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Proposed Residential Development
2026 Scott Street, Ottawa
Transportation Impact Assessment

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Proposed Residential Development

2026 Scott Street

Transportation Impact Assessment

Prepared By:

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

Dated: April 2022
Revised: September 2022

Novatech File: 121302
Ref: R-2021-168

NOVATECH
Engineers, Planners & Landscape Architects

September 15, 2022

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

Attention: **Mr. Wally Dubyk**
Project Manager, Infrastructure Approvals

Dear Mr. Dubyk:

Reference: **2026 Scott Street**
Revised Transportation Impact Assessment
Novatech File No. 121302

We are pleased to submit the following revised Transportation Impact Assessment (TIA) in support of Official Plan Amendment and Zoning By-law Amendment applications for the property at 2026 Scott Street, 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).

The original TIA was submitted in April 2022, and has since been revised to address City comments and reflect updates to the concept plan.

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, P.Eng.
Transportation

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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Dated at ____Ottawa____ this __15th__ day of _____September_____, 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 in support of Official Plan Amendment and Zoning By-law Amendment applications for 2026 Scott Street. The proposed development includes the properties at 2006 Scott Street, 2020 Scott Street, 2026 Scott Street, 314 Athlone Avenue, 316 Athlone Avenue, and 318 Athlone Avenue.

The property at 2026 Scott Street is currently occupied by the Granite Curling Club, which will be relocated to 2740 Queensview Drive. The site is currently served by an existing full-movement access to Scott Street and a rear access at the eastern terminus of Ashton Avenue.

The property at 2020 Scott Street was previously occupied by a used car dealer, with access to Scott Street. The property at 2006 Scott Street was previously occupied by a retail store, with access to Scott Street. The property at 314 Athlone Avenue is currently being used as an office space, while the properties at 316 and 318 Athlone Avenue are residential homes. All existing buildings on-site will be demolished as part of this application.

The subject site is designated as 'Traditional Main Street' in Schedule B of the City of Ottawa's Official Plan. The current zoning is summarized as follows:

- 2006-2020 Scott Street and 314 Athlone Avenue: Traditional Mainstreet (TM[102]);
- 2026 Scott Street: Community Leisure Facility (L1);
- 316-318 Athlone Avenue: Residential Fourth-Density (R4UB).

An Official Plan Amendment and Zoning By-Law Amendment are required to permit the residential uses on the 2026 Scott Street property.

The proposed development consists of two 40-storey towers with a total of approximately 813 dwelling units. Building 1 will include 459 dwellings and Building 2 will include 354 dwellings. An underground parking garage will be provided beneath the entire development. Access to the underground parking garage will be provided via one full-movement driveway to Scott Street and one full-movement driveway to Athlone Avenue. An additional access to Scott Street is proposed, which will operate only as an on-site fire route.

The development of Building 1 and Building 2 will be constructed in two phases. Buildout of Phase 1 is anticipated to occur in 2026 and buildout of Phase 2 is anticipated to occur in 2029.

The study area intersections include the proposed accesses and the intersections of Scott Street/ Churchill Avenue, Scott Street/Winona Avenue, Scott Street/Athlone Avenue, Scott Street/ Tweedsmuir Avenue, and Scott Street/McRae Avenue.

The selected time periods for the analysis are the weekday AM and PM peak hours, as they represent the 'worst case' combination of site generated traffic and adjacent street traffic. Analysis will be completed for the Phase 1 build-out year (2026) and 5-year horizon (2031). Phase 2 is assumed to be built-out prior to the five-year horizon of Phase 1. Due to the extended build-out time frame for Phase 2, this report will forego the five-year horizon beyond Phase 2.

The conclusions of this TIA can be summarized as follows:

Forecasting

- Phase 1 of the proposed development is projected to generate a net additional 160 person trips (but five fewer vehicle trips) during the AM peak hour, and a net additional 125 person trips (but 31 fewer vehicle trips) during the PM peak hour.

- The ultimate proposed development is projected to generate a net additional 324 person trips (including 17 additional vehicle trips) during the AM peak hour, and a net additional 286 person trips (but nine fewer vehicle trips) during the PM peak hour.

Development Design and Parking

- Sidewalks will be maintained along the subject site's frontages to Scott Street and Athlone Avenue, and internal walkways will be provided around the perimeter of each building, connecting to the sidewalks on Scott Street and Athlone Avenue. Landscaped walkways will also provide pedestrian connectivity between Scott Street and Ashton Avenue and the Lion's Park land to the immediate south of the subject site.

- At this stage, bicycle parking is proposed to be provided on each of the underground parking levels, and is anticipated to meet the minimum required number of bicycle spaces per the City's *Zoning By-Law* (ZBL).

- Main entrances to both proposed buildings are anticipated to be within 400m walking distance of Westboro Station and bus stops on Churchill Avenue and McRae Avenue.

- Based on the conceptual plans, it is anticipated that all required Transportation Demand Management (TDM)-supportive design and infrastructure measures in the TDM checklist can be met.

- The preliminary number of parking spaces proposed for each building is anticipated to meet the minimum and maximum parking requirements, per the City's ZBL.

Boundary Streets

- The results of the segment Multi-Modal Level of Service (MMLOS) analysis can be summarized as follows:
    - Neither boundary street meets the target pedestrian level of service (PLOS) A;
    - Neither boundary street meets the target bicycle level of service (BLOS) A or D;
    - Scott Street does not meet the target transit level of service (TLOS) A;
    - Scott Street meets the target truck level of service (TkLOS) D.

- Scott Street cannot achieve the target PLOS A on either side of the roadway without reducing the operating speed to 30 km/h or slower, based on the existing traffic volumes.

- The bike lanes along Scott Street do not meet the target BLOS A. However, it is noteworthy that a separated multi-use pathway is provided on the north side of the roadway achieving the target BLOS A. It is understood that the City is developing a complete street concept for implementation along Scott Street following LRT construction. A further review of the Scott Street frontage will be conducted as part of the subsequent Site Plan Control application.

- Scott Street can only achieve the target TLOS A by providing segregated transit facilities. Once Stage 2 of the Confederation Line LRT is complete, the bus detour will not need to run along Scott Street, and light rail transit will be provided immediately north of the roadway. Therefore, the target TLOS will be met.

- Athlone Avenue can achieve the target PLOS A by providing a 2.0m-wide sidewalk with a minimum boulevard width of 0.5m. This is identified for the City's consideration, and can be considered along the subject site's frontage at the Site Plan Control stage.

- Athlone Avenue can achieve the target BLOS D by reducing the operating speed to 50 km/h. This could be achieved through some local traffic calming measures. This is identified for the City's consideration, and can be considered along the subject site's frontage at the Site Plan Control stage.

Access Intersections

- Access to the proposed underground parking will be provided via one full-movement driveway to Scott Street and one full-movement driveway to Athlone Avenue. In addition, an on-site fire route is proposed to connect to Scott Street, midblock between the proposed Scott Street garage access and the intersection at Scott Street/Athlone Avenue. All driveways are anticipated to be constructed as part of the first phase, and will lead directly to the underground parking garage beneath the entire proposed development.

- A high-level review of the access locations has been conducted as part of this report. A detailed review of the proposed accesses will be reviewed as part of the subsequent Site Plan Control application.

- The proposed access locations meet the provisions of Section 25(a) of the PABL, which outlines that a maximum of two two-way private approaches can be provided to any roadway where 46m to 150m of frontage is provided.

- The minimum requirement of 60m to the nearest intersecting street line can be met by the proposed underground garage access to Scott Street, but cannot be met by the proposed access to Athlone Avenue, as less than 60m of frontage is provided on that roadway. The concept plan shows the access to Athlone Avenue will be located as far from Scott Street as possible.

- The minimum requirement of 18m to the nearest intersecting street line can be met for the fire route.

- The proposed fire route is located mid-block along Scott Street between the garage access and Athlone Avenue. The distance between the fire route and the parking garage access is anticipated to exceed the minimum 15m requirement. Increased separation between the two accesses will move the fire route closer to the intersection pedestrian signal at Athlone Avenue and is not recommended.

- The concept plan shows that the proposed underground garage accesses to Scott Street and Athlone Avenue will meet the 70m TAC corner clearance requirements, but the proposed fire route will not. Since the fire route will not be utilized by other vehicles, and considering the Scott Street/Athlone Avenue is not a fully signalized intersection (i.e. only signalized for pedestrians crossing Scott Street), not meeting this requirement can be justified.

- The proposed accesses are anticipated to operate with an acceptable level of service.

Transportation Demand Management

- The proponent will consider the following residential 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;
    - Provide a multi-modal travel information package to new residents.

Neighbourhood Traffic Management

- Based on the existing traffic count data at Scott Street/Athlone Avenue, the two-way peak hour traffic volumes on Athlone Avenue are approximately 62 vehicles during the AM peak hour and 72 vehicles during the PM peak hour, and the average annual daily traffic is approximately 740 vehicles.

- Ultimate buildout of the proposed development is anticipated to increase peak hour traffic volumes on Athlone Avenue by approximately five vehicles. Therefore, the NTM thresholds are not anticipated to be met in the future as a result of this development, and no Neighbourhood Traffic Management (NTM) measures are identified.

Transit

- Phase 1 of the proposed development is projected to generate a net additional 112 transit trips during the AM peak hour, and a net additional 108 transit trips during the PM peak hour.

- The ultimate proposed development is projected to generate a net additional 203 transit trips during the AM peak hour, and a net additional 196 transit trips during the PM peak hour.

- The need for more frequent service on the future LRT, or existing routes 16, 50, 81, and 153 is not anticipated as a result of the proposed development.

Network Concept

- By the 2031 total traffic conditions, capacity issues during the peak hours (i.e. vehicle-to-capacity ratios greater than 1.00) are not anticipated at any study area roadways.

Intersection MMLOS

- The results of the intersection MMLOS analysis can be summarized as follows:
  - No study area intersections meet the target PLOS;
  - Scott Street/Churchill Avenue meet the target BLOS, while Scott Street/Athlone Avenue and Scott Street/Tweedsmuir Avenue do not;
  - No study area intersections meet the target TLOS;
  - Scott Street/Churchill Avenue does not meet the target TkLOS.

- Based on the functional protected intersection design of Scott Street/Churchill Avenue, all approaches achieve a PLOS B. Without reducing the crossing width to an equivalent of two 3.5m-wide lanes (i.e. 7.0m or less), the target PLOS A cannot be achieved. Therefore, no recommendations are identified.

- All crosswalks at Scott Street/Athlone Avenue have a crossing width equivalent to four or five lanes. There is limited opportunity in improving to the target PLOS A at each approach without reducing the crossing distance significantly or restricting turning movements. The west approach meets the City's vehicle/pedestrian conflict threshold for zebra-striped crosswalks, and could improve the level of comfort for pedestrians.

- All crosswalks at Scott Street/Tweedsmuir Avenue have a crossing width equivalent to three to five lanes. There is limited opportunity in improving to the target PLOS A at each approach without reducing the crossing distance significantly or restricting turning movements. The east approach meets the City's vehicle/pedestrian conflict threshold for zebra-striped crosswalks, and could improve the level of comfort for pedestrians.

- The south and east approaches at Scott Street/Athlone Avenue do not meet the target BLOS A based on left turn characteristics. The south approach consists of a single lane and is stop-controlled, and left-turning cyclists from this approach can queue with vehicles to make their left turn. For cyclists at the east approach, the target PLOS A can only be met by providing a two-stage, left-turn bike box. However, a bicycle signal would be required, as the existing intersection is only an intersection pedestrian signal. This is identified for the City's consideration.

- The south and east approaches at Scott Street/Tweedsmuir Avenue do not meet the target BLOS A based on left turn characteristics. The south approach consists of a single lane and is stop-controlled, and left-turning cyclists from this approach can queue with vehicles to make their left turn. For cyclists at the east approach, a bicycle signal would be required, as the existing intersection is only an intersection pedestrian signal. This is identified for the City's consideration.

- The City is developing a complete street concept for implementation along Scott Street following LRT construction. The complete street design is anticipated to include improved pedestrian and cycling facilities within the study area. A further review of the study area intersections will be conducted as part of the subsequent Site Plan Control application.

- The north, south, and east approaches at Scott Street/Churchill Avenue, and the east and west approaches at Scott Street/Athlone Avenue and Scott Street/Tweedsmuir Avenue do not meet the target TLOS A, which equates to grade-separated ROW for transit facilities. This is addressed by the planned extension of the Confederation Line LRT, which will serve the study area at Westboro Station.

- All approaches at Scott Street/Churchill Avenue do not meet the target TkLOS D. It is anticipated that the curb radii at this intersection will be reviewed to accommodate heavy vehicle/bus turning movements during the detailed design. Therefore, no recommendations are identified.

Existing Traffic Operations

- All approaches within the study area meet the target Auto LOS E, except for the transit-only approach at Scott Street/Tweedsmuir Avenue. It should be noted that, when the pedestrian phase is actuated at this intersection, southbound buses utilizing this approach would be able to turn right onto Scott Street unimpeded, and would be able to turn left onto Scott Street once pedestrians had completed their crossing.

Background Traffic Operations

- After the addition of background traffic volumes, all approaches within the study area continues to meet the target Auto LOS E, except for the transit-only approach at Scott Street/Tweedsmuir Avenue.

Total Traffic Operations

- After the addition of site-generated traffic volumes, all approaches within the study area continues to meet the target Auto LOS E, except for the transit-only approach at Scott Street/Tweedsmuir Avenue.

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

1.0 SCREENING

1.1 Introduction

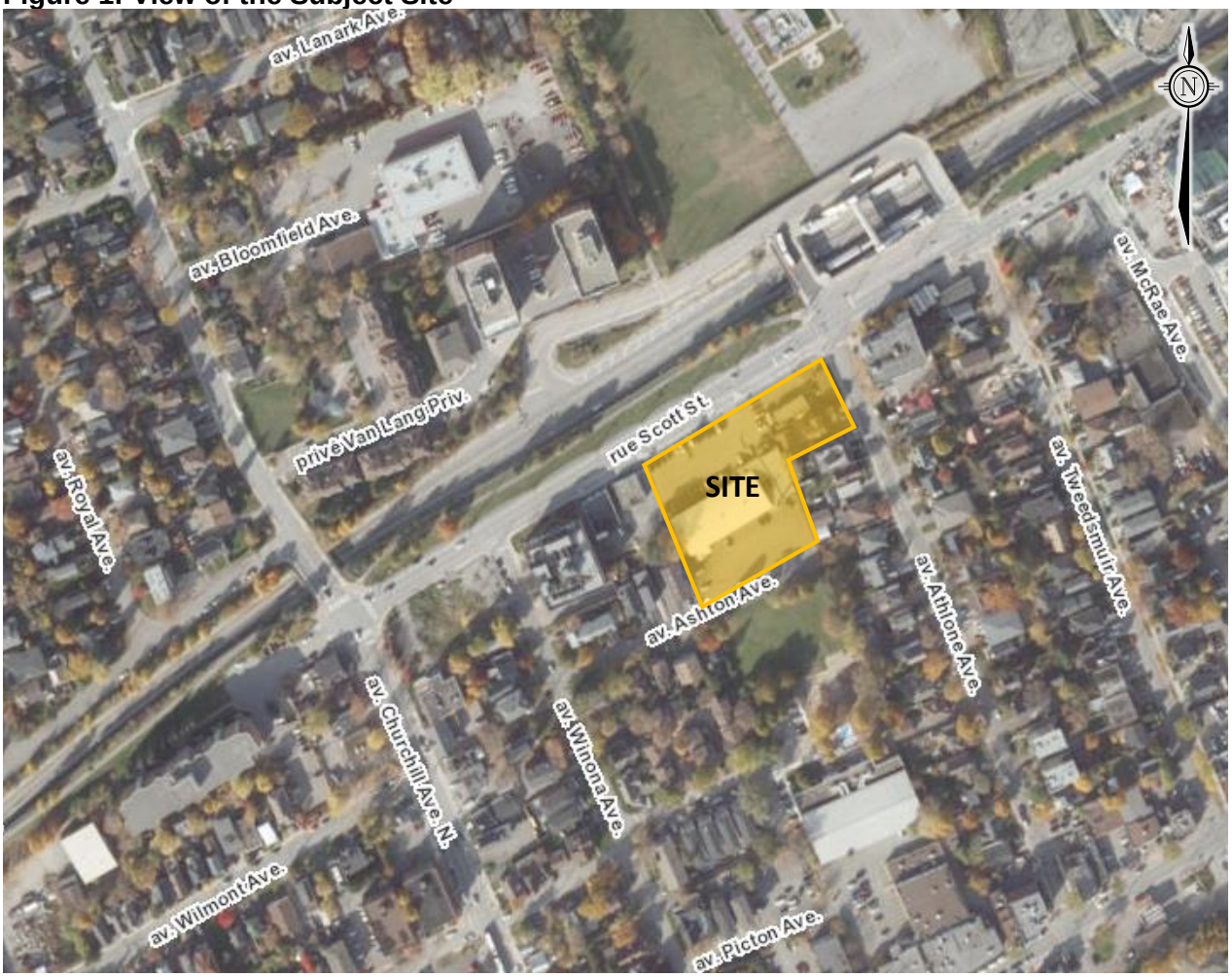
This Transportation Impact Assessment (TIA) has been prepared in support of Official Plan Amendment and Zoning By-law Amendment applications for 2026 Scott Street. The subject site is comprised of the properties at 2006 Scott Street, 2020 Scott Street, 2026 Scott Street, 314 Athlone Avenue, 316 Athlone Avenue, and 318 Athlone Avenue.

The subject site is surrounded by the following:

- Scott Street and the OC Transpo East-West Transitway to the north;
- Ashton Avenue, Lion's Park, and residential properties fronting Athlone Avenue to the south;
- Athlone Avenue and residential uses to the east; and
- Various existing low-rise retail uses along Scott Street to the west. A residential development is proposed at 2050 Scott Street, directly abutting the subject site to the west.

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

Figure 1: View of the Subject Site



The property at 2026 Scott Street is currently occupied by the Granite Curling Club, which will be relocated to 2740 Queensview Drive. The site is currently served by an existing full-movement access to Scott Street and a rear access at the eastern terminus of Ashton Avenue.

The property at 2020 Scott Street was previously occupied by a used car dealer, with access to Scott Street. The property at 2006 Scott Street was previously occupied by a retail store, with access to Scott Street. The property at 314 Athlone Avenue is currently being used as an office space, while the properties at 316 and 318 Athlone Avenue are residential homes. All existing buildings on-site will be demolished as part of this application.

1.2 Proposed Development

The subject site is designated as 'Traditional Main Street' in Schedule B of the City of Ottawa's Official Plan. The current zoning is summarized as follows:

- 2006-2020 Scott Street and 314 Athlone Avenue: Traditional Mainstreet (TM[102]);
- 2026 Scott Street: Community Leisure Facility (L1);
- 316-318 Athlone Avenue: Residential Fourth-Density (R4UB).

An Official Plan Amendment and Zoning By-Law Amendment are required to permit the residential uses on the 2026 Scott Street property.

The proposed development consists of two 40-storey towers with a total of approximately 813 dwelling units. Building 1 will include 459 dwellings and Building 2 will include 354 dwellings. An underground parking garage will be provided beneath the entire development. Access to the underground parking garage will be provided via one full-movement driveway to Scott Street and one full-movement driveway to Athlone Avenue. An additional access to Scott Street is proposed, which will operate only as an on-site fire route.

The development of Building 1 and Building 2 will be constructed in two phases. Buildout of Phase 1 is anticipated to occur in 2026 and buildout of Phase 2 is anticipated to occur in 2029.

A copy of the concept 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. 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.

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2026 SCOTT STREET

CONTEXT PLAN

SCALE 1 : 1250 (0 10 20 30 40 50)

DATE SEP 2022 | JOB 121302 | FIGURE FIGURE 2

SHT8X11.DWG - 216mmx279mm

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- Location Trigger – The development proposes a new driveway to a Spine Cycling Route (Scott Street). The development is also located in a Transit-Oriented Development (TOD) Zone (within 600m of Westboro and Dominion Transit Stations) and a Design Priority Area (DPA); further assessment is **required** based on this trigger.

- Safety Trigger – The development proposes a new driveway within the area of influence of an adjacent traffic signal; further assessment is **required** based on this trigger.

The proposed development satisfies all three triggers for completing a TIA. A copy of the TIA Screening Form is included in **Appendix B**.

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.

Scott Street is classified as an arterial roadway east of Churchill Avenue, and a local roadway west of Churchill Avenue. It runs on an east-west alignment from Bayview Station Road/Albert Street, terminating in a cul-de-sac approximately 50m west of Churchill Avenue. East of Churchill Avenue, Scott Street has a two-lane semi-urban cross section with a curb/sidewalk on the south side. On-street parking bays are provided on the south side while parking is permitted on the north side. Scott Street has a posted speed limit of 50km/h. East of Churchill Avenue, it is also designated as a truck route, permitting full loads. The Official Plan reserves a 26m right-of-way (ROW) for Scott Street; a widening is required as part of this application.

Churchill Avenue is classified as a major collector roadway between Carling Avenue and Richmond Road, an arterial roadway between Richmond Road and Scott Street, a collector roadway between Scott Street and Lanark Avenue, and a local roadway north of Lanark Avenue. It runs on a north-south alignment between Carling Avenue and north of Ferndale Avenue. In the vicinity of the subject site, Churchill Avenue has a two-lane undivided urban cross section with a regulatory speed limit of 50km/h. Churchill Avenue is designated as a truck route between Carling Avenue and Scott Street, permitting full loads. Parking bays are provided and on-street parking is permitted on both sides of Churchill Avenue between Richmond Road and Scott Street.

Winona Avenue is a north-south local roadway that runs from Scott Street to Richmond Road. The roadway has a two-lane undivided urban cross-section with a posted speed limit of 40km/h. On-street parking is permitted along the west side of the roadway.

Ashton Avenue is an east-west local roadway that runs from Winona Avenue to the rear of the subject site. The roadway has a two-lane undivided cross-section with a regulatory speed limit of 50km/h. On-street parking is permitted along the north side of the roadway.

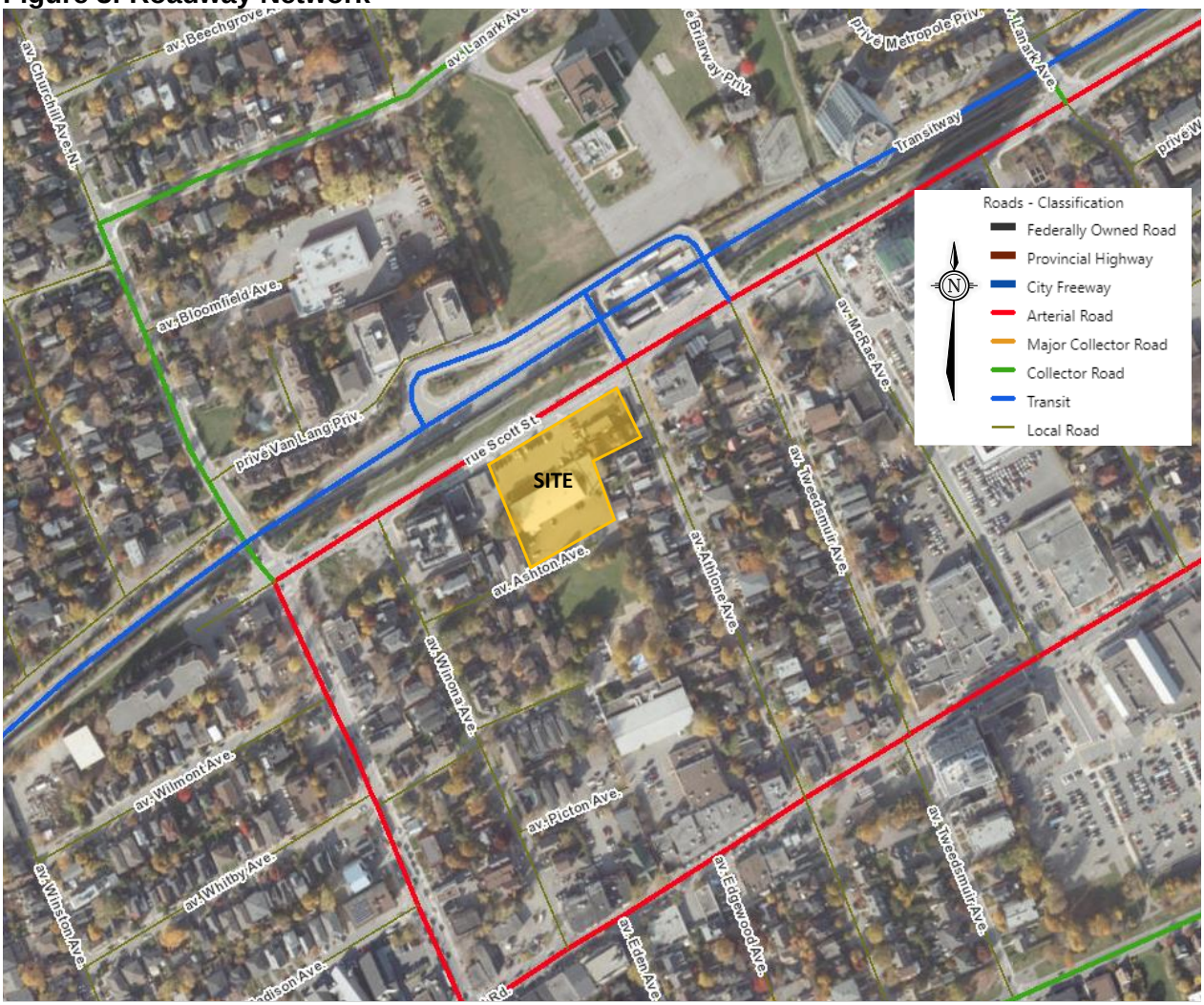
Athlone Avenue is a north-south local roadway that runs from Scott Street to Clare Gardens Park. Within the study area, the roadway has a two-lane undivided semi-urban cross-section, sidewalks on the west side, and a regulatory speed limit of 50km/h. On-street parking is permitted along both sides of the roadway. Athlone Avenue is not designated as a truck route, and ‘No Heavy Trucks’ (Rb-62) signage is provided at Scott Street.

Tweedsmuir Avenue is a north-south local roadway that runs from Scott Street to Currell Avenue. Within the study area, the roadway has a two-lane undivided urban cross-section, sidewalks on the east side, and a regulatory speed limit of 50km/h. On-street parking is permitted along the west side of the roadway. Tweedsmuir Avenue is not designated as a truck route, and 'No Heavy Trucks' (Rb-62) signage is provided at Scott Street.

McRae Avenue is a north-south local roadway that runs from Scott Street to Richmond Road. The roadway has a two-lane undivided urban cross-section, sidewalks on both sides, and a regulatory speed limit of 50km/h. Parking is restricted on both sides. McRae Avenue is a restricted loads truck route.

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

Figure 3: Roadway Network



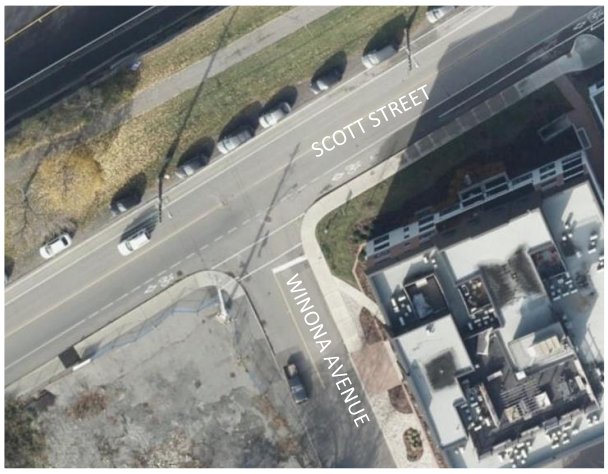
2.1.2 Intersections

Scott Street/Churchill Avenue

- Unsignalized, with all-way stop-control
- One shared lane on all approaches
- Ladder crosswalks provided on the north and south approaches, standard crosswalks provided on the east and west approaches
- A bike lane is provided on the east approach
- Sharks teeth provided after the stop bar on all approaches

Scott Street/Winona Avenue

- Unsignalized, with stop control on the minor approach (Winona Avenue)
- One shared lane on all approaches
- Bike lanes provided on east/west approaches



Scott Street/Athlone Avenue/Transitway

- Unsignalized, with stop control on the minor approach (Athlone Avenue/Transitway)
- Intersection pedestrian signal is provided on the west approach
- One shared lane on all approaches
- Bike lanes provided on east/west approaches
- Movements to/from the north approach (Transitway) are restricted to authorized vehicles only

Scott Street/Tweedsmuir Avenue/Transitway

- Unsignalized, with stop control on the minor approach (Tweedsmuir Avenue/Transitway)
- Intersection pedestrian signal is provided on the east approach
- One shared lane on all approaches
- Bike lanes provided on east/west approaches
- Movements to/from the north approach (Transitway) are restricted to authorized vehicles only

Scott Street/McRae Avenue

- Unsignalized, with stop control on the minor approach (McRae Avenue)
- One shared lane on all approaches
- Bike lanes provided on east/west approaches

2.1.3 Driveways

In accordance with the City's *2017 TIA Guidelines*, a review of adjacent driveways along the boundary roads (within 200m of the subject site) are provided as follows:

Ashton Avenue, North Side:

- Two driveways to the residential building at 295 Ashton Avenue
- Four driveways to the residential dwellings at 297/299, 301, 305, and 307 Ashton Avenue

Ashton Avenue, South Side:

- Four driveways to the residential dwellings at 294/298, 300, 302, and 306 Ashton Avenue

Athlone Avenue, East Side:

- One driveway to the parking lot serving the apartment building at 2000 Scott Street
- Thirteen driveways to residential dwellings at 315, 317, 319, 327, 329/331, 333, 335, 341, 345, 347, 349, 353, and 357 Athlone Avenue

Athlone Avenue, West Side:

- Ten driveways to residential dwellings at 322, 326, 330, 334, 338, 342, 346, 350, 354, and 358 Athlone Avenue

Scott Street, North Side:

- None

Scott Street, South Side:

- Two gated accesses to the vacant land at 2070 Scott Street (to be developed)
- One driveway to the garage at 2046 Scott Street (to be redeveloped)
- One driveway to the hot tub/sauna store at 2050 Scott Street (to be redeveloped)
- Access to the parking area for a moving company at 1994 Scott Street

2.1.4 Pedestrian and Cycling Facilities

Within the study area, sidewalks are currently provided on the south side of Scott Street, both sides of Churchill Avenue, the west side of Athlone Avenue, the east side of Tweedsmuir Avenue, and both sides of McRae Avenue. A pedestrian crossover is located mid-block on McRae Avenue, approximately 70m south of Scott Street. Intersection pedestrian signals are provided along Scott Street, east of Tweedsmuir Avenue and west of Athlone Avenue, providing easy pedestrian access to the Westboro Transit Station.

Within the study area, bike lanes are provided on Scott Street. A Multi-Use Pathway (MUP) is also located along the north side of Scott Street, providing connectivity to the Westboro Transit Station. This MUP continues east alongside the Transitway and west past the terminus of Scott Street, providing connectivity to Tunney's Pasture and Dominion Transit Station and the MUP system along Sir John A. Macdonald Parkway. A bike rack/shelter and repair station can be found at the Westboro Transit Station.

Scott Street and Churchill Avenue (south of Scott Street) are designated as Spine Routes in the City's Ultimate Cycling Network. Churchill Avenue north of Scott Street is designated as a Local Route. Cross-town Bikeway #2 runs east-west through the study area and utilizes Scott Street and Churchill Avenue. The MUP along the north side of Scott Street is designed as a Pathway Link east of Churchill Avenue, and is designated a Major Pathway west of Churchill Avenue.

The existing pedestrian and cycling infrastructure provided in the greater area surrounding the subject site is illustrated in **Figure 4**.

2.1.5 Area Traffic Management

There are no Area Traffic Management (ATM) studies within the study area that have been completed or are currently in progress. Seasonal flex-posts are implemented along Churchill Avenue at Roy Duncan Park, north of Workman Avenue.

2.1.6 Transit

The locations of OC Transpo bus stops in the vicinity of the subject site are described in **Table 1**, and are shown in **Figure 5**. A summary of the various routes which serve the study area is included in **Table 2**. Detailed route information and an excerpt from the OC Transpo System Map are included in **Appendix C**.

Figure 4: Existing Pedestrian and Cycling Infrastructure

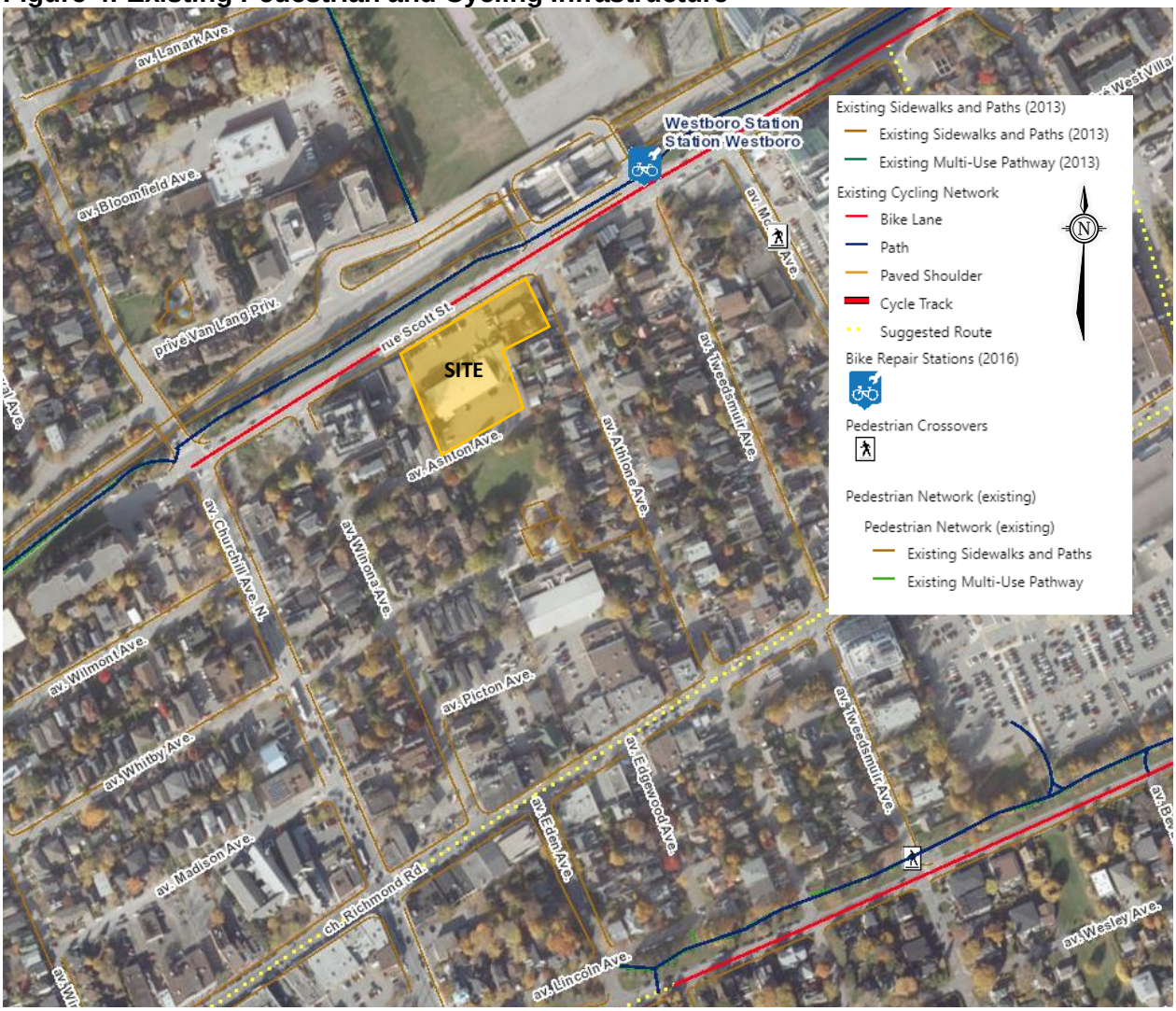


Table 1: OC Transpo Transit Stops

Stop	Location	Routes Serviced
#7380	West side of Churchill Avenue, south of Scott Street	50, 153
#7379	East side of Churchill Avenue, south of Scott Street	50, 153
#5615	West side of Churchill Avenue, north of Scott Street	16, 153
#4884	East side of Churchill Avenue, north of Scott Street	16, 153
#4893	West side of McRae Avenue, south of Scott Street	81, 153
#4841	East side of McRae Avenue, south of Scott Street	81, 153
#3012 (Westboro Station)	North side of Scott Street, between Athlone Avenue and Tweedsmuir Avenue	16, 50, 57, 61, 62, 63, 64, 66, 73, 74, 75, 82, 87, 153, 164, 258, 282, 404

Figure 5: OC Transpo Bus Stop Locations

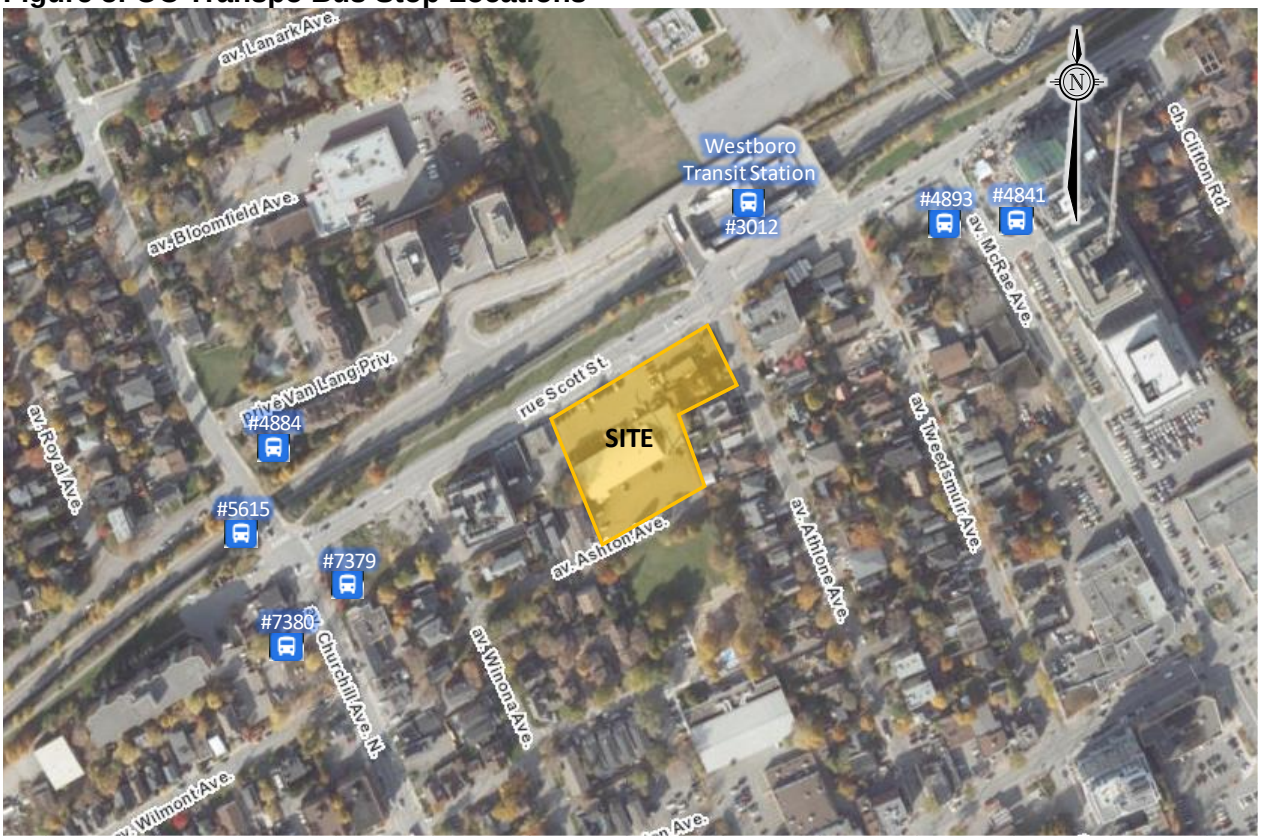


Table 2: OC Transpo Route Information

Route	From ↔ To	Frequency
16	Main ↔ Tunney's Pasture / Westboro	30 minute headways, 7 days per week, all day service
50	Tunney's Pasture ↔ Lincoln Fields	30 minute headways, Mon-Sat
57	Tunney's Pasture ↔ N Rideau	30 minute headways, 7 days per week, all day service
61	Terry Fox / Stittsville ↔ Tunney's Pasture / Gatineau	20 minute headways, 7 days per week, all day service
62	Terry Fox / Stittsville ↔ Tunney's Pasture	30 minute headways, 7 days per week, all day service
63	Briarbrook ↔ Tunney's Pasture / Gatineau	5-10 minute headways during peak periods, 7-days per week, all day service
64	Morgan's Grant ↔ Tunney's Pasture	15 minute headways during peak periods, Mon-Fri, all day service
66	Kanata / Solandt ↔ Gatineau/Tunney's Pasture	15 minute headways, Mon-Fri, peak periods only
73	Leikin ↔ Tunney's Pasture	30 minute headways, Mon-Fri, peak periods only
74	Nepean Woods ↔ Tunney's Pasture	30 minute headways, 7 days per week, all day service
75	Tunney's Pasture / Gatineau ↔ Barrhaven Centre / Cambrian	15 minute headways, 7 days per week, all day service

Route	From ↔ To	Frequency
81	Tunney's Pasture ↔ Clyde	30 minute headways, 7 days per week, no evening service on weekends
82	Lincoln Fields / Tunney's Pasture ↔ Bayshore	30 minute headways, 7 days per week, all day service
87	Tunney's Pasture ↔ Baseline	15 minute headways, 7 days per week, all day service
153	Tunney's Pasture / Carlingwood ↔ Lincoln Fields	60 minute headways, 7 days per week, select time periods
164	Hope Side ↔ Terry Fox	60 minute headways, Mon-Fri, peak periods only
258	Grandview ↔ Tunney's Pasture	30 minute headways, Mon-Fri, peak periods only
282	Trend-Arlington ↔ Tunney's Pasture	30 minute headways, Mon-Fri, peak periods only
404	Canadian Tire Centre ↔ Tunney's Pasture	5-20 minute headways, only during periods before or after events at the Canadian Tire Centre

2.1.7 Existing Traffic Volumes

Weekday traffic counts were completed by the City of Ottawa or for recent TIA studies and have been used to determine the existing pedestrian, cyclist, and vehicular traffic volumes at the study area intersections. The traffic counts were completed on the following dates:

Intersection	Count Date	Source
• Scott Street/Churchill Avenue	August 13, 2019	(City Count)
• Scott Street/Winona Avenue	October 16, 2019	(City Count)
• Scott Street/Athlone Avenue	November 22, 2017	(City Count)
• Scott Street/Tweedsmuir Avenue	March 28, 2017	(City Count)
• Scott Street/Tweedsmuir Avenue	July 18, 2019	(2020 TIA, 320 McRae Ave)
• Scott Street/McRae Avenue	July 18, 2019	(2020 TIA, 320 McRae Ave)

Existing traffic volumes along the study area roadways are shown in **Figure 6**. Peak hour summary sheets of the above traffic counts are included in **Appendix D**.

Peak hour pedestrian/cyclist volumes were not included in the summary sheets for the July 2019 Scott Street/McRae Avenue and Scott Street/Tweedsmuir Avenue counts. Peak hour vehicle volumes from the July 2019 count and peak hour pedestrian/cyclist volumes from the March 2017 have been shown at Scott Street/Tweedsmuir Avenue.

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. Copies of the collision summary report are included in **Appendix E**.

The collision data has been evaluated to determine if there are any identifiable collision patterns, which are defined in the City's *2017 TIA Guidelines* as 'more than six collisions in five years for any one movement.' A summary of the number of collisions at each intersection from January 1, 2015 to December 31, 2019 is shown in **Table 3**.

Figure 6: Existing Traffic Volumes

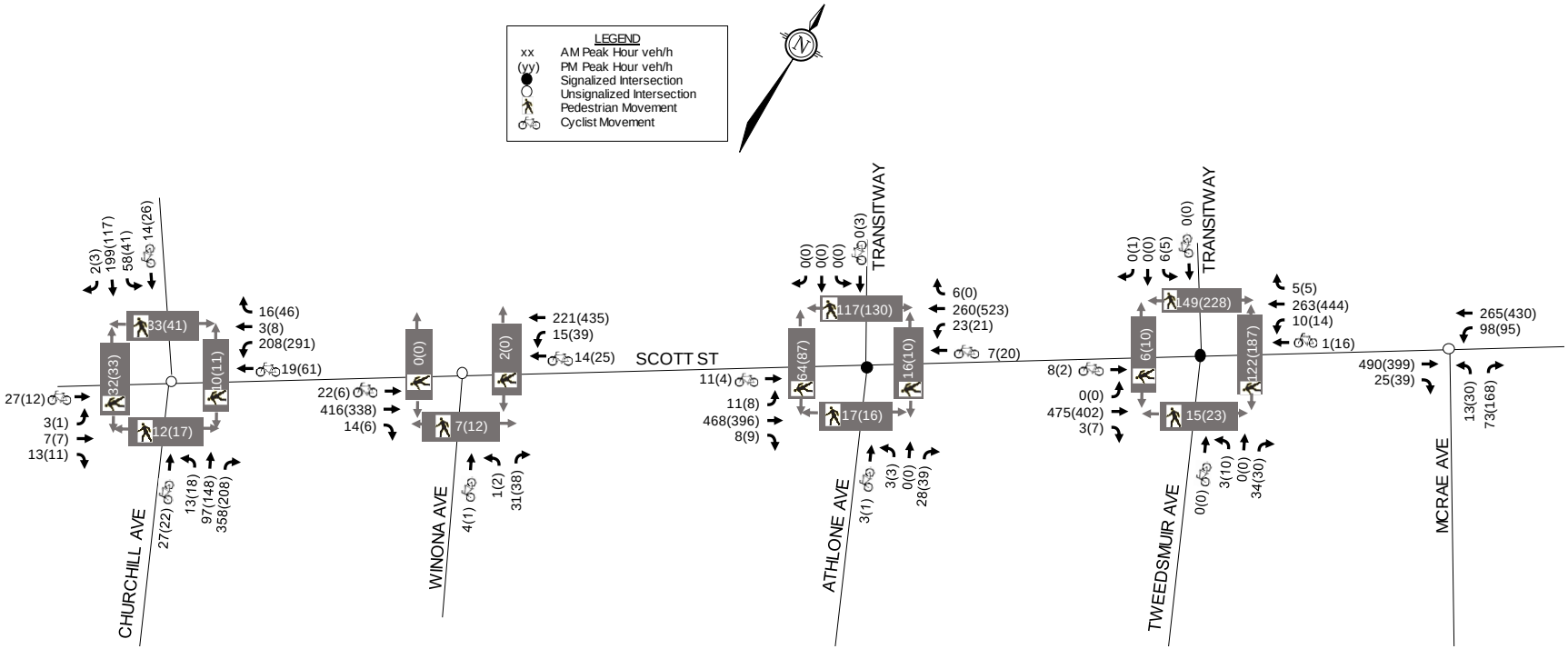


Table 3: Reported Collisions

Intersection	Impact Types					Total
	Angle	Sideswipe	Rear End	Turning Mvmt	SMV[1]/Other	
Scott Street/ McRae Avenue	5	-	1	-	-	**6**
Scott Street/ Churchill Avenue	-	1	-	-	4	**5**
Scott Street/ Athlone Avenue	-	-	1	1	1	**3**
Scott Street/ Tweedsmuir Avenue	1	-	2	-	-	**3**
Scott Street/ Winona Avenue	-	1	-	-	-	**1**

1. SMV = Single Motor Vehicle

Scott Street/McRae Avenue
A total of six collisions were reported at this intersection over the course of the last five years. Of these, there were five angle impacts and one rear end collision. Of the five angle impacts, two involved northbound left turning vehicles, two involved northbound right turning vehicles, and one involved an eastbound left turning vehicle. One of the collisions caused injuries, but none caused fatalities.

Scott Street/Churchill Avenue
A total of five collisions were reported at this intersection over the course of the last five years. Of these, there was one sideswipe impact and four 'other' impacts. Two of the collisions involved a pedestrian. Two of the collisions caused injuries, but none caused fatalities.

Scott Street/Athlone Avenue
A total of three collisions were reported at this intersection over the course of the last five years. Of these, there was one rear end collision, one turning movement collision, and one 'other' impact. One of the collisions involved a cyclist and one involved a pedestrian. Two of the collisions caused injuries, but none caused fatalities.

Scott Street/Tweedsmuir Avenue
A total of three collisions were reported at this intersection over the course of the last five years. Of these, there were two rear end collisions and one angle impact. One of the collisions caused injuries, but none caused fatalities.

Scott Street/Winona Avenue
One collision was reported at this intersection over the course of the last five years. The reported collision was a sideswipe collision and caused property damage only.

2.2 Planned Conditions

2.2.1 Planned Infrastructure Projects

The City of Ottawa's Transportation Master Plan (TMP) 2031 Affordable Rapid Transit and Transit Priority (RTTP) Network identifies the extension of Light Rail Transit (LRT) to the east, west, and south (Phase 2).

Construction for Phase 2 of the LRT (i.e. the Confederation Line Extension West) began in 2019, and is anticipated to be completed in 2025. This project involves extending the western LRT terminus from Tunney's Pasture Station to both Moodie Station and Algonquin College. As part of this project, the Westboro Transit Station will be converted to Westboro LRT Station. The proposed western Confederation Line extension is shown in **Figure 7**.

During the LRT Phase 2 construction, buses will be routed off the existing Transitway, onto Scott Street which will be extended west of Churchill Avenue to Roosevelt Avenue, crossing to the north side of the Transitway on a temporary bridge at Roosevelt Avenue and extended westerly from Workman Avenue to the Sir John A. Macdonald Parkway. This detour is anticipated to be built by 2022, and in use by buses only from 2022 to 2025.

As part of this bus detour, upgrades to Scott Street and a new traffic control signal at the Scott Street/Churchill Avenue intersection are proposed in order to accommodate bus volumes. As part of the signalization works, the intersection will be upgraded to include ladder crosswalks and cross-rides on all approaches. The lane configuration at this intersection will consist of one southbound left/through/right turn lane, one eastbound left/through/right turn lane, a northbound through/left turn lane and right turn lane, and one westbound left turn lane and through/right turn lane. The northbound right-turn and westbound left-turn lanes will be considered the primary lanes while the northbound through-left and westbound through-right lanes will be auxiliary lanes with approximately 30m and 75m of storage respectively. It is noted that the new traffic signal control at this intersection is permanent and will remain in place after the bus detour.

2.2.2 Other Area Developments

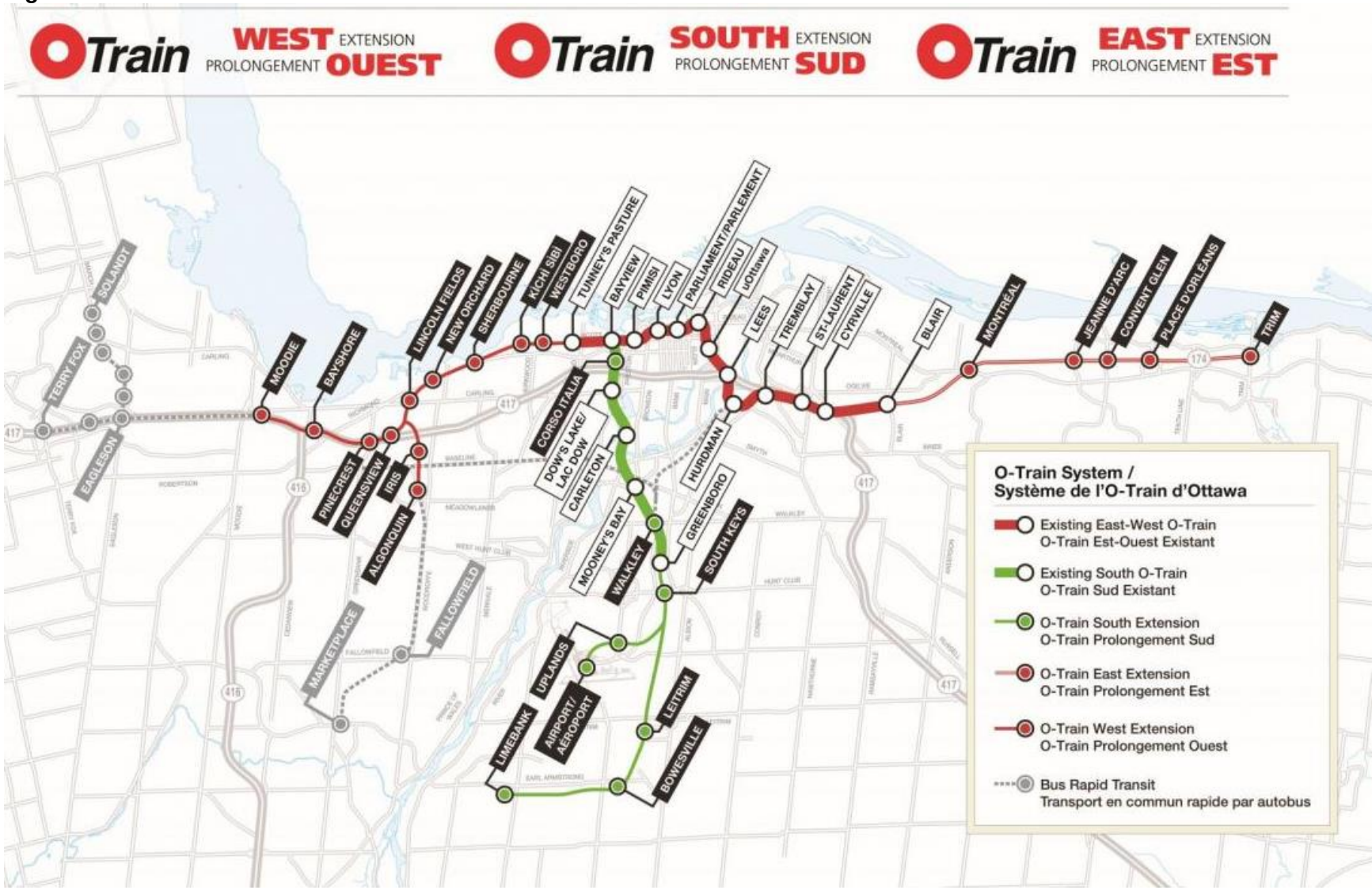
A review of the City's Development Application Search Tool has been conducted to identify any developments in the vicinity of the subject site that are being constructed, are approved, or are in the approval process. Other developments in the area are described as follows:

335 Roosevelt Avenue
A residential development is proposed at 335 Roosevelt Avenue. The development proposes two high-rise residential buildings with 246 units and two mid-rise residential buildings with 17 units. A TIA report, dated December 2020 and revised March 2022, was prepared by Novatech in support of Official Plan Amendment and Zoning By-Law Amendment applications for this site. The estimated date of full occupancy was 2026.

319-327 Richmond Road, 380 Winona Avenue, and 381 Churchill Avenue
A mixed-use development is proposed at 319-327 Richmond Road, 380 Winona Avenue, and 381 Churchill Avenue. This development proposes 184 apartment units and 1,738m^2 of retail space. Access is proposed on Churchill Avenue and Winona Avenue. A TIA was prepared by CGH Transportation, dated May 2020, in support of this development. The estimated date of occupancy is 2022.

320 McRae Avenue
A mixed-use development is proposed at 320 McRae Avenue. This development proposes 307 apartment units, 11 townhouses, and 9,494ft^2 of commercial land uses. A TIA, dated January 2020, was prepared by CGH Transportation in support of a Site Plan application for this development. The estimated date of full occupancy is 2022.

Figure 7: LRT Phase 2 – Confederation Line Extension West



1946 Scott Street
A residential development is proposed at 1946 Scott Street. This development proposes a 12-storey building with approximately 60 apartment units. A TIA was prepared by Parsons, dated August 2017, in support of this development. The estimated date of full occupancy was 2019.

1950 Scott Street
A residential development is proposed at 1950 Scott Street. This development proposes a 20-storey building with approximately 141 condominium/apartment units. A Transportation Brief, written by Parsons, was submitted in July 2018 in support of this development. The estimated date of full occupancy was 2020.

2050 Scott Street
A mixed-use development is proposed directly west of the subject site. The development proposes a 30-storey residential building on 3- and 6- storey podiums with approximately 353 units and 233m^2 of ground floor commercial/office. Access is proposed via Scott Street. A TIA report was prepared by Parsons, dated February 2021, in support of a Zoning By-Law Amendment for the proposed development. The estimated date of occupancy is 2021.

2070 Scott Street
A mixed-use development is proposed at the southeast corner of the Scott Street/Churchill Avenue intersection. The development proposes a 23-storey tower with 241 units and 5,500ft^2 of retail. An underground parking garage with access to Winona Avenue is proposed. A TIA was prepared by Stantec, dated November 2019, in support of a Zoning By-Law Amendment and Site Plan Control for this development. The estimated date of occupancy is 2022.

2.3 Study Area and Time Periods

The study area intersections include the proposed accesses and the intersections of Scott Street/ Churchill Avenue, Scott Street/Winona Avenue, Scott Street/Athlone Avenue, Scott Street/ Tweedsmuir Avenue, and Scott Street/McRae Avenue. This study area is consistent with the City's *2017 TIA Guidelines*, which outlines that all arterial signalized intersections within 400m should be included.

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 Phase 1 build-out year (2026) and 5-year horizon (2031). Phase 2 is assumed to be built-out prior to the five-year horizon of Phase 1. Due to the extended build-out time frame for Phase 2, this report will forego the five-year horizon beyond Phase 2.

2.4 Exemptions Review

This module reviews possible exemptions from the final TIA, as outlined in the *2017 TIA Guidelines*. The applicable exemptions for this site are shown in **Table 4**.

Table 4: TIA Exemptions

Module	Element	Exemption Criteria	Status
Design Review Component			
4.1 Development Design	*4.1.2* Circulation and Access	• Only required for site plans	Exempt
	4.1.3 New Street Networks	• Only required for plans of subdivision	Exempt
4.2 Parking	*4.2.1* Parking Supply	• Only required for site plans	Exempt
	4.2.2 Spillover Parking	• Only required for site plans where parking supply is 15% below unconstrained demand	Exempt
Network Impact Component			
4.5 Transportation Demand Management	*All elements*	• Not required for 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	Not Exempt

As this TIA has been prepared in support of a Zoning By-Law Amendment application, the Design Review components (Modules 4.1 to 4.4) are exempt from the analysis; however, a high-level review will be completed based on the current concept plan. A detailed review of Modules 4.1 to 4.4 will be conducted as part of the future Site Plan Control application.

3.0 FORECASTING

3.1 Development-Generated Travel Demand

3.1.1 Trip Generation

Existing Trip Generation

As discussed in Section 1.1, the subject site has most recently been occupied by the Granite Curling Club (2026 Scott Street), a used car dealership (2020 Scott Street), a retail store (2006 Scott Street), office space (314 Athlone Avenue), and two semi-detached dwellings (316-318 Athlone Avenue). Based on street-level photography, the retail space appears to have been vacant since at least May 2016 and the car dealership appears to have been vacant since at least June 2019. It has been assumed that the buildings at 2006 and 2020 Scott Street are vacant for the purposes of estimating the number of trips generated by the existing uses. In addition, the two semi-detached dwellings are not assumed to generate any peak hour trips. These are both conservative assumptions that reduce the estimated number of existing trips generated.

Trips generated by the existing curling club are based on the number of ice sheets and maximum number of players. The club includes four ice sheets, which can have a maximum of eight players per sheet (consisting of two teams of four). Games are scheduled to be two hours each, starting at 9:00am and running until 11:00pm. Outside of a two-hour game, people are assumed to arrive five to 15 minutes before the scheduled start, and depart up to 30 minutes after finishing to socialize. Therefore, overlap between earlier players departing and later players arriving is assumed to occur every two hours (i.e. at 11:00am, 1:00pm, 3:00pm, 5:00pm, 7:00pm, and 9:00pm). Based on the above, it has been assumed that AM peak hour trips consist of 32 players arriving for the first game of the day, and PM peak hour trips consist of 32 players arriving for an afternoon game and 32 players departing after playing the previous game.

