5	15.5		45.8	21.6	
Internal Link Dist (m)		151.5			355.2			256.2			222.5	
Turn Bay Length (m)	70.0			60.0			45.0			40.0		
Base Capacity (vph)	574	970		433	936		320	594		406	643	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.45	0.46		0.08	0.32		0.17	0.21		0.61	0.39	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 18 (26%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay: 15.0		Intersection LOS: B	
Intersection Capacity Utilization 76.6%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 2: Glen Park E/Bearbrook & Innes



Lane Group	Ø3	Ø7
Minimum Initial (s)	3.0	3.0
Minimum Split (s)	5.0	5.0
Total Split (s)	5.0	5.0
Total Split (%)	7%	7%
Maximum Green (s)	3.0	3.0
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	None	None
Walk Time (s)	0.0	0.0
Flash Dont Walk (s)	0.0	0.0
Pedestrian Calls (#/hr)	12	12
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	468	139	17	244	3	73	2	11	6	0	32
Future Volume (vph)	61	468	139	17	244	3	73	2	11	6	0	32
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	65.0		0.0	65.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	20.0			25.0			10.0			10.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.99		1.00	1.00			0.98			0.97	
Frt		0.966			0.998			0.983			0.887	
Flt Protected	0.950			0.950				0.959			0.992	
Satd. Flow (prot)	1768	1756	0	1701	1839	0	0	1728	0	0	1559	0
Flt Permitted	0.591			0.332				0.727			0.936	
Satd. Flow (perm)	1092	1756	0	592	1839	0	0	1297	0	0	1463	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		32			1			10			75	
Link Speed (k/h)		50			50			40			40	
Link Distance (m)		379.2			314.9			174.2			112.1	
Travel Time (s)		27.3			22.7			15.7			10.1	
Confl. Peds. (#/hr)	7		11	11		7	6		18	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%	3%	1%	5%	2%	1%	2%	1%	1%	15%	1%	1%
Adj. Flow (vph)	68	520	154	19	271	3	81	2	12	7	0	36
Shared Lane Traffic (%)												
Lane Group Flow (vph)	68	674	0	19	274	0	0	95	0	0	43	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		4.0			4.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		5.0			5.0			5.0			5.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												

Lane Group	Ø3	Ø7
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (m)		
Storage Lanes		
Taper Length (m)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(m)		
Link Offset(m)		
Crosswalk Width(m)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (k/h)		
Number of Detectors		
Detector Template		
Leading Detector (m)		
Trailing Detector (m)		
Detector 1 Position(m)		
Detector 1 Size(m)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Detector 2 Position(m)		
Detector 2 Size(m)		
Detector 2 Type		
Detector 2 Channel		
Detector 2 Extend (s)		
Turn Type		
Protected Phases	3	7
Permitted Phases		
Detector Phase		
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	
Minimum Split (s)	27.8	27.8		27.8	27.8		22.9	22.9		22.9	22.9	
Total Split (s)	42.0	42.0		42.0	42.0		23.0	23.0		23.0	23.0	
Total Split (%)	60.0%	60.0%		60.0%	60.0%		32.9%	32.9%		32.9%	32.9%	
Maximum Green (s)	36.2	36.2		36.2	36.2		17.1	17.1		17.1	17.1	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.9	2.9		2.9	2.9	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	5.8	5.8		5.8	5.8			5.9			5.9	
Lead/Lag							Lag	Lag		Lag	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		2.0	2.0		2.0	2.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	
Pedestrian Calls (#/hr)	11	11		11	11		18	18		18	18	
Act Effct Green (s)	49.9	49.9		49.9	49.9			11.8			11.8	
Actuated g/C Ratio	0.71	0.71		0.71	0.71			0.17			0.17	
v/c Ratio	0.09	0.53		0.05	0.21			0.42			0.14	
Control Delay	4.4	7.4		6.7	6.2			28.7			3.4	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	4.4	7.4		6.7	6.2			28.7			3.4	
LOS	A	A		A	A			C			A	
Approach Delay		7.1			6.2			28.7			3.4	
Approach LOS		A			A			C			A	
Queue Length 50th (m)	1.6	41.2		0.6	9.8			9.5			0.0	
Queue Length 95th (m)	m6.5	64.8		3.8	29.4			19.0			3.1	
Internal Link Dist (m)		355.2			290.9			150.2			88.1	
Turn Bay Length (m)	65.0			65.0								
Base Capacity (vph)	777	1260		421	1310			324			414	
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	0.09	0.53		0.05	0.21			0.29			0.10	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 31 (44%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.53			
Intersection Signal Delay: 8.5		Intersection LOS: A	
Intersection Capacity Utilization 71.1%		ICU Level of Service C	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 3: Orient Park & Innes

Lane Group	Ø3	Ø7
Minimum Initial (s)	3.0	3.0
Minimum Split (s)	5.0	5.0
Total Split (s)	5.0	5.0
Total Split (%)	7%	7%
Maximum Green (s)	3.0	3.0
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	None	None
Walk Time (s)	0.0	0.0
Flash Dont Walk (s)	0.0	0.0
Pedestrian Calls (#/hr)	18	18
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø4
Lane Configurations							
Traffic Volume (vph)	0	0	358	0	0	415	
Future Volume (vph)	0	0	358	0	0	415	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor							
Frt							
Flt Protected							
Satd. Flow (prot)	0	0	1843	0	0	1843	
Flt Permitted							
Satd. Flow (perm)	0	0	1843	0	0	1843	
Right Turn on Red		Yes		Yes			
Satd. Flow (RTOR)							
Link Speed (k/h)	40		40			40	
Link Distance (m)	14.7		246.5			168.6	
Travel Time (s)	1.3		22.2			15.2	
Confl. Peds. (#/hr)		53		18	18		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	
Heavy Vehicles (%)	0%	0%	2%	0%	0%	2%	
Adj. Flow (vph)	0	0	398	0	0	461	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	0	398	0	0	461	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Right	Left	Left	
Median Width(m)	0.0		0.0			0.0	
Link Offset(m)	0.0		0.0			0.0	
Crosswalk Width(m)	5.0		23.0			23.0	
Two way Left Turn Lane							
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	
Turning Speed (k/h)	24	14		14	24		
Number of Detectors			2			2	
Detector Template			Thru			Thru	
Leading Detector (m)			30.5			30.5	
Trailing Detector (m)			0.0			0.0	
Detector 1 Position(m)			0.0			0.0	
Detector 1 Size(m)			1.8			1.8	
Detector 1 Type			Cl+Ex			Cl+Ex	
Detector 1 Channel							
Detector 1 Extend (s)			0.0			0.0	
Detector 1 Queue (s)			0.0			0.0	
Detector 1 Delay (s)			0.0			0.0	
Detector 2 Position(m)			28.7			28.7	
Detector 2 Size(m)			1.8			1.8	
Detector 2 Type			Cl+Ex			Cl+Ex	
Detector 2 Channel							
Detector 2 Extend (s)			0.0			0.0	
Turn Type			NA			NA	
Protected Phases			2			6	4
Permitted Phases							
Detector Phase			2			6	
Switch Phase							
Minimum Initial (s)			30.0			30.0	16.0
Minimum Split (s)			35.9			35.9	20.0
Total Split (s)			35.9			35.9	20.0

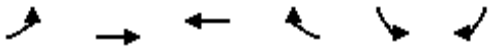
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø4
Total Split (%)			64.2%			64.2%	36%
Maximum Green (s)			30.0			30.0	16.0
Yellow Time (s)			3.0			3.0	3.0
All-Red Time (s)			2.9			2.9	1.0
Lost Time Adjust (s)			0.0			0.0	
Total Lost Time (s)			5.9			5.9	
Lead/Lag							
Lead-Lag Optimize?							
Vehicle Extension (s)			3.0			3.0	3.0
Recall Mode			Min			Min	None
Walk Time (s)							7.0
Flash Dont Walk (s)							9.0
Pedestrian Calls (#/hr)							53
Act Effct Green (s)			50.3			50.3	
Actuated g/C Ratio			0.85			0.85	
v/c Ratio			0.25			0.29	
Control Delay			4.0			4.2	
Queue Delay			0.0			0.0	
Total Delay			4.0			4.2	
LOS			A			A	
Approach Delay			4.0			4.2	
Approach LOS			A			A	
Queue Length 50th (m)			0.0			0.0	
Queue Length 95th (m)			31.9			38.1	
Internal Link Dist (m)	0.1		222.5			144.6	
Turn Bay Length (m)							
Base Capacity (vph)			1573			1573	
Starvation Cap Reductn			0			0	
Spillback Cap Reductn			0			0	
Storage Cap Reductn			0			0	
Reduced v/c Ratio			0.25			0.29	

Intersection Summary			
Area Type:	Other		
Cycle Length: 55.9			
Actuated Cycle Length: 58.9			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.29			
Intersection Signal Delay: 4.1		Intersection LOS: A	
Intersection Capacity Utilization 44.9%		ICU Level of Service A	
Analysis Period (min) 15			

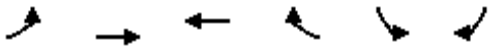
Splits and Phases: 4: Bearbrook & 43 S of Centrepark

APPENDIX J

Background Synchro Analysis



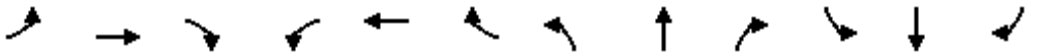
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	10	159	761	34	45	24
Future Volume (vph)	10	159	761	34	45	24
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	55.0			0.0	30.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	50.0				20.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		1.00		1.00	0.97
Frt			0.994			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1768	1741	1796	0	1685	1522
Flt Permitted	0.302				0.950	
Satd. Flow (perm)	562	1741	1796	0	1682	1474
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			5			24
Link Speed (k/h)		50	50		40	
Link Distance (m)		342.9	175.5		233.8	
Travel Time (s)		24.7	12.6		21.0	
Confl. Peds. (#/hr)	3			3	1	6
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	8%	4%	3%	6%	5%
Adj. Flow (vph)	10	159	761	34	45	24
Shared Lane Traffic (%)						
Lane Group Flow (vph)	10	159	795	0	45	24
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		4.0	4.0		4.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		5.0	5.0		5.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2		1	1
Detector Template	Left	Thru	Thru		Left	Right
Leading Detector (m)	6.1	30.5	30.5		6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8		6.1	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	6		4	
Permitted Phases	2					4
Detector Phase	2	2	6		4	4
Switch Phase						



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Minimum Initial (s)	10.0	10.0	10.0		10.0	10.0
Minimum Split (s)	15.7	15.7	43.7		24.8	24.8
Total Split (s)	50.0	50.0	50.0		25.0	25.0
Total Split (%)	66.7%	66.7%	66.7%		33.3%	33.3%
Maximum Green (s)	44.3	44.3	44.3		19.2	19.2
Yellow Time (s)	3.3	3.3	3.3		3.0	3.0
All-Red Time (s)	2.4	2.4	2.4		2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.7	5.7	5.7		5.8	5.8
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	C-Max	C-Max	C-Max		None	None
Walk Time (s)			25.0		7.0	7.0
Flash Dont Walk (s)			13.0		12.0	12.0
Pedestrian Calls (#/hr)			3		6	6
Act Effct Green (s)	60.3	60.3	60.3		11.8	11.8
Actuated g/C Ratio	0.80	0.80	0.80		0.16	0.16
v/c Ratio	0.02	0.11	0.55		0.17	0.10
Control Delay	5.1	4.2	7.1		27.5	11.2
Queue Delay	0.0	0.0	0.1		0.0	0.0
Total Delay	5.1	4.2	7.2		27.5	11.2
LOS	A	A	A		C	B
Approach Delay		4.3	7.2		21.8	
Approach LOS		A	A		C	
Queue Length 50th (m)	0.3	5.3	41.3		5.3	0.0
Queue Length 95th (m)	2.1	15.4	109.5		11.3	4.8
Internal Link Dist (m)		318.9	151.5		209.8	
Turn Bay Length (m)	55.0				30.0	
Base Capacity (vph)	451	1399	1445		431	395
Starvation Cap Reductn	0	0	113		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.02	0.11	0.60		0.10	0.06

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 75			
Offset: 44 (59%), Referenced to phase 2:EBTL and 6:WBT, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.55			
Intersection Signal Delay: 7.7		Intersection LOS: A	
Intersection Capacity Utilization 63.7%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 1: Innes & Southpark



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	72	104	15	28	465	349	61	68	22	65	18	145
Future Volume (vph)	72	104	15	28	465	349	61	68	22	65	18	145
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	70.0		0.0	60.0		0.0	45.0		0.0	40.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	30.0			25.0			35.0			35.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		0.98	0.99		0.98	0.99		0.99	0.96	
Frt		0.981			0.936			0.963			0.867	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1734	1651	0	1734	1682	0	1701	1753	0	1751	1542	0
Flt Permitted	0.234			0.681			0.653			0.699		
Satd. Flow (perm)	427	1651	0	1223	1682	0	1146	1753	0	1277	1542	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13			68			22			145	
Link Speed (k/h)		50			50			40			40	
Link Distance (m)		175.5			379.2			280.2			246.5	
Travel Time (s)		12.6			27.3			25.2			22.2	
Confl. Peds. (#/hr)	6		11	11		6	15		6	6		15
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	8%	33%	3%	5%	1%	5%	3%	1%	2%	5%	1%
Adj. Flow (vph)	72	104	15	28	465	349	61	68	22	65	18	145
Shared Lane Traffic (%)												
Lane Group Flow (vph)	72	119	0	28	814	0	61	90	0	65	163	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		4.0			4.0			4.0			5.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		5.0			5.0			5.0			5.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												

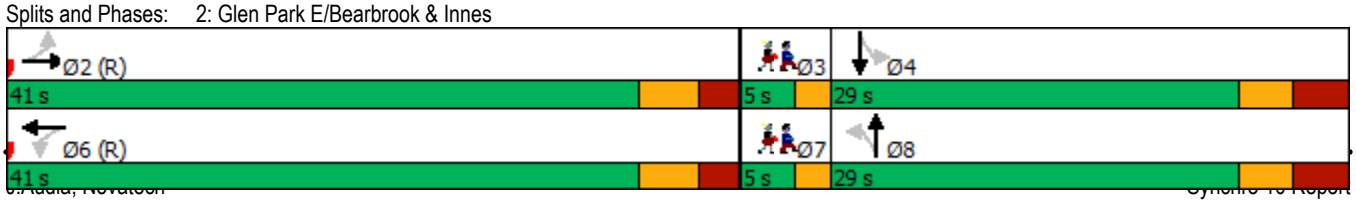
Lane Group	Ø3	Ø7
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (m)		
Storage Lanes		
Taper Length (m)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(m)		
Link Offset(m)		
Crosswalk Width(m)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (k/h)		
Number of Detectors		
Detector Template		
Leading Detector (m)		
Trailing Detector (m)		
Detector 1 Position(m)		
Detector 1 Size(m)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Detector 2 Position(m)		
Detector 2 Size(m)		
Detector 2 Type		
Detector 2 Channel		
Detector 2 Extend (s)		
Turn Type		
Protected Phases	3	7
Permitted Phases		
Detector Phase		
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	
Minimum Split (s)	27.7	27.7		27.7	27.7		28.2	28.2		28.2	28.2	
Total Split (s)	41.0	41.0		41.0	41.0		29.0	29.0		29.0	29.0	
Total Split (%)	54.7%	54.7%		54.7%	54.7%		38.7%	38.7%		38.7%	38.7%	
Maximum Green (s)	35.3	35.3		35.3	35.3		22.8	22.8		22.8	22.8	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.4	2.4		2.4	2.4		3.2	3.2		3.2	3.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.7	5.7		5.7	5.7		6.2	6.2		6.2	6.2	
Lead/Lag							Lag	Lag		Lag	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		17.0	17.0		17.0	17.0	
Pedestrian Calls (#/hr)	11	11		11	11		15	15		15	15	
Act Effct Green (s)	49.5	49.5		49.5	49.5		12.6	12.6		12.6	12.6	
Actuated g/C Ratio	0.66	0.66		0.66	0.66		0.17	0.17		0.17	0.17	
v/c Ratio	0.26	0.11		0.03	0.72		0.32	0.29		0.30	0.43	
Control Delay	9.0	4.6		4.9	12.0		30.2	22.4		29.5	9.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	9.0	4.6		4.9	12.0		30.2	22.4		29.5	9.7	
LOS	A	A		A	B		C	C		C	A	
Approach Delay		6.3			11.8			25.5			15.3	
Approach LOS		A			B			C			B	
Queue Length 50th (m)	2.0	2.7		0.7	32.6		7.4	8.1		7.9	2.1	
Queue Length 95th (m)	9.2	9.1		m3.0	#159.2		14.0	15.6		14.5	13.3	
Internal Link Dist (m)		151.5			355.2			256.2			222.5	
Turn Bay Length (m)	70.0			60.0			45.0			40.0		
Base Capacity (vph)	281	1093		806	1132		348	548		388	569	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	3		0	0		0	3	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.26	0.11		0.03	0.72		0.18	0.16		0.17	0.29	

Intersection Summary

Area Type: Other
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 33 (44%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.72
Intersection Signal Delay: 13.1 Intersection LOS: B
Intersection Capacity Utilization 99.5% 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: Glen Park E/Bearbrook & Innes



Lane Group	Ø3	Ø7
Minimum Initial (s)	3.0	3.0
Minimum Split (s)	5.0	5.0
Total Split (s)	5.0	5.0
Total Split (%)	7%	7%
Maximum Green (s)	3.0	3.0
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	None	None
Walk Time (s)	0.0	0.0
Flash Dont Walk (s)	0.0	0.0
Pedestrian Calls (#/hr)	15	15
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

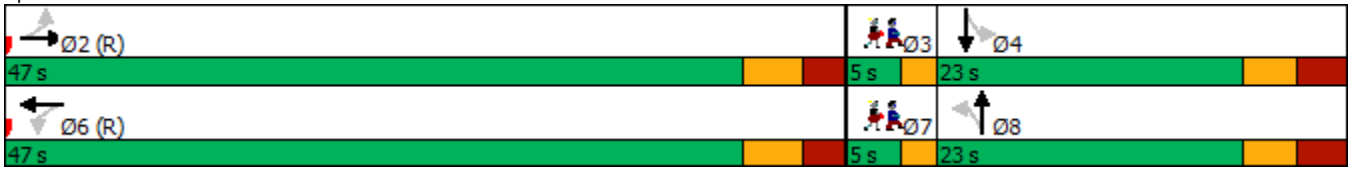
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	171	36	9	571	2	102	2	11	4	0	40
Future Volume (vph)	17	171	36	9	571	2	102	2	11	4	0	40
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	65.0		0.0	65.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	20.0			25.0			10.0			10.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.99		0.98	1.00			0.97			0.96	
Frt		0.974			0.999			0.987			0.877	
Flt Protected	0.950			0.950				0.958			0.995	
Satd. Flow (prot)	1768	1663	0	1768	1772	0	0	1686	0	0	1532	0
Flt Permitted	0.390			0.628				0.719			0.967	
Satd. Flow (perm)	718	1663	0	1145	1772	0	0	1240	0	0	1483	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		22						7			70	
Link Speed (k/h)		50			50			40			40	
Link Distance (m)		379.2			314.9			174.2			112.1	
Travel Time (s)		27.3			22.7			15.7			10.1	
Confl. Peds. (#/hr)	18		16	16		18	11		25	25		11
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%	8%	15%	1%	6%	1%	2%	1%	30%	1%	1%	3%
Adj. Flow (vph)	17	171	36	9	571	2	102	2	11	4	0	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	17	207	0	9	573	0	0	115	0	0	44	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		4.0			4.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		5.0			5.0			5.0			5.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												

Lane Group	Ø3	Ø7
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (m)		
Storage Lanes		
Taper Length (m)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(m)		
Link Offset(m)		
Crosswalk Width(m)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (k/h)		
Number of Detectors		
Detector Template		
Leading Detector (m)		
Trailing Detector (m)		
Detector 1 Position(m)		
Detector 1 Size(m)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Detector 2 Position(m)		
Detector 2 Size(m)		
Detector 2 Type		
Detector 2 Channel		
Detector 2 Extend (s)		
Turn Type		
Protected Phases	3	7
Permitted Phases		
Detector Phase		
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	
Minimum Split (s)	27.8	27.8		27.8	27.8		22.9	22.9		22.9	22.9	
Total Split (s)	47.0	47.0		47.0	47.0		23.0	23.0		23.0	23.0	
Total Split (%)	62.7%	62.7%		62.7%	62.7%		30.7%	30.7%		30.7%	30.7%	
Maximum Green (s)	41.2	41.2		41.2	41.2		17.1	17.1		17.1	17.1	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.9	2.9		2.9	2.9	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	5.8	5.8		5.8	5.8			5.9			5.9	
Lead/Lag							Lag	Lag		Lag	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		2.0	2.0		2.0	2.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	
Pedestrian Calls (#/hr)	16	16		16	16		25	25		25	25	
Act Effct Green (s)	52.5	52.5		52.5	52.5			13.2			13.2	
Actuated g/C Ratio	0.70	0.70		0.70	0.70			0.18			0.18	
v/c Ratio	0.03	0.18		0.01	0.46			0.52			0.14	
Control Delay	7.0	5.7		7.2	9.6			33.9			4.1	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	7.0	5.7		7.2	9.6			33.9			4.1	
LOS	A	A		A	A			C			A	
Approach Delay		5.8			9.6			33.9			4.1	
Approach LOS		A			A			C			A	
Queue Length 50th (m)	0.4	3.6		0.3	28.9			13.2			0.0	
Queue Length 95th (m)	2.8	21.7		2.2	72.1			25.0			4.0	
Internal Link Dist (m)		355.2			290.9			150.2			88.1	
Turn Bay Length (m)	65.0			65.0								
Base Capacity (vph)	502	1169		800	1239			288			392	
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	0.03	0.18		0.01	0.46			0.40			0.11	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 75			
Offset: 13 (17%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.52			
Intersection Signal Delay: 11.3		Intersection LOS: B	
Intersection Capacity Utilization 55.6%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 3: Orient Park & Innes



Lane Group	Ø3	Ø7
Minimum Initial (s)	3.0	3.0
Minimum Split (s)	5.0	5.0
Total Split (s)	5.0	5.0
Total Split (%)	7%	7%
Maximum Green (s)	3.0	3.0
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	None	None
Walk Time (s)	0.0	0.0
Flash Dont Walk (s)	0.0	0.0
Pedestrian Calls (#/hr)	25	25
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

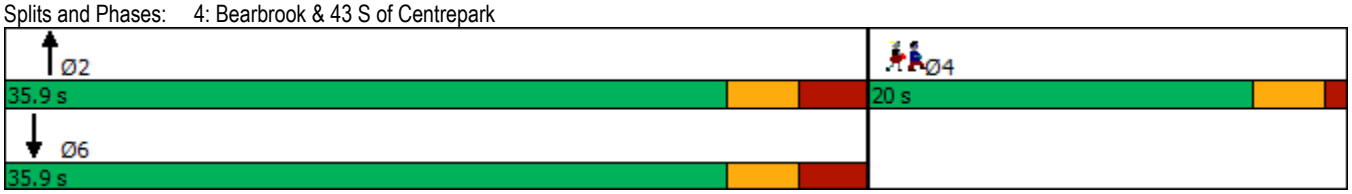
Intersection Summary

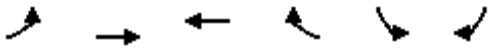
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø4
Lane Configurations							
Traffic Volume (vph)	0	0	513	0	0	268	
Future Volume (vph)	0	0	513	0	0	268	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor							
Frt							
Flt Protected							
Satd. Flow (prot)	0	0	1843	0	0	1825	
Flt Permitted							
Satd. Flow (perm)	0	0	1843	0	0	1825	
Right Turn on Red		Yes		Yes			
Satd. Flow (RTOR)							
Link Speed (k/h)	40		40			40	
Link Distance (m)	14.7		246.5			168.6	
Travel Time (s)	1.3		22.2			15.2	
Confl. Peds. (#/hr)		2		2	2		
Confl. Bikes (#/hr)				1			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Heavy Vehicles (%)	0%	0%	2%	0%	0%	3%	
Adj. Flow (vph)	0	0	513	0	0	268	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	0	513	0	0	268	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Right	Left	Left	
Median Width(m)	0.0		0.0			0.0	
Link Offset(m)	0.0		0.0			0.0	
Crosswalk Width(m)	5.0		23.0			23.0	
Two way Left Turn Lane							
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	
Turning Speed (k/h)	24	14		14	24		
Number of Detectors			2			2	
Detector Template			Thru			Thru	
Leading Detector (m)			30.5			30.5	
Trailing Detector (m)			0.0			0.0	
Detector 1 Position(m)			0.0			0.0	
Detector 1 Size(m)			1.8			1.8	
Detector 1 Type			Cl+Ex			Cl+Ex	
Detector 1 Channel							
Detector 1 Extend (s)			0.0			0.0	
Detector 1 Queue (s)			0.0			0.0	
Detector 1 Delay (s)			0.0			0.0	
Detector 2 Position(m)			28.7			28.7	
Detector 2 Size(m)			1.8			1.8	
Detector 2 Type			Cl+Ex			Cl+Ex	
Detector 2 Channel							
Detector 2 Extend (s)			0.0			0.0	
Turn Type			NA			NA	
Protected Phases			2			6	4
Permitted Phases							
Detector Phase			2			6	
Switch Phase							
Minimum Initial (s)			30.0			30.0	16.0
Minimum Split (s)			35.9			35.9	20.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø4
Total Split (s)			35.9			35.9	20.0
Total Split (%)			64.2%			64.2%	36%
Maximum Green (s)			30.0			30.0	16.0
Yellow Time (s)			3.0			3.0	3.0
All-Red Time (s)			2.9			2.9	1.0
Lost Time Adjust (s)			0.0			0.0	
Total Lost Time (s)			5.9			5.9	
Lead/Lag							
Lead-Lag Optimize?							
Vehicle Extension (s)			3.0			3.0	3.0
Recall Mode			Min			Min	None
Walk Time (s)							7.0
Flash Dont Walk (s)							9.0
Pedestrian Calls (#/hr)							5
Act Effct Green (s)			50.9			50.9	
Actuated g/C Ratio			0.93			0.93	
v/c Ratio			0.30			0.16	
Control Delay			2.7			2.1	
Queue Delay			0.0			0.0	
Total Delay			2.7			2.1	
LOS			A			A	
Approach Delay			2.7			2.1	
Approach LOS			A			A	
Queue Length 50th (m)			0.0			0.0	
Queue Length 95th (m)			43.8			20.7	
Internal Link Dist (m)	0.1		222.5			144.6	
Turn Bay Length (m)							
Base Capacity (vph)			1708			1692	
Starvation Cap Reductn			0			0	
Spillback Cap Reductn			0			0	
Storage Cap Reductn			0			0	
Reduced v/c Ratio			0.30			0.16	

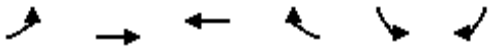
Intersection Summary			
Area Type:	Other		
Cycle Length: 55.9			
Actuated Cycle Length: 54.9			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.30			
Intersection Signal Delay: 2.5		Intersection LOS: A	
Intersection Capacity Utilization 40.7%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 4: Bearbrook & 43 S of Centrepark