Trips generated by the existing office space at 314 Athlone Avenue have been estimated using the trip generation rates for the Small Office Building (land use code 712), as outlined in the *ITE Trip Generation Manual, 10th Edition*. Using aerial photography, the gross floor area (GFA) of the office space is estimated to be approximately 3,000 ft^2. Trips estimated using the *ITE Trip Generation Manual* have been converted to person trips using an adjustment factor of 1.28, consistent with the City's *2017 TIA Guidelines*.

The estimated number of person trips generated by the existing curling club and small office space are shown in **Table 5**.

Table 5: Existing Development – Peak Hour Person Trip Generation

Land Use	ITE Code	Units/GFA	AM Peak Hour (pph)[1]			PM Peak Hour (pph)		
			IN	OUT	TOT	IN	OUT	TOT
Curling Club	-	4 ice sheets	32	0	*32*	32	32	*64*
Small Office Building	712	3,000 ft^2	7	1	*8*	3	6	*9*
		Total	**39**	**1**	***40***	**35**	**38**	***73***

1. pph: person trips per hour

It is anticipated that most patrons of the curling club arrive and depart in their own personal vehicle, based on Novatech's experience on the proposed development application for the new Granite Curling Club location at 2730 Queensview Drive. Therefore, the assumed mode shares for the curling club are summarized as 85% auto driver, 5% auto passenger, 5% transit, and 5% pedestrian.

The *TRANS Trip Generation Manual Summary Report*, prepared in October 2020 by WSP, includes AM peak hour data to estimate the mode shares for employment trip generators, based on location. For the purposes of this analysis, trips generated by the small office space are assumed to generally follow the mode shares of the Ottawa West district, which is summarized as 54% auto driver, 8% auto passenger, 28% transit, 5% cyclist, and 5% pedestrian.

A breakdown of the existing trips by modal share is shown in **Table 6**.

Table 6: Existing Development – Peak Hour Trips by Mode Share

Travel Mode	Mode Share	AM Peak Hour			PM Peak Hour		
		IN	OUT	TOT	IN	OUT	TOT
Curling Club Person Trips		**32**	**0**	***32***	**32**	**32**	***64***
Auto Driver	85%	27	0	*27*	27	27	*54*
Auto Passenger	5%	2	0	*2*	2	2	*4*
Transit	5%	2	0	*2*	2	2	*4*
Cyclist	0%	0	0	*0*	0	0	*0*
Pedestrian	5%	1	0	*1*	1	1	*2*
Small Office Person Trips		**7**	**1**	***8***	**3**	**6**	***9***
Auto Driver	54%	3	1	*4*	2	3	*5*
Auto Passenger	8%	1	0	*1*	0	1	*1*
Transit	28%	2	0	*2*	1	2	*3*
Cyclist	5%	1	0	*1*	0	0	*0*
Pedestrian	5%	0	0	*0*	0	0	*0*
Total Existing Person Trips		**39**	**1**	***40***	**35**	**38**	***73***
Auto Driver		**30**	**1**	***31***	**29**	**30**	***59***
Auto Passenger		**3**	**0**	***3***	**2**	**3**	***5***
Transit		**4**	**0**	***4***	**3**	**4**	***7***
Cyclist		**1**	**0**	***1***	**0**	**0**	***0***
Pedestrian		**1**	**0**	***1***	**1**	**1**	***2***

From the previous tables, the existing uses on the subject site are estimated to generate 40 person trips (including 31 vehicle trips) during the AM peak hour, and 73 person trips (including 59 vehicle trips) during the PM peak hour.

Proposed Trip Generation

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

This trip generation review considers the unit counts of the concept plan submitted to the Urban Design Review Panel (UDRP). At that time, Building 1 was proposed to include 463 dwellings (rather than 459) and Building 2 was proposed to include 379 dwellings (rather than 354). Since these unit counts are higher, the trip generation review has not been updated in order to maintain a conservative analysis.

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

- Auto Driver: 28% AM peak, 33% PM peak;
- Auto Passenger: 11% AM peak, 11% PM peak;
- Transit: 41% AM peak, 26% PM peak;
- Cyclist: 3% AM peak, 7% PM peak;
- Pedestrian: 16% AM peak, 23% PM peak.

The subject site is located within a Transit-Oriented Development (TOD) zone. The City has provided target mode shares for any transit-oriented developments, which are the following:

- Auto Driver: 15% during both peak hours;
- Auto Passenger: 5% during both peak hours;
- Transit: 65% during both peak hours;
- Non-Auto: 15% during both peak hours.

It is assumed that the proposed development will generally be consistent to the TOD mode shares with an adjustment to the pedestrian mode share, to reflect the higher number of pedestrians within the Ottawa West area.

The estimated number of person trips generated by the proposed dwellings for the AM and PM peak periods are shown in **Table 7**. A breakdown of these trips by modal share is shown in **Table 8**.

Table 7: 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
Phase 1, buildout year 2026								
High-Rise Multifamily Housing	AM: 0.80 PM: 0.90	463 units	115	255	*370*	242	175	*417*
Phase 2, buildout year 2029								
High-Rise Multifamily Housing	AM: 0.80 PM: 0.90	379 units	94	209	*303*	198	143	*341*
		Total	**209**	**464**	***673***	**440**	**318**	***758***

1. ppp: person trips per peak period

Table 8: Proposed Development – Peak Period Trips by Mode Share

Travel Mode	Mode Share	AM Peak Period			PM Peak Period		
		IN	OUT	TOT	IN	OUT	TOT
Phase 1 Person Trips		**115**	**255**	***370***	**242**	**175**	***417***
Auto Driver	15%	17	38	*55*	36	26	*62*
Auto Passenger	5%	6	13	*19*	12	9	*21*
Transit	55%	63	140	*203*	133	96	*229*
Cyclist	5%	6	13	*19*	12	9	*21*
Pedestrian	20%	23	51	*74*	49	35	*84*
Phase 2 Person Trips		**94**	**209**	***303***	**198**	**143**	***341***
Auto Driver	15%	14	31	*45*	30	21	*51*
Auto Passenger	5%	5	10	*15*	10	7	*17*
Transit	55%	52	115	*167*	108	80	*188*
Cyclist	5%	5	10	*15*	10	7	*17*
Pedestrian	20%	18	43	*61*	40	28	*68*
Auto Driver (Total)		**31**	**69**	***100***	**66**	**47**	***113***
Auto Passenger (Total)		**11**	**23**	***34***	**22**	**16**	***38***
Transit (Total)		**115**	**255**	***370***	**241**	**176**	***417***
Cyclist (Total)		**11**	**23**	***34***	**22**	**16**	***38***
Pedestrian (Total)		**41**	**94**	***135***	**89**	**63**	***152***

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 9**.

Table 9: Proposed Development – Peak Hour Trips by Mode Share

Travel Mode	Adj. Factor[1]		AM Peak Hour			PM Peak Hour		
	AM	PM	IN	OUT	TOT	IN	OUT	TOT
Auto Driver	0.48	0.44	8	18	*26*	16	12	*28*
Auto Passenger	0.48	0.44	3	6	*9*	5	4	*9*
Transit	0.55	0.47	35	77	*112*	63	45	*108*
Cyclist	0.58	0.48	3	7	*10*	6	4	*10*
Pedestrian	0.58	0.52	13	30	*43*	25	18	*43*
Phase 1 Person Trips			**62**	**138**	***200***	**115**	**83**	***198***
Auto Driver	0.48	0.44	7	15	*22*	13	9	*22*
Auto Passenger	0.48	0.44	2	5	*7*	4	3	*7*
Transit	0.55	0.47	28	63	*91*	51	37	*88*
Cyclist	0.58	0.48	3	6	*9*	5	3	*8*
Pedestrian	0.58	0.52	11	24	*35*	21	15	*36*
Phase 2 Person Trips			**51**	**113**	***164***	**94**	**67**	***161***
Auto Driver	(Phase 1+2)		15	33	*48*	29	21	*50*
Auto Passenger	(Phase 1+2)		5	11	*16*	9	7	*16*
Transit	(Phase 1+2)		63	140	*203*	114	82	*196*
Cyclist	(Phase 1+2)		6	13	*19*	11	7	*18*
Pedestrian	(Phase 1+2)		24	54	*78*	46	33	*79*
Total Proposed Person Trips			**113**	**251**	***364***	**209**	**150**	***359***

From the previous table, Phase 1 of the proposed development is projected to generate 200 person trips (including 26 vehicle trips) during the AM peak hour and 198 person trips (including 28 vehicle trips) during the PM peak hour, and Phase 2 is projected to generate an additional 164 person trips (including 22 vehicle trips) during the AM peak hour and 161 person trips (including 22 vehicle trips) during the PM peak hour.

At ultimate buildout, the proposed development is projected to generate 364 person trips (including 48 vehicle trips) during the AM peak hour and 359 person trips (including 50 vehicle trips) during the PM peak hour.

Net Trip Generation

To determine the estimated net number of new trips generated by the proposed development, the existing trip generation estimates shown in **Table 6** have been subtracted from the proposed trip generation estimates shown in **Table 9**. The results of this calculation are presented in **Table 10**.

Table 10: Net Person Trip Generation

Travel Mode	AM Peak Hour			PM Peak Hour		
	IN	OUT	TOT	IN	OUT	TOT
Existing Person Trips	**39**	**1**	***40***	**35**	**38**	***73***
Auto Driver	30	1	*31*	29	30	*59*
Auto Passenger	3	0	*3*	2	3	*5*
Transit	4	0	*4*	3	4	*7*
Cyclist	1	0	*1*	0	0	*0*
Pedestrian	1	0	*1*	1	1	*2*
Proposed Person Trips	**113**	**251**	***364***	**209**	**150**	***359***
Auto Driver	15	33	*48*	29	21	*50*
Auto Passenger	5	11	*16*	9	7	*16*
Transit	63	140	*203*	114	82	*196*
Cyclist	6	13	*19*	11	7	*18*
Pedestrian	24	54	*78*	46	33	*79*
Net Additional Person Trips	**74**	**250**	***324***	**174**	**112**	***286***
Auto Driver	-15	32	*17*	0	-9	*-9*
Auto Passenger	2	11	*13*	7	4	*11*
Transit	59	140	*199*	111	78	*189*
Cyclist	5	13	*18*	11	7	*18*
Pedestrian	23	54	*77*	45	32	*77*

From the previous table, the ultimate proposed development is projected to generate an additional 324 person trips (including 17 additional vehicle trips) during the AM peak hour, and an additional 286 person trips (but nine fewer vehicle trips) during the PM peak hour.

3.1.2 Trip Distribution and Assignment

The assumed distribution of trips generated by the existing and proposed developments have been derived from existing traffic patterns within the study area and logical trip routing. Different distributions have been assumed for the existing curling club, existing office space, and proposed residences, as described below.

Existing Curling Club
Site-generated curling trips have been distributed based on the two-way off-peak traffic patterns of the study area, as trips to/from the curling club are not anticipated to follow the commuter traffic patterns observed during the AM and PM peak hour.

The assumed trip distribution for the existing curling club can be summarized as follows:

- 10% to/from the north via Churchill Avenue;
- 40% to/from the south via Winona Avenue;
- 10% to/from the south via McRae Avenue;
- 40% to/from the east via Scott Street.

All trips to/from the south via Winona Avenue have been assigned to the access on Ashton Avenue, at the back of the curling club. All trips to/from the north via Churchill Avenue, south via McRae Avenue, and east via Scott Street have been assigned to the access on Scott Street.

Existing Office Space
Site-generated office trips have been distributed based on the traffic patterns associated with the typical commute to/from a place of employment (i.e. inbound trips during the AM peak hour and outbound trips during the PM peak hour).

The assumed trip distribution for the existing office building can be summarized as follows:

- 10% to/from the north via Churchill Avenue;
- 35% to/from the south via Churchill Avenue;
- 10% to/from the south via Athlone Avenue;
- 45% to/from the east via Scott Street.

All trips generated by the existing office space have been assigned to the access on Athlone Avenue.

Traffic volumes generated by the existing uses are shown in **Figure 8**.

Proposed Residential
Site-generated residential trips have been distributed based on the traffic patterns associated with the typical commute to/from home (i.e. outbound trips during the AM peak hour and inbound trips during the PM peak hour).

The assumed trip distribution for the proposed development can be summarized as follows:

- 30% to/from the south via Churchill Avenue;
- 10% to/from the south via Athlone Avenue;
- 15% to/from the south via McRae Avenue;
- 45% to/from the east via Scott Street.

All peak hour trips generated by the proposed development have been assigned to the two underground parking garage ramps. All trips to/from the south via Athlone Avenue have been assigned to the proposed Athlone Avenue ramp, and all trips to/from the south via Churchill Avenue or McRae Avenue and all trips to/from the east via Scott Street have been assigned to the proposed Scott Street ramp.

The new traffic volumes generated by the proposed development are shown in **Figure 9** and **Figure 10**, for the Phase 1 year 2026 and horizon year 2031. The net traffic volumes generated by the subject site in 2026 and 2031 (i.e. the existing site-generated traffic is subtracted) are shown in **Figure 11** and **Figure 12**, respectively.

Figure 8: Existing Site-Generated Traffic Volumes

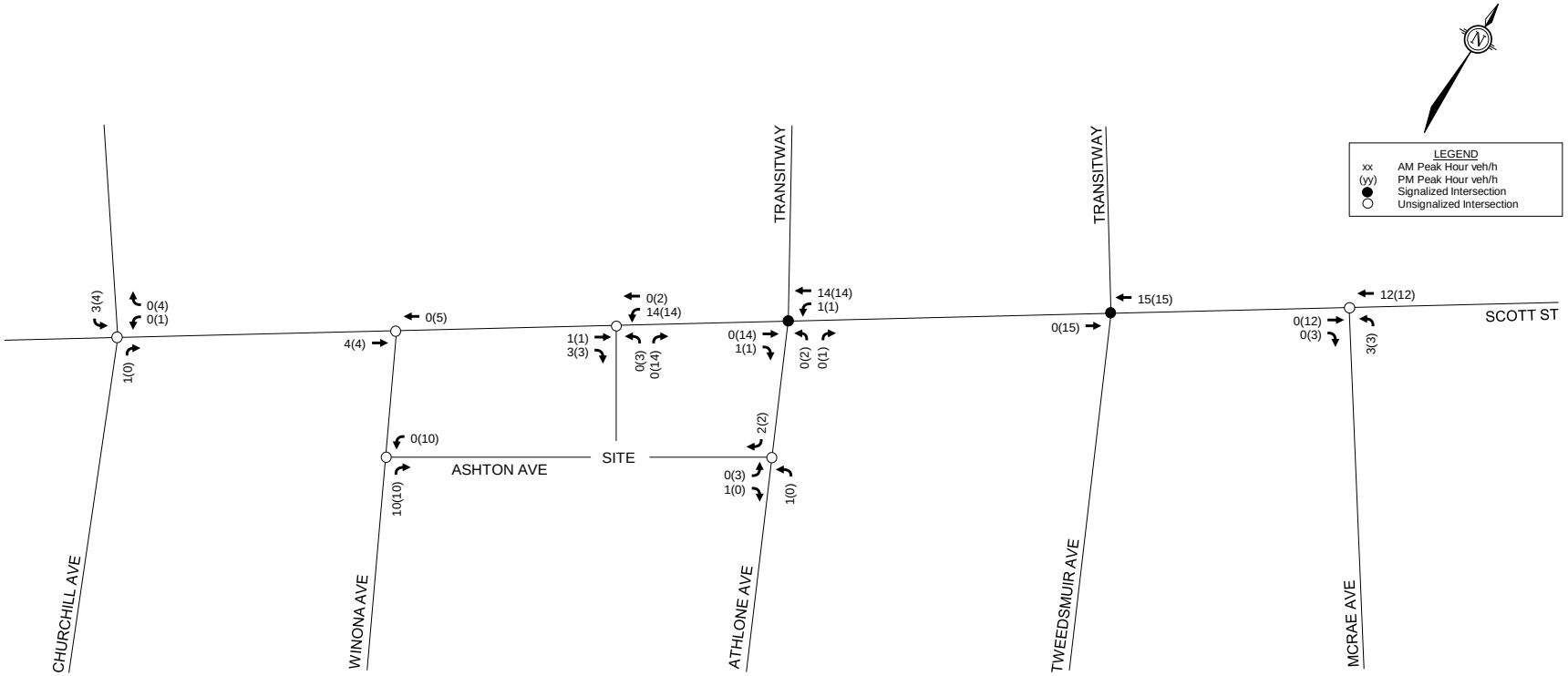


Figure 9: Proposed Site-Generated Traffic Volumes (2026)

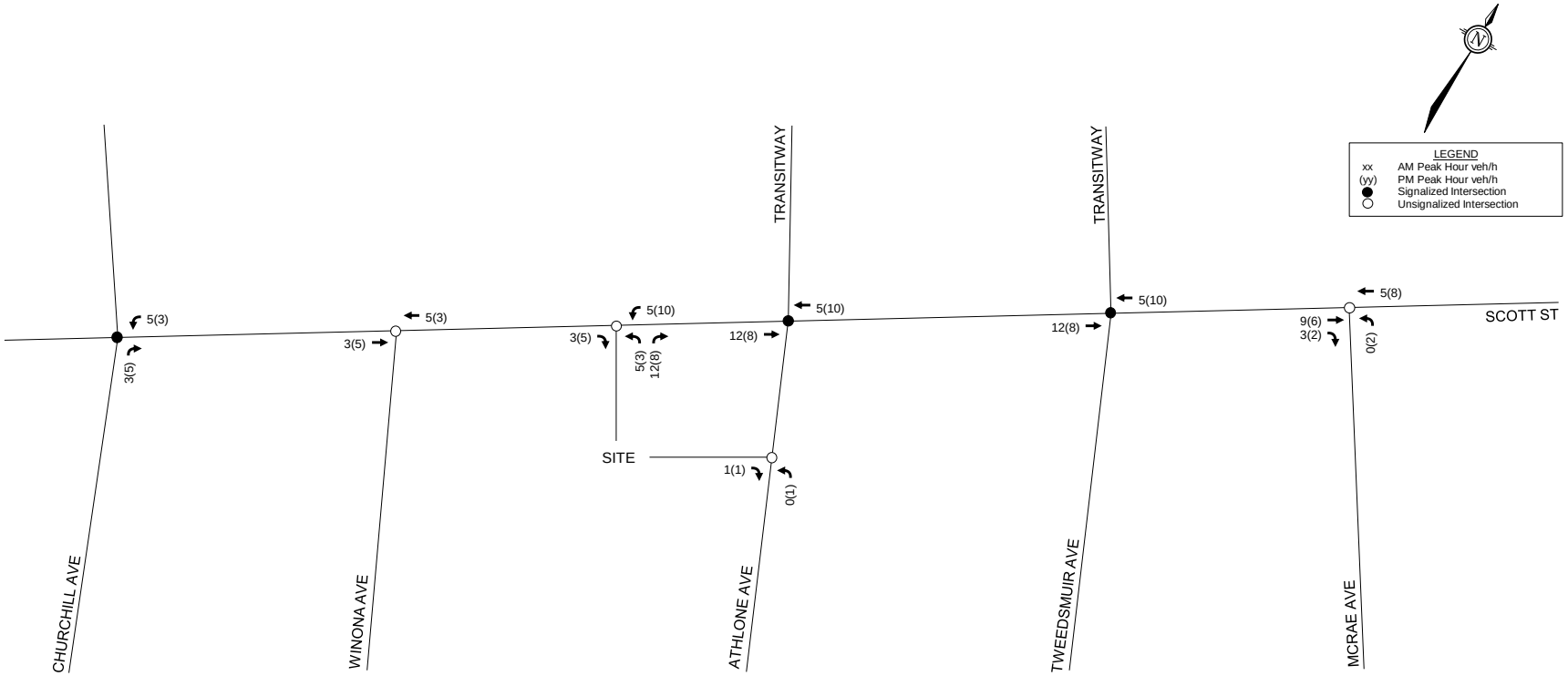


Figure 10: Proposed Site-Generated Traffic Volumes (2031)

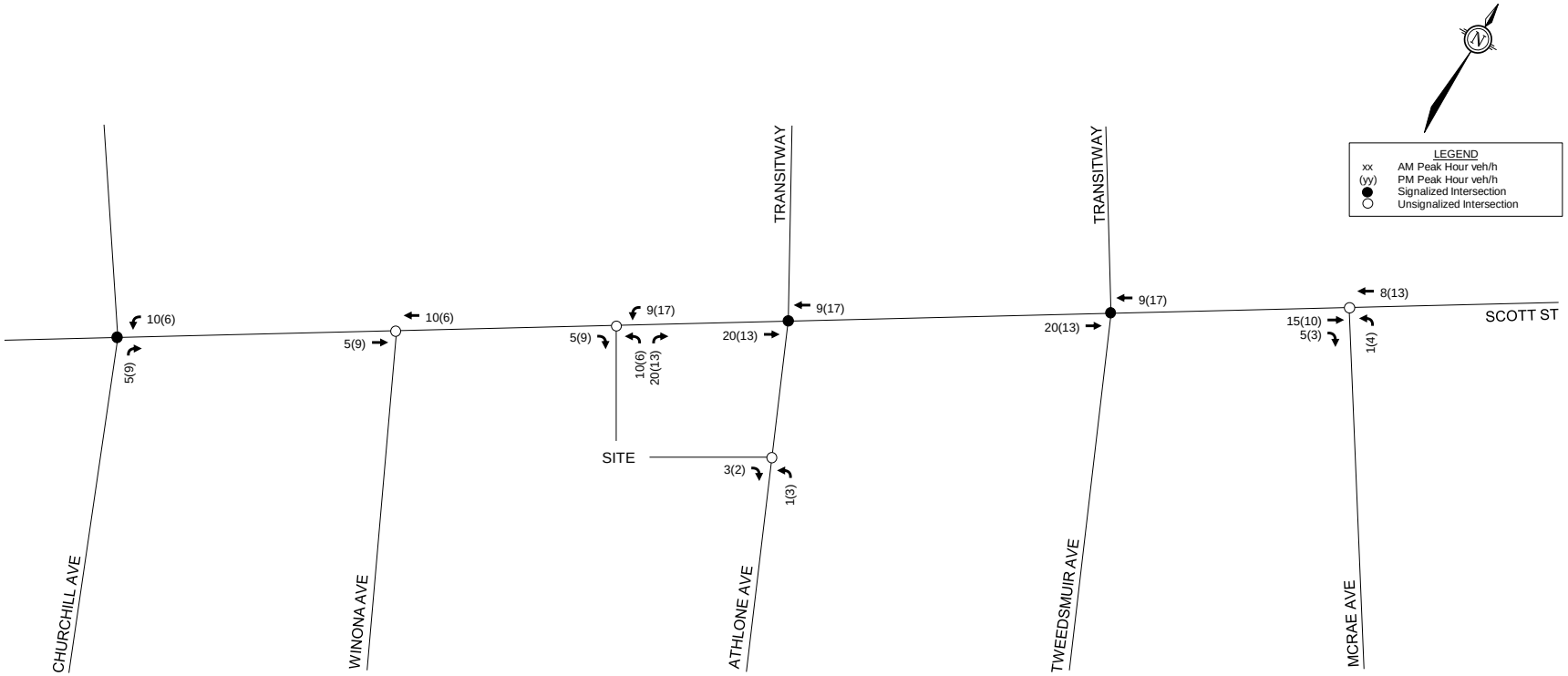


Figure 11: Net Site-Generated Traffic Volumes (2026)

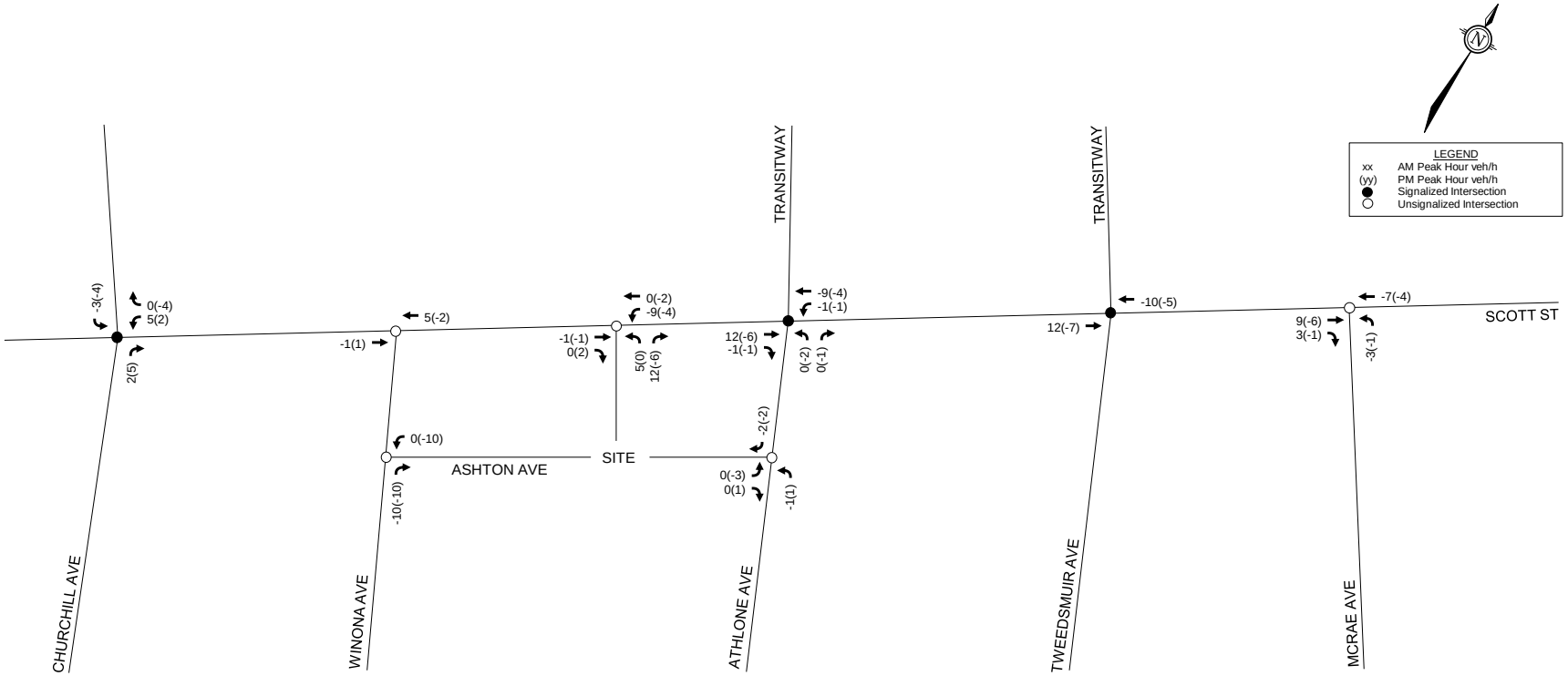
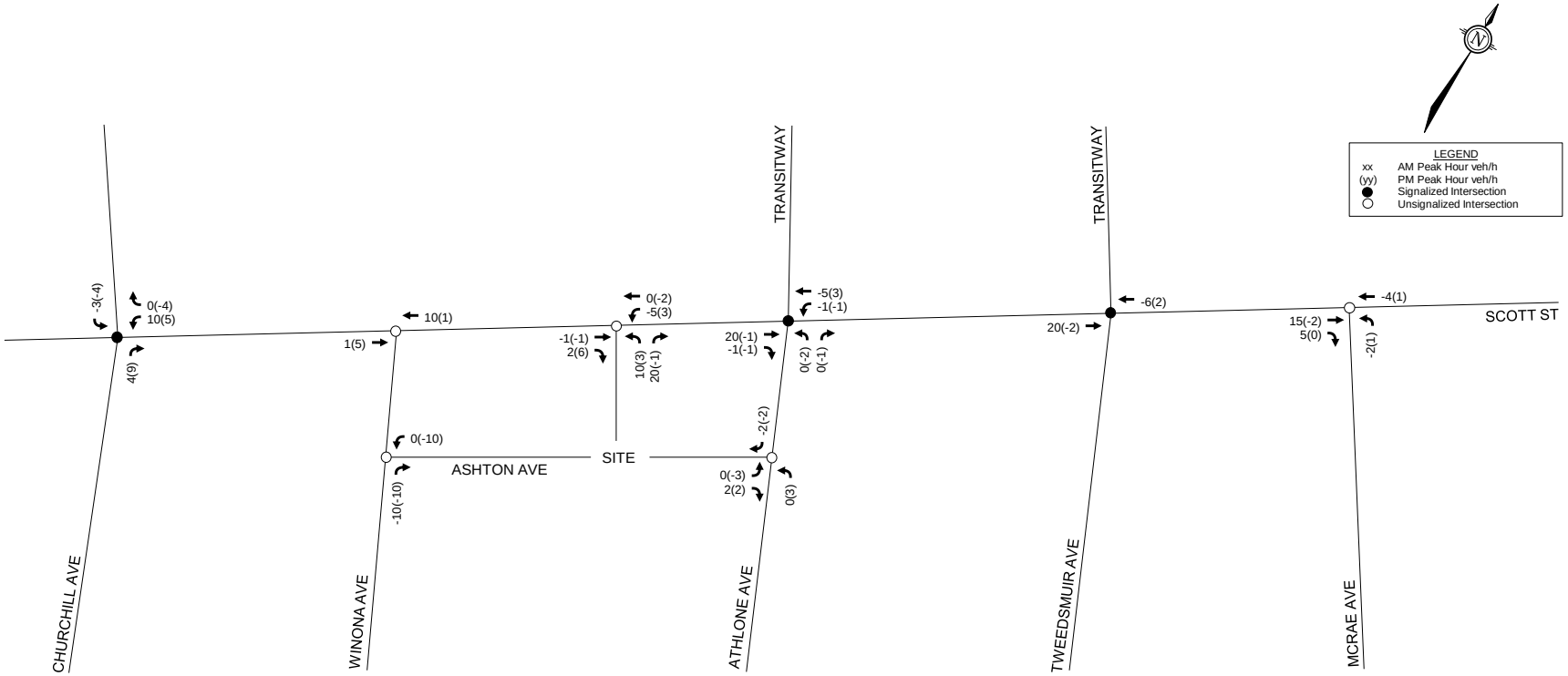


Figure 12: Net Site-Generated Traffic Volumes (2031)



3.2 Background Traffic

3.2.1 Other Area Developments

Traffic generated by the following proposed developments have been added to the future background volumes. Relevant excerpts from their associated traffic studies are included in **Appendix G**.

335 Roosevelt Avenue
The development proposes 246 high-rise dwellings and 17 mid-rise dwellings. The TIA report, prepared in December 2020 and revised in March 2022 by Novatech, estimated that full buildout of the development would occur in 2026. Therefore, traffic generated by this development has been added to the 2026 and 2031 background volumes.

319-327 Richmond Road, 380 Winona Avenue, and 381 Churchill Avenue
The development proposes 184 apartment dwellings and 1,738m^2 of retail space. The TIA report, prepared in May 2020 by CGH Transportation, estimated that full buildout of the development would occur in 2022. Therefore, traffic generated by this development has been added to the 2026 and 2031 background volumes.

320 McRae Avenue
The development proposes 307 apartment dwellings, 11 townhouses, and 9,494ft^2 of commercial land uses. The TIA report, prepared in January 2020 by CGH Transportation, estimated that full buildout of the development would occur in 2022. Therefore, traffic generated by this development has been added to the 2026 and 2031 background volumes.

1950 Scott Street
The development proposes 141 condominium/apartment dwellings. The TIA report, prepared in July 2018 by Parsons, estimated that full buildout of the development would occur in 2020. Therefore, traffic generated by this development has been added to the 2026 and 2031 background volumes.

2050 Scott Street
The development proposes 353 apartment dwellings and 233m^2 of ground floor commercial/office space. The TIA report, prepared in February 2021 by Parsons, estimates that full buildout of the development would occur in 2021. Therefore, traffic generated by this development has been added to the 2026 and 2031 background volumes.

2070 Scott Street
The development proposes 241 apartment dwellings and 5,500ft^2 of retail space. The TIA report, prepared in November 2019 by Stantec, estimates that full buildout of the development would occur in 2022. Therefore, traffic generated by this development has been added to the 2026 and 2031 background volumes.

3.2.2 General Background Growth Rate

A review of the City's *Strategic Long-Range Model* has been conducted, comparing snapshots of the 2011 and 2031 AM peak hour traffic volumes. The long-range snapshots are included in **Appendix H**.

Within the study area, the long-range snapshots identify generally negative growth on Scott Street between 2011 and 2031. It is anticipated that the transit and non-auto infrastructure upgrades planned along Scott Street, which includes improvements such as the extension of the Confederation Line LRT and cycle tracks along Scott Street, will increase the use of active transportation modes. To maintain a conservative analysis, an annual growth rate of 0% for vehicular traffic volumes within the study area has been applied, and the traffic volumes generated by the other area developments described in the previous section have been added directly.

3.3 Future Traffic Conditions

The figures below present the following future traffic conditions:

- Other area development-generated volumes in 2026 and 2031 are shown in **Figure 13**;
- Background traffic volumes in 2026 and 2031 are shown in **Figure 14**;
- Total traffic volumes in 2026 are shown in **Figure 15**;
- Total traffic volumes in 2031 are shown in **Figure 16**.

3.4 Demand Rationalization

A review of the existing and background intersection operations has been conducted using the Synchro 10 software, to determine if and when traffic volumes exceed capacity within the study area. The intersection parameters used in the analysis are consistent with the City's *2017 TIA Guidelines* (Saturated Flow Rate: 1,800 vphpl, Peak Hour Factor: 0.9 in existing conditions and 1.0 in future conditions). Signal timing plans for the signalized pedestrian crossings at Scott Street/Athlone Avenue and Scott Street/Tweedsmuir Avenue are included in **Appendix I**.

All study area intersections are within 600m of a rapid transit station. Per Exhibit 22 of the *Multi-Modal Level of Service (MMLOS) Guidelines* (produced by IBI Group in October 2015), the target vehicular level of service (Auto LOS) at all study area intersections is an Auto LOS E, which equates to a maximum vehicle-to-capacity (v/c) ratio of 1.00 or maximum approach delay of 50 seconds.

The intersections at Scott Street/Athlone Avenue and Scott Street/Tweedsmuir Avenue are four-legged unsignalized intersections, but include pedestrian-actuated crossing signals at one approach of each intersection. Due to limitations in Synchro, these intersections are modelled as both a two-legged pedestrian-actuated signal and a four-legged unsignalized intersection. This approach has been taken to adequately model the traffic operations for both the major street (Scott Street) and minor streets (Athlone Avenue or Tweedsmuir Avenue).

The intersection of Scott Street/Churchill Avenue is anticipated to be a signalized protected intersection with auxiliary northbound right turn and westbound left turn lanes before completion of Phase 1 of the proposed development. Therefore, this intersection will be modelled accordingly for all future conditions.

Figure 13: Other Area Development-Generated Traffic Volumes

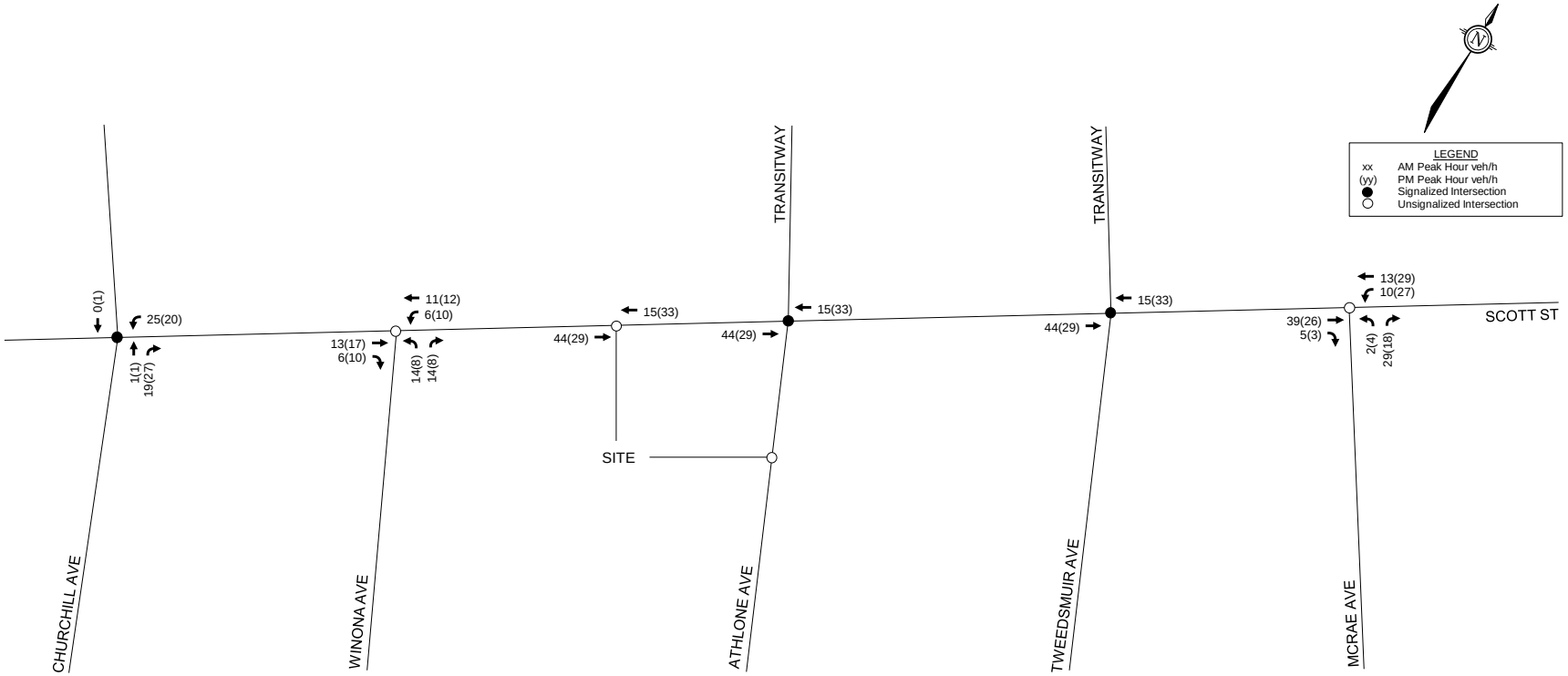


Figure 14: 2026 and 2031 Background Traffic Volumes

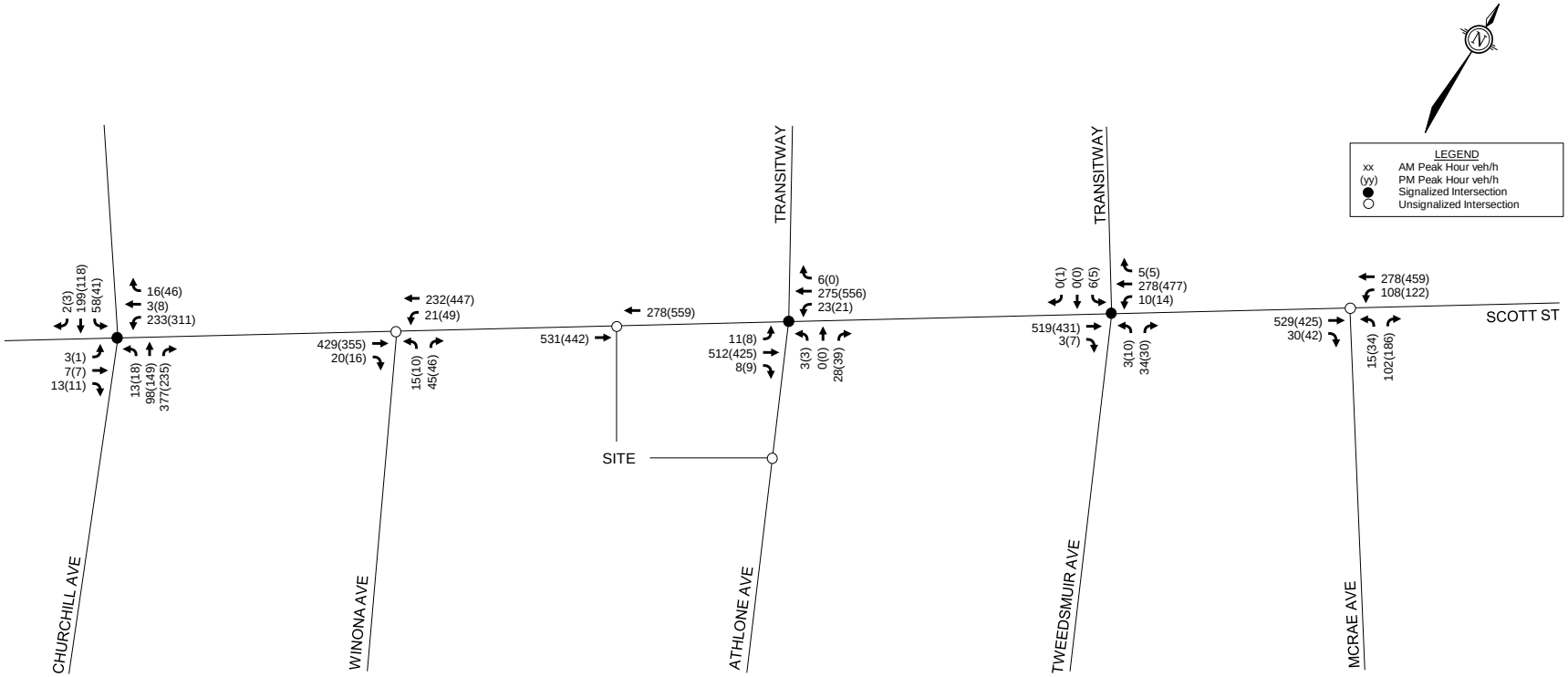


Figure 15: 2026 Total Traffic Volumes

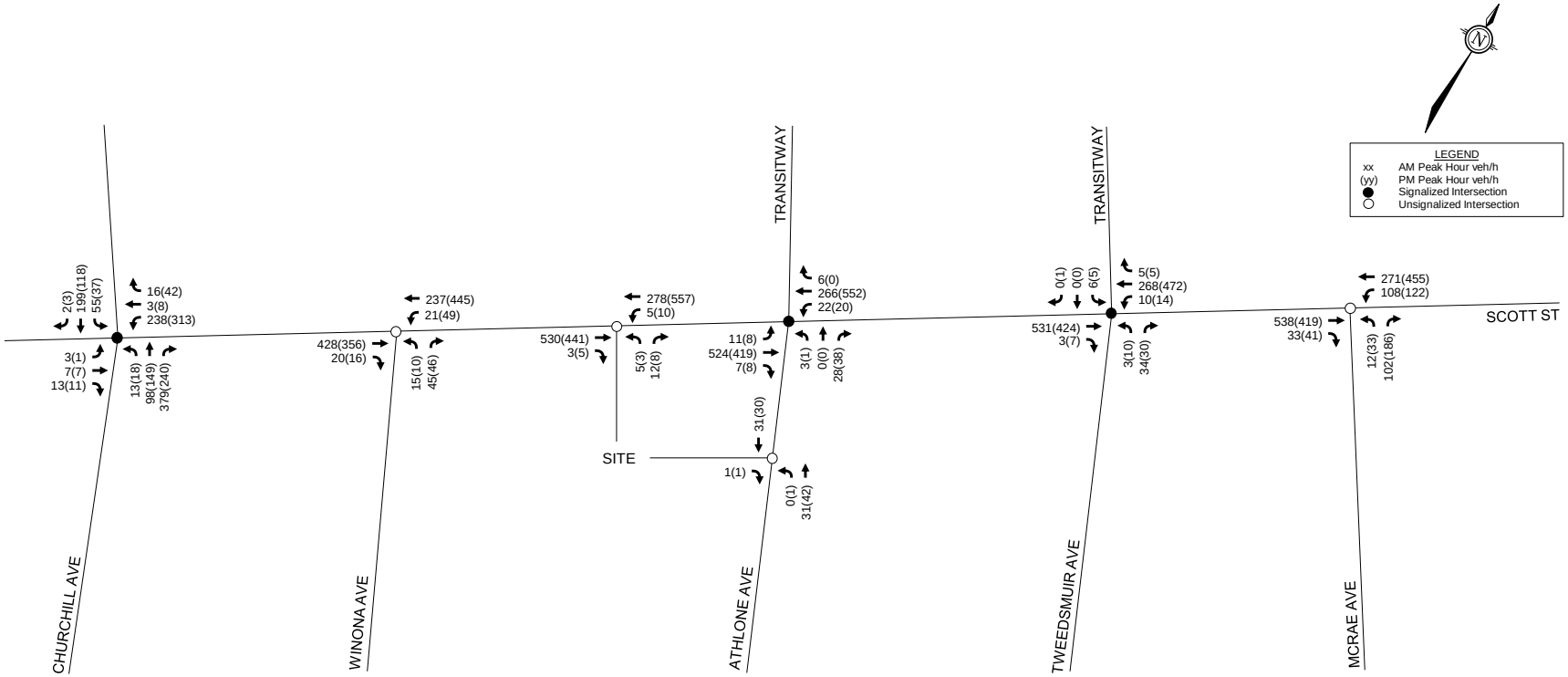
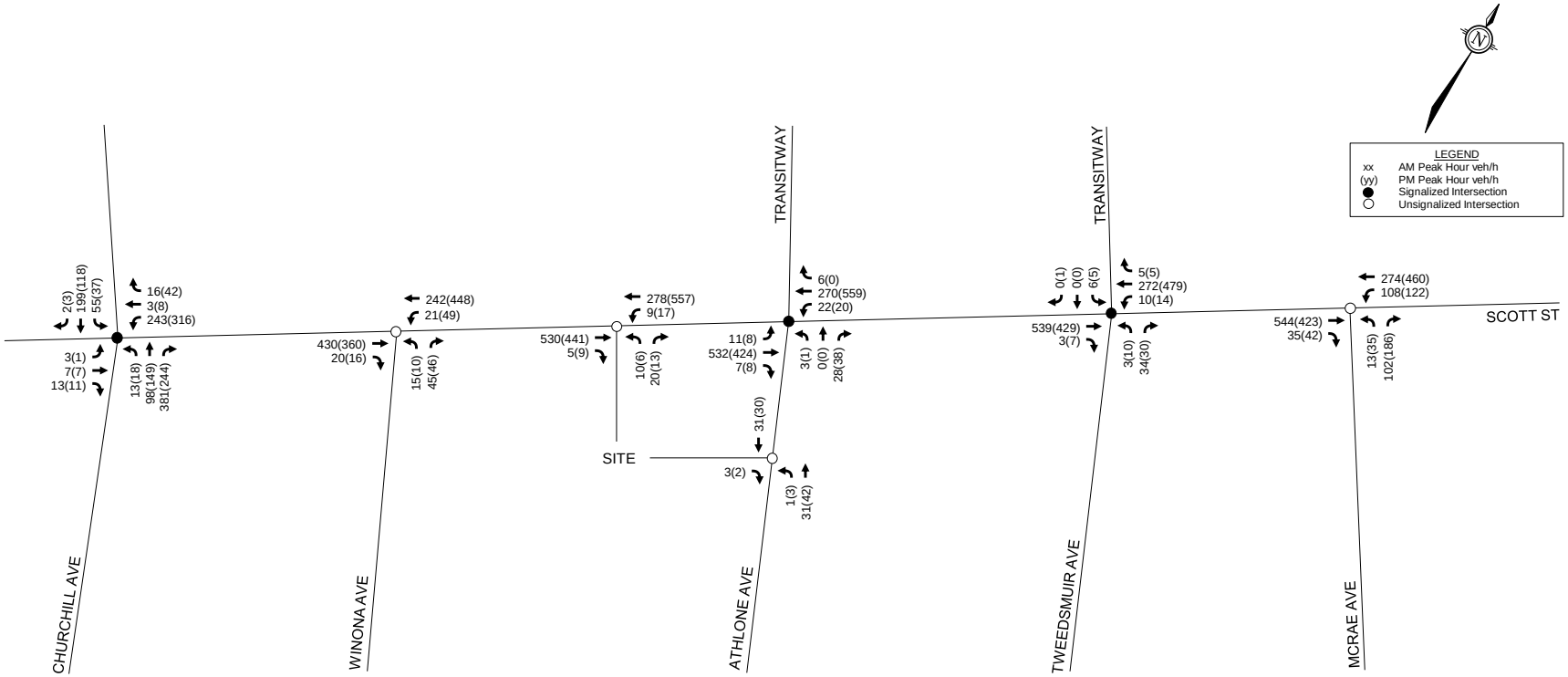


Figure 16: 2031 Total Traffic Volumes



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 11** for the weekday AM and PM peak hours. Detailed reports are included in **Appendix J**.

Table 11: Existing Traffic Operations

Intersection		AM Peak Hour			PM Peak Hour		
		Max v/c or Delay	LOS	Mvmt	Max v/c or Delay	LOS	Mvmt
Scott Street/Churchill Avenue		19 sec	C	NBL/T/R	17 sec	C	WBL/T/R
Scott Street/Winona Avenue		12 sec	B	NBL/R	11 sec	B	NBL/R
Scott Street/Athlone Avenue	(1)	0.45	A	EBL/T/R	0.50	A	WBL/T/R
	(2)	14 sec	B	NBL/T/R	14 sec	B	NBL/T/R
Scott Street/Tweedsmuir Avenue	(1)	0.44	A	EBL/T/R	0.44	A	WBL/T/R
	(2)	**69 sec**	**F**	**SBL/T/R**	**140 sec**	**F**	**SBL/T/R**
Scott Street/McRae Avenue		17 sec	C	NBL/R	24 sec	C	NBL/R

1. Intersection modelled as a two-legged pedestrian crossing; results identify maximum v/c ratio for through traffic on Scott Street
2. Intersection modelled as a side-street stop-controlled intersection; results identify maximum approach delay for side street

From the previous table, all approaches within the study area meet the target Auto LOS E, except for the transit-only approach at Scott Street/Tweedsmuir Avenue. It should be noted that, when the pedestrian phase is actuated at this intersection, southbound buses utilizing this approach would be able to turn right onto Scott Street unimpeded, and would be able to turn left onto Scott Street once pedestrians had completed their crossing. Further, it is anticipated that bus operations at this station may be reduced once Westboro Station is served by LRT, resulting in improved operations at this approach.

3.4.2 2026/2031 Background Intersection Operations

Intersection capacity analysis has been conducted for the 2026/2031 background traffic conditions. The results of the analysis are summarized in **Table 12** for the weekday AM and PM peak hours. Detailed reports are included in **Appendix K**.

Table 12: 2026/2031 Background Traffic Operations

Intersection		AM Peak Hour			PM Peak Hour		
		Max v/c or Delay	LOS	Mvmt	Max v/c or Delay	LOS	Mvmt
Scott Street/Churchill Avenue		0.87	D	NBR	0.84	D	NBR
Scott Street/Winona Avenue		13 sec	B	NBL/R	13 sec	B	NBL/R
Scott Street/Athlone Avenue	(1)	0.45	A	EBL/T/R	0.48	A	WBL/T/R
	(2)	14 sec	B	NBL/T/R	14 sec	B	NBL/T/R
Scott Street/Tweedsmuir Avenue	(1)	0.43	A	EBL/T/R	0.42	A	WBL/T/R
	(2)	**69 sec**	**F**	**SBL/T/R**	**136 sec**	**F**	**SBL/T/R**
Scott Street/McRae Avenue		18 sec	C	NBL/R	25 sec	C	NBL/R

1. Intersection modelled as a two-legged pedestrian crossing; results identify maximum v/c ratio for through traffic on Scott Street
2. Intersection modelled as a side-street stop-controlled intersection; results identify maximum approach delay for side street

From the previous table, all approaches within the study area continue to meet the target Auto LOS E, except for the transit-only approach at Scott Street/Tweedsmuir Avenue.

4.0 ANALYSIS

4.1 Development Design

A high-level review of the ultimate development design has been completed, based on the current conceptual plans. These plans are subject to further refinement as part of subsequent Site Plan Control applications.

Sidewalks will be maintained along the subject site's frontages to Scott Street and Athlone Avenue, and internal walkways will be provided around the perimeter of each building, connecting to the sidewalks on Scott Street and Athlone Avenue. Landscaped walkways will also provide pedestrian connectivity between Scott Street and Ashton Avenue and the Lion's Park land to the immediate south of the subject site.

At this stage, bicycle parking is proposed to be provided on each of the underground parking levels, and is anticipated to meet the minimum required number of bicycle spaces per the City's ZBL. A review of the minimum requirements outlined in the City's ZBL is included 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. Main entrances to all three proposed buildings are anticipated to be within 400m walking distance of Westboro Station and bus stops on Churchill Avenue and McRae Avenue. These stops are discussed in Section 2.1.6 and shown in **Figure 5**.

The location of garbage collection and loading for each proposed building will be determined as part of a future Site Plan Control application. An on-site fire route is proposed between the two buildings, but this fire route will not be used by any other vehicles.

A review of the *Transportation Demand Management (TDM)-Supportive Development Design and Infrastructure Checklist* has been conducted, and is included in **Appendix L**. Based on the conceptual plans, it is anticipated that all required TDM-supportive design and infrastructure measures in the TDM checklist can be met. The TDM checklists will be reviewed as part of future Site Plan Control applications.

4.2 Parking

The subject site is located in Area B of Schedule 1 and Area Y of Schedule 1A of the City's ZBL, and is located within 600m of a rapid transit station identified in Schedule 2A of the City's ZBL. The minimum vehicular, maximum vehicular, and minimum bicycle parking rates for the proposed development are identified in Sections 101, 102, 103, and 111 of the ZBL.

A review of the parking requirements per the City's ZBL are shown in **Table 13**.

Table 13: Parking Review

Land Use	Rate	Units	Required
Minimum Resident Vehicle Parking (Section 101 of ZBL)			
Apartment, High-Rise	0.50 spaces per dwelling unit after the first 12 units and reduced by 20 spaces overall, as all parking is below grade	813 units	381
Minimum Visitor Vehicle Parking (Section 102 of ZBL)			
Apartment, High-Rise	0.10 spaces per dwelling unit after the first 12 units and up to a maximum of 30 spaces per building	813 units	60
Maximum Vehicle Parking (Section 103 of ZBL)			
Apartment, High-Rise	1.75 spaces per dwelling unit (combined resident and visitor parking)	813 units	1,423
Minimum Bicycle Parking (Section 111 of ZBL)			
Apartment, High-Rise	0.50 spaces per dwelling unit	813 units	407

4.3 Boundary Streets

This section provides a review of the boundary streets Scott Street and Athlone Avenue, 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 the boundary streets. An MMLOS review has been conducted for Scott Street and Athlone Avenue, based on existing conditions.

Based on Exhibit 22 of the *MMLOS Guidelines*, the boundary streets have been evaluated using the targets for roadways 'within 600m of a rapid transit station.' A detailed MMLOS review of the boundary streets is included in **Appendix M**. A summary of the segment MMLOS results for Scott Street and Athlone Avenue is provided in **Table 14**.

Table 14: Segment MMLOS Summary

Segment	PLOS		BLOS		TLOS		TkLOS	
	Actual	Target	Actual	Target	Actual	Target	Actual	Target
Scott Street	**C**	A	**D**	A	**D**	A	B	D
Athlone Avenue	**F**		**F**	D	-	-	-	-

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

- Neither boundary street meets the target pedestrian level of service (PLOS) A;
- Neither boundary street meets the target bicycle level of service (BLOS) A or D;
- Scott Street does not meet the target transit level of service (TLOS) A;
- Scott Street meets the target truck level of service (TkLOS) D.

Each boundary street is discussed in greater detail below.

Scott Street, between Winona Avenue and Athlone Avenue
The street does not meet the target PLOS A, BLOS A, or TLOS A.

Per Exhibit 4 of the *MMLOS Guidelines*, Scott Street cannot achieve the target PLOS A on either side of the roadway without reducing the operating speed to 30 km/h or slower, based on the existing traffic volumes.

The bike lanes along Scott Street do not meet the target BLOS A. However, it is noteworthy that a separated multi-use pathway is provided on the north side of the roadway achieving the target BLOS A. It is understood that the City is developing a complete street concept for implementation along Scott Street following LRT construction. The complete street design is anticipated to include improved pedestrian and cycling facilities. The ultimate complete street design was not available at the time of writing. A further review of the Scott Street frontage will be conducted as part of the subsequent Site Plan Control application.

Per Exhibit 15 of the *MMLOS Guidelines*, Scott Street can only achieve the target TLOS A by providing segregated transit facilities. Once Stage 2 of the Confederation Line LRT is complete, the bus detour will not need to run along Scott Street, and light rail transit will be provided immediately north of the roadway. Therefore, the target TLOS will be met.

Athlone Avenue, between Scott Street and Richmond Road
The street does not meet the target PLOS A or BLOS D.

Per Exhibit 4 of the *MMLOS Guidelines*, Athlone Avenue can achieve the target PLOS A by providing a 2.0m-wide sidewalk with a minimum boulevard width of 0.5m. This is identified for the City's consideration, and can be considered along the subject site's frontage at the Site Plan Control stage.

Per Exhibit 11 of the *MMLOS Guidelines*, Athlone Avenue can achieve the target BLOS D by reducing the operating speed to 50 km/h. This could be achieved through some local traffic calming measures. This is identified for the City's consideration, and can be considered along the subject site's frontage at the Site Plan Control stage.

4.4 Access Intersections

Access to the proposed underground parking will be provided via one full-movement driveway to Scott Street and one full-movement driveway to Athlone Avenue. In addition, an on-site fire route is proposed to connect to Scott Street, midblock between the proposed Scott Street garage access and the intersection at Scott Street/Athlone Avenue. All driveways are anticipated to be constructed as part of the first phase, and will lead directly to the underground parking garage beneath the entire proposed development.

The design of the proposed accesses will be evaluated using the relevant provisions of the City's *Private Approach By-Law* (PABL) and Transportation Association of Canada (TAC)'s *Geometric Design Guide for Canadian Roads*, as part of future Site Plan Control applications. As part of this review, select provisions have been evaluated where enough information is known.

At this stage, the proposed access locations meet the provisions of Section 25(a) of the PABL, which outlines that a maximum of two two-way private approaches can be provided to any roadway where 46m to 150m of frontage is provided.

Based on Section 25(m)(ii) of the PABL, the nearest edge of any private approach that serve 300 or more parking spaces must be a minimum of 60m from the nearest intersecting street line or any other private approach, when the residential development is within 46m of an arterial roadway. This requirement is reduced to 18m to the nearest intersecting street line and 15m to any other private approach for driveways that serve less than 99 parking spaces.

The minimum requirement of 60m to the nearest intersecting street line can be met by the proposed underground garage access to Scott Street, but cannot be met by the proposed access to Athlone Avenue, as less than 60m of frontage is provided on that roadway. The concept plan shows the access to Athlone Avenue will be located as far from Scott Street as possible, based on the proposed building configuration. The minimum requirement of 18m to the nearest intersecting street line can be met for the fire route.

Based on the concept plan, the proposed fire route is located mid-block along Scott Street between the garage access and Athlone Avenue. The distance between the fire route and the parking garage access is anticipated to exceed the minimum 15m requirement. Increased separation between the two accesses will move the fire route closer to the intersection pedestrian signal at Athlone Avenue and is not recommended. A further review of TAC corner clearance requirements is summarized below.

TAC's *Geometric Design Guide* identifies minimum corner clearance requirements between a private approach and an existing intersection, measuring nearest edge to nearest edge. For signalized intersections, TAC identifies a minimum corner clearance of 70m for full-movement accesses to arterial roadways and a minimum corner clearance of 15m for full-movement accesses to local roadways. The concept plan shows that the proposed underground garage accesses to Scott Street and Athlone Avenue will meet these requirements, and the proposed fire route will not meet the 70m corner clearance requirement. However, since the fire route will not be utilized by other vehicles, and considering the Scott Street/Athlone Avenue is not a fully signalized intersection (i.e. only signalized for pedestrians crossing Scott Street), not meeting this requirement can be justified.

Analysis of the access intersection operations have been conducted in Synchro, with the results summarized in **Table 15**. The intersection parameters used in the analysis are consistent with the *2017 TIA Guidelines* (Saturated Flow Rate: 1,800 vphpl, Peak Hour Factor: 1.0 for future conditions). Detailed Synchro reports at the accesses are included in **Appendix N**.

Table 15: Access Intersection Operations

Intersection		AM Peak Hour			PM Peak Hour		
		Delay	LOS	Mvmt	Delay	LOS	Mvmt
Site Access to Scott Street	2026 (Phase 1)	14 sec	B	NBL/R	14 sec	B	NBL/R
	2031 (Ultimate)	14 sec	B	NBL/R	15 sec	B	NBL/R
Site Access to Athlone Avenue	2026 (Phase 1)	9 sec	A	EBL/R	9 sec	A	EBL/R
	2031 (Ultimate)	9 sec	A	EBL/R	9 sec	A	EBL/R

Based on the previous table, the proposed accesses are anticipated to operate with an acceptable Auto LOS.

4.5 Transportation Demand Management

4.5.1 Context for TDM

The two proposed buildings will be constructed in separate phases. The unit count and breakdown for each building can be summarized as follows.

- Building 1 (459 dwellings):
  - 39 studio units, 288 one-bedroom units, and 132 two-bedroom units;
- Building 2 (354 dwellings):
  - 39 studio units, 202 one-bedroom units, and 113 two-bedroom units.

4.5.2 Need and Opportunity

The subject site is designated as 'Traditional Main Street' on Schedule B of the City's Official Plan, and within the Scott Street Traditional Main Street design priority area. As shown in Section 3.1.1, the peak hour driver shares observed within the Ottawa West district (28% in AM peak and 33% in PM peak) are approximately double of the driver share target for Transit-Oriented Developments (15% in both peaks). If the proposed development has a driver share of 30% during the peak hours (i.e. more consistent with the observed shares within the Ottawa West district), rather than the assumed driver share of 15%, this would equate to an increase of approximately 48 vehicles during the AM peak hour and 50 vehicles during the PM peak hour.

A failure to meet the mode share targets (included in Section 3.1.1) is not anticipated to result in failing operations within the study area. It is anticipated that the mode share targets are attainable, as the subject site is proximally located to commercial areas, parks, recreation areas, and future LRT service.

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 L**. The proponent will consider providing the following TDM measures, which will be confirmed at the Site Plan Control stage:

- 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;
- Provide a multi-modal travel information package to new residents.

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, in cases where a site relies on local or collector roadways for access. Since an access to Athlone Avenue (i.e. a local roadway) is proposed, this module is included in this TIA.

The NTM two-way volume thresholds are as follows:

- Local: Maximum of 1,000 vehicles per day, or 120 vehicles during the peak hour;
- Collector: Maximum of 2,500 vehicles per day, or 300 vehicles during the peak hour;
- Major Collector: Maximum of 5,000 vehicles per day, or 600 vehicles during the peak hour.

Based on the existing traffic count data at Scott Street/Athlone Avenue, the two-way peak hour traffic volumes on Athlone Avenue are approximately 62 vehicles during the AM peak hour and 72 vehicles during the PM peak hour, and the average annual daily traffic is approximately 740 vehicles.

As shown in **Figure 10**, ultimate buildout of the proposed development is anticipated to increase peak hour traffic volumes on Athlone Avenue by approximately five vehicles. Therefore, the NTM thresholds are not anticipated to be met in the future as a result of this development, and no NTM measures are identified.

4.7 Transit

Based on the trip generation estimates presented in Section 3.1, the proposed development is anticipated to generate the following number of net additional transit trips during the peak hours:

- Phase 1 (2026)
  - 112 additional transit trips during the AM peak hour (35 in, 77 out);
  - 108 additional transit trips during the PM peak hour (63 in, 45 out).
- Ultimate Development (2029)
  - 203 additional transit trips during the AM peak hour (63 in, 140 out);
  - 196 additional transit trips during the PM peak hour (114 in, 82 out).

For the purposes of this transit review, only the ultimate development has been considered to estimate if transit capacity constraints will occur within the study area.

The origin-destination data for Ottawa West from the City's 2011 *TRANS O-D Survey Report* was considered in determining where transit trips will travel to/from the proposed development. It is anticipated that most transit trips will arrive or depart via future LRT service at Westboro Station. It is also anticipated that any transit trips via bus will board and alight at bus stops at Scott Street/ Churchill Avenue or Scott Street/McRae Avenue.

The assumed distribution of transit trips to/from the development can therefore be summarized as follows:

AM Peak Hour
- 45% to/from the east via OC Route 1;
- 30% to/from the west via OC Route 1;
- 15% to/from the south via OC Route 50;
- 10% to/from the south via OC Route 81.

PM Peak Hour
- 40% to/from the east via OC Route 1;
- 30% to/from the west via OC Route 1;
- 15% to/from the south via OC Route 50;
- 10% to/from the south via OC Route 81;
- 5% to/from the east via OC Route 153.

Transit utilization data from the Winter 2020 period (January 5 to March 7) has been obtained from OC Transpo, and is included in **Appendix C**. This period is considered the most recent 'normal' ridership period, before ridership was impacted by the ongoing COVID-19 pandemic. Average peak period (6:00am to 9:00am and 3:00pm to 6:00pm) boarding, alighting, and bus load at departure information was obtained for stops within the study area.

By the Phase 1 buildout year of 2026, the Confederation Line Extension will be completed. Westboro Station is assumed to still be served by buses for the local OC Transpo Routes 16, 50, and 153, with all other trips being served by LRT. Therefore, transit ridership for the LRT at Westboro Station has been estimated by accumulating the existing boarding and alighting trips for all routes that use the transitway, as of the Winter 2020 period.

As shown in **Appendix C**, this is assumed to include OC Transpo Routes 57, 58, 61, 62, 63, 64, 66, 73, 74, 75, 82, 83, 84, 87, 164, 251, 252, 256, 257, 258, 261, 262, 263, 264, 265, 266, 267, 268, 270, 271, 272, 273, 275, 277, 278, 282, 283, and 284. To determine the average load at departure for the future LRT, the average loads at departure for each bus route listed above have been multiplied by the number of times that route serves Westboro Station in the peak hours, and then divided by 12 to reflect an assumed five-minute headway for the future LRT.

Existing and projected boarding and alighting information is summarized in **Table 16**. Any zero (0) values in the table indicate a measured average boarding and alighting value of zero, rather than an absence of data. Peak period boarding and alighting data have been converted to peak hour boardings and alightings, using factors of 0.55 for the AM peak hour and 0.47 for the PM peak hour (per the *TRANS Trip Generation Manual*).

Table 16: Transit Utilization

Stop	Location	Route	Dir	Boarding (tph)[1]			Alighting (tph)[1]		
				Existing	Ultimate	Total	Existing	Ultimate	Total
AM Peak Hour									
#3012	Westboro Station	1	EB	163	63	*226*	59	29	*88*
		1	WB	81	42	*123*	58	19	*77*
		16	EB	6	-	*6*	0	-	*0*
		16	WB	0	-	*0*	8	-	*8*
		50	EB	1	-	*1*	7	-	*7*
		50	WB	3	-	*3*	1	-	*1*
#4841	Scott/McRae	81	EB	0	-	*0*	6	6	*12*
#4893		81	WB	0	14	*14*	1	-	*1*
#4884	Churchill/Workman	16	EB	5	-	*5*	0	-	*0*
#5615	Churchill/Transit Bridge	16	WB	0	-	*0*	3	-	*3*
#7379	Churchill/Scott	50	EB	3	-	*3*	0	10	*10*
#7380		50	WB	1	21	*22*	1	-	*1*
PM Peak Hour									
#3012	Westboro Station	1	EB	100	33	*133*	62	46	*108*
		1	WB	97	25	*122*	157	34	*191*
		16	EB	3	-	*3*	0	-	*0*
		16	WB	0	-	*0*	7	-	*7*
		50	EB	0	-	*0*	4	-	*4*
		50	WB	5	-	*5*	4	-	*4*
		153	EB	0	-	*0*	0	-	*0*
		153	WB	0	-	*0*	0	-	*0*
#4841	Scott/McRae	81	EB	1	-	*1*	3	11	*14*
		153	WB	1	-	*1*	1	6	*7*
#4893		81	WB	2	8	*10*	2	-	*2*
		153	EB	0	4	*4*	0	-	*0*
#4884	Churchill/Workman	16	EB	1	-	*1*	0	-	*0*
#5615	Churchill/Transit Bridge	16	WB	0	-	*0*	3	-	*3*
#7379	Churchill/Scott	50	EB	0	-	*0*	1	17	*18*
		153	EB	1	-	*1*	1	-	*1*
#7380		50	WB	1	12	*13*	1	-	*1*
		153	WB	0	-	*0*	0	-	*0*

1. tph: transit trips per hour

A discussion of the site-generated impacts to OC Routes 1, 16, 50, 81, and 153 during the weekday peak hours is included below.

Route 1 (Confederation Line Eastbound)
At Westboro Station, the proposed development is projected to generate an additional 63 AM boarding trips, 29 AM alighting trips, 33 PM boarding trips, and 46 PM alighting trips. As Route 1 is assumed to run on approximately 5-minute headways, this equates to six AM boardings, three AM alightings, three PM boardings, and three PM alightings per train.

For the eastbound platform, the existing average train loads at departure are estimated to be approximately 207 riders in the AM peak and 71 riders in the PM peak. Accounting for the above trips, the average loads when departing Westboro Station are anticipated to increase from 207 riders to 213 riders during the AM peak hour, and from 71 riders to 74 riders during the PM peak hour. Therefore, the proposed development is not anticipated to require more frequent service for Route 1.

Route 1 (Confederation Line Westbound)
At Westboro Station, the proposed development is projected to generate an additional 42 AM boarding trips, 19 AM alighting trips, 25 PM boarding trips, and 34 PM alighting trips. As Route 1 is assumed to run on approximately 5-minute headways, this equates to four AM boardings, two AM alightings, two PM boardings, and three PM alightings per train.

For the westbound platform, the existing average train loads at departure are estimated to be approximately 54 riders in the AM peak and 125 riders in the PM peak. Accounting for the above trips, the average loads when departing Westboro Station are anticipated to increase from 54 riders to 58 riders during the AM peak hour, and from 125 riders to 127 riders during the PM peak hour. Therefore, the proposed development is not anticipated to require more frequent service for Route 1.

Route 16 (to Main or Scott/Churchill)
The proposed development is not anticipated to generate any transit trips that will travel on OC Route 16, which serves the study area at stops #4884 and #5615. It is anticipated that any site-generated trips that would use this route will travel on Route 1 instead, as both routes converge at Tunney's Pasture Station.

The existing average loads at departure for Route 16 within the study area (approximately one to three riders at stops #4884 and #5615) does not identify a need for more frequent service of this route.

Route 50 (to Tunney's Pasture)
At stop #7379, the proposed development is projected to generate an additional 10 AM alighting trips and 17 PM alighting trips. As Route 50 runs on approximately 30-minute headways, this equates to five AM alightings and nine PM alightings per bus.

The existing average bus loads at departure are 21 riders in the AM peak and ten riders in the PM peak. Accounting for the above trips, the average bus loads when arriving at stop #7379 are anticipated to increase from 21 riders to 26 riders during the AM peak hour, and from ten to 19 riders during the PM peak hour. Therefore, more frequent service for Route 50 is not anticipated as a result of the proposed development.

Route 50 (to Lincoln Fields)
At stop #7380, the proposed development is projected to generate an additional 21 AM boarding trips and 12 PM boarding trips. As Route 50 runs on approximately 30-minute headways, this equates to 11 AM boardings and six PM boardings per bus.

The existing average bus loads at departure are 12 riders in the AM peak and 16 riders in the PM peak. Accounting for the above trips, the average bus loads when departing stop #7380 are anticipated to increase from 12 riders to 23 riders during the AM peak hour, and from 16 riders to 22 riders during the PM peak hour. Therefore, more frequent service for Route 50 is not anticipated as a result of the proposed development.

Route 81 (to Tunney's Pasture)
At stop #4841, the proposed development is projected to generate an additional six AM alighting trips and 11 PM alighting trips. As Route 81 runs on approximately 30-minute headways, this equates to three AM alightings and six PM alightings per bus.

The existing average bus loads at departure are 15 riders in the AM peak and six riders in the PM peak. Accounting for the above trips, the average bus loads when arriving at stop #4841 are anticipated to increase from 15 riders to 18 riders during the AM peak hour, and from six to 12 riders during the PM peak hour. Therefore, more frequent service for Route 81 is not anticipated as a result of the proposed development.

Route 81 (to Clyde)
At stop #4893, the proposed development is projected to generate an additional 14 AM boarding trips and eight PM boarding trips. As Route 81 runs on approximately 30-minute headways, this equates to seven AM boardings and four PM boardings per bus.

The existing average bus loads at departure are five riders in the AM peak and 14 riders in the PM peak. Accounting for the above trips, the average bus loads when departing stop #4893 are anticipated to increase from five riders to 12 riders during the AM peak hour, and from 14 riders to 18 riders during the PM peak hour. Therefore, more frequent service for Route 81 is not anticipated as a result of the proposed development.

Route 153 (to Tunney's Pasture)
At stop #4893, the proposed development is projected to generate an additional four PM boarding trips. This route does not serve the study area during the AM peak hour. As Route 153 runs on approximately 60-minute headways, these trips will all board the same bus during the PM peak hour.

The existing average bus load at departure is five riders in the PM peak. Accounting for the above trips, the average bus load when departing stop #4893 is anticipated to increase from five riders to nine riders during the PM peak hour. Therefore, more frequent service for Route 153 is not anticipated as a result of the proposed development.

Route 153 (to Lincoln Fields)
At stop #4841, the proposed development is projected to generate an additional six PM alighting trips. As Route 153 runs on approximately 60-minute headways, these trips will all board the same bus during the PM peak hour.

The existing average bus load at departure is five riders in the AM peak. Accounting for the above trips, the average bus load when arriving at stop #4841 is anticipated to increase from five riders to 11 riders during the PM peak hour. Therefore, more frequent service for Route 153 is not anticipated as a result of the proposed development.

4.8 Network Concept

A review of the future lane capacities at the boundaries of the study area has been conducted to determine if additional capacity is required. The directional capacities for each roadway have been estimated using the City's TRANS Long-Range Transportation Model, which provides typical lane capacities for roadways based on roadway classification and general characteristics (for example, suburban with limited access, urban with on-street parking, etc.). In vehicles per hour per lane (vphpl), the assumed directional capacities for the study area roadway can be summarized as follows:

- Scott Street: 800 vphpl;
- Churchill Avenue: 600 vphpl;
- McRae Avenue: 400 vphpl.

A summary of the lane capacity analysis for the 2031 total traffic conditions, which represents the scenario with the heaviest traffic volumes within the study area, is included in **Table 17**.

Table 17: Network Lane Capacity Analysis – 2031 Total Traffic

Roadway	Directional Capacity (vph)	Traffic Volume AM (PM)	v/c Ratio AM (PM)	Auto LOS AM (PM)	Deficiency to Auto LOS 'F' AM (PM)
Churchill Avenue, south end					
Northbound	600	492 (411)	0.82 (0.68)	D (B)	-
Southbound	600	455 (445)	0.76 (0.74)	C (C)	
McRae Avenue, south end					
Northbound	400	115 (221)	0.29 (0.55)	A (A)	-
Southbound	400	142 (164)	0.36 (0.41)	A (A)	
South Screenline					
Northbound	**1,000**	**607 (632)**	**0.61 (0.63)**	**B (B)**	**-**
Southbound	**1,000**	**597 (609)**	**0.60 (0.61)**	**A (B)**	
Scott Street, east end					
Eastbound	800	646 (609)	0.81 (0.76)	D (C)	-
Westbound	800	382 (582)	0.48 (0.73)	A (C)	
East Screenline					
Eastbound	**800**	**646 (609)**	**0.81 (0.76)**	**D (C)**	**-**
Westbound	**800**	**382 (582)**	**0.48 (0.73)**	**A (C)**	

In the 2031 total traffic conditions, capacity issues during the peak hours (i.e. v/c ratios greater than 1.00) are not anticipated at any study area roadways listed above.

4.9 Intersection Design

4.9.1 Intersection MMLOS Review

This section provides a review of the signalized study area intersections using complete streets principles. The signalized intersections within the study area have been evaluated for PLOS, BLOS, TLOS, and TkLOS. The MMLOS targets associated for intersections 'within 600m of a rapid transit station' have been used to evaluate the future signalized intersection at Scott Street/ Churchill Avenue, and the existing intersections at Scott Street/Athlone Avenue and Scott Street/ Tweedsmuir Avenue.

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

Table 18: Intersection MMLOS Summary

Intersection	PLOS		BLOS		TLOS		TkLOS	
	Actual	Target	Actual	Target	Actual	Target	Actual	Target
Scott Street/Churchill Avenue	**B**	A	A	A	**D**	A	**F**	D
Scott Street/Athlone Avenue	**E**		**D**		**B**		-	-
Scott Street/Tweedsmuir Avenue	**E**		**D**		**B**		-	

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

- No study area intersections meet the target PLOS;
- Scott Street/Churchill Avenue meet the target BLOS, while Scott Street/Athlone Avenue and Scott Street/Tweedsmuir Avenue do not;
- No study area intersections meet the target TLOS;
- Scott Street/Churchill Avenue does not meet the target TkLOS.

Each intersection is discussed in greater detail below.

Scott Street/Churchill Avenue
The intersection does not meet the target PLOS A, TLOS A, or TkLOS D.

Based on the functional protected intersection design of Scott Street/Churchill Avenue, all approaches achieve a PLOS B. Without reducing the crossing width to an equivalent of two 3.5m-wide lanes (i.e. 7.0m or less), the target PLOS A cannot be achieved. Therefore, no recommendations are identified.

The north, south, and east approaches do not meet the target TLOS A, which equates to grade-separated ROW for transit facilities. This is addressed by the planned extension of the Confederation Line LRT, which will serve the study area at Westboro Station.

All approaches do not meet the target TkLOS D. This intersection forms part of the truck route of Scott Street and Churchill Avenue, requiring trucks to perform northbound right turns and westbound left turns. It is anticipated that the curb radii at this intersection will be reviewed to accommodate heavy vehicle/bus turning movements during the detailed design. Therefore, no recommendations are identified.

Scott Street/Athlone Avenue
The intersection does not meet the target PLOS A, BLOS A, or TLOS A.

All crosswalks at this intersection have a crossing width equivalent to four or five lanes. There is limited opportunity in improving to the target PLOS A at each approach without reducing the crossing distance significantly or restricting turning movements. The west approach meets the City's vehicle/pedestrian conflict threshold for zebra-striped crosswalks (greater than 400,000 vehicle/pedestrian conflicts over an eight-hour period), and could improve the level of comfort for pedestrians.

The south and east approaches do not meet the target BLOS A based on left turn characteristics. The south approach consists of a single lane and is stop-controlled, and left-turning cyclists from this approach can queue with vehicles to make their left turn. For cyclists at the east approach, Exhibit 12 of the *MMLOS Guidelines* indicates that the target PLOS A can only be met by providing a two-stage, left-turn bike box. However, a bicycle signal would be required, as the existing intersection is only an intersection pedestrian signal. This is identified for the City's consideration.

The east and west approaches do not meet the target TLOS A, which equates to grade-separated ROW for transit facilities. This is addressed by the planned extension of the Confederation Line LRT, which will serve the study area at Westboro Station.

As discussed in Section 4.3, the City is developing a complete street concept for implementation along Scott Street following LRT construction. The complete street design is anticipated to include improved pedestrian and cycling facilities within the study area. A further review of the study area intersections will be conducted as part of the subsequent Site Plan Control application.

Scott Street/Tweedsmuir Avenue
The intersection does not meet the target PLOS A, BLOS A, or TLOS A.

All crosswalks at this intersection have a crossing width equivalent to three to five lanes. There is limited opportunity in improving to the target PLOS A at each approach without reducing the crossing distance significantly or restricting turning movements. The east approach meets the City's vehicle/pedestrian conflict threshold for zebra-striped crosswalks, and could improve the level of comfort for pedestrians.

The south and east approaches do not meet the target BLOS A based on left turn characteristics. The south approach consists of a single lane and is stop-controlled, and left-turning cyclists from this approach can queue with vehicles to make their left turn. For cyclists at the east approach, a bicycle signal would be required, as the existing intersection is only an intersection pedestrian signal. This is identified for the City's consideration.

The east and west approaches do not meet the target TLOS A, which equates to grade-separated ROW for transit facilities. This is addressed by the planned extension of the Confederation Line LRT, which will serve the study area at Westboro Station.

As discussed in Section 4.3, the City is developing a complete street concept for implementation along Scott Street following LRT construction. The complete street design is anticipated to include improved pedestrian and cycling facilities within the study area. A further review of the study area intersections will be conducted as part of the subsequent Site Plan Control application.

4.9.2 2026 Total Intersection Operations

Intersection capacity analysis has been conducted for the 2026 total traffic conditions. The results of the analysis are summarized in **Table 19** for the weekday AM and PM peak hours. Detailed reports are included in **Appendix N**.

Table 19: 2026 Total Traffic Operations

Intersection		AM Peak Hour			PM Peak Hour		
		Max v/c or Delay	LOS	Mvmt	Max v/c or Delay	LOS	Mvmt
Scott Street/Churchill Avenue		0.86	D	NBR	0.83	D	NBR
Scott Street/Winona Avenue		13 sec	B	NBL/R	13 sec	B	NBL/R
Scott Street/Athlone Avenue	(1)	0.45	A	EBL/T/R	0.47	A	WBL/T/R
	(2)	14 sec	B	NBL/T/R	12 sec	B	NBL/T/R
Scott Street/Tweedsmuir Avenue	(1)	0.44	A	EBL/T/R	0.41	A	WBL/T/R
	(2)	**69 sec**	**F**	**SBL/T/R**	**132 sec**	**F**	**SBL/T/R**
Scott Street/McRae Avenue		18 sec	C	NBL/R	24 sec	C	NBL/R

1. Intersection modelled as a two-legged pedestrian crossing; results identify maximum v/c ratio for through traffic on Scott Street
2. Intersection modelled as a side-street stop-controlled intersection; results identify maximum approach delay for side street

Compared to the 2026 background conditions, the addition of site-generated traffic is anticipated to have marginal effects on traffic operations within the study area.

4.9.3 2031 Total Intersection Operations

Intersection capacity analysis has been conducted for the 2031 total traffic conditions. The results of the analysis are summarized in **Table 20** for the weekday AM and PM peak hours. Detailed reports are included in **Appendix N**.

Table 20: 2031 Total Traffic Operations

Intersection		AM Peak Hour			PM Peak Hour		
		Max v/c or Delay	LOS	Mvmt	Max v/c or Delay	LOS	Mvmt
Scott Street/Churchill Avenue		0.86	D	NBR	0.84	D	NBR
Scott Street/Winona Avenue		13 sec	B	NBL/R	13 sec	B	NBL/R
Scott Street/Athlone Avenue	(1)	0.46	A	EBL/T/R	0.48	A	WBL/T/R
	(2)	14 sec	B	NBL/T/R	12 sec	B	NBL/T/R
Scott Street/Tweedsmuir Avenue	(1)	0.45	A	EBL/T/R	0.42	A	WBL/T/R
	(2)	**71 sec**	**F**	**SBL/T/R**	**132 sec**	**F**	**SBL/T/R**
Scott Street/McRae Avenue		18 sec	C	NBL/R	25 sec	C	NBL/R

1. Intersection modelled as a two-legged pedestrian crossing; results identify maximum v/c ratio for through traffic on Scott Street
2. Intersection modelled as a side-street stop-controlled intersection; results identify maximum approach delay for side street

Compared to the 2031 background conditions, the addition of site-generated traffic is anticipated to have marginal effects on traffic operations within the study area.

5.0 CONCLUSIONS

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

Forecasting

- Phase 1 of the proposed development is projected to generate a net additional 160 person trips (but five fewer vehicle trips) during the AM peak hour, and a net additional 125 person trips (but 31 fewer vehicle trips) during the PM peak hour.

- The ultimate proposed development is projected to generate a net additional 324 person trips (including 17 additional vehicle trips) during the AM peak hour, and a net additional 286 person trips (but nine fewer vehicle trips) during the PM peak hour.

Development Design and Parking

- Sidewalks will be maintained along the subject site's frontages to Scott Street and Athlone Avenue, and internal walkways will be provided around the perimeter of each building, connecting to the sidewalks on Scott Street and Athlone Avenue. Landscaped walkways will also provide pedestrian connectivity between Scott Street and Ashton Avenue and the Lion's Park land to the immediate south of the subject site.

- At this stage, bicycle parking is proposed to be provided on each of the underground parking levels, and is anticipated to meet the minimum required number of bicycle spaces per the City's *Zoning By-Law* (ZBL).

- Main entrances to both proposed buildings are anticipated to be within 400m walking distance of Westboro Station and bus stops on Churchill Avenue and McRae Avenue.

- Based on the conceptual plans, it is anticipated that all required Transportation Demand Management (TDM)-supportive design and infrastructure measures in the TDM checklist can be met.

- The preliminary number of parking spaces proposed for each building is anticipated to meet the minimum and maximum parking requirements, per the City's ZBL.

Boundary Streets

- The results of the segment Multi-Modal Level of Service (MMLOS) analysis can be summarized as follows:
    - Neither boundary street meets the target pedestrian level of service (PLOS) A;
    - Neither boundary street meets the target bicycle level of service (BLOS) A or D;
    - Scott Street does not meet the target transit level of service (TLOS) A;
    - Scott Street meets the target truck level of service (TkLOS) D.

- Scott Street cannot achieve the target PLOS A on either side of the roadway without reducing the operating speed to 30 km/h or slower, based on the existing traffic volumes.

- The bike lanes along Scott Street do not meet the target BLOS A. However, it is noteworthy that a separated multi-use pathway is provided on the north side of the roadway achieving the target BLOS A. It is understood that the City is developing a complete street concept for implementation along Scott Street following LRT construction. A further review of the Scott Street frontage will be conducted as part of the subsequent Site Plan Control application.

- Scott Street can only achieve the target TLOS A by providing segregated transit facilities. Once Stage 2 of the Confederation Line LRT is complete, the bus detour will not need to run along Scott Street, and light rail transit will be provided immediately north of the roadway. Therefore, the target TLOS will be met.

- Athlone Avenue can achieve the target PLOS A by providing a 2.0m-wide sidewalk with a minimum boulevard width of 0.5m. This is identified for the City's consideration, and can be considered along the subject site's frontage at the Site Plan Control stage.

- Athlone Avenue can achieve the target BLOS D by reducing the operating speed to 50 km/h. This could be achieved through some local traffic calming measures. This is identified for the City's consideration, and can be considered along the subject site's frontage at the Site Plan Control stage.

Access Intersections

- Access to the proposed underground parking will be provided via one full-movement driveway to Scott Street and one full-movement driveway to Athlone Avenue. In addition, an on-site fire route is proposed to connect to Scott Street, midblock between the proposed Scott Street garage access and the intersection at Scott Street/Athlone Avenue. All driveways are anticipated to be constructed as part of the first phase, and will lead directly to the underground parking garage beneath the entire proposed development.

- A high-level review of the access locations has been conducted as part of this report. A detailed review of the proposed accesses will be reviewed as part of the subsequent Site Plan Control application.

- The proposed access locations meet the provisions of Section 25(a) of the PABL, which outlines that a maximum of two two-way private approaches can be provided to any roadway where 46m to 150m of frontage is provided.

- The minimum requirement of 60m to the nearest intersecting street line can be met by the proposed underground garage access to Scott Street, but cannot be met by the proposed access to Athlone Avenue, as less than 60m of frontage is provided on that roadway. The concept plan shows the access to Athlone Avenue will be located as far from Scott Street as possible.

- The minimum requirement of 18m to the nearest intersecting street line can be met for the fire route.

- The proposed fire route is located mid-block along Scott Street between the garage access and Athlone Avenue. The distance between the fire route and the parking garage access is anticipated to exceed the minimum 15m requirement. Increased separation between the two accesses will move the fire route closer to the intersection pedestrian signal at Athlone Avenue and is not recommended.

- The concept plan shows that the proposed underground garage accesses to Scott Street and Athlone Avenue will meet the 70m TAC corner clearance requirements, but the proposed fire route will not. Since the fire route will not be utilized by other vehicles, and considering the Scott Street/Athlone Avenue is not a fully signalized intersection (i.e. only signalized for pedestrians crossing Scott Street), not meeting this requirement can be justified.

- The proposed accesses are anticipated to operate with an acceptable level of service.

Transportation Demand Management

- The proponent will consider the following residential 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;
    - Provide a multi-modal travel information package to new residents.

Neighbourhood Traffic Management

- Based on the existing traffic count data at Scott Street/Athlone Avenue, the two-way peak hour traffic volumes on Athlone Avenue are approximately 62 vehicles during the AM peak hour and 72 vehicles during the PM peak hour, and the average annual daily traffic is approximately 740 vehicles.

- Ultimate buildout of the proposed development is anticipated to increase peak hour traffic volumes on Athlone Avenue by approximately five vehicles. Therefore, the NTM thresholds are not anticipated to be met in the future as a result of this development, and no Neighbourhood Traffic Management (NTM) measures are identified.

Transit

- Phase 1 of the proposed development is projected to generate a net additional 112 transit trips during the AM peak hour, and a net additional 108 transit trips during the PM peak hour.

- The ultimate proposed development is projected to generate a net additional 203 transit trips during the AM peak hour, and a net additional 196 transit trips during the PM peak hour.

- The need for more frequent service on the future LRT, or existing routes 16, 50, 81, and 153 is not anticipated as a result of the proposed development.

Network Concept

- By the 2031 total traffic conditions, capacity issues during the peak hours (i.e. vehicle-to-capacity ratios greater than 1.00) are not anticipated at any study area roadways.

Intersection MMLOS

- The results of the intersection MMLOS analysis can be summarized as follows:
    - No study area intersections meet the target PLOS;
    - Scott Street/Churchill Avenue meet the target BLOS, while Scott Street/Athlone Avenue and Scott Street/Tweedsmuir Avenue do not;
    - No study area intersections meet the target TLOS;
    - Scott Street/Churchill Avenue does not meet the target TkLOS.

- Based on the functional protected intersection design of Scott Street/Churchill Avenue, all approaches achieve a PLOS B. Without reducing the crossing width to an equivalent of two 3.5m-wide lanes (i.e. 7.0m or less), the target PLOS A cannot be achieved. Therefore, no recommendations are identified.

- All crosswalks at Scott Street/Athlone Avenue have a crossing width equivalent to four or five lanes. There is limited opportunity in improving to the target PLOS A at each approach without reducing the crossing distance significantly or restricting turning movements. The west approach meets the City's vehicle/pedestrian conflict threshold for zebra-striped crosswalks, and could improve the level of comfort for pedestrians.

- All crosswalks at Scott Street/Tweedsmuir Avenue have a crossing width equivalent to three to five lanes. There is limited opportunity in improving to the target PLOS A at each approach without reducing the crossing distance significantly or restricting turning movements. The east approach meets the City's vehicle/pedestrian conflict threshold for zebra-striped crosswalks, and could improve the level of comfort for pedestrians.

- The south and east approaches at Scott Street/Athlone Avenue do not meet the target BLOS A based on left turn characteristics. The south approach consists of a single lane and is stop-controlled, and left-turning cyclists from this approach can queue with vehicles to make their left turn. For cyclists at the east approach, the target PLOS A can only be met by providing a two-stage, left-turn bike box. However, a bicycle signal would be required, as the existing intersection is only an intersection pedestrian signal. This is identified for the City's consideration.

- The south and east approaches at Scott Street/Tweedsmuir Avenue do not meet the target BLOS A based on left turn characteristics. The south approach consists of a single lane and is stop-controlled, and left-turning cyclists from this approach can queue with vehicles to make their left turn. For cyclists at the east approach, a bicycle signal would be required, as the existing intersection is only an intersection pedestrian signal. This is identified for the City's consideration.

- The City is developing a complete street concept for implementation along Scott Street following LRT construction. The complete street design is anticipated to include improved pedestrian and cycling facilities within the study area. A further review of the study area intersections will be conducted as part of the subsequent Site Plan Control application.

- The north, south, and east approaches at Scott Street/Churchill Avenue, and the east and west approaches at Scott Street/Athlone Avenue and Scott Street/Tweedsmuir Avenue do not meet the target TLOS A, which equates to grade-separated ROW for transit facilities. This is addressed by the planned extension of the Confederation Line LRT, which will serve the study area at Westboro Station.

- All approaches at Scott Street/Churchill Avenue do not meet the target TkLOS D. It is anticipated that the curb radii at this intersection will be reviewed to accommodate heavy vehicle/bus turning movements during the detailed design. Therefore, no recommendations are identified.

Existing Traffic Operations

- All approaches within the study area meet the target Auto LOS E, except for the transit-only approach at Scott Street/Tweedsmuir Avenue. It should be noted that, when the pedestrian phase is actuated at this intersection, southbound buses utilizing this approach would be able to turn right onto Scott Street unimpeded, and would be able to turn left onto Scott Street once pedestrians had completed their crossing.

Background Traffic Operations

- After the addition of background traffic volumes, all approaches within the study area continues to meet the target Auto LOS E, except for the transit-only approach at Scott Street/Tweedsmuir Avenue.

Total Traffic Operations

- After the addition of site-generated traffic volumes, all approaches within the study area continues to meet the target Auto LOS E, except for the transit-only approach at Scott Street/Tweedsmuir Avenue.

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

NOVATECH

Prepared by:

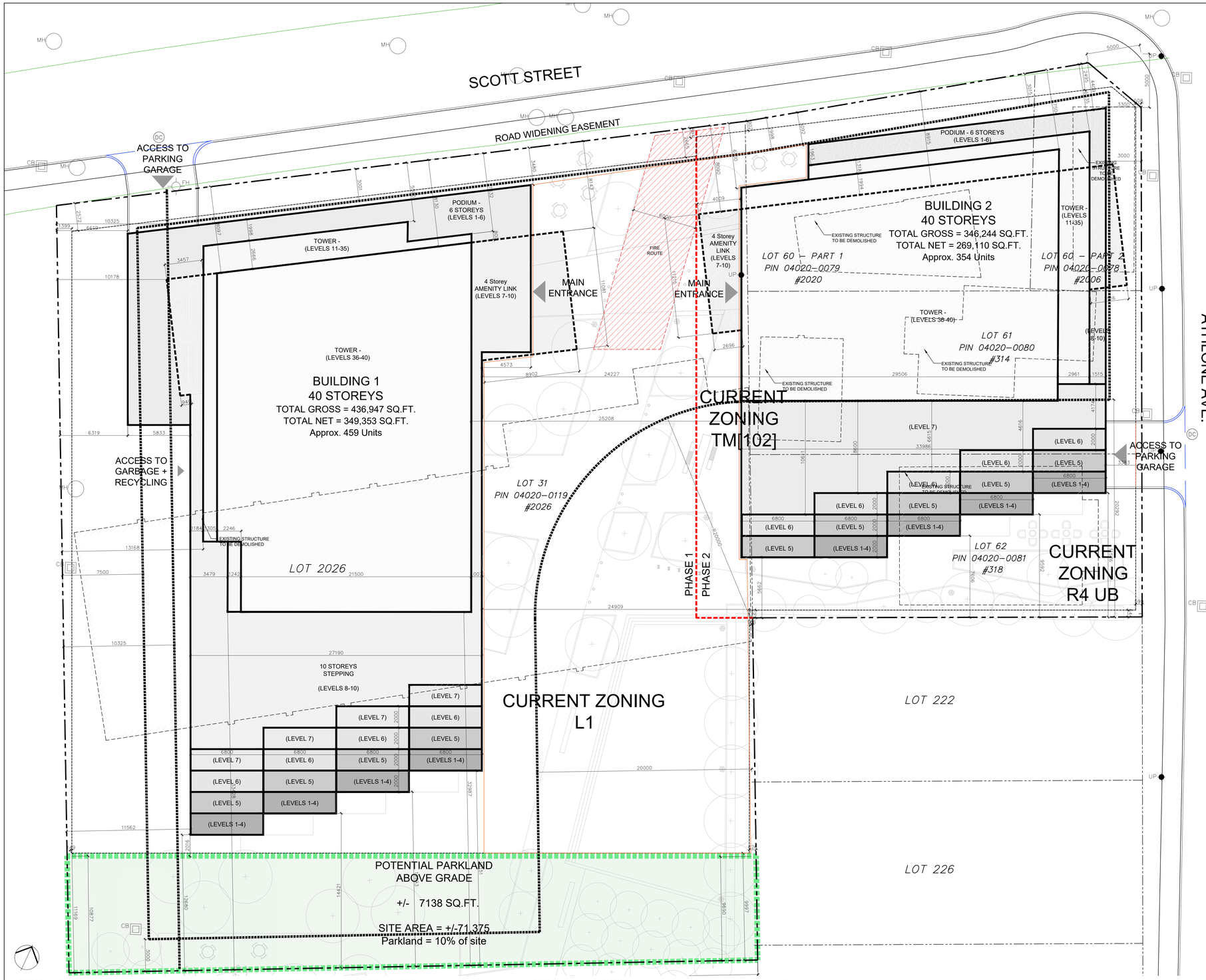
Joshua Audia, P.Eng.
Transportation

Reviewed by:

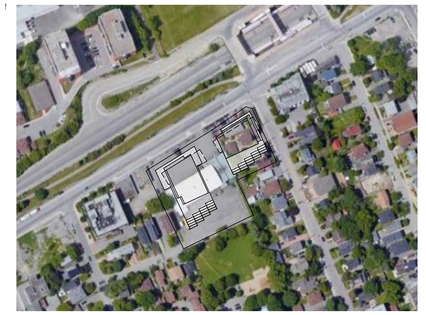
Brad Byvelds, P.Eng.
Project Manager | Transportation

APPENDIX A

Conceptual Site Plan



LOCATION PLAN 1: 2000



LEGEND:

- PROPOSED FIRE ROUTE
- PROPOSED BUILDING
- BUILDING TO BE DEMOLISHED
- EXTENTS OF PRIVATELY OWNED PUBLIC SPACE
- EXISTING MAN HOLE
- EXISTING FIRE HYDRANT
- EXISTING CATCH BASIN
- EXISTING UTILITY POLE
- EDGE OF SIDEWALK
- PROPERTY LINE
- SETBACK
- PROPOSED DEPRESSED CURB DETAIL TO CITY OF OTTAWA STANDARD SC–7
- CONC. CURB DETAIL TO CITY OF OTTAWA STANDARDS
- CURB TO BE REBUILT
- ROLL CURB
- PROPOSED PARK
- PARKING GARAGE BELOW
- ROAD WIDENING EASEMENT

ZONING NOTES:

CURRENT ZONING: WEST PARCEL **L1**, EAST PARCELS **TM[102]**

LOT AREA : 6,686 m²

DEVELOPMENT STATS PHASE 1 + PHASE 2		REQUIRED	PROPOSED
LOT WIDTH			101.4m IRREGULAR
LOT DEPTH			75.3m IRREGULAR
FRONT YARD SETBACK	SCOTT STREET	3m	VARIES – 2.7–7.8m
REAR YARD SETBACK		7.5m	VARIES–5.4–18.1m
SIDE YARD SETBACK	ATHLONE AVE.	3m	3.0m
INTERIOR SIDE YARD SETBACK		7.5m	VARIES–6.0–11.2m

AMENITY SPACE REQUIREMENTS

REQUIRED AMENITY SPACE 6 m² REQUIRED PER UNIT
842 UNITS X 6 SQ.M. = 5052 SQ.M. TOTAL AMENITY REQUIRED
REQUIRED AMENITY SPACE TO BE COMMON – 2526 SQ.M.
PROVIDED COMMON AMENITY SPACE – 2526 SQ.M.

BUILDING 1		PROPOSED
NO. OF STOREYS		40 STOREYS
BUILDING HEIGHT		123m
FRONT YARD SETBACK	SCOTT STREET	VARIES – 3.1–7.8m
REAR YARD SETBACK	FROM PROPERTY LINE	VARIES–12.6–18.1m
INTERIOR SIDE YARD SETBACK	PODIUM SEPARATION FROM B2	24.2m
	TOWER SEPARATION FROM B2 (ABOVE LEVEL 10)	25.2m
SIDE YARD SETBACK	FROM PROPERTY LINE	VARIES–6.0–11.2m
	ADJACENT PROP.TOWER SEPARATION(ABOVE LEVEL 10)	12.8m

BUILDING 2		PROPOSED
NO. OF STOREYS		40 STOREYS
BUILDING HEIGHT		123m
FRONT YARD SETBACK	SCOTT STREET	VARIES–2.7–7.8m
REAR YARD SETBACK	FROM PROPERTY LINE	VARIES–5.4–11.2m
SIDE YARD SETBACK	ATHLONE AVE.	3.0m
INTERIOR SIDE YARD SETBACK	PODIUM SEPARATION FROM B1	24.2m
	TOWER SEPARATION FROM B1 (ABOVE LEVEL 10)	25.2m

BUILDING 1 – PHASE 1

	REQUIRED	PROPOSED		
TOTAL UNIT COUNT				459
STUDIOS		39	8%	
1 BEDROOM		217	47%	
1 BEDROOM + DEN		71	15%	
2 BEDROOM		117	25%	
2 BEDROOM + DEN		15	3%	
MAXIMUM HEIGHT				123m
NUMBER OF STOREYS				40 STOREYS
AREA – BUILDING AREA				1684 SQ.M.
AREA – TYPICAL PODIUM				1684 SQ.M.
AREA – TYPICAL PLATE				866 SQ.M.
AREA – TOTAL GFA				+/– 40,594 SQ.M.

BUILDING 1 PARKING REQUIREMENTS: 459 units * 0.5 = 230 Residential + 459 units * 0.1 = 46 Visitor
(Total = 276 parking spaces required)

LAND USE	PROVIDED RESIDENTIAL VEHICLE PARKING
APARTMENT	245 RESIDENTIAL PARKING SPACES PROVIDED FOR 459 UNITS (0.53/UNIT)
2. REQUIRED VISITOR PARKING	
LAND USE	PROVIDED VISITOR PARKING
APARTMENT	46 VISITOR PARKING SPACES PROVIDED FOR 459 UNITS (0.10/UNIT)* LOCATED IN PARKING GARAGE
TOTAL PARKING PROVIDED	291 TOTAL PARKING PARKING SPACES PROVIDED (ALL INTERIOR)

BUILDING 2 – PHASE 2

	REQUIRED	PROPOSED		
TOTAL UNIT COUNT				354
STUDIOS		39	11%	
1 BEDROOM		159	45%	
1 BEDROOM + DEN		43	12%	
2 BEDROOM		81	23%	
2 BEDROOM + DEN		32	9%	
MAXIMUM HEIGHT				123m
NUMBER OF STOREYS				40 STOREYS
AREA – BUILDING AREA				1254 SQ.M.
AREA – TYPICAL PODIUM				1254 SQ.M.
AREA – TYPICAL PLATE				741 SQ.M
AREA – TOTAL GFA				+/– 32,167 SQ.M.

BUILDING 2 PARKING REQUIREMENTS: 354 units * 0.5 = 177 Residential + 354 units * 0.1 = 36 Visitor
(Total = 213 parking spaces required)

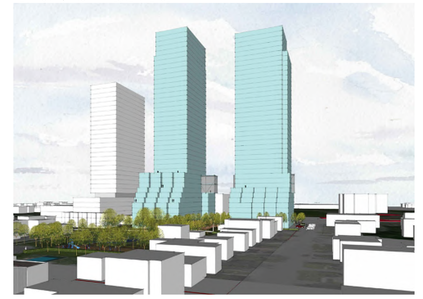
LAND USE	PROVIDED RESIDENTIAL VEHICLE PARKING
CONDO	219 RESIDENTIAL PARKING SPACES PROVIDED FOR 354 UNITS (0.61/UNIT) * LOCATED IN UNDERGROUND PARKING GARAGE
2. REQUIRED VISITOR PARKING	
LAND USE	PROVIDED VISITOR PARKING
CONDO	36 VISITOR PARKING SPACES PROVIDED FOR 354 UNITS (0.1/UNIT) * LOCATED IN PARKING GARAGE
TOTAL PARKING PROVIDED	255 TOTAL PARKING PARKING SPACES PROVIDED (ALL INTERIOR)

BUILDING 1 + 2 BICYCLE PARKING REQUIREMENTS: 813 units * 0.5 = 407

PROVIDED BICYCLE PARKING
514 (368 VERTICAL + 146 HORIZONTAL) BICYCLE PARKING SPACES PROVIDED FOR 813 UNITS (0.64/UNIT) * LOCATED IN UNDERGROUND PARKING GARAGE

VIEW SOUTH, FROM SCOTT STREET

VIEW NORTH, FROM ATHLONE AVENUE



MORLEY HOPPNER

PROJECT TEAM

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DRAFT

no.	date	revision

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hobinarc.com

HOBIN ARCHITECTURE

PROJECT/LOCATION:
MORLEY HOPPNER LTD.
314 & 318 ATHLONE AVE., 2006,2020, 2026 SCOTT ST.
OTTAWA ON.

DRAWING TITLE:
SITE PLAN

DRAWN BY:	DATE:	SCALE:
PB	22-09-06	1:150

PROJECT: 2126

DRAWING NO.: A1.00

REVISION NO.:

None
2115

APPENDIX B

TIA Screening Form

City of Ottawa 2017 TIA Guidelines Screening Form

1. Description of Proposed Development

Municipal Address	**2006/2020/2026 Scott Street and 314/316/318 Athlone Avenue**
Description of Location	**Southwest corner of Scott Street/Athlone Avenue**
Land Use Classification	**Residential (two high-rise towers)**
Development Size (units)	**813 units**
Development Size (m^2)	
Number of Accesses and Locations	**Three accesses (one to Athlone Avenue and two to Scott Street)**
Phase of Development	**Two phases**
Buildout Year	**Phase 1 (Building 1, 459 units) – 2026** **Phase 2 (Building 2, 354 units) – 2029**

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?	X	
Is the development in a Design Priority Area (DPA) or Transit-oriented Development (TOD) zone?*	X	

**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 80 km/hr or greater?		X
Are there any horizontal/vertical curvatures on a boundary street limits sight lines at a proposed driveway?		X
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)?	X	
Is the proposed driveway within auxiliary lanes of an intersection?		X
Does the proposed driveway make use of an existing median break that serves an existing site?		X
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?		X

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?	X	
Does the development satisfy the Location Trigger?	X	
Does the development satisfy the Safety Trigger?	X	

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 System Information


AM Connexion Routes*
Circuits* Connexion le matin
LIMITED SERVICE UNTIL TUNNEY'S PASTURE STATION
Service from the west is off-only at the following stations: Moodie, Pinecrest, Queensway, Lincoln Fields, Dominion and Westboro.
Service from the southwest is off-only at the following stations: Baseline, Iris, Queensway, Lincoln Fields, Dominion and Westboro.
*Except Routes 258 and 282 which offer full service.
SERVICE LIMITÉ JUSQU'À LA STATION TUNNEY'S PASTURE
Les circuits en provenance de l'ouest offrent le service de débarquement, seulement, aux stations suivantes : Moodie, Pinecrest, Queensway, Lincoln Fields, Dominion et Westboro.
Les circuits en provenance du sud-ouest offrent le service de débarquement, seulement, aux stations suivantes : Baseline, Iris, Queensway, Lincoln Fields, Dominion et Westboro.
*Sauf les circuits 258 et 282 qui offrent un service complet.
PM Connexion Routes
Circuits Connexion en après-midi
LIMITED SERVICE AFTER TUNNEY'S PASTURE STATION
No service from Westboro Station to Pinecrest Station
Routes 252, 256, 257, 261, 262, 263, 264, 265, 267 and 268
No service from Westboro Station to Baseline Station
Routes 270, 271, 272, 273, 277 and 278
No service from Westboro Station to Dominion Station
Route 283
SERVICE LIMITÉ APRÈS LA STATION TUNNEY'S PASTURE
Pas de service de la station Westboro à la station Pinecrest
Circuits 252, 256, 257, 261, 262, 263, 264, 265, 267 et 268
Pas de service de la station Westboro à la station Baseline
Circuits 270, 271, 272, 273, 277 et 278
Pas de service de la station Westboro à la station Dominion
Circuit 283
Tunney's Pasture
1
57 61 62 63 74 75
11 14 51 53 80 87
16 50 54 56 64 66
73 81 82 86 89 153
252 256 257 258 261 262
263 264 265 267 268 270
271 272 273 277 278 282
283
Lincoln Fields
57 61 62 63 74 75
11 51 85
155
50 58 64 66 73 82
153 154 186
261 258 282 283
267
301 303 305
57 61 62 63 74 75
64 66 73 82
252 256 257 258 261 262 263
264 265 267 268 270 271 272
273 277 278 282 283
Dominion
Westboro
Tunney's Pasture
Bayview
Lincoln Fields
Carling
Trains replaced by buses
Trains remplacés par des autobus
QUEENSWAY
417

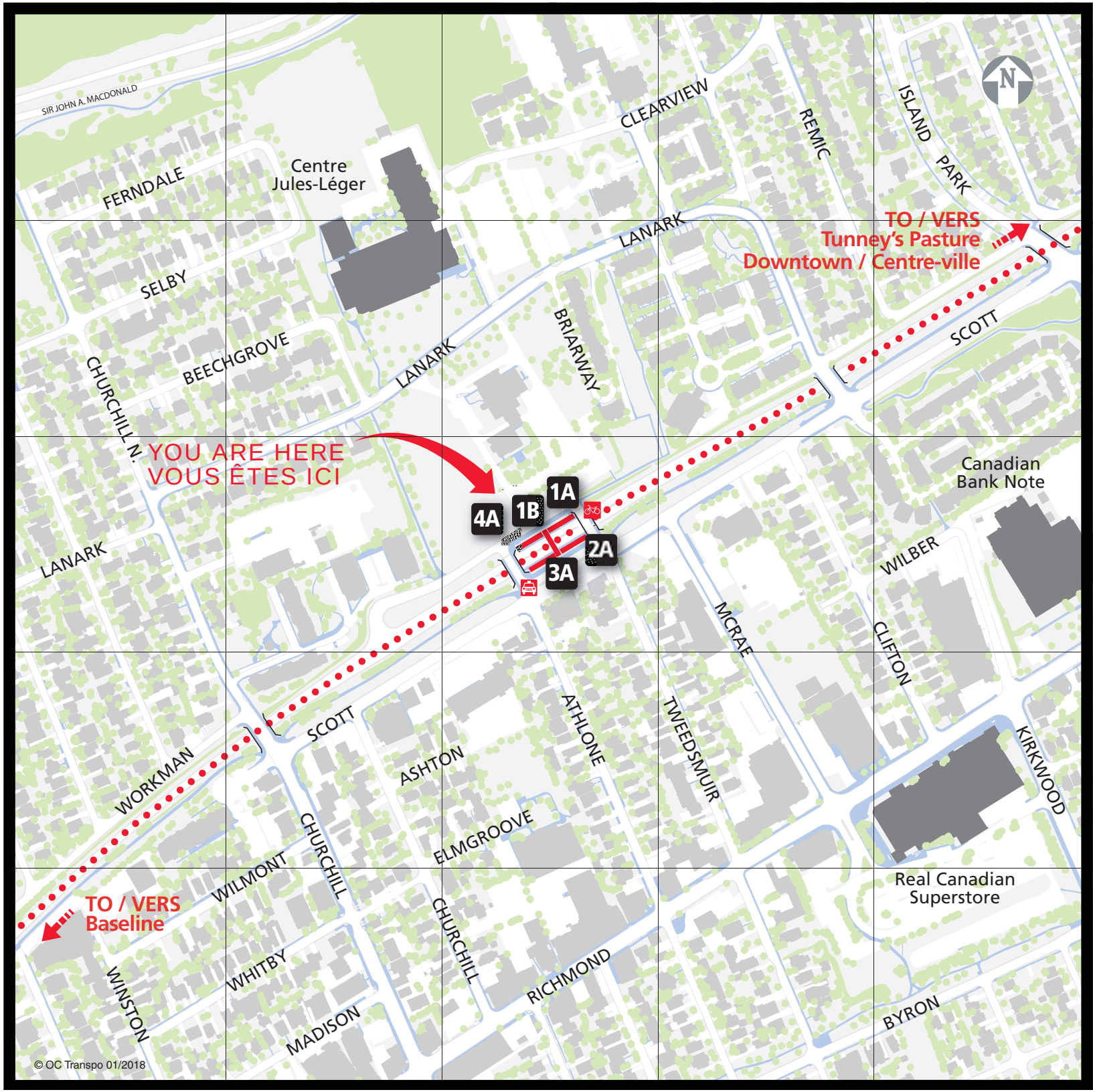
LEGEND / LÉGENDE

- 2A — Bus stops / Arrêts d'autobus
- Bus only / Autobus seulement
- Bike rack / Support à vélo
- Taxi pickup / Poste d'attente de taxis
- Accessible area / Zone accessible
- Walking Paths-sidewalks / Sentiers et trottoirs

0 100 200

0 1 2

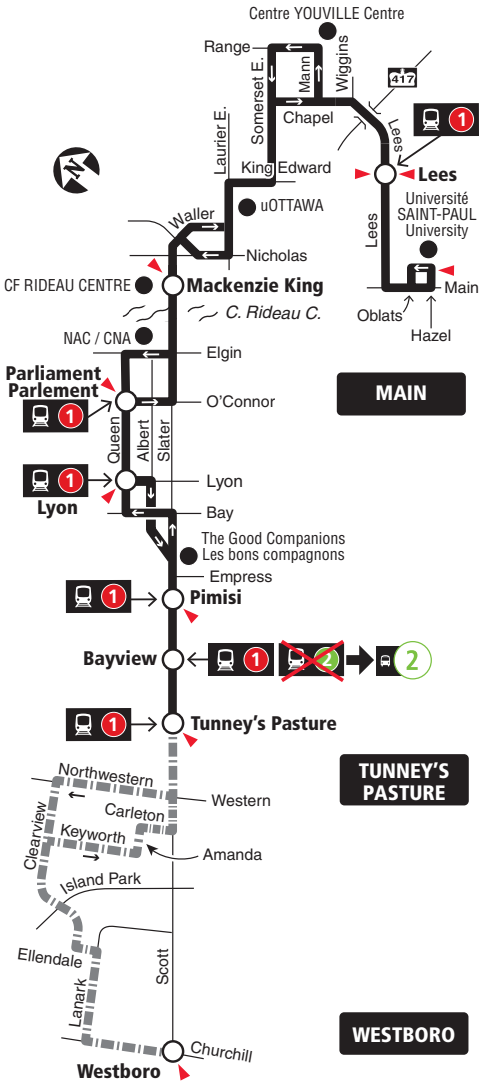
Minutes of walking - minutes de marche



16 MAIN

TUNNEY'S PASTURE
WESTBORO

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



Station
No Sunday service / Aucun service le dimanche
Timepoint / Heures de passage

2020.04

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 May 3, 2020
En vigueur 3 mai 2020

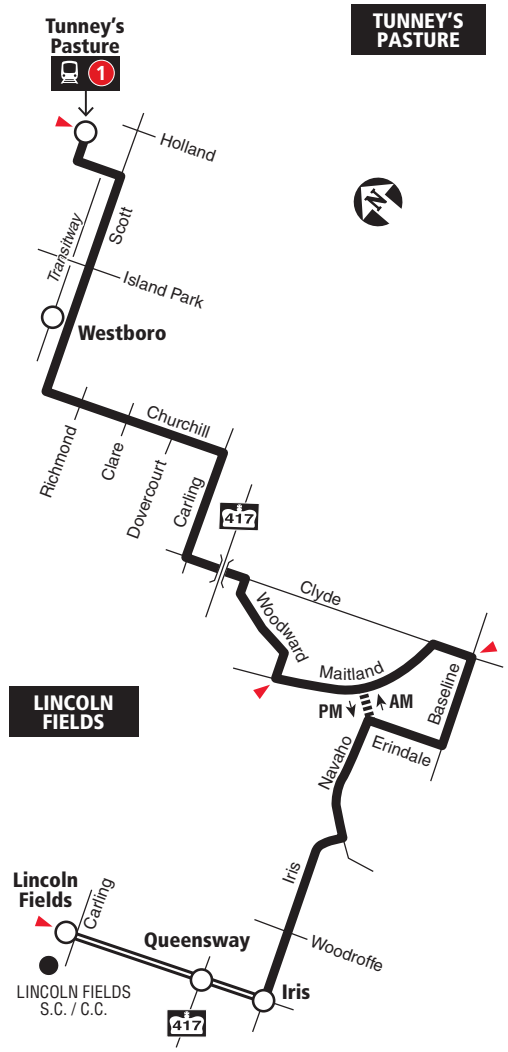
OC Transpo
INFO 613-741-4390
octranspo.com

50 LINCOLN FIELDS / TUNNEY'S PASTURE

Local

Monday to Saturday / Lundi au samedi

No service Sat. eve. or all day Sunday / Aucun service le soir le sam. ou toute la journée dimanche



Transitway & Station

Peak Periods only / Périodes de pointe 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 **613-842-3600**

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

Security / Sécurité **613-741-2478**

Effective April 24, 2017
En vigueur 24 avril 2017

OC Transpo

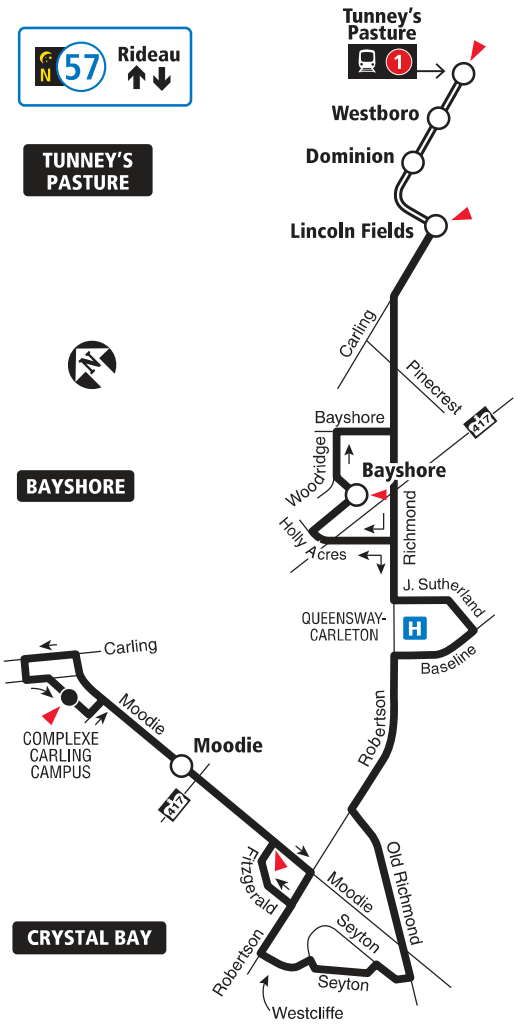
INFO 613-741-4390
octranspo.com

57 Rapide

BAYSHORE
CRYSTAL BAY
TUNNEY'S PASTURE

7 days a week / 7 jours par semaine

All day and limited overnight service
Service toute la journée et limité la nuit



Transitway & Station

Timepoint | Heures de passage

When O-Train Line 1 is not running overnight, Route 57 will be extended downtown to Rideau Station. / Lorsque la Ligne 1 de l'O-Train ne circule pas la nuit, le circuit 57 sera prolongée au centre-ville jusqu'à la station Rideau.