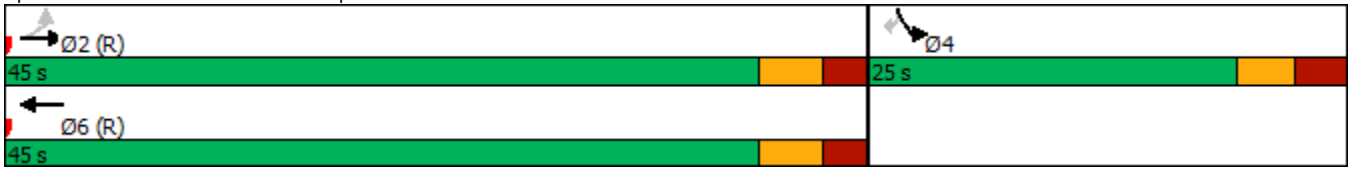
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	28	536	271	59	60	16
Future Volume (vph)	28	536	271	59	60	16
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	55.0			0.0	30.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	50.0				20.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		1.00		0.98	0.96
Frt			0.976			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1768	1825	1751	0	1734	1582
Flt Permitted	0.561				0.950	
Satd. Flow (perm)	1040	1825	1751	0	1702	1522
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			26			16
Link Speed (k/h)		50	50		40	
Link Distance (m)		342.9	175.5		233.8	
Travel Time (s)		24.7	12.6		21.0	
Confl. Peds. (#/hr)	7			7	10	10
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	3%	5%	1%	3%	1%
Adj. Flow (vph)	28	536	271	59	60	16
Shared Lane Traffic (%)						
Lane Group Flow (vph)	28	536	330	0	60	16
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		4.0	4.0		4.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		5.0	5.0		5.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2		1	1
Detector Template	Left	Thru	Thru		Left	Right
Leading Detector (m)	6.1	30.5	30.5		6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8		6.1	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	6		4	
Permitted Phases	2					4
Detector Phase	2	2	6		4	4
Switch Phase						

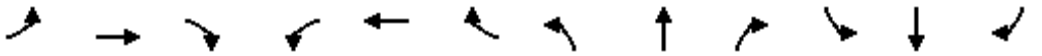


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Minimum Initial (s)	10.0	10.0	10.0		10.0	10.0
Minimum Split (s)	15.7	15.7	43.7		24.8	24.8
Total Split (s)	45.0	45.0	45.0		25.0	25.0
Total Split (%)	64.3%	64.3%	64.3%		35.7%	35.7%
Maximum Green (s)	39.3	39.3	39.3		19.2	19.2
Yellow Time (s)	3.3	3.3	3.3		3.0	3.0
All-Red Time (s)	2.4	2.4	2.4		2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.7	5.7	5.7		5.8	5.8
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	C-Max	C-Max	C-Max		None	None
Walk Time (s)			25.0		7.0	7.0
Flash Dont Walk (s)			13.0		12.0	12.0
Pedestrian Calls (#/hr)			7		10	10
Act Effct Green (s)	55.3	55.3	55.3		11.8	11.8
Actuated g/C Ratio	0.79	0.79	0.79		0.17	0.17
v/c Ratio	0.03	0.37	0.24		0.21	0.06
Control Delay	5.1	6.0	3.2		25.5	11.2
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	5.1	6.0	3.2		25.5	11.2
LOS	A	A	A		C	B
Approach Delay		5.9	3.2		22.5	
Approach LOS		A	A		C	
Queue Length 50th (m)	0.9	22.9	9.0		6.5	0.0
Queue Length 95th (m)	4.2	57.8	11.6		12.9	3.7
Internal Link Dist (m)		318.9	151.5		209.8	
Turn Bay Length (m)	55.0				30.0	
Base Capacity (vph)	821	1441	1389		475	429
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	0.03	0.37	0.24		0.13	0.04

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 3 (4%), Referenced to phase 2:EBTL and 6:WBT, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.37			
Intersection Signal Delay: 6.3		Intersection LOS: A	
Intersection Capacity Utilization 51.7%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 1: Innes & Southpark





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	232	326	91	32	154	118	48	61	51	223	71	153
Future Volume (vph)	232	326	91	32	154	118	48	61	51	223	71	153
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	70.0		0.0	60.0		0.0	45.0		0.0	40.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	30.0			25.0			35.0			35.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.99		0.98	0.98		0.99	0.98		0.98	0.97	
Frt		0.967			0.935			0.932			0.898	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1768	1747	0	1768	1649	0	1751	1697	0	1768	1627	0
Flt Permitted	0.592			0.465			0.573			0.685		
Satd. Flow (perm)	1090	1747	0	850	1649	0	1042	1697	0	1254	1627	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		25			69			51			153	
Link Speed (k/h)		50			50			40			40	
Link Distance (m)		175.5			379.2			280.2			246.5	
Travel Time (s)		12.6			27.3			25.2			22.2	
Confl. Peds. (#/hr)	10		23	23		10	12		12	12		12
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	3%	2%	1%	8%	1%	2%	1%	2%	1%	1%	1%
Adj. Flow (vph)	232	326	91	32	154	118	48	61	51	223	71	153
Shared Lane Traffic (%)												
Lane Group Flow (vph)	232	417	0	32	272	0	48	112	0	223	224	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		4.0			4.0			4.0			5.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		5.0			5.0			5.0			5.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												

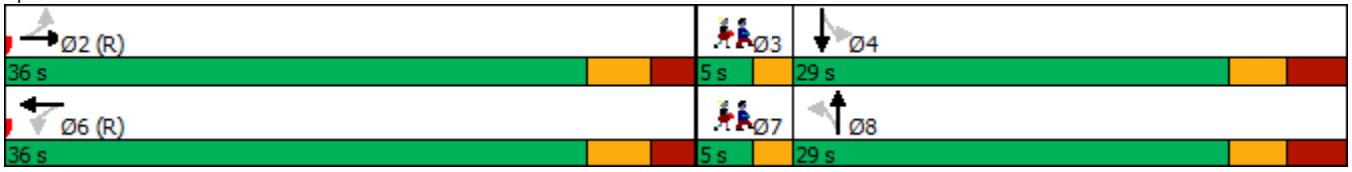
Lane Group	Ø3	Ø7
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (m)		
Storage Lanes		
Taper Length (m)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(m)		
Link Offset(m)		
Crosswalk Width(m)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (k/h)		
Number of Detectors		
Detector Template		
Leading Detector (m)		
Trailing Detector (m)		
Detector 1 Position(m)		
Detector 1 Size(m)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Detector 2 Position(m)		
Detector 2 Size(m)		
Detector 2 Type		
Detector 2 Channel		
Detector 2 Extend (s)		
Turn Type		
Protected Phases	3	7
Permitted Phases		
Detector Phase		
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	
Minimum Split (s)	27.7	27.7		27.7	27.7		28.2	28.2		28.2	28.2	
Total Split (s)	36.0	36.0		36.0	36.0		29.0	29.0		29.0	29.0	
Total Split (%)	51.4%	51.4%		51.4%	51.4%		41.4%	41.4%		41.4%	41.4%	
Maximum Green (s)	30.3	30.3		30.3	30.3		22.8	22.8		22.8	22.8	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.4	2.4		2.4	2.4		3.2	3.2		3.2	3.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.7	5.7		5.7	5.7		6.2	6.2		6.2	6.2	
Lead/Lag							Lag	Lag		Lag	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		17.0	17.0		17.0	17.0	
Pedestrian Calls (#/hr)	23	23		23	23		12	12		12	12	
Act Effct Green (s)	39.7	39.7		39.7	39.7		17.4	17.4		17.4	17.4	
Actuated g/C Ratio	0.57	0.57		0.57	0.57		0.25	0.25		0.25	0.25	
v/c Ratio	0.38	0.42		0.07	0.28		0.19	0.24		0.71	0.43	
Control Delay	9.3	8.1		13.6	11.1		20.3	12.4		36.3	9.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	9.3	8.1		13.6	11.1		20.3	12.4		36.3	9.7	
LOS	A	A		B	B		C	B		D	A	
Approach Delay		8.5			11.3			14.8			23.0	
Approach LOS		A			B			B			C	
Queue Length 50th (m)	6.4	10.2		1.7	11.7		4.5	5.6		24.1	6.6	
Queue Length 95th (m)	19.9	24.6		8.3	38.6		10.6	14.4		40.3	19.1	
Internal Link Dist (m)		151.5			355.2			256.2			222.5	
Turn Bay Length (m)	70.0			60.0			45.0			40.0		
Base Capacity (vph)	617	1000		481	964		339	587		408	633	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.38	0.42		0.07	0.28		0.14	0.19		0.55	0.35	

Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 70
Offset: 18 (26%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.71
Intersection Signal Delay: 13.9 Intersection LOS: B
Intersection Capacity Utilization 77.3% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 2: Glen Park E/Bearbrook & Innes



Lane Group	Ø3	Ø7
Minimum Initial (s)	3.0	3.0
Minimum Split (s)	5.0	5.0
Total Split (s)	5.0	5.0
Total Split (%)	7%	7%
Maximum Green (s)	3.0	3.0
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	None	None
Walk Time (s)	0.0	0.0
Flash Dont Walk (s)	0.0	0.0
Pedestrian Calls (#/hr)	12	12
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	487	139	17	254	3	73	2	11	6	0	32
Future Volume (vph)	61	487	139	17	254	3	73	2	11	6	0	32
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	65.0		0.0	65.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	20.0			25.0			10.0			10.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.99		0.99	1.00			0.98			0.97	
Frt		0.967			0.998			0.983			0.886	
Flt Protected	0.950			0.950				0.959			0.992	
Satd. Flow (prot)	1768	1758	0	1701	1839	0	0	1728	0	0	1558	0
Flt Permitted	0.600			0.363				0.732			0.940	
Satd. Flow (perm)	1108	1758	0	646	1839	0	0	1306	0	0	1468	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		30			1			10			75	
Link Speed (k/h)		50			50			40			40	
Link Distance (m)		379.2			314.9			174.2			112.1	
Travel Time (s)		27.3			22.7			15.7			10.1	
Confl. Peds. (#/hr)	7		11	11		7	6		18	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%	3%	1%	5%	2%	1%	2%	1%	1%	15%	1%	1%
Adj. Flow (vph)	61	487	139	17	254	3	73	2	11	6	0	32
Shared Lane Traffic (%)												
Lane Group Flow (vph)	61	626	0	17	257	0	0	86	0	0	38	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		4.0			4.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		5.0			5.0			5.0			5.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												

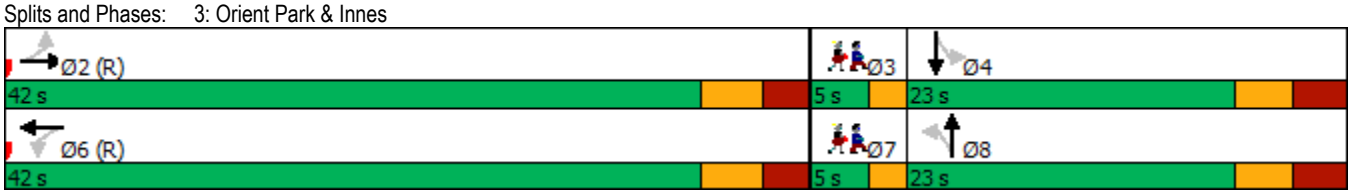
Lane Group	Ø3	Ø7
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (m)		
Storage Lanes		
Taper Length (m)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(m)		
Link Offset(m)		
Crosswalk Width(m)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (k/h)		
Number of Detectors		
Detector Template		
Leading Detector (m)		
Trailing Detector (m)		
Detector 1 Position(m)		
Detector 1 Size(m)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Detector 2 Position(m)		
Detector 2 Size(m)		
Detector 2 Type		
Detector 2 Channel		
Detector 2 Extend (s)		
Turn Type		
Protected Phases	3	7
Permitted Phases		
Detector Phase		
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	
Minimum Split (s)	27.8	27.8		27.8	27.8		22.9	22.9		22.9	22.9	
Total Split (s)	42.0	42.0		42.0	42.0		23.0	23.0		23.0	23.0	
Total Split (%)	60.0%	60.0%		60.0%	60.0%		32.9%	32.9%		32.9%	32.9%	
Maximum Green (s)	36.2	36.2		36.2	36.2		17.1	17.1		17.1	17.1	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.9	2.9		2.9	2.9	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	5.8	5.8		5.8	5.8			5.9			5.9	
Lead/Lag							Lag	Lag		Lag	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		2.0	2.0		2.0	2.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	
Pedestrian Calls (#/hr)	11	11		11	11		18	18		18	18	
Act Effct Green (s)	50.0	50.0		50.0	50.0			11.6			11.6	
Actuated g/C Ratio	0.71	0.71		0.71	0.71			0.17			0.17	
v/c Ratio	0.08	0.50		0.04	0.20			0.38			0.12	
Control Delay	4.3	6.8		6.5	6.0			27.8			2.8	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	4.3	6.8		6.5	6.0			27.8			2.8	
LOS	A	A		A	A			C			A	
Approach Delay		6.6			6.1			27.8			2.8	
Approach LOS		A			A			C			A	
Queue Length 50th (m)	1.5	37.5		0.5	9.1			8.5			0.0	
Queue Length 95th (m)	m6.2	58.6		3.5	27.6			17.4			2.3	
Internal Link Dist (m)		355.2			290.9			150.2			88.1	
Turn Bay Length (m)	65.0			65.0								
Base Capacity (vph)	791	1264		461	1314			326			415	
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	0.50		0.04	0.20			0.26			0.09	

Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 70
Offset: 31 (44%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.50
Intersection Signal Delay: 8.0 Intersection LOS: A
Intersection Capacity Utilization 72.1% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Orient Park & Innes



Lane Group	Ø3	Ø7
Minimum Initial (s)	3.0	3.0
Minimum Split (s)	5.0	5.0
Total Split (s)	5.0	5.0
Total Split (%)	7%	7%
Maximum Green (s)	3.0	3.0
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	None	None
Walk Time (s)	0.0	0.0
Flash Dont Walk (s)	0.0	0.0
Pedestrian Calls (#/hr)	18	18
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

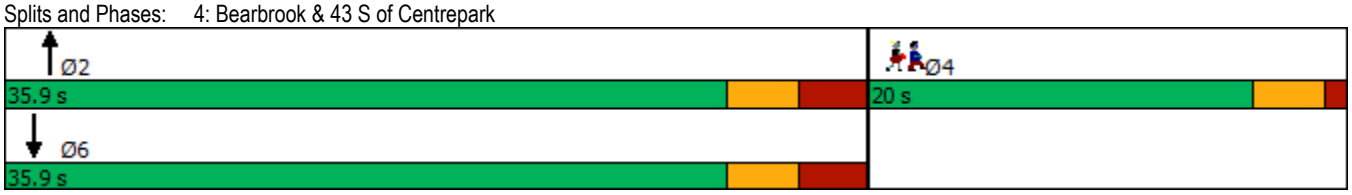
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø4
Lane Configurations							
Traffic Volume (vph)	0	0	358	0	0	415	
Future Volume (vph)	0	0	358	0	0	415	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor							
Frt							
Flt Protected							
Satd. Flow (prot)	0	0	1843	0	0	1843	
Flt Permitted							
Satd. Flow (perm)	0	0	1843	0	0	1843	
Right Turn on Red		Yes		Yes			
Satd. Flow (RTOR)							
Link Speed (k/h)	40		40			40	
Link Distance (m)	14.7		246.5			168.6	
Travel Time (s)	1.3		22.2			15.2	
Confl. Peds. (#/hr)		53		18	18		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Heavy Vehicles (%)	0%	0%	2%	0%	0%	2%	
Adj. Flow (vph)	0	0	358	0	0	415	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	0	358	0	0	415	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Right	Left	Left	
Median Width(m)	0.0		0.0			0.0	
Link Offset(m)	0.0		0.0			0.0	
Crosswalk Width(m)	5.0		23.0			23.0	
Two way Left Turn Lane							
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	
Turning Speed (k/h)	24	14		14	24		
Number of Detectors			2			2	
Detector Template			Thru			Thru	
Leading Detector (m)			30.5			30.5	
Trailing Detector (m)			0.0			0.0	
Detector 1 Position(m)			0.0			0.0	
Detector 1 Size(m)			1.8			1.8	
Detector 1 Type			Cl+Ex			Cl+Ex	
Detector 1 Channel							
Detector 1 Extend (s)			0.0			0.0	
Detector 1 Queue (s)			0.0			0.0	
Detector 1 Delay (s)			0.0			0.0	
Detector 2 Position(m)			28.7			28.7	
Detector 2 Size(m)			1.8			1.8	
Detector 2 Type			Cl+Ex			Cl+Ex	
Detector 2 Channel							
Detector 2 Extend (s)			0.0			0.0	
Turn Type			NA			NA	
Protected Phases			2			6	4
Permitted Phases							
Detector Phase			2			6	
Switch Phase							
Minimum Initial (s)			30.0			30.0	16.0
Minimum Split (s)			35.9			35.9	20.0
Total Split (s)			35.9			35.9	20.0

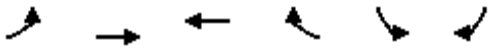
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø4
Total Split (%)			64.2%			64.2%	36%
Maximum Green (s)			30.0			30.0	16.0
Yellow Time (s)			3.0			3.0	3.0
All-Red Time (s)			2.9			2.9	1.0
Lost Time Adjust (s)			0.0			0.0	
Total Lost Time (s)			5.9			5.9	
Lead/Lag							
Lead-Lag Optimize?							
Vehicle Extension (s)			3.0			3.0	3.0
Recall Mode			Min			Min	None
Walk Time (s)							7.0
Flash Dont Walk (s)							9.0
Pedestrian Calls (#/hr)							53
Act Effct Green (s)			50.3			50.3	
Actuated g/C Ratio			0.85			0.85	
v/c Ratio			0.23			0.26	
Control Delay			3.9			4.1	
Queue Delay			0.0			0.0	
Total Delay			3.9			4.1	
LOS			A			A	
Approach Delay			3.9			4.1	
Approach LOS			A			A	
Queue Length 50th (m)			0.0			0.0	
Queue Length 95th (m)			28.2			33.5	
Internal Link Dist (m)	0.1		222.5			144.6	
Turn Bay Length (m)							
Base Capacity (vph)			1573			1573	
Starvation Cap Reductn			0			0	
Spillback Cap Reductn			0			0	
Storage Cap Reductn			0			0	
Reduced v/c Ratio			0.23			0.26	

Intersection Summary

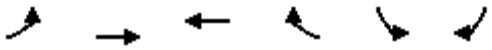
Area Type:	Other		
Cycle Length: 55.9			
Actuated Cycle Length: 58.9			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.26			
Intersection Signal Delay: 4.0		Intersection LOS: A	
Intersection Capacity Utilization 44.9%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 4: Bearbrook & 43 S of Centrepark





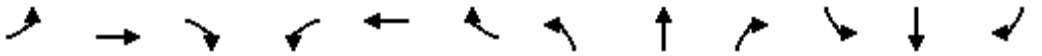
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	10	174	834	34	45	24
Future Volume (vph)	10	174	834	34	45	24
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	55.0			0.0	30.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	50.0				20.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		1.00		1.00	0.97
Frt			0.995			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1768	1741	1798	0	1685	1522
Flt Permitted	0.266				0.950	
Satd. Flow (perm)	495	1741	1798	0	1682	1474
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			5			24
Link Speed (k/h)		50	50		40	
Link Distance (m)		342.9	175.5		233.8	
Travel Time (s)		24.7	12.6		21.0	
Confl. Peds. (#/hr)	3			3	1	6
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	8%	4%	3%	6%	5%
Adj. Flow (vph)	10	174	834	34	45	24
Shared Lane Traffic (%)						
Lane Group Flow (vph)	10	174	868	0	45	24
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		4.0	4.0		4.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		5.0	5.0		5.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2		1	1
Detector Template	Left	Thru	Thru		Left	Right
Leading Detector (m)	6.1	30.5	30.5		6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8		6.1	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	6		4	
Permitted Phases	2					4
Detector Phase	2	2	6		4	4
Switch Phase						



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Minimum Initial (s)	10.0	10.0	10.0		10.0	10.0
Minimum Split (s)	15.7	15.7	43.7		24.8	24.8
Total Split (s)	50.0	50.0	50.0		25.0	25.0
Total Split (%)	66.7%	66.7%	66.7%		33.3%	33.3%
Maximum Green (s)	44.3	44.3	44.3		19.2	19.2
Yellow Time (s)	3.3	3.3	3.3		3.0	3.0
All-Red Time (s)	2.4	2.4	2.4		2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.7	5.7	5.7		5.8	5.8
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	C-Max	C-Max	C-Max		None	None
Walk Time (s)			25.0		7.0	7.0
Flash Dont Walk (s)			13.0		12.0	12.0
Pedestrian Calls (#/hr)			3		6	6
Act Effct Green (s)	60.3	60.3	60.3		11.8	11.8
Actuated g/C Ratio	0.80	0.80	0.80		0.16	0.16
v/c Ratio	0.03	0.12	0.60		0.17	0.10
Control Delay	5.2	4.3	8.1		27.5	11.2
Queue Delay	0.0	0.0	0.2		0.0	0.0
Total Delay	5.2	4.3	8.2		27.5	11.2
LOS	A	A	A		C	B
Approach Delay		4.3	8.2		21.8	
Approach LOS		A	A		C	
Queue Length 50th (m)	0.3	5.9	45.1		5.3	0.0
Queue Length 95th (m)	2.1	16.7	#158.0		11.3	4.8
Internal Link Dist (m)		318.9	151.5		209.8	
Turn Bay Length (m)	55.0				30.0	
Base Capacity (vph)	398	1399	1446		431	395
Starvation Cap Reductn	0	0	110		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.03	0.12	0.65		0.10	0.06

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 75			
Offset: 44 (59%), Referenced to phase 2:EBTL and 6:WBT, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.60			
Intersection Signal Delay: 8.4		Intersection LOS: A	
Intersection Capacity Utilization 67.8%		ICU Level of Service C	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 1: Innes & Southpark



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	72	114	15	28	510	349	61	68	22	65	18	145
Future Volume (vph)	72	114	15	28	510	349	61	68	22	65	18	145
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	70.0		0.0	60.0		0.0	45.0		0.0	40.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	30.0			25.0			35.0			35.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		0.98	0.99		0.98	0.99		0.99	0.96	
Frt		0.983			0.939			0.963			0.867	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1734	1659	0	1734	1687	0	1701	1753	0	1751	1542	0
Flt Permitted	0.207			0.674			0.653			0.699		
Satd. Flow (perm)	378	1659	0	1211	1687	0	1146	1753	0	1277	1542	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			62			22			145	
Link Speed (k/h)		50			50			40			40	
Link Distance (m)		175.5			379.2			280.2			246.5	
Travel Time (s)		12.6			27.3			25.2			22.2	
Confl. Peds. (#/hr)	6		11	11		6	15		6	6		15
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	8%	33%	3%	5%	1%	5%	3%	1%	2%	5%	1%
Adj. Flow (vph)	72	114	15	28	510	349	61	68	22	65	18	145
Shared Lane Traffic (%)												
Lane Group Flow (vph)	72	129	0	28	859	0	61	90	0	65	163	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		4.0			4.0			4.0			5.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		5.0			5.0			5.0			5.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												

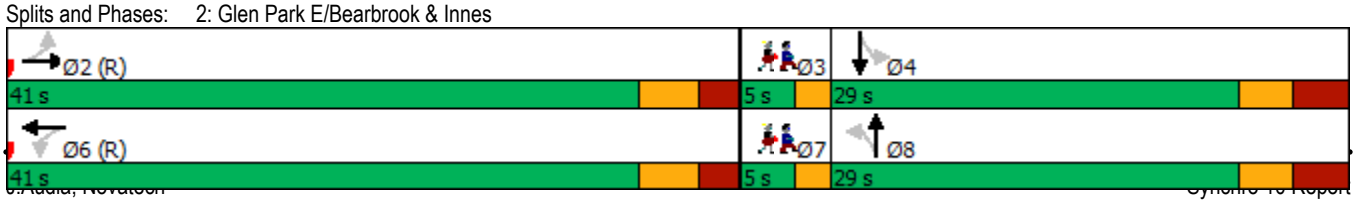
Lane Group	Ø3	Ø7
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (m)		
Storage Lanes		
Taper Length (m)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(m)		
Link Offset(m)		
Crosswalk Width(m)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (k/h)		
Number of Detectors		
Detector Template		
Leading Detector (m)		
Trailing Detector (m)		
Detector 1 Position(m)		
Detector 1 Size(m)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Detector 2 Position(m)		
Detector 2 Size(m)		
Detector 2 Type		
Detector 2 Channel		
Detector 2 Extend (s)		
Turn Type		
Protected Phases	3	7
Permitted Phases		
Detector Phase		
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	
Minimum Split (s)	27.7	27.7		27.7	27.7		28.2	28.2		28.2	28.2	
Total Split (s)	41.0	41.0		41.0	41.0		29.0	29.0		29.0	29.0	
Total Split (%)	54.7%	54.7%		54.7%	54.7%		38.7%	38.7%		38.7%	38.7%	
Maximum Green (s)	35.3	35.3		35.3	35.3		22.8	22.8		22.8	22.8	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.4	2.4		2.4	2.4		3.2	3.2		3.2	3.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.7	5.7		5.7	5.7		6.2	6.2		6.2	6.2	
Lead/Lag							Lag	Lag		Lag	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		17.0	17.0		17.0	17.0	
Pedestrian Calls (#/hr)	11	11		11	11		15	15		15	15	
Act Effct Green (s)	49.5	49.5		49.5	49.5		12.6	12.6		12.6	12.6	
Actuated g/C Ratio	0.66	0.66		0.66	0.66		0.17	0.17		0.17	0.17	
v/c Ratio	0.29	0.12		0.04	0.76		0.32	0.29		0.30	0.43	
Control Delay	11.1	4.8		5.5	13.6		30.2	22.4		29.5	9.7	
Queue Delay	0.0	0.0		0.0	0.2		0.0	0.0		0.0	0.0	
Total Delay	11.1	4.8		5.5	13.8		30.2	22.4		29.5	9.7	
LOS	B	A		A	B		C	C		C	A	
Approach Delay		7.0			13.5			25.5			15.3	
Approach LOS		A			B			C			B	
Queue Length 50th (m)	2.1	3.0		0.7	34.0		7.4	8.1		7.9	2.1	
Queue Length 95th (m)	10.8	10.0		m3.0	#172.2		14.0	15.6		14.5	13.3	
Internal Link Dist (m)		151.5			355.2			256.2			222.5	
Turn Bay Length (m)	70.0			60.0			45.0			40.0		
Base Capacity (vph)	249	1098		798	1133		348	548		388	569	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	32		0	0		0	5	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.29	0.12		0.04	0.78		0.18	0.16		0.17	0.29	

Intersection Summary

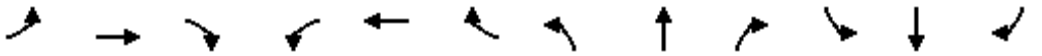
Area Type: Other
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 33 (44%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.76
Intersection Signal Delay: 14.2 Intersection LOS: B
Intersection Capacity Utilization 100.9% ICU Level of Service G
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: Glen Park E/Bearbrook & Innes



Lane Group	Ø3	Ø7
Minimum Initial (s)	3.0	3.0
Minimum Split (s)	5.0	5.0
Total Split (s)	5.0	5.0
Total Split (%)	7%	7%
Maximum Green (s)	3.0	3.0
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	None	None
Walk Time (s)	0.0	0.0
Flash Dont Walk (s)	0.0	0.0
Pedestrian Calls (#/hr)	15	15
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary



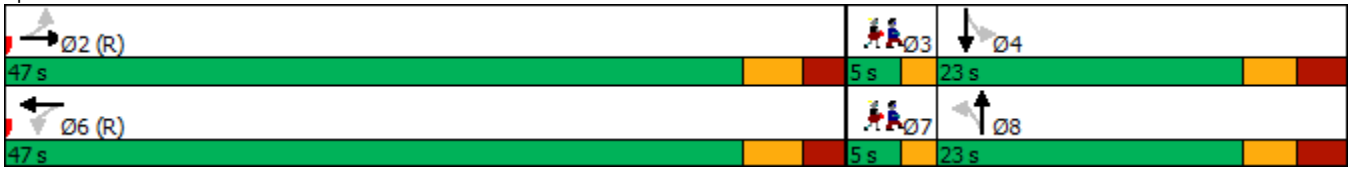
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	187	36	9	626	2	102	2	11	4	0	40
Future Volume (vph)	17	187	36	9	626	2	102	2	11	4	0	40
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	65.0		0.0	65.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	20.0			25.0			10.0			10.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.99		0.98	1.00			0.97			0.96	
Frt		0.976						0.987			0.877	
Flt Protected	0.950			0.950				0.958			0.995	
Satd. Flow (prot)	1768	1669	0	1768	1774	0	0	1686	0	0	1532	0
Flt Permitted	0.355			0.619				0.719			0.967	
Satd. Flow (perm)	655	1669	0	1129	1774	0	0	1240	0	0	1483	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		21						7			70	
Link Speed (k/h)		50			50			40			40	
Link Distance (m)		379.2			314.9			174.2			112.1	
Travel Time (s)		27.3			22.7			15.7			10.1	
Confl. Peds. (#/hr)	18		16	16		18	11		25	25		11
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%	8%	15%	1%	6%	1%	2%	1%	30%	1%	1%	3%
Adj. Flow (vph)	17	187	36	9	626	2	102	2	11	4	0	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	17	223	0	9	628	0	0	115	0	0	44	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		4.0			4.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		5.0			5.0			5.0			5.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												

Lane Group	Ø3	Ø7
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (m)		
Storage Lanes		
Taper Length (m)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(m)		
Link Offset(m)		
Crosswalk Width(m)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (k/h)		
Number of Detectors		
Detector Template		
Leading Detector (m)		
Trailing Detector (m)		
Detector 1 Position(m)		
Detector 1 Size(m)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Detector 2 Position(m)		
Detector 2 Size(m)		
Detector 2 Type		
Detector 2 Channel		
Detector 2 Extend (s)		
Turn Type		
Protected Phases	3	7
Permitted Phases		
Detector Phase		
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	
Minimum Split (s)	27.8	27.8		27.8	27.8		22.9	22.9		22.9	22.9	
Total Split (s)	47.0	47.0		47.0	47.0		23.0	23.0		23.0	23.0	
Total Split (%)	62.7%	62.7%		62.7%	62.7%		30.7%	30.7%		30.7%	30.7%	
Maximum Green (s)	41.2	41.2		41.2	41.2		17.1	17.1		17.1	17.1	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.9	2.9		2.9	2.9	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	5.8	5.8		5.8	5.8			5.9			5.9	
Lead/Lag							Lag	Lag		Lag	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		2.0	2.0		2.0	2.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	
Pedestrian Calls (#/hr)	16	16		16	16		25	25		25	25	
Act Effct Green (s)	52.5	52.5		52.5	52.5			13.2			13.2	
Actuated g/C Ratio	0.70	0.70		0.70	0.70			0.18			0.18	
v/c Ratio	0.04	0.19		0.01	0.51			0.52			0.14	
Control Delay	7.1	5.9		7.2	10.3			33.9			4.1	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	7.1	5.9		7.2	10.3			33.9			4.1	
LOS	A	A		A	B			C			A	
Approach Delay		6.0			10.2			33.9			4.1	
Approach LOS		A			B			C			A	
Queue Length 50th (m)	0.4	4.0		0.3	33.0			13.2			0.0	
Queue Length 95th (m)	2.8	25.4		2.2	83.1			25.0			4.0	
Internal Link Dist (m)		355.2			290.9			150.2			88.1	
Turn Bay Length (m)	65.0			65.0								
Base Capacity (vph)	458	1173		789	1240			288			392	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.04	0.19		0.01	0.51			0.40			0.11	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 75			
Offset: 13 (17%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.52			
Intersection Signal Delay: 11.6		Intersection LOS: B	
Intersection Capacity Utilization 58.6%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 3: Orient Park & Innes



Lane Group	Ø3	Ø7
Minimum Initial (s)	3.0	3.0
Minimum Split (s)	5.0	5.0
Total Split (s)	5.0	5.0
Total Split (%)	7%	7%
Maximum Green (s)	3.0	3.0
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	None	None
Walk Time (s)	0.0	0.0
Flash Dont Walk (s)	0.0	0.0
Pedestrian Calls (#/hr)	25	25
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

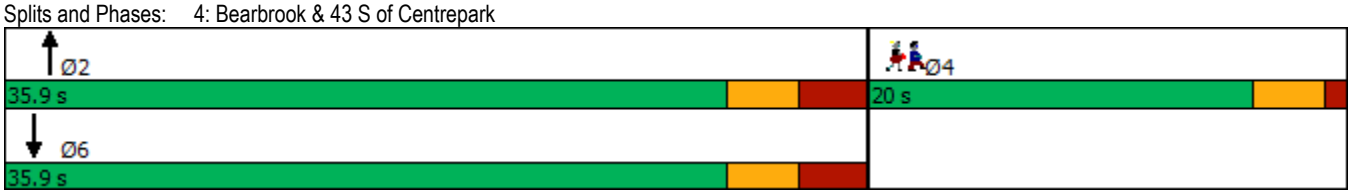
Intersection Summary

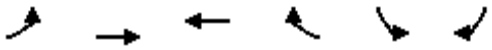
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø4
Lane Configurations							
Traffic Volume (vph)	0	0	513	0	0	268	
Future Volume (vph)	0	0	513	0	0	268	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor							
Frt							
Flt Protected							
Satd. Flow (prot)	0	0	1843	0	0	1825	
Flt Permitted							
Satd. Flow (perm)	0	0	1843	0	0	1825	
Right Turn on Red		Yes		Yes			
Satd. Flow (RTOR)							
Link Speed (k/h)	40		40			40	
Link Distance (m)	14.7		246.5			168.6	
Travel Time (s)	1.3		22.2			15.2	
Confl. Peds. (#/hr)		2		2	2		
Confl. Bikes (#/hr)				1			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Heavy Vehicles (%)	0%	0%	2%	0%	0%	3%	
Adj. Flow (vph)	0	0	513	0	0	268	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	0	513	0	0	268	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Right	Left	Left	
Median Width(m)	0.0		0.0			0.0	
Link Offset(m)	0.0		0.0			0.0	
Crosswalk Width(m)	5.0		23.0			23.0	
Two way Left Turn Lane							
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	
Turning Speed (k/h)	24	14		14	24		
Number of Detectors			2			2	
Detector Template			Thru			Thru	
Leading Detector (m)			30.5			30.5	
Trailing Detector (m)			0.0			0.0	
Detector 1 Position(m)			0.0			0.0	
Detector 1 Size(m)			1.8			1.8	
Detector 1 Type			Cl+Ex			Cl+Ex	
Detector 1 Channel							
Detector 1 Extend (s)			0.0			0.0	
Detector 1 Queue (s)			0.0			0.0	
Detector 1 Delay (s)			0.0			0.0	
Detector 2 Position(m)			28.7			28.7	
Detector 2 Size(m)			1.8			1.8	
Detector 2 Type			Cl+Ex			Cl+Ex	
Detector 2 Channel							
Detector 2 Extend (s)			0.0			0.0	
Turn Type			NA			NA	
Protected Phases			2			6	4
Permitted Phases							
Detector Phase			2			6	
Switch Phase							
Minimum Initial (s)			30.0			30.0	16.0
Minimum Split (s)			35.9			35.9	20.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø4
Total Split (s)			35.9			35.9	20.0
Total Split (%)			64.2%			64.2%	36%
Maximum Green (s)			30.0			30.0	16.0
Yellow Time (s)			3.0			3.0	3.0
All-Red Time (s)			2.9			2.9	1.0
Lost Time Adjust (s)			0.0			0.0	
Total Lost Time (s)			5.9			5.9	
Lead/Lag							
Lead-Lag Optimize?							
Vehicle Extension (s)			3.0			3.0	3.0
Recall Mode			Min			Min	None
Walk Time (s)							7.0
Flash Dont Walk (s)							9.0
Pedestrian Calls (#/hr)							5
Act Effct Green (s)			50.9			50.9	
Actuated g/C Ratio			0.93			0.93	
v/c Ratio			0.30			0.16	
Control Delay			2.7			2.1	
Queue Delay			0.0			0.0	
Total Delay			2.7			2.1	
LOS			A			A	
Approach Delay			2.7			2.1	
Approach LOS			A			A	
Queue Length 50th (m)			0.0			0.0	
Queue Length 95th (m)			43.8			20.7	
Internal Link Dist (m)	0.1		222.5			144.6	
Turn Bay Length (m)							
Base Capacity (vph)			1708			1692	
Starvation Cap Reductn			0			0	
Spillback Cap Reductn			0			0	
Storage Cap Reductn			0			0	
Reduced v/c Ratio			0.30			0.16	

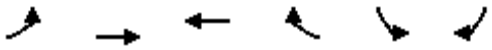
Intersection Summary			
Area Type:	Other		
Cycle Length: 55.9			
Actuated Cycle Length: 54.9			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.30			
Intersection Signal Delay: 2.5		Intersection LOS: A	
Intersection Capacity Utilization 40.7%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 4: Bearbrook & 43 S of Centrepark





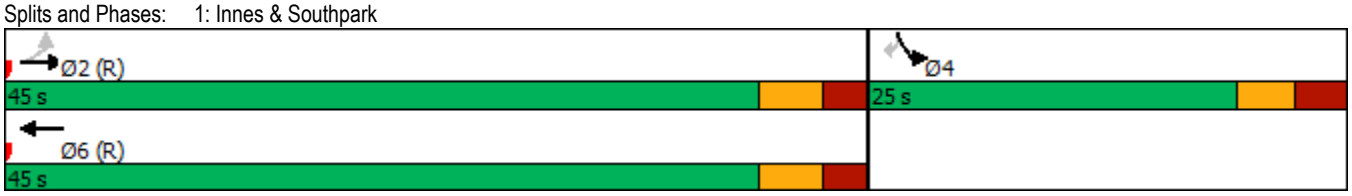
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	28	587	298	59	60	16
Future Volume (vph)	28	587	298	59	60	16
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	55.0			0.0	30.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	50.0				20.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		1.00		0.98	0.96
Frt			0.978			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1768	1825	1755	0	1734	1582
Flt Permitted	0.548				0.950	
Satd. Flow (perm)	1016	1825	1755	0	1702	1522
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			23			16
Link Speed (k/h)		50	50		40	
Link Distance (m)		342.9	175.5		233.8	
Travel Time (s)		24.7	12.6		21.0	
Confl. Peds. (#/hr)	7			7	10	10
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	3%	5%	1%	3%	1%
Adj. Flow (vph)	28	587	298	59	60	16
Shared Lane Traffic (%)						
Lane Group Flow (vph)	28	587	357	0	60	16
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		4.0	4.0		4.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		5.0	5.0		5.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2		1	1
Detector Template	Left	Thru	Thru		Left	Right
Leading Detector (m)	6.1	30.5	30.5		6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8		6.1	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	6		4	
Permitted Phases	2					4
Detector Phase	2	2	6		4	4
Switch Phase						

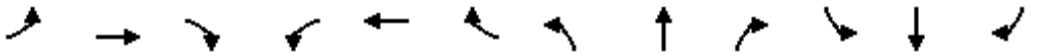


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Minimum Initial (s)	10.0	10.0	10.0		10.0	10.0
Minimum Split (s)	15.7	15.7	43.7		24.8	24.8
Total Split (s)	45.0	45.0	45.0		25.0	25.0
Total Split (%)	64.3%	64.3%	64.3%		35.7%	35.7%
Maximum Green (s)	39.3	39.3	39.3		19.2	19.2
Yellow Time (s)	3.3	3.3	3.3		3.0	3.0
All-Red Time (s)	2.4	2.4	2.4		2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.7	5.7	5.7		5.8	5.8
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	C-Max	C-Max	C-Max		None	None
Walk Time (s)			25.0		7.0	7.0
Flash Dont Walk (s)			13.0		12.0	12.0
Pedestrian Calls (#/hr)			7		10	10
Act Effct Green (s)	55.3	55.3	55.3		11.8	11.8
Actuated g/C Ratio	0.79	0.79	0.79		0.17	0.17
v/c Ratio	0.03	0.41	0.26		0.21	0.06
Control Delay	5.1	6.3	3.6		25.5	11.2
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	5.1	6.3	3.6		25.5	11.2
LOS	A	A	A		C	B
Approach Delay		6.3	3.6		22.5	
Approach LOS		A	A		C	
Queue Length 50th (m)	0.9	26.1	10.3		6.5	0.0
Queue Length 95th (m)	4.2	65.8	14.1		12.9	3.7
Internal Link Dist (m)		318.9	151.5		209.8	
Turn Bay Length (m)	55.0				30.0	
Base Capacity (vph)	802	1441	1391		475	429
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	0.03	0.41	0.26		0.13	0.04

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 3 (4%), Referenced to phase 2:EBTL and 6:WBT, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.41			
Intersection Signal Delay: 6.5		Intersection LOS: A	
Intersection Capacity Utilization 52.7%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 1: Innes & Southpark





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	232	357	91	32	169	118	48	61	51	223	71	153
Future Volume (vph)	232	357	91	32	169	118	48	61	51	223	71	153
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	70.0		0.0	60.0		0.0	45.0		0.0	40.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	30.0			25.0			35.0			35.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.99		0.98	0.99		0.99	0.98		0.98	0.97	
Frt		0.970			0.938			0.932			0.898	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1768	1754	0	1768	1653	0	1751	1697	0	1768	1627	0
Flt Permitted	0.579			0.439			0.573			0.685		
Satd. Flow (perm)	1067	1754	0	804	1653	0	1042	1697	0	1254	1627	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		23			63			51			153	
Link Speed (k/h)		50			50			40			40	
Link Distance (m)		175.5			379.2			280.2			246.5	
Travel Time (s)		12.6			27.3			25.2			22.2	
Confl. Peds. (#/hr)	10		23	23		10	12		12	12		12
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	3%	2%	1%	8%	1%	2%	1%	2%	1%	1%	1%
Adj. Flow (vph)	232	357	91	32	169	118	48	61	51	223	71	153
Shared Lane Traffic (%)												
Lane Group Flow (vph)	232	448	0	32	287	0	48	112	0	223	224	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		4.0			4.0			4.0			5.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		5.0			5.0			5.0			5.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												

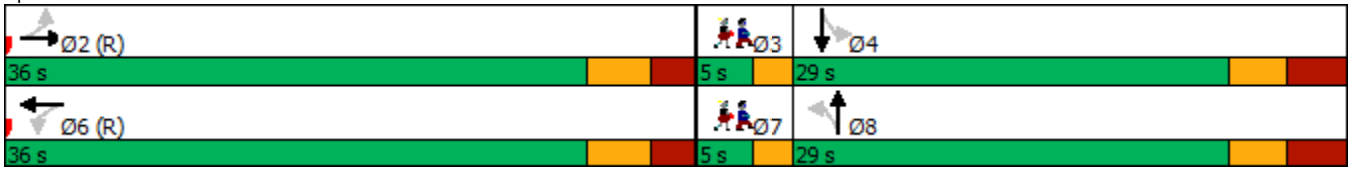
Lane Group	Ø3	Ø7
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (m)		
Storage Lanes		
Taper Length (m)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(m)		
Link Offset(m)		
Crosswalk Width(m)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (k/h)		
Number of Detectors		
Detector Template		
Leading Detector (m)		
Trailing Detector (m)		
Detector 1 Position(m)		
Detector 1 Size(m)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Detector 2 Position(m)		
Detector 2 Size(m)		
Detector 2 Type		
Detector 2 Channel		
Detector 2 Extend (s)		
Turn Type		
Protected Phases	3	7
Permitted Phases		
Detector Phase		
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	
Minimum Split (s)	27.7	27.7		27.7	27.7		28.2	28.2		28.2	28.2	
Total Split (s)	36.0	36.0		36.0	36.0		29.0	29.0		29.0	29.0	
Total Split (%)	51.4%	51.4%		51.4%	51.4%		41.4%	41.4%		41.4%	41.4%	
Maximum Green (s)	30.3	30.3		30.3	30.3		22.8	22.8		22.8	22.8	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.4	2.4		2.4	2.4		3.2	3.2		3.2	3.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.7	5.7		5.7	5.7		6.2	6.2		6.2	6.2	
Lead/Lag							Lag	Lag		Lag	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		17.0	17.0		17.0	17.0	
Pedestrian Calls (#/hr)	23	23		23	23		12	12		12	12	
Act Effct Green (s)	39.7	39.7		39.7	39.7		17.4	17.4		17.4	17.4	
Actuated g/C Ratio	0.57	0.57		0.57	0.57		0.25	0.25		0.25	0.25	
v/c Ratio	0.38	0.45		0.07	0.30		0.19	0.24		0.71	0.43	
Control Delay	8.9	8.2		14.0	11.9		20.3	12.4		36.3	9.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	8.9	8.2		14.0	11.9		20.3	12.4		36.3	9.7	
LOS	A	A		B	B		C	B		D	A	
Approach Delay		8.4			12.1			14.8			23.0	
Approach LOS		A			B			B			C	
Queue Length 50th (m)	6.0	10.2		1.8	13.8		4.5	5.6		24.1	6.6	
Queue Length 95th (m)	16.4	23.5		8.6	42.3		10.6	14.4		40.3	19.1	
Internal Link Dist (m)		151.5			355.2			256.2			222.5	
Turn Bay Length (m)	70.0			60.0			45.0			40.0		
Base Capacity (vph)	604	1003		455	963		339	587		408	633	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.38	0.45		0.07	0.30		0.14	0.19		0.55	0.35	

Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 70
Offset: 18 (26%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.71
Intersection Signal Delay: 13.8 Intersection LOS: B
Intersection Capacity Utilization 79.0% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 2: Glen Park E/Bearbrook & Innes



Lane Group	Ø3	Ø7
Minimum Initial (s)	3.0	3.0
Minimum Split (s)	5.0	5.0
Total Split (s)	5.0	5.0
Total Split (%)	7%	7%
Maximum Green (s)	3.0	3.0
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	None	None
Walk Time (s)	0.0	0.0
Flash Dont Walk (s)	0.0	0.0
Pedestrian Calls (#/hr)	12	12
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

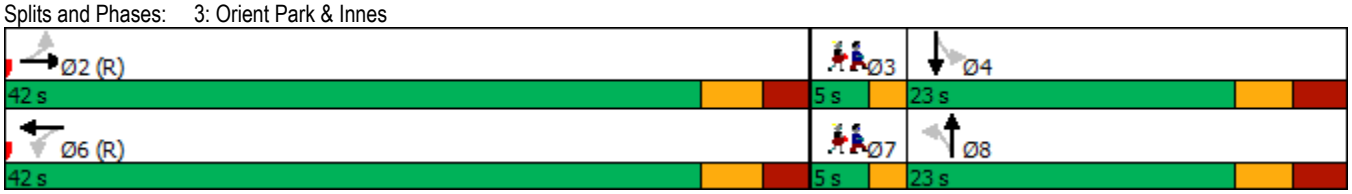
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	534	139	17	278	3	73	2	11	6	0	32
Future Volume (vph)	61	534	139	17	278	3	73	2	11	6	0	32
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	65.0		0.0	65.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	20.0			25.0			10.0			10.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.99		1.00	1.00			0.98			0.97	
Frt		0.969			0.998			0.983			0.886	
Flt Protected	0.950			0.950				0.959			0.992	
Satd. Flow (prot)	1768	1762	0	1701	1839	0	0	1728	0	0	1558	0
Flt Permitted	0.587			0.334				0.732			0.940	
Satd. Flow (perm)	1084	1762	0	595	1839	0	0	1306	0	0	1468	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		28			1			10			75	
Link Speed (k/h)		50			50			40			40	
Link Distance (m)		379.2			314.9			174.2			112.1	
Travel Time (s)		27.3			22.7			15.7			10.1	
Confl. Peds. (#/hr)	7		11	11		7	6		18	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%	3%	1%	5%	2%	1%	2%	1%	1%	15%	1%	1%
Adj. Flow (vph)	61	534	139	17	278	3	73	2	11	6	0	32
Shared Lane Traffic (%)												
Lane Group Flow (vph)	61	673	0	17	281	0	0	86	0	0	38	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		4.0			4.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		5.0			5.0			5.0			5.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												

Lane Group	Ø3	Ø7
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (m)		
Storage Lanes		
Taper Length (m)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(m)		
Link Offset(m)		
Crosswalk Width(m)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (k/h)		
Number of Detectors		
Detector Template		
Leading Detector (m)		
Trailing Detector (m)		
Detector 1 Position(m)		
Detector 1 Size(m)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Detector 2 Position(m)		
Detector 2 Size(m)		
Detector 2 Type		
Detector 2 Channel		
Detector 2 Extend (s)		
Turn Type		
Protected Phases	3	7
Permitted Phases		
Detector Phase		
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	
Minimum Split (s)	27.8	27.8		27.8	27.8		22.9	22.9		22.9	22.9	
Total Split (s)	42.0	42.0		42.0	42.0		23.0	23.0		23.0	23.0	
Total Split (%)	60.0%	60.0%		60.0%	60.0%		32.9%	32.9%		32.9%	32.9%	
Maximum Green (s)	36.2	36.2		36.2	36.2		17.1	17.1		17.1	17.1	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.9	2.9		2.9	2.9	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	5.8	5.8		5.8	5.8			5.9			5.9	
Lead/Lag							Lag	Lag		Lag	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		2.0	2.0		2.0	2.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	
Pedestrian Calls (#/hr)	11	11		11	11		18	18		18	18	
Act Effct Green (s)	50.0	50.0		50.0	50.0			11.6			11.6	
Actuated g/C Ratio	0.71	0.71		0.71	0.71			0.17			0.17	
v/c Ratio	0.08	0.53		0.04	0.21			0.38			0.12	
Control Delay	4.4	7.3		6.6	6.1			27.8			2.8	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	4.4	7.3		6.6	6.1			27.8			2.8	
LOS	A	A		A	A			C			A	
Approach Delay		7.0			6.2			27.8			2.8	
Approach LOS		A			A			C			A	
Queue Length 50th (m)	1.6	39.4		0.5	10.1			8.5			0.0	
Queue Length 95th (m)	m6.2	61.8		3.5	30.2			17.4			2.3	
Internal Link Dist (m)		355.2			290.9			150.2			88.1	
Turn Bay Length (m)	65.0			65.0								
Base Capacity (vph)	774	1266		425	1314			326			415	
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	0.53		0.04	0.21			0.26			0.09	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 31 (44%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.53			
Intersection Signal Delay: 8.2		Intersection LOS: A	
Intersection Capacity Utilization 74.7%		ICU Level of Service D	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 3: Orient Park & Innes



Lane Group	Ø3	Ø7
Minimum Initial (s)	3.0	3.0
Minimum Split (s)	5.0	5.0
Total Split (s)	5.0	5.0
Total Split (%)	7%	7%
Maximum Green (s)	3.0	3.0
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	None	None
Walk Time (s)	0.0	0.0
Flash Dont Walk (s)	0.0	0.0
Pedestrian Calls (#/hr)	18	18
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

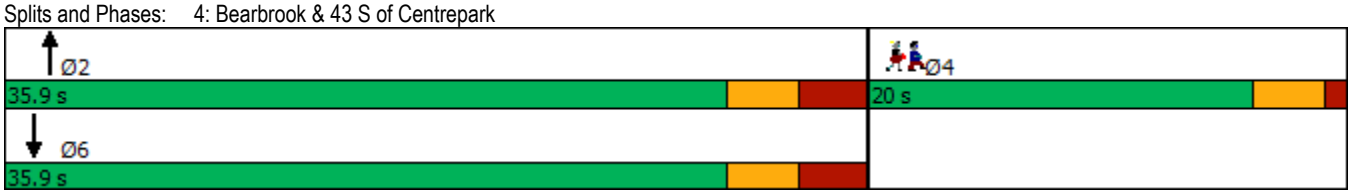
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø4
Lane Configurations							
Traffic Volume (vph)	0	0	358	0	0	415	
Future Volume (vph)	0	0	358	0	0	415	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor							
Frt							
Flt Protected							
Satd. Flow (prot)	0	0	1843	0	0	1843	
Flt Permitted							
Satd. Flow (perm)	0	0	1843	0	0	1843	
Right Turn on Red		Yes		Yes			
Satd. Flow (RTOR)							
Link Speed (k/h)	40		40			40	
Link Distance (m)	14.7		246.5			168.6	
Travel Time (s)	1.3		22.2			15.2	
Confl. Peds. (#/hr)		53		18	18		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Heavy Vehicles (%)	0%	0%	2%	0%	0%	2%	
Adj. Flow (vph)	0	0	358	0	0	415	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	0	358	0	0	415	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Right	Left	Left	
Median Width(m)	0.0		0.0			0.0	
Link Offset(m)	0.0		0.0			0.0	
Crosswalk Width(m)	5.0		23.0			23.0	
Two way Left Turn Lane							
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	
Turning Speed (k/h)	24	14		14	24		
Number of Detectors			2			2	
Detector Template			Thru			Thru	
Leading Detector (m)			30.5			30.5	
Trailing Detector (m)			0.0			0.0	
Detector 1 Position(m)			0.0			0.0	
Detector 1 Size(m)			1.8			1.8	
Detector 1 Type			Cl+Ex			Cl+Ex	
Detector 1 Channel							
Detector 1 Extend (s)			0.0			0.0	
Detector 1 Queue (s)			0.0			0.0	
Detector 1 Delay (s)			0.0			0.0	
Detector 2 Position(m)			28.7			28.7	
Detector 2 Size(m)			1.8			1.8	
Detector 2 Type			Cl+Ex			Cl+Ex	
Detector 2 Channel							
Detector 2 Extend (s)			0.0			0.0	
Turn Type			NA			NA	
Protected Phases			2			6	4
Permitted Phases							
Detector Phase			2			6	
Switch Phase							
Minimum Initial (s)			30.0			30.0	16.0
Minimum Split (s)			35.9			35.9	20.0
Total Split (s)			35.9			35.9	20.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø4
Total Split (%)			64.2%			64.2%	36%
Maximum Green (s)			30.0			30.0	16.0
Yellow Time (s)			3.0			3.0	3.0
All-Red Time (s)			2.9			2.9	1.0
Lost Time Adjust (s)			0.0			0.0	
Total Lost Time (s)			5.9			5.9	
Lead/Lag							
Lead-Lag Optimize?							
Vehicle Extension (s)			3.0			3.0	3.0
Recall Mode			Min			Min	None
Walk Time (s)							7.0
Flash Dont Walk (s)							9.0
Pedestrian Calls (#/hr)							53
Act Effct Green (s)			50.3			50.3	
Actuated g/C Ratio			0.85			0.85	
v/c Ratio			0.23			0.26	
Control Delay			3.9			4.1	
Queue Delay			0.0			0.0	
Total Delay			3.9			4.1	
LOS			A			A	
Approach Delay			3.9			4.1	
Approach LOS			A			A	
Queue Length 50th (m)			0.0			0.0	
Queue Length 95th (m)			28.2			33.5	
Internal Link Dist (m)	0.1		222.5			144.6	
Turn Bay Length (m)							
Base Capacity (vph)			1573			1573	
Starvation Cap Reductn			0			0	
Spillback Cap Reductn			0			0	
Storage Cap Reductn			0			0	
Reduced v/c Ratio			0.23			0.26	

Intersection Summary

Area Type:	Other		
Cycle Length: 55.9			
Actuated Cycle Length: 58.9			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.26			
Intersection Signal Delay: 4.0		Intersection LOS: A	
Intersection Capacity Utilization 44.9%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 4: Bearbrook & 43 S of Centrepark



APPENDIX K

Transportation Demand Management

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

Legend

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

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

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

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

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

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

Legend

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

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

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

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

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

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

APPENDIX L

MMLOS Analysis

Segment MMLOS Analysis

This section provides a review of the boundary street Bearbrook Road, using complete streets principles. The *Multi-Modal Level of Service (MMLOS) Guidelines*, produced by IBI Group in October 2015, were used to evaluate the levels of service for each alternative mode of transportation on Bearbrook Road, based on the targets for roadways 'within 300m of a school.'