2021.09

Schedule / Horaire 613-560-1000
Text / Texto* 560560
plus your four digit bus stop number / *plus* votre numéro d'arrêt à quatre chiffres
*Standard message rates may apply / Les tarifs réguliers de messagerie texte peuvent s'appliquer

Customer Service
Service à la clientèle **613-560-5000**
Lost and Found / Objets perdus..... **613-563-4011**
Security / Sécurité **613-741-2478**

Effective September 5, 2021
En vigueur 5 septembre 2021

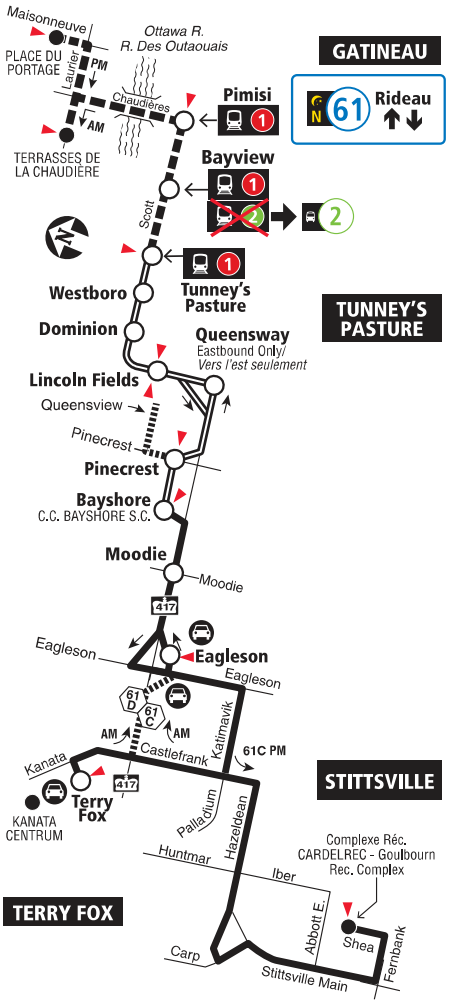
OC Transpo
INFO 613-560-5000
octranspo.com

61 Rapide

TERRY FOX STITTSVILLE
TUNNEY'S PASTURE GATINEAU

7 days a week / 7 jours par semaine

All day service and limited overnight
Service toute la journée et limité la nuit



Transitway & Station
Peak trips / Trajets de pointe
Selected time periods / Périodes sélectionnées
Park & Ride / Parc-o-bus
Timepoint / Heures de passage

61 When O-Train Line 1 is not running overnight, Route 61 will be extended downtown to Rideau Station. / Lorsque la Ligne 1 de l'O-Train ne circule pas la nuit, le circuit 61 sera prolongée au centre-ville jusqu'à la station Rideau.

2021.09

Schedule / Horaire 613-560-1000
Text / Texto* 560560
plus your four digit bus stop number / *plus* votre numéro d'arrêt à quatre chiffres
*Standard message rates may apply / Les tarifs réguliers de messagerie texte peuvent s'appliquer

Customer Service
Service à la clientèle **613-560-5000**
Lost and Found / Objets perdus..... **613-563-4011**
Security / Sécurité **613-741-2478**

Effective September 5, 2021
En vigueur 5 septembre 2021

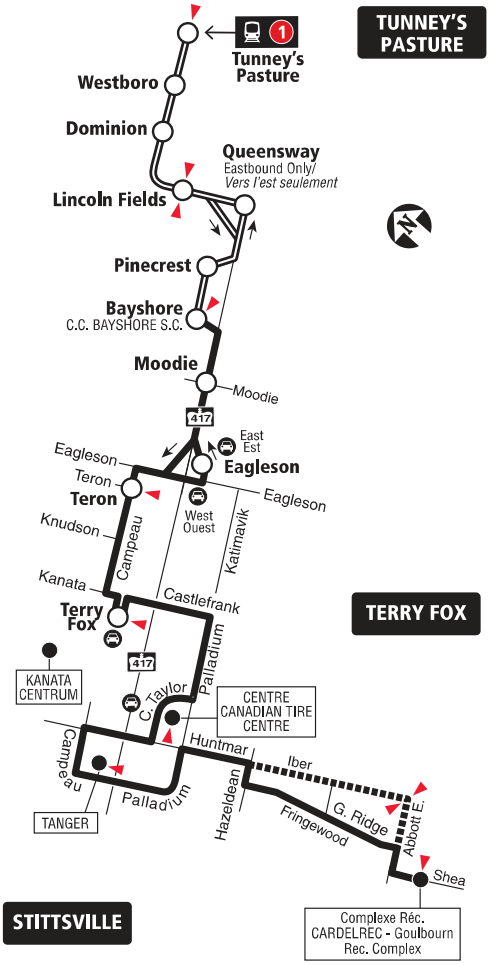
OC Transpo
INFO 613-560-5000
octranspo.com

62 Rapide

TERRY FOX STITTSVILLE
TUNNEY'S PASTURE

7 days a week / 7 jours par semaine

All day service
Service toute la journée



Transitway & Station

Weekday southbound trips before noon and weekday northbound trips between noon and 8 p.m. travel via Iber and Abbott E.

Trajets en semaine vers le sud en avant midi et trajets en semaine vers le nord entre midi et 20 h via Iber et Abbott E.

Park & Ride / Parc-o-bus

Timepoint / Heures de passage

2021.09

Schedule / Horaire 613-560-1000
Text / Texto* 560560
plus your four digit bus stop number / *plus* votre numéro d'arrêt à quatre chiffres
*Standard message rates may apply / Les tarifs réguliers de messagerie texte peuvent s'appliquer

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

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

Security / Sécurité **613-741-2478**

Effective September 5, 2021
En vigueur 5 septembre 2021

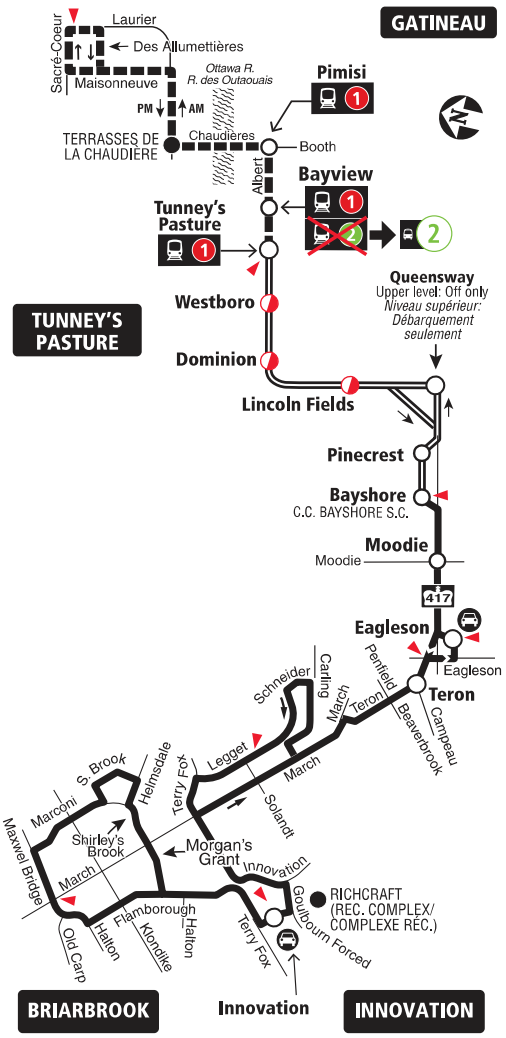
OC Transpo
INFO 613-560-5000
octranspo.com

63 Rapide

INNOVATION BRIARBROOK TUNNEY'S PASTURE GATINEAU

7 days a week / 7 jours par semaine

All day service
Service toute la journée



Transitway & Station
Peak Periods Only / Périodes de pointe seulement
Eastbound: AM Off only - Westbound: Full Service
Vers l'est AM: Débarquement seulement
Vers l'ouest: Service complet
Park & Ride / Parc-o-bus
Timepoint / Heures de passage

2021.09

Schedule / Horaire 613-560-1000
Text / Texto* 560560
plus your four digit bus stop number / *plus* votre numéro d'arrêt à quatre chiffres
*Standard message rates may apply / Les tarifs réguliers de messagerie texte peuvent s'appliquer

Customer Service
Service à la clientèle **613-560-5000**
Lost and Found / Objets perdus..... **613-563-4011**
Security / Sécurité **613-741-2478**

Effective September 5, 2021
En vigueur 5 septembre 2021

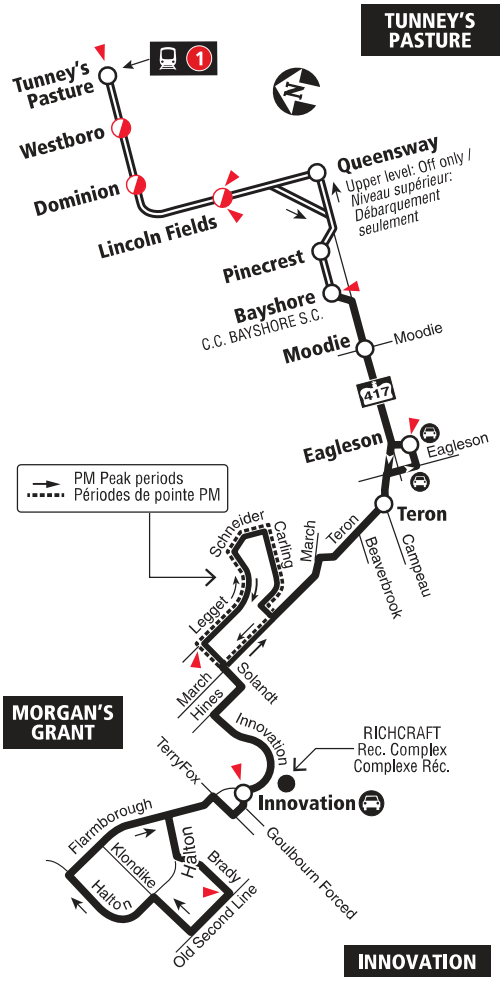
OC Transpo
INFO 613-560-5000
octranspo.com

64 Local

MORGAN'S GRANT
INNOVATION
TUNNEY'S PASTURE

Monday to Friday / Lundi au vendredi

All day service
Service toute la journée



Transitway & Station

Eastbound: AM Off only - Westbound: Full Service
Vers l'est AM: Débarquement seulement
Vers l'ouest: Service complet

Park & Ride / Parc-o-bus

Timepoint / Heures de passage

2021.09

Schedule / Horaire 613-560-1000
Text / Texto* 560560
plus your four digit bus stop number / *plus* votre numéro d'arrêt à quatre chiffres
*Standard message rates may apply / Les tarifs réguliers de messagerie texte peuvent s'appliquer

Customer Service
Service à la clientèle **613-560-5000**
Lost and Found / Objets perdus..... **613-563-4011**
Security / Sécurité **613-741-2478**

Effective September 5, 2021
En vigueur 5 septembre 2021

OC Transpo
INFO 613-560-5000
octranspo.com

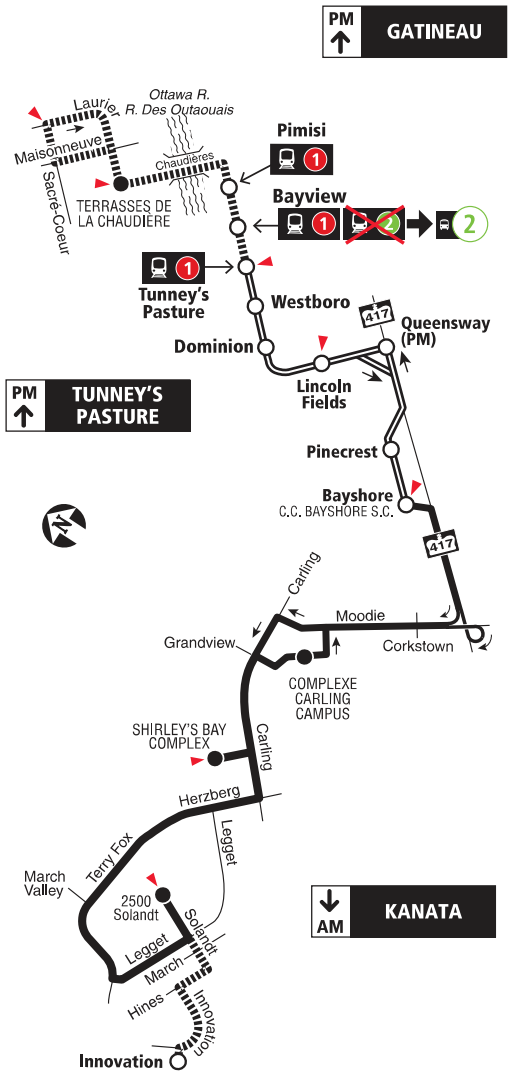
66 Local

KANATA
TUNNEY'S PASTURE
GATINEAU

Monday to Friday / Lundi au vendredi

Peak periods only

Périodes de pointe seulement



Transitway & Station

Some trips / Quelques trajets

Timepoint / Heures de passage

2021.09

Schedule / Horaire 613-560-1000

Text / Texto* 560560

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

*Standard message rates may apply / Les tarifs réguliers de messagerie texte peuvent s'appliquer

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

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

Security / Sécurité **613-741-2478**

Effective September 5, 2021

En vigueur 5 septembre 2021

OC Transpo

INFO 613-560-5000
octranspo.com

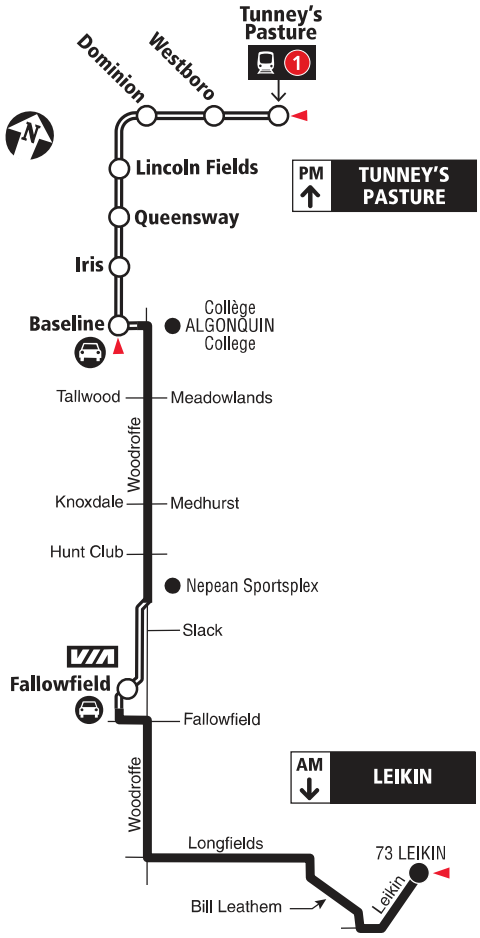
73 LEIKIN / TUNNEY'S PASTURE

Local

Monday to Friday / Lundi au vendredi

Peak periods only

Périodes de pointe seulement



Transitway & Station

Park & Ride / Parc-o-bus

Timepoint / Heures de passage

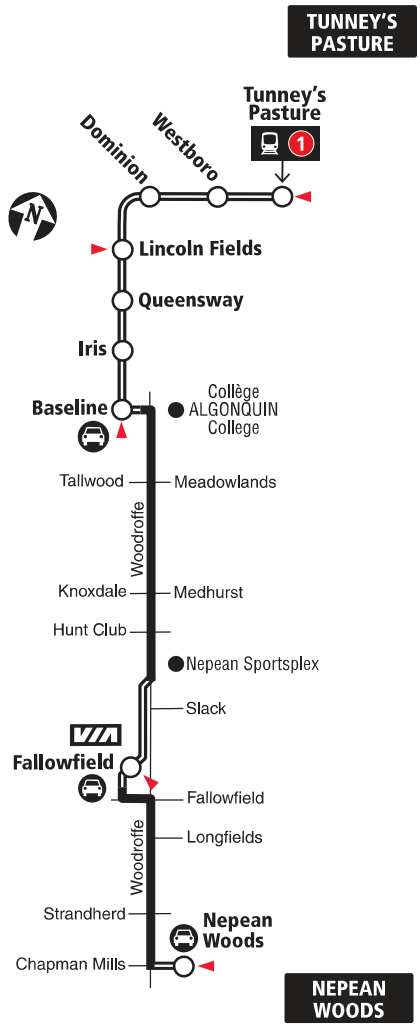
2019.07

74 Rapide

NEPEAN WOODS
TUNNEY'S PASTURE

7 days a week / 7 jours par semaine

All day service
Service toute la journée



Transitway & Station

Park & Ride / Parc-o-bus

Timepoint / Heures de passage

2021.06

Schedule / Horaire 613-560-1000
Text / Texto* 560560
plus your four digit bus stop number / *plus* votre numéro d'arrêt à quatre chiffres
*Standard message rates may apply / Les tarifs réguliers de messagerie texte peuvent s'appliquer

Customer Service
Service à la clientèle **613-560-5000**
Lost and Found / Objets perdus..... **613-563-4011**
Security / Sécurité **613-741-2478**

Effective June 20, 2021
En vigueur 20 juin 2021

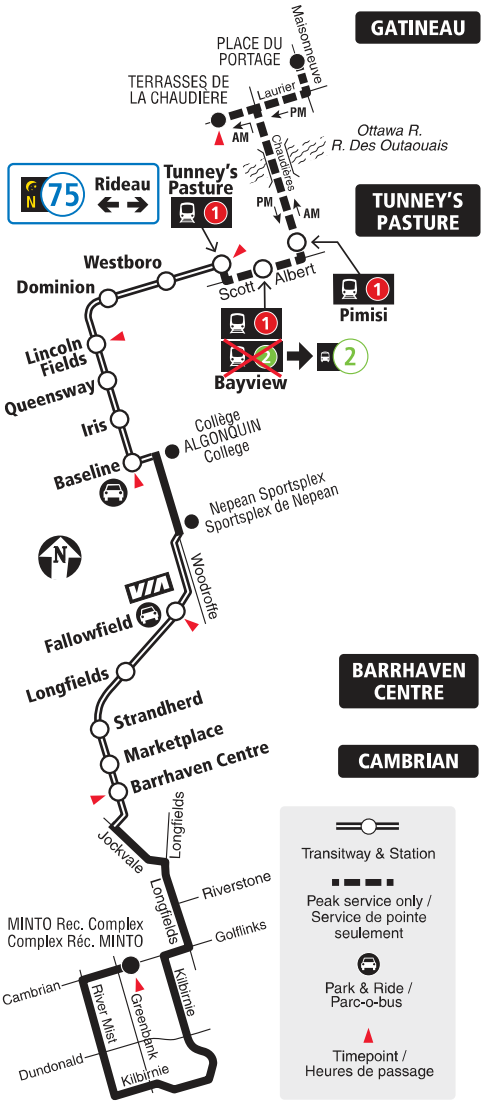
OC Transpo
INFO 613-560-5000
octranspo.com

75 Rapide

CAMBRIAN BARRHAVEN C.
TUNNEY'S PASTURE GATINEAU

7 days a week / 7 jours par semaine

All day service and limited overnight
Service toute la journée et limité la nuit



75 When O-Train Line 1 is not running overnight, Route 75 will be extended downtown to Rideau Station. / Lorsque la ligne 1 de l'O-Train ne circule pas la nuit, le circuit 75 sera prolongée au centre-ville jusqu'à la station Rideau.

2020.04

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 May 3, 2020
En vigueur 3 mai 2020

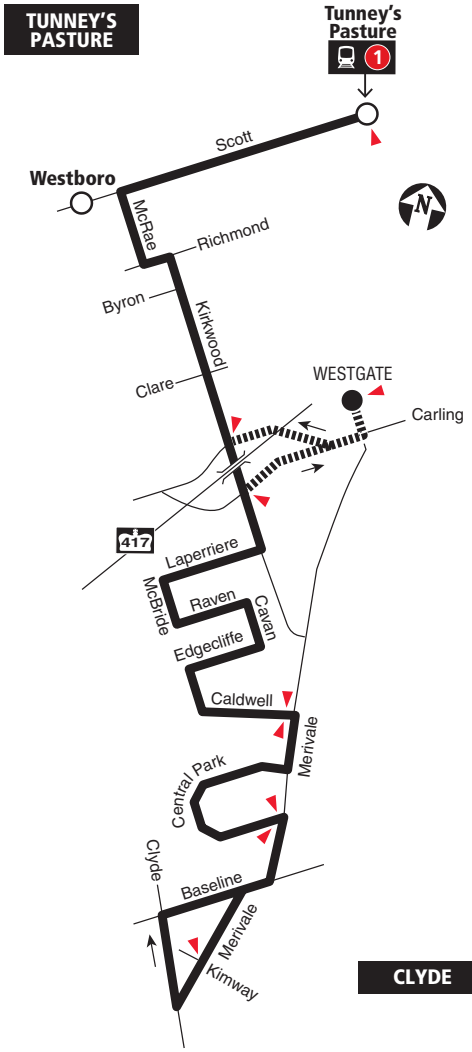
OC Transpo **INFO 613-741-4390**
octranspo.com

81 CLYDE
TUNNEY'S PASTURE

Local

7 days a week / 7 jours par semaine

No service in the evening on weekends
Aucun service le soir les fins de semaine



Station
Some trips / Quelques trajets
Timepoint / Heures de passage

2019.07

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

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

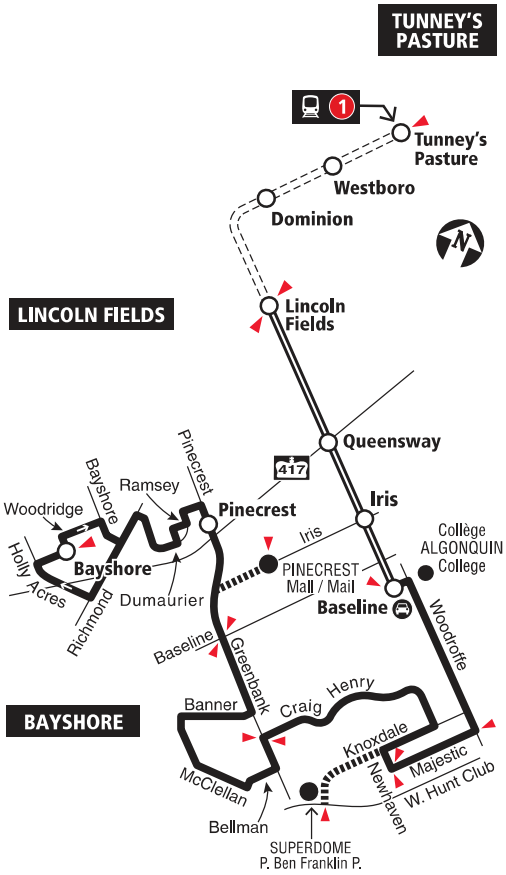
OC Transpo
INFO 613-741-4390
octranspo.com

82 BAYSHORE
LINCOLN FIELDS
TUNNEY'S PASTURE

Local

7 days a week / 7 jours par semaine

All day service
Service toute la journée



- Transitway & Station
- Transitway & Station (Peak periods / périodes de pointe)
- Park & Ride / Parc-o-bus
- Some trips / Quelques trajets
- Timepoint / Heures de passage

2021.06

Schedule / Horaire 613-560-1000
Text / Texto* 560560
plus your four digit bus stop number / *plus* votre numéro d'arrêt à quatre chiffres
*Standard message rates may apply / Les tarifs réguliers de messagerie texte peuvent s'appliquer

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

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

Security / Sécurité **613-741-2478**

Effective June 20, 2021
En vigueur 20 juin 2021

OC Transpo
INFO 613-741-4390
octranspo.com

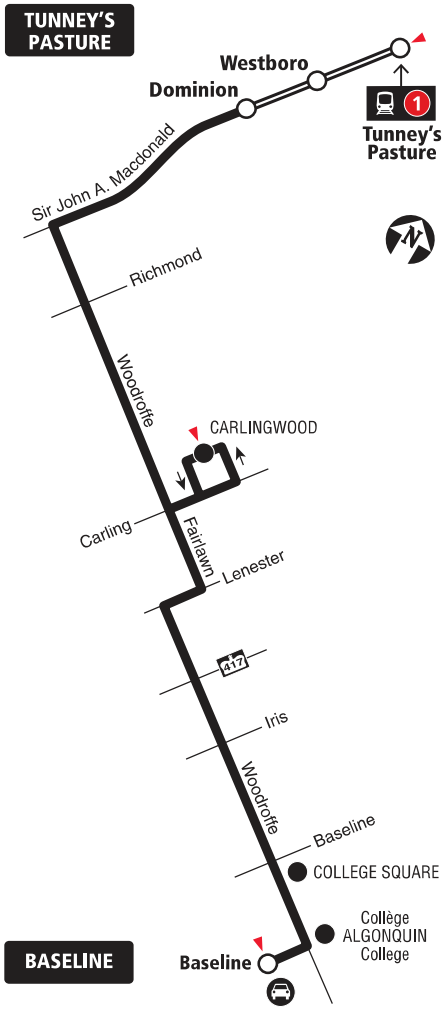
87 BASELINE / TUNNEY'S PASTURE

Fréquent

7 days a week / 7 jours par semaine

All day service

Service toute la journée



Transitway & Station

Park & Ride / Parc-o-bus

Timepoint / Heures de passage

2019.07

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

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

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

OC Transpo

INFO 613-741-4390
octranspo.com

153 LINCOLN FIELDS / TUNNEY'S PASTURE / CARLINGWOOD

Local

7 days a week / 7 jours par semaine

Selected time periods only
Périodes sélectionnées seulement

Station
Some trips / Quelques trajets
Timepoint / Heures de passage

2019.10

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

Customer Relations
Service à la clientèle **613-842-3600**
Lost and Found / Objets perdus..... **613-563-4011**
Security / Sécurité **613-741-2478**

Effective October 6, 2019
En vigueur 6 octobre 2019

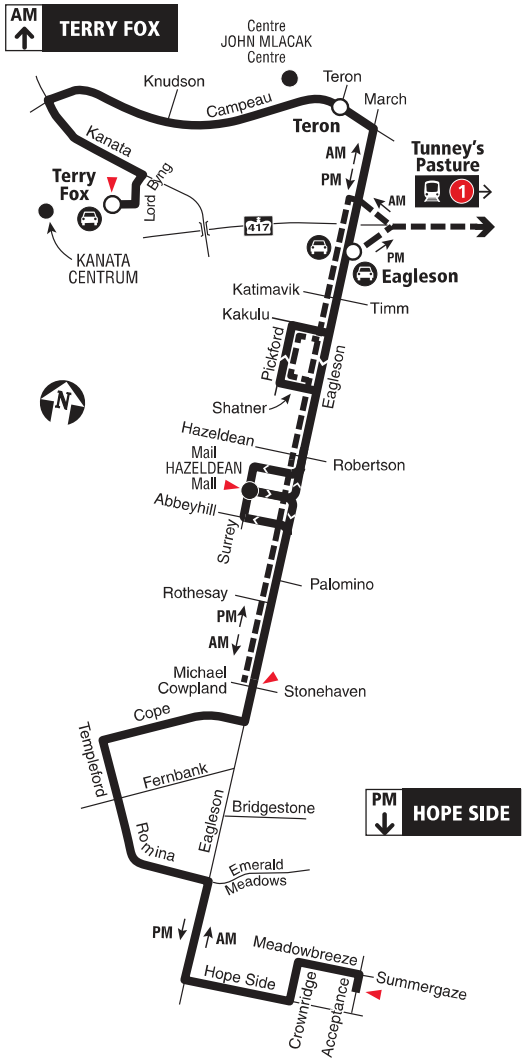
OC Transpo
INFO 613-741-4390
octranspo.com

164 TERRY FOX / HOPE SIDE

Local

Monday to Friday/ Lundi au vendredi

Peak periods only
Périodes de pointe seulement



○	Transitway Station / Station du Transitway
▬▬▬	Peak Periods Only / Périodes de pointe seulement Some trips to / from Tunney's Pasture Quelques trajets de / vers Tunney's Pasture
	Park & Ride / Parc-o-bus
▲	Timepoint / Heures de passage

2020.12

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 December 21, 2020
En vigueur 21 décembre 2020

OC Transpo

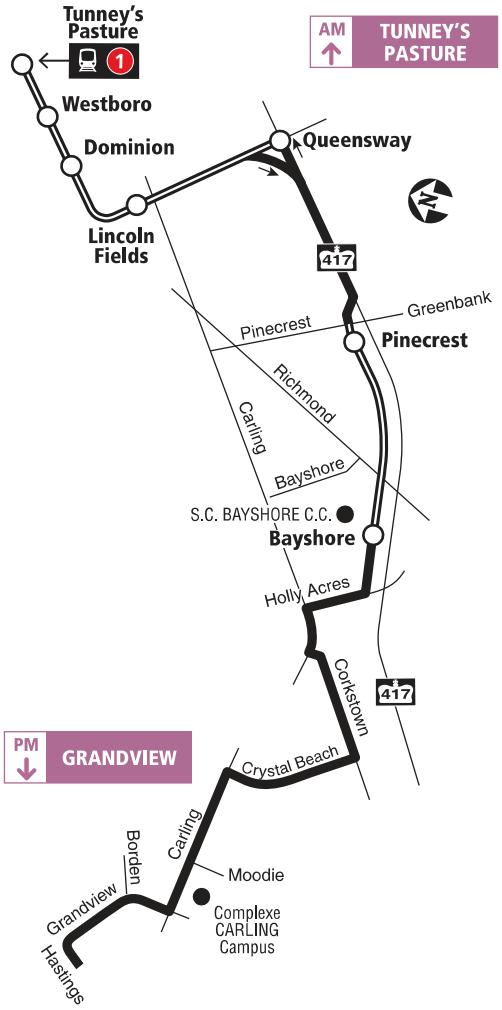
INFO 613-741-4390
octranspo.com

258 GRANDVIEW / TUNNEY'S PASTURE

Connexion

Monday to Friday / Lundi au vendredi

Peak periods only
Périodes de pointe seulement



Transitway & Station

2020.01

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 January 5, 2020
En vigueur 5 janvier 2020

OC Transpo

INFO 613-741-4390
octranspo.com

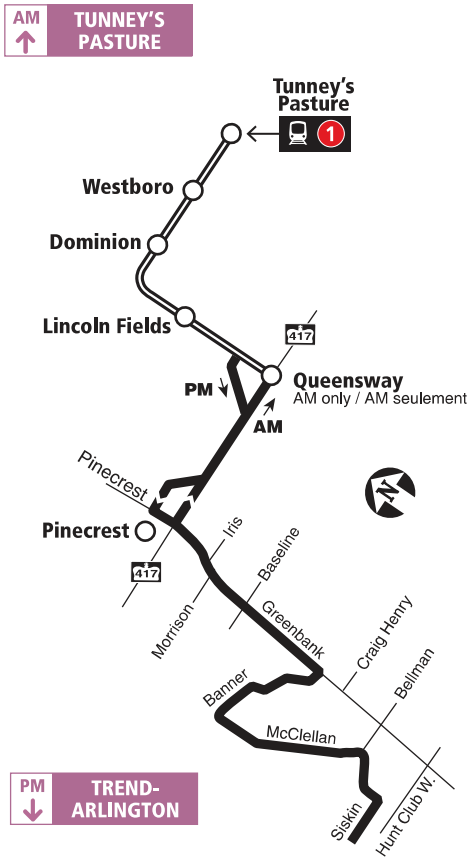
282 TREND-ARLINGTON TUNNEY'S PASTURE

Connexion

Monday to Friday / Lundi au vendredi

Peak periods only

Périodes de pointe seulement



Transitway & Station

2020.01

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**

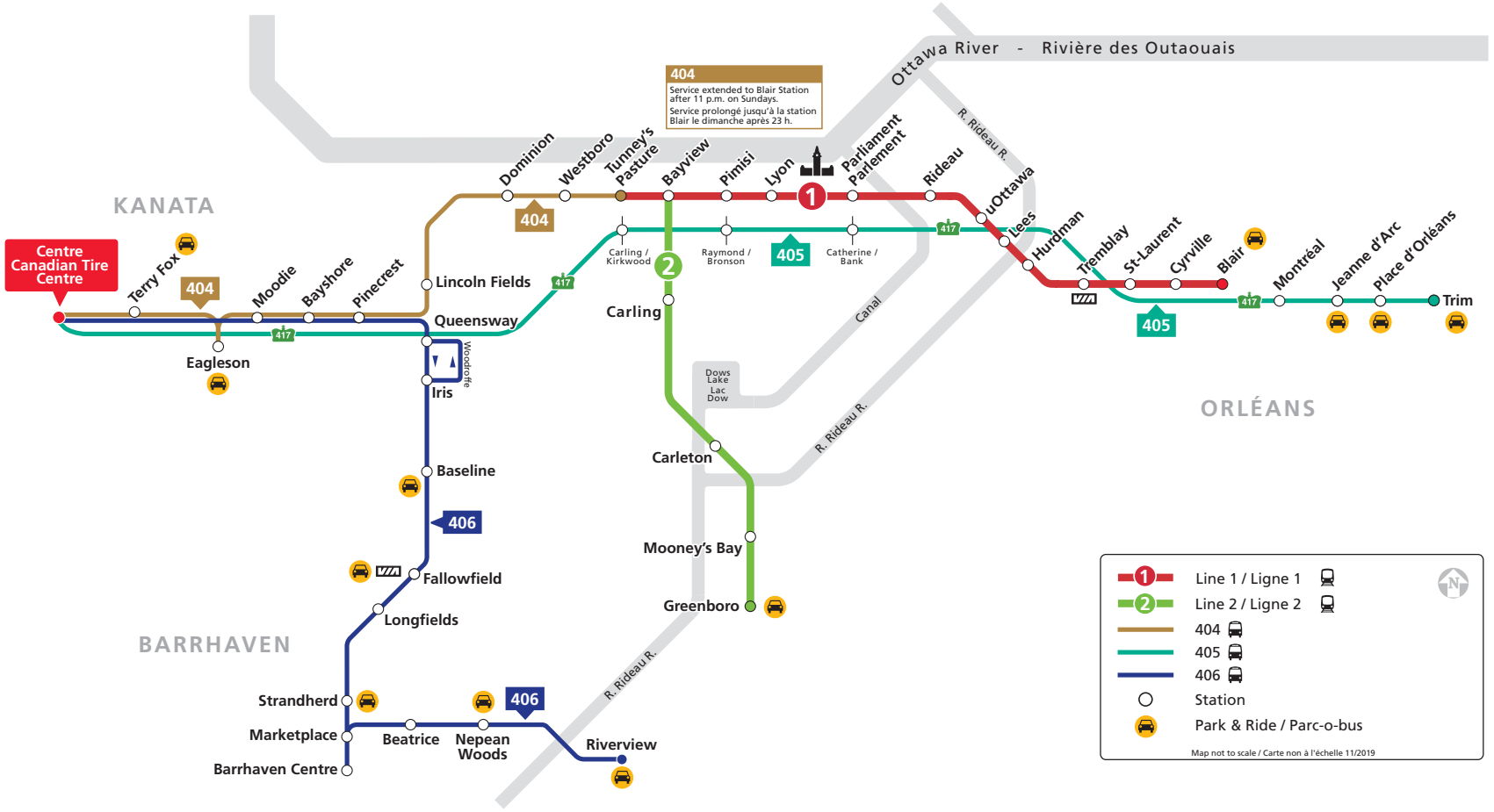
Lost and Found / Objets perdus..... **613-563-4011**

Security / Sécurité **613-741-2478**

Effective January 5, 2020
En vigueur 5 janvier 2020

OC Transpo

INFO 613-741-4390
octranspo.com


404
Service extended to Blair Station after 11 p.m. on Sundays.
Service prolongé jusqu'à la station Blair le dimanche après 23 h.
Ottawa River - Rivière des Outaouais
KANATA
Centre Canadian Tire Centre
Terry Fox
404
Moodie
Bayshore
Pinecrest
Eagleson
Lincoln Fields
Queensway
417
Woodroffe
Iris
Baseline
406
Fallowfield
Longfields
BARRHAVEN
Strandherd
Marketplace
Barrhaven Centre
Beatrice
Nepean Woods
406
Riverview
Dominion
Westboro
Tunney's Pasture
Bayview
Pimisi
Lyon
Parliament Parlement
Rideau
uOttawa
Lees
Hurdman
Tremblay
St-Laurent
Cyrville
Blair
Montréal
Jeanne d'Arc
Place d'Orléans
Trim
404
Carling / Kirkwood
Raymond / Bronson
405
Catherine / Bank
417
Carling
Dows Lake Lac Dow
Canal
R. Rideau R.
Carleton
Mooney's Bay
Greenboro
R. Rideau R.
ORLÉANS
405
Line 1 / Ligne 1
Line 2 / Ligne 2
404
405
406
Station
Park & Ride / Parc-o-bus
Map not to scale / Carte non à l'échelle 11/2019

Joshua Audia

Subject: Request for Transit Data - Westboro/Scott St (2026 Scott Street)

From: Rathwell, Graham <graham.rathwell@ottawa.ca>
Sent: Monday, December 20, 2021 4:58:52 PM
To: Rochelle Fortier <r.fortier@novatech-eng.com>
Cc: Patrick Hatton <p.hatton@novatech-eng.com>; Brad Byvelds <B.Byvelds@novatech-eng.com>; Jennifer Luong <j.luong@novatech-eng.com>
Subject: RE: Request for Transit Data - Westboro/Scott St (2026 Scott Street)

And here is the table for 2026 Scott. All of the same comments apply. Please let me know if there are any questions.

Stop	Stop Location	Route	Dir	AM (6:00-9:00)			PM (15:00-18:00)			24-hr		
				Boardings	*Alightings*	*Avg Load at Departure*	*Boardings*	*Alightings*	*Avg Load at Departure*	*Boardings*	*Alightings*	*Avg Load at Departure*
4841	MCRAE / SCOTT	81	EB	0	10	15	1	6	6	7	27	7
		153	WB	-	-	-	2	1	5	3	1	5
4864	RICHMOND / EDEN	11	WB	1	13	8	1	7	21	6	31	12
4865	RICHMOND / EDGEWOOD	11	EB	4	0	17	4	0	13	12	3	11
4884	CHURCHILL / WORKMAN	16	EB	8	0	3	1	0	1	18	0	1
4893	MCRAE / SCOTT	81	WB	0	2	5	3	3	14	6	8	8
		153	EB	-	-	-	0	0	5	1	0	3
5615	CHURCHILL / TRANSIT BRIDGE	16	WB	0	5	3	0	6	2	0	21	2
7379	CHURCHILL / SCOTT	50	EB	5	0	21	0	3	10	8	3	11
		153	EB	-	-	-	1	1	4	3	1	3
7380	CHURCHILL / SCOTT	50	WB	2	2	12	1	3	16	4	10	10
		153	WB	-	-	-	0	0	5	0	0	4
3012	WESTBORO 1A	57	WB	3	12	8	15	45	33	34	101	16
		58	EB	6	0	7	2	0	15	8	0	11
		61	WB	10	10	15	45	111	43	81	185	31
		62	WB	4	1	21	13	25	30	21	54	22
		63	IB	22	16	13	12	47	33	40	103	19
		64	IB	11	12	12	16	17	20	29	50	14
		66	WB	21	25	30	-	-	-	23	29	29
3012	WESTBORO 1B	73	SB	7	0	9	-	-	-	7	0	8
		74	SB	5	2	7	5	3	17	31	15	19
		75	SB	12	3	15	62	64	22	111	104	21
		82	WB	0	1	9	7	4	16	6	5	13

		83	NB	1	1	8	8	0	10	12	2	8
		84	WB	4	2	15	5	0	11	18	3	12
		87	NB	1	3	4	49	14	19	69	23	10
		164	SB	0	4	2	-	-	-	0	4	2
		258	OB	-	-	-	1	0	7	2	0	7
		282	OB	-	-	-	1	0	25	1	0	23
		284	SB	-	-	-	0	2	8	0	2	8
		57	EB	15	9	38	14	8	12	75	31	14
		58	WB	11	2	26	4	1	12	18	4	18
		61	EB	45	8	34	7	11	24	73	29	22
		62	EB	0	0	13	17	6	28	38	19	15
		63	OB	18	1	39	16	12	21	58	24	21
		64	OB	12	6	28	9	7	12	36	13	15
		66	EB	-	-	-	18	23	28	23	27	24
		73	NB	-	-	-	16	11	19	16	11	17
		74	NB	14	9	36	11	12	22	55	51	29
		75	NB	58	15	47	18	13	34	131	87	30
		82	EB	20	1	29	8	5	15	30	6	20
		83	SB	7	7	21	4	5	11	27	19	17
		84	EB	12	3	27	21	9	19	34	14	20
		87	SB	30	7	22	17	3	11	73	22	10
		164	NB	-	-	-		*No data*			*No data*	
3012	WESTBORO 2A	251	IB	4	0	11	-	-	-	4	0	11
		252	IB	2	4	19	-	-	-	6	5	20
		256	IB	4	3	34	-	-	-	4	3	35
		257	IB	7	4	35	-	-	-	7	4	35
		258	IB	19	0	16	-	-	-	19	0	17
		261	IB	2	1	33	-	-	-	2	1	33
		262	IB	0	0	38	-	-	-	0	0	38
		263	IB	0	0	30	-	-	-	0	0	30
		264	IB	0	0	31	-	-	-	0	0	31
		265	IB	0	1	25	-	-	-	0	1	25
		266	IB	5	0	25	-	-	-	5	0	25
		267	IB	2	1	40	-	-	-	3	2	39
		268	IB	1	1	37	-	-	-	1	2	37
		282	IB	10	5	33	-	-	-	12	5	33
		283	IB	0	0	3	-	-	-	0	0	3
		284	NB	5	3	19	-	-	-	5	3	17
		16	EB	11	0	2	6	0	1	30	0	1
3012	WESTBORO 3A	50	WB	6	1	11	12	8	16	24	10	10
		153	WB	-	-	-	0	0	5	0	0	5
		16	WB	0	15	0	0	14	0	0	54	0
3012	WESTBORO 4A	50	EB	2	12	21	0	8	9	2	28	11
		153	EB	-	-	-	0	0	4	0	0	3

3012	WESTBORO STN OFF ONLY	270	IB	6	0	40	-	-	-	5	0	40
		271	IB	1	6	57	-	-	-	1	6	57
		272	IB	3	3	50	-	-	-	4	4	49
		273	IB	5	2	48	-	-	-	5	2	46
		275	IB	5	3	59	-	-	-	8	4	55
		277	IB	7	12	55	-	-	-	9	14	55
		278	IB	3	4	36	-	-	-	4	4	34

Best,

Graham Rathwell
Transit Planner, Network Service Design
Service Planning Branch
Transit Services Department
OC Transpo | City of Ottawa

From: Rathwell, Graham
Sent: December 20, 2021 4:35 PM
To: Rochelle Fortier <r.fortier@novatech-eng.com>
Cc: Patrick Hatton <p.hatton@novatech-eng.com>; Brad Byvelds <B.Byvelds@novatech-eng.com>; Jennifer Luong <j.luong@novatech-eng.com>
Subject: RE: Request for Transit Data - Westboro/Scott St (1950 Scott Street)

Hi again Rochelle,

The technical issues have finally been resolved. Please find below the requested data for 1950 Scott Street in the table below. I will follow-up shortly with a separate email for 2026 Scott Street.

Data was sampled from the period of January 5 to March 16 2020, which is the last 'normal' ridership period before pandemic-related impacts began. Please note that cells with a zero (0) value indicate a measured average value of zero, based on available APC data, rather than an absence of data. Cells with a dash (-) indicate that the route in question does not serve the stop in the given time period.

Further, please note the following for Connexion (200-series) routes serving Westboro Station:

- Routes 258, 282, and 284 are the only Connexion routes that are planned to serve Westboro Station in both directions (inbound AM, outbound PM).
- All other Connexion routes (250s, 260s, 270s, and 280s not listed above) drop-off customers on request only in the AM, and bypass Westboro in the PM.
- Customers are permitted to board these routes in the AM only if they are already stopping to let customers off, otherwise they do not stop.
- AM Connexion service is split between two stops on the same inbound platform: 2A (the main inbound stop with 250s, 260s, 280s), and an off-only stop at the far west end of the platform (270s). These are listed separately in the table below.

- While Connexion routes do not provide an even or consistent level of service at Westboro in the peak periods, it's still important to include the ridership data: taken together, they contribute to the overall total customer flows to/from Westboro that would otherwise need to be accommodated on mainline routes.

Stop	Stop Location	Route	Dir	AM (6:00-9:00)			PM (15:00-18:00)			24-hr		
				Boardings	*Alightings*	*Avg Load at Departure*	*Boardings*	*Alightings*	*Avg Load at Departure*	*Boardings*	*Alightings*	*Avg Load at Departure*
0428	SCOTT / LANARK	50	EB	4	2	21	0	3	8	5	4	11
		81	EB	3	0	15	0	0	7	7	1	7
2356	RICHMOND / MCRAE	11	WB	9	15	9	34	52	22	111	171	13
		81	EB	0	8	16	3	9	7	9	36	7
		153	WB	-	-	-	4	1	5	6	3	4
2389	RICHMOND / KIRKWOOD	11	EB	7	2	17	30	7	15	138	23	12
		81	WB	2	0	5	16	4	14	38	7	9
		153	EB	-	-	-	1	0	5	6	1	4
4841	MCRAE / SCOTT	81	EB	0	10	15	1	6	6	7	27	7
		153	WB	-	-	-	2	1	5	3	1	5
4893	MCRAE / SCOTT	81	WB	0	2	5	3	3	14	6	8	8
		153	EB	-	-	-	0	0	5	1	0	3
7375	SCOTT / CLIFTON	50	WB	1	0	11	0	1	16	1	9	10
		81	WB	0	0	5	0	4	14	1	9	8
3012	WESTBORO 1A	57	WB	3	12	8	15	45	33	34	101	16
		58	EB	6	0	7	2	0	15	8	0	11
		61	WB	10	10	15	45	111	43	81	185	31
		62	WB	4	1	21	13	25	30	21	54	22
		63	IB	22	16	13	12	47	33	40	103	19
		64	IB	11	12	12	16	17	20	29	50	14
		66	WB	21	25	30	-	-	-	23	29	29
3012	WESTBORO 1B	73	SB	7	0	9	-	-	-	7	0	8
		74	SB	5	2	7	5	3	17	31	15	19
		75	SB	12	3	15	62	64	22	111	104	21
		82	WB	0	1	9	7	4	16	6	5	13
		83	NB	1	1	8	8	0	10	12	2	8
		84	WB	4	2	15	5	0	11	18	3	12
		87	NB	1	3	4	49	14	19	69	23	10
		164	SB	0	4	2	-	-	-	0	4	2
		258	OB	-	-	-	1	0	7	2	0	7
		282	OB	-	-	-	1	0	25	1	0	23
		284	SB	-	-	-	0	2	8	0	2	8
3012	WESTBORO 2A	57	EB	15	9	38	14	8	12	75	31	14
		58	WB	11	2	26	4	1	12	18	4	18
		61	EB	45	8	34	7	11	24	73	29	22
		62	EB	0	0	13	17	6	28	38	19	15
		63	OB	18	1	39	16	12	21	58	24	21
		64	OB	12	6	28	9	7	12	36	13	15

		66	EB	-	-	-	18	23	28	23	27	24
		73	NB	-	-	-	16	11	19	16	11	17
		74	NB	14	9	36	11	12	22	55	51	29
		75	NB	58	15	47	18	13	34	131	87	30
		82	EB	20	1	29	8	5	15	30	6	20
		83	SB	7	7	21	4	5	11	27	19	17
		84	EB	12	3	27	21	9	19	34	14	20
		87	SB	30	7	22	17	3	11	73	22	10
		164	NB	-	-	-		*No data*			*No data*	
		251	IB	4	0	11	-	-	-	4	0	11
		252	IB	2	4	19	-	-	-	6	5	20
		256	IB	4	3	34	-	-	-	4	3	35
		257	IB	7	4	35	-	-	-	7	4	35
		258	IB	19	0	16	-	-	-	19	0	17
		261	IB	2	1	33	-	-	-	2	1	33
		262	IB	0	0	38	-	-	-	0	0	38
		263	IB	0	0	30	-	-	-	0	0	30
		264	IB	0	0	31	-	-	-	0	0	31
		265	IB	0	1	25	-	-	-	0	1	25
		266	IB	5	0	25	-	-	-	5	0	25
		267	IB	2	1	40	-	-	-	3	2	39
		268	IB	1	1	37	-	-	-	1	2	37
		282	IB	10	5	33	-	-	-	12	5	33
		283	IB	0	0	3	-	-	-	0	0	3
		284	NB	5	3	19	-	-	-	5	3	17
3012	WESTBORO 3A	16	EB	11	0	2	6	0	1	30	0	1
		50	WB	6	1	11	12	8	16	24	10	10
		153	WB	-	-	-	0	0	5	0	0	5
3012	WESTBORO 4A	16	WB	0	15	0	0	14	0	0	54	0
		50	EB	2	12	21	0	8	9	2	28	11
		153	EB	-	-	-	0	0	4	0	0	3
3012	WESTBORO STN OFF ONLY	270	IB	6	0	40	-	-	-	5	0	40
		271	IB	1	6	57	-	-	-	1	6	57
		272	IB	3	3	50	-	-	-	4	4	49
		273	IB	5	2	48	-	-	-	5	2	46
		275	IB	5	3	59	-	-	-	8	4	55
		277	IB	7	12	55	-	-	-	9	14	55
		278	IB	3	4	36	-	-	-	4	4	34

APPENDIX D

Traffic Count Data

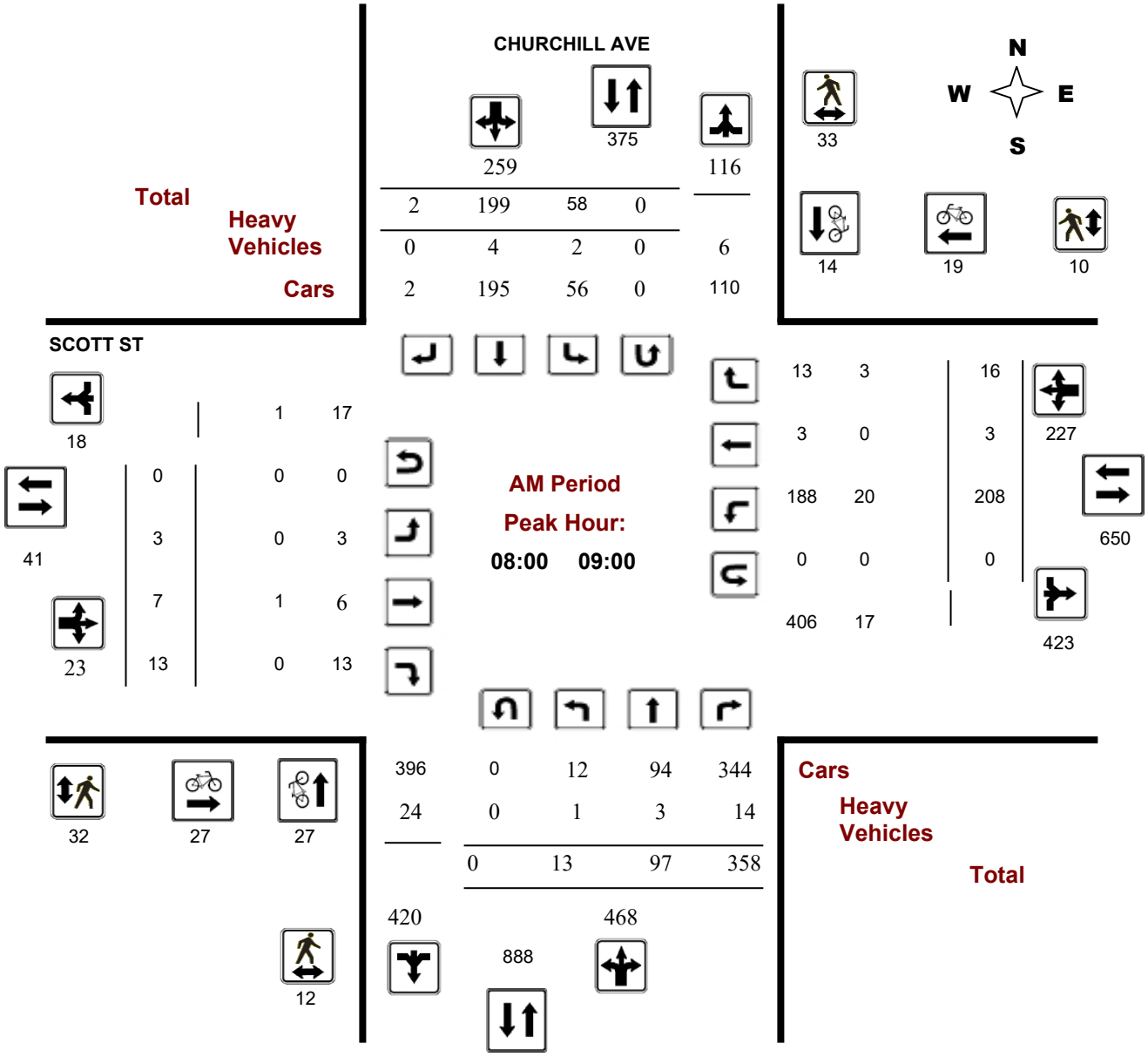
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

CHURCHILL AVE @ SCOTT ST

Survey Date: Tuesday, August 13, 2019 **WO No:** 38699

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



Comments

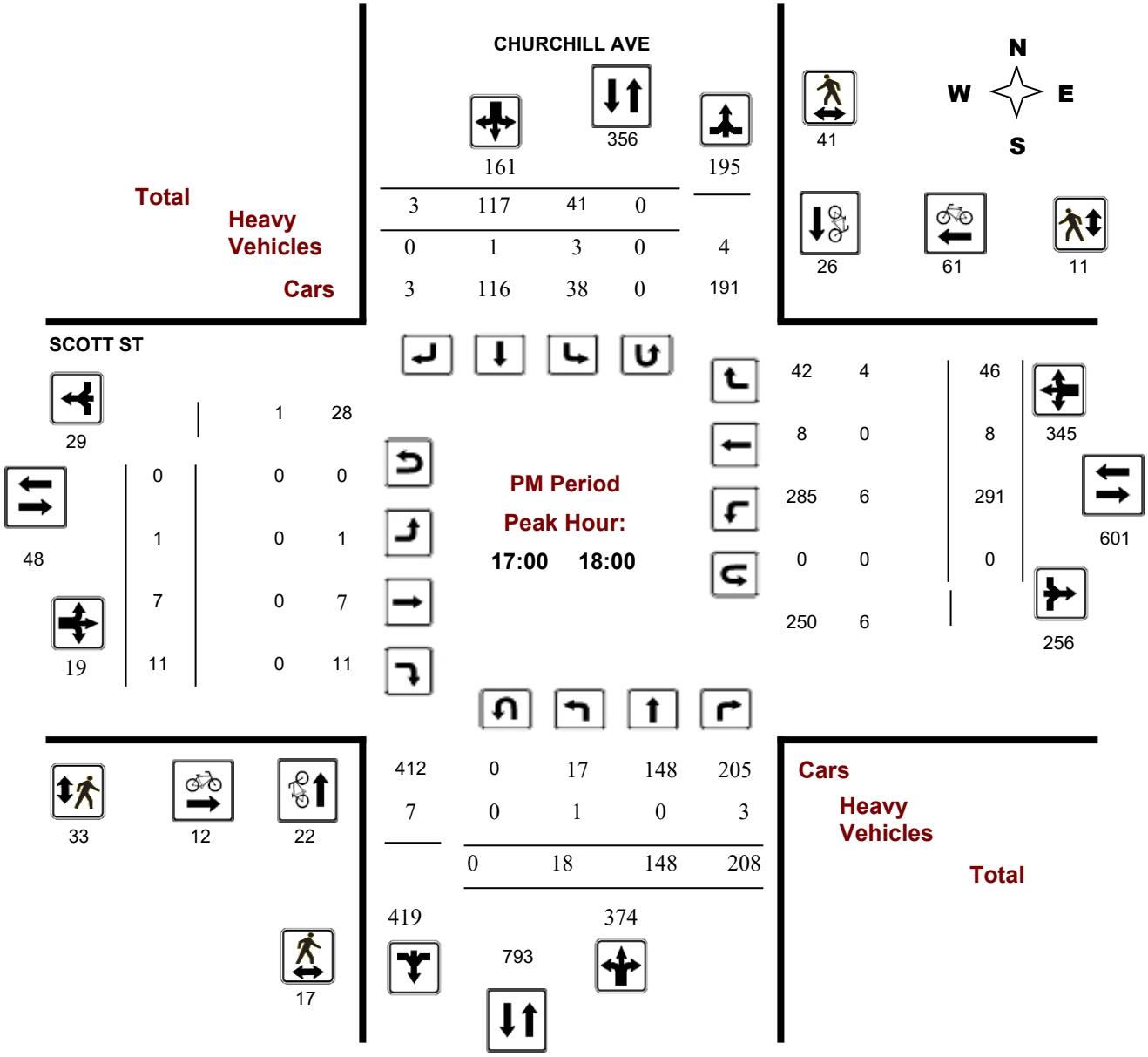
Transportation Services - Traffic Services

Turning Movement Count - Full Study Peak Hour Diagram

CHURCHILL AVE @ SCOTT ST

Survey Date: Tuesday, August 13, 2019 **WO No:** 38699

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



Comments

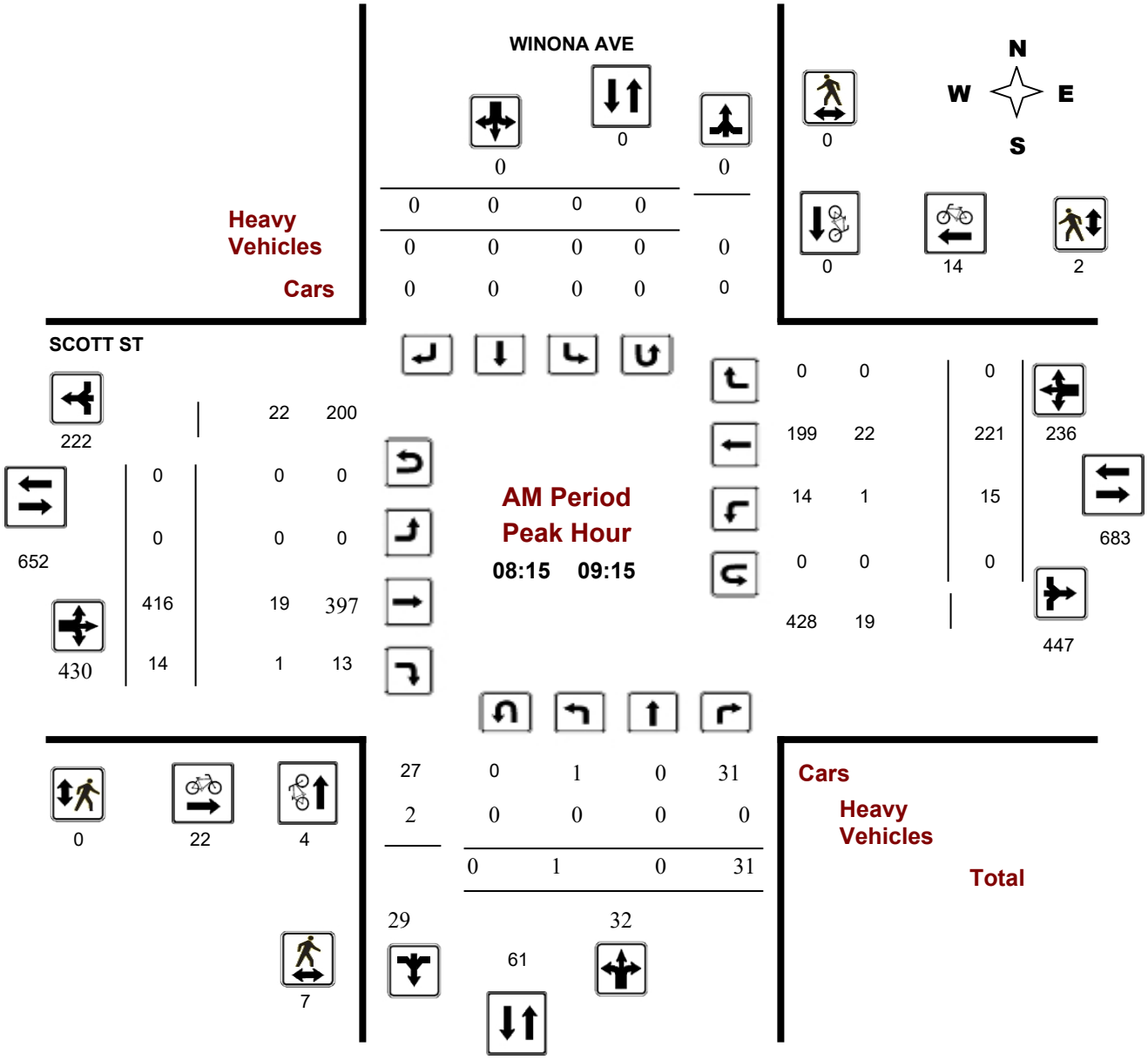
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

SCOTT ST @ WINONA AVE

Survey Date: Wednesday, October 16, 2019 **WO No:** 38864

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



Comments

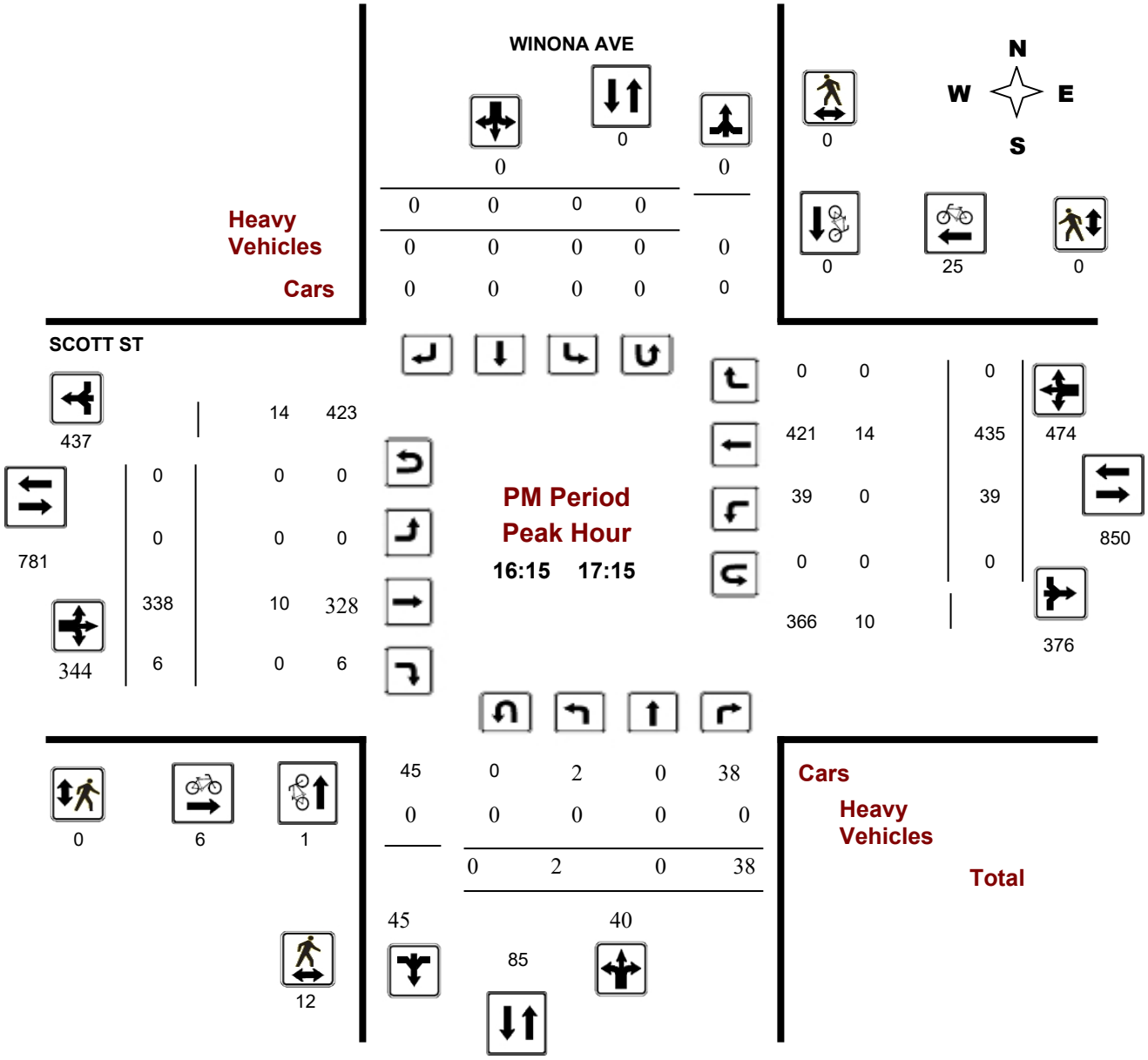
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

SCOTT ST @ WINONA AVE

Survey Date: Wednesday, October 16, 2019 **WO No:** 38864

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



Comments

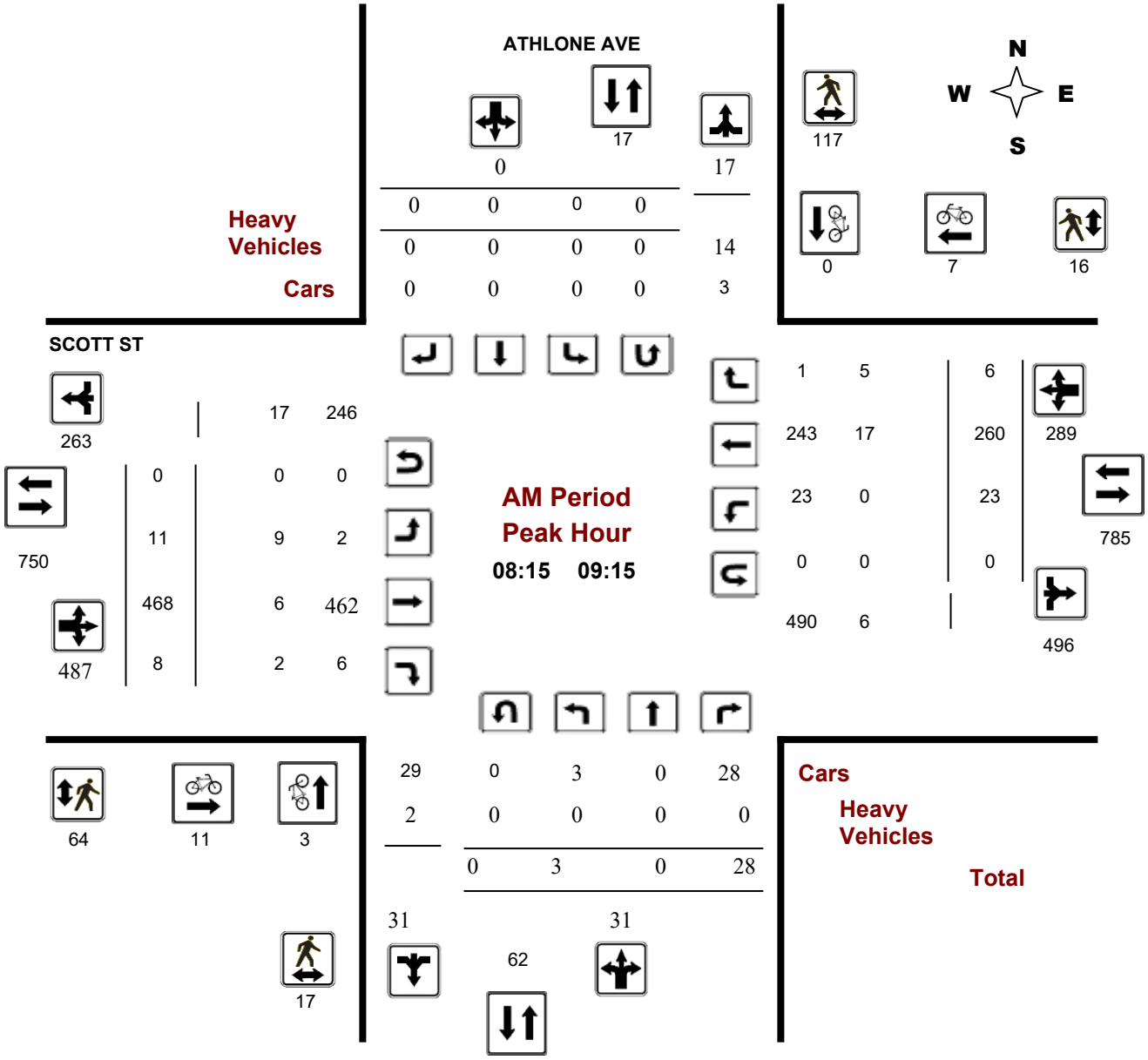
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

ATHLONE AVE @ SCOTT ST

Survey Date: Wednesday, November 22, 2017 **WO No:** 37320

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



Comments

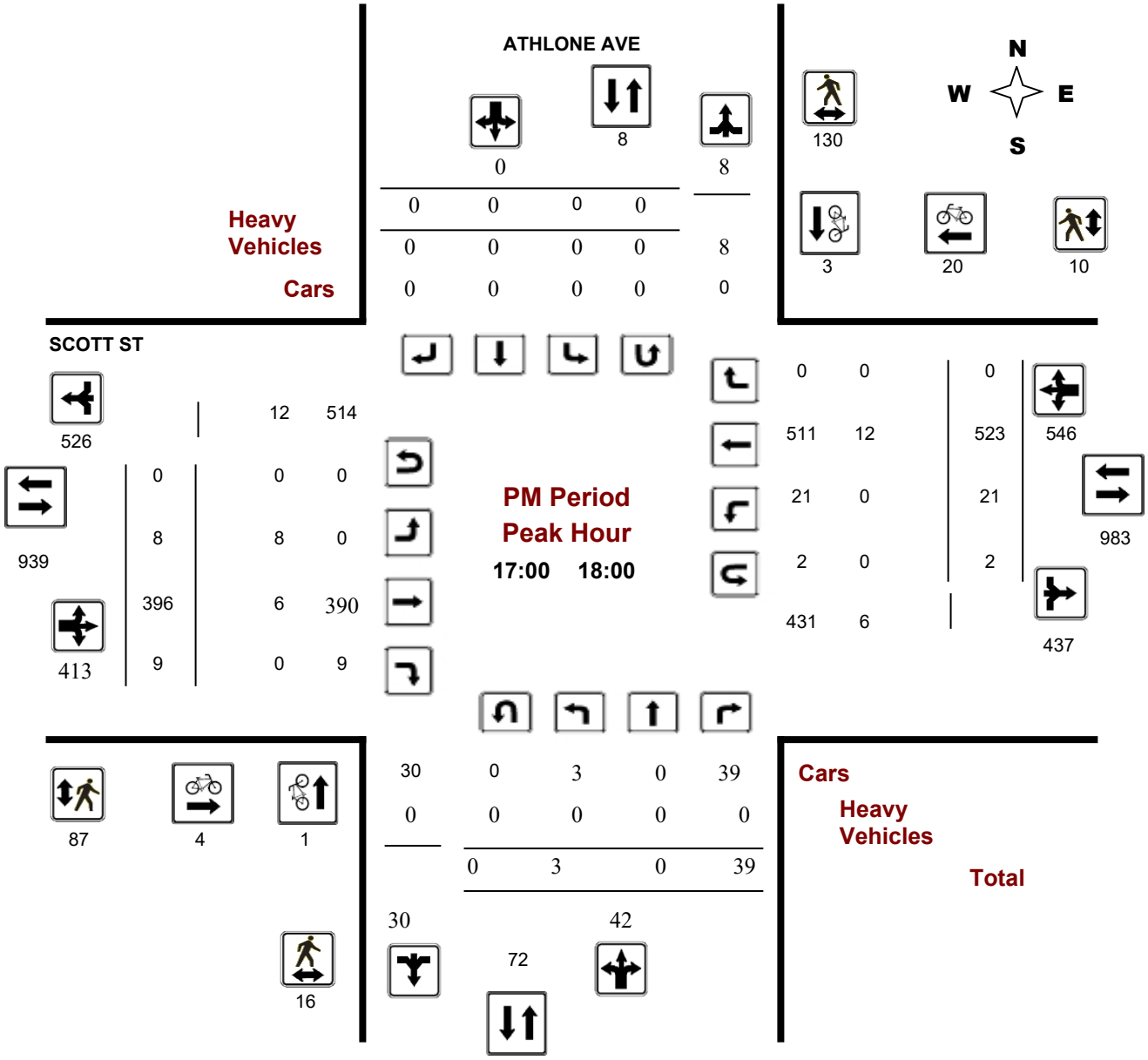
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

ATHLONE AVE @ SCOTT ST

Survey Date: Wednesday, November 22, 2017 **WO No:** 37320

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



Comments

Transportation Services - Traffic Services

Turning Movement Count - Study Results

ATHLONE AVE @ SCOTT ST

Survey Date: Wednesday, November 22, 2017 **WO No:** 37320

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

Full Study Summary (8 HR Standard)

Survey Date: Wednesday, November 22, 2017

Total Observed U-Turns

Northbound: 1 Southbound: 0

Eastbound: 0 Westbound: 4

AADT Factor

.90

	ATHLONE AVE								SCOTT ST									
	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	5	0	24	**29**	0	0	0	**0**	**29**	9	326	4	**339**	5	210	5	**220**	**559**	**588**
08:00 09:00	7	0	28	**35**	0	0	0	**0**	**35**	9	461	9	**479**	22	249	6	**277**	**756**	**791**
09:00 10:00	2	0	22	**24**	0	0	0	**0**	**24**	9	312	4	**325**	15	248	1	**264**	**589**	**613**
11:30 12:30	9	0	22	**31**	0	0	0	**0**	**31**	6	269	15	**290**	20	281	3	**304**	**594**	**625**
12:30 13:30	9	0	30	**39**	0	0	0	**0**	**39**	10	252	7	**269**	8	244	0	**252**	**521**	**560**
15:00 16:00	3	0	19	**22**	0	0	0	**0**	**22**	7	301	6	**314**	11	409	2	**422**	**736**	**758**
16:00 17:00	10	0	24	**34**	0	0	0	**0**	**34**	10	319	12	**341**	19	464	1	**484**	**825**	**859**
17:00 18:00	3	0	39	**42**	0	0	0	**0**	**42**	8	396	9	**413**	21	523	0	**544**	**957**	**999**
Sub Total	48	0	208	**256**	0	0	0	**0**	**256**	68	2636	66	**2770**	121	2628	18	**2767**	**5537**	**5793**
U Turns	1			**1**	0			**0**	**1**	**0**			**0**	4			**4**	**4**	**5**
Total	49	0	208	**257**	0	0	0	**0**	**257**	68	2636	66	**2770**	125	2628	18	**2771**	**5541**	**5798**
EQ 12Hr	68	0	289	**357**	0	0	0	**0**	**357**	95	3664	92	**3851**	174	3653	25	**3852**	**7703**	**8060**
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.														**1.39**					
AVG 12Hr	61	0	260	**321**	0	0	0	**0**	**321**	86	3298	83	**3467**	157	3288	22	**3467**	**6934**	**7255**
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.														**.90**					
AVG 24Hr	80	0	341	**421**	0	0	0	**0**	**421**	113	4320	109	**4542**	206	4307	29	**4542**	**9084**	**9505**
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.

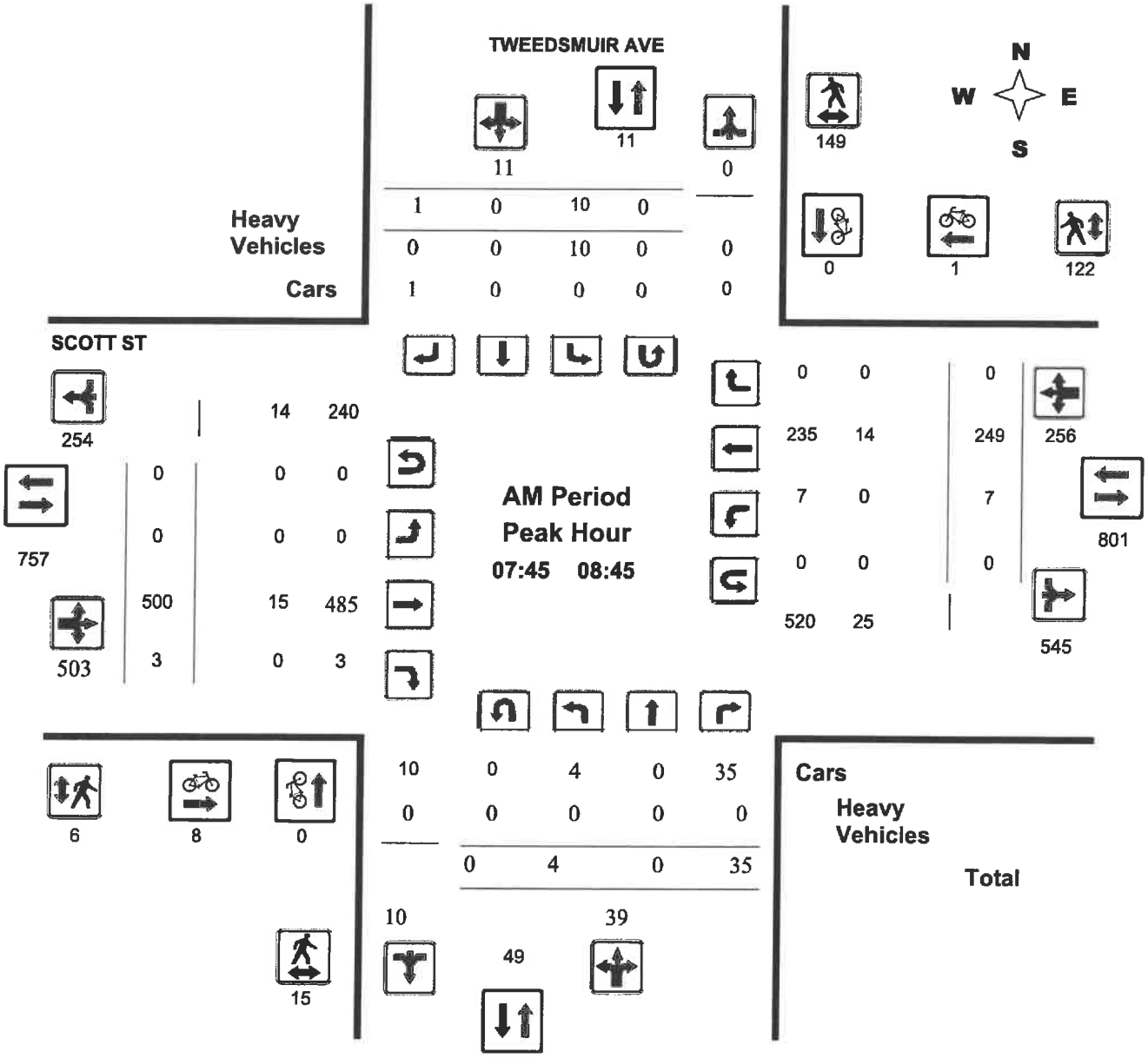
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

TWEEDSMUIR AVE @ SCOTT ST

Survey Date: Tuesday, March 28, 2017 **WO No:** 36806

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



Comments

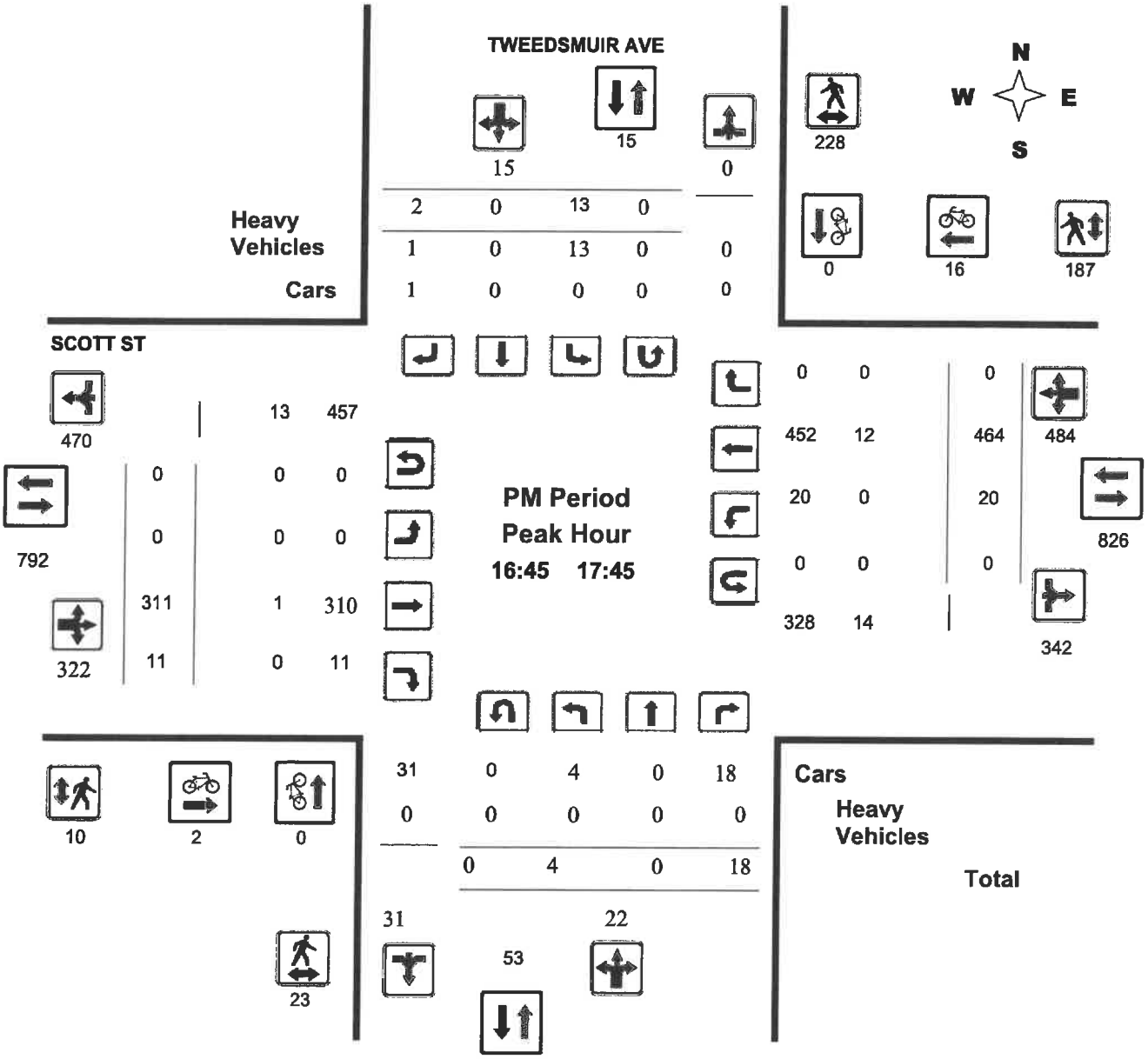
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

TWEEDSMUIR AVE @ SCOTT ST

Survey Date: Tuesday, March 28, 2017 **WO No:** 36806

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



Comments

ACCURATE TRUSTED TRAFFIC DATA

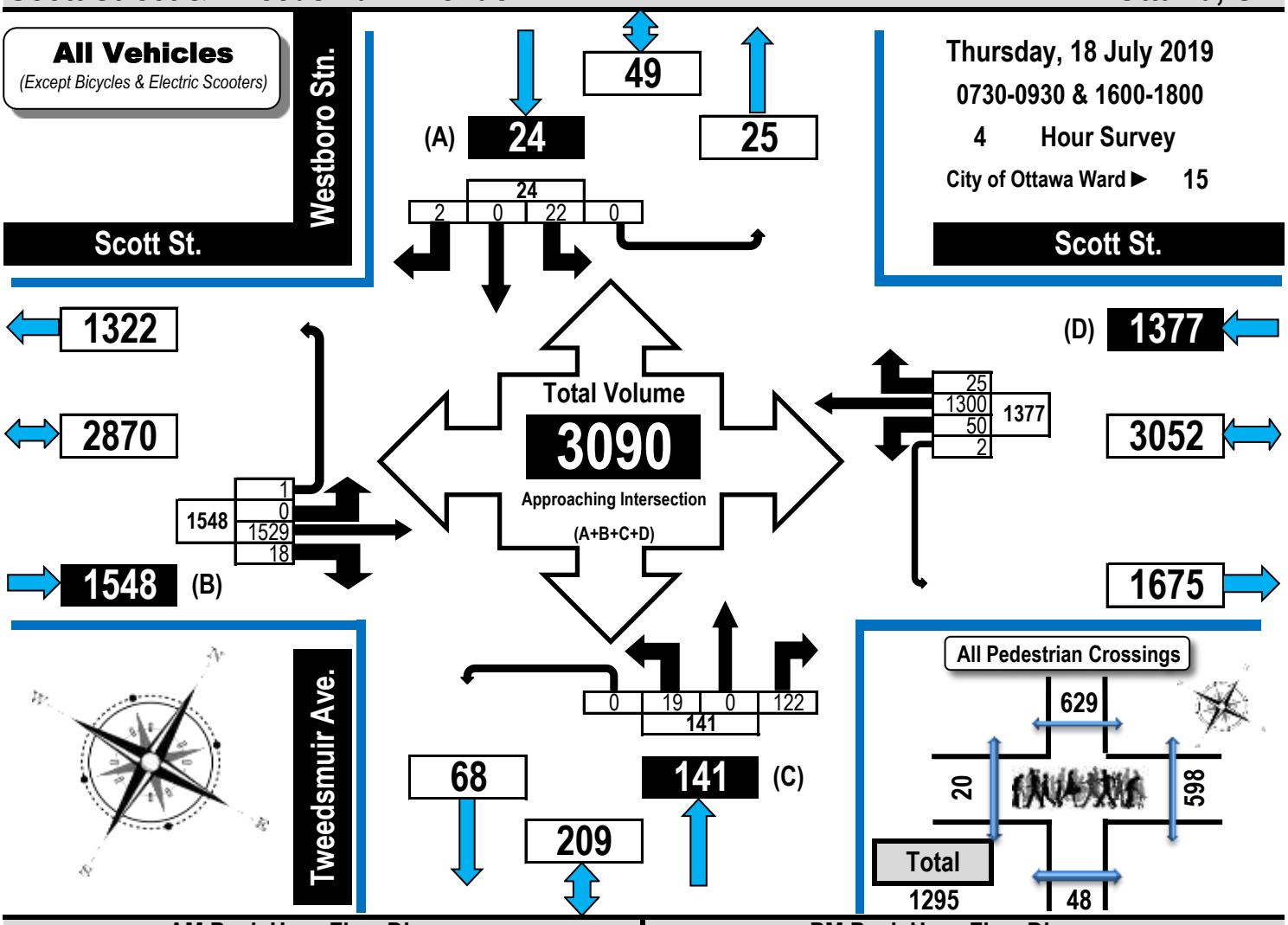
Turning Movement Count
Summary, AM and PM Peak Hour Flow Diagrams

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

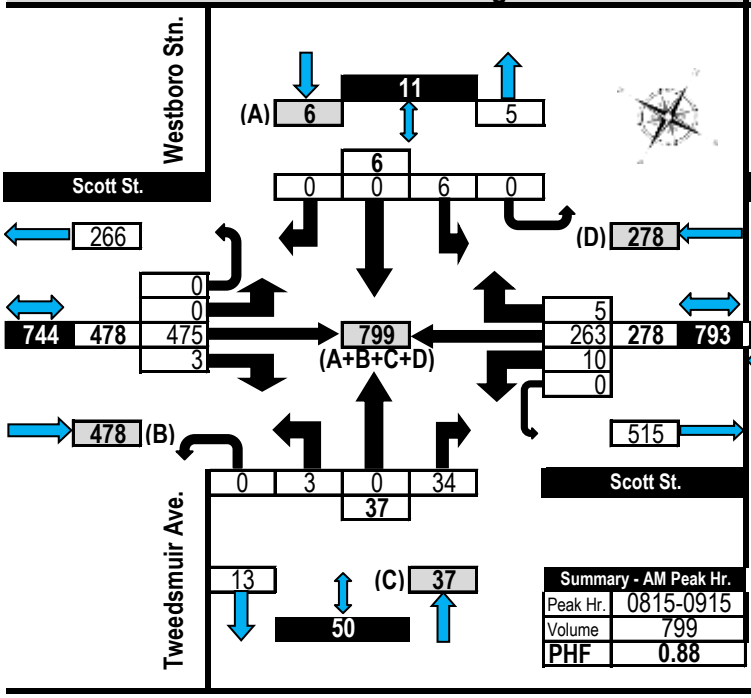
Scott Street & Tweedsmuir Avenue — Ottawa, ON

All Vehicles
(Except Bicycles & Electric Scooters)

Thursday, 18 July 2019
0730-0930 & 1600-1800
4 Hour Survey
City of Ottawa Ward ▶ 15

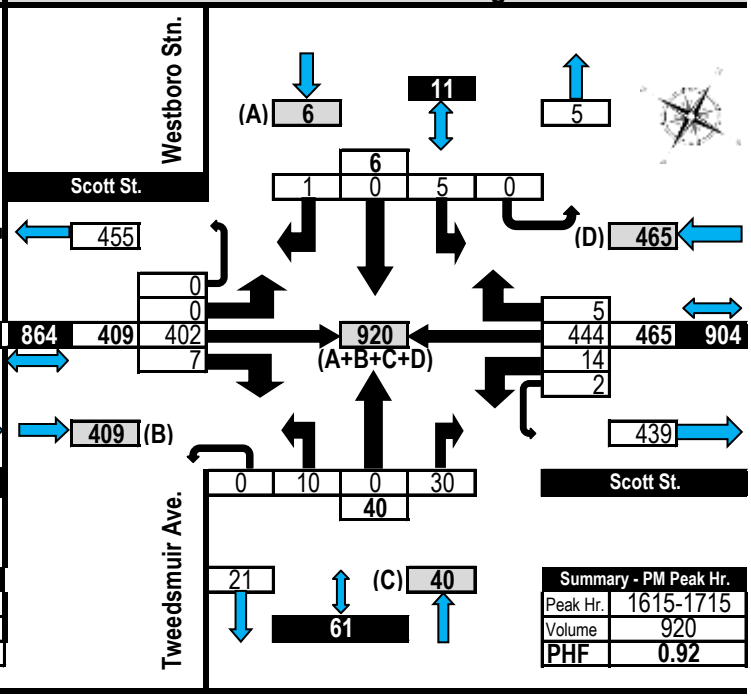


AM Peak Hour Flow Diagram



Summary - AM Peak Hr.	
Peak Hr.	0815-0915
Volume	799
PHF	0.88

PM Peak Hour Flow Diagram



Summary - PM Peak Hr.	
Peak Hr.	1615-1715
Volume	920
PHF	0.92

ACCURATE TRUSTED TRAFFIC DATA

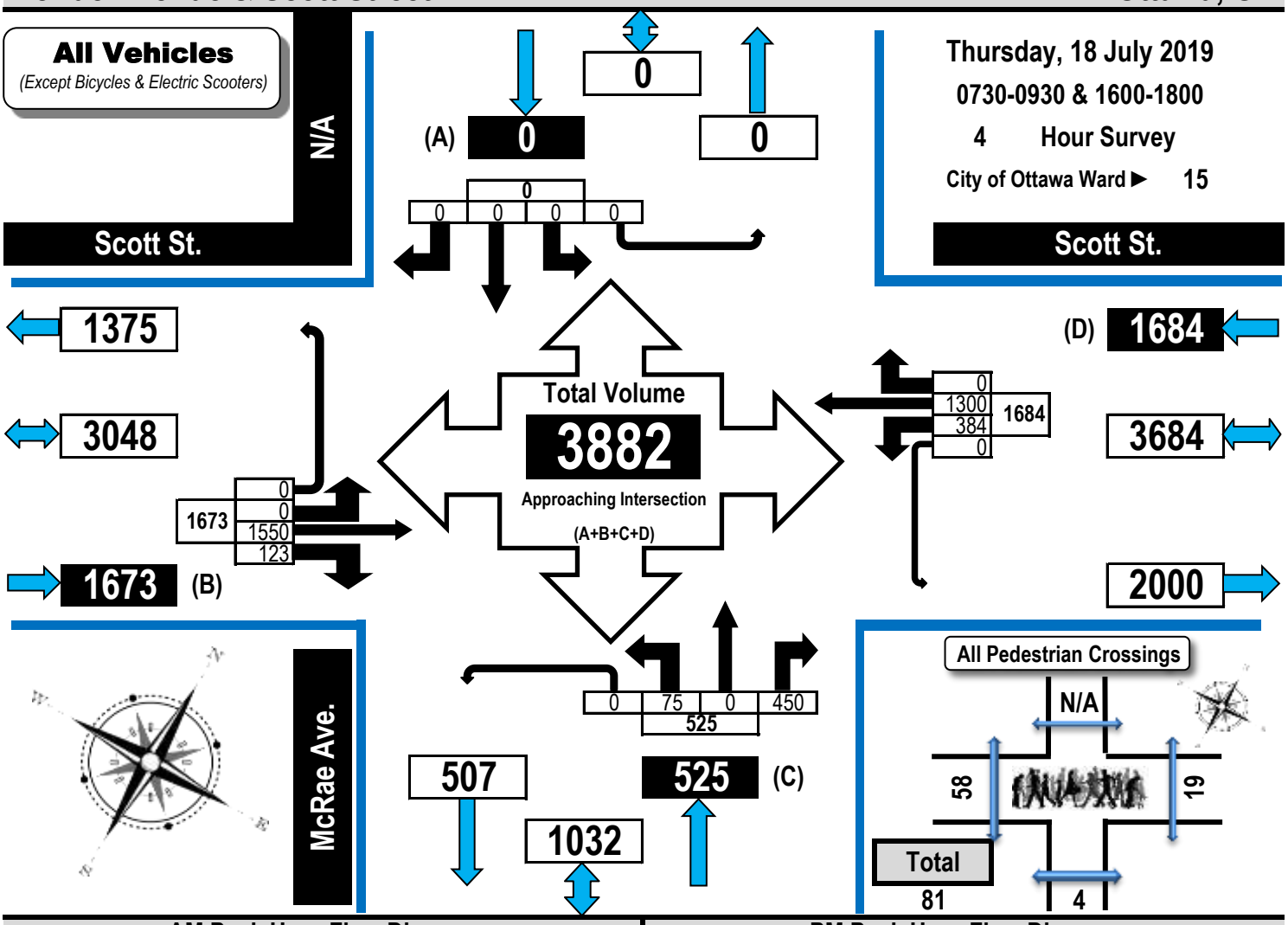
Turning Movement Count
Summary, AM and PM Peak Hour Flow Diagrams

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

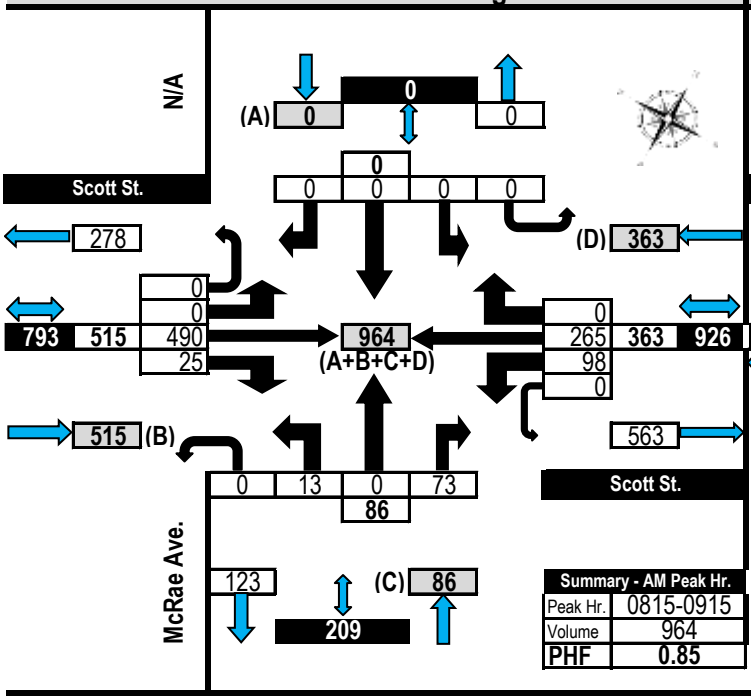
McRae Avenue & Scott Street — Ottawa, ON

All Vehicles
(Except Bicycles & Electric Scooters)

Thursday, 18 July 2019
0730-0930 & 1600-1800
4 Hour Survey
City of Ottawa Ward ▶ 15

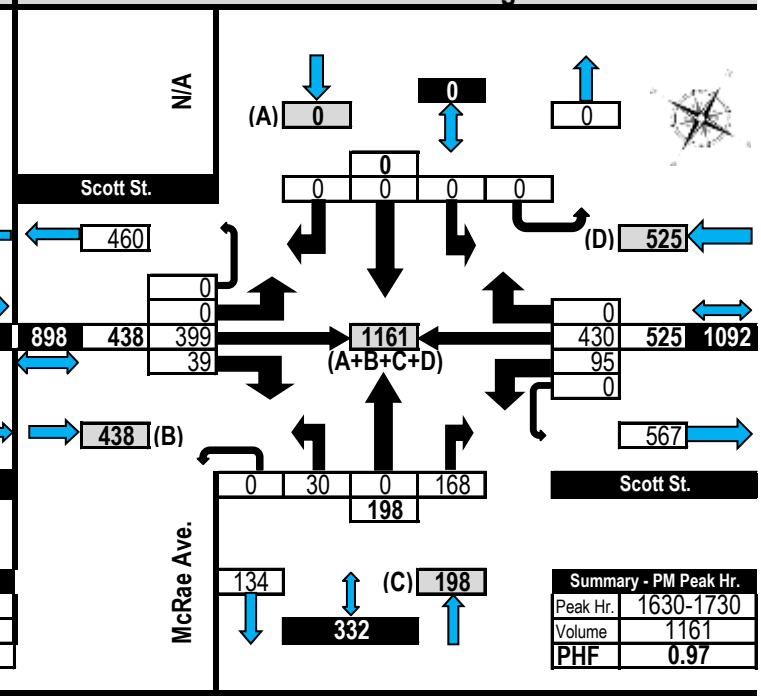


AM Peak Hour Flow Diagram



Summary - AM Peak Hr.	
Peak Hr.	0815-0915
Volume	964
PHF	0.85

PM Peak Hour Flow Diagram



Summary - PM Peak Hr.	
Peak Hr.	1630-1730
Volume	1161
PHF	0.97

APPENDIX E

Collision Records

Transportation Services - Traffic Services

Collision Details Report - Public Version

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

Location: ATHLONE AVE @ SCOTT ST

Traffic Control: Traffic signal **Total Collisions:** 3

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2016-Aug-12, Fri,08:27	Rain	Turning movement	Non-fatal injury	Wet	West	Turning left	Automobile, station wagon	Cyclist	0
					East	Going ahead	Bicycle	Other motor vehicle	
2017-Oct-04, Wed,16:57	Rain	SMV other	Non-fatal injury	Wet	West	Turning left	Automobile, station wagon	Pedestrian	1
2019-Nov-22, Fri,07:15	Clear	Rear end	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	
					East	Stopped	Automobile, station wagon	Other motor vehicle	

Location: CHURCHILL AVE @ SCOTT ST

Traffic Control: Stop sign **Total Collisions:** 5

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2016-Feb-18, Thu,07:15	Clear	SMV other	P.D. only	Ice	North	Pulling away from shoulder or curb	Automobile, station wagon	Skidding/sliding	0
2017-Feb-10, Fri,00:00	Clear	SMV unattended vehicle	P.D. only	Dry	East	Unknown	Unknown	Unattended vehicle	0
2018-Jan-15, Mon,19:15	Clear	Sideswipe	P.D. only	Loose snow	North	Stopped	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Feb-05, Mon,16:24	Clear	SMV other	Non-fatal injury	Dry	West	Going ahead	Automobile, station wagon	Pedestrian	1
2019-Feb-12, Tue,16:00	Snow	SMV other	Non-fatal injury	Loose snow	North	Going ahead	Unknown	Pedestrian	1

Location: MCRAE AVE @ SCOTT ST

Traffic Control: Stop sign **Total Collisions:** 6

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2015-Feb-05, Thu,13:15	Clear	Angle	P.D. only	Wet	West	Reversing	Snow plow	Other motor vehicle	0
					North	Turning right	Pick-up truck	Other motor vehicle	
2016-Aug-08, Mon,13:00	Clear	Angle	P.D. only	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Pick-up truck	Other motor vehicle	

Transportation Services - Traffic Services

Collision Details Report - Public Version

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

Location: MCRAE AVE @ SCOTT ST

Traffic Control: Stop sign **Total Collisions:** 6

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2016-Sep-02, Fri,10:10	Clear	Angle	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2017-Jun-05, Mon,13:09	Clear	Angle	Non-fatal injury	Dry	North	Turning right	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Dec-11, Wed,17:40	Snow	Rear end	P.D. only	Packed snow	West	Going ahead	Unknown	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2019-Dec-31, Tue,16:00	Snow	Angle	P.D. only	Slush	North	Turning left	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	

Location: SCOTT ST @ WINONA AVE

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
2018-Aug-19, Sun,14:13	Clear	Sideswipe	P.D. only	Dry	West	Pulling away from shoulder or curb	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	

Location: TWEEDSMUIR AVE @ SCOTT ST

Traffic Control: Traffic signal **Total Collisions:** 3

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2015-Jun-21, Sun,12:50	Clear	Rear end	P.D. only	Dry	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Pick-up truck	Other motor vehicle	
2016-Jun-09, Thu,12:15	Clear	Angle	P.D. only	Dry	North	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Pick-up truck	Other motor vehicle	
2016-Oct-03, Mon,08:03	Clear	Rear end	Non-fatal injury	Dry	East	Stopped	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	

APPENDIX F

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

to make use of this resource while considering the local land use context and trip characteristics for all travel modes through local and regional data.

Table 2: Person-Trip Conversion Factor

Factor	Application	Apply To	Period	Value
Person-Trip Conversion Factor	**Vehicle to person-trip conversion**, to normalize the measure of trip rates to account for all modes. Applicable to the ITE trip generation rates, which are mainly reported as vehicle trip rates.	Vehicle trip rates	All	1.28

3 RESIDENTIAL TRIP GENERATION RATES

3.1 Development of Residential Trip Rates

The residential trip generation rates in this manual are reflect the number of **person-trips per household** during the **peak period**. The morning peak period is from 7:00 AM to 9:30 AM, while the afternoon peak period is from 3:30 PM to 6:00 PM.

A geographic review of trip generation rates found that rates varied by dwelling type but not significantly by the geographic sectors and districts used in the 2009 TRANS Trip Generation Study[1]. As such, residential trip generation rates in this manual are defined for the following three dwelling types:

- Single-Family Detached Housing
- Multifamily Housing (Low-Rise)
- Multifamily Housing (High-Rise)

Low-rise housing refers to any building that houses multiple families that is two storeys or less (e.g. semi-detached homes, townhouses). High-rise housing refers to any building that houses multiple families that is three or more storeys (e.g. apartments and condo buildings). These dwelling types are from the TRANS Origin-Destination Survey but are organized to be equivalent to the categories of the ITE *Trip Generation Manual* and local generator surveys.

[1] While person trip rates were not found to vary significantly with geographic area, location does have an impact on mode share as discussed in Section 4.2. As a result, vehicular trip rates do vary by geography as reflected in previous versions of the manual. The variation by dwelling type, in part, reflects differences in the number of persons per dwelling.

3.2 Recommended Residential Trip Generation Rates

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

Table 3: Recommended Residential Person-trip Rates

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

3.3 Adjustment Factors – Peak Period to Peak Hour

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

Table 4: Adjustment Factors for Residential Trip Generation Rates

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

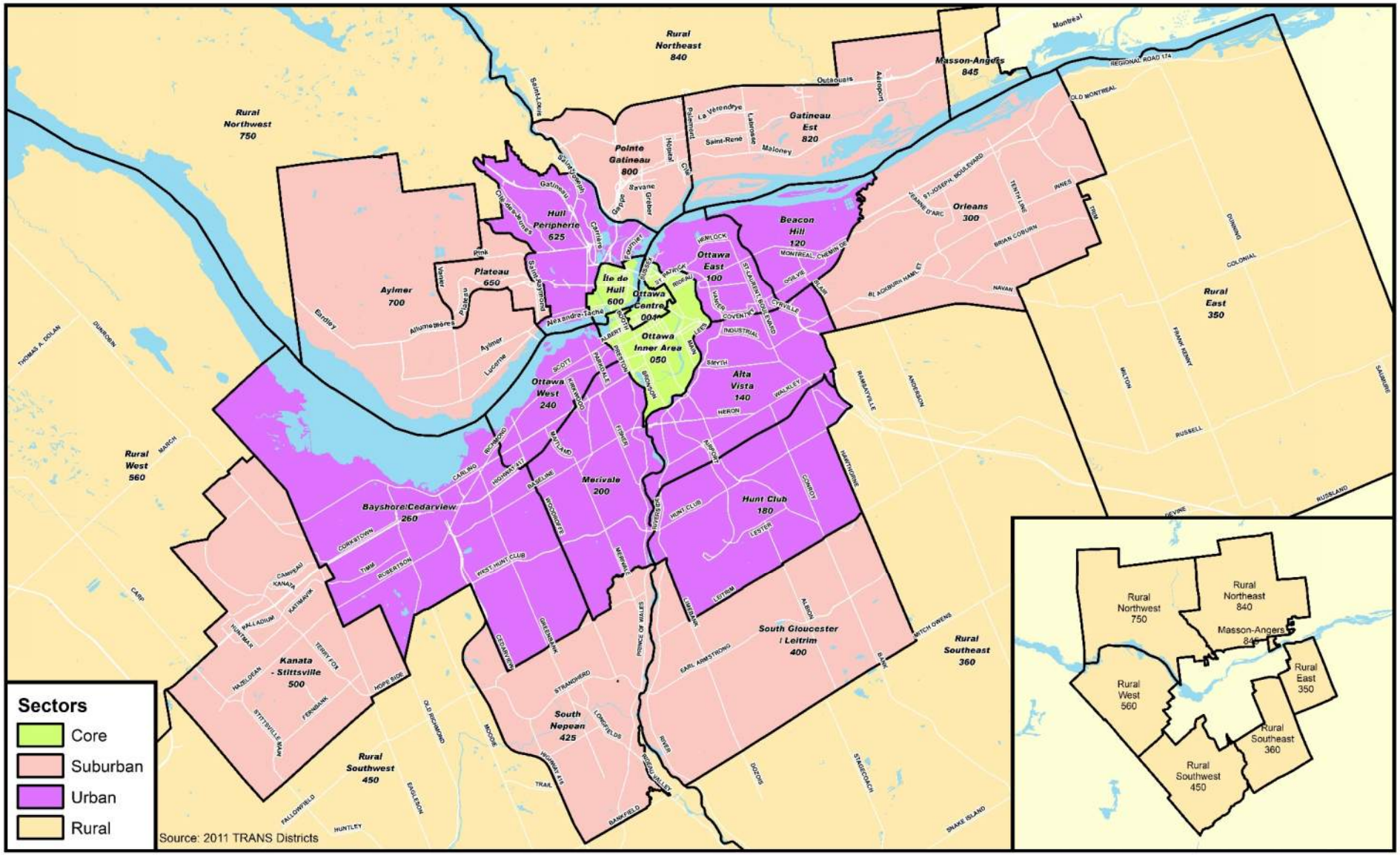


Figure 1: National Capital Region by Sector

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

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

5 RESIDENTIAL DIRECTIONAL SPLITS

After calculating the total person trips generated by the development and applying the appropriate modal shares, directional factors can be applied to estimate the number of inbound and outbound trips by vehicle. The vehicle trip directional splits were developed for both the AM and PM peak 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.

6.2 Employment Generators

Mode shares for trips to employment generators were developed from the 2011 TRANS Origin-Destination Survey by isolating the 'travel to work' trips. However, with the way the data is collected, employment related trips departing the workplace could not be isolated to identify mode share. As a result, peak direction mode shares could only be calculated for the AM peak period. **Table 12** provides the mode share by district during the AM peak period for employment trips in the peak inbound direction. These trips represent trips to the workplace and do not include work-related trips (e.g. for business meetings) or trips classified as working on the road (e.g. delivery trips). Multi-modal trips for employment generators were classified by the mode used to arrive at the workplace (e.g. a park-and-ride trip would be classified as a transit trip since the person arrived at the workplace on transit). Considering the strong likelihood of employees using the same mode of transportation when leaving wok, it is fair to equivocate the PM peak period employment generator mode with the AM peak period.

Table 12: Employment Generator Mode Share by District (AM Peak Period)

District	Mode				
	Auto Driver	Auto Pass.	Transit	Cycling	Walking
Ottawa Centre	24%	7%	54%	4%	11%
Ottawa Inner Area	45%	7%	29%	8%	11%
Île de Hull	40%	9%	40%	5%	6%
Ottawa East	66%	7%	20%	2%	5%
Beacon Hill	73%	6%	16%	2%	3%
Alta Vista	69%	7%	18%	3%	3%
Hunt Club	83%	5%	10%	1%	1%
Merivale	70%	7%	16%	3%	4%
Ottawa West	54%	8%	28%	5%	5%
Bayshore/Cedarview	77%	6%	10%	3%	4%
Hull Périphérie	75%	7%	12%	3%	3%
Orleans	71%	7%	13%	1%	8%
South Gloucester / Leitrim	89%	7%	2%	1%	1%
South Nepean	80%	10%	5%	1%	4%
Kanata - Stittsville	84%	4%	8%	1%	3%
Plateau	82%	6%	7%	1%	4%
Aylmer	83%	3%	5%	4%	5%
Pointe Gatineau	80%	9%	4%	2%	5%
Gatineau Est	88%	6%	4%	0%	2%

APPENDIX G

Other Area Developments

Residential Development

335 Roosevelt Avenue

Transportation Impact Assessment

Prepared By:

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

July 2020
Revised December 2020
Revised March 2022

Novatech File: 110098
Ref: R-2020-053

1.0 SCREENING

1.1 Introduction

This Transportation Impact Assessment (TIA) report has been prepared in support of Official Plan Amendment and Zoning By-law Amendment applications for 335 Roosevelt Avenue.

The subject site is surrounded by the following:

- A Multi-Use Pathway (MUP) and the OC Transpo East-West Transitway to the north;
- Wilmont Avenue and low density residential development to the south;
- A high density residential apartment building to the east; and
- Roosevelt Avenue and low density residential development to the west.

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

The site currently has gated accesses at Roosevelt Avenue and at Wilmont Avenue, restricting local traffic from shortcutting between Richmond Road and Churchill Avenue.

Figure 1: View of the Subject Site

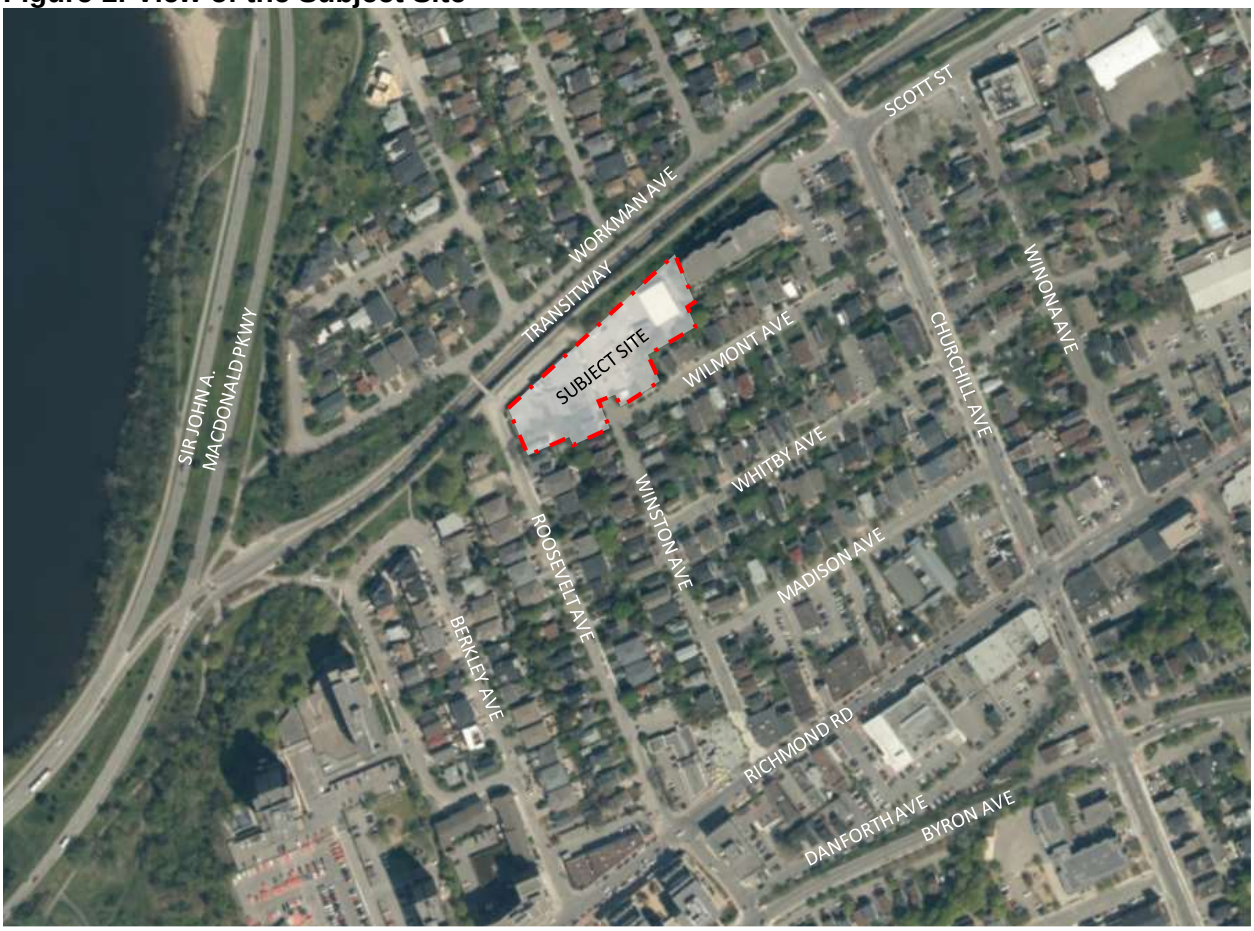
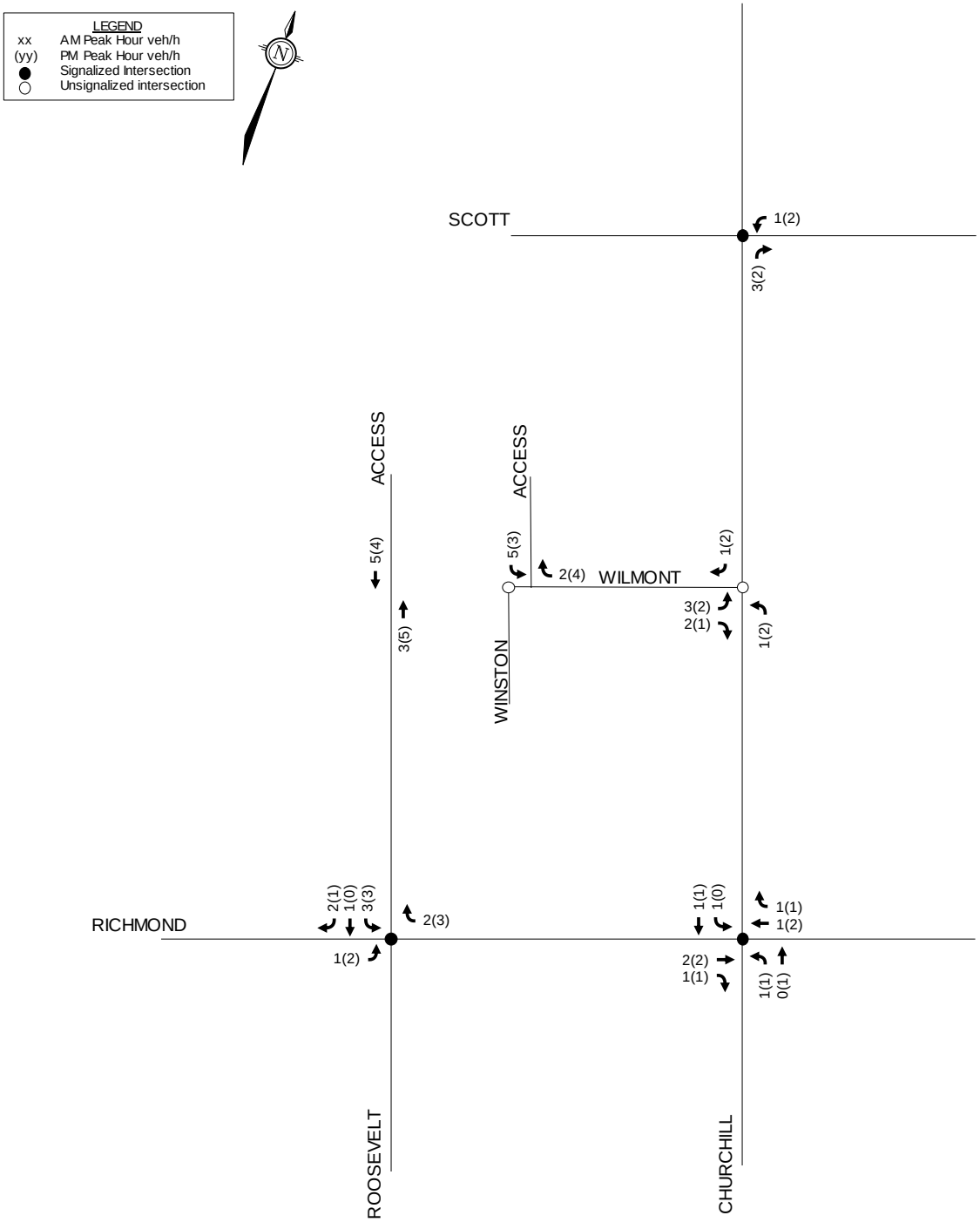


Figure 8: Site Generated Traffic



319-327 Richmond Road, 380 Winona Avenue, & 381 Churchill Avenue

Transportation Impact Assessment

Step 1 Screening Report

Step 2 Scoping Report

Step 3 Forecasting Report

Step 4 Analysis Report

Prepared for:

Richmond Churchill Limited Partnership
485 Bank Street, Suite 207
Ottawa, ON K2P 1Z2

Prepared by:

13 Markham Avenue
Ottawa, ON K2G 3Z1

May 2020

PN: 2019-03

1 Screening

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

2 Existing and Planned Conditions

2.1 Proposed Development

The proposed development, located at 381 Churchill Avenue, 380 Winona Avenue, 319, 325, and 327 Richmond Road, is currently zoned as part Traditional Mainstreet (TM H15), part General Mixed Use (GM1), and part Residential Fourth Density (R4). The existing land uses include a car garage and maintenance shop, two small retail stores and a residential apartment with six units. TOD principles apply to the proposed development Study Area.

The proposed development is a nine-storey building with 184 apartment units, 1738 square metres of retail space, 130 vehicle parking spots, and 99 bicycle parking spaces. The site is proposed to have two accesses; one of which is a full movement access on Churchill Avenue approximately 65 metres north of the Churchill Avenue / Richmond Road intersection (measured from access centreline to intersection centre). The second access is located on Winona Avenue approximately 50 metres north of the Winona Avenue / Richmond Road intersection (measured from access centreline to intersection centre) and is a loading entrance with access solely to loading aisles. The anticipated full build-out and occupancy horizon is 2022. Figure 1 illustrates the Study Area context. Figure 2 illustrates the proposed site plan of the development.