Exhibit 4 of the MMLOS Guidelines has been used to evaluate the segment pedestrian level of service (PLOS) of Bearbrook Road. Exhibit 22 of the MMLOS Guidelines suggest a target PLOS A for all roadways within 300m of a school. The results of the segment PLOS analysis are summarized in **Table 1**.

Exhibit 11 of the MMLOS Guidelines has been used to evaluate the segment bicycle level of service (BLOS) of Bearbrook Road. Exhibit 22 of the MMLOS Guidelines suggest a target BLOS B for Local Cycling Routes within 300m of a school. The results of the segment BLOS analysis are summarized in **Table 2**.

Exhibit 15 of the MMLOS Guidelines has been used to evaluate the segment transit level of service (TLOS) of Bearbrook Road. While Bearbrook Road does not have a TLOS target, it has still been evaluated for TLOS since transit service is currently provided in both directions. The results of the segment TLOS analysis are summarized in **Table 3**.

Exhibit 20 of the MMLOS Guidelines has been used to evaluate the segment truck level of service (TkLOS) of Bearbrook Road. While Bearbrook Road does not have a TkLOS target, it has still been evaluated, since large vehicles such as buses use Bearbrook Road. The results of the segment TkLOS analysis are summarized in **Table 4**.

Table 1: PLOS Segment Analysis

Sidewalk Width	Boulevard Width	Avg. Daily Curb Lane Traffic Volume	Presence of On-Street Parking	Operating Speed[1]	PLOS
Bearbrook Road (east side, Innes Road to Centrepark Drive)					
1.5m	> 2.0m	> 3,000 vpd	Yes	50 km/h	**C**
Bearbrook Road (west side, Innes Road to Centrepark Drive)					
2.0m	> 2.0m	> 3,000 vpd	Yes	50 km/h	**B**

1. Operating speed taken as the speed limit plus 10 km/h.

Table 2: BLOS Segment Analysis

Road Class	Bike Route	Type of Bikeway	Travel Lanes	Operating Speed	BLOS
Bearbrook Road (Innes Road to Centrepark Drive)					
Major Collector	Local Route	Mixed Traffic	2	50 km/h	**C**

Table 3: TLOS Segment Analysis

Facility Type	Exposure to Congestion Delay, Friction, and Incidents			TLOS
	Congestion	Friction	Incident Potential	
Bearbrook Road (Innes Road to Centrepark Drive)				
Mixed Traffic – Limited Parking/Driveway Friction	Yes	Low	Medium	D

Table 4: TkLOS Segment Analysis

Curb Lane Width	Number of Travel Lanes Per Direction	TkLOS
Bearbrook Road (Innes Road to Centrepark Drive)		
3.5m to 3.7m	1	C

Intersection MMLOS Analysis

The following is a review of the MMLOS of the signalized intersections within the study area, using complete streets principles. All study area intersections are within 300m of a school, and therefore those MMLOS targets have been used to evaluate each intersection.

Exhibit 5 of the Addendum to the MMLOS Guidelines has been used to evaluate the existing PLOS at the intersections listed above. Exhibit 22 of the MMLOS Guidelines suggests a target PLOS A for all roadways within 300m of a school. The results of the intersection PLOS analysis are summarized in **Table 5** through **Table 8**.

Exhibit 12 of the MMLOS Guidelines has been used to evaluate the existing BLOS at the study area intersections on Innes Road. The signalized pedestrian intersection at Bearbrook Road/43m South of Centrepark Drive South has not been evaluated for BLOS. Exhibit 22 of the MMLOS Guidelines suggests a target BLOS A for Crosstown Bikeways within 300m of a school (Innes Road), a target BLOS B for Local Cycling Routes within 300m of a school (Bearbrook Road), and a target BLOS D for all roadways with no cycling route designation within 300m of a school (Southpark Drive, Glen Park Drive, Orient Park Drive). The results of the intersection BLOS analysis are summarized in **Table 9**.

Exhibit 16 of the MMLOS Guidelines has been used to evaluate the existing TLOS at the study area intersections. Exhibit 22 of the MMLOS Guidelines does not identify a target TLOS for roadways without a Rapid Transit or Transit Priority designation. Regardless, the TLOS has been evaluated for every approach at the study area intersections that is currently used by transit (Innes Road, Southpark Drive, Bearbrook Drive, Glen Park Drive). The results of the intersection TLOS analysis are summarized in **Table 10**.

Exhibit 21 of the MMLOS Guidelines has been used to evaluate the existing TkLOS at the intersections listed above. The signalized pedestrian intersection at Bearbrook Road/43m South of Centrepark Drive South has not been evaluated for TkLOS. Exhibit 22 of the MMLOS Guidelines identifies a target TkLOS D for major collector truck routes within 300m of a school (Innes Road). No target is identified for major collector or local roadways without a truck route designation within 300m of a school (Southpark Drive, Bearbrook Road, Glen Park Drive, Orient Park Drive). The results of the intersection TkLOS analysis are summarized in **Table 11**.

Auto LOS analysis has been conducted for an alternative scenario where two-stage left-turn bike facilities have been provided at Innes Road/Southpark Drive, Innes Road/Bearbrook Road/Glen Park Drive East, and Innes Road/Orient Park Drive, and an extended pedestrian phase has been provided at Bearbrook Road/43m South of Centrepark Drive South. A comparison of the existing conditions and this alternative scenario are summarized in **Table 12**. Detailed Synchro reports are included at the end of this appendix.

Table 5: PLOS Intersection Analysis – Innes Road/Southpark Drive

CRITERIA	North Approach		South Approach		East Approach		West Approach	
PETSI SCORE								
CROSSING DISTANCE CONDITIONS								
Median > 2.4m in Width	No	72	N/A	0	No	88	No	72
Lanes Crossed (3.5m Lane Width)	5		N/A		4		5	
SIGNAL PHASING AND TIMING								
Left Turn Conflict	Permissive	-8	N/A	0	Permissive	-8	No Left Turn/Prohibited	0
Right Turn Conflict	Permissive or Yield	-5	N/A	0	No Right Turn/Prohibited	0	Permissive or Yield	-5
Right Turn on Red	RTOR Allowed	-3	N/A	0	RTOR Allowed	-3	N/A	0
Leading Pedestrian Interval	No	-2	No	-2	No	-2	No	-2
CORNER RADIUS								
Parallel Radius	> 5m to 10m	-5	N/A	0	No Right Turn	0	> 5m to 10m	-5
Parallel Right Turn Channel	No Right Turn Channel	-4	N/A	0	No Right Turn	0	No Right Turn Channel	-4
Perpendicular Radius	N/A	0	N/A	0	N/A	0	N/A	0
Perpendicular Right Turn Channel	N/A	0	N/A	0	N/A	0	N/A	0
CROSSING TREATMENT								
Treatment	Standard	-7	N/A	0	Standard	-7	Standard	-7
PETSI SCORE		**38**		**-**		**68**		**49**
LOS		**E**		**-**		**C**		**D**
DELAY SCORE								
Cycle Length		70		0		75		75
Pedestrian Walk Time		26.3		0.0		7.2		7.2
DELAY SCORE		**13.6**		**-**		**30.6**		**30.6**
LOS		**B**		**-**		**D**		**D**
OVERALL		**E**		**-**		**D**		**D**

Table 6: PLOS Intersection Analysis – Innes Road/Bearbrook Road/Glen Park Drive East

CRITERIA	North Approach		South Approach		East Approach		West Approach	
PETSI SCORE								
CROSSING DISTANCE CONDITIONS								
Median > 2.4m in Width	No	72	No	72	No	55	No	55
Lanes Crossed (3.5m Lane Width)	5		5		6		6	
SIGNAL PHASING AND TIMING								
Left Turn Conflict	Permissive	-8	Permissive	-8	Permissive	-8	Permissive	-8
Right Turn Conflict	Permissive or Yield	-5	Permissive or Yield	-5	Permissive or Yield	-5	Permissive or Yield	-5
Right Turn on Red	RTOR Allowed	-3	RTOR Allowed	-3	RTOR Allowed	-3	RTOR Allowed	-3
Leading Pedestrian Interval	No	-2	No	-2	Yes	0	Yes	0
CORNER RADIUS								
Parallel Radius	> 10m to 15m	-6	> 10m to 15m	-6	> 10m to 15m	-6	> 10m to 15m	-6
Parallel Right Turn Channel	No Right Turn Channel	-4	No Right Turn Channel	-4	No Right Turn Channel	-4	No Right Turn Channel	-4
Perpendicular Radius	N/A	0	N/A	0	N/A	0	N/A	0
Perpendicular Right Turn Channel	N/A	0	N/A	0	N/A	0	N/A	0
CROSSING TREATMENT								
Treatment	Standard	-7	Standard	-7	Standard	-7	Standard	-7
PETSI SCORE		**37**		**37**		**22**		**22**
LOS		**E**		**E**		**F**		**F**
DELAY SCORE								
Cycle Length		70		70		75		75
Pedestrian Walk Time		15.3		15.3		10.8		10.8
DELAY SCORE		**21.4**		**21.4**		**27.5**		**27.5**
LOS		**C**		**C**		**C**		**C**
OVERALL		**E**		**E**		**F**		**F**

Table 7: PLOS Intersection Analysis – Innes Road/Orient Park Drive

CRITERIA	North Approach		South Approach		East Approach		West Approach	
PETSI SCORE								
CROSSING DISTANCE CONDITIONS								
Median > 2.4m in Width	No	72	No	88	No	72	No	72
Lanes Crossed (3.5m Lane Width)	5		4		5		5	
SIGNAL PHASING AND TIMING								
Left Turn Conflict	Permissive	-8	Permissive	-8	Permissive	-8	Permissive	-8
Right Turn Conflict	Permissive or Yield	-5	Permissive or Yield	-5	Permissive or Yield	-5	Permissive or Yield	-5
Right Turn on Red	RTOR Allowed	-3	RTOR Allowed	-3	RTOR Allowed	-3	RTOR Allowed	-3
Leading Pedestrian Interval	No	-2	No	-2	Yes	0	Yes	0
CORNER RADIUS								
Parallel Radius	> 5m to 10m	-5	> 10m to 15m	-6	> 10m to 15m	-6	> 5m to 10m	-5
Parallel Right Turn Channel	No Right Turn Channel	-4	No Right Turn Channel	-4	No Right Turn Channel	-4	No Right Turn Channel	-4
Perpendicular Radius	N/A	0	N/A	0	N/A	0	N/A	0
Perpendicular Right Turn Channel	N/A	0	N/A	0	N/A	0	N/A	0
CROSSING TREATMENT								
Treatment	Standard	-7	Standard	-7	Standard	-7	Standard	-7
PETSI SCORE		**38**		**53**		**39**		**40**
LOS		**E**		**D**		**E**		**E**
DELAY SCORE								
Cycle Length		70		70		75		75
Pedestrian Walk Time		21.2		21.2		7.1		7.1
DELAY SCORE		**17.0**		**17.0**		**30.7**		**30.7**
LOS		**B**		**B**		**D**		**D**
OVERALL		**E**		**D**		**E**		**E**

Table 8: PLOS Intersection Analysis – Bearbrook Road/43m South of Centrepark Drive South

CRITERIA	Pedestrian Crossing	
PETSI SCORE		
CROSSING DISTANCE CONDITIONS		
Median > 2.4m in Width	No	105
Lanes Crossed (3.5m Lane Width)	3	
SIGNAL PHASING AND TIMING		
Left Turn Conflict	No Left Turn/Prohibited	0
Right Turn Conflict	No Right Turn/Prohibited	0
Right Turn on Red	N/A	0
Leading Pedestrian Interval	N/A	0
CORNER RADIUS		
Parallel Radius	No Right Turn	0
Parallel Right Turn Channel	No Right Turn	0
Perpendicular Radius	N/A	0
Perpendicular Right Turn Channel	N/A	0
CROSSING TREATMENT		
Treatment	Standard	-7
PETSI SCORE		**98**
LOS		**A**
DELAY SCORE		
Cycle Length		55.9
Pedestrian Walk Time		7.0
DELAY SCORE		**21.4**
LOS		**C**
OVERALL		**C**

Table 9: BLOS Intersection Analysis

Approach	Facility Type	Criteria	Travel Lanes and/or Speed	BLOS
Innes Road/Southpark Drive				
North Approach	Mixed Traffic	Right Turn Lane Characteristics	Right turn lane is primary lane	A
		Left Turn Accommodation	One lane crossed; 50 km/h	**D**
East Approach	Curbside Bike Lane	Right Turn Lane Characteristics	Shared through/right turn lane	A
		Left Turn Accommodation	No left turn	-
West Approach	Curbside Bike Lane	Right Turn Lane Characteristics	No right turn	-
		Left Turn Accommodation	One lane crossed; ≥ 60 km/h	**E**
Innes Road/Bearbrook Road/Glen Park Drive East				
North Approach	Mixed Traffic	Right Turn Lane Characteristics	Shared through/right turn lane	A
		Left Turn Accommodation	One lane crossed; 50 km/h	**D**
South Approach	Mixed Traffic	Right Turn Lane Characteristics	Shared through/right turn lane	A
		Left Turn Accommodation	One lane crossed; 50 km/h	**D**
East Approach	Curbside Bike Lane	Right Turn Lane Characteristics	Shared through/right turn lane	A
		Left Turn Accommodation	One lane crossed; ≥ 60 km/h	**E**
West Approach	Curbside Bike Lane	Right Turn Lane Characteristics	Shared through/right turn lane	A
		Left Turn Accommodation	One lane crossed; ≥ 60 km/h	**E**
Innes Road/Orient Park Drive				
North Approach	Mixed Traffic	Right Turn Lane Characteristics	Shared left turn/through/right turn lane	A
		Left Turn Accommodation	No lanes crossed; ≤ 50 km/h	**B**
South Approach	Mixed Traffic	Right Turn Lane Characteristics	Shared left turn/through/right turn lane	A
		Left Turn Accommodation	No lanes crossed; ≤ 50 km/h	**B**
East Approach	Curbside Bike Lane	Right Turn Lane Characteristics	Shared through/right turn lane	A
		Left Turn Accommodation	One lane crossed; ≥ 60 km/h	**E**
West Approach	Curbside Bike Lane	Right Turn Lane Characteristics	Shared through/right turn lane	A
		Left Turn Accommodation	One lane crossed; ≥ 60 km/h	**E**

Table 10: TLOS Intersection Analysis

Approach	Delay[1]		TLOS
	AM Peak	PM Peak	
Innes Road/Southpark Drive			
North Approach	22 sec	23 sec	D
East Approach	8 sec	3 sec	B
West Approach	4 sec	6 sec	B
Innes Road/Bearbrook Road/Glen Park Drive East			
North Approach	16 sec	24 sec	D
South Approach	27 sec	14 sec	D
East Approach	15 sec	13 sec	C
West Approach	8 sec	10 sec	B
Innes Road/Orient Park Drive			
East Approach	10 sec	6 sec	B
West Approach	6 sec	7 sec	B
Bearbrook Road/43m South of Centrepark Drive South			
North Approach	2 sec	4 sec	B
South Approach	3 sec	4 sec	B

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

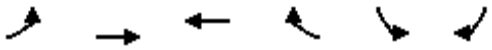
Table 11: TkLOS Intersection Analysis

Approach	Effective Corner Radius	Number of Receiving Lanes Departing Intersection	TkLOS
Innes Road/Southpark Drive			
North Approach	10m to 15m	1	**E**
East Approach	10m to 15m	1	**E**
Innes Road/Bearbrook Road/Glen Park Drive East			
North Approach	10m to 15m	1	**E**
South Approach	10m to 15m	1	**E**
East Approach	10m to 15m	1	**E**
West Approach	10m to 15m	1	**E**
Innes Road/Orient Park Drive			
North Approach	< 10m	1	**F**
South Approach	10m to 15m	1	**E**
East Approach	< 10m	1	**F**
West Approach	10m to 15m	1	**E**

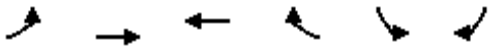
Table 12: Auto LOS Intersection Analysis

Movement	AM Peak Hour				PM Peak Hour			
	Existing Conditions		Alternate Scenario		Existing Conditions		Alternate Scenario	
	v/c [LOS]	Delay	v/c [LOS]	Delay	v/c [LOS]	Delay	v/c [LOS]	Delay
Innes Road/Southpark Drive(1)								
SBL	0.19 [A]	28 sec	0.21 [A]	33 sec	0.23 [A]	26 sec	0.26 [A]	32 sec
SBR	0.11 [A]	11 sec	0.13 [A]	32 sec	0.07 [A]	11 sec	0.08 [A]	28 sec
EBL	0.03 [A]	5 sec	0.03 [A]	7 sec	0.04 [A]	5 sec	0.04 [A]	7 sec
EBT	0.12 [A]	4 sec	0.13 [A]	6 sec	0.40 [A]	6 sec	0.42 [A]	8 sec
WBT/R	0.59 [A]	8 sec	0.63 [B]	12 sec	0.26 [A]	3 sec	0.27 [A]	7 sec
Innes Road/Bearbrook Road/Glen Park Drive East(2)								
NBL	0.38 [A]	32 sec	0.32 [A]	28 sec	0.20 [A]	20 sec	0.20 [A]	20 sec
NBT/R	0.32 [A]	23 sec	0.29 [A]	26 sec	0.25 [A]	12 sec	0.28 [A]	20 sec
SBL	0.34 [A]	30 sec	0.29 [A]	27 sec	0.75 [C]	38 sec	0.75 [C]	38 sec
SBT/R	0.46 [A]	10 sec	0.59 [A]	35 sec	0.45 [A]	10 sec	0.58 [A]	27 sec
EBL	0.35 [A]	14 sec	0.41 [A]	19 sec	0.45 [A]	11 sec	0.45 [A]	15 sec
EBT/R	0.12 [A]	5 sec	0.12 [A]	8 sec	0.46 [A]	9 sec	0.47 [A]	13 sec
WBL	0.04 [A]	5 sec	0.04 [A]	6 sec	0.08 [A]	15 sec	0.08 [A]	14 sec
WBT/R	0.78 [C]	15 sec	0.84 [D]	19 sec	0.32 [A]	12 sec	0.33 [A]	14 sec
Innes Road/Orient Park Drive(2)								
NBL/T/R	0.56 [A]	36 sec	0.57 [A]	38 sec	0.42 [A]	29 sec	0.43 [A]	32 sec
SBL/T/R	0.15 [A]	5 sec	0.18 [A]	26 sec	0.14 [A]	3 sec	0.17 [A]	25 sec
EBL	0.04 [A]	7 sec	0.04 [A]	7 sec	0.09 [A]	4 sec	0.09 [A]	5 sec
EBT/R	0.19 [A]	6 sec	0.19 [A]	6 sec	0.53 [A]	7 sec	0.54 [A]	8 sec
WBL	0.01 [A]	7 sec	0.01 [A]	7 sec	0.05 [A]	7 sec	0.05 [A]	7 sec
WBT/R	0.50 [A]	10 sec	0.50 [A]	10 sec	0.21 [A]	6 sec	0.21 [A]	6 sec
Bearbrook Road/43m South of Centrepark Drive South(3)								
NBT	0.33 [A]	3 sec	0.35 [A]	7 sec	0.25 [A]	4 sec	0.24 [A]	6 sec
SBT	0.18 [A]	2 sec	0.19 [A]	5 sec	0.29 [A]	4 sec	0.28 [A]	6 sec

1. 10-second cyclist-exclusive phase and southbound bike box added; RTOR implemented on southbound approach
2. Bike boxes for all approaches; RTOR implemented on all approaches
3. Maximum cycle length unchanged; minimum green time for north-south traffic reduced from 30 to 14 seconds, and added to walk time



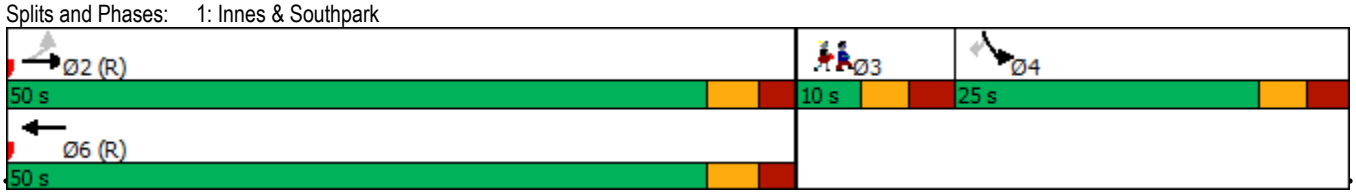
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø3
Lane Configurations							
Traffic Volume (vph)	10	153	732	34	45	24	
Future Volume (vph)	10	153	732	34	45	24	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	
Storage Length (m)	55.0			0.0	30.0	0.0	
Storage Lanes	1			0	1	1	
Taper Length (m)	50.0				20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor	1.00		1.00		1.00	0.97	
Frt			0.994			0.850	
Flt Protected	0.950				0.950		
Satd. Flow (prot)	1768	1741	1796	0	1685	1522	
Flt Permitted	0.228				0.950		
Satd. Flow (perm)	424	1741	1796	0	1681	1471	
Right Turn on Red				Yes		No	
Satd. Flow (RTOR)			4				
Link Speed (k/h)		50	50		40		
Link Distance (m)		342.9	175.5		233.8		
Travel Time (s)		24.7	12.6		21.0		
Confl. Peds. (#/hr)	3			3	1	6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	
Heavy Vehicles (%)	1%	8%	4%	3%	6%	5%	
Adj. Flow (vph)	11	170	813	38	50	27	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	11	170	851	0	50	27	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Left	Left	Right	Left	Right	
Median Width(m)		4.0	4.0		4.0		
Link Offset(m)		0.0	0.0		0.0		
Crosswalk Width(m)		5.0	5.0		5.0		
Two way Left Turn Lane							
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	
Turning Speed (k/h)	24			14	24	14	
Number of Detectors	1	2	2		1	1	
Detector Template	Left	Thru	Thru		Left	Right	
Leading Detector (m)	6.1	30.5	30.5		6.1	6.1	
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8	1.8		6.1	6.1	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel							
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7	28.7				
Detector 2 Size(m)		1.8	1.8				
Detector 2 Type		Cl+Ex	Cl+Ex				
Detector 2 Channel							
Detector 2 Extend (s)		0.0	0.0				
Turn Type	Perm	NA	NA		Prot	Perm	
Protected Phases		2	6		4		3
Permitted Phases	2					4	
Detector Phase	2	2	6		4	4	
Switch Phase							

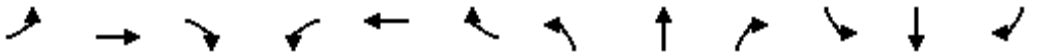


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø3
Minimum Initial (s)	10.0	10.0	10.0		10.0	10.0	4.0
Minimum Split (s)	15.7	15.7	43.7		24.8	24.8	10.0
Total Split (s)	50.0	50.0	50.0		25.0	25.0	10.0
Total Split (%)	58.8%	58.8%	58.8%		29.4%	29.4%	12%
Maximum Green (s)	44.3	44.3	44.3		19.2	19.2	4.0
Yellow Time (s)	3.3	3.3	3.3		3.0	3.0	3.0
All-Red Time (s)	2.4	2.4	2.4		2.8	2.8	3.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.7	5.7	5.7		5.8	5.8	
Lead/Lag					Lag	Lag	Lead
Lead-Lag Optimize?					Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max		None	None	None
Walk Time (s)			25.0		7.0	7.0	0.0
Flash Dont Walk (s)			13.0		12.0	12.0	0.0
Pedestrian Calls (#/hr)			3		6	6	5
Act Effct Green (s)	64.0	64.0	64.0		11.8	11.8	
Actuated g/C Ratio	0.75	0.75	0.75		0.14	0.14	
v/c Ratio	0.03	0.13	0.63		0.21	0.13	
Control Delay	7.3	5.8	12.0		33.4	32.0	
Queue Delay	0.0	0.0	0.5		0.0	0.0	
Total Delay	7.3	5.8	12.4		33.4	32.0	
LOS	A	A	B		C	C	
Approach Delay		5.9	12.4		32.9		
Approach LOS		A	B		C		
Queue Length 50th (m)	0.4	5.7	48.6		6.9	3.7	
Queue Length 95th (m)	3.1	22.3	#182.0		14.2	9.2	
Internal Link Dist (m)		318.9	151.5		209.8		
Turn Bay Length (m)	55.0				30.0		
Base Capacity (vph)	319	1310	1353		380	332	
Starvation Cap Reductn	0	0	165		0	0	
Spillback Cap Reductn	0	0	0		0	0	
Storage Cap Reductn	0	0	0		0	0	
Reduced v/c Ratio	0.03	0.13	0.72		0.13	0.08	

Intersection Summary			
Area Type:	Other		
Cycle Length: 85			
Actuated Cycle Length: 85			
Offset: 44 (52%), Referenced to phase 2:EBTL and 6:WBT, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.63			
Intersection Signal Delay: 12.8		Intersection LOS: B	
Intersection Capacity Utilization 62.1%		ICU Level of Service B	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 1: Innes & Southpark





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	72	100	15	28	447	349	61	68	22	65	18	145
Future Volume (vph)	72	100	15	28	447	349	61	68	22	65	18	145
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	70.0		0.0	60.0		0.0	45.0		0.0	40.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	30.0			25.0			35.0			35.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99		0.98	0.99		0.98	0.99		0.99	0.96	
Frt		0.980			0.934			0.964			0.867	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1734	1647	0	1734	1678	0	1701	1755	0	1751	1542	0
Flt Permitted	0.169			0.675			0.620			0.692		
Satd. Flow (perm)	308	1647	0	1213	1678	0	1088	1755	0	1264	1542	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			40			40	
Link Distance (m)		175.5			379.2			280.2			246.5	
Travel Time (s)		12.6			27.3			25.2			22.2	
Confl. Peds. (#/hr)	6		11	11		6	15		6	6		15
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	8%	33%	3%	5%	1%	5%	3%	1%	2%	5%	1%
Adj. Flow (vph)	80	111	17	31	497	388	68	76	24	72	20	161
Shared Lane Traffic (%)												
Lane Group Flow (vph)	80	128	0	31	885	0	68	100	0	72	181	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		4.0			4.0			4.0			5.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		5.0			5.0			5.0			5.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												