Figure 1: Area Context Plan

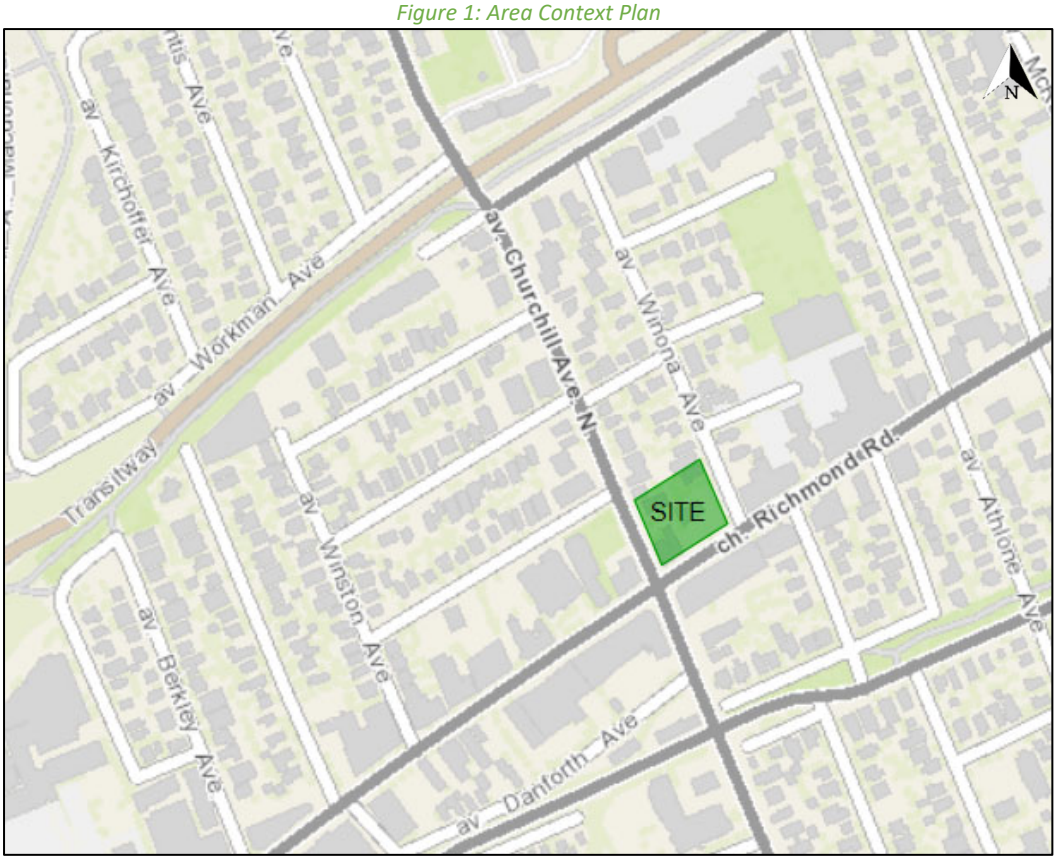
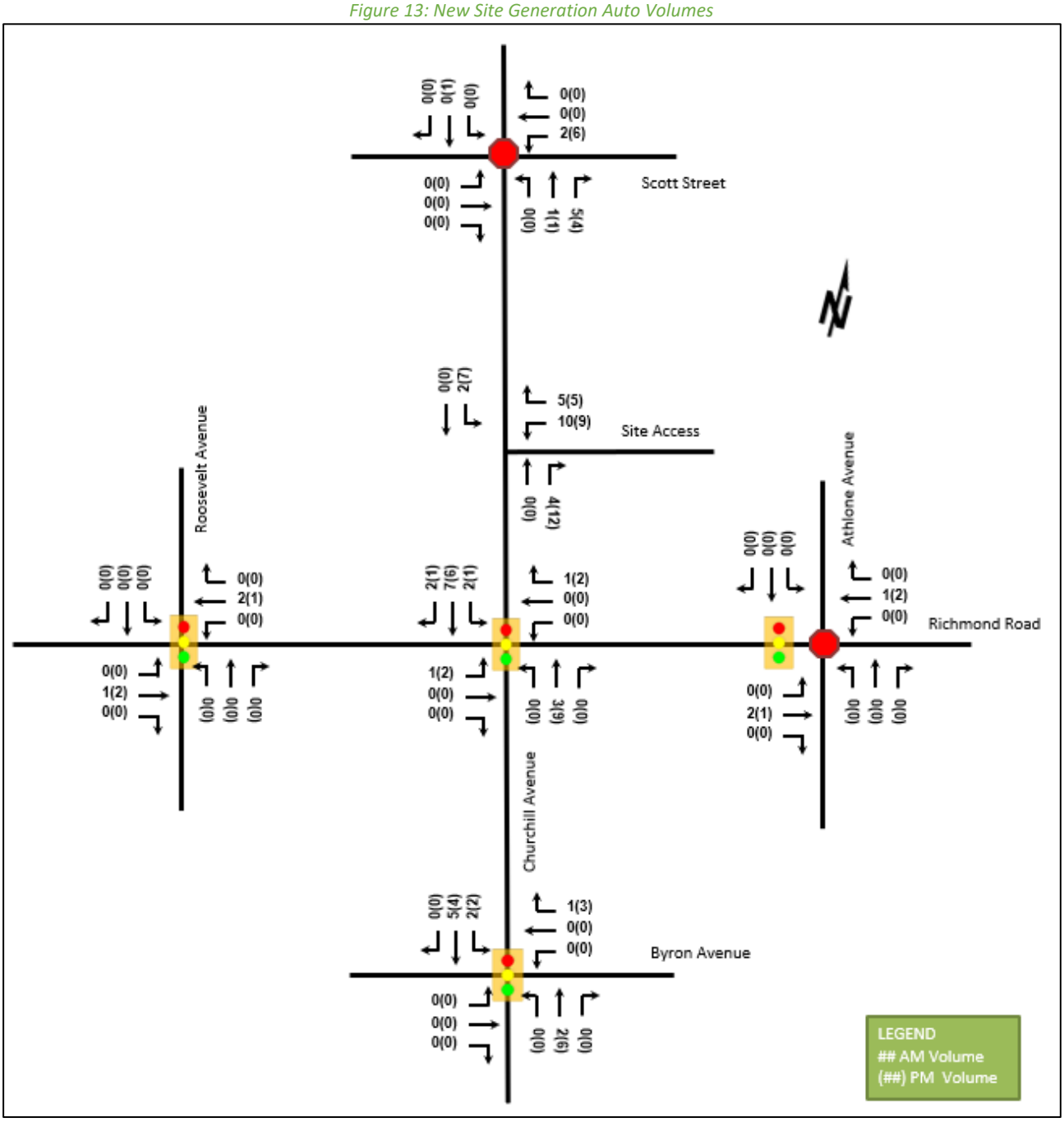


Figure 13: New Site Generation Auto Volumes



6 Background Network Travel Demands

6.1 Transportation Network Plans

The transportation network plans were discussed in Section 2.3.1. Both TOD policies and the opening of the Westboro LRT station and Dominion LRT station have been accounted for within the modal share assumptions. No road improvements are noted for this area with the exception of future road sewer, and water work along Winona Avenue.

320 McRae

Transportation Impact Assessment

Step 1 Screening Report

Step 2 Scoping Report

Step 3 Forecasting Report

Step 4 Strategy Report

Prepared for:

GWL Realty Advisors
33 Yonge Street Suite 1000
Toronto, ON M5E 1G4

Prepared by:

CGH TRANSPORTATION
13 Markham Avenue
Ottawa, ON K2G 3Z1

January 2020

PN: 2019-29

1 Screening

This study has been prepared according to the City of Ottawa's 2017 Transportation Impact Assessment (TIA) Guidelines. Accordingly, a Step 1 Screening Form has been prepared and is included as Appendix A, along with the Certification Form for TIA Study PM. As shown in the Screening Form, a TIA is required including the Design Review component and the Network Impact Component. This study has been prepared to support a site plan application for 320 McRae Avenue.

2 Existing and Planned Conditions

2.1 Proposed Development

The proposed development located at 320 McRae Avenue is currently a mix of residential and commercial buildings. The site is in an area that is zoned as part Traditional Mainstreet (TM 2489 S382-h), part Parks and Open Space (O 1) and part General Mixed Zone (GM2490 H (15) h). The proposed development is within 400 metres of the future Westboro LRT Station to be built by 2025 and therefore TOD principles apply to the applicable future horizons.

The proposed development is made up of a four-storey commercial / residential tower, and a commercial / residential tower with both a 26-storey and a six-storey component. The development is expected to have 882 square metres (9,494 square feet) of commercial space, 307 apartment units, 11 townhouse units, 185 underground automobile parking spaces and 163 bicycle parking spaces. Of the 163 bicycle spaces, 123 will be underground and due to space restrictions, 15 bicycle parking spaces will be slightly off the property and 25 will be in the loading area. The site is proposed to have two full-movement accesses, one approximately 40 metres, curb to curb, south of Scott Street on Tweedsmuir Avenue (Site Access #1) and the second approximately 120 metres, curb to curb, south of Scott Street on McRae Avenue (Site Access #2). Site Access #2 is a loading access and is intended for truck use only. A drop-off area is located on McRae Avenue, approximately 23 metres, curb to curb, south of Scott Street. The anticipated full build-out and occupancy horizon is 2022. Figure 1 illustrates the Study Area Context. Figure 2 illustrates the proposed concept plan.

Figure 1: Area Context Plan

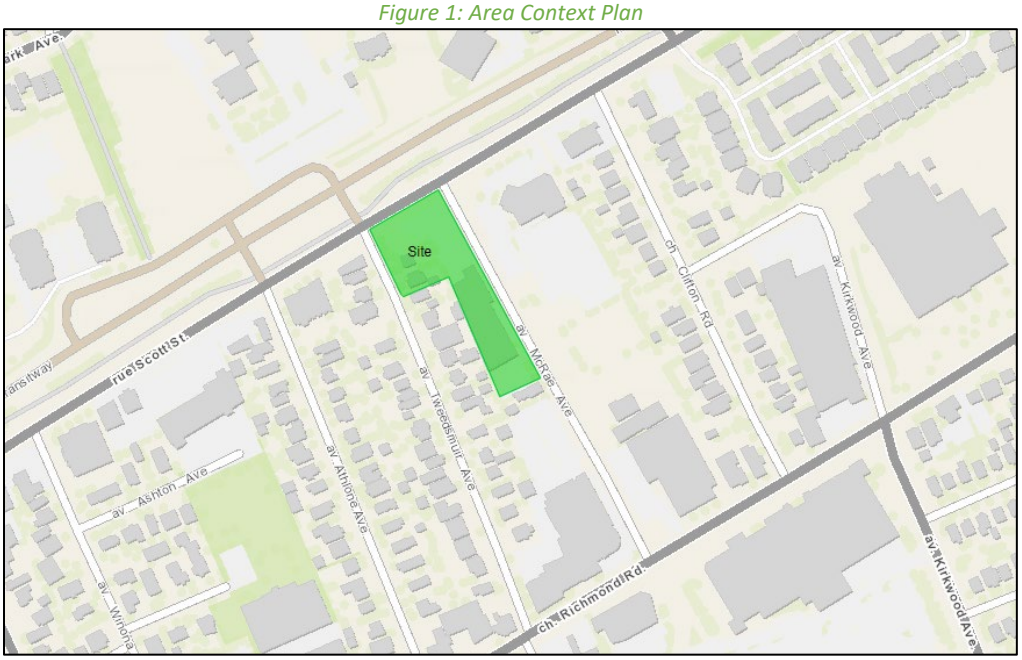
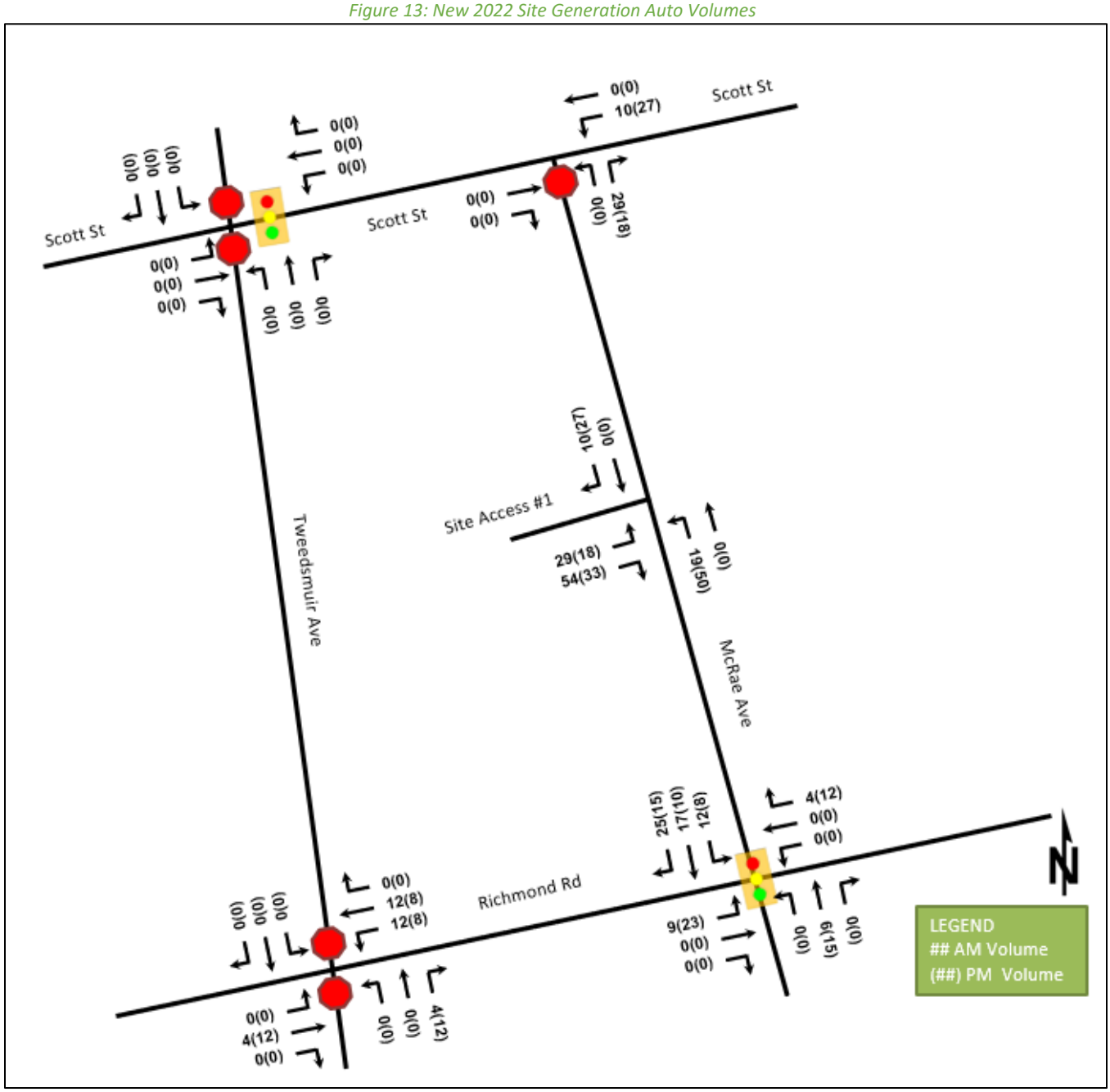


Figure 13: New 2022 Site Generation Auto Volumes



1950 Scott Street

TIA Strategy Report

prepared for:
EBC inc.
740 Notre-Dame Ouest, Bureau 750
Montreal, QC H3C 3X6

prepared by:
PARSONS
1223 Michael Street N
Suite 100
Ottawa, ON K1J 7T2

July 12, 2018

476658 – 01000

TIA Strategy Report

1. SCREENING FORM

The Screening Form is provided as Appendix A. The trip generation trigger was met based on the development size, the location trigger was met based on the development being in a Design Priority Area (DPA), and the safety trigger was met based on the proposed site driveway's proximity to the Scott/Lanark signalized intersection. As triggers have been met, the TIA process continued with the Scoping and Forecasting reports, provided herein.

2. SCOPING REPORT

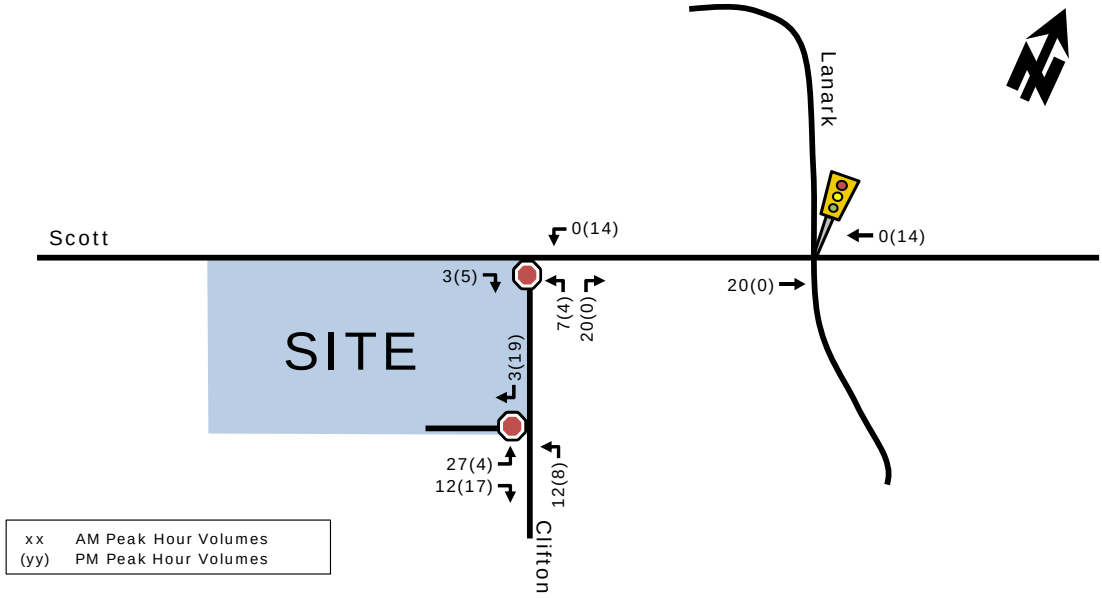
2.1. EXISTING AND PLANNED CONDITIONS

2.1.1. PROPOSED DEVELOPMENT

Based on the proposed Site Plan, it is our understanding that the proponent is proposing a single-phase residential development located at 1950 Scott Street with an expected occupancy date in 2020. The proposed residential development will consist of approximately 141 condominium/apartment units with 162 proposed residential parking spaces and 10 visitor parking spaces. A single full-movement vehicle access is proposed to Clifton Road at the southern boundary of the site. The site is located on three property parcels, which are currently occupied by a single occupant one-story building and single-family homes and are zoned as Residential Fifth Density and Residential Third Density. The local context of the site is provided as Figure 1 and the proposed Site Plan is provided as Figure 2.

Figure 1: Local Context

Figure 9: 'New' Site-Generated Traffic



It is noteworthy that the existing turn restrictions are understood to be in place to help prevent cut-through traffic through the neighbourhood. Based on the existing count data at the Clifton/Scott intersection, there are a number of drivers that do not comply with these existing turn restrictions. Some site-generated traffic originating/destined from/to the east will be required to travel along the southern portion on Clifton Road during the peak hours to comply with the existing turn restrictions. This is represented in Figure 9.

3.2. BACKGROUND NETWORK TRAVEL DEMANDS

3.2.1. TRANSPORTATION NETWORK PLANS

Refer to section 2.1.3 Planned Conditions – Planned Study Area Transportation Network Changes.

3.2.2. BACKGROUND GROWTH

Background traffic growth for the area is expected to grow based on significant planned area developments. However, given Stage 2 LRT construction, the City is expecting to see negative vehicle growth along Scott Street in the future (see map attached as Appendix E). As such, for background traffic projections, the projected vehicle volumes from the planned area developments (1960 Scott Street and 320 McRae) were layered onto the existing traffic volumes for the build out year 2020. As the City expects to see a significant increase in transit modes once Stage 2 LRT is constructed in this area (2023) and a decline in traffic volumes, and as there is likely to be continued development growth in the area, the vehicle traffic volumes for horizon year 2025 is assumed to be the same as year 2020.

2050 Scott Street

TIA Report

prepared for:
Scott Street Developments Inc.
88 Spadina Avenue
Ottawa, ON K1Y 2C1

prepared by:
PARSONS
1223 Michael Street North
Suite 100
Ottawa, ON K1J 7T2

February 12, 2021

477330-01000

PARSONS

envision more

TIA STRATEGY REPORT

The following Strategy Report has been prepared in support of a Zoning By-Law Amendment (ZBLA) for the proposed residential development located at 2050 Scott Street. This document follows the TIA process, as outlined in the City Transportation Impact Assessment (TIA) Guidelines (2017). City comments and responses have been included as Appendix A.

1. SCREENING FORM

The completed Screening Form for the proposed residential development at 2050 Scott Street confirmed the need for a TIA in support of the proposed development based on the Trip Generation, Location and Safety triggers. The proposed development consists of approximately 355 residential units; is located in a Design Priority Area (DPA) and Transit Oriented Development (TOD) area; and has a proposed driveway within the influence area of an adjacent traffic signal. The Screening Form is provided in Appendix B.

2. SCOPING REPORT

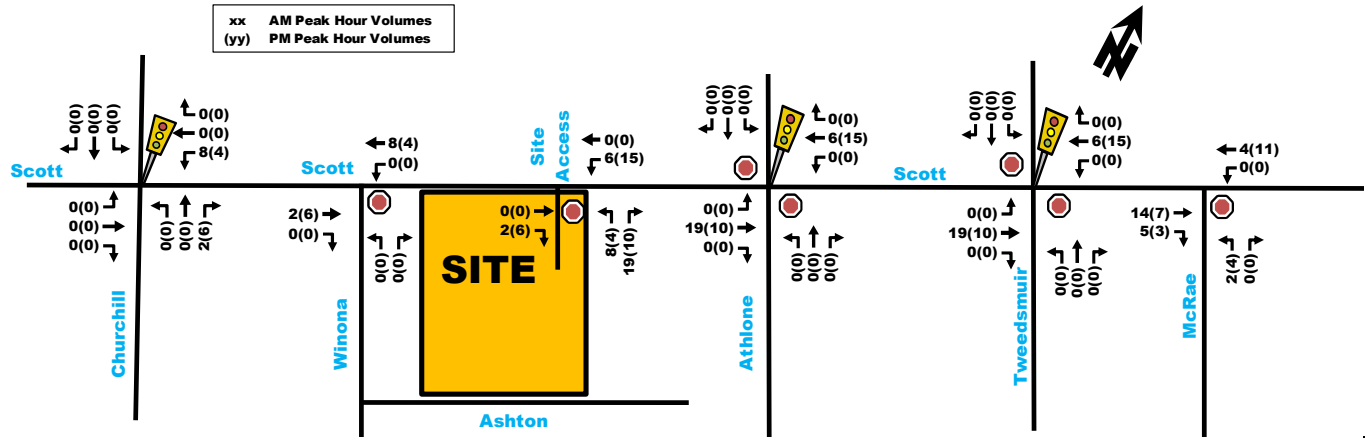
2.1. EXISTING AND PLANNED CONDITIONS

2.1.1. PROPOSED DEVELOPMENT

It is our understanding that the proponent is proposing to construct a residential development located at 2050 Scott Street. A single-phased project is proposed with assumed buildout year of 2021. The development will consist of a 30-storey residential building on a 3- and 6-storey podiums with approximately 353 units and 233 m² of ground commercial/office. The taller portion of the building is located closer to Scott Street while the 3- and 6-storey podiums extend towards Ashton Avenue. Vehicle access is proposed at Scott Street via a single all movement driveway. An underground parking lot with 204 vehicle spaces and 292 bicycle spaces are proposed. The site is located between 2 different land zonings, TM[103] fronting Scott Street and R4G on the south portion of the parcel towards Ashton Avenue. This TIA is in support of a Zoning By-Law Amendment (ZBLA) to vary the height schedule from 6-storeys (18 meters) to 30-storeys within the TM zoning and from 4-storeys (11 meters) to 6-storeys within the R4 zoning. Height step-backs (staggering) are proposed to assist in the transition from low-rise to mid- and high-rise from south to north. This TIA is also in support of a Site Plan Application (SPA). The site is currently occupied by a mechanic garage, a hot tub retailer and 3 residential houses. The local context of the site is provided as **Figure 1** and the proposed Site Plan is provided as **Figure 2**.

Figure 1: Local Context

Figure 9: 'New' Site-Generated Traffic

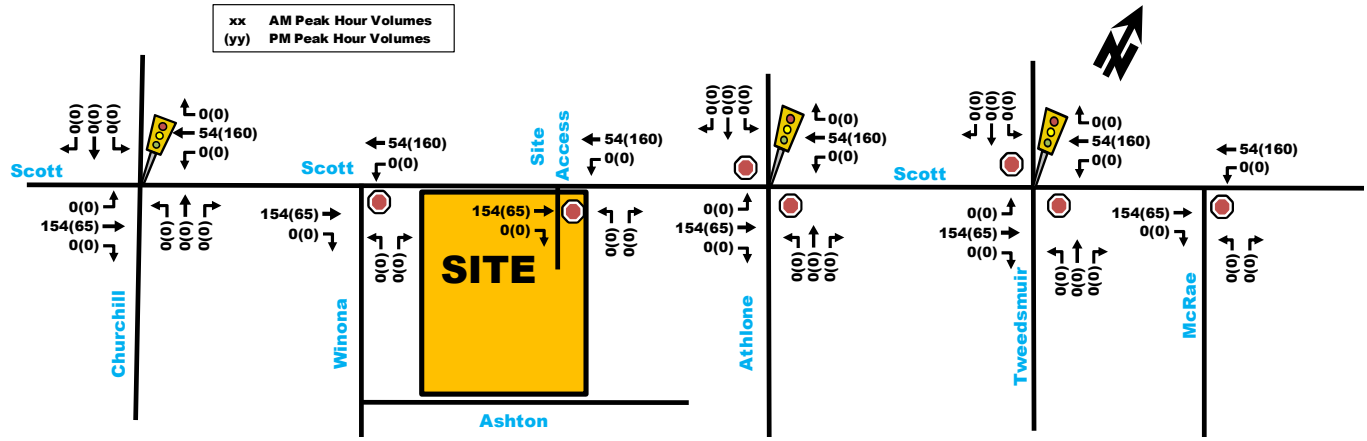


3.2. BACKGROUND NETWORK TRAVEL DEMANDS

3.2.1. TRANSPORTATION NETWORK PLANS

As mentioned in Section 2.1.3 Planned Conditions, 210 to 225 buses will be detoured on to Scott Street for the AM and PM peak periods respectively as part of the Stage 2 LRT West Extension construction. These buses were layered on to the study area intersections for the duration of anticipated construction (2021 to 2025) and are exhibited in **Figure 10**. Note that as part of the bus detours, Churchill/Scott intersection will be upgraded to a signalized intersection.

Figure 10: Buses Detoured on Scott Street



3.2.2. BACKGROUND GROWTH & OTHER DEVELOPMENTS

The emphasis in the City's recent Official Plan and Transportation Master Plan is to place priority on transit, encourage intensification around transit stations, encourage mixed-use developments and provide "complete streets" that better accommodate the active transportation needs of its residents and reduce the use of the private auto. Given the location of the site near future Confederation Line LRT Extension and future Scott Street 'Complete Street' plan, the trips generated from this development as well as nearby developments will likely choose alternate modes of transportation over driving. It is expected to see a decrease in vehicle traffic along Scott Street in the future as the public transportation network near the site becomes mature and alternate modes of transportation become more desirable (see map of anticipated background growth attached as Appendix F). As such, the background vehicle traffic volumes for horizon year 2026 is assumed to be the same as year 2021.

The projected vehicle volumes from the planned area developments as discussed in Section 2.1.3. 'Planned Conditions – Other Area Developments' were added to the study area intersections and are shown in **Figure 11**. The volumes from the other area development along with detoured buses were layered onto the existing traffic volumes for the future interim analysis volumes. Since the bus detour are anticipated between 2021 and 2025, they have been removed from 2026

2070 Scott Street

Transportation Impact Assessment

Strategy Report

November 1st, 2019

Prepared for:

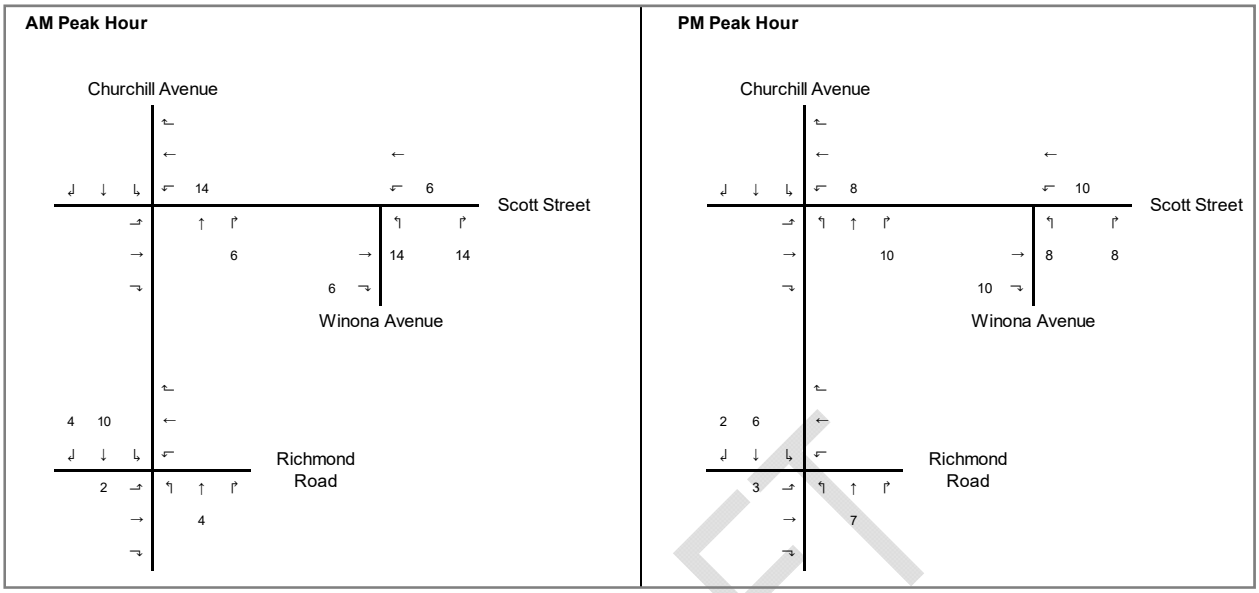
Azure Urban Developments Inc.

Prepared by:

Stantec Consulting Ltd.

Figure 1 - Site Location

Figure 12 - Site Trips



3.2 BACKGROUND NETWORK TRAVEL DEMAND

3.2.1 Transportation Network Plans

As outlined in **Table 4** in **Section 2.1.3.1**, there are two transit projects that are expected to occur within the vicinity of the proposed development; Western Light Rail Transit and the Richmond Road Transit Signal Priority. Based on direction from the City of Ottawa, the Western LRT is planned to be implemented by the 2027 ultimate horizon of the subject development.

3.2.2 Background Growth

The City of Ottawa provided **Figure 13** below, which outlines the average annual growth rates based on trend lines. As illustrated in this figure, the average annual growth in the Westboro neighbourhood is in the range of 0.2% - 2.0%. To be conservative, a 2% annual background growth rate was used in the subject analysis.

APPENDIX H

Strategic Long-Range Model

TRANS Regional Model

Version 2.15 - Assigned Oct, 2021

AM Peak Hour Total Traffic Volume

Westboro

2011 Model - Basecase

N/A

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

TRANS

Legend

AM Peak Hour Total Traffic Volume

1000 2000 3000 4000 5000

Distance (m)

50 100 150 200 250

N

TRANS Regional Model

Version 2.15 - Assigned Oct, 2021

AM Peak Hour Total Traffic Volume

Westboro

2031 Model - Basecase

N/A

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

TRANS

Legend

AM Peak Hour Total Traffic Volume

1000 2000 3000 4000 5000

N

Distance (m)

50 100 150 200 250

APPENDIX I

Signal Timing Plans

Traffic Signal Timing

City of Ottawa, Public Works & Environmental Services Department

Traffic Signal Operations Unit

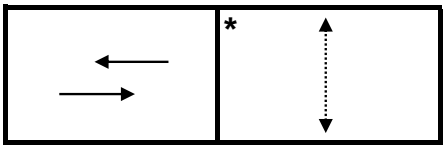
Intersection:	***Main:*** Scott	***Side:***	Athlone
Controller:	**ATC 3**	**TSD:**	**6584**
Author:	Kymen Kwan	**Date:**	06-Dec-2021

Existing Timing Plans†

	Plan					**Ped Minimum Time**		
	AM Peak 1	**Off Peak** 2	**PM Peak** 3	**Night** 4	**Weekend** 5	***Walk***	***DW***	***A+R***
Cycle	Free	Free	Free	Free	Free			
Offset	X	X	X	X	X			
EB Thru	30.8	30.8	30.8	30.8	30.8	-	-	3.3+2.5
WB Thru	30.8	30.8	30.8	30.8	30.8	-	-	3.3+2.5
NS Ped	24	24	24	24	24	7	11	3.0+1.0

Phasing Sequence‡

Plan: All



Schedule

Weekday

Time	Plan
0:15	4
6:30	1
9:30	2
15:00	3
18:30	2
21:30	4

Weekend

Time	Plan
0:15	4
6:30	2
11:00	5
19:30	2
22:00	4

Notes

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

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

Asterisk (*) Indicates actuated phase

(fp): Fully Protected Left Turn

◄·····► Pedestrian signal

Cost is $59.96 ($53.06 + HST)

Traffic Signal Timing

City of Ottawa, Public Works & Environmental Services Department

Traffic Signal Operations Unit

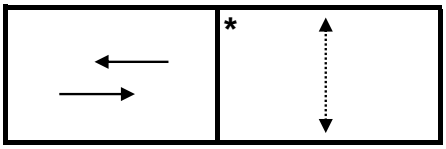
Intersection:	***Main:*** Scott	***Side:***	Tweedsmuir
Controller:	**ATC 3**	**TSD:**	**5781**
Author:	Kymen Kwan	**Date:**	06-Dec-2021

Existing Timing Plans†

	Plan					**Ped Minimum Time**		
	AM Peak 1	**Off Peak** 2	**PM Peak** 3	**Night** 4	**Weekend** 5	***Walk***	***DW***	***A+R***
Cycle	50	50	50	50	50			
Offset	X	X	X	X	X			
EB Thru	28	25	28	25	25	-	-	3.3+2.5
WB Thru	28	25	28	25	25	-	-	3.3+2.5
NS Ped	22	25	22	25	25	7	11	3.0+1.0

Phasing Sequence‡

Plan: All



Schedule

Weekday

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

Saturday

Time	Plan
0:15	4
6:30	2
9:00	5
18:30	2
22:30	4

Sunday

Time	Plan
0:15	4
6:30	2
9:00	5
18:00	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

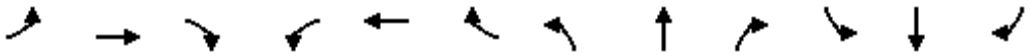
(fp): Fully Protected Left Turn

◄·····► Pedestrian signal

Cost is $59.96 ($53.06 + HST)

APPENDIX J

Existing Synchro Analysis

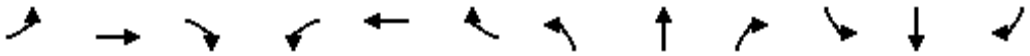


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	7	13	208	3	16	13	97	358	58	199	2
Future Volume (vph)	3	7	13	208	3	16	13	97	358	58	199	2
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.924			0.990			0.897			0.999	
Flt Protected		0.994			0.956			0.999			0.989	
Satd. Flow (prot)	0	1473	0	0	1452	0	0	1459	0	0	1632	0
Flt Permitted		0.994			0.956			0.999			0.989	
Satd. Flow (perm)	0	1473	0	0	1452	0	0	1459	0	0	1632	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		77.3			83.9			315.3			273.6	
Travel Time (s)		5.6			6.0			22.7			19.7	
Confl. Peds. (#/hr)	33		12	12		33	32		10	10		32
Confl. Bikes (#/hr)			27			19			27			14
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	1%	15%	1%	10%	1%	15%	8%	3%	4%	4%	2%	1%
Adj. Flow (vph)	3	8	14	231	3	18	14	108	398	64	221	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	25	0	0	252	0	0	520	0	0	287	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		5.0			5.0			5.0			5.0	
Two way Left Turn Lane												
Headway Factor	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 76.1%		ICU Level of Service D	
Analysis Period (min) 15			

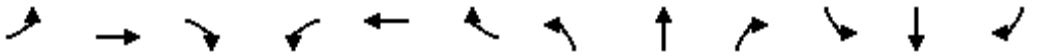
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	416	14	15	221	1	31
Future Volume (vph)	416	14	15	221	1	31
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.995				0.869	
Flt Protected				0.997	0.999	
Satd. Flow (prot)	1617	0	0	1537	1454	0
Flt Permitted				0.997	0.999	
Satd. Flow (perm)	1617	0	0	1537	1454	0
Link Speed (k/h)	50			50	40	
Link Distance (m)	83.9			194.8	233.8	
Travel Time (s)	6.0			14.0	21.0	
Confl. Peds. (#/hr)		7	7			2
Confl. Bikes (#/hr)		22				4
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	8%	6%	10%	1%	1%
Adj. Flow (vph)	462	16	17	246	1	34
Shared Lane Traffic (%)						
Lane Group Flow (vph)	478	0	0	263	35	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	4.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	5.0			5.0	5.0	
Two way Left Turn Lane						
Headway Factor	1.16	1.16	1.16	1.16	1.16	1.16
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 38.7%		ICU Level of Service A	
Analysis Period (min) 15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	468	8	23	260	6	3	0	28	0	0	0
Future Volume (vph)	11	468	8	23	260	6	3	0	28	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.998			0.997			0.877				
Flt Protected		0.999			0.996			0.996				
Satd. Flow (prot)	0	1615	0	0	1548	0	0	1463	0	0	846	0
Flt Permitted		0.999			0.996			0.996				
Satd. Flow (perm)	0	1615	0	0	1548	0	0	1463	0	0	846	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		194.8			84.2			256.4			54.4	
Travel Time (s)		14.0			6.1			18.5			3.9	
Confl. Peds. (#/hr)	117		17	17		117	64		16	16		64
Confl. Bikes (#/hr)			11			7			3			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	100%	2%	20%	1%	7%	100%	1%	100%	1%	100%	100%	100%
Adj. Flow (vph)	12	520	9	26	289	7	3	0	31	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	541	0	0	322	0	0	34	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			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	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 51.4%		ICU Level of Service A	
Analysis Period (min) 15			

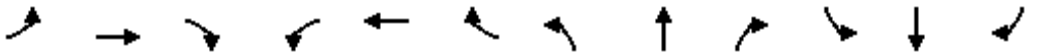


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	475	3	10	263	5	3	0	34	6	0	0
Future Volume (vph)	0	475	3	10	263	5	3	0	34	6	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.999			0.997			0.875				
Flt Protected					0.998			0.996			0.950	
Satd. Flow (prot)	0	1641	0	0	1564	0	0	1460	0	0	804	0
Flt Permitted					0.998			0.996			0.950	
Satd. Flow (perm)	0	1641	0	0	1564	0	0	1460	0	0	804	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		84.2			67.4			275.0			51.7	
Travel Time (s)		6.1			4.9			19.8			3.7	
Confl. Peds. (#/hr)	149		15	15		149	6		122	122		6
Confl. Bikes (#/hr)			8			1						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	100%	3%	1%	1%	6%	100%	1%	1%	1%	100%	100%	100%
Adj. Flow (vph)	0	528	3	11	292	6	3	0	38	7	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	531	0	0	309	0	0	41	0	0	7	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		5.0			5.0			5.0			5.0	
Two way Left Turn Lane												
Headway Factor	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 49.5%		ICU Level of Service A	
Analysis Period (min) 15			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	490	25	98	265	13	73
Future Volume (vph)	490	25	98	265	13	73
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.993				0.885	
Flt Protected				0.987	0.993	
Satd. Flow (prot)	1633	0	0	1607	1472	0
Flt Permitted				0.987	0.993	
Satd. Flow (perm)	1633	0	0	1607	1472	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	67.4			200.5	303.1	
Travel Time (s)	4.9			14.4	21.8	
Confl. Peds. (#/hr)		50	50			
Confl. Bikes (#/hr)		10				5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	1%	1%	5%	1%	1%
Adj. Flow (vph)	544	28	109	294	14	81
Shared Lane Traffic (%)						
Lane Group Flow (vph)	572	0	0	403	95	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	4.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	5.0			5.0	5.0	
Two way Left Turn Lane						
Headway Factor	1.16	1.16	1.16	1.16	1.16	1.16
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 71.1%		ICU Level of Service C	
Analysis Period (min) 15			



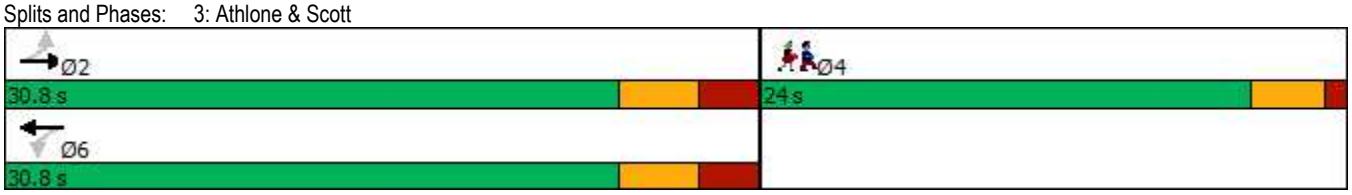
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	468	8	23	260	6	0	0	0	0	0	0
Future Volume (vph)	11	468	8	23	260	6	0	0	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00							
Frt		0.998			0.997							
Flt Protected		0.999			0.996							
Satd. Flow (prot)	0	1613	0	0	1543	0	0	0	0	0	0	0
Flt Permitted		0.992			0.945							
Satd. Flow (perm)	0	1599	0	0	1463	0	0	0	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			3							
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		194.8			84.2			256.4			54.4	
Travel Time (s)		14.0			6.1			18.5			3.9	
Confl. Peds. (#/hr)	117		17	17		117	64		16	16		64
Confl. Bikes (#/hr)			11			7			3			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	100%	2%	20%	1%	7%	100%	1%	100%	1%	100%	100%	100%
Adj. Flow (vph)	12	520	9	26	289	7	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	541	0	0	322	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			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	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2							
Detector Template	Left	Thru		Left	Thru							
Leading Detector (m)	6.1	30.5		6.1	30.5							
Trailing Detector (m)	0.0	0.0		0.0	0.0							
Detector 1 Position(m)	0.0	0.0		0.0	0.0							
Detector 1 Size(m)	6.1	1.8		6.1	1.8							
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex							
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0							
Detector 1 Queue (s)	0.0	0.0		0.0	0.0							
Detector 1 Delay (s)	0.0	0.0		0.0	0.0							
Detector 2 Position(m)		28.7			28.7							
Detector 2 Size(m)		1.8			1.8							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	Perm	NA		Perm	NA							
Protected Phases		2			6							
Permitted Phases	2			6								
Detector Phase	2	2		6	6							
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0							
Minimum Split (s)	15.8	15.8		15.8	15.8							

Lane Group	Ø4
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/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	4
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	20.0
Minimum Split (s)	24.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (s)	30.8	30.8		30.8	30.8							
Total Split (%)	56.2%	56.2%		56.2%	56.2%							
Maximum Green (s)	25.0	25.0		25.0	25.0							
Yellow Time (s)	3.3	3.3		3.3	3.3							
All-Red Time (s)	2.5	2.5		2.5	2.5							
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		5.8			5.8							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0							
Recall Mode	Max	Max		Max	Max							
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		44.8			44.8							
Actuated g/C Ratio		0.74			0.74							
v/c Ratio		0.45			0.30							
Control Delay		9.1			7.5							
Queue Delay		0.0			0.3							
Total Delay		9.1			7.8							
LOS		A			A							
Approach Delay		9.1			7.8							
Approach LOS		A			A							
Queue Length 50th (m)		37.7			18.9							
Queue Length 95th (m)		62.8			33.0							
Internal Link Dist (m)		170.8			60.2			232.4			30.4	
Turn Bay Length (m)												
Base Capacity (vph)		1190			1089							
Starvation Cap Reductn		0			316							
Spillback Cap Reductn		0			0							
Storage Cap Reductn		0			0							
Reduced v/c Ratio		0.45			0.42							

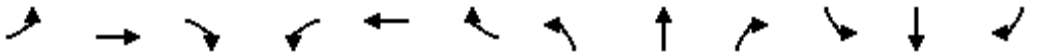
Intersection Summary			
Area Type:	CBD		
Cycle Length: 54.8			
Actuated Cycle Length: 60.2			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.45			
Intersection Signal Delay: 8.6		Intersection LOS: A	
Intersection Capacity Utilization 37.5%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 3: Athlone & Scott



Lane Group	Ø4
Total Split (s)	24.0
Total Split (%)	44%
Maximum Green (s)	20.0
Yellow Time (s)	3.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	60
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)	0	475	3	10	263	5	0	0	0	0	0	0
Future Volume (vph)	0	475	3	10	263	5	0	0	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00							
Frt		0.999			0.997							
Flt Protected					0.998							
Satd. Flow (prot)	0	1641	0	0	1558	0	0	0	0	0	0	0
Flt Permitted					0.981							
Satd. Flow (perm)	0	1641	0	0	1531	0	0	0	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			3							
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		84.2			67.4			275.0			51.7	
Travel Time (s)		6.1			4.9			19.8			3.7	
Confl. Peds. (#/hr)	149		15	15		149	6		122	122		6
Confl. Bikes (#/hr)			8			1						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	100%	3%	1%	1%	6%	100%	1%	1%	1%	100%	100%	100%
Adj. Flow (vph)	0	528	3	11	292	6	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	531	0	0	309	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			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	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2							
Detector Template	Left	Thru		Left	Thru							
Leading Detector (m)	6.1	30.5		6.1	30.5							
Trailing Detector (m)	0.0	0.0		0.0	0.0							
Detector 1 Position(m)	0.0	0.0		0.0	0.0							
Detector 1 Size(m)	6.1	1.8		6.1	1.8							
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex							
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0							
Detector 1 Queue (s)	0.0	0.0		0.0	0.0							
Detector 1 Delay (s)	0.0	0.0		0.0	0.0							
Detector 2 Position(m)		28.7			28.7							
Detector 2 Size(m)		1.8			1.8							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA		Perm	NA							
Protected Phases		2			6							
Permitted Phases	2			6								
Detector Phase	2	2		6	6							
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0							
Minimum Split (s)	15.8	15.8		15.8	15.8							

Lane Group	Ø4
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/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	4
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	10.0
Minimum Split (s)	22.0

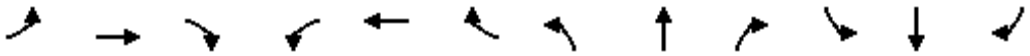
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (s)	28.0	28.0		28.0	28.0							
Total Split (%)	56.0%	56.0%		56.0%	56.0%							
Maximum Green (s)	22.2	22.2		22.2	22.2							
Yellow Time (s)	3.3	3.3		3.3	3.3							
All-Red Time (s)	2.5	2.5		2.5	2.5							
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		5.8			5.8							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0							
Recall Mode	Max	Max		Max	Max							
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		41.8			41.8							
Actuated g/C Ratio		0.74			0.74							
v/c Ratio		0.44			0.27							
Control Delay		8.4			6.8							
Queue Delay		0.5			0.0							
Total Delay		8.9			6.8							
LOS		A			A							
Approach Delay		8.9			6.8							
Approach LOS		A			A							
Queue Length 50th (m)		33.3			16.2							
Queue Length 95th (m)		56.1			28.8							
Internal Link Dist (m)		60.2			43.4			251.0			27.7	
Turn Bay Length (m)												
Base Capacity (vph)		1220			1139							
Starvation Cap Reductn		313			0							
Spillback Cap Reductn		0			0							
Storage Cap Reductn		0			0							
Reduced v/c Ratio		0.59			0.27							

Intersection Summary			
Area Type:	CBD		
Cycle Length: 50			
Actuated Cycle Length: 56.2			
Natural Cycle: 55			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.44			
Intersection Signal Delay: 8.1		Intersection LOS: A	
Intersection Capacity Utilization 34.4%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 4: Tweedsmuir & Scott

Lane Group	Ø4
Total Split (s)	22.0
Total Split (%)	44%
Maximum Green (s)	18.0
Yellow Time (s)	3.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	100
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

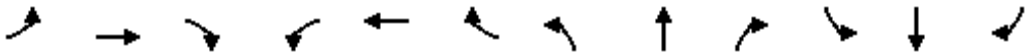


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	7	11	291	8	46	18	148	208	41	117	3
Future Volume (vph)	1	7	11	291	8	46	18	148	208	41	117	3
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.923			0.982			0.925			0.998	
Flt Protected		0.998			0.960			0.998			0.987	
Satd. Flow (prot)	0	1543	0	0	1550	0	0	1535	0	0	1621	0
Flt Permitted		0.998			0.960			0.998			0.987	
Satd. Flow (perm)	0	1543	0	0	1550	0	0	1535	0	0	1621	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		77.3			83.9			315.3			273.6	
Travel Time (s)		5.6			6.0			22.7			19.7	
Confl. Peds. (#/hr)	41		17	17		41	33		11	11		33
Confl. Bikes (#/hr)			12			61			22			26
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	1%	1%	1%	2%	1%	9%	5%	1%	2%	8%	1%	1%
Adj. Flow (vph)	1	8	12	323	9	51	20	164	231	46	130	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	21	0	0	383	0	0	415	0	0	179	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		5.0			5.0			5.0			5.0	
Two way Left Turn Lane												
Headway Factor	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 63.6%		ICU Level of Service B	
Analysis Period (min) 15			

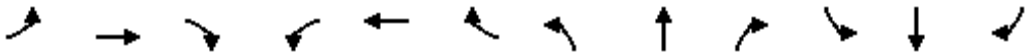
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	338	6	39	435	2	38
Future Volume (vph)	338	6	39	435	2	38
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.998				0.871	
Flt Protected				0.996	0.998	
Satd. Flow (prot)	1640	0	0	1639	1456	0
Flt Permitted				0.996	0.998	
Satd. Flow (perm)	1640	0	0	1639	1456	0
Link Speed (k/h)	50			50	40	
Link Distance (m)	83.9			194.8	233.8	
Travel Time (s)	6.0			14.0	21.0	
Confl. Peds. (#/hr)		12	12			
Confl. Bikes (#/hr)		6				1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	3%	1%	1%	3%	1%	1%
Adj. Flow (vph)	376	7	43	483	2	42
Shared Lane Traffic (%)						
Lane Group Flow (vph)	383	0	0	526	44	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	4.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	5.0			5.0	5.0	
Two way Left Turn Lane						
Headway Factor	1.16	1.16	1.16	1.16	1.16	1.16
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 64.0%		ICU Level of Service C	
Analysis Period (min) 15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	396	9	21	523	0	3	0	39	0	0	0
Future Volume (vph)	8	396	9	21	523	0	3	0	39	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.997						0.874				
Flt Protected		0.999			0.998			0.997				
Satd. Flow (prot)	0	1622	0	0	1656	0	0	1460	0	0	846	0
Flt Permitted		0.999			0.998			0.997				
Satd. Flow (perm)	0	1622	0	0	1656	0	0	1460	0	0	846	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		194.8			84.2			256.4			54.4	
Travel Time (s)		14.0			6.1			18.5			3.9	
Confl. Peds. (#/hr)	130		16	16		130	87		10	10		87
Confl. Bikes (#/hr)			4			20			1			3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	100%	2%	1%	1%	2%	100%	1%	100%	1%	100%	100%	100%
Adj. Flow (vph)	9	440	10	23	581	0	3	0	43	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	459	0	0	604	0	0	46	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			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	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 64.6%		ICU Level of Service C	
Analysis Period (min) 15			

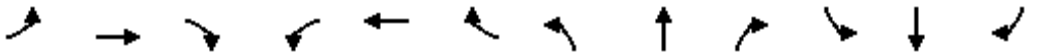


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	402	7	14	444	5	10	0	30	5	0	1
Future Volume (vph)	0	402	7	14	444	5	10	0	30	5	0	1
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.998			0.998			0.899			0.981	
Flt Protected					0.998			0.988			0.959	
Satd. Flow (prot)	0	1672	0	0	1619	0	0	1488	0	0	796	0
Flt Permitted					0.998			0.988			0.959	
Satd. Flow (perm)	0	1672	0	0	1619	0	0	1488	0	0	796	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		84.2			67.4			275.0			51.7	
Travel Time (s)		6.1			4.9			19.8			3.7	
Confl. Peds. (#/hr)	228		23	23		228	10		187	187		10
Confl. Bikes (#/hr)			2			16						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	100%	1%	1%	1%	3%	100%	1%	1%	1%	100%	100%	100%
Adj. Flow (vph)	0	447	8	16	493	6	11	0	33	6	0	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	455	0	0	515	0	0	44	0	0	7	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		5.0			5.0			5.0			5.0	
Two way Left Turn Lane												
Headway Factor	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 61.1%		ICU Level of Service B	
Analysis Period (min) 15			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	399	39	95	430	30	168
Future Volume (vph)	399	39	95	430	30	168
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.988				0.885	
Flt Protected				0.991	0.993	
Satd. Flow (prot)	1640	0	0	1647	1472	0
Flt Permitted				0.991	0.993	
Satd. Flow (perm)	1640	0	0	1647	1472	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	67.4			200.5	303.1	
Travel Time (s)	4.9			14.4	21.8	
Confl. Peds. (#/hr)		50	50			
Confl. Bikes (#/hr)		10				5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	1%	1%	2%	1%	1%
Adj. Flow (vph)	443	43	106	478	33	187
Shared Lane Traffic (%)						
Lane Group Flow (vph)	486	0	0	584	220	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	4.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	5.0			5.0	5.0	
Two way Left Turn Lane						
Headway Factor	1.16	1.16	1.16	1.16	1.16	1.16
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 84.6%		ICU Level of Service E	
Analysis Period (min) 15			



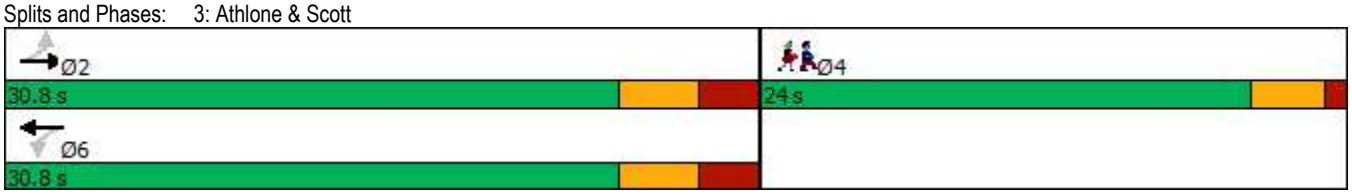
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	396	9	21	523	0	0	0	0	0	0	0
Future Volume (vph)	8	396	9	21	523	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00							
Frt		0.997										
Flt Protected		0.999			0.998							
Satd. Flow (prot)	0	1621	0	0	1656	0	0	0	0	0	0	0
Flt Permitted		0.989			0.977							
Satd. Flow (perm)	0	1603	0	0	1621	0	0	0	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3										
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		194.8			84.2			256.4			54.4	
Travel Time (s)		14.0			6.1			18.5			3.9	
Confl. Peds. (#/hr)	130		16	16		130	87		10	10		87
Confl. Bikes (#/hr)			4			20			1			3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	100%	2%	1%	1%	2%	100%	1%	100%	1%	100%	100%	100%
Adj. Flow (vph)	9	440	10	23	581	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	459	0	0	604	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			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	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2							
Detector Template	Left	Thru		Left	Thru							
Leading Detector (m)	6.1	30.5		6.1	30.5							
Trailing Detector (m)	0.0	0.0		0.0	0.0							
Detector 1 Position(m)	0.0	0.0		0.0	0.0							
Detector 1 Size(m)	6.1	1.8		6.1	1.8							
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex							
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0							
Detector 1 Queue (s)	0.0	0.0		0.0	0.0							
Detector 1 Delay (s)	0.0	0.0		0.0	0.0							
Detector 2 Position(m)		28.7			28.7							
Detector 2 Size(m)		1.8			1.8							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	Perm	NA		Perm	NA							
Protected Phases		2			6							
Permitted Phases	2			6								
Detector Phase	2	2		6	6							
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0							
Minimum Split (s)	15.8	15.8		15.8	15.8							

Lane Group	Ø4
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/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	4
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	20.0
Minimum Split (s)	24.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (s)	30.8	30.8		30.8	30.8							
Total Split (%)	56.2%	56.2%		56.2%	56.2%							
Maximum Green (s)	25.0	25.0		25.0	25.0							
Yellow Time (s)	3.3	3.3		3.3	3.3							
All-Red Time (s)	2.5	2.5		2.5	2.5							
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		5.8			5.8							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0							
Recall Mode	Max	Max		Max	Max							
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		44.8			44.8							
Actuated g/C Ratio		0.74			0.74							
v/c Ratio		0.38			0.50							
Control Delay		8.2			9.9							
Queue Delay		0.0			0.7							
Total Delay		8.2			10.6							
LOS		A			B							
Approach Delay		8.2			10.6							
Approach LOS		A			B							
Queue Length 50th (m)		29.5			44.6							
Queue Length 95th (m)		49.1			74.0							
Internal Link Dist (m)		170.8			60.2			232.4			30.4	
Turn Bay Length (m)												
Base Capacity (vph)		1193			1205							
Starvation Cap Reductn		0			299							
Spillback Cap Reductn		0			0							
Storage Cap Reductn		0			0							
Reduced v/c Ratio		0.38			0.67							

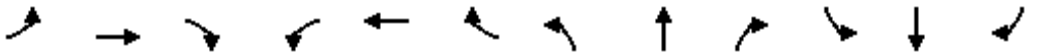
Intersection Summary			
Area Type:	CBD		
Cycle Length: 54.8			
Actuated Cycle Length: 60.2			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.50			
Intersection Signal Delay: 9.6		Intersection LOS: A	
Intersection Capacity Utilization 49.9%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 3: Athlone & Scott



Lane Group	Ø4
Total Split (s)	24.0
Total Split (%)	44%
Maximum Green (s)	20.0
Yellow Time (s)	3.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	60
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)	0	402	7	14	444	5	0	0	0	0	0	0
Future Volume (vph)	0	402	7	14	444	5	0	0	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00							
Frt		0.998			0.998							
Flt Protected					0.998							
Satd. Flow (prot)	0	1671	0	0	1614	0	0	0	0	0	0	0
Flt Permitted					0.984							
Satd. Flow (perm)	0	1671	0	0	1591	0	0	0	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			2							
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		84.2			67.4			275.0			51.7	
Travel Time (s)		6.1			4.9			19.8			3.7	
Confl. Peds. (#/hr)	228		23	23		228	10		187	187		10
Confl. Bikes (#/hr)			2			16						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	100%	1%	1%	1%	3%	100%	1%	1%	1%	100%	100%	100%
Adj. Flow (vph)	0	447	8	16	493	6	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	455	0	0	515	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			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	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2							
Detector Template	Left	Thru		Left	Thru							
Leading Detector (m)	6.1	30.5		6.1	30.5							
Trailing Detector (m)	0.0	0.0		0.0	0.0							
Detector 1 Position(m)	0.0	0.0		0.0	0.0							
Detector 1 Size(m)	6.1	1.8		6.1	1.8							
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex							
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0							
Detector 1 Queue (s)	0.0	0.0		0.0	0.0							
Detector 1 Delay (s)	0.0	0.0		0.0	0.0							
Detector 2 Position(m)		28.7			28.7							
Detector 2 Size(m)		1.8			1.8							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA		Perm	NA							
Protected Phases		2			6							
Permitted Phases	2			6								
Detector Phase	2	2		6	6							
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0							
Minimum Split (s)	15.8	15.8		15.8	15.8							

Lane Group	Ø4
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/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	4
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	10.0
Minimum Split (s)	22.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (s)	28.0	28.0		28.0	28.0							
Total Split (%)	56.0%	56.0%		56.0%	56.0%							
Maximum Green (s)	22.2	22.2		22.2	22.2							
Yellow Time (s)	3.3	3.3		3.3	3.3							
All-Red Time (s)	2.5	2.5		2.5	2.5							
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		5.8			5.8							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0							
Recall Mode	Max	Max		Max	Max							
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		41.8			41.8							
Actuated g/C Ratio		0.74			0.74							
v/c Ratio		0.37			0.44							
Control Delay		7.5			8.5							
Queue Delay		0.4			0.0							
Total Delay		7.9			8.5							
LOS		A			A							
Approach Delay		7.9			8.5							
Approach LOS		A			A							
Queue Length 50th (m)		26.4			32.1							
Queue Length 95th (m)		44.3			54.8							
Internal Link Dist (m)		60.2			43.4			251.0			27.7	
Turn Bay Length (m)												
Base Capacity (vph)		1243			1183							
Starvation Cap Reductn		354			0							
Spillback Cap Reductn		0			0							
Storage Cap Reductn		0			0							
Reduced v/c Ratio		0.51			0.44							

Intersection Summary			
Area Type:	CBD		
Cycle Length: 50			
Actuated Cycle Length: 56.2			
Natural Cycle: 55			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.44			
Intersection Signal Delay: 8.2		Intersection LOS: A	
Intersection Capacity Utilization 45.9%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 4: Tweedsmuir & Scott

Lane Group	Ø4
Total Split (s)	22.0
Total Split (%)	44%
Maximum Green (s)	18.0
Yellow Time (s)	3.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	100
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