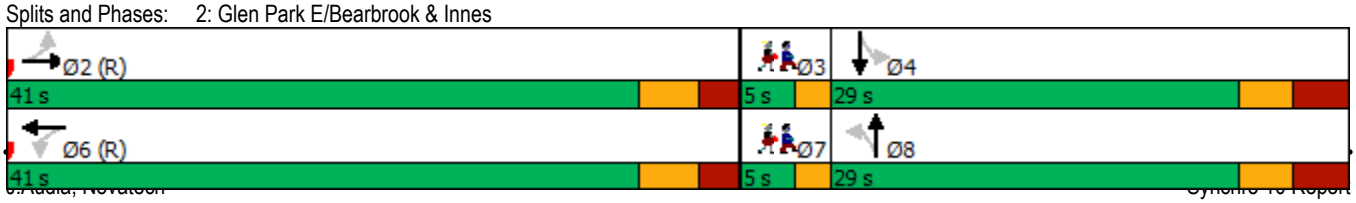
Lane Group	Ø3	Ø7
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (m)		
Storage Lanes		
Taper Length (m)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(m)		
Link Offset(m)		
Crosswalk Width(m)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (k/h)		
Number of Detectors		
Detector Template		
Leading Detector (m)		
Trailing Detector (m)		
Detector 1 Position(m)		
Detector 1 Size(m)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Detector 2 Position(m)		
Detector 2 Size(m)		
Detector 2 Type		
Detector 2 Channel		
Detector 2 Extend (s)		
Turn Type		
Protected Phases	3	7
Permitted Phases		
Detector Phase		
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	
Minimum Split (s)	27.7	27.7		27.7	27.7		28.2	28.2		28.2	28.2	
Total Split (s)	41.0	41.0		41.0	41.0		29.0	29.0		29.0	29.0	
Total Split (%)	54.7%	54.7%		54.7%	54.7%		38.7%	38.7%		38.7%	38.7%	
Maximum Green (s)	35.3	35.3		35.3	35.3		22.8	22.8		22.8	22.8	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.4	2.4		2.4	2.4		3.2	3.2		3.2	3.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.7	5.7		5.7	5.7		6.2	6.2		6.2	6.2	
Lead/Lag							Lag	Lag		Lag	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		17.0	17.0		17.0	17.0	
Pedestrian Calls (#/hr)	11	11		11	11		15	15		15	15	
Act Effct Green (s)	47.3	47.3		47.3	47.3		14.8	14.8		14.8	14.8	
Actuated g/C Ratio	0.63	0.63		0.63	0.63		0.20	0.20		0.20	0.20	
v/c Ratio	0.41	0.12		0.04	0.84		0.32	0.29		0.29	0.59	
Control Delay	19.3	7.6		5.8	19.3		28.0	26.2		26.8	34.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	19.3	7.6		5.8	19.3		28.0	26.2		26.8	34.7	
LOS	B	A		A	B		C	C		C	C	
Approach Delay		12.1			18.8			26.9			32.5	
Approach LOS		B			B			C			C	
Queue Length 50th (m)	4.2	5.4		1.0	47.1		7.7	11.3		8.2	21.9	
Queue Length 95th (m)	#24.8	17.2		m3.4	#190.4		15.4	19.8		15.8	34.2	
Internal Link Dist (m)		151.5			355.2			256.2			222.5	
Turn Bay Length (m)	70.0			60.0			45.0			40.0		
Base Capacity (vph)	194	1037		764	1057		330	533		384	468	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.41	0.12		0.04	0.84		0.21	0.19		0.19	0.39	

Intersection Summary

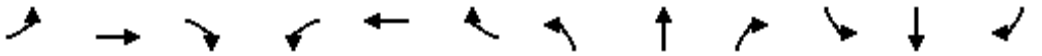
Area Type: Other
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 33 (44%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 21.0 Intersection LOS: C
Intersection Capacity Utilization 98.5% 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: Glen Park E/Bearbrook & Innes



Lane Group	Ø3	Ø7
Minimum Initial (s)	3.0	3.0
Minimum Split (s)	5.0	5.0
Total Split (s)	5.0	5.0
Total Split (%)	7%	7%
Maximum Green (s)	3.0	3.0
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	None	None
Walk Time (s)	0.0	0.0
Flash Dont Walk (s)	0.0	0.0
Pedestrian Calls (#/hr)	15	15
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary



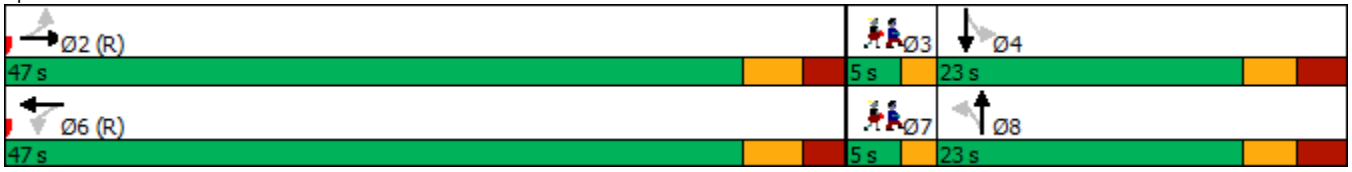
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	164	36	9	549	2	102	2	11	4	0	40
Future Volume (vph)	17	164	36	9	549	2	102	2	11	4	0	40
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	65.0		0.0	65.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	20.0			25.0			10.0			10.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.99		0.98	1.00			0.97			0.96	
Frt		0.973						0.987			0.876	
Flt Protected	0.950			0.950				0.957			0.996	
Satd. Flow (prot)	1768	1660	0	1768	1774	0	0	1685	0	0	1531	0
Flt Permitted	0.363			0.620				0.715			0.969	
Satd. Flow (perm)	669	1660	0	1131	1774	0	0	1234	0	0	1484	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			40			40	
Link Distance (m)		379.2			314.9			174.2			112.1	
Travel Time (s)		27.3			22.7			15.7			10.1	
Confl. Peds. (#/hr)	18		16	16		18	11		25	25		11
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%	8%	15%	1%	6%	1%	2%	1%	30%	1%	1%	3%
Adj. Flow (vph)	19	182	40	10	610	2	113	2	12	4	0	44
Shared Lane Traffic (%)												
Lane Group Flow (vph)	19	222	0	10	612	0	0	127	0	0	48	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		4.0			4.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		5.0			5.0			5.0			5.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												

Lane Group	Ø3	Ø7
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (m)		
Storage Lanes		
Taper Length (m)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(m)		
Link Offset(m)		
Crosswalk Width(m)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (k/h)		
Number of Detectors		
Detector Template		
Leading Detector (m)		
Trailing Detector (m)		
Detector 1 Position(m)		
Detector 1 Size(m)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Detector 2 Position(m)		
Detector 2 Size(m)		
Detector 2 Type		
Detector 2 Channel		
Detector 2 Extend (s)		
Turn Type		
Protected Phases	3	7
Permitted Phases		
Detector Phase		
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	
Minimum Split (s)	27.8	27.8		27.8	27.8		22.9	22.9		22.9	22.9	
Total Split (s)	47.0	47.0		47.0	47.0		23.0	23.0		23.0	23.0	
Total Split (%)	62.7%	62.7%		62.7%	62.7%		30.7%	30.7%		30.7%	30.7%	
Maximum Green (s)	41.2	41.2		41.2	41.2		17.1	17.1		17.1	17.1	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.9	2.9		2.9	2.9	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	5.8	5.8		5.8	5.8			5.9			5.9	
Lead/Lag							Lag	Lag		Lag	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		2.0	2.0		2.0	2.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	
Pedestrian Calls (#/hr)	16	16		16	16		25	25		25	25	
Act Effct Green (s)	52.1	52.1		52.1	52.1			13.5			13.5	
Actuated g/C Ratio	0.69	0.69		0.69	0.69			0.18			0.18	
v/c Ratio	0.04	0.19		0.01	0.50			0.57			0.18	
Control Delay	7.4	6.2		7.3	10.2			38.0			26.3	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	7.4	6.2		7.3	10.2			38.0			26.3	
LOS	A	A		A	B			D			C	
Approach Delay		6.3			10.2			38.0			26.3	
Approach LOS		A			B			D			C	
Queue Length 50th (m)	0.4	5.3		0.4	33.9			15.5			5.4	
Queue Length 95th (m)	4.2	25.4		2.3	79.6			28.6			12.5	
Internal Link Dist (m)		355.2			290.9			150.2			88.1	
Turn Bay Length (m)	65.0			65.0								
Base Capacity (vph)	465	1154		786	1233			281			338	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.04	0.19		0.01	0.50			0.45			0.14	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 75			
Offset: 13 (17%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.57			
Intersection Signal Delay: 13.4		Intersection LOS: B	
Intersection Capacity Utilization 54.3%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 3: Orient Park & Innes



Lane Group	Ø3	Ø7
Minimum Initial (s)	3.0	3.0
Minimum Split (s)	5.0	5.0
Total Split (s)	5.0	5.0
Total Split (%)	7%	7%
Maximum Green (s)	3.0	3.0
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	None	None
Walk Time (s)	0.0	0.0
Flash Dont Walk (s)	0.0	0.0
Pedestrian Calls (#/hr)	25	25
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

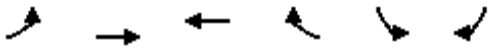
Intersection Summary

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø4
Lane Configurations							
Traffic Volume (vph)	0	0	513	0	0	268	
Future Volume (vph)	0	0	513	0	0	268	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor							
Frt							
Flt Protected							
Satd. Flow (prot)	0	0	1843	0	0	1825	
Flt Permitted							
Satd. Flow (perm)	0	0	1843	0	0	1825	
Right Turn on Red		Yes		Yes			
Satd. Flow (RTOR)							
Link Speed (k/h)	40		40			40	
Link Distance (m)	14.7		246.5			168.6	
Travel Time (s)	1.3		22.2			15.2	
Confl. Peds. (#/hr)		2		2	2		
Confl. Bikes (#/hr)				1			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	
Heavy Vehicles (%)	0%	0%	2%	0%	0%	3%	
Adj. Flow (vph)	0	0	570	0	0	298	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	0	570	0	0	298	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Right	Left	Left	
Median Width(m)	0.0		0.0			0.0	
Link Offset(m)	0.0		0.0			0.0	
Crosswalk Width(m)	5.0		23.0			23.0	
Two way Left Turn Lane							
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	
Turning Speed (k/h)	24	14		14	24		
Number of Detectors			2			2	
Detector Template			Thru			Thru	
Leading Detector (m)			30.5			30.5	
Trailing Detector (m)			0.0			0.0	
Detector 1 Position(m)			0.0			0.0	
Detector 1 Size(m)			1.8			1.8	
Detector 1 Type			Cl+Ex			Cl+Ex	
Detector 1 Channel							
Detector 1 Extend (s)			0.0			0.0	
Detector 1 Queue (s)			0.0			0.0	
Detector 1 Delay (s)			0.0			0.0	
Detector 2 Position(m)			28.7			28.7	
Detector 2 Size(m)			1.8			1.8	
Detector 2 Type			Cl+Ex			Cl+Ex	
Detector 2 Channel							
Detector 2 Extend (s)			0.0			0.0	
Turn Type			NA			NA	
Protected Phases			2			6	4
Permitted Phases							
Detector Phase			2			6	
Switch Phase							
Minimum Initial (s)			14.0			14.0	32.0
Minimum Split (s)			19.9			19.9	36.0

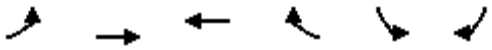
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø4
Total Split (s)			19.9			19.9	36.0
Total Split (%)			35.6%			35.6%	64%
Maximum Green (s)			14.0			14.0	32.0
Yellow Time (s)			3.0			3.0	3.0
All-Red Time (s)			2.9			2.9	1.0
Lost Time Adjust (s)			0.0			0.0	
Total Lost Time (s)			5.9			5.9	
Lead/Lag							
Lead-Lag Optimize?							
Vehicle Extension (s)			3.0			3.0	3.0
Recall Mode			Min			Min	None
Walk Time (s)							7.0
Flash Dont Walk (s)							9.0
Pedestrian Calls (#/hr)							5
Act Effct Green (s)			37.1			37.1	
Actuated g/C Ratio			0.88			0.88	
v/c Ratio			0.35			0.19	
Control Delay			7.0			5.5	
Queue Delay			0.0			0.0	
Total Delay			7.0			5.5	
LOS			A			A	
Approach Delay			7.0			5.5	
Approach LOS			A			A	
Queue Length 50th (m)			0.0			0.0	
Queue Length 95th (m)			#93.8			41.8	
Internal Link Dist (m)	0.1		222.5			144.6	
Turn Bay Length (m)							
Base Capacity (vph)			1625			1609	
Starvation Cap Reductn			0			0	
Spillback Cap Reductn			0			0	
Storage Cap Reductn			0			0	
Reduced v/c Ratio			0.35			0.19	

Intersection Summary			
Area Type:	Other		
Cycle Length: 55.9			
Actuated Cycle Length: 42.1			
Natural Cycle: 65			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.35			
Intersection Signal Delay: 6.5		Intersection LOS: A	
Intersection Capacity Utilization 40.7%		ICU Level of Service A	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 4: Bearbrook & 43 S of Centrepark



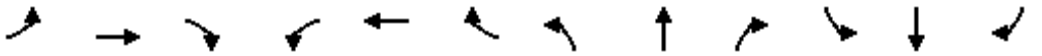
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø3
Lane Configurations							
Traffic Volume (vph)	28	515	261	59	60	16	
Future Volume (vph)	28	515	261	59	60	16	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	
Storage Length (m)	55.0			0.0	30.0	0.0	
Storage Lanes	1			0	1	1	
Taper Length (m)	50.0				20.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor	1.00		0.99		0.98	0.96	
Frt			0.975			0.850	
Flt Protected	0.950				0.950		
Satd. Flow (prot)	1768	1825	1749	0	1734	1582	
Flt Permitted	0.535				0.950		
Satd. Flow (perm)	992	1825	1749	0	1697	1518	
Right Turn on Red				Yes		No	
Satd. Flow (RTOR)			20				
Link Speed (k/h)		50	50		40		
Link Distance (m)		342.9	175.5		233.8		
Travel Time (s)		24.7	12.6		21.0		
Confl. Peds. (#/hr)	7			7	10	10	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	
Heavy Vehicles (%)	1%	3%	5%	1%	3%	1%	
Adj. Flow (vph)	31	572	290	66	67	18	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	31	572	356	0	67	18	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Left	Left	Right	Left	Right	
Median Width(m)		4.0	4.0		4.0		
Link Offset(m)		0.0	0.0		0.0		
Crosswalk Width(m)		5.0	5.0		5.0		
Two way Left Turn Lane							
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	
Turning Speed (k/h)	24			14	24	14	
Number of Detectors	1	2	2		1	1	
Detector Template	Left	Thru	Thru		Left	Right	
Leading Detector (m)	6.1	30.5	30.5		6.1	6.1	
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8	1.8		6.1	6.1	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel							
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7	28.7				
Detector 2 Size(m)		1.8	1.8				
Detector 2 Type		Cl+Ex	Cl+Ex				
Detector 2 Channel							
Detector 2 Extend (s)		0.0	0.0				
Turn Type	Perm	NA	NA		Prot	Perm	
Protected Phases		2	6		4		3
Permitted Phases	2					4	
Detector Phase	2	2	6		4	4	
Switch Phase							



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø3
Minimum Initial (s)	10.0	10.0	10.0		10.0	10.0	4.0
Minimum Split (s)	15.7	15.7	43.7		24.8	24.8	10.0
Total Split (s)	45.0	45.0	45.0		25.0	25.0	10.0
Total Split (%)	56.3%	56.3%	56.3%		31.3%	31.3%	13%
Maximum Green (s)	39.3	39.3	39.3		19.2	19.2	4.0
Yellow Time (s)	3.3	3.3	3.3		3.0	3.0	3.0
All-Red Time (s)	2.4	2.4	2.4		2.8	2.8	3.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.7	5.7	5.7		5.8	5.8	
Lead/Lag					Lag	Lag	Lead
Lead-Lag Optimize?					Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	C-Max	C-Max	C-Max		None	None	None
Walk Time (s)			25.0		7.0	7.0	0.0
Flash Dont Walk (s)			13.0		12.0	12.0	0.0
Pedestrian Calls (#/hr)			7		10	10	5
Act Effct Green (s)	59.0	59.0	59.0		11.8	11.8	
Actuated g/C Ratio	0.74	0.74	0.74		0.15	0.15	
v/c Ratio	0.04	0.42	0.27		0.26	0.08	
Control Delay	6.9	8.4	6.6		31.8	28.3	
Queue Delay	0.0	0.0	0.0		0.0	0.0	
Total Delay	6.9	8.4	6.6		31.8	28.3	
LOS	A	A	A		C	C	
Approach Delay		8.3	6.6		31.0		
Approach LOS		A	A		C		
Queue Length 50th (m)	1.0	25.2	12.5		8.7	2.3	
Queue Length 95th (m)	6.1	85.8	45.9		16.4	6.6	
Internal Link Dist (m)		318.9	151.5		209.8		
Turn Bay Length (m)	55.0				30.0		
Base Capacity (vph)	731	1346	1295		416	364	
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	0.04	0.42	0.27		0.16	0.05	

Intersection Summary			
Area Type:	Other		
Cycle Length: 80			
Actuated Cycle Length: 80			
Offset: 3 (4%), Referenced to phase 2:EBTL and 6:WBT, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.42			
Intersection Signal Delay: 9.6		Intersection LOS: A	
Intersection Capacity Utilization 51.7%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 1: Innes & Southpark



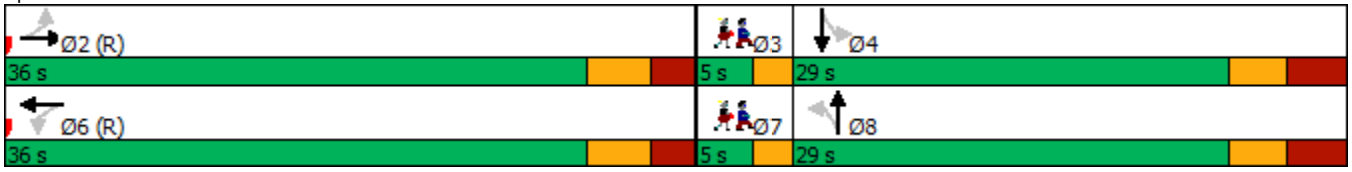
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	232	313	91	32	148	118	48	61	51	223	71	153
Future Volume (vph)	232	313	91	32	148	118	48	61	51	223	71	153
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	70.0		0.0	60.0		0.0	45.0		0.0	40.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	30.0			25.0			35.0			35.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.99		0.98	0.98		0.99	0.98		0.98	0.97	
Frt		0.966			0.933			0.932			0.898	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1768	1745	0	1768	1646	0	1751	1697	0	1768	1627	0
Flt Permitted	0.567			0.431			0.538			0.677		
Satd. Flow (perm)	1045	1745	0	789	1646	0	979	1697	0	1240	1627	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			40			40	
Link Distance (m)		175.5			379.2			280.2			246.5	
Travel Time (s)		12.6			27.3			25.2			22.2	
Confl. Peds. (#/hr)	10		23	23		10	12		12	12		12
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	1%	3%	2%	1%	8%	1%	2%	1%	2%	1%	1%	1%
Adj. Flow (vph)	258	348	101	36	164	131	53	68	57	248	79	170
Shared Lane Traffic (%)												
Lane Group Flow (vph)	258	449	0	36	295	0	53	125	0	248	249	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		4.0			4.0			4.0			5.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		5.0			5.0			5.0			5.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												

Lane Group	Ø3	Ø7
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (m)		
Storage Lanes		
Taper Length (m)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(m)		
Link Offset(m)		
Crosswalk Width(m)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (k/h)		
Number of Detectors		
Detector Template		
Leading Detector (m)		
Trailing Detector (m)		
Detector 1 Position(m)		
Detector 1 Size(m)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Detector 2 Position(m)		
Detector 2 Size(m)		
Detector 2 Type		
Detector 2 Channel		
Detector 2 Extend (s)		
Turn Type		
Protected Phases	3	7
Permitted Phases		
Detector Phase		
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	
Minimum Split (s)	27.7	27.7		27.7	27.7		28.2	28.2		28.2	28.2	
Total Split (s)	36.0	36.0		36.0	36.0		29.0	29.0		29.0	29.0	
Total Split (%)	51.4%	51.4%		51.4%	51.4%		41.4%	41.4%		41.4%	41.4%	
Maximum Green (s)	30.3	30.3		30.3	30.3		22.8	22.8		22.8	22.8	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.4	2.4		2.4	2.4		3.2	3.2		3.2	3.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.7	5.7		5.7	5.7		6.2	6.2		6.2	6.2	
Lead/Lag							Lag	Lag		Lag	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		17.0	17.0		17.0	17.0	
Pedestrian Calls (#/hr)	23	23		23	23		12	12		12	12	
Act Effct Green (s)	38.5	38.5		38.5	38.5		18.6	18.6		18.6	18.6	
Actuated g/C Ratio	0.55	0.55		0.55	0.55		0.27	0.27		0.27	0.27	
v/c Ratio	0.45	0.47		0.08	0.33		0.20	0.28		0.75	0.58	
Control Delay	14.8	13.4		14.0	13.9		20.0	20.5		37.6	26.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	14.8	13.4		14.0	13.9		20.0	20.5		37.6	26.9	
LOS	B	B		B	B		B	C		D	C	
Approach Delay		13.9			13.9			20.3			32.2	
Approach LOS		B			B			C			C	
Queue Length 50th (m)	17.2	30.3		1.9	17.5		4.8	11.6		26.6	25.2	
Queue Length 95th (m)	42.9	64.5		8.5	43.8		11.5	21.5		45.8	41.4	
Internal Link Dist (m)		151.5			355.2			256.2			222.5	
Turn Bay Length (m)	70.0			60.0			45.0			40.0		
Base Capacity (vph)	574	958		433	904		320	555		406	532	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.45	0.47		0.08	0.33		0.17	0.23		0.61	0.47	

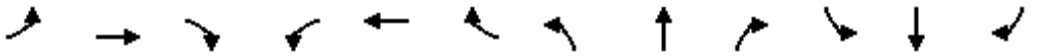
Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 18 (26%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay: 19.9		Intersection LOS: B	
Intersection Capacity Utilization 76.6%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 2: Glen Park E/Bearbrook & Innes



Lane Group	Ø3	Ø7
Minimum Initial (s)	3.0	3.0
Minimum Split (s)	5.0	5.0
Total Split (s)	5.0	5.0
Total Split (%)	7%	7%
Maximum Green (s)	3.0	3.0
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	None	None
Walk Time (s)	0.0	0.0
Flash Dont Walk (s)	0.0	0.0
Pedestrian Calls (#/hr)	12	12
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary



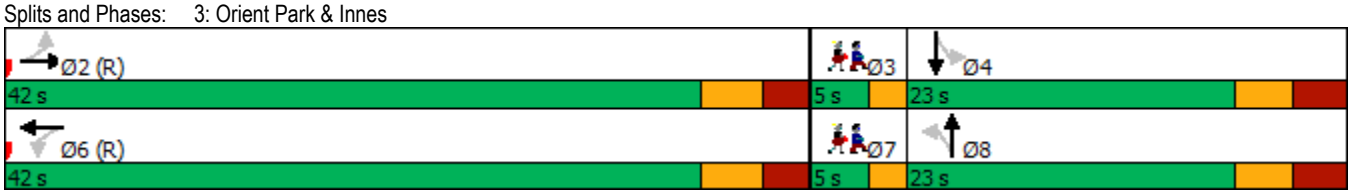
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	468	139	17	244	3	73	2	11	6	0	32
Future Volume (vph)	61	468	139	17	244	3	73	2	11	6	0	32
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	65.0		0.0	65.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	20.0			25.0			10.0			10.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.99		1.00	1.00			0.98			0.97	
Frt		0.966			0.998			0.983			0.887	
Flt Protected	0.950			0.950				0.959			0.992	
Satd. Flow (prot)	1768	1756	0	1701	1839	0	0	1728	0	0	1559	0
Flt Permitted	0.591			0.331				0.727			0.936	
Satd. Flow (perm)	1092	1756	0	590	1839	0	0	1297	0	0	1463	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			40			40	
Link Distance (m)		379.2			314.9			174.2			112.1	
Travel Time (s)		27.3			22.7			15.7			10.1	
Confl. Peds. (#/hr)	7		11	11		7	6		18	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%	3%	1%	5%	2%	1%	2%	1%	1%	15%	1%	1%
Adj. Flow (vph)	68	520	154	19	271	3	81	2	12	7	0	36
Shared Lane Traffic (%)												
Lane Group Flow (vph)	68	674	0	19	274	0	0	95	0	0	43	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		4.0			4.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		5.0			5.0			5.0			5.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												

Lane Group	Ø3	Ø7
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (m)		
Storage Lanes		
Taper Length (m)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(m)		
Link Offset(m)		
Crosswalk Width(m)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (k/h)		
Number of Detectors		
Detector Template		
Leading Detector (m)		
Trailing Detector (m)		
Detector 1 Position(m)		
Detector 1 Size(m)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Detector 2 Position(m)		
Detector 2 Size(m)		
Detector 2 Type		
Detector 2 Channel		
Detector 2 Extend (s)		
Turn Type		
Protected Phases	3	7
Permitted Phases		
Detector Phase		
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	
Minimum Split (s)	27.8	27.8		27.8	27.8		22.9	22.9		22.9	22.9	
Total Split (s)	42.0	42.0		42.0	42.0		23.0	23.0		23.0	23.0	
Total Split (%)	60.0%	60.0%		60.0%	60.0%		32.9%	32.9%		32.9%	32.9%	
Maximum Green (s)	36.2	36.2		36.2	36.2		17.1	17.1		17.1	17.1	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.9	2.9		2.9	2.9	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	5.8	5.8		5.8	5.8			5.9			5.9	
Lead/Lag							Lag	Lag		Lag	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		2.0	2.0		2.0	2.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	
Pedestrian Calls (#/hr)	11	11		11	11		18	18		18	18	
Act Effct Green (s)	49.7	49.7		49.7	49.7			11.9			11.9	
Actuated g/C Ratio	0.71	0.71		0.71	0.71			0.17			0.17	
v/c Ratio	0.09	0.54		0.05	0.21			0.43			0.17	
Control Delay	4.7	8.4		6.8	6.3			31.5			25.3	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	4.7	8.4		6.8	6.3			31.5			25.3	
LOS	A	A		A	A			C			C	
Approach Delay		8.0			6.3			31.5			25.3	
Approach LOS		A			A			C			C	
Queue Length 50th (m)	1.9	45.0		0.6	10.1			10.7			4.6	
Queue Length 95th (m)	m6.7	67.9		3.8	29.5			20.2			10.7	
Internal Link Dist (m)		355.2			290.9			150.2			88.1	
Turn Bay Length (m)	65.0			65.0								
Base Capacity (vph)	775	1246		418	1305			316			357	
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	0.09	0.54		0.05	0.21			0.30			0.12	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 31 (44%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.54			
Intersection Signal Delay: 10.1		Intersection LOS: B	
Intersection Capacity Utilization 71.1%		ICU Level of Service C	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 3: Orient Park & Innes



Lane Group	Ø3	Ø7
Minimum Initial (s)	3.0	3.0
Minimum Split (s)	5.0	5.0
Total Split (s)	5.0	5.0
Total Split (%)	7%	7%
Maximum Green (s)	3.0	3.0
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	None	None
Walk Time (s)	0.0	0.0
Flash Dont Walk (s)	0.0	0.0
Pedestrian Calls (#/hr)	18	18
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø4
Lane Configurations							
Traffic Volume (vph)	0	0	358	0	0	415	
Future Volume (vph)	0	0	358	0	0	415	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor							
Frt							
Flt Protected							
Satd. Flow (prot)	0	0	1843	0	0	1843	
Flt Permitted							
Satd. Flow (perm)	0	0	1843	0	0	1843	
Right Turn on Red		Yes		Yes			
Satd. Flow (RTOR)							
Link Speed (k/h)	40		40			40	
Link Distance (m)	14.7		246.5			168.6	
Travel Time (s)	1.3		22.2			15.2	
Confl. Peds. (#/hr)		53		18	18		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	
Heavy Vehicles (%)	0%	0%	2%	0%	0%	2%	
Adj. Flow (vph)	0	0	398	0	0	461	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	0	398	0	0	461	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Right	Left	Left	
Median Width(m)	0.0		0.0			0.0	
Link Offset(m)	0.0		0.0			0.0	
Crosswalk Width(m)	5.0		23.0			23.0	
Two way Left Turn Lane							
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	
Turning Speed (k/h)	24	14		14	24		
Number of Detectors			2			2	
Detector Template			Thru			Thru	
Leading Detector (m)			30.5			30.5	
Trailing Detector (m)			0.0			0.0	
Detector 1 Position(m)			0.0			0.0	
Detector 1 Size(m)			1.8			1.8	
Detector 1 Type			Cl+Ex			Cl+Ex	
Detector 1 Channel							
Detector 1 Extend (s)			0.0			0.0	
Detector 1 Queue (s)			0.0			0.0	
Detector 1 Delay (s)			0.0			0.0	
Detector 2 Position(m)			28.7			28.7	
Detector 2 Size(m)			1.8			1.8	
Detector 2 Type			Cl+Ex			Cl+Ex	
Detector 2 Channel							
Detector 2 Extend (s)			0.0			0.0	
Turn Type			NA			NA	
Protected Phases			2			6	4
Permitted Phases							
Detector Phase			2			6	
Switch Phase							
Minimum Initial (s)			14.0			14.0	32.0
Minimum Split (s)			19.9			19.9	36.0
Total Split (s)			19.9			19.9	36.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø4
Total Split (%)			35.6%			35.6%	64%
Maximum Green (s)			14.0			14.0	32.0
Yellow Time (s)			3.0			3.0	3.0
All-Red Time (s)			2.9			2.9	1.0
Lost Time Adjust (s)			0.0			0.0	
Total Lost Time (s)			5.9			5.9	
Lead/Lag							
Lead-Lag Optimize?							
Vehicle Extension (s)			3.0			3.0	3.0
Recall Mode			Min			Min	None
Walk Time (s)							7.0
Flash Dont Walk (s)							9.0
Pedestrian Calls (#/hr)							53
Act Effct Green (s)			37.1			37.1	
Actuated g/C Ratio			0.88			0.88	
v/c Ratio			0.24			0.28	
Control Delay			5.8			6.1	
Queue Delay			0.0			0.0	
Total Delay			5.8			6.1	
LOS			A			A	
Approach Delay			5.8			6.1	
Approach LOS			A			A	
Queue Length 50th (m)			0.0			0.0	
Queue Length 95th (m)			57.5			68.7	
Internal Link Dist (m)	0.1		222.5			144.6	
Turn Bay Length (m)							
Base Capacity (vph)			1625			1625	
Starvation Cap Reductn			0			0	
Spillback Cap Reductn			0			0	
Storage Cap Reductn			0			0	
Reduced v/c Ratio			0.24			0.28	

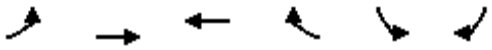
Intersection Summary

Area Type:	Other		
Cycle Length: 55.9			
Actuated Cycle Length: 42.1			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.28			
Intersection Signal Delay: 5.9		Intersection LOS: A	
Intersection Capacity Utilization 42.9%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 4: Bearbrook & 43 S of Centrepark

APPENDIX M

Total Synchro Analysis

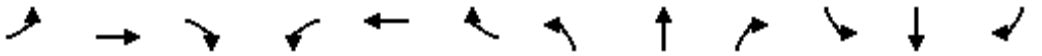


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	10	165	775	34	45	24
Future Volume (vph)	10	165	775	34	45	24
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	55.0			0.0	30.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	50.0				20.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		1.00		1.00	0.97
Frt			0.994			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1768	1741	1796	0	1685	1522
Flt Permitted	0.295				0.950	
Satd. Flow (perm)	549	1741	1796	0	1682	1474
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			5			24
Link Speed (k/h)		50	50		40	
Link Distance (m)		342.9	175.5		233.8	
Travel Time (s)		24.7	12.6		21.0	
Confl. Peds. (#/hr)	3			3	1	6
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	8%	4%	3%	6%	5%
Adj. Flow (vph)	10	165	775	34	45	24
Shared Lane Traffic (%)						
Lane Group Flow (vph)	10	165	809	0	45	24
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		4.0	4.0		4.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		5.0	5.0		5.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2		1	1
Detector Template	Left	Thru	Thru		Left	Right
Leading Detector (m)	6.1	30.5	30.5		6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8		6.1	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	6		4	
Permitted Phases	2					4
Detector Phase	2	2	6		4	4
Switch Phase						

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Minimum Initial (s)	10.0	10.0	10.0		10.0	10.0
Minimum Split (s)	15.7	15.7	43.7		24.8	24.8
Total Split (s)	50.0	50.0	50.0		25.0	25.0
Total Split (%)	66.7%	66.7%	66.7%		33.3%	33.3%
Maximum Green (s)	44.3	44.3	44.3		19.2	19.2
Yellow Time (s)	3.3	3.3	3.3		3.0	3.0
All-Red Time (s)	2.4	2.4	2.4		2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.7	5.7	5.7		5.8	5.8
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	C-Max	C-Max	C-Max		None	None
Walk Time (s)			25.0		7.0	7.0
Flash Dont Walk (s)			13.0		12.0	12.0
Pedestrian Calls (#/hr)			3		6	6
Act Effct Green (s)	60.3	60.3	60.3		11.8	11.8
Actuated g/C Ratio	0.80	0.80	0.80		0.16	0.16
v/c Ratio	0.02	0.12	0.56		0.17	0.10
Control Delay	5.2	4.2	7.3		27.5	11.2
Queue Delay	0.0	0.0	0.1		0.0	0.0
Total Delay	5.2	4.2	7.5		27.5	11.2
LOS	A	A	A		C	B
Approach Delay		4.3	7.5		21.8	
Approach LOS		A	A		C	
Queue Length 50th (m)	0.3	5.5	42.6		5.3	0.0
Queue Length 95th (m)	2.1	15.9	119.8		11.3	4.8
Internal Link Dist (m)		318.9	151.5		209.8	
Turn Bay Length (m)	55.0				30.0	
Base Capacity (vph)	441	1399	1445		431	395
Starvation Cap Reductn	0	0	112		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.02	0.12	0.61		0.10	0.06

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 75			
Offset: 44 (59%), Referenced to phase 2:EBTL and 6:WBT, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.56			
Intersection Signal Delay: 7.9		Intersection LOS: A	
Intersection Capacity Utilization 64.5%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 1: Innes & Southpark



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	78	104	15	28	465	351	61	68	22	69	19	159
Future Volume (vph)	78	104	15	28	465	351	61	68	22	69	19	159
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	70.0		0.0	60.0		0.0	45.0		0.0	40.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	30.0			25.0			35.0			35.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		0.98	0.99		0.98	0.99		0.99	0.96	
Frt		0.981			0.935			0.963			0.866	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1734	1651	0	1734	1680	0	1701	1753	0	1751	1541	0
Flt Permitted	0.233			0.681			0.612			0.699		
Satd. Flow (perm)	425	1651	0	1223	1680	0	1074	1753	0	1277	1541	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13			68			22			159	
Link Speed (k/h)		50			50			40			40	
Link Distance (m)		175.5			379.2			280.2			173.0	
Travel Time (s)		12.6			27.3			25.2			15.6	
Confl. Peds. (#/hr)	6		11	11		6	15		6	6		15
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	8%	33%	3%	5%	1%	5%	3%	1%	2%	5%	1%
Adj. Flow (vph)	78	104	15	28	465	351	61	68	22	69	19	159
Shared Lane Traffic (%)												
Lane Group Flow (vph)	78	119	0	28	816	0	61	90	0	69	178	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		4.0			4.0			4.0			5.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		5.0			5.0			5.0			5.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												

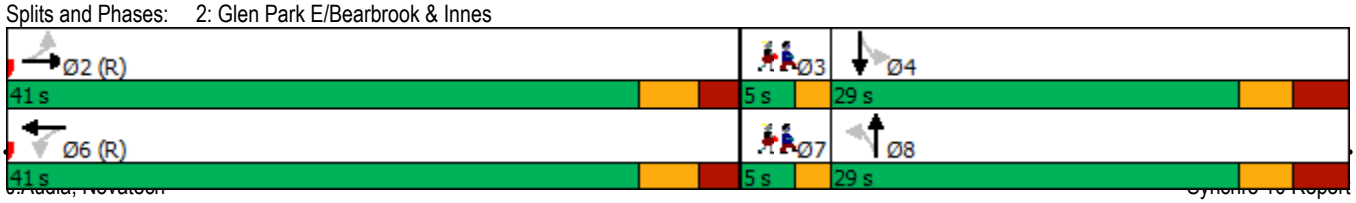
Lane Group	Ø3	Ø7
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (m)		
Storage Lanes		
Taper Length (m)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(m)		
Link Offset(m)		
Crosswalk Width(m)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (k/h)		
Number of Detectors		
Detector Template		
Leading Detector (m)		
Trailing Detector (m)		
Detector 1 Position(m)		
Detector 1 Size(m)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Detector 2 Position(m)		
Detector 2 Size(m)		
Detector 2 Type		
Detector 2 Channel		
Detector 2 Extend (s)		
Turn Type		
Protected Phases	3	7
Permitted Phases		
Detector Phase		
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	
Minimum Split (s)	27.7	27.7		27.7	27.7		28.2	28.2		28.2	28.2	
Total Split (s)	41.0	41.0		41.0	41.0		29.0	29.0		29.0	29.0	
Total Split (%)	54.7%	54.7%		54.7%	54.7%		38.7%	38.7%		38.7%	38.7%	
Maximum Green (s)	35.3	35.3		35.3	35.3		22.8	22.8		22.8	22.8	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.4	2.4		2.4	2.4		3.2	3.2		3.2	3.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.7	5.7		5.7	5.7		6.2	6.2		6.2	6.2	
Lead/Lag							Lag	Lag		Lag	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		17.0	17.0		17.0	17.0	
Pedestrian Calls (#/hr)	11	11		11	11		15	15		15	15	
Act Effct Green (s)	49.5	49.5		49.5	49.5		12.6	12.6		12.6	12.6	
Actuated g/C Ratio	0.66	0.66		0.66	0.66		0.17	0.17		0.17	0.17	
v/c Ratio	0.28	0.11		0.03	0.72		0.34	0.29		0.32	0.45	
Control Delay	9.8	4.6		4.9	12.1		31.1	22.4		29.9	9.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	9.8	4.6		4.9	12.1		31.1	22.4		29.9	9.8	
LOS	A	A		A	B		C	C		C	A	
Approach Delay		6.7			11.9			25.9			15.4	
Approach LOS		A			B			C			B	
Queue Length 50th (m)	2.2	2.7		0.7	32.6		7.4	8.1		8.4	2.2	
Queue Length 95th (m)	10.6	9.2		m3.0	#160.0		14.1	15.6		15.3	13.9	
Internal Link Dist (m)		151.5			355.2			256.2			149.0	
Turn Bay Length (m)	70.0			60.0			45.0			40.0		
Base Capacity (vph)	280	1093		806	1131		326	548		388	579	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	9		0	0		0	4	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.28	0.11		0.03	0.73		0.19	0.16		0.18	0.31	

Intersection Summary

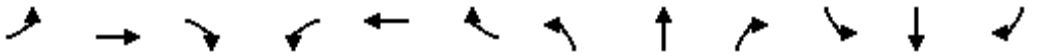
Area Type: Other
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 33 (44%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.72
Intersection Signal Delay: 13.3 Intersection LOS: B
Intersection Capacity Utilization 100.2% ICU Level of Service G
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: Glen Park E/Bearbrook & Innes



Lane Group	Ø3	Ø7
Minimum Initial (s)	3.0	3.0
Minimum Split (s)	5.0	5.0
Total Split (s)	5.0	5.0
Total Split (%)	7%	7%
Maximum Green (s)	3.0	3.0
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	None	None
Walk Time (s)	0.0	0.0
Flash Dont Walk (s)	0.0	0.0
Pedestrian Calls (#/hr)	15	15
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary



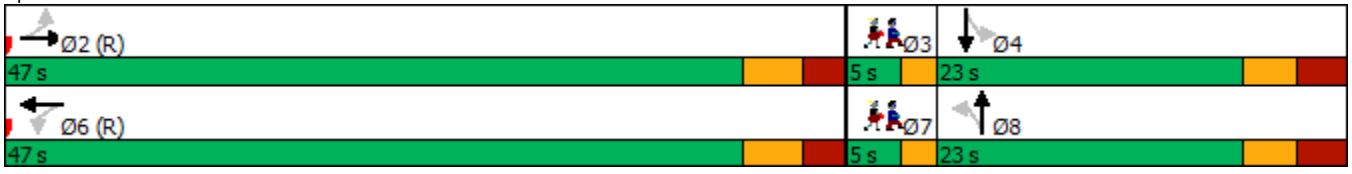
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	175	36	9	573	2	102	2	11	4	0	40
Future Volume (vph)	17	175	36	9	573	2	102	2	11	4	0	40
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	65.0		0.0	65.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	20.0			25.0			10.0			10.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.99		0.98	1.00			0.97			0.96	
Frt		0.974			0.999			0.987			0.877	
Flt Protected	0.950			0.950				0.958			0.995	
Satd. Flow (prot)	1768	1664	0	1768	1772	0	0	1686	0	0	1532	0
Flt Permitted	0.389			0.626				0.719			0.967	
Satd. Flow (perm)	716	1664	0	1142	1772	0	0	1240	0	0	1483	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		22						7			70	
Link Speed (k/h)		50			50			40			40	
Link Distance (m)		379.2			314.9			174.2			112.1	
Travel Time (s)		27.3			22.7			15.7			10.1	
Confl. Peds. (#/hr)	18		16	16		18	11		25	25		11
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%	8%	15%	1%	6%	1%	2%	1%	30%	1%	1%	3%
Adj. Flow (vph)	17	175	36	9	573	2	102	2	11	4	0	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	17	211	0	9	575	0	0	115	0	0	44	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		4.0			4.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		5.0			5.0			5.0			5.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												

Lane Group	Ø3	Ø7
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (m)		
Storage Lanes		
Taper Length (m)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(m)		
Link Offset(m)		
Crosswalk Width(m)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (k/h)		
Number of Detectors		
Detector Template		
Leading Detector (m)		
Trailing Detector (m)		
Detector 1 Position(m)		
Detector 1 Size(m)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Detector 2 Position(m)		
Detector 2 Size(m)		
Detector 2 Type		
Detector 2 Channel		
Detector 2 Extend (s)		
Turn Type		
Protected Phases	3	7
Permitted Phases		
Detector Phase		
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	
Minimum Split (s)	27.8	27.8		27.8	27.8		22.9	22.9		22.9	22.9	
Total Split (s)	47.0	47.0		47.0	47.0		23.0	23.0		23.0	23.0	
Total Split (%)	62.7%	62.7%		62.7%	62.7%		30.7%	30.7%		30.7%	30.7%	
Maximum Green (s)	41.2	41.2		41.2	41.2		17.1	17.1		17.1	17.1	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.9	2.9		2.9	2.9	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	5.8	5.8		5.8	5.8			5.9			5.9	
Lead/Lag							Lag	Lag		Lag	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		2.0	2.0		2.0	2.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	
Pedestrian Calls (#/hr)	16	16		16	16		25	25		25	25	
Act Effct Green (s)	52.5	52.5		52.5	52.5			13.2			13.2	
Actuated g/C Ratio	0.70	0.70		0.70	0.70			0.18			0.18	
v/c Ratio	0.03	0.18		0.01	0.46			0.52			0.14	
Control Delay	6.8	5.5		7.2	9.6			33.9			4.1	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	6.8	5.5		7.2	9.6			33.9			4.1	
LOS	A	A		A	A			C			A	
Approach Delay		5.6			9.6			33.9			4.1	
Approach LOS		A			A			C			A	
Queue Length 50th (m)	0.3	3.6		0.3	29.0			13.2			0.0	
Queue Length 95th (m)	2.6	21.3		2.2	72.5			25.0			4.0	
Internal Link Dist (m)		355.2			290.9			150.2			88.1	
Turn Bay Length (m)	65.0			65.0								
Base Capacity (vph)	500	1170		798	1239			288			392	
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	0.03	0.18		0.01	0.46			0.40			0.11	

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 75			
Offset: 13 (17%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.52			
Intersection Signal Delay: 11.3		Intersection LOS: B	
Intersection Capacity Utilization 55.7%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 3: Orient Park & Innes



Lane Group	Ø3	Ø7
Minimum Initial (s)	3.0	3.0
Minimum Split (s)	5.0	5.0
Total Split (s)	5.0	5.0
Total Split (%)	7%	7%
Maximum Green (s)	3.0	3.0
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	None	None
Walk Time (s)	0.0	0.0
Flash Dont Walk (s)	0.0	0.0
Pedestrian Calls (#/hr)	25	25
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

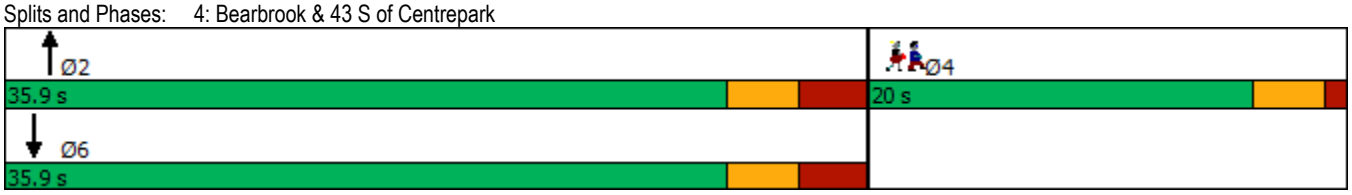
Intersection Summary

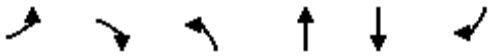
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø4
Lane Configurations							
Traffic Volume (vph)	0	0	521	0	0	272	
Future Volume (vph)	0	0	521	0	0	272	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor							
Frt							
Flt Protected							
Satd. Flow (prot)	0	0	1843	0	0	1825	
Flt Permitted							
Satd. Flow (perm)	0	0	1843	0	0	1825	
Right Turn on Red		Yes		Yes			
Satd. Flow (RTOR)							
Link Speed (k/h)	40		40			40	
Link Distance (m)	14.7		73.5			168.6	
Travel Time (s)	1.3		6.6			15.2	
Confl. Peds. (#/hr)		2		2	2		
Confl. Bikes (#/hr)				1			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Heavy Vehicles (%)	0%	0%	2%	0%	0%	3%	
Adj. Flow (vph)	0	0	521	0	0	272	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	0	521	0	0	272	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Right	Left	Left	
Median Width(m)	0.0		0.0			0.0	
Link Offset(m)	0.0		0.0			0.0	
Crosswalk Width(m)	5.0		23.0			23.0	
Two way Left Turn Lane							
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	
Turning Speed (k/h)	24	14		14	24		
Number of Detectors			2			2	
Detector Template			Thru			Thru	
Leading Detector (m)			30.5			30.5	
Trailing Detector (m)			0.0			0.0	
Detector 1 Position(m)			0.0			0.0	
Detector 1 Size(m)			1.8			1.8	
Detector 1 Type			Cl+Ex			Cl+Ex	
Detector 1 Channel							
Detector 1 Extend (s)			0.0			0.0	
Detector 1 Queue (s)			0.0			0.0	
Detector 1 Delay (s)			0.0			0.0	
Detector 2 Position(m)			28.7			28.7	
Detector 2 Size(m)			1.8			1.8	
Detector 2 Type			Cl+Ex			Cl+Ex	
Detector 2 Channel							
Detector 2 Extend (s)			0.0			0.0	
Turn Type			NA			NA	
Protected Phases			2			6	4
Permitted Phases							
Detector Phase			2			6	
Switch Phase							
Minimum Initial (s)			30.0			30.0	16.0
Minimum Split (s)			35.9			35.9	20.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø4
Total Split (s)			35.9			35.9	20.0
Total Split (%)			64.2%			64.2%	36%
Maximum Green (s)			30.0			30.0	16.0
Yellow Time (s)			3.0			3.0	3.0
All-Red Time (s)			2.9			2.9	1.0
Lost Time Adjust (s)			0.0			0.0	
Total Lost Time (s)			5.9			5.9	
Lead/Lag							
Lead-Lag Optimize?							
Vehicle Extension (s)			3.0			3.0	3.0
Recall Mode			Min			Min	None
Walk Time (s)							7.0
Flash Dont Walk (s)							9.0
Pedestrian Calls (#/hr)							5
Act Effct Green (s)			50.9			50.9	
Actuated g/C Ratio			0.93			0.93	
v/c Ratio			0.31			0.16	
Control Delay			2.7			2.2	
Queue Delay			0.0			0.0	
Total Delay			2.7			2.2	
LOS			A			A	
Approach Delay			2.7			2.2	
Approach LOS			A			A	
Queue Length 50th (m)			0.0			0.0	
Queue Length 95th (m)			44.8			21.1	
Internal Link Dist (m)	0.1		49.5			144.6	
Turn Bay Length (m)							
Base Capacity (vph)			1708			1692	
Starvation Cap Reductn			0			0	
Spillback Cap Reductn			0			0	
Storage Cap Reductn			0			0	
Reduced v/c Ratio			0.31			0.16	

Intersection Summary			
Area Type:	Other		
Cycle Length: 55.9			
Actuated Cycle Length: 54.9			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.31			
Intersection Signal Delay: 2.5		Intersection LOS: A	
Intersection Capacity Utilization 41.2%		ICU Level of Service A	
Analysis Period (min) 15			

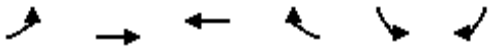
Splits and Phases: 4: Bearbrook & 43 S of Centrepark



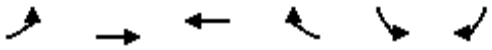


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	8	19	8	513	268	4
Future Volume (vph)	8	19	8	513	268	4
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.905				0.998	
Flt Protected	0.985			0.999		
Satd. Flow (prot)	1643	0	0	1841	1839	0
Flt Permitted	0.985			0.999		
Satd. Flow (perm)	1643	0	0	1841	1839	0
Link Speed (k/h)	40			40	40	
Link Distance (m)	73.9			173.0	73.5	
Travel Time (s)	6.7			15.6	6.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	8	19	8	513	268	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	27	0	0	521	272	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	4.0			4.0	4.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	5.0			5.0	5.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 45.3%		ICU Level of Service A	
Analysis Period (min) 15			



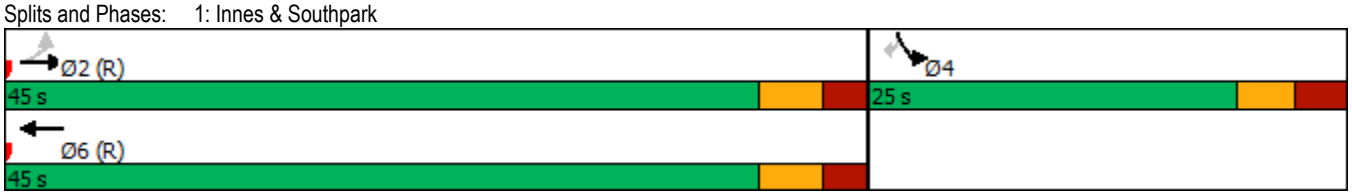
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	28	548	280	59	60	16
Future Volume (vph)	28	548	280	59	60	16
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	55.0			0.0	30.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	50.0				20.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		1.00		0.98	0.96
Frt			0.977			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1768	1825	1753	0	1734	1582
Flt Permitted	0.557				0.950	
Satd. Flow (perm)	1033	1825	1753	0	1702	1522
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			25			16
Link Speed (k/h)		50	50		40	
Link Distance (m)		342.9	175.5		233.8	
Travel Time (s)		24.7	12.6		21.0	
Confl. Peds. (#/hr)	7			7	10	10
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	3%	5%	1%	3%	1%
Adj. Flow (vph)	28	548	280	59	60	16
Shared Lane Traffic (%)						
Lane Group Flow (vph)	28	548	339	0	60	16
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		4.0	4.0		4.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		5.0	5.0		5.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2		1	1
Detector Template	Left	Thru	Thru		Left	Right
Leading Detector (m)	6.1	30.5	30.5		6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8		6.1	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	6		4	
Permitted Phases	2					4
Detector Phase	2	2	6		4	4
Switch Phase						

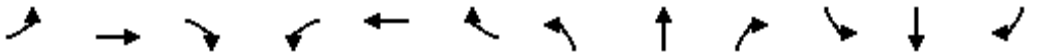


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Minimum Initial (s)	10.0	10.0	10.0		10.0	10.0
Minimum Split (s)	15.7	15.7	43.7		24.8	24.8
Total Split (s)	45.0	45.0	45.0		25.0	25.0
Total Split (%)	64.3%	64.3%	64.3%		35.7%	35.7%
Maximum Green (s)	39.3	39.3	39.3		19.2	19.2
Yellow Time (s)	3.3	3.3	3.3		3.0	3.0
All-Red Time (s)	2.4	2.4	2.4		2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.7	5.7	5.7		5.8	5.8
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	C-Max	C-Max	C-Max		None	None
Walk Time (s)			25.0		7.0	7.0
Flash Dont Walk (s)			13.0		12.0	12.0
Pedestrian Calls (#/hr)			7		10	10
Act Effct Green (s)	55.3	55.3	55.3		11.8	11.8
Actuated g/C Ratio	0.79	0.79	0.79		0.17	0.17
v/c Ratio	0.03	0.38	0.24		0.21	0.06
Control Delay	5.1	6.1	3.3		25.5	11.2
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	5.1	6.1	3.3		25.5	11.2
LOS	A	A	A		C	B
Approach Delay		6.0	3.3		22.5	
Approach LOS		A	A		C	
Queue Length 50th (m)	0.9	23.7	9.5		6.5	0.0
Queue Length 95th (m)	4.2	59.7	12.1		12.9	3.7
Internal Link Dist (m)		318.9	151.5		209.8	
Turn Bay Length (m)	55.0				30.0	
Base Capacity (vph)	816	1441	1390		475	429
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	0.03	0.38	0.24		0.13	0.04

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 3 (4%), Referenced to phase 2:EBTL and 6:WBT, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.38			
Intersection Signal Delay: 6.3		Intersection LOS: A	
Intersection Capacity Utilization 51.7%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 1: Innes & Southpark





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	244	326	91	32	154	121	48	62	51	225	72	162
Future Volume (vph)	244	326	91	32	154	121	48	62	51	225	72	162
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	70.0		0.0	60.0		0.0	45.0		0.0	40.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	30.0			25.0			35.0			35.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.99		0.98	0.98		0.99	0.98		0.98	0.97	
Frt		0.967			0.934			0.932			0.896	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1768	1747	0	1768	1647	0	1751	1697	0	1768	1623	0
Flt Permitted	0.589			0.464			0.555			0.684		
Satd. Flow (perm)	1085	1747	0	848	1647	0	1009	1697	0	1252	1623	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		25			71			51			162	
Link Speed (k/h)		50			50			40			40	
Link Distance (m)		175.5			379.2			280.2			173.0	
Travel Time (s)		12.6			27.3			25.2			15.6	
Confl. Peds. (#/hr)	10		23	23		10	12		12	12		12
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	3%	2%	1%	8%	1%	2%	1%	2%	1%	1%	1%
Adj. Flow (vph)	244	326	91	32	154	121	48	62	51	225	72	162
Shared Lane Traffic (%)												
Lane Group Flow (vph)	244	417	0	32	275	0	48	113	0	225	234	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		4.0			4.0			4.0			5.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		5.0			5.0			5.0			5.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												