APPENDIX K

Background Synchro Analysis

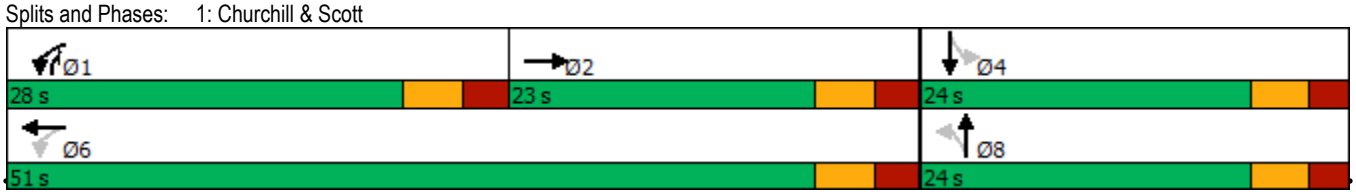
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	10	13	234	3	16	13	98	381	58	199	2
Future Volume (vph)	0	10	13	234	3	16	13	98	381	58	199	2
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		40.0	0.0		0.0
Storage Lanes	0		0	1		0	0		1	0		0
Taper Length (m)	10.0			30.0			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		0.94		0.96	0.90			0.99			0.99	
Frt		0.924			0.874				0.850		0.999	
Flt Protected				0.950				0.994			0.989	
Satd. Flow (prot)	0	1369	0	1461	1181	0	0	1624	1383	0	1630	0
Flt Permitted				0.507				0.954			0.896	
Satd. Flow (perm)	0	1369	0	752	1181	0	0	1549	1383	0	1465	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		77.3			83.9			315.3			273.6	
Travel Time (s)		5.6			6.0			22.7			19.7	
Confl. Peds. (#/hr)	40		20	20		40	40		20	20		40
Confl. Bikes (#/hr)			30			20			30			20
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%	15%	1%	10%	1%	15%	8%	3%	4%	4%	2%	1%
Adj. Flow (vph)	0	10	13	234	3	16	13	98	381	58	199	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	23	0	234	19	0	0	111	381	0	259	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	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors		2		1	2		1	2	1	1	2	
Detector Template		Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)		30.5		6.1	30.5		6.1	30.5	6.1	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)		1.8		6.1	1.8		6.1	1.8	6.1	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		NA		pm+pt	NA		Perm	NA	Over	Perm	NA	
Protected Phases		2		1	6			8	1		4	
Permitted Phases				6			8			4		
Detector Phase		2		1	6		8	8	1	4	4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)		10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)		22.9		15.9	22.9		23.6	23.6	15.9	21.6	21.6	
Total Split (s)		23.0		28.0	51.0		24.0	24.0	28.0	24.0	24.0	
Total Split (%)		30.7%		37.3%	68.0%		32.0%	32.0%	37.3%	32.0%	32.0%	
Maximum Green (s)		17.1		22.1	45.1		18.4	18.4	22.1	18.4	18.4	
Yellow Time (s)		3.3		3.3	3.3		3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)		2.6		2.6	2.6		2.3	2.3	2.6	2.3	2.3	
Lost Time Adjust (s)		0.0		0.0	0.0			0.0	0.0		0.0	
Total Lost Time (s)		5.9		5.9	5.9			5.6	5.9		5.6	
Lead/Lag		Lag		Lead					Lead			
Lead-Lag Optimize?		Yes		Yes					Yes			
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode		Min		Min	Min		Min	Min	Min	Min	Min	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		10.0			10.0		11.0	11.0		9.0	9.0	
Pedestrian Calls (#/hr)		40			40		40	40		40	40	
Act Effct Green (s)		12.6		40.0	40.0			15.6	21.4		15.6	
Actuated g/C Ratio		0.19		0.60	0.60			0.23	0.32		0.23	
v/c Ratio		0.09		0.35	0.03			0.31	0.87		0.76	
Control Delay		24.2		8.6	6.3			24.9	46.0		41.3	
Queue Delay		0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay		24.2		8.6	6.3			24.9	46.0		41.3	
LOS		C		A	A			C	D		D	
Approach Delay		24.2			8.4			41.2			41.3	
Approach LOS		C			A			D			D	
Queue Length 50th (m)		2.3		12.3	0.9			10.1	39.5		26.6	
Queue Length 95th (m)		7.5		22.8	3.1			23.6	#93.8		#60.4	
Internal Link Dist (m)		53.3			59.9			291.3			249.6	
Turn Bay Length (m)									40.0			
Base Capacity (vph)		352		683	802			429	460		405	
Starvation Cap Reductn		0		0	0			0	0		0	
Spillback Cap Reductn		0		0	0			0	0		0	
Storage Cap Reductn		0		0	0			0	0		0	
Reduced v/c Ratio		0.07		0.34	0.02			0.26	0.83		0.64	

Intersection Summary

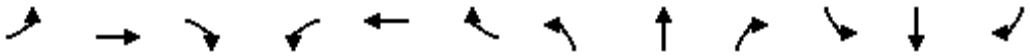
Area Type: CBD
Cycle Length: 75
Actuated Cycle Length: 67.2
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 32.8 Intersection LOS: C
Intersection Capacity Utilization 71.5% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Churchill & Scott



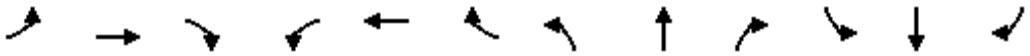
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	433	20	21	233	15	45
Future Volume (vph)	433	20	21	233	15	45
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0	10.0		0.0	0.0
Storage Lanes		0	1		1	0
Taper Length (m)			30.0		10.0	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt	0.994				0.899	
Flt Protected				0.996	0.988	
Satd. Flow (prot)	1614	0	0	2920	1488	0
Flt Permitted				0.996	0.988	
Satd. Flow (perm)	1614	0	0	2920	1488	0
Link Speed (k/h)	50			50	40	
Link Distance (m)	83.9			194.8	233.8	
Travel Time (s)	6.0			14.0	21.0	
Confl. Peds. (#/hr)		10	10			
Confl. Bikes (#/hr)		30				5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	4%	8%	6%	10%	1%	1%
Adj. Flow (vph)	433	20	21	233	15	45
Shared Lane Traffic (%)						
Lane Group Flow (vph)	453	0	0	254	60	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	4.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	5.0			5.0	5.0	
Two way Left Turn Lane						
Headway Factor	1.16	1.16	1.16	1.16	1.16	1.16
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 39.1%		ICU Level of Service A	
Analysis Period (min) 15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	516	8	23	276	6	3	0	28	0	0	0
Future Volume (vph)	11	516	8	23	276	6	3	0	28	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.998			0.997			0.878				
Flt Protected		0.999			0.996			0.995				
Satd. Flow (prot)	0	1618	0	0	1550	0	0	1464	0	0	846	0
Flt Permitted		0.999			0.996			0.995				
Satd. Flow (perm)	0	1618	0	0	1550	0	0	1464	0	0	846	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		194.8			84.2			256.4			54.4	
Travel Time (s)		14.0			6.1			18.5			3.9	
Confl. Peds. (#/hr)	120		20	20		120	70		20	20		70
Confl. Bikes (#/hr)			15			10			5			
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 (%)	100%	2%	20%	1%	7%	100%	1%	100%	1%	100%	100%	100%
Adj. Flow (vph)	11	516	8	23	276	6	3	0	28	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	535	0	0	305	0	0	31	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		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	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 54.7%		ICU Level of Service A	
Analysis Period (min) 15			

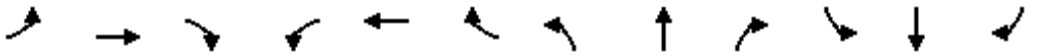


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	523	3	10	279	5	3	0	34	6	0	0
Future Volume (vph)	0	523	3	10	279	5	3	0	34	6	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.999			0.998			0.876				
Flt Protected					0.998			0.996			0.950	
Satd. Flow (prot)	0	1641	0	0	1569	0	0	1462	0	0	804	0
Flt Permitted					0.998			0.996			0.950	
Satd. Flow (perm)	0	1641	0	0	1569	0	0	1462	0	0	804	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		84.2			67.4			275.0			51.7	
Travel Time (s)		6.1			4.9			19.8			3.7	
Confl. Peds. (#/hr)	160		20	20		160	10		130	130		10
Confl. Bikes (#/hr)			10			5						
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 (%)	100%	3%	1%	1%	6%	100%	1%	1%	1%	100%	100%	100%
Adj. Flow (vph)	0	523	3	10	279	5	3	0	34	6	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	526	0	0	294	0	0	37	0	0	6	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			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	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 52.4%		ICU Level of Service A	
Analysis Period (min) 15			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	533	30	108	279	15	102
Future Volume (vph)	533	30	108	279	15	102
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.993				0.882	
Flt Protected				0.986	0.994	
Satd. Flow (prot)	1633	0	0	1606	1469	0
Flt Permitted				0.986	0.994	
Satd. Flow (perm)	1633	0	0	1606	1469	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	67.4			200.5	303.1	
Travel Time (s)	4.9			14.4	21.8	
Confl. Peds. (#/hr)		60	60			
Confl. Bikes (#/hr)		10				5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	1%	1%	5%	1%	1%
Adj. Flow (vph)	533	30	108	279	15	102
Shared Lane Traffic (%)						
Lane Group Flow (vph)	563	0	0	387	117	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	4.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	5.0			5.0	5.0	
Two way Left Turn Lane						
Headway Factor	1.16	1.16	1.16	1.16	1.16	1.16
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 77.9%		ICU Level of Service D	
Analysis Period (min) 15			



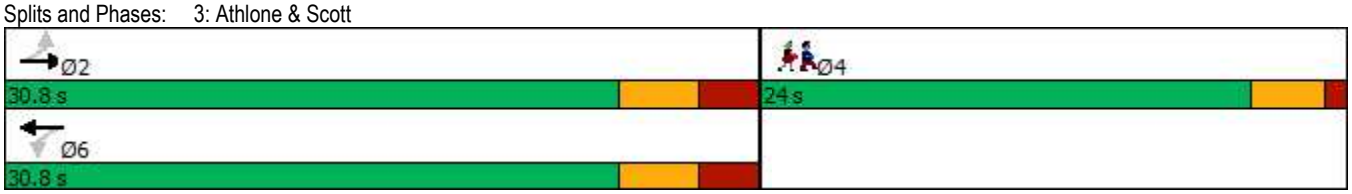
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	516	8	23	276	6	0	0	0	0	0	0
Future Volume (vph)	11	516	8	23	276	6	0	0	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00							
Frt		0.998			0.997							
Flt Protected		0.999			0.996							
Satd. Flow (prot)	0	1616	0	0	1546	0	0	0	0	0	0	0
Flt Permitted		0.993			0.951							
Satd. Flow (perm)	0	1604	0	0	1475	0	0	0	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			2							
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		194.8			84.2			256.4			54.4	
Travel Time (s)		14.0			6.1			18.5			3.9	
Confl. Peds. (#/hr)	120		20	20		120	70		20	20		70
Confl. Bikes (#/hr)			15			10			5			
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 (%)	100%	2%	20%	1%	7%	100%	1%	100%	1%	100%	100%	100%
Adj. Flow (vph)	11	516	8	23	276	6	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	535	0	0	305	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		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	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2							
Detector Template	Left	Thru		Left	Thru							
Leading Detector (m)	6.1	30.5		6.1	30.5							
Trailing Detector (m)	0.0	0.0		0.0	0.0							
Detector 1 Position(m)	0.0	0.0		0.0	0.0							
Detector 1 Size(m)	6.1	1.8		6.1	1.8							
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex							
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0							
Detector 1 Queue (s)	0.0	0.0		0.0	0.0							
Detector 1 Delay (s)	0.0	0.0		0.0	0.0							
Detector 2 Position(m)		28.7			28.7							
Detector 2 Size(m)		1.8			1.8							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	Perm	NA		Perm	NA							
Protected Phases		2			6							
Permitted Phases	2			6								
Detector Phase	2	2		6	6							
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0							
Minimum Split (s)	15.8	15.8		15.8	15.8							

Lane Group	Ø4
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/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	4
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	20.0
Minimum Split (s)	24.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (s)	30.8	30.8		30.8	30.8							
Total Split (%)	56.2%	56.2%		56.2%	56.2%							
Maximum Green (s)	25.0	25.0		25.0	25.0							
Yellow Time (s)	3.3	3.3		3.3	3.3							
All-Red Time (s)	2.5	2.5		2.5	2.5							
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		5.8			5.8							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0							
Recall Mode	Max	Max		Max	Max							
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		44.8			44.8							
Actuated g/C Ratio		0.74			0.74							
v/c Ratio		0.45			0.28							
Control Delay		9.0			7.3							
Queue Delay		0.0			0.3							
Total Delay		9.0			7.6							
LOS		A			A							
Approach Delay		9.0			7.6							
Approach LOS		A			A							
Queue Length 50th (m)		37.0			17.6							
Queue Length 95th (m)		61.5			30.8							
Internal Link Dist (m)		170.8			60.2			232.4			30.4	
Turn Bay Length (m)												
Base Capacity (vph)		1194			1098							
Starvation Cap Reductn		0			328							
Spillback Cap Reductn		0			0							
Storage Cap Reductn		0			0							
Reduced v/c Ratio		0.45			0.40							

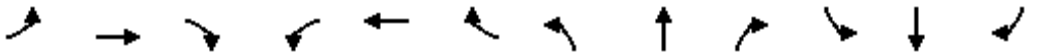
Intersection Summary			
Area Type:	CBD		
Cycle Length: 54.8			
Actuated Cycle Length: 60.2			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.45			
Intersection Signal Delay: 8.5		Intersection LOS: A	
Intersection Capacity Utilization 40.5%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 3: Athlone & Scott



Lane Group	Ø4
Total Split (s)	24.0
Total Split (%)	44%
Maximum Green (s)	20.0
Yellow Time (s)	3.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	100
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)	0	523	3	10	279	5	0	0	0	0	0	0
Future Volume (vph)	0	523	3	10	279	5	0	0	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00							
Frt		0.999			0.998							
Flt Protected					0.998							
Satd. Flow (prot)	0	1641	0	0	1563	0	0	0	0	0	0	0
Flt Permitted					0.983							
Satd. Flow (perm)	0	1641	0	0	1539	0	0	0	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			2							
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		84.2			67.4			275.0			51.7	
Travel Time (s)		6.1			4.9			19.8			3.7	
Confl. Peds. (#/hr)	160		20	20		160	10		130	130		10
Confl. Bikes (#/hr)			10			5						
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 (%)	100%	3%	1%	1%	6%	100%	1%	1%	1%	100%	100%	100%
Adj. Flow (vph)	0	523	3	10	279	5	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	526	0	0	294	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			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	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2							
Detector Template	Left	Thru		Left	Thru							
Leading Detector (m)	6.1	30.5		6.1	30.5							
Trailing Detector (m)	0.0	0.0		0.0	0.0							
Detector 1 Position(m)	0.0	0.0		0.0	0.0							
Detector 1 Size(m)	6.1	1.8		6.1	1.8							
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex							
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0							
Detector 1 Queue (s)	0.0	0.0		0.0	0.0							
Detector 1 Delay (s)	0.0	0.0		0.0	0.0							
Detector 2 Position(m)		28.7			28.7							
Detector 2 Size(m)		1.8			1.8							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA		Perm	NA							
Protected Phases		2			6							
Permitted Phases	2			6								
Detector Phase	2	2		6	6							
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0							
Minimum Split (s)	15.8	15.8		15.8	15.8							

Lane Group	Ø4
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/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	4
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	10.0
Minimum Split (s)	22.0

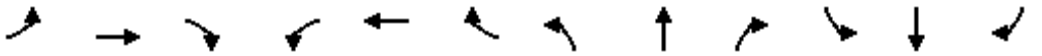
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (s)	28.0	28.0		28.0	28.0							
Total Split (%)	56.0%	56.0%		56.0%	56.0%							
Maximum Green (s)	22.2	22.2		22.2	22.2							
Yellow Time (s)	3.3	3.3		3.3	3.3							
All-Red Time (s)	2.5	2.5		2.5	2.5							
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		5.8			5.8							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0							
Recall Mode	Max	Max		Max	Max							
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		41.8			41.8							
Actuated g/C Ratio		0.74			0.74							
v/c Ratio		0.43			0.26							
Control Delay		8.3			6.7							
Queue Delay		0.5			0.0							
Total Delay		8.8			6.7							
LOS		A			A							
Approach Delay		8.8			6.7							
Approach LOS		A			A							
Queue Length 50th (m)		32.7			15.3							
Queue Length 95th (m)		55.2			27.1							
Internal Link Dist (m)		60.2			43.4			251.0			27.7	
Turn Bay Length (m)												
Base Capacity (vph)		1220			1144							
Starvation Cap Reductn		314			0							
Spillback Cap Reductn		0			0							
Storage Cap Reductn		0			0							
Reduced v/c Ratio		0.58			0.26							

Intersection Summary			
Area Type:	CBD		
Cycle Length: 50			
Actuated Cycle Length: 56.2			
Natural Cycle: 55			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.43			
Intersection Signal Delay: 8.1		Intersection LOS: A	
Intersection Capacity Utilization 37.3%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 4: Tweedsmuir & Scott

Lane Group	Ø4
Total Split (s)	22.0
Total Split (%)	44%
Maximum Green (s)	18.0
Yellow Time (s)	3.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	100
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)	0	8	11	315	8	46	18	149	237	41	118	3
Future Volume (vph)	0	8	11	315	8	46	18	149	237	41	118	3
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		40.0	0.0		0.0
Storage Lanes	0		0	1		0	0		1	0		0
Taper Length (m)	10.0			10.0			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		0.96		0.97	0.87			0.99			0.99	
Frt		0.922			0.872				0.850		0.997	
Flt Protected				0.950				0.995			0.988	
Satd. Flow (prot)	0	1476	0	1576	1185	0	0	1660	1410	0	1618	0
Flt Permitted				0.509				0.953			0.875	
Satd. Flow (perm)	0	1476	0	818	1185	0	0	1579	1410	0	1422	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		77.3			83.9			315.3			273.6	
Travel Time (s)		5.6			6.0			22.7			19.7	
Confl. Peds. (#/hr)	50		20	20		50	40		20	20		40
Confl. Bikes (#/hr)			15			70			25			30
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	1%	1%	2%	1%	9%	5%	1%	2%	8%	1%	1%
Adj. Flow (vph)	0	8	11	315	8	46	18	149	237	41	118	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	19	0	315	54	0	0	167	237	0	162	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	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors		2		1	2		1	2	1	1	2	
Detector Template		Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)		30.5		6.1	30.5		6.1	30.5	6.1	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)		1.8		6.1	1.8		6.1	1.8	6.1	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		NA		pm+pt	NA		Perm	NA	Over	Perm	NA	
Protected Phases		2		1	6			8	1		4	
Permitted Phases				6			8			4		
Detector Phase		2		1	6		8	8	1	4	4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)		10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)		22.9		15.9	22.9		23.6	23.6	15.9	21.6	21.6	
Total Split (s)		24.0		17.0	41.0		24.0	24.0	17.0	24.0	24.0	
Total Split (%)		36.9%		26.2%	63.1%		36.9%	36.9%	26.2%	36.9%	36.9%	
Maximum Green (s)		18.1		11.1	35.1		18.4	18.4	11.1	18.4	18.4	
Yellow Time (s)		3.3		3.3	3.3		3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)		2.6		2.6	2.6		2.3	2.3	2.6	2.3	2.3	
Lost Time Adjust (s)		0.0		0.0	0.0			0.0	0.0		0.0	
Total Lost Time (s)		5.9		5.9	5.9			5.6	5.9		5.6	
Lead/Lag		Lag		Lead					Lead			
Lead-Lag Optimize?		Yes		Yes					Yes			
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode		Min		Min	Min		Min	Min	Min	Min	Min	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		10.0			10.0		11.0	11.0		9.0	9.0	
Pedestrian Calls (#/hr)		40			40		40	40		40	40	
Act Effct Green (s)		12.6		29.9	29.9			13.1	11.3		13.1	
Actuated g/C Ratio		0.23		0.55	0.55			0.24	0.21		0.24	
v/c Ratio		0.06		0.52	0.08			0.44	0.81		0.48	
Control Delay		17.6		11.2	7.1			22.2	49.6		23.4	
Queue Delay		0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay		17.6		11.2	7.1			22.2	49.6		23.4	
LOS		B		B	A			C	D		C	
Approach Delay		17.6			10.6			38.3			23.4	
Approach LOS		B			B			D			C	
Queue Length 50th (m)		1.2		12.4	1.8			11.8	17.7		11.6	
Queue Length 95th (m)		5.4		31.8	6.7			27.8	#60.6		27.8	
Internal Link Dist (m)		53.3			59.9			291.3			249.6	
Turn Bay Length (m)									40.0			
Base Capacity (vph)		497		603	774			541	291		487	
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		0.52	0.07			0.31	0.81		0.33	

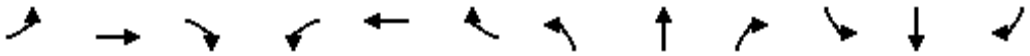
Intersection Summary

Area Type: CBD
Cycle Length: 65
Actuated Cycle Length: 54.6
Natural Cycle: 65
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.81
Intersection Signal Delay: 24.6 Intersection LOS: C
Intersection Capacity Utilization 66.5% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Churchill & Scott

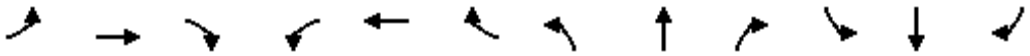
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	357	16	49	451	10	46
Future Volume (vph)	357	16	49	451	10	46
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0	10.0		0.0	0.0
Storage Lanes		0	1		1	0
Taper Length (m)			30.0		10.0	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt	0.994				0.889	
Flt Protected				0.995	0.991	
Satd. Flow (prot)	1634	0	0	3111	1476	0
Flt Permitted				0.995	0.991	
Satd. Flow (perm)	1634	0	0	3111	1476	0
Link Speed (k/h)	50			50	40	
Link Distance (m)	83.9			194.8	233.8	
Travel Time (s)	6.0			14.0	21.0	
Confl. Peds. (#/hr)		20	20			
Confl. Bikes (#/hr)		10				5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	1%	1%	3%	1%	1%
Adj. Flow (vph)	357	16	49	451	10	46
Shared Lane Traffic (%)						
Lane Group Flow (vph)	373	0	0	500	56	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	4.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	5.0			5.0	5.0	
Two way Left Turn Lane						
Headway Factor	1.16	1.16	1.16	1.16	1.16	1.16
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 53.5%		ICU Level of Service A	
Analysis Period (min) 15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	427	9	21	560	0	3	0	39	0	0	0
Future Volume (vph)	8	427	9	21	560	0	3	0	39	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.997						0.875				
Flt Protected		0.999			0.998			0.996				
Satd. Flow (prot)	0	1624	0	0	1656	0	0	1460	0	0	846	0
Flt Permitted		0.999			0.998			0.996				
Satd. Flow (perm)	0	1624	0	0	1656	0	0	1460	0	0	846	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		194.8			84.2			256.4			54.4	
Travel Time (s)		14.0			6.1			18.5			3.9	
Confl. Peds. (#/hr)	140		20	20		140	90		10	10		90
Confl. Bikes (#/hr)			5			25			5			
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 (%)	100%	2%	1%	1%	2%	100%	1%	100%	1%	100%	100%	100%
Adj. Flow (vph)	8	427	9	21	560	0	3	0	39	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	444	0	0	581	0	0	42	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		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	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 67.2%		ICU Level of Service C	
Analysis Period (min) 15			

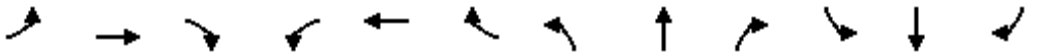


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	433	7	14	481	5	10	0	30	5	0	1
Future Volume (vph)	0	433	7	14	481	5	10	0	30	5	0	1
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.998			0.999			0.899			0.977	
Flt Protected					0.999			0.988			0.960	
Satd. Flow (prot)	0	1672	0	0	1625	0	0	1488	0	0	793	0
Flt Permitted					0.999			0.988			0.960	
Satd. Flow (perm)	0	1672	0	0	1625	0	0	1488	0	0	793	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		84.2			67.4			275.0			51.7	
Travel Time (s)		6.1			4.9			19.8			3.7	
Confl. Peds. (#/hr)	240		30	30		240	10		200	200		10
Confl. Bikes (#/hr)			5			20			5			
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 (%)	100%	1%	1%	1%	3%	100%	1%	1%	1%	100%	100%	100%
Adj. Flow (vph)	0	433	7	14	481	5	10	0	30	5	0	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	440	0	0	500	0	0	40	0	0	6	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			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	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 63.4%		ICU Level of Service B	
Analysis Period (min) 15			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	427	42	122	463	34	186
Future Volume (vph)	427	42	122	463	34	186
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.988				0.886	
Flt Protected				0.990	0.992	
Satd. Flow (prot)	1640	0	0	1646	1472	0
Flt Permitted				0.990	0.992	
Satd. Flow (perm)	1640	0	0	1646	1472	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	67.4			200.5	303.1	
Travel Time (s)	4.9			14.4	21.8	
Confl. Peds. (#/hr)		60	60			
Confl. Bikes (#/hr)		10				10
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	1%	1%	2%	1%	1%
Adj. Flow (vph)	427	42	122	463	34	186
Shared Lane Traffic (%)						
Lane Group Flow (vph)	469	0	0	585	220	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	4.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	5.0			5.0	5.0	
Two way Left Turn Lane						
Headway Factor	1.16	1.16	1.16	1.16	1.16	1.16
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 91.9%		ICU Level of Service F	
Analysis Period (min) 15			



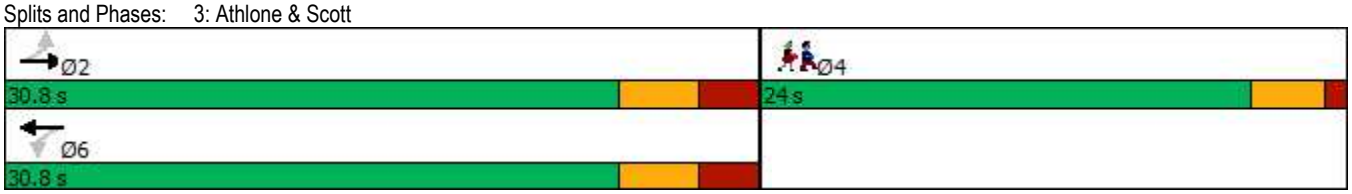
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	427	9	21	560	0	0	0	0	0	0	0
Future Volume (vph)	8	427	9	21	560	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00							
Frt		0.997										
Flt Protected		0.999			0.998							
Satd. Flow (prot)	0	1623	0	0	1656	0	0	0	0	0	0	0
Flt Permitted		0.991			0.980							
Satd. Flow (perm)	0	1608	0	0	1626	0	0	0	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2										
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		194.8			84.2			256.4			54.4	
Travel Time (s)		14.0			6.1			18.5			3.9	
Confl. Peds. (#/hr)	140		20	20		140	90		10	10		90
Confl. Bikes (#/hr)			5			25			5			
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 (%)	100%	2%	1%	1%	2%	100%	1%	100%	1%	100%	100%	100%
Adj. Flow (vph)	8	427	9	21	560	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	444	0	0	581	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		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	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2							
Detector Template	Left	Thru		Left	Thru							
Leading Detector (m)	6.1	30.5		6.1	30.5							
Trailing Detector (m)	0.0	0.0		0.0	0.0							
Detector 1 Position(m)	0.0	0.0		0.0	0.0							
Detector 1 Size(m)	6.1	1.8		6.1	1.8							
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex							
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0							
Detector 1 Queue (s)	0.0	0.0		0.0	0.0							
Detector 1 Delay (s)	0.0	0.0		0.0	0.0							
Detector 2 Position(m)		28.7			28.7							
Detector 2 Size(m)		1.8			1.8							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	Perm	NA		Perm	NA							
Protected Phases		2			6							
Permitted Phases	2			6								
Detector Phase	2	2		6	6							
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0							
Minimum Split (s)	15.8	15.8		15.8	15.8							

Lane Group	Ø4
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/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	4
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	20.0
Minimum Split (s)	24.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (s)	30.8	30.8		30.8	30.8							
Total Split (%)	56.2%	56.2%		56.2%	56.2%							
Maximum Green (s)	25.0	25.0		25.0	25.0							
Yellow Time (s)	3.3	3.3		3.3	3.3							
All-Red Time (s)	2.5	2.5		2.5	2.5							
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		5.8			5.8							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0							
Recall Mode	Max	Max		Max	Max							
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		44.8			44.8							
Actuated g/C Ratio		0.74			0.74							
v/c Ratio		0.37			0.48							
Control Delay		8.1			9.5							
Queue Delay		0.0			0.7							
Total Delay		8.1			10.2							
LOS		A			B							
Approach Delay		8.1			10.2							
Approach LOS		A			B							
Queue Length 50th (m)		28.2			41.9							
Queue Length 95th (m)		47.0			69.5							
Internal Link Dist (m)		170.8			60.2			232.4			30.4	
Turn Bay Length (m)												
Base Capacity (vph)		1196			1209							
Starvation Cap Reductn		0			310							
Spillback Cap Reductn		0			0							
Storage Cap Reductn		0			0							
Reduced v/c Ratio		0.37			0.65							

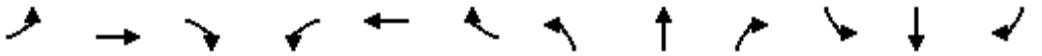
Intersection Summary			
Area Type:	CBD		
Cycle Length: 54.8			
Actuated Cycle Length: 60.2			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.48			
Intersection Signal Delay: 9.3		Intersection LOS: A	
Intersection Capacity Utilization 52.5%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 3: Athlone & Scott



Lane Group	Ø4
Total Split (s)	24.0
Total Split (%)	44%
Maximum Green (s)	20.0
Yellow Time (s)	3.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	100
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)	0	433	7	14	481	5	0	0	0	0	0	0
Future Volume (vph)	0	433	7	14	481	5	0	0	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00							
Frt		0.998			0.999							
Flt Protected					0.999							
Satd. Flow (prot)	0	1670	0	0	1620	0	0	0	0	0	0	0
Flt Permitted					0.986							
Satd. Flow (perm)	0	1670	0	0	1598	0	0	0	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			1							
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		84.2			67.4			275.0			51.7	
Travel Time (s)		6.1			4.9			19.8			3.7	
Confl. Peds. (#/hr)	240		30	30		240	10		200	200		10
Confl. Bikes (#/hr)			5			20			5			
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 (%)	100%	1%	1%	1%	3%	100%	1%	1%	1%	100%	100%	100%
Adj. Flow (vph)	0	433	7	14	481	5	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	440	0	0	500	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			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	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2							
Detector Template	Left	Thru		Left	Thru							
Leading Detector (m)	6.1	30.5		6.1	30.5							
Trailing Detector (m)	0.0	0.0		0.0	0.0							
Detector 1 Position(m)	0.0	0.0		0.0	0.0							
Detector 1 Size(m)	6.1	1.8		6.1	1.8							
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex							
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0							
Detector 1 Queue (s)	0.0	0.0		0.0	0.0							
Detector 1 Delay (s)	0.0	0.0		0.0	0.0							
Detector 2 Position(m)		28.7			28.7							
Detector 2 Size(m)		1.8			1.8							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA		Perm	NA							
Protected Phases		2			6							
Permitted Phases	2			6								
Detector Phase	2	2		6	6							
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0							
Minimum Split (s)	15.8	15.8		15.8	15.8							

Lane Group	Ø4
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/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	4
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	10.0
Minimum Split (s)	22.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (s)	28.0	28.0		28.0	28.0							
Total Split (%)	56.0%	56.0%		56.0%	56.0%							
Maximum Green (s)	22.2	22.2		22.2	22.2							
Yellow Time (s)	3.3	3.3		3.3	3.3							
All-Red Time (s)	2.5	2.5		2.5	2.5							
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		5.8			5.8							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0							
Recall Mode	Max	Max		Max	Max							
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		41.8			41.8							
Actuated g/C Ratio		0.74			0.74							
v/c Ratio		0.35			0.42							
Control Delay		7.4			8.3							
Queue Delay		0.4			0.0							
Total Delay		7.8			8.3							
LOS		A			A							
Approach Delay		7.8			8.3							
Approach LOS		A			A							
Queue Length 50th (m)		25.2			30.8							
Queue Length 95th (m)		42.4			52.3							
Internal Link Dist (m)		60.2			43.4			251.0			27.7	
Turn Bay Length (m)												
Base Capacity (vph)		1242			1188							
Starvation Cap Reductn		357			0							
Spillback Cap Reductn		0			0							
Storage Cap Reductn		0			0							
Reduced v/c Ratio		0.50			0.42							

Intersection Summary			
Area Type:	CBD		
Cycle Length: 50			
Actuated Cycle Length: 56.2			
Natural Cycle: 55			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.42			
Intersection Signal Delay: 8.0		Intersection LOS: A	
Intersection Capacity Utilization 48.2%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 4: Tweedsmuir & Scott

Lane Group	Ø4
Total Split (s)	22.0
Total Split (%)	44%
Maximum Green (s)	18.0
Yellow Time (s)	3.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	100
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

APPENDIX L

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)*	☐
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 M

MMLOS Analysis

Segment MMLOS Analysis

This section provides a review of the boundary streets Scott Street and Athlone Avenue, 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, based on the targets for roadways 'within 600m of a rapid transit station.'

Exhibit 4 of the *MMLOS Guidelines* has been used to evaluate the segment pedestrian level of service (PLOS) of the boundary streets. Exhibit 22 of the *MMLOS Guidelines* suggest a target PLOS A for all roadways within 600m of a rapid transit station. 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 the boundary streets. Exhibit 22 of the *MMLOS Guidelines* suggest a target BLOS A for Crosstown Bikeways within 600m of a rapid transit station (Scott Street), and a target BLOS D for all roadways with no cycling designation within 600m of a rapid transit station (Athlone Avenue). 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 Scott Street only, as transit service is not provided on Athlone Avenue. Exhibit 22 of the *MMLOS Guidelines* suggest a target TLOS A for Rapid Transit Corridors within 600m of a rapid transit station. 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 Scott Street only, as Athlone Avenue is not a truck route. Exhibit 22 of the *MMLOS Guidelines* suggest a target TkLOS D for Truck Routes within 600m of a rapid transit station. 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
Scott Street (north side, Winona Avenue to Athlone Avenue)					
≥ 2.0m	> 2.0m	> 3,000 vpd	No	60 km/h	**C**
Scott Street (south side, Winona Avenue to Athlone Avenue)					
1.8m	> 2.0m	> 3,000 vpd	Yes	60 km/h	**C**
Athlone Avenue (east side, Scott Street to Richmond Road)					
No sidewalk		≤ 3,000 vpd	Yes	60 km/h	**F**
Athlone Avenue (west side, Scott Street to Richmond Road)					
≥ 2.0m	0m	≤ 3,000 vpd	Yes	60 km/h	**C**

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	Lane Widths		Bike Lane Blockage	Operating Speed	BLOS
				Bike	Parking			
Scott Street (north side, Winona Avenue to Athlone Avenue)								
Arterial	Crosstown Bikeway	Bike Lane[1]	2	1.5m	-	Rare	60 km/h	**C**
Scott Street (south side, Winona Avenue to Athlone Avenue)								
Arterial	Crosstown Bikeway	Bike Lane[2]	2	1.5m	2.75m	Rare	60 km/h	**D**
Athlone Avenue (both sides, Scott Street to Richmond Road)								
Local	No Class	Mixed Traffic	2	-	-	-	60 km/h	**F**

1. Bike lane is adjacent to curb
2. Bike lane is not adjacent to curb

Table 3: TLOS Segment Analysis

Facility Type	Exposure to Congestion Delay, Friction, and Incidents			TLOS
	Congestion	Friction	Incident Potential	
Scott Street (Winona Avenue to Athlone Avenue)				
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
Scott Street (Winona Avenue to Athlone Avenue)		
3.5m to 3.7m	1	B

Intersection MMLOS Analysis

The following provides a review of the signalized intersections within the study area, using complete streets principles. All study area intersections are within 600m of a rapid transit station, and therefore those MMLOS targets have been used to evaluate each intersection. Scott Street/Churchill Avenue has been evaluated based on the future signal planned for that intersection. Scott Street/Athlone Avenue and Scott Street/Tweedsmuir Avenue have been evaluated based on existing conditions.

Exhibit 5 of the Addendum to the *MMLOS Guidelines* has been used to evaluate the existing PLOS of the study area intersections. Exhibit 22 of the *MMLOS Guidelines* suggests a target PLOS A for all roadways within 600m of a rapid transit station. The future signal at Scott Street/Churchill Avenue has not been evaluated for delay score. The results of the intersection PLOS analysis are summarized in **Table 5** through **Table 7**.

Exhibit 12 of the *MMLOS Guidelines* has been used to evaluate the existing BLOS of the study area intersections. Exhibit 22 of the *MMLOS Guidelines* suggests a target BLOS A for Crosstown Bikeways within 600m of a rapid transit station (Scott Street, Churchill Avenue), and a target BLOS D for all roadways with no cycling route designation within 600m of a rapid transit station (Athlone Avenue, Tweedsmuir Avenue). 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 of the study area intersections. Exhibit 22 of the *MMLOS Guidelines* suggests a target TLOS A for Rapid Transit Corridors within 600m of a rapid transit station (east approach of Scott Street, south approach of Churchill Avenue), and does not identify a target TLOS for roadways without a Rapid Transit or Transit Priority designation (west approach of Scott Street, north approach of Churchill Avenue, Athlone Avenue, Tweedsmuir Avenue). 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 of the study area intersections. Exhibit 22 of the *MMLOS Guidelines* identifies a target TkLOS D for arterial truck routes within 600m of a rapid transit station (east approach of Scott Street, south approach of Churchill Avenue). No target is identified for local roadways with no truck route designations within 600m of a rapid transit station (Athlone Avenue, Tweedsmuir Avenue). Therefore, only the intersection of Scott Street/Churchill Avenue has been evaluated for TkLOS. The results of the intersection TkLOS analysis are summarized in **Table 11**.

Table 5: PLOS Intersection Analysis – Scott Street/Churchill Avenue

CRITERIA	North Approach		South Approach		East Approach		West Approach	
PETSI SCORE								
CROSSING DISTANCE CONDITIONS								
Median > 2.4m in Width	No	105	No	105	No	105	No	105
Lanes Crossed (3.5m Lane Width)	3		3		3		3	
SIGNAL PHASING AND TIMING								
Left Turn Conflict	No Left Turn/Prohibited	0	Perm + Prot	-8	Permissive	-8	Permissive	-8
Right Turn Conflict	Permissive or Yield	-5	Permissive or Yield	-5	Protected	0	Permissive or Yield	-5
Right Turn on Red	RTOR Allowed	-3	RTOR Allowed	-3	RTOR Prohibited	0	RTOR Allowed	-3
Leading Pedestrian Interval	No	-2	No	-2	No	-2	No	-2
CORNER RADIUS								
Parallel Radius	> 5m to 10m	-5	> 5m to 10m	-5	> 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	Zebra Stripe	-4	Zebra Stripe	-4	Zebra Stripe	-4	Zebra Stripe	-4
PETSI SCORE		**82**		**74**		**81**		**74**
LOS		**B**		**C**		**B**		**C**

Table 6: PLOS Intersection Analysis – Scott Street/Athlone Avenue

CRITERIA	North Approach		South Approach		East Approach		West Approach	
PETSI SCORE								
CROSSING DISTANCE CONDITIONS								
Median > 2.4m in Width	No	88	No	72	N/A	0	No	72
Lanes Crossed (3.5m Lane Width)	4		5		N/A		5	
SIGNAL PHASING AND TIMING								
Left Turn Conflict	Permissive	-8	Permissive	-8	N/A	0	Permissive	-8
Right Turn Conflict	Permissive or Yield	-5	Permissive or Yield	-5	N/A	0	No Right Turn/Prohibited	0
Right Turn on Red	N/A	0	RTOR Allowed	-3	N/A	0	RTOR Prohibited	0
Leading Pedestrian Interval	No	-2	No	-2	N/A	0	No	-2
CORNER RADIUS								
Parallel Radius	> 10m to 15m	-6	> 5m to 10m	-5	N/A	0	No Right Turn	0
Parallel Right Turn Channel	No Right Turn Channel	-4	No Right Turn Channel	-4	N/A	0	No Right Turn	0
Perpendicular Radius	N/A	0	N/A	0	N/A	0	N/A	0
Perpendicular Right Turn Channel	N/A	0	N/A	0	N/A	0	N/A	0
CROSSING TREATMENT								
Treatment	Standard	-7	Standard	-7	N/A	0	Standard	-7
PETSI SCORE		**56**		**38**		**-**		**55**
LOS		**D**		**E**		**-**		**D**
DELAY SCORE								
Cycle Length		0		0		0		54.8
Pedestrian Walk Time		0.0		0.0		0.0		9.0
DELAY SCORE		**-**		**-**		**-**		**19.1**
LOS		**-**		**-**		**-**		**B**
OVERALL		**D**		**E**		**-**		**D**

Table 7: PLOS Intersection Analysis – Scott Street/Tweedsmuir Avenue

CRITERIA	North Approach		South Approach		East Approach		West Approach	
PETSI SCORE								
CROSSING DISTANCE CONDITIONS								
Median > 2.4m in Width	No	105	No	72	No	88	N/A	0
Lanes Crossed (3.5m Lane Width)	3		5		4		N/A	
SIGNAL PHASING AND TIMING								
Left Turn Conflict	No Left Turn/Prohibited	0	Permissive	-8	Permissive	-8	N/A	0
Right Turn Conflict	No Right Turn/Prohibited	0	Permissive or Yield	-5	Permissive or Yield	-5	N/A	0
Right Turn on Red	N/A	0	RTOR Allowed	-3	RTOR Prohibited	0	N/A	0
Leading Pedestrian Interval	No	-2	No	-2	No	-2	N/A	0
CORNER RADIUS								
Parallel Radius	No Right Turn	0	> 5m to 10m	-5	> 5m to 10m	-5	N/A	0
Parallel Right Turn Channel	No Right Turn	0	No Right Turn Channel	-4	No Right Turn Channel	-4	N/A	0
Perpendicular Radius	N/A	0	N/A	0	N/A	0	N/A	0
Perpendicular Right Turn Channel	N/A	0	N/A	0	N/A	0	N/A	0
CROSSING TREATMENT								
Treatment	Standard	-7	Standard	-7	Standard	-7	N/A	0
PETSI SCORE		**96**		**38**		**57**		**-**
LOS		**A**		**E**		**D**		**-**
DELAY SCORE								
Cycle Length		0		0		50		0
Pedestrian Walk Time		0.0		0.0		7.0		0.0
DELAY SCORE		**-**		**-**		**18.5**		**-**
LOS		**-**		**-**		**B**		**-**
OVERALL		**A**		**E**		**D**		**-**

Table 8: BLOS Intersection Analysis

Approach	Facility Type	Criteria	Travel Lanes and/or Speed	BLOS
Scott Street/Churchill Avenue				
North Approach	Cycle Track	Right Turn Lane Characteristics	Protected intersection	A
		Left Turn Accommodation		
South Approach	Cycle Track	Right Turn Lane Characteristics	Protected intersection	A
		Left Turn Accommodation		
East Approach	Cycle Track	Right Turn Lane Characteristics	Protected intersection	A
		Left Turn Accommodation		
West Approach	Cycle Track	Right Turn Lane Characteristics	Protected intersection	A
		Left Turn Accommodation		
Scott Street/Athlone Avenue				
North Approach	N/A	Right Turn Lane Characteristics	Cyclists prohibited; transit approach only	-
		Left Turn Accommodation		
South Approach	Mixed Traffic	Right Turn Lane Characteristics	Shared left turn/through/right turn lane	A
		Left Turn Accommodation	No lanes crossed; ≥ 60 km/h	**D**
East Approach	Curbside Bike Lane	Right Turn Lane Characteristics	Cyclists prohibited; transit only	-
		Left Turn Accommodation	No lanes crossed; ≥ 60 km/h	**D**
West Approach	Curbside Bike Lane	Right Turn Lane Characteristics	Shared through/right turn lane	A
		Left Turn Accommodation	Cyclists prohibited; transit only	-
Scott Street/Tweedsmuir Avenue				
North Approach	N/A	Right Turn Lane Characteristics	Cyclists prohibited; transit approach only	-
		Left Turn Accommodation		
South Approach	Mixed Traffic	Right Turn Lane Characteristics	Shared left turn/through/right turn lane	A
		Left Turn Accommodation	No lanes crossed; ≥ 60 km/h	**D**
East Approach	Curbside Bike Lane	Right Turn Lane Characteristics	Cyclists prohibited; transit only	-
		Left Turn Accommodation	No lanes crossed; ≥ 60 km/h	**D**
West Approach	Curbside Bike Lane	Right Turn Lane Characteristics	Shared through/right turn lane	A
		Left Turn Accommodation	Cyclists prohibited; transit only	-

Table 9: TLOS Intersection Analysis

Approach	Delay[1]		TLOS
	AM Peak	PM Peak	
Scott Street/Churchill Avenue			
North Approach	17 sec	19 sec	**C**
South Approach	27 sec	23 sec	**D**
East Approach	24 sec	19 sec	**D**
Scott Street/Athlone Avenue			
East Approach	7 sec	9 sec	**B**
West Approach	8 sec	8 sec	**B**
Scott Street/Tweedsmuir Avenue			
East Approach	6 sec	8 sec	**B**
West Approach	8 sec	7 sec	**B**

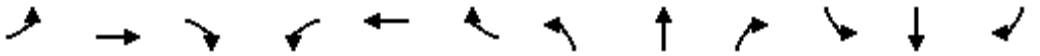
1. Delay based on outputs from Synchro analysis of 2031 total conditions

Table 10: TkLOS Intersection Analysis

Approach	Effective Corner Radius	Number of Receiving Lanes Departing Intersection	TkLOS
Scott Street/Churchill Avenue			
North Approach	< 10m	1	**F**
South Approach	10m to 15m	1	**E**
East Approach	< 10m	1	**F**
West Approach	< 10m	1	**F**

APPENDIX N

Total Synchro Analysis



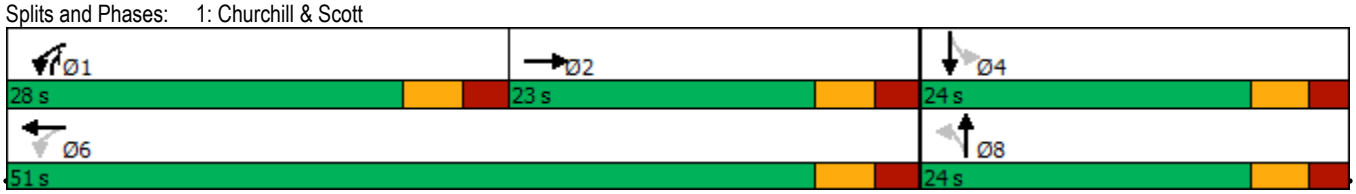
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	10	13	240	3	16	13	98	379	55	199	2
Future Volume (vph)	0	10	13	240	3	16	13	98	379	55	199	2
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		40.0	0.0		0.0
Storage Lanes	0		0	1		0	0		1	0		0
Taper Length (m)	10.0			30.0			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		0.94		0.96	0.90			0.99			0.99	
Frt		0.924			0.874				0.850		0.999	
Flt Protected				0.950				0.994			0.989	
Satd. Flow (prot)	0	1369	0	1461	1181	0	0	1624	1383	0	1630	0
Flt Permitted				0.507				0.954			0.901	
Satd. Flow (perm)	0	1369	0	752	1181	0	0	1549	1383	0	1474	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		77.3			83.9			315.3			273.6	
Travel Time (s)		5.6			6.0			22.7			19.7	
Confl. Peds. (#/hr)	40		20	20		40	40		20	20		40
Confl. Bikes (#/hr)			30			20			30			20
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%	15%	1%	10%	1%	15%	8%	3%	4%	4%	2%	1%
Adj. Flow (vph)	0	10	13	240	3	16	13	98	379	55	199	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	23	0	240	19	0	0	111	379	0	256	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	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors		2		1	2		1	2	1	1	2	
Detector Template		Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)		30.5		6.1	30.5		6.1	30.5	6.1	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)		1.8		6.1	1.8		6.1	1.8	6.1	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		NA		pm+pt	NA		Perm	NA	Over	Perm	NA	
Protected Phases		2		1	6			8	1		4	
Permitted Phases				6			8			4		
Detector Phase		2		1	6		8	8	1	4	4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)		10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)		22.9		15.9	22.9		23.6	23.6	15.9	21.6	21.6	
Total Split (s)		23.0		28.0	51.0		24.0	24.0	28.0	24.0	24.0	
Total Split (%)		30.7%		37.3%	68.0%		32.0%	32.0%	37.3%	32.0%	32.0%	
Maximum Green (s)		17.1		22.1	45.1		18.4	18.4	22.1	18.4	18.4	
Yellow Time (s)		3.3		3.3	3.3		3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)		2.6		2.6	2.6		2.3	2.3	2.6	2.3	2.3	
Lost Time Adjust (s)		0.0		0.0	0.0			0.0	0.0		0.0	
Total Lost Time (s)		5.9		5.9	5.9			5.6	5.9		5.6	
Lead/Lag		Lag		Lead					Lead			
Lead-Lag Optimize?		Yes		Yes					Yes			
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode		Min		Min	Min		Min	Min	Min	Min	Min	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		10.0			10.0		11.0	11.0		9.0	9.0	
Pedestrian Calls (#/hr)		40			40		40	40		40	40	
Act Effct Green (s)		12.6		39.9	39.9			15.4	21.3		15.4	
Actuated g/C Ratio		0.19		0.60	0.60			0.23	0.32		0.23	
v/c Ratio		0.09		0.36	0.03			0.31	0.86		0.76	
Control Delay		24.2		8.6	6.3			25.0	45.3		40.7	
Queue Delay		0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay		24.2		8.6	6.3			25.0	45.3		40.7	
LOS		C		A	A			C	D		D	
Approach Delay		24.2			8.5			40.7			40.7	
Approach LOS		C			A			D			D	
Queue Length 50th (m)		2.3		12.5	0.8			10.1	39.0		26.2	
Queue Length 95th (m)		7.5		23.5	3.1			23.6	#93.0		#58.8	
Internal Link Dist (m)		53.3			59.9			291.3			249.6	
Turn Bay Length (m)									40.0			
Base Capacity (vph)		354		685	805			431	462		410	
Starvation Cap Reductn		0		0	0			0	0		0	
Spillback Cap Reductn		0		0	0			0	0		0	
Storage Cap Reductn		0		0	0			0	0		0	
Reduced v/c Ratio		0.06		0.35	0.02			0.26	0.82		0.62	

Intersection Summary

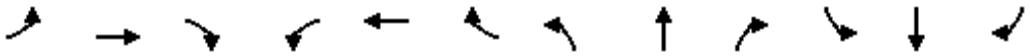
Area Type: CBD
Cycle Length: 75
Actuated Cycle Length: 67
Natural Cycle: 75
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 32.2 Intersection LOS: C
Intersection Capacity Utilization 71.1% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Churchill & Scott



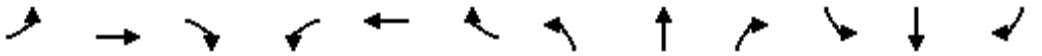
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	428	20	21	239	15	45
Future Volume (vph)	428	20	21	239	15	45
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0	10.0		0.0	0.0
Storage Lanes		0	1		1	0
Taper Length (m)			30.0		10.0	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt	0.994				0.899	
Flt Protected				0.996	0.988	
Satd. Flow (prot)	1614	0	0	2919	1488	0
Flt Permitted				0.996	0.988	
Satd. Flow (perm)	1614	0	0	2919	1488	0
Link Speed (k/h)	50			50	40	
Link Distance (m)	83.9			86.1	233.8	
Travel Time (s)	6.0			6.2	21.0	
Confl. Peds. (#/hr)		10	10			
Confl. Bikes (#/hr)		30				5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	4%	8%	6%	10%	1%	1%
Adj. Flow (vph)	428	20	21	239	15	45
Shared Lane Traffic (%)						
Lane Group Flow (vph)	448	0	0	260	60	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	4.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	5.0			5.0	5.0	
Two way Left Turn Lane						
Headway Factor	1.16	1.16	1.16	1.16	1.16	1.16
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 38.8%		ICU Level of Service A	
Analysis Period (min) 15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	525	7	22	267	6	3	0	28	0	0	0
Future Volume (vph)	11	525	7	22	267	6	3	0	28	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.998			0.997			0.878				
Flt Protected		0.999			0.996			0.995				
Satd. Flow (prot)	0	1619	0	0	1549	0	0	1464	0	0	846	0
Flt Permitted		0.999			0.996			0.995				
Satd. Flow (perm)	0	1619	0	0	1549	0	0	1464	0	0	846	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		108.8			84.2			62.0			54.4	
Travel Time (s)		7.8			6.1			4.5			3.9	
Confl. Peds. (#/hr)	120		20	20		120	70		20	20		70
Confl. Bikes (#/hr)			15			10			5			
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 (%)	100%	2%	20%	1%	7%	100%	1%	100%	1%	100%	100%	100%
Adj. Flow (vph)	11	525	7	22	267	6	3	0	28	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	543	0	0	295	0	0	31	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			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	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 55.2%		ICU Level of Service B	
Analysis Period (min) 15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	532	3	10	269	5	3	0	34	6	0	0
Future Volume (vph)	0	532	3	10	269	5	3	0	34	6	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.999			0.998			0.876				
Flt Protected					0.998			0.996			0.950	
Satd. Flow (prot)	0	1641	0	0	1568	0	0	1462	0	0	804	0
Flt Permitted					0.998			0.996			0.950	
Satd. Flow (perm)	0	1641	0	0	1568	0	0	1462	0	0	804	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		84.2			67.4			275.0			51.7	
Travel Time (s)		6.1			4.9			19.8			3.7	
Confl. Peds. (#/hr)	160		20	20		160	10		130	130		10
Confl. Bikes (#/hr)			10			5						
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 (%)	100%	3%	1%	1%	6%	100%	1%	1%	1%	100%	100%	100%
Adj. Flow (vph)	0	532	3	10	269	5	3	0	34	6	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	535	0	0	284	0	0	37	0	0	6	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			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	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

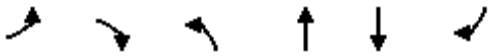
Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 53.0%		ICU Level of Service A	
Analysis Period (min) 15			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	539	33	108	271	14	102
Future Volume (vph)	539	33	108	271	14	102
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.992				0.881	
Flt Protected				0.986	0.994	
Satd. Flow (prot)	1631	0	0	1606	1467	0
Flt Permitted				0.986	0.994	
Satd. Flow (perm)	1631	0	0	1606	1467	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	67.4			200.5	303.1	
Travel Time (s)	4.9			14.4	21.8	
Confl. Peds. (#/hr)		60	60			
Confl. Bikes (#/hr)		10				5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	1%	1%	5%	1%	1%
Adj. Flow (vph)	539	33	108	271	14	102
Shared Lane Traffic (%)						
Lane Group Flow (vph)	572	0	0	379	116	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	4.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	5.0			5.0	5.0	
Two way Left Turn Lane						
Headway Factor	1.16	1.16	1.16	1.16	1.16	1.16
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 77.9%		ICU Level of Service D	
Analysis Period (min) 15			

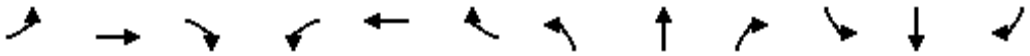
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	530	3	6	278	7	13
Future Volume (vph)	530	3	6	278	7	13
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.999				0.912	
Flt Protected				0.999	0.983	
Satd. Flow (prot)	1626	0	0	1539	1502	0
Flt Permitted				0.999	0.983	
Satd. Flow (perm)	1626	0	0	1539	1502	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	86.1			108.8	89.0	
Travel Time (s)	6.2			7.8	6.4	
Confl. Peds. (#/hr)		20	20			
Confl. Bikes (#/hr)		30				5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	4%	1%	1%	10%	1%	1%
Adj. Flow (vph)	530	3	6	278	7	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	533	0	0	284	20	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	1.16	1.16	1.16	1.16	1.16	1.16
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization	42.9%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	2	1	31	31	0
Future Volume (vph)	0	2	1	31	31	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.865				
Flt Protected				0.998		
Satd. Flow (prot)	0	1449	0	1656	1659	0
Flt Permitted				0.998		
Satd. Flow (perm)	0	1449	0	1656	1659	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	66.2			194.5	62.0	
Travel Time (s)	4.8			14.0	4.5	
Confl. Peds. (#/hr)			20			20
Confl. Bikes (#/hr)		5				5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	1%	1%	2%	2%	1%
Adj. Flow (vph)	0	2	1	31	31	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	2	0	32	31	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	5.0			5.0	5.0	
Two way Left Turn Lane						
Headway Factor	1.16	1.16	1.16	1.16	1.16	1.16
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 18.2%		ICU Level of Service A	
Analysis Period (min) 15			



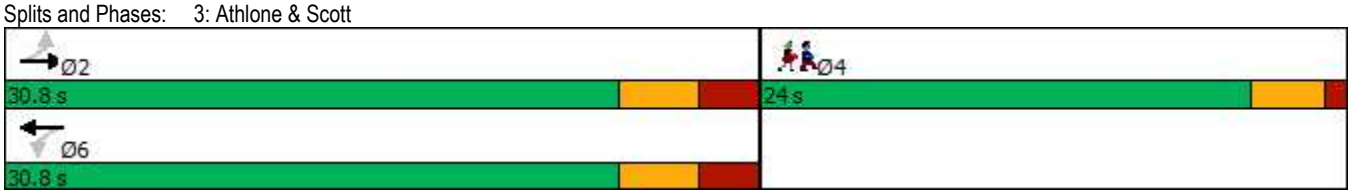
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	525	7	22	267	6	0	0	0	0	0	0
Future Volume (vph)	11	525	7	22	267	6	0	0	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00							
Frt		0.998			0.997							
Flt Protected		0.999			0.996							
Satd. Flow (prot)	0	1618	0	0	1544	0	0	0	0	0	0	0
Flt Permitted		0.993			0.952							
Satd. Flow (perm)	0	1605	0	0	1475	0	0	0	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			3							
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		108.8			84.2			62.0			54.4	
Travel Time (s)		7.8			6.1			4.5			3.9	
Confl. Peds. (#/hr)	120		20	20		120	70		20	20		70
Confl. Bikes (#/hr)			15			10			5			
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 (%)	100%	2%	20%	1%	7%	100%	1%	100%	1%	100%	100%	100%
Adj. Flow (vph)	11	525	7	22	267	6	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	543	0	0	295	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			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	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2							
Detector Template	Left	Thru		Left	Thru							
Leading Detector (m)	6.1	30.5		6.1	30.5							
Trailing Detector (m)	0.0	0.0		0.0	0.0							
Detector 1 Position(m)	0.0	0.0		0.0	0.0							
Detector 1 Size(m)	6.1	1.8		6.1	1.8							
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex							
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0							
Detector 1 Queue (s)	0.0	0.0		0.0	0.0							
Detector 1 Delay (s)	0.0	0.0		0.0	0.0							
Detector 2 Position(m)		28.7			28.7							
Detector 2 Size(m)		1.8			1.8							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	Perm	NA		Perm	NA							
Protected Phases		2			6							
Permitted Phases	2			6								
Detector Phase	2	2		6	6							
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0							
Minimum Split (s)	15.8	15.8		15.8	15.8							

Lane Group	Ø4
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/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	4
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	20.0
Minimum Split (s)	24.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (s)	30.8	30.8		30.8	30.8							
Total Split (%)	56.2%	56.2%		56.2%	56.2%							
Maximum Green (s)	25.0	25.0		25.0	25.0							
Yellow Time (s)	3.3	3.3		3.3	3.3							
All-Red Time (s)	2.5	2.5		2.5	2.5							
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		5.8			5.8							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0							
Recall Mode	Max	Max		Max	Max							
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		44.8			44.8							
Actuated g/C Ratio		0.74			0.74							
v/c Ratio		0.45			0.27							
Control Delay		9.1			7.2							
Queue Delay		0.0			0.3							
Total Delay		9.1			7.5							
LOS		A			A							
Approach Delay		9.1			7.5							
Approach LOS		A			A							
Queue Length 50th (m)		37.9			16.8							
Queue Length 95th (m)		62.8			29.6							
Internal Link Dist (m)		84.8			60.2			38.0			30.4	
Turn Bay Length (m)												
Base Capacity (vph)		1194			1098							
Starvation Cap Reductn		0			331							
Spillback Cap Reductn		0			0							
Storage Cap Reductn		0			0							
Reduced v/c Ratio		0.45			0.38							

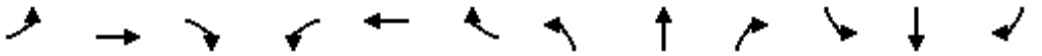
Intersection Summary			
Area Type:	CBD		
Cycle Length: 54.8			
Actuated Cycle Length: 60.2			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.45			
Intersection Signal Delay: 8.6		Intersection LOS: A	
Intersection Capacity Utilization 41.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 3: Athlone & Scott



Lane Group	Ø4
Total Split (s)	24.0
Total Split (%)	44%
Maximum Green (s)	20.0
Yellow Time (s)	3.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	100
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)	0	532	3	10	269	5	0	0	0	0	0	0
Future Volume (vph)	0	532	3	10	269	5	0	0	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00							
Frt		0.999			0.998							
Flt Protected					0.998							
Satd. Flow (prot)	0	1641	0	0	1562	0	0	0	0	0	0	0
Flt Permitted					0.982							
Satd. Flow (perm)	0	1641	0	0	1537	0	0	0	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			2							
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		84.2			67.4			275.0			51.7	
Travel Time (s)		6.1			4.9			19.8			3.7	
Confl. Peds. (#/hr)	160		20	20		160	10		130	130		10
Confl. Bikes (#/hr)			10			5						
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 (%)	100%	3%	1%	1%	6%	100%	1%	1%	1%	100%	100%	100%
Adj. Flow (vph)	0	532	3	10	269	5	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	535	0	0	284	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			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	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2							
Detector Template	Left	Thru		Left	Thru							
Leading Detector (m)	6.1	30.5		6.1	30.5							
Trailing Detector (m)	0.0	0.0		0.0	0.0							
Detector 1 Position(m)	0.0	0.0		0.0	0.0							
Detector 1 Size(m)	6.1	1.8		6.1	1.8							
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex							
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0							
Detector 1 Queue (s)	0.0	0.0		0.0	0.0							
Detector 1 Delay (s)	0.0	0.0		0.0	0.0							
Detector 2 Position(m)		28.7			28.7							
Detector 2 Size(m)		1.8			1.8							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA		Perm	NA							
Protected Phases		2			6							
Permitted Phases	2			6								
Detector Phase	2	2		6	6							
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0							
Minimum Split (s)	15.8	15.8		15.8	15.8							

Lane Group	Ø4
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/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	4
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	10.0
Minimum Split (s)	22.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (s)	28.0	28.0		28.0	28.0							
Total Split (%)	56.0%	56.0%		56.0%	56.0%							
Maximum Green (s)	22.2	22.2		22.2	22.2							
Yellow Time (s)	3.3	3.3		3.3	3.3							
All-Red Time (s)	2.5	2.5		2.5	2.5							
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		5.8			5.8							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0							
Recall Mode	Max	Max		Max	Max							
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		41.8			41.8							
Actuated g/C Ratio		0.74			0.74							
v/c Ratio		0.44			0.25							
Control Delay		8.4			6.7							
Queue Delay		0.5			0.0							
Total Delay		8.9			6.7							
LOS		A			A							
Approach Delay		8.9			6.7							
Approach LOS		A			A							
Queue Length 50th (m)		33.6			14.7							
Queue Length 95th (m)		56.6			26.1							
Internal Link Dist (m)		60.2			43.4			251.0			27.7	
Turn Bay Length (m)												
Base Capacity (vph)		1220			1143							
Starvation Cap Reductn		311			0							
Spillback Cap Reductn		0			0							
Storage Cap Reductn		0			0							
Reduced v/c Ratio		0.59			0.25							

Intersection Summary			
Area Type:	CBD		
Cycle Length: 50			
Actuated Cycle Length: 56.2			
Natural Cycle: 55			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.44			
Intersection Signal Delay: 8.2		Intersection LOS: A	
Intersection Capacity Utilization 37.9%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 4: Tweedsmuir & Scott

Lane Group	Ø4
Total Split (s)	22.0
Total Split (%)	44%
Maximum Green (s)	18.0
Yellow Time (s)	3.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	100
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	

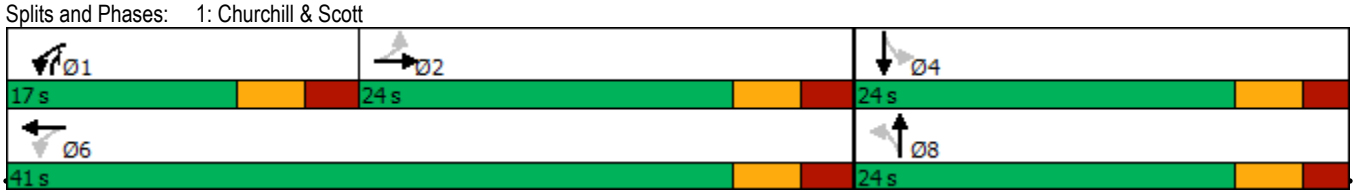
Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	7	11	314	8	42	18	149	241	37	118	3
Future Volume (vph)	1	7	11	314	8	42	18	149	241	37	118	3
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		40.0	0.0		0.0
Storage Lanes	0		0	1		0	0		1	0		0
Taper Length (m)	10.0			10.0			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		0.95		0.97	0.87			0.99			0.99	
Frt		0.922			0.874				0.850		0.997	
Flt Protected		0.997		0.950				0.995			0.988	
Satd. Flow (prot)	0	1472	0	1576	1192	0	0	1660	1410	0	1620	0
Flt Permitted		0.988		0.622				0.953			0.885	
Satd. Flow (perm)	0	1451	0	1000	1192	0	0	1579	1410	0	1441	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		77.3			83.9			315.3			273.6	
Travel Time (s)		5.6			6.0			22.7			19.7	
Confl. Peds. (#/hr)	50		20	20		50	40		20	20		40
Confl. Bikes (#/hr)			15			70			25			30
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	1%	1%	2%	1%	9%	5%	1%	2%	8%	1%	1%
Adj. Flow (vph)	1	7	11	314	8	42	18	149	241	37	118	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	19	0	314	50	0	0	167	241	0	158	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	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)	6.1	30.5		6.1	30.5		6.1	30.5	6.1	6.1	30.5	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	6.1	1.8		6.1	1.8		6.1	1.8	6.1	6.1	1.8	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		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		pm+pt	NA		Perm	NA	Over	Perm	NA	
Protected Phases		2		1	6			8	1		4	
Permitted Phases	2			6			8			4		
Detector Phase	2	2		1	6		8	8	1	4	4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)	22.9	22.9		15.9	22.9		23.6	23.6	15.9	21.6	21.6	
Total Split (s)	24.0	24.0		17.0	41.0		24.0	24.0	17.0	24.0	24.0	
Total Split (%)	36.9%	36.9%		26.2%	63.1%		36.9%	36.9%	26.2%	36.9%	36.9%	
Maximum Green (s)	18.1	18.1		11.1	35.1		18.4	18.4	11.1	18.4	18.4	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)	2.6	2.6		2.6	2.6		2.3	2.3	2.6	2.3	2.3	
Lost Time Adjust (s)		0.0		0.0	0.0			0.0	0.0		0.0	
Total Lost Time (s)		5.9		5.9	5.9			5.6	5.9		5.6	
Lead/Lag	Lag	Lag		Lead					Lead			
Lead-Lag Optimize?	Yes	Yes		Yes					Yes			
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	Min	Min		Min	Min		Min	Min	Min	Min	Min	
Walk Time (s)	7.0	7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	10.0	10.0			10.0		11.0	11.0		9.0	9.0	
Pedestrian Calls (#/hr)	40	40			40		40	40		40	40	
Act Effct Green (s)		12.6		29.9	29.9			13.0	11.3		13.0	
Actuated g/C Ratio		0.23		0.55	0.55			0.24	0.21		0.24	
v/c Ratio		0.06		0.47	0.08			0.44	0.83		0.46	
Control Delay		17.6		10.3	7.1			22.2	51.0		23.0	
Queue Delay		0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay		17.6		10.3	7.1			22.2	51.0		23.0	
LOS		B		B	A			C	D		C	
Approach Delay		17.6			9.9			39.2			23.0	
Approach LOS		B			A			D			C	
Queue Length 50th (m)		1.2		12.1	1.6			11.8	18.0		11.2	
Queue Length 95th (m)		5.5		31.6	6.3			27.8	#61.8		27.1	
Internal Link Dist (m)		53.3			59.9			291.3			249.6	
Turn Bay Length (m)									40.0			
Base Capacity (vph)		489		666	779			541	291		494	
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		0.47	0.06			0.31	0.83		0.32	

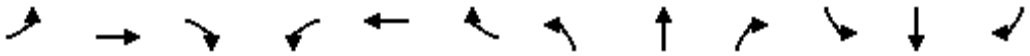
Intersection Summary			
Area Type:	CBD		
Cycle Length: 65			
Actuated Cycle Length: 54.6			
Natural Cycle: 65			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.83			
Intersection Signal Delay: 24.8		Intersection LOS: C	
Intersection Capacity Utilization 66.4%		ICU Level of Service C	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 1: Churchill & Scott



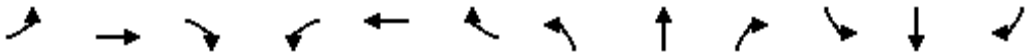
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	357	16	49	446	10	46
Future Volume (vph)	357	16	49	446	10	46
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0	10.0		0.0	0.0
Storage Lanes		0	1		1	0
Taper Length (m)			30.0		10.0	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt	0.994				0.889	
Flt Protected				0.995	0.991	
Satd. Flow (prot)	1634	0	0	3112	1476	0
Flt Permitted				0.995	0.991	
Satd. Flow (perm)	1634	0	0	3112	1476	0
Link Speed (k/h)	50			50	40	
Link Distance (m)	83.9			86.1	233.8	
Travel Time (s)	6.0			6.2	21.0	
Confl. Peds. (#/hr)		20	20			
Confl. Bikes (#/hr)		10				5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	1%	1%	3%	1%	1%
Adj. Flow (vph)	357	16	49	446	10	46
Shared Lane Traffic (%)						
Lane Group Flow (vph)	373	0	0	495	56	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	4.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	5.0			5.0	5.0	
Two way Left Turn Lane						
Headway Factor	1.16	1.16	1.16	1.16	1.16	1.16
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 53.4%		ICU Level of Service A	
Analysis Period (min) 15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	420	8	20	553	0	1	0	38	0	0	0
Future Volume (vph)	8	420	8	20	553	0	1	0	38	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.998						0.868				
Flt Protected		0.999			0.998			0.999				
Satd. Flow (prot)	0	1625	0	0	1656	0	0	1453	0	0	846	0
Flt Permitted		0.999			0.998			0.999				
Satd. Flow (perm)	0	1625	0	0	1656	0	0	1453	0	0	846	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		108.8			84.2			62.0			54.4	
Travel Time (s)		7.8			6.1			4.5			3.9	
Confl. Peds. (#/hr)	140		20	20		140	90		10	10		90
Confl. Bikes (#/hr)			5			25			5			
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 (%)	100%	2%	1%	1%	2%	100%	1%	100%	1%	100%	100%	100%
Adj. Flow (vph)	8	420	8	20	553	0	1	0	38	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	436	0	0	573	0	0	39	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			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	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 66.0%		ICU Level of Service C	
Analysis Period (min) 15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	425	7	14	473	5	10	0	30	5	0	1
Future Volume (vph)	0	425	7	14	473	5	10	0	30	5	0	1
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.998			0.999			0.899			0.977	
Flt Protected					0.999			0.988			0.960	
Satd. Flow (prot)	0	1672	0	0	1625	0	0	1488	0	0	793	0
Flt Permitted					0.999			0.988			0.960	
Satd. Flow (perm)	0	1672	0	0	1625	0	0	1488	0	0	793	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		84.2			67.4			275.0			51.7	
Travel Time (s)		6.1			4.9			19.8			3.7	
Confl. Peds. (#/hr)	240		30	30		240	10		200	200		10
Confl. Bikes (#/hr)			5			20			5			
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 (%)	100%	1%	1%	1%	3%	100%	1%	1%	1%	100%	100%	100%
Adj. Flow (vph)	0	425	7	14	473	5	10	0	30	5	0	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	432	0	0	492	0	0	40	0	0	6	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			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	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

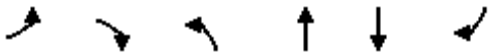
Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 62.9%		ICU Level of Service B	
Analysis Period (min) 15			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	420	41	122	456	33	186
Future Volume (vph)	420	41	122	456	33	186
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.988				0.885	
Flt Protected				0.990	0.993	
Satd. Flow (prot)	1640	0	0	1646	1472	0
Flt Permitted				0.990	0.993	
Satd. Flow (perm)	1640	0	0	1646	1472	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	67.4			200.5	303.1	
Travel Time (s)	4.9			14.4	21.8	
Confl. Peds. (#/hr)		60	60			
Confl. Bikes (#/hr)		10				10
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	1%	1%	2%	1%	1%
Adj. Flow (vph)	420	41	122	456	33	186
Shared Lane Traffic (%)						
Lane Group Flow (vph)	461	0	0	578	219	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	4.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	5.0			5.0	5.0	
Two way Left Turn Lane						
Headway Factor	1.16	1.16	1.16	1.16	1.16	1.16
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 90.9%		ICU Level of Service E	
Analysis Period (min) 15			

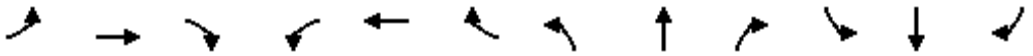
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	441	6	11	557	4	9
Future Volume (vph)	441	6	11	557	4	9
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.998				0.907	
Flt Protected				0.999	0.985	
Satd. Flow (prot)	1640	0	0	1642	1497	0
Flt Permitted				0.999	0.985	
Satd. Flow (perm)	1640	0	0	1642	1497	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	86.1			108.8	89.0	
Travel Time (s)	6.2			7.8	6.4	
Confl. Peds. (#/hr)		20	20			
Confl. Bikes (#/hr)		10				5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	1%	1%	3%	1%	1%
Adj. Flow (vph)	441	6	11	557	4	9
Shared Lane Traffic (%)						
Lane Group Flow (vph)	447	0	0	568	13	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	1.16	1.16	1.16	1.16	1.16	1.16
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 54.7%		ICU Level of Service A	
Analysis Period (min) 15			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	1	2	42	30	0
Future Volume (vph)	0	1	2	42	30	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.865					
Flt Protected				0.998		
Satd. Flow (prot)	1449	0	0	1672	1675	0
Flt Permitted				0.998		
Satd. Flow (perm)	1449	0	0	1672	1675	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	88.7			189.7	62.0	
Travel Time (s)	6.4			13.7	4.5	
Confl. Peds. (#/hr)			20			20
Confl. Bikes (#/hr)		5				5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	0	1	2	42	30	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1	0	0	44	30	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	4.0			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	5.0			5.0	5.0	
Two way Left Turn Lane						
Headway Factor	1.16	1.16	1.16	1.16	1.16	1.16
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 18.2%		ICU Level of Service A	
Analysis Period (min) 15			



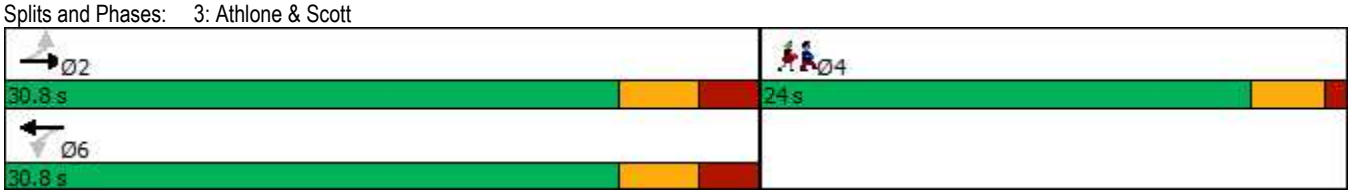
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	420	8	20	553	0	0	0	0	0	0	0
Future Volume (vph)	8	420	8	20	553	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00							
Frt		0.998										
Flt Protected		0.999			0.998							
Satd. Flow (prot)	0	1624	0	0	1656	0	0	0	0	0	0	0
Flt Permitted		0.991			0.981							
Satd. Flow (perm)	0	1609	0	0	1627	0	0	0	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2										
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		108.8			84.2			62.0			54.4	
Travel Time (s)		7.8			6.1			4.5			3.9	
Confl. Peds. (#/hr)	140		20	20		140	90		10	10		90
Confl. Bikes (#/hr)			5			25			5			
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 (%)	100%	2%	1%	1%	2%	100%	1%	100%	1%	100%	100%	100%
Adj. Flow (vph)	8	420	8	20	553	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	436	0	0	573	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			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	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2							
Detector Template	Left	Thru		Left	Thru							
Leading Detector (m)	6.1	30.5		6.1	30.5							
Trailing Detector (m)	0.0	0.0		0.0	0.0							
Detector 1 Position(m)	0.0	0.0		0.0	0.0							
Detector 1 Size(m)	6.1	1.8		6.1	1.8							
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex							
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0							
Detector 1 Queue (s)	0.0	0.0		0.0	0.0							
Detector 1 Delay (s)	0.0	0.0		0.0	0.0							
Detector 2 Position(m)		28.7			28.7							
Detector 2 Size(m)		1.8			1.8							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	Perm	NA		Perm	NA							
Protected Phases		2			6							
Permitted Phases	2			6								
Detector Phase	2	2		6	6							
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0							
Minimum Split (s)	15.8	15.8		15.8	15.8							

Lane Group	Ø4
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/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	4
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	20.0
Minimum Split (s)	24.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (s)	30.8	30.8		30.8	30.8							
Total Split (%)	56.2%	56.2%		56.2%	56.2%							
Maximum Green (s)	25.0	25.0		25.0	25.0							
Yellow Time (s)	3.3	3.3		3.3	3.3							
All-Red Time (s)	2.5	2.5		2.5	2.5							
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		5.8			5.8							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0							
Recall Mode	Max	Max		Max	Max							
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		44.8			44.8							
Actuated g/C Ratio		0.74			0.74							
v/c Ratio		0.36			0.47							
Control Delay		8.0			9.4							
Queue Delay		0.0			0.7							
Total Delay		8.0			10.1							
LOS		A			B							
Approach Delay		8.0			10.1							
Approach LOS		A			B							
Queue Length 50th (m)		27.6			41.1							
Queue Length 95th (m)		45.9			67.8							
Internal Link Dist (m)		84.8			60.2			38.0			30.4	
Turn Bay Length (m)												
Base Capacity (vph)		1197			1210							
Starvation Cap Reductn		0			312							
Spillback Cap Reductn		0			0							
Storage Cap Reductn		0			0							
Reduced v/c Ratio		0.36			0.64							

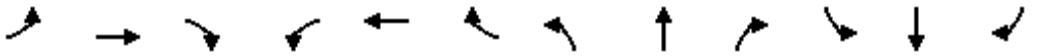
Intersection Summary			
Area Type:	CBD		
Cycle Length: 54.8			
Actuated Cycle Length: 60.2			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.47			
Intersection Signal Delay: 9.2		Intersection LOS: A	
Intersection Capacity Utilization 51.4%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 3: Athlone & Scott



Lane Group	Ø4
Total Split (s)	24.0
Total Split (%)	44%
Maximum Green (s)	20.0
Yellow Time (s)	3.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	100
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)	0	425	7	14	473	5	0	0	0	0	0	0
Future Volume (vph)	0	425	7	14	473	5	0	0	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00							
Frt		0.998			0.999							
Flt Protected					0.999							
Satd. Flow (prot)	0	1670	0	0	1620	0	0	0	0	0	0	0
Flt Permitted					0.986							
Satd. Flow (perm)	0	1670	0	0	1598	0	0	0	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			1							
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		84.2			67.4			275.0			51.7	
Travel Time (s)		6.1			4.9			19.8			3.7	
Confl. Peds. (#/hr)	240		30	30		240	10		200	200		10
Confl. Bikes (#/hr)			5			20			5			
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 (%)	100%	1%	1%	1%	3%	100%	1%	1%	1%	100%	100%	100%
Adj. Flow (vph)	0	425	7	14	473	5	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	432	0	0	492	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			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	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2							
Detector Template	Left	Thru		Left	Thru							
Leading Detector (m)	6.1	30.5		6.1	30.5							
Trailing Detector (m)	0.0	0.0		0.0	0.0							
Detector 1 Position(m)	0.0	0.0		0.0	0.0							
Detector 1 Size(m)	6.1	1.8		6.1	1.8							
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex							
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0							
Detector 1 Queue (s)	0.0	0.0		0.0	0.0							
Detector 1 Delay (s)	0.0	0.0		0.0	0.0							
Detector 2 Position(m)		28.7			28.7							
Detector 2 Size(m)		1.8			1.8							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA		Perm	NA							
Protected Phases		2			6							
Permitted Phases	2			6								
Detector Phase	2	2		6	6							
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0							
Minimum Split (s)	15.8	15.8		15.8	15.8							

Lane Group	Ø4
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/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	4
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	10.0
Minimum Split (s)	22.0

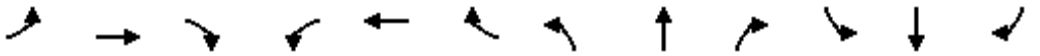
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (s)	28.0	28.0		28.0	28.0							
Total Split (%)	56.0%	56.0%		56.0%	56.0%							
Maximum Green (s)	22.2	22.2		22.2	22.2							
Yellow Time (s)	3.3	3.3		3.3	3.3							
All-Red Time (s)	2.5	2.5		2.5	2.5							
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		5.8			5.8							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0							
Recall Mode	Max	Max		Max	Max							
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		41.8			41.8							
Actuated g/C Ratio		0.74			0.74							
v/c Ratio		0.35			0.41							
Control Delay		7.4			8.2							
Queue Delay		0.4			0.0							
Total Delay		7.7			8.2							
LOS		A			A							
Approach Delay		7.7			8.2							
Approach LOS		A			A							
Queue Length 50th (m)		24.6			30.0							
Queue Length 95th (m)		41.3			51.1							
Internal Link Dist (m)		60.2			43.4			251.0			27.7	
Turn Bay Length (m)												
Base Capacity (vph)		1242			1188							
Starvation Cap Reductn		360			0							
Spillback Cap Reductn		0			0							
Storage Cap Reductn		0			0							
Reduced v/c Ratio		0.49			0.41							

Intersection Summary			
Area Type:	CBD		
Cycle Length: 50			
Actuated Cycle Length: 56.2			
Natural Cycle: 55			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.41			
Intersection Signal Delay: 8.0		Intersection LOS: A	
Intersection Capacity Utilization 47.7%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 4: Tweedsmuir & Scott

Lane Group	Ø4
Total Split (s)	22.0
Total Split (%)	44%
Maximum Green (s)	18.0
Yellow Time (s)	3.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	100
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

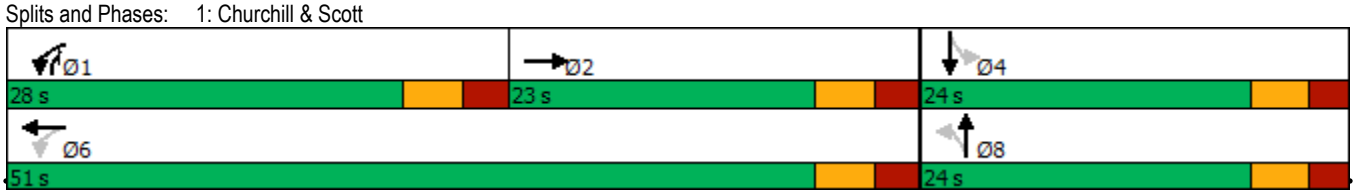


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	10	13	244	3	16	13	98	381	55	199	2
Future Volume (vph)	0	10	13	244	3	16	13	98	381	55	199	2
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		40.0	0.0		0.0
Storage Lanes	0		0	1		0	0		1	0		0
Taper Length (m)	10.0			30.0			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		0.94		0.96	0.90			0.99			0.99	
Frt		0.924			0.874				0.850		0.999	
Flt Protected				0.950				0.994			0.989	
Satd. Flow (prot)	0	1369	0	1461	1181	0	0	1624	1383	0	1630	0
Flt Permitted				0.507				0.954			0.900	
Satd. Flow (perm)	0	1369	0	752	1181	0	0	1549	1383	0	1472	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		77.3			83.9			315.3			273.6	
Travel Time (s)		5.6			6.0			22.7			19.7	
Confl. Peds. (#/hr)	40		20	20		40	40		20	20		40
Confl. Bikes (#/hr)			30			20			30			20
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%	15%	1%	10%	1%	15%	8%	3%	4%	4%	2%	1%
Adj. Flow (vph)	0	10	13	244	3	16	13	98	381	55	199	2
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	23	0	244	19	0	0	111	381	0	256	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	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors		2		1	2		1	2	1	1	2	
Detector Template		Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)		30.5		6.1	30.5		6.1	30.5	6.1	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)		1.8		6.1	1.8		6.1	1.8	6.1	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		NA		pm+pt	NA		Perm	NA	Over	Perm	NA	
Protected Phases		2		1	6			8	1		4	
Permitted Phases				6			8			4		
Detector Phase		2		1	6		8	8	1	4	4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)		10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)		22.9		15.9	22.9		23.6	23.6	15.9	21.6	21.6	
Total Split (s)		23.0		28.0	51.0		24.0	24.0	28.0	24.0	24.0	
Total Split (%)		30.7%		37.3%	68.0%		32.0%	32.0%	37.3%	32.0%	32.0%	
Maximum Green (s)		17.1		22.1	45.1		18.4	18.4	22.1	18.4	18.4	
Yellow Time (s)		3.3		3.3	3.3		3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)		2.6		2.6	2.6		2.3	2.3	2.6	2.3	2.3	
Lost Time Adjust (s)		0.0		0.0	0.0			0.0	0.0		0.0	
Total Lost Time (s)		5.9		5.9	5.9			5.6	5.9		5.6	
Lead/Lag		Lag		Lead					Lead			
Lead-Lag Optimize?		Yes		Yes					Yes			
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode		Min		None	Min		Min	Min	None	Min	Min	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		10.0			10.0		11.0	11.0		9.0	9.0	
Pedestrian Calls (#/hr)		40			40		40	40		40	40	
Act Effct Green (s)		12.6		40.0	40.0			15.4	21.4		15.4	
Actuated g/C Ratio		0.19		0.60	0.60			0.23	0.32		0.23	
v/c Ratio		0.09		0.36	0.03			0.31	0.86		0.76	
Control Delay		24.2		8.7	6.3			25.0	45.6		40.8	
Queue Delay		0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay		24.2		8.7	6.3			25.0	45.6		40.8	
LOS		C		A	A			C	D		D	
Approach Delay		24.2			8.5			41.0			40.8	
Approach LOS		C			A			D			D	
Queue Length 50th (m)		2.3		12.7	0.8			10.1	39.2		26.2	
Queue Length 95th (m)		7.5		23.9	3.1			23.6	#93.8		#58.8	
Internal Link Dist (m)		53.3			59.9			291.3			249.6	
Turn Bay Length (m)									40.0			
Base Capacity (vph)		353		685	804			430	461		408	
Starvation Cap Reductn		0		0	0			0	0		0	
Spillback Cap Reductn		0		0	0			0	0		0	
Storage Cap Reductn		0		0	0			0	0		0	
Reduced v/c Ratio		0.07		0.36	0.02			0.26	0.83		0.63	

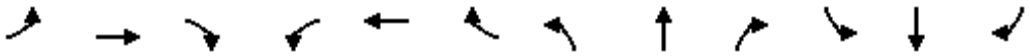
Intersection Summary			
Area Type:	CBD		
Cycle Length: 75			
Actuated Cycle Length: 67.1			
Natural Cycle: 75			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.86			
Intersection Signal Delay: 32.3		Intersection LOS: C	
Intersection Capacity Utilization 71.3%		ICU Level of Service C	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 1: Churchill & Scott



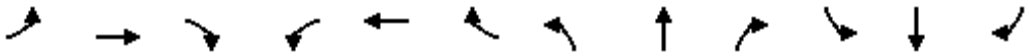
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	430	20	21	243	15	45
Future Volume (vph)	430	20	21	243	15	45
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0	10.0		0.0	0.0
Storage Lanes		0	1		1	0
Taper Length (m)			30.0		10.0	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt	0.994				0.899	
Flt Protected				0.996	0.988	
Satd. Flow (prot)	1614	0	0	2919	1488	0
Flt Permitted				0.996	0.988	
Satd. Flow (perm)	1614	0	0	2919	1488	0
Link Speed (k/h)	50			50	40	
Link Distance (m)	83.9			86.1	233.8	
Travel Time (s)	6.0			6.2	21.0	
Confl. Peds. (#/hr)		10	10			
Confl. Bikes (#/hr)		30				5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	4%	8%	6%	10%	1%	1%
Adj. Flow (vph)	430	20	21	243	15	45
Shared Lane Traffic (%)						
Lane Group Flow (vph)	450	0	0	264	60	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	4.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	5.0			5.0	5.0	
Two way Left Turn Lane						
Headway Factor	1.16	1.16	1.16	1.16	1.16	1.16
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 38.9%		ICU Level of Service A	
Analysis Period (min) 15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	534	7	22	271	6	3	0	28	0	0	0
Future Volume (vph)	11	534	7	22	271	6	3	0	28	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.998			0.997			0.878				
Flt Protected		0.999			0.996			0.995				
Satd. Flow (prot)	0	1619	0	0	1550	0	0	1464	0	0	846	0
Flt Permitted		0.999			0.996			0.995				
Satd. Flow (perm)	0	1619	0	0	1550	0	0	1464	0	0	846	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		108.8			84.2			62.0			54.4	
Travel Time (s)		7.8			6.1			4.5			3.9	
Confl. Peds. (#/hr)	120		20	20		120	70		20	20		70
Confl. Bikes (#/hr)			15			10			5			
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 (%)	100%	2%	20%	1%	7%	100%	1%	100%	1%	100%	100%	100%
Adj. Flow (vph)	11	534	7	22	271	6	3	0	28	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	552	0	0	299	0	0	31	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			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	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 55.8%		ICU Level of Service B	
Analysis Period (min) 15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	540	3	10	273	5	3	0	34	6	0	0
Future Volume (vph)	0	540	3	10	273	5	3	0	34	6	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.999			0.998			0.876				
Flt Protected					0.998			0.996			0.950	
Satd. Flow (prot)	0	1641	0	0	1568	0	0	1462	0	0	804	0
Flt Permitted					0.998			0.996			0.950	
Satd. Flow (perm)	0	1641	0	0	1568	0	0	1462	0	0	804	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		84.2			67.4			275.0			51.7	
Travel Time (s)		6.1			4.9			19.8			3.7	
Confl. Peds. (#/hr)	160		20	20		160	10		130	130		10
Confl. Bikes (#/hr)			10			5						
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 (%)	100%	3%	1%	1%	6%	100%	1%	1%	1%	100%	100%	100%
Adj. Flow (vph)	0	540	3	10	273	5	3	0	34	6	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	543	0	0	288	0	0	37	0	0	6	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			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	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

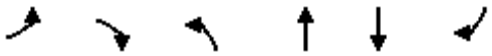
Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 53.5%		ICU Level of Service A	
Analysis Period (min) 15			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	545	35	108	273	14	102
Future Volume (vph)	545	35	108	273	14	102
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.992				0.881	
Flt Protected				0.986	0.994	
Satd. Flow (prot)	1631	0	0	1606	1467	0
Flt Permitted				0.986	0.994	
Satd. Flow (perm)	1631	0	0	1606	1467	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	67.4			200.5	303.1	
Travel Time (s)	4.9			14.4	21.8	
Confl. Peds. (#/hr)		60	60			
Confl. Bikes (#/hr)		10				5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	1%	1%	5%	1%	1%
Adj. Flow (vph)	545	35	108	273	14	102
Shared Lane Traffic (%)						
Lane Group Flow (vph)	580	0	0	381	116	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	4.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	5.0			5.0	5.0	
Two way Left Turn Lane						
Headway Factor	1.16	1.16	1.16	1.16	1.16	1.16
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 78.6%		ICU Level of Service D	
Analysis Period (min) 15			

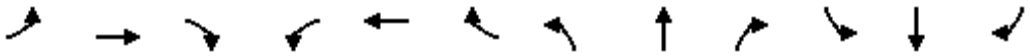
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	530	5	9	278	11	21
Future Volume (vph)	530	5	9	278	11	21
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.999				0.911	
Flt Protected				0.998	0.983	
Satd. Flow (prot)	1626	0	0	1539	1500	0
Flt Permitted				0.998	0.983	
Satd. Flow (perm)	1626	0	0	1539	1500	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	86.1			108.8	89.0	
Travel Time (s)	6.2			7.8	6.4	
Confl. Peds. (#/hr)		20	20			
Confl. Bikes (#/hr)		30				5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	4%	1%	1%	10%	1%	1%
Adj. Flow (vph)	530	5	9	278	11	21
Shared Lane Traffic (%)						
Lane Group Flow (vph)	535	0	0	287	32	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	1.16	1.16	1.16	1.16	1.16	1.16
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization	43.1%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	3	2	31	31	0
Future Volume (vph)	0	3	2	31	31	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.865				
Flt Protected				0.997		
Satd. Flow (prot)	0	1449	0	1655	1659	0
Flt Permitted				0.997		
Satd. Flow (perm)	0	1449	0	1655	1659	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	66.2			194.5	62.0	
Travel Time (s)	4.8			14.0	4.5	
Confl. Peds. (#/hr)			20			20
Confl. Bikes (#/hr)		5				5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	1%	1%	2%	2%	1%
Adj. Flow (vph)	0	3	2	31	31	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	3	0	33	31	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	5.0			5.0	5.0	
Two way Left Turn Lane						
Headway Factor	1.16	1.16	1.16	1.16	1.16	1.16
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 18.2%		ICU Level of Service A	
Analysis Period (min) 15			



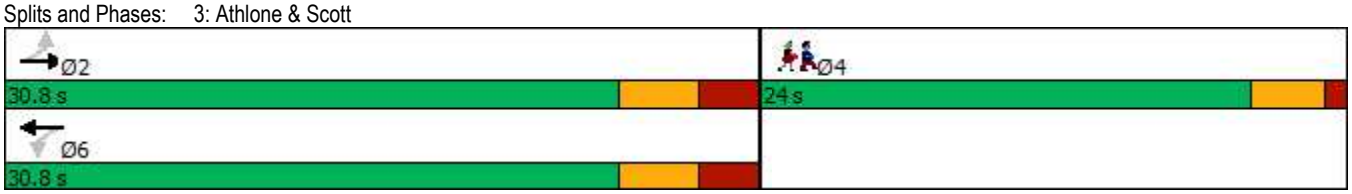
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	533	7	22	271	6	0	0	0	0	0	0
Future Volume (vph)	11	533	7	22	271	6	0	0	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00							
Frt		0.998			0.997							
Flt Protected		0.999			0.996							
Satd. Flow (prot)	0	1618	0	0	1545	0	0	0	0	0	0	0
Flt Permitted		0.993			0.952							
Satd. Flow (perm)	0	1606	0	0	1476	0	0	0	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			2							
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		108.8			84.2			62.0			54.4	
Travel Time (s)		7.8			6.1			4.5			3.9	
Confl. Peds. (#/hr)	120		20	20		120	70		20	20		70
Confl. Bikes (#/hr)			15			10			5			
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 (%)	100%	2%	20%	1%	7%	100%	1%	100%	1%	100%	100%	100%
Adj. Flow (vph)	11	533	7	22	271	6	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	551	0	0	299	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			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	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2							
Detector Template	Left	Thru		Left	Thru							
Leading Detector (m)	6.1	30.5		6.1	30.5							
Trailing Detector (m)	0.0	0.0		0.0	0.0							
Detector 1 Position(m)	0.0	0.0		0.0	0.0							
Detector 1 Size(m)	6.1	1.8		6.1	1.8							
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex							
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0							
Detector 1 Queue (s)	0.0	0.0		0.0	0.0							
Detector 1 Delay (s)	0.0	0.0		0.0	0.0							
Detector 2 Position(m)		28.7			28.7							
Detector 2 Size(m)		1.8			1.8							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	Perm	NA		Perm	NA							
Protected Phases		2			6							
Permitted Phases	2			6								
Detector Phase	2	2		6	6							
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0							
Minimum Split (s)	15.8	15.8		15.8	15.8							

Lane Group	Ø4
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/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	4
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	20.0
Minimum Split (s)	24.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (s)	30.8	30.8		30.8	30.8							
Total Split (%)	56.2%	56.2%		56.2%	56.2%							
Maximum Green (s)	25.0	25.0		25.0	25.0							
Yellow Time (s)	3.3	3.3		3.3	3.3							
All-Red Time (s)	2.5	2.5		2.5	2.5							
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		5.8			5.8							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0							
Recall Mode	Max	Max		Max	Max							
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		44.8			44.8							
Actuated g/C Ratio		0.74			0.74							
v/c Ratio		0.46			0.27							
Control Delay		9.2			7.3							
Queue Delay		0.0			0.3							
Total Delay		9.2			7.5							
LOS		A			A							
Approach Delay		9.2			7.5							
Approach LOS		A			A							
Queue Length 50th (m)		38.7			17.3							
Queue Length 95th (m)		64.3			30.1							
Internal Link Dist (m)		84.8			60.2			38.0			30.4	
Turn Bay Length (m)												
Base Capacity (vph)		1195			1098							
Starvation Cap Reductn		0			330							
Spillback Cap Reductn		0			0							
Storage Cap Reductn		0			0							
Reduced v/c Ratio		0.46			0.39							

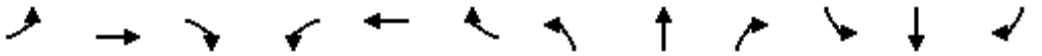
Intersection Summary			
Area Type:	CBD		
Cycle Length: 54.8			
Actuated Cycle Length: 60.2			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.46			
Intersection Signal Delay: 8.6		Intersection LOS: A	
Intersection Capacity Utilization 41.6%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 3: Athlone & Scott



Lane Group	Ø4
Total Split (s)	24.0
Total Split (%)	44%
Maximum Green (s)	20.0
Yellow Time (s)	3.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	100
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)	0	540	3	10	273	5	0	0	0	0	0	0
Future Volume (vph)	0	540	3	10	273	5	0	0	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00							
Frt		0.999			0.998							
Flt Protected					0.998							
Satd. Flow (prot)	0	1641	0	0	1563	0	0	0	0	0	0	0
Flt Permitted					0.982							
Satd. Flow (perm)	0	1641	0	0	1537	0	0	0	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			2							
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		84.2			67.4			275.0			51.7	
Travel Time (s)		6.1			4.9			19.8			3.7	
Confl. Peds. (#/hr)	160		20	20		160	10		130	130		10
Confl. Bikes (#/hr)			10			5						
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 (%)	100%	3%	1%	1%	6%	100%	1%	1%	1%	100%	100%	100%
Adj. Flow (vph)	0	540	3	10	273	5	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	543	0	0	288	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			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	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2							
Detector Template	Left	Thru		Left	Thru							
Leading Detector (m)	6.1	30.5		6.1	30.5							
Trailing Detector (m)	0.0	0.0		0.0	0.0							
Detector 1 Position(m)	0.0	0.0		0.0	0.0							
Detector 1 Size(m)	6.1	1.8		6.1	1.8							
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex							
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0							
Detector 1 Queue (s)	0.0	0.0		0.0	0.0							
Detector 1 Delay (s)	0.0	0.0		0.0	0.0							
Detector 2 Position(m)		28.7			28.7							
Detector 2 Size(m)		1.8			1.8							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA		Perm	NA							
Protected Phases		2			6							
Permitted Phases	2			6								
Detector Phase	2	2		6	6							
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0							
Minimum Split (s)	15.8	15.8		15.8	15.8							

Lane Group	Ø4
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/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	4
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	10.0
Minimum Split (s)	22.0

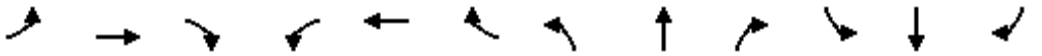
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (s)	28.0	28.0		28.0	28.0							
Total Split (%)	56.0%	56.0%		56.0%	56.0%							
Maximum Green (s)	22.2	22.2		22.2	22.2							
Yellow Time (s)	3.3	3.3		3.3	3.3							
All-Red Time (s)	2.5	2.5		2.5	2.5							
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		5.8			5.8							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0							
Recall Mode	Max	Max		Max	Max							
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		41.8			41.8							
Actuated g/C Ratio		0.74			0.74							
v/c Ratio		0.45			0.25							
Control Delay		8.5			6.7							
Queue Delay		0.5			0.0							
Total Delay		9.0			6.7							
LOS		A			A							
Approach Delay		9.0			6.7							
Approach LOS		A			A							
Queue Length 50th (m)		34.3			14.9							
Queue Length 95th (m)		57.8			26.6							
Internal Link Dist (m)		60.2			43.4			251.0			27.7	
Turn Bay Length (m)												
Base Capacity (vph)		1220			1143							
Starvation Cap Reductn		308			0							
Spillback Cap Reductn		0			0							
Storage Cap Reductn		0			0							
Reduced v/c Ratio		0.60			0.25							

Intersection Summary			
Area Type:	CBD		
Cycle Length: 50			
Actuated Cycle Length: 56.2			
Natural Cycle: 55			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.45			
Intersection Signal Delay: 8.2		Intersection LOS: A	
Intersection Capacity Utilization 38.4%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 4: Tweedsmuir & Scott

Lane Group	Ø4
Total Split (s)	22.0
Total Split (%)	44%
Maximum Green (s)	18.0
Yellow Time (s)	3.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	100
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)	0	8	11	316	8	42	18	149	244	37	118	3
Future Volume (vph)	0	8	11	316	8	42	18	149	244	37	118	3
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		40.0	0.0		0.0
Storage Lanes	0		0	1		0	0		1	0		0
Taper Length (m)	10.0			10.0			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		0.96		0.97	0.87			0.99			0.99	
Frt		0.922			0.874				0.850		0.997	
Flt Protected				0.950				0.995			0.988	
Satd. Flow (prot)	0	1476	0	1576	1192	0	0	1660	1410	0	1620	0
Flt Permitted				0.509				0.953			0.885	
Satd. Flow (perm)	0	1476	0	818	1192	0	0	1579	1410	0	1441	0
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		77.3			83.9			315.3			273.6	
Travel Time (s)		5.6			6.0			22.7			19.7	
Confl. Peds. (#/hr)	50		20	20		50	40		20	20		40
Confl. Bikes (#/hr)			15			70			25			30
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	1%	1%	2%	1%	9%	5%	1%	2%	8%	1%	1%
Adj. Flow (vph)	0	8	11	316	8	42	18	149	244	37	118	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	19	0	316	50	0	0	167	244	0	158	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	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors		2		1	2		1	2	1	1	2	
Detector Template		Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (m)		30.5		6.1	30.5		6.1	30.5	6.1	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)		1.8		6.1	1.8		6.1	1.8	6.1	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		NA		pm+pt	NA		Perm	NA	Over	Perm	NA	
Protected Phases		2		1	6			8	1		4	
Permitted Phases				6			8			4		
Detector Phase		2		1	6		8	8	1	4	4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)		10.0		10.0	10.0		10.0	10.0	10.0	10.0	10.0	
Minimum Split (s)		22.9		15.9	22.9		23.6	23.6	15.9	21.6	21.6	
Total Split (s)		24.0		17.0	41.0		24.0	24.0	17.0	24.0	24.0	
Total Split (%)		36.9%		26.2%	63.1%		36.9%	36.9%	26.2%	36.9%	36.9%	
Maximum Green (s)		18.1		11.1	35.1		18.4	18.4	11.1	18.4	18.4	
Yellow Time (s)		3.3		3.3	3.3		3.3	3.3	3.3	3.3	3.3	
All-Red Time (s)		2.6		2.6	2.6		2.3	2.3	2.6	2.3	2.3	
Lost Time Adjust (s)		0.0		0.0	0.0			0.0	0.0		0.0	
Total Lost Time (s)		5.9		5.9	5.9			5.6	5.9		5.6	
Lead/Lag		Lag		Lead					Lead			
Lead-Lag Optimize?		Yes		Yes					Yes			
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode		Min		Min	Min		Min	Min	Min	Min	Min	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		10.0			10.0		11.0	11.0		9.0	9.0	
Pedestrian Calls (#/hr)		40			40		40	40		40	40	
Act Effct Green (s)		12.6		29.9	29.9			13.0	11.3		13.0	
Actuated g/C Ratio		0.23		0.55	0.55			0.24	0.21		0.24	
v/c Ratio		0.06		0.52	0.08			0.44	0.84		0.46	
Control Delay		17.6		11.2	7.1			22.2	52.3		23.0	
Queue Delay		0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay		17.6		11.2	7.1			22.2	52.3		23.0	
LOS		B		B	A			C	D		C	
Approach Delay		17.6			10.6			40.1			23.0	
Approach LOS		B			B			D			C	
Queue Length 50th (m)		1.2		12.2	1.6			11.8	18.3		11.2	
Queue Length 95th (m)		5.4		31.8	6.3			27.8	#62.5		27.1	
Internal Link Dist (m)		53.3			59.9			291.3			249.6	
Turn Bay Length (m)									40.0			
Base Capacity (vph)		497		604	779			541	291		494	
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		0.52	0.06			0.31	0.84		0.32	

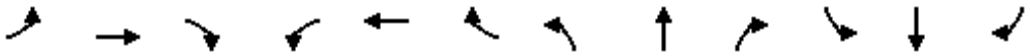
Intersection Summary

Area Type: CBD
Cycle Length: 65
Actuated Cycle Length: 54.6
Natural Cycle: 65
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 25.5 Intersection LOS: C
Intersection Capacity Utilization 66.5% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Churchill & Scott

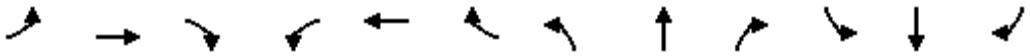
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	360	16	49	448	10	46
Future Volume (vph)	360	16	49	448	10	46
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Storage Length (m)		0.0	10.0		0.0	0.0
Storage Lanes		0	1		1	0
Taper Length (m)			30.0		10.0	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00
Ped Bike Factor						
Frt	0.994				0.889	
Flt Protected				0.995	0.991	
Satd. Flow (prot)	1634	0	0	3112	1476	0
Flt Permitted				0.995	0.991	
Satd. Flow (perm)	1634	0	0	3112	1476	0
Link Speed (k/h)	50			50	40	
Link Distance (m)	83.9			86.1	233.8	
Travel Time (s)	6.0			6.2	21.0	
Confl. Peds. (#/hr)		20	20			
Confl. Bikes (#/hr)		10				5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	1%	1%	3%	1%	1%
Adj. Flow (vph)	360	16	49	448	10	46
Shared Lane Traffic (%)						
Lane Group Flow (vph)	376	0	0	497	56	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	4.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	5.0			5.0	5.0	
Two way Left Turn Lane						
Headway Factor	1.16	1.16	1.16	1.16	1.16	1.16
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 53.6%		ICU Level of Service A	
Analysis Period (min) 15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	425	8	20	560	0	1	0	38	0	0	0
Future Volume (vph)	8	425	8	20	560	0	1	0	38	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.998						0.868				
Flt Protected		0.999			0.998			0.999				
Satd. Flow (prot)	0	1626	0	0	1656	0	0	1453	0	0	846	0
Flt Permitted		0.999			0.998			0.999				
Satd. Flow (perm)	0	1626	0	0	1656	0	0	1453	0	0	846	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		108.8			84.2			62.0			54.4	
Travel Time (s)		7.8			6.1			4.5			3.9	
Confl. Peds. (#/hr)	140		20	20		140	90		10	10		90
Confl. Bikes (#/hr)			5			25			5			
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 (%)	100%	2%	1%	1%	2%	100%	1%	100%	1%	100%	100%	100%
Adj. Flow (vph)	8	425	8	20	560	0	1	0	38	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	441	0	0	580	0	0	39	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			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	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 66.5%		ICU Level of Service C	
Analysis Period (min) 15			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	430	7	14	480	5	10	0	30	5	0	1
Future Volume (vph)	0	430	7	14	480	5	10	0	30	5	0	1
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.998			0.999			0.899			0.977	
Flt Protected					0.999			0.988			0.960	
Satd. Flow (prot)	0	1672	0	0	1625	0	0	1488	0	0	793	0
Flt Permitted					0.999			0.988			0.960	
Satd. Flow (perm)	0	1672	0	0	1625	0	0	1488	0	0	793	0
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		84.2			67.4			275.0			51.7	
Travel Time (s)		6.1			4.9			19.8			3.7	
Confl. Peds. (#/hr)	240		30	30		240	10		200	200		10
Confl. Bikes (#/hr)			5			20			5			
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 (%)	100%	1%	1%	1%	3%	100%	1%	1%	1%	100%	100%	100%
Adj. Flow (vph)	0	430	7	14	480	5	10	0	30	5	0	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	437	0	0	499	0	0	40	0	0	6	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			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	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

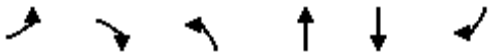
Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 63.3%		ICU Level of Service B	
Analysis Period (min) 15			

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	424	42	122	461	35	186
Future Volume (vph)	424	42	122	461	35	186
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.988				0.886	
Flt Protected				0.990	0.992	
Satd. Flow (prot)	1640	0	0	1646	1472	0
Flt Permitted				0.990	0.992	
Satd. Flow (perm)	1640	0	0	1646	1472	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	67.4			200.5	303.1	
Travel Time (s)	4.9			14.4	21.8	
Confl. Peds. (#/hr)		60	60			
Confl. Bikes (#/hr)		10				10
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	2%	1%	1%	2%	1%	1%
Adj. Flow (vph)	424	42	122	461	35	186
Shared Lane Traffic (%)						
Lane Group Flow (vph)	466	0	0	583	221	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	0.0			0.0	4.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	5.0			5.0	5.0	
Two way Left Turn Lane						
Headway Factor	1.16	1.16	1.16	1.16	1.16	1.16
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization	91.7%	ICU Level of Service	F
Analysis Period (min)	15		

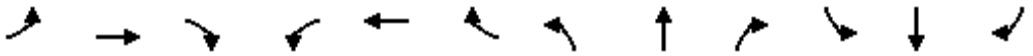
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	441	9	18	557	6	14
Future Volume (vph)	441	9	18	557	6	14
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.997				0.905	
Flt Protected				0.998	0.985	
Satd. Flow (prot)	1638	0	0	1640	1493	0
Flt Permitted				0.998	0.985	
Satd. Flow (perm)	1638	0	0	1640	1493	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	86.1			108.8	89.0	
Travel Time (s)	6.2			7.8	6.4	
Confl. Peds. (#/hr)		20	20			
Confl. Bikes (#/hr)		10				5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	3%	1%	1%	3%	1%	1%
Adj. Flow (vph)	441	9	18	557	6	14
Shared Lane Traffic (%)						
Lane Group Flow (vph)	450	0	0	575	20	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	1.16	1.16	1.16	1.16	1.16	1.16
Turning Speed (k/h)		14	24		24	14
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 61.4%		ICU Level of Service B	
Analysis Period (min) 15			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	2	3	42	30	0
Future Volume (vph)	0	2	3	42	30	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.865					
Flt Protected				0.997		
Satd. Flow (prot)	1449	0	0	1670	1675	0
Flt Permitted				0.997		
Satd. Flow (perm)	1449	0	0	1670	1675	0
Link Speed (k/h)	50			50	50	
Link Distance (m)	88.7			189.7	62.0	
Travel Time (s)	6.4			13.7	4.5	
Confl. Peds. (#/hr)			20			20
Confl. Bikes (#/hr)		5				5
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	0	2	3	42	30	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2	0	0	45	30	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(m)	4.0			0.0	0.0	
Link Offset(m)	0.0			0.0	0.0	
Crosswalk Width(m)	5.0			5.0	5.0	
Two way Left Turn Lane						
Headway Factor	1.16	1.16	1.16	1.16	1.16	1.16
Turning Speed (k/h)	24	14	24			14
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 18.2%		ICU Level of Service A	
Analysis Period (min) 15			



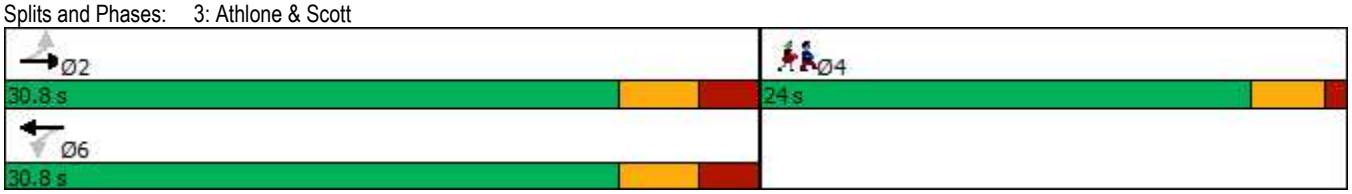
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	425	8	20	560	0	0	0	0	0	0	0
Future Volume (vph)	8	425	8	20	560	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00							
Frt		0.998										
Flt Protected		0.999			0.998							
Satd. Flow (prot)	0	1624	0	0	1656	0	0	0	0	0	0	0
Flt Permitted		0.991			0.981							
Satd. Flow (perm)	0	1610	0	0	1627	0	0	0	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2										
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		108.8			84.2			62.0			54.4	
Travel Time (s)		7.8			6.1			4.5			3.9	
Confl. Peds. (#/hr)	140		20	20		140	90		10	10		90
Confl. Bikes (#/hr)			5			25			5			
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 (%)	100%	2%	1%	1%	2%	100%	1%	100%	1%	100%	100%	100%
Adj. Flow (vph)	8	425	8	20	560	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	441	0	0	580	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			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	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2							
Detector Template	Left	Thru		Left	Thru							
Leading Detector (m)	6.1	30.5		6.1	30.5							
Trailing Detector (m)	0.0	0.0		0.0	0.0							
Detector 1 Position(m)	0.0	0.0		0.0	0.0							
Detector 1 Size(m)	6.1	1.8		6.1	1.8							
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex							
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0							
Detector 1 Queue (s)	0.0	0.0		0.0	0.0							
Detector 1 Delay (s)	0.0	0.0		0.0	0.0							
Detector 2 Position(m)		28.7			28.7							
Detector 2 Size(m)		1.8			1.8							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type	Perm	NA		Perm	NA							
Protected Phases		2			6							
Permitted Phases	2			6								
Detector Phase	2	2		6	6							
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0							
Minimum Split (s)	15.8	15.8		15.8	15.8							

Lane Group	Ø4
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/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	4
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	20.0
Minimum Split (s)	24.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (s)	30.8	30.8		30.8	30.8							
Total Split (%)	56.2%	56.2%		56.2%	56.2%							
Maximum Green (s)	25.0	25.0		25.0	25.0							
Yellow Time (s)	3.3	3.3		3.3	3.3							
All-Red Time (s)	2.5	2.5		2.5	2.5							
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		5.8			5.8							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0							
Recall Mode	Max	Max		Max	Max							
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		44.8			44.8							
Actuated g/C Ratio		0.74			0.74							
v/c Ratio		0.37			0.48							
Control Delay		8.0			9.5							
Queue Delay		0.0			0.7							
Total Delay		8.0			10.2							
LOS		A			B							
Approach Delay		8.0			10.2							
Approach LOS		A			B							
Queue Length 50th (m)		28.0			41.8							
Queue Length 95th (m)		46.6			69.3							
Internal Link Dist (m)		84.8			60.2			38.0			30.4	
Turn Bay Length (m)												
Base Capacity (vph)		1198			1210							
Starvation Cap Reductn		0			310							
Spillback Cap Reductn		0			0							
Storage Cap Reductn		0			0							
Reduced v/c Ratio		0.37			0.64							

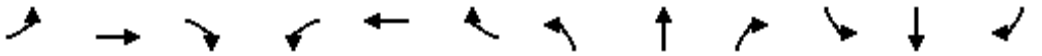
Intersection Summary			
Area Type:	CBD		
Cycle Length: 54.8			
Actuated Cycle Length: 60.2			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.48			
Intersection Signal Delay: 9.2		Intersection LOS: A	
Intersection Capacity Utilization 51.9%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 3: Athlone & Scott



Lane Group	Ø4
Total Split (s)	24.0
Total Split (%)	44%
Maximum Green (s)	20.0
Yellow Time (s)	3.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	100
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)	0	430	7	14	480	5	0	0	0	0	0	0
Future Volume (vph)	0	430	7	14	480	5	0	0	0	0	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			1.00							
Frt		0.998			0.999							
Flt Protected					0.999							
Satd. Flow (prot)	0	1670	0	0	1620	0	0	0	0	0	0	0
Flt Permitted					0.986							
Satd. Flow (perm)	0	1670	0	0	1598	0	0	0	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			1							
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		84.2			67.4			275.0			51.7	
Travel Time (s)		6.1			4.9			19.8			3.7	
Confl. Peds. (#/hr)	240		30	30		240	10		200	200		10
Confl. Bikes (#/hr)			5			20			5			
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 (%)	100%	1%	1%	1%	3%	100%	1%	1%	1%	100%	100%	100%
Adj. Flow (vph)	0	430	7	14	480	5	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	437	0	0	499	0	0	0	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			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	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Number of Detectors	1	2		1	2							
Detector Template	Left	Thru		Left	Thru							
Leading Detector (m)	6.1	30.5		6.1	30.5							
Trailing Detector (m)	0.0	0.0		0.0	0.0							
Detector 1 Position(m)	0.0	0.0		0.0	0.0							
Detector 1 Size(m)	6.1	1.8		6.1	1.8							
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex							
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0							
Detector 1 Queue (s)	0.0	0.0		0.0	0.0							
Detector 1 Delay (s)	0.0	0.0		0.0	0.0							
Detector 2 Position(m)		28.7			28.7							
Detector 2 Size(m)		1.8			1.8							
Detector 2 Type		Cl+Ex			Cl+Ex							
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0							
Turn Type		NA		Perm	NA							
Protected Phases		2			6							
Permitted Phases	2			6								
Detector Phase	2	2		6	6							
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0							
Minimum Split (s)	15.8	15.8		15.8	15.8							

Lane Group	Ø4
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/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	4
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	10.0
Minimum Split (s)	22.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (s)	28.0	28.0		28.0	28.0							
Total Split (%)	56.0%	56.0%		56.0%	56.0%							
Maximum Green (s)	22.2	22.2		22.2	22.2							
Yellow Time (s)	3.3	3.3		3.3	3.3							
All-Red Time (s)	2.5	2.5		2.5	2.5							
Lost Time Adjust (s)		0.0			0.0							
Total Lost Time (s)		5.8			5.8							
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0							
Recall Mode	Max	Max		Max	Max							
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)		41.8			41.8							
Actuated g/C Ratio		0.74			0.74							
v/c Ratio		0.35			0.42							
Control Delay		7.4			8.3							
Queue Delay		0.4			0.0							
Total Delay		7.8			8.3							
LOS		A			A							
Approach Delay		7.8			8.3							
Approach LOS		A			A							
Queue Length 50th (m)		25.0			30.7							
Queue Length 95th (m)		42.2			52.0							
Internal Link Dist (m)		60.2			43.4			251.0			27.7	
Turn Bay Length (m)												
Base Capacity (vph)		1242			1188							
Starvation Cap Reductn		358			0							
Spillback Cap Reductn		0			0							
Storage Cap Reductn		0			0							
Reduced v/c Ratio		0.49			0.42							

Intersection Summary			
Area Type:	CBD		
Cycle Length: 50			
Actuated Cycle Length: 56.2			
Natural Cycle: 55			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.42			
Intersection Signal Delay: 8.0		Intersection LOS: A	
Intersection Capacity Utilization 48.1%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 4: Tweedsmuir & Scott

Lane Group	Ø4
Total Split (s)	22.0
Total Split (%)	44%
Maximum Green (s)	18.0
Yellow Time (s)	3.0
All-Red Time (s)	1.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	11.0
Pedestrian Calls (#/hr)	100
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