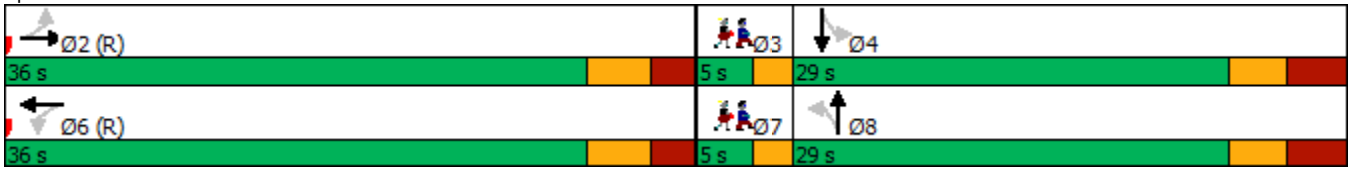
Lane Group	Ø3	Ø7
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (m)		
Storage Lanes		
Taper Length (m)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(m)		
Link Offset(m)		
Crosswalk Width(m)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (k/h)		
Number of Detectors		
Detector Template		
Leading Detector (m)		
Trailing Detector (m)		
Detector 1 Position(m)		
Detector 1 Size(m)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Detector 2 Position(m)		
Detector 2 Size(m)		
Detector 2 Type		
Detector 2 Channel		
Detector 2 Extend (s)		
Turn Type		
Protected Phases	3	7
Permitted Phases		
Detector Phase		
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	
Minimum Split (s)	27.7	27.7		27.7	27.7		28.2	28.2		28.2	28.2	
Total Split (s)	36.0	36.0		36.0	36.0		29.0	29.0		29.0	29.0	
Total Split (%)	51.4%	51.4%		51.4%	51.4%		41.4%	41.4%		41.4%	41.4%	
Maximum Green (s)	30.3	30.3		30.3	30.3		22.8	22.8		22.8	22.8	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.4	2.4		2.4	2.4		3.2	3.2		3.2	3.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.7	5.7		5.7	5.7		6.2	6.2		6.2	6.2	
Lead/Lag							Lag	Lag		Lag	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		17.0	17.0		17.0	17.0	
Pedestrian Calls (#/hr)	23	23		23	23		12	12		12	12	
Act Effct Green (s)	39.6	39.6		39.6	39.6		17.5	17.5		17.5	17.5	
Actuated g/C Ratio	0.57	0.57		0.57	0.57		0.25	0.25		0.25	0.25	
v/c Ratio	0.40	0.42		0.07	0.29		0.19	0.24		0.72	0.44	
Control Delay	9.6	8.1		13.6	11.1		20.4	12.5		36.6	9.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	9.6	8.1		13.6	11.1		20.4	12.5		36.6	9.6	
LOS	A	A		B	B		C	B		D	A	
Approach Delay		8.7			11.4			14.9			22.9	
Approach LOS		A			B			B			C	
Queue Length 50th (m)	6.7	10.1		1.7	11.9		4.5	5.7		24.3	6.7	
Queue Length 95th (m)	22.0	23.8		8.3	39.1		10.6	14.5		40.8	19.5	
Internal Link Dist (m)		151.5			355.2			256.2			149.0	
Turn Bay Length (m)	70.0			60.0			45.0			40.0		
Base Capacity (vph)	613	999		479	962		328	587		407	637	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.40	0.42		0.07	0.29		0.15	0.19		0.55	0.37	

Intersection Summary

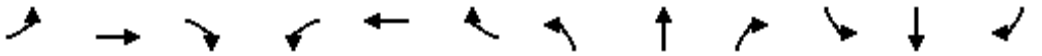
Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 70
Offset: 18 (26%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.72
Intersection Signal Delay: 13.9 Intersection LOS: B
Intersection Capacity Utilization 77.4% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 2: Glen Park E/Bearbrook & Innes



Lane Group	Ø3	Ø7
Minimum Initial (s)	3.0	3.0
Minimum Split (s)	5.0	5.0
Total Split (s)	5.0	5.0
Total Split (%)	7%	7%
Maximum Green (s)	3.0	3.0
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	None	None
Walk Time (s)	0.0	0.0
Flash Dont Walk (s)	0.0	0.0
Pedestrian Calls (#/hr)	12	12
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary



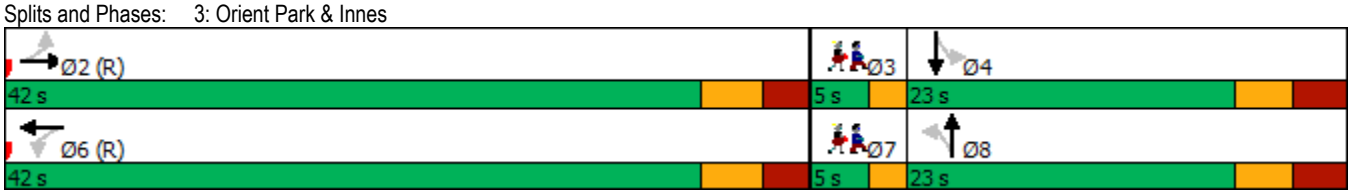
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	489	139	17	257	3	73	2	11	6	0	32
Future Volume (vph)	61	489	139	17	257	3	73	2	11	6	0	32
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	65.0		0.0	65.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	20.0			25.0			10.0			10.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.99		0.99	1.00			0.98			0.97	
Frt		0.967			0.998			0.983			0.886	
Flt Protected	0.950			0.950				0.959			0.992	
Satd. Flow (prot)	1768	1758	0	1701	1839	0	0	1728	0	0	1558	0
Flt Permitted	0.599			0.362				0.732			0.940	
Satd. Flow (perm)	1106	1758	0	645	1839	0	0	1306	0	0	1468	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		30			1			10			75	
Link Speed (k/h)		50			50			40			40	
Link Distance (m)		379.2			314.9			174.2			112.1	
Travel Time (s)		27.3			22.7			15.7			10.1	
Confl. Peds. (#/hr)	7		11	11		7	6		18	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%	3%	1%	5%	2%	1%	2%	1%	1%	15%	1%	1%
Adj. Flow (vph)	61	489	139	17	257	3	73	2	11	6	0	32
Shared Lane Traffic (%)												
Lane Group Flow (vph)	61	628	0	17	260	0	0	86	0	0	38	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		4.0			4.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		5.0			5.0			5.0			5.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												

Lane Group	Ø3	Ø7
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (m)		
Storage Lanes		
Taper Length (m)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(m)		
Link Offset(m)		
Crosswalk Width(m)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (k/h)		
Number of Detectors		
Detector Template		
Leading Detector (m)		
Trailing Detector (m)		
Detector 1 Position(m)		
Detector 1 Size(m)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Detector 2 Position(m)		
Detector 2 Size(m)		
Detector 2 Type		
Detector 2 Channel		
Detector 2 Extend (s)		
Turn Type		
Protected Phases	3	7
Permitted Phases		
Detector Phase		
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	
Minimum Split (s)	27.8	27.8		27.8	27.8		22.9	22.9		22.9	22.9	
Total Split (s)	42.0	42.0		42.0	42.0		23.0	23.0		23.0	23.0	
Total Split (%)	60.0%	60.0%		60.0%	60.0%		32.9%	32.9%		32.9%	32.9%	
Maximum Green (s)	36.2	36.2		36.2	36.2		17.1	17.1		17.1	17.1	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.9	2.9		2.9	2.9	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	5.8	5.8		5.8	5.8			5.9			5.9	
Lead/Lag							Lag	Lag		Lag	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		2.0	2.0		2.0	2.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	
Pedestrian Calls (#/hr)	11	11		11	11		18	18		18	18	
Act Effct Green (s)	50.0	50.0		50.0	50.0			11.6			11.6	
Actuated g/C Ratio	0.71	0.71		0.71	0.71			0.17			0.17	
v/c Ratio	0.08	0.50		0.04	0.20			0.38			0.12	
Control Delay	4.3	6.8		6.5	6.1			27.8			2.8	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	4.3	6.8		6.5	6.1			27.8			2.8	
LOS	A	A		A	A			C			A	
Approach Delay		6.6			6.1			27.8			2.8	
Approach LOS		A			A			C			A	
Queue Length 50th (m)	1.6	37.9		0.5	9.2			8.5			0.0	
Queue Length 95th (m)	m6.2	58.9		3.5	27.9			17.4			2.3	
Internal Link Dist (m)		355.2			290.9			150.2			88.1	
Turn Bay Length (m)	65.0			65.0								
Base Capacity (vph)	790	1264		460	1314			326			415	
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	0.50		0.04	0.20			0.26			0.09	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 31 (44%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.50			
Intersection Signal Delay: 8.0		Intersection LOS: A	
Intersection Capacity Utilization 72.2%		ICU Level of Service C	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 3: Orient Park & Innes



Lane Group	Ø3	Ø7
Minimum Initial (s)	3.0	3.0
Minimum Split (s)	5.0	5.0
Total Split (s)	5.0	5.0
Total Split (%)	7%	7%
Maximum Green (s)	3.0	3.0
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	None	None
Walk Time (s)	0.0	0.0
Flash Dont Walk (s)	0.0	0.0
Pedestrian Calls (#/hr)	18	18
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary

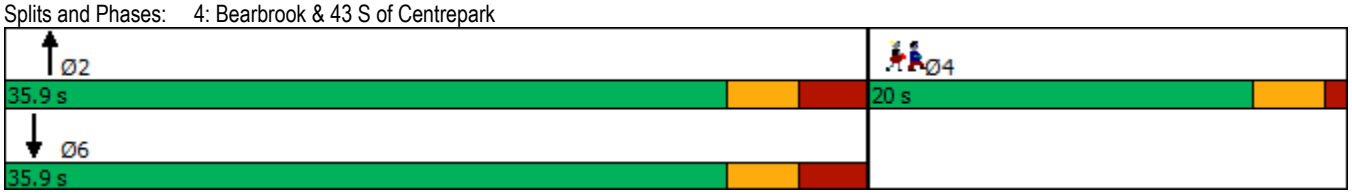
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø4
Lane Configurations							
Traffic Volume (vph)	0	0	363	0	0	422	
Future Volume (vph)	0	0	363	0	0	422	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor							
Frt							
Flt Protected							
Satd. Flow (prot)	0	0	1843	0	0	1843	
Flt Permitted							
Satd. Flow (perm)	0	0	1843	0	0	1843	
Right Turn on Red		Yes		Yes			
Satd. Flow (RTOR)							
Link Speed (k/h)	40		40			40	
Link Distance (m)	14.7		73.5			168.6	
Travel Time (s)	1.3		6.6			15.2	
Confl. Peds. (#/hr)		53		18	18		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Heavy Vehicles (%)	0%	0%	2%	0%	0%	2%	
Adj. Flow (vph)	0	0	363	0	0	422	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	0	363	0	0	422	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Right	Left	Left	
Median Width(m)	0.0		0.0			0.0	
Link Offset(m)	0.0		0.0			0.0	
Crosswalk Width(m)	5.0		23.0			23.0	
Two way Left Turn Lane							
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	
Turning Speed (k/h)	24	14		14	24		
Number of Detectors			2			2	
Detector Template			Thru			Thru	
Leading Detector (m)			30.5			30.5	
Trailing Detector (m)			0.0			0.0	
Detector 1 Position(m)			0.0			0.0	
Detector 1 Size(m)			1.8			1.8	
Detector 1 Type			Cl+Ex			Cl+Ex	
Detector 1 Channel							
Detector 1 Extend (s)			0.0			0.0	
Detector 1 Queue (s)			0.0			0.0	
Detector 1 Delay (s)			0.0			0.0	
Detector 2 Position(m)			28.7			28.7	
Detector 2 Size(m)			1.8			1.8	
Detector 2 Type			Cl+Ex			Cl+Ex	
Detector 2 Channel							
Detector 2 Extend (s)			0.0			0.0	
Turn Type			NA			NA	
Protected Phases			2			6	4
Permitted Phases							
Detector Phase			2			6	
Switch Phase							
Minimum Initial (s)			30.0			30.0	16.0
Minimum Split (s)			35.9			35.9	20.0
Total Split (s)			35.9			35.9	20.0

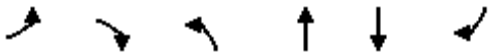
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø4
Total Split (%)			64.2%			64.2%	36%
Maximum Green (s)			30.0			30.0	16.0
Yellow Time (s)			3.0			3.0	3.0
All-Red Time (s)			2.9			2.9	1.0
Lost Time Adjust (s)			0.0			0.0	
Total Lost Time (s)			5.9			5.9	
Lead/Lag							
Lead-Lag Optimize?							
Vehicle Extension (s)			3.0			3.0	3.0
Recall Mode			Min			Min	None
Walk Time (s)							7.0
Flash Dont Walk (s)							9.0
Pedestrian Calls (#/hr)							53
Act Effct Green (s)			50.3			50.3	
Actuated g/C Ratio			0.85			0.85	
v/c Ratio			0.23			0.27	
Control Delay			3.9			4.1	
Queue Delay			0.0			0.0	
Total Delay			3.9			4.1	
LOS			A			A	
Approach Delay			3.9			4.1	
Approach LOS			A			A	
Queue Length 50th (m)			0.0			0.0	
Queue Length 95th (m)			28.5			34.3	
Internal Link Dist (m)	0.1		49.5			144.6	
Turn Bay Length (m)							
Base Capacity (vph)			1573			1573	
Starvation Cap Reductn			0			0	
Spillback Cap Reductn			0			0	
Storage Cap Reductn			0			0	
Reduced v/c Ratio			0.23			0.27	

Intersection Summary

Area Type:	Other		
Cycle Length: 55.9			
Actuated Cycle Length: 58.9			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.27			
Intersection Signal Delay: 4.0		Intersection LOS: A	
Intersection Capacity Utilization 44.9%		ICU Level of Service A	
Analysis Period (min) 15			

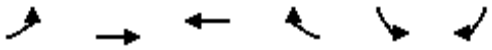
Splits and Phases: 4: Bearbrook & 43 S of Centrepark



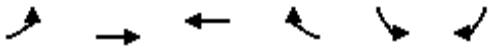


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	5	12	16	358	415	7
Future Volume (vph)	5	12	16	358	415	7
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.905				0.998	
Flt Protected	0.986			0.998		
Satd. Flow (prot)	1645	0	0	1839	1839	0
Flt Permitted	0.986			0.998		
Satd. Flow (perm)	1645	0	0	1839	1839	0
Link Speed (k/h)	40			40	40	
Link Distance (m)	73.9			173.0	73.5	
Travel Time (s)	6.7			15.6	6.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	5	12	16	358	415	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	17	0	0	374	422	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	4.0			4.0	4.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	5.0			5.0	5.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	43.6%	ICU Level of Service	A
Analysis Period (min)	15		



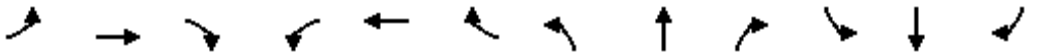
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	10	180	848	34	45	24
Future Volume (vph)	10	180	848	34	45	24
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	55.0			0.0	30.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	50.0				20.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		1.00		1.00	0.97
Frt			0.995			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1768	1741	1798	0	1685	1522
Flt Permitted	0.259				0.950	
Satd. Flow (perm)	482	1741	1798	0	1682	1474
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			5			24
Link Speed (k/h)		50	50		40	
Link Distance (m)		342.9	175.5		233.8	
Travel Time (s)		24.7	12.6		21.0	
Confl. Peds. (#/hr)	3			3	1	6
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	8%	4%	3%	6%	5%
Adj. Flow (vph)	10	180	848	34	45	24
Shared Lane Traffic (%)						
Lane Group Flow (vph)	10	180	882	0	45	24
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		4.0	4.0		4.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		5.0	5.0		5.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2		1	1
Detector Template	Left	Thru	Thru		Left	Right
Leading Detector (m)	6.1	30.5	30.5		6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8		6.1	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	6		4	
Permitted Phases	2					4
Detector Phase	2	2	6		4	4
Switch Phase						



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Minimum Initial (s)	10.0	10.0	10.0		10.0	10.0
Minimum Split (s)	15.7	15.7	43.7		24.8	24.8
Total Split (s)	50.0	50.0	50.0		25.0	25.0
Total Split (%)	66.7%	66.7%	66.7%		33.3%	33.3%
Maximum Green (s)	44.3	44.3	44.3		19.2	19.2
Yellow Time (s)	3.3	3.3	3.3		3.0	3.0
All-Red Time (s)	2.4	2.4	2.4		2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.7	5.7	5.7		5.8	5.8
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	C-Max	C-Max	C-Max		None	None
Walk Time (s)			25.0		7.0	7.0
Flash Dont Walk (s)			13.0		12.0	12.0
Pedestrian Calls (#/hr)			3		6	6
Act Effct Green (s)	60.3	60.3	60.3		11.8	11.8
Actuated g/C Ratio	0.80	0.80	0.80		0.16	0.16
v/c Ratio	0.03	0.13	0.61		0.17	0.10
Control Delay	5.2	4.3	8.4		27.5	11.2
Queue Delay	0.0	0.0	0.2		0.0	0.0
Total Delay	5.2	4.3	8.6		27.5	11.2
LOS	A	A	A		C	B
Approach Delay		4.3	8.6		21.8	
Approach LOS		A	A		C	
Queue Length 50th (m)	0.3	6.1	46.4		5.3	0.0
Queue Length 95th (m)	2.1	17.3	#162.0		11.3	4.8
Internal Link Dist (m)		318.9	151.5		209.8	
Turn Bay Length (m)	55.0				30.0	
Base Capacity (vph)	387	1399	1446		431	395
Starvation Cap Reductn	0	0	109		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.03	0.13	0.66		0.10	0.06

Intersection Summary			
Area Type:	Other		
Cycle Length: 75			
Actuated Cycle Length: 75			
Offset: 44 (59%), Referenced to phase 2:EBTL and 6:WBT, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.61			
Intersection Signal Delay: 8.7		Intersection LOS: A	
Intersection Capacity Utilization 68.6%		ICU Level of Service C	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 1: Innes & Southpark



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	78	114	15	28	510	351	61	68	22	69	19	159
Future Volume (vph)	78	114	15	28	510	351	61	68	22	69	19	159
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	70.0		0.0	60.0		0.0	45.0		0.0	40.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	30.0			25.0			35.0			35.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		0.98	0.99		0.98	0.99		0.99	0.96	
Frt		0.983			0.939			0.963			0.866	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1734	1659	0	1734	1687	0	1701	1753	0	1751	1541	0
Flt Permitted	0.206			0.674			0.612			0.699		
Satd. Flow (perm)	376	1659	0	1211	1687	0	1074	1753	0	1277	1541	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			62			22			159	
Link Speed (k/h)		50			50			40			40	
Link Distance (m)		175.5			379.2			280.2			173.0	
Travel Time (s)		12.6			27.3			25.2			15.6	
Confl. Peds. (#/hr)	6		11	11		6	15		6	6		15
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	8%	33%	3%	5%	1%	5%	3%	1%	2%	5%	1%
Adj. Flow (vph)	78	114	15	28	510	351	61	68	22	69	19	159
Shared Lane Traffic (%)												
Lane Group Flow (vph)	78	129	0	28	861	0	61	90	0	69	178	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		4.0			4.0			4.0			5.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		5.0			5.0			5.0			5.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												

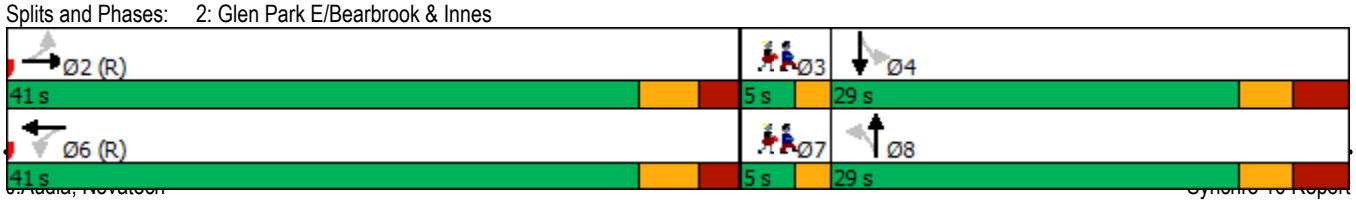
Lane Group	Ø3	Ø7
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (m)		
Storage Lanes		
Taper Length (m)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(m)		
Link Offset(m)		
Crosswalk Width(m)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (k/h)		
Number of Detectors		
Detector Template		
Leading Detector (m)		
Trailing Detector (m)		
Detector 1 Position(m)		
Detector 1 Size(m)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Detector 2 Position(m)		
Detector 2 Size(m)		
Detector 2 Type		
Detector 2 Channel		
Detector 2 Extend (s)		
Turn Type		
Protected Phases	3	7
Permitted Phases		
Detector Phase		
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	
Minimum Split (s)	27.7	27.7		27.7	27.7		28.2	28.2		28.2	28.2	
Total Split (s)	41.0	41.0		41.0	41.0		29.0	29.0		29.0	29.0	
Total Split (%)	54.7%	54.7%		54.7%	54.7%		38.7%	38.7%		38.7%	38.7%	
Maximum Green (s)	35.3	35.3		35.3	35.3		22.8	22.8		22.8	22.8	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.4	2.4		2.4	2.4		3.2	3.2		3.2	3.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.7	5.7		5.7	5.7		6.2	6.2		6.2	6.2	
Lead/Lag							Lag	Lag		Lag	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		17.0	17.0		17.0	17.0	
Pedestrian Calls (#/hr)	11	11		11	11		15	15		15	15	
Act Effct Green (s)	49.5	49.5		49.5	49.5		12.6	12.6		12.6	12.6	
Actuated g/C Ratio	0.66	0.66		0.66	0.66		0.17	0.17		0.17	0.17	
v/c Ratio	0.31	0.12		0.04	0.76		0.34	0.29		0.32	0.45	
Control Delay	12.4	4.8		5.5	13.7		31.1	22.4		29.9	9.8	
Queue Delay	0.0	0.0		0.0	0.3		0.0	0.0		0.0	0.0	
Total Delay	12.4	4.8		5.5	13.9		31.1	22.4		29.9	9.8	
LOS	B	A		A	B		C	C		C	A	
Approach Delay		7.7			13.7			25.9			15.4	
Approach LOS		A			B			C			B	
Queue Length 50th (m)	2.3	3.0		0.7	34.0		7.4	8.1		8.4	2.2	
Queue Length 95th (m)	12.3	10.1		m3.1	#172.7		14.1	15.6		15.3	13.9	
Internal Link Dist (m)		151.5			355.2			256.2			149.0	
Turn Bay Length (m)	70.0			60.0			45.0			40.0		
Base Capacity (vph)	248	1098		798	1133		326	548		388	579	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	36		0	0		0	6	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.31	0.12		0.04	0.78		0.19	0.16		0.18	0.31	

Intersection Summary

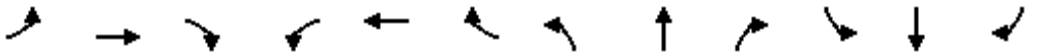
Area Type: Other
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 33 (44%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.76
Intersection Signal Delay: 14.4 Intersection LOS: B
Intersection Capacity Utilization 102.7% ICU Level of Service G
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: Glen Park E/Bearbrook & Innes



Lane Group	Ø3	Ø7
Minimum Initial (s)	3.0	3.0
Minimum Split (s)	5.0	5.0
Total Split (s)	5.0	5.0
Total Split (%)	7%	7%
Maximum Green (s)	3.0	3.0
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	None	None
Walk Time (s)	0.0	0.0
Flash Dont Walk (s)	0.0	0.0
Pedestrian Calls (#/hr)	15	15
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	191	36	9	628	2	102	2	11	4	0	40
Future Volume (vph)	17	191	36	9	628	2	102	2	11	4	0	40
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	65.0		0.0	65.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	20.0			25.0			10.0			10.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.99		0.98	1.00			0.97			0.96	
Frt		0.976						0.987			0.877	
Flt Protected	0.950			0.950				0.958			0.995	
Satd. Flow (prot)	1768	1669	0	1768	1774	0	0	1686	0	0	1532	0
Flt Permitted	0.354			0.617				0.719			0.967	
Satd. Flow (perm)	653	1669	0	1126	1774	0	0	1240	0	0	1483	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		20						7			70	
Link Speed (k/h)		50			50			40			40	
Link Distance (m)		379.2			314.9			174.2			112.1	
Travel Time (s)		27.3			22.7			15.7			10.1	
Confl. Peds. (#/hr)	18		16	16		18	11		25	25		11
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%	8%	15%	1%	6%	1%	2%	1%	30%	1%	1%	3%
Adj. Flow (vph)	17	191	36	9	628	2	102	2	11	4	0	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	17	227	0	9	630	0	0	115	0	0	44	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		4.0			4.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		5.0			5.0			5.0			5.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												

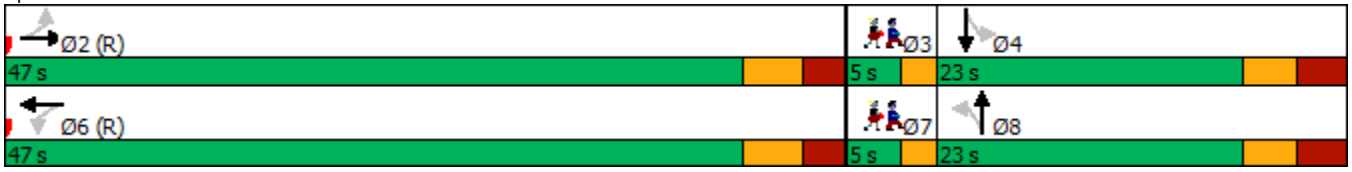
Lane Group	Ø3	Ø7
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (m)		
Storage Lanes		
Taper Length (m)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(m)		
Link Offset(m)		
Crosswalk Width(m)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (k/h)		
Number of Detectors		
Detector Template		
Leading Detector (m)		
Trailing Detector (m)		
Detector 1 Position(m)		
Detector 1 Size(m)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Detector 2 Position(m)		
Detector 2 Size(m)		
Detector 2 Type		
Detector 2 Channel		
Detector 2 Extend (s)		
Turn Type		
Protected Phases	3	7
Permitted Phases		
Detector Phase		
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	
Minimum Split (s)	27.8	27.8		27.8	27.8		22.9	22.9		22.9	22.9	
Total Split (s)	47.0	47.0		47.0	47.0		23.0	23.0		23.0	23.0	
Total Split (%)	62.7%	62.7%		62.7%	62.7%		30.7%	30.7%		30.7%	30.7%	
Maximum Green (s)	41.2	41.2		41.2	41.2		17.1	17.1		17.1	17.1	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.9	2.9		2.9	2.9	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	5.8	5.8		5.8	5.8			5.9			5.9	
Lead/Lag							Lag	Lag		Lag	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		2.0	2.0		2.0	2.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	
Pedestrian Calls (#/hr)	16	16		16	16		25	25		25	25	
Act Effct Green (s)	52.5	52.5		52.5	52.5			13.2			13.2	
Actuated g/C Ratio	0.70	0.70		0.70	0.70			0.18			0.18	
v/c Ratio	0.04	0.19		0.01	0.51			0.52			0.14	
Control Delay	6.9	5.8		7.2	10.3			33.9			4.1	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	6.9	5.8		7.2	10.3			33.9			4.1	
LOS	A	A		A	B			C			A	
Approach Delay		5.9			10.2			33.9			4.1	
Approach LOS		A			B			C			A	
Queue Length 50th (m)	0.4	3.9		0.3	33.3			13.2			0.0	
Queue Length 95th (m)	2.7	25.0		2.2	83.2			25.0			4.0	
Internal Link Dist (m)		355.2			290.9			150.2			88.1	
Turn Bay Length (m)	65.0			65.0								
Base Capacity (vph)	456	1173		787	1240			288			392	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.04	0.19		0.01	0.51			0.40			0.11	

Intersection Summary

Area Type: Other
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 13 (17%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.52
Intersection Signal Delay: 11.6 Intersection LOS: B
Intersection Capacity Utilization 58.7% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 3: Orient Park & Innes



Lane Group	Ø3	Ø7
Minimum Initial (s)	3.0	3.0
Minimum Split (s)	5.0	5.0
Total Split (s)	5.0	5.0
Total Split (%)	7%	7%
Maximum Green (s)	3.0	3.0
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	None	None
Walk Time (s)	0.0	0.0
Flash Dont Walk (s)	0.0	0.0
Pedestrian Calls (#/hr)	25	25
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

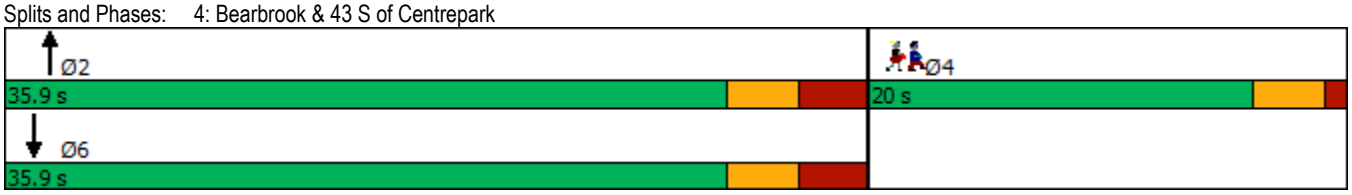
Intersection Summary

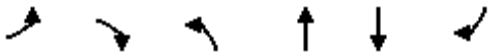
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø4
Lane Configurations							
Traffic Volume (vph)	0	0	521	0	0	272	
Future Volume (vph)	0	0	521	0	0	272	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor							
Frt							
Flt Protected							
Satd. Flow (prot)	0	0	1843	0	0	1825	
Flt Permitted							
Satd. Flow (perm)	0	0	1843	0	0	1825	
Right Turn on Red		Yes		Yes			
Satd. Flow (RTOR)							
Link Speed (k/h)	40		40			40	
Link Distance (m)	14.7		73.5			168.6	
Travel Time (s)	1.3		6.6			15.2	
Confl. Peds. (#/hr)		2		2	2		
Confl. Bikes (#/hr)				1			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Heavy Vehicles (%)	0%	0%	2%	0%	0%	3%	
Adj. Flow (vph)	0	0	521	0	0	272	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	0	521	0	0	272	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Right	Left	Left	
Median Width(m)	0.0		0.0			0.0	
Link Offset(m)	0.0		0.0			0.0	
Crosswalk Width(m)	5.0		23.0			23.0	
Two way Left Turn Lane							
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	
Turning Speed (k/h)	24	14		14	24		
Number of Detectors			2			2	
Detector Template			Thru			Thru	
Leading Detector (m)			30.5			30.5	
Trailing Detector (m)			0.0			0.0	
Detector 1 Position(m)			0.0			0.0	
Detector 1 Size(m)			1.8			1.8	
Detector 1 Type			Cl+Ex			Cl+Ex	
Detector 1 Channel							
Detector 1 Extend (s)			0.0			0.0	
Detector 1 Queue (s)			0.0			0.0	
Detector 1 Delay (s)			0.0			0.0	
Detector 2 Position(m)			28.7			28.7	
Detector 2 Size(m)			1.8			1.8	
Detector 2 Type			Cl+Ex			Cl+Ex	
Detector 2 Channel							
Detector 2 Extend (s)			0.0			0.0	
Turn Type			NA			NA	
Protected Phases			2			6	4
Permitted Phases							
Detector Phase			2			6	
Switch Phase							
Minimum Initial (s)			30.0			30.0	16.0
Minimum Split (s)			35.9			35.9	20.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø4
Total Split (s)			35.9			35.9	20.0
Total Split (%)			64.2%			64.2%	36%
Maximum Green (s)			30.0			30.0	16.0
Yellow Time (s)			3.0			3.0	3.0
All-Red Time (s)			2.9			2.9	1.0
Lost Time Adjust (s)			0.0			0.0	
Total Lost Time (s)			5.9			5.9	
Lead/Lag							
Lead-Lag Optimize?							
Vehicle Extension (s)			3.0			3.0	3.0
Recall Mode			Min			Min	None
Walk Time (s)							7.0
Flash Dont Walk (s)							9.0
Pedestrian Calls (#/hr)							5
Act Effct Green (s)			50.9			50.9	
Actuated g/C Ratio			0.93			0.93	
v/c Ratio			0.31			0.16	
Control Delay			2.7			2.2	
Queue Delay			0.0			0.0	
Total Delay			2.7			2.2	
LOS			A			A	
Approach Delay			2.7			2.2	
Approach LOS			A			A	
Queue Length 50th (m)			0.0			0.0	
Queue Length 95th (m)			44.8			21.1	
Internal Link Dist (m)	0.1		49.5			144.6	
Turn Bay Length (m)							
Base Capacity (vph)			1708			1692	
Starvation Cap Reductn			0			0	
Spillback Cap Reductn			0			0	
Storage Cap Reductn			0			0	
Reduced v/c Ratio			0.31			0.16	

Intersection Summary			
Area Type:	Other		
Cycle Length: 55.9			
Actuated Cycle Length: 54.9			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.31			
Intersection Signal Delay: 2.5		Intersection LOS: A	
Intersection Capacity Utilization 41.2%		ICU Level of Service A	
Analysis Period (min) 15			

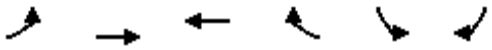
Splits and Phases: 4: Bearbrook & 43 S of Centrepark



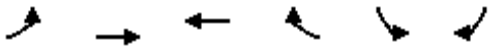


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	8	19	8	513	268	4
Future Volume (vph)	8	19	8	513	268	4
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.905				0.998	
Flt Protected	0.985			0.999		
Satd. Flow (prot)	1643	0	0	1841	1839	0
Flt Permitted	0.985			0.999		
Satd. Flow (perm)	1643	0	0	1841	1839	0
Link Speed (k/h)	40			40	40	
Link Distance (m)	73.9			173.0	73.5	
Travel Time (s)	6.7			15.6	6.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	8	19	8	513	268	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	27	0	0	521	272	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	4.0			4.0	4.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	5.0			5.0	5.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 45.3%		ICU Level of Service A	
Analysis Period (min) 15			



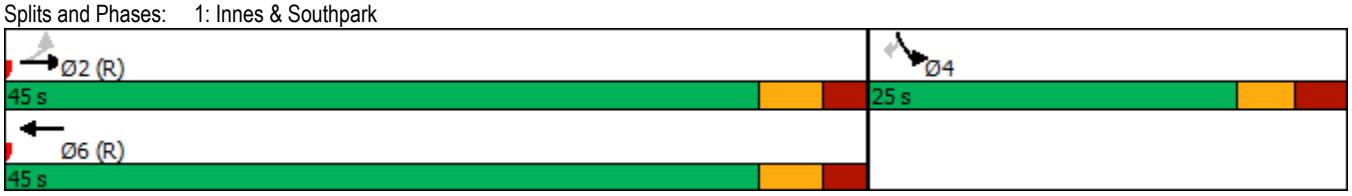
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	28	599	307	59	60	16
Future Volume (vph)	28	599	307	59	60	16
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)	55.0			0.0	30.0	0.0
Storage Lanes	1			0	1	1
Taper Length (m)	50.0				20.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		1.00		0.98	0.96
Frt			0.978			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1768	1825	1754	0	1734	1582
Flt Permitted	0.543				0.950	
Satd. Flow (perm)	1007	1825	1754	0	1702	1522
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			23			16
Link Speed (k/h)		50	50		40	
Link Distance (m)		342.9	175.5		233.8	
Travel Time (s)		24.7	12.6		21.0	
Confl. Peds. (#/hr)	7			7	10	10
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	3%	5%	1%	3%	1%
Adj. Flow (vph)	28	599	307	59	60	16
Shared Lane Traffic (%)						
Lane Group Flow (vph)	28	599	366	0	60	16
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		4.0	4.0		4.0	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		5.0	5.0		5.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24			14	24	14
Number of Detectors	1	2	2		1	1
Detector Template	Left	Thru	Thru		Left	Right
Leading Detector (m)	6.1	30.5	30.5		6.1	6.1
Trailing Detector (m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0		0.0	0.0
Detector 1 Size(m)	6.1	1.8	1.8		6.1	6.1
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(m)		28.7	28.7			
Detector 2 Size(m)		1.8	1.8			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	6		4	
Permitted Phases	2					4
Detector Phase	2	2	6		4	4
Switch Phase						

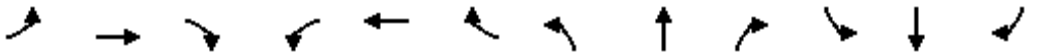


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Minimum Initial (s)	10.0	10.0	10.0		10.0	10.0
Minimum Split (s)	15.7	15.7	43.7		24.8	24.8
Total Split (s)	45.0	45.0	45.0		25.0	25.0
Total Split (%)	64.3%	64.3%	64.3%		35.7%	35.7%
Maximum Green (s)	39.3	39.3	39.3		19.2	19.2
Yellow Time (s)	3.3	3.3	3.3		3.0	3.0
All-Red Time (s)	2.4	2.4	2.4		2.8	2.8
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.7	5.7	5.7		5.8	5.8
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	C-Max	C-Max	C-Max		None	None
Walk Time (s)			25.0		7.0	7.0
Flash Dont Walk (s)			13.0		12.0	12.0
Pedestrian Calls (#/hr)			7		10	10
Act Effct Green (s)	55.3	55.3	55.3		11.8	11.8
Actuated g/C Ratio	0.79	0.79	0.79		0.17	0.17
v/c Ratio	0.04	0.42	0.26		0.21	0.06
Control Delay	5.1	6.4	3.6		25.5	11.2
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	5.1	6.4	3.6		25.5	11.2
LOS	A	A	A		C	B
Approach Delay		6.4	3.6		22.5	
Approach LOS		A	A		C	
Queue Length 50th (m)	0.9	27.0	10.6		6.5	0.0
Queue Length 95th (m)	4.2	67.8	14.6		12.9	3.7
Internal Link Dist (m)		318.9	151.5		209.8	
Turn Bay Length (m)	55.0				30.0	
Base Capacity (vph)	795	1441	1390		475	429
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	0.04	0.42	0.26		0.13	0.04

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 3 (4%), Referenced to phase 2:EBTL and 6:WBT, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.42			
Intersection Signal Delay: 6.6		Intersection LOS: A	
Intersection Capacity Utilization 53.3%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 1: Innes & Southpark





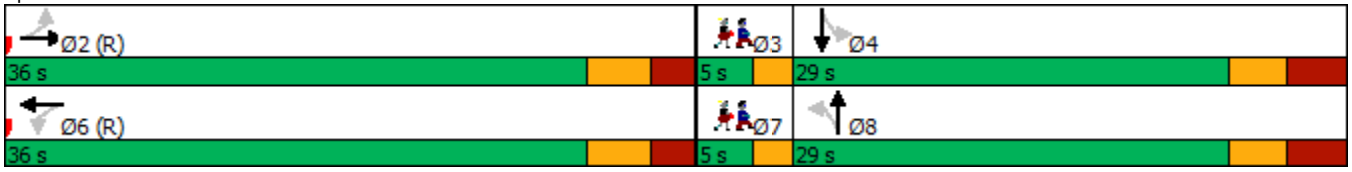
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	244	357	91	32	169	121	48	62	51	225	72	162
Future Volume (vph)	244	357	91	32	169	121	48	62	51	225	72	162
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	70.0		0.0	60.0		0.0	45.0		0.0	40.0		0.0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (m)	30.0			25.0			35.0			35.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.99		0.98	0.99		0.99	0.98		0.98	0.97	
Frt		0.970			0.937			0.932			0.896	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1768	1754	0	1768	1652	0	1751	1697	0	1768	1623	0
Flt Permitted	0.576			0.439			0.555			0.684		
Satd. Flow (perm)	1061	1754	0	804	1652	0	1009	1697	0	1252	1623	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		23			65			51			162	
Link Speed (k/h)		50			50			40			40	
Link Distance (m)		175.5			379.2			280.2			173.0	
Travel Time (s)		12.6			27.3			25.2			15.6	
Confl. Peds. (#/hr)	10		23	23		10	12		12	12		12
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	3%	2%	1%	8%	1%	2%	1%	2%	1%	1%	1%
Adj. Flow (vph)	244	357	91	32	169	121	48	62	51	225	72	162
Shared Lane Traffic (%)												
Lane Group Flow (vph)	244	448	0	32	290	0	48	113	0	225	234	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		4.0			4.0			4.0			5.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		5.0			5.0			5.0			5.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												

Lane Group	Ø3	Ø7
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (m)		
Storage Lanes		
Taper Length (m)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(m)		
Link Offset(m)		
Crosswalk Width(m)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (k/h)		
Number of Detectors		
Detector Template		
Leading Detector (m)		
Trailing Detector (m)		
Detector 1 Position(m)		
Detector 1 Size(m)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Detector 2 Position(m)		
Detector 2 Size(m)		
Detector 2 Type		
Detector 2 Channel		
Detector 2 Extend (s)		
Turn Type		
Protected Phases	3	7
Permitted Phases		
Detector Phase		
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	
Minimum Split (s)	27.7	27.7		27.7	27.7		28.2	28.2		28.2	28.2	
Total Split (s)	36.0	36.0		36.0	36.0		29.0	29.0		29.0	29.0	
Total Split (%)	51.4%	51.4%		51.4%	51.4%		41.4%	41.4%		41.4%	41.4%	
Maximum Green (s)	30.3	30.3		30.3	30.3		22.8	22.8		22.8	22.8	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.4	2.4		2.4	2.4		3.2	3.2		3.2	3.2	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.7	5.7		5.7	5.7		6.2	6.2		6.2	6.2	
Lead/Lag							Lag	Lag		Lag	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		17.0	17.0		17.0	17.0	
Pedestrian Calls (#/hr)	23	23		23	23		12	12		12	12	
Act Effct Green (s)	39.6	39.6		39.6	39.6		17.5	17.5		17.5	17.5	
Actuated g/C Ratio	0.57	0.57		0.57	0.57		0.25	0.25		0.25	0.25	
v/c Ratio	0.41	0.45		0.07	0.30		0.19	0.24		0.72	0.44	
Control Delay	9.3	8.1		14.0	12.0		20.4	12.5		36.6	9.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	9.3	8.1		14.0	12.0		20.4	12.5		36.6	9.6	
LOS	A	A		B	B		C	B		D	A	
Approach Delay		8.5			12.2			14.9			22.9	
Approach LOS		A			B			B			C	
Queue Length 50th (m)	6.3	10.0		1.8	14.1		4.5	5.7		24.3	6.7	
Queue Length 95th (m)	18.3	23.1		8.6	42.7		10.6	14.5		40.8	19.5	
Internal Link Dist (m)		151.5			355.2			256.2			149.0	
Turn Bay Length (m)	70.0			60.0			45.0			40.0		
Base Capacity (vph)	600	1002		454	962		328	587		407	637	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.41	0.45		0.07	0.30		0.15	0.19		0.55	0.37	

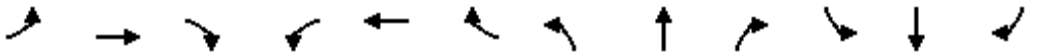
Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 18 (26%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay: 13.9		Intersection LOS: B	
Intersection Capacity Utilization 79.1%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 2: Glen Park E/Bearbrook & Innes



Lane Group	Ø3	Ø7
Minimum Initial (s)	3.0	3.0
Minimum Split (s)	5.0	5.0
Total Split (s)	5.0	5.0
Total Split (%)	7%	7%
Maximum Green (s)	3.0	3.0
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	None	None
Walk Time (s)	0.0	0.0
Flash Dont Walk (s)	0.0	0.0
Pedestrian Calls (#/hr)	12	12
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

Intersection Summary



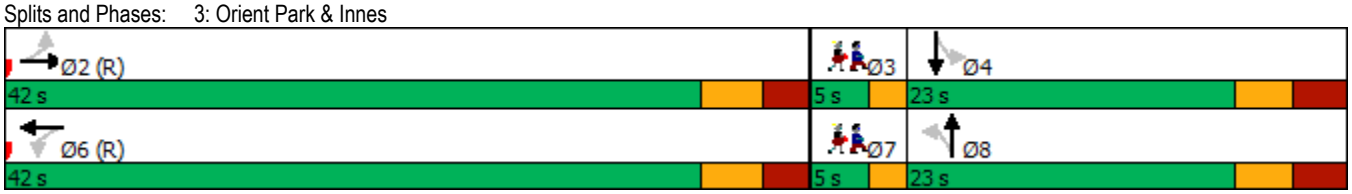
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	536	139	17	281	3	73	2	11	6	0	32
Future Volume (vph)	61	536	139	17	281	3	73	2	11	6	0	32
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	65.0		0.0	65.0		0.0	0.0		0.0	0.0		0.0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (m)	20.0			25.0			10.0			10.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.99	0.99		1.00	1.00			0.98			0.97	
Frt		0.969			0.998			0.983			0.886	
Flt Protected	0.950			0.950				0.959			0.992	
Satd. Flow (prot)	1768	1762	0	1701	1839	0	0	1728	0	0	1558	0
Flt Permitted	0.586			0.333				0.732			0.940	
Satd. Flow (perm)	1083	1762	0	593	1839	0	0	1306	0	0	1468	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		28			1			10			75	
Link Speed (k/h)		50			50			40			40	
Link Distance (m)		379.2			314.9			174.2			112.1	
Travel Time (s)		27.3			22.7			15.7			10.1	
Confl. Peds. (#/hr)	7		11	11		7	6		18	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%	3%	1%	5%	2%	1%	2%	1%	1%	15%	1%	1%
Adj. Flow (vph)	61	536	139	17	281	3	73	2	11	6	0	32
Shared Lane Traffic (%)												
Lane Group Flow (vph)	61	675	0	17	284	0	0	86	0	0	38	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		4.0			4.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		5.0			5.0			5.0			5.0	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5		6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8		6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		28.7			28.7			28.7			28.7	
Detector 2 Size(m)		1.8			1.8			1.8			1.8	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		6	6		8	8		4	4	
Switch Phase												

Lane Group	Ø3	Ø7
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (m)		
Storage Lanes		
Taper Length (m)		
Lane Util. Factor		
Ped Bike Factor		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (k/h)		
Link Distance (m)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Adj. Flow (vph)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Enter Blocked Intersection		
Lane Alignment		
Median Width(m)		
Link Offset(m)		
Crosswalk Width(m)		
Two way Left Turn Lane		
Headway Factor		
Turning Speed (k/h)		
Number of Detectors		
Detector Template		
Leading Detector (m)		
Trailing Detector (m)		
Detector 1 Position(m)		
Detector 1 Size(m)		
Detector 1 Type		
Detector 1 Channel		
Detector 1 Extend (s)		
Detector 1 Queue (s)		
Detector 1 Delay (s)		
Detector 2 Position(m)		
Detector 2 Size(m)		
Detector 2 Type		
Detector 2 Channel		
Detector 2 Extend (s)		
Turn Type		
Protected Phases	3	7
Permitted Phases		
Detector Phase		
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	
Minimum Split (s)	27.8	27.8		27.8	27.8		22.9	22.9		22.9	22.9	
Total Split (s)	42.0	42.0		42.0	42.0		23.0	23.0		23.0	23.0	
Total Split (%)	60.0%	60.0%		60.0%	60.0%		32.9%	32.9%		32.9%	32.9%	
Maximum Green (s)	36.2	36.2		36.2	36.2		17.1	17.1		17.1	17.1	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.9	2.9		2.9	2.9	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	5.8	5.8		5.8	5.8			5.9			5.9	
Lead/Lag							Lag	Lag		Lag	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		2.0	2.0		2.0	2.0	
Flash Dont Walk (s)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	
Pedestrian Calls (#/hr)	11	11		11	11		18	18		18	18	
Act Effct Green (s)	50.0	50.0		50.0	50.0			11.6			11.6	
Actuated g/C Ratio	0.71	0.71		0.71	0.71			0.17			0.17	
v/c Ratio	0.08	0.53		0.04	0.22			0.38			0.12	
Control Delay	4.5	7.3		6.6	6.2			27.8			2.8	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	4.5	7.3		6.6	6.2			27.8			2.8	
LOS	A	A		A	A			C			A	
Approach Delay		7.1			6.2			27.8			2.8	
Approach LOS		A			A			C			A	
Queue Length 50th (m)	1.6	39.8		0.5	10.2			8.5			0.0	
Queue Length 95th (m)	m6.2	62.2		3.5	30.7			17.4			2.3	
Internal Link Dist (m)		355.2			290.9			150.2			88.1	
Turn Bay Length (m)	65.0			65.0								
Base Capacity (vph)	773	1266		423	1314			326			415	
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	0.53		0.04	0.22			0.26			0.09	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 31 (44%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.53			
Intersection Signal Delay: 8.2		Intersection LOS: A	
Intersection Capacity Utilization 74.8%		ICU Level of Service D	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 3: Orient Park & Innes



Lane Group	Ø3	Ø7
Minimum Initial (s)	3.0	3.0
Minimum Split (s)	5.0	5.0
Total Split (s)	5.0	5.0
Total Split (%)	7%	7%
Maximum Green (s)	3.0	3.0
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes
Vehicle Extension (s)	3.0	3.0
Recall Mode	None	None
Walk Time (s)	0.0	0.0
Flash Dont Walk (s)	0.0	0.0
Pedestrian Calls (#/hr)	18	18
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		

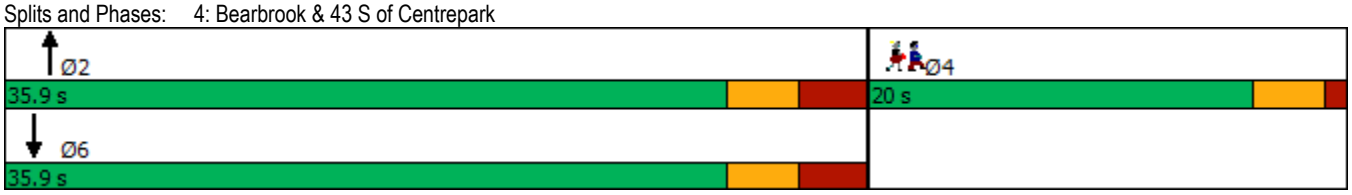
Intersection Summary

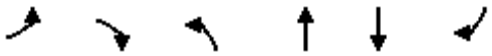
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø4
Lane Configurations							
Traffic Volume (vph)	0	0	363	0	0	422	
Future Volume (vph)	0	0	363	0	0	422	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor							
Frt							
Flt Protected							
Satd. Flow (prot)	0	0	1843	0	0	1843	
Flt Permitted							
Satd. Flow (perm)	0	0	1843	0	0	1843	
Right Turn on Red		Yes		Yes			
Satd. Flow (RTOR)							
Link Speed (k/h)	40		40			40	
Link Distance (m)	14.7		73.5			168.6	
Travel Time (s)	1.3		6.6			15.2	
Confl. Peds. (#/hr)		53		18	18		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Heavy Vehicles (%)	0%	0%	2%	0%	0%	2%	
Adj. Flow (vph)	0	0	363	0	0	422	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	0	363	0	0	422	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Right	Left	Left	
Median Width(m)	0.0		0.0			0.0	
Link Offset(m)	0.0		0.0			0.0	
Crosswalk Width(m)	5.0		23.0			23.0	
Two way Left Turn Lane							
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01	
Turning Speed (k/h)	24	14		14	24		
Number of Detectors			2			2	
Detector Template			Thru			Thru	
Leading Detector (m)			30.5			30.5	
Trailing Detector (m)			0.0			0.0	
Detector 1 Position(m)			0.0			0.0	
Detector 1 Size(m)			1.8			1.8	
Detector 1 Type			Cl+Ex			Cl+Ex	
Detector 1 Channel							
Detector 1 Extend (s)			0.0			0.0	
Detector 1 Queue (s)			0.0			0.0	
Detector 1 Delay (s)			0.0			0.0	
Detector 2 Position(m)			28.7			28.7	
Detector 2 Size(m)			1.8			1.8	
Detector 2 Type			Cl+Ex			Cl+Ex	
Detector 2 Channel							
Detector 2 Extend (s)			0.0			0.0	
Turn Type			NA			NA	
Protected Phases			2			6	4
Permitted Phases							
Detector Phase			2			6	
Switch Phase							
Minimum Initial (s)			30.0			30.0	16.0
Minimum Split (s)			35.9			35.9	20.0
Total Split (s)			35.9			35.9	20.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø4
Total Split (%)			64.2%			64.2%	36%
Maximum Green (s)			30.0			30.0	16.0
Yellow Time (s)			3.0			3.0	3.0
All-Red Time (s)			2.9			2.9	1.0
Lost Time Adjust (s)			0.0			0.0	
Total Lost Time (s)			5.9			5.9	
Lead/Lag							
Lead-Lag Optimize?							
Vehicle Extension (s)			3.0			3.0	3.0
Recall Mode			Min			Min	None
Walk Time (s)							7.0
Flash Dont Walk (s)							9.0
Pedestrian Calls (#/hr)							53
Act Effct Green (s)			50.3			50.3	
Actuated g/C Ratio			0.85			0.85	
v/c Ratio			0.23			0.27	
Control Delay			3.9			4.1	
Queue Delay			0.0			0.0	
Total Delay			3.9			4.1	
LOS			A			A	
Approach Delay			3.9			4.1	
Approach LOS			A			A	
Queue Length 50th (m)			0.0			0.0	
Queue Length 95th (m)			28.5			34.3	
Internal Link Dist (m)	0.1		49.5			144.6	
Turn Bay Length (m)							
Base Capacity (vph)			1573			1573	
Starvation Cap Reductn			0			0	
Spillback Cap Reductn			0			0	
Storage Cap Reductn			0			0	
Reduced v/c Ratio			0.23			0.27	

Intersection Summary			
Area Type:	Other		
Cycle Length: 55.9			
Actuated Cycle Length: 58.9			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.27			
Intersection Signal Delay: 4.0		Intersection LOS: A	
Intersection Capacity Utilization 44.9%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 4: Bearbrook & 43 S of Centrepark





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	5	12	16	358	415	7
Future Volume (vph)	5	12	16	358	415	7
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.905				0.998	
Flt Protected	0.986			0.998		
Satd. Flow (prot)	1645	0	0	1839	1839	0
Flt Permitted	0.986			0.998		
Satd. Flow (perm)	1645	0	0	1839	1839	0
Link Speed (k/h)	40			40	40	
Link Distance (m)	73.9			173.0	73.5	
Travel Time (s)	6.7			15.6	6.6	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	5	12	16	358	415	7
Shared Lane Traffic (%)						
Lane Group Flow (vph)	17	0	0	374	422	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	4.0			4.0	4.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	5.0			5.0	5.0	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	1.01	1.01	1.01	1.01
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	43.6%	ICU Level of Service	A
Analysis Period (min)	15